New Directions **Workshops: Community Assessment Series**

Workshop 1:
Community Assessment Questions

Summary Report

Prepared for:

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Office of Research and Development
U.S. Environmental Protection Agency
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STATUS OF THIS REPORT

The objective of this workshop (or workshop series) was to bring together EPA scientists from the regions, programs, and ORD labs and centers to discuss issues of common interest. The focus of the meeting (or each meeting) was preliminary discussion among scientists and managers from different parts of the Agency, each with their individual and office-specific information and viewpoints.

As a result, it is important to understand that this report summarizes individual and program-specific perspectives. References to pre-existing Agency information and policies should be credited as such, but none of the individual workshop statements or summaries in this report should be credited or cited as Agency information or policies. Rather, this report is developed exclusively for internal EPA use and distribution as a record of the meeting for participants in each meeting, and for EPA's use in planning future meetings and discussion. EPA staff will use information from this report, as appropriate, to design and conduct workshops or other activities for broader discussion both within EPA and with external participation, again as appropriate.

Preface

EPA's Office of Research and Development is currently pursuing new approaches to using science to address several topics of importance to the Agency. These topics represent new directions for EPA in that they transcend the traditional media- or pollutant-based boundaries and encompass a variety of disciplines and specialities. ORD wishes to link EPA staff interested in these topics with the appropriate science staff in ORD to identify areas for collaboration. To accomplish this goal, ORD's Office of Science Policy is hosting a series of New Directions workshops between March 1999 and Spring 2000. The workshops will provide a forum to present information and discuss current and future issues on new topics of interest. There are four topic series being presented under the auspices of New Directions: community assessment, reinvention, risk management, and regional science. Each topic series will consist of three or four workshops designed to bring interested staff together to develop a set of action items that will be completed over the course of the series.

The initial workshop for the first topic, Community Assessment, was held at the Radisson Barcelo Hotel in Washington, DC, on March 3-4, 1999. This workshop, entitled "Community Assessment Questions," was intended to identify Agency and stakeholder issues in using scientific tools to answer questions in various community settings, and to plan and organize follow-up work in preparation for the next meeting in the series, currently scheduled for June 9-10, 1999. Approximately 50 senior EPA staff, representing EPA program offices, ORD, and several Regions, participated; Appendix A provides a complete list of participants. Charlotte Cottrill (ORD), Carole Braverman (Region 5), Reggie Harris (Region 3), Mike Callahan (ORD NCEA), Jerry Gidner (Bureau of Indian Affairs), and Denise Rigney (Region 3) presented background material on the case studies prior to breakout group discussions. The workshop was facilitated to enhance the dialogue from all participants .

The two-day workshop was designed to maximize participant input and collaboration; Appendix B provides a copy of the final agenda. It centered around ten questions intended to foster new ideas about involving affected communities in the assessment process of EPA actions. On the first day, Dorothy Patton, Director of the Office of Science Policy, provided an overview of the New Directions initiative. Claudia Walters (ORD) discussed the Community Assessment series in particular and Jay Benforado (Office of Reinvention) provided a keynote presentation. Following presentations on six different cases, participants divided into discussion groups to examine one particular case in depth, using questions prepared in advance by workshop organizers to guide the discussion. Each discussion group then presented its conclusions by creating a poster; participants were given an opportunity to review and comment on each group's work.

On the second day, responses to each of the ten questions for each case study were paired and participants divided into groups to discuss the overarching issues that were evident across the cases for each particular question. Again, discussion groups created posters that summarized their findings and presented their work. The primary goal was to identify the questions being asked in community settings that science can be used to help answer those questions. The entire group identified a number of action items in preparation for the June workshop, such as "satellite meetings", agenda for second workshop. Participants signed up for the items of interest.

To develop the agendas for each of the workshops, ORD has formed a cross-agency planning group[1], which will continue to support the work of meeting participants throughout the series. The planning group is comprised of staff and management from ORD and Program and Regional offices. The tasks of the planning group are to design the workshop structure, find interesting and relevant case studies, and identify presenters, panel members, and other workshop participants.

This report summarizes the information that was presented and exchanged during the workshop. Key themes that emerged from the discussions are highlighted throughout the report. The organization of the report follows the agenda of the workshop. The report concludes with appendices containing a roster of attendees, the final workshop agenda, and the case materials distributed to participants.

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1. Introduction

1.1 New Directions Overview (Dorothy Patton, ORD OSP)

The New Directions initiative was introduced in a presentation by Dorothy Patton, Director of the Office of Science Policy (OSP) within EPA's Office of Research and Development (ORD). New Directions workshops are intended to bring EPA scientists, analysts, and managers together to discuss how new approaches to environmental protection are being addressed across the agency. Workshop sponsors believe that these discussions will produce cross-agency linkages that will strengthen science at EPA by fostering collaboration and coordination on scientific issues that cross traditional program and media boundaries.

Environmental protection is moving in new directions. As science has significantly advanced our understanding of single-source environmental hazards to humans and the environment, attention is now turning to the complexities and uncertainties associated with the health and ecosystem impacts of exposure to multiple pollutants through multiple pathways. Likewise, public discourse on how to protect the environment has evolved to reflect the complex relationships between environmental and socioeconomic issues. Stakeholders have evolved from observers and recipients of government-directed environmental protection into active participants identifying problems, setting priorities, and devising solutions. Across EPA, program and Regional offices are addressing these changes by approaching in new, innovative ways their mission to protect human health and safeguard the environment.

The New Directions workshops are designed to promote the identification and sharing of science tools and strategies among EPA staff and management from across the program and Regional offices. As stated above, however, the most important result of the workshops will be the linkages established between EPA program offices, Regional offices, and ORD laboratories and centers as a result of these discussions.

Using input from the national laboratories and research centers, as well as from Program and Regional offices, OSP has identified community assessment, regional science, reinvention, and risk management as workshop series subject areas. While these four areas may not cover all the new scientific directions that EPA is taking, they encompass a wide range of cross-program and cross-media science issues that may serve as potential workshop topics. Each series will be comprised of three to four topic-specific workshops. Each workshop within a series will follow an agenda designed to focus on how analysts across the agency approach the various topics, and how linkages can be formed between EPA Programs, Regions, laboratories, and centers to collaborate and coordinate on issues relating to the topic area.

1.2 Community Assessment Overview (Claudia Walters, ORD OSP)

The Community Assessment series brings together scientists, community practitioners, and risk assessors from across EPA to discuss community assessment issues in complex, multi-source settings, such as urban environments. These workshops take a step-by-step approach to improving EPA's ability to support community assessments.

There are four principal reasons why a discussion of community assessment is timely for 1999. New issues and questions, such as cumulative risk in community settings and disproportionate impact in environmental justice evaluations, are challenging EPA to develop novel approaches to answering these questions. More than ever, EPA is working in partnership with communities to identify problems, set priorities, and devise solutions to complex environmental problems. Communities' understanding of the concepts of risk assessment, data that are used to calculate a risk, or the limitations associated with risk estimates may vary. As more information and data are made available through the Internet and public databases, the potential for confusion, anxiety, and misuse of the data and risk assessment results is likely to increase. Finally, EPA has developed tools and experience that can be shared among EPA practitioners, State and local partners, and communities. Feedback from communities will help EPA improve its data, tools, and practices.

For community assessment to be successful, there must be consensus on what this means. There are two components: the community aspect and the scientific assessment. The overarching goal of this series is to encourage a fusion of these two aspects. Community requires a broad definition; it encompasses a variety of types of communities, all of which should be included in a community assessment. The science aspect is the actual assessment, which aims to identify potentially adverse effects to humans or ecosystems. In Community Assessment Workshops, we're trying to determine how scientific assessments are conducted in the local environments.

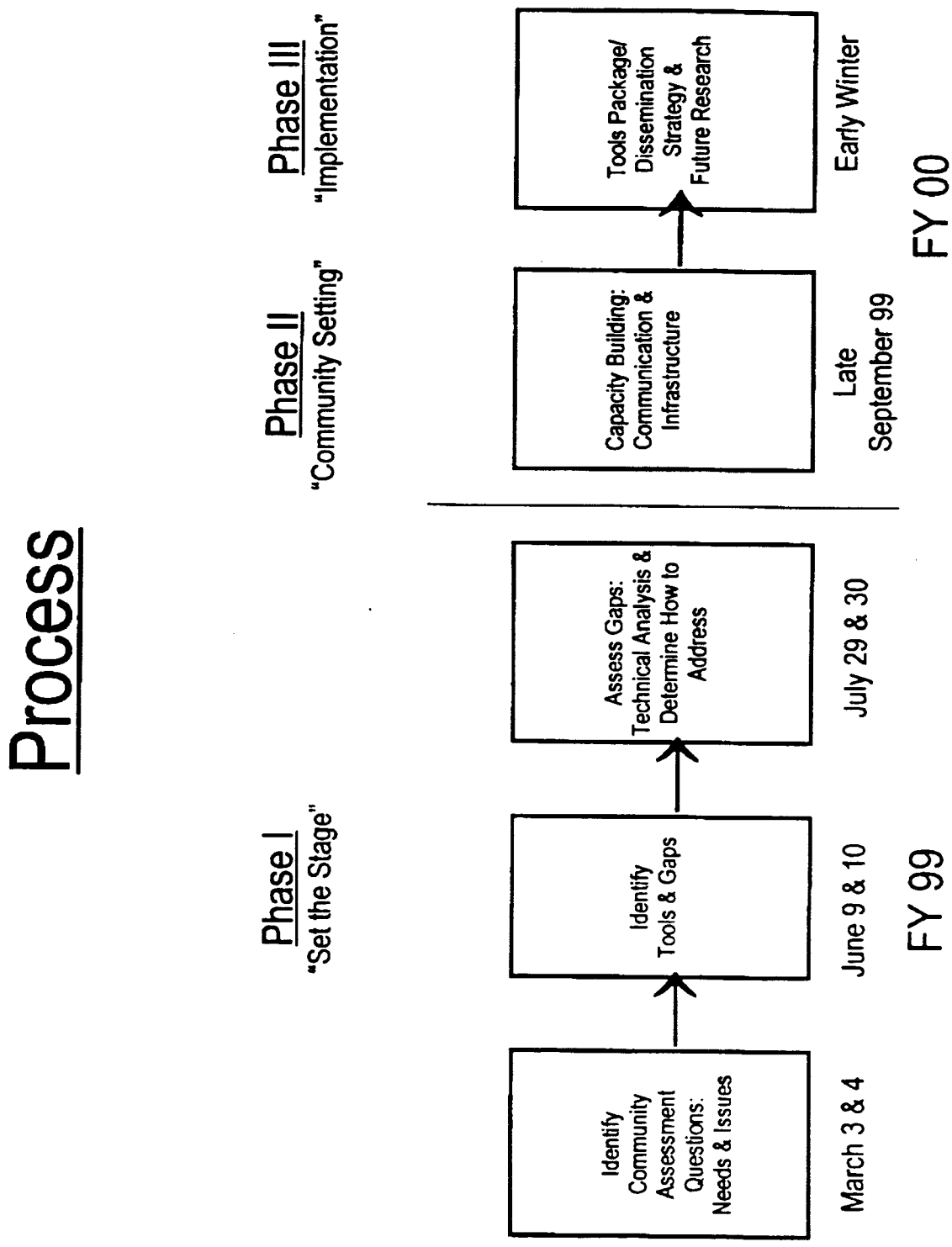
Thus, community-based environmental protection represents a new approach to environmental problem solving. It focuses on a geographic area. Stakeholders within that geographic area are identified; EPA then aims to work collaboratively with the stakeholders to identify and solve their community's environmental problems. Environmental issues are addressed in systems approach rather than independently. In addition, this approach has many advantages in that it integrates environmental, economic, and social objectives and addresses environmental issues collectively, allowing for a wide range of solutions.

Towards this end, the community assessment series of workshops attempts to produce some products that will be helpful for the Agency and communities and to develop a better understanding of science in this new paradigm. Specifically, the workshop aims to:

- Categorize existing tools;
- Identify gaps in the tool inventory;
- Understand how this approach is different;
- Understand how this approach affects the tools developed in the future;
- Develop a better understanding of how communities and science are related.

There are three phases to this process: (I) preparation or "setting the stage"; (II) community setting; and (III) implementation. The first phase will characterize the state of our knowledge, including, community issues, the science that is available, and the what science is lacking or needs improvement. Phase I, taking place in the spring and summer of 1999 proposes to: (1) identify community assessment questions, needs, and issues; (2) identify tools and gaps; and (3) assess the gaps through a technical analysis and determine how to address these gaps. Phase II, scheduled for Fall 1999, will focus on capacity building or developing communication and infrastructure. Phase III will assemble a tools package and a strategy to disseminate the package,

Exhibit 1: Community Assessment Series



as well as identify future research. Exhibit 1 depicts the process.

Workshop I is aimed at addressing the relevant questions for community-based assessments. Examples of these questions on the community level include:

- Is there disproportionate risk?
- Can we (the community) consume these fish?
- Will this highway adversely affect the environment?
- Is this mine polluting our (the community's) groundwater?
- Why are there childbirth defects here?
- Is there toxic air depositing on our lake?
- What areas should we protect from development?

Workshop II will identify and evaluate existing tools, models, and data sources that can answer the community "questions" identified in the first workshop, including:

- Cumulative Health Risk (tool);
- Comparative Relative Risk (tool);
- Landscape Ecology (GIS) Approach (tool);
- Models-3 (Air, multi-scale) (tool);
- Community Guidance Manual (model);
- Toxic Release Inventory (TRI) (database);
- State databases (database);
- Community Profiling Tool (tool).

In addition, the workshop will discuss the "decision-making" process that is used in the community to determine what tools and data can be used to address their "questions". Participants will identify the steps in the process and their order and determine what each step accomplishes.

Workshop III is envisioned as an opportunity to match existing tools and data, identified in the second workshop, with questions identified in the first workshop. It is hoped that this analysis will identify gaps in tools and data, and stimulate research aimed at filling those gaps.

Future workshops will focus on understanding how this information can be used in the community setting. Discussion will focus on the capacity of the community to use the tools, including the equipment and the people to use them. Additionally, the participants will discuss how assessment information is used and understood and what criteria communities use to measure success.

1.3 Reinventing Environmental Protection (Jay Benforado, OR)

EPA views reinvention as a way to achieve cleaner, cheaper, smarter results for environmental programs. This initiative grew out of an overall effort aimed at making the Federal government work better and cost less, as well as general criticism that EPA reduces environmental problems to technical problems that can be solved through regulation. Rethinking problems

and traditional solutions challenges the Agency to find better ways of doing business without imposing unnecessary costs and regulatory burdens on society. The result is the development of more holistic, multi-media approaches that better address today's ever-changing environmental challenges.

Despite much progress in protecting the Nation's environmental health, problems such as polluted runoff and environmental justice highlight limitations within the current system. These limitations and several other factors reinforce the need for new thinking at EPA. A wider array of policy tools and technological developments allows environmental problems to be addressed in ways not possible before. Increasing knowledge about environmental issues and the growing sophistication of stakeholders means that additional resources and expertise are available for problem solving. The basic idea of environmental protection has evolved beyond pollution control to broader issues such as pollution prevention, sustainability, and environmental justice. These new factors challenge EPA not only to maintain the strong environmental protection results achieved thus far but also to develop the ability to address rapidly changing needs, capabilities, and priorities within society.

EPA's response is the continual evolution of an organizational culture that: (1) promotes creativity in problem solving; (2) fosters learning from experience and research to adapt programs and policies to changing environmental needs; (3) encourages testing and adopting flexible, innovative, and effective new policy tools; (4) works with all levels of government; (5) expands public concerns and involvement in environmental protection; and (6) supports business efforts to protect the environment. The means of reinventing EPA's environmental mandate is two-pronged: (1) innovate and streamline EPA's core programs; and (2) test and apply more integrative and holistic approaches to environmental protection.

The first prong applies to regulations, permitting, monitoring and reporting, and compliance assistance. Existing regulations should be consolidated and simplified; new regulations should be written simply and clearly, and use market-based incentives to encourage pollution prevention and increase operational flexibility. The permitting approval process should be streamlined and made consistent across programs; multi-media and facility-wide permits should be developed. Unnecessary monitoring and reporting requirements should be eliminated to allow more flexibility in monitoring methods; requirements should be reduced to reward excellence in environmental performance. Compliance assistance centers should be set up to help selected centers improve environmental performance; incentives should be provided for regulated facilities to identify and correct environmental problems internally.

The second prong involves sector- and industry-based approaches, community-based environmental protection, redefinition of Federal/State roles, and the improvement of environmental information. New approaches that integrate environmental requirements for sectors, industries, or facilities should be tested; voluntary environmental stewardship and continuous environmental performance improvement should be promoted. Development of tools to support local environmental strategies should be continued. State participation in the National Environmental Performance Partnership System should be expanded; Federal and State agencies should jointly test innovative regulatory strategies. Common data standards and electronic reporting capabilities should be established; programs and tools to expand public access to environmental data should be developed.

2. Case Studies

The six case studies presented illustrated how community assessment can successfully be applied to a wide range of non-traditional, environmental issues that EPA has begun to explore. Each case involved careful consideration of the community's specific needs and tailored the science to address the community's concerns.

After overviews of all the cases in a plenary session, participants divided into five groups to discuss a particular case of interest. The group met with the speaker for the particular case and further discussed the case to respond to the following ten questions:

1. What were the central issues in the case?
2. How did you determine what the questions were?
3. To what extent was the community involved?
4. How did the community focus affect assessment methods and the outcome?
5. What approaches, methods, tools, and databases were used?
6. Were there other approaches that could or should have been used?
7. From the Agency's perspective, what lessons were learned?
8. Were the stakeholders' issues addressed and answered?
9. From the State and community perspective, what worked and what didn't?
10. What issues were unique in this case? Which will recur in other cases?

Each of the case study presentations are summarized and followed by the answers to the break-out group questions as identified by the discussion group. Transcriptions of the flip charts and posters created by each breakout group are provided in Appendix D.

2.1 The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural) (Charlotte Cottrill — ORD)

The Scenario

The Lower Rio Grande Valley Monitoring Study (LRGVMS) aimed to identify and evaluate environmental pollutants in the air, drinking water, food, soil, and house dust in the Valley. It was a joint project involving EPA, the Texas Natural Resource Conservation Commission (TNRCC), and other Federal agencies. The project also included international participation by representatives from Mexico. The project was initiated because of the community's concern about the potential health impacts of local environmental pollutants and the lack of local environmental information. Specifically, the community was concerned about the possible relationship between local environmental pollutants and a cluster of births with neural deformities. In addressing this problem, researchers confronted multiple speculations and hypotheses, limited data for confirmation, and limited resources for exploration. The solution involved developing a consensus approach involving the community that better identified and characterized the problems, established a set of priorities, and guided options and actions. The study integrated community involvement in project design, project participation, communication of results, and community recommendations for future study. A decision-tree research plan was

developed to establish consensus on appropriate activities, and to guide initial and subsequent directions. This decision tree established priorities: (1) defined initial activities, timetables, potential outcomes, and limitations; (2) identified important decision points and options; and (3) facilitated integration and coordination of activities across groups. The study itself was divided into two phases.

Phase I: A small-scale pilot study in Brownsville, Texas that:

- Explored the actual environmental pollutants to which Valley residents may be exposed;
- Explored the contribution from different sources and media (air, drinking water, food, soil, and house dust);
- Focused on several different classes of chemicals;
- Involved the collection of ambient air samples at a central site and the collection of indoor/outdoor air, household dust, soil, food, water, and biologic samples at residential sites;
- Was intended to provide information that would strengthen the scientific basis of the design for a larger study of potential exposure.

Phase II: A transboundary air monitoring study, which:

- Focused on transboundary air pollution in Cameron County;
- Monitored emissions from traffic and industrial activities and, to a lesser extent, agricultural spraying at three sites over time;
- Proposed to provide the State of Texas with background data against which future changes in Valley air pollutants can be compared;
- Proposed to develop a cost-effective monitoring and modeling strategy for use by the State and others in designing future monitoring efforts.

In the nine households evaluated in the pilot study, levels of pollutants were found to be similar to those often seen in other parts of the United States. The community was reassured that the results from these nine households did not show significant exposure to most of the contaminants measured. Elevated levels of PCBs found in fish caught in the irrigation ditches near the Donna Reservoir have initiated study efforts by the State of Texas. Although pesticide levels measured were generally low, pesticide residues found in several blood and urine samples taken from the households indicate that there is a need to further document community exposure to pesticides. Investigations to determine the source of lead in the diet and the origins of the higher than average urinary arsenic levels found in participants are also needed.

The study also encouraged the development of several new paradigms. A partnership paradigm sparked cooperation between several Federal and State agencies, the community, and international representatives. An environmental health/public health paradigm linked exposure and disease. The community science paradigm linked monitoring and surveillance with research and risk prevention/reduction. The study also led to the development of mechanisms for community involvement, new approaches for communicating with the community, and new options for providing information that would help identify and reduce exposures.

The Results

1. What were the central issues in this case?

The occurrence of a cluster of neural birth defects initially captured the community's attention, leading to concern within the community about exposure to pollutants and possible related health effects. This community concern sparked a cooperative study, involving EPA, other Federal and State agencies, and international representatives, as well as the community.

2. How did you determine what the questions were?

The overall approach adopted was one of environmental risk/exposure, coupled with an appreciation for the environmental health issues. The study began with the community. Scientists talked with local residents to get a better idea of how to proceed.

3. To what extent was the community involved?

The community was involved in identifying the problem, designing the Phase I study, reviewing the results of the Phase I study, and helping to design the Phase II study. This was accomplished through community meetings and studying a limited number of local households.

4. How did the community focus affect assessment methods and the outcome?

The community focus helped design the house-to-house study, focused the goals of the study, and brought State and other Federal agencies into the assessment.

5. What approaches, methods, tools, and databases were used?

The study included measurements of several classes of chemicals (including pesticides and volatile organic compounds (VOCs)). Ambient air samples were collected at a central site. A variety of indoor/outdoor samples were taken at several residential sites. Also, household dust, soil, food, water, and biologic samples (such as blood) were collected at several residential sites. The transboundary air monitoring study reviewed state background data and monitored traffic, industrial emissions, and, to a limited extent, agricultural activities.

6. Were there other approaches that could have or should have been used?

A social assessment could have been used to better define community representation and ensure that all groups in the community were adequately represented. The study could also have looked more at acute/direct exposures. The study could have started with the health endpoints and worked backward, instead of being exposure-driven.

7. From the Agency's perspective, what lessons were learned?

The Agency learned that sometimes the views of the community differ from their own. Community involvement is very important; stakeholders should be involved in most of the

process. The expense of this type of study, involving so much community participation, was greatly underestimated; more investment is needed than was planned.

8. Were the stakeholders' issues addressed and answered?

The study was partly successful for the stakeholders. While the community's concerns were addressed, they were not conclusively answered. In addition, the concerns of all stakeholders, including industry, must be considered and addressed.

9. From the State and community perspective, what worked and what did not work?

The formation of partnerships, identification of community representatives, and some of the interventions produced were successful. Creation of an information repository and some attempts at public participation did not work.

10. What issues were unique in this case? Which issues will recur in other cases?

The international aspect of this case was unique, as was the initial concern over a specific birth defect. The high level of interaction between many different agencies, levels of government, and international representatives was also considered unique. Three issues were identified as likely to occur in other cases: (1) there was no clear cause and effect relationship that could be demonstrated; (2) clusters of this type are common; and (3) this "hot button" issue drew attention and resources from high levels of authority.

This group concluded that community-based assessment requires close interaction between the Agency and the community. It is important for the Agency to take the concerns of the residents seriously. Good community-based assessment requires a great deal of initial planning. This should include adequate management support and staff to achieve the goals of the assessment. The Agency must ensure cooperation with other levels of government and, if necessary, other Federal agencies. Finally, it must be remembered that a community-based assessment from the Agency's perspective can be very different from the stakeholders' expectations.

2.2 Urban Cases (Chicago, Greenpoint, and Baltimore)

Evaluating Cumulative Risks in the Chicago Metropolitan Area (Carole Braverman, Region 5)

The Scenario

The Chicago Cumulative Risk Initiative (CCRI) is a multi-office effort to assess and reduce the risks posed to the residents of the Chicago metropolitan area by cumulative exposure and hazard. The effort was initiated in response to concerns of Chicago-area community advocacy groups. The study focuses on refining and demonstrating methodologies for assessing children's environmental health risks due to the accumulation of multiple stressors from multiple sources that impact a specific area. The study objectives included:

- Conducting a cumulative risk analysis that specifically addresses the concerns of both the Agency and stakeholders, including identification of health-compromised subpopulations of children and of locales with elevated hazard levels;
- Illustrating the implementation of the Administrator's Cumulative Risk Guidance;
- Taking the initial steps in developing the basis for transferring a cumulative risk methodology to other units in the Agency.

The Chicago project began with a community-sponsored Toxic Substances Control Act (TSCA) Section 21 Petition which raised several issues that EPA decided to pursue in May of 1996. In particular, the investigation focuses on cumulative environmental loading, cumulative risk, and permitting concerns. The Chicago Cumulative Risk Initiative (CCRI) serves as the vehicle for investigation. The main priorities of the initiative are environmental health risks to children and EPA-regulated and permitted sources.

Four phases of investigation are planned:

- Phase I Generation of a Cumulative Environmental Loading Profile
- Phase II A facilitated workshop to involve stakeholders
- Phase III Development and implementation of a cumulative risk methodology
- Phase IV Pollution prevention activities

Phase III and IV activities are currently underway. CCRI anticipates providing a number of useful products as a result of this initiative. These include: (1) an evaluation and presentation of available relevant health data; (2) an exposure and risk characterization for EPA-regulated and permitted air sources in two study locations; (3) an exposure and risk characterization for point, area, and mobile sources, and background for Cook and Lake Counties; (4) an evaluation and summary of other important risk pathways; and (5) an integration of risk evaluation and estimates, to the extent that this is feasible.

The study used several existing tools for analysis: (1) OPPT Toxicity Weights; (2) the Toxic Release Inventory (TRI); (3) the Regional Air Pollutant Inventory Development System (RAPIDS); (4) monitored ambient concentrations (drawn from AIRS and other unpublished sources); (5) the National Cumulative Exposure Project (CEP); and (6) other facility density indicators and health effect indicators (such as data for hospital or incidence rates).

Greenpoint-Williamsburg Community Risk Assessment (Fred Talcott, Office of Policy)

The Scenario

The Cumulative Exposure Project (CEP) was designed to develop tools and data to assess the extent of human exposures to a broad range of toxic chemicals through various exposure routes and to address various toxic endpoints at the national level. The project had several goals:

- Establish nationwide estimates of toxics exposure and risk, including all media, toxics and toxic endpoints;
- Examine the contribution of types of sources, such as mobile, area, and point sources;

- Test this approach on a small scale;
- Contribute to environmental justice analysis for the selected trial site;
- Assess what can actually be accomplished.

The Greenpoint-Williamsburg area was selected to test the feasibility of this approach on a smaller scale. This two-neighborhood area in New York City has high through-traffic, and has traditionally been the site of diverse industrial and waste treatment facilities. Consequently, there had long been an interest in addressing environmental problems in this area. These neighborhoods also had the advantages of: (1) offering a great deal of local interest and prior efforts; (2) providing the opportunity to include lead exposure and subsistence fishing in the study; and (3) exhibiting a great deal of ethnic and economic diversity in a small area. While the project included considerable community involvement, its focus was on applying cumulative exposure tools on a local scale.

A number of preliminary conclusions were made about the health effects of exposure to toxics. However, the team found that it was not possible to reliably determine differences in toxics exposure within the neighborhoods because of the lack of precision in the modeling tool. Therefore, the secondary goal of determining disproportionate impacts was not attainable. In addition, the study included only those toxics for which significant data for the media were available. A mixture of toxic endpoints had to be used. Radiation, indoor air, and occupational exposure issues had to be either deferred or excluded altogether.

The Southern Baltimore & Northern Anne Arundel County Community Environmental Partnership (Henry Topper, OPPTS)

The Scenario

EPA, community organizations, and local and State governments began working on ways in which to improve the local environment and economy in southern Baltimore and northern Anne Arundel County, Maryland. The five neighborhoods in the Partnership have a combined population of thirty thousand. These neighborhoods have a broad range of environmental and economic concerns, including concerns that arise from the concentration of industrial, waste treatment, and brownfields sites that surround the area. But the area also has great environmental assets and economic potential. The neighborhoods border the Chesapeake Bay and are the site for a new eco-industrial park, a major redevelopment effort that has the potential to attract new jobs. The Partnership set out to take a comprehensive look at the local economy and environment, and build consensus around a plan for action.

The Community Environmental Partnership started as a pilot for the new community-based approach to environmental protection and economic development. This new approach incorporated the local community's knowledge and made it possible to begin addressing cumulative effects from multiple sources. It allowed for the consideration of a detailed level of information often missed when policy is made at the national or State level. Building consensus at the local level also made it possible to unite the community around voluntary pollution prevention approaches that can go beyond current statutory requirements.

The partnership began with four goals:

- Build the long-term capacity of the community, including residents and businesses, to take responsibility for their environment and economy;
- Develop a comprehensive picture of the local environment and economy, and an action agenda based on the needs and wants of the community;
- Build consensus in the partnership for the implementation of an action plan that makes a difference in the local environment and economy;
- Encourage and support sustainable economic development in the community.

Five committees (Air Quality, Surface Water and Natural Resources, Human Health, Trash/Illegal Dumping/Abandoned Housing, and Economic Development) were formed with residential, business, and government members and began work in September 1996. Highlights of committee accomplishments include:

- The first comprehensive screening of the cumulative concentration of air toxics from all the industrial and city facilities in and around the neighborhoods;
- A survey of all parks and a plan for a major restoration of the Masonville Cove area, reestablishing the community's link to the Chesapeake Bay;
- A first-for-Maryland survey of cancer incidence at the neighborhood level.

The Results

Since the Chicago case study was the focus of the plenary session presentation, discussion in the breakout group centered around this case. When points were made about Baltimore or Greenpoint, they were specifically identified below.

1. What were the central issues of the case?

Permitting multiple industrial sources within a small geographic area, and the resultant health effects on children, adults, traffic, and general safety, were central issues of these cases. In Chicago, the community lacked trust in government and relevant data, and felt that the community's views and concerns were not incorporated into decisions regarding future development and permitting in their community. Concerns regarding localized health effects, such as bioaccumulation of toxins associated with subsistence fishing in the Greenpoint case, led to a discussion by ORD staff about the validity of quantifying cumulative risk. Concern for further development of cumulative risk analysis methodology was a central issue for ORD staff.

2. How did you determine what the questions were?

For all three cases, questions to be addressed in the assessment were determined based on petitions from citizens; large public meetings; concerns and specific questions raised by well-organized, politically savvy stakeholder groups; and EPA's own perspective regarding the case studies.

3. To what extent was the community involved?

The Chicago community was very vocal in expressing their concerns regarding permitting issues. The communities assisted in focusing the agenda of the assessment. Stakeholders in Chicago posed questions, researched issues, and asked EPA to assist them in exploring their inquiries. Because of the large area studied in the Chicago risk assessment, EPA believed that views from the 11 stakeholder groups represented a sample population with cross-community issues and interests. In the Baltimore study, stakeholders included representatives of industry and environmental advocacy groups, adversarial groups, and the city health department. The Baltimore communities' degree of involvement with the assessment varied. The Greenpoint study received input from the academic community at Hunter College, but had less community involvement than in the Chicago or Baltimore studies.

4. How did the community focus affect assessment methods and the outcome?

Stakeholders in all the communities greatly affected the focus of the assessments by demanding consensus prior to commencement of the assessment. In response, issues that EPA believed were not critical to the assessment were eventually incorporated to meet the demands of the stakeholders. Alternatively, EPA identified issues that were not addressed by the stakeholder groups and incorporated them into the focus of the assessment. Because the communities' concerns resulted in an expanded assessment focus, issues that may not have been assessed for risk, such as lead hazards associated with substance fishing, were addressed. The Baltimore community collected additional data and samples to assist in the community assessment. No new samples were collected for either the Chicago or the Greenpoint assessments.

5. What approaches, methods, tools, and databases were used?

Approaches to the assessment included the application of national models to local conditions, sample collection for the Baltimore assessment, alternative-screening approaches, use of partnerships leading to new sources of information, and the use of regular process reports. A variety of models and databases were used for data collection and evaluation. Information was collected at the local level and from national database searches. The group discussed the importance of incorporating local and State data, relying less on easily accessible national data for the assessment. In Chicago, no models were deemed necessary for the assessment, and results were derived directly from a number of databases and other information sources, including TRI records, RAPIDS, local hospital database information, and State and city permit data. Baltimore and Greenpoint incorporated the use of State emissions data, ISC and STP databases for modeling, National Cumulative Exposure Project (CEP) data, and numerous other data collection sources.

6. Were there other approaches that could or should have been used?

A more complete evaluation of community views and concerns, as well as an examination of community assets, could have been performed to increase accuracy in understanding community profiles in all the cases. Other approaches included evaluating the communities' level of interest towards the issues to derive a place-based method for determining community views. Public meetings may prove to be an effective tool in communities with a strong interest in the issues of

concern. Door-to-door interviews, telephone surveys, and other tools for the collection of community opinions, may be needed to derive a more complete community profile. Monitoring data may be beneficial in evaluating total exposure data versus industrial emissions data. This monitoring would result in a more complete community risk characterization. The IDEA database should be used to identify potential enforcement cases surrounding the issues.

7. From the Agency's perspective, what lessons were learned?

The group believed it was important to discuss the limits of assessments with community stakeholders. Developing patience and respect between EPA and the community is important; therefore, EPA should be flexible in its assessment approach. EPA should strive to continually discuss issues and learn from the community, while involving other agencies in the assessment. The group realized the value of a true place-based, multi-disciplinary approach to community-based risk assessment.

The Agency learned that generalized models provide no information about differences in communities, although these models are an efficient tool for project scoping. The group emphasized the importance of utilizing localized information sources, such as the medical community, and recognized that the CEP model failed to answer questions on a small community scale. The group also felt that the examination of toxics was not complete. Issues, such as indoor air quality, were not assessed in case studies, resulting in an assessment that does not encompass all variables of a community's health problems, lessening the validity of the assessment's outcome.

8. Were the stakeholders' issues addressed and answered?

Stakeholder opinions on whether the issues were addressed and answered varied depending on their point of view. The group was confident that the communities' issues were addressed and that at least some of the communities' issues were resolved. This question brought the realization that unplanned outcomes from the assessment can provide new information that may be valuable to the community. Such information may create spin-off projects dealing with other stakeholder issues. EPA may be addressing issues that are beyond a community's interest, but that EPA feels are necessary to make an accurate assessment of a community.

9. From the State and community perspectives, what worked and what didn't?

The group was concerned that if stakeholders are surprised by the results of the assessment, they may not accept its validity. The group believed that stakeholder involvement at an earlier stage in the assessment might have been more effective. Members of the group directly involved with the assessments believed that the communities are pleased to make progress, and that has lessened community frustrations.

10. What issues were unique in this case? Which will recur in other cases?

Each assessment conducted will present a unique set of challenges. Although the methodology of cumulative risk assessment is "alive, it is not well." The group re-emphasized the need for further development of cumulative risk assessment methodology, incorporating local

information sources unique to each case study. Issues the group felt will recur in other cases included complex political dynamics, health issues, community dynamics, and changing community priorities and focuses.

2.3 Environmental Justice: Chester, Pennsylvania Environmental Risk Study (Reginald Harris, Region 3)

The Scenario

Chester, Pennsylvania, has the highest concentration of industrial facilities in the State, including two oil refineries, an infectious medical waste facility, and other waste-processing facilities. Residents complained of frequent illnesses and became concerned about the possible relationship between exposure to toxic substances and the health of the residents. Because Chester has the State's highest infant mortality rate, the lowest birth rate, the highest death rate due to malignant tumors, and the highest percentage of African Americans of any municipality in the State, issues of environmental justice and community protection were raised.

The Chester Risk Assessment Project was a cooperative effort between EPA Region 3 and the Commonwealth of Pennsylvania to study environmental risks, health, and regulatory issues in the Chester area. The original intent of the study was to provide a complete cumulative risk assessment. However, the actual report became more of an aggregated risk study due to the largely unknown nature of the interrelated exposures. The study did not attempt to collect new data, but rather focused on the analysis of available data.

Limitations on analysis included the use of data from a variety of agencies that were not intended to support a quantitative risk assessment; databases were of varying quality, and point source air risks were based on projected data rather than data collected in the field. Nevertheless, the study was able to draw the following conclusions:

- Blood lead levels for Chester children are unacceptably high;
- Both cancer and non-cancer risks from pollution sources at locations in the city exceed levels which EPA believes are acceptable. Air emissions from facilities in and around Chester provide a large component of the cancer and non-cancer risk to the citizens;
- The health risk from eating contaminated fish from Chester streams and rivers is unacceptably high;
- Drinking water in Chester is typical of supplies in other cities throughout the country.

In response, EPA Region 3 recommended that:

- The lead paint education and abatement program in Chester should be aggressively enhanced;
- Sources of air emissions which impact the areas of the city with unacceptably high risk should be targeted for compliance inspections and any necessary enforcement action;
- A voluntary emission reduction program should be instituted to obtain additional emissions reductions from facilities which provide the most emissions in the areas of highest risk;
- Enhanced public education programs regarding the reasons behind the existing State-mandated fishing ban should be implemented.

The Results

1. What were the central issues in the case?

The group identified a number of different issues and combined them into categories. These categories included: (1) disproportionate exposure to pollutants, due to an excessive number of facilities and waste sites; (2) disproportionate health effects; and (3) community characteristics, such as a weak political voice and low economic status.

2. How did you determine what the questions were?

The questions were posed by the community to EPA. Church leaders and other members of the community had formed Chester Residents Concerned for Quality to address issues of concern in the past. This citizen group provided the catalyst for EPA to study the situation in Chester, which had long been of interest to the Agency, but was not a priority. In addition to the environmental and health aspects of the problem, the citizens also brought questions of an economic and political nature to the table.

3. To what extent was the community involved?

In addition to the community initiation of the study, it remained involved throughout the process, working with EPA and the State and local governments. This involvement did not always have positive results; the citizen group often pointed out mistakes made by the State and the State representatives in turn made personal attacks on the leaders of the citizen group in an attempt to discredit them. The EPA study, however, gave credence to the community's concerns, and as a result, the Chester County Executive, a former EPA Regional Administrator, decided to address the problem. In addition, the community received money from the Centers for Disease Control for a dedicated public health worker. In general, the issue was community-initiated, with continued persistence and a high level of community activism.

4. How did the community focus affect assessment methods and the outcome?

EPA developed an initial framework and performed its own data analysis, which was compared to that of the State health department's community health assessment. In accordance with the community's concerns, the assessment focused on health outcomes rather than the environmental pollutants and causes. Immediate interventions included the introduction of health education and training programs, the influx of more health care providers into the community, and longer-term health-based measurements. Programs were developed to address the highest cancer rates and risks. Since the State of Pennsylvania has a fully authorized permitting program, EPA has less power in this area and had to work to encourage the State to take a second look at the permits it issued. EPA also asked the State to provide a dedicated monitor to report releases in Chester.

5. What approaches, methods, tools, and databases were used?

EPA performed a Superfund-type additive risk assessment for Chester rather than a cumulative risk assessment due to limitations in the existing data. The State performed an

epidemiologic health outcomes assessment. Geographic Information System tools were used. Sources of data included TRI reports, Dunn and Bradstreet databases, ambient data from the AIRS system, CERCLIS, State cancer and reportable disease registries, monitoring data for blood lead levels, interviews with citizens, mobile source data, and State monitoring databases.

6. Were there other approaches that could or should have been used?

If time and resources permitted, it would have been useful to perform more comprehensive research and information gathering, including a long-term toxicological/epidemiological study. Source control might also have played a larger part in the solution, although the problem was not unpermitted releases or noncompliance, as much as the fact that too many facilities, although in compliance with their permits, were located in one area. With regard to stakeholders, it should have been anticipated and accepted that the citizens would be angry. In addition, industry should have been brought into the process from the beginning and encouraged to do more to address the problems than simply improve public relations.

7. From the Agency's perspective, what lessons were learned?

In a case such as this, where a wide variety of aspects beyond the environmental must be considered, it is important for EPA to realize that the Agency cannot deliver all that the community requests. Instead, there must be long-term involvement by other Federal, State, and local agencies, as well as business and industry. EPA must be careful about what it promises to deliver. In Chester, EPA might have been able to define the problem, but was unable to resolve it completely because the State of Pennsylvania has permitting authority. Therefore, instead of using a regulatory approach, EPA can only try to influence the State. In addition, since the community's concerns were more in the realm of public health than strictly the environment, involvement of a broad spectrum of agencies is imperative. In summary, lessons learned included: (1) the need to involve all stakeholders and listen to their concerns; (2) the need to ensure a transparent and credible process; (3) the need to acknowledge EPA's limitations and the roles of other parties; (4) the need to build effective partnerships; and (5) the importance of prioritization to aid in resource development.

8. Were the stakeholders issues addressed and answered?

Some stakeholder issues were addressed, but not all were answered. EPA is continuing to try to influence the State, which has requested the creation of specific guidelines by EPA. However, this work must be done at the level of the Administrator rather than those directly involved with the project.

9. From the State and community perspective, what worked and what didn't?

Successes included community involvement in the identification of issues and strategy and therefore the definition of the assessment. The City of Chester hired a health officer with money from CDC and began new public health initiatives. However, credibility on both sides between the community and the State is still lacking, and a conflict remains between what the citizens and their local politicians value for Chester (i.e., public health vs. industry).

10. What issues were unique in this case? Which will recur in other cases?

Unique issues included the specific data gaps, health problems, and political realities in Chester. Issues that will recur include the problem of trust between citizens and government, as well as the challenge of preparing comprehensive multiple exposure assessments in light of gaps in available data.

2.4 Title VI of the 1964 Civil Rights Act : Convent, Louisiana (Mike Callahan, ORD NCEA)

The Scenario

Title VI of the Civil Rights Act states that Federal money may not be used in a way that selectively and/or adversely impacts racial and ethnic minority groups. Accordingly, in 1997, a group of citizens in Convent, Louisiana filed an administrative complaint with EPA that charged the State of Louisiana with running its EPA-funded permitting program in a way that illegally discriminated against African Americans. Specifically, a polyvinyl chloride plant was proposed near Convent by Shintech, Inc. EPA has investigated two major questions:

- Was there a disparity of adverse impact between racial groups?
- Was there actual harm being suffered?

EPA has not yet ruled on this case, as Shintech has put building plans on hold indefinitely. However, the question of whether the presence of permitted industrial facilities in a certain location poses a disparate, adverse impact upon certain groups within the surrounding population is important for other cases. Therefore, a method of measuring or estimating the difference in impact between the group in question and other groups is needed. The ultimate goal of this method should be to highlight the differences between the group in question and the rest of the population at large.

First, it is necessary to identify the types of possible adverse impacts due to an industrial facility. There are several categories of impacts. The first is emissions to the surrounding environment. This can include the emission of chemicals that at certain levels are harmful to human health or the environment. These may take the form of releases to the air, water, landfills, or injection wells. Once the chemicals are in the environment, the possibility for exposure exists. The second type of adverse impact is the potential for accidents. Some industrial accidents may result in the release of chemicals into the environment. The third type of potential adverse impact, referred to as a "quality of life" impact, is less tangible. This impact includes noise, dust, and increased traffic. While unpleasant, these types of impacts generally do not affect health.

It is also necessary to identify how impacts are distributed within the surrounding community. These impacts tend to be distributed in certain geographical patterns relative to the facilities. Air emissions from stacks are affected by local weather conditions. Transportation impacts will lie along traffic routes. Water discharges affect downstream communities. Accidents at a facility will impact those areas closest to the facility first.

The key to analyzing how adverse impacts fall differently upon different groups within a population is to:

- Establish an intensity measure for each geographical pattern;
- Establish how the intensity measure is distributed geographically;
- Analyze the intensity of patterns relative to where the various groups are located.

The Results

1. What were the central issues in this case?

The group agreed that the central issues varied for different groups. From the community perspective, central questions involved whether the plant would be built and whether the community could stop the building of the plant. From a legal perspective, the central issue was whether the State had violated Title VI. From a technical perspective, the central issues were determining what to measure and how. Adverse impacts, disparity, and risk of accidents were listed as possible items to measure.

2. How did you determine what the questions were?

The questions were determined by understanding the nature of the complaint through interviews with citizens, through EPA management discussions, and by evaluating the legal framework.

3. To what extent was the community involved?

It was the community that filed the complaint that initiated investigation. Members of the community were interviewed. The community had the opportunity to comment on plans and draft results. EPA also tried to engage partners from outside the immediate group of stakeholders.

4. How did the community focus affect assessment methods and the outcome?

The community focus helped to define some elements of the investigation. The geography gave the study some specificity and scope. The community focus also gave the investigation a cumulative assessment focus. Finally, the community's concerns led to the inclusion of disparity relative to the State as a whole.

5. What approaches, methods, tools, and databases were used?

Tools used included RSEI, Geographic Information System, statistics, Toxic Release Inventory reports, TEDI (from Louisiana), census data, pre-RMP reports, permit information, and the company's release estimates.

6. Were there other approaches that could have or should have been used?

The study could have taken a health-outcomes approach. The study could also have looked at air monitoring data, alternate models, planned non-point sources, and plant-specific accident consequences scenarios.

7. From the Agency's perspective, what lessons were learned?

Overall, the group agreed that it is not an easy process and patience is needed. Often there is not enough data (especially in the case of accidental releases). Tools do not exist to answer all of the questions; this is an issue to address. There is a need for policy guidance in the area of Title VI cases. Also, there is a need for faster methods/processes of resolving problems and issues.

8. Were the stakeholders' issues addressed and answered?

Some aspects of the case were answered or addressed. From the community's perspective, the plant has not been built yet. Some aspects, however, were not resolved, i.e., the issue of accidental releases.

9. From the State and community perspective, what worked and what did not work?

Filing a complaint did, for the present, stop the construction of the plant. Future plant issues will involve the community to a greater extent.

10. What issues were unique in this case? Which issues will recur in other cases?

There were several unique aspects of this case, including the fact that there was no precedent to consider and the large role that local politics played. However, several aspects will recur. The group believes that cumulative assessment gaps need to be addressed. Also, Title VI cases could become more frequent.

This group concluded that community-based assessment requires close interaction between the Agency and the community. It is important for the Agency to take the concerns of the residents seriously. Good community-based assessment requires a great deal of planning up front. This should include adequate management support and enough staff allocated to achieve the goals of the assessment. It is also important to ensure cooperation with other levels of government and, if necessary, other Federal agencies. Finally, it is important to remember that a community-based assessment from the Agency's perspective can often be very different than the stakeholders' expectations.

The group concluded that the data and methods cannot answer all of the questions, but this does not mean that science cannot be helpful. There are still major gaps and uncertainties in the existing data tools and methods available. The group felt that it is important to recognize that the policy context of environmental justice issues is still in flux. This group also concluded that there is a need for more investment in tools for communicating with stakeholders. Finally, it is necessary to have a definition of disparate impacts.

2.5 Central Susquehanna Valley Transportation Impact Analysis (NEPA) (Denise Rigney, Region 3)

The Scenario

This on-going project addresses current and future transportation needs in a corridor of the Central Susquehanna Valley in Pennsylvania. The process includes coordination with a number of State and Federal environmental regulatory agencies and the public. Suggested improvements address congestion and safety problems on a number of existing routes. The public involvement process includes meeting with citizen advisory committees, focus groups, individuals, and communities or neighborhoods. In addition, natural, cultural, and socio-economic resources have been identified in the study area prior to the identification of potential highway alignments. The National Environmental Policy Act requires the identification of the environmentally-preferable alternative. This takes into account impacts made to all types of resources, including the natural and man-made environment.

Geographical Information Systems (GIS) tools improve the visualization of alternatives and their effects on the public and other resources. The environmental justice aspect of this project involves analysis of digital census data and tax assessment data to assess whether residents falling into minority racial categories can be identified. One such analysis identified a concentration of persons below the poverty level that may be impacted by one proposed highway alignment alternative. The use of GIS technology has allowed several alternatives to be considered based on a number of criteria, such as off-street parking for businesses. Likewise, an assessment of available tax data combined with GIS technology has allowed for the consideration of the effect of potential right-of-way acquisition on local tax bases. Local meetings have provided information for the delineation of communities, allowing assessment of the number of residences to be affected and the identification of potential displacements of people and groups.

The availability of new technologies, such as digital orthophotography, census data, and property ownership/tax data has greatly increased the ability to do community impact analyses in NEPA documentation. GIS data and tax assessment data have allowed residents to view the location of their homes in relation to proposed alternatives, heightening the community's involvement in the project. This has helped the public visualize the potential impacts of the project and start a dialogue on the issues. These new technological tools and a greater focus on the outreach process have brought all of the communities into the transportation decision-making process.

The Results

1. What were the central issues in this case?

The need to evaluate, suggest modifications to, and chose one of two road-plan alternatives, initiated this process. Making the choice involves not only solving existing transportation issues, such as capacity and congestion, but also community issues, such as the impacts on different communities of the proposed alternatives and the mitigation of these impacts on both the broad community and its sub-groups.

2. How did you determine what the questions were?

The overall approach was guided in part by the Pennsylvania Department of Transportation's (PennDOT) existing practice of extensive community involvement. Three main approaches were taken: (1) innovative and aggressive community involvement; (2) investigation of a wide variety of existing data sources, including traffic, socio-economic, and human health and environment data; and (3) the development of effective methods of viewing the data, including digital-orthographic maps of the region.

3. To what extent was the community involved?

The existing PennDOT approach aided in the implementation of an aggressive strategy of town meetings (involving both the broad community and individual sub-groups), door-to-door outreach, neighborhood meetings, Community Advisory Committee meetings, and meetings with public officials. The group felt that it was important to state that valuable information from the community helped bring forward new issues, such as identification of a former landfill site.

4. How did the community focus affect assessment methods and the outcome?

The community involvement process affected many aspects of the program. Community feedback identified critical issues, focused data presentation to increase effectiveness, and spurred additional data collection. Additionally, this focus resulted in modified proposed alternatives, increased recognition of historical preservation issues, and provided a confirmation of the prevalence of the NIMBY (not-in-my-backyard) sentiment.

5. What approaches, methods, tools, and databases were used?

The use of high-tech tools made a big impact on the program. These included the use of digital-ortho mapping, Geographic Information System, Global Positioning System data, and site photography. Multiple sources of data were mined for relevant information. These included State, EPA, tax assessment, and census databases. The region was considered in terms of State historical sites, ecosystems, and endangered species. Much of this could be visually rendered using the digital-ortho mapping. For example, historical sites or preserved green spaces could be located on a map, allowing them to be considered in context with the surrounding area and the proposed roadways.

6. Were there other approaches that could/should have been used?

The group was adamant in stating that the Transportation Equity Act for the 21st Century (TEA-21) is the "future," and that EPA needs to be involved. It was also noted that NEPA should be thought of more often as an effective resource for regulatory support. Finally, while perhaps not practical in this instance, non-road solutions to transportation congestion and capacity problems should be aggressively pursued.

7. From the Agency's perspective, what lessons were learned?

The group's general consensus was that public involvement is indeed critical. They

recognized that this approach involves high initial investment, but were convinced that the payoff comes in reduced conflict during a project's latter stages, when delays and changes can be extremely expensive. To be effective, this approach requires time, effort, and an aggressive outreach strategy by EPA. It is important to identify challenges or obstacles to community involvement and communication. The group recognized that PennDOT's existing and continuing commitment to this approach played a big role in its successful application in this case.

8. Were the stakeholders issues addressed and answered?

The group concluded that the issues identified in this approach are indeed being addressed. However, addressing issues does not equate to developing conclusions that satisfy all involved parties. Some compromises are inevitable. The process, in this case, is still on-going.

9. From the State and community perspective, what worked and what didn't?

In general, the group felt that the process described in this case seemed to be effective. Of special note, they stressed the usefulness of "visualization," achieved in this case primarily through the use of the digital-ortho maps. Holding informal meetings hosted by individuals within the community in their homes was noted as an effective strategy for accessing segments of the community not commonly represented at larger town meetings.

10. Which issues were unique in this case? Which will recur in other cases?

The group concluded that most issues will recur; these include differing values among the various members of the community, differing priorities, multiple publics, and application or use of the NEPA regulatory framework.

The discussion group distilled its conclusions into four main points:

- PennDOT believes in outreach;
- Innovative community involvement should be sought;
- Outreach tools should be used creatively;
- TEA-21 is the "future;" EPA needs to get involved.

Thought should be given to the sources of traffic and whether attractive alternatives to road-based transportation can be identified. Finally, EPA needs to be more aggressive in forming interagency partnerships.

2.6 The Marty Indian School (Tribal) (Jerry Gidner, Bureau of Indian Affairs)

The Scenario

The Marty School was transferred from the Catholic Church to the Yankton Sioux Tribe around 1975. The school and related facilities are operated by the Tribal school board. A 1998 EPA report showed contamination of the maintenance building containing heat boilers used to provide steam heat for the school. The boilers have burned waste oil for the last 40 years.

Contamination was also found in the surrounding area, including the floodplain of a creek draining into the Missouri River. Contamination found in the soil and ash from the boilers included lead, heavy metals, VOCs, benzene, toluene, and polychlorinated biphenyls (PCBs). Underground storage tanks were found to be leaking; barrels of waste were found in the basement; ash from the boilers is stored in a smokestack and analysis revealed high lead levels. More than 240 children, ranging in age from newborns to high school seniors, occupy the school, which is downwind from the boilers. A community stakeholders group was formed to create a plan to resolve the environmental issues at the school.

The Indian Health Service (IHS) and the Agency for Toxic Substances and Disease Registry (ATSDR) conducted studies of blood lead levels of employees and students. ATSDR also scanned painted building surfaces with an x-ray fluorometer to detect lead. The maintenance building and ash piles were cordoned off to limit student access in 1998. As a result of the study, the school board voted to stop burning waste oil. Hazardous waste was removed from the building, and the smokestack and underground storage tanks were also removed. Groundwater and soil assessments are underway to determine the extent of contamination.

The Results

This case was not analyzed in a discussion group.

3. Question Groups

On the second day, participants were divided into five discussion groups. Each group was assigned two of the questions and was given the responses developed by the discussion groups on the previous day. The groups then attempted to answer the questions as broadly as possible. The objective was to identify the important issues and elements of community assessment. In turn, these themes can be incorporated into a community assessment strategy.

3.1 Questions 1 & 2—What were the central issues of this case? How did you determine what the issues were?

The central issues in the cases could be divided into two categories: science/health/technical problems and complicating issues. The first category includes issues that are empirical in nature, such as health risks or regulatory violations. These are the initial, central problems that cause EPA to become concerned about a case in the first place. On the other hand, complicating issues involve perceptions or social questions. Examples of these include lack of trust, fairness, community involvement and empowerment, and conflicts between stakeholders.

A number of factors are involved in determining what the above problems and issues are. The discussion group divided these factors into outreach, science, legal, management support, and political will. "Outreach" refers to EPA solicitation of stakeholder input, and would also include "inreach" from the community to EPA, as in the Chester case study. "Science" refers to problems that come to the attention of EPA through data collection, such as through monitoring reports. It also must include a capabilities assessment of what science can do to solve the problem, based on analytical feasibility, data availability, and the current state of the science. The "legal" means of identifying problems include the enforcement of permits. "Management support" refers to the internal willingness of EPA management to commit the resources necessary to fully address a case. Finally, "political will" refers to the external political climate that drives the desire of upper management at EPA to address particular issues.

3.2 Questions 3 & 4—To what extent was the community involved? How did the community focus affect assessment methods and the outcome?

In answering these questions more broadly, the group found it better to redefine the questions and instead asked "To what extent should the community be involved?" and "To what extent does the community want to be involved?" The group concluded that EPA believes that community involvement is essential. Members adopted the phrase "early, often, always" as its mantra for community involvement. Through a discussion of specific examples from the members' own experiences, the group identified many reasons for fostering community involvement. For example, the community gains a sense of ownership in any project that is undertaken. When the community is involved from the very outset, the results are often better because the community helps to frame the questions. The community can also provide a wealth of unique and valuable information that often goes untapped. Getting the community involved can also serve as a reality check to the Agency's goals. Additionally, the community can, in some

cases, provide additional resources in terms of manpower, information, or money. A project involving the community is also more likely to be sustainable over the long term. Finally, the group believed that, in the long term, it is far less costly to involve the community from the start than to begin addressing community concerns once the plan is ready for implementation. The extent to which the community is involved covers a range of participation depending on the project and the community.

The group also considered ways in which EPA should design tools to address community concerns and to ensure the appropriate level of community involvement. The group chose to answer this question by developing a list of questions that should be carried over to the next meeting. The group also framed some specific answers. They found that the community focus affects project methods and outcomes in many ways. Community involvement helps to better frame and focus questions. The community's involvement also provides information that is not available elsewhere. Examples of the types of information include community values, activities, and patterns. Involving the community also helps determine the need for the involvement of other agencies. Community values can also be useful in setting screening criteria and outcomes, such as what risks or alternatives may be considered acceptable. The benefits of increasing community involvement include:

- Making the assessment more accurate and effective;
- Enhancing the design of the framework;
- Improving the determination of the extent and location of sampling and assessment;
- Designing tools that can be used by others without EPA assistance (technical outreach services for communities).

The group identified several questions for consideration in the next workshop:

- How can EPA achieve community involvement?
- How can EPA work with the community to determine the right questions to ask?
- How can EPA design tools to encourage community involvement?
- How can EPA become more focused on community involvement?

During discussion of these questions in the plenary session, participants pointed out the necessity of making community involvement an important part of EPA's goals for projects. While it is already supposed to be part of the everyday practices of EPA staff, creative and more aggressive approaches to community involvement are not encouraged. It is necessary to make a commitment to community involvement beyond a perfunctory notice in the *Federal Register*. Participants suggested that community involvement criteria be used in regular employee performance evaluations, and that community involvement be stressed to a greater degree in orientation and training programs. This will help to change EPA's approach from passive to active. It was noted that EPA Region 9 has a public involvement training program that provides information on community involvement tools and methods.

3.3 Questions 5 & 6—What approaches, methods, tools, and databases were used? Were there other approaches that could or should have been used?

The discussion group chose to combine the two questions and recognized three major issues:

- Integrating national-level and community-level tools and data;
- Identifying data and methods gap (e.g. small sources, health outcomes, and ambient conditions);
- Enabling better communication and coordination among data and tool developers and users.

Examples of stressors, exposure and conditions, receptors, effects, and general conditions associated with specific data and tools used were summarized in a table format, reproduced in Exhibit 2. Asterisks (*) placed next to an item indicate a data source or tool the group felt could or should have been used in the assessments.

3.4 Questions 7 & 8—From the Agency's perspective, what lessons were learned? Were the stakeholders' issues addressed and answered?

The group considered the questions together and identified additional questions that would have to be considered in order to develop criteria for evaluating success. For example: Is science an adequate response to stakeholder concerns? What is the measurement of success with regard to adequacy of response to stakeholder concerns? Is it a consensus among all stakeholders or simply an understanding of the concerns across the breadth of stakeholder groups? Can a program be considered a success based on EPA's perception of a community's point of view rather than the community's opinion itself? How should EPA define issues which are value-laden and therefore defined differently by different groups?

The group suggested that EPA needs to identify the needs of the stakeholders, and then determine the tools and methods to address these needs. They stressed the importance of establishing long-term relationships and trust between EPA and the stakeholders, as well as among the stakeholder groups themselves. The group believed that EPA should solicit feedback from the community and have them identify their own definitions of success, recognizing that EPA and each stakeholder group might differ in these definitions. The group recognized that aggressive outreach by EPA to the community is necessary to avoid passive community input. EPA must recognize that the higher initial costs associated with community outreach are still lower than those associated with negative results from a lack of community involvement.

3.5 Questions 9 & 10—From the State and community perspective, what worked and what didn't? What issues were unique in this case? Which will recur in other cases?

The group considered the possibility that EPA might have to adjust its criteria for judging the success of a program to include consideration of the benefits to the community and/or other government agencies. Across the cases, creative approaches to involving the community worked best. The group recognized that successes might not be immediately evident but rather develop over time. Positive and effective approaches included:

- Openness and transparency;
- Partnering with relevant agencies;

- Defining community and its representatives broadly and accurately;
- Flexibility;
- Reporting progress regularly to prevent the issuance of "surprise" conclusions.

The group identified a need to move beyond traditional, passive approaches to community involvement, such as public meetings held in large rooms and advertised simply by placing a notice in local papers. Such approaches are susceptible to under-representation of important aspects of the community in question. It is also important to recognize that a lack of trust between citizens and any governmental body or agency can color that community's interaction with other agencies or bodies. Also, failing to prepare the community for the outcome of a program by means of regular progress reports can cause even positive solutions to be poorly received. Finally, the group recognized that occasionally the facts and science are not sufficient to reach a clear result and resolution to community issues. Because of this, it is important to understand community issues and positions, and to address these to the extent possible, in addition to the issues identified by EPA.

It was noted that there will always be case-specific information, on the community level as well as on the scientific level, making it necessary to adapt available tools. However, large-scale reinvention is not always required to deal with these issues. Categories of unique issues were identified as follows:

- International/cross-border issues;
- High profile cases;
- Case-specific information.

Recurring issues included:

- Political realities;
- Trust (us vs. them);
- Cumulative risk assessment: multiple exposures and multiple sources;
- Data gaps, tool gaps, science gaps;
- Health concerns;
- Different values/perceptions/concerns from different parts of community;
- Concerns about disproportionate share of pollution sources.

Exhibit 2: Data and Tools Used in Community Assessment

Issue	Data	Tools
Stressors	**National Data:** *IDEA, Enviro-Facts Data* • Toxic Release Inventory • PCS • AIRS Facility • RCRIS • CERCLIS *Other* • NTI (on-going) • RMP* **State, Local, and Regional Data:** • RAPIDS • TEDI • Emergency Planning and Community Right-to-Know Act (EPCRA) Reports* • Socio-Economic Data • Dunn & Bradstreet • Census • Tax Data	• Default emission factors and stack parameters
Exposure/Conditions	**National Data:** • AIRS Monitors • STORET • Drinking Water Contaminant C[i] • Cumulative Exposure Project (CEP) Air Results • Remote Sensing-Based Data • National Oceanic and Atmospheric Administration (NOAA) and Fish and Wildlife Service (FWS) Ecosystem Data • NHANES **State, Local, and Regional Data:** • Ambient Monitoring • Blood Lead Levels • EMPACT	• ISCM (and other AIR models) • RSEI • BASINS • IEUBK • ASPEN (CEP) • MMEM
Receptors	• CENSUS • Socio-economic and Demographic Data (e.g., community 2020 updated population estimates) • NOAA and FWS Ecosystem Data • State Endangered Species Data • Historical Sites Information • SDWIS • Exposure Factors Data	• PECT (proximity analysis) • RSEI (proximity analysis and levels of exposure) • IE UBK
Effects	• NCHS Cancer Mortality (County level data) • IRIS • Centers for Disease Control (CDC) (e.g., Agency for Toxic Substances and Disease Registry (ATSDR), toxics profiles, STARS) • HEAST • RSEI Toxics Data • CEP • State/Local/Regional Health Records	
General	• Geographic Information System • Global Positioning Satellite • Statistical Multi-level Analysis • Krigging Tools (e.g., Geo-ease)	• Statistical Multi-level Analysis • CIMAS-Type Applications • TIGER (Census)

4. Analysis of Information And Action Items

4.1 Restatement of the Workshop and the Series Objectives

At the beginning of the second day, Claudia Walters reviewed the goals of the workshop and series. The workshops are intended to build upon one another. This first workshop will examine the "questions" or issues that are being asked in the community setting. For example, questions being asked include: "Will this highway adversely affect the environment? Is the environment causing the child birth defects? Can we consume these fish? Participants will share their perspectives on how this new paradigm in the community is different than a traditional approach. In the next workshop, participants will then examine what tools, such as models and data, we currently have that can answer those "questions". In addition, the group will determine how the questions and tools can be related in a decision-making process. The third workshop will focus on identifying the gaps and limitations of our tools and how we can make improvements. The purpose of this approach in the workshops is to identify only tools that are applicable to community assessments rather than all types of tools. Future workshops will focus on making the tools available.

Several participants felt that the process of defining community assessment would be more meaningful if stakeholder groups were represented in these workshops. They noted that the Agency is often criticized for bringing a product to the stakeholders without involving the stakeholders in its development. It was suggested that the same criticism could be made of these meetings. Participants warned against conducting the process based solely on EPA's perception of stakeholder reception. Some people in the audience noted that this workshop seemed to focus more on community participation than on identifying scientific tools. Claudia Walters stated that tools would be the focus of the second workshop. Dorothy Patton discussed these issues with the participants.

Dorothy Patton restated the goals of the organizers: (1) forging a relationship between scientists throughout the agencies; (2) obtaining stakeholder input through attendance at satellite meetings to be held after this workshop, with results reported back at the next workshop; (3) concentrating the scope of the workshops in the face of financial limitations; and (4) staging open meetings next year. The first step in the process is to ensure that everyone has good access to the available science; to do this, EPA scientists must communicate within the Agency. The intent of this meeting is not to solve the specific problems of stakeholders, but rather to encourage an exchange of scientific ideas that will lead to helping communities solve problems. Claudia Walters reiterated that the satellite meetings are intended to provide a mechanism to feed stakeholder input back to the Agency for the next meeting.

4.2 Action Items and Next Steps

After the discussion group sessions summarized in Section 3, the workshop concluded with a facilitated discussion session that provided all participants with the opportunity to contribute recommendations and other comments concerning steps needed to prepare for the next workshops. The final plenary session allowed participants to identify issues/questions to be

addressed in follow-up workshops. Increasing participation in the community assessment initiative was also addressed. The group divided pressing issues and questions into three categories: (1) issues and questions involving the meeting process; (2) products needed to further the cause of community assessment; and (3) methods of implementing community assessment. Increasing participation was discussed in terms of who else should be included in the process and how they should be involved. A general discussion session also generated useful ideas for the continuation of the series.

Identifying Community Assessment Issues and Questions

- Procedural Issues

Several ideas were repeatedly suggested as ways to improve the community assessments workshop series. Many participants noted the need to solicit stakeholder response to the ideas generated during this workshop to ensure that it meets their needs. Many participants considered the communities to be prime stakeholders that should be involved in the process. In fact, it was suggested that input is needed from communities to define what questions are most pressing to communities. The group was divided as to whether this input should come from direct involvement of community stakeholders in this series, or whether it is sufficient to ensure high participation of stakeholders in the satellite meetings. Another theme that emerged from the discussion was the need to clearly identify the purpose and objectives of the series itself, and of each individual workshop before the next is held. These objectives should be clearly conveyed to participants beforehand. Participants requested a report with detailed results of the workshop, and a draft approach for defining success and evaluating science in community projects. Also prior to the next workshop, many felt that a greater effort should be made to involve more EPA staff in this process, as well as increasing partnering with other agencies. In fact, the need to obtain greater Agency participation in the workshops was seen as a significant issue.

Other ideas included: (1) instituting community involvement into the EPA culture (perhaps through performance appraisals); (2) brainstorming how available tools can be used to provide cumulative risk information; (3) emphasizing the importance of interpreting and characterizing results; (4) articulating and assessing the benefits of community involvement; (5) increasing management willingness and flexibility to include community assessment; and (6) improving communication tools.

- Products

Products that should be generated as a result of this meeting fell into two subcategories: tools and processes. Most pressing is the need for a comprehensive list of tools. Once that has been prepared, participants felt that tools should be made easily available and matched with potential uses for scientific analysis and/or community concerns. This includes identifying tools and data already available within EPA, as well as through other agencies or organizations. In conjunction with the comprehensive list of tools, the identification of gaps in the list is vital. Many felt that tools available for community assessment should be collected from multiple levels and sources and then catalogued, identifying the strengths and weaknesses of each. Once a complete list of tools exists, an analysis should be performed to

identify where there are gaps. This analysis should be presented at the next workshop.

Other useful suggestions included: (1) developing a clear list of questions to send out as part of the invitation package, and asking whether the invitee has a tool that can help answer these questions; (2) developing guidance for community outreach; (3) preparing a guidance package for tools and data; and (4) developing a working definition of "community assessment."

- How to Achieve Community Assessment

Participants felt that EPA needs to set priorities for the community assessment projects, allocate resources to these projects, and develop guidelines for selecting or rejecting community assessment projects. It was noted by several that EPA needs to bear in mind that it is ultimately much less expensive to involve the community from the very beginning. Another key idea focused on the need to identify diverse community values and concerns, and help communities clarify their own concerns and frame their questions. More importantly, many participants argued that EPA needs to develop ways to gain community trust.

Additional technical concerns included: (1) how to access databases (e.g. IDEA, EMPACT); (2) how to use data (National Cumulative Exposure Project); (3) whether similar workshops are adequate for EPA community assessment needs; (4) development of a list of important partnerships; (5) development of guidance on involving all parties concerned with a community assessment; and (6) identification of existing visualization and communication tools.

Increasing Participation in the Workshops

- Who should be involved?

In general, the group wanted to see more scientists involved in community assessment issues. Many different EPA offices and programs were mentioned as candidates for greater involvement. Programs related to the Office of Water were the most commonly cited. However, it was clear that meeting participants believed all offices of EPA should be involved in community assessment issues. Likewise, greater inclusion of the Regional offices was viewed by the group as a necessary part of this process. One suggestion was to include a representative from each EPA laboratory and research center. A smaller number of participants argued that State and local agencies should be involved. Some argued that it was sufficient to involve EPA staff who work directly with State and local governments and other stakeholder groups; others wanted to see direct involvement of stakeholders. Greater ORD and National Cumulative Exposure Project involvement were mentioned specifically by several participants. Another suggestion was to include transportation agencies.

- How to increase participation

Increasing access to the community assessment initiative and results from this meeting were the two key means discussed for increasing participation. Participants requested that the

results of this workshop, with an invitation to the next, be posted through the Internet. It was also suggested that the invitation list be expanded to include community involvement and stakeholder group list members. To increase input from stakeholders, it was suggested that meetings be held in each Region, inviting stakeholders from that Region and examining an important regional case. Other broad participation concerns included providing travel money for regional participants and getting regional management support.

Members of the group once again pointed out that before the process continues, organizers need to: (1) develop a definition of community assessment; (2) clearly define the objectives and purpose of the workgroup; and (3) address concerns about the lack of community involvement involved in this process.

General Discussion

The unifying consensus of the group was that community involvement is key to the success of EPA's goal of environmental protection. Gaining community trust and risk communication are essential to EPA programs. As part of each risk assessment project, staff should perform an analysis to identify ways in which risk assessment does and does not address community concerns. In terms of measuring risk, many thought more emphasis needed to be placed on science.

Several ideas emerged with regard to the general climate within EPA toward community involvement: (1) there needs to be a willingness within EPA management to focus on community assessment and to provide the necessary resources; (2) the political climate within EPA needs to focus more on doing the day-to-day work of what needs to be done, rather than continually adjusting to hot issues of the moment; (3) tools for communicating with the community are badly needed—one suggestion was to use regular progress reports for the community; and (4) there is a need for greater communication within EPA, between EPA and State and local governments, and especially between all levels of government and the community. Within EPA, in particular, better communication between the users and developers of tools is needed if the tools are to be used properly. It was also suggested that there be a greater effort to integrate national, State, and community level tools, so that the proper tool can be matched to a specific need. Partnering was seen as crucial.

In terms of data, the group wanted to see improved access to available data. However, the group also felt that community assessment should not be driven by existing data; the community should help, when feasible, with generating data. To this end, tools should be designed to encourage community involvement in generating data that is usable by EPA. Many participants viewed limited community involvement in data collection as an effective means to increase community support for a project.

Most importantly, the group made a point of noting that EPA should agree internally on defining and increasing community involvement. Community involvement has not always been a part of EPA thinking, although this attitude is changing. Agency resources for community involvement already exist, but they should be identified, promoted, and improved upon. EPA should also look outside of the Agency for other community involvement resources. Finally, the group noted that there is a need for a measure of success in addressing stakeholder and

community concerns.

Participants developed a table of action items to be completed prior to the next workshop and signed up for particular tasks, as shown in Exhibit 3. In addition, a list of satellite meetings, where participants would interact with stakeholders and obtain their input on the process, was developed and is presented as Exhibit 4.

4.3 "Questions" Identified in Workshop

The main goal of the first workshop was to develop a list of assessment-type "questions" that are asked in the community setting. The case studies were used as a starting point and participants volunteered their experiences. The information was extracted from the discussions during the break-out groups on the case studies and on the second day. The result was a list of various types of "questions". The Community Assessment Planning Group made a first attempt to organize the "questions" into categories. The summary is in Appendix E.

These "questions" will be used to target the tools that can be used to answer these "questions", either in part or in whole. The second workshop will be organized according to the "questions" and the discussion will be focused on what tools are available and how effective they are in addressing the "question".

4.4 Workshop Evaluation

At the end of Day One, participants were asked to use stickers to mark their opinion of the value of each of four activities on a scale from one to ten, with ten being the most valuable. The activities evaluated included the "Mapping Your Communities" exercise, the case study presentations, the breakout groups discussing the case studies, and the gallery walk. Impressions of the "Mapping Your Communities" exercise varied, with one group of stickers centered around three, or less valuable, and another around eight, or more valuable. The case studies and breakout groups received consistent marks between eight and ten, or very valuable. The gallery walk was not performed as scheduled due to time constraints, but some participants used that space to give their impressions of the poster session following the case study breakout groups. Stickers varied between four and six on the scale.

Comments from the evaluation forms, as well as those provided verbally to workshop organizers, are summarized below:

- Facilitation was excellent (several comments).
- The puzzle/team building exercise was not especially helpful.
- The goals of the workshop could have been clearer (several comments). Some participants were expecting a more detailed discussion of specific tools, data sets, and analytical models and were less interested in the "softer" discussions of community involvement and similar concepts.

- Several commenters felt that direct community and stakeholder input in the workshop, beyond the concept of satellite meetings, was necessary.

- The format of the workshop, which provided for active involvement, was useful in giving all an opportunity for input. The use of cards to record ideas and then attaching them to boards, where they could be moved as necessary, was seen as a good way to focus work (several comments).

- The list of ten questions that had to be worked through for each case study was too long (several comments).

- The inventory of questions that communities might ask was not complete and requires follow-up. Several participants offered to assist with this task.

- Day One breakout groups were self-selected; as a result, those who generally work on a particular category of community (urban, rural, environmental justice, etc.) tended to attend the case corresponding to that community type. It was suggested that in the future, planners work toward involving people in community types with which they are not familiar. This could be done by assigning randomly to breakout groups.

- Several attendees commented on the lack of ORD participation.

Exhibit 3: Action Items for the Next Workshop

Action	Who	When
Develop the agenda for the next meeting	Steve Hassur Nick Bouwes Greg Macek Heidi Paulsen Lee Hofmann	Undecided
Develop list of tools	Steve Hassur Nick Bouwes Heidi Paulsen John Schaum Van Shrieves	Undecided
Develop Decision Tree (a framework for decision-making)	Hal Zenick Lawrence Martin Ethel Brandt Charlotte Cottrill Heidi Paulsen	On-going (list serve)

Exhibit 4: Satellite Meetings

Meeting	Contact	When	Where
FOSTTA	Loren Hall Hank Topper	March 28-30, 1999	Alexandria, VA
NEJAC Health and Research Subcommittee	Lawrence Martin	April 1999	Washington, DC
Annual EPA Superfund and Regional Risk Assessors meeting (internal)	David Cooper Lee Hofmann	May 3-7, 1999	Seattle, WA
National Community Involvement Conference (CBEP pre-meeting and open discussions)	Diane Hammer Heidi Paulsen	Tentatively May 23-25, 1999	Kansas City, KS
American Association of State Highway and Transportation Officials	Denise Rigney	March 22-26, 1999	Savannah, GA
ICMA	Lawrence Martin	April 1999	Washington, DC
Annual Transportation Research Board Meeting	Denise Rigney	January 2000	Washington, DC
NAACP	Van Shrieves		
To be named	Angela Nugent	Late March or Early April 1999	Washington, DC

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Appendix B. Agenda

Community Assessment Series
Session 1: Community Assessment Questions Workshop

ORD, Office of Science Policy
March 3-4, 1999
Radisson Barcelo Hotel, Washington, D.C.

Day 1

8:30 **Arrival** - Signing in, refreshments

9:00 **Welcome and New Directions Workshops** - Dorothy Patton

9:15 **Community Assessment Series** - Claudia Walters

9:25 **Your Communities** - Richard Brown

9:45 **Keynote: Community Assessment** - Jay Benforado

10:20 **Plenary: Case Study Experiences**
- The Transboundary Air Monitoring Study for the Lower Rio Grande Valley/Mexican Border (Rural) - Charlotte Cottrill
- Urban Cases (Chicago, Greenpoint, and Baltimore) - Carole Braverman
- Environmental Justice: Chester, Pennsylvania Environmental Risk Study - Reggie Harris
- Title VI of the 1964 Civil Rights Act : Convent, Louisiana and Shintech - Mike Callahan
- The Marty Indian School (Tribal) - Jerry Gidner, Bureau of Indian Affairs
- Central Susquehanna Valley Transportation Impact Analysis (NEPA) - Denise Rigney

12:00 **Lunch**

1:15 **Moderation (Tips and Ground Rules)** - Richard Brown

1:40 **Breakout Groups by Community Setting**

3:10 **Break**

3:30 **Plenary Gallery Walk and Discussion**
- 2 minute introduction to each poster
- Gallery walk
- Plenary clarification/discussion

4:25 **Tomorrow's Activities**

4:30 **Adjourn for Day**

Day 2

8:30 **Check-in on Previous Day's Activities and Process for Day 2** - Richard Brown

9:00 **Break Out Sessions by Issue Pairings**

10:30 **Break**

10:50 **Plenary Gallery Walk and Discussion**
- 2 minute introduction to each poster
- Gallery walk
- Plenary clarification/discussion

12:00 **Lunch**

1:15 **Analyze Data and Develop Options** - Richard Brown

2:00 **Select Options to Explore and Break Out**

3:00 **Break**

3:20 **Plenary Gallery Walk and Discussion**
- 2 minute introduction to each poster
- Gallery walk
- Plenary clarification/discussion

4:00 **Wrap-up Activities/Prepare for Next Meeting**

4:30 **Adjourn**

Appendix C. Case Study Materials

C-1: The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)
(Hardcopy only)

C-2: Urban Cases (Chicago, Greenpoint, and Baltimore)
(electronic and hard copy)

C-3: Environmental Justice: Chester, Pennsylvania Environmental Risk Study
(electronic and hard copy)

C-4: Title VI of the 1964 Civil Rights Act: Convent, Louisiana
(electronic and hard copy)

C-5: Central Susquehanna Valley Transportation Impact Analysis (NEPA)
(Hardcopy only)

C-6: The Marty Indian School (Tribal)
(Hardcopy only)

Questions and Answers about

The Transboundary Air Monitoring Study for The Lower Rio Grande Valley

What is the Lower Rio Grande Valley Monitoring Study (LRGVMS)?

The long-term goal of the LRGVMS is to identify and evaluate environmental pollutants in the air, drinking water, food, soil, and house dust in the Valley.

LRGVMS has two parts:

Phase 1 was a small-scale pilot project conducted in the spring and summer of 1993. The pilot project explored: 1) the actual environmental pollutants to which Valley residents may be exposed; and 2) the contribution from different sources and media (air, drinking water, food, soil and house dust).

Information from the pilot project was used to identify several followup activities for the second phase of the LRGVMS.

Phase 2 activities include this Transboundary Air Monitoring Study. This study will focus on transboundary air pollution in the areas of Cameron and Hidalgo Counties. The study will monitor emissions from traffic and industrial activities, and to some extent, agricultural spraying. The air will be monitored for one year at three different sites.

Why is this research being done?

This research began because of the community's concerns about the potential health impact of local environmental pollutants, and the lack of local environmental information.

Who is involved in this research?

This study is being conducted by the Texas Natural Resource Conservation Commission (TNRCC) and the U.S. Environmental Protection Agency (EPA). Community input was incorporated into the design of the Transboundary Air Monitoring Study, and the final proposal was reviewed by a scientific committee and a committee of Valley residents.

How will this monitoring research be done?

The monitoring will be conducted at three fixed sites:

- Site 1 is located southeast of downtown Brownsville inside the city limits.

- Site 2 will be located approximately 4.5 miles northwest of site #1 in west Brownsville.

- Site 3 will be located approximately 20 miles west of Brownsville in rural Cameron county in an agricultural setting.

Samples will be collected over a 24-hour period each day for one year at each of the sites. Samples will be analyzed for many different chemicals including metals, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and pesticides. Each site will also obtain data on short-term variations in emissions. In addition information will be collected on temperature, wind speed and direction, relative humidity and precipitation at each site.

SUMMARY OF
TRANSBOUNDARY AIR MONITORING PROJECT

BACKGROUND: PHASE I PILOT STUDY

The Lower Rio Grande Monitoring Study (LRGVMS) is designed to identify and evaluate the manner and extent to which Valley residents are exposed to environmental pollutants. Phase I of the LRGVMS was a small scale pilot project conducted in the Brownsville, Texas area by the U.S. Environmental Protection Agency in collaboration with other Federal and State agencies. One goal of the pilot project was to begin to appreciate the extent to which different sources and environmental media might contribute to environmental exposures experienced by Valley residents. Several different classes of chemicals were measured including metals, volatile organic compounds (e.g., solvents), pesticides, acidic aerosols, and polycyclic aromatic hydrocarbons (PAHs). Ambient air samples were collected at a central site and a variety of indoor/outdoor air samples and household dust, soil, food, water, and biologic samples were collected at residential sites.

Sampling for Phase I was conducted during the Spring and Summer of 1993 in Cameron and Hidalgo counties; the results from the pilot project were presented to the community in the Summer and Fall of 1994. This information was used to identify several follow up activities for Phase II. The transboundary monitoring project is one of those activities.

PHASE II: TRANSBOUNDARY AIR MONITORING STUDY

This study will examine annual transboundary air pollution in Cameron county. The research objective is to obtain appropriate air quality and meteorological data to assess the extent of current transboundary transport of pollutants. Additional, longer term goals are to:

- Provide the State of Texas with background data against which future changes in Valley air pollutants can be compared; and

- Develop a cost-effective monitoring and modeling strategy for use by the State, and others, in designing future monitoring efforts.

The study will monitor traffic and industrial emissions and, to some extent, agricultural activities. Monitoring will be conducted for one year at three fixed sites that were selected to assess the impact of nearby sources (see below). Although the sites are located to capture the direct impact of nearby sources, the actual transboundary impact will be captured by the entire three-site network.

Site 1: located at the National Guard Armory in the eastern part of Brownsville near sources of automotive and industrial emissions.

Lower Rio Grande Valley Environmental Monitoring Study:

Report to the Community on the Pilot Project

WHAT IS THIS REPORT ABOUT?

This report explains a pilot investigation of the potential for human contact with environmental pollutants in the Lower Rio Grande Valley.

WHY WAS THIS RESEARCH DONE?

This research began because of the community's concerns about the potential health impact of local environmental contaminants.

WHO HAS BEEN INVOLVED IN THIS RESEARCH?

This research was conducted by the U.S. Environmental Protection Agency (EPA), working with the U.S. Department of Health and Human Services/Public Health Service (especially the Centers for Disease Control and Prevention, the Food and Drug Administration, and Agency for Toxic Substance and Disease Registry), and the State of Texas (Governor's Office, Texas Department of Health, Texas Department of Agriculture, and Texas Natural Resource Conservation Commission).

The scope and design of the research were developed through an ongoing collaboration between community leaders and representatives of several state and federal agencies.

HOW WAS THE RESEARCH DONE?

The first part of this study was a small-scale pilot project conducted during 1993. During the pilot project, samples of indoor and outdoor air, household water, food, housedust, soil, blood, and urine were collected at each of the nine homes located in the Valley.

The primary purpose of the pilot project was to provide information that would strengthen the scientific basis of the design for a larger study of potential exposure in Cameron and Hidalgo counties.

WHAT DID THE RESEARCH FIND?

In general, we found that the levels of pollutants from the nine households studied were similar to those often seen in other parts of the country. The people in the project were reassured that their results did not show significant exposure to most of the contaminants

DRAFT

Summary of Purpose, Scope, and Technical Approach: Evaluating Cumulative Risks in the Chicago Metropolitan Area

1. INTRODUCTION

The following is a summary of the overall purpose, general scope, and technical approach for the study, "Evaluating Cumulative Risks in the Chicago Metropolitan Area" (the CCRI Phase III risk assessment). The approach is a synthesis of the direction and information that was provided during meetings with stakeholders (petitioners, EPA Region V senior managers, and other state, and local government representatives) in December 1997 and April 1998. As such, this summary does not reflect any one viewpoint, but attempts to balance various needs and concerns with products that are technically feasible. It also attempts to incorporate major concepts suggested by the Petitioners in their strawman proposal and matrix, while following EPA's Cumulative Risk Assessment Guidance on Phase I Planning and Scoping.

The three major study components will be an overview of health indicators, a cumulative risk evaluation for multiple point sources, and a description of other risk pathways. These will be integrated to produce a comprehensive risk assessment that allows comparison of contributions among sources and of risk levels among subareas of the study region. In October 1997, Argonne National Laboratory produced a Concept Paper in which various conceptual approaches for cumulative risk assessment were evaluated. The approach outlined in this summary is essentially the source/receptor hybrid model described in the Concept Paper. Within this approach, the majority of effort will be placed on evaluating the contributions to exposure and risk within study areas from multiple point sources of emissions to ambient air (Section 3.2 below).

Cumulative risk means different things to different people. A general definition is the total health risk associated with multiple stressors from multiple sources. EPA risk assessments have typically addressed the incremental risks (above background) of all chemicals emitted in significant quantities from a single facility. Although a total measure of cumulative carcinogenic or toxic risk for all possible exposures is not currently possible, this study will provide a learning process for evaluating some additional aspects of cumulative risk in the permitting process. This summary presents general direction; the specifics may change to reflect technical feasibility. Where data inadequacies prevent full development of the proposed scope, the scope will be limited.

2. GOALS

The overall purpose of this study is to refine and demonstrate methodologies for assessing children's environmental health risks (both carcinogenic and noncarcinogenic) due to the accumulation of multiple stressors from multiple sources that impact a specific area. A basis will be developed for comparing risks in study areas to reference areas or baseline levels. Specific objectives are to:

a. conduct a cumulative risk analysis that specifically addresses concerns of the Agency and Stakeholders, including identification of health-compromised subpopulations of children and of locales with elevated hazard levels;

b. illustrate implementation of the Administrator's Cumulative Risk Guidance;

c. take the initial steps in developing the basis for transferring a cumulative risk methodology to other units in the Agency.

3. SCOPE

This section describes the general scope of the assessment and provides an overview of the technical approach that will be used. Research on health indicators (Section 3.1) will address the goal of identifying sensitive subpopulations of children. The data produced from the cumulative risk evaluation for multiple air sources (Sections 3.2) will quantify the risks from air contaminants in specific areas, and the description of other risk pathways (Section 3.3) will help to identify other sources of risk. All the above information will be utilized in the risk integration portion of the study (Section 3.4) to gain insight into reducing risks to children. The following list is a summary of elements that apply to the entire cumulative risk study:

- Risk dimensions: Multiple health endpoints (health effects), multiple stressors, and multiple sources will be assessed.
- Stressors: The scope will be restricted to environmental contaminants, with a focus on releases due to human activity. The assessment will include the chemicals that are most important, given the locales and sources selected as the focus of study. The selection of chemicals will be constrained by data availability
- Sources: The emphasis will be on EPA-regulated/permitted sources, with other important source categories added as needed to develop a more complete risk management perspective.
- Geographic Area: The study region will cover Cook and Lake Counties. Within that area, two to four locales will be selected for more detailed study.
- Population: The focus will be on children, from conception through age 17, with assessment of lifetime exposures where appropriate. Particular attention will be given to risk evaluation for health-compromised children (e.g., asthmatic, lead poisoned, etc.) where possible.

The following subsections provide additional information on the technical elements that apply specifically to each task, including assumptions, constraints, implications, and data limitations.

3.1 Health Indicators *(Task 1)*

The availability of data related to children's environmental health status will be investigated for lead poisoning, asthma incidence, and cancer incidence and mortality. If these data permit identification of locales with elevated rates, this information will be one of the factors considered in selecting study areas. Specific health conditions which lead to increased sensitivity (or susceptibility) to environmental pollutants among children may also be included if data are available. For instance, data on prevalence of sickle cell anemia in children within various locales may be of interest. Where data related to a particular issue are absent or lack geographic relevance, further exploration of that issue will be precluded.

3.2 Cumulative Risk Evaluation for Multiple Emission Point Sources *(Task 2)*

This effort will focus on evaluating the contributions to exposure and risk within the study areas from multiple point sources of emissions to ambient air. To provide a basis for comparing the study areas to the rest of the Cook and Lake County area, screening-level estimates of ambient air risks from major source categories and background will be developed for all Census tracts. To develop comprehensive ambient air risk estimates for the study areas, appropriate portions of the detailed modeling and the screening level modeling results will be combined. The task will have three components:

Task 2a: Exposure from area, mobile, and background sources for the two county area will be assessed at a screening level. This evaluation will be used to target two or more smaller study areas. The two county screening effort analysis will examine data from ambient monitors, from the Toxic Release Inventory (TRI) and the Regional Air Pollution Information Database (RAPIDS), from the air toxics portion of the EPA National Cumulative Exposure Project, and information on facility density.

Task 2b: Exposure and risk from multiple EPA-regulated point sources within two or more (up to four) discrete study locales will be evaluated. Possible factors for use in identifying an additional study area or areas include: (a) high levels of toxic emissions, based on information from the Environmental Loadings Profile or emissions databases; (b) high prevalence of one or more health indicators; or (c) Agency/Stakeholder consensus recommendations.

The most significant point sources affecting the study area will be selected for detailed study. Emissions from these point sources will be modeled to identify locations with maximum risk from multiple contaminants of concern. Cancer risks will be modeled for both child and life-time receptors at these maximum risk locations. (Life-time receptors would be modeled in addition to child receptors because cancer risks are greater when longer-term exposures (i.e., 30 years) are assumed.).

Both direct (inhalation) and significant indirect pathways of exposure will be included in the

risk assessment. Examples of indirect pathways which may be evaluated, if data indicate they are significant pathways to children, include contact with soil, water, and sediments to which contaminants have been released through air deposition, and ingestion of contaminated produce or fish which may have accumulated contaminants released from the point sources.

Task 2c: Estimates produced by the ambient air modeling efforts described above will be validated by comparison to ambient monitoring data and results of detailed studies, where available. An uncertainty analysis will also be conducted to evaluate the robustness of the findings.

3.3 Description of Other Risk Pathways *(Task 3)*

All parties involved in the scoping and planning process have agreed that focusing the cumulative risk assessment on EPA-regulated and EPA-permitted sources is most appropriate. As a result, the most detailed portion of the cumulative risk evaluation will be the community-based assessment of multiple EPA-regulated (and permitted) air sources, plus other outdoor air sources (described in Section 3.2). Since emissions from these sources may contribute only a portion of the potential risks to a community, development of risk estimates for other sources and pathways will be addressed in this task.

This evaluation will include both exposures from sources that are regulated by EPA and some that are outside the direct control of the Agency. Exposure pathways from regulated or permitted sources could include drinking water ingestion and soil ingestion at or near contaminated sites. Examples of exposures that result from lifestyle and behavioral circumstances of children include: ingestion of lead in paint and soil; ingestion of pesticides in the diet; mercury and PCB ingestion from fish consumption (especially subsistence fishing); and inhalation of environmental tobacco smoke, radon, and other indoor air pollutants. Whenever possible, local (community-specific) exposure data will be used in the assessment. In other cases, regional or even national estimates will be used. While a comprehensive, community-based assessment of all exposures is beyond the scope of this study, the attempt will be made to include pathways affecting the particular vulnerabilities of children. Due to data and resource limitations, portions of the assessment of additional sources and personal exposures will be more descriptive than quantitative.

3.4 Risk Integration *(Task 4)*

The final step of the cumulative risk assessment is to develop a framework for integrating environmental risk estimates for the Chicago metropolitan area, with an emphasis on children's environmental health. Though the study will address issues of health status, contaminant exposures, and risks, it cannot establish causal linkages between particular sources and health effects in individuals. In addition, the tasks outlined above will yield different kinds of outputs, such as quantitative versus qualitative results and different hazard measures (e.g., cancer risks, blood lead levels, asthma hospital admissions, etc.). However, developing methods for integrating cumulative risk estimates from ambient air and from other pathways is important to provide a basis for

comparing the contribution from various sources and for contrasting the risk levels among various types of Cook and Lake County localities. Geographic Information System (GIS) techniques are likely to be one of the risk integration tools.

4. PROPOSED PRODUCTS

- Task 1: Summary, evaluation, and GIS mapping of available health status data.
- Task 2a: Screening level assessment for each Census tract in Lake and Cook Counties of risks due to emissions from EPA-regulated and permitted air sources, plus ambient air background contaminant levels.
- .Task 2b: Comprehensive risk characterization for emissions from EPA-regulated and permitted air sources in at least two (and at most four) locales in Lake and Cook Counties.
- Task 3: Summary and evaluation of relevant published data or analyses related to components of cumulative environmental risk, other than that associated with ambient air. Topics may include diet, second-hand smoke, drinking water, proximity to landfills, etc.
- Task 4: An integration of cumulative risk estimates from ambient air and from other pathways to provide a basis for comparing the contribution from various sources and for contrasting the risk levels among various types of Cook and Lake County localities.

[03-01-99]

Greenpoint-Williamsburg Community Risk Assessment

Frederick W. Talcott Office of Policy 2 March 1999

The Office of Policy (formerly OPPE) Cumulative Exposure Project (CEP) aimed to develop tools and data to assess the extent of human exposures to a broad range of toxic chemicals through various exposure routes, addressing various toxic endpoints, and to do this on a nation-wide level. One locale was selected to test out the feasibility of this approach at a smaller scale. Because of data limitations, the project has focused on drinking water, food, and outdoor air, to a limited subset of toxics within each exposure route, and primarily (though not exclusively) to cancer risks.

The Greenpoint-Williamsburg area is a pair of neighborhoods within the N.Y. City borough of Brooklyn (i.e. Kings county, New York). It is densely populated (160,000 residents in about 5 square miles), has high local and through traffic, and has historically been the site of diverse industrial and waste treatment facilities (i.e. almost half of Brooklyn's TRI facilities and only about 6% of the borough's land area). Prior to OP's involvement, there had been extensive interest in addressing environmental problems in this area, with an Environmental Watchperson's office the focus of local efforts, and heavy participation by State, City and EPA regional offices, as well as academics and other participants.

Although the OP project has included sizable interaction with and input from the local participants, it has focused on applying the cumulative exposure tools to the local specifics. Because of local concern with exposure to lead and with a sizable amount of subsistence fishing, the general CEP study effort was expanded to address these two elements.

Two contractor teams (one for the outdoor air modeling and another for the other CEP elements) have been at work since 1996. A draft final report integrating the various elements will be produced in the spring of 1999.

Tentative conclusions include the following:

- Drinking water and "normal" dietary food intake: Exposure and toxics risks are about the same as for other urban residents in the northeast United States.
- Lead exposure: Greenpoint-Williamsburg children have blood lead levels that place them in the upper one third of New York City neighborhoods, and at or below levels for urban neighborhoods nationwide.
- Subsistence fishing: About 200 individuals regularly take sizable quantities of fish from the East River, and this accounts for a large fraction of the protein intake for them and close to 1,000 additional family members. This probably results in cancer risks at least 100 times higher than general dietary risks.
- Outdoor air: Greenpoint-Williamsburg has toxics exposure (as represented by cancer-weighted average outdoor annual exposures) approximately 25% higher than for New York City as a whole, and between 2 and 3 times higher than the national average. The lifetime cancer risks are on the order of 4 E-4. Three HAPs (1,3-butadiene, formaldehyde, and benzene) account for about ¾ of the estimated risks, with other VOCs and a few metals contributing most of the remainder. Mobile

sources contribute 50% of the cancer-weighted exposure, with area sources and background sources contributing another 44%; i.e. point sources are estimated to contribute a very minor fraction of the toxic concentrations, despite the high density of industrial facilities. Cancer registry data from City health authorities show about 450 new cancer cases diagnosed (cancers of all types and from whatever causes) among the 160,000 residents; the outdoor air toxics exposure might contribute less than one case per year.

The project team found that it was not possible to reliably determine differences in toxics exposure within the Greenpoint-Williamsburg neighborhoods, because of the lack of precision of the modeling tool. Thus, a secondary goal of the overall CEP model (i.e. determination of disproportionate impacts) was not attainable. We did, however, find evidence that such local differences probably do exist, though estimation of them falls beyond the scope of current modeling capabilities. For instance, we have identified instances where some residents live in buildings also occupied by dry cleaning establishments, and we obtained data from studies (conducted elsewhere in New York City) documenting levels of PERC within such buildings at least 1,000 times higher than the modeled general outdoor air concentrations of this solvent. We have obtained data sources that would allow the identification of about 300 to 400 point sources within the study area (compared to the 12 TRI sites modeled to date), which might permit the identification of local hot-spots. Merging such source data with data on residential telephones could allow analysis of the extent of human exposure to such elevated levels. This work remains beyond the scope of the current OP effort.

The Southern Baltimore & Northern Anne Arundel County

Community Environmental Partnership

Working Together to Improve our Communities

(OPPT Website: http://www.epa.gov/opptintr/cbep/intro.htm)

On May 3, 1996, the residents, businesses, and organizations of five Baltimore neighborhoods joined with local, state, and federal governments in the **Community Environmental Partnership** to begin a new effort to find ways to improve the local environment and economy. The five neighborhoods in the Partnership, with a combined population of thirty thousand, are located in **southern Baltimore and northern Anne Arundel County**. These neighborhoods have a broad range of environmental and economic concerns, including concerns that arise from the concentration of industrial, waste treatment, and brownfields sites that surround the area. The area has great environmental assets and economic potential as well. The neighborhoods border the Chesapeake Bay and are the site for a new **Eco-industrial park**, a major redevelopment effort that has the potential to attract new jobs. In this context, the Partnership set out to take a comprehensive look at the local economy and environment and build consensus around a plan for action. EPA provided a small capacity building grant to help the Partnership get started.

The Community Environmental Partnership started as a pilot for the new community-based approach to environmental protection and economic development. This new approach is an effort to address environmental issues from the perspective of the neighborhood. It allows for the consideration of a detailed level of information often missed when policy is made at the national or state level. It incorporates the local community's knowledge and makes it possible to begin addressing cumulative effects from multiple sources. The community-based approach changes the roles of the community and government: It empowers the community to take the lead in the decisions affecting their environment and it puts government in the role of an advisor, providing the information and technical assistance not available in the community. Building consensus at the local level also makes it possible to unite the community around voluntary pollution prevention approaches that can go beyond current statutory requirements.

At the start of this effort, the partners agreed on a **plan for work** with the following four goals:

- Build the long-term capacity of the community, including residents and businesses, to take responsibility for their environment and economy
- Develop a comprehensive picture of the local environment and economy and an

action agenda based on the needs and wants of the community

- Build consensus in the partnership for the implementation of an action plan that makes a difference in the local environment and economy
- Encourage and support sustainable economic development in the community

Following the initial partnership building, the Community Environmental Partnership held its first large public meeting on July 31, 1996 in a local church. At this opening meeting, community residents and businesses voted to **set the priorities for the partnership.** Based on this vote, the partnership organized working committees to address the top concerns of the community. Five committees -- Air Quality, Surface Water and Natural resources, Human Health, Trash/Illegal Dumping/Abandoned Housing, and Economic Development-- were formed and began work in September, 1996. These committees, with resident, business, and government representatives on each committee, worked together for nine months to get a better understanding of the local environment and economy and develop recommendations. During the course of their work, committees organized background education, collected information, and investigated possible solutions. **Results of the committee work** were presented to the community at a second large public meeting on April 30, 1997.

The partnership committees proved to be an effective means for getting things done. By harnessing the voluntary energy in the community and pooling resources from all the government partners, the committees managed to find the information to answer questions that the community has had for many years. Highlights of committee accomplishments include:

- the first comprehensive screening of the cumulative concentration of air toxics from all the industrial and city facilities in and around the neighborhoods
- a survey of all parks and a plan for a major restoration of the Masonville Cove area, reestablishing the community's link to the Chesapeake Bay
- a first-for-Maryland survey of cancer incidence at the neighborhood level

In addition to the committee work, the Partnership opened a storefront office to provide meeting space and a center for Partnership activities. A regular **newsletter** was published to keep everyone up to date on Partnership activities.

Based on the results and recommendations from the committee work, the Partnership is now focused on taking action to implement the recommendations of its committees. In October, 1997, the Partnership brought the community together for a major clean up of a community park and the start of the Masonville Cove restoration project. Planning for a major Earth Day event is now underway. Based on the air screening analysis, the Air Committee is now working with local facilities on pollution prevention. In addition, the Health Committee has begun a series of asthma workshops in area schools.

With less than two years of work, the Community Environmental Partnership already has some solid accomplishments. The capacity of the community to address its concerns has improved dramatically through the educational and organizational work. The Partnership has opened a storefront office that serves as a focus for community meetings and activities. A strong network in the community has been built and good working relationships established with participating governments. The restoration project for the Masonville Cove area has strengthened the community link to the Chesapeake Bay, and an effective means to address household health and environmental concerns has been established. All this is a good beginning for the Partnership, but real improvement will require a sustained effort for many years. The Partnership is committed to continuing and building this work.

CHESTER, PENNSYLVANIA
ENVIRONMENTAL RISK STUDY

Background:

The City of Chester, PA is known for having the highest concentration of industrial facilities in the state including two oil refineries, a large infectious medical waste facility, among a number of waste processing plants in the proximity, not to mention that at least 85% of raw sewage and associated sludge is treated there. Residents have not only been concerned with the health effects of living and working amid toxic substances, but residents have actually complained of frequent illness. The fact that Chester has the state's highest infant mortality rate coupled with the lowest birth rate in the state, the highest death rate due to malignant tumors, the highest percentage of African-Americans of any municipality in the state, and that Chester is considered the poorest community in Delaware County raised concern for the health and well-being of the community. Appropriated issues of environmental justice and community protection have been raised.

The Chester Risk Assessment Project was part of an initiative by the United States Environmental Protection Agency (USEPA) Region III and agencies of the Commonwealth of Pennsylvania to study environmental risks, health, and regulatory issues in the Chester, Pennsylvania area. Although the intent of the study was to provide a complete "cumulative risk study", utilizing exposure data for all environmental media and exposure pathways, the actual report is more of an Aggregated Risk study due to the largely unknown nature of the interrelated exposures.

The City of Chester is located approximately 15 miles southwest of Philadelphia along the Delaware River. Surrounding communities also examined in development of this report include Eddystone, Trainer, Marcus Hook, and Linwood.

Chemical data were gathered from existing sources, but the scope of this project did not include collection of new data specifically designed for a Chester risk assessment. Instead the workgroup performed an examination of available data which yielded the following observations:

- The data had been collected for different programs and different agencies. These data were not originally designed to support a quantitative risk assessment of the Chester area.
- The databases were of varying quality, and certain chemicals and media had not been tested. However, even with the limited data, many data sets were available to be used to generate estimated risks.
- Modeling of air data from point sources was performed prior to the air risk assessment.

Therefore, point source air risks are based on projected data rather than data actually collected in the field. The lead (Pb) data, area sources of volatile organic compound (VOC) emissions, Resource Conservation and Recovery Act (RCRA) site information, and Toxic Release Inventory (TRI) data did not involve the types of environmental data conducive to quantitative risk assessment.

The findings of the report are:

- Blood lead in Chester children is unacceptably high (over 60% of children's blood samples are above the Center for Disease Control(CDC) recommended maximum level of 10μg/dl).
- Both cancer and non-cancer risks from the pollution sources at locations in the city of Chester exceed levels which EPA believes are acceptable. Air emissions from facilities in and around Chester provide a large component of the cancer and non-cancer risk to the citizens of Chester.
- The health risk from eating contaminated fish from streams in Chester and the Delaware River is unacceptably high.
- Drinking water in Chester is typical of supplies in other cities through out the country. Slight long term (20 year) risks may be expected due to the residuals of water treatment processes.

In response to these findings, the USEPA Region III recommends that:

- the lead paint education and abatement program in the City of Chester should be aggressively enhanced,
- sources of air emissions which impact the areas of the city with unacceptably high risk should be targeted for compliance inspections and any necessary enforcement action,
- a voluntary emission reduction program should be instituted to obtain additional emissions reductions from facilities which provide the most emissions in the areas of highest risk,
- enhanced public education programs regarding the reasons behind the existing state mandated fishing ban should be implemented.

In addition, while fugitive dust emissions have not shown to be a significant component of risk in the City, a program to minimize fugitive emissions from dirt piles and streets should be instituted to alleviate this nuisance.

While noise and odor levels were not shown to be a significant component of traditionally identified environmental risk in the City, a noise and odor monitoring program should be instituted in areas most likely to suffer from these nuisances. If significant levels are found, a noise and/or odor reduction program should be implemented in those areas.

The Pennsylvania Department of Health (PADOH) conducted an epidemiological assessment on Chester and found that Age Adjusted Cancer Incidence rates for males in Chester, for several types of cancer, were significantly above statewide rates as well as those for selective cities and counties around the state.

CONTACT: Reginald Harris (215) 814-2988

Title VI of the Civil Rights Act
"Shintech"

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The Case in a Nutshell: Title VI of the 1964 Civil Rights Act says that Federal money may not be used in a way that selectively adversely impacts racial and ethnic minority groups. A group of citizens in Convent, LA, through the Tulane Law Clinic, filed an administrative complaint with EPA in 1997 alleging that the State of Louisiana (which gets EPA funds for doing industrial permitting in Louisiana) was running their permitting program in such a manner as to be illegally discriminatory against African Americans. The case in point was a proposed new polyvinyl chloride plant to be built just outside Convent by Shintech, Inc. Due to the wording of the law, EPA was looking at two major questions: (1) was there disparity of adverse impact between racial groups?, and (2) was there actual harm being suffered? There are both science and policy aspects of each question. The Agency was not forced to rule on this case as yet due to Shintech's putting their building plans on hold; the case continues.

The application of Title VI of the 1964 Civil Rights Act to environmental problems is a relatively recent development. Under Title VI in general, the question centers on whether racial or ethnic groups are subject to a disparity of adverse impact.

In considering how industrial facilities are permitted, and whether their presence in certain geographical locations poses a disparate adverse impact upon certain groups within the surrounding population, a method of measuring or estimating the difference in the impact between the group in question and other groups (and the population as a whole) would be helpful. The ultimate goal of such a measure would be to highlight differences between the group in question and the rest of the population at large. For the purposes of this paper, the group in question, is the African American (AA) population, as compared to non-African Americans (NAAs) or the total population (POP).

One way to compare the impacts of industrial facilities on nearby AAs and NAAs might be t measure or estimate in the absolute impacts for each group, then compare them (e.g., by doing risk assessments for each group). Although it may be instructive to do so, it would undoubtedly be costly and time-consuming, and there may be methodological deficiencies that would require research before the project could even begin. Fortunately, this is not necessary, since we can make use of the fact that many of the things that might be measured would be the same for both groups, and are therefore not relevant to a comparison of the differences between the groups.

When considering the impacts that industrial facilities may have upon the surrounding communities, there are both negative and positive impacts. While acknowledging that positive impacts can and often do occur, the analysis of these positive impacts will be defined to be outside the scope of this paper, and will not be mentioned further. This paper will discuss a method for estimating how to estimate the differences by racial group how adverse impacts are distributed in the surrounding community.

Types of Adverse Impact

There are a number of things about industrial facilities which can potentially impact the surrounding

community adversely. Not all of these occur with every facility, but they fall into several categories. First, there are emissions of various kinds to the surrounding environment, including emissions of chemicals that at certain concentrations are harmful to human health or the environment. These may be released t the air, discharged to water (including sewer systems), or sent to landfills or injection wells. Emissions, whether continuous or sporadic, put chemicals into the environment where the exposure exists.

A second type of potential adverse impact to the surrounding community is the potential for accidents. This includes industrial accidents that in some cases release chemicals or cause explosion or fires, as well as traffic (truck, train, barge) accidents that may result in spills. Note that there is a fundamental difference between the impacts of emissions and accidents. While emissions may vary in frequency, they actually occur at every location that is not a zero-emissions facility. Accidents, on the other hand, may not occur at any given facility or location, so the analysis of impact takes on a more probabilistic nature. Nonetheless, when accidents do occur, they can occasionally have catastrophic consequences far in excess of the impacts of emissions.

A third type of potential adverse impact is generally referred to as "quality of life" impacts within the community. These include, noise, dust, unwanted bright lights at night, increased traffic in general, etc. These can in some cases be quite acutely aggravating to the surrounding community, but in all but extreme cases these are usually not a threat to health.

How Impacts are Distributed within the Surrounding Community

In looking at how these adverse impacts are distributed within the community, they tend to be distributed in certain geographical patterns relative to the facilities themselves. Air emissions are carried from the stacks (or points of fugitive emissions) by the wind, and on average, their geographical pattern will reflect the local weather conditions. Water discharges will usually have their impact downstream from discharge points. Transportation-related impacts (whether accidents or increased traffic in the area) will be distributed preferentially along traffic corridors. Accidents at a facility, if large enough to affect areas outside the fence line, will affect those nearest the facility first. Noise, dust, and lights will probably also affect those nearest the facility first.

In looking at how these patterns distribute themselves in the surrounding community, the four cases above are (1) via local wind patters; (2) downstream from discharge points; (3) along transportation corridors; and (4) decreasingly with increasing distance from the facility.

The key to an analysis of how adverse impact falls differentially upon different groups within the population - that is, the Title vi question - is in:

A. Establishing an "intensity" measure for each geographical patter,

B. Establishing how the intensity measure distributes itself geographically, and

C. Analyzing the intensity of the patterns relative to where the people are who belong to the various groups.

The intensity measure should be proportional to the impact, that is, an intensity of 10 should represent twice the impact of an intensity of 5. By looking at where the people are within the impact patter, one could then compare one group with another, or one location with another, by comparing the impact intensity measure.

Further discussion during breakout sessions.

C-5: Central Susquehanna Valley
Transportation Impact Analysis (NEPA)

C-6: The Marty Indian School (Tribal)

central Susquehanna Valley transportation project

COMMUNITY IMPACT ANALYSES

Introduction

The goal of this EIS project is to address the current and future transportation needs of the Central Susquehanna Valley (Pennsylvania) in a corridor roughly five miles and twelve miles long, stretching from the end of the Selinsgrove Bypass north to PA Route 147. Improvements will address congestion and safety problems on existing Routes 11/15, 11, 15, and 147. Lack of funding led to shelving part of a project to build a Selinsgrove-Shamokin Dam bypass in the early 1970's. Since that time there have been significant changes in the study area and in many federal and state regulations affecting the development of large and complex projects which may have substantial impacts on residents, the local economy, the environment, and cultural and recreational resources. In addition, modern technologies have greatly increased our ability to identify and analyze potential community impacts in increasingly greater detail.

Environmental Justice

Detailed digital information (STF3A) data is available down to the census block group level through the U.S. Census Bureau. By evaluating this data for the CSVT study area's eight block groups, concentrations of residents falling into minority racial categories or low income groups can be identified through comparisons to municipal, county, and state percentages. In the CSVT project, a concentration of persons below the poverty level has been identified in a census block group that may be substantially impacted by a proposed highway alignment. Analysis of potential environmental justice impacts is ongoing.

Displacements

Digital orthophotography of the CSVT study area provided for the accurate identification of all structures in the study area. GIS software and a laptop computer were used to classify the thousands of structures in the study area by type (i.e. residential, commercial, industrial). GIS was then used to overlay highway alternatives and quantify potential displacements by category. Comments added to the classification system in the field provided for quick identification of businesses by name. By buffering the alternatives in GIS, potentially significant impacts to off-street parking of businesses could also be identified. The quantitative analysis can rapidly be updated as alternatives continue to be shifted. This process is ongoing.

Marty Indian School

BACKGROUND: The Marty School was transferred from the Catholic Church to the Yankton Sioux Tribe around 1975. The school and facilities program is operated by the Tribal school board under a public law 100-279 grant. The school has, for 40 years, burned waste oil to heat boilers, which provide steam for heating purposes. A January 30, 1998, EPA report shows contamination of the maintenance building in which the boilers are located, and of surrounding areas, including the flood plain of a creek that drains to the Missouri River, 7 miles away. A community stakeholders group was formed to create a plan to resolve the environmental issues at the school.

Contaminants in the soil surrounding the building, and in ash from the boilers, include lead, heavy metals, volatile organic chemicals (VOCs), benzene, toluene, and polychlorinated biphenyls (PCBs). An underground storage tank next to the maintenance building was leaking, and there were barrels of waste, some hazardous, in the building basement. Three samples of the ash from the boilers tests for lead show 59,000; 3,080; and 5,580 mg/kg lead, respectively. The school stores this ash in a deteriorating smoke stack. Some ash has been dumped off a shallow embankment that leads to the creek. EPA has determined that the smokestack bricks may be themselves hazardous waste, because of their exposure to the ash.

The rest of the school is adjacent to and east of the maintenance building, and wood and metal shop classes actually take place in the maintenance building. The school has about 240 students, K - 12, around 60 of which are boarding students. The campus also hosts a tribal Head Start program, taking children from newborns to 4 years old.

The Indian Health Service had tested the blood lead levels of 2 school employees who service the school boilers and handle the ash, and the initial results came back very high. In addition, since the remainder of the school campus is downwind from the boilers, the waste oil has been burned for 40 years, and the student's access to the areas surrounding the maintenance building and the ash piles on the embankment is unrestricted, there was reason to speculate that the school buildings, and perhaps, the students, have been exposed to these hazardous chemicals.

IHS and ATSDR tested employee and student blood lead levels as part of an exposure evaluation. The testing included 10 employees who work in the boiler or shop areas of the maintenance building; about 250 children, ages 0 - 6, who attend the school or pre-school program or live in the neighborhood abutting the school (children are most at danger from the risk of lead poisoning when younger than 6 years old); and about 25 older children with access to the shop area. ATSDR also scanned painted

Appendix D. Breakout Group Flip Charts and Posters

Day 1 Breakout Group Flip Charts

Case Studies

QUESTION 1: What were the central issues in the case?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	**Urban Cases (Chicago, Greenpoint, and Baltimore)**	**Environmental Justice: Chester, Pennsylvania Environmental Risk Study**	**Title VI of the 1964 Civil Rights Act : Convent, Louisiana**	**Central Susquehanna Valley Transportation Impact Analysis (NEPA)**
Health effects (birth defects)	Permitting of multiple sources within a small geographical area (cumulative impact)	Exposure to pollution and the health effects	Central issues depend on the group.	Solving transportation problems (identifying locations)
Health effects led to community concern over pollutant exposure	The community had no say in what was going on in their own neighborhood	Disproportionate exposure to pollution	Community: would plant be built?	Addressing community issues (noise, air quality, accidents, homes)
	Not safe	Community empowerment	Legal: did state violate Title VI?	Minimizing and mitigating impacts
	How do you address cumulative risk?	Excessive number of waste sites	Technical: define and measure adverse impacts, disparity, and risk of accidents.	
	Children's health			
	Lack of trust in government			
	Health issues			
	Bearing an unfair share of the environmental burden			
	Central traffic issues			
	Subsistence fishing			

QUESTION 2: How did you determine what the questions were?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
The approach was to look at environmental risk/exposure and environmental health	Petition from citizens	Listened to citizens' health, environmental, and public safety concerns	Nature of complaint	Environment
Overview study of the area and community; talking with the people in the community	The stakeholders were very organized and focused. The scope broadened (Chicago)	Identified fairness issue of cost/benefit	Legal Framework	Traffic numbers
	Large public meetings	Political captive of the machine	Citizen interviews	Mapping
	EPA was looking for an area, a community of interest		EPA staff/management discussions	Public health
	Cumulative exposure project			Injuries
				Tax data
				Socio-economic status data

QUESTION 3: To what extent was the community involved?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Community identified perceived problems and raised initial concern	Citizens only in Chicago (11 groups)	The community initiated this	Community filed the complaint	Very
Community involved in designing study (participants as subjects)	Petitioners started the process	The community continued with persistence	Community interviewed	Public officials' meetings
Community went to meetings; part of door-to-door study	Academics were involved in Brooklyn	Repeatedly exposed to state government ineptitude	Community commented on plans	Maps
	Industry and businesses were involved in Baltimore along with residents	Maintains a high level of activism	Community commented on draft results	Door-to-door
	City health department became a player in Baltimore (and the Dept of Public Works)		Engaged partners from outside of stakeholders	Informal neighborhood meetings
	Focused on agenda			Community Advisory Committee meetings
	Helped frame questions			Valuable information from the community helped to identify other significant issues
				The state led public outreach to garner support

QUESTION 4: How did the community focus affect assessment methods and the outcome?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Design of door-to-door residential survey, communications strategy	The community wants the focus on air toxics	Community working with other agencies aided in the design and the identification of additional concerns	Helped define some elements of the investigation	Kept focus on the important issues: greenway between communities; don't take developable land; suggest/modify alternatives; housing concerns; historic preservation issues
Brought state and other agency methods into assessment	There were threats of leaving the process		Helped with geographic specificity	Participation of the community enhanced assessment methods and outcomes
Community agreed to be surveyed, added information; state-funded projects	The interests of the community are important		Cumulative assessment	Traffic concerns
Gave investigators access to households	In Chicago, a consensus was attempted		Not just TRI	The public identified alternatives
	Committees set the agendas		Disparity relative to state	
	In Brooklyn, the community added emphasis on subsistence fishing and lead			
	Expanded scope			
	Reviewed and commented on draft outputs			

QUESTION 5: What approaches, methods, tools, and databases were used?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Residential pilot study, multiple pathways, cross border air study	Peer Review, Progress reports, Benchmark levels, Screening, Sampling (Baltimore)	Data: TRI, Dunn & Bradstreet, State mobile sources, EPI data (disease registry), AIRS	RSEI (OPPT)	GIS
Test air, water, factories, agriculture, use risk methods	State, city, facility data, State/local databases, State/city emissions/permit data	Monitoring: Blood lead, ambient air	GIS	GPS
Food sampling, air monitoring, housedust and soil samples	ISC and STP (model), TRI, AIRS, RAPIDS, TAPs (state monitoring), ICST3 (air dispersion),	Interviews with citizens	Statistics	Field data
Ambient air monitoring, public health database (incident mortality)	CEP (air, water, food)	Tools: Modified Superfund "additive" assessments, GIS	TRI	Photos
Household visits, survey, public meetings	GIS, SARA Title III		TEDI (Louisiana)	Tax/census data
	Community as source, Partnerships led to new sources,		Census	State historic site lists
	Reg. 3 reference concentration database		Pre-RMP reports	Endangered species data
	Applying national model to local conditions		Permit and company release estimates	Ecosystem data
			ISC	State/EPA data
				Maps

QUESTION 6: Were there other approaches that could or should have been used?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Social assistance to define community and representatives	IDEA database (integrated database for enforcement analysis) - spot potential enforcement cases	Assessment represented the initial effort	Health outcomes	Other road options (trains)
Acute/direct exposure	More complete community risk characterization	Assessment led to awareness that more resources were needed for: more sampling and air monitoring, better identification of pollution sources, more comprehensive analysis of public health and data, stressor information, and exposure monitoring	Air monitoring	Consider other economically feasible methods for distribution other than trucks
Additional sampling beyond pilot and a follow-up	Community profile		Alternate models	Coordination
Start with health endpoints and work backwards	View the full community picture		Nonpoint sources (planned)	
	Monitoring whenever possible		Plant-specific accident consequence scenarios	

QUESTION 7: From the Agency's perspective, what lessons were learned?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Ambient outdoor and indoor air is OK	Fit EPA contributions into the broad public health campaign; EPA work can miss the basic public health concerns	Involve all of the stakeholders	It's not an easy process	Community involvement should be "early, often, and always"
More investment needed	Explain what you can and can't do clearly	Take time to listen	It's uncertain	Reach out to the community
The expense of community follow-through was underestimated	Patience and flexibility are needed	Acknowledge limitations	Not enough data (especially for accidental releases)	Regular community involvement is critical
Exposure is important to people	The agency can learn from the community; talk to the community early and often	Build effective partnerships	Tools can't answer all questions	The process takes time but it's worth it
Stakeholders have to participate	Find facility data beyond the "usual suspects"; sources beyond big point sources are important	Prioritization aids in resource development	Need for policy calls	Outreach challenges include low income versus high income divide

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
It's an expensive effort	Use general models for scoping but not for the final answers; CEP model didn't answer all of the questions on a small community scale		Need to faster methods	
Partnerships have unexpected results	Involve agencies with other responsibilities; Outreach to the medical community			
Community involvement is important	More comprehensive assessment			
Community views are different than EPA's	There is a need for a multidisciplinary process			
Bilingual situations are expensive	There is a need to define the community; determine the number of segments in the community			

QUESTION 8: Were the stakeholders' issues addressed and answered?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Yes, health studies showed no correlation	EPA may be addressing issues beyond the community's interest	Some issues were addressed but not all issues were answered	Yes, the plant was not built (yet)	Identifying issues and whether issues are being addressed
Industry's concerns were addressed	In Baltimore, some groups were not satisfied		Yes, from the community's perspective, EPA found evidence of disparity	Some compromises are inevitable
It seems the community gained some assurance	At least some of the committee's issues were satisfied		No, accidental releases not addressed	Continue to look for/address concerns
The community may have wanted more extensive efforts	Unplanned outcomes can be positive (Baltimore wildlife)		No, cancer clusters not addressed	Viable alternatives were studied
Stakeholders efforts were partially answered	Spinoffs from the project dealing with other stakeholder issues			
Addressed but not conclusively answered	It runs the gamut			
	New information may be available to the community			

QUESTION 9: From the State and community perspective, what worked and what didn't?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Worked: stakeholder buy-in	There was not sufficient information for any environmental justice conclusions	Community involvement was key to identifying problems and assessment and new public health initiatives	Community: filing complaint stopped the plant	Informal neighborhood meetings worked
Worked: state programs increase	Lead is not a big problem in this instance	Conflict between political leadership and the citizens in Chester exists; the community does not trust the state	Community: new plant using more participation	The door-to-door approach worked
Worked: data gave fairly conclusive answer	"Bad surprises": Mobile plus the area sources are the problem, not the facilities		State: No Title VI finding	Digitizing maps worked
Worked: interaction between EPA and state and community	Partnerships enabled progress			Visualization worked
Worked: good partnerships and participation	The community didn't like the results			Maps in general worked

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	Urban Cases (Chicago, Greenpoint, and Baltimore)	Environmental Justice: Chester, Pennsylvania Environmental Risk Study	Title VI of the 1964 Civil Rights Act : Convent, Louisiana	Central Susquehanna Valley Transportation Impact Analysis (NEPA)
Worked: identifying the community representatives	Partnerships can work but not always			The standard public involvement approach (factsheets, ads in the paper, general public meetings) did not work
Worked: some interventions introduced	Openness and transparency are important			
Didn't work: needed to be more health-driven	The community was surprised by the results			
Didn't work: information repositories	Information on communities may prove helpful to enforcement			
	It is too soon to tell			

QUESTION 10: What issues were unique in this case? Which will recur in other cases?

The Transboundary Air Monitoring Study for the Lower Rio Grande Valley (Rural)	**Urban Cases (Chicago, Greenpoint, and Baltimore)**	**Environmental Justice: Chester, Pennsylvania Environmental Risk Study**	**Title VI of the 1964 Civil Rights Act : Convent, Louisiana**	**Central Susquehanna Valley Transportation Impact Analysis (NEPA)**
Unique: transnational issue	Unique: highly organized and focused	Unique: data on health problems	Unique: no precedents	Recurring: different priorities, values, community differences
Unique: no clear cause	Recurring: need to change priorities and focus	Unique: political realities	Unique: large ammonia concentration sources	Recurring: long time frame involved
Unique: high level of support (Reilly)	Recurring: the role of political dynamics	Recurring: trust issue	Unique: local politics	Recurring: political pressures, politics vs. common sense
Unique: health endpoints	Recurring: cumulative risk assessment/health questions	Recurring: permit discrepancies	Recurring: cumulative assessment gaps	Recurring: "Not in my backyard"
Recurring: community concern about health impacts	Recurring: need to define community	Recurring: cumulative assessment	Recurring: Title VI cases	Recurring: education, cohesion, natural resources
	Recurring: major differences in understanding risk	Recurring: multiple exposures		Recurring: habitat vs. community (people)
				Wealthy/low-income divide

Day 2 Breakout Group Flip Charts

Question Groups

QUESTIONS 1 AND 2

QUESTION 1: What were the central issues in the case?	**QUESTION 2: How did you determine what the questions were?**
Problem: Health Risk - Assessment of risks (did it occur)?	Stakeholder input (multiple means)
Problem: Health Risk - Communication of risk (how to measure risk, adverse impacts, disparity)	Legal (TSCA, permitting, Title VI)
Issue: Lack of trust	Data/science (data availability, science capability)
Issue: Community's perception of the problem	Management willingness (resources, political will)
Issue: Unfair share of the burden	Political climate
Issue: Community involvement/empowerment	
Issue: Resolution - minimize/mitigate impacts	

QUESTIONS 3 AND 4

QUESTION 3: To what extent was the community involved?	QUESTION 4: How did the community focus affect assessment methods and the outcome?
Involve the community as early and as often as possible ("early, often, and always")	Framing/focusing questions
The key role for the community is in the beginning of the process (public came to EPA)	Provides information not readily available (values, activity patterns, etc.)
Framing questions	Determines the need for other agency involvement (quality of life)
Focusing agenda	Community values set the screening criteria and outcome (what risks/alternatives are acceptable)
A variety of stakeholders were involved	The community can help develop data collection methods and processes
The community is a good source of information	Assessment is more accurate and effective
The community serves as a reality check for the process	Design/framework
Getting the community involved with qualitative data collection, "real-time" monitoring gives the community a sense of control	Determines the extent/location of sampling and assessment
The community should be full partners in the process (EPA, facilities, community); example: EPA's common sense initiative (but EPA can't give up the decision-making role)	Influences the design tools so that they can be used by others without EPA help (example: technical outreach services for communities)
EPA believes community involvement is essential because: ownership, better results (better framing of questions), information and data, unique information available, reality check, more resources, more sustainable, long-term dividends	

To what extent should the community be involved? There is a range of participation, depending on the project. Voluntary = full partners; regulatory = fully involved but EPA retains decision-making control; it depends on what the community wants	

QUESTIONS 5 AND 6

QUESTION 5: What approaches, methods, tools, and databases were used? **QUESTION 6: Were there other approaches that could or should have been used?**
Integrating national, state, and community level data is an area that needs work
Care should be taken in matching tools to needs
Enable better communication within the development community and the users of data (this is important for understanding; is EPA prepared for the community to come back with questions)
Identify regulatory tools
Stressor tools: Default assumptions may not represent reality
There is a need for tools to develop EPA's communication with the public
There is a need for risk communication tools

QUESTIONS 5 AND 6 (Continued)

Issue	Data	Tools
Stressors	**National Data:** *IDEA, Enviro-Facts Data* • Toxic Release Inventory • PCS • AIRS Facility • RCRIS • CERCLIS *Other* • NTI (on-going) • RMP* **State, Local, and Regional Data:** • RAPIDS • TEDI • Emergency Planning and Community Right-to-Know Act (EPCRA) Reports* • Socio-Economic Data • Dunn & Bradstreet • Census • Tax Data	• Default emission factors and stack parameters
Exposure/Conditions	National Data: • AIRS Monitors • STORET • Drinking Water Contaminant C' • Cumulative Exposure Project (CEP) Air Results • Remote Sensing-Based Data • National Oceanic and Atmospheric Administration (NOAA) and Fish and Wildlife Service (FWS) Ecosystem Data • NHANES **State, Local, and Regional Data:** • Ambient Monitoring • Blood Lead Levels • EMPACT	• ISCM (and other AIR models) • RSEI • BASINS • IEUBK • ASPEN (CEP) • MMEM
Receptors	• CENSUS • Socio-economic and Demographic Data (e.g., community 2020 updated population estimates) • NOAA and FWS Ecosystem Data • State Endangered Species Data • Historical Sites Information • SDWIS • Exposure Factors Data	• PECT (proximity analysis) • RSEI (proximity analysis and levels of exposure) • IE UBK

Effects	• NCHS Cancer Mortality (County level data) • IRIS • Centers for Disease Control (CDC) (e.g., Agency for Toxic Substances and Disease Registry (ATSDR), toxics profiles, STARS) • HEAST • RSEI Toxics Data • CEP • State/Local/Regional Health Records	
General	• Geographic Information System • Global Positioning Satellite • Statistical Multi-level Analysis • Krigging Tools (e.g., Geo-ease)	• Statistical Multi-level Analysis • CIMAS-Type Applications • TIGER (Census)

QUESTIONS 7 AND 8

QUESTION 7: From the Agency's perspective, what lessons were learned?	QUESTION 8: Were the stakeholders' issues addressed and answered?
EPA has to facilitate the government process to deliver to the community (i.e. links to housing, public health, etc.)	Consensus across cases
When science can't answer the questions, EPA needs to make policy calls and be clear that it is policy and not science	Cases only presented EPA's perception of a community's view; there was no idea of what the community actually thought
Invest up front; up-front costs are high but the long-term payoff is worth it	No united stakeholder perspective
Passive community input is inadequate; aggressive outreach is necessary	Reframe the question: How to measure success?
	Trust/relationships; consensus with stakeholders on issues (e.g. community's value-laden concerns)
	All key players involved
	Identify the needs, goals, and concerns of stakeholders; let that drive the use/choice of the tools/science needed
	Have a feedback loop from community assessment

QUESTIONS 9 AND 10

QUESTION 9: From the State and community perspective, what worked and what didn't?	QUESTION 10: What issues were unique in this case? Which will recur in other cases?
Worked: mapping/visualization, openness, and transparency	Trust issues (us vs. them)
Worked: really involving the community through both formal and informal means	Cumulative risk assessment (multiple exposures/sources)
Worked: partnering with other relevant agencies (i.e. state, local, public health)	Data, tool, and science gaps
Worked: defining the community and identifying its representatives	Health concerns
Worked: other benefits for the community as a result of activity include: a cross transfer of knowledge; parks and recreational development; medical testing; community empowerment; increased environmental and health awareness; increased resources and political attention	Political realities
Worked: flexibility	Different values, perceptions, and concerns from different parts of the community
Worked: previous community organization can aid progress	Concern about disproportionate share of pollution sources
Worked: regular progress reports	Little EPA experience at this early stage
Didn't work: standard, indirect communication and public involvement	With time, priorities and focus will change
Didn't work: pre-existing lack of trust	EPA's response will be tailored by the general type of case
Didn't work: lack of understanding of issues and positions	Unique: International/cross-border issues
Didn't work: conveying unpopular results (need to avoid surprises)	Unique: High profile cases
Didn't work: failure to address critical community issues	Unique: Case specific info
Didn't work: facts and science aren't always sufficient to reach clear results	

Appendix E. Community Assessment "Questions" Summary

Community Assessment "Questions"

INTRODUCTION:

The purpose of the first Community Assessment Workshop was to identify: "*What are the environmental assessment questions communities are asking EPA to address?*" A working list of these questions is presented below for discussion, and for use in the second Community Assessment Workshop as we look into which of these questions we currently have means to address.

In general, there are still large gaps in the kinds of tools and information available to communities to help them answer these questions (in whole or in part), and thereby move more in the direction of sustainability. Our work is part of a long term attempt to develop and provide the tools and information that will be needed to support sustainable development at the community level. The six Community Assessment Workshops will, as a whole, look into the challenges that face EPA in trying to work with communities to address community assessment questions. The focus for the second workshop will be on the tools and information available to understand and address the basic questions concerning environmental impacts on a local environment, including impacts on both the human and ecosystem aspects of the environment.

The second Workshop's focus on the tools that the Agency and communities will need to assess the environmental impacts and risk questions means that not all issues raised in the context of Community Assessment will be dealt with directly in this Workshop. Issues such as where communities will get the resources to do assessments, what the best way is to get community participation, how the assessments can be used to make improvements, and how governments can work together to help communities, are important to the community but they will be addressed later in our Workshop series.

Finally, the scope of the issues that communities raise and the way environmental concerns are understood in communities often includes areas that are beyond the scope of EPA capacity or authority. Rather than eliminate community questions to fit our purpose, we will keep the community perspective and determine which questions our tools can help answer. This approach will make us cognizant of the limits of our abilities and encourage us to seek partnerships with other organizations or governments. Ultimately, our capabilities can be fit into a larger effort (with other organizations) that can begin to answer community questions.

SUMMARY OF "QUESTIONS"

As developed and discussed in our first Workshop, here are some questions that communities have asked the Agency. This list of questions is a starting point for discussion purposes, not an

all-inclusive list. The questions can be broken out into four major categories, with some overlap. These categories are as follows: (1) Is there a threat to our health or our local environment?; (2) How can we characterize the risks within our community?; (3) How do the risks in our community compare to other communities?; and (4) How can we improve our environmental quality of life?

1. Is there a threat to our health or our local environment?

1) What are the environmental risks in our homes and schools?

2) Does the poor health in our community, e.g. child birth defects, have anything to do with environmental exposures?

3) Is the air safe on the most polluted days of the year, such as during summer heat inversions?

4) Is the cumulative exposure to toxics from all sources adversely impacting our health and the health of the ecosystem?

5) Are the exposures to the pollutants released from all the industrial and commercial facilities in and around our community affecting our health?

6) Are the permitted levels safe for children and other sensitive populations?

7) Are we at risk from acute exposures, accidents and episodic releases?

8. Does the mixture of different pollutants combine together to adversely impact our health?

9. Is it safe for my children to swim or wade in the local pond or river?

10. Is it safe to eat the local fish that I catch, especially if there are the basis for my diet? What fish should I avoid and why? How much would be considered safe to eat?

11. Is the water from my well safe to drink?

12. Will the creation of this new highway adversely affect our environment or is there a better location to build it?

13. Are there areas that we protect, i.e., either have no development or limit our use?

2. How can we characterize the risks within our community?

1) What environmental information is available for my local community (including information on EPA-regulated and permitted sources)?

2) What are the potential impacts of local environmental pollutants and how can we know if environmental impacts are increasing or decreasing in our community?

3) What is the cumulative impact of total and/or permitted environmental exposures in my community, including "background exposure?"

4) How do we get a complete inventory of all the sources of environmental impacts on our community?

5) How can we assess the impact that our businesses, community households and schools have on our environment?

6) How can we be sure that facilities are not exceeding their permitted releases?

7) What can we use to directly measure our exposure to toxics so we can test the adequacy of the permitting process?

8) What information do we need in order to judge if the pollutants from a new facility planning to open in our community will have an adverse impact on us?

9) How do we assess the potential for accidents in the facilities in and around our community?

10) How do we learn about the impact of synergy with mixtures of chemicals or the impact of endocrine disruptors, and how can obtain an adequate assessment of such issues?

11) What is the relationship of toxic pollutants to disease clusters in my community and how do I focus on these health outcomes to understand what is causing them?

12) What information is available that is specifically related to subpopulations of concern, e.g., children, and will risk assessment adequately address these sensitive subpopulations?

3. How do the risks in our community compare to other communities?

1) Is there an unusually high incidence of disease in our community (cancer clusters, asthma, adverse reproductive outcomes, etc.), and might it be the result of environmental exposures?

2) Do we have more than our share of environmental stresses in our community?

3) Are there disproportionate impacts (race, income, children, etc.) within my community or compared to other communities?

4. How can we improve our environmental quality of life?

1) How can we get an overall picture of all of our environmental impacts so we can set priorities for making improvements?

2) What is the condition of my community's natural resources (parks, surface waters, wildlife, etc.)? What are the sources of the impacts on these resources?

3) What information is available that can improve the economic situation in my community and its quality of life?

4) What information is available regarding traffic, general safety, noise, dust, bad odors, etc.?

5. How do we track our progress so that we know how to proceed in the future?