

## EXECUTIVE SUMMARY

### Region 6 FY 2003 Environmental Justice Action Plan

The Region 6 Office of Environmental Justice (OEJ) is committed to finding solutions to environmental and health problems that may affect all Americans especially minority and/or low income populations who may be disproportionately impacted. Region 6 is committed to finding solutions through partnerships and strategic alliances with communities, governments, business, industry, and academia. By educating, serving and facilitation EJ attempts to empower all stakeholders to meaningfully participate in developing and implementing programs and projects that affect their lives. The **Guiding Principle** is that everyone, regardless of race or income, is entitled to live in a clean environment.

Region 6 OEJ is organizationally structured to maximize opportunities to fully integrate and administer the environmental justice program in the Region. The core office consists of five (5) full time employees under the direct authority of the Deputy Regional Administrator (DRA) supported by a seven-member Environmental Justice Workgroup representing each program Division. The training function of the Office is supported by the EJ Training Team consisting of six trainers who perform both internal and external training

The EJ Team, EJ Workgroup, and EJ Training Team operate under the functional leadership of the Environmental Justice Coordinator who also serves as the EJ Team Leader. The Coordinator is the Regional expert and advocate for Environmental Justice and Intergovernmental Relations and serves as the senior advisor to the Regional Administrator, Deputy Regional Administrator, and Senior Managers for Environmental Justice. Some Region 6 OEJ Environmental Justice initiatives are funded through various sources; however, at this time, there is no consistent funding source for OEJ special programs and projects.

Region 6 OEJ and program offices advocate that States be encouraged to address the issues of environmental justice. Grants are provided for States, tribes, and other entities to implement the water, hazardous waste, air, pesticide, solid waste, lead-based paint, underground storage tank and children's health programs. Region 6 will continue to encourage that Performance

Partnership Agreements (PPAs), Performance Partnership Grants (PPGs), and Categorical Grants to States include grant conditions specific to environmental justice. Region 6 OEJ and Program Divisions are willing to work closely with Headquarters OEJ, the AA-ships, and Environmental Council of States (ECOS) in development of PPA/PPG language appropriate to promote increased environmental justice involvement on the part of the States.

Region 6 OEJ participates in regular coordination and reporting activities with the headquarters OEJ, including monthly in EJ Coordinator Conference calls, the development of semiannual NEJAC updates, and the generation of biennial status reports.

Region 6 OEJ maintains regular relationships with external stakeholders including environmental groups/coalitions, industrial facilities and associations, local and State agencies and elected officials, as well as other federal agencies including Agency for Toxic Substances and Disease Registry (ATSDR), Health Resources Service Administration (HRSA), U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), and myriad other agencies. Region 6 OEJ has developed and regularly distributes printed materials, including the EJ brochure in both English and Spanish, the EJ Grant-Writing Training Guidebook, and other outreach documents. Region 6 OEJ maintains a mailing list of potential stakeholders who receive periodic mailings and notifications and participates in Community Industry Panels and specialized community-based workgroups. In November 2002, EPA sponsored its first Regional Listening Session in Houston, Texas. Stakeholders from all five Region 6 States participated in this forum.

Region 6 OEJ works closely with the U.S.-Mexico Border Program to serve all communities along the border to meet the EJ needs of the border communities and stakeholders. Regional personnel facilitate the creation of a two-way communication process with the border community, serve as a liaison to increase EPA access to affected communities to create a meaningful community participation process and serve as a source of information and support for these communities. Region 6 has extensive materials that are accessible to non-English-speaking language groups in Texas and New Mexico. The border area has large Spanish-speaking

constituencies particularly along the U.S. Mexico Border, while many Vietnamese-speaking communities are thriving on the Texas Gulf Coast.

Region 6 OEJ is currently providing training to various internal and external stakeholder groups as part of the Regions implementation of the EJ Training Collaborative. Region 6 has played an active role in developing foundational environmental justice training tailored to a wide variety of audiences including internal audiences, state, community and industry audiences. In addition, OEJ provides grant writing training in various areas to assist prospective grant applicants in preparation of grant proposals.

In 1993 Region 6 developed the EPA Environmental Justice Index Methodology for EJ site analysis. The methodology uses Geographic Information System (GIS) maps, census demographic data and the Hazard Index (HI) method to mathematically rank individual sites. Region 6 is committed to use all tools at its disposal to effectively address environmental justice issues in the Region, including the Environmental Justice Mapper, Environmental Justice Toolkit.

While the EJ Index identifies economically stressed and minority populations, the analysis can be expanded to identify education, employment, and cultural factors.

The EJ Implementation Strategy requires regular reporting/accountability information be furnished to the Deputy Regional Administrator by each program Division. These reports serve as a tool to evaluate the effectiveness of the regional Environmental Justice program. The reports address applicable program goals for EJ contained in the Divisions' strategic plans. Each Division will report their EJ progress to the DRA, according to their specific program goals and activities twice a year. One of these reports will coincide with the annual National Environmental Justice Advisory Council (NEJAC) meeting. Additional reporting elements may be added to address specific NEJAC issues. Each division will report on these general elements.

# REGION 6 FY 2003 ENVIRONMENTAL JUSTICE ACTION PLAN

rev. 9/30/02

## 1. Region 6 Environmental Justice Philosophy, Mission and Vision Statements:

The Region 6 Office of Environmental Justice (hereinafter referred to as “OEJ”) is committed to finding solutions to environmental and health problems that may affect all Americans, especially minority and/or low income populations who may be disproportionately impacted. Region 6 is committed to finding solutions through partnerships and strategic alliances with communities, governments, business, industry, and academia. By educating, serving and facilitation, OEJ helps to empower all stakeholders to have meaningful participation in developing and implementing programs, projects and policies that affect their lives. Effective administration of OEJ is important to the Region because studies show that: (1) minority and low-income communities may be disproportionately affected by environmental hazards<sup>1</sup> and thus are in need of information and assistance; (2) a sizeable portion of the Region's population lives in areas where Environmental Justice issues potentially pose a concern; (3) the Environmental Justice Executive Order 12898 states that EPA is the lead federal agency for Environmental Justice.

Our **Guiding Principle** is that everyone, regardless of race or income, is entitled to live in a clean environment.

Region 6 OEJ’s overarching **Vision** is as follows:

- Environmental justice communities must be empowered to affect their own destinies.
- Strive to be an exemplary model of environmental justice programs and implementation for all environmental justice partners--governments, communities, business, industry and academia.

<sup>1</sup>. U.S. GENERAL ACCOUNTING OFFICE, SITING OF HAZARDOUS WASTE LANDFILLS AND THEIR CORRELATION WITH RACIAL AND ECONOMIC STATUS OF SURROUNDING COMMUNITIES 2 (1983). The GAO study reported a strong correlation between race and poverty and the location of hazardous waste facilities.

- Strive to advance the concept of environmental justice beyond mitigation to prevention.

**Region 6 OEJ's Vision** for EJ internal operations is as follows:

- Strive to work as a united force within Region 6.
- All Region 6 employees should develop a working knowledge of environmental justice tools and principles.
- Through training, employees should apply these tools and principles in their daily work as an integral part of their day-to-day work in all Region 6 activities.
- Region 6 employees should strive to be innovative and proactive in identifying and addressing environmental justice issues.
- Positive internal efforts should be routinely rewarded and recognized.

**Region 6 OEJ's Vision** for strategic alliances:

- All stakeholders should understand and respect the need for environmental justice and be willing to work cooperatively to solve problems.
- When appropriate, serve as a catalyst for all stakeholders to assist and encourage them in implementing environmental justice principles and formulating effective solutions through strategic alliances.
- Environmental justice stakeholders should create their own strategic alliances to address environmental justice issues in their communities.

## **2. Organizational Infrastructure and Management Support:**

The Region 6 EJ Program is an organization structured to maximize opportunities to fully integrate and administer the environmental justice program in the Region. The core office consists of five full-time employees under the direct authority of the Deputy Regional Administrator (DRA). This placement strategically positions the Office at the highest level in

the organization so that cross/multi media EJ activities are managed most efficiently. Additionally, by virtue of its placement in the DRA office, the full weight of the DRA is conferred to OEJ. The work of the Office is also supported by an Environmental Justice Workgroup which consists of seven team members, each representing his/her Program Division. Each workgroup member, appointed by the Division or Office Director, is also supported by an alternate representative who serves in his/her absence. The workgroup serves to augment and support EJ implementation activities at the Division level and advises Divisional management and staff on EJ related issues. This empowers Region 6 to fully integrate EJ within the program areas. The training function of the office is supported by the EJ Training Team consisting of six trainers who perform both internal and external training.

## **II Operational Resources/Program Support:**

OEJ is staffed by the following personnel:

### EJ Team

Lawrence Starfield, DRA and EJ Office Manager

Olivia-R Balandran, Team Leader

Shirley Augurson, EJ Senior Specialist

Warren Arthur, EJ Project Manager

Nelda Perez, EJ Specialist

Shirley Quinones - EJ Specialist/Grants Coordinator

### EJ Workgroup

Teresa Cooks, Compliance and Enforcement Division

Charles Faultry, Multimedia Planning and Permitting Division

Dina Granado, Water Quality Division

Margie Floyd, Management Division

Kathleen Robinson, Superfund Division

Patty Senna, Office of External Affairs

Sherry Brown-Wilson, Regional Counsel

### EJ Training Team:

Lead Trainers: Shirley Augurson, Mary Wilson

Sam Balandran

Charles Faultry

Amy May

Connie Suttice

## II Functions of The EJ Coordinator (Team Leader) and EJ Team:

The Environmental Justice (EJ) Coordinator (**Team Leader**) and members of the EJ Team are the Regional experts and advocates for environmental justice and intergovernmental relations. The EJ Team Leader serves as the advisor to the Regional Administrator, Deputy Regional Administrator, and Senior Managers for environmental justice. The EJ Team Leader with the support of the EJ Team is responsible for the following:

- Represents the Regional office in relations with organizations and individuals concerned with environmental justice issues, and as appropriate with local governments, State Legislatures, Governors Offices and Congress.
- Recommends and develops Regional policy to foster mutual understanding and cooperation.
- Establishes constructive relationships with local officials/staff and environmental justice organizations, to encourage support and understanding of the Region's programs.
- Is the Regional point of contact for environmental justice, with knowledge and understanding of environmental justice operations, key players and stakeholders (legislative, economic, business and commerce, media, environmental) as well as major issues and trends that may influence EPA operations.
- Implements environmental justice programs assigned to the Region and coordinates actions with Headquarters and Regional offices as well as other Federal Agency counterparts, anticipates controversial issues and advises the RA/DRA accordingly, recommending specific courses of action.
- Identifies key stakeholders, and develops and maintains relationships with them.
- Provides advice and assistance to senior management and staff on environmental justice issues and coordinates liaison between EPA and persons/organizations involved in environmental justice issues, assists and reviews testimonies, statements of policy, staff briefings and environmental justice proposals. Provides information to stakeholders.

- Ensures adequate and timely responses to environmental justice inquiries and serve as subject matter specialist on key environmental justice legislation as well as local/State/Federal Government budgets impacting the Region's environmental justice operations.
- Analyzes the political climate of areas with environmental justice issues; coordinates activities to obtain understanding of and support for the Agency's goals, policies and programs; arranges for courtesy visits between the RA/DRA and environmental justice officials and leaders; represents EPA by coordinating and participating in briefings, courtesy visits, conference calls and meetings between the Agency and constituents.
- Works with the media and cross-media Divisions to develop an integrated (geographic) approach that proactively solves/resolves environmental justice issues.
- Facilitates meetings and works on teams to address multi-media cross-program coordination. Works to integrate issues across program lines, bringing together key Regional staff and environmental justice stakeholders.
- Identifies multi-media, strategic opportunities, partnerships, and collaborations among agencies and environmental justice stakeholders and builds relationships to impact EPA issues before they become problems.
- Manages the Environmental Justice Grants Program.
- Tracks environmental justice legislation.
- Analyzes and examines a range of environmental protection issues.
- Identifies options for interacting with federal/State/Local environmental justice officials on high priority initiatives.
- Makes recommendations to RA/DRA, and senior management to propose approaches, to resolve problems, or to take some other course of action to accomplish program objectives.
- Evaluates Regional policy options to promote and facilitate understanding and endorsement by locally elected officials.



- Identifies opportunities to develop or amend Regional strategic priorities in the areas of community based environmental protection and alternative performance-based strategies.
- Recommends plans and policies designed to meet program objectives or assists policy makers in formulating policy in sensitive and difficult areas.

## **5. Performance Partnership Agreements (PPAs) and Performance Partnership Grants (PPGs):**

The OEJ and program offices encourage the States to address the issues of environmental justice. Grants are provided for States, Tribes, and other entities to implement the water, hazardous waste, air, pesticide, solid waste, lead-based paint, underground storage tank and children's health programs. At this time all of the Regional States have entered into Performance Partnership Agreements (PPAs) with EPA and three Region 6 States (i.e., Oklahoma, Louisiana, and Texas) have Performance Partnership Grants (PPGs).

For the future, Region 6 recommends that PPG and PPAs include grant conditions specific to environmental justice. Enhanced public participation is one of the critical EJ concerns that States address as conditions of PPAs and PPGs. Agreements should also include funding for translation and interpretation services to improve public access to decision-making and information gathering processes.

## **6. Internal Organizational Engagement:**

Region 6 OEJ participates in regular coordination and reporting activities with the headquarters OEJ including regularly participating in EJ Coordinator conference calls, EJ Small Grant conference calls, development of semiannual NEJAC updates and biannual status reports. Region 6 is also a major contributor to OEJ initiatives including the EJ Guidance development.

Program Divisions consistently collaborate with other Divisions and agencies to address serious environmental and health issues in EJ communities. Meaningful and continuous outreach and education to citizens and environmental groups in EJ areas is a major focus. Historically, citizen input has been utilized for targeting and enforcement actions. Management and staff work

together to discuss and develop new approaches to address the needs of EJ communities. An example of this collaboration is the Calcasieu Parish initiative in Louisiana. This effort sought input from citizens, State and local governments, other Divisions, and HQ OEJ to develop and implement a plan to address the immediate needs of the Calcasieu community.

Program personnel coordinates, consults and works with the EJ Office regarding information and community concerns at removal and remedial sites in EJ communities. Staff recognizes the need to heighten awareness of community interactions in EJ communities and ensure the EJ community members are informed and involved.

## **7. External Stakeholder Engagement:**

Region 6 maintains regular relationships with external stakeholders including environmental groups/coalitions, industrial facilities and associations, local and State agencies and elected officials as well as other federal agencies including Agency for Toxic Substances and Disease Registry (ATSDR), Health Resources Service Administration (HRSA), U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), and myriad other agencies. OEJ participates in Community Industry Panels (including the Norco/New Sarpy CIP and the Beaumont-Charlton Poulard CIP) and works with specialized community-based workgroups (Cesar Chavez/ Southeast Houston Health and Environmental Workgroups).

In November 2002, EPA Region 6 sponsored its first Regional Listening Session in Houston, Texas. The session was held from November 14 - 16, 2002. This was the first Regional Listening Session held by an EPA Region nationally. In the December 2001 National Environmental Justice Advisory Council (NEJAC) meeting, regional offices were charged to hold the listening sessions. The purpose of the session is to have interactive, solution-oriented dialogues with the community, and in partnerships with federal, state, Tribal, local and municipal government representatives. A steering/planning committee made up of community leaders, industry representatives, academia, state and other federal agencies was formed. The process included brainstorming to identify the major issues of concern. Several subcommittees were formed to handle each identified issue. Under each issue, a list of concerns was identified. The list was prioritized and a few of those issues under each umbrella were identified to have a solution-oriented dialogue at the session. Stakeholders from all five Region 6 States participated. The Deputy Regional Administrator and Division Directors along with the subject matter experts also participated. Several State Commissioners/Chairmen were invited. All sessions were facilitated by certified facilitators. Extensive follow-up activities which came out of the session

are currently underway. The subcommittees are continuing to communicate and follow up on action items.

Region 6 maintains a Regional web site which has a mechanism for online user input and inquiries. In addition, Region 6 has developed and regularly distributes printed materials including the EJ brochure, EJ Grant development guidebook, and other outreach documents.

Region 6 OEJ maintains an ongoing relationship with key environmental coalitions including the Southwest Network for Economic and Environmental Justice and the Louisiana Environmental Action Network. These coalitions and their member organizations provide plentiful opportunities to identify potential EJ issues and stakeholder groups who could benefit from coordination with Region 6 OEJ. Additionally, OEJ regularly receives telephone calls and e-mail inquiries from groups and individuals who require assistance. OEJ maintains a mailing list of potential stakeholders who receive periodic mailings and notifications.

Region 6 OEJ collaborates with other federal agencies to alert other agencies to areas of concern when EPA does not have regulatory authority.

Region 6 OEJ, in collaboration with the Program offices, has launched an innovative process called the Region 6 Planning and Scoping Process which has as its main feature a collaborative methodology for interactively identifying, categorizing, and prioritizing health, safety, and environmental concerns. Local stakeholder participation in this hands-on direct collaborative process is an essential element. Many of the issues identified in this process have EJ applicability.

Region 6 currently encourages Supplemental Environmental Projects (SEPs) in high risk disproportionately exposed areas. In 2003 at least 50% of SEPs will benefit EJ communities. In order to give residents an opportunity to have meaningful input into the SEP negotiation process, Region 6 has launched an internet-based (SEP) Idea Library which was created as a tool for Region 6 to enhance community involvement. These ideas may be considered by violators of Federal environmental laws during the case negotiation process. The project must relate to the environmental violation.

Region 6 has a goal of accomplishing over 50% of inspections/investigations and compliance assistance activities in high risk disproportionately exposed EJ communities.

The public notice process (Administrative Penalty Order notice) considers EJ as it keeps the public informed of fines proposed in the EPA administrative process including the amount of the proposed fine and the location of the facility where the fine is assessed. The information which is available in the local and regional newspapers will also be found in all community libraries. Computers in each library have access to the EPA Region 6 web site. The public will be notified of the location of these notices through mail-outs to minority and community groups prepared from a list provided by the Regional EJ coordinator.

Program personnel conduct extensive efforts to assure EJ community involvement at all sites in EJ neighborhoods. EJ community involvement and interactions at National Priority Sites (NPL, removal sites and Brownfields communities) include educational efforts, community/EPA interactions, meetings, one-on-one contacts, web pages, etc. to ensure that the EJ community interaction is customized to each community's needs. All related removal and remedial site information is typically placed into site repositories located in the communities where the Program actions take place. Region 6's Superfund policy for community involvement is "early and often" community involvement and interactions.

At each Superfund site, particularly those in EJ communities, EPA staff encourage the use of Community Advisory Groups (CAGs) by offering CAG organization training and related tools. EPA staff participate in CAG meetings whenever possible.

Program personnel are aware of the lack of effective community infrastructure services in a large number of EJ communities. Extensive emergency exercises are conducted in EJ communities in efforts to provide the communities with real tools that can be utilized in an emergency. Planning and implementation for/of the emergency exercises always includes EJ community leaders' participation so that program personnel have a real awareness and understanding of the communities' needs. The community is provided technical advice, emergency evacuation and Shelter-in-Place, as well as a general awareness of emergency responses.

In Superfund, the Region 6 State agencies are required to consider the impacts of a site assessment on the impacted EJ community.

Superfund personnel provide copies of all of the Site Status Summaries, site fact sheets and Five Year Reviews on the Superfund web page. Many of the documents are also provided in the Spanish language. Hard copies of these documents are made available to those without computer access.

On-Scene-Coordinators, Remedial Project Managers and Community Involvement Coordinators work closely with their contractors to encourage the contractors to hire workers in impacted EJ communities.

Superfund staff also provides the opportunity to EJ communities not eligible for Technical Assistance Grants to avail themselves of the opportunity to access the services of the Technical Outreach Services for Communities (TOSC). TOSC can assist communities in 1) obtaining training to help them work more efficiently with government agencies; 2) providing training in better managing community group environmental efforts; 3) take environmental samples at contaminated sites; 4) facilitate meetings and numerous other services.

Region 6 has an extensive tribal outreach program. Over the next year training will be provided to tribal nations to enhance their knowledge of tribal wetlands issues and surface water quality monitoring and/or standards issues. Additionally Regional personnel will educate tribes on new grant opportunities and will award at least one new cooperative agreement to a tribe or consortia. Training will also be conducted on drinking water and system operation.

#### **8. Special Initiatives for Persons with Limited English Proficiency.**

OEJ works closely with the regional U.S.-Mexico Border Program to serve all communities along the border. Region 6's commitment is to meet the EJ needs of the border communities and stakeholders. Regional personnel facilitate the creation of a two-way communication with the border community, serve as a liaison to increase EPA access to affected communities, and try to fill the gaps of the Border Program regarding EJ. Some of the activities that the Border Program conducts, with the assistance of the OEJ, are extensive outreach activities to inform and educate the border communities about EJ and to identify their specific EJ needs. The Border Program also is committed to strengthening the capacity of the border communities to become organized and articulate their issues and concerns. This will create a meaningful community participation process so that they will be encouraged to take an active role in protecting their environment.

The Border Program and OEJ have worked collaboratively on projects and activities of benefit to the Spanish-speaking community in the border. In 2001, a Border Environmental Justice Roundtable for border stakeholders and representatives of grassroots EJ organizations on both sides of the border was held in El Paso, Texas. Hosted by the Regional Administrator, the Deputy Regional Administrator, and the Executive Director of Southwest Network of Economic and Environmental Justice, the meeting enabled these community representatives to discuss their concerns with EPA, Texas Natural Resource Conservation Commission officials, and

representatives of the Border Environment Cooperation Commission and the International Boundary and Water Commission, which are binational agencies. These officials were able to provide solutions to many of the concerns, and a mechanism was established to try to address the other issues. OEJ and Border Team staff provided facilitation and translation for the meeting, and the stakeholders were pleased with the progress made and the relationships that were established. A follow-up meeting will be held in the near future to continue the process toward progress in this important EJ community.

Region 6 has established a Border Compliance Assistance Center which is a “One-Stop-Shop” for small to medium size businesses to help them understand their regulatory obligation related to import/export and transportation of hazardous waste between the US and Mexico. Information is presented in both in English and Spanish.

OEJ staff develop needed materials in Spanish for outreach to the Hispanic community, such as fact sheets on the OEJ Small Grants Program, question-and-answer fact sheets on EJ and EJ topics, etc. Certain existing materials are also translated as needed, such as the OEJ brochure to ensure that stakeholders of limited English ability may also have access to important information. Materials in Spanish targeted for persons with limited English-speaking ability and of limited education, such as many *colonia* residents, are especially tailored for this audience to ensure that they are easy to read and to comprehend.

The Program personnel examines the ethnic makeup of each community that has a site requiring a Superfund removal or remedial action. If the EJ community has specific language concerns, the Program ensures that all site-related materials provided to the community are translated into the appropriate neighborhood language. At all meetings in EJ communities with foreign language needs, EPA provides interpreters at the public meetings. Attention is also given to communication concerns in EJ communities as to the best communication vehicles to transmit information most effectively to the community for maximum community outreach and community feedback opportunities.

In all communities, specifically EJ communities, program personnel works closely with the 540 Local Emergency Planning Committees (LEPCs). The LEPCs are volunteer groups comprised of local community members (police, industry, city officials, medical personnel, press/news media, emergency management departments of cities, and neighborhood community members) living in the impacted neighborhoods. EPA works closely with LEPCs to provide expert information and training opportunities. Region 6 is one of the few Regions that provides an

annual LEPC Conference for the volunteers. The LEPC concept is the most successful non-funded volunteer community in the United States.

In addition, a Memorandum of Understanding is in place which serve the border environmental justice communities. The University of Texas at Brownsville is a member of the Hispanic Association of Colleges and Universities (HACU) Association and is located at Brownsville, Texas. EPA has a workgroup currently working on the development of a plan of action specifically tailored for environment education, environmental projects, and environmental justice issues in the lower Rio Grande Valley. The goal of this program is to provide guidance and assistance in the development of the university's plan for addressing environmental projects, education, and as needed environmental justice in the Lower Rio Grande Valley.

The Border XXI Environmental Information Resources Workgroup has developed "The Wire". The Wire is a project which, in conjunction with the U.S. Mexico Chamber of Commerce will equip four border communities with computers to access environmental information via the Internet. Region 6 has also launched its Border XXI Web Site to provide new information on the updated Border 2012 Program. This is a one stop web site for communities and others searching for environmental information to the U.S. Mexico Border, and other environmental information as requested.

Region 6 has extensive materials that are accessible to non-English speaking language groups in Texas and New Mexico. These areas have large Spanish-speaking constituencies particularly along the U.S. Mexico Border and Vietnamese speaking communities on the Texas Gulf Coast.

#### **9. Specific Grant Programs for Which EJ Will Be Listed as a Funding Priority**

In addition to the EJ Small Grants Program and PPGs discussed earlier, EPA awards capitalization grants, authorized by the Clean Water Act and Safe Drinking Water Act, to States for the purposes of providing low-interest loans for both water and wastewater infrastructure projects in low-income communities. Through the Clean Water and Drinking Water State Revolving Loan Fund programs, States can provide subsidies to disadvantaged communities to reduce the economic impact of the communities' infrastructure projects. Since 1991, Congress has appropriated approximately \$335.8 million in financial assistance through the Texas and New Mexico Colonia Programs directed toward disadvantaged and minority communities along the U.S./Mexico Border area. These funds are to address the human health and environmental

protection needs of the border communities. Many of these communities are unincorporated (i.e., colonias) with low median incomes.

The Brownfields Program has 49 grant awardees working on site assessment, cleanup and redevelopment of Brownfields properties. These awardees, which include cities, counties, planning organizations, Tribes and States, are predominately concentrating on brownfields that are located in minority and disadvantaged neighborhoods. Over the last seven years of existence of the EPA's Brownfields program, Region 6's grantees have leveraged over \$1.5 billion in redevelopment projects. Nearly all of this influx of new money has gone to benefit environmental justice communities through the creation of new jobs, green space addition, and increased revenues and city services brought about by the enlargement of their respective tax base. The overall health of many of these communities has improved also due to the removal or elimination of exposure to hazardous constituents and a reduction in crime and health-related illnesses that are so often a result of having a lower standard of living. The Superfund Program requires that grantees provide EJ communities the opportunities to be included in grant-related community activities.

In 2003 Region 6 will target several border communities for new brownfields grants. In order to facilitate this goal the Region will conduct at least one workshop and award at least one new cooperative agreement for site assessment Revolving Loan Fund (RLF) and cleanup to a border community.

If a group wishes to apply for a Superfund Reuse/Redevelopment grant, the input and involvement of the impacted EJ community is a ranking factor for awarding of the grants. The Reuse grants provide EJ communities the opportunities to have a voice in the redevelopment or reuse of NPL sites in their communities. The community input into the remedial decisions can change the level of the cleanup, depending on the site reuse plans.

In addition to the Reuse and Brownfields grant opportunities, Superfund offers the EJ communities the opportunity to apply for the Technical Assistance Grant (TAG) in EJ sites located in neighborhoods with an NPL site in the community. The TAGs provide the EJ communities with funds to hire independent technical or health experts who can review and interpret technical or health-related materials developed as part of the NPL remedial process.

#### **10. Professional and Organizational Development:**



Region 6 is currently providing training to various internal and external stakeholder groups as part of the Region's implementation of the EJ Training Collaborative. Region 6 has played an active role in developing foundational environmental justice training tailored to a wide variety of audiences. The Region will endeavor to present this training to internal audiences, State, community and industry audiences to increase the understanding and implementation of the principles of environmental justice. The training encompasses an examination of the issues and elements of environmental justice, legal authorities, case studies and EJ tools. The collaborative is comprised of representatives from community, federal and State government, and industry. As scheduling permits, EJ Fundamental Training will be completed by all Region 6 employees in accordance with the Regional EJ Training Plan. These sessions will include modules on best practices and lessons learned.

In addition, OEJ provides grant-writing training in various areas to assist prospective grant applicants in preparation of grant proposals.

#### **11. Environmental Justice Assessment:**

Region 6 developed the EPA Environmental Justice Index Methodology for site analysis. It is a modification of the Region's Human Health Risk Index (H.I.) formula. The environmental justice methodology defines demographic criteria, applies basic principles of science, and requires environmental managers to use program specific data to identify communities of most concern. In 1993, Region 6 adopted the EJ Index protocol (see Attachment A) The methodology uses Geographic Information Systems (GIS) maps, census demographic data and the Hazard Index (HI) method to mathematically rank individual sites. The method is automated in GIS and currently analyzes 50 square miles and one square mile geographic area (communities). The method has an automated mapping facility. The Environmental Justice Formula is derived from the Human Health Risk Index (H.I.)<sup>2</sup> and is consistent with the approach used in all Region 6 risk-based algorithms: Exposure multiplied by Hazard equals Risk.

$$\textit{Human Health Risk Index (HRI) = Exposure X Hazard}$$

These EJ methodology criteria (population, percent minority, and percent economically stressed households in the study area) become the "analytical definition" for environmental justice. Each of these parameters is ranked to facilitate the mathematical prioritization process. In identifying an environmental justice site, it is also appropriate to consider the health risks associated with the site. An integrated resource system, combining information from federal and State databases such as RCRA and CERCLIS, aids in the analysis of pollution potential and

hazard potential in a given area. As technologies advance the capability to evaluate cumulative impact of risks, the Region will adopt these technologies to enhance its analysis.

Region 6 is committed to use all tools at its disposal to effectively address environmental justice issues in the region including the Environmental Justice Mapper, Environmental Justice Toolkit. While the EJ Index identifies economically stressed and minority populations, the analysis can be expanded to identify education, employment, and cultural factors.

The Enforcement Division provides training, maintenance, and future development of the Geographical Information System demographic system to assist other Divisions in implementation and utilization of basic EJ demographic analyses. The National Environmental Policy Act, Federal Facilities, and Comparative Risk programs will use the Region's Geographical Information System EJ index methodology to accomplish the Agency's goal of EJ awareness and incorporation of EJ into program activities.

Compliance Assurance and Enforcement Division (6EN) uses the EJ Index methodology and Geographical Information System technology, whenever possible, as a factor in the development of enforcement actions, targeting facilities for investigations and/or single/multimedia inspections, which will ensure the consideration of EJ issues that may occur. EJ criteria are also used to set priorities. For example, the use of EJ indicators can trigger the focus of an Agency sector initiative, or a Regional priority area.

The EJ indexes are considered during the case development stages of the enforcement actions by identifying violators located in an EJ community. Where possible, cases in EJ areas will be issued and settled in less than one year. Settlement negotiations include SEPs that benefit the community, such as negotiating with the facility to pay for the mandatory three-year reinspection and management plan development for a school in its community, pay for cost to abate asbestos or lead at a school, educate the community about the hazards of lead, testing low-income and minority children's blood level. Community organizations, citizen groups and other interested parties will be notified of the outcome of EJ cases, through the mail and other communication medium.

Unless the EJ methodology proves otherwise, staff approaches all communities that experience removal or remedial actions as EJ communities. All efforts are made to ensure that community communications take into consideration the specific EJ concerns that might be evidenced by the analysis. Staff uses the methodology on a consistent basis when they review site decisions and communications delivery.

## 12. Program Evaluation:

The EJ Implementation Strategy requires regular reporting/accountability information be furnished to the Deputy Regional Administrator (DRA) by each Program Division. These reports serve as a tool to evaluate the effectiveness of the regional Environmental Justice program. The reports address applicable program goals for EJ contained in the Divisions' strategic plans. Each Division reports its EJ progress to the DRA, according to their specific program goals and activities twice a year. One of these reports, the year-end report, will coincide with the updates for the annual National Environmental Justice Advisory Council (NEJAC) meeting. Additional reporting elements may be added to address specific NEJAC issues. Each Division reports on these general elements, as applicable:

- a. Funding for EJ communities (including the following elements: grants, grant conditions, cooperative agreements, and commitments; contracts, Interagency Agreements, Discretionary Funds)
- b. Permits and permitting issues resolved in EJ communities
- c. EJ Analyses performed
- d. Number of EJ communities identified thru analysis
- e. Resulting Actions in EJ communities
- f. Public Meetings/Hearings held in EJ communities
- g. Increased Outreach Efforts in EJ communities
- h. Enforcement in EJ communities
- I. Environmental clean-ups in EJ communities
- g. Corrective actions in EJ communities
- h. Encouragement to the States to work in EJ communities

In addition, each Division specifically reports on these elements of public participation:

- a. Community inquiries from EJ communities
- b. Educational sessions in EJ communities
- c. Response to requests from EJ communities
- d. Addressing language barriers in EJ communities
- e. Public meetings/hearings in EJ communities
- f. Encouragement to the States to work in EJ communities





# Attachment A

## Environmental Justice Index

### Methodology

Computer Assisted  
Environmental Justice Index  
Methodology

Office of Planning and Analysis

U. S. EPA Region 6

July 1994

TABLE OF CONTENTS

CHAPTER IV -Environmental Justice

A. Introduction..... 1

B. Methodology and Computer System Overview..... 2

1. Calculation of the Degree of Vulnerability

a. The Minority Status Variable -DVMAV  
(DV-Minority Average)

b. The Economic Status Variable -DVECO  
(DV-Economic Status)

2. Calculation of Population Factor

3. Calculation of the Potential Environmental Justice  
Index

C. System Features..... 5

1. The User's Guide

2. Input

D. Examples of Region 6 Environmental Justice Analyses..... 6

1. Enforcement Targeting

2. Permitting for Industrial Sites

a. Environmental Impact Statement -Wallace, Louisiana

b. Underground Injection Well -Winona, Texas

c. Wastewater Treatment Plant -Marrero, Louisiana

d. Uranium Processing Facility -Gore, Oklahoma

3. Superfund

a. West Dallas, TX Superfund Site

1) Waste Disposal Site and West Dallas EJ Analysis

2) Results

b. Emergency Response -Houston Scrap, Houston, Texas

E. Discussion..... 8

References..... 11



Environmental Justice Maps..... 12-32

CHAPTER IV  
Environmental Justice

A. Introduction

Environmental Justice refers to the pledge or assurance that no population will endure a disproportionate share of the country's pollution. Evidence has been presented that minority and low income communities are exposed to more environmental pollutants than the general population.<sup>1</sup> A modification of the Region 6 Human Health Risk Index (HRI) formula<sup>2</sup> is used to define and prioritize specific sites as to their potential for environmental justice concerns. The HRI-Justice methodology defines justice criteria, applies basic principles of science, and enables environmental managers to use program specific data to identify communities of most concern.

The Human Health Risk Index (HRI) enables users to select specific HRI subfactors and perform special regulatory, health, and social-economic analyses. These special applications include environmental justice studies, enforcement targeting analyses, environmental impact studies, and pollution prevention project assessments.

The Environmental Justice chapter describes how a modification of the HRI can evaluate and rank environmental justice concerns around commercial hazardous waste sites. This HRI-justice example uses Geographic Information System (GIS) maps, census demographic data and the HRI method to mathematically rank individual sites. The example's extensive use of GIS maps is for demonstration purposes only. Justice information can be demonstrated using HRI criteria and rankings alone. The method described is automated in GIS and currently analyzes 50 square mile and one square mile geographic areas (communities). The method also has an automated mapping facility. Examples of other special applications in this document are: enforcement targeting and facility permitting.

The Environmental Justice Formula is derived from the Human Health Risk Index (HRI) 2 and is consistent with the approach used in all risk based algorithms: Exposure multiplied by Hazard equals Risk.

Human Health Risk Index (HRI) = Exposure X Hazard

The Potential Environmental Justice Index (EJ) defines "exposure" as the population exposed and assumes the total population of a study area is impacted by environmental justice factors. In the HRI, hazard has two components: Degree of Impact (DI) and Degree of Vulnerability (DV). DI is a chemical specific parameter. Inclusion of this factor requires chemical exposure and toxicity information. For the justice formula, Degree of Impact (DI) is not calculated. Potential risk from chemical exposure can be calculated separately (Chapter II, Enforcement Targeting). Degree of Vulnerability is calculated for EJ and includes two criteria: a community's percent minority representation and percent economically stressed households. These EJ methodology criteria (population, percent minority, and percent economically stressed households in the study area) become the "analytical definition" for environmental justice. Each of these parameters are ranked to facilitate the mathematical prioritization process. Sites are evaluated using an environmental justice formula and ranked on a scale of 0 to 100. Although higher scores can indicate greater potential justice concern, the population density, percent minority population, and percent of economically depressed household data are the more important analytical factors. When evaluated independently, they often provide greater insight to the potential environmental justice concerns and can be used alone to rank sites (i. e., sites ranked on percent minority or economic status, or the combination of these two factors). The methodology user should realize that even an index ranking of zero can have significant EJ concerns. For example, an unpopulated area will rank a zero, but if owned by minority and/ or low income groups, the site may have significant EJ importance.

Environmental Justice Formula:

Environmental Justice Index (EJ) = Exposure X Hazard  
(PE/ PC X POP) X (DI X DV)

where:

PE = Population Exposed

PC = Population in Community

PE/ PC = 1 (assumes total population is effected)

POP = Population Density Ranking (0 -4)

DI = Degree of Impact (= 1)

DV = Degree of Vulnerability (Minority Ranking X Economic Ranking)

Minority Representation Ranking (1 -5)

Economic Status Ranking (1 -5)

therefore:

EJ index = [Population Ranking] X [Minority Ranking X Economic Ranking]  
[ POP (0 -4) ] X [ (1 -5) X (1 -5 ) ]

Because all HRI subfactors are mathematically related, data from smaller analysis (i. e., environmental justice, enforcement targeting) are directly applicable to formal HRI risk evaluations. Therefore, all special application studies contribute to an ever larger risk analysis. Use of the HRI formula assures the investigator that risk data is evaluated by documented, consistent, peer reviewed ranking criteria.

B. Methodology and Computer System Overview The Environmental Justice Analysis System (EJ) is resident on the Region 6 EPA Geographic Information System (GIS) and uses other systems (i. e., RCRIS, CERCLIS, TRI, PCS) supported by the Region's Novel LAN to provide locational information to GIS. All Region 6 Programs can perform site specific environmental justice demographic analyses. The Programs are responsible for the locational accuracy of the data submitted to the computer system and accurate communication of environmental justice findings.

A one and fifty square mile study area is analyzed around each EJ point location. The computer system clips a circular coverage with a 4 mile radius (50 square miles) from the Census TIGER coverages 3 . Data is extracted from various Census files to address methodology criteria. The EJ index is calculated by finding the percentages for each subfactor for the 50 square mile area, ranking the percentages based on scaling criteria, and multiplying the rankings. The same process is performed for the one square mile analysis (approximate 0.56 mile radius).

The Environmental Justice Index calculated from these subfactors, or the independent subfactors comprising the Environmental Justice Index, should be used as a Demographic Correlation Variable for studies conducted by Programs. These studies serve to evaluate Agency policies or procedures regarding sociological equity. EPA activities for evaluation can include enforcement targets, permit decisions, grant awards, or risk calculations. 1.

Calculation of the Degree of Vulnerability Degree of Vulnerability (DV) for the HRI 2 is the mean of ranking values of demographic data for the minority, economic status, age, pregnancy, life-style factors, and pre-existing disease subfactors (see Chapter I).

Of the subfactors above, minority representation and economic status (household income) are used in the EJ formula. Each DV-EJ subfactor has a scaling range from 1 to 5. The HRI-Justice vulnerability scaling scores are

multiplied. Therefore, the maximum value for Degree of Vulnerability in the EJ formula is 25. The scaling criteria for the Degree of Vulnerability subfactors (percent minority and percent economically stressed) are derived from the HRI Degree of Vulnerability Ranking Methodology. Like the HRI, subfactors for the fifty and one mile study areas (EJ communities) are compared to the state in which it resides. Region 6 state EJ criteria (1990 Census) are:

<u>State</u>	<u>% Minority</u>	<u>% Economically stressed</u>
Texas	39.4 %	27.6 %
Louisiana	34.2 %	36.3 %
Arkansas	17.7 %	36.0 %
Oklahoma	19.0 %	32.0 %
New Mexico	49.0 %	31.0 %

The evaluation criteria for the Degree of Vulnerability subfactors is:

---

HRI Degree of Vulnerability Ranking Methodology  
Criteria Score

Percentage of residents in the risk group is less than or equal to the state %	1
Percentage of residents in the risk group greater than the state percentage but less than or equal to 1.33 times the state percentage	2
Percentage of residents in the risk group greater than 1.33 times the state percentage but less than or equal to 1.66 times the state percentage	3
Percentage of residents in the risk group greater than 1.66 times the state percentage but less than or equal to 1.99 times the state percentage	4
Percentage of residents in the risk group greater than or equal to 2 times	5

the state percentage

---

a. The Minority Status Variable -DVMAV (DV-Minority Average\_ The Ethnicity (DVMAV\_ subfactor is derived from a comparison of the area's percent of minority population to the calculated state percent minority population. For example, the average minority percentage in Texas is 39.4 %. The EJ methodology scaling criteria for Texas is:

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<b>MINORITY STATUS VARIABLE</b>	
Percent (% Minority Representation)	Score
≤39.4 % ( ≤ Texas state average	1
> 39.4 % and ≤ 52.4 %	2
> 52.4 % and ≤ 65.4 %	3
> 65.4 % and ≤ 78.8 %	4
> 78.8 %	5

---

Region 6 chose to include the Hispanic population in the definition of minority, even though this populous may have reported themselves as white in the 1990 Census. The minority population of a Region 6 community is defined as the Census 1990 total of the non-white population plus the white Hispanic-Origin population.

The data used to calculate the minority percentage is found in the block level file called P. L. 94-171 of the 1990 Census <sup>3</sup>. The field used is P004\_0002 which is defined as White with no Hispanic-Origin. This value is subtracted from the total population, giving the number of people who are Non-White or White with Hispanic-Origin. The percentage of people in the study area that are Non-White or White with Hispanic-Origin is compared to the State percentage of people in this same census category. Detailed documentation of the state census numbers used and methodology calculations is found in the EJ Computer System User's Guide (Potential Environmental Justice Index)<sup>4</sup>

b. The Economic Status Variable -DVECO (DV-Economic Status) The Economic Status (DVECO) subfactor is derived from a comparison of the area's percent economically stressed to the calculated state percent economically stressed population. Census household income data is block group level data. The block group scaling score is used for each census block in the HRI-Justice calculation when finding the EJ index for a block. For the Economic Status subfactor, the risk group is assumed to be households that make less than \$15,000 a year. For example, in Texas the percentage of such households is 27.6 %. The economic status scaling criteria for Texas is:

---

ECONOMIC STATUS VARIABLE

Percent (%) Households below \$15 K Score

≤ 27.6 % ( ≤ Texas state average)	1
> 27.6 % and ≤ 36.7 %	2
> 36.7 % and ≤ 45.8 %	3
> 45.8 % and ≤ 55.2 %	4
> 55.2 %	5

---

The data used to calculate the economically stressed percentage is found in STF3A of the 1990 Census 3 , specifically the files STF301 and STF314. The economic data found in the P80 category of STF314 is reported by household, therefore, to find the percentage of economically stressed it is necessary to use the number of households from P5 field (P0050001\_ of STF301 as a denominator. The fields used to total the low income group are the sum of P0800001, P0800002, P0800003, and P0800004 of STF314. Detailed documentation of the state census numbers used and methodology calculations is found in the EJ Computer System User's Guide 4 .

## 2. Calculation of Population Factor

The Population Factor (POP\_ used in the justice formula is the population density score for the study area. The population density ranking (POP\_ is determined by evaluating the total population from POP100 of PL94171, and evaluating the average one square mile population for the area. The density is ranked by the scaling criteria following. The criteria scores range from 0 to 4.

---

POPULATION FACTOR Density Ranking	
Population per Sq. Mile Scaling	Score
0	0
> 0 and $\leq$ 200	1
> 200 and $\leq$ 1,000	2
> 1,000 and $\leq$ 5,000	3
> 5,000	4

---

The population is found for the study area and ranked on a one square mile area.

3. Calculation of the Potential Environmental Justice Index The product of the subfactors, Minority Status (DVMAV), Economic Status (DVECO), and Population Factor (POP) is the Potential Environmental Justice Index (EJ). The maximum possible value of the EJ index is 100.

### C. System Features

#### 1. The User's Guide

A Region 6 EJ Computer System User's Guide 4 is available (Potential Environmental Justice Index). The guide presents the computer screens experienced by users through the menu activity as well as general GIS lessons on using the Data General interface with UNIX for support of Environmental Justice data processing.

#### Quality Assured Locational Data

THE MOST IMPORTANT STEP OF GEOGRAPHIC INFORMATION SYSTEM APPLICATIONS IS THE PROCESSES THAT ASSURE THE LOCATIONAL DATA USED IS ACCURATE.

THE ACCURACY OF THE DATA IS THE REQUESTING PROGRAM'S RESPONSIBILITY.



Before anyone evokes the Environmental Justice System, consideration for Quality Assured Locational Data must be made. The system tracks the Quality Assurance of the location, the Requestor's name and Program-Code.

## 2. Input

There are two methods of input currently available for the EJ system, individual site processing and batch processing. Both use Latitude and Longitude location for conversion to GIS-albers coordinates (X-axis, Y-axis). Programs and primary data gathering groups use Latitude and Longitude as the standard method of identifying location, therefore, this system is designed to address this data format.

The EJ system employs an interactive menu interface to evoke the proper method of input. The Individual Site Processing Option prompts the user for information that meet the output criteria where the system cannot answer the query. The Batch Processing Option prompts the user for a file name where dBase data has been stored.

The user is responsible for input for:

Name of the Requestor  
Source of Quality Assured Locational Data  
Latitude/ Longitude  
EPA Identifying number and Site Name  
Mail Code

Users collect data from the EPA Mainframe systems or through program file research and are responsible for the accuracy of the information. If the need exists to evaluate more than 1 location, a dBase file can be built by the user to transfer the batch of locations to GIS. The EJ System will automatically convert the dBase file into a format compatible with the Region 6 GIS system. The user is given the steps to complete the task through the User's Guide on How to Transfer dBase Files to GIS.

## D. Examples of Region 6 Environmental Justice Analyses

## 1. Enforcement Targeting

One of the many applications for environmental justice evaluations is enforcement targeting. This is a procedure which ranks industrial facilities as to the potential impact each site may pose to human health and the environment. Region 6 typically identifies facilities that have been non-compliant in more than one media program (Air, NPDES, RCRA).

These facilities are subjected to a computerized risk screening methodology using census information and Toxic Release Inventory (TRI) data. These facilities are also evaluated by the Environmental Justice computer methodology. Each site can be ranked by potential risk, environmental justice ranking, population around each site, economic status of surrounding communities, or by minority representation for the one and fifty square mile study areas. Facilities which score high in historical noncompliance, risk, and environmental justice are potential priority enforcement targets. A four mile radius was demographically evaluated for each industrial facility and ranked from 0 to 100.

## 2. Permitting for Industrial Sites

A major responsibility of EPA and State environmental agencies is the permitting of industry related activities which impact the environment. The Region's EJ formula is used to accurately access demographic information for one and fifty square mile areas around sites being considered for permit privileges. The following examples are for individual sites, but the EJ system is also used to evaluate permitting practices for whole regulatory programs (i. e., RCRA, NPDES, MSW) involving hundreds of sites. Table IV. 1 shows the EJ analysis findings for four permitted sites described below and Houston Scrap in Houston, Texas.

### a. Environmental Impact Statement -Wallace, Louisiana

A plastics manufacturing facility asked regulators for a permit to build a plant near Wallace, Louisiana, on the west bank of the Mississippi river (the lower half of Maps 1 -3). EPA Environmental Impact Statements do not traditionally assess environmental justice issues. The EJ formula was used to characterize the demographics of the community around the proposed site. The site of interest is approximately in the center of each map. Map 1 shows the

minority ranking of each block, Map 2 the economic status for census block group, and Map 3 demonstrates EJ index values for each census block.

The data indicates that one square mile around the site is sparsely populated (133 residents), one-hundred percent minority, and economically stressed. The plastics facility did not build in this area. The EJ analysis was used as an Regional awareness tool.

b. Underground Injection Well Permit Application -Winona, Texas Gibraltar Well # 186)

A company in the deep piney woods of East Texas applied for a permit to continue injecting hazardous waste underground. A segment of the small community town of Winona, Texas opposed the facility operation and the issuance of a permit. Maps 4-6 show the demographics surrounding the facility. There are few residents near the injection well (0.56 mile radius from site). This does not indicate a lack of potential EJ concern. Program managers are responsible for accessing demographic information and determining possible EJ concern.

c. Wastewater Treatment Plant -Marrero, Louisiana

Conditions of an NPDES permit were evaluated for a wastewater treatment plant in Southern Louisiana near New Orleans. EJ demographic information was used by EPA staff for a public meeting. The information is shown in Maps 7 -9.

d. Uranium Processing Facility -Gore, Oklahoma

Sequoyah Fuels is a uranium processing facility on the banks of the Arkansas and Illinois Rivers in Eastern Oklahoma. The company has several permits from EPA and DOE. A Native American environmental group has opposed the facility's operation and requested an EJ analysis. Notice the zero population reported for the 1 square mile study area. The EJ analysis does not evaluate worker populations. The facility borders land owned by Native Americans. Maps 10 -12.

### 3. Superfund

a. In 1991 areas of West Dallas were found to contain varying levels of lead contaminated soil. One source of the pollution had been the RSR Smelter.

Region 6 EPA and the Texas Natural Resource Conservation Commission (TNRCC) are removing contaminated soils from the Dallas community. A component of the risk management plan was an evaluation of communities adjacent to permitted hazardous waste facilities being considered to receive the West Dallas soil. The soil was not hazardous. A proposed landfill in Avalon, Texas was evaluated using the Environmental Justice methodology. 1). Waste Disposal Site and West Dallas EJ Analyses Avalon, TX is a small rural community about fifty miles south of Dallas. CSC Disposal is a hazardous waste site in the city. The Minority Status, Economic Status, and Population Factor of the Region 6 EJ methodology were calculated for the community around the landfill site. Maps 13 -15 demonstrate the 1 and 50 square mile EJ analyses for the Avalon, CSC facility. An analysis of the West Dallas site is also presented in Maps 16 - 18.

Other waste disposal facilities were considered for the disposal of West Dallas soil. Two of these sites were landfills near Conroe, Texas and Monroe, Louisiana.

## 2) Results

Demographic information produced by the EJ methodology characterized each waste site considered for landfill disposal of West Dallas soil. The environmental justice information was combined with transportation distance, transport safety, facility design, and cost considerations to decide which landfill was the best overall disposal site choice. The Avalon site was selected. The non-contaminated soil was transported and deposited at this regulated site in 1993-94.

b. Emergency Response -Houston Scrap, Harris County, Texas Houston Scrap is a battery cracker, collecting lead from used auto batteries for recycling. Lead concentrations on site in excess of thirty percent have been measured, offsite contamination is known to exist, but the full extent has not been identified. The company has been ordered to immediately remove contaminated waste piles. Emergency response has fenced the area to keep the public out. Remedial activities are anticipated once the surficial waste piles are removed. Maps 19 -21. E. Discussion 1. Environmental Justice Index scores are a general ranking tool. Population density, percent minority population, and percent of economically depressed household data are the more important analytical factors. When evaluated independently, they often provide greater insight to the potential environmental justice concerns and can be used alone to rank

sites (i. e., sites ranked on percent minority or economic status, or the combination of these two factors). The methodology user should realize that even an index ranking of zero can have significant EJ concerns. For example, an unpopulated study area will rank a zero, but the land can be owned by or adjacent to land owned by minority and/ or low income groups. The uranium processing plant bordering Native American land in Gore, Oklahoma is such a site (Maps 10 -12).

2. The Region does not believe an environmental health risk must exist before there can be justice concerns. This is evident by the absence of risk criteria from the EJ methodology. An analysis of an area's potential risk from chemical releases is calculated at a default value of 1. Region 6 has an automated risk methodology developed independent of EJ analysis. Both justice and risk evaluations are used for enforcement targeting projects.

3. Environmental justice has great potential to be misunderstood by government and the public. Application of the basic principles of science can help prevent this misunderstanding. An accurate assessment of demographic data will compliment our community outreach and environmental justice awareness efforts.

4. The EJ Index is derived from the product of three criteria factors with values ranging from 0 -4, 1 -5, and 1 -5. The index can range from 0 -100, but, mathematically, there are not 100 index values possible. This should be remembered when using the methodology for enforcement targeting and other multi-site applications. The range of possible values is smaller for facilities ranking between 50 and 100 than for those ranking from 1 to 49. Therefore, there can be a greater demographic difference between two facilities ranking 60 than for two sites ranking 20.

5. Methodology users should realize that if ranking factors for minority and economic status are both ranked "5", and the site is in a relatively low population area, the highest possible EJ Index is only 25 (on a scale from 0 to 100). Therefore, higher rankings require high population areas. The computer code describing the spacial and mathematical aspects of the methodology is documented in the Pilot Degree of Vulnerability and Potential Environmental Justice Index System Documentation.

6. Although the subfactors are similarly weighted, it is possible that population may have been an "indicator" factor. Meaning, wherever population density is high, the other subfactors tend to rank high. Urbanization may be a concern in this regard. Statistical analyses are planned to further study this possibility.

7. Environmental justice criteria rankings can be very different when the 50 square mile area is compared to the 1 square mile evaluation. Subfactor differences are caused by a change in the number of census blocks analyzed and the actual demographics for the individual blocks. When the study area boundary (line for the 0.56 mile or the 4 mile radius) crosses through a census block, the population is assumed to be equally distributed through the block's area. Therefore, if a block with 1000 residents is halved, a population of 500 is counted for that block. This process can potentially cause significant error depending on the number of blocks and the degree of population segregation within each block.

8. Although EJ studies can be statistically analyzed using standard methods, obtaining statistical significance for study areas with few census blocks is more difficult than for larger areas. Several of the one mile study areas had less than 30 census blocks. Avalon, Texas has 14 and not all of those were complete (totally within the study area).

TABLE IV. 1 Environmental Justice - Permitting Industrial Sites

Location	Population (Ranking)	Minority Percentage (Ranking)	Economic Percentage (Ranking)	EJ Ranking Index Value
Wallace, LA (50 sq. mi.)	6,436 (1)	67.5 % (4)	41.8 % (2)	8
Wallace, LA (1 sq. mi.)	133 (1)	100.0 % (5)	39.3 % (2)	10
Winona, TX (50 sq. mi)	2,060 (1)	26.0 % (1)	31.4 % (2)	2
Winona, TX (1 sq. mi.)	16 (1)	12.5 % (1)	27.1 % (1)	1
Gore, OK (50 sq. mi.)	1,973 (1)	21.7 % (2)	47.8 % (3)	6
Gore, OK (1 sq. mi.)	0 (0)	0 % (1)	0 % (1)	0
Dallas, TX (50 sq. mi.)	137,276 (3)	73.4 % (4)	38.5 % (3)	36
Dallas, TX (1 sq. mi.)	1,616 (3)	99.4 % (5)	69.8 % (5)	75
Houston, TX (50 sq. mi.)	206,442 (3)	84.8 % (5)	48.1 % (4)	60
Houston, TX (1 sq. mi.)	3,953 (3)	92.2 % (5)	54.5 % (4)	60

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