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Sent via e-mail to: christensen.jeff@deq.state.or.us

Jeff Christensen
Manager, Emergency Response/Environmental Cleanup
Oregon DEQ Land Quality Division
811 SW 6th Ave
Portland, OR 97204

Re: *Alkali Lake Consent Judgment Comments*

Dear Mr. Christensen,

Almost a half century ago, a company made and distributed chemicals that became commonly known as Agent Orange. To get rid of the waste associated with manufacturing these chemicals, the company shipped it in over 25,000 fifty-five gallon drums to Oregon's high desert. Apparently, the drums were leaking during transport and continued to leak until DEQ took over the site in 1976. By that time, about 50% of the Agent Orange and residues had evaporated into the air and leaked out onto the desert floor. Today, many decades later, DEQ proposes to enter into a Consent Judgment with the company that is responsible and profited from the production and inadequate disposal of this toxic waste, Bayer CropScience.

Then and now, people live, work and play in Lake County and enjoy wildlands within one mile of the Chemical Waste Disposal Area. These comments are submitted on behalf of the Oregon Natural Desert Association (ONDA) regarding the environmental contamination of Alkali Lake by Bayer CropScience. ONDA is a non-profit, public interest organization. ONDA and its members are dedicated to preserving and protecting the public lands of eastern Oregon and are very concerned about the serious, persistent and bioaccumulative nature of the chemical contamination at Alkali Lake. ONDA's members and staff recreate and take photographs at Alkali Lake and in the surrounding area, including in the Juniper Mountain proposed Wilderness Study Area directly east of Alkali Lake.

If this Consent Judgment is entered, Bayer CropScience (and its predecessors in interest, collectively "Bayer") will be let off the hook for the toxic soup it left to leak out



in the desert. Neither Bayer nor DEQ are taking adequate steps to actually clean up the site. Instead, DEQ is preparing to stipulate to an inadequate monitoring plan without any real clean up while taking on the vast majority of the responsibility for a mess that it did not create or profit from in the first instance. Certainly, DEQ had a hand in making the problem worse when it chose to bulldoze the barrels into 12 unlined trenches and bury them. However, by the time DEQ took over, it appears that at least 50% of the waste already had evaporated or leaked out onto the desert floor. If DEQ had not acted, it is likely that the remainder of the contamination would have continued to leak into the environment.

DEQ should not enter into the proposed Consent Judgment and agree on this allocation of liability. As is discussed in more detail below, DEQ does not have adequate information regarding the fate and transport of the contamination at the site and the risks posed to human health and ecological receptors. Because DEQ does not have a full and complete understanding of the risks posed by the site, it is in no position to be releasing Bayer from any liability for potential future clean up costs. Second, the proposed Consent Judgment unfairly places the burden of the costs of cleaning up Alkali Lake on Oregonians. As an agency responsible for safeguarding the health and welfare of the people of Oregon and their environment, DEQ should not release Bayer from any liability for potential future clean up costs. Finally, courts would likely reject the Consent Judgment as unreasonable and inconsistent with Oregon law. Oregon courts interpret Oregon's Hazardous Waste and Hazardous Materials law consistent with federal courts' interpretations of the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 16 U.S.C. §§ 1451 *et seq.* Existing precedent under CERCLA does not support such sweetheart deals.

In addition to urging DEQ to reject the proposed terms of the Consent Judgment, ONDA also requests that DEQ conduct further study on the fate and transport of the contamination, choose a method of clean up that will address the pollution rather than merely monitoring it, and hold Bayer responsible for the costs of developing and implementing a meaningful monitoring and clean up plan. ONDA also requests that DEQ hold public meetings in Portland and Lake County to give the public an opportunity to ask questions and better understand why the Consent Judgment is in the best interest for the people of the state of Oregon.

1. DEQ Does Not Have Adequate Information on the Risks Posed to Human Health and the Environment.

A. Ground Water Contamination

DEQ relies primarily on the "Human Health and Ecological Risk Assessment: Alkali Lake Chemical Water Disposal Site, Lake County, Oregon" prepared on July 26, 2005 by HartCrowser ("2005 Risk Assessment") to make its decision about how to address the contamination at Alkali Lake; however that study relies upon incomplete data in reaching its conclusions regarding risks posed to human health and ecological receptors. For example, Section 2.2.3 describes both a shallow water table aquifer and a



deeper, relatively fresh flowing artesian aquifer. The Risk Assessment concedes that “[a]n aquitard separating these two aquifers has not been well defined” and also states that faults “have breached the confining layer and allowed relatively fresh water to reach the surface in some places.” In the 2007 Record of Decision (“ROD”), DEQ admits that the “vertical extent of the groundwater contamination has not been determined.”

Additionally, the hydrogeological analysis in the 2005 Risk Assessment comes from e-mail correspondence with DEQ and two geology papers. However, there are other published studies about the groundwater flow at Alkali Lake that were not referenced in the Risk Assessment. For example, one study points out that it is unfortunate that the waste was dumped here because “(1) the water table is close to the ground surface; and (2) there is a strong local ground-water flow.” (Pankow et al, 1984). A follow-up study provided a model for measuring the fate and transport of these chemicals. (Johnson et al 1984a). This information reinforces the threats posed by contamination of the shallow aquifer and the likelihood that the plume of contaminated groundwater is highly mobile both vertically and horizontally. If these studies are insufficient, further work should be done.

Furthermore, DEQ erroneously states in the ROD that “several pairs of shallow and deep wells have been sampled numerous times.” In fact, the wells are drilled to only 35 feet despite the fact that the Risk Assessment discusses prior studies where wells were drilled deeper than 50 feet before encountering flowing conditions in the deeper aquifer. Additionally, DEQ erroneously relies on a comparison of pollutant concentrations from a single pair of wells – MW-10 and MW-57 – as an adequate assessment of the vertical extent of the contamination. First, the sample results clearly indicate that the contamination has migrated vertically and furthermore, a single location is wholly inadequate to characterize the vertical extent of the plume as a whole.

The ROD’s discussion of contaminant trends over time also raises significant issues regarding the potential mobility of the groundwater plume and the potential for horizontal and vertical mobility. It is clear from the data that trends of certain contaminants are increasing over time, and yet DEQ has made no reasonable effort to determine why those trends are increasing and what these facts suggest about the potential for future migration.

B. Risks to Human Health and Ecological Receptors

The 2005 Risk Assessment fails to take into account recent findings on the contaminant pesticides found at Alkali Lake and their by-products. Notable among these chemicals are 2,4-D (2,4-dichlorophenoacetic acid), and dioxin (2,3,7,8-tetrachlorodibenzo-p-Dioxin), both of which are a by-product of Agent Orange.¹ However the presence of a variety of other pesticide chemicals and by-products was also noted.

¹ Human Health and Ecological Risk Assessment, Alkali Lake Chemical Waste Disposal Site, Lake County Oregon; prepared for Oregon DEQ by HartCrowser, July 26, 2005 at 19-20.



The potential relation between Agent Orange chemical exposures and health effects is both controversial and still an active area of biomedical research. A recent study published in *Cancer*, a journal of the American Cancer Society, concluded that “[i]ndividuals exposed to Agent Orange had an increased incidence of prostate cancer; developed the disease at a younger age, and had a more aggressive variant than their unexposed counterparts.”² Cardiovascular effects from exposures have also been noted.³ The lack of mention of recent cancer-related and cardiovascular studies brings into question the conclusion of no significant health risk to persons exposed to Alkali Lake contaminants.⁴

Moreover, the health hazards of exposure to Agent Orange and related pesticides may extend beyond exposed individuals to their children. A 2007 review of birth defects and other significant health effects from Agent Orange exposure, which was published in the prestigious journal *Science*, noted the controversy about health effects and then concluded “people do seem to agree that purging the land [Vietnam] of the last vestiges of the Vietnam War —particularly the chemical residues of Agent Orange — is something worth fighting for.”⁵ It is ironic that we would consider purging Vietnam of Agent Orange chemicals, but are willing to settle for allowing these chemicals to remain in the soil of our own state, using monitoring as the only mechanisms of proposed remediation.

Also ignored in the risk assessment is the emerging science of epigenetics and how epigenetic effects could cause disease in exposed individuals and their offspring. Epigenetic effects are those that affect a person’s genome and its expression without changing the DNA sequence. Pesticides are believed to have epigenetic effects⁶ and the ethical and legal implications of these effects are only now being considered.⁷ A revised risk assessment should take into account the potential for long term and transgenerational epigenetic effects that could occur from exposure to the toxic chemicals present at Alkali Lake.

Having an adequate understanding of the fate and transport of the persistent and bioaccumulative chemicals at Alkali Lake is critical in light of their serious health impacts and the potential for exposure by area residents and those who recreate near the site. This is also important because there are animals in the area listed as threatened under the Endangered Species Act. DEQ notes on its website that there is “particular concern from an ecological standpoint [because] the site is about 2 miles south of Hutton Springs, which is the sole habitat of the Tui Chub. The Tui Chub is classified as a

² Chamie, K., DeVere White, R. W., Lee, D., Ok, J. H., and Ellison, L. M. Agent Orange exposure, Vietnam War veterans, and the risk of prostate cancer. *Cancer*, 113: 2464-2470, 2008.

³ Humblet, O., Birnbaum, L., Rimm, E., Mittleman, M. A., and Hauser, R. Dioxins and cardiovascular disease mortality. *Environ Health Perspect*, 116: 1443-1448, 2008.

⁴ Record of Decisions for Alkali Lake Chemical Waste Disposal Site, April 2007 at 16-18.

⁵ Stone, R. Epidemiology. Agent Orange's bitter harvest. *Science*, 315: 176-179, 2007.

⁶ Baccarelli, A. and Bollati, V. Epigenetics and environmental chemicals. *Curr Opin Pediatr*, 21: 243-251, 2009.

⁷ Rothstein, M., Cai, Y., and Marchant, G. E. The Ghost in our Genes: legal and Ethical Implications of Epigenetics. ExpressO, 2008.



threatened subspecies by the U.S. Fish and Wildlife Service.” The 2005 Risk Assessment notes that Hutton Springs is 1.5 miles north of the CWDA. DEQ cannot make an adequate assessment of the potential impacts on Hutton Springs and the Tui Chub without having a better understanding of the hydrologic connection and activity of the area. Additionally, DEQ notes on its website that several species of migratory birds, including the Snowy Plover, also inhabit springs and lakes in the vicinity on a seasonal basis. Additionally, the U.S. Fish and Wildlife Service is currently evaluating whether the sage grouse and pygmy rabbit are eligible for listing as threatened or endangered species. The 2005 Risk Assessment mentions the presence of rabbit tracks in and around the contamination site, and the impact of the contamination on these species should be more closely examined.

It is clear that DEQ has not adequately characterized the site or adequately assessed risks posed to human health and ecological receptors. The 2005 Risk Assessment is highly unlikely to be deemed adequate should the Environmental Protection Agency (“EPA”) request a more extensive investigation of the site. DEQ is in no position whatsoever to limit the liability of Bayer and commit the people of Oregon to accept a multi-million dollar liability for a very poorly understood site. A private party would never agree to accept liability for this site given the summary nature of the available information and the people of Oregon should expect the same level of care from DEQ as a representative of the public interest.

2. The Proposed Consent Judgment is a Bad Deal for Oregon and a Sweetheart Deal for Bayer.

Bayer and its predecessors in interest made and distributed the toxic chemicals that were dumped at Alkali Lake, yet the Consent Judgment will let Bayer off the hook, requiring that they pay just 28% of the costs up front (\$700,000) for what can only be characterized as an inadequate “clean up” plan that was selected by DEQ in 2007. Clean up is stated in quotes, because the proposed “clean up” plan primarily involves limited monitoring and an above-ground effort to contain the contamination.

Further, should monitoring results show that it is necessary for DEQ to clean up the site, the consent judgment proposes to release Bayer from *all* liability for future costs. This creates an economic disincentive for the agency to clean up the contamination, and in the likely event that clean up is necessary, places the burden squarely on the shoulders of the people of Oregon. Alternatively, if further action is required through a lawsuit or mandate from a federal agency such as the EPA, Oregonians, not Bayer, will be responsible for the first \$500,000 of the costs involved and, thereafter, Bayer will only be responsible for 20% of the costs after that. *This is unconscionable.* While DEQ is supposed to represent the public interest, individuals or public interest organizations will have to take action to try to force the DEQ and Bayer to do so.

Oregon law allows DEQ to collect the full costs of clean up from the responsible company. *See* ORS 465.330(2)(ii). The proposed Consent Judgment unfairly requires Oregonians to foot the bill, creating a financial disincentive to clean up Alkali Lake. This



is compounded by today's economic crises, as the State of Oregon is being forced to drastically cut back on important social and environmental services across the board. Additionally, this site should be placed on the National Priority List ("NPL") under CERCLA. If DEQ insists on moving forward with such a misguided clean-up plan, ONDA is likely to petition to have this site included on the NPL and to request that the EPA assume jurisdiction for the clean-up of the contamination. The burden of this cost should not be placed on the shoulders of the people of Oregon.

The Bayer Group, which oversees Bayer CropScience, expects to post full year sales, ending June 30, 2009, between 31 and 32 billion Euros (\$44.2 to \$45.7 billion USD). While Bayer was responsible for making the Agent Orange and for sending the toxic waste products out to Alkali Lake, the burden of cleaning up the site is being placed on all Oregonians, including those who live, work and play in the area. The highest estimated clean up proposal in the ROD (in-situ soil treatment by vitrification at \$47,000,000) is less than one-thousandth of 1% of Bayer Group's sales for this past fiscal year. The Oregon DEQ can do far better than this sweetheart deal for the people of Oregon and for the residents of Lake County.

3. Courts would reject the Consent Judgment as unreasonable and inconsistent with Oregon law.

Significantly, because of the unfair exchange of an almost-complete release of liability for a fraction of the *current*-estimated clean up costs (with a full release from future potential clean up costs), a court would likely reject the proposed Consent Judgment as unreasonable and inconsistent with the purposes of Oregon's Hazardous Waste and Hazardous Materials law, ORS Chapter 465. Oregon courts interpret this state law consistent with federal courts' interpretations of the federal law CERCLA. *Catellus Development Corp. v. L.D. McFarland Co.*, 910 F. Supp. 1509, 1516 (D. Or. 1995); *Badger v. Paulson Inv. Co., Inc.*, 311 Or. 14, 21, 803 P.2d 1178, 1182 (Or. 1991).

Federal courts review a proposed CERCLA consent decree to determine if it is fair, adequate, reasonable, consistent with the purposes of CERCLA, and does not violate law or public policy. *United States v. State of Colorado*, 937 F.2d 505, 509 (10th Cir. 1991); *Utah v. Kennecott Corp.*, 801 F. Supp. 553, 567 (D. Utah 1992). CERCLA's "overreaching principles" are "accountability, the desirability of an unsullied environment and promptness of response activities." *Kennecott*, 801 F. Supp. at 567 (quoting *United States v. Cannons Eng'g Corp.*, 899 F.2d 79, 91 (1st Cir. 1990)).

Fairness incorporates both procedural and substantive components. *Id.* & n.13. To measure procedural fairness, a court should ordinarily look to the negotiation process and attempt to "gauge its candor, openness and bargaining balance." *Id.* at n.13 (quoting *Cannons Eng'g*, 899 F.2d at 85). Substantive fairness involves concepts of corrective justice and accountability: "a party should bear the cost of the harm for which it is responsible." *Id.* (quoting *Cannons Eng'g*, 899 F.2d at 87).



The adequacy and reasonableness of a consent decree involves consideration of a number of factors, including whether the decree is technically adequate, reflects the relative strengths and weaknesses of the government’s case, is in the public interest, and advances the objectives of the applicable statute. *United States v. Telluride Co.*, 849 F. Supp. 849 F. Supp. 1400, 1402 (D. Colo. 1994) (citing *Cannons Eng’g*, 899 F.2d at 89-90). Reasonableness focuses on the effectiveness of the consent decree as a vehicle for cleaning up the environment and providing satisfactory public compensation for the violations under the subject provisions. *United States v. Davis*, 261 F.3d 1, 26 (1st Cir. 2001); see also *United States v. Southeastern Penn. Transp.*, 235 F.3d 817 (3rd Cir. 2000); *United States v. Comunidades Unidas Contra La Contaminacion*, 204 F.3d 275, 279 (1st Cir. 2000).

In suits involving the public interest, the courts’ role is more searching than in typical litigation between private parties. *Telluride*, 849 F. Supp. at 1402. Further, where the government files suit “merely as the vehicle by which the parties’ settlement could receive judicial enforcement,” rather than “to settle long-running litigation through which the strength and weaknesses of each side’s case was revealed,” a court must “undertake a more searching review of a consent decree’s fairness.” *Id.*

Several courts have held that CERCLA consent decrees did not satisfy these standards. For example, in *Kennecott*, the court found that the proposed consent decree was deficient in three ways: it lacked sufficient foundation for the State’s determination that its ground water natural resource could not be restored; it failed to require substantial protection of State natural resources from further contamination; and it failed to apply the proper measure of damages. *Kennecott*, 801 F. Supp. at 568. The Court concluded that “the State and Kennecott failed to demonstrate by a preponderance of evidence that restoration and plume remediation is not feasible in justification of the State’s determination not to require such.” The District Court rejected the proposed consent decree because it failed “to demonstrate that the remedial purposes CERCLA was intended to achieve [could] not be achieved.” *Id.* at 569.

Applying these principles, a court would conduct a “searching review” of the procedural and substantive fairness of the Consent Judgment and reject it as unreasonable. The proposed Consent Judgment for Alkali Lake is substantively unfair to the people of Oregon because it lets a polluter which was responsible for egregiously mishandling hazardous waste disposal to escape the bulk of the current costs for cleaning up the mess, and to escape all costs of future cleanup if it turns out that the contamination becomes more extensive or more dangerous than currently expected. The proposed Consent Judgment does not ensure “corrective justice and accountability,” because it essentially lets Bayer off the hook despite its joint and several liability for the full present and potential future costs of any cleanup. The proposed Consent Judgment violates the principles that the hazardous waste cleanup laws require accountability and preservation of an unsullied environment to fairly resolve (or punish) violations of the law.



For these reasons, ONDA submits that DEQ should abandon this Consent Judgment, conduct an adequate fate and transport study of the Alkali Lake contamination, and hold Bayer responsible for the total costs of actually cleaning up the site.

Sincerely,



Christopher Winter
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For and on behalf of Oregon Natural Desert Association