



Bob Ferguson
ATTORNEY GENERAL OF WASHINGTON
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June 9, 2014

Tom Carpenter
Executive Director
Hanford Challenge
219 1st Avenue S., Suite 310
Seattle, WA 98104

RE: Protecting the Health and Safety of Hanford Workers

Dear Mr. Carpenter:

Thank you for your letter about vapor exposure to workers at Hanford's tank farm, and for your work in this area. I agree this is a very serious issue. Let me outline the steps I have taken thus far.

First, Senior Assistant Attorney General Mary Sue Wilson and Senior Counsel Andy Fitz of my office recently met with you and Meredith Crafton to discuss this topic. They focused especially on the possible use of the Resources Conservation and Recovery Act (RCRA) as a tool to facilitate action by the Department of Energy to protect Hanford tank workers. Thank you for your thoughtful analysis of this legal approach. I have asked my staff to further evaluate this option.

In addition to evaluating legal tools, my office is also working closely with other state officials to ensure that this issue is addressed. I intend to stay abreast of these issues and facilitate the State providing technical input to the Department of Energy. I understand the Governor's Office expects the Department of Energy to conduct a comprehensive and objective study of this topic in the near future. I share in this expectation and will urge the Department of Energy to ask that the study authors provide an opportunity for review and input before the study is finalized.

Your letter also expressed support for the State's Proposal to Amend the Hanford Tank Waste Consent Decree released by Governor Inslee and me on March 31, 2014. I appreciate your expression of support for our efforts to hold the Department of Energy accountable for emptying Hanford's Single Shell Tanks and treating the tank waste to a stable form. We expect the federal government to accomplish this work as quickly and effectively as possible, and we believe our proposal identifies a roadmap for doing so. I want to assure you that we expect the Department of Energy and its contractors to accomplish this cleanup work while ensuring the protection of the workforce.

Sincerely,


BOB FERGUSON
Attorney General

Thanks for your letter, Tom.

RWF/jlg



April 21, 2014

Mr. Bob Ferguson
Attorney General
State of Washington
1125 Washington Street SE
PO Box 40100
Olympia, WA 98504-0100

RE: Protecting the Health and Safety of Hanford Workers

Dear Mr. Ferguson,

I am writing to urge your office to consider utilizing authority under the Resource Conservation and Recovery Act (RCRA) to provide protection to workers suffering injuries and illnesses as a result of the cleanup work being conducted at the Hanford nuclear site. The specific injuries and illnesses to which I am referring result from chemical vapor exposures from Hanford's underground high-level radioactive waste tanks. There has been a documented 25-year failure of Hanford management to protect these workers. These workers include contractor and subcontractor private sector employees as well as Washington state employees who are assigned to work around, in or near Hanford's nuclear waste tanks,

As of this writing, over two dozen workers have **reported symptoms related to chemical vapor exposure** in Hanford's tank farms in the past three weeks. Hanford Challenge has been a staunch advocate of protecting workers from chemical vapor exposure through supplied air, increased monitoring of the full spectrum of the 1,400 toxic chemicals that have been found in Hanford's tanks, and policies that acknowledge the uncertainty and inaccuracy of vapor monitoring.

Current practices leave Tank Farm workers at immediate risk for serious harm to their health. The U.S. Department of Energy (DOE) has 170 more tanks of waste to empty over the next several decades at Hanford. This means many more years of potential toxic exposures of Washington State citizens who happen to work at the nation's most notorious and most contaminated toxic waste site. RCRA has been used in industrial health contexts, and courts have acknowledged Congress's intentions to protect worker health, as well as public health, under the law.

Using worker safety and health provisions in RCRA would save the lives and health of an untold number of present and future Tank Farm workers. We appeal to your office to keep this authority in mind as you enter possible negotiations with the Department of Energy on new Consent Decree Amendments.

There is a long history of worker exposure to toxic vapors in the Hanford Tank Farms.

In 2004, the Department of Energy was forced to admit that Hanford's cavalier attitude towards the chemical harms inherent in these vapors was not protecting Hanford workers. Both NIOSH¹ and the DOE², and the State of Washington all filed reports agreeing with our investigative findings³. Past exposures have led to toxic encephalopathy, neurological damage, nerve damage, and long-term chemical sensitivity.

However, it took another five years for contractors to make substantial improvements in their programs to protect workers from these vapors. Because of contractor turnover and shifts in management, contractors appear to be backsliding on protections for workers from chemical vapor exposure.

Hundreds of site workers have been sent to the medical provider and/or to the hospital following exposure to these chemical vapors over the past 25 years. Yet, consider:

- The chemical vapors that emit periodically but unpredictably from these tank headspaces are, for all practical purposes, impossible to quantify or qualify. In other words, there are thousands of chemicals in the headspaces of these tanks, and numerous potential emission points. There is simply no way to characterize real-time exposures, much less arrive at an assessment of potential health damage that might result from a single-point or synergistic effect exposure.
 - This is true even though *a very few* of the chemicals, such as ammonia, are subject to field testing. Still, not every worker is always tested at all times.
 - Many of the chemicals present in the headspaces are known carcinogens, such as nitrosamines like NDMA⁴. Others, like mercury and di-methyl mercury, affect the nervous system. There is no field test for these classes of chemicals, and no Occupational Exposure Limit has been set for many other chemicals. It is extremely difficult if not impossible to test for some of these chemicals in the human body after an exposure.
- Workers who complain of symptoms that could be related to chemical vapor exposure *have the choice* of reporting to the offsite medical clinic, which takes at least an hour and a half to three hours to reach from the tank farms (largely because of distance, but even

¹ NIOSH Health Hazard Evaluation Report. HETA #2004-0145-2941. CH2M Hill Hanford Group, Inc. and US DOE, ORP, Richland WA. July 2004. Available at: <http://www.hanfordchallenge.org/wp-content/uploads/2010/06/2004-July-NIOSH-Health-Hazard-Evaluation-Report.pdf>

² Office of Independent Oversight and Performance Assurance Office of Security and Safety Performance Assurance U. S. Department of Energy Investigation of Worker Vapor Exposure and Occupational Medicine Program Allegations at the Hanford Site. April 2004. Available at: <http://www.hanfordchallenge.org/wp-content/uploads/2010/06/2004-May-HSS-Investigation-of-Worker-Vapor-Exposure.pdf> [hereinafter, DOE OA Report].

³ Hanford Challenge. Knowing Endangerment: WORKER EXPOSURE TO TOXIC VAPORS AT THE HANFORD TANK FARMS. September 2003. Available at: http://www.hanfordchallenge.org/cmsAdmin/uploads/2003_Knowing_Endangerment_002.pdf

⁴ N-Nitrosodimethylamine (NDMA), is highly toxic, especially to the liver, and is a suspected human carcinogen. Hanford has set an Occupational Exposure Limit of 3 parts per billion.

- more so because workers have to "suit out" and be cleared to leave the controlled tank farm area). It is usually many hours before a blood sample is drawn. In this amount of time, many organic chemicals have volatilized and are no longer present in the blood.
- Workers are not required to don protective equipment except in limited circumstances. In most cases, Hanford workers wear no Personal Protective Equipment (PPE) to protect their lungs. The only truly effective PPE available to workers against chemical vapors is supplied air, referred to onsite as Supplied Canister Breathing Apparatus, (or SCBA). Despite assurances to the contrary from the contractor, we have documented that workers are routinely denied use of SCBA upon request, with the Industrial Hygienist declaring that it is safer to not wear it because a worker might trip or get heat stress. Workers are not provided wheeled carriers to transport the heavy oxygen bottle to alleviate those stresses.
 - Use of scrubber technology has been rejected out of hand despite recommendations from independent experts. The use of scrubber technology would provide protection against exposure for most, if not all chemicals, however it has been deemed uneconomical.

There have been serious and long-lasting health effects that have resulted from chemical vapor exposures at Hanford.

There have been numerous examples of serious and long-term injuries and illnesses resulting from chemical vapor exposure. Some workers have received long-term compensation for these injuries and illnesses, while others have not been able to afford the legal resources required to fight a multi-year battle for compensation.

One example is that of a Nuclear Chemical Operator employed at the Hanford Tank Farms. He worked at Hanford from 1985 to 2007. In August 2003, this worker experienced a severe vapor exposure incident while working around some of Hanford's high-level nuclear waste tanks.

As a result of the August 17, 2003 chemical vapor exposure, the worker went from being a healthy individual to someone who suffers severe adverse health effects that continue to affect the quality of his life. Within 12 hours of the exposure, his left eye began to swell and continued to be irritated for several days. Medical tests determined that he had lost almost half of his lung capacity. He has been in and out of the hospital on numerous occasions, and has been diagnosed with Reactive Airways Dysfunction Syndrome. The worker now has serious physiological reactions upon exposure to certain common chemicals. He also suffers from neuropathy, a condition that affects his motor skills and balance, again diagnosed as connected to his workplace exposure.

His worker compensation claim was finally accepted in 2007 and he was granted permanent, long-term disability. He remains disabled of this writing.

There are other cases of workers receiving medical diagnoses and compensation resulting from tank vapor exposures. Despite adjudications, these cases are not acknowledged by contractor or DOE officials, and tend to be forgotten over time. The tragedy of these exposures and resulting illnesses is that most are preventable. But Hanford has not taken appropriate measures to protect

workers from these vapors, preferring to characterize the incidents as “smells” or “odors”, and sending obviously ill people back to work despite their obvious symptoms. Some workers have gone public with their recent experiences on KING 5 news.

These incidents can and should be prevented.

The Department of Energy (DOE) is the legal entity that owns and operates the Hanford nuclear site. DOE hires contractors to perform work under a series of contracts. The State of Washington and EPA have entered into a cleanup agreement, including Consent Decrees, to accomplish the cleanup of the vast inventories of the radioactive and chemical wastes at Hanford.

The DOE is a self-regulating entity when it comes to health and safety. The DOE is not subject to OSHA jurisdiction, nor the jurisdiction of Washington State’s version of OSHA, WISHA. This is an artifact of the national security nature of Hanford’s work until 1989, when Hanford stopped making plutonium for the nation’s nuclear arsenal. DOE has not effectively regulated the health and safety behaviors of its contractors relative to the issue of chemical vapor exposure.

Despite years of controversy, the introduction of expert panels, and numerous new exposures, Hanford is not preventing serious chemical vapor exposure incidents from occurring. Because of the nature of the exposures, no medical specialist is able to ascertain the short or long-term effects of the exposures. Workers are simply ordered back to work, and for the most part, their claims for days off because of injuries and illness at work are denied and fiercely contested by Hanford contractors.

Exposure incidents could increase with expedited work and waste transfers if protective measures are not required.

In your March 31, 2014 press conference with Governor Inslee, you announced a series of new measures designed to improve accountability of Hanford cleanup. The plan requires completion of all waste treatment no later than 2047; removal of waste from leaking single-shell tanks; building at least 8 new double-shell tanks; new requirements for groundwater treatment; and increased transparency, including regular progress reports.⁵

The disclosure by DOE that there is a new leak in AY-102 was followed by a meeting between Secretary of Energy Moniz and Washington Governor Jay Inslee. The State was none too pleased with DOE’s proposed actions. First, the Department of Ecology issued an Administrative Order requiring DOE to begin operations to pump out failed double-shelled tank AY-102 by September 2014. Then you and the Governor released the State’s plan to counter DOE’s insufficient proposed plan.⁶

⁵ Attorney General Bob Ferguson. State of Washington’s Proposal to Amend the Consent Decree. March 31, 2014. Available at: <http://www.hanfordchallenge.org/wp-content/uploads/2014/03/3-31-14StateProposalCvrLtr.pdf>

⁶ US Department of Energy. Proposal to the State of Washington to Amend the Consent Decree. March 14, 2014. Available at: http://energy.gov/sites/prod/files/2014/03/f14/Proposal%203-31%20FINAL_0.pdf

Hanford Challenge applauds the State for taking decisive regulatory action. The big question is whether DOE can or will meet the legally-binding deadlines, and if so, whether appropriate action will be taken to protect those performing the cleanup.

Our concern is that as the DOE tells its contractors to start pumping the tanks faster – a position we rigorously support – workers will be put in harm's way because neither the DOE nor the contractor will take the necessary steps to protect those workers from future exposures. This same scenario happened in the late 1990's, with the advent of saltwell pumping of the Single Shell tanks.

What tools are available for the State to protect Washington citizens from the chemical vapor exposures?

With enactment of the Resource Conservation and Recovery Act (RCRA) 42 USC § 6901 et. seq., Congress provided opportunities to bring suit against those who present an imminent and substantial endangerment to health or the environment while contributing to the handling of solid or hazardous waste. RCRA allows the EPA or equivalent state agency, if it receives "evidence that the past or present handling, storage, treatment, transportation or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to health or the environment," to "bring suit... against any person... who has contributed or who is contributing to such handling, storage, treatment, transportation or disposal to restrain such person from such handling, storage, treatment, transportation, or disposal, to order such person to take such other action as may be necessary, or both." 42 U.S.C. § 6973(a) The court can provide both injunctive relief and up to \$5000 per day in penalties for violations. 42 U.S.C. § 6973(b).

Congress also provided citizens with the right to protect their health and the environment by bringing suit for injunctive relief from "imminent and substantial endangerment." 42 U.S.C. § 6972(a)(1)(B). Any person may commence a civil action on his own behalf:

against any person, including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution, and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.

42 U.S.C. § 6972(a)(1)(B)

RCRA has an expansive definition of "person" to include "an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality commission, political subdivision of a State, or any interstate body, and ... each department, agency, and instrumentality of the United States." 42 U.S.C. § 6903(15). Furthermore, the court may order injunctive relief to remedy the dangerous situation. 42 U.S.C. § 6972(a).

The phrase "endangerment to health" has been broadly construed. In the past, the EPA, groups, and individuals have exercised this right in a variety of situations to protect health, including where PCBs had possibly contaminated soil on an industrial site and the fish in a nearby river; where mercury had contaminated seafood meant for human consumption; where asbestos contamination risked being blown offsite; and where a chemical plant contaminated surface water with quantities of a chemical that made it possibly teratogenic, mutagenic, fetotoxic, and carcinogenic. *United States v. Union Corp.*, 259 F. Supp. 2d 356, 382 (E.D. Pa. 2003); *Maine People's Alliance v. Holtrachem Mfg. Co.*, 211 F. Supp. 2d 237, 249-50 (D. Me. 2002), *aff'd Maine People's Alliance v. Mallinckrodt, Inc.*, 471 F.3d 277 (1st Cir. 2006); *Wilson v. Amoco Corp.*, 989 F. Supp. 1159, 1176 (D. Wyo. 1998).

The State can and should include health and safety of workers in its agreements, consent decrees and enforcement actions.

In the case of the Hanford Tank Farms, the State should consider using the imminent and substantial endangerment provisions of RCRA to protect the workers from unsafe working conditions. Though mainly used for environmental protection, courts have also used RCRA in industrial health contexts and have recognized Congress's expansive objectives in enacting the legislation. Such instances include:

- One federal court directly addressed the use of RCRA to protect industrial health in a situation involving anthrax contamination at a postal facility. *Massone v. Reyna*, 2002 WL 31016643 (S.D.N.Y. 2002), *Smith v. Potter*, 208 F. Supp. 2d 415 (S.D.N.Y. 2002). Though these cases were dismissed for lack of imminent threat because the anthrax had already been cleaned up, these cases illustrate this court's acceptance of the possibility of using the "imminent and substantial endangerment" provision of RCRA to protect worker health.

The First Circuit recognized Congress's intention to include protection of worker safety in RCRA: "[U]nlike the Clean Water Act, RCRA exhibits explicit concern for industrial health." *United States v. Borowski*, 977 F.2d 27, 31 (1st Cir. 1992).

Further illustrating the statute's use in protecting industrial health, RCRA includes a separate criminal provision for "knowing endangerment" which has been used to deter employers from endangering the lives and health of their workers. 42 U.S.C. § 6928(e). Courts have upheld convictions under this provision of an employer who knowingly placed employees at risk for solvent poisoning and cancer and an employer who knowingly exposed employees to cyanide gas, among others. *United States v. Protex Industries, Inc.*, 874 F.2d 740 (10th Cir. 1989); *United States v. Elias*, 269 F.3d 1003 (9th Cir. 2001).

Additionally, Tank Farm workers at Hanford have no other recourse in obtaining safe working conditions where such conditions do not already exist. The Occupational Safety and Health Administration (OSHA) does not have jurisdiction at Hanford, and the only legal remedy

available to Hanford workers is an appeal to DOE. This creates an inherent conflict of interest. Spending resources to protect employee health and safety directly detracts from meeting deadlines affect costs and ability to meet deadlines. Workers have made this appeal repeatedly, to no avail.

DOE has traditionally lacked the tools or the wherewithal to provide appropriate oversight to its contractors at the Tank Farms on this issue. The 2004 DOE OA Report found that DOE's Office of River Protection did not have the "sufficient industrial hygiene expertise to adequately perform its line management oversight responsibilities."⁷ Consequently, the contractor's procedures and practices at the Tank Farms included the following inadequacies: insufficient sampling and characterization of tank vapors, insufficient personal vapor exposure data, inadequate direct-reading instrument and personal exposure records, limitations of instruments to detect some vapors, lack of industrial hygiene technician procedures, insufficient industrial hygiene technician training and qualification, shortcomings in the respiratory protection program, and insufficiently detailed hazard analysis and identification.⁸ The resulting lack of information about chemical composition and levels of exposure leads to insufficient protection guidelines and subsequently, increased exposures. Then, the workers who have been injured face a difficult case in linking their symptoms and conditions to the exposures to unknown chemical components.

Congress intended and courts have held that RCRA is meant to protect human health as well as the environment. Because Hanford Tank Farm workers have no other viable legal options, the Department of Ecology, or the workers themselves, should use the "imminent and substantial endangerment" provisions of RCRA to obtain safer working conditions.

Hanford Tank Farm workers are subjected to imminent and substantial endangerment.

Courts have held that in order to establish a prima facie case in a § 6972(a)(1)(B) claim, plaintiffs must demonstrate:

That the defendant is a person, including, but not limited to, one who was a generator or transporter of solid or hazardous waste or one who was or is an owner or operator of a solid or hazardous waste handling, storage, treatment, or disposal facility;

That the defendant has contributed to or is contributing to the handling, storage, treatment, transportation, or disposal of solid or hazardous waste; and

The waste may present an imminent and substantial endangerment to health or the environment. *Cox v. City of Dallas*, 256 F.3d 281, 292 (5th Cir. 2001); see 42 U.S.C. § 6972(a)(1)(B); see also *Burlington Northern & Santa Fe Railway Co. v. Grant*, 505 F.3d 1013, 1020 (10th Cir. 2007); *Interfaith Community Org. v. Honeywell Int'l, Inc.*, 399 F.3d 248, 258 (3d Cir. 2005), *denied cert.* 545 U.S. 1129 (2005) (*quoting Parker v. Scrap*

⁷ DOE OA Report at 7.

⁸ *Id.* at 5.

Metal Processors, Inc., 386 F.3d 993, 1014-15 (11th Cir. 2004)); *Parker*, 386 F.3d at 1014-15 (quoting *Cox*, 256 F.3d at 292).

A similar three-prong test applies to an EPA or Department of Ecology action under 42 USC § 6973(a). *United States v. Bliss*, 667 F. Supp. 1298, 1313 (E.D. Mo. 1987) (To establish a prima facie case for a § 6973(a) claim, the government must show 1) that the conditions on the site present an imminent and substantial endangerment; 2) that the defendant has contributed or is contributing to handling, storage, treatment, transportation, or disposal of any solid or hazardous waste; and 3) that the endangerment stems from the handling, storage, treatment, transportation, or disposal of such waste.); see 42 U.S.C. § 6973(a).

The Hanford Tank Farms are licensed as Treatment Storage and Disposal (TSD) facilities under RCRA according to the Tri-Party Agreement. Thus, if the Department of Ecology commences an action against DOE or the Tank Farm contractor (CH2M Hill or Washington River Protection Solutions) to force stricter work safety requirements, the first two prongs of the test should be easily met. The potential defendants own and operate a TSD facility for solid and hazardous waste and contribute to the handling of the waste. The question then becomes whether the waste may present an imminent and substantial endangerment to health or the environment.

A. Tank Farm workers face “endangerment” because there is threatened or potential harm.

Building upon earlier interpretations of the term regarding other environmental statutes, courts have held that “endangerment” in RCRA “means a threatened or potential harm and does not require proof of actual harm.” *Interfaith Community Org.*, 399 F.3d at 258; see also *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 486 (1996); *Parker*, 386 F.3d at 1015; *Davis v. Sun Oil Co.*, 148 F.3d 606, 610 (6th Cir. 1998); *Price v. U.S. Navy*, 39 F.3d 1011, 1019 (9th Cir. 1994); *Dague v. City of Burlington*, 935 F.2d 1343, 1356 (2d Cir. 1991), *rev'd on other grounds*, 505 U.S. 557 (1992); *Reserve Mining Co. v. U.S. Environmental Protection Agency*, 514 F.2d 492, 528 (8th Cir. 1975). Additionally, the term “may” in the statute further indicates that the harm should be potential rather than actual. 42 U.S.C. § 6972(a)(1)(B); see *Parker*, 386 F.3d at 1015; *Cox*, 256 F.3d at 299. The Department of Ecology, or another plaintiff in a citizen suit, need not prove that an endangerment actually exists,” but only “that there may be ‘an ... endangerment.’” *United States v. Valentine*, 856 F. Supp. 621, 626 (D. Wyo. 1994); see also *Interfaith Community Org.*, 399 F.3d at 258; *Parker*, 386 F.3d at 1015. Such language is meant to be expansive, allowing courts the “authority to grant affirmative equitable relief to the extent necessary to eliminate any risks posed by toxic wastes.” *Dague*, 935 F.2d at 1355; see also *Parker*, 386 F.3d at 1015; *United States v. Price*, 688 F.2d 204, 214 (3d Cir. 1982).

The “threatened or potential harm” standard does have limitations, however. Endangerment will not be found “if the risk of harm is remote in time, completely speculative in nature, or de minimis in degree” *W.R. Grace Co. v. U.S. Environmental Protection Agency*, 261 F.3d 330, 339-40 (3d Cir. 2001). Additionally, no endangerment exists where the cause of the endangerment no longer presents a danger. *Meghrig*, 516 U.S. at 485-86. Attempting to define a

more precise standard of “threatened or potential harm,” some courts have adopted a reasonableness standard, suggesting that “[a]n imminent and substantial endangerment will be found to exist if there is ‘reasonable cause for concern that someone or something may be exposed to a risk of harm if remedial action is not taken.’” *Foster v. United States*, 922 F. Supp. 642, 661 (D.D.C. 1996) (citing *United States v. Conservation Chem. Co.*, 619 F. Supp. 162, 194 (W.D. Mo. 1985)).

Existing reports, along with witness and expert testimony, should be sufficient to establish that vapors in Hanford tank farms present a reasonable cause for concern, threaten to harm exposed workers, and entail a risk of harm that is by no means speculative. PNNL concluded “the risk of contracting cancer from these chemical vapors could be as high as 1.6 in 10.”⁹ Based on PNNL’s estimation of risk, at least 10 of the 67 workers exposed between January 2002 and August 2003 could contract cancer as a result of exposure.¹⁰ More saliently, there are several cases of workers suffering permanent, long-term disability as a result of an exposure or exposures to chemical tank vapors. These cases have been reviewed, accepted and paid by the State of Washington’s Labor and Industries worker compensation system, as well as under the federal Energy Employees Occupational Injury Compensation Program Act (EEOICPA). These particular cases can be provided to Ecology upon request.

B. The threatened harm is immediate and, therefore, “imminent.”

The potential harm must also be “imminent and substantial.” This standard does not necessarily require an emergency situation. *Dague*, 935 F.2d at 1355-56; *United States v. Waste Industries, Inc.*, 734 F.2d 159, 165 (4th Cir. 1984); *Valentine*, 856 F. Supp. at 626; *Lincoln Properties, Ltd. v. Higgins*, 1993 WL 217429, 12 (E.D. Cal. 1993). However, this language sets limits on the more expansive “may present an ... endangerment.”

Imminence refers to the temporal aspect of the threatened harm. Just as courts have declined to entertain “speculative” risks, they have drawn the outer limit for ‘imminence’ at “risk[s] of harm remote in time.” See *Massone*, 2002 WL 31016643 at 11-12; *Wilson*, 989 F. Supp. at 1172; see also *Christie-Spencer Corp. v. Hausman Realty Co.*, 118 F. Supp. 2d 408, 418 (S.D.N.Y. 2000); *Vernon Village Inc. v. Gottier*, 755 F. Supp. 1142, 1154 (D. Conn. 1990). “An endangerment can only be ‘imminent’ if it threatens to occur immediately.” *Meghrig*, 516 U.S. at 485. This immediacy refers to the threat rather than the actual harm. *Id.* at 486. The Ninth Circuit found that “a finding of ‘imminency’ does not require a showing that actual harm will occur immediately so long as the risk of the threatened harm is present.... The RCRA provision implies that there must be a threat which is present now, although the impact of the threat may not be felt until later.” *Price v. U.S. Navy*, 39 F.3d at 1019.

Endangerment of unprotected workers at Hanford is “imminent” whether a court seeks immediacy or considers health impacts “not [to] be realized, if ever, for many years.” *Wilson*, 989 F. Supp. at 1174. While cancerous developments may not be easy to describe as immediate

⁹ *Knowing Endangerment* at 1.

¹⁰ *Id.*

consequences of vapor exposure, evidence that past exposures led to cancer developments, and that current exposures are statistically likely to lead to cancer, will tend to support an assertion that cancers are very likely to develop with time. Congressional legislation compensating workers exposed to radiation who later contracted cancer could be used to support this assertion.¹¹ Aside from the long-term risks, no one can question the immediacy of other symptoms reported by exposed workers, many of which occurred at the time of exposure. Symptoms include weeping lungs, increased heart rate, chronic shortness of breath, and permanent changes in the sound of one's voice.

C. The threatened harm is serious and, therefore, "substantial."

Courts have differed on their interpretations of "substantial." Most agree that "substantial" is not necessarily a defined quantity and can be based on non-definitive data or circumstantial evidence. *Interfaith Community Org.*, 399 F. 3d at 259; *Holtrachem Mfg. Co.*, 211 F. Supp. 2d at 247. At that point, some courts use a reasonableness test: "Endangerment is 'substantial' if there is some reasonable cause for concern that someone or something may be exposed to risk or harm if remedial action is not taken." *Interfaith Community Org.*, 399 F.3d at 259. Others have held that an endangerment is "substantial" only if the threatened harm is "serious." *Mallinckrodt, Inc.*, 471 F.3d at 288; *Parker*, 386 F.3d at 1015; *Cox*, 256 F.3d at 300; *Price v. U.S. Navy*, 39 F.3d at 1019. Under either standard, the risk of harm to the Tank Farm workers is substantial.

It is not entirely clear, either, whether "substantial" refers to the size of the risk or the degree of harm. Courts seem to have taken it to mean both. The Ninth Circuit upheld a lower court finding that the soil under plaintiff's house "did not contain significant hazardous contaminants" and thus, was not substantial; whereas the Tenth Circuit looked for death or serious bodily harm in applying the "substantial" standard. *Price v. U.S. Navy*, 39 F.3d at 1020; *Protex Industries Inc.*, 874 F.2d at 744. Either way, a court will consider whether serious harms are significantly likely to result from worker exposure to vapors at Hanford's tank farms.

Hundreds of employees work in and around the Hanford tank farms on a daily basis and around the clock. Pipefitters, construction workers, electricians, millwrights, nuclear chemical operators, health physics technicians, and others comprise the bulk of workers who routinely encounter potentially deadly vapors from the up to 2400 chemicals that can and do escape the tanks with inadequate or non-existent protective equipment. Cancer, to say nothing of a number of gruesome injuries and adverse health effects already documented at Hanford, does constitute a serious harm "substantially" affecting workers' wellbeing. Furthermore, DOE sanctioned cancer risk assessments, along with evidence of widespread health effects of vapor exposure, should support a finding that exposure "substantially" endangers workers, by subjecting them to a strong likelihood that their health will suffer.

¹¹ *Id.* at 3.

D. Workers are not assuming the risks associated with inadequate protection.

DOE and its contractors are likely to argue that workers assume a degree of risk by accepting employment at the Tank Farms and that degree of risk includes the possibility of being exposed to toxic vapors along with the other risks of more serious harms that threaten workers in the course of their dangerous jobs.

While Tank Farm workers are accepting some risk of employment-related accident by virtue of working with nuclear waste, simply working at the Tank Farms should not be considered assuming the risk of working in such manifestly unsafe conditions. Workers' health is adversely affected by policies and practices that could be reasonably remedied. Personal protective equipment is not readily available to workers.¹² Lack of information about tank contents and its unpredictable behavior makes regarding any tank conditions at any time as safe enough to preclude use of protective gear inadvisable at best.¹³ DOE itself concluded, "Until a protection strategy is defined and supported by an effective industrial hygiene program, a conservative approach to the use of personal protective equipment is warranted."¹⁴ Recent incidents indicate that such an effective program is not yet in place. Vapors continue to go uncharacterized, and personal exposure continues to go unmonitored. If such protective measures were established and followed, workers would face a significantly lower risk of detrimental exposure. Workers have not unilaterally assumed the level of risk presented by unprotected exposure to vapors (and often have, to the contrary, asked for protection).¹⁵

RCRA itself contains the stated objective assurance "that hazardous waste management practices are conducted in a manner which protects human health..." 42 U.S.C. § 6902(a)(4). This statutory language, in conjunction with statements by federal courts, suggests that, where possible, RCRA can be used to safeguard workers. See *Borowski*, 977 F.2d at 31 (observing that "RCRA exhibits explicit concern for industrial health"); *Price*, 688 F.2d at 213-14 ("Congress, by enacting section 7003, intended to confer upon the courts the authority to grant affirmative relief to the extent necessary to eliminate any risks posed by toxic wastes").

A mandatory injunction requiring use of "personal protective equipment" (such as air purifying and supplied air respirators) would raise the bar for human health protection at the Tank Farms. Moreover, RCRA compels provision of such equipment where workers are threatened with increased risks of contracting cancer and a number of other vapor exposure related harms.

Conclusion

At the beginning of the DOE complex-wide cleanup, the Office of Technology Assessment (OTA) issued a report warning that DOE's lack of attention to worker safety posed dangers to

¹² DOE OA Report, at 5 & 7; *Knowing Endangerment*, at 19 & 28; NIOSH HHE Report, at 15.

¹³ *Knowing Endangerment*, at 5.

¹⁴ DOE OA Report, at 7.

¹⁵ *Knowing Endangerment*, at 19-23 & 28.

individual workers and the entire cleanup effort of the Nuclear Weapons Complex.¹⁶ OTA noted that the only way to effectively protect cleanup workers from the numerous detrimental health effects of toxic exposure required "that managers pay vigilant attention to identifying and anticipating potential site hazards and devote adequate resources to design and implementation of the occupational health and safety programs needed to mitigate such hazards."¹⁷ OTA also stressed worker training in recognizing potential dangers and using protective gear.¹⁸

Instead, OTA found poor contracting practices, lack of management commitment and accountability, inadequate characterization of potential hazards, and weak oversight of the occupational health and safety regulations that were in place.¹⁹ Unfortunately, Hanford workers still face many of the same dangers due to the same underlying issues that the cleanup workers did in 1993.

DOE is left with 170 more tanks of waste to empty over the next several decades at Hanford. This means many more years of potential toxic exposures of Washington State citizens who happen to work at the nation's most notorious and most contaminated toxic waste site. The longer that DOE continues its traditional culture of undervaluing worker safety, the higher the number of future exposures and the higher the number of lives destroyed. While using RCRA's substantial and imminent endangerment provisions to protect workers may be unorthodox, it does fall within the purview of the law. In the past, RCRA has been used in industrial health contexts, and courts have acknowledged Congress's intentions to protect worker health, as well as public health, under the law. Tank Farm workers currently have no other legal means to do so and thereby protect their own safety. Moreover, current practices leave Tank Farm workers at immediate risk for serious harm to their health.

Using the provisions afforded to the State in RCRA would save the lives and health of an untold number of present and future Tank Farm workers. We appeal to your office to keep this authority in mind as you come up to possible negotiations with the Department of Energy on new Consent Decree Amendments.

¹⁶ U.S. Congress, Office of Technology Assessment, *Hazards Ahead: Managing Cleanup Worker Health and Safety at the Nuclear Weapons Complex*, OTA-BP-O-85 (Washington, DC: U.S. Government Printing Office, February 1993), 5.

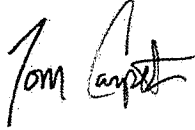
¹⁷ *Id.* at 4.

¹⁸ *Id.*

¹⁹ *Id.* at 6-11.

I request a meeting to discuss this matter further.

Respectfully yours,

A handwritten signature in black ink that reads "Tom Carpenter". The signature is written in a cursive, slightly slanted style.

Tom Carpenter, Executive Director
Hanford Challenge

cc: Gov. Jay Inslee
M. Bellon, Director, Department of Ecology
J. Hedges, Director, NWP