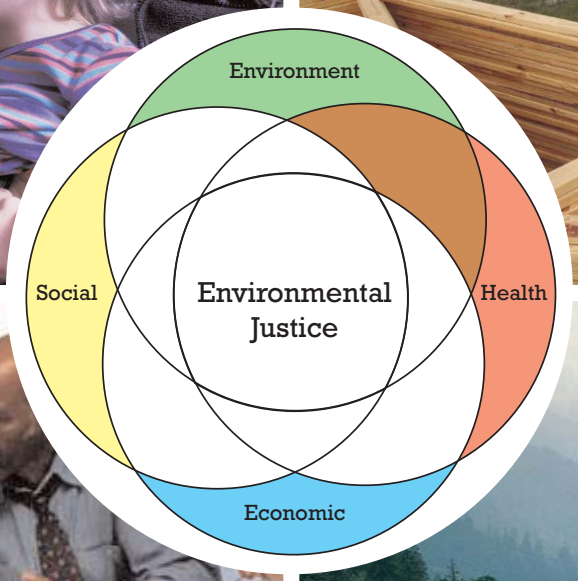
Toolkit for Assessing Potential Allegations of Environmental Injustice



United States Environmental Protection Agency

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Office of Environmental Justice

FOR ADDITIONAL COPIES CONTACT
Office of Environmental Justice
1-800-962-6215
or send an e-mail to
environmental-justice-epa@epa.gov

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PREFACE

The mission of the U.S. Environmental Protection Agency (EPA or Agency) is to protect public health and safeguard the natural environment – the air, land, and water – upon which *all* life depends. One of the single most important concerns emanating from a contaminated environment is its potential adverse impact on human health and the environment. The Agency is also committed to ensuring that *all* communities are empowered through information dissemination and education to have a better understanding of the environment and the impact that it may have on their health. This empowerment would, in turn, help residents of these communities be meaningfully involved in the decisionmaking processes that directly affect the environment in their communities.

Simply stated, environmental justice is the goal to be achieved for *all* communities so that: (1) people of *all* races, colors, and income levels are treated fairly with respect to the development and enforcement of protective environmental laws, regulations, and policies; and (2) potentially affected community residents are meaningfully involved in the decisions that will affect their environment and/or their health. Conversely, allegations of environmental injustice describe the situations where communities believe that the goal has not been achieved because of their belief that there is disproportionate exposure to environmental harms and risks. These environmental harms and risks often include, for example, multiple sources of air pollution (indoor and outdoor), water quality concerns, and the cumulative impacts associated with living in some urban and rural areas.

Allegations of environmental injustice come in a variety of shapes and sizes. Allegations of environmental injustice include, but are not limited to:

(1) a dispute over the siting of a pollution-generating facility in a community that is already inundated with such facilities;

(2) allegations that government regulators are not enforcing protective environmental laws, regulations, and policies equally;

(3) a dispute over the method of cleanup standards and operations at a contaminated site;

(4) arguments regarding whether the approach to a cleanup/enforcement action should address single versus multiple sources of contamination at a site;

(5) disputes over which segment of the population bears the burden, i.e., the resident population, or the seasonal agricultural workers in the fields, or transients (individuals at shopping centers, or people participating in recreational activities such as a soccer field that is constructed on top of a former landfill); or

(6) the notion of proximity, e.g., the effects of pollution on the proximate community verses the adverse health effects on the population affected by off-site operations.

This document is a toolkit, and therefore provides tools for EPA staff to use in assessing the environmental and human health concerns of such communities. It sets forth various research tools and provides a systematic approach for gathering and analyzing data related to environmental, social, economic, and health-related technical information to determine whether or not an environmental injustice situation appears to exist or may be avoided altogether.

This document provides tools and other reference materials to assist Agency personnel in assessing allegations of environmental injustice. The document provides a framework for understanding national policy on the subject of environmental justice.

The federal statutory and regulatory provisions referenced in this document contain legally-binding requirements. This document does not substitute for those provisions, nor is it a regulation itself. Thus, it does not impose any legally-binding requirements on EPA, states, Indian tribes, or the regulated community, nor is it intended to alter EPA's enforcement discretion/response or small business policies. EPA retains the discretion to adopt approaches on a case-by-case basis that differ from this framework, where appropriate. Any decisions made by EPA will be based on the applicable statutes and implementing regulations. Therefore, interested parties are free to raise questions about the provisions of this framework or the appropriateness of applying this approach to a particular situation. EPA will consider whether the approaches discussed in this document are appropriate in each situation that may arise.

This Toolkit is a living document and may be revised periodically without public notice. EPA welcomes public comments on this document at any time and will consider those comments in any future revision of this Toolkit.

We are very pleased to issue the "Toolkit for Assessing Potential Allegations of Environmental Injustice" because we believe that it will enable you to better analyze allegations of environmental injustice, and will also serve as a tool for proactively preventing environmental justice concerns from occurring in the future.

Barry E. Hill
Director
Office of Environmental Justice

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1. INTRODUCTION

1.1 PURPOSE OF THIS TOOLKIT

The Office of Environmental Justice has developed this Toolkit to serve two overarching purposes:

- To provide a conceptual and substantive framework for understanding the Agency's environmental justice program;

- To present a systematic approach with reference tools that can be used and adapted to assess and respond to potential allegations of environmental injustice as they occur, or to prevent injustices from occurring in the first place.

With respect to the first objective, this document provides a *conceptual* framework for understanding environmental justice as both a civil rights issue as well as an environmental policy issue. Within this context, environmental policy regarding environmental justice is needed. The document also provides a *substantive* framework for explaining the environmental justice program in the context of environmental statutes and the Agency's implementing programs and regulations. As will be discussed in more detail in the next chapter, while Executive Order 12898 provides direction for EPA's environmental justice activities, environmental justice is already imbedded in EPA's own mission statement and the language of existing environmental laws and their implementing regulations. Therefore, EPA's regulatory programs should address environmental justice concerns as part of program implementation, where applicable, under existing laws and their implementing regulations and appropriate in a particular circumstance.

The second objective of this Toolkit is to present a systematic approach for responding to potential environmental injustice situations or proactively attempting to avoid environmental injustices in the first place. Specifically, the document presents "Environmental Justice Indicators" as tools that can be used to assess environmental decisions, and then provides a systematic approach for using these tools to assess a potential environmental injustice situation. In many cases, EPA will need to evaluate potential environmental justice concerns in response to proposed Agency actions or decisions. This activity may include reviewing permits, reviewing or preparing National Environmental Policy Act (NEPA) documents, or preparing rules. However, EPA may also conduct an environmental justice assessment as a result of priority setting, enforcement targeting, etc. The general methodology is also intended to be used in assessing both potential impacts from proposed actions and existing impacts. In addition, the document discusses approaches for responding to and resolving apparent environmental injustice situations, even those that center around issues that are usually not considered to be within EPA's regulatory domain.

Because of the infinitely variable nature of environmental justice concerns and stakeholders, as well as the resources available to address any particular situation, this document is not intended to mandate the assessment or actions to be taken in each situation. Rather, it is intended to promote a common understanding and provide a flexible framework for assessing such situations. The decision on whether and how to use the tools and the approach presented in this document will be made on a case-by-case basis.

1.2 INTENDED AUDIENCE AND SCOPE

The core audience for this Toolkit is the Environmental Justice Coordinators at EPA Headquarters and Regional Offices who are directly involved in environmental justice initiatives and are the front-line in addressing allegations of environmental injustice. This document provides tools that Environmental Justice Coordinators can use in addressing a broad spectrum of environmental justice issues raised by a community or other stakeholders. These issues may range from concerns raised by communities about conditions caused by past environmental decisions to determinations of whether future Agency program implementation actions (e.g., rulemaking, permitting decisions, or enforcement actions) will have environmental justice implications. As indicated above, each situation may require a different and unique approach, and the Agency's offices may use their discretion in determining the appropriate method of environmental justice analysis.

Specifically, this Toolkit presents an approach for conducting a preliminary assessment of such allegations. However, this Toolkit is *not* intended for use in reviewing allegations in the context of complaints filed with the Office of Civil Rights (OCR) pursuant to Title VI of the Civil Rights Act of 1964, as amended,[1] and in accordance with EPA's implementing regulations.[2] Title VI provides that: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." OCR's investigation process is discussed by the "Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits" (Draft Revised Investigation Guidance). In addition, OCR offers suggestions to recipients of EPA financial assistance for addressing potential Title VI concerns in the "Draft Title VI Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs" (Draft Recipient Guidance). The Title VI investigation process focuses on whether a recipient of federal financial assistance has conducted its programs in a manner that discriminates or has a discriminatory effect on the basis of race, color, or national origin. Therefore, the Title VI investigation process can be used to address formal complaints concerning a subset of environmental justice situations where complainants believe that an adverse disparate environmental impact has resulted because of race, color, or

[1] 42 U.S.C. 2000d to 2000d-7.

[2] 40 CFR Part 7.

national origin due to the actions of a recipient of EPA financial assistance. On October 30, 1998, EPA issued its first Title VI decision on the merits of a complaint alleging discrimination in the environmental permitting context. The complaint alleged that the issuance of a permit by the Michigan Department of Environmental Quality (MDEQ) for the construction of a steel recycling mini-mill by the Select Steel Corporation of America would lead to the emission of air pollutants that would have a discriminatory effect on minority residents. In addition, the complaint alleged that the permitting process conducted by MDEQ was discriminatory. After investigation, OCR found no violations of Title VI or EPA's implementing regulations.[3]

In assessing the allegation regarding air quality impacts, EPA conducted two types of analyses–one for criteria pollutants and another for air toxic emissions. The National Ambient Air Quality Standards (NAAQS) for criteria pollutants are health-based standards that have been set at a level presumptively sufficient to protect public health with an adequate margin of safety. For volatile organic compounds (VOCs) and lead, before both the NAAQS for ozone and lead were met, and no contradictory evidence was uncovered, EPA found no affected population which suffers adverse impacts within the meaning of Title VI resulting from the incremental emissions from the proposed Select Steel facility. Moreover, for lead, EPA reviewed additional state and county information and concluded that lead emissions from the proposed facility would have at most a de minimis incremental effect on local mean blood lead levels and the incidence of elevated levels.

For air toxics emissions, which do not have a NAAQS, EPA reviewed the state's air toxics analyses. In addition, the Agency also applied a modeling tool developed during the Shintech investigation and modified after Science Advisory Board review to consider the potential Select Steel air toxic emissions together with air toxic emissions from nearby facilities. EPA's review found no adverse impact from air toxics in the immediate vicinity of the proposed facility.

As to the public participation process issues, EPA found that the state satisfied all of its regulatory requirements and that the process was not discriminatory.

It should be noted that the approaches and tools presented in this document are based on existing federal environmental laws administered by EPA. And, as stated in the Preface, EPA will consider whether the approaches discussed in this document are appropriate in each situation that may arise. While there are also significant opportunities for actions to be taken by other federal, state, tribal, and local government agencies, this Toolkit considers only EPA authorities and Agency actions.

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[3] Letter from Ann E. Goode, Director, U.S. EPA Office of Civil Rights, to Father Phil Schmitter & Sister Joanne Chiaverini, Co-Directors, St. Francis Prayer Center, and Russell Harding, Director, Michigan Department of Environmental Quality (Oct. 30, 1998) (dismissing Title VI administrative complaint); *see also,* Office of Civil Rights, U.S. EPA, Investigative Report for Title VI Administrative Complaint File No. 5R-98-R5 (Select Steel Complaint) (1998) (recommending dismissal of complaint). (http://www.epa.gov/ocrpage1/steelcvr.htm)

On a day-to-day basis, program staff have the responsibility to seek ways to integrate environmental justice considerations into EPA's programs, policies, and activities. Therefore, program staff should use the framework presented in this document to promote national consistency in how environmental justice concepts are understood and addressed throughout the Agency.

Agency staff are also encouraged to obtain environmental justice training. The Agency's "Fundamentals of Environmental Justice Workshop" continues to be made available to Regional and Headquarters' staff members. The Workshop explores the origins of the Environmental Justice Movement, perceptions and definitions of environmental justice, environmental laws and their implementing regulations, and Geographic Information Systems and other analytical tools. The goals of the Workshop are: (1) to help EPA employees identify and address environmental justice concerns; and (2) to help EPA employees integrate environmental justice into the participants' work on a daily basis.

The focus of environmental justice training is to help EPA employees identify and address environmental justice issues/concerns/matters consistent with existing environmental laws and their implementing regulations. The ultimate determination whether a particular situation raises an environmental justice issue/concern/matter will depend on an evaluation of the totality of the circumstances. However, in accordance with the Department of Justice Guidance Concerning Environmental Justice,"[4] there are a number of factors that should be considered in determining whether any individual situation does raise such an issue:

- Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionately adverse health or environmental effects from pollution or other environmental hazards;

- Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionate risks or exposure to environmental hazards, or suffer disproportionately from the effects of past under enforcement of state or federal health or environmental laws;

- Whether individuals, certain neighborhoods, or federally recognized tribes have been denied an opportunity for meaningful involvement, as provided by law, in governmental decisionmaking relating to the distribution of environmental benefits or burdens. Such decisionmaking might involve permit processing and compliance activities.

[4] Department of Justice, "Guidance Concerning Environmental Justice," January 9, 1995, available online http://www.usdoj.gov/enrd/79648environmentaljusticestrategy.pdf

> While it is important to avoid overly narrow conceptions of possible environmental justice situations, the mere presence of environmental hazards in a particular community does not in and of itself mean that an environmental justice problem is addressable in litigation. Additional factors must be considered, such as the accumulation of a number of environmental hazards in an affected area because of the lack [of] public participation by the community, the lack of adequate protection under the laws designed to protect health and the environment, or unusual vulnerability of the community to such hazards.[5]

Thus, utilizing this approach, each environmental justice issue/concern/matter would be assessed on a case-by-case basis by EPA employees.

The National Academy of Public Administration, in their December 2001 report entitled, "Environmental Justice in EPA Permitting: Reducing Pollution in High Risk Communities is Integral to the Agency's Mission," provides helpful recommendations to EPA. Intended as another information resource, this report was conducted pursuant to a cooperative agreement with the Office of Environmental Justice.

1.3 ORGANIZATION OF THIS TOOLKIT

This Toolkit provides both a framework for understanding environmental justice issues, and approaches and tools for addressing current and future allegations of environmental injustice. The subsequent chapters are organized as follows:

Chapter 2: The Statutory/Policy Framework for Environmental Justice -- provides an overview of Executive Order 12898, and explains that the use of existing statutory and regulatory authorities is reaffirmed in the memorandum from Administrator Whitman.

Chapter 3: Environmental Justice Indicators Framework -- presents the framework for an overall systematic approach to addressing environmental justice, and introduces "Environmental Justice Indicators" as data sources in conducting a screening assessment of a potential environmental injustice situation.

Chapter 4: Methodology for Environmental Justice Assessment -- presents a systematic approach for using readily available data to conduct an assessment of a potential environmental injustice situation.

A comprehensive bibliography containing references used in this Toolkit is available on the Office of Environmental Justice's Web site (www.epa.gov/compliance/environmentaljustice).

[5] *Id*. at § IV.B.1, pp. 5-6.

2. THE STATUTORY/ POLICY FRAMEWORK FOR ENVIRONMENTAL JUSTICE

The goal of environmental justice is to ensure that all Americans are equally protected from adverse environmental effects or impacts. A fundamental basis for EPA's environmental justice program is Executive Order 12898, which directed federal agencies to make environmental justice a priority. EPA's 1995 Environmental Justice Strategy further delineated the basic principles of EPA's environmental justice program. However, while the Executive Order focused on minority and low-income populations, EPA's mission statement demonstrates that the environmental justice concepts should be applied to all communities regardless of race, ethnicity or income status. Existing environmental statutes and their implementing regulations provide EPA with the opportunity for applying these principles in carrying out this fundamental mission. An August 9, 2001, memorandum from former Administrator Whitman further affirms that environmental justice is intended for all populations, that the environmental statutes provide opportunities for addressing environmental justice, and that application of these statutes is an important part of the Agency's environmental justice efforts. This chapter provides more detail on each of these important elements in the program's foundation.

2.1 EXECUTIVE ORDER 12898

On February 11, 1994, the President issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," to focus federal agencies' attention on the environmental and human health conditions in minority and/or low-income communities with the goal of achieving environmental justice.[6] The Executive Order directs EPA and other federal agencies to make environmental justice part of their mission to the greatest extent practicable and permitted by law.[7]

With respect to each federal agency's environmental justice program, the Executive Order mandates objectives in the following areas: (1) identify disproportionately high and adverse human health or environmental effects on minority and low income populations; (2) coordinate research and data collection; (3) conduct public meetings; and (4) develop interagency model projects. The Executive Order also established the Interagency Working Group on Environmental Justice (IWG) to accomplish these objectives.

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[6] 59 *Fed. Reg*. 7629 (1994).

[7] Other agencies specifically identified in the Executive Order are the Department of Defense, Department of Health and Human Services, Department of Housing and Urban Development, Department of Labor, Department of Agriculture, Department of Transportation, Department of Justice, Department of the Interior, Department of Commerce, and Department of Energy. Independent agencies are encouraged to follow the language of the Executive Order, as well.

In the Presidential Memorandum accompanying the Executive Order, the President emphasized that certain provisions of existing laws can be used to meet the environmental justice objectives. Specifically, he noted that:

> "Environmental and civil rights statutes provide many opportunities to address environmental hazards in minority communities and low-income communities. Application of these existing statutory provisions is an important part of this Administration's efforts to prevent those minority communities and low-income communities from being subject to disproportionately high and adverse environmental effects."[8]

2.2 EPA'S MISSION

Because EPA is responsible for administering many of the nation's environmental laws and regulations, the notion of ensuring equal environmental protection to minimize environmental stressors, harms, and risks is inherent in EPA's mission. EPA's mission statement, as set forth in the 1997 Strategic Plan, specifies that the purpose of the Agency, among other objectives, is to ensure that:[9]

- All Americans are protected from significant risks to human health and the environment where they live, learn, and work;
- Federal laws protecting human health and the environment are enforced fairly and effectively;
- All parts of society – communities, individuals, business, state and local governments, tribal governments – have access to accurate information sufficient to effectively participate in managing human health and environmental risks; and
- Environmental protection contributes to making our communities and eco-systems sustainable and economically productive.

Building upon EPA's mission statement, the Agency defines environmental justice as a process with the goal that *all* people, regardless of race, color, national origin, or income, receive fair treatment and equal environmental protection, and that *all* people have the opportunity for meaningful involvement in decisions that will affect the environment and/or the health of their community. Specifically:

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[8] President William J. Clinton, Memorandum for the Heads of all Departments and Agencies. Subject: Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

[9] EPA Strategic Plan. EPA/190-R-97-002 (1997), p. 55. (http://www.epa.gov/ocfopage/plan/plan.htm)

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies.

Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decisionmakers seek out and facilitate the involvement of those potentially affected.

2.3 ADMINISTRATOR'S MEMORANDUM

On August 9, 2001, the Administrator reaffirmed EPA's commitment to achieving environmental justice (see following pages for the memorandum in its entirety). The memorandum specifically addresses two key principles already based in the Executive Order, the Agency's Environmental Justice Strategy, and EPA's mission.

The first principle is that environmental justice is not necessarily limited to low-income and/or minority populations only. The memorandum specifically states that, "Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards **and** equal access to the decisionmaking process to have a healthy environment in which to live, learn, and work." The second principle is that the existing statutes provide the basis for addressing environmental justice concerns. The memorandum states that, "Application of these existing statutory provisions is an important part of this Agency's effort to prevent those communities from being subject to disproportionately high and adverse impacts, and environmental effects."

Thus, it is the responsibility of all EPA employees to help assure that environmental justice is, in fact, secured for all communities in the way in which we administer the protective environmental laws. The Administrator's statement regarding the use of existing laws is consistent with the President's Memorandum accompanying Executive Order 12898, as discussed earlier in this chapter.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 9 2001

THE ADMINISTRATOR

MEMORANDUM

SUBJECT: EPA's Commitment to Environmental Justice

TO: Assistant Administrators
General Counsel
Inspector General
Chief Financial Officer
Associate Administrators
Regional Administrators
Office Directors

The Environmental Protection Agency has a firm commitment to the issue of environmental justice and its integration into all programs, policies, and activities, consistent with existing environmental laws and their implementing regulations.

The Agency defines environmental justice to mean the fair treatment of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws and policies, and their meaningful involvement in the decisionmaking processes of the government. Among other things, this requires the following:

(a) Conducting our programs, policies, and activities that substantially affect human health and the environment in a manner that ensures the fair treatment of all people, including minority populations and/or low-income populations;

(b) Ensuring equal enforcement of protective environmental laws for all people, including minority populations and/or low-income populations;

(c) Ensuring greater public participation in the Agency's development and implementation of environmental regulations and policies; and

(d) Improving research and data collection for Agency programs relating to the health of, and the environment of all people, including minority populations and/or low-income populations.

In sum, environmental justice is the goal to be achieved for all communities and persons across this Nation. Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards **and** equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

The purpose of this memorandum is to ensure your continued support and commitment in administering environmental laws and their implementing regulations to assure that environmental justice is, in fact, secured for all communities and persons. Environmental statutes provide many opportunities to address environmental risks and hazards in minority communities and/or low-income communities. Application of these existing statutory provisions is an important part of this Agency's effort to prevent those communities from being subject to disproportionately high and adverse impacts, and environmental effects.

In the National Environmental Policy Act of 1969 (NEPA), Congress could not have been any clearer when it stated that it shall be the continuing responsibility of the Federal government to assure for all Americans "safe, healthful, productive and aesthetically and culturally pleasing surroundings."

Integration of environmental justice into the programs, policies, and activities via Headquarters/Regional Office Memoranda of Agreements and Regional Office/State Performance Partnership Agreements is an Agency priority. The Director of the Office of Environmental Justice, Barry E. Hill, and his staff are available to assist you. Barry Hill can be reached at (202)564-2515.

I am positive that each of you will join me in working to secure environmental justice for all communities.

Christine Todd Whitman

2.4 ENVIRONMENTAL STATUTES

The statutes that EPA implements provide the Agency with the authority to consider and address environmental justice concerns. These laws encompass the breadth of the Agency's activities including setting standards,[10] permitting facilities,[11] making grants,[12] issuing licenses or registrations,[13] and reviewing proposed actions of other federal agencies,[14] states, and tribal authorities. These laws often require the Agency to consider a variety of factors, which generally include one or more of the following: public health;[15] cumulative impacts;[16] social costs;[17] and welfare[18] impacts.[19] Moreover, some statutory provisions, such as under the Toxic Substances Control Act (TSCA), explicitly direct the Agency to target low-income populations for assistance.[20] Some other statutes direct the Agency to consider vulnerable populations in setting standards.[21] In all cases, how the Agency chooses to implement and enforce its authority (whether on a case-by-case basis or through more general policy) can have substantial effects on the achievement of environmental justice for *all* communities.

Legal scholars have examined EPA's statutory authorities with respect to environmental justice and how it could be implemented in the Agency's programs. In addition, EPA's Office of

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[10] *See, e.g.,* Clean Water Act section 304(a)(1b), 33 U.S.C. 1314(a)(1b).

[11] *See, e.g.*, Resource Conservation and Recovery Act, RCRA Section 3005(c)(3)

[12] *See, e.g.*, CERCLA Section 117(e) which authorizes EPA to make Technical Assistance Grants of up to $50,000 to groups of citizens affected by Superfund sites.

[13] *See* 7 U.S.C. § 136.

[14] *See* National Environmental Policy Act, (NEPA), and Clean Air Act Section 309, 42 U.S.C. § 7609.

[15] The National Ambient Air Quality Standards, for example, are set to protect public health with an adequate margin of safety. Clean Air Act 42 U.S.C. § 7409(b)(1) requires the Agency to consider sensitive populations in the establishment of these standards. *See, e.g., American Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998).

[16] *See, e.g.*, Toxic Substance Control Act, (TSCA), 15 U.S.C. § 2603(b)(2)(A).

[17] *See, e.g.*, Clean Air Act, 42 U.S.C. § 7503(a)(5).

[18] *See, e.g.*, CAA, 42 U.S.C. § 7408(a)(2) (1994).

[19] *See, e.g.,* regulations implementing the NEPA, 42 U.S.C. 4321, at 40 CFR 1408.8.

[20] *See* TSCA 15 U.S.C. §§ 2665(a)(6), 2666(i)(2) (providing technical and grant assistance for state programs that address radon issues in "homes of low-income persons" for such assistance).

[21] *See, e.g.*, Federal Food, Drug, and Cosmetic Act, FFDCA, 21 U.S.C. 346a; *see also*, Safe Drinking Water Act, 42 U.S.C. 300(g)-1.

General Counsel has analyzed the various components of statutory and regulatory authorities, applicable to permitting, under the Resource Conservation and Recovery Act (RCRA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and Clean Air Act (CAA) that may be used to address environmental justice issues through permitting (this memorandum is reproduced in this document as Appendix A).[22] Before considering the use of any statutory authority discussed in this memorandum, however, the Regional or Headquarters Office should consult the Office of General Counsel and the appropriate program office.

Also, in accordance with a cooperative agreement with the Office of Environmental Justice, the Environmental Law Institute researched and published "Opportunities for Advancing Environmental Justice: An Analysis of U.S. EPA's Statutory Authorities" in November 2001. This comprehensive report is available on the Office of Environmental Justice's Web site and may be used as a resource for EPA employees. Prior to considering the use of any statutory authority discussed in this publication, however, the Regional or Headquarters Office should consult the Office of General Counsel and the appropriate program office.

Finally, the Environmental Appeals Board (EAB) reviews certain EPA actions to determine whether the Agency has made its decisions in accordance with statutory authority and Agency policy.[23] Consistent with statutory authority and Agency policy, the EAB may consider issues such as the adequacy of public participation, and the environmental justice analysis of effects on minority populations and/or low-income communities.[24]

While the EAB has considered a range of environmental justice issues under a variety of statutes in the permitting context, considerations involving environmental justice concerns apply to other EPA actions, as well. These include standard setting, environmental analysis and review of proposed actions, grant-making activity, regulatory activity, and enforcement and compliance.

Appendix B is a non-exhaustive list of statutory provisions that EPA may be able to use to address environmental justice concerns. This list of statutory provisions reflects possible actions that the Agency may take, some of which might require issuing guidance from EPA Headquarters or rulemaking before they can be used. Before these statutory authorities are used, there needs to

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[22] Memorandum from Gary S. Guzy, Office of General Counsel, to EPA Assistant Administrators Steven A. Herman, Robert Perciasepe, Timothy Fields, Jr. and J. Charles, Fox (December 1, 2000); *see also*, the Environmental Law Institute's research report entitled, "Opportunities for Advancing Environmental Justice: An Analysis of U.S. EPA Statutory Authorities" (November 2001). (http://www.eli.org)

[23] *See, e.g., In re: Knauf Fiber Glass, GmbH,* PSD Permit Appeal No. No. 97-PO-06, 98-3 through 20, 1999 Lexis 2, Environmental Appeals Bd., February 4, 1999; *In re: Chemical Waste Management of Indiana*, RCRA Appeal Nos. 95-2 &95-3, 6 E.A.D. 66, June 29, 1995; *In re: Envotech, L.P. Milan, Michigan*, Permit Nos. MI-161-1W-0002, MI-161-1W-0003, UIC Appeal Nos. 95-2 through 95-37, 6 E.A.D. 26, February 15, 1996.

[24] *In re: Chemical Waste Management of Indiana*, 1995 WL 395962

be discussion regarding whether they should be used in any given circumstance. Questions that need to be addressed include, but are not limited to, the following:

- whether the statutory authorities will be effective;
- whether the use of the statutory authorities will conflict with other Agency activities;
- what are the economic impacts;
- what are the impacts on state and local government entities; or
- whether there are more efficient and effective statutory authorities that may be available.

The Agency has available to it and is using many tools in addition to the ones listed in Appendix B. The mechanisms listed are not the only approaches available for Agency employees to use to address environmental justice concerns. The Agency will determine which actions it will take once all the options are considered. The Regional or Headquarters office should contact the Office of General Counsel and the appropriate program office before considering the use of any statutory provisions.

3. ENVIRONMENTAL JUSTICE INDICATORS FRAMEWORK

This chapter presents the various elements that comprise a suggested or potential framework for an overall environmental justice assessment methodology. Specifically, Section 3.1 provides an overview of a systematic approach or methodology that can be used to assess potential allegations of environmental injustice. Section 3.2 introduces the concept of using certain "indicators" to evaluate environmental justice situations. More detailed descriptions of these environmental justice indicators, and potential data sources, are provided in Section 3.3. Chapter 4 then consolidates these pieces in a more descriptive analysis of how the indicators can be used within the various components of the methodology.

The purpose of providing this framework is to help achieve a common understanding of how Environmental Justice Coordinators and other staff view and approach potential environmental justice situations within the programs, policies, and activities for which they have responsibility. In this document, the terms *programs, policies,* and *activities* mean all projects, actions, programs, policies, and activities that adversely affect human health and the environment, and which are undertaken or approved by EPA. These include but are not limited to permits, licenses, and financial assistance provided by EPA.

However, the decision on whether and how to use the tools and the methodology presented in this document should be made on a case-by-case basis. For example, in some situations, the methodology may present a starting point for those just beginning to analyze a potential situation. In other cases, a preliminary analysis may have already been conducted, (e.g., as part of a permitting process); as such, staff may choose to use components of the methodology as necessary to further clarify their assessment. In some cases, a different methodology may be appropriate. Implementation of the methodology and the specific indicators can be adapted and modified as necessary to most appropriately fit the situation at hand.

3.1 OVERVIEW OF ENVIRONMENTAL JUSTICE ASSESSMENT METHODOLOGY

The environmental justice assessment framework is a basic methodology (described below in Section 3.1.1 and in Exhibit 3-1) that can be carried out in tiered phases (described below in Section 3.1.2). In the absence of any other preliminary assessment, the methodology can be carried out initially at a screening level, using readily available information to provide qualitative answers to several questions. The assessment may then proceed beyond the screening level based on such factors as the relative significance of environmental justice issues identified and Agency resources and priorities. The Refined Assessment usually involves additional data collection (including site-specific information) and more quantitative analyses.

Within the context of this suggested approach the Agency uses the following definitions when conducting environmental justice assessments:

- Affected area or community of concern: The affected area or community of concern is the geographic area of analysis that the proposed project or action will or may have an effect on.

- Adverse effect or impact: Adverse effect or impact is a term used to describe the entire compendium of "significant" (as defined under the National Environmental Policy Act) individual or cumulative human health or environmental effects or impacts which may result from a proposed project or action. Examples of adverse effects or impacts include but are not limited to:

    - Bodily impairment, infirmity, illness, or death;
    - Air, noise, soil, and water pollution or contamination;
    - Destruction or disruption of man-made or natural resources;
    - Destruction or disruption of aesthetic values;
    - Destruction or disruption of community cohesion or a community's economic vitality;
    - Destruction or disruption of the availability of public and private facilities and services;
    - Vibration;
    - Adverse employment effects;
    - Displacement of persons, businesses, farms, or nonprofit organizations; and
    - Increased traffic congestion, isolation, exclusion, or separation of individuals within a community or from a broader community.

- Disproportionately high and adverse effects or impacts: Means an adverse effect or impact that: (1) is predominately borne by any segment of the population, including, for example, a minority population and/or a low-income population; or (2) will be suffered by a minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect or impact that will be suffered by a non-minority population and/or non-low-income population.

- Low-Income: Means a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines.

- Low-Income Population: Means any readily identifiable group of low-

income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant farm workers or Native Americans) who will be similarly affected by a proposed project or action, or EPA program, policy, or activity.

- Minority: Means a person, as defined by the U.S. Bureau of Census, who is a: (1) Black American (a person having origins in any of the black racial groups of Africa); (2) Hispanic person (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); (3) Asian American or Pacific Islander (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or (4) American Indian or Alaskan Native (a person having origins in any of the original people of North America and maintains cultural identification through tribal affiliation or community recognition).

- Minority Population: Means any readily identifiable group of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant farm workers or Native Americans) who will be similarly affected by a proposed project or action, or EPA program, policy, or activity.

- Reference community: Means another community of equal size, the surrounding county, the region or metropolitan statistical area, the state, or the entire United States.

Within the context of this suggested approach the term "geographic areas" instead of the term "environmental justice communities" as follows when conducting environmental justice assessments:

- Geographic areas where any readily identifiable group of minority persons reside at a higher percentage than the state average minority populations which are defined by the U.S. Bureau of Census as individuals who are members of the following population groups: American Indian or Alaskan Native; Asian American or Pacific Islander; Black American, not of Hispanic origin; or Hispanic. This definition includes, if circumstances warrant, geographically dispersed/transient persons who may not be accounted for in census data. These populations include seasonal, migrant farm workers. Sources of information regarding small pockets of minority populations can be obtained through local churches, state and local colleges, community centers, and expanded public participation efforts.

- Geographic areas where any readily identifiable group of individuals, whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines, who reside at a higher percentage than the state average. Because the U.S. Bureau of Census data related to poverty is only gathered every 10 years and may not provide the level of detail required for analysis, local sources of information (e.g., university, local or state departments of economic development) can also be used to augment census data.

- Geographic areas where the percentage of children (6 years of age and younger) and/or older individuals (65 years and older) reside at a higher percentage than the state average.

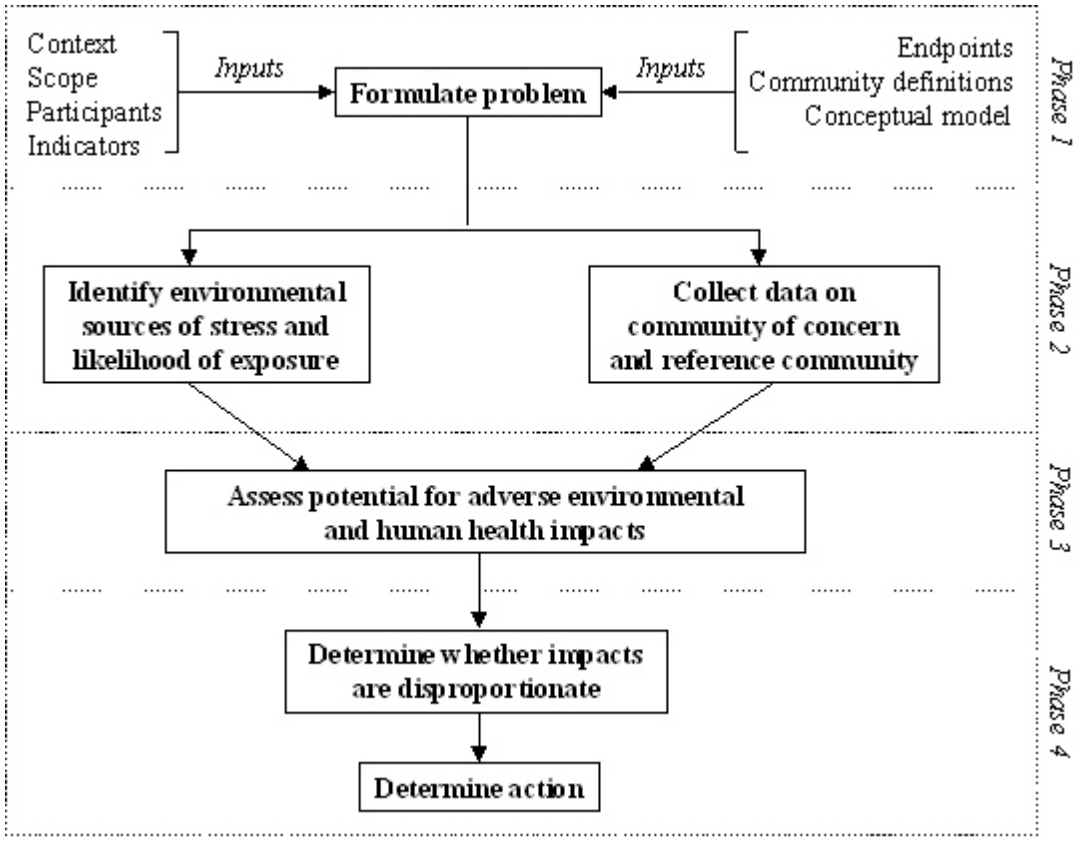
3.1.1 Overview of the Methodology

An environmental justice assessment can be carried out using the following basic methodology, described below. This methodology may be conducted in conjunction with, or as a supplement to, the programmatic analysis that occurs within existing environmental programs (e.g., RCRA permitting process). In the absence of a specific decisionmaking process (e.g., in response to an allegation from a community), the methodology may be implemented independently. [Region 5, 9]

Exhibit 3-1 below provides a schematic overview of the methodology, which consists of the following general phases:

- Phase 1 - Problem Formulation
- Phase 2 - Data Collection
- Phase 3 - Assessment of the Potential for "Adverse" Environmental and Human Health Effects or Impacts
- Phase 4 - Assessment of the Potential for "Disproportionately High and Adverse" Effects or Impacts

Exhibit 3-1: Methodology for Assessing Potential Allegations of Environmental Injustice



Use of the specific components of this methodology is intended to be flexible. Thus, each situation may differ in the order in which the data collection components are addressed (e.g., collecting information on the community of concern prior to assessing the environmental effects or impacts), the quality and quantity of data used, the level of effort expended, and in many cases, the greater certainty with respect to the conclusions that can be reached. However, it is important that appropriate data collection be completed before determining whether an environmental injustice situation has occurred or is likely to occur. In particular, a situation should not be excluded from further consideration based solely on demographics (i.e., if a community does not appear to be significantly lower in income or higher in minorities than the comparison community) – since the goal of environmental justice is to ensure equal protection for all populations. The defining issue is, rather, whether a particular community is likely to suffer from disproportionately greater environmental effects or impacts, regardless of its demographics.

Following is a discussion of the various phases of an environmental justice assessment:

Phase 1: Problem Formulation. Problem formulation establishes the context, management goals, and scope of the entire assessment. It also identifies the participants in the process (e.g., the Assessment Team),[25] the endpoints that are going to be assessed to inform the decisionmaking process, and which environmental justice indicators (see Section 3.2 below) will be used to assess those endpoints. The process includes a conceptual model of the problem and an analysis plan for the assessment. During this step, an affected area also is identified in at least a general way, as are potential reference communities or statistical sources (e.g., national or state-wide values). See Section 4.1 of Chapter 4 for more detailed guidance on this phase.

Phase 2: Data Collection. The purpose of this phase is to collect the situation-specific data needed to conduct the analysis of whether the affected area is likely to or is already experiencing disproportionately high and adverse effects or impacts from the situation. In this phase, two types of data are collected: (1) Data on the environmental sources of stress and likelihood of exposure and (2) data on the affected area and the reference community. Section 4.2 of Chapter 4 provides more detailed guidance on collecting these data, which consist of:

- *Identification of Environmental Sources of Stress and Likelihood of Exposure.* Information is collected to determine the sources of environmental pressures or stress that might affect the community of concern that are different from or additional to those affecting the reference community. This includes an assessment of existing or likely future additional pressures or sources of stress and their proximity to the community (compared with the reference community). All sources of stress that might stem from a decision or activity should be identified. In addition, the other pressures to which the community already is subjected should be identified. Examples of existing sources of stress include, for example, abandoned hazardous waste sites, urban runoff, and other permitted facilities. In both existing situations and proposed actions, identifying the affected area – the geographic area of analysis that the existing or proposed project or action will or may affect – is critical. Indicators of environmental sources of stress are discussed in Section 3.2.

- *Collection of Data on Affected Area and Reference Community.* Health-related, demographic, social, and economic data on the affected area and on the potential reference communities are collected. This information will be used to compare impacts on the affected area in comparison with the reference community. At this stage in the assessment, it is important to define the affected area more rigorously than was done during problem formulation. Generally speaking, the geographic boundaries for a potentially affected community will be defined by the problem (e.g., defining an impact zone around a hazardous waste site or permitted facility) or by the community itself. The information

[25] In most cases, an assessment will be conducted by individual staff (e.g., the Environmental Justice Coordinator) with possible collaboration with other, program staff, technical staff, legal counsel, etc.

collected also includes other aspects of the community that directly or indirectly affect the community's ability to respond to environmental stress (e.g., by participating in the decisionmaking process). The rationale for selecting the reference community should be documented.

Phase 3: Assessment of the Potential for "Adverse" Environmental and Human Health Effects or Impacts. In this phase, the Assessment Team uses the information collected above to determine whether the proposed actions or existing situation, either alone or in combination with other sources of stress in the environment, might cause adverse impacts on the environment in which the community members live or work and on the health and welfare of community members. Whether addressing these adverse impacts is appropriate or actionable by EPA is dependent upon the existing environmental laws and their implementing regulations governing EPA's authorities. Section 4.3 of Chapter 4 provides more detailed guidance on carrying out this analysis, which consists of:

- *Assessment of Potential for "Adverse" Environmental Effects or Impacts.* For environmental impacts, this analysis may involve using analytical tools to assess the transport and fate of contaminants in the environment.

- *Assessment of the Potential for "Adverse" Human Health Effects or Impacts*. Using the data collected on the environmental sources, this analysis is conducted to determine whether the environmental stresses or pressures could be of sufficient magnitude to potentially cause *adverse* effects or impacts or on the local population's health or welfare.

Phase 4: Assessment of the Potential for "Disproportionately High and Adverse" Effects or Impacts. The final question to determine the extent of an environmental justice situation is whether the potential for adverse effects on the environment or human health and welfare is *disproportionately high* in the affected area compared with the reference community. This involves a comparison of the likelihood, magnitude, and severity of potential effects in the affected area with the likelihood, magnitude, and severity of potential effects in the reference population(s). See Section 4.6 of Chapter 4 for more detailed guidance on carrying out this analysis.

Historically, environmental justice concerns have focused on populations considered to be minority and/or low-income; however, since environmental justice is defined as the fair treatment of all people, this characterization would not necessarily cause an assessment to be considered "closed" if the population were not considered minority or low-income area. The final decision should be, rather, whether the affected area is likely to or is already impacted by greater adverse effects than the reference community. In many cases, a community that is predominately low-income or minority may have the characteristics that will increase its vulnerability or sensitivity to environmental impacts. However, to the extent possible, the actual health indicators and other

data should be collected to demonstrate how these contribute to greater adverse impacts, rather than relying on just demographic data. Furthermore, some demographic and other social data will be useful in determining how to address the situation (e.g., to increase public participation).

3.1.2 Tiered Approach to Assessments

A tiered approach means that the environmental justice assessment can be conducted in steps. The environmental justice assessment framework is tiered so that the process is cost-effective and that subsequent efforts can be focused on situations requiring greater attention from EPA. For example, initial results from the first assessment may indicate that the situation is more appropriately handled under the lead of another federal department/agency. The initial tier is referred to as "The Screening-Level Assessment," while the subsequent (or additional) tier is called "The Refined Assessment."

The Screening-Level Assessment consists of the basic methodology and begins with readily available information. For example, the Assessment Team might start with the text of an allegation of an injustice, a talk with its author, and a walking tour of the area at issue talking with one or more stakeholders familiar with the situation. During the screening assessment, the team members look for qualitative information on a wide range of parameters that might indicate the nature of the situation. As described in Section 3.2, these parameters are known as Environmental Justice Indicators.

The purpose of the Screening-Level Assessment is two-fold. First, in some cases, it might be possible to demonstrate at the end of the screening that the problem is not a significant environmental justice concern or not one in which EPA should take the lead. For example, at this stage of the assessment, the Assessment Team might be able to conclude that a proposed activity or an existing stress is unlikely to cause any adverse effects on the environment (e.g., water quality standards would not be or are not exceeded) or pose risks to human health (e.g., estimated cancer risk less than one in one million). In addition, the Assessment Team may conclude that the situation is more appropriately addressed under the lead of another federal, state, or local government agency. If this is the case, EPA's environmental justice assessment could stop at the end of the screening analysis. Second, for those cases in which the screening indicates a possible environmental justice concern for which EPA could be of assistance, the screening assessment generally helps to narrow the focus of the more Refined Assessment to those issues that the screen indicated are most important.

If, at the end of the Screening-Level Assessment, the decision is that an environmental injustice situation might exist and that EPA might have a role to play in alleviating the injustice, the EPA decisionmaker could choose to conduct a Refined Assessment. The phases in the Refined Assessment are similar to the phases in the Screening-Level Assessment, but more quantitative data are used and more certain answers to the questions generally are produced. The next tier of the assessment would start with Phase 1 of the four-phase process based on the

information gleaned from the previous tier or Screening-Level Assessment. During Phase 1 of a more focused assessment, information obtained from the Screening-Level Assessment would be used to further develop the conceptual model and analysis plan. In addition, the decisionmaker should review what level of effort is likely to be commensurate with the decision at hand. That information can be used to constrain the scope of the assessment.

In the Refined Assessment, there is an additional decision to be made at the end of Phase 4 compared with the Screening-Level Assessment. That consideration is whether or not the information is adequate to make the decisions outlined during Problem Formulation. If the decisionmaker concludes that the analyses to this point are inadequate to make and document a decision, the assessment should proceed through an additional tier.

Tier One
Screening-Level Assessment

Purpose is to determine whether EPA should: (1) conduct further Refined Assessment, (2) refer matter to another federal, tribal, or state entity, or (3) find no environmental injustice

Screening-Level Assessment should define the scope of the Refined Assessment

Decision is based on readily available information

Tier Two
Refined Assessment

Purpose is to determine: (1) whether adverse impacts or effects exist and (2) whether there are disproportionately high adverse impacts or effects (environmental injustice)

Refined Assessment should determine appropriate EPA action

Decision is based on detailed, quantitative information

When moving to another tier, it is important to focus on those portions of the assessment or indicators that were the most uncertain at the end of the previous tier. In many cases, it might be clear that the uncertainty is unacceptably high in only one indicator or element of the analysis. In other cases, the confidence limits on the estimates of risk to the community of concern might overlap the confidence limits on the estimates of risk to the reference community, so that one cannot determine if the risks to the community of concern are disproportionately higher. In such cases, it often is useful to conduct a sensitivity analysis to determine which indicator(s) or element(s) of the analysis appear to be driving the results. The Assessment Team can then focus Phase 1 of the higher tier of the assessment on reducing the uncertainty in those element(s) of the assessment.

By the end of the process, the Assessment Team should be able to determine whether or not the potential or existing impacts to the community of concern are disproportionately high relative to one or more reference communities. If the effects or impacts are not disproportionately high in the community of concern, the situation may not warrant a more detailed assessment. That is not to say that a problem does not exist, just that the effects or impacts are evenly spread (i.e., all

surrounding communities are equally affected) and needs to be addressed from that perspective, not with an emphasis on environmental justice. For EPA, there is an additional decision to be made by the end of Phase 4: whether or not this is an environmental justice situation in which EPA can be of assistance. If the answer to that question is no, the responsibility for further assessment and definition of solutions might be shifted to those entities capable of taking the actions needed to address the injustice.

3.2 ENVIRONMENTAL JUSTICE INDICATORS FRAMEWORK

As indicated in the previous chapter, environmental justice means that *all* people, regardless of race, color, national origin, or income, receive fair treatment and equal environmental protection, and have the opportunity for meaningful involvement in decisions that will affect the environment and/or the health of their community. Because of the broad and encompassing nature of this definition, there are numerous ways to interpret each aspect of the definition of environmental justice. Historically, decisionmakers (e.g., permitting agencies) have focused on ecological and health impacts of environmental actions, but may not have considered the cumulative nature of such impacts (i.e., health threats coming from more than one source). Further, decisionmakers have usually not considered such factors as quality of life (e.g., noise, odors, traffic) and aesthetic, cultural, social, and economic impacts (e.g., reduced property values, lost wages, and medical bills), sensitive subpopulations (i.e., pre-existing illness or disease in a community), and synergistic impacts (e.g., two pollutants combined together to create a more toxic substance which poses a greater health risk), which, although not traditionally issues addressed by EPA, may be the issues most important to minority and/or low-income communities.

However, many of these factors are considered by federal agencies, including EPA, in the decisionmaking process in accordance with the National Environmental Policy Act (NEPA).[26] The Council of Environmental Quality (CEQ) is responsible for oversight of federal agency compliance with NEPA. And, CEQ has issued guidance to assist federal agencies in order to ensure that environmental justice concerns are both identified and addressed.[27] Among other things, CEQ suggested that federal agencies consider, for example, the following principles as they incorporate environmental justice into the NEPA process:

- Agencies should consider relevant public health and industry data concerning the potential for multiple exposures or cumulative exposure to human health or environmental hazards in the affected population, as well as historical patterns of exposure to environmental hazards, to the extent that such information is readily available.

[26] National Environmental Policy Act, 40 C.F.R. §1500.1

[27] Council of Environmental Quality, "Environmental Justice: Guidance Under the National Environmental Policy Act," (December 10, 1997) (http://ceq.eh.doe.gov/nepa/regs/ej/ej.pdf)

- Agencies should recognize "the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of a proposed action." These factors should include the physical sensitivity of a community or population to particular impacts, the effect of any disruption of the community structure associated with the proposed action, and the nature and degree of the impact on the community's physical and social structure.[28]

EPA, in turn, has issued its own guidance to assist Agency personnel in incorporating environmental justice into the preparation of environmental impact statements and environmental assessments under NEPA using these same factors.[29]

The purpose of this section is to introduce the concept of "Environmental Justice Indicators" as data that, when examined together, provide a comprehensive picture of a community's economic, social, environmental, and health level status or well-being. The Office of Environmental Justice recognizes that in most situations, only a fraction of these indicators will actually be used in assessment. However, the Office of Environmental Justice hopes that portraying the full universe of potential indicators will help inspire EPA staff to consider factors that might not otherwise have been contemplated. This may help ensure that issues and concerns important to the community are not left out of the analysis of potential environmental justice impacts.

3.2.1 Background on Indicators

Indicators are data that highlight some aspect of current conditions and trends in the environment or within a community or geographic area. They provide information that can be used in an environmental justice assessment to supplement, as appropriate, information more specific to the environmental decision being evaluated (e.g., impacts from a facility being sited or permitted, or potential impacts from a proposed rule) and data required by the statutes and regulations that apply to the particular situation.

EPA defines and applies various environmental performance indicators in its programs, initiatives, and partnerships. As part of the National Environmental Performance Partnership System (NEPPS), EPA and the states have jointly agreed to increase the use of goals and indicators, self-assessments, joint evaluations, and other activities to improve progress toward

[28] CEQ Environmental Justice Guidance at 9.

[29] EPA Office of Federal Activities, "Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses." (April 1998) (http://es.epa.gov/oeca/ofa/ejepa.html)

reaching environmental goals.[30] EPA agreed to develop a limited number of program and multi-media performance indicators on which each state will report. These "core" indicators: (1) have quantifiable results; (2) are not necessarily annual measurements; (3) are linked directly to environmental objectives; (4) have a preferred measure for moving toward results-oriented action; (5) are results-driven; and (6) reflect changes in the state of the ambient environment, changes in exposure, or changes in human health or ecological structure or function.[31]

For purposes of identifying indicators that can be used to evaluate potential environmental justice impacts, the Office of Environmental Justice adapted the work on "Economic/Environmental/Social Indicators" being developed by the international Organization for Economic Co-operation and Development (OECD).[32] The OECD Working Group on the State of the Environment (of which the United States is a member, represented by the Office of Environmental Justice) is developing "Economic/Environmental/ Social Indicators" that will be used to review the relative status of member countries with respect to the issue of environmental justice.[33]

The Office of Environmental Justice has adapted the OECD's emerging "Economic/Environmental/Social Indicators" for use in the framework for assessing the overall "health" of a community and identifying conditions that suggest that environmental injustices are occurring or may likely occur. Specifically, the Office of Environmental Justice has modified or supplemented the OECD's indicators, as appropriate, to be relevant to circumstances that occur in U.S. communities, and has categorized these indicators into four broad areas: Environmental, Health, Economic, and Social Indicators. Descriptions of data that would be collected under each category are described in Section 3.2.2 below.

In developing these indicators as appropriate measures of environmental injustice, the Office of Environmental Justice used certain selection criteria. Specifically, the Office of Environmental Justice ensured that the indicators met as many of the following criteria as possible:

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[30] EPA's Office of State and Local Relations. "Background on the National Environmental Performance Partnership System." October 20, 1999. (http://www.epa.gov/ocirpage/pps/fa1.htm)

[31] EPA's Office of State and Local Relations. "Definitions and Key Characteristics of Key Terms." December 20, 1996. (http://www.epa.gov/ocirpage/pps/chart.html)

[32] The OECD was created on December 14, 1960, and is headquartered in Paris. The OECD replaced the Organization for European Economic Co-operation, which had been created in 1948 in the context of the Marshall Plan launched by the U.S. Currently, the OECD comprises 25 member countries, of which the United States was one of the original member countries.

[33] OECD Working Group on the State of the Environment. "Indicators for the Second Cycle of Environmental Performance Reviews: Discussion Paper." Paris, 1999.

Criterion 1: Policy Relevance -- Each Environmental Justice Indicator should:

- Provide a representative picture of the conditions within a community, pressures on the community, and the government's responses to those pressures;
- Provide a basis for comparison between various geographic units of analyses: states, cities, counties, census blocks, or census tracts;
- Be applicable to local and regional environmental and/or public health issues of national significance;
- Have a threshold or reference value against which to compare it, so that users are able to assess the significance of the values associated with it; and
- Be simple, easy to interpret, and able to show trends over time.

Criterion 2: Analytical Soundness -- Each Environmental Justice Indicator should:

- Be well-founded in technical, empirical, theoretical, and scientific terms;
- Be based on national standards and consensus about its validity as a measuring tool;
- Lend itself to being linked to computer modeling and forecasting; and
- Lend itself to being incorporated into data information systems.

Criterion 3: Measurability -- The data required to support each Environmental Justice Indicator should be:

- Quantifiable, verifiable, and time-specific;
- Readily available or made available at a reasonable cost/benefit ratio;
- Adequately documented and of known quantity; and
- Updated at regular intervals in accordance with reliable research procedures.

3.2.2 Environmental Justice Indicators Framework

As mentioned above, the Office of Environmental Justice organized the Environmental Justice Indicators into four categories to best capture all impacts or stressors on any given community: Environmental, Health, Economic, and Social Indicators. Exhibit 3-2 depicts the interaction of these elements.

These four categories represent the areas in which conditions may occur that cause or exacerbate environmental injustice situations. In addition, a community's level of public participation and access to environmental information can diminish or augment environmental injustices. Each category includes several different sets of indicators to assist in organizing the data collection and assessment process.

Environmental Indicators

Environmental Indicators provide data about the physical attributes of a community, including potential sources of environmental stressors, the relative levels of stressors to which community residents are being exposed, and adverse impacts that may have resulted. Specific types of data that could be considered Environmental Indicators include:

- Sources of stress placed on the community – Some Environmental Indicators may provide data on the potential sources of stress, such as proximity to facilities emitting environmental pollutants or other environmental sources. Data on these stressors could be used to estimate the potential for negative environmental impacts on the community. Regardless of the quantity of contaminants being released, it is possible that a community that hosts regulated facilities is subject to greater overall environmental stress, even if all of the facilities are operating within permit conditions.

- Potential exposure to stressors – Some Environmental Indicators may provide data on ways in which the community may be exposed to sources of stress. An example would be the level of contamination that results from an environmental action (e.g. a new permit for a facility). Exposure indicators may also measure other factors that adversely affect the quality of life, including nuisance concerns such as odor, noise, and dust; degradation of aesthetics; and loss of open space and other amenities.

- Environmental conditions resulting from stressors – A subset of Environmental Indicators may provide data on the quality of the community's environment, including the quality of air, water, and other environmental media to which the community is exposed.

- Environmental vulnerability – Certain Environmental Indicators may provide general information about the physical environment itself and usually are collected to be analyzed in conjunction with other data. For example, certain features of the physical environment, (such as the presence of a mountain range and its effect on air quality) can increase or decrease the likelihood or magnitude of impacts from environmental contamination.

Health Indicators

Health Indicators provide information on the general health of the community's residents and their ability to cope with environmental stresses. Some environmental stresses may pose greater risks to populations with health sensitivities that result from age (e.g., children, the elderly), genetics, dietary deficiencies, health impairments, lifestyle choices (e.g., smoking), and cumulative exposure to substances during daily activities. By examining morbidity and mortality of subsets of the population, EPA may be able to detect the presence of environmental stresses. Specific types of data that could be considered Health Indicators include:

- Existing health conditions – Some health-related statistics, such as morbidity, can be used to assess the general health of community residents. In the environmental justice analysis, such information may be used to assess the likelihood that residents have been exposed to environmental contaminants or pathogens. However, these indicators should be considered within the context of other factors (such as occupational exposure, smoking, or poor diet) that can be responsible for the same or similar health effects. Nevertheless, even if not caused by environmental contamination, the presence of health problems may indicate that community residents might be less resistant to pathogens or more sensitive to chemical contaminants than residents in communities exhibiting fewer health problems.

- Health impacts from environmental stressors – Certain Health Indicators may reflect whether a subset of the population has health sensitivities (i.e., show adverse effects to toxic substances at lower doses, or show more severe or frequent adverse effects to exposure than the average person) or might be highly exposed (i.e., have cumulative exposure from multiple sources or pathways, food consumption patterns, or cultural or behavioral patterns).

Social Indicators

Social indicators reveal trends about the general socio-demographic aspects of the community. As part of the assessment methodology, EPA would collect general demographics information such as race, ethnicity, etc. However, there are a number of additional Social Indicators that while difficult to measure, are nonetheless useful in helping to characterize the community. Specific types of data that could be collected as Social Indicators include:

- Vulnerability to exposure – There is a wide range of Social Indicators that can provide insight into whether a certain subpopulation is more vulnerable to exposure because of limited access to certain amenities (e.g., hospitals, safe drinking water, sewage treatment, public transportation) or because of certain behaviors. Access to amenities may affect the level of exposure or ability to offset impacts of exposure. Personal behavior, such as smoking, may make an

individual more vulnerable to the effects of exposure.

- Government response actions – Certain data regarding government actions can provide information about the level of commitment shown by the local or state government in encouraging meaningful public participation in the decisionmaking process. A key component of this is educating the community on the issues at hand. In addition, these indicators can provide information about the interaction between the community and the governing agencies that are responsible for making environmentally-related decisions.

- Community participation – Some Social Indicators can measure the ability of the population to gain access to information or to meaningfully participate in the decisionmaking process. In addition, they can measure whether and how well the community appears to be able to participate in the environmental decisionmaking process.

Economic Indicators

Economic indicators reveal trends about the community's economic well-being, including the extent to which the local economy relies on the operation of the facility that may be the focus of the environmental injustice allegation. Assessing income levels is important to an environmental justice assessment, because low-income populations may be more vulnerable than the general population to adverse environmental risks and impacts (i.e., because of income based health disparities, etc...). Some Economic Indicators provide data about the economic relationship between the community residents and the entities that might be responsible for exposing the community to environmental stressors. Such information is important to the decisionmaking process should an environmental injustice situation be identified.

3.3 ENVIRONMENTAL JUSTICE INDICATORS AND DATA SOURCES

As mentioned above, the Office of Environmental Justice recognizes that only certain Environmental Justice Indicators will be relevant for any given situation and that the overall assessment process may be affected by limitations in resources, time, or data availability. Furthermore, which indicators are most useful for a community or an assessment can also change over time as knowledge increases and as perceptions of environmental justice problems continue to evolve. For example, indicators used during a Screening-Level Assessment may not necessarily be appropriate for a Refined Assessment. In other cases, it may be appropriate to assess an indicator qualitatively at the Screening-Level and more quantitatively in the Refined Assessment.

Nonetheless, different indicators can reveal trends or conditions related to the same problem, and selection of several indicators related to the same problem can provide a more clear picture

of the relationships among actions, environmental changes, and resulting effects on the quality of life. For example, when assessing the air quality of a community, the Environmental Justice Assessment Team might examine the number of air permits in the area, the level of emissions to the air, and current ambient concentrations of air pollutants to better understand the reasons for the ambient air quality problems in that community. In addition, the Assessment Team might also examine indicators that reflect attributes of the landscape that can influence the movement of contaminants in the environment. For example, mountain ranges can be responsible for thermal air inversions that prevent air contaminants from dispersing away from a particular area.

The following subsections describe some of the key indicators that the Office of Environmental Justice has identified for use in assessing a community's conditions in each of the four broad categories. Each subsection also identifies possible data sources for these indicators when used for the Screening-Level Assessment (S) and when used for the Refined Assessment (R). Appropriate data sources also depend on the scale of the assessment (i.e., how the community of concern and reference community are identified). It should be understood by staff that data sources have strengths, limitations, and weaknesses. Thus, it may be appropriate to confer with others who might be more keenly aware of the databases prior to making final decisions.

3.3.1 Environmental Indicators – Examples and Data Sources

Environmental Indicators provide data about the physical attributes of a community, including potential sources of environmental stress and the relative levels of stress to which community residents are being exposed. As described in Section 3.2.1 above, Environmental Indicators can be grouped into the following subcategories: (1) sources of stress; (2) potential exposure to stress; (3) environmental conditions resulting from stress; and (4) environmental vulnerability. The following sections provide examples of each type of Environmental Indicator, specify whether the particular example would be used during a Screening-Level or Refined Assessment (or both), and describe why that indicator may be relevant to an environmental injustice situation. The table following each set of descriptions provides potential sources of information for the indicators.

Examples of Indicators on Sources of Stress:

Some Environmental Indicators can provide data on the potential sources of stress, which could be used to measure the potential for negative environmental impacts on the community. Examples include:

- *Number of environmentally regulated facilities within a community (S)* - Regardless of the quantity and characteristics of contaminants being released, it is possible that a community that hosts more regulated facilities is subject to a greater overall environmental stress, even if all of the facilities are operating within permit conditions.

- *Length of time regulated facilities have operated within a community (S)* - Even without information on current and past permit exceedances, it still is possible to compare communities with respect to the length of time that regulated facilities have been in operation in the community. The longer that a facility has been operating, the more time that has been available for accidental releases and for the accumulation of persistent contaminants from steady low-level releases. In addition, facilities which began operating a number of years ago may not have been subject to as stringent (or any) regulations concerning pollution prevention as newer facilities.

- *Number of current and past permit exceedances by regulated facilities (S,R)*- Examining current (within the last several years) permit exceedances can provide a general indication of how much pollution the community is being exposed to and what contaminants, in particular, are being emitted. Examining past permit exceedances (from the life of the regulated facility) could indicate risks from possible past exposures and risks from cumulative exposures. For example, if a community had hosted several industries that frequently exceeded their permit limits, that community would possibly have received more exposure than communities that had hosted fewer such industries.

- *Number or extent of non-point sources of pollution (S,R)* - Regulated facilities are not the only sources of contaminants released into the environment; leaching and stormwater runoff from urban and agricultural areas can contribute significantly to the loading of contaminants in ground and surface water. Similarly, localized sources of air pollution such as highways, transportation corridors, or dust sources can add increased burdens to the environment.

- *Noise levels (S)* - Environmental stresses include noise from trains, trucks, nearby highways, airports, and other sources. Although these factors may not always be regulated, their impact on the community may have an effect on how well the community handles other, regulated, environmental burdens.

Table 3-1: Data Sources for Indicators of Sources of Stress

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Number of environmentally regulated facilities within a community	S	EPA's Envirofacts – database that searches 14 data systems, including AFS, TRIS, RCRIS, CERCLIS, BRS, SDWIS, RMP, FINDS, and PCS, for the locations of regulated facilities. http://www.epa.gov/enviro/html/fii/fii_query_java.html
Length of time regulated facilities have operated within a community	S	Integrated Data for Enforcement Analysis (IDEA) – EPA's Office of Enforcement and Compliance data retrieval and integration system that provides access to data on compliance history of regulated facilities, pulling from AIRS, CERCLIS, RCRIS, TRIS, and others; requires user registration. http://www.epa.gov/compliance/planning/data/multimedia/idea/index.html
Number of current and past permit exceedances by those regulated facilities	S,R	The Right to Know Network -- provides access to databases with data on permit exceedances, including RCRIS and PCS. http://www.rtk.net/rcrissearch.html Integrated Data for Enforcement Analysis (IDEA) – EPA's Office of Enforcement and Compliance data retrieval and integration system that provides access to data on compliance history of regulated facilities, pulling from AIRS, CERCLIS, RCRIS, TRIS, and others; requires user registration. http://www.epa.gov/compliance/planning/data/multimedia/idea/index.html
Number or extent of non-point sources of pollution	S,R	EPA's Office of Water maintains a Nonpoint Source Site with techniques on how to manage nonpoint source pollution. http://www.epa.gov/owow/NPS/
Noise levels	S	EPA's archives – provides historical resources about noise pollution from its Office of Noise Abatement and Control, which closed in 1992. http://www.epa.gov/ngispgm3/nrmp/history/collection/aid21.htm Additional research may be needed for up-to-date data at all levels.

Examples of Indicators of Potential Exposure to Stresses

At the screening level, enumeration and proximity of sources of stresses to the population of concern can be mapped to identify potential exposure (as described in Section 4.2 of this Toolkit). For more refined analyses, more quantitative information related to ambient conditions and actual exposures could be assessed.

- *Proximity of regulated facilities to the majority of the community's population (S)*- In general, populations residing closer to regulated facilities are more likely to be exposed to contaminants if contaminants were to be released from those facilities. Thus, "proximity" and "majority" are relative terms used to assess whether a particular community may be affected by greater environmental burdens than other communities. In addition, those living adjacent to such facilities might experience other stresses, such as noise or an unpleasant appearance of the facility, which although not always regulated, should be considered when assessing the impacts on the community as a whole.

- *Proximity to multiple contaminant sources (R)*- With the advent of geographic information systems (GIS) and federal and state databases detailing the locations of different types of sources of hazardous materials (e.g., Superfund sites, releases reported to EPA's Toxic Release Inventory, facilities that release hazardous air pollutants (HAPs) to the environment, wastewater treatment plants, CWA Section 303 list of impaired waters), it is possible to identify locations with "clusters" of several different types of sources of environmental contaminants. A GIS "snapshot" identifying geographic locations with multiple contaminant sources in close proximity to each other often is compared with the distribution of different subpopulations in the region to identify locations that might have environmental justice concerns.

- *Potential or actual cumulative exposures across multiple locations (S,R)* - Because the health response to exposure to environmental contaminants depends on the total exposure to the contaminants, consideration of cumulative daily exposures, including possible exposure at home, the workplace, and school, is important.

- *Potential or actual exposure to multiple stressors (S,R)* - There are numerous chemical compounds in existence today for which there is as yet no data or limited data on their toxicity or potential to cause adverse effects in humans and ecosystems. There are other chemicals for which some controversy exists concerning their toxic potential or potency (e.g., dioxins, lead, mercury, Agent Orange). It is important to remember that an assessment of a community's potential for exposure to the well-characterized contaminants might not reflect exposures to additional toxic substances in their environment. Moreover, the uncertainty inherent in assessments of the toxic potency of well-studied compounds also should be acknowledged.

- *Number of biomarkers of exposure that are evident (S,R)* - For some environmental contaminants, it is possible to assess exposure levels by sampling the blood or other tissues of people and analyzing the tissues for the contaminant

or metabolites of the contaminant. Where such data are available, they can provide direct evidence of exposure to the contaminant, with limited possibilities for confounding factors. The sources of the contaminants, however, cannot be determined based on these measures alone.

Table 3-2: Data Sources for Indicators of Potential Exposure to Stresses

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Proximity of regulated facilities to the majority of the community's population	S	Data sources from above indicator overlaid with US Census data on population per square mile at county and sub-county (usually boroughs of a city) levels. http://www.census.gov/population/www/censusdata/density.html LandView III[34] -- a Windows-based desktop mapping program that contains information about EPA-regulated sites, plus demographic data and street-level maps from the Bureau of the Census. Also see US Census data for state-specific data by county, place, census tract, block group, and Zip code. http://www.census.gov/sdc/www This indicator can also be viewed geographically through the *Environmental Justice Geographical Assessment Tool.*
Proximity to multiple contaminant sources	R	NCHS – provides data on the percentage of people living in counties that meet air quality standards for individual chemicals that might be from multiple sources, by race at the national level only. http://www.cdc.gov/nchs Locations of facilities or geographic areas identified as potential sources of stressors (see first group of indicators, e.g., RCRIS, CERCLIS, AIRS) that are considered to be sources of actual environmental releases (e.g., permit violations) can be overlaid on maps of population density . This indicator can also be viewed geographically through the *Environmental Justice Geographical Assessment Tool.*
Potential or actual cumulative exposures across multiple locations	S,R	Relatively sophisticated modeling of the behavior of members of a community with respect to the amount of time spent near different sources of contaminants (e.g., time spent at contaminated work sites plus time spent at home near hazardous waste site).

[34] To use the program, you must download a copy and install it on your Windows (version 3.1 or higher) machine. For now, the Mac version of this program is not available through RTK NET.

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Potential or actual exposure to multiple stressors	S,R	HAZDAT database – shows which contaminants are present on EPA's National Priorities List (NPL) sites, and provides information for each on how it can affect health. Thus, for any given NPL site, the number of different toxic substances identified at the site can be identified. The results from this database can be overlaid with population data to determine the percentage of the population that might potentially be exposed to contaminants from these sources. http://www.atsdr.cdc.gov/hazdat.html See also proximity to multiple contaminant sources and potential for exposure to toxic substances across multiple locations.
Number of Biomarkers of Exposure that are evident	S,R	Blood lead levels is a classic example, and there are data sources with records of contaminants in samples of adipose (fat) tissues - NHANES (I-IV) – a national survey of the U.S. population that includes contaminant levels in blood and urine samples and some data on contaminant concentrations in adipose tissues. Public use computer Tapes for I and II, National Center for Health Statistics. Stored samples for III and IV. NHATS – National Human Adipose Tissue Survey (terminated 1990). EPA Field Studies Branch, Washington DC. NHEXAS – National Human Exposure Assessment Survey, started recently and data are not yet available. EPA ORD.

Examples of Indicators of Environmental Conditions

A subset of Environmental Indicators may measure quality of the community's environment by providing data on the quality of air, water, and other environmental media to which the community is exposed. Examples include:

- *"Quality" of the air, water, and other environmental media (S,R)*- For several decades, federal, state and local agencies have been reporting air and water quality as concentrations (or other measures) of specific contaminants compared with air and water quality standards for those contaminants. Communities exposed to air or water contaminants at concentrations that exceed the quality standards for those media are assumed to be at some risk for adverse health effects. Where there are no exceedances, comparisons of ambient concentrations with media-specific quality criteria standards within the community of concern can be used to indicate existing margins of safety between ambient concentrations and concentrations that might pose health risks to some individuals.

- *Density of contaminants in biota (living organisms) (S,R)* - Contamination of terrestrial, freshwater, or marine organisms can indicate movement of

contaminants into food webs and possibly into foods consumed by the local community. Contaminant concentrations in plants and animals can be compared with concentrations that are considered hazardous (e.g., health advisory levels for fish tissue residues) or with background concentrations to provide a more meaningful indicator of risk to the community.

Table 3-3: Data Sources for Indicators of Environmental Conditions

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
"Quality" of the air, water, and other environmental media	S,R	EPA's Center for Environmental Information and Statistics (CEIS)[35] – has maps showing contamination levels for water and other media at a state level. It also allows users to customize the data by creating maps. http://www.epa.gov/ceisweb1/ceishome/atlas AIRS Air Quality Subsystem (AIRS-AQS) -- air quality measurements and meteorological data from approximately 10,000 monitoring stations nationally. http://www.epa.gov/Compliance/planning/data/air/ AIRS Facility Subsystem (AIRS-AFS) -- pollutant emissions and compliance data on air pollution stationary sources regulated by EPA. http://www.epa.gov/Compliance/planning/data/air/
Density of contaminants in biota (living organisms)	S,R	Biomonitoring of Environmental Status and Trends -- a study in the Mississippi basin that assesses many classes of chemicals in a wide variety of habitats. http://www.cerc.usgs.gov EPA's National Listing of Fish and Wildlife Advisories – data on fish, shellfish, and wildlife consumption advisories at the national and state level. http://www.epa.gov/ost/fish Further research may be needed for county and sub-county level data.

[35] EPA has assessed major EPA databases to characterize their overall quality and applicability for non-programmatic and secondary uses such as evaluating the local state of the environment, identifying pollution sources and hot spots, promoting environmental education, and tracking corporate accountability. The assessment process resulted in descriptions of each of the major databases that include information on coverage, spatial characteristics, temporal characteristics, consistency within the data system, ability to link to other systems, accuracy, limitations, access, and documentation.

Examples of Indicators of Environmental Vulnerability

Some Environmental Indicators may provide general information about the physical environment itself, and usually are collected to be used in conjunction with other data. For example, certain features of the physical environment, such as air quality, can increase or decrease the likelihood or magnitude of impacts from environmental contamination. Such indicators include:

- *Climate (S)* - While climate is dynamic, many regions have prevailing climate patterns, and these patterns may exacerbate or mitigate the tendency for contaminants to reach or accumulate in the area or region. For example, the prevailing climate patterns in the Midwest cause the transport of emissions from coal-burning power plants to communities in the East. In this case, the population that suffers from the environmental stressor is not likely to be the host community. Understanding and recognizing the effect of climate on the movement of contaminants in the environment can help an Assessment Team identify geographic locations that are already susceptible to contamination.

- *Geomorphic features (S)* - Like climate, geomorphic features can increase or decrease the tendency of contaminants to reach or accumulate in the local area or region.

- *Hydrogeomorphic features (S)* - A community's drinking water is one potential pathway of exposure to environmental contaminants. Some sources of drinking water are more vulnerable to contamination than others. If a community uses a ground-water aquifer for its drinking-water source, indicators of the vulnerability of the aquifer to contamination would be useful to evaluate**.** If surface-water bodies are present, an additional potential exposure pathway is the consumption of fish caught in those surface waters, either recreationally or by subsistence fishers.

- *Presence of ecologically sensitive areas (S, R)* - Certain geographic areas such as rivers, streams, wetlands, and endangered species habitats may be particularly sensitive to exposure from environmental contaminants.

Table 3-4: Data Sources for Indicators of Environmental Vulnerability

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Climate	S	EPA's ORD and RTP have modeling capabilities that can be accessed to analyze how contaminants may disperse in certain areas with certain climatic and Geomorphic conditions. The National Climatic Data Center – has general resources to assist in making a qualitative assessment of climate data. http://www.ncdc.noaa.gov
Geomorphic features	S	The National Geophysical Data Center – has general resources to assist in making a qualitative assessment of geological data. http://www.ngdc.noaa.gov/
Hydrogeomorphic features	S	USGS's Water Resources – has databases relating to watersheds and water conditions. http://water.usgs.gov/
Presence of ecologically sensitive areas (rivers, streams, wetlands)	S,R	The EPA Office of Water's Storage & Retrieval (STORET) system provides a repository for water quality, biological, and physical data used by EPA, other government agencies, and the public. http://www.epa.gov/storet

3.3.2 Health Indicators – Examples and Data Sources

As described above, Health Indicators include general statistics on the existing health conditions of community residents, such as morbidity, as well as health impacts from environmental stressors (particularly impacts on a sensitive subpopulation). The following sections provide examples of these types of Health Indicators, specify whether the particular example would be used during a Screening-Level or Refined Assessment (or both), and describe why that indicator may be relevant to an environmental injustice situation. The table following each set of descriptions provides potential sources of information for the indicators.

Indicators of Existing Health Conditions

Statistics on the general health of community residents can shed light into potential exposure to contamination or indicate a vulnerability in the population to the affects of such exposure. Examples of such health-related statistics include:

- *Infant mortality rate defined as the number of deaths under the age of 1 per 1,000 live births (R)* - In the context of environmental justice, above-average infant mortality in a community might reflect environmental hazards, including the possible cumulative effect of various environmental contaminants. However, this

statistic is sensitive to a variety of community health factors that impact pregnant women and newborn infants, including nutrition, drug and alcohol use, and disease status.

- *Low birth weight rate defined as the number of births <2,500g per 100 live births (R)* - As for the case with infant mortality, if the average birth weight in a community is considerably lower than the average birth weight of the surrounding area, then the population in the community might be experiencing more environmental stress. Again, this statistic is sensitive to a variety of community health factors that impact pregnant women, including nutrition, drug and alcohol use, and disease status. Recent studies have indicated that low birth-weight children tend to continue to have health problems throughout childhood. Such children, therefore, might be more sensitive and less resistant to environmental hazards than other children.

- *Age-adjusted mortality rate defined as the number of deaths from all causes, except homicides/suicides, per 100,000 people (R)* - Assigning an accurate cause of death to adults is generally easier than for infants. Higher death rates among adults due to illnesses that tend to have environmental components, such as asthma and bronchitis, cancer, and diseases due to pathogens, might indicate that the community is subject to higher levels of environmental contamination than other communities. Further assessment would attempt to demonstrate a true disparity, however, and to determine causation.

- *Life expectancy at birth (R)* - Life expectancy is a widely accepted and standard measure of health outcomes and is included here as a broad-based measure of human health.

Table 3-5: Data Sources for Indicators of Existing Health Conditions

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Infant mortality rate defined as the number of deaths under the age of 1 per 1,000 live births	R	The National Center for Health Statistics (NCHS)[36] – publishes National Vital Statistics Reports, which provide infant mortality rates by age, sex, and race at the national and state level only. http://www.cdc.gov/nchs/datawh/statab/unpubd.htm The US Census – provides the infant mortality rate at the county level but does not break down the data by population characteristics. http://www.census.gov Additional research may be needed for data at the sub-county level. See http://www.cdc.gov/other.htm#states.[37]
Low birth weight rate defined as the number of births <2,500g per 100 live births	R	NCHS – provides the percentage of low birth weights by age and race of the mother at the national level only. http://www.cdc.gov/nchs/fastats/birthwt.htm Additional research may be needed for data at the sub-county level.
Age-adjusted mortality rate defined as the number of deaths from all causes, except homicides/suicides, per 100,000 people	R	NCHS – provides death rates by age, race, and cause of death for the national and state level only. The disease rate is available only when disease caused death. http://www.cdc.gov/nchs/default.htm Additional research may be needed for data at the sub-county level. The US Census – provides the number of deaths per thousand people at the county level but does not break down the data by population characteristics. http://www.census.gov
Life expectancy at birth	R	NCHS Life – provides life expectancy by race and sex at the national level only. http://www.cdc.gov/nchs/datawh/statab/pubd/47_9st6.htm Additional research may be needed for data at the sub-county level.

[36] NCHS is the federal government's principal vital and health statistics agency. Since 1960, when the National Office of Vital Statistics and the National Health Survey merged to form NCHS, the agency has provided a wide variety of data with which to monitor the nation's health.

[37] This CDC site provides links to state (and some county) health departments. It must be noted that these sites vary widely in the content and quality of their data. However, at the very least, this link should provide useful contact information for pursuing further state and local health-related data.

Indicators of Health Impacts from Environmental Stressors

Certain Health Indicators may reflect whether a subset of the population has health sensitivities or might be highly exposed. Examples include:

- *Number of illnesses attributable to chemical contaminants (R) - (if contaminant stressors are in question)* - Some types of diseases or health conditions can be caused by exposure to abiotic contaminants in the environment. Comparison of the incidence of particular types of disease or health conditions in a community of concern with the incidence of those conditions in other communities (or with national averages) can provide an indication of whether the community of concern is actually experiencing a disproportionate share of those adverse health effects. Such comparisons should be conducted with applicable statistical techniques using appropriate principles of epidemiological research (e.g., consideration of possible confounding factors) and, alone, do not constitute evidence of causation. Furthermore, the size of a community of concern often is too small to demonstrate statistically significant increases in the incidence of a disease compared with other communities. Diseases with long latency periods, such as cancer, might be indicative of exposures that occurred decades earlier. Thus, it usually is not possible to conclusively demonstrate the existence or cause of increased incidences of diseases related to exposure to such contaminants. If a community appears to be experiencing a higher than expected incidence of diseases that might be caused by chemical contaminants, however, examination of other indicators is warranted. This might include indicators of possible sources of such contaminants, exposures to the contaminants, and other health effects expected from exposure to those contaminants. Moreover, individuals in such communities might be at greater risk of (i.e., more sensitive or exhibiting less resistance to) contracting an illness or developing other adverse health effects from a future exposure than would communities with lower disease incidence rates.

- *Number of diseases attributable to pathogens (R) - (if pathogenic stressors are in question)* - Other types of diseases or health conditions are caused by exposure to living organisms such as viruses and bacteria. Some of these are associated with specific vectors (e.g., mosquitos) that affect fate and transport in the environment. Others of these are typically associated with specific types of environmental contamination (e.g., animal feces) with predictable routes of human exposure (e.g., drinking water). Many of the same considerations apply to the assessment of incidence of these diseases as to the incidence of diseases attributed to chemical contamination. The adverse health effects of many water-borne pathogens, however, often are manifest within hours of an exposure, however, making it easier to identify the source of the pathogens. Communities experiencing higher rates of pathogen-caused diseases indicate the existence of problems that need to be addressed quickly.

Table 3-6: Data Sources for Indicators of Health Impacts from Environmental Stressors

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Number of illness attributable to chemical contaminants (as a percent of the community population)	R (see above)	NCHS database for Cancer: Surveillance, Epidemiology and End Results (SEER) Data – has cancer rates by age, race, and sex at state and county levels. http://wonder.cdc.gov/seerJ.shtml NCHS – provides data on chronic diseases by age and sex at the national level only. http://www.cdc.gov/nchs Other diseases can be searched individually on the NCHS page. http://www.cdc.gov/nchs Additional research may be needed for data at the sub-county level.
Number of diseases attributable to pathogens (as a percent of the community population)	R (see above)	NCHS database for Cancer: Surveillance, Epidemiology and End Results (SEER) Data – has cancer rates by age, race, and sex at state and county levels. http://wonder.cdc.gov/seerJ.shtml NCHS – provides data on chronic diseases by age and sex at the national level only. http://www.cdc.gov/nchs Other diseases can be searched individually on the NCHS page. http://www.cdc.gov/nchs Additional research may be needed for data at the sub-county level.

3.3.3 Social Indicators – Examples and Data Sources

As described in Section 3.2.3 above, Social Indicators cover a wide variety of information, from general demographics to access to amenities, governmental response actions, community participation, and potential for public participation. The following sections provide examples of these types of Social Indicators, specify whether the particular example would be used during a Screening-Level or Refined Assessment (or both), and describe why that indicator may be relevant to an environmental justice situation. The table following each set of descriptions provides potential sources of information for the indicators. At the Screening Level Assessment, qualitative and other readily available data can be used for several of these. For the Refined Assessment, more quantitative information can be sought.

General Demographic Social Indicators

Social indicators can include data on the distribution of certain population characteristics to provide EPA a general description of the community's composition. Given that one of the goals of Executive Order 12898 is to protect minority populations from disproportionate environmental stressors, it is important to determine the race and ethnic composition of the community in question, as well as collect other general demographic information such as age and gender distribution. In this context, the term *minority* means a person, as defined by the U.S. Bureau of Census, who is a: (1) Black American (a person having origins in any of the black racial groups of Africa); (2) Hispanic person (a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race); (3) Asian American or Pacific Islander (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or (4) American Indian or Alaskan Native (a person having origins in any of the original people of North America and maintains cultural identification through tribal affiliation or community recognition). A *minority population* means any readily identifiable group of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant farm workers or Native Americans) who will be similarly affected by a proposed project or action, or EPA program, policy, or activity.

Moreover, it is important to recognize that some proposed actions that cause only limited environmental effects or impacts nevertheless could, because of demographic or social conditions, have a significant secondary or tertiary effect on certain populations. For example, actions that limit or reduce access to traditional hunting or fishing areas, or that limit or reduce the availability of wild game or fish, may cause a series of ripple affects throughout the culture that is based on these traditional livelihoods. The cultural implications of programs or actions should not be ignored in examining social indicators.

Other indicators include:

- *Percent of population that is of various ethnic and national origins or other factors such as age (S,R)* - Given that one of the goals of Executive Order 12898 is to protect minority populations from disproportionate environmental stressors, it is important to determine the race and ethnic composition of the community in question.

- *Population density, including distribution of urban and rural populations (S,R)*- Population density affects both risks of adverse health effects and the ability of a local community to influence decisions that affect their environment. For example, a decision to locate a hazardous waste facility is likely to depend, in part, on the population density of the area because a higher population density would (a) put more people at risk (with everything else being equal) and

(b) increase the number of people who might oppose the site and possibly increase the costs of buying out and relocating residents. These factors mean it is more likely for facilities to be sited in less urban areas, where education, income, and general public involvement in the decisionmaking process may be less.

- *Percent of population that is Native American (S,R)* - There are several Executive Orders that require federal departments/agencies to address possible impacts to tribal communities separately.[38] These orders provide an opportunity for the tribal governments to interact with federal departments/agencies in a "government-to-government" manner. Because of this, it is critical to determine the Native American tribe or tribes that comprise the "community."

- *Distribution of languages spoken in population* (S,R) - Information on whether languages other than English are spoken among the population, and percentage distribution of these languages, is important information in determining how to address public participation.[39]

- *Percent of the population that is literate in English or other languages (S,R)* - The level of literacy for the adult population provides a critical measure of the likelihood and the ability of the community to know about and participate in public meetings, to comment on written proposals, and to otherwise participate in the process. If tools used to encourage public participation are not tailored to local literacy rates, the outreach process can be ineffectual. [OEJ]

[38] For example, Executive Order 13175, "Consultation and Coordination With Indian Tribal Governments," requires federal agencies to respect tribal self-government and sovereignty, tribal rights, and tribal responsibilities whenever they formulate, polices "that have tribal implications." 65 *Fed. Reg.* 67249 (November 6, 2000). Executive Order 12866, "Regulatory Planning and Review," 58 *Fed. Reg.* 51735 (October 4, 1993) objectives are to enhance planning and coordination with respect to both new and existing regulations; to reaffirm the primacy of federal agencies in the regulatory decision-making process; to restore the integrity and legitimacy of regulatory review and oversight; and to make the process more accessible and open to the public.

[39] This is also complimentary to Executive Order 13166 on "Limited English Proficiency," 65 FR 50121 (August 16, 2000) which ensures meaningful access to information by persons who are not proficient in English.

Table 3-7: Data Sources for Indicators of General Demographics

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Percent of population that is of various ethnic and national origins or other factors, such as age	S-Local S-County R-Local	Self-reporting by community. U.S. Census Bureau – has population by race, ethnicity, national origin, age and sex at numerous levels. The following URL provides summary tables at the national, state, and county levels. http://www.census.gov/sdc/www Data from local, county, and State governments. This indicator can also be viewed geographically through the *Environmental Justice Geographical Assessment Tool.*
Population Density (including distribution of urban and rural populations)	S-Sub-county R-Other	U.S. Census Bureau – has population per square mile at county and sub-county (usually boroughs of a city) levels, but is not broken down by population characteristics. http://www.census.gov/sdc/www This indicator can also be viewed geographically through the *Environmental Justice Geographical Assessment Tool.*
Percent of population that is Native American	S-Local R-County	Community-self reporting U.S. Census Bureau – has data available for indigenous populations at numerous levels. The following URL provides summary tables at the national, state, and county levels. http://www.census.gov/sdc/www This indicator can also be viewed geographically through the *Environmental Justice Geographical Assessment Tool.*
Language spoken	S - Local R-County	Community self-reporting U.S. Census Bureau – has data available for languages spoken at numerous levels. The following URL provides summary tables at the national and state levels, for language use, English ability, and linguistic isolation for various populations. http://census.gov/population/www/cen2000/phc-t20.html
Percent of population that is literate	S-Local R-County	National Center for Educational Statistics – has literacy rates at the national level only. http://www.nces.ed.gov/naal Additional research may be needed for data at the sub-county level.

Indicators of Potential Vulnerability to Stress

A certain subpopulation in the community may be more vulnerable to exposure because of less access to certain amenities (e.g., hospitals, safe drinking water, sewage treatment, public transportation) and because of certain behaviors. Examples include:

- *Percent of community with access to public transportation and services (S,R)* - The availability of transportation services in a community often determines its economic and social viability. In particular, low-income groups and some elderly and disabled individuals, with limited or no access to private transportation, require public transportation to access urban and other amenities.

- *Percent of community with access to health care facilities (S,R)* - Not all groups or communities have equal access to health care facilities. Those without access generally go undiagnosed and untreated. Groups without easy access to health care facilities include those without health insurance (including low-income families, the homeless, migrant farm workers) and those unable to travel to health care facilities (including the elderly). Some groups, such as Native American reservation inhabitants and inner city residents, might have access only to what might be considered low-quality facilities. Other groups, including young, high-risk pregnant women, or individuals with AIDS or HIV, might be unwilling to access facilities where their condition might be brought to the attention of their family or the community. Data on access to health care facilities can be used to assess the vulnerabilities of those groups. The issue of the quality of care delivered at facilities was highlighted by the National Cancer Institute's Office of Special Populations Research:

  > Patterns of cancer care received often differ among populations categorized by race or ethnicity. For example, it has been demonstrated that black men with localized prostate cancer are less likely to receive aggressive therapy when compared to whites. The reasons for this and other disparities in cancer care are unclear, and this is an area clearly in need of more study. Studies have shown that some disparities are due to cultural differences, in the acceptance of having a disease and in acceptance of treatment. In other cases, treatment disparities are due to socio-economic barriers such as lack of insurance, lack of access to treatment, as well as discrimination. A very active area of research with significant opportunity is the assessment of treatment outcomes in various populations. In colon, breast, and prostate cancers, the majority of studies to date indicate that

equal treatment yields equal outcome with race not being an influence. This makes patterns-of-care studies showing disparities in care even more significant.[40]

- *Percent of community that uses regulated (cigarettes, alcohol) and unregulated (drugs) substances (S,R)* - These substances can dramatically impair the overall health of individuals who use them, thereby making those individuals more susceptible to other environmental hazards. According to the Surgeon General's report, Healthy People 2010, both tobacco use and substance abuse are listed as "Leading Health Indicators." With respect to cigarette smoking, the report states that, "Environmental tobacco smoke (ETS) increases the risk of heart disease and significant lung conditions, especially asthma and bronchitis in children. ETS is responsible for an estimated 3,000 lung cancer deaths each year among adult nonsmokers."[41] With respect to substance abuse, the report states that, "Alcohol and illicit drug use are associated with many of this country's most serious problems . . . The annual economic costs to the United States from alcohol use were estimated to be $167 billion in 1995, and the costs from drug abuse were estimated to be $110 billion."[42] EPA has long considered the potential for use of those substances to cause cumulative or synergistic effects when combined with exposure to other environmental contaminants (e.g., examining radon in drinking water in relation to use of cigarettes).

- *Percent of community with access to alternative sources of drinking water (R)* - Access to safe drinking water is essential to the standard of living that is expected by the public in this country. Assuming that situation as the baseline, one indicator of vulnerability for a community would be access to an alternative water supply should contamination affect their primary water supply. Several factors affect access to alterative sources of safe water, including the financial resources to access them (e.g., to build new pipelines, to temporarily use bottled water).

- *Percent of community with sewage treatment (R)*- Communities without adequate sewage treatment have an increased potential to experience water-borne diseases, including diseases caused by viruses (e.g., hepatitis, various gastrointestinal illnesses), by bacteria (e.g., salmonella poisoning and cholera), or by protozoa (e.g., *Giardia, Cryptosporidiosis*).

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[40] National Cancer Institute, *Race as a Factor in Cancer Care*. (http://ospr.nci.nih.gov/race.html)

[41] Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services, "Leading Health Indicators," *Healthy People 2010*. (http://www.healthypeople.gov/Document/html/uih/uih_bw/uih_4.htm)

[42] *Id.*

- *Percent of community that relies on local food sources (R)*– Some ethnic groups are more likely to grow their own food crops or to rely upon subsistence fishing from local surface waters. Such groups would be more likely to be exposed to contaminants that accumulate in soils, plants, and fish than other groups which purchase their foods at commercial stores. Sport fishers who consume their catch also can be more likely to experience such exposures.

Table 3-8: Data Sources for Indicators of Potential Vulnerability to Stress

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Percent of community with access to public transportation and services	S,R	State and local departments of transportation may provide mass transit routes to help determine what percentage of the population is within 1/4 mile of mass transit. The Department of Transportation also provides a variety of related statistics. http://www.dot.gov
Percent of community with access to health care facilities	S,R	NCHS 1999 Health Report – shows the percentage of persons with health insurance, by age and race at the national level only. http://www.cdc.gov/nchs/products/pubs/pubd/hestats/healthinsur.html Additional research may be needed for data at the sub-county level.
Percent of community that uses regulated (cigarettes, alcohol) and unregulated (drugs) substances	S,R	NCHS has compiled data on use of drugs, alcohol and tobacco by age, race, and sex at the national level only. http://www.cdc.gov/nchs Additional research may be needed for data at the sub-county level.
Percent of community with access to alternative sources of drinking water	R	EPA's Office Of Water provides resources on water quality, drinking water and watersheds with data at national, state and local levels, that may help determine the percentage of the population with safe drinking water. http://www.epa.gov/ow/ The Safe Drinking Water Information System (SDWIS) – shows water quality violations by local water providers. http://www.epa.gov/docs/enviro/html/sdwis/sdwis_gov.html
Percent of community with sewage treatment	R	The US Census – provides data showing the percentage of homes with indoor plumbing at the national, state, and county levels. http://www.census.gov Additional research may be needed for data at the sub-county level. More detailed data, such as the percentage of the population with unsafe septic systems or limited access to public sewers, will require additional research from sources such as municipal construction programs and local zoning boards.

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Percent of community that relies on local food sources	R	EPA has compiled data from national and local studies of subsistence and sport fishing on ingestion rates for self-caught fish and shellfish from local surface waters. Depending on the similarity of the populations studied with the community of concern, data from one or more of such studies might be applicable. See EPA's www.epa.gov/ncea/sociodeg.htm (US EPA 1999c) concerning highly exposed populations. Additional research may be needed for on local patterns of subsistence and sport fishing and gardening.

Indicators of Government Response Actions

Certain data regarding government actions can provide information about the level of commitment the local or state government has for encouraging meaningful public participation in the decisionmaking process. Examples include:

- *Expenditure/investment on providing access to environmental information (as a percent of total community budget) (S,R)* - These data can provide an indication of the commitment of the government to ensuring that the public obtains sufficient information to allow them to get involved in the decisionmaking process.

- *Expenditure/investment on environmental education and training (as a percent of total community budget) (S,R)* - These data could be used to evaluate the efforts to educate and train the community on relevant technical and policy issues.

- *Number and frequency of public meetings on proposed actions and policy decisions (S,R)* - The frequency of meetings can indicate whether the decisionmakers are involving the public in all appropriate stages of the decisionmaking process.

- *Number of different types of materials distributed (R)* - An assessment of how environmental information is distributed in the community would indicate whether residents are likely to be getting sufficient information. An example of such information distribution could be to make meeting notices available via Internet and local newspapers, church, and community organizations.

- *Percent of households that received distributed materials* (S) - Since public participation is directly linked to the level of awareness on any environmental issue, the percent of households who received distributed materials can be a direct measure of the potential to participate in the decisionmaking process.

- *Number of documents available in the various languages associated with a community (R)* - If the initial community demographic assessment determines that such translations are needed, an assessment of the process and frequency of translating notices and fact sheets into languages other than English would indicate whether residents are likely to be getting sufficient information.

Table 3-9: Data Sources for Indicators of Government Response Actions

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Expenditure/investment on providing access to environmental information (as a percent of total community budget)	S, R	Budget records for federal, state, and local governments may provide dollars expended on providing access to environmental information for the public.
Expenditure/investment on environmental education and training (as a percent of total community budget)	S, R	Budget records for federal, state, and local governments may provide dollars expended on providing environmental education and training for the public.
Number and frequency of public meetings on proposed actions and policy decisions	S, R	EPA, local government, and industry leaders may keep records on public meetings that will help determine the number of public participation events. Other national and state agencies, or local newspapers, may have similar records.
Number of different types of materials distributed	R	A qualitative assessment showing how governments publicize meetings and events, communicate their goals, and facilitate public awareness of environmental problems will be performed primarily through local assessment.
Percent of households that received distributed materials	R	A quantitative assessment of the number of materials distributed as a percent of the number of households in the community.
Number of documents available in the various languages associated with a community	R	A qualitative assessment of whether translations are being performed (if needed, as determined by initial demographic assessment).

Indicators of Community Participation

Some Social Indicators would measure of the ability of the population to gain access to information or to meaningfully participate in the decisionmaking process. Examples include:

- *Community identification (S)*- As discussed earlier, communities are difficult to define. The Postal Service defines communities by zip codes, but that delineation is based on ease of service and not on neighborhoods. Local government defines communities for voting districts and schools, but again, these delineations are sometimes politically based and do not necessarily reflect distinct neighborhoods. Thus, a community of concern could be a community board district, sanitation district, school district, hospital district, zip code, and health department catchment area. Community members also often self-define their community based on proximity to a physical feature, such as a subway station, or an element of similarity, such as a cluster of persons with the same ethnic heritage. It is important to assess the various community definitions within the potentially impacted area. This will help identify all communities of concern and recognize attributes of each community that might modify impacts to that community.

- *Cultural dynamics (S,R)* - Understanding the cultural dynamics of a community helps one design an appropriate public process to allow their participation in the decisions that will affect them. For example, within many Native American cultures, values of the tribal community are more important than those of the individual. Tribal decisions are reached by consensus, ensuring that everyone has an opportunity to provide input in the process and is satisfied by the decision reached. Emphasis placed on process is equal to, if not greater than, that which is placed on culturally incompatible economic development. In addition, decisions are based on long-term consequences and are made in light of their effects on the next seven generations. Given the different dynamics of tribal decisionmaking compared with U.S. democratic governmental processes, appropriate contacts with and representation of the Tribes in the process should be established.

- *Quality of public participation of community residents (R)* - A qualitative assessment of public participation efforts would indicate whether members of communities have meaningful opportunities to participate directly in decisions and actions that affect their community.

- *Number of community residents participating in non-governmental organizations (NGOs) (S,R)* - Measures of the level of involvement of community members in civic organizations can indicate the community's desire and ability to involve themselves in matters affecting the community. While a lack of participation of

community members in these organizations might indicate that there are few issues requiring civic attention, it also might indicate that community members do not believe that they can affect the conditions of their community.

- *Number of community members participating in the decisionmaking process (S,R)* The more involved that community members are in the environmental decisionmaking process, generally speaking, the greater the level of environmental protection achieved.

Table 3-10: Data Sources for Indicators of Community Participation

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Community identification	S	A qualitative assessment showing who identifies themselves in a given community and what boundaries they define will be obtained primarily through local assessment.
Cultural dynamics	S,R	A qualitative assessment showing how community members identify cultural or ethnic differences, and what NGOs or institutions may be in place to facilitate cross-cultural ties will be obtained primarily through local assessment.
Quality of public participation of community residents	R	EPA docket – EPA regional offices may keep records on public meetings that will help determine the number and frequency of participation of community residents at public participation events. Other national and state agencies may have similar records.
Number of community residents participating in non-governmental organizations	S,R	Research providing quantitative and qualitative data showing the rate of participation in NGOs will be obtained primarily through local assessment.
Number of community members participating in the decisionmaking process	S,R	EPA docket – EPA regional offices may keep records on public meetings, which will help determine the number and frequency of participation of local leaders at statutorily required public participation events. Other national and state agencies may have similar records.

3.3.4 Economic Indicators – Examples and Data Sources

Economic Indicators reveal trends about the community's socio-economic well-being. Assessing income levels is crucial to an environmental justice assessment, because one of the goals of environmental justice is to protect low-income populations against adverse, disproportionate environmental and health impacts. In this context, *low-income* means a person

whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines. *Low-income population* means any readily identifiable group of low-income persons who live in geographic proximity. If circumstances warrant, it also means geographically dispersed/transient persons (such as migrant farm workers or Americans Indians or Alaska Natives) who will be similarly affected by a proposed project action, or EPA program, policy, or activity.

Examples of Economic Indicators that provide data about economic well-being include:

- *Unemployment rate (S)*- This is defined as the percentage of persons in the labor force who are seeking employment and is an indicator of the degree to which the economy provides jobs for those seeking work. This statistic is a measure of the economic opportunities in a community and the degree to which a particular community is able to meet their basic needs. In the absence of income data (see below), this indicator provides a measure of community members' financial independence.

- *Income levels and distribution (S)*- This statistic measures the overall income levels of the community and the proportion of the total households that are in different income categories. As previously discussed, low incomes can be associated with poor health and low levels of civic participation. According to the National Cancer Institute's Office of Special Populations Research:

> Poor people have increased incidence and mortality rates from cancer compared with the mainstream of American society. An estimated 35.6 million people in the United States are poor based on the national standard of poverty. The effects of poverty are disproportionately reflected in the African and Hispanic American populations. Thus, 26.5 percent of African Americans and 27.1 percent of Hispanic Americans are poor, whereas only 11 percent of white Americans are poor. Among Asian and Pacific Islanders 14 percent are poor. Poverty is associated with low educational level, substandard living conditions, unemployment, poor nutrition, risk-promoting lifestyles, an inadequate social-support network, and diminished access to health care. All of these factors contribute to an increased risk of developing and dying of cancer. The present racial/ethnic patterns of poverty in the U.S. and the differences in cancer among the medically underserved and poor serve to define challenges for the control of cancer in the U.S. The greatest challenge remains to decrease the gap in cancer incidence and improve survival between the economically disadvantaged. The second challenge is to focus appropriate health and research resources to this high-risk group with the hope of eliminating cancer disparities

and improving cancer cure rates. The third challenge is to educate economically disadvantaged groups as well as health care providers about the important role socio-economic factors can have on cancer incidence and mortality.[43]

- *Percent of homeowners in a community or the percent of renters in a community (S)* - In an environmental justice context, the percentage of owner-occupied units versus renter-occupied could, in some cases, have an impact on the community's interest, willingness, and availability to participate in environmental decisions affecting the community.

- *Percent of community residents with a reliance on polluting industries for jobs and economic development (R)* - The degree to which a community is economically dependent on potentially environmentally detrimental facilities should be assessed. Communities with greater dependence may be more willing to assume higher risks and to tolerate some health impacts because the community members feel they have no alternative. This situation can help to create allegations of environmental injustice, because the community members are unlikely to speak out or raise concerns against their primary source of income.

- *Percent of community residents with employment in pollution-generating industrial facilities or services (R)* - These statistics could provide one indication of the degree to which the local community benefits economically from such facilities. The number of residents employed and the types of jobs and income levels they obtain are important measures of economic benefit.

- *Number of brownfields in the community (R)* - The number of active brownfields sites in a community is indicative of: (1) the economic, environmental, and community concerns surrounding brownfields redevelopment initiatives; and (2) the issues of economics and equality in revitalizing urban communities. The goals of brownfields initiatives in redeveloping the land, remediating contaminated properties, promoting economic development, and, ultimately, expanding the tax base, address some of the main concerns of community residents, e.g., a cleaner, healthier environment, economic development and jobs, and, finally, an opportunity to rebuild a crumbling infrastructure with meaningful involvement of the residents in the decisionmaking process.

- *Reliance on natural resources for the community's economic base (as a percent of total community budget) (R)* - If a community's economic base relies primarily on its natural resources, an environmental release of hazardous materials that impacts

[43] National Cancer Institute, *Cancer and Poverty*. (http://ospr.nci.nih.gov/poverty.html)

those natural resources, such as a major oil spill, can have a devastating adverse impact, not only on wildlife and ecosystems, but also on the community that relies on those natural resources to survive and prosper.

Table 3-11: Data Sources for Economic Indicators

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Unemployment rate	S	Bureau of Labor Statistics – has information available at the state and county level, and some major cities, but is not broken down by population characteristics. http://www.bls.gov/lau/home.htm Or, users can build their own unemployment tables with more detailed population characteristics. http://www.bls.gov/sahome.html
Income levels and distribution	S	U.S. Census Bureau – has data on income level for various population percentiles at the national level only. http://www.census.gov/hhes/www/p60191.html Additional research may be needed for data at the sub-county level.
Percent of homeowners in a community or the percent of renters in a community	R	U.S. Census Bureau – has data at the national level showing the percentage of the population that owns or rents housing at the national level only. http://www.census.gov/hhes/www/hvs.html Additional research may be needed for data at the sub-county level.
Percent of community residents with a reliance on polluting industries for jobs and economic development	S	To make a qualitative assessment of how the population is economically linked to a polluting facility, a survey of local employers can be used.[44]
Percent of community residents with employment in pollution-generating industrial facilities or services	R	To determine the percentage of the population that is employed in large pollution-generating facilities (e.g., petrochemical facilities, refineries, etc.), a survey of local employers can be used.
Number of brownfields in the community	R	Landview III – a spatial resource for determining brownfield location relative to the affected community. Additional research may be needed for up-to-date data at all levels.

[44] Any local survey will need to consider the requirements of the Paperwork Reduction Act.

Name of Indicator	Screening or Refined Analyses	Possible Data Sources
Reliance on natural resources for the community's economic base (as a percent of total community budget)	R	The Natural Resources Inventory – may help determine the percentage of population within a specified distance of open space, natural land, or recreational areas through its data on land cover, land use, wetlands, habitat diversity, and selected conservation practices at national, statewide, and multi-county levels. http://waterhome.brc.tamus.edu/NRIAI/

4. METHODOLOGY FOR ENVIRONMENTAL JUSTICE ASSESSMENT

The purpose of this chapter is to explain how the Environmental Justice Indicators presented in the previous chapter can be incorporated into the general methodology for assessing both potential impacts from proposed actions and existing impacts. It explains how, for example, to use readily available data on Environmental Indicators (e.g., information obtained from a site visit, communications with local communities, previous assessments, available GIS framework) to conduct the assessment at a screening level. The Screening Level Assessment generally is concluded with a decision about whether an environmental injustice situation is likely to exist, whether it is a situation in which EPA can be of assistance, and whether a more Refined Assessment is appropriate. More refined analyses are conducted if necessary and only until EPA has sufficient information to make a decision. An example of how this methodology would be applied to a hypothetical situation is provided in Appendix C.

4.1 PHASE 1: PROBLEM FORMULATION

The first phase of the assessment is to determine, at least qualitatively, the context, scope, participants, community of concern, reference communities, assessment endpoints, and indicators that can be used to evaluate the assessment endpoints, and level of effort needed to conduct a preliminary examination of the questions or issues that started the assessment. At the screening stage, the goal of problem formulation is a conceptual model of the issue and an analysis plan. Each item is discussed in turn below.

4.1.1 Context

The context of a problem depends on how the issue was brought to EPA's attention. EPA might proactively identify a need for an environmental justice assessment to inform a decision the Agency must make. For example, EPA Headquarters might be conducting a national-level assessment to support the development of a new regulation. In this context, EPA's questions might involve the distribution of impacts on minority and/or low-income communities caused by a proposed plan of action versus alternative actions. This context indicates a need for an assessment of the potential consequences of an action and its alternatives. On the other hand, an environmental justice assessment might be initiated by an allegation of an existing injustice. In this context, EPA's questions might concern existing conditions. This context suggests an assessment of current conditions and a retrospective assessment of what might have caused those conditions. In some cases, the assessment will be conducted as part of the overall process for a specific decision (e.g., issuing a permit). EPA's role in scoping the environmental justice assessment (Section 4.1.2) would depend in part on the context in which the issue arose.

4.1.2 Scope

Different starting points provide different types of information that can be used initially to determine the scope of the Assessment in terms of participants (e.g., the Assessment Team and other potential contributors to the analysis), level of effort, duration, and cost of the screen. A first step in scoping would be to identify the readily available sources of information to help formulate the problem. For example, a citizen complaint might include a list of community representatives and stakeholders (e.g., businesses or local governments) involved in the issue. A national-level cost-benefit assessment might already have been conducted for a national regulation. A RCRA facility manager might have supplied a permit application identifying hazardous wastes handled or stored at the facility. Information on the toxicity of some of those substances is likely to be readily available in EPA's Integrated Risk Information System, while other substances might have little toxicity information available. A history of local operating permits or postings of fish advisories also might be readily available. Consideration of the readily available information substantially assists the process of problem formulation.

4.1.3 Participants

With allegations of environmental injustice, it can be very helpful to involve members of the community of concern and other stakeholders (e.g., RCRA facility owner, the city and county governments) in formulating the problem. There are many reasons to do this, some of which are:

1. The community of concern and other potentially affected stakeholders generally have extensive knowledge of the current situation, how it arose, characteristics of the community, and constraints and other pressures faced by the stakeholders.

2. Members of a community and other stakeholders are more likely to accept the results of an assessment if they had a voice in planning the assessment in the first place.

3. The community and other stakeholders often already have innovative ideas for how to resolve a problem, including potential roles of each party in developing a solution.

Thus, for allegations of environmental injustice, at the outset of problem formulation, EPA should consider ways to involve members of the community and other stakeholders in formulating the problem. At the Screening-Level Assessment, informal discussions with stakeholders and representatives of the community might suffice. (The Refined Assessment options for involving the community include public meetings, inviting members of local organizations and governments to join the EPA team in developing the assessment plan, and formal meetings with key players.) During problem formulation, the potential for participation of the local community and governments in the next steps of the assessment can be evaluated.

The best strategy for involving the community and other stakeholders depends on the magnitude of the issue, EPA's experience with different methods for involving stakeholders, and other contextual factors. EPA also should examine its potential roles and responsibilities in the assessment. For example, does EPA have authority under its legislative mandates to participate in the assessment or the solution or should EPA assist the local governments in conducting the assessment? By the end of problem formulation, the initial role of EPA and local communities and other entities in the Screening-Level Assessment should have been defined. In addition, the identity of those who will be conducting the assessment (i.e., the Assessment Team) will also be identified. This may, again, include not only the Environmental Justice Coordinator but also representatives from program offices, and representatives from other government agencies, if appropriate.

4.1.4 Affected Area

At this point, EPA and the other participants in problem formulation should define both the affected, or potentially affected, area and/or community. At the Screening-Level Assessment, the boundaries of the community might be somewhat ambiguous, but the core of the affected area should be clear. The size and geographic extent of the affected area will vary depending on the context and scope of the assessment.

The initial approach for identifying the affected area will differ if the assessment is being conducted in response to an allegation of environmental injustice, or is part of an environmental decisionmaking process (e.g., permitting). In an assessment of an allegation of an existing environmental injustice situation, the affected population is defined by the nature of the allegation, on a case-by-case basis. In such circumstances, the community may define itself, e.g., based on common demographics or other social, cultural, or economic factors.

4.1.5 Reference Community or Communities

For purposes of ascertaining whether the affected area is disproportionately affected, a reference community or set of statistics should be identified. In identifying the reference community (or communities), attributes that a community used to define itself can be helpful– a community might define itself in part by referring to other communities that it perceives to be spared the environmental injustice.

At the Screening-Level Assessment, it is important to consider data availability in selecting a reference community. Options for obtaining data on a reference community include national, state, metropolitan statistical area, and county-level statistics that already have been compiled for Environmental Justice Indicators and are readily available (see Sections 3.3 and 3.4). More than one type of reference community might be identified, for example, both national and state-wide populations.

If the later steps in the assessment indicate disproportionate effects on the affected area relative to state-level, but not national-level statistics, the responsibility for the assessment and its solutions might be shifted from EPA to the state. In localized environmental justice situations, an appropriate reference community might be as small as the other side of town.

4.1.6 Assessment Endpoints

A next step in problem formulation is to identify and agree upon the endpoints of concern in the assessment. Given that an environmental injustice situation is at issue, many of the ultimate assessment endpoints are in essence already defined. These include the potential for disproportionately high adverse effects or impacts on environmental conditions, human health, and welfare (including economic and social welfare) in the community of concern compared with other communities. More specific assessment endpoints depend on the nature of the problem, and can include one or more of the following:

- Cumulative risks due to exposure to stresses of all types;
- Factors that increase the potential for exposure;
- Limitations of the infrastructure that exacerbate stresses or the effects of stresses;
- Existing health impairments that can affect sensitivity to additional stresses;
- Existing health impairments that result from the stresses under consideration;
- Existing levels of government response actions;
- Ability of community members to participate in the decisionmaking process; and
- The economic well-being of the community and its members.

At the Screening-Level Assessment, some consideration should be given to all of these endpoints. It is useful to attempt to collect as much information as possible about the community of concern and its situation, recognizing that not all data will be readily available, nor will all data be relevant to the particular circumstances. Nevertheless, a broad view of the situation at the screening level will ensure that the range of community concerns and issues about overall quality of life can be taken into account in the decisionmaking process. Otherwise, EPA in general, and the Assessment Team, in particular, might not be aware of conditions or subtleties of the situation that are important to the residents. Based on the findings of the Screening-Level Assessment, efforts in more Refined Assessments might focus on several or a few of these endpoints.

4.1.7 Indicators for the Assessment

A next step in problem formulation is determining which Environmental Justice Indicators will be used to assess the endpoints identified above. As described in Section 3.3 of this Toolkit , several different measures can indicate the status or trends in each of the assessment endpoints identified above. Evaluation of more than one indicator for the same endpoint can provide a more clear picture of the relationships among actions, environmental

changes, and resulting effects on the quality of life. Thus, all of the indicators identified with an (S) in Section 3.3 should be considered when determining which ones to actually use. Factors that will influence which indicators are selected for the screening assessment include resources, data availability, and relevance to the problem (e.g., proactive or retrospective assessment of environmental justice). See Section 3.3 for further guidance on the selection of indicators for the assessment.

4.1.8 Conceptual Model

One of the key products of problem formulation is a conceptual model of the problem, which might include a flow diagram of causes and effects and a map of the community of concern relative to a larger community. At the screening stage, the conceptual model would be relatively simple and serve as a communication tool among the Assessment Team, the community of concern, and other stakeholders. It provides a concrete expression of the current understanding of the problem, and allows other participants to identify parameters that might be missing from the model. At the screening level, the conceptual model also identifies those parameters for which data will *not* be collected during the Screening-Level Assessment, and for which conservative assumptions might be adopted for the analyses that follow. In the more Refined Assessment, a formal diagram of the conceptual model identifies all of the linkages and interactions inherent in the system, all assessment endpoints and indicators for those endpoints, as well as the information gleaned from the Screening-Level Assessment.

4.1.9 Analysis Plan

The final product of problem formulation is the assessment or analysis plan. The analysis plan specifies the participants and their responsibilities, the time-frame and level of effort for the assessment, which Environmental Justice Indicators will be evaluated, which data sources will be used or investigated, the processes by which data will be gathered, milestones in the process, and decisions that the screen will be used to support. At the screening level, the plan for data collection might be as simple as scheduling a meeting with community representatives and a walking tour of the area, specifying who will participate in those activities. An advantage of developing a written analysis plan is that participants in the assessment, representatives of the community of concern, and other stakeholders can "weigh in" and perhaps suggest improvements to the plan. If stakeholders accept the analysis plan at the beginning of the assessment, it is much more likely that they will accept the results of the assessment.

In some contexts, the analysis plan for a Screening-Level Assessment might simply call for the collection of data in Phase 2 to initially screen areas and populations for the potential for environmental justice concerns. Only those areas and populations identified in Phase 2 would be carried through the remaining steps in the screening analysis.

If the Refined Assessment is being conducted, a more detailed description of the data gathering steps, models to be used (e.g., to estimate dispersion and exposure), and bases for decisions (e.g., risk level exceeding 10^{-5}, statistical difference with $p < 0.10$ instead of $p < 0.05$) should be specified in the analysis plan.

4.2 PHASE 2: DATA COLLECTION

The purpose of this phase is to collect data on: (1) the environmental actions or entities (e.g., a facility) that create the environmental and health effects; and (2) the community of concern where these impacts will be manifested.

4.2.1 Identification of Environmental Sources of Stress and Likelihood of Exposures

At this stage, the Assessment Team would identify sources of environmental stressors being placed (or potentially placed) on the community of concern, such as emitting facilities. For a prospective assessment of the consequences of a specific decision or proposed activity, all sources of stress that might stem from the decision or activity should be identified. For example, if the environmental justice assessment is being conducted in the context of a specific permitting action or NEPA analysis, the source (i.e., the facility or operation) will be known. In a rulemaking, identifying the potential sources of stressors may be included as part of the Regulatory Impact Analysis (RIA). In addition, the other pressures to which the community already is subjected should be identified.

In cases where the Agency is responding to an allegation about health impacts from unknown sources or multiple potential sources, EPA should review potential sources in the area and assess emissions pathways that may cause the effects described in the allegation. This review should include analysis of background sources (e.g., mobile source air emissions, non-point source runoff) whose air, water, noise and/or other emissions may together affect a population.

At the screening level, the most common indicators of environmental sources of stress and the likelihood of exposure to those stresses include:

- the number of environmentally regulated facilities within a community;
- the proximity of those facilities to the majority of the community's population and the proximity of special groups within the community (e.g., schools) to multiple stresses,
- and behavioral factors that could affect exposure of the community, such as subsistence fishing and gardening.

Tables 3-1 and 3-2 of the previous chapter provide more information on potential Environmental Indicators of stress and possible sources of data for those indicators.

Often a first screening step is to conduct a Proximity Analysis, which involves mapping the locations of the sources of environmental stress in relation to the location of communities, in order to identify those populations most likely to be exposed to the stresses. This type of analysis is helpful when people living closer to a source are likely to be exposed to higher levels of stress (e.g., soil contaminants or noise) than people living further from the source. Likewise, an affected population may not be limited to those people in close proximity to a source. For example, water pollution in a river may affect populations significantly downstream.

The Proximity Analysis can be conducted two ways: from the perspective of the facilities and from the perspective of individuals or groups in the community. From the perspective of the facility, the indicator expresses the proximity of individual facilities to the majority of the community's population. From the perspective of individual groups, the indicator expresses the number of different sources to which an individual or group of individuals might be exposed, i.e., the proximity to multiple contaminant sources indicator. At a screening level, for example, that indicator might be assessed for a school, which is found to be generally downwind of three different sources of air contaminants.

A more refined estimate of the likelihood of exposure can be developed using the Total-Mass-Release Analysis. That approach takes into consideration not only the location of the sources, but also the quantities of pollutants emitted from those sources. This type of analysis helps to identify those sources releasing the largest quantities of contaminants to the environment and those that might release what is considered a *de minimis* amount (e.g., would be diluted to non-hazardous levels upon release into the air or water). This analysis requires information on the quantities released to the environment, and those data are often obtained from national databases. In more refined analyses, a GIS platform might be used to provide a spatial overlay of the location of sources and total mass released with the locations of community residences, schools, and work places. The GIS platform also would allow a more precise assessment of the number of contaminant sources to which a subgroup of individuals might be exposed.

4.2.2 Collection of Data on Affected Area and Reference Community

The purpose of this step is to collect health, social, and economic indicator data on the community of concern and the reference community (or communities). This information will be used in later analyses to determine the potential for adverse effects on the community of concern and to determine whether those effects are disproportionate, compared to the reference community.

Data should be collected on the existing health conditions of the community to be used later in assessing the potential for adverse effects on human health. Indicators that might be used in a Refined Assessment of existing health conditions include existing levels of infant and adult mortality and morbidity, birth weight, and life expectancy at birth. Data for those indicators generally are not available at the screening level. Thus, consideration of those indicators at the

screening level might be restricted to self-reporting by the community concerning infant mortality, etc. In the absence of information on health conditions, qualitative information on factors such as diet, smoking, and the other factors that can influence health status listed above can be sought from representatives of the community of concern and the reference community. Tables 3-5 and 3-6 of the previous chapter provide more information on potential Health Indicators and possible sources of data for those indicators. In addition, data should also be collected on factors that might increase the vulnerability of the community to stress, including access to health care services (see Table 3-8);

Specific Social and Economic Indicators that should be collected are identified in Section 3.3.3 of the previous chapter, and data sources are provided in Tables 3-7 through 3-11. Some of these data may be used later to determine the appropriate actions that the Agency might take to alleviate concerns about lack of participation in the decisionmaking process. These indicators include the following:

- Ethnic or minority status, language(s) spoken, age distribution (see Table 3-7);
- Level of commitment of the local, state, or federal government to providing information to and encouraging participation of the community (see Table 3-9);
- Existing levels of community participation in environmental decisionmaking (see Table 3-10); and
- The economic status of the community and its members (see Table 3-11).

At the screening level, EPA might use readily available data, such as national or state-wide statistics, to compare to the community of concern, as specified in the analysis plan developed during Problem Formulation. In more Refined Assessments, the reference population might be carefully chosen to emphasize certain characteristics of the population or to represent the likely jurisdictional entities that might be involved with a solution (e.g., county, city or municipality). Throughout this data collection process, it will be important to collect comparable data for the community of concern and the reference community.

Historically, environmental justice concerns have focused on populations considered to be minority and/or low income. However, since environmental justice is defined as the fair treatment of all people, characterization of the community of concern is intended to assist EPA in choosing its course of action to address the situation. For example, if this step reveals that the community of concern is similar in economic status to the national norm (e.g., median values of unemployment, value of homes), but is low-income with respect to the other communities in that county, EPA may assist or work with the county in completing the assessment. If the community does appear to be a minority and/or low-income area, EPA might assume more responsibility for determining the potential for disproportionately high and adverse impacts on that community, and identifying solutions.

4.3 PHASE 3: ASSESSMENT OF THE POTENTIAL FOR "ADVERSE" ENVIRONMENTAL AND HUMAN HEALTH EFFECTS OR IMPACTS

The purpose of this phase is to use the data collected on environmental stresses and the community to determine whether the stresses are likely to cause adverse environmental and human health/welfare impacts, taking into account community-specific considerations. Within this context, the term *adverse effect* or *adverse impact* means the entire compendium of "significant" (as defined by the National Environmental Policy Act) individual or cumulative human health or environmental effects that may result from a proposed project or action. Examples of adverse effects include but are not limited to:

- Bodily impairment, infirmity, illness, or death;
- Air, noise, soil, and water pollution or contamination;
- Destruction or disruption of man-made or natural resources;
- Destruction or disruption of aesthetic values;
- Destruction or disruption of community cohesion or a community's economic vitality;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment effects;
- Displacement of persons, businesses, farms, or nonprofit organizations; and
- Increased traffic congestion, isolation, exclusion, or separation of individuals within a community or from a broader community.

4.3.1 Assessment of Potential for "Adverse" Environmental Effects or Impacts

The first step in the analysis is to determine whether the proposed actions or existing situation, either alone or in combination with other sources of stress in the environment, might cause adverse impacts on the *environment* in which the members of the community live and work. This can be done from two perspectives: one is to determine the potential effects of the stresses on the environment, and the other is to look at characteristics of the environment that might influence its potential vulnerability to those stresses.

The endpoints for this step include environmental conditions such as air and water quality, contaminants in soils and drinking water, and ambient concentrations of toxic substances outdoors and indoors. Indicators of existing environmental conditions include what is known about levels of contaminants in the air, water, soils, and other environmental media, including plants and animals. Table 3-3 of the previous chapter provides more information on potential indicators of environmental conditions and possible sources of data for those indicators. Information on existing conditions is important to the assessment of an alleged existing

environmental injustice situation. Information on existing conditions also is important for prospective assessments, in which new sources might add to the existing contamination that is at levels already near environmental quality limits.

In addition to existing levels of environmental contamination, other factors can increase or decrease the likelihood that new stresses would cause adverse environmental impacts. These include features of the environment such as climate, hydrogeomorphic features, and the presence of ecologically sensitive areas. At the screening level, the Assessment Team would evaluate readily available information qualitatively. For example, is the area frequently subject to thermal inversions in the air that can trap contaminants at ground level? Does the area include known wetlands, national, state, or local parks for the protection of wildlife? Table 3-4 of the previous chapter provides more information on potential indicators of environmental vulnerability and possible sources of data for those indicators.

At the screening level, this step might be very rudimentary, because environmental monitoring data usually are not readily available and site-specific fate and transport models can require a substantial level of effort. However, for prospective assessments, the Assessment Team can generally rely on the impact analyses conducted under the related program initiative such as a NEPA review or a permitting evaluation. The Assessment Team should consult with experts in the field of potential impact. For example, if there is concern about a potential air impact, the Office of Air and Radiation should be consulted. In addition, EPA has reviewed several assessment tools as part of an effort to identify and develop methods for conducting impact assessment. The findings were presented in the December 1998 report (*An SAB Report: Review of Disproportionate Impact Methodologies; A Review by the Integrated Human Exposure Committee (IHEC) of the Science Advisory Board (SAB).* The report is on the Internet at http://www.epa.gov.sab/ihec9907.pdf.)

For allegations of existing environmental injustice situations, readily available data sources might not provide information for the area of concern, particularly if the scope of the assessment is at the county or sub-county level.

In the Refined Assessment, this step can involve using monitoring data for contaminants in the environment. Where such data are unavailable or insufficient for the assessment, a Refined Assessment might include analytical models and site-specific data that can be used to determine contaminant concentrations in environmental media by location. For example, EPA may use an air dispersion simulation model to estimate the air concentrations of contaminants downwind from a source. The area over which contaminants might spread from a source may be irregularly shaped due to environmental factors or other conditions such as wind direction, stream direction, or topography. A GIS platform could allow estimates of the spatial extent of air contaminants exceeding different benchmarks for risk.

If a Refined Assessment indicates that releases from existing facilities exceed established environmental or human health benchmarks, the appropriate EPA program office or the Office of Enforcement and Compliance Assurance should be notified so they may take appropriate action under environmental laws and regulations. Exceedances of current ambient or exposure standards is considered an indication of the potential for adverse impacts.

4.3.2 Assessment of Potential for "Adverse" Human Health Impacts

The second step in the analysis is to determine whether the community of concern might be exposed to environmental stresses or pressures of sufficient magnitude to potentially cause *adverse* effects on their *health or welfare*. This can be done from two perspectives: one is to determine the potential effects of the stressors, and the other is to look at the population's current health status and its potential vulnerability to those stressors. How this step is conducted depends on whether the assessment is prospective or retrospective. A prospective assessment basically is a risk assessment to assess the likelihood of future impacts, which is typically done as part of a decisionmaking process. A retrospective analysis of an existing situation is a risk assessment to determine whether the sources and contaminants at issue could be causing the existing effects (i.e., there are exposures above toxicity reference values for those contaminants) and a weight-of-evidence assessment, which estimates the likelihood that the contaminants *are* causing the effects.

Existing Health Conditions

Both a risk assessment and a weight-of-evidence assessment involve examination of the data collected on the existing health conditions in the community of concern. Regardless of whether the existing health conditions can be attributed to specific sources of environmental stress, such information does indicate whether the community might be more sensitive to some stresses than other communities. People with poor or compromised health status, whether from exposure to environmental contaminants, genetics (e.g., sickle cell anemia), poor nutrition, obesity, smoking, or abuse of alcohol or drugs, can be less resistant to infections (i.e., have a compromised immune system) and less capable of detoxifying contaminants absorbed into their systems (i.e., have compromised liver function) than people in better health.

Potential for Adverse Effects or Impacts from Stressors Under Consideration

For prospective environmental justice assessments that evaluate a proposed action or policy and its alternatives, this step basically represents a prospective health risk assessment. A health risk assessment for chemical contaminants compares likely contaminant exposure concentrations and intake with information on the toxicity of the contaminants. At the screening level, the risk assessment is largely qualitative. The Environmental Justice Assessment Team would compare the available indicators of exposure to readily available information on the toxicity of the contaminants (e.g., from IRIS). In more Refined Assessments, the tools of quantitative risk assessment would be employed.

At the screening level, various approaches are possible depending on the type of information gathered in the previous steps. For example, if sufficient data were available to conduct a Total-Mass-Release analysis (discussed in Phase 2), a Toxicity Analysis might be conducted that, in conjunction with the Total-Mass-Released Analysis, identifies toxicity-weighted emissions that may be associated with significant risks. For this analysis, existing health benchmarks or data on the toxicity of each chemical stressor are identified to assess relative toxicity. Combining information on the total mass released and relative chemical toxicity provides a more accurate indicator of health risks associated with emissions than is possible using one or the other type of analysis alone. For example, EPA could assess each chemical stressor at a source, multiply it by a chronic toxicity potency score, then sum the products across chemicals to yield a total toxicity-weighted stressor score per source. Sources with higher levels of weighted stressors would be expected to be associated with a higher likelihood of causing potential adverse impacts. This approach can be limited by a lack of appropriate toxicity benchmarks for comparison for some chemicals.

If the previous analysis on adverse environmental impacts indicates measures or estimates of the concentrations of some contaminants in environmental media, those can be compared with chemical-specific environmental quality benchmarks for those media (e.g., water quality criteria) to estimate whether any of the benchmarks have been exceeded. In the absence of benchmarks for some chemicals, risks to the community of concern can be compared with risks to the reference community by comparing the indicators of exposure to the same contaminant for the two communities. Another measure of risk would be the number of contaminants to which only the community of concern is exposed (i.e., to which the reference community is not likely to be exposed). Where conservative assumptions have been used in the exposure or toxicity assessment, the same assumptions should be applied to both the community of concern and the reference community.

Usually at the screening level, only a comparative assessment of some of the risk factors is conducted for the community of concern and the reference community. To facilitate that comparison, it can be helpful to simply rank the potential magnitude of the indicator values for each community as low, medium, or high. Establishing the comparative assessment in this step will facilitate the conduct of the final assessment (Phase 4). More refined analyses that can predict risks of "adverse" health effects require a more complete exposure assessment including site-specific information.

Evidence of Impacts Possibly Due to Stressor

It usually is very difficult to prove that an existing source or set of contaminants is responsible for observed adverse health effects. Environmental justice indicators do not reveal cause-and-effect relationships. For example, although indicators may reveal both a high incidence of cancer and a generally low-income population in the same area, those factors alone do not necessarily show an environmental injustice situation unless there is a link between the

cancer and contamination in the area. Even if indicators do demonstrate that there are a large number of pollution-generating facilities within that area, further examination would be needed to show that these facilities, in fact, are contributing to the environmental stressors causing health effects.

At the screening level, a retrospective assessment of an alleged environmental injustice situation can be based on a simple risk assessment (as described above) that indicates whether or not the alleged sources *could possibly* be causing the alleged effects. Could the population be exposed at high levels or levels exceeding toxicity benchmarks? Are the observed health effects in the community consistent with the effects that are known to be caused by the contaminants at issue? If the answer to either of those questions is no, it is unlikely that a cause-and-effect relationship exists between the alleged sources and the alleged health effects.

If the answer to both of those questions is yes, then several lines of evidence can help determine whether the sources or set of contaminants are causing adverse health effects in the community. These include:

- Evidence that other known sources or contaminants cannot be causing or contributing to the observed effects;

- Temporal consistency (e.g., the particular health effects did not appear until after the facility started operation or contaminants were released into the environment); and

- Demonstration of a stressor-response relationship (e.g., the health effects become more frequent and more severe the closer the residences are to the source).

Assessment of these or other further lines of evidence generally is only possible in more Refined Assessments.

At this stage of the assessment, the Assessment Team might be able to conclude that a proposed activity or an existing source is unlikely to cause any adverse effects on the environment (e.g., water quality standards would not be or are not exceeded) or pose risks to human health (e.g., estimated cancer risk less than one in one million). Or, the Assessment Team might conclude that the situation is more appropriately addressed under the lead of another federal, state, or local agency. If it is not possible to conclude with an acceptable level of certainty that there are negligible risks of adverse effects on the community, the assessment continues to Phase 4.

4.4 PHASE 4: ASSESSMENT OF THE POTENTIAL FOR "DISPROPORTIONATELY HIGH AND ADVERSE" EFFECTS OR IMPACTS

The purpose of this final analysis is to assess whether the incidence and severity of adverse impacts that might result from the sources of stressors identified above is disproportionately higher in the community of concern than in the reference community.

Because the definition of environmental justice assumes a relative comparison of impact ("disproportionate share of negative environmental consequences"), the indicators of community trends are examined within the context of the reference area outside the community. Thus, the affected area is examined/evaluated in a way to show that it is distinct from the larger reference community. While indicators may suggest that a community is adversely affected, until those impacts are compared to impacts on an appropriate reference community, the community of concern cannot be classified as disproportionately affected. In other words, an adverse impact is not necessarily an environmental injustice impact. An action that equally affects many may be an adverse effect, but would not necessarily trigger environmental justice concerns.

In this context, the term *disproportionately high and adverse effects or impacts* means an adverse effect or impact that: (1) is predominately borne by any segment of the population, including a minority population and/or a low-income population; or (2) will be suffered by a minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect or impact that will be suffered by a non-minority population and/or non-low-income population.

At the Screening-Level Assessment phase, it is appropriate to rely on some evidence of different *potentials* for disproportionate exposure and adverse impacts in the community of concern compared with the reference community. In the more refined analyses, the differences should be assessed quantitatively.

To assess whether the potential for adverse impacts is disproportionately high in the affected area or not, the Assessment Team would use the information obtained in the earlier steps of the screen to compare, to the extent possible, the likelihood, magnitude, and severity of potential impacts on the community of concern compared with the likelihood, magnitude, and severity of potential impacts on the reference population(s). At the Screening-Level, this determination might involve qualitative comparisons between the two groups. In a more Refined Assessment, the determination might involve an assessment of statistically significant differences between the two groups in one or more measures of risk.

By the end of this phase in a Screening-Level Assessment, the Assessment Team should be able to determine whether or not potential or existing adverse effects or impacts on the community of concern might be disproportionately high relative to one or more reference

communities. If they are not disproportionately high in the community of concern, the situation may not warrant a more detailed assessment. That is not to say that a problem does not exist, just that the impacts are evenly spread (i.e., all surrounding communities are equally affected) and needs to be addressed from that perspective, not with an emphasis on environmental justice. For EPA, there is an additional decision to be made by the end of Phase 4: whether or not this an environmental injustice situation in which EPA can be of assistance. If the answer to that question is no, the responsibility for further assessment and definition of solutions might be shifted to those entities capable of providing the actions needed to address the injustice.

At the Screening-Level Assessment, Phase 4 concludes with a decision of whether an additional assessment is appropriate. If an environmental injustice situation cannot be ruled out on the basis of the Screening-Level Assessment, the more refined analysis would be appropriate. The screen should have provided some information by which to further refine the problem to be addressed and provided an idea of which indicators are likely to be most useful in a more refined analysis. The screen also should have indicated whether EPA should continue its lead in the assessment or shift responsibilities for further assessment to other entities.

5. CONCLUSION

As intended, this Toolkit provides analytical tools for EPA staff to use in assessing the environmental and human health concerns of community residents. It sets forth various research tools and provides a systematic approach for gathering and analyzing data related to environmental, social, economic, and health-related technical information to determine whether or not an environmental justice situation appears to exist or may be avoided altogether. This Toolkit will enable EPA employees to better analyze allegations of environmental injustice, and, will hopefully serve as a tool for proactively preventing environmental justice concerns from occurring in the future.

APPENDIX

Appendix A

Memorandum (December 1, 2000) from Gary Guzy, General Counsel, to EPA Assistant Administrators

MEMORANDUM

SUBJECT: EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting

FROM: Gary S. Guzy *//signed//*
General Counsel
Office of General Counsel (2310A)

TO: Steven A. Herman
Assistant Administrator
Office of Enforcement and Compliance Assistance (2201A)

Robert Perciasepe
Assistant Administrator
Office of Air and Radiation (6101A)

Timothy Fields, Jr.
Assistant Administrator
Office of Solid Waste and Emergency Response (5101)

J. Charles Fox
Assistant Administrator
Office of Water (4101)

This memorandum analyzes a significant number of statutory and regulatory authorities under the Resource Conservation and Recovery Act, the Clean Water Act, the Safe Drinking Water Act, the Marine Protection, Research, and Sanctuaries Act, and the Clean Air Act that the Office of General Counsel believes are available to address environmental justice issues during permitting. The use of EPA's statutory authorities, as discussed herein, may in some cases involve new legal and policy interpretations that could require further Agency regulatory or interpretive action. Although the memorandum presents interpretations of EPA's statutory authority and regulations that we believe are legally permissible, it does not suggest that such actions would be uniformly practical or feasible given policy or resource considerations or that there are not important considerations of legal risk that would need to be evaluated. Nor do we assess the relative priority among these various avenues for addressing environmental justice concerns. We look forward to working with all your offices to explore these matters in greater detail.

I. Resource Conservation and Recovery Act (RCRA)

RCRA authorizes EPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes and the management and disposal of solid waste. EPA issues guidelines and recommendations to State solid waste permitting programs under RCRA sections 1008(a), 4002, or 4004 and may employ this vehicle to address environmental justice concerns. The primary area where environmental justice issues have surfaced, however, is in the permitting of hazardous waste treatment, storage, and disposal facilities (e.g., incinerators, fuel blenders, landfills). Pursuant to RCRA section 3005, EPA is authorized to grant permits to such facilities if they demonstrate compliance with EPA regulations.

Upon application by a State, EPA may authorize a State's hazardous waste program to operate in lieu of the Federal program, and to issue and enforce permits. The State's program must be equivalent to the Federal program to obtain and retain authorization. When EPA adopts more stringent RCRA regulations (including permit requirements), authorized States are required to revise their programs within one year after the change in the Federal program or within two years if the change will necessitate a State statutory amendment. 40 CFR § 271.21(e). EPA and most authorized States have so-called "permit shield" regulations, providing that, once a facility obtains a hazardous waste permit, it generally cannot be compelled to comply with additional requirements during the permit's term.

The scope of EPA's authority to address environmental justice issues in RCRA hazardous waste permits was directly addressed by the Environmental Appeals Board (EAB) in Chemical Waste Management, Inc., 6 E.A.D. 66, 1995 WL 395962 (1995) (http://www.epa.gov/eab/disk11/cwmii.pdf). The Board found "that when the Region has a basis to believe that operation of the facility may have a disproportionate impact on a minority or low-income segment of the affected community, the Region should, as a matter of policy, exercise its discretion to assure early and ongoing opportunities for public involvement in the permitting process." Id. at 73. It also found that RCRA allows the Agency to "tak[e] a more refined look at its health and environmental impacts assessment in light of allegations that operation of the facility would have a disproportionately adverse effect on the health or environment of low-income or minority populations." Id. at 74. Such a close evaluation could, in turn, justify permit conditions or denials based on disproportionately high and adverse human health or environmental effects, while "a broad analysis might mask the effects of the facility on a disparately affected minority or low-income segment of the community." Id. However, while acknowledging the relevance of disparities in health and environmental impacts, the Board also cautioned that "there is no legal basis for rejecting a RCRA permit application based solely upon alleged social or economic impacts upon the community." Id. at 73.

Consistent with this interpretation, there are several RCRA authorities under which EPA could address environmental justice issues in permitting:

A. Hazardous Waste Treatment, Storage and Disposal

1. RCRA section 3005(c)(3) provides that "[e]ach permit issued under this section shall contain such terms and conditions as the Administrator (or the State) determines necessary to protect human health and the environment." EPA has interpreted this provision to authorize denial of a permit to a facility if EPA determines that operation of the facility would pose an unacceptable risk to human health and the environment and that there are no additional permit terms or conditions that would address such risk. This "omnibus" authority may be applicable on a permit-by-permit basis where appropriate to address the following health concerns in connection with hazardous waste management facilities that may affect low-income communities or minority communities:

    a. Cumulative risks due to exposure from pollution sources in addition to the applicant facility;

    b. Unique exposure pathways and scenarios (e.g., subsistence fishers, farming communities); or

    c. Sensitive populations (e.g., children with levels of lead in their blood, individuals with poor diets).

2. RCRA section 3013 provides that if the Administrator determines that "the presence of any hazardous waste at a facility or site at which hazardous waste is, or has been, stored, treated, or disposed of, or the release of any such waste from such facility or site may present a substantial hazard to human health or the environment," she may order a facility owner or operator to conduct reasonable monitoring, testing, analysis, and reporting to ascertain the nature and extent of such hazard. EPA may require a permittee or an applicant to submit information to establish permit conditions necessary to protect human health and the environment. 40 CFR § 270.10(k). In appropriate circumstances, EPA could use the authority under section 3013 or 40 CFR § 270.10(k) to compel a facility owner or operator to carry out necessary studies, so that, pursuant to the "omnibus" authority, EPA can establish permit terms or conditions necessary to protect human health and the environment.

3. RCRA provides EPA with authority to consider environmental justice issues in establishing priorities for facilities under RCRA section 3005(e), and for facilities engaged in cleaning up contaminated areas under the RCRA corrective action program, RCRA sections 3004(u), 3004(v), and 3008(h). For example, EPA could consider factors such as cumulative risk, unique exposure pathways, or sensitive populations in establishing permitting or clean-up priorities.

4. EPA adopted the “RCRA Expanded Public Participation” rule on December 11, 1995. See 60 Fed. Reg. 63417. RCRA authorizes EPA to explore further whether the RCRA permit public participation process could better address environmental justice concerns

by expanding public participation in the permitting process (including at hazardous waste management facilities to be located in or near low-income communities or minority communities).

5. In expanding the public participation procedures applicable to RCRA facilities, EPA also would have authority to expand the application of those procedures to the permitting of: (a) publicly owned treatment works, which are regulated under the Clean Water Act; (b) underground injection wells, which are regulated under the Safe Drinking Water Act; and (c) ocean disposal barges or vessels, which are regulated under the Marine Protection Research and Sanctuaries Act. These facilities are subject to RCRA's permit by rule regulations, 40 CFR § 270.60, and are deemed to have a RCRA permit if they meet certain conditions set out in the regulations. 40 CFR § 270.60.

6. EPA's review of State-issued permits provides additional opportunities for consideration of environmental justice concerns. Where the process for a State-issued permit does not adequately address sensitive population risks or other factors in violation of the authorized State program, under the regulations EPA could provide comments on these factors (in appropriate cases) during the comment period on the State's proposed permit on a facility-by-facility basis. 40 CFR § 271.19(a). Where the State itself is authorized for RCRA "omnibus" authority and does not address factors identified in EPA comments as necessary to protect human health and the environment, EPA may seek to enforce the authorized State program requirement. 40 CFR § 271.19(e) Alternatively, if the State is not authorized for "omnibus" authority, EPA may superimpose any necessary additional conditions under the "omnibus" authority in the federal portion of the permit. These conditions become part of the facility's RCRA permit and are enforceable by the United States under RCRA section 3008 and citizens through RCRA section 7002.

7. RCRA section 3019 provides EPA with authority to increase requirements for applicants for land disposal permits to provide exposure information and to request that the Agency for Toxic Substances and Disease Registry conduct health assessments at such land disposal facilities.

8. RCRA section 3004(o)(7) provides EPA with authority to issue location standards as necessary to protect human health and the environment. Using this authority, EPA could, for example, establish minimum buffer zones between hazardous waste management facilities and sensitive areas (e.g., schools, areas already with several hazardous waste management facilities, residential areas). Facilities seeking permits would need to comply with these requirements to receive a permit.

9. RCRA-permitted facilities are required under RCRA section 3004(a) to maintain "contingency plans for effective action to minimize unanticipated damage from any treatment, storage, or disposal of . . . hazardous waste." Under this authority, EPA could require facilities to prepare and/or modify their contingency plans to reflect the needs of

environmental justice communities that have limited resources to prepare and/or respond to emergency situations.

10. RCRA additionally provides EPA with authority to amend its regulations to incorporate some of the options described in 1 through 6 above so they become part of the more stringent federal program that authorized States must adopt.

II. Clean Water Act (CWA)

The CWA was adopted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To achieve this goal, Congress prohibited the discharge from a point source of any pollutant into a water of the United States unless that discharge complies with specific requirements of the Act. Compliance is achieved by obtaining and adhering to the terms of an NPDES permit issued by EPA or an authorized State pursuant to section 402, or a dredge and fill permit issued by the Army Corps of Engineers or an authorized State pursuant to section 404.

NPDES permits must contain: (1) technology-based limitations that reflect the pollution reduction achieved through particular equipment or process changes, without reference to the effect on the receiving water and (2) where necessary, more stringent limitations representing that level of control necessary to ensure that the receiving waters achieve water quality standards. Water quality standards consist of (1) designated uses of the water (e.g., public water supply, propagation of fish, or recreation); (2) criteria to protect those uses including criteria based on protecting human health and aquatic life; and (3) an antidegradation policy. EPA requires that States designate all waters for "fishable/swimmable" uses unless such uses are not attainable. EPA issues water quality criteria guidance to the States pursuant to CWA section 304(a).

Permits issued under CWA section 404 authorize the discharge of "dredged or fill material" to waters of the United States. The types of activities regulated under section 404 include filling of wetlands to create dry land for development, construction of berms or dams to create water impoundments, and discharges of material dredged from waterways to maintain or improve navigation. Section 404 permits issued by the Corps of Engineers must satisfy two sets of standards: the Corps' "public interest review" and the section 404(b)(1) guidelines promulgated by EPA. The public interest review is a balancing test that requires the Corps to consider a number of factors, including economics, fish and wildlife values, safety, food and fiber production and, public needs and welfare in general. 33 CFR § 320.4(a). The section 404(b)(1) guidelines provide that no permit shall issue if: (1) there are practicable, environmentally less damaging alternatives, (2) the discharge would violate water quality standards or jeopardize threatened or endangered species, (3) the discharge would cause significant degradation to the aquatic ecosystem, or (4) if all reasonable steps have not been taken to minimize adverse effects of the discharge. 40 CFR § 230.10.

There are several CWA authorities under which EPA could address environmental justice issues in permitting:

A. State Water Quality Standards

States are required to review their water quality standards every three years and to submit the results of their review to EPA. CWA section 303(c)(1). EPA Regional offices must approve or disapprove all new or revised State water quality standards pursuant to section 303(c)(3). EPA will approve State standards if they are scientifically defensible and protective of designated uses. 40 CFR § 131.11. If a State does not revise a disapproved standard, EPA is required to propose and promulgate a revised standard for the State. Section 303(c)(4)(A). The Administrator is also required to propose and promulgate a new or revised standard for a State whenever she determines that such a standard is necessary to meet the requirements of the Act and the State does not act to adopt an appropriate standard. CWA section 303(c)(4)(B).

1. State water quality standards currently are required to provide for the protection of "existing uses." 40 CFR § 131.12(a)(1). These are defined as uses actually attained in the water body on or after November 28, 1975. 40 CFR § 131.3(e). To the extent that minority or low-income populations are, or at any time since 1975 have been, using the waters for recreational or subsistence fishing, EPA could reinterpret the current regulations to require that such uses, if actually attained, must be maintained and protected. The CWA provides EPA with authority to require, through appropriate means, that high rates of fish consumption by these populations be considered an "existing use" to be protected by State water quality standards. Under the current regulations, existing uses cannot be removed.

2. EPA regulations provide that all waters must be designated for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water ("fishable/swimmable") unless the State documents to EPA's satisfaction that such uses are not attainable. 40 CFR §§ 131.6(a), 131.10(j).

   EPA interprets “fishable” uses under section 101(a) of the CWA to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish. In other words, EPA views “fishable” to mean that not only can fish and shellfish thrive in a waterbody, but when caught, can also be safely eaten by humans (stated in 10/24/00 “Dear Colleague” letter from Geoffrey H. Grubbs, Director Office of Science and Technology, and Robert H. Wayland, III, Director Office of Wetlands, Oceans and Watersheds). Therefore, EPA currently recommends that in setting criteria to protect “fishable” uses, that the State/Tribe adjust the fish consumption values used to develop criteria to protect the “fishable” use, including fish consumption by subsistence fishers (USEPA 2000, Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, EPA-822-B-00-004, Chapter 2.1). For example, in deriving such criteria, states or tribes could select their fish consumption value based on site-specific information or a national default value for subsistence fishing (Chapter 4).

In the future, EPA could reinterpret it regulations to mean that any human health use must have a criterion that would protect consumption by subsistence fishers unless there is a showing that water is not used for subsistence fishing.

3. The CWA provides EPA with authority to recommend that State CWA section 303(c)(1) triennial reviews of water quality standards consider the extent to which State criteria provide for protection of human health where there exists subsistence fishing. EPA Regional offices may disapprove a criterion that does not provide protection to highly-exposed populations. The Administrator further has the discretionary authority to determine that such criteria are necessary to meet the requirements of the CWA and then must promptly propose and promulgate such criteria.

4. Consistent with CWA section 101(e), EPA could encourage States to improve public participation processes in the development of State water quality standards through greater outreach and by translating notices for limited English speaking populations consistent with Executive Order 12898 on environmental justice.

B. Issuance of NPDES Permits

1. Assuming EPA adopts the interpretation described in paragraph A.1., above, NPDES permits issued for discharge to waters where a high level of fish consumption is an "existing use" should contain limitations appropriate to protect that use. The CWA provides EPA authority to take this approach when it issues NPDES permits in States not authorized to run the NPDES program, and to object to or ultimately veto State-issued permits that are not based on these considerations. CWA section 402(d).

2. Consistent with CWA section 101(e), where EPA issues NPDES permits, environmental justice concerns can also be taken into account in setting permitting priorities and improving public participation in the permitting process (greater outreach to minority communities and low-income communities including translating notices for limited English speaking populations consistent with Executive Order 12898 on environmental justice).

3. CWA section 302 authorizes EPA to propose and adopt effluent limitations for one or more point sources if the applicable technology-based or water quality-based requirements will not assure protection of public health and other concerns. This determination requires findings of economic capability and a reasonable relationship between costs and benefits. The Agency has never used this authority, but could evaluate whether this authority could be used with respect to pollutants of concern to minorities or low-income communities. Prior to adopting such limitations by regulation, EPA could use its authority under CWA section 402(a)(1) to incorporate such limitations in specific NPDES permits issued by EPA. The Clean Water Act does not appear to provide any general authority to impose conditions on or deny permits based on environmental justice considerations that are unconnected to water quality impacts or technology-based limitations.

4. Pursuant to CWA section 104 and other authorities, EPA may provide technical assistance to Indian Tribes, where appropriate, in the development of water quality standards and the issuance of NPDES permits.

C. CWA Section 404

1. The broadest potential authority to consider environmental justice concerns in the CWA section 404 program rests with the Corps of Engineers, which conducts a broad "public interest review" in determining whether to issue a section 404 permit. In evaluating the "probable impacts . . . of the proposed activity and its intended use on the public interest," the Corps is authorized to consider, among other things, aesthetics, general environmental concerns, safety, and the needs and welfare of the people. 33 CFR § 320.4(a). This public interest review could include environmental justice concerns.

2. EPA has discretionary oversight authority over the Corps' administration of the section 404 program (i.e., EPA comments on permit applications, can elevate Corps permit decisions to the Washington, D.C. level, and can "veto" Corps permit decisions under section 404(c) that would have an unacceptable adverse effect on "municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas"). The CWA thus authorizes EPA to use these authorities to prevent degradation of these public resources that may have a disproportionately high and adverse health or environmental effect on a minority community or low-income community. Such effects can be addressed when they result directly from a discharge of dredged or fill material (e.g., the filling of a waterbody), or are the indirect result of the permitted activity (e.g., the fill will allow construction of an industrial facility that will cause water pollution due to runoff).

III. Safe Drinking Water Act (SDWA)

The SDWA includes two separate regulatory programs. The Public Water Supply program establishes requirements for the quality of drinking water supplied by public water systems. This program contains no federal permitting. The Underground Injection Control (UIC) program establishes controls on the underground injection of fluids to protect underground sources of drinking water.

Under the UIC program, the Administrator must establish requirements for State UIC programs that will prevent the endangerment of drinking water sources by underground injection. EPA has promulgated a series of such requirements beginning in 1980. The SDWA also provides that States may apply to EPA for primary responsibility to administer the UIC program. EPA must establish a UIC permitting program in States that do not seek this responsibility or that fail to meet the minimum requirements established by EPA.

There are several SDWA authorities under which EPA could address environmental justice issues in UIC permitting:

A. EPA-issued Permits

Underground injection must be authorized by permit or rule. The SDWA provides that EPA can deny or establish permit limits where such injection may "endanger" public health. "Endangerment" is defined to include any injection that may result in the presence of a contaminant in a drinking water supply that "may...adversely affect the health of persons." 40 CFR § 144.52(b)(1). As a result, in those States where EPA issues permits and an injection activity poses a special health risk to minority or low-income populations, the SDWA provides EPA with authority to establish special permit requirements to address the endangerment or deny the permit if the endangerment cannot otherwise be eliminated. As in its Chemical Waste Management RCRA permit appeal decision discussed in Part I above, the EAB has addressed EPA's authority to expand public participation and to consider disproportionate impacts in the UIC permitting program. Envotech, 6 E.A.D. 260, 281, 1996 WL 66307 (1996) (http://www.epa.gov/eab/disk10/envotech.pdf).

B. Pending regulatory action

The Office of Water is currently revising the regulations under this program governing "Class V" injection wells (i.e., shallow wells where nonhazardous waste is injected). In determining which wells to regulate and the standards for those where EPA determines regulations are necessary to prevent "endangerment," the SDWA provides EPA with authority to take into account environmental justice issues such as cumulative risk and sensitive populations.

C. Other regulatory actions

Likewise, the SDWA provides EPA with authority to address environmental justice issues related to potential endangerment of drinking water supplies by injection for all types of wells. For example, EPA could revise its regulatory requirements for siting Class 1 (hazardous waste) wells to address cumulative risk and other risk-related environmental justice issues.

IV. Marine Protection, Research, and Sanctuaries Act (MPRSA)

The MPRSA, commonly known as the Ocean Dumping Act, 33 USC § 1401 ff., establishes a permitting program that covers the dumping of material into ocean waters. The ocean disposal of a variety of materials, including sewage sludge, industrial waste, chemical and biological warfare agents, and high level radioactive waste, is expressly prohibited.

EPA issues permits for the dumping of all material other than dredged material. 33 U.S.C. § 1412(a). The Army Corps of Engineers issues permits for the dumping of dredged material, subject to EPA review and concurrence. 33 U.S.C. § 1413(a). (As a practical matter, EPA issues very few ocean dumping permits because the vast majority of material disposed of at

sea is dredged material.) EPA also is charged with designating sites at which permitted disposal may take place; these sites are to be located wherever feasible beyond the edge of the Continental Shelf. 33 U.S.C. § 1412(c)(1).

When issuing MPRSA permits and designating ocean dumping sites, EPA is to determine whether the proposed dumping will "unreasonably degrade or endanger human health, welfare, amenities, or the marine environment, ecological systems, or economic potentialities." 33 USC § 1412(a), (c)(1). EPA also is to take into account "the effect of... dumping on human health and welfare, including economic, esthetic, and recreational values." 33 U.S.C. § 1412(a)(B), (c)(1). Thus, in permitting and site designation, EPA has ample authority to consider such factors as impacts on minority or low-income communities and on subsistence consumers of sea food that would result from the proposed dumping. In addition, the MPRSA provides specifically that EPA is to consider land-based alternatives to ocean dumping and the probable impact of requiring use of these alternatives "upon considerations affecting the public interest." 33 U.S.C. § 1412(a)(G). This authorizes EPA to take impacts on minority populations or low-income populations into account in evaluating alternative locations and methods of disposal of the material that is proposed to be dumped at sea.

V. Clean Air Act (CAA)

There are several CAA authorities under which EPA could address environmental justice issues in permitting:

A. New Source Review (NSR)

NSR is a preconstruction permitting program. If new construction or making a major modification will increase emissions by an amount large enough to trigger NSR requirements, then the source must obtain a permit before it can begin construction. The NSR provisions are set forth in sections 110(a)(2)(C), 165(a) (PSD permits), 172(c)(5) and 173 (NSR permits) of the Clean Air Act.

Under the Clean Air Act, states have primary responsibility for issuing permits, and they can customize their NSR programs within the limits of EPA regulations. EPA's role is to approve State programs, to review, comment on, and take any other necessary actions on draft permits, and to assure consistency with EPA's rules, the state's implementation plan, and the Clean Air Act. Citizens also play a role in the permitting decision, and must be afforded an opportunity to comment on each construction permit before it is issued.

The NSR permit program for major sources has two different components–one for areas where the air is dirty or unhealthy, and the other for areas where the air is cleaner. Under the Clean Air Act, geographic areas (e.g., counties or metropolitan statistical areas) are designated as "attainment" or "nonattainment" with the National Ambient Air Quality Standards (NAAQS)–the air quality standards which are set to protect human health and the environment. Permits for sources located in attainment (or unclassifiable) areas are

called Prevention of Significant Deterioration (PSD) permits and those for sources located in nonattainment areas are called NSR permits.

A major difference in the two programs is that the control technology requirement is more stringent in nonattainment areas and is called the Lowest Achievable Emission Rate (LAER). On the other hand, in attainment or PSD areas, a source must apply Best Available Control Technology (BACT) and the statute allows the consideration of cost in weighing BACT options. Also, in keeping with the goal of progress toward attaining the national air quality standards, sources in nonattainment areas must always provide or purchase "offsets"–decreases in emissions which compensate for the increases from the new source or modification. In attainment areas, PSD sources typically do not need to obtain offsets. However, PSD does require an air quality modeling analysis of pollution that exceeds allowable levels; this impact must be mitigated. Sometimes, these mitigation measures can include offsets in PSD areas.

1. Under the Clean Air Act, section 173(a)(5) provides that a nonattainment NSR permit may be issued only if: "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification." For example, this provision authorizes consideration of siting issues. Section 165(a)(2) provides that a PSD permit may be issued only after an opportunity for a public hearing at which the public can appear and provide comment on the proposed source, including "alternatives thereto" and "other appropriate considerations." This authority could allow EPA to take action to address the proper role of environmental justice considerations in PSD/NSR permitting.

2. In addition to these statutory provisions, EPA directly issues PSD/NSR permits in certain situations (e.g., in Indian country and Outer Continental Shelf areas) and, through the EAB, adjudicates appeals of PSD permits issued by States and local districts with delegated federal programs. In such permit and appeal decisions, it is possible to consider environmental justice issues on a case-by-case basis, without waiting to issue a generally applicable rule or Handbook . EPA already considers environmental justice issues on a case-by-case basis in issuing PSD permits consistent with its legal authority.

3. The EPA Environmental Appeals Board (EAB) has addressed environmental justice issues in connection with PSD permit appeals on several occasions. The EAB first addressed environmental justice issues under the CAA in the original decision in Genessee Power (September 8, 1993). In that decision the EAB stated that the CAA did not allow for consideration of environmental justice and siting issues in air permitting decisions. In response, the Office of General Counsel filed a motion for clarification on behalf of the Office of Air and Radiation (OAR) and Region V. OGC pointed out, among other things, that the CAA requirement to consider alternatives to the proposed source, and the broad statutory definition of "best available control technology" (BACT), provided ample opportunity for consideration of environmental justice in PSD permitting.

In an amended opinion and order issued on October 22, 1993, the EAB deleted the controversial language but did not decide whether it is permissible to address environmental justice concerns under the PSD program. 4 E.A.D. 832, 1993 WL 484880, (http://www.epa.gov/eab/disk4/genesee.pdf). However, in subsequent decisions, Ecoeléctrica, 7 E.A.D. 56, 1997 WL 160751 (1997) (http://www.epa.gov/eab/disk11/ecoelect.pdf), and Puerto Rico Electric Power Authority, 6 E.A.D. 253, 1995 WL 794466 (1995) (http://www.epa.gov/eab/disk9/prepa.pdf), the EAB stated that notwithstanding the lack of formal rules or guidance on environmental justice, EPA could address environmental justice issues. In 1999 in Knauf Fiber Glass, 8 E.A.D. PSD Appeal Nos. 98-3 through 98-20, 1999 WL 64235 (Feb. 4, 1999) (http://www.epa.gov/eab/disk11/knauf.pdf), the EAB remanded a PSD permit to the delegated permitting authority (the Shasta County Air Quality Management District) for failure to provide an environmental justice analysis in the administrative record in response to comments raising the issue.

4. In the 1990 CAA Amendments, Congress provided that the PSD provisions of the Act do not apply to hazardous air pollutants (HAPs), see CAA section 112(b)(6), so the role of hazardous air pollutant impacts as environmental justice issues in PSD permitting is not straightforward. Thus, BACT limits are not required to be set for HAPs in PSD permits. However, the Administrator ruled prior to the 1990 Amendments that in establishing BACT for criteria pollutants, alternative technologies for criteria pollutants could be analyzed based on their relative ability to control emissions of pollutants not directly regulated under PSD. EPA believes that the 1990 Amendments did not change this limited authority, and EPA believes it could be a basis for addressing environmental justice concerns. In addition, EPA may have authority to take into account – and to require States to do so in their PSD permitting – effects of HAPs that are also criteria pollutants, such as VOCs.

B. Title V

Title V of the CAA requires operating permits for stationary sources of air pollutants and prescribes public participation procedures for the issuance, significant modification, and renewal of Title V operating permits. Unlike PSD/NSR permitting, Title V generally does not impose substantive emission control requirements, but rather requires all applicable requirements to be included in the Title V operating permit. Other permitting programs may co-exist under the authority of the CAA, such as those in State implementation plans (SIPs) approved by EPA.

1. Because Title V does not directly impose substantive emission control requirements, it is not clear whether or how EPA could take environmental justice issues into account in Title V permitting – other than to allow public participation to serve as a motivating factor for applying closer scrutiny to a Title V permit's compliance with applicable CAA requirements. EPA believes, however, that in this indirect way, Title V can, by providing

significant public participation opportunities, serve as a vehicle by which citizens can address environmental justice concerns that arise under other provisions of the CAA.

2. Under the 40 CFR Part 70/71 permitting process, EPA has exercised its CAA authority to require extensive opportunities for public participation in permitting actions. State permitting authorities also have the flexibility to provide additional public participation.

3. Other permitting processes under the CAA such as SIP permitting programs can include appropriate public participation measures, and these can be used to promote consideration of environmental justice issues. For example, EPA regulations require that "minor NSR programs" in SIPs provide an opportunity for public comment prior to issuance of a permit (40 CFR § 51.161(b)(2)). (Note, however, that many state programs do not at present meet this requirement.)

C. Solid Waste Incinerator Siting Requirements

The CAA provides specific authority to EPA to establish siting requirements for solid waste incinerators that could include consideration of environmental justice issues. CAA section 129(a)(3) provides that standards for new solid waste incinerators include "siting requirements that minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health or the environment." These would be applicable requirements for Title V purposes. The new source performance standards (NSPS) for large municipal waste combustors (40 CFR part 60, subpart Eb) and hospital/medical/infectious waste incinerators (40 CFR part 60, subpart Ec) both currently contain such requirements. In the large municipal waste combustor NSPS, the specific requirement in section 129(a)(3) was incorporated and requirements for public notice, a public meeting and consideration of and response to public comments were added. However, to reduce the burden on the much smaller entities which typically own and operate hospital/medical/infectious waste incinerators, that NSPS only incorporates the specific section 129(a)(3) requirement. EPA is subject to a court ordered deadline for taking final action on NSPS for commercial/industrial waste incinerators, and has proposed to follow the approach to the siting analysis adopted in the hospital/medical/infectious waste NSPS in that rule.

40 CFR Part 71 Tribal Air Rule

The Part 71 federal operating permit rule establishes EPA's Title V operating permits program in Indian country. Where sources are operating within Indian country, and Tribes do not seek authorization to implement Title V programs, the Part 71 rule clarifies that EPA will continue to implement federal operating permit programs. These Title V permit programs are limited to Title V and other applicable federal CAA requirements and are not comprehensive air pollution control programs. Thus, the opportunities for addressing environmental justice issues may be similar to those discussed in section B above.

cc: Michael McCabe
Barry Hill
Lisa Friedman
Susan Lepow
Alan Eckert
James Nelson

Appendix B

Statutory Provisions to Address Environmental Justice

This list of statutory provisions reflect possible actions that the Agency may take, some of which might require issuing guidance from EPA Headquarters or rulemaking before they can be used. Before these statutory authorities are used, there needs to be discussion regarding whether they should be used in any given circumstance. Questions that need to be addressed include, but are not limited to, the following:

- whether the statutory authorities will be effective;
- whether the use of the statutory authorities will conflict with other Agency activities;
- what are the economic impacts;
- what are the impacts on state and local government entities; or
- whether there are more efficient and effective statutory authorities that may be available.

The Agency has available to it and is using many tools in addition to the ones listed in Appendix B. The statutes listed are not the only approaches available for Agency employees to use to address environmental justice concerns. The Agency will determine which actions it will take once all the options are considered. The Regional or Headquarters office should contact the Office of General Counsel and the appropriate program office before considering the use of any statutory provisions.

Comprehensive Environmental Response, Compensation, and Liability Act ***("CERCLA")*** ***42 U.S.C. §§9601-9675***			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions			
Response Actions	*§§104(a)(1), 101(24), 101(23)*	*40 C.F.R. §300 subpart E*	*Consider environmental justice concerns, such as cumulative risk, vulnerability of sensitive populations.*
		40 C.F.R. §300 subpart E OSWER, Interim Policy on the Use of Permanent Relocations as Part of Superfund Remedial Actions (June 30, 1999)	*Consider environmental justice issues in relocation actions.*
Abatement Actions	*§§106(a), (c)*	*40 C.F.R. §300 subpart E*	*Consider environmental justice issues, such as sensitive or vulnerable populations, infrastructure, and unique exposure pathways when making "imminent and substantial endangerment" determinations.*
Federal Facilities	*§120(h)*	*40 C.F.R Part 373*	*Ensure that the potentially impacted communities have substantial involvement in proposals to transfer contaminated Federal properties.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Administrative Record and Public Participation	*§§113(k)*	*40 C.F.R. §300.800 subpart E*	*Ensure that members of the public have convenient access to the administrative record and translated documents, as appropriate, and a meaningful opportunity to participate in the development of the record.*
Standard Setting/Rule-Making			
Designating Hazardous Substance and Reportable Quantities	*§§102(a), 103(a)*	*40 C.F.R. §302*	*Consider environmental justice issues when designating hazardous substances and their reportable quantities, such as cumulative exposure scenarios, sensitive populations, and consumption patterns.*
National Contingency Plan	*§105(a)*	*40 C.F.R. §§300.317, Part 300 app. A*	*Consider environmental justice issues when establishing priorities or listing facilities.*
Assessment and Listing Facilities	*§§116(a), (b), 105(a)*	*40 C.F.R. §300.425*	*Prioritize consideration of facilities located in minority and/or low-income communities for listing. Consider environmental justice issues such as cumulative impacts and sensitive populations.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Standard Setting/Rule-Making continued			
Assessment and Listing Facilities continued	*§105(d)*	*40 C.F.R. §300.420(b)(5)*	*Publicize in minority or low-income communities the right to petition for a preliminary assessment of public health hazards.*
	§104(i)(11)	*40 C.F.R. §300.430*	*Consider environmental justice when responding to an assessment showing significant risks to the public, including relocation. More fully utilize ASTDR in examining health issues.*
Remedy Selection	*§118*	*40 C.F.R. §§ 300.430(e)(3)(9) & (f); OSWER Directive No. 9355.7-04 at 2, 5, and 6 (May 25, 1995).*	*Provide priority attention to communities facing environmental justice issues that have closed or contaminated drinking water wells.*
	§121(b)	*40 C.F.R. §300.430*	*Consider environmental justice issues when developing and implementing remedy selection, under the nine selection criteria.*
	§121(c)	*40 C.F.R. §§ 300.400(g) and 300.415(j), 300.430(2)(e)(i)(A)(2)*	*Review on-site remedies for environmental justice issues.*
	§121(d)		*Ensure that ARARs are "at least" protective of affected community. including sensitive and vulnerable populations.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
State and Tribal Roles in Program Implementation			
	§104(c)(3)	*40 C.F.R. §35.6105(b)(5)*	*Ensure that institutional controls are adequately addressed through cooperative agreements between EPA and the State or Tribe.*
	§104(d), §126	*40 C.F.R. Part 35, Subpart O*	*Ensure through cooperative agreements that States and Tribes have sufficient capacity to address appropriate environmental justice issues.*
Enforcement			
Fines and Penalties	*§§ 109(a)-(c),103(b), 122(l), (104)(e)(5)(B)*	*40 C.F.R. §§22.39, 302.8(m), 300.400)(iv)(D)*	*Ensure that penalties are assessed consistently across populations. Consider environmental justice concerns in determining gravity. Consider use of SEPs. Include SEPs explicitly as part of stipulated penalties in consent orders.*
Public Participation for Cleanup Agreements, Consent Decrees, and Cost Recover De Minimis Settlements	*§122(d)(2), 122(f), 122(i)*	*40 C.F.R. §§ 300.400(c)(4), 300.430(c), 304.20 subsection B, Exec. Order 13125*	*Solicit public comment from the affected community, and provide translation, as appropriate.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering (Research, Monitoring, and Reporting)			
Monitoring	*§104(b)*	*40 C.F.R. §§ 300.410, 300.420 and 430*	*Consider environmental justice issues in establishing "investigations, monitoring, surveys, testing, and other information gathering."*
	§104(e)	*40 C.F.R. §§300.400 (esp. (c)(8) and (d)(2)-(4)), 300.430(c), 300.430(e)(9)(I), 300.430(f)(6) (ii)*	*Ensure that information requests address issues of concern to the community and include environmental justice issues.*
Reporting and Record-Keeping	*§103(d)*		*Examine record- keeping system to ensure that information regarding communities with environmental justice issues is accessible to public health and environmental agencies.*
Federal Facility Reporting Requirements	*§§120(b), (c), (e)(3), (e)(5)*	*40 C.F.R. §§300.400 (esp. (c)(8) and (d)(2)-(4)), 300.430(c), 300.430(f)(6) (ii)*	*Publicize availability of reports to affected communities, provide technical assistance and translation.*
EPA Reporting Requirements	*§§121(c), 301(h), 311(e)*	*As above, other statutory sections not implemented through EPA regulations.*	*As above*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering (Research, Monitoring, and Reporting) continued *Research, Development and Demonstration*	*§311(b)*		*Ensure that demonstration projects take into consideration environmental justice issues.*
	§311(c)		*Conduct and support research oriented towards environmental justice issues.*
	§311(a)		*Support basic research and training that supports environmental justice goals. Encourage community-based research.*
Agency for Toxic Substance and Disease Registry Programs	*§§104(i)(2) - (6)*	*40 C.F.R. §300.175(b)(8)(i), 300.400(f), and 300.400(c)(ii)*	*Address environmental justice issues through research, establishment of priorities, training, and performing health assessments at sites in communities with environmental justice concerns.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Financial Assistance			
Cooperative Agreements with States and Tribes	*§104(d)*		*Provide adequate assistance to Tribes, including Alaska Native Villages.*
Reimbursement to Local Government for Temporary Emergency Measures	*§123*	*40 CFR Part 310*	*Publicize the availability of funding in communities with environmental justice concerns.*
Research Grants	*§ 311(d)*	*40 C.F.R. §311(d)*	*Ensure that research grants address issues of environmental justice and that the results are adequately disseminated.*
Public Participation in Remedial Action Plans	*§§117(a)-(d)*	*40 C.F.R. §§430(c), 300.415(n), Part 350, Subpart O*	*Promote public involvement of the affected community, for example, through active solicitation for participation, translation of documents, and, as appropriate, providing assistance in forming community advisory boards.*

Clean Air Act ***("CAA")*** ***42 U.S.C. §§ 7401-7671q***			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions			
Advisory Committee	*§§117(a), (b)*		*Include individuals knowledgeable about environmental justice concerns and health disparities issues.*
Standard Setting/Rule-Making			
Nonattainment Designation	*§§182(a)-(e)*		*Make data submissions accessible to the affected population with environmental justice concerns.*
Siting Requirement	*§129(a)(3)*		*Ensure that siting requirements consider environmental justice concerns.*
Monitoring Requirement	*§129(c)*		*Ensure that the affected community has access to monitoring data.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Standard Setting/Rule-Making continued			
Urban Area Sources Program	*§112(k)(2)*		*Consider the relevance of existing health disparities in research, priority setting, and program design.*
	112(k)(4)		*Support state and local government efforts to identify and address urban air "hot spots."*
Motor Vehicle and Heavy-Duty Truck Emissions continued	*219(c)(2), 219(c)(2)(C)*		*Consider health disparities, sensitive populations, and other environmental justice issues when deciding whether to extend PM and clean fuel requirements to cities with populations under 750,000.*
	§112(r)(7)(B)(ii)	*40 C.F.R. §§ 68.12(a), 6822, 68.30*	*Require risk management plans to consider issues of limited English proficiency, socio-economic and cultural characteristics. Encourage good neighbor policies/community advisory groups.*
Permitting and Other Approvals			
Title V Operating Permits	*§505(a)-(c)*	*40 C.F.R. §§70.7(h), 70.6, 70.7*	*Review and address permits for environmental justice issues under, and general compliance with, the Clean Air Act, the State SIP and applicable State law. Solicit the affected population in the public participation process.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Permitting and Other Approvals continued			
New Source Review	*§173(a)(5)*	*40 C.F.R. Parts 51, 165 (a)(2), App. S to Part 51*	*Consider environmental justice issues in the alternatives and balancing requirements.*
PSD/NSR Permitting	*§§172(c)(5), 173(a)(5), 161, 165(a)(2)*	*40 C.F.R. §§ 51.165(a)(2), 51.166(q), App. S to Part 51, 52.21(q), 51.100(o)(2)*	*Consider environmental justice issues in PSD/NSR permitting actions, EPA oversight of state permitting, and EAB Appeal Decision by rule-making, guidance, or on a case-by-case basis. Consider local health conditions and alternatives in BACT determinations.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Delegation of Programs to States and Tribes			
NAAQS	*§§ 110(k)(3), 110(l)*		*Encourage States to address environmental justice in State Implementation Plans.*
PSD Requirements	*§164(b)*		*Ensure that the full range of impacts on affected communities is considered prior to re-designation and that a forum for identifying community concerns takes place.*
EPA Oversight and Discretionary Sanctions	*§110(a)(2)(E)*		*Ensure that all necessary assurances have been made and implemented to comply with other applicable laws.*
	§§ 110(c), 502(i), 173, 179		*Case-by-case sanction and FIP decision; remedy for non-implementations; consider environmental justice issues when making enforcement and remedy decisions.*
State Implementation Plans and EPA Review	*§§108(e), (f), 101(c), 110(a)(2)(E), 110(l)*		*Ensure that the State Implementation Plan conforms to public participation and other legal requirements. Encourage States to solicit participation from communities with environmental justice concerns.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement			
	§113(b)(1)	*40 C.F.R. Part 22*	*Consider environmental justice issues when exercising enforcement discretion.*
	§113(g)		*Solicit the affected community's comment during 30 day settlement agreement period.*
	§303		*Consider environmental justice issues, such as cumulative or multiple impacts and sensitive populations, when making "imminent and substantial endangerment" determination.*
	§112(r)(1)		*Consider environmental justice issues, such as cumulative or multiple impacts and sensitive populations, when enforcing general duty clause. Target enforcement actions in areas with environmental justice issues.*
Financial Assistance	*§§103(a)(1) & (2) & (b)(3)*	*40 C.F.R. Parts 30, 31, & 40.*	*Provide technical services and provide financial assistance to public or nonprofit private entities to conduct research, investigations, experiments, etc. regarding the causes, effects, extent, prevention, and control of air pollution as they relate to environmental justice issues.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
EIP	*§§110(a)(2)(E), 110(l)*	*40 C.F.R. §61.12*	*Ensure compliance alternatives do not result in loss in protection; ensure credits are real, quantifiable, permanent, and enforceable.*
Waiver for Innovative Technological Systems	*§111(j)*		*Consider cumulative impacts on public health.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering			
Monitoring	*§ 114(a), (c)*		*Ensure generation and dissemination of information relevant to concerns of surrounding community.*
	§ § 112(r)(7), 114(a)(3)	*40 CFR Part 1400*	*Establish monitoring requirements that address environmental justice issues, including monitoring, recording keeping, reporting, training, etc...*
	§ § 110(a)(2)(B), 110(a)(2)(F), 110(1)(2)(K)		*On a case-by-case basis modify SIP monitoring requirements to include environmental justice issues, as appropriate.*
Research and Development	*§ § 103(a)(1), (a)(3), (b), (d)*		*Address environmental justice issues through research, investigations, and/or surveys with others, as appropriate, and disseminate findings.*
	§ 112(l)(3)	*40 CFR Part 35*	*Provide technical information to State and local agencies, and others regarding air toxics as they relate to environmental justice issues.*

Federal Water Pollution Control Act ("Clean Water Act" or "CWA") 33 U.S.C. §§1251-1387			
Activity	**Statutory Provision**	**Regulatory Provision**	**Implementation Action**
Permitting and Other Approvals			
National Pollutant Discharge Elimination System (NPDES Permits)	*§§402(a)(1)(B), (a)(2), and 302(a)*	*40 C.F.R. Part 122,*	*Where EPA is the permitting authority, include additional water-quality conditions where consistent with these statutory provisions that protect public health, public water supplies, and fisheries, taking into consideration specific water quality impacts raising environmental justice issues. Consider whether to include additional reporting requirements to address environmental justice issues where appropriate.*
	§402(d)	*40 C.F.R. § 123.44*	*Review and comment on, and object to, as necessary, NPDES permits issued by a state or tribe that are "outside the guidelines and requirements of" the Act. Where EPA is the permitting authority, consider environmental justice issues when issuing the permit in accordance with the Act.*
	§402(a)		*Where EPA is the permitting authority, consider cumulative impacts to impaired waters when new permits are proposed.*
	§402(a)	*40 C.F.R. §122.62(a)(2)*	*Where EPA is the permitting authority, consider whether new information, involving environmental justice issues, constitutes cause to modify existing NPDES permits.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Permitting and Other Approvals *CAFOs*	*§ 402*	*40 C.F.R. §122.23*	*Consider environmental justice issues related to water quality impacts when determining whether an animal feeding operation is a "significant contributor of pollution to the waters of the United States" and, therefore, should be designated as a CAFO and increase inspections at state and Federal level.*
Section 404 Dredge-and-Fill Permitting	*§§ 404(a), 404(b)(1)*	*33 C.F.R. § 320.4(a)(1),* *40 C.F.R. §§ 230.10(a)-(d),* *40 C.F.R. § 230.11(g)*	*Comment on and encourage Army Corps of Engineers to consider cultural, social subsistence, "way of life," historic values and cumulative impacts when conducting public interest review and applying the 404(b)(1) Guidelines.*
	§ 404(c), 404(j)	*40 C.F.R. Part 231, Part 230.10(a)-(d)*	*Consider environmental justice issues relating to aquatic ecosystem degradation when determining whether to exercise veto authority or object to state issued permit.*
Enforcement	*§§ 309(a)-(g)*	*40 C.F.R. Part 22*	*Consider issues of environmental justice in enforcement actions as an element in determining the amount of civil or administrative penalty, and/or in fashioning injunctive relief. The statute provides for consideration of a number of penalty factors including "such other matters as justice may require." Encourage use of SEPs.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement	*§504*		*Consider issues of environmental justice related to water quality impacts when determining whether to bring suit on behalf of the United States to restrain any person causing or contributing to a pollution source that is presenting an "imminent and substantial endangerment to the health of persons or to the welfare of persons where such endangerment is to the livelihood of such persons."*
	§ 309		*Pursue enforcement actions where appropriate in communities with environmental justice concerns related to water quality impacts.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering			
Research	*§ 104(a) and (b)*		*Undertake research, training, surveys, studies, etc... to better address issues of environmental justice relating to water quality. Provide technical information to pollution control agencies and other appropriate public or private agencies, institutions, organizations, and individuals, including the general public, to address environmental justice issues.*
	§§104(p)		*Develop and disseminate to the public and farmworkers, the latest scientific information available indicating the kind and extent of effects on public health and welfare from the presence of pesticides in water*
Reporting	*§ 308*		*Make available records, reports, or information regarding effluent discharges obtained under 308(a) to affected members of the public in an accessible manner.*

Emergency Planning Community Right to Know Act ("EPCRA") 42 U.S.C. § §11001-11050			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
Standard Setting/Rule-making *Petitions for Deletions and Additions to List of Toxic Chemicals Subject to Toxic Chemical Release Form Reporting Requirements*	*§313(d) ,(e)*		*Take into account sensitive or vulnerable populations when determining whether a chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human effects.*
Petitions for Deletions and Additions to Extremely Hazardous Substance (EHS) List	*302(a)(4)*	*Part 355, appendices A & B*	*Factors to consider include toxicity, which includes any short-term or long-term health effect which may result from short-term exposure. Although unlikely to be based on human health (animal species usually more sensitive), listing or delisting determination could take into account affects on susceptible populations*
Delegation of Programs to States and Tribes and Federal Adherence *Generally*	*§301(a)*		*Encourage State Emergency Response Commissions (SERCs) and Local Emergency Planning Committees (LEPCs) to address environmental justice issues (e.g., composition of SERCs and LEPCs, addressing vulnerable or sensitive populations and infrastructure concerns).*
Federal Compliance (Executive Order 13148)			*Ensure Federal compliance with EPCRA and the Pollution Prevention Act of 1990. Federal agencies should consider environmental justice issues in determining, for example, whether to apply exemptions*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement			
General	*§326*	*40 C.F.R. Part 22*	*Consider environmental justice issues in establishment of enforcement priorities and penalty determination.* *Provide information obtained to SERCs, LEPCs, and Tribal Emergency Response Commissions, as appropriate.*
Penalties	*§§325(a) - (c), 326*	*40 C.F.R. 370.25*	*Consider environmental justice issues when targeting facilities, sectors, exercising prosecutorial discretion, and when determining penalty amount (e.g., when considering the nature, circumstances, extent, and gravity of the violation). Consider use of Supplemental Environmental Projects.*
Special Enforcement Provisions for Health Professionals	*§§325(e), 323*	*40 C.F.R. Part 28*	*Evaluate compliance assistance opportunities to help ensure that health professionals have ready access to the information provided under §323.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering			
Emergency Planning Notification Requirements	*§§ 302(c) and (d)*	*§40 C.F.R. 355.30*	*Make information collected and transmitted to EPA available, in a useful and accessible form, to communities with environmental justice issues (e.g., GIS maps, with demographic and other environmental justice indicators). Ensure that information is transmitted in a timely and complete manner to EPA by State entities.*
Emergency Notification Release Reporting Requirements	*§304(a)-(c)*	*§40 CFR 355.40*	*Provide targeted compliance assistance to help ensure that information required to be transmitted is done so in a timely, accurate and complete manner.*
Translation (Executive Order 13166)	*§304(c)*		*Encourage states or local authorities to promote environmental justice goals (e.g., making emergency notices available to affected populations in appropriate languages and in plain language, etc...).*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering cont'd			
Material Safety Data Sheets	*§§ 311(a), (c) and (d)*	*40 C.F.R. §370, Subpart B*	*Provide targeted compliance assistance to facilities located in communities with environmental justice issues to ensure timely and complete transmittal of information required under §311(a) and (d).*
Emergency and Hazardous Chemical Inventory Forms	*§§ 311(a) - (d)*	*40 C.F.R. §370, Subpart C*	*Encourage and assist in actions that facilitate dissemination of information in an accessible form to communities with environmental justice issues.*
Toxic Chemical Release Forms	*§ 313*	*40 C.F.R. §370.25*	*Provide targeted compliance assistance to facilities located in communities with environmental justice issues to ensure timely and complete transmittal of information required.*
	313(j)		*Develop tools to disseminate information and trends in an accessible manner.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering cont'd			
Public Information Regarding Material Safety Data Sheets	*§311(c)(2)*		*Provide assistance to help states and tribes ensure that accurate information is accessible to communities with environmental justice concerns, and that the public is aware of the availability and use of such information.*
Provision of Emergency and Hazardous Chemical Inventory Forms Tier II Information	*§312(e)(3)(A), (B)*	*40 C.F.R. 370.30*	*Provide targeted compliance assistance to SERCs and LEPCs, encourage dissemination of information to communities with environmental justice issues. Publicize availability and use of such information in areas with environmental justice issues.*
Availability of Material Safety Data Sheets, Forms, and Follow-Up Notices	*§324(a), (b)*	*40 C.F.R. 370.31*	*Publicize the availability and use of information in communities with environmental justice issues. Encourage State or local entities to publicize the availability of information to the public.*
Petitions for Disclosure of Specific Chemical Identity	*§§322(c) - (e), 322(h)(1)*		*Provide guidance to states regarding the petition process for obtaining chemical identity for chemicals otherwise protected as trade secret.*
Financial Assistance	*§305(a)(1)*		*Provide training to small and/or low tax-base municipalities, with environmental justice issues, in hazard mitigation, emergency preparedness, fire prevention and control, disaster response, long-term disaster recovery, national security, technological and natural hazards and emergency process.*

Federal Insecticide Fungicide and Rodenticide Act ("FIFRA") 7 U.S.C. 136-136y; Federal Food, Drug, and Cosmetic Act ("FFDCA"); 21 U.S.C. 301-397; as Amended by Food Quality Protection Act of 1996 ("FQPA")			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions			
Public Participation	*7 USC §136s(c)*		*The Administrator may solicit participation in decisionmaking process (e.g., taking action with respect to a pesticide registration) from the affected population with environmental justice concerns, or "other qualified persons."*
	FIFRA §2(bb)	*40 C.F.R. §§154.7(a)(6), 166.3(j)*	*Consider issues relating to environmental justice concerns (e.g., subsistence, unique exposure pathways, etc..) when undertaking the "unreasonable adverse effects" determination.*
Worker Protection	*7 U.S.C. 136w.*	*40 C.F.R. Part 170 (Worker Protection Standard)*	*On a chemical-by-chemical basis address environmental justice issues more fully (e.g., pesticide safety training, consideration of language barriers).*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Education and Outreach	*7 U.S.C. §§ 136i-1, 136r, 136u, 136w*		*Address environmental justice issues through improved training of medical professionals to recognize and diagnose injuries related to pesticide exposure, establishment of a national pesticide injury reporting system (e.g., "Pesticides and National Strategies for Health Care Providers" - an effort to get pesticide information into the training of health care providers).* *Conduct education and outreach to farmworkers and others regarding special needs of children in and around fields where pesticides are applied. Conduct education and outreach to communities living near fields where pesticides are applied.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Licensing And Other Approvals			
Pesticide Registration *Generally*	*§3(c)*	*40 C.F.R. §§152.15, 172*	*When determining whether a pesticide poses an unreasonable risk to communities, consider environmental justice issues (e.g., vulnerable or sensitive populations, lack of medical care, proximity to pesticide exposed areas).*
Unlawful acts	*§12(a)*		*Expedite decisions where worker and community exposure is a concern.*
Labeling		*40 C.F.R. §156.10(a)(3)*	*Require labeling in languages most appropriate for end user and "as is considered necessary to protect the public."*
Classification of Pesticide	*§3(c) and (d)*	*40 C.F.R. Part 152 subpart I*	*Consider restricting pesticides that raise environmental justice issues. Issue locale specific restrictions on pesticide uses that have unreasonable adverse effects for communities that bear a disproportionate risk from pesticide use (i.e., areas with subsistence populations).*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Licensing And Other Approvals continued			
Data Collection	*§3(c)(2)(b)*	*40 C.F.R. §158.75*	*Consider whether, based on scientific reasons, to initiate "data call-in" when environmental justice issues are raised regarding a pesticide or its use and insufficient information necessary to address concerns is available. Consider data needs associated with spray drift.*
Minor Us Registration	*§3(c)(3)(C)*		*Consider environmental justice issues when allowing use of minor use pesticides, anti-microbials, and public health pesticides.*
Setting Tolerances and Granting Exemptions	*FFDCA § 408(b)(2)(C) & (D)*		*When establishing tolerances and exempts, consider aggregate exposure and dose to sensitive, susceptible, vulnerable, or subsistence populations, children, infants and "sensitivities of major identifiable subgroups of consumers." Also consider interactions with "other substances," and "other relevant factors" to address environmental justice issues.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Data Needs	*FFDCA §408(b),(f), FIFRA § 3*	*40 CFR §158*	*Require submission of data addressing environmental justice issues, "reasonably required," to support the continuation of a tolerance or exemption in effect or when assessing chronic dietary risks in connection with the establishment of a tolerance.*
Licensing And Other Approvals continued *Pesticide Registration*			
Public Participation	*§3(c)(4)*		*Solicit participation and assure availability of data concerning environmental justice issues for new chemicals or uses.*
Cancellation or Suspension of Pesticide Registration	*§§6(a)-(d), 19(b)*		*Cancel or modify use conditions based on unreasonable adverse effects to a community with environmental justice concerns, or if pesticide presents an imminent hazard to a community with environmental justice concerns. Note that unreasonable adverse effects is a balancing of costs and benefits.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Setting Tolerances and Granting Exemptions	*FFDCA section 408*	*40 C.F.R. Part 180, 40 C.F.R. § 152.112(g), As described in U.S. EPA Office of Pesticide Programs, Agency Actions Under the Requirements of the Food Quality Protection At PR Notice 97-1 (Jan. 31, 1997)*	*When establishing tolerances and exemptions consider aggregate exposure and cost to sensitive, susceptible, vulnerable, or subsistence populations, children, infants, and "sensitivities of major identifiable subgroups of consumers."*
Data Needs	*§408(b), (f)*		*Consider the need for additional submission of data addressing environmental justice issues, "reasonably required," to support the continuation of a tolerance or exemption in effect, when assessing chronic dietary risks in connection with the establishment of a tolerance and based on a risk health.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Delegation of Authority to States and Tribes to Cooperate in Enforcement			
State Regulatory Authority	*§24(c)*	*40 C.F.R. Part 162*	*Consider environmental justice issues when reviewing State registered pesticides or state's registration authority.*
Tribe and State Cooperative Enforcement Authority	*§23(a)(1)*	*None*	*Enter into cooperative agreements to assist in enforcement efforts.*
State Enforcement Authority for Pesticide use Violations	*§26(a), (b)*	*40 C.F.R. §173*	*Track state responses to enforcement petitions and enforcement actions. Take protective actions to the extent that State does not, or cannot, adequately respond.*
State/Tribe Certification of Pesticide Applicators	*§§11(a), 23(a)(2)*	*States 40 C.F.R. Part 171 Tribes and States §§ 171.1-171.6 (general standards); 171.7-8 (States), 171.10 (tribes)*	*Include such information, reporting, and other provisions as are required to assure that all sub-populations are protected, and consider environmental justice issues when evaluating adequacy of State/Tribe implementation.*
Emergency Exemptions	*§18*	*40 C.F.R. Part 166*	*Consider emergency exemptions to address exigent circumstances facing communities with environmental justice issues. Consider also the effects of granting emergency exemptions on communities with environmental justice issues in determination process.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement			
Inspection	*§§9(a), 8, 7*		*Train inspectors to be aware of environmental justice issues when conducting inspections. (Consider targeting inspections to areas where environmental justice issues may be of concern)*
Stop Sale Order	*§13(a)*		*Conduct more inspections, and enhance whistleblower protection.* *Consider environmental justice in the determination of whether a pesticide or devise is or is intended to be used or sold in violation of the Act.*
Civil Penalties	*§12*		*Consider targeting enforcement actions where issues of environmental justice may be of concern. Consider environmental justice issues in penalty and gravity assessment. Consider Supplemental Environmental Projects.*
Tailor Remedy	*§16(c)*		*Consider environmental justice issues when fashioning injunctive relief.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering *Research*	*§§20(a) and 23(c)*		*Conduct research to identify and address potential "unreasonable adverse effects" on communities with environmental justice issues from pesticides. Research alternatives for reduced, safer use, or application of pesticides (i.e. integrated pest management, training, worker/consumer education). Disseminate information with State to individuals and communities facing environmental justice issues.*
Monitoring and Data Collection	*7 U.S.C. §136r*	*None*	*In consultation with the Department of Agriculture, ensure that restricted pesticide data collected addresses information relevant to environmental justice, and is maintained in a manner that allows environmental justice issues to be tracked and identified.*
Information Gathering continued *Monitoring and Data Collection continued*	*§25(d)(1)*		*Appoint members of the scientific advisory panel who are well versed in environmental justice issues. Use panel to peer review methodological modifications to address issues of environmental justice.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering continued *Estrogenic Substances Screening Program*	*FFDCA §408(p)*	*None*	*In carrying out the estrogenic substances screening program, consider testing of other substances that may have an effect that is cumulative to an effect of a pesticide chemical if the Administrator determines that a substantial population may be exposed to such substance.* *Consider requiring information collection concerning substances that may have an estrogenic or other endocrine effect on communities with environmental justice issues.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering continued			
Monitoring and Data Collection continued	*FFDCA § 408(b)(2)(c)*		*In consultation with the Department of Agriculture and the Department of Health and Human Services, ensure that the "increased sampling of foods most likely consumed by infants and children," consumed by sensitive, vulnerable, and subsistence populations.*
Reporting	*§6(a)(2)*	*40 C.F.R. §152.125, and Part 159*	*Require reporting of information by registrants, germane to environmental justice concerns.*
Certification of Restricted Use Pesticide Applicators	*§11(a)(2)(D)*	*None*	*Require collection and reporting of information, in State or Tribal Plans germane to environmental justice concerns.*
	§(8)(a)	*40 C.F.R. §169.2(i)*	*Analyze pesticide disposal records of registrants with respect to environmental justice issues.*
	FFDCA § 408(o)		*Provide to large retail grocers for public displays targeted information about pesticide residues and recommendations for dietary reductions.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Financial Assistance	*§ 23(a)(2)*	*40 C.F.R. § 35.240*	*Assist States and Tribes to train and certify pesticide applicators to be aware of environmental justice situations and issues.*
	§§ 20(a), 136r-1		*Make grants available to conduct such research, development, monitoring, public education, training, demonstrations, and studies, "as may be necessary to carry out the purposes of [FIFRA],"as they relate to environmental justice issues.*

National Environmental Policy Act ("NEPA") 40 U.S.C. §§4321-4370d			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Activity***
General Provisions			
Administering Other Laws in Accordance with NEPA	*§§102(1), 105, 102(2)(H)*	*40 C.F.R. §1500.2(a), 1500.6*	*Implement other statutes "to the fullest extent possible... in accordance with the policies set forth in [NEPA]," bearing in mind that NEPA's goals are "supplementary to those set forth in existing authorizations of Federal agencies." Consider using this authority to address environmental justice issues in conjunction with other statutory authority.*
	§102(2)(A), (B), (E)	*40 C.F.R. §1501.2(a)-(c)*	*Utilize a systematic, "interdisciplinary approach which will insure the integrated use of the natural and social science ... in planning and decisionmaking which may have an impact on man's environment," whether or not such actions require development of NEPA compliance documents.*
	§102(2)(G)	*40 C.F.R. §1500.1(b), 1500.2(f)*	*Provide government at all levels, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment," including issues relating to environmental justice.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Activity*
Implementation of NEPA			
General	*§102(2)(C)*	*Council on Environmental Quality, Environmental Justice: Guidance under the National Environmental Policy Act*	*Consider environmental justice issues identified in CEQ Guidance. Review for consistency.*
		EPA, Office of Federal Activities, Notice of Policies and Procedures for Voluntary Preparation of National Environmental Policy Act (NEPA) Documents (1998)	*Conduct NEPA reviews voluntarily, when functional equivalence doctrine or exemption applies, in instances when environmental justice issues are implicated.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Activity*
Implementation of NEPA continued			
General *Public Participation*	*§ 102(2)(C)*	*40 C.F.R. §§6.400, 1503.1, 1506.6(a), 1506.10(c), 1500.2(d)*	*Solicit involvement of affected public with environmental justice concerns in the decisionmaking process. Consider cultural, social, economic, technical, and language barriers to participation.*
Cooperating Agency		*40 CFR §§1501.6, 1508.5, CEQ Memorandum for Heads of Federal Agencies: Cooperating Agencies in Implementing the Procedural Requirements of the National Environmental Policy Act, 30 January 2002, CEQ Memorandum, Environmental Quality: Designation of Non-Federal Agencies to be Cooperating Agencies in Implementing the Procedural Requirements of the National Environmental Policy Act Documents (1998)*	*Solicit Tribal participation, including Alaska Native Villages, in NEPA process as cooperating agencies. Promote dissemination of information and solicit early involvement.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Activity*
Implementation of NEPA continued			
Triggering EIS/EA Development	*42 U.S.C. §4332(2)(C)*	*40 C.F.R. §§1507.3(b)(2)(ii), 1508.4*	*Whenever appropriate, avoid use of categorical exclusions for activities that may result in environmental justice issues.*
		40 C.F.R. §§1508.8, 1508.14, 1508.27	*Consider environmental justice issues in "significance" determination.*
		40 C.F.R. Part 6, 40 C.F.R. §§6.400(d), 1501.3(b), 1501.4(b), 1501.4(c), 1501.4(e), 1508.9(a), Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (April 1998), 3.1-3 and 4.2	*Consider environmental justice issues in development of Environmental Assessment (EA) and determination whether a Finding of No Significant Impact (FONSI) is warranted. Follow EPA EJ NEPA Guidance. Issue FONSI and EA in draft and in an accessible format. Solicit comment from individuals and entities with environmental justice concerns. Mitigate unavoidable impacts that result in environmental justice issues.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Activity*
Preparing Environmental Impact Statements			
Scoping		*40 C.F.R. §§1501.7, 1508.25, CEQ EJ Guidance at 11-12; EPA EJ Guidance at 3.2 and 4.1*	*Solicit assistance of communities and Tribal cooperating agencies in scoping process to identify potential environmental justice issues and develop alternatives. Address issues identified in CEQ and EPA EJ NEPA Guidance documents.*
Development of Alternatives		*40 CFR §§1502.14, 1508.20, CEQ EJ Guidance at 15-16, EPA EJ Guidance at 3.2.*	*Ensure that affected communities with environmental justice concerns play a meaningful role in the development of alternatives and mitigation measures.*
Affected Environment		*40 C.F.R. §1502.15, CEQ EJ Guidance at14, EPA EJ Guidance at 3.2.4*	*Develop appropriate geographic scale for NEPA inquiry, taking into consideration vulnerabilities of infrastructure, the human-built environment, natural environment and sensitive or vulnerable populations. Follow procedures identified in CEQ and EPA EJ Guidance documents.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Activity*
Preparing Environmental Impact Statements continued			
Environmental Consequences		*40 C.F.R. §§1502.16, 1508.7, 1508.8, and 1508.14, CEQ Considering Cumulative Effects Under the National Environmental Policy Act (January 1997), EPA EJ Guidance at 2.2.2, 5.3*	*Address issues identified in CEQ and EPA EJ NEPA Guidance documents. Consider direct, indirect, and cumulative impacts. Solicit participation of cooperating Tribal agencies and ensure meaningful opportunities to participate by the affected public.*
Records of Decision		*40 C.F.R. §§ 1503.1(b), 1503.4, 1505.(2), CEQ EJ Guidance at 15, EPA EJ Guidance at 1.2, 3.2.8*	*Explain in the Record of Decision how disproportionately high and adverse effects to environmental justice communities were identified. If any such impacts were identified, describe how they were made a factor in the Agency's decision. Follow procedures identified in CEQ and EPA EJ Guidance Documents.*
CAA 309 Review of NEPA Documents	*CAA §309(a) and (b)*	*40 C.F.R. § 1504.1-3, US EPA Office of Federal Activities, EPA Guidance for Consideration of Environmental Justice in Clean Air Act Section 309 Reviews (July 1999).*	*Coordinate with lead agency to assist with development of environmental justice NEPA strategy. Follow EPA 309 EJ Guidance. Consider environmental justice issues in determinations of whether to refer NEPA documents to CEQ.*

Resource Conservation and Recovery Act ***("RCRA")*** ***33 U.S.C. §§6901-6992k***			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions	*§1002(a)(3)*		*Recognize special environmental justice issues faced by urban areas.*
	§1002(a)(4)		*Encourage federal leadership in addressing solid waste concerns in communities with environmental justice issues by providing financial and technical assistance and leadership.*
	§1001(b)(2)		*Consider front-end siting/planning issues to address environmental justice issues.*
Permitting and Other Approvals			
Permitting for Hazardous Waste Management Under Subtitle C	*§3005(c)(3)*	*40 C.F.R. §270.32(b)(2)*	*Consider permit conditions under "omnibus" authority to address environmental justice issues on a case-by-case basis.*
	Subtitle C authority	*40 CFR 270.10(k)*	*Require, evaluate, and disseminate information pertaining to environmental justice issues during the permitting process. Request ATSDR to conduct a health assessment if a disposal facility "poses a substantial potential risk to human health.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Permitting for Hazardous Waste Management Under Subtitle C *Public Participation in Permitting*	*§4005(c)*	*40 C.F.R § 239.10*	*Evaluate sufficiency of state permitting systems for management of facilities that receive household hazardous waste and small quantity generator waste that is exempted from regulation under Subtitle C.*
Delegation of Programs To States and Tribes *Hazardous Waste Regulation*	*§3006(a)*	*40 C.F.R. Part 271*	*Revise state program guidelines to include consideration of environmental justice issues, consistent with the requirements of the Federal program, and encourage states to adopt environmental justice consideration in their programs, more generally.*
	§3006	*40 C.F.R. §§271.19(a), (e)*	*Comment on proposed state permits during public comment period.*
	§§3006(b), 3009	*40 C.F.R. §271.19(e)*	*Ensure that State RCRA programs' consideration of environmental justice is "no less stringent" than the Federal program.*
Enforcement *Administrative Orders, Civil Actions, and Citizen Suits*	*§§3008, 3008(g)*	*RCRA Civil Penalty Policy (October 1990)*	*Consider issues of environmental justice in penalty phase of actions,*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
			and/or in fashioning injunctive relief.
Enforcement cont.	*§3008*		*Encourage use of Supplemental Environmental Projects.*
Criminal Enforcement	*§3008(d)*		*Set priorities for enforcement, compliance, and permitting activities with attention to environmental justice issues.*
Imminent and Substantial Endangerment	*§7003*		*Consider issues of environmental justice in exercise of prosecutorial discretion and targeting.*
Corrective Actions	*§3005(c)(3)*	*Guidance on the Use of Section 7003 of RCRA, Section II., Bullet 1 (Oct. 1997)*	*Consider issues of environmental justice when making "imminent and substantial endangerment" determination and establishing "necessary" actions to address conditions.*
		40 C.F.R. 270.32(b)(2); 264.101	*Establish permit corrective action requirements that address environmental justice issues, such as sensitive or vulnerable populations, and other requirements "necessary to protect human health and the environment."*
Information Gathering			
Research	*§§2002(a)(2), (a)(4), (a)(5), 8001(a)*		*Undertake research and develop capacity with others, as appropriate, to address better the environmental justice issues.*
	§§3012, 3016	*40 C.F.R. §§ 260.2,*	*Assist states and federal*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering continued		*263.22 (B)*	*agencies in assessing and making available information regarding TSDFs and transporters.*
Monitoring, Sampling and Inspecting	*§§3007(a), 3005(c)(3), 3013(d)*	*40 C.F.R. §279.10(k)*	*Require facility owners, as appropriate and necessary, to carry out studies or risk assessments necessary to determine the nature or extent of hazard posed by hazardous waste, and where appropriate establish permit conditions under "omnibus" authority.*
	§3007(a)		*Involve members of proximate community in inspection process.*
Financial Assistance	*§§3011, P.L. 105-276*	*40 C.F.R. Part 35.210-218 and 40 CFR 35.720-35.725*	*Include consideration of environmental justice issues as a factor in allocating and awarding funds for hazardous waste management program grants.*

Safe Drinking Water Act ***("SDWA")*** ***42 U.S.C. § § 300f-300j-26***			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions *National Drinking Water Advisory Council*	*§1446*		*Ensure that membership of the National Drinking Water Council includes individuals with knowledge of environmental justice issues.*
Standard Setting/Rule-Making *Public Water Systems*	*§§ 1412, 1412(b)(3)(C), and 1412(b)(1)(C)*		*Establish Maximum Contaminant Levels (MCL) and Maximum Contaminant Level Goals that take into consideration sensitive, vulnerable, or other sub-populations. Establish priorities based on public health criteria.*
	§ 1414(c)	*40 C.F.R. §141.32 and Part 141, Subparts O and Q*	*As required under the public notice and consumer confidence report regulations, help public water systems to develop and provide information to vulnerable, sensitive, or subsistence populations about drinking water risks, and present such information in an understandable manner.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Standard Setting/Rule-Making continued cont'd	*§1415*	*40 C.F.R. §142.313(b) 40 CFR part 142, subpart C*	*Consider environmental justice issues when determining whether to grant a variance. Review and object to State granted variances that are not protective of surrounding community. Periodically review state variance programs to help ensure that variances are protective of subpopulations.*
	§1415(a)(1)	*40 CFR part 142, subpart C*	*Consider whether a variance granted, because of the condition of raw water, would result in "an unreasonable risk to health" to vulnerable, sensitive, or other subpopulations.*
	§1415(a)(1)(F)	*40 CFR part 142, subpart C*	*Consider environmental justice issues when conducting 3-year reviews of State granted variances.*
Standard Setting/Rule-Making continued	*§ 1416*	*40 C.F.R. §§142.22 - 142.24*	*Ensure that State or Federal granted exemptions do not result, either individually or in the aggregate, in an "unreasonable risk to health" to sensitive, vulnerable or other sub-populations. Consider environmental justice issues when conducting a "comprehensive review of exemptions granted... by the States."*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement			
Imminent and Substantial Endangerment	*§1431(a)*	*40 CFR Part 22*	*Consider environmental justice issues when deciding whether to take action to protect the health of persons based on information that a contaminant present in or likely to enter a public water system or underground source or drinking water may present an imminent and substantial endangerment of the health of persons.*
Civil Actions	*§ 1414*		*Consider environmental justice in establishing enforcement priorities and civil and administrative penalty determinations. The statute provides for a court to consider the "population at risk, and other appropriate factors" in establishing a penalty in a civil action. Consider environmental justice issues when fashioning remedy. Encourage use of SEPs.*
Underground Injection Control	*§1423(a)*		*Consider environmental justice in establishing enforcement priorities and civil and administrative penalty and related determinations, as above.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Source Water Protection Programs			
Wellhead Protection Program	*§1428*		*Review State biennial status reports for completeness and with respect to environmental justice issues.*
Source Water Quality Assessment	*§1453, 1454*		*Recommend to the States that they use source water quality assessment to help identify potential environmental justice issues (e.g., cumulative impacts, local knowledge of conditions) and use this information in source water protection efforts. Encourage States to solicit participation of sensitive or vulnerable sub-populations in technical and citizens' advisory committees and in the decisionmaking process.*
Sole Source Aquifer Protection	*§1424(e)*	*40 CFR Part 149*	*Solicit participation in identification, designation, and protection of sole source aquifers.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering			
Reporting	*§1414(c)(3)*		*Review State annual Safe Drinking Water Act reports for environmental justice issues. Use reports as the basis for making compliance assurance recommendations.*
Research	*§1442(a)*		*Research and investigate environmental justice issues, and direct use of assistance authorities to systems or contaminants affecting sensitive or vulnerable sub-populations.*
	§1458		*"[C]onduct a continuing program of studies to identify groups... that may be at greater risk than the general population of adverse health effects from exposure to contaminants in drinking water."*
Monitoring	*§1445*		*Require information collection and maintenance of records sufficient to determine the adequacy of protection of sensitive, vulnerable or other subpopulations.*
	§1445(g)		*Establish and maintain a database of the occurrences of regulated and unregulated contaminants in public water system in a manner that is widely accessible and easy to use.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Financial Assistance			
	§1443(a)	*40 CFR 35.170-35.178 and 40 CFR 35.670-35-678*	*Consider including environmental justice as a factor for allotting funds to states and awarding grants to tribes.*
	§1443(b)	*40 CFR 35.190-35.198 and 35.680-35.688*	*Provide grants to eligible Tribes to develop and implement UIC programs.*

Toxic Substances Control Act ***("TSCA")*** ***15 U.S.C. §§ 2601-2692***			
Activity	***Statutory Provision***	***Regulatory Provision***	***Implementation Action***
General Provisions			
Public Information and Assistance Provisions	*§§21, 212, 405(d), 406, 405(e)*	*40 C.F.R. §§745.80, 745.225, 745.85*	*Solicit and respond to concerns relating to environmental justice issues. Provide direct assistance or training to populations at high risk of exposure to asbestos or lead hazards.*
Standard Setting/Rule-Making			
Regulation of Existing Chemicals Generally	*§5*	*40 C.F.R. §§720.1, 721.1*	*Consider environmental justice concerns on a case-by-case basis in determining whether a substance poses an unreasonable risk of injury to health or the environment.*
Regulation of Existing Chemicals Generally	*§5*		*When considering whether a chemical creates an imminent and unreasonable risk of serious or widespread risk, consider issues of environmental justice, prior to taking appropriate action under §6.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Standard Setting/Rule-Making continued *Regulation of Existing Chemicals Generally* *Polychlorinated Biphenyls*	*§6(e)*	*40 C.F.R. §§ 761.75(c)(3)(ii), 761.70*	*Include requirements addressing environmental justice concerns necessary to ensure the operation of the chemical waste landfill or incinerator does not present an "unreasonable risk of injury."*
		40 C.F.R. §§ 761.75(c)(4), 761.70(d)(5)	*Solicit, as appropriate, participation of individuals/community with environmental justice concerns prior to issuing decisions.*
Permitting and Other Approvals	*§5(e)*	*40 C.F.R.§720.45*	*When reviewing pre-manufacturing notices, consider whether environmental justice issues would create unreasonable risks, or whether sufficient information exists to make that determination.*
	§5(b)	*40 C.F.R.§720.50*	*Consider environmental justice issues when identifying the list of substances with respect to which activities may present an unreasonable risk of injury to health or the environment.*
Delegation of Programs to States and Tribes	*§404*	*40 C.F.R. §745.327*	*Consider environmental justice issues when reviewing state certification and application for authorization. Ensure adequate review of state certifications. Provide compliance assistance to build state capacity to address environmental justice issues.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Enforcement			
Civil Penalties	*§16(a)*	*40 C.F.R. §§22.4, 745.87, 761.135*	*Consider environmental justice in establishing enforcement priorities and penalty determination.*
		40 C.F.R. §745.118	*Consider environmental justice issues when targeting facilities, sectors, exercising prosecutorial discretion, and when determining penalty amount (e.g., when considering the nature, circumstances, extent, and gravity of the violation). Consider use of SEPs.*
	§11	*40 C.F.R. §745.226(b)*	*Target inspections to areas with environmental justice concerns. Train inspectors to identify environmental justice issues.*
Asbestos in Schools	*§§207(a), 208(d)*	*40 C.F.R. §763.97*	*Target schools with environmental justice concerns in the evaluation whether local education agencies are taking sufficient action to address asbestos concerns.*
Lead-Based Paint	*§§ 402 work practice standards, lead hazard level; and 403 practice standards, lead hazard level; 406 lead hazard information pamphlet; 407 Record-keeping; 409 Prohibited Acts; Residential Lead-Based Paint Hazard Reduction Act Section 1018*	*40 C.F.R. §§745.87, Sub-part E, 745.118, 745.85* *Subpart F 85,86,87,107,113(b)(c), 115,118*	*Focus attention on the lessee provisions of Section 1018. Disseminate compliance assistance information, and take environmental justice issues into consideration when undertaking enforcement actions. Consider SEPs.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Information Gathering			
Testing Chemical Substances	*§4(a)*	*40 C.F.R. §790.40*	*In determining whether a chemical substance may pose an unreasonable risk, consider fully the potential health and environmental risks to communities with environmental justice issues (e.g., unique exposure pathways, subsistence, vulnerable, or sensitive populations).*
	§4(b)(5)	*40 C.F.R. §790*	*Solicit the involvement of individuals with, and/or expertise in, issues of environmental justice.*
	§8(c)	*40 C.F.R. §717*	*Inspect and assess records of "alleged" significant adverse reactions and consider information in context of specific areas of environmental justice concern.*
Reporting and Record-Keeping	*§8(e)*	*40 C.F.R. §717*	*Provide compliance assistance to chemical manufacturers and other appropriate entities to facilitate full compliance of reporting requirements.*
Research	*§10, P.L. 106-74*		*Conduct research and monitor the use, processing, distribution, etc... of chemical substances relating to issues of environmental justice. Provide grants or cooperative agreements to community-based organizations or others to conduct research, development, monitoring, public education, training, demonstrations, and studies necessary to carry out the purposes of TSCA.*

Activity	*Statutory Provision*	*Regulatory Provision*	*Implementation Action*
Financial Assistance	*§28*	*40 C.F.R. § § 35.310, 35.312*	*Make grants to states, on a case-by-case basis, to implement programs that prevent or eliminate unreasonable health and environmental risks associated with a chemical substance where the states demonstrated a priority need relating to environmental justice concerns.*
	§27		*Consult with the Department of Health and Human Services regarding grantmaking to non-profit organizations to address environmental justice concerns.*
	§§ 305, 306	*40 C.F.R. §§ 35.290 - 35.298*	*When providing technical assistance under § 305, to the maximum extent practicable and consistent with the objectives of the demonstration, homes of low-income persons should be selected for evaluation and demonstration of mitigation methods.* *Evaluate whether attention to environmental justice concerns should be deemed a criterion necessary to promote the goals of the radon grant program and an activity to be given priority when state applications for funds exceed the total funds available.*

Appendix C

Example Application of the Environmental Justice Assessment Methodology

This example application of the environmental justice assessment methodology is intended to be a teaching tool only. It is written to clearly indicate a situation where there is a valid concern about an environmental injustice. In the interest of clarity and to provide an illustration of the use of the entire environmental justice assessment methodology, the storyline uses exaggerated characterizations of situations and individuals. EPA recognizes that the vast majority of individuals in the real world who are depicted do not fit the descriptions provided in this hypothetical case study.

PART 1: THE HYPOTHETICAL ENVIRONMENTAL INJUSTICE SITUATION

You are an EPA employee who has been assigned the responsibility of conducting an assessment of an allegation of environmental injustice that has been brought to the Agency's attention by a multi-racial and ethnic community group, Citizens for Environment Justice, from a small community in Chestnut Heights County. Various members of the community group have asked you to accompany them on a walking tour through their urban community. As the tour begins, you see broken glass strewn about the streets, vacant lots, and boarded-up buildings. There are large abandoned industrial facilities that, on their face, suggest contamination problems since the old signs indicate that these buildings at one time housed manufacturing operations involving chemical dyes, petrochemicals, and paint. You notice a steady stream of huge tractor trailers filled with garbage headed for the mammoth regional hazardous waste landfill that is located nearby. The huge tractor trailers leave a distinctive odor of decaying trash as they go by.

As the walking tour continues, the residents complain not only about their quality-of-life problems because of the continuous noise and odors from the tractor trailers but also of the high incidence, in their view, of the cancer and asthma they believe result from several pollution-generating facilities in the community. They complain about the fact that although there are a considerable number of community residents with upper respiratory ailments, the closest hospital, the primary health care facility for the community, is 50 miles away. Moreover, they complain about the fact that the only jobs that are available to community members are at the two regional waste transfer stations located in the middle of a residential community, and, altogether, there are only 10 low-paying jobs at those facilities.

The community residents insist that you visit the waste transfer stations. At both waste transfer stations, there are six huge tractor trailers neatly lined up in a row with their engines running. The smell of diesel fuel is apparent. The operators of the waste transfer stations recognize the residents walking with a stranger and, immediately, the doors to the facilities are shut.

This is a predominantly African-American neighborhood, commonly known as "The Pits" to the rest of the city and as "Census Tract 9999" to the city planners. To demographers, a

"census tract" is "a small statistical subdivision of a county with a clearly identifiable population of about 4,000 persons." However, this particular census tract has a total population of 500 residents, of whom 300 are African-American; 50 are Hispanic; 50 are urban-dwelling Native Americans; 50 are Asians; and 50 are White (Non-Hispanic). Regardless of the race, color, or national origin, the vast majority of residents (approximately 95%) are renters, whose median income is $6,000 per year. The residents inform you that the community was founded by newly freed slaves after the Civil War. All of the African-Americans are descendants of the original founders, and all attend the same church. The church pastor is the charismatic Reverend Dr. Donald Murray who is also President of the Citizens for Environmental Justice.

The Hispanic community members are recent arrivals from Mexico, the majority of whom are farm workers who work at farms that are located on the outskirts of the city. There is a particular corner in the community where the men gather each morning and are hired on-the-spot by supervisors from the farms. Each day, the men come home and their clothes smell of pesticides that have been sprayed on the crops, exposing the women who wash the clothes and their children to those chemicals.

The Native Americans are also fairly recent arrivals who have left the reservation with the hope of improving the quality of their lives. Their former reservation, which is 100 miles from the city is, unfortunately, a Superfund site now. It is located downstream from 3 industrial plants that were contaminating the Kojo River. The part of the river near the reservation no longer has any fish, and the regional USEPA office has stated that the riverbed and the reservation soil are contaminated with a variety of hazardous and toxic substances. Therefore, any crops grown on the reservation are suspect because of the contaminated soil.

The Asians are from Viet Nam who are working diligently to establish fishing businesses. However, the local river, which is a tributary of the Kojo River, is also contaminated by industrial wastes. The state environmental regulatory agency, the Department of Environment Quality (DEQ), has posted several fish advisories that these and other local fishermen ignore because they and their families need to eat the fish to survive.

Finally, the whites represent families primarily from Scandinavia who, at one time, worked at the former industrial facilities. Some of these families own their meager homes. All of the men are old and sick. They believe that their illnesses (lung cancer and emphysema) were caused by the plants where they worked and are exacerbated by the air that they now breathe.

The representatives of Citizens for Environmental Justice assert that the state environmental regulatory agency licensed a disproportionate number of regional commercial waste-processing facilities in their community in violation of federal law. They state that the agency issued six air quality permits (among other types of permits) in the last 10 years, and is considering issuing a seventh permit over the community's objection. The representatives provide you with a list of commercial waste facilities that have operating permits, including air emissions permits that they obtained from the DEQ:

(1) Webster's Regional Hazardous Waste Incinerator (which incinerates liquid hazardous wastes from industrial plants throughout the state) with a permit capacity of 250,000 tons per year;

(2) Johnson Regional Recycling Company (which repairs and recycles oil drums and has a very spotty environmental record based upon the state's enforcement and compliance records as reported by a well known journalist) with a permit capacity of 400, 000 tons per year;

(3) National Hospital Disposal Operations (which burns hazardous and other chemical wastes from state and private hospitals, nursing homes or other health care facilities) with a permit capacity of 150,000 tons per year;

(4) Environmental Protection Regional Landfill (which accepts any kind of industrial and household waste) with a permit capacity of 500,000 tons per years; and

(5) Gerrardos Regional Waste Transfer Stations (which handles industrial and household wastes going to and coming from the regional landfill for shipment out of state) has 2 facilities with a combined total capacity of 300,000 tons per year.

The air quality permit application that is under consideration is for Re-Tellus, Inc., which will be a waste processing facility of oil contaminated soil with a permit capacity of 200,000 tons per year. Representatives of Citizens for Environmental Justice point out that the agency has issued only three such permits to other regional commercial waste operators in three other census tracts of Chestnut Heights County, totaling a permit capacity of 600,000 tons per year.

Citizens for Environmental Justice believe that their community is targeted by the decisionmakers because it is predominately minority and all of the residents are low-income and because they are not familiar with environmental laws, regulations, and policies. Furthermore, they believe that their community is targeted because it lacks representation on the County Board of Supervisors. The representatives of Citizens for Environmental Justice tell you that they decided not to file a formal Title VI complaint but they want their environmental justice concerns to be addressed.

As stated previously, their community is only 4.77 square miles and is the smallest of Chestnut Heights County's 140 census tracts. The Pits has no representation on the County Board of Supervisors because it is unincorporated, and all environmental and land use decisions regarding the community are made by others who reside elsewhere. In fact, there has never been any representation from a minority group in the history of the County Board of Supervisors. This may be the reason, from the community's point of view, why the Pits is not connected to the County's wastewater treatment system and the homeowner residents and the landlords continue to use antiquated septic systems that are known to be leaking into the groundwater. Furthermore, the community has no access to the County's public transportation system and, therefore, the residents must rely on old cars (if they own one) to get to the nearest hospital 50 miles away. The Pits is the only census tract in Chestnut Height County that finds itself in this unenviable position.

In response to complaints by Citizens for Environmental Justice, the state DEQ conducted one public hearing less than a month ago. The documentation provided by the DEQ was written in highly technical language and is more than 3 inches thick. At this public hearing, there was no translation of the documents or testimony into Spanish or Vietnamese, although the community requested such assistance because approximately 40% of both of those groups do not speak or read English. Finally, the community has no access to independent technical advisors or environmental attorneys.

Citizens for Environmental Justice is a grassroots group that was formed less than 2 years ago. It was formed because of the community's concerns regarding the application for a permit filed by Re-Tellus, Inc. This grassroots group has incorporated various tactics in their fight against environmental injustice. They have used public protests and demonstrations to intensify public debate on the issue and community hearings and "fact-finding" reports to educate the community. They have sought to place maximum public pressures on the existing "polluters" and the state environmental regulatory agency. Except for the employees of the waste transfer stations, all residents of the community are united in their fight against the permit being issued to Re-Tellus, Inc.

As you finish your walking tour, you review your notes, which strongly indicate an environmental justice situation However, you have heard facts only from the Citizens for Environmental Justice representatives and need more information before you can determine if this situation represents an environmental justice situation in which EPA should be involved and if so, what next steps are most appropriate. You therefore assemble a small group of EPA staff to begin a Screening-Level Assessment of readily available information from your tour and from other relevant sources.

PART 2: APPLICATION OF ENVIRONMENTAL JUSTICE METHODOLOGY

To conduct the Screening-Level Assessment of the allegations raised by Citizens for Environmental Justice, your Assessment Team will use the four-phase methodology described in Chapter 4 of this Toolkit. The Assessment Team uses the data collected during the walking tour of the community and supplements those data with other readily obtainable information as necessary.

The subsections below indicate how data from the walking tour are used in the six steps of the methodology, what additional data might be collected, and what conclusions may be drawn from the data available.

Phase I: Problem Formulation

At your first meeting with the Assessment Team, you begin to formulate the problem to be addressed by your assessment. You define the context, scope, and participants for the process. Once the full Assessment Team is convened, additional attributes of the problem are defined. These include the community of concern, reference communities, assessment endpoints, indicators that can be used to evaluate the assessment endpoints, and level of effort needed to conduct the preliminary investigation. Each item is discussed in turn below.

- **Context** – The situation in question was brought to EPA's attention by the multi-racial and ethnic community group, Citizens for Environmental Justice, who assert that their community is suffering disproportionate environmental impacts because a large number of nearby commercial waste-processing facilities have been granted air quality permits. Of particular concern to the group is that the state is considering issuing a permit for yet another facility. In this case, EPA might have a role because it involves permits under EPA's Title V air permitting program, even though permitting facilities have been delegated to the state. The Assessment Team suggests that it would be appropriate to consider the environmental impacts from both the existing conditions (e.g., the facilities already in operation) as well as the potential impacts from the new facility.

- **Scope** – The situation involves one relatively small community in one county in the state and is focused (for now) on the issuance of an air permit to one new facility; however, there already are several other permitted facilities in the community. Much of the available data for the Screening-Level Assessment was obtained during the walking tour. The Citizens for Environmental Justice are likely to be of assistance in obtaining more community-specific information. The Team decides to obtain other pertinent data from the state agency that reviewed and approved the air quality permits for the existing facilities.

- **Participants** – The Assessment Team decides to involve the Citizens for Environmental Justice in the assessment process, given that they have extensive knowledge of the community and the history of the current situation. Involving this group will also ensure that the Assessment Team analyzes factors that are of importance to the community and that any potential decisions are discussed in consultation with the community representatives. You therefore invite the Citizens for Environmental Justice to send two representatives to join your Team to plan the assessment.

- **Affected Area or Community of Concern** – During problem formulation, the Assessment Team defines the affected or potentially affected area and/or community. In this case, the community of concern has defined its own boundaries to consist of the predominantly African-American neighborhood, commonly known as "The Pits" to the rest of the city, and as "Census Tract 9999" to the city planners. The representatives for Citizens for Environmental Justice bring data they have collected from several agencies over the past several months. The data indicate that this particular census tract has a total population of 500 residents, of whom African-Americans make up 60% of the population; Hispanics represent 10% of the population; Native Americans represent 10% of the population; Asians represent 10% of the population; and Whites (Non-Hispanic) represent 10% of the population. Regardless of the race, color, or national origin, the vast majority of residents (approximately 95%) are renters, whose median income is $6,000 per year.

- **Reference Community or Communities** – For purposes of ascertaining whether the community of concern is disproportionately affected, a reference community or set of statistics is identified. The reference community can be defined as another community of

equal size, the surrounding county, the region or metropolitan service area, the state, or the entire United States. The Citizens for Environmental Justice group has described its environmental burden in comparison with communities in the rest of the county outside of the Pits where the facilities could have been located. Thus, the Assessment Team decides that county-level statistics would be an appropriate reference point for the Screening-Level Assessment. In Chestnut Heights County, whites comprise 92.4 % of the population, exclusive of the Pits.

- **Assessment Endpoints** – A next step in problem formulation is to identify and agree upon the endpoints of concern in the assessment. In environmental injustice situations, the ultimate assessment endpoints include the potential for disproportionately high adverse impacts on environmental conditions, human health, and welfare (including economic and social welfare) in the community of concern compared with other communities. In the current situation, the citizen's group has identified health risks from releases by permitted facilities as an important endpoint for them. While meeting with your Assessment Team, the representatives from Citizens for Environmental Justice indicate that they are also concerned about risks from traffic accidents involving wastes and other quality of life issues including noise. Your Assessment Team agrees to include those endpoints in the screening assessment, although you indicate that their group will probably need to take up those issues with the local agencies and planners.

- **Indicators for the Assessment** – The next step in problem formulation is determining which environmental justice indicators will be used to assess the endpoints identified above. The Assessment Team writes down the questions that the assessment is designed to answer and the indicators that address each question. The Assessment Team then reviews the information collected during the walking tour to identify the environmental indicators for which it already has information and those for which information will need to be collected during the assessment.

- **Conceptual Model** – Next, the Assessment Team lays out a conceptual model of the problem. They use a county map to delineate the Pits and mark the locations of the existing facilities and the location of the facility for which the new permit is being developed. The EPA members of the team develop a flow diagram that identifies the facilities as the sources of substances released to the air, how those releases combine to influence ambient air concentrations of those substances, and possible routes of exposure for the citizens of the Pits in addition to breathing the air (e.g., backyard gardens). Your Assessment Team uses the map and data from the U.S. Weather Service on prevailing wind conditions to indicate the likely direction of emissions flows from the facilities to the communities. The representatives from the Citizens for Environmental Justice indicate that EPA has missed its point about accidental releases. Your team adds that concern to the flow diagram and highlights the likely locations of accidental releases, including major road intersections at which a traffic accidents involving waste transport vehicles might occur. After several discussions, the representatives from Citizens for Environmental Justice agree that the map, flow diagram, questions, and proposed indicators for the questions do capture the issues that are of concern to them.

- **Analysis Plan** – The final product of problem formulation is the assessment or analysis plan. The EPA members of the team agree to obtain information available in EPA databases (e.g., TRI) while the Citizens for Environmental Justice will provide data more specific to the community. The full Team will meet again in two weeks to present and discuss their findings. The Team writes these agreements down with a checklist of information needs and agreed upon Team member responsibilities. The representatives for Citizens for Environmental Justice take this plan, the map, and the flow diagram back to the community for review and discussion by interested members. The community appears satisfied that its concerns will be fairly examined. The EPA members of the Team provide the plan to the state DEQ and the County planning board. The DEQ and County planning board agree that the plan appears unbiased and agree to cooperate by providing actual data for some of the indicators that the citizen's groups had volunteered to find.

Phase II: Identification of Environmental Sources of Stress and Likelihood of Exposure

The purpose of this step is to determine whether the proposed actions or existing situation, either alone or in combination with other sources of stress in the environment, might cause adverse impacts on the environment in which the community lives and works. To answer this question, the Assessment Team considers the following factors: (1) the existing sources of stress to which the community is already being subjected; (2) potential impacts from the proposed new facility; (3) environmental conditions (potentially resulting from stresses); and (4) environmental vulnerability. The analysis plan called for information on several indicators:

Existing sources of stress:

- *Number of environmentally regulated facilities within a community.* The Assessment Team has already determined that the community contains a regional hazardous waste incinerator, an oil drum repair and recycling facility, a medical waste incinerator, a regional hazardous waste landfill, and two regional waste transfer stations. The EPA members of the Team check with the DEQ and EPA regional office to determine whether there are additional facilities in or near this community.

- *Length of time regulated facilities have operated within a community.* The EPA members of the Team review the state and EPA regional records to determine the length of time each of those permitted facilities has operated both before and after permitting.

- *Number of current and past permit violations by those regulated facilities.* The Assessment Team was informed that the oil drum repair and recycling facility has had compliance problems. After checking EPA's IDEA database for any data on the facilities, the EPA members of the team examine EPA regional records and records provided by the state's DEQ for the compliance history of each facility. The number of abandoned sites and boarded up facilities observed during the walking tour indicate that there may have been several historical facilities. The DEQ provides information on several facilities that used to operate in the community but have since closed.

- *Number of non-point sources of pollution.* The conceptual model has laid out several non-point sources that could contribute to contaminant levels in the environment, including mobile air emission sources (e.g., diesel trucks, highways, and heavily traveled roads), and storm water and agricultural runoff. One Team member works with the state DEQ to identify the major sources of mobile air emissions and storm water and agricultural runoff in the county as a whole on the county map. There are many such sources all over the county.

- *Noise Levels.* High-levels of noise can place additional stress on community residents. In the Pits, the community residents have complained of continuous noise from the truck traffic associated with the regional hazardous waste facilities. As specified in the analysis plan and agreed to by the Citizen's for Environmental Justice, the proximity of other communities to major highways in the county also are considered. Based on a discussion of traffic flow with the County planning office, the Assessment Team concludes that the traffic noise levels in the Pits are probably comparable or even substantially less than traffic noise levels in other communities in the county situated near Route 1, the port city, and several other urban centers. Since EPA does not regulate noise, any further analysis of noise levels would be conducted by the County or State.

Potential Exposure to Stress:

- *Proximity of those regulated facilities to the majority of the community's population.* The Pits is only four square miles. The Assessment Team use the map to determine the exact distances of each facility to (1) the center of the Pits; and (2) to border of the community. For the hazardous waste landfill, the Team finds the distance to the center of the community to be 3 miles and to the border of the community to be 1 mile. Thus, the Team concludes that those community members living closer to the landfill are more likely to be exposed or might be exposed at higher levels to air emissions from the landfill than the rest of the community.

- *Proximity to multiple contaminant sources.* During the walking tour, EPA was informed that a Superfund site is located within 100 miles of the community. The Assessment Team used EPA databases and GIS files to identify the locations of other Superfund sites and other potential sources of environmental contamination within 100 miles of the Pits and throughout Chestnut Heights County. These files indicate two smaller Superfund sites 50 miles north of the Pits, but also a larger cluster of Superfund sites near the renovated and upscale "old town" district of the port city in the county.

- *Potential cumulative exposures across multiple locations.* The Assessment Team has been made aware that certain subpopulations in the area may have been exposed to environmental contamination at significantly higher levels because of their jobs. For example, many of the farm workers are exposed to pesticides and other chemicals in their daily work outside the city, and their families are also exposed from the contaminants still remaining on their clothing. EPA regional records indicate that the nearby Superfund site is contaminated with pesticides. Thus, it is possible that the farm workers are exposed to pesticides at their jobs and from the Superfund site. As specified in the analysis plan and

agreed to by the Citizens for Environmental Justice, this information is considered qualitatively, and no further data are collected for this indicator during the Screening-Level Assessment.

- *Potential or actual cumulative exposures to multiple stresses.* The Team gleans from EPA regional records that the Superfund site is contaminated with several other dangerous and unsafe contaminants, toxic substances, and chemicals including benzene, toxic coke, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), selenium, arsenic, lead, and mercury. The air permits for the existing facilities in the community indicate low-level releases of PAHs, sulfur dioxide, and particulate matter. Data from one air monitoring station 75 miles east of the Pits indicates that the air at that location does meet state air quality standards for both priority pollutants and other hazardous air pollutants under the environmental conditions sampled to date. However, air quality in or within a few miles of the Pits has never been measured. The DEQ provides data indicating that high levels of lead used to be released from one of the closed facilities bordering the community.

- *Potentially highly exposed groups.* The Assessment Team is aware of the subpopulations in the area, such as the Asians from Viet Nam, who rely on subsistence fishing despite the concerns about the high concentrations of contaminants in the local fish. The Team flags a potential concern for that group of mercury bioaccumulation in fish. Similarly, the Native Americans rely on crops grown on contaminated soil, and might be exposed to lead that accumulated over several years of past releases.

- *Number of biomarkers of exposure that are evident.* In some cases, it may be appropriate to sample the blood or other tissues of the community members to obtain additional information on exposure to contaminants. The Assessment Team flags the Native American subpopulation for possible measurement of blood-lead levels if the soil sample analyses (see below) indicate lead concentrations above typical background levels for this county and state.

<u>Environmental Conditions</u>

- *"Quality" of the air, water, and other environmental media.* The Assessment Team has observed that the overall air, water, and soil quality in and surrounding the Pits appears poor. For example, part of the Kojo River appears to have been contaminated by the three industrial plants, and the river no longer supports fish life. Further, the riverbed and soil near the Indian Reservation have been found to be contaminated with a variety of hazardous substances. The analysis plan specifies several data sources to check for measurements of contaminants in soils, surface water, and sediments. The plan specifies further that where existing data are inadequate for screening purposes, EPA will have some samples collected and analyzed for contaminants. Recent measurements of contaminant concentrations in the river's surface waters and sediments are found in STORET and in state DEQ records for the river. EPA staff collect and send several soil samples to a CLP laboratory for analysis of persistent contaminants of concern including lead, mercury, arsenic, PAHs, and PCBs.

- *Contaminants in biota (living organisms).* DEQ posted signs regarding contaminated fish in the local river, which is a tributary of the Kojo River. As agreed to in the analysis plan, DEQ provides the Assessment Team with the data it used to make its posting determinations. The Team requests assistance from an EPA statistician, who uses the data to estimate a mean contamination level representative of all seasons of the year and the 95% confidence interval on the mean. The confidence interval turns out to be quite large because of the limited number of measurements available.

Environmental Vulnerability

- *Climatic, geomorphic, and hydrogeomorphic features.* The Assessment Team consults with the local weather station to identify any atmospheric conditions that might influence levels of contamination in the air and finds no notable conditions. The Team also consults with the DEQ, and finds that water contamination levels are highest during the spring thaw and snow melt. Moreover, the sediment contamination in the Kojo River is highest at a bend near the Pits where most of the sediment is deposited.

Phase II: Characterization of the Community of Concern (continued)

The purpose of this step is to compare the community of concern and the reference community (or communities) with respect to several different endpoints, including demographics; factors that might increase the vulnerability of the community to stress; level of commitment of the local, state, or federal governments to providing information to and encouraging participation of the community; existing levels of community participation in environmental decisionmaking; and the economic status of the community and its members. The Assessment Team evaluates each of these endpoints as discussed below.

- *Demographics (including percent of population from various ethic and national origins, population density, and population literacy).* The Citizens for Environmental Justice find and bring several demographic statistics to the Assessment Team. The data indicate that the population of the "affected area" is 500 residents, of whom 300 are African-American; 50 are non-white Hispanic; 50 are urban dwelling Native Americans; 50 are Asians; and 50 are White. Thus, total minority population is 300 + 50 + 50 + 50 = 450, and percent minority is 450/500 = 90%. Furthermore, the median income of the affected population is $6,000, which indicates that the affected population is likely to fall below the national poverty level.

- *Vulnerability factors, including community access to certain amenities(such as health care, public transportation, sewage treatment, and safe drinking water) and certain behavioral patterns (e.g., smoking).* The Assessment Team was told during the walking tour that the community does not have access to public transportation or sewer service and the nearest hospital is over 50 miles away. Members of the Assessment Team confirm this information by examining the county's public transportation routes. The Team also considers community access to other services, such as employment services and re-training facilities. Furthermore, the Assessment Team was informed during the

assessment that there may be ground-water contamination. The Team meets with the state DEQ to discuss this new complaint. The DEQ provides its records on tests of drinking water samples for the water source used by this community, which indicate no violations of drinking water quality standards. The Assessment Team was not provided any information about patterns of behavior (e.g., smoking, alcohol use) that might exacerbate the vulnerability of certain residents.

- *Government commitment, including expenditures for providing access to information and for education and training, numbers of public meetings, materials distributed, and efforts to translate documents.* The data collected during this process and on the walking tour suggest that the community has had little ability to participate in previous environmental decisionmaking processes within the community. In consultation with the state DEQ, the Assessment Team confirms that only one public hearing was conducted by DEQ regarding the proposed facility, and that the supporting documents provided to the public were too technical to be of use. Furthermore, there was no translation into Spanish or Vietnamese, despite the large number of citizens for whom these are the only fluent language. This assessment led by EPA is the first chance the community has had to consult with technical experts.

- *Community participation, including community identification, cultural dynamics, and levels of public participation*. The Citizens for Environmental Justice have already informed the Assessment Team that the community residents lack representation on the County Board of Supervisors because the Pits is unincorporated.

- *Economic status*. The County board of planning provides statistics on median and mean income levels for the county based on the state tax assessment records. The walking tour revealed that the two regional waste transfer facilities are the only facilities employing local workers and that only involves ten, low-wage positions. The Assessment Team has no difficulty concluding that the community in the Pits is economically disadvantaged compared with the county as a whole.

Phase III: Assessment of Potential "Adverse" Environmental and Human Health Effects or Impacts

Based on the information gathered to this point, the Assessment Team now evaluates the likely quality of the air, soils, surface water, and sediments in and surrounding the Pits. The local air quality has not been measured, but the state DEQ has modeled likely air concentrations using a simple air dispersion model. The DEQ determined that even if all facilities were releasing contaminants at the currently permitted levels, the average yearly concentration of each contaminant in the air in the Pits and its vicinity would be below current air quality standards. EPA members of the Assessment Team re-examine the model and ask DEQ to rerun it assuming more extreme weather conditions for the area than assumed previously. In the new runs, the model indicates that it is possible for PAH and particulate matter concentrations in the air to exceed the benchmarks several times each year. Next, the EPA members of the Assessment Team examine the assumptions used by the DEQ to estimate air releases from the proposed soil

remediation facility, and find them to be adequate. However, the Team members note that the facility might increase ambient concentrations of lead, PAHs, aresenic, and particulate matter in the air by as much as 50 percent if operating at full capacity. The Team recommends that the screening-level risk assessment conducted in Step 4 focus on cumulative exposures to lead, arsenic, PAHs, and particulate matter (PM). It also notes that a Refined Assessment of potential air contamination levels may be needed before one can conclude that the air would continue to meet air quality standards if the proposed facility were permitted to operate. STORET indicates that the surface waters meet the state water quality standards for the contaminants of concern, but that sediments at the bend in the river are contaminated with lead, mercury, and PAHs at levels that exceed the state average for each contaminant by more than two orders of magnitude.

The purpose of this step is to determine whether the community of concern might be exposed to environmental stresses or pressures of sufficient magnitude to potentially cause *adverse* effects on their health or welfare. This can be done from two perspectives: one is to determine the potential effects of the stressors, and the other is to look at the population's current health status and its potential vulnerability to those stressors. Data collected for both assessments include indicators on existing health conditions, which can suggest both that the community has been exposed to stresses, as well as whether the community might be more sensitive to some stresses than other communities would. Based on the analysis plan and the results of Step 3, the Assessment Team focuses on health conditions associated with exposure to lead, arsenic, PAHs, and PM.

- *Health Indicators data on the overall health of the community residents (e.g., percent of infant mortality, average birth weight, adult mortality, life expectancy at birth).* In general, health-related statistics may shed light into potential exposure to contamination or indicate a vulnerability to the affects of exposure. The analysis plan for this assessment, however, does not call for use of this indicator because the number of individuals living in the Pits is small. Statistics on mortality rates, birth weight, and life expectancy for this community could not be meaningfully compared with statistics for the county, because the community is too small for differences from county-wide values to be detected statistically.

- *Indicator of Health Impacts for Environmental Stressors (e.g., number of illnesses attributable to contaminants and number of diseases attributable to pathogens).* Certain indicators may reflect whether a subset of population has health sensitivities or might be highly exposed. As with health-related statistics, these data are generally not available at the Screening Level. The Citizens for Environmental Justice group believes that its community suffers a very high incidence and severity of health problems, including upper respiratory ailments (e.g., bronchitis, asthma) and cancer, which they attribute to the pollution-generating facilities. In particular, a number of elderly residents believe that their illnesses (lung cancer and emphysema) were caused by their employment at the now-closed industrial facilities, and that these illnesses are exacerbated by the current air quality. The Assessment Team compares the air concentrations of PM, PAHs, and the other contaminants from the "worst case" air dispersion modeling results with health-based reference concentrations from EPA's IRIS database. For both PM and PAHs, the predicted worst case air concentrations did exceed the health-based reference

concentrations by an order of magnitude. Thus, it is possible that air contamination from the existing facilities do indeed exacerbate the existing health problems of the elderly residents under extreme, but possible, weather conditions. A more refined exposure assessment using more realistic assumptions would be needed to conclude that the existing facilities do not adversely affect the health of the elderly residents. Similarly, the worst case predicted levels of lead in the air from the proposed soil remediation facility exceeded levels considered safe for children. Thus, the Assessment Team concludes that there is a potential for adverse health effects on the community from the proposed facility given the possible existing levels of air contamination.

Phase IV: Assessment of Potential for "Disproportionately High and Adverse Environmental and Human Health Effects or Impacts"

In the final step, the Assessment Team uses the data collected to assess whether it is possible that the incidence and severity of adverse impacts from the sources of stressors identified could be disproportionately higher in the Pits than in the county as a whole.

Because the definition of environmental justice assumes a relative comparison of impact ("disproportionate share of negative environmental consequences"), the indicators of community trends for the Pits are examined within the context of the county as a whole. Data obtained during the walking tour and from the Citizens for Environmental Justice indicated that the four square-mile area of the Pits contains five permitted regional commercial waste facilities having a combined permit capacity of 1.6 million tons per year and a proposed facility that would have an additional capacity of 200,000 tons per year. In addition, the Pits community supports a regional hazardous waste facility and two waste transfer stations. In the remainder of the 500 square-mile county, containing 140 census tracts, the state only issued three similar permits in three separate census tracts for a total permit capacity of 600,000 tons per year. This suggests that even if all three of the facilities are incinerators, it is unlikely that their cumulative effects could be significant because the map indicates these facilities are widely spaced across the county. On the other hand, the three incinerators in the Pits are concentrated near the residents of the Pits, resulting in a disproportionate potential for adverse health impacts from the cumulative effects in the Pits compared with the other communities in the county. In addition, the other Environmental, Health, Economic, and Social Indicators indicate to the Assessment Team that the Pits community might be more vulnerable and susceptible to the impacts of these stresses than other communities in the county. It also is clear that the Pits community has had limited means of participating in decisions related to the location of these facilities.

Tentative Conclusion

At the end of the Screening-Level Assessment, the Assessment Team concludes that the environmental justice concerns have some validity. A more Refined Assessment using more realistic assumptions, however, is needed to demonstrate whether adverse health impacts are likely from the proposed facility. A more Refined Assessment also is needed to demonstrate whether those impacts are disproportionately high for the Pits community compared with the rest of the county.

The question now is how should EPA address the concerns because the state DEQ might not deny the permit. The Assessment Team shares its results with the state DEQ, which in turn agrees that a more Refined Assessment is needed and that the owners of the proposed facility should contribute resources for the assessment. To provide more room for negotiation between the state and the proposed facility owners, the Assessment Team identifies possible mitigation options that the state can discuss with the facility owners (e.g., measures to reduce the proposed emission levels) or consider for state actions (e.g., establishing and maintaining additional health care facilities closer to the community). The Assessment Team also identifies ways in which EPA can be of assistance (e.g., providing grant funds to the state agency to improve its screening-level air models or test cleaner burning fuels for use in the diesel trucks at the waste transfer stations).

The Environmental Justice Assessment Methodology: Chestnut Heights County Example

An allegation of environmental injustice is brought to the EPA by Citizen's for Environmental Justice (CEJ) from Chestnut Heights County

EPA employee conducts preliminary tour of area and review of information

Is there any evidence that an EJ issue may exist?

No → EPA action ends here

Yes

There is some evidence that a potential EJ issue may exist

EPA begins a Screening-Level Assessment (SLA) by assembling a diverse team of EPA employees and involving community members from CEJ to create a Screening-Level Assessment Team. The Team gathers and evaluates information according to the EJ Assessment methodology:

Phase 1: ***Problem Formation***
Phase 2: ***Data Collection***
Phase 3: ***Assessment of the Potential for Adverse Environmental and Human Health Effects or Impacts***
Phase 4: ***Assessment of the Potential for Disproportionately High and Adverse Effects or Impacts***

Team determines that the environmental justice concerns of the community have some validity, but more research needs to be conducted to make a final determination. Given the critical nature of the circumstances, EPA offers recommendations to start immediate, mitigating action and ways in which the EPA can be of assistance.

Is it appropriate for EPA to be the lead agency in this next stage of assessment and for possible future action?

No → SLA Team recommends action by another agency and may offer other advice. EPA involvement ends here

Yes

EPA begins the more quantitative and detailed Refined Assessment using the EJ Assessment methodology:

Phase 1: ***Problem Formation***
Phase 2: ***Data Collection***
Phase 3: ***Assessment of the Potential for Adverse Environmental and Human Health Effects or Impacts***
Phase 4: ***Assessment of the Potential for Disproportionately High and Adverse Effects or Impacts***

Conclusion: EPA determines (1) whether there are adverse impacts or effects, (2) whether the adverse impacts are high and disproportionate (environmental injustice), and (3) what action EPA will take.

United States
Environmental Protection Agency
1200 Pennsylvania Avenue, NW.
(2201A)
Washington, DC 20460

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