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To: Brian Amme
PEIS Project Manager
Bureau of Land Management
Nevada State Office
1340 Financial Boulevard
P. O. Box 12000
Reno, Nevada 89520-0006
(775) 861-6712 Fax
vegeis@nv.blm.gov

From: Ann McCampbell, MD
Chair, MCS Task Force of NM
11 Esquila Rd.
Santa Fe, NM 87508
(505) 466-3622
DrAnnMcC@aol.com

Re: **Draft Programmatic Environmental Impact Statement (PEIS) Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States**

Draft Programmatic Environmental Report (PER) Vegetation Treatments on Bureau of Land Management Lands in 17 Western States

Please accept the following comments on the above matter.

CHEMICALLY SENSITIVE

1

The draft PEIS fails to analyze the human health impacts of herbicides to chemically sensitive individuals, even though the need to do so was identified in scoping comments. *“Respondents suggested that at-risk groups like infants, elderly, sick people, and people with sensitivities to chemicals be specifically addressed”* (PEIS 4-172).

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The omission of analyzing potential adverse impacts to chemically sensitive individuals, as well as other vulnerable populations such as infants, unborn children/pregnant women, people with asthma and other respiratory conditions, and those with other chronic conditions in the draft PEIS is one reason the risk assessments vastly underestimate the potential human risks from herbicide exposure and are invalid.

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Only analyzing impacts to an average child (age and sex unspecified) is insufficient to account for impacts to other populations, especially those who are more vulnerable to herbicides. For example, unborn children are highly susceptible to chemical exposures, particularly during critical periods of development. In addition, it appears the risk

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assessment for the hypothetical 35 kilogram child only treated the child as a small adult and did not take into account the increased vulnerability of children due to, among other things, their developing nervous and other systems and decreased ability to detoxify toxic chemicals.

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Chemically sensitive individuals, however, may be the most vulnerable to herbicide exposures. Exposures to even minute amounts of herbicides or other pesticides from, for example, 1) pesticide drift or volatilization from neighborhood lawn treatments, 2) driving on a street where the roadside was sprayed weeks earlier, 3) living in a house that was treated with pesticides years earlier or where pesticides have been tracked in, or 4) eating commercial food containing pesticide residues can cause serious health problems for people with chemical sensitivities.

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See the enclosed article, "*Pesticide Sensitivities*," by Ann McCampbell, in the Encyclopedia of Pest Management, edited by David Pimentel, Cornell University, 2002.

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Before the City of Santa Fe, New Mexico adopted an integrated pest management (IPM) ordinance and stopped spraying the streets with herbicides, many chemically sensitive residents were made very sick when driving through town, even when their windows were closed. Some would become so disoriented that they got lost and had difficulty finding their way home. The active ingredients in the herbicides being used by the City included glyphosate, dicamba, and imazapyr.

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Herbicide use in my own neighborhood has caused severe health problems. One night I had to take my chemically sensitive housemate to the emergency room after she started vomiting blood following a neighbor's application of Roundup (glyphosate) to his yard. Other friends have reported regularly spending the night in their bathrooms vomiting and having diarrhea whenever their neighbors sprayed Roundup, and/or having to pull over and duck behind a bush with an urgent case of diarrhea after driving through an area where herbicides had been sprayed.

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I watched a very pesticide-sensitive friend slump in her seat and almost pass out while I was driving her through a small town in northern New Mexico because there was a trace of pesticide in the air from a few nearby agricultural plots. She only revived once we got past the town and into undeveloped forest land. Exposures to pesticides, however, can often cause prolonged declines in the health of chemically sensitive people that can last for weeks to months and even years.

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The problem of chemical sensitivities is not limited to just a few. Recently, a national random population-based survey found that 11.2% of Americans reported having an unusual hypersensitivity to common chemical products such as perfume, fresh paint, pesticides, and other petrochemical-based substances, and 2.5% reported they had been medically diagnosed with MCS, the most severe form of the illness (Caress SM, Steinemann AC, *A national population study of the prevalence of multiple chemical sensitivity*, Arch Environ Health, 2004 Jun; 59(6): 300-5).

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Previous surveys in California and New Mexico found that 15.9% and 16%, respectively, reported chemical sensitivities (Kreutzer R, et al., *Prevalence of people reporting sensitivities to chemicals in a population-based survey*, Amer J of Epidemiology, Vol. 150, No. 1, July 1, 1999; Voorhees, R, Results of Analyses of Multiple Chemical Sensitivities Questions, in 1997 Behavioral Risk Factor Surveillance System, New Mexico Department of Health, 1999).

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In addition, both state surveys found that while Anglos and Hispanics reported approximately the same prevalence of chemical sensitivities, the prevalence was higher in Native Americans (e.g., 27% in New Mexico).

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Many people with MCS are severely ill and disabled by the condition. The federal Access Board, which is responsible for developing architectural guidelines for compliance with the Americans with Disabilities Act (ADA) has stated “*The Board recognizes that multiple chemical sensitivities and electromagnetic sensitivities may be considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual’s major life activities.*” (*Background for its Final Rule, ADA Accessibility Guidelines for Buildings and Facilities; Recreation Facilities*, www.access-board.gov/recreation/final.htm). This is the same standard applied to other disabilities.

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The Access Board recently completed an indoor environmental quality project that describes, among other things, the extreme sensitivity of people with MCS to pesticides and herbicides and how the presence of these substances in and around public buildings are access barriers for them. See <http://ieq.nibs.org>.

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Similarly, the presence of herbicides on public lands can block access for people disabled with MCS. Public lands are required to be accessible for all people with disabilities, including those with MCS. Therefore, the use of herbicides may, in some cases, violate the Americans with Disabilities Act.

Consensus criteria for diagnosing MCS were published in 1999 (Bartha, L, et al. *Multiple chemical sensitivity: a 1999 consensus*. Arch. Env. Health, 1999, 54(3), 147-149):

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- 1) The symptoms are reproducible with repeated chemical exposure.
- 2) The condition is chronic.
- 3) Low levels of exposure (lower than previously or commonly tolerated) result in manifestations of the syndrome.
- 4) The symptoms improve or resolve when the incitants are removed.
- 5) Responses occur to multiple chemically unrelated substances.
- 6) Symptoms involve multiple organ systems.

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For more information about this condition, see the enclosed brochure, *Multiple Chemical Sensitivities*, written by the MCS Task Force of New Mexico in collaboration with the NM Department of Health, NM Environment Department, New State Department of Education, and NM Governor’s Committee on Concerns of the Handicapped.

A Selected Bibliography of Studies and Articles on Chemical Sensitivity Published in Peer-Reviewed Journals can be found at www.chemicalsensitivityfoundation.org/research_bibliography.htm. Included on that list is a study by McKeown-Eyssen, et al that found a significant difference between chemically sensitive subjects and normal controls in genes that code for detoxification enzymes. Another recent study done at Wright State University found low levels of detoxification enzymes in the blood of chemically sensitive individuals (*Gulf War Research Sheds Light on Source of Chemical Sensitivities*, Kevin Lamb, Dayton (Ohio) Daily News, October 6, 2005).

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The bottom line is the draft PEIS should have analyzed the potential impact of herbicide exposures to people with chemical sensitivities, as well as other vulnerable populations. This should have included an estimate of the dose required to elicit an adverse response as well as the nature of the responses for each population.

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There also should have been an acknowledgement of the extremely wide range of sensitivity to herbicides, even among people who are chemically sensitive. That is, some people are only mildly affected by herbicides, while others are so exquisitely sensitive to herbicides they can react severely to even minute traces. The risk assessment in the draft PEIS used a factor of 10 to account for intraspecies variability (PEIS B-57), but this is far off the mark.

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Based on the cumulative experience of people with chemical sensitivities and a growing body of research on variations in the human genome, gene expression, and vulnerability to toxic exposures, the true range of human variability is probably closer to 5 to 10 orders of magnitude. Thus, the assumptions used in the risk assessments led to vastly *underestimating* the risk to human health, rather than “*to an exaggeration of the real risks,*” as claimed (PEIS 4-178).

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DISCLOSURE OF INERT INGREDIENTS

The PEIS fails to disclose the identity of the "inert" ingredients in the products containing the six active ingredients evaluated in this risk assessment. It states that BLM scientists obtained this information, but claims that because it is considered Confidential Business Information, it cannot be disclosed to the public (PEIS 4-173). The PEIS further claims that the majority of the inerts are of “minimal risk” and only a few are on EPA’s List 3, “Inerts of Unknown Toxicity”.

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But failing to provide the identity of the inert ingredients prevents the public from being able to affirm or refute this claim and thus violates NEPA. The BLM is, in effect, saying “just trust us” rather than providing the public with the information it needs to fully participate in the EIS process. Under NEPA, an Environmental Impact Statement is (EIS) required to provide “high quality” data to the public. Providing “no” data on the identity of the inert ingredients, even though this information is known BLM and relied

upon to reach conclusions in the draft PEIS, falls far short of providing “high quality” data.

22 The BLM should only have considered using and analyzed herbicides whose manufacturers were willing to provide the identity of inerts in their products and allow this information to be disclosed to the public.

23 Furthermore, chemicals on EPA’s List 3, “Inerts of Unknown Toxicity,” may, in fact, be quite toxic.

According to New York Attorney General Eliot Spitzer in “*The Secret Ingredients in Pesticides: Reducing the Risk*” published in May, 2000:

24 *EPA currently divides the ‘inert’ ingredients into four groups: ‘inerts of toxicological concern’ (List 1, 8 substances), ‘potentially toxic inerts, with high priority for testing’ (List 2, approximately 100 substances), ‘inerts of unknown toxicity (List 3, more than 1900 substances) ...*

Thus, the vast majority of inerts fall in the category of “Inerts of Unknown Toxicity” even though twenty-six percent of inerts are recognized by government agencies (in some cases by other branches of the U.S. EPA) as being hazardous. These chemicals are able to cause cancer, reproductive and nervous system harm, and other health and environmental problems. (*Toxic Secrets, “Inert” Ingredients in Pesticides 1987 – 1997*, Northwest Coalition for Alternatives to Pesticides, 1998, www.pesticide.org/inertsreport.pdf).

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For example, state, federal, and international agencies have listed 20 inerts as known or suspected carcinogens. EPA considers twelve to be ‘extremely hazardous’ under the Superfund hazardous waste law. Seventy-five of these chemicals are classified as toxic under the regulations establishing the Toxic Release Inventory program. EPA considers another 187 inerts to be hazardous air and water pollutants under the Clean Air, Clean Water, or Safe Drinking Water Acts. The Occupational Safety and Health Administration regards 118 as occupational hazards.

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*Many of these chemicals have languished, some for years, on List 3, ‘Inerts of Unknown Toxicity,’ despite the public availability of information on their toxicity. (*Toxic Secrets, “Inert” Ingredients in Pesticides 1987 – 1997*, Northwest Coalition for Alternatives to Pesticides, 1998, www.pesticide.org/inertsreport.pdf).*

ENDOCRINE DISRUPTION

27 The draft PEIS and Forest Service Risk Assessments fail to adequately analyze the herbicides proposed for use regarding their potential endocrine-disrupting effects. While

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herbicide active ingredients are evaluated for gross reproductive and development effects, many endocrine-disrupting effects are far more subtle. Many effects cause behavioral and other functional abnormalities rather than obvious birth and other anatomic defects. Several studies have shown that 2,4-D exposure during lactation can alter brain development and subsequent adult behavior (see reference below). In addition, endocrine-disruption may occur more prominently with lower rather than higher doses. This means that diluting endocrine-disrupting substances can increase rather than decrease their impact(s).

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According to Theo Colborn,

The U.S. EPA has rarely used the open literature in its risk assessments, generally using only data submitted by manufacturers. Industry continues to use traditional toxicology protocols that test for cancer, reproductive outcome, mutations, and neurotoxicity, all crude end points in light of what is known today about functional end points. In using manufacturer data, the U.S. EPA misses almost all delayed developmental, morphologic, and functional damage of fetal origin ... Brucker-Davis (1998) published a comprehensive review of the open literature in which she found 63 pesticides that interfere with the thyroid system – a system known for more than a century to control brain development, intelligence, and behavior. Yet, to date, the U.S. EPA has never taken action on a pesticide because of its interference with the thyroid system. (A Case for Revisiting the Safety of Pesticides: A Closer Look at Neurodevelopment by Theo Colburn, Env. Health Perspectives, Vol. 114, No. 1, January, 2006, <http://ehp.niehs.nih.gov/members/2005/7940/7940.pdf>)

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The EPA has, however, expressed concern that “Based on currently available toxicity data, which demonstrates effects on the thyroid and gonads following exposure to 2,4-D, there is concern regarding its endocrine disruption potential” (EPA Reregistration Eligibility Decision for 2,4-D, June, 2005, p. 21, www.epa.gov/oppsrrd1/REDs/24d_red.pdf). The EPA also noted there was a need for further testing of 2,4-D regarding its endocrine-disrupting potential.

REFERENCE DOSE

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The draft PEIS relies to a large degree on the Reference Dose (RfD) in assessing potential health impacts to humans, but failed to adequately disclose the limitations of using the RfD to estimate the toxicity of herbicides and other chemicals. Below are limitations described by the U.S. EPA (*Reference Dose(RfD): Description and Use in Health Risk Assessments*, www.epa.gov/iris/rfd.htm)

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1.2.2. SOME DIFFICULTIES IN UTILIZING THE TRADITIONAL APPROACH

1.2.2.1. Scientific Issues

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While the traditional approach has performed well over the years and the Agency has sought to be consistent in its application, observers have identified scientific shortcomings of the approach. Examples include the following:

- a. Too narrow a focus on the NOAEL means that information on the shape of the dose-response curve is ignored. Such data could be important in estimating levels of concern for public safety.
- b. As scientific knowledge increases and the correlation of precursor effects (e.g., enzyme induction) with toxicity becomes known, questions about the selection of the appropriate "adverse effect" arise.
- c. Guidelines have not been developed to take into account the fact that some studies have used larger (smaller) numbers of animals and, hence, are generally more (less) reliable than other studies.

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These and other "scientific issues" are not susceptible to immediate resolution, since the data base needed is not yet sufficiently developed or analyzed. U.S. EPA work groups are presently considering these issues.

1.2.2.2. Management-related Issues

1.2.2.2.1. The use of the term "safety factor"

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The term "safety factor" suggests, perhaps inadvertently, the notion of absolute safety (i.e., absence of risk). While there is a conceptual basis for believing in the existence of a threshold and "absolute safety" associated with certain chemicals, in the majority of cases a firm experimental basis for this notion does not exist.

1.2.2.2.2. The implication that any exposure in excess of the ADI [acceptable daily intake] is "unacceptable" and that any exposure less than the ADI is "acceptable" or "safe"

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In practice, the ADI is viewed by many (including risk managers) as an "acceptable" level of exposure, and, by inference, any exposure greater than the ADI is seen as "unacceptable." This strict demarcation between what is "acceptable" and what is "unacceptable" is contrary to the views of most toxicologists, who typically interpret the ADI as a relatively crude estimate of a level of chronic exposure which is not likely to result in adverse effects to humans. The ADI is generally viewed by risk assessors as a "soft" estimate, whose bounds of uncertainty can span an order of magnitude. That is, within reasonable limits, while exposures somewhat higher than the ADI are associated with increased probability of adverse effects, that probability is not a certainty. Similarly, while the ADI is seen as a level at which the probability of adverse effects is low, the absence of all risk to all people cannot be assured at this level.

1.2.2.2.3. Possible limitations imposed on risk management decisions

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Awareness of the "softness" of the ADI estimate, as discussed above, argues for careful case-by-case consideration of the toxicological implications of individual situation, so that ADIs are not given a degree of significance that is scientifically unwarranted. In addition, the ADI is only one factor in a risk management decision and should not be used to the exclusion of other relevant factors. (emphasis added)

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The draft PEIS errs in placing too much emphasis on the concept of RfD and not placing enough emphasis on prudent concerns regarding the hazards of applying toxic herbicides to the environment, including their potential to cause adverse effects in humans, wildlife, vegetation, and water resources.

CUMULATIVE EFFECTS

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The cumulative effects analysis describes rather vague comparisons among the alternatives, with regard to their impacts on air, water, soil, and other resources, without providing information about the past, present, and anticipated use of pesticides and other toxic chemicals applied on and near BLM land. The presence of these chemicals would be the most obvious contributors to cumulative effects related to herbicide use by the BLM.

For example, in the Forest Service Risk Assessment for triclopyr, it states that the major metabolite of triclopyr is TCP (3,5,6-trichloro-2-pyridinol) and this compound is “*toxic to mammals and other species*”. In addition, it states,

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TCP is of concern to this risk assessment both because it is a metabolite of triclopyr and because the aggregate risks of exposure to TCP from the breakdown of both triclopyr and chlorpyrifos must be considered. (SERA Risk Assessment Triclopyr Revised Final Report, 2003b, Syracuse Environmental Research Associates, Inc. Fayetteville, NY, p. xv).

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The assessment of the amounts and kinds of toxic chemicals used by BLM and other industries operating on BLM land, such as ranching, timber, mining, and oil & gas development, should have been provided for each state.

RECOMMENDATIONS FOR SUSTAINABLE AND LEAST TOXIC INVASIVE VEGETATION MANAGEMENT

Prevention

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The primary focus of weed control should be on prevention, by minimizing factors that foster weed establishment or spread, such as ground-disturbing activities associated with livestock grazing, logging, mining, road and other construction, and off-road vehicles, as well as only using 100% weed-free seed for revegetation.

Non-Chemical Methods

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The management of existing weeds should rely primarily on non-chemical methods, using herbicides only as a last resort, if at all.

Restrictions and Buffer Zones

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Herbicides should not be aerially applied (because of inevitable and unacceptable amount of drift on to nontarget areas and species).

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If herbicides are aerially applied, they should not be applied within 5 miles of surface water, residences, roads, trails, campgrounds, or other areas that are occupied, or may become occupied, by the public.

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Ground applications of herbicides should not be applied within 1 mile of surface water, residences, roads, trails, campgrounds, or other areas that are occupied, or may become occupied, by members of the public.

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No herbicides should be applied directly to water.

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No herbicides should be used unless the identity of all inert ingredients and contaminants in the product are disclosed to the public.

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No vegetation should be burned sooner than one year after an application of herbicide.

Herbicide Notification

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If herbicides are applied, the public must be notified in advance through newspaper articles, public service announcements, meetings, websites, and other means. A list of people wanting to be individually notified of herbicide use should be maintained by the BLM and these individuals contacted by letter, phone, or email (their choice) of proposed applications. The BLM should inform the public of the opportunity to be added to the notification list.

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The PEIS acknowledges that it is critical for BLM to notify potentially affected parties of treatment activities that occur on public lands (PEIS 2-22), but it is likely the number of potentially affected parties is much greater than what is assumed. Chemically sensitive individuals, for example, can react adversely to drift or volatilization of pesticides applied miles away. Thus, the BLM needs to expand the range and number of people it notifies of herbicide applications.

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If herbicides are applied, signs should be posted at trailheads, along roadways or other right-of-ways, access points, and any other places that are needed to sufficiently warn members of the public of the presence of herbicides before entering an area. Signs should remain in place for at least 2 months after an application.

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BLM should not presume to know when re-entry into an area that has been applied with herbicides is safe ("*BLM takes care ... to post the area with warnings about when re-entry can occur safely,*" PEIS B-35). Even dried herbicides vaporize into the air for long periods after applications, and what is a safe re-entry time for one person may not be safe for another. Signs should just provide objective information and allow individuals to make their own informed choice about whether to enter an area.

Signs and other forms of notification should at a minimum contain the following information:

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Time and date(s) of application (or anticipated application)
Site of application
Name of pesticide product, active ingredient and EPA registration number
Application method
Name and phone number of whom to contact for additional information and to report adverse effects resulting from the application

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The BLM should also designate a permanent staff person whom the public can contact about the agency's pesticide and herbicide use, including past, present, or contemplated applications. The phone number and email address of the contact person should be widely publicized.

Adverse Event Reporting System

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If herbicide are used, the BLM should establish an Adverse Event Reporting System to collect reports of adverse effects resulting from herbicide use. This would include damage to property, wildlife, wanted vegetation, and human health. The existence of this system should be widely advertised, along with instructions for reporting adverse events. The data collected should be regularly reviewed and used to guide future decisions regarding vegetation management.

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Thank you for allowing me to comment on this important matter. Please keep me informed of the progress of this project and notify me when the final PEIS/PER is issued.