Priority Soils Health Risk Assessments Violate Environmental Justice

Submitted by:
Dr. John W. Ray
915 West Galena St.
Butte, Montana 59701

Environmental justice's goal is that low-income citizens should be equally protected from environmental pollution. Low-income citizens should not have to bear a disparate toxic burden. Environmental justice's goal is not that all should be equally polluted. Environmental law should equally **protect** all. Environmental justice becomes an issue when low-income and minority citizens are disparately impacted by the enforcement of environmental laws, rules and regulations and when low-income citizens and minorities experience a disproportionate distribution of environmental hazards and risks of exposure and illness. Environmental justice is intrinsically related to the equal protection of the law.

Summary of the EPA Policy Mandate on Environmental Justice

On February 11, 1994, through Executive Order 12898, President Clinton declared that: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States." According to the EPA, the President's concern was that: "minority and low-income populations bear a disproportionate amount of adverse health and environmental effects." Today, the EPA further defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, ***implementation, and enforcement*** of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal and commercial operations ***or the execution of federal, state, local, and tribal programs and policies***." (Emphasis supplied.) EPA administrator Whitman in August 2001 stated that environmental justice would be an integral part of all EPA programs, policies, and activities. According to Whitman, the goal of the EPA's Environmental Justice program is that no segment of the population, including low-income citizens, suffers disproportionately from the EPA's policies, programs and activities. Furthermore, EPA has a mandate to provide for the equitable distribution of the burden of cleaning up sites. (The Office of Solid Waste and Emergency Response [OSWER] in their *Integration of Environmental Justice into OSWER Policy, Guidance, and Regulatory Development* mandates that "Environmental Justice issues should be considered at all stages of policy guidance and regulation development, beginning with preliminary efforts" and that environmental justice should be integrated into all agency actions. (OSWER Directive 9200.3-18FS, EPA540/F-95/023)

This above OSWER Directive also mandates that the economic/regulatory impacts of EPA decisions be considered in terms of environmental justice issues. Part of the EPA's environmental justice strategy is to promote a "sustainable economy" in areas affected by EPA rules, policies and programs. For example, OSWER Directive No. 9200.3-17 entitled *Integration of Environmental Justice into OSWER Policy, Guidance, and Regulatory Development* states: "Where environmental justice concerns or the potential for concerns are identified, staff should conduct an appropriate analysis of the issues(s). To the extent practicable, staff should evaluate the ecological, human health (taking into account subsistence patterns and sensitive populations) and socio-economic impacts of the proposed decision document on minority and low-income communities. Examples include how a policy on future land use would impact minority or low-income communities versus non-minority, affluent communities. The analysis should be documented and retained for public availability." (**This has not been done by the Montana Office of EPA for Priority Soils**.) The point is that the Montana Office of EPA has a mandate to consider how its enforcement actions will disproportionately and adversely economically affect low-income areas and has a mandate to mitigate disproportionate adverse economic impacts on low-income citizens. (See: *Incorporating Environmental Justice Principles into the CERCLA Process*, May 1998.) Low-income citizens should not bear a disproportionate or undue regulatory burden when it comes to the development of cleanup activities. (EPA, Region 8, *Environmental Justice Action Plan*, April 2003)

The **Region 8 of EPA** also equates environmental justice with the legal concept of equal protection under the law. In April of 2003, Region 8 issued its *Environmental Justice Action Plan* which mandates that the agency will work with stakeholders to "correct and prevent inequitable environmental and public health impacts to any groups." In short, environmental justice mandates a particular concern with populations, such as low-income populations, that bear a disproportionate burden of environmental degradation and environmental regulations. "Fair treatment means that no group of people, including a racial, ethnic, or social economic group should bear a disproportionate share of the negative . . .consequences resulting from . . .the execution of federal, state, local and tribal programs and policies." (Headquarters Press Release, EPA, *Administrator Whitman Reaffirms Commitment to Environmental Justice*, August 21, 2003)

Complaint Contention:

The Health Risk Assessments actually conducted for the Butte Priority Soils Superfund site violate the EPA mandate to promote environmental justice. These distorted Health Risk Assessments, conducted at the Butte Priority Soils Superfund Site, preclude the possibility that low-income citizens at the Butte Priority Soils Site will receive equal protection from the harms of pollution as a result of the Superfund cleanup of that Site. The Health Risk Assessments conducted at the Butte Priority Soils Site will lead to a remedy that will not rectify the disparate toxics burden that the poor living in the Priority Soils area endure. In fact, the Health Risk Assessments conducted for the Butte Priority Soils Superfund site actually

increase the disparate toxic burden of low-income citizens who live within the Priority Soils OU.

Summary of Complaint Argument:

1. The EPA has a policy mandate to promote environmental justice in **all** of its activities. (Documented above.)
2. There are a disproportionate number of low-income citizens living within the Butte Priority Soils Site. The Butte Priority Soils Superfund site and its residents of low-income are clearly within the purview and scope of the EPA's environmental justice mandate.
3. These low-income citizens within the Priority Soils area are disproportionately exposed to more hazardous waste materials that are the result of past mining activities.
4. The health risks for low-income residents of the Butte Priority Soils site were assessed using a standard EPA health risk assessment process.
5. The resultant Health Risk Assessments evaluation of the degree and severity of health risks for low-income residents of the Butte Priority Soils site was the basis for EPA's determination of the acceptable level of risk for low-income citizens and the fundamental grounding and justification for the EPA's Proposed Plan and Preferred Alternative for Priority Soils.
6. Health Risk Assessment is inherently biased against the poor.
7. The Health Risk Assessment process for and as **actually applied** at the Butte Priority Soils OU failed to account for the disproportionate health risks borne by the low-income citizens who live within the Priority Soils site.
8. The results of and use of the Health Risk Assessments conducted for the Priority Soils Operable Unit, as the fundamental grounding and justification for the EPA's Proposed Plan and Preferred Alternative for Priority Soils, will actually **increase and exacerbate** the disparate toxic burden of low-income citizens who live within the Priority Soils OU.
9. Therefore, given that the Proposed Plan and the Preferred Alternative for Butte Priority Soils are based on and justified by a Butte Priority Soils Risk Assessment process that **actually and really** discriminated against low-income residents living in the Priority Soils OU, the Proposed Plan and Preferred Alternative for Priority Soils OU are based on a process that violated environmental justice and the EPA mandate to promote and foster environmental justice.
10. Therefore, the outcome of that process, i.e. the Priority Soils Proposed Plan and Preferred Remedy violate the EPA mandate to promote environmental justice. Not only do the Proposed Plan and Preferred Remedy not promote environmental justice, they would increase the discriminatory toxic burden of low-income citizens living within the Priority Soils site.
11. Therefore, because of 9 and 10 above, the Proposed Plan and Preferred Remedy for Priority Soils should be declared null and void.

Substantiation of My Complaint:

I. There are a Disproportionate Number of Low-income Citizens Living within the Butte Priority Soils Site.

According to the 2000 Census, 10.7% of Butte families live in poverty, compared to 10.5% across the state. About 15% of the Butte population lives below the poverty line. Also, according to the 2000 Census, close to 25% of Butte families with children under the age of five years have incomes below the official poverty line. Fifty-eight percent of the homes without fathers have incomes below the official poverty line. According to the Montana Department of Public Health and Human Services, in 2002, about 2.4% of Butte's citizens were receiving Temporary Assistance for Needy Families compared to the state average of 1.89%. Over 10% of the Butte population was receiving food stamps compared to 7.56% statewide.

II. These Low-income Citizens are Disproportionately Exposed to more Hazardous Waste Materials that are the Result of Past Mining Activities.

Studies also indicated that the vast majority of the poor live in the area encompassed by Butte Priority Soils. For example, of the 1200 houses in Butte that have had a high risk of lead, the vast majority are in the Butte Priority Soils site. Compared to Butte as a whole, the low-income citizens living in the area encompassed by the Butte Priority Soils Operable Unit bear a disproportionate burden of exposure to toxics compared to the rest of the community. Comparing income levels to quantity of toxics present clearly demonstrates that low-income citizens in Butte bear a disproportionate toxics burden. The poor in Butte have a greater risk of cancer from exposure to heavy metals than do the non-poor. The poor in Butte are more threatened by the release of toxic, heavy metals associated with mining than the non-poor. "Exposure to hazardous wastes is highly correlated to . . .economic criteria." (Brian D. Israel, "An Environmental Justice Critique of Risk," *New York University Environmental Law Journal*.) [See: Environmental Defense Fund, *Summary Report: Silver Bow County*, 11/24/03] {Note: The EPA's *Revised Community Involvement Plan for Butte Priority Soils Operable Unit,* November 2003 notes the extent of poverty in Butte but makes no attempt to assure that low-income Butte citizens are represented in a meaningful way or have meaningful opportunities to participate in the decision making processes surrounding Priority Soils. The plan makes no accommodation for eliciting the views of low-income citizens for the Priority Soils area. This is directly contrary to stated EPA community involvement and environmental justice policy.} In general, evidence indicates that low-income citizens "experience relatively lower health status with respect to those health effects that are thought to be causally related to environmental pollutants." (Brian D. Israel, "An Environmental Justice Critique of Risk," *New York University Environmental Law Journal*.) This conclusion of Israel is evidenced in the Butte Priority Soils area where survey data indicates that approximately 70% of low-income residents report health problems that have a causal link to the toxics found at the Priority Soils site. (*Community Needs Assessment 2004 Butte, Montana: Summary Report on the Community Needs Assessment Survey and Focus Groups, Summer 2004* by the Imagine Butte Collaborative.)

III. The Health Risks for Low-income Residents of the Butte Priority Soils Site were Assessed using a Standard EPA Health Risk Assessment Process.

Page 5 and pages 20-26 of the *Proposed Plan for Butte Priority Soils OU of the Silver Bow Creek/Butte Area Superfund Site* articulate and substantiate the above claim that the health risks for low-income residents of the Butte Priority Soils site were assessed using a standard EPA health risk assessment process.

IV. The Resultant Health Risk Assessments Evaluation of the Degree and Severity of Health Risks for Low-income Residents of the Butte Priority Soils Site was the Basis for EPA's Determination of the Acceptable Level of Health Risk for Low-income Citizens and the Fundamental Grounding and Justification for the EPA's Proposed Plan and Preferred Remedy for the Priority Soils OU.

On page 20 of the *Proposed Plan for Priority Soils* we find: "Site risk assessments quantified current and potential human health and environmental risks from chemical contaminants. . . . The results of these assessments provide risk managers and the public with information about health risks. They help determine the need for cleanup, and provide a basis for determining the acceptable levels of contaminants that can remain onsite."

V. The Butte Priority Soils Health Risk Assessments were Inherently and Structurally Biased against the Poor.

"To the degree that risk assessment is a requisite element for regulatory action, a risk assessment methodology that obscures risks on the basis of class results in less than adequate environmental and health protection for members of that group." (Brian D. Israel, "An Environmental Justice Critique of Risk," *New York University Environmental Law Journal.*) "The argument that distorted risk assessments preclude the possibility of equal protection from pollution rests on the claim that government regulation must result in similar health status across groups, to the extent that health status is affected by substances that are regulated. This is different than the claim that government efforts must be equal across groups, or that government efforts must result in an equal decrease in pollution across groups. The same government effort may be adequate for one group and inadequate for another." *(Ibid.* p. 2. See also: Vicki Been, "What's Fairness Got To Do With It? Environmental Justice and the Siting of Locally Undesirable Land Uses," 78 *Cornell Law Review*, 1001)

Numerous scientists and legal scholars have argued that, as practiced by the EPA, Health Risk Assessment "is itself causally related to disproportionately inadequate environmental protection." (Israel, *op.cit.*, p. 9) See also: "Symposium on Health Research and Needs to Ensure Environmental Justice: Executive Summary & Proceedings and Recommendations"—*National Institute of Environmental Health Sciences*; Robert Bullard and Beverly Wright, Environmental Justice for All: Community

Perspectives on Health and Research Needs, *9 Toxicology and Indus. Health*, 821, 836; Desohn Ferris, "Testimony Before the Subcommittee on Civil and Constitutional Rights of the House Committee on the Judiciary," and Mary H. O'Brien, "Poisoning the Poisoned: Address Before the *National Institute of Environmental Health Sciences and the U.S. EPA.*" All are on file with the *New York University Environmental Law Journal.*)

In short, the Health Risk Assessments actually conducted at Butte Priority Soils inherently and structurally discriminated against low income citizens: (1) The Butte Priority Soils Health Risk assessments depended on methodologies that intrinsically and inherently precluded equal protection for the poor from pollution [This is true because the same pollution exposure standard may protect the non-poor and not protect the poor. See: Breen, *op.cit.*] and (2) The EPA prides itself on contending the Health Risk Assessment is the least susceptible to income based criteria. (See: U.S. EPA, *Environmental Equity: Reducing Risk for All Communities*, Section 5.0)

Another reason that the Health Risk Assessments conducted for Butte Priority Soils inherently and intrinsically discriminate against the poor is that the **generalizations** used as part of the Risk Assessments **discriminated against the poor**. ***The EPA itself has admitted this***: "Demographic categories may be useful markers for identifying population subgroups that have some likelihood of experiencing exposures significantly different from the average exposure and, thereby, possibly different health risks for the average population. (EPA, *Environmental Equity: Reducing Risk for All Communities*, Section 5.0)

The Health Risk Assessments conducted the Butte Priority Soils failed to identify ***any population subgroups that have some likelihood of experiencing exposure significantly different from the average exposure.*** "Most risk assessments ignore the fact that exposure to toxic chemicals is unequal and rely instead on estimates of 'average' exposure levels." Ann Misch, "Assessing Environmental Health Risks," in *State of the World.*)

Also, the Health Risk Assessments conducted at Butte Priority Soils failed to consider multiple and indirect toxic exposure pathways and failed to consider indirect sources of potential toxic exposure. (According to the Science Policy Council, the EPA routinely fails to consider multi-pathways and multi-sources in their risk assessments.) Such failure places a discriminatory burden on the poor living disproportionately in the Priority Soils Site who, to a greater extent than the non-poor, are subject to multiple and indirect toxic exposure pathways and indirect sources of potential toxic exposure.

VI. The Health Risk Assessment Process used specifically for Butte Priority Soils Failed to Account for the Disproportionate Health Risks Borne by the Low-income Citizens who Live within the Priority Soils Site.

"There are a number of reasons why risk assessment may methodologically fail to detect health effects in poor communities: (A) failures of risk assessment that disproportionately affect poor and minority communities because these communities are more likely to be

exposed to risk; and (B) failures of risk assessment that disproportionately affect poor and minority communities because these communities are more likely to be susceptible to risk." (Israel, *op.cit*. See also: Laura Montgomery and Olivia Carter-Pokras, *Health Status by Social Class and/or Minority Status: Implications for Environmental Equity Research*, 9 *Toxicology & Indus. Health* 729) The point is that inherent and intrinsic informational biases in the Health Risk Assessments actually done for Butte Priority Soils failed to consider the disproportionate and discriminatory effects the heavy metal contamination has on Butte poor. Such biases mean that the Butte poor will receive less than adequate protection from the Preferred Alternative for Priority Soils. Numerous studies show that the poor have poorer health with regard to the negative health effects caused by the toxics found at Butte Priority Soils. (Montgomery and Carter-Pokras, *op.cit.*) Sexton, *et.al.* in "Environmental Justice': The Central Role of Research in Establishing a Credible Scientific Foundation for Informed Decision Making," 9 *Toxicology and Indus. Health* 685, 713 states: "For disparities in environmental health risks to occur by socioeconomic status of ethnicity/race, these demographic variables must be associated with systemic differences in (1) exposure to environmental agents, (2) susceptibility to the effects of environmental agents, or (3) exposures and susceptibilities.")

Let us consider the above in greater detail in terms, specifically, of the Priority Soils site.

The Risk Assessments conducted at Butte Priority Soils did not consider: (1) Dangers associated with multiple exposures, (2) Dangers associated with mixtures of the toxics, (3) Dangers associated with above-average exposures and (4) Dangers associated with long-term, low-dose exposures. Israel notes that these types of failures, which are found in the Health Risk Assessments conducted at Butte Priority Soils, particularly hurt the poor because of the failure "to adequately incorporate exposure realities" in low income communities. (*op.cit.*)

Health Risk Assessment examines the likelihood of whether or not a person exposed to a particular toxic substance will incur a particular illness related to the toxic. Health risk assessment does not consider multiple exposures. (See: William H. Hallenbeck and Kathleen M. Cuningham, *Quantitative Risk Assessment for Environmental and Occupational Health.*) Therefore, although the EPA claims that the Health Risk Assessments for the Butte Hill were conservative in their assumptions, the assumptions were not as conservative as alleged because of the failure to consider multiple exposures. Such a failure is discriminatory to the poor on the Butte Hill in that: "While this distortion is important to the public in general, it is critical to observe that such a bias may have a disproportionate effect in poor communities and communities of color where exposure to multiple substances tends to be higher." (Israel, *op. cit*, p.12) "Any meaningful analysis intended to protect underserved communities will recognize that multiple-cumulative-combination exposures are occurring." (Ferris, *op.cit.*)

Also, because the Health Risk Assessments for Butte Priority Soils failed to consider or evaluate the **synergistic effects** of the toxics present, **the poor were treated**

discriminatorily. The synergistic effect of multiple toxic compounds can cause an ***additive response***, an ***antagonistic response*** and/or ***a strait synergistic response***. Synergistic response is particularly important. The EPA itself in its *Risk Assessment Guidelines* document states: "while some potential environmental hazards involve significant exposure to only a single compound, most instances of environmental contamination involve concurrent or sequential exposures to a mixture of compounds that may induce similar or dissimilar effects." Calabrese notes: "While nearly the entire thrust of public health risk assessment activities has involved derivations for individual compounds, all agree that the real world involves multiple chemical exposures, either concurrently or sequentially. Despite universal agreement on this, regulatory agencies, especially in the environmental domains, have been slow to directly address and specifically incorporate the knowledge of interactions into the risk assessments process." (*op.cit.*)

Unfortunately, the Health Risk Assessments for Butte Priority Soils failed to consider additive response, antagonistic response and/or strait synergistic response. This is true of EPA Health Risk Assessments as a matter of course: "Data systems that compile information on pollutant concentrations in the environment are generally focused on single, or simple, forms of pollutants; complex mixtures are not assessed due to limitations of cost and proper procedures." (Diana K. Wegener, et. al., "Equity in Environmental Health: Data Collect and Interpretation Issues, *9 Toxicology & Indus. Health* 775,783)

The environmental justice significance of this failure is that: "Unfortunately, the points where the (Risk Assessment) Mixture Guidelines are weakest are the exact points in which the exposure data linking minority and poor communities are the strongest. Substantial data demonstrate that low-income and minority people are significantly more likely than the rest of society to live near complex mixture 'scenarios'." (Israel, *op.cit.*, p. 13.) [See also Paul Mohal and Bunyan Bryant, *Environmental Racism: Reviewing the Evidence, in Race and the Incidence of Environmental Hazards: A Time for Discourse*; Robert Bullard, *Dumping in Dixie: Race, Class and Environmental Quality and Commission for Racial Justice*; Untied Church of Christ, *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste*]

Demographic data regarding the Butte Priority Soils site demonstrates that the Priority Soils site falls within the parameters of exposure to synergistic scenarios described above and this conclusion warrants a finding of environmental discrimination by the EPA against the Priority Soils' poor. A common failing of Health Risk Assessment and a failing of the Health Risk Assessments for Butte Priority Soils is the failure to consider demographic correlations to health risk and exposure to toxic substances. Because the Health Risk Assessments for Butte Priority Soils used only generalized exposure assumptions, the risks that are disproportionately distributed to the detriment of the poor who live within Priority Soils are discriminatorily distorted.

Also, the failure to consider the additive response factors and the antagonistic response factors as part of the Health Risk Assessments for Butte Priority Soils also discriminated against the poor. The poor are more likely to experience an additive response and an antagonistic response to various toxics than are the non-poor. Failure to even consider these factors was discriminatorily detrimental to the low-income citizens living within the Butte Priority Soils site.

In summary, the Priority Soils Health Risk Assessments failed to deal with the synergistic interaction of contaminants. Even the EPA admits that human health risk assessment techniques used for single chemical and simple binary interactions: "cannot be extended to complex mixtures because the data requirements of such extensions lead to experimental designs that are impractical." (U.S. EPA Office of Research and Development and *EPA Journal*. Also see: Langdon Winner, "Risk: Another Name for Danger," pp 60-68 in Theodore Goldfarb, ed., *Taking Sides: Clashing Views on Controversial Environmental Issues*, 4th Ed.) "Perhaps the most important complication (of evaluating risks of exposure to chemical mixtures) is the potential for interaction among the mixture's constituents, including synergistic effects in which the combined effect of two or more substances is greater than the sum of the effects of each agent alone." (Daniel Krewski, et. al., "Carcinogenic Risk Assessment of Complex Mixtures," *Health Hazards Risks from Exposure to Complex Mixtures and Air Toxic Chemicals* at 147,151)

Also the Health Risk Assessments conducted at Butte Priority Soils failed to look at susceptibility to the harms of exposure to the substances of concern at the site in terms of income. This failing discriminatorily affects the low-income citizens of the Priority Soils area. There was no assessment particularly geared to the low-income subgroup of the general population living within the Priority Soils area. In fact the epidemiologic studies used as a basis of the Health Risk Assessments for Priority Soils were based only on studies of healthy white males. (EPA *Equity Report*, Note 12 at 33-34.) Given that the demographic makeup of the Priority Soils poor is definitely not primarily healthy white males, the Health Risk Assessments conduced at Butte Priority Soils failed to adequately characterize the risk factors to the discriminatory detriment of the poor. (U.S. Census Bureau, 2000 Census Data)

Because the focus was on premature death from cancer, the Health Risk Assessments for Butte Priority Soils failed to evaluate low-birth weight, reduced intelligence, asthma, and numerous other environmentally caused diseases. "Once a substance is identified as a potential carcinogen, non-cancer studies often are not pursued, even though the compound may be a toxicant in other respects. It is conceivable that a chemical with a low cancer unit risk might be a potent teratogen, but without a multidisciplinary approach, this will never be know." (Grose, et. al., Interdisciplinary Approach to Assessing the Health Risk of Air Toxic Chemicals: An Overview," *Health Hazards and Risks from Exposure to complex Mixtures and Air Toxic Chemicals* 39, 47)

There is abundant evidence that low-income citizens tend to be more susceptible to the effects of exposure to the toxics present at the Priority Soils site than the non-poor. (See:

Edward J. Calabrese, *Ecogenetic: Genetic Variation in Susceptibility to Environmental Agents*; Richard Rios et. al. *Susceptibility to Environmental Pollutants Among Minorities*, 9 *Toxicology and Indus. Health* at 797 and Edward J. Calabrese, *Pollutants and High Risk Groups: The Biological Basis of Increased Human Susceptibility to Environmental and Occupational Pollutants*.) For example, long-term exposure to toxics can produce intergenerational genetic characteristics that increase susceptibility to the toxics found within the Priority Soils site. (Rios, *op. cit.*, 797) The Health Risk Assessments for Butte Priority Soils considered no issues of intergenerational equity. Also, for example, the low-income citizens of the Butte Priority Soils Site, as do the poor generally, have elevated rates of hypertension that increases the likelihood of kidney disease that, because the kidneys filter toxics such as heavy metals, means that low-income citizens have a lessened ability to combat toxics exposure. (Rios, *op.cit.*)

Also, the poor tend to have less access to information about the dangers of heavy metals and the ways of lessening heavy metals exposure and have less ability to understand and put into practice the recommendations for lessening exposure. (Israel, *op. cit.*, p. 16 and Rios, *op.cit.*)

It is also important to remember that low-income citizens tend to have poorer nutrition than do non-poor citizens which situation disparately increases their susceptibility to heavy metal toxicity. (Calabrese, *op. cit.*) For example, the poor tend to have a greater likelihood of Vitamin C deficiency than the non-poor that increases their vulnerability to lead toxicity. The poor tend to have a greater likelihood of calcium deficiency than the non-poor that also increases their vulnerability to lead toxicity. The poor tend to have a greater likelihood than the non-poor of iron deficiency that increases their vulnerability to lead.

Lifestyle factors also affect the susceptibility of the poor to the toxics found at the Priority Soils Site but lifestyle factors were ignored in the Health Risk Assessments for Butte Priority Soils to the disparate detriment of the poor. "Because minority populations tend to have larger percentages of children and pregnant women than the non-poor, [a statistic evidenced at the Priority Soils site] and because "pregnant women, children, infants, and fetuses are more susceptible to adverse health effects from pollutants than are members of the remainder of the population, exposure to pollutants will disproportionately affect minority communities." (Israel, *op. cit.*, p. 17. See also Rios, *op.cit.* and Calabrese, *op.cit.*) In addition, the poor are more likely than the non-poor to smoke and that increases their susceptibility to heavy metal toxicity. (See: U.S. Department of Health and Human Services, *Health Status of the Disadvantaged*; Rios, *op.cit.* and Calabrese, *op.cit.*)

Moreover, the poor have little chance to participate in the development and execution of health risk assessments. Lack of public participation is particularly evident in low-income communities. The EPA itself has said: "poor and racial minority communities are rarely involved in Agency rulemakings and seem to be unaware" of their rights. (*EPA Equity Report.)* The poor as a group have been ignored as regards to the development and implementation of the Health Risk Assessments at Butte Priority Soils.

Israel sums up the problem: "Risk assessment methodology currently incorporates numerous informational biases that may disproportionately affect poor communities . . . Specifically, risk assessments generally fail to observe those adverse health effects that result from above-average exposure, from exposure to multiple chemicals, and from the interactions of toxic substances. Similarly, risk assessments generally fail to observe susceptibility differences as a function of income or race. Genetic differences, disease patterns, social inequalities, and cultural and lifestyle factors all increase the body's susceptibility to chemical substances." (*op.cit.*) A memo by Robert M. Sussman who was Chair of the EPA's Science Policy Council to the director of the EPA admitted that there were informational biases in the EPA's Health Risk Assessment protocol. Sussman also stated that there were deficiencies in the EPA's incorporation of multi-path and multi-sources exposures and "inter-individual" susceptibilities into the EPA's Health Risk Assessment protocols. He noted that these deficiencies contributed to environmental justice problems for the agency. (EPA Science Policy Council Report of the EPA Science Policy Council on Addressing 'Science and Judgment in Risk Assessment,' A Report by the National Research Council, in *Inside EPA*.)

VII. Therefore, given that the Proposed Plan and the Preferred Alternative for Butte Priority Soils are Based on and Justified by a Risk Assessment Process that Discriminated against Low-income Residents living in the Priority Soils OU, the Proposed Plan and Preferred Alternative for Priority Soils OU are Based on a Process that Violated Environmental Justice.

VIII. Therefore, the Outcome of that Process, i.e. the Priority Soils Proposed Plan and Preferred Remedy Violate the EPA Mandate to Promote Environmental Justice.

IX. In fact, the Proposed Plan and Preferred Alternative for Priority Soils would actually Increase the Toxic Burden of Butte's Low-income Citizens.

X. Therefore, because of 7 and 8 above, the Proposed Plan and Preferred Remedy for Priority Soils should be declared null and void.

The Proposed Plan and the Preferred Alternative for Butte Priority Soils OU are only as good and sound and valid as the underlying processes that produced the Plan and the Preferred Alternative are good and sound and valid. The Proposed Plan and the Preferred Alternative for Butte Priority Soils OU are only as environmentally just as the underlying processes that produced the Plan and the Preferred Alternative are environmentally just. The environmentally **unjust** Health Risk Assessments conducted at the Butte Priority Soils site, because they are the foundation, grounding, and justification for the Proposed Plan and Preferred Alternative, taint the entire process which the hue of injustice. The environmentally unjust Health Risk Assessments conducted at the Butte Priority Soils OU, because they are the foundation, grounding, and justification for the Proposed Plan

and Preferred Alternative, undermine, contaminate and discredit the entire process. Given that environmental justice concerns must permeate all of EPA's activities and process, this failure to promote and encompass environmental justice in the development of the Proposed Plan and Preferred Alternative warrants the discarding of the entire Proposed Plan for Priority Soils.