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Risk Assessment Guidance for Superfund:

Volume 1 – Human Health Evaluation Manual Supplement to Part A: Community Involvement in Superfund Risk Assessments

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Office of Emergency and Remedial Response
U.S. Environmental Protection Agency
Washington, DC

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INTRODUCTION

Many people who live and work near Superfund sites want a greater role in helping to make decisions about the cleanup work that is being done. Community stakeholders have told EPA that current public involvement practices are often inadequate (see box), and that more meaningful and effective ways to participate are needed. Public involvement is often more meaningful when it is sought out *early* in the Superfund process. The *human health risk assessment* is one part of the Superfund process that warrants early community involvement. ***EPA is committed to promoting participation in the decision-making process by people whose lives are affected by Superfund sites located in their neighborhoods.***

Community Feedback on Risk Assessment

- Provide opportunities for the public to *be in* the process early, not *buy in* at the end.
- Create partnerships with all community groups *early*.
- *Plan* for community involvement.
- *Protect* community values and culture.
- Schedule public meetings at times and places convenient to the community.
- Clarify *who* the risk assessment protects.

Superfund *baseline risk assessments* are conducted to evaluate potential human health and environmental risks posed by uncontrolled hazardous waste sites. The results of a risk assessment are critical in determining whether responses to protect human health and the environment are justified, and in establishing an appropriate cleanup level. The risk assessment also helps EPA identify potential risks associated with a particular remedy and evaluate risks remaining at a site after cleanup is completed. This document focuses on human health risk assessments.

The purpose of this guidance document is to provide the site team—risk assessor, remedial project manager (RPM), and community involvement coordinator—with information to improve community involvement in the Superfund risk assessment process. Specifically, this document:

- Provides suggestions for how Superfund staff and community members can work together during the early stages of Superfund cleanup;
- Identifies where, within the framework of the human health risk assessment methodology, community input can augment and improve EPA's estimates of exposure and risk;
- Recommends questions the site team should ask the community; and
- Illustrates why community involvement is valuable during the human health risk assessment at Superfund sites.

This document establishes no formal requirements for community involvement (these are covered in the National

Community Input Can Help

- **Identify overlooked local knowledge**
  Community members may have useful information about the site's history, chemical uses, human activities, and past, current, and future land uses.

- **Streamline efforts**
  Community members may have special issues or concerns that, if incorporated into the risk assessment planning at the outset, will reduce the likelihood that the risk assessment and cleanup plans will have to be redone.

- **Gain acceptance**
  Community members who contribute to planning the risk assessment will better understand the process and will more likely give the outcome their support.

Contingency Plan [NCP] and are highlighted in the *Superfund Community Involvement Handbook and Toolkit* (EPA, 1998)). This document identifies techniques that can lead to risk assessments that the community will accept and understand. Additional resources on community involvement, risk assessment, risk communication, and the Superfund process are cited at the end of this document. In addition, the site team should talk with its counterparts at the state and local levels and to the Agency for Toxic Substances and Disease Registry to learn about their risk assessment and community involvement requirements.

IMPORTANCE OF COMMUNITY INPUT

EPA is committed to providing opportunities for citizens to participate meaningfully in the cleanup process. People sometimes question the utility of involving nontechnical groups in technical discussions. However, people who live and work near a Superfund site not only deserve to be informed and involved, but are likely to have knowledge and insights about the site's history, uses, and activities that can improve the accuracy of the risk assessment. While risk assessors also should consult with state and local agencies, population surveys, data bases, and EPA's risk assessment guidance (see *Sources of Information*), the community may contribute vital information located nowhere else.

Although time and energy must be invested to promote public involvement, the investment pays significant dividends in community understanding and goodwill. The Presidential-Congressional Commission on Risk Assessment and Risk Management recognized this in its Framework for Environmental Health Risk Management report (February 1997). The Commission identified "a clear need to modify the traditional approaches used to assess and reduce risks . . . " and supported the principle that community members should be engaged as active partners in the process so that different technical perspectives, public values, and perceptions are given full consideration.

The Commission Suggested That

- The goals of community involvement should be clear at the outset, and the public should be involved early in the decision-making process.
- Community involvement efforts should attempt to engage all potentially affected parties and solicit a diversity of perspectives.
- Community members must be willing to negotiate, should be flexible, and be prepared to listen to and learn from diverse viewpoints.
- Community members should have a say in important decisions and be given the information and technical assistance necessary to facilitate this participation.
- Community members should be given credit for their roles in a decision, and how and why community input was or was not used should be explained.
- The nature, extent, and complexity of community involvement should be appropriate to the scope and impact of a decision.

COMMUNITY INPUT TO THE SUPERFUND RISK ASSESSMENT

The timing and amount of community involvement will vary from site to site (see box). This is due to scheduling requirements and the reality that many Superfund sites are far along in the remedial investigation/ feasibility study (RI/FS) process. The degree of community input during the risk assessment phase also will vary depending on the complexity of the issues and the level of community interest. The nature and extent of community involvement should be appropriate to the scope and impact of a decision. In some cases, the standard risk assessment assumptions will be appropriate.

Key Discussion Points for the Outset of Community Involvement

- Anticipated timing and level o community involvement.
- Acknowledgment that EPA will consider all public input, but may not agree with all of it.
- Risk assessments should follow policy and be scientifically sound.
- EPA must meet the legal requirements of the Superfund law.

Because education about risk assessment is necessary and often requested by community members, the site tea should address this need as quickly as possible. Risk assessors, RPMs, and community involvement coordinators are encouraged to refer to risk communication guidance and educational resources to supplement this guidance.

Ultimately, the EPA risk assessors and RPMs are responsible for ensuring that the risk assessment is based on reliable scientific information. EPA will ensure that risk management decisions articulate actions that comply with, or qualify for a waiver of, applicable or relevant and appropriate requirements, as required by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the NCP. Furthermore, EPA should ensure that the community understands these requirements.

The Superfund human health risk assessment process has four steps: 1) *data collection and evaluation*; *2) exposure assessment*; *3) toxicity assessment;* and *4) risk characterization.* Each step involves an analysis of specific data or assumptions related to the areas of contamination and potential human exposures to contaminants of concern. A complete description of EPA's risk assessment methodology and definitions of the four components of risk assessment can be found in the "EPA Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual Part A" (EPA 1989).

The purpose of community input at each step of the risk assessment and key questions the site team may ask communities are set out in the following sections.

SCOPING PHASE AND WORK PLAN DEVELOPMENT

The scoping phase involves learning enough about a site to formulate a plan of action for the risk assessment. During the scoping phase, the risk assessor identifies:

- Past site uses, manu facturing and disposal practices, and spills or suspicious activities at or around the site.
- Who is exposed to the site and the pathways by which exposure occurs (*e.g.*, children playing in contaminated water).
- Information on the types and sources of data required for the risk analysis.
- Types of samples and specific collection methods needed.
- How community concerns will be addressed.

Community input is particularly important during the scoping phase and development of the risk assessment work plan. Community members may provide critical information about the site, their health, and how people might be exposed.

The work plan evolves from the scoping phase and lays the foundation for the risk assessment. It may be revised during implementation of the risk assessment to account for new information such as finding a contaminated drinking water source. Risk assessors can use the scoping phase and work plan development as an opportunity to educate community members about the risk assessment process, encourage community involvement, and build trust with citizens.

Goal

During scoping and work plan development, the site team should:

- Educate the community about the risk assessment process.
- Solicit public concerns, cultures, and values.
- Consult with appropriate authorities on unique issues such as tribal concerns.
- Identify populations exposed to the site.

- Support informed decision making.
- Foster communication, and encourage dialogue with community members.
- Discuss the expectations and constraints of the process.

Key Questions

The following are several questions related specifically to scoping that the site team should discuss with the community before the risk assessment begins. However, often it is appropriate to ask all of the questions recommended at each step of the risk assessment during this phase.

- What is known about the site (*e.g.*, spill and waste disposal history)?
- What are community perceptions about the hazards and risks?
- Who is exposed to the site?
- How are people exposed (*e.g.*, fishing, gardening, playing)?
- Are there specific sources of data that should be considered in the sampling plan, including specific areas of concern near the site?
- Who else in the community should the site team be talking to?

DATA COLLECTION AND EVALUATION

The collection of adequate and appropriate data is critical for evaluating the extent of Superfund site contamination and the potential risks posed by a site. Often most site data are collected before the risk assessment is scoped out. Additional data may be collected to meet the needs of the risk assessors. Community input during this phase of the risk assessment is important to help identify additional information about a site's history, potential areas of contamination, and areas frequented by people who live near the Superfund site.

Goal

The goal of community input at this stage is to ensure that no hazardous substances or potential exposure is overlooked. Since local information can vary significantly from EPA's standard assumptions and exposure scenarios, the site team should communicate how input on potential sources of contamination and people's behavior and lifestyles can affect the risk assessment. For example, a resident might recommend sampling fish in a stream known to be frequented by children. Residents may have information that could point to or exclude certain off-site areas as suitable locations for background samples.

Key Questions

The site team should seek community input on:

- Are there specific chemicals or substances of public concern, and if so, why?
- Are there areas that may not be appropriate for determining background levels of contaminants?
- Is the review of historical activities at the site complete? If not, who would have such knowledge?
- What are the current and future anticipated land uses at the site?
- When are the best times to take samples?

EXPOSURE ASSESSMENT

Exposure assessment is the estimation of how much and in what ways exposures to chemicals may occur at and around a Superfund site. The risk assessor looks for complete exposure pathways from the source of contamination to people on or near the site. This includes sensitive sub-populations such as children. Exposure estimates consider both present exposures and probable future exposures, based on the proposed future land use, if no

further cleanup action is taken at the site. Because the exposure estimate incorporates information on the locations and activities of people living near the Superfund site, the exposure assessment presents an opportunity for significant community input.

Goal

The purpose of community input to the exposure assessment is to obtain complete information about potentially exposed people and their activities. This information, along with data on contaminant concentrations, will help produce a risk assessment that is realistic, reasonable, and comprehensive.

Key Questions

The site team should seek community input on:

- Who may come into contact with the site? Sensitive groups may include children, elderly, pregnant and nursing women, and people with chronic illnesses.
- How do people use the land on and near the site (*e.g.*, fishing, gardening, berry picking, hunting, playing, swimming)?
- How often do people use the land for these activities?
- Where are children likely to play or use the site?
- What types of animals are hunted or fished?
- What types of food are produced in the garden?

TOXICITY ASSESSMENT

The toxicity assessment addresses the potential of environmental contaminants to cause harmful effects in humans. Information on effects is published in an EPA data base—the Integrated Risk Information Syste (IRIS). Risk assessors use IRIS to help evaluate cancer and noncancer effects for each chemical of concern. Because the toxicity information in IRIS is verified through a consensus process and widely accepted, community input on specific toxicity values is generally not anticipated. However, explaining to citizens how the toxicity assessment fits into the overall risk assessment process is important. Community concerns related to the types of toxicity site chemicals pose should be fully addressed by the site team. For chemicals that are not site-related or for general health issues broader than Superfund's area of concern, risk assessors may refer citizens to state or local public health officials or the Agency for Toxic Substances and Disease Registry.

Goal

The primary goal of community input to the toxicity assessment is to obtain clarification about the community's health concerns so that clear and appropriate explanations about potential toxicity can be provided to the community and incorporated into the risk assessment.

Key Questions

The site team should seek community input on:

- What are the community's health concerns that may be related to the site?
- Has the community discussed any unusual health problems with local public health authorities?
- What does the community want to know about the toxicity assessment process?

RISK CHARACTERIZATION

The final step of the risk assessment integrates the results of the exposure assessment and toxicity assessment. Risk characterization estimates the potential health risks posed by the site

if no remedial action is taken. It also explains the level of risk that may be left after different cleanup approaches are applied and describes the uncertainties associated with the data and risk estimates. Uncertainties may be associated with strengths and weaknesses of the data, the exposure assumptions, or the toxicity values.

Goal

The purpose of having community input at this stage is to ensure that the risks are described in clear and meaningful terms, and that site-related assumptions are still appropriate.

Key Questions

The site team should seek community input on:

- Have community concerns been adequately addressed?
- Have any contaminants, exposure, or sensitive groups been overlooked?
- Are the risk assessment process, results, and conclusions understandable?
- Do you understand how this risk assessment is being used?

INVOLVEMENT TECHNIQUES

This section describes several possible approaches and techniques for involving the public in developing the risk assessment. Since every community and situation is different, involvement techniques should be tailored to each community. The best way to design an effective approach is to talk with people in the community to find out what kind and how much involvement they want. Identify those willing to participate and commit adequate time to the project. Mention educational opportunities and the availability of technical assistance such as EPA's Technical Assistance Grants, the university-based Technical Outreach Services for Communities (TOSC) program, and the Department of Defense's Technical Assistance for Public Participation (TAPP) program, if applicable.

A strategy may be needed to target specific audiences and structure the outreach. A strategy should consider the size and diversity of the community, level of interest expressed by community members, geography of the site and community, and resources and time available to community members and the site team. Communication strategies often are employed as part of a community involvement plan.

The following list of tools is not exhaustive and is no substitute for the creativity and imagination of the site team and community members who will collaborate on the project. The *Superfund Community Involvement Handbook and Toolkit* provides more details on communication strategies and the following involvement techniques. In addition, state and local officials, as well as the Agency for Toxic Substances and Disease Registry, can be consulted about appropriate communication methods.

Interviews

Informal, face-to-face or telephone discussions with community members are an excellent means of obtaining first-hand information about local interests, concerns, and issues. This technique also provides an opportunity for EPA to establish trust and confi-

dence, but is relatively slow and labor intensive.

Community interviews are required to the extent practicable by the NCP. Interviews are used for developing the community involvement plan before field work for the RI/FS begins. These offer another opportunity to gather risk assessment-related information fro the community. Community interviews should be face-to-face sessions, and may be conducted in citizens' offices or even in their homes. Their purpose is to solicit the community's concerns and information needs and to learn how and when citizens would like to be involved in the Superfund process.

Small Group Meetings

Getting together with several community members in a private home or local meeting place allows for good interaction and dialogue. Somewhat less time-consuming than individual interviews, this technique is an excellent way of developing useful information, and establishing rapport and trust.

Focus Groups

Focus groups are more formal than small group meetings. They are structured to obtain answers to specific questions. Focus group participants usually are invited individually to participate. The meeting is led by a trained facilitator who guides the discussion and elicits reactions to carefully designed questions or proposals. This technique is an efficient means of obtaining citizen knowledge and expectations if the participants truly represent the community. Because focus groups are designed to elicit information in a structured, one-time way from selected participants, they are generally less effective than other techniques in developing rapport and good working relationships with the community.

Public Meetings

A large public meeting is an efficient way of informing people about activities and getting general feedback. It is also a useful way to move a community through the process together. A public meeting is an appropriate forum for identifying major community concerns, but is an inappropriate method for developing detailed information. Large public meetings need to be well planned and facilitated to avoid becoming tedious and unwieldy.

Public Availability Sessions/Open Houses

A public availability session is a less structured alternative to a public meeting and is generally preferred in situations where public meetings are not required. A risk assessor or other site team member announces that she or he will be available during a convenient time and place for the community to come and talk informally. No appointment is necessary. This gives community members a chance to converse privately and raise issues they may not feel comfortable raising in other forums.

Community Advisory Group

A community advisory group is a representative group of community members that meets regularly to advise EPA on issues and review documents throughout the life of the project. This technique ensures an ongoing link between interested community members and the decision makers, and it generally results in developing good rapport. An advisory group approach requires the decision makers' commitment of time and resources, and the advisory group's commitment to participate regularly.

Cooperative Work Group

This technique is an extension of the community advisory group. It is used to empower community members to be

substantively involved in a project. The decision makers commit to work in collaboration with community members to create the work group and make key decisions on a consensus basis. Decisions are made with the understanding that when a consensus cannot be reached, the decision makers will be responsible for determining the course of action. While this is a very time-intensive technique and is somewhat of a risk for the decision makers it has enormous benefits in terms of community support and satisfaction.

Public Notices
Public notices are announcements published in the print media or broadcast on radio or television. They are required at various times in the Superfund process such as when a site is proposed to be added or deleted fro the National Priorities List (NPL) and when public comment periods will occur. They also can be used to publicize opportunities for the community to participate in planning for a risk assessment or to review documents such as a work plan. Major media outlets are not the only or necessarily the best sources to use. Often, ethnic or foreign language publications, niche radio stations, church bulletins, and postings at local gathering places provide more effective coverage. A public notice is a relatively inexpensive way of spreading the word, but is unlikely to generate a large response. As a result, public notices should always be used in conjunction with other techniques.

Workshops
Workshops are formal, participatory seminars used to explore a Superfund subject. Workshops are a powerful tool for educating small groups of citizens on site-specific issues such as risk assessment, participation opportunities, and how to become contributing participants in the Superfund process. The educational, involvement, and empowerment values of workshops make them a desirable component of the community outreach and involvement process. However, they are time-intensive and require commitments from citizens to help develop the workshop curriculum and to participate.

CONCLUSION

Communities around Superfund sites have a major interest in the outcome of the site investigation and cleanup process. Community input into the risk assessment process can help ensure a risk assessment that is complete and useful. Early involvement is always ideal, but in cases where this is not possible or has not been achieved, input at later points is still important.

Each of the four steps of risk assessment present opportunities for community input. At the outset, risk assessors, RPMs, and community involvement coordinators should explain clearly to the community all legal requirements and other constraints, as well as how community input will be used during the risk assessment. Some quick tips for EPA staff and citizens are summarized at the end of this document. Additional resources and references on community involvement, risk assessment, and risk communication are provided under *Sources of Information.*

It is important to remember that meaningful participation is never quick or easy. The understanding and trust needed for a good working relationship develop slowly under the best of circumstances. There are many challenges including identifying who should or can be involved, fostering sufficient technical understanding so that all parties interact comfortably and can contribute, and establishing efficient and effective group dynamics. Many Superfund site teams have been successful in engaging the public in the Superfund risk assessment process. Some lessons learned from these experiences are included in the case examples appended to this document.

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International City/County Management Association (ICMA). 1997. Risk Assessment. The Role of Local Government. Washington, DC. ISBN 0-87326-124-0, Item number 42162. Toll free phone: 800-745-8770. Internet: http://www.icma.org/publications/riskassess.htm.

EPA INTERNET RESOURCES

EPA Home Page: http://www.epa.gov
EPA Risk Assessment web site: http://www.epa.gov/superfund/programs/risk
EPA RCRA, Superfund & EPCRA Hotline: http://www.epa.gov/epaoswer/hotline
Superfund for Kids: http://www.epa.gov/superfund/kids
Recycle City: http://www.epa.gov/recyclecity
Integrated Risk Information System (IRIS): http://www.epa.gov/iris/

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- The National Center for Environmental Publications and Information, is a central repository for all EPA documents. Over 5,000 titles in paper and electronic format are available for distribution (usually at no cost to the public). Individuals can browse and search EPA's National Publications Catalog, and order EPA publications online or by telephone. The EPA publication number (*e.g.*, EPA 999-F-99-999) is used to identify the resource.

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GLOSSARY

Baseline risk assessment Superfund human health estimate of the likelihood and magnitude of health problems occurring if no cleanup action is taken at a site. Risk assessment may include both qualitative and quantitative evaluations of the likelihood that there will be harm to human health and the environment by the actual or potential presence of environmental contamination.

Biota: the animal and plant life of a given region.

Community Advisory Group (CAG) a committee of community members who want to be involved in planning for the cleanup of a Superfund site. The CAG works with EPA and the state to review site data and evaluate response options. The CAG also may serve as a bridge of communications between EPA and the rest of the community.

Community Involvement Coordinator (CIC): an EPA person who works with community members to keep them informed about a Superfund cleanup and also helps those who are interested to participate in the response decision-making process.

Exposure: contact of a person with a chemical or physical agent.

Exposure pathway the course a chemical or physical agent takes from a source to an exposed individual.

Hazard Ranking System (HRS): is the principal mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations—the preliminary assessment and the site inspection—to assess the relative potential of sites to pose a threat to human health or the environment.

Hazardous waste defined by Section 1004(5) of the Resource Conservation and Recovery Act (RCRA) and regulations promulgated at 40 CFR 261.20. In general, hazardous wastes are solid wastes that may cause or significantly contribute to illness or death, or that may substantially threaten human health or the environment when not properly controlled.

National Contingency Plan (NCP) the federal regulation that guides the Superfund program. (National Oil and Hazardous Substances Contingency Plan).

National Priorities List (NPL) EPA's list of priority releases of hazardous substances, pollutants, or contaminants identified for possible long-term remedial action under Superfund. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year. A site must be on the NPL to receive money from the Trust Fund for remedial action.

Noncancer effects in human health risk assessment, disease outcomes pertaining to neurological, developmental, reproductive, or other effects not associated with cancer.

Remedial Project Manager: the individual who manages and oversees all RI/FS activities, including the human health evaluation, for a site. The RPM is responsible for ensuring adequate evaluation of human health risks and for determining the level of resources to be committed to the human health evaluation.

Risk: a measure of the probability that damage to life, health, property, or the environment will occur as a result of a given hazard. Environmental risk is the likelihood of harm to one's health from exposure to environmental chemicals.

Risk assessor professional who organizes and analyzes site data relevant to human (or ecological) exposures, analyzes the ways exposures to site contaminants may occur during current and future land uses, carries out risk calculations, and interprets this information for risk managers. Risk assessors for Superfund sites are EPA scientists, contractors to EPA, other federal agencies, states, or potentially responsible parties.

Risk communication the exchange of information about health or environmental risks among risk assessors and managers, people who live near or on Superfund sites, the general public, news media, and other interest groups. Effective communication requires proper training and experience in translating scientific data into clear, accurate and understandable language.

Risk management: the process of evaluating and selecting alternative regulatory and non-regulatory responses to risk. The selection process necessarily requires the consideration of legal, economic, and behavioral factors.

Smelting a process that melts or fuses ore, often with an accompanying chemical change, to separate its metal content.

Toxicity value: a numerical expression of a substance's dose-response relationship that is used in risk assessments. The most common toxicity values used in Superfund risk assessments are reference doses (for noncarcinogenic effects) and slope factors (for carcinogenic effects).

Tips for Risk Assessors and Remedial Project Managers

How Do I Get Started?

1. Team up with a community involvement coordinator (CIC). CICs can provide good advice and support on developing and implementing public participation efforts.
2. Talk to another risk assessor, RPM, or CIC who has gone through the participation process.
3. Review the recommended Key Questions to ask.
4. Get out and start talking to the community.

What Should I Keep In Mind?

Be Prepared. Do not take working with the community lightly. Begin by planning how you will proceed and involve the community. Keep an open mind and a sincere commitment to hear and understand what the public is saying. Public participation is not simply about providing ways for getting issues raised; it is a mutual, continuous learning process. For it to be meaningful, the risk assessor should reflect on others' needs and interests and use their input.

Be Proactive. Consult with community members. Coordinate with the CIC and site manager, and if appropriate, the environmental justice coordinator, to develop a process that works for the particular situation. Consider holding a workshop or open house to explain the risk assessment process and provide a starting point for meaningful site-specific input.

Be Realistic. Nothing is more frustrating than to hear a public official make a promise that will not be kept. Take care to avoid establishing expectations that cannot be met. Make certain the public understands how their comments may have affected the decisions. This does not require a detailed responsiveness summary covering every issue. However, there should be some visible connection between community input and outcome.

Tips For The Community

How Do I Get Started?

1. Seek out and talk to EPA's community involvement coordinator, risk assessor, or remedial project manager for the site about becoming involved in the process.
2. Review EPA's recommended key questions and site work plans, if available.

What Should I Keep In Mind?

Be Prepared. Meaningful community involvement requires a commitment of time and energy. Community members can prepare themselves by: 1) learning about important technical and substantive details; 2) regularly participating in meetings and talking with site staff; and 3) following up on the key issues outlined in this reference document. To be effective, community participants do not require the same level of effort or expertise required of a risk assessor.

Be Proactive. While the site team must reach out to communities and provide opportunities for input, interested community members also should initiate ways to get involved, raise concerns in a constructive manner, and contribute fully and responsibly as the risk assessment progresses.

Be Realistic. The Superfund law and accompanying policies and regulations establish a framework within which the risk assessment and all other activities are generally conducted. Also, professional and technical guidelines and funding restrictions affect the risk assessor's discretion. For example, Superfund risk assessments deal with local contamination issues that are associated with the site under study. Community members also should recognize the time and cost constraints that may limit what can be done beyond the essentials for a complete and reliable risk assessment.

CASE EXAMPLES

St. Francois Old Lead Belt Mining Area, St. Francois, MO

Background

The Old Lead Belt mining area in St. Francois, Missouri, was mined until 1972. This area is part of the southeast Missouri Lead Belt, one of the world's largest lead mining districts. To this day, past ore extraction, milling, separation, and smelting conducted in the area are a constant source of dust and soil contamination. Natural ores, ore-derived soils left on the surface, and man-made lead products add to the overall lead problem at this Superfund site.

The 1990 census reported a total population of 17,213 for the incorporated areas of the Old Lead Belt. About ten percent were young children known to be particularly susceptible to lead hazards. In contrast to most other Superfund sites where public concern about health risks is high, citizens around Old Lead Belt did not believe that lead in the mining wastes could pose a health threat. Many of the families worked in the mining industry and grew up playing on the waste piles.

Community involvement was necessary to educate the public about the health risks, the need for cleanup, and to win support for the Missouri Department of Health's study of children's exposure to lead. The study involved sampling children's blood, sampling environmental media (such as soil and dust), and questioning residents about their lifestyles as they relate to lead exposure. The concern about community education and involvement was justified by the results of the study which indicated that children living in the Old Lead Belt area had higher blood lead levels than those detected in children from another part of the state.

Community Involvement Components

Training

To help communicate the potential health risks, EPA and the Missouri Department of Health held a series of training sessions for a group called the "Environmental Round Table" on the risk assessment process and the health risks associated with lead. This group, which organized themselves to discuss environmental activities at the site, included representatives from the site's mining industry (those responsible for cleaning up the site), the community, Minerals Area Community College, the EPA, and state and local government agencies. The Environmental Round Table in turn provided consistent communication to the public regarding health threats and cleanup approaches. EPA and the Missouri Department of Health offered additional training for the community as the risk assessment progressed.

Availability sessions

The Environmental Round Table sponsored availability sessions for the public to discuss issues. Public availability sessions also were co-sponsored by EPA and the Missouri Department of Health on specific issues of community concern.

Community Advisory Group

A Community Advisory Group (CAG), representing diverse community interests, formed and received an EPA Technical Assistance Grant to facilitate public participation and distribution of

information. Through the CAG, citizens participated in developing cleanup alternatives and in oversight of the response action. The CAG discussed diverse cultural and political issues related to the cleanup. Some of these issues included the reluctance of many local citizens to accept the health problems, depressed property values, the stigma of a Superfund site designation, disruption of lifestyles during response actions, and the economic impacts of construction.

Lessons Learned

The Superfund site team found it necessary to establish ground rules early so that people understood their roles and acquired realistic expectations of EPA's role and limitations. EPA also recognized the need to establish two-way communications early in the process and distinguish between public involvement and public information dissemination activities.

Palmerton Zinc Superfund Site, Palmerton, PA

Background

The Palmerton Zinc Superfund Site consists of a small town in a valley sandwiched between two former zinc smelting plants. From 1898 to 1981 zinc smelting and zinc product manufacturing took place at both the East and West Plants which bracketed the Borough of Palmerton, a community of 5,000. These operations caused the release into the environment of hazardous metals, especially lead, cadmium, zinc, and arsenic. Since 1981, an electric arc furnace dust recycling facility at the East Plant continued to add to the areal contamination.

The Palmerton Zinc Pile Site was listed on the NPL in 1983. Additional environmental contamination studies were conducted to characterize the environmental contamination and locate its source. Under a variety of corporate names, "the Zinc Company" (as many Palmerton residents still refer to it) built the town and employed its residents. As a result, the history of EPA in Palmerton is rife with controversy, particularly because of the relationship the industry had to the town. The community showed significant distrust of government, and many people asserted that the contamination in Palmerton was not associated with industrial practices, but instead was the result of other environmental risk factors such as lead paint, gasoline, and cigarettes. EPA met with considerable resistance when it recommended an interim cleanup of lead in homes.

Community Involvement Components

Early information dissemination
Once the environmental contamination studies were completed, the EPA site team provided data to the community from fingerprinting methods that showed that the hazardous metals contamination in the area was fro industrial origins. This occurred during the first phase of the risk assessment for Palmerton and vicinity.

Early community involvement
EPA asked the community for input at the time the fingerprinting data were released and before starting the risk assessment process. The community responded within weeks with suggestions and supporting data for EPA's review.

Community participation in the risk assessment

An industry-funded community "clearing house" group (Palmerton Environmental Task Force) participated in the risk assessment and organized people in the community to participate. EPA invited members of PETF to participate as colleagues in its risk assessment process. PETF established an interested subset of their members, the Risk Assessment Subcommittee, who, with their consultants, participated with EPA in the risk assessment. Although EPA performed the risk assessment according to EPA guidance, PETF participated to the fullest extent possible. EPA and PETF met on a rotating basis in the EPA regional office and in Palmerton every two weeks for almost two years.

Open Communication and Participation
Community members kept minutes of meetings and published a newsletter to help explain the risk assessment process to others, "demystify" site activities, and inform the community about the group's progress.

Technical Input
A noteworthy example of how communities can influence the process was the agreement PETF won to have "bioavailability studies" performed on lead. The bioavailability studies helped determine how much lead in soil is actually absorbed into the body fro ingestion or other pathways of exposure.

EPA shared drafts of the risk assessment with community participants and the public at large. This yielded two significant benefits. First, some additional considerations were uncovered resulting in important revisions to the risk assessment. Second, the public understood or were aware of site decisions. Although not everyone agreed with everything, people did not feel left out of the process.

Lessons Learned

The site team discovered that:

- Public/stakeholder involvement is increasing at Superfund sites.
- As soon as a community group is created, it should state its goals, develop a framework, and establish ground rules.
- The site team needs to communicate with all parties openly, early, and often.
- The site team and the community need to be open minded and willing to abandon false preconceptions.
- The site team should establish a schedule for site actions, but consider trading time for community acceptance.
- The site team must share ownership, responsibility, work, and credit with the community.

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