IMPLEMENTING ENVIRONMENTAL JUSTICE IN ENVIRONMENTAL IMPACT STATEMENTS

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ABSTRACT

Executive Order 12898 (59 FR 7629) directs Federal Executive agencies to consider environmental justice under the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) has provided *Environmental Justice Guidance Under the National Environmental Policy Act*. This Executive Order is intended to ensure that Federal agencies assess the potential for, and identify mitigation actions regarding, disproportionate environmental impacts on minority and low-income groups. As directed, or on their own, Federal agencies have adopted internal guidance of their own concerning how they will implement Executive Order 12898, and some have also developed explicit procedures or guidance for the steps that need to be taken during the preparation of environmental impact statements. Based on the author's experience, the paper examines how the guidance for treating environmental justice in environmental impact statements has evolved at the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission. This evolution has been both procedural and substantive. The paper examines the changing definitions, clarifications, and implications of key terms such as "minority population," "multiple and cumulative effects," "exposure pathways," "appreciably exceed," and "interrelated cultural, social, occupational, historical, or economic factors." The paper also discusses how national environmental assessment practice is evolving to deal with these issues.

INTRODUCTION

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations," 59 FR 7629 (1994), directs Federal agencies in the Executive Branch to consider environmental justice so that their programs will not have "…disproportionately high and adverse human health or environmental effects…" on minority and low-income populations (1). The Executive Branch agencies also were directed to develop plans for carrying out the order. Additional guidance was provided later by the Council on Environmental Quality (CEQ) for integrating environmental justice (EJ) into the National Environmental Policy Act (NEPA) process in a December 1997 document, *Environmental Justice Guidance under the National Environmental Policy Act* (2).

This paper examines some of the practical considerations that have been faced in two federal agencies, the U.S. Department of Energy (DOE) and the U.S. Nuclear Regulatory Commission (NRC), in implementing this guidance in preparing environmental impact statements, both during the period while the CEQ guidance was being prepared and the period since it has become available. [a] The CEQ guidance is binding on DOE because it is an Executive Branch agency. It is not binding on the NRC, which is an independent agency; however, NRC has chosen on its own to follow the Executive Order and much of the CEQ guidance.

This remainder of this paper is divided into four sections. The first discusses some key terms in the CEQ guidance and some definitional issues. Some terms have yet to be fully defined. This section also discusses some of the early attempts to incorporate EJ into impact statements at NRC and DOE, the procedures followed, and the results. The second section discusses the impact of the CEQ guidance and related Environmental Protection Agency guidance, and the impact of the Louisiana Energy Services case on EJ procedure and documentation. The third section illustrates current practice at DOE and NRC in preparing EJ documentation. The paper concludes with some general observations concerning the success of the EJ process so far.

DEVELOPMENT OF EJ PRACTICE—WHAT DO YOU DO WHILE AWAITING GUIDANCE?

When Executive Order 12898 arrived in 1994, Executive Branch agencies were directed to prepare plans to incorporate EJ into their activities. There were several key terms that were not defined in the order:

- Minority and minority population
- Low-income population
- Disproportionately high and adverse human health effects
- Disproportionately high and adverse environmental effects
- Differential patterns of consumption of natural resources
- Multiple and cumulative exposure
- Differential patterns of subsistence consumption

Several projects involving Federal actions were already under way when the Executive Order was issued. While the Executive Order mandated the creation of an interagency task force to plan for the implementation of EJ, approaches had to be constructed in the meantime to address the intent of the Executive Order.

Minority and minority population

It was not self-evident how minority populations are to be defined. It is reasonably clear from the Census and other Federal program guidance that the definition should include black, Asian and Pacific Islander, Native American, and Hispanic populations, noting that Hispanic is an ethnic Census category that includes many races. Both NRC and DOE considered these groups and also a Census category called "other" races, which contains a group of people who do not identify themselves as white, but also not in any one of the other racial categories provided by the Census. Many may be of mixed race, and could be treated as "minority" for purposes of EJ. As a practical matter, many of these people are also Hispanic. Initially, there were no standards for determining what a proportion of minority people a group of people had to include to count as a "minority population."

Low-income population

Federal programs have provided an official poverty standard over the years, but it was not clear in the beginning whether "low-income" for EJ purposes should automatically invoke this standard, and if so, what proportion of the population should fall below the poverty standard to count as a "low-income population." A concern with both low-income and minority populations is that data not be so aggregated as to conceal "pockets" of minority or low-income persons.

Disproportionately high and adverse human health (or environmental) effects

The intent here was to compare the environmental effects on the identified minority and low-income populations with those on the majority population, or some other valid standard of comparison, but no standards were actually identified.

Multiple and cumulative exposure

The concern with respect to multiple and cumulative exposure is that minority and low-income populations may be differentially exposed to a variety of environmental contaminants, and that while no one exposure by itself would be significant, the cumulative impacts of several types of such exposures over time could directly compromise the health of the residents of these communities; or it could compromise the health of resources on which they depend. One example of the latter might be a new toxic effect on Pacific salmon, the Native American rights to which are protected by treaty. While the resource could survive one or even several dams, disrupted streams, toxic spills, and episodes of over-fishing, cumulatively and collectively

these events have clearly caused decline in the runs. These cumulative effects affect Native fishermen and need to be addressed each time a Federal action affects salmon and their habitat.

Differential patterns of consumption of natural resources

It was recognized that many minority and low-income populations derive part of their sustenance from subsistence hunting, fishing, and gathering activities (sometimes for different species than consumed by the majority population) or are dependent on water supplies or other resources that are different or used at different rates than other groups. These differential patterns were to be identified where practical and appropriate. For example, the majority population in a given area may be largely served by city water whereas a nearby low-income community may depend on shallow wells and may as a consequence be more vulnerable to pesticides in groundwater. Similarly, a minority community may have a diet heavily dependent on locally-caught fish and game and therefore be more at risk from bioaccumulation of environmental contaminants from nearby facilities.

Initially, almost no guidance existed on how to identify a minority community or low-income community. In 1995, for example, NRC's Office of Nuclear Reactor Regulation was faced with preparing a supplemental environmental impact statement for the Watts Bar Nuclear Power Plant (3). The approach taken in that document was not to decide on a particular "bright line" cutoff level; rather, maps were prepared that showed the percentage of minority residents in individual Census divisions surround the plant and the percentage of individuals living in households below the official poverty line (Figure 1). This approach also was used by the DOE in the assessment of EJ for the cleanup of the K Reactor at the Hanford Site in 1995 (4) (Figure 2). There was not a single approach in DOE, however. For example, in the EIS covering transportation and storage of foreign research reactor fuel, DOE used the standard that to have the area considered a minority community, the percentage of the residents living in Census block groups within 16 km (10 mi) of the site had to be greater than the corresponding percentage of minority residents in the state as a whole (5). Mapping of minority populations was done on a graduated percentage basis, not a yes-no basis. Similarly, for low-income, the percentage of low-income households within 16 km (10 mi) was compared to the surrounding state as the criterion for a low-income community. Mapping graduated percentages of minorities and low-income populations by Census block groups is still being used at many DOE sites (6).

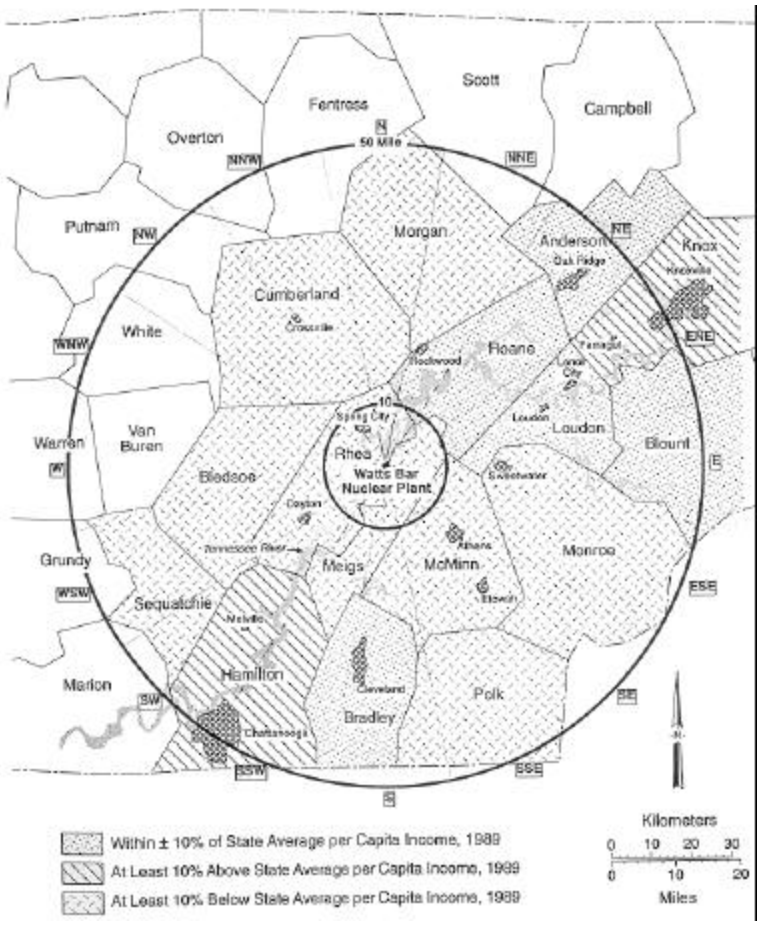

Fig. 1. Map of 80-km Area Surrounding the Watts Bar Nuclear Plant Showing County per Capita Income.

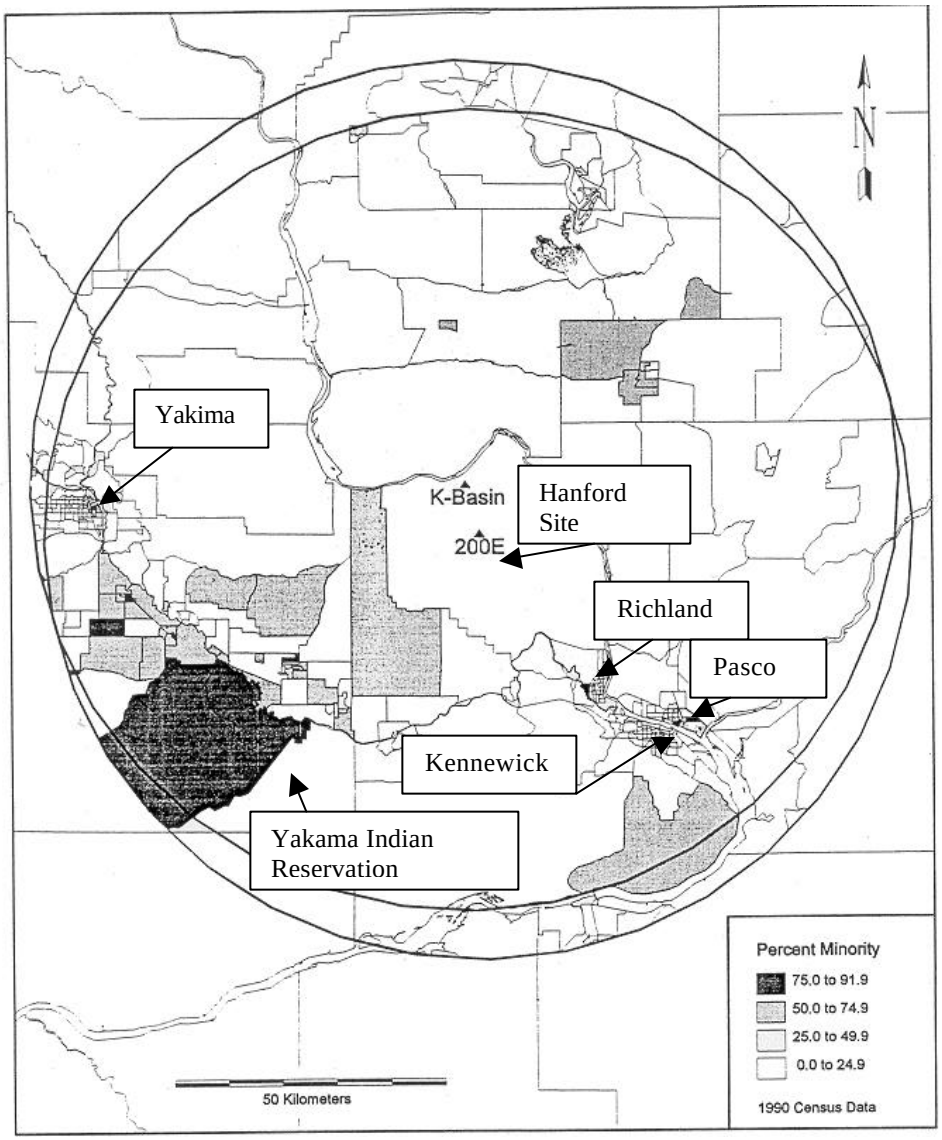

Fig. 2. Map of 80-km Areas Surrounding the K Basins and 200 E Areas at the Hanford Site, Showing Percentage Minority Populations (from K Basins EIS, April 1995, additional labels added for clarification)

As the various agencies gathered experience, some started moving toward explicit numerical standards in determining what was and was not a minority community. NRC's Office of Nuclear Reactor Regulation issued interim guidance as part of Office Letter 906 in September, 1996.[b] This letter enunciated the standard to govern EJ analysis until CEQ guidance was received. Letter 906 directed an EJ review would have to be performed if any of the minority groups (e.g., blacks or Native Americans) at an environmental impact site exceeded 50% of the total population, or if any of them was 10% more than the corresponding percentage in the larger relevant geographic area that is used for comparative analysis (generally a state, group of states, or group of counties), or if either the 50% or 10% criterion was met when all of the minority groups were added together. Similarly, a low-income population was considered to be present, if the percentage of households below the poverty level was 10% or more greater than the corresponding percentage in the larger geographic area used for comparison. Although no specific guidance showed exactly how to designate an environmental impact site, a diagram accompanying the letter made it clear that a facility such as a reactor could have multiple environmental impact sites associated with it (Figure 3). As a practical matter, analysts took as a standard for the environmental impact site the Census block group, the smallest unambiguous geographic unit reported by the 1990 U.S. Census, and considered each of the block groups within at least 50 miles of the site as potential environmental impact sites. These block

groups were mapped as minority or low-income, as appropriate, using geographic information system software. In a few cases, the area beyond 50 miles was considered if it appeared that some environmental impacts might extend farther than 50 miles.

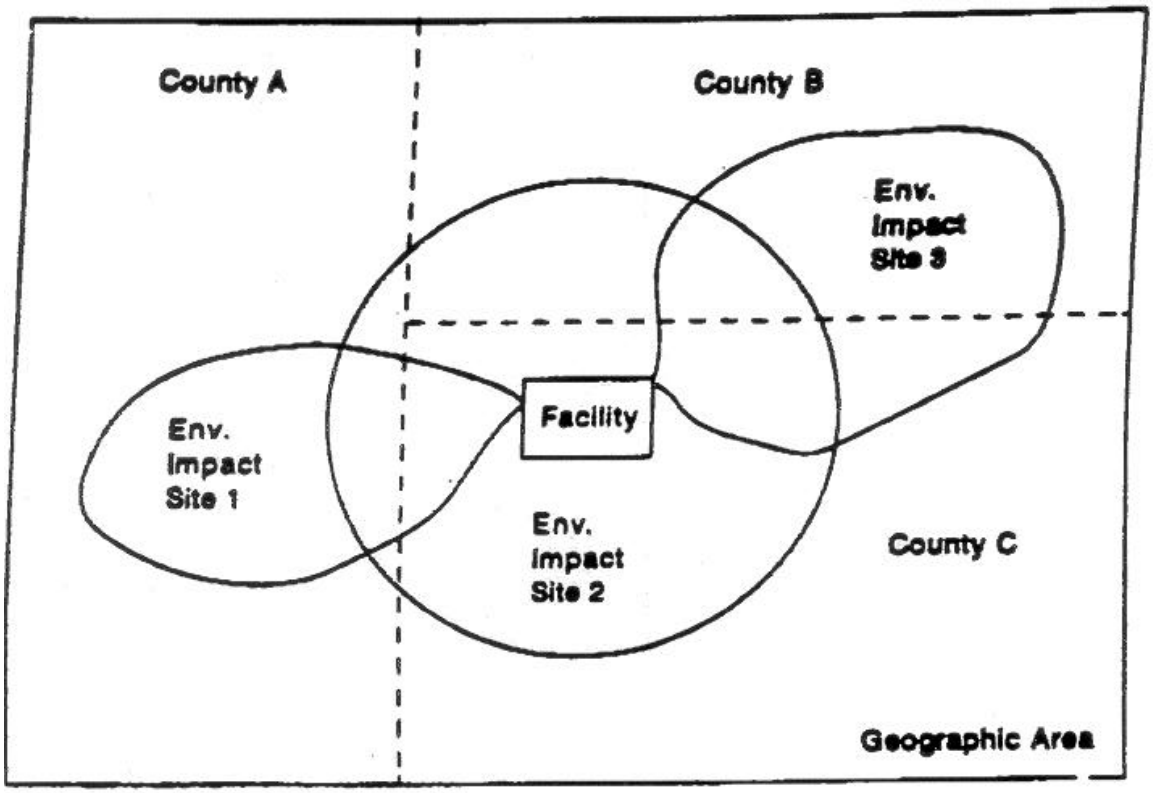

Fig. 3. NRC Conceptual Environmental Impact Sites and Geographic Area (NRR Office Letter 906, Rev.1, September 1996)

Another practical decision was generally to compare the demographic characteristics of each Census block group to those of the state of which it was a part. Thus, the standards might be slightly different for two adjacent block groups in different states near a facility if one state were heavily minority and the other state were not. While this has not yet happened in a real EIS, a different, more relevant geographic area might have to be selected for comparison purposes. In either case, in part because of the age of the 1990 Census, direct local inquiries also were made to knowledgeable local persons in an effort to identify groups of minority and low-income individuals too small or too recently moved into an area to have been displayed in the Census data.[c]

DOE EJ analyses during this period had no specific numerical standard to meet for identifying minority and low-income populations, but still managed to identify these groups. An example of an analysis conducted during this period was the Tank Waste Remediation System (TWRS) EIS prepared at the Hanford Site in 1996 (7). In that analysis, an area of interest was chosen as an 80 km (50 mi) radius from the center of the Hanford Site. Census tracts with populations that, when combined, totaled one-half of the "minority and Native American" population for the area of interest and had an average percentage of minority and Native American individuals of 33% of the tract's total population were considered "minority" (Native Americans were addressed separately and in combination with other minorities). Low-income populations were determined as Census tracts with populations that when combined totaled one-half of the low-income population for the area of interest had an average percentage of low-income individuals of 22% of the census tract's total population. Seventeen of the ninety-seven Census tracts that are contained completely or partially within the 80-km (50-mi) radius of the Hanford Site had minority or Native American

populations that exceeded 33% of their total tract populations. A separate sub-analysis was done of "other race" and Hispanic populations. Similarly, 25 of the 97 Census tracts that are contained all or in part within the 80-km (50-mi) radius of the Hanford Site had low-income populations in 1990 greater than 22% of their total populations.

Another EIS from this period was the Dual Axis Radiographic Hydrodynamic Test Facility (DARHT) EIS prepared in 1995 for the Los Alamos site (8). In that analysis, minority populations referred to all people of color, exclusive of white non-Hispanics. Low-income populations referred to household incomes below $15,000 per year. The percentages of minority populations and low-income households were mapped within a 10-, 30-, and 50-mi (16-, 48-, and 80-km) radius of the DARHT site.

DOE EISs during this period frequently contained short analyses of unusual practices or resource dependencies for minority groups, in particular, Native Americans. For example, the TWRS analysis estimated adverse impacts of increases in housing prices on affordability of housing for minority and low-income communities and the constraint that the project facilities would pose for Tribal access to the land ancestral lands and religious sites at Hanford. The TWRS EIS even included potential differential access to jobs from the TWRS project. The DARHT EIS dealt specifically with potential health impacts on the Hispanic and Pueblo Indian populations near the Los Alamos site.

Environmental impacts discussed in NRC EISs during this period always examined impacts identified elsewhere in the report, but took special care to attempt to identify unusual practices or resource dependencies on the part of minority or low-income populations that might make them exceptionally vulnerable to environmental impacts.

INFLUENCE OF THE 1997 CEQ GUIDANCE

CEQ brought definitional guidance to the EJ analysis process in December 1997 (2), while further useful clarifying commentary was supplied by EPA in April, 1998 (9). Box 1 shows the CEQ guidance for several key terms. There is still considerable latitude in actually constructing an analysis under the CEQ guidelines. For example, both minority and low-income populations may be identified as groups living in close proximity or they may be geographically dispersed but experiencing common conditions of environmental impact (e.g., migrant farm workers might constitute such a group). Another ambiguity is use of the following phrase: "… minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis," since the guidance leaves it to the agencies or analyst to say what "meaningfully greater" may mean in any particular instance. However, the 1997 guidance clearly began to lean in the direction of using precise percentage criteria for determining whether or not an impact site has a minority or low-income population. In addition, it became clear that percentages of individual minority groups were to be compared both individually and collectively to percentages of these same minority groups in the larger geographic area or region used for comparison. In addition, while "meaningfully greater" was not defined, it clearly meant that trivial differences in minority and low-income percentages were not to count.

The NRC kept its preference for precise tests and declared that under ordinary circumstances, a minority population in a Census block group had to constitute a majority or else be 20% greater than in the area used for comparison. The 20% did not mean 1.2 times the percentage in the area used for comparison; it meant a difference of 20 percentage points. This decision has had strengths and weaknesses. In cases where the minority percentages in the overall area are very low, the NRC guidance insures that trivial increases in the proportion of minority persons are not counted as "minority communities," and that differences are truly "meaningfully greater." For example, if the population in a state is 1% Asian, it is probably not meaningful to identify a Census block group with 1.2% Asians as "minority community," while it is clear that an area with 21% Asians clearly is, relatively speaking, a "minority community." A problem may occur when the minority population in the state is relatively large, but not large enough to have a majority, say 25%. In this case, a block group with a 40% minority population would not be a "minority community" within the definition of the guidance although most people would probably consider it a minority community. In this case, it may be desirable to look at a different area for comparison—say, the nation as a whole — or relax the 20 point criterion to include the block group.[d]

Box 1. Definitions in the 1997 CEQ Guidance on Environmental Justice

Low-income population: Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Minority: Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50% or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

Disproportionately high and adverse human health effects: When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether the health effects, which may be measured in risks and rates, are significant (as employed by NEPA), or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and (b) Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and (c) Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

Disproportionately high and adverse environmental effects: When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and (b) Whether environmental effects are significant (as employed by NEPA) and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and (c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

Source: Environmental Justice Guidance under the National Environmental Policy Act,
Council on Environmental Quality, Washington, D.C. December 10, 1997

The consequence of this guidance at NRC was that NRC became much more precise concerning its definition of minority and low-income populations.

- The Commission provided specific information requirements in Nuclear Material Safety and Safeguards (NMSS) Policy and Procedures Letter 1-50.[e] As a general matter (and where appropriate), staff may consider differences other than 20 percentage points to be significant. The NMSS Policy and Procedures Letter 1-50 states that when determining the area for impact assessment for a facility located outside the city limits or in a rural area, ordinarily a 6.4-km (4-mile) radius [or 130 km2 (50 miles^2)] should be used. Flexibility is allowed in the selection of the geographic area to be considered.

- Specific guidance is provided in Attachment 4 to NRR (Nuclear Reactor Regulation) Office Letter No. 906, Revision 2: Procedural Guidance for Preparing Environmental Assessments and Considering

> Environmental Issues.[f] A minority population is defined to exist if the percentage of minorities individually or in combination within the census blocks near the site exceeds the percentage of minorities in the general area for comparison by 20 percentage points, or if the corresponding percentage of minorities within the census block is at least 50%.

- DOE remained more subjective, adopting the "meaningfully greater" language directly in their guidance, but not specifying percentages (10).

DOE and NRC also have become more sensitive to assuring that connected actions are also evaluated for possible EJ impacts. In the past, these agencies focused environmental analysis on the facilities they were licensing and to a lesser extent on connected actions. An example of a connected action is the transportation of nuclear material to a nuclear facility or site. One way these agencies are considering EJ impacts of connected actions is to identify minority and low-income populations from demographic data along candidate rail and road routes into proposed sites and then to analyze potential environmental impacts in the identified locations. Another additional EJ analysis considers resources along these same routes that are of specific economic, subsistence, religious, or cultural importance to minority or low-income populations.

INFLUENCE OF THE LOUISIANA ENERGY SERVICES CASE

Two serious EJ issues arose before the Nuclear Regulatory Commission in the case of Louisiana Energy Services (LES) planned uranium enrichment facility, proposed for Claiborne Parish, Louisiana (11). The full Commission ruled in this case in 1998, in part sustaining, and in part reversing, the stance of the Atomic Safety and Licensing Board. The first EJ issue was that LES's siting process itself led to siting the facility in a minority, low-income community. The point made by opponents of the facility, and accepted initially by the Atomic Safety and Licensing Board, was that NRC, as a Federal agency, was bound as part of its environmental review to conduct a rigorous re-analysis of the siting process to make sure that it was unbiased and did not involve discrimination against minorities and low-income individuals. The second issue was that certain socioeconomic impacts on low-income and minority residents had been incorrectly analyzed based on the effects on the broader community, and that certain of these effects had been missed altogether.

Discrimination in Siting

The principles underlying discrimination in the context of a private entity's siting process were addressed head-on by the Nuclear Regulatory Commission in reversing a decision by the Atomic Safety and Licensing Board in the case of Louisiana Energy Services' proposed Claiborne Enrichment Center (CEC) (Claiborne Parish, Louisiana). The Commission allowed for considerable breadth for a private siting process, where the responsibility of the government in the EJ arena is to assure that the process appears to be objective and uses criteria relevant to the plant. According to the Commission,

> Under NEPA, agencies are required to consider not only strictly environmental impacts, but also social and economic impacts ancillary to them. But nothing in NEPA or in the cases interpreting it indicates that the statute is a tool for addressing problems of racial discrimination. Our view is fortified by the position taken by the agency with the greatest expertise in interpreting NEPA, the Council on Environmental Quality (CEQ). In recently-issued draft "Guidance for Considering Environmental Justice under NEPA," CEQ calls for a close NEPA examination of a proposed project's impacts on minority and disadvantaged communities, but neither states nor implies that if adverse impacts are found, an investigation into possible racial bias is the appropriate next step...
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> … The Board apparently felt bound by President Clinton's executive order, and by a former NRC Chairman's commitment to abide by that order, to inquire on its own into racial discrimination, so as to "give meaning" to the executive order. See 45 NRC at 374-76. But the Board's effort to enforce what it saw as a "non-discrimination directive" in the executive order (e.g, id. at 396) was misplaced. The executive order, by its own terms, established no new rights or remedies. See E.O.

> 12898, § 6-609. Its purpose was merely to "underscore certain provision[s] of existing law that can help ensure that all communities and persons across this Nation live in a safe and healthful environment" (emphasis added). See Memorandum for the Heads of All Departments and Agencies, 30 Weekly Comp. Pres. Doc. 279 (Feb. 14, 1994).
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> The only "existing law" conceivably pertinent here is NEPA, a statute that centers on environmental impacts. The Board's proposed racial discrimination inquiry goes well beyond what NEPA has traditionally been interpreted to require. Despite nearly thirty years of extensive NEPA litigation on countless putative impacts and effects of federal actions we are unaware of a single judicial or agency decision that has invoked NEPA to consider a claim of racial discrimination. Moreover, the Board's approach is incompatible with the directives in the CEQ's recently-issued draft guidance for implementing the President's environmental justice executive order. The draft guidance focuses exclusively on identifying and adequately assessing the impacts of the proposed actions on minority populations, low-income populations, and Indian Tribes. It makes no mention of a NEPA-based inquiry into racial discrimination. An agency's environmental impact statement 'must be evaluated for what it is, not for why the drafter may have made it so.' City of Grapevine v. DOT, 17 F.3d 1502, 1507 (D.C. Cir. 1994), cert. denied, 513 U.S. 1043 (1994) …
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> … The Board's contemplated free-ranging inquiry into the site selection process would go well beyond what the CEQ has stated is required of an agency considering a license application. The site screening process is used by a license applicant to identify sites that may meet the stated goals of the proposed action. It is not uncommon for only one of many possible sites to be deemed reasonable. See, e.g., Tongass Conservation Soc. v. Cheney, 924 F.2d at 1141-42. CEQ's implementing guidance provides that an EIS must "[r]igorously explore ... all reasonable alternatives." 40 C.F.R. §1502.14(a) (emphasis added). For those alternatives which have been eliminated from detailed study, the EIS is required merely to "briefly discuss" why they were ruled out. Id. Where (as here) "a federal agency is not the sponsor of a project, the federal government's consideration of alternatives may accord substantial weight to the preferences of the applicant and/or sponsor in the siting and design of the project." City of Grapevine v. DOT, 17 F.3d at 1506 (internal quotation marks omitted) …
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> … The Board appeared most concerned with the possibility of racially-motivated decisions, an area where the Supreme Court frequently has spoken. Intentional racial discrimination requires a showing that the decision maker took action at least in part "because of," not merely "in spite of," its adverse effects on an identifiable group. The Supreme Court also has considered a different racial discrimination question: whether seemingly neutral selection criteria may have discriminatory effects. See, e.g., Griggs v. Duke Power Co., 401 U.S. 424 (1971). Again, however, the Court has carefully set out the means for evaluating such claims (concentrating largely on the necessity for the particular selection criteria). See id. Here, whether viewed from the perspective of discriminatory motives or from the perspective of discriminatory effects, neither the Board nor CANT made any pretense of meeting the Supreme Court standards …

The Commission also explicitly rejected the Board's contentions that the NRC would avoid the constitutional ramifications of the agency becoming a participant in any discriminatory conduct through its grant of a license and that a further investigation into racial discrimination is to ensure a full review of the accuracy of the NRC staff's own FEIS, which found "no specific evidence that racial considerations were a factor" in the CEC siting process. As a consequence, it appears that as long as the process used in site selection is unbiased and conducted according to criteria that are relevant to the functioning of the facility, the NEPA analyst may concentrate the EJ analysis on what the impacts of the facility actually would be, rather than second-guess the process that selected the site.

Impacts to Consider – Disparate Socioeconomic Impacts

In the LES case, The Atomic Safety and Licensing Board determined that the EIS did not adequately consider two socioeconomic impacts of great importance to two local low-income minority communities: relocation of a parish road that was used extensively for pedestrian traffic between the two communities, and loss of property values in the two communities (as opposed to Claiborne Parish as a whole). In considering the interference with pedestrian traffic between Center Springs and Forest Grove, the Board accepted interviews conducted with community residents, many of whom were elderly, that affirmed the road was used extensively as a pedestrian communications link between the two communities. Because many of the community members were too poor to own wheeled vehicles, were children, or were physically infirm, the lengthening of a country road by 0.38 miles was considered to have an unacceptable impact. Among the activities disrupted would be impacts on "families who use the road" and listed numerous joint community activities including "sports related activities that involve children living in both communities, and church services that are divided between the two communities." The EIS in this case had focused on wheeled traffic, rather than foot traffic The Commission affirmed the Board's position. It is probable that the analysts missed this impact because they failed to contact people in the Center Springs and Forest Grove communities, or at least persons knowledgeable about them.

The case of property values is in some ways a classic EJ problem—frequently, some residents of a locality receive the benefits of a facility, while others bear the costs. LES expert testimony noted that the value of property adjacent to certain nuclear power plants had increased in value, and had increased after siting of the facility. Though not necessarily an incorrect conclusion in many cases, the sites of the two nuclear power plants that LES offered as examples were high-income resort communities with good municipal services, and thus not comparable to Forest Grove and Center Springs, which were low-income, minority, and poorly-served communities. The Commission's review of the amenities in the region suggested that plant workers would be likely to migrate to one of the large parishes and commute to Claiborne Parish. Thus, the two communities would suffer from having a large industrial facility, from which they would derive very few benefits, but which would make them even less desirable, thereby further depressing property values.

The property value issue can be quite unique to each community and bears special watching. One significant issue is whether the local government can add the facility to its tax base, and whether those taxes are (or could be) shared with the low-income and minority communities in the jurisdiction. Many formerly low-income rural communities have enjoyed greatly expanded public services as a result of having nuclear facilities in their midst. However, this is not a forgone conclusion.

In the case of Indian reservations, the effect of a facility on property values is more difficult to discern. In at least some cases, non-Indians are not allowed to live on the reservation. If this is the case, then the impact on reservation property values would not depend on the general public's demands for amenities on the reservation purchased with, say, property lease dollars from the facility. Nor would the values depend on the perceived negative effects of large industrial facilities on the desirability to the general public of reservation property, since non-Indians would not be part of the reservation housing market. In these circumstances, the only thing that counts for property value is the values (positive or negative) of proximity to the facility held by the Native Americans themselves, and then only for the structure. It is not clear if the presence of the facility would deter tribal members from moving back to the reservation, and thereby potentially depress housing prices. Since some of these facilities have preferential hiring practices to employ tribal members or reservation residents, it is as likely that members would move back to be near employment opportunities, as is the case with, for example, nuclear power plant workers. These workers are more concerned with ease of commuting to work rather than with potential environmental impacts, which they believe to be under their control. In addition, the values of existing houses may not include the value of underlying land, which remains in trust to the tribe. On reservations, housing prices sometimes also reflect the strong presence of Federal housing programs. As a result it is not always clear whether there is an active housing market on the reservation that operates according to normal criteria.

Impacts on reservation housing prices thus depend partly on whether a facility would attract tribe members to the reservation and partly on the financing mechanisms used. If some tribal members moved back to the

reservation to take jobs at a facility, there might be some increase in demand for housing on the reservation, but whether or not returning members simply build new housing with aid of Federal programs, with no effect on the nominal value of existing homes, is not known.

CONCLUSIONS

Analysis of EJ is rapidly becoming a routine part of the characterization of environmental impacts. As currently interpreted, Executive Order 12988 requires that low-income and minority communities be identified in considerable geographic detail where possible and relevant. While Bureau of the Census GIS mapping is relevant and helpful in doing this, the agency and the analyst should ordinarily take extra trouble for additional community outreach to insure that no relevant group is overlooked. This can take the form of extra inquiries to social service agencies, community leaders, and postings of written material (in English or other languages as needed) in locations where minority and low-income people congregate such as churches and community centers. If well planned, this outreach can be part of the normal EIS scoping process. Part of the problem with overlooking Forest Grove and Center Springs in the LES case was failure to identify these two towns as separate communities that were very different from the local parish and surrounding parishes.

Once the analyst identifies these groups, it is important to make inquiries about anything in the practices, customs, resource dependencies, health and socioeconomic conditions or other pre-existing impacts that may make any or all of the low-income and minority groups experience disproportionately high and adverse human health or environmental effects (including socioeconomic effects). The best source for this information is often informed members of the community itself. The impacts may occur because the location of these communities and pre-existing conditions simply make them exceptionally vulnerable to impacts along exposure pathways that they share with others (e.g., they are downwind or downstream and very close to a pollutant-emitting facility). Thus, the environmental impacts discussed elsewhere in the EIS make an excellent check list for assessing many of the potential EJ impacts. However, a low-income or minority community may experience impacts because of an environmental pathway unique to them. These are often hard to discern, and are another reason to contact the community itself.

In summary, the Executive Order on EJ practice does not create whole new categories of impacts that need to be considered; nor does it create any right, benefit or trust responsibility, substantive or procedural, that can be enforced by law or equity. It is designed to improve internal management of agencies to insure that low-income and minority populations do not experience disproportionately high and adverse human health or environmental effects of Federal actions. Disclosing these effects and suggesting mitigation strategies in Environmental Impact Statements and Environmental Assessments is part of this procedure. It need not be burdensome, but it does need to be taken seriously and done well.

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FOOTNOTES

[a] This paper is based on work conducted for the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission at Pacific Northwest National Laboratory, operated for the Department of Energy by Battelle Memorial Institute. The views expressed are those of the author only and do not necessarily represent those of the U.S. Department of Energy, U.S. Nuclear Regulatory Commission, or Battelle Memorial Institute.

[b] U.S Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation. "Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues." NRR Office Letter 906, Revision 1. U.S. Nuclear Regulatory Commission, Washington, D.C. September, 1996

[c] As an example, a small mixed-race minority community was identified by the direct-inquiry method at some distance from the Calvert Cliffs Nuclear Power plant. In another example, a recently developed Hispanic community was identified near Arkansas No.1 Nuclear Power Plant.

[d] We tried testing in the 20 percentage point vs. 20 percent criterion. At the independent spent fuel storage site in Utah, using the 20 percentage point criterion cut the number of "minority" block groups within 80 km for 182 to 6. Virtually all of the excluded block groups had trivial numbers of minorities. In Seattle, in a state with a larger minority population, use of the 20 percentage point criterion cut from 184 to 132 the number of "minority" block groups in a 4-mile radius from the Port of Seattle.

[e] U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards (NMSS) Policy and Procedures Letter 1-50, Revision 2, "Environmental Justice in NEPA Documents," September 1999.

[f] Attachment 4 to NRR Office Letter No. 906, Revision 2: "Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues," September 21, 1999.