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8 UNITED STATES DISTRICT COURT FOR THE
 9 EASTERN DISTRICT OF WASHINGTON

10 HANFORD CHALLENGE, and
 UNITED ASSOCIATION OF
 11 PLUMBERS AND STEAMFITTERS
 LOCAL UNION 598, and the STATE
 12 OF WASHINGTON,

13 Plaintiffs,

14 v.

15 ERNEST MONIZ, in his official
 capacity as Secretary, UNITED STATES
 DEPARTMENT OF ENERGY, and
 16 WASHINGTON RIVER
 PROTECTIONS SOLUTIONS, LLC,

17 Defendants.

NO. 4:15-cv-05086-TOR

(consolidated with NO. 4:15-cv-
 05087-TOR)

**CITIZEN PLAINTIFFS' MOTION
 FOR PRELIMINARY
 INJUNCTION**

**Note on Motion Calendar: 8/22/16
 Without Oral Argument**

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 CITIZEN PLAINTIFFS' MOTION FOR
 PRELIMINARY INJUNCTION
 CASE NO. 4:15-cv-05086-TOR

TABLE OF CONTENTS

1		Page
2		
3	I. INTRODUCTION	1
4	II. FACTS	2
5	A. The Dangers Associated with Chemical Vapors Released	
6	from Hanford’s Hazardous Waste Tanks Are Well	
7	Documented.....	2
8	B. Hanford Workers and Medical Doctors Confirm the	
9	Harm Caused by Tank Vapors	6
10	C. Current Industrial Hygiene Practices at Hanford Do Not	
11	Adequately Protect Workers	11
12	D. WRPS and DOE Minimize the Health Effects for Vapor	
13	Exposures and Have Not Implemented Key	
14	Recommendations from the TVAT Report.....	13
15	E. Accepted Principles of Industrial Hygiene Demand	
16	Greater Protection of Worker Health	15
17	III. AUTHORITY AND ARGUMENT	16
18	A. Citizen Plaintiffs Have Standing.....	16
19	B. Plaintiffs Are Entitled to a Preliminary Injunction	18
20	C. Plaintiffs Are Likely to Prevail on Their Claim that	
	Defendants Are Contributing to an Imminent and	
	Substantial Endangerment to Human Health	18
	1. Endangerment Is a Lenient and Highly	
	Protective Standard	19

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

2. Recent Worker Exposures and Injuries Are Sufficient to Demonstrate Endangerment.....22

D. The Court Should Order WRPS to Expand Its Vapor Control Zones and Require Mandatory Use of Supplied Air Within Those Zones.....25

E. Granting a Preliminary Injunction Avoids Potential Irreparable Harm to Workers’ Health That Outweighs any Harm to Defendants.....28

F. No Bond or Only a Minimal Bond Should Be Required30

III. CONCLUSION31

TABLE OF AUTHORITIES

	Page
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Barahona-Gomez v. Reno,
167 F.3d 1228 (9th Cir. 1999)30

California ex rel. Van de Kamp v. Tahoe Reg. Planning Agency,
766 F.2d 1319 (9th Cir. 1985)30

Ctr. For Cmty. Action and Env'tl. Justice v. BNSF Ry. Co.,
764 F.3d 1019 (9th Cir. 2014)19

Cmty. Ass'n for Restoration of the Env't, Inc. v. Cow Palace, LLC,
80 F. Supp. 3d 1180 (E.D. Wash. 2015)18, 21

Columbia Falls Aluminum Co. v. EPA,
139 F.3d 914 (D.C. Cir. 1998).....24

Concerned Area Residents for the Env't v. Southview Farm,
34 F.3d 114 (2d Cir. 1994)24

Desert Palace, Inc. v. Costa,
539 U.S. 90 (2003)24

Franklin Cnty. Convention Facilities Auth. v. Am. Premier Underwriters, Inc.,
240 F.3d 534 (6th Cir. 2001)23

Friends of the Earth, Inc. v. Laidlaw Env'tl. Servs.,
528 U.S. 167 (2000)17

Golden Gate Rest. Ass'n v. City & Cty. of San Francisco,
512 F.3d 1112 (9th Cir. 2008)25

Interfaith Cmty. Org. v. Honeywell Int'l, Inc.,
399 F.3d 248 (3d Cir. 2005) *passim*

Maine People's Alliance v. Holtrachem Mfg. Co.,
211 F. Supp. 2d 237 (D. Me. 2002) *passim*

1 *Middlesex Cty. Bd. v. N.J.*,
645 F. Supp. 715 (D.N.J. 1986).....19

2

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698 F. Supp. 1504 (W.D. Wash. 1988)31

4 *Maine People’s Alliance and NRDC v. Mallinckrodt, Inc.*,
471 F.3d 277 (1st Cir. 2006)29

5

6 *Parker v. Scrap Metal Processors, Inc.*,
386 F.3d 993 (11th Cir. 2004)20

7 *Presidio Golf Club v. Nat’l Park Serv.*,
155 F.3d 1153 (9th Cir. 1998)18

8

9 *State of Georgia v. City of East Ridge*,
949 F. Supp. 1571 (N.D. Ga. 1996).....24

10 *Summers v. Earth Island Inst.*,
555 U.S. 488 (2009)16

11

12 *United Food v. Sw. Ohio Reg’l Transit*,
163 F.3d 341 (6th Cir. 1998)25

13 *U.S. v. Conservation Chem. Co.*,
619 F. Supp. 162 (D. Mo. 1985)..... 20, 21, 24

14

15 *U.S. v. Price*,
688 F.2d 204 (3d Cir.1982)22, 26

16 *U.S. v. Reilly Tar*,
546 F. Supp. 1100 (D. Minn. 1982)22

17

18 *U.S. v. Strandquist*,
993 F.2d 395 (4th Cir. 1993)24

19 *U.S. v. Vertac Chem. Corp.*,
489 F. Supp. 870 (E.D. Ark. 1980)21, 29

20

1 *U.S. v. Waste Indus., Inc.*,
734 F.2d 159 (4th Cir. 1984)22, 29

2
3 *Warth v. Seldin*,
422 U.S. 490 (1975)17

4
5 **FEDERAL RULES**

10 C.F.R. §85130

6 40 C.F.R. §302.44

7 **STATUTES**

8 42 U.S.C. § 6972(a)(1)(B)18, 20

9 **OTHER AUTHORITIES**

10 H. Rep. No. 1185, 93rd Cong., 2d Sess. 35–36 (1974)22

11 S. Rep. No. 284, 98th Cong., 1st Sess. 59 (1983).....20

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I. INTRODUCTION

1
2 Hanford workers are responsible for monitoring and cleaning up the
3 hazardous waste left behind by our nation's nuclear weapons program. Their
4 mission is to ensure that millions of gallons of highly toxic waste stored in 177
5 underground tanks are handled as safely and responsibly as possible. It is
6 important work. It is also dangerous work. For decades, Hanford workers have
7 been exposed to releases of toxic chemicals from the waste storage tanks into the
8 atmosphere. Despite hundreds of worker exposures and numerous cases of severe
9 illness as a result of exposures to these toxic vapors, the Department of Energy
10 (DOE) and its contractors managing the tank farms have failed to take reasonable
11 steps to protect workers from harmful exposures.

12 Hanford Challenge and the United Association of Plumbers and
13 Steamfitters Local 598 (Citizen Plaintiffs) move for a preliminary injunction
14 because their members should not have to choose between their jobs and their
15 health. Without an order from this Court, they will be forced to make that choice.
16 Since this case was filed, close to 100 Hanford workers have been exposed to
17 chemical vapors and sent for on-site medical evaluation. Many of those workers
18 have suffered short-term injuries such as breathing difficulties and nose bleeds.
19 Some tank farm workers have suffered long-term, debilitating lung and brain
20 damage. A preliminary injunction is necessary to protect the workers from the

1 imminent and substantial dangers caused by vapor releases at Hanford and is
2 supported by accepted industrial hygiene standards.

3 To reduce duplicate briefing, Citizen Plaintiffs incorporate and adopt the
4 State's motion for a preliminary injunction (ECF No. 48). Citizen Plaintiffs focus
5 on how and why workers have been exposed to highly toxic vapor releases in the
6 Hanford tank farms, how those releases have created an imminent and substantial
7 endangerment under RCRA, and why preliminary relief is appropriate.

8 In agreement with the State, Citizen Plaintiffs request that the Court order
9 WRPS and DOE to take several readily available short-term actions to
10 significantly reduce worker exposure to chemicals released from Hanford's waste
11 tanks during the pendency of this case. WRPS can and should increase the
12 mandatory use of supplied air,¹ expand the vapor control zones, and improve its
13 monitoring of tank vapors. These measures are necessary to protect workers
14 during the pendency of this suit and are described more fully below.

15 II. FACTS

16 A. The Dangers Associated with Chemical Vapors Released from 17 Hanford's Hazardous Waste Tanks Are Well Documented

18 _____
19 ¹ Supplied air is protective equipment, such as Self-Contained Breathing
20 Apparatus ("SCBA"), that allows workers to avoid breathing contaminated air.

1 Defendant U.S. Department of Energy (DOE) owns the tank farms at the
2 Hanford site, comprising 177 underground tanks containing 56 million gallons of
3 waste. ECF No. 23 (DOE Answer to Citizen Plaintiffs' Complaint) ¶¶ 22, 42;
4 ECF No. 24 (WRPS Answer to Citizen Plaintiffs' Complaint) ¶ 42; Declaration
5 of Bernard Mizula in Support of Citizen Plaintiffs' Motion for Preliminary
6 Injunction ("Mizula Decl.") at ¶ 4. Each "farm" of tanks is bounded by a chain
7 link fence (referred to as the "fence line" or tank farm boundary). Defendant
8 Washington River Protection Solutions ("WRPS") is DOE's prime contractor
9 managing cleanup at Hanford, including the treatment, storage and retrieval of
10 tank waste at the site. DOE Answer ¶ 43; WRPS Answer ¶ 24. Because older
11 single-shell tanks leak, DOE is transferring waste to double-shelled tanks. DOE
12 Answer ¶ 40; ECF No. 53 (Declaration of Bruce Miller in Support of State of
13 Washington's Motion for Preliminary Injunction ("Miller Decl.")), Ex. 6
14 (hereinafter "TVAT Report") at 21.² Vapor releases are often associated with
15 waste transfer activities. Declaration of Dr. Tim K. Takaro in Support of Citizen
16 Plaintiffs' Motion for Preliminary Injunction ("Takaro Decl.") at ¶ 28.

17 Hanford's tanks contain solid and liquid wastes, as well as vapors and
18 gases that originate from those wastes. DOE and WRPS Answers ¶ 44. "The tank

19 ² All citations to the TVAT Report are to page numbers of the report itself.
20

1 waste generates vapors as heat and radiation break down chemical compounds.”
2 Miller Decl., Ex. 8 (hereinafter “Implementation Plan”) at 4. “In the double-shell
3 tanks (DSTs), some chemical vapors are exhausted with active ventilation, while
4 the single-shell tanks (SSTs) are normally passively ventilated.” *Id.*; *see also*
5 DOE and WRPS Answers ¶¶ 46-51. Vapors must be vented from the tanks to
6 prevent explosions. TVAT Report at 26.

7 The main source of vapor releases are tank headspace vapors, which may
8 contain over 1,500 chemicals. DOE Answer ¶ 47; WRPS Answer ¶47. Some of
9 those chemicals are hazardous to human health. DOE Answer ¶¶ 28, 44; WRPS
10 Answer ¶44. Between 2005 and 2014, DOE measured concentrations of
11 ammonia, mercury, furan, and N-Nitrosodimethylamine that exceeded
12 occupational exposure limits (OELs). Declaration of Meredith Crafton in support
13 of Citizen Plaintiffs’ Motion for Preliminary Injunction (“Crafton Decl.”), Ex. 16.
14 EPA lists all of those chemicals as hazardous. 40 C.F.R. § 302.4. These chemicals
15 and others found in tank vapors are respiratory and neurologic toxicants. Takaro
16 Decl. ¶ 8; Table 1. After a worker was exposed to toxic chemical vapors in April
17 2016, WRPS measured exhaust stack readings that exceeded OELs. Crafton
18 Decl., Ex. 18 (Deposition of Thomas Fletcher (“Fletcher Dep.”)) at 348–349. In
19 any event the OELs in use are not fully protective. Mizula Decl. at ¶ 22.

20 Worker exposures to toxic chemical vapors at Hanford have been the

1 subject of formal reports and recommendations for more than twenty years.
2 TVAT Report at 92 (list of ten formal studies conducted between 1992 and 2010);
3 Crafton Decl., Ex. 18 (Fletcher Dep. at 252:15–25). The most recent official
4 report is the Hanford Tank Vapor Assessment Report. Miller Decl., Ex. 6. WRPS
5 commissioned the Savannah River National Laboratory to convene a panel of
6 experts to evaluate WRPS’ chemical vapors management and worker protection
7 measures and write that report after “some 50 [WRPS] and other employees
8 reported potential exposures to chemical vapors in and outside of the tank farms
9 and received medical evaluations for these events” in early 2014. Implementation
10 Plan at 1; DOE Answer ¶ 61.

11 The 2014 Hanford Tank Vapor Assessment Report concluded that “[t]he
12 ongoing emission of tank vapors, which contain a mixture of toxic chemicals, is
13 inconsistent with the provision of a safe and healthful workplace free from
14 recognized hazards,” and that Defendants’ hazard detection measures are
15 inadequate.” TVAT Report at 15. TVAT found that:

16 Of the issues facing the current IH [industrial hygiene]
17 program, the one causing the vast majority of reported
18 worker exposures requiring medical treatment comprise
19 short-term and acute (bolus) exposures, which cause
20 immediate symptoms in the workers and may or may
not develop into medical signs of chemical exposure.
The current program is not designed to detect and is
incapable of detecting and quantifying this type of
transient exposure event.

1 *Id.* at 17.

2
3 **B. Hanford Workers and Medical Doctors Confirm the Harm
4 Caused by Tank Vapors**

5 In addition to the TVAT and numerous other studies prepared for DOE and
6 its contractors, worker accounts of exposure and injury, coupled with diagnoses
7 from medical doctors establish that workers have been and continue to be harmed
8 in the tank farms.

9 [REDACTED] is an instrument technician and a member of Hanford
10 Challenge. ECF No. 65 (“[REDACTED].”) at ¶ 21. On August 14, 2015, [REDACTED]
11 was working about twenty feet from the exhaust ventilation stack for a tank in the
12 Hanford tank farms when he was exposed to toxic vapors. *Id.* at ¶ 14. His work
13 plan did not require protective breathing equipment, so he was not wearing any.
14 *Id.* at ¶ 12. Twenty minutes after his co-worker smelled an odor, [REDACTED] nose
15 started gushing blood. *Id.* at ¶ 14. While heading home from work that day, he
16 had difficulty breathing. *Id.* at ¶ 15. The next day [REDACTED] was admitted to the
17 hospital and diagnosed with pneumonitis of the lungs due to vapor exposure. *Id.*
18 at ¶ 16, Ex. 1 at 13. [REDACTED] is now disabled and unable to work at Hanford. *Id.*
19 at ¶ 20. Like many exposed workers, [REDACTED] exhibits both respiratory tract
20 and neurological complaints. Takaro Decl. ¶ 20

1 [REDACTED] has worked as a Health Physics Technician for WRPS at
2 Hanford since 2008. ECF No. 60 (“[REDACTED] Decl.”) at ¶ 2. On August 31,
3 2015, [REDACTED] was exposed while working in the C tank farm during a
4 waste disturbing activity. *Id.* at ¶¶ 6-7. [REDACTED] was in the vehicle access
5 area so protective breathing equipment was not required and he was not wearing
6 any. *Id.* He smelled strong odors which took his breath away. *Id.* at ¶ 8. Later that
7 day, he had trouble breathing. *Id.* at ¶ 9. Since that exposure, [REDACTED]
8 health has deteriorated dramatically. *Id.* at ¶ 11. [REDACTED], who is in his
9 mid-thirties, can no longer engage in activities he loves, like snowboarding and
10 hiking, and can only walk a few blocks before losing his breath. *Id.*; Takaro Decl.
11 at ¶ 21. He has been unable to work since October 2015 because of his respiratory
12 illness. [REDACTED]. at ¶ 2.

13 [REDACTED] is a millwright who is employed by WRPS and works in the
14 Hanford tank farms. ECF No. 66 (“[REDACTED].”) at ¶ 2. On May 3, 2016, he
15 was working in the AP tank farm when an exposure event occurred in the nearby
16 AW tank farm. *Id.* at ¶ 9. [REDACTED] smelled a strong chemical odor, but had no
17 immediate symptoms. *Id.* at ¶ 10. The next morning when [REDACTED] woke up,
18 he struggled to breathe and felt sharp pains like his lungs were “being ripped out
19 with hooks.” *Id.* at ¶ 11. [REDACTED] doctors diagnosed him with a major lung
20 inflammation, found blood in his urine, and determined that the cause of these

1 symptoms was occupational exposure to chemicals. *Id.* at ¶¶ 15–17. [REDACTED]

2 [REDACTED] condition has still not improved, and he never had any serious medical
3 issues before the exposure. *Id.* at ¶ 19.

4 [REDACTED] has worked as an industrial hygiene technician (IHT) at
5 Hanford for over 23 years. ECF No. 61 (“[REDACTED] Decl.”) at ¶2. He has
6 firsthand experience with the persistent chemical vapor issues at the site and the
7 inadequate monitoring that occurs. *Id.* at ¶¶ 2-18. Hanford only monitors for a
8 few of the thousands of chemical vapor found in the tank headspaces. *Id.* at ¶¶ 9,
9 18. For the few chemicals that are sampled, proper sampling procedures are often
10 not followed because IHTs are not properly trained. *Id.* at ¶¶ 10-15. IHTs often
11 arrive to take samples an hour or more after an exposure occurs. *Id.* at ¶ 16.

12 Because vapors dissipate, this is far too late to capture accurate readings of the
13 vapors workers breathed during the exposure. *Id.* at ¶ 18; Mizula Decl. at ¶ 63.r.

14 As a result of his own exposures to vapors in the tank farms, [REDACTED] has
15 lost 50% of his kidney function and has impaired executive functioning.

16 [REDACTED] Decl. at ¶¶ 21–22. Many of [REDACTED] co-workers are also
17 battling serious medical problems after repeated exposure events. *Id.* at ¶ 18;
18 Takaro Decl. ¶¶ 17–26.

19 [REDACTED] is a member of Hanford Challenge and has worked as a
20 Health Physics Technician at Hanford for 24 years. ECF No. 67 (“[REDACTED]

1 [REDACTED]”) at ¶ 2. [REDACTED] job was replacing filters in the exhaust systems in
2 the double shell tank farms, resulting in many vapor exposures. *Id.* at ¶¶ 4–6. [REDACTED]
3 [REDACTED] stopped reporting vapor exposures she witnessed or experienced
4 because “there was nothing management would or could do about it.” *Id.* at ¶ 6.
5 As a result of vapor exposures, [REDACTED] has frequent nose bleeds and
6 respiratory problems. *Id.* at ¶¶ 8–10.

7 [REDACTED] is a member of both Hanford Challenge and a pipefitter with
8 Local 598 who has worked at Hanford for over 35 years. Declaration of [REDACTED]
9 [REDACTED] (“[REDACTED] Decl.”) at ¶¶ 3–4, 6–7. [REDACTED] was exposed to vapors in 2014. *Id.*
10 at ¶ 10. IHTs did not sample the area until more than two hours later. *Id.* at ¶ 11.
11 Even after a two-hour delay, IHTs found ammonia and N-nitrosodimethylamine
12 concentrations at the ventilator stack far higher than the OELs. *Id.* at ¶ 15. [REDACTED]
13 [REDACTED] suffered persistent throat irritation for six weeks after the exposure. *Id.* at ¶
14 14.

15 Dr. Tim K. Takaro, an occupational and environmental medicine specialist
16 who has studied illness related to Hanford tank waste since 1993, reviewed the
17 medical records of [REDACTED], [REDACTED], [REDACTED], and [REDACTED].
18 Takaro Decl. ¶¶ 17–26. [REDACTED] is a 53 year-old nuclear chemical operator who
19 began working at Hanford in 1992 and has been diagnosed with occupational
20 asthma. *Id.* at ¶ 17. Additionally, [REDACTED] has been diagnosed with chemical

1 pneumonitis and neuro-cognitive deficits linked to his exposures at the Hanford
2 Tank Farms. *Id.* at ¶ 18.

3 [REDACTED] worked as a highly skilled heavy equipment operator at
4 Hanford from 1974 until her work place injury in 2007. *Id.* at ¶ 25. Blood tests
5 taken at the medical clinic 45 minutes from the site showed elevated liver
6 enzymes, consistent with an exposure to toxic chemicals. *Id.* She had persistent
7 headaches and cognitive impairment and was subsequently diagnosed with
8 organic brain syndrome, toxic encephalopathy and neurotoxicity syndrome from
9 her exposures. *Id.* After a long fight, the Washington State Board of Industrial
10 Appeals found that the evidence in [REDACTED] record “strongly supported a
11 conclusion that [REDACTED] developed organic brain damage and other conditions
12 due to exposure to toxic chemicals that leaked from one of the storage tanks on
13 the Hanford reservation.” *Id.* at ¶ 26.

14 The experiences of [REDACTED], [REDACTED], [REDACTED], [REDACTED].
15 [REDACTED], [REDACTED], [REDACTED], [REDACTED], and [REDACTED], are not unique.
16 WRPS’ records show that there were 206 recorded reports of odors, symptoms, or
17 vapor-related medical evaluations from January 2014 to July 12, 2016. Crafton
18 Decl., Exs. 1 and 2. Eighty-three of those reported exposures were outside tank
19 farm boundaries. Crafton Decl., Ex. 2.
20

1 **C. Current Industrial Hygiene Practices at Hanford Do Not**
 2 **Adequately Protect Workers**

3 WRPS's attempts to manage the hazards of tank vapor releases and to
 4 protect workers have failed. According to WRPS' own records, in a one-week
 5 period from April 28 to May 6, 2016, more than forty workers at the tank farms
 6 were sent for medical evaluation for vapor exposures. Crafton Decl., Ex. 19
 7 (Deposition of Robert Gregory ("Gregory Dep.") at 21-23); Crafton Decl., Ex.
 8 11. DOE did not exercise its authority to require WRPS to do anything in
 9 response to these exposures. Crafton Decl., Ex. 18 (Fletcher Dep. at 17-21, 64:7-
 10 11). This failure is perhaps unsurprising because DOE's manager at Hanford,
 11 Thomas Fletcher, says he [REDACTED]
 12 [REDACTED] Crafton Decl., Ex. 18 (Fletcher Dep. at 256:22-24 and 233-
 13 244) ([REDACTED]
 14 [REDACTED] [REDACTED]).

15 Although workers are breathing toxic chemicals, Defendants do not require
 16 or facilitate use of personal protective equipment such as supplied air for all work
 17 conducted in all areas of the tank farms. DOE Answer ¶ 62. [REDACTED]

18 [REDACTED] [REDACTED] Crafton
 19 Decl., Ex. 18 (Fletcher Dep. at 103-104). These zones have a minimum radius of
 20 five feet and are bounded by ropes and signs. Crafton Decl., Ex. 17 (Deposition
 of Kenneth Way ("Way Dep.") at 88-89, 99:4-21). Chemical vapors, however,

1 are not contained by ropes and signs. Many workers have reported odors and
2 symptoms outside of vapor control zones. DOE Answer ¶¶ 66; Takaro Decl. at
3 ¶ 13; Crafton Decl., Ex. 3.

4 WRPS establishes vapor control zones only in areas where its modeling
5 shows that a person could receive an exposure greater than 50% of the OEL.
6 Crafton Decl., Ex. 18 (Fletcher Dep. at 89:21–24); Crafton Decl., Ex. 17 (Way
7 Dep. at 198–199, 262). Dr. Robert S. Palermo, an Industrial Hygienist with
8 experience monitoring air quality at superfund sites, reviewed WRPS’ model and
9 found it “incomplete” and of “little practical utility” in assessing how Hanford
10 workers are “impacted by actual chemical exposures on site.” Declaration of Dr.
11 Robert S. Palermo in Support of Citizen Plaintiffs’ Motion for Preliminary
12 Injunction (“Palermo Decl.”) at ¶¶ 1–7, 14–15, 35. WRPS’ modeling assesses
13 only five of the 1,200 chemicals in headspace vapors, uses a model not designed
14 to predict workplace exposures, does not verify modeled results by confirmatory
15 air sampling, fails to take account of the complex set of structures in the tank
16 farms, and underestimates exposure risks by failing to account for all sources of
17 toxic chemicals. Palermo Decl., ¶¶ 10–34. WRPS determines the areas of the
18 tank farms in which it requires use of supplied air based on these inadequate
19 models.
20

1 Further, Dr. Takaro concluded that “even exposure below permissible
2 levels may be hazardous for workers with either previously injured respiratory
3 tract membranes or age related, genetic, or other susceptibility to the chemicals in
4 the complex mix that characterizes tank vapors. Together these factors lead to the
5 ongoing health risk to tank farm workers.” Takaro Decl. ¶ 14.

6 **D. WRPS and DOE Minimize the Health Effects of Vapor**
7 **Exposures and Have Not Implemented Key Recommendations**
8 **from the TVAT Report**

9 The TVAT Report found that “Management must acknowledge the health
10 risk associated with episodic releases of tank vapors.” TVAT Report at 15.

11 Management has not done so. For example, in May 2016, Stacy Thursby,
12 WRPS’s Vapor Program Manager, told workers there is no real issue with tank
13 vapors. ECF No. 64 (“██████ Decl.”) at ¶¶ 2, 15–19, ECF No. 64-1. Ms. Thursby
14 announced that no harmful levels of chemicals had been detected beyond 17 feet
15 from an open source, that WRPS was gathering data to prove that supplied air
16 was unnecessary, and that supplied air would only be required “for as long as this
17 lawsuit continues and politicians keep trying to make names for themselves.” *Id.*
18 at ¶¶ 15–19.

19 TVAT stated that “[r]elying primarily upon long-term monitoring, after-
20 the-fact grab samples, or non-chemical-specific readings is inadequate.” TVAT
Report at 18. Yet WRPS’s Chief Operating Officer, Robert Gregory, admitted

1 that WRPS still relies on that flawed approach. Crafton Decl., Ex. 19 (Gregory
2 Dep. at 171–172). TVAT also recommended that WRPS fill the gaps in its list of
3 chemicals of potential concern, which WRPS has not done either. TVAT Report
4 at 23; Crafton Decl., Ex. 19 (Gregory Dep. at 173–175). Indeed, WRPS has
5 systematically shrunk the vapor control zones, which resulted in yet more
6 exposures. Crafton Decl., Ex. 19 (Gregory Dep. at 79:2–7, 95–96).

7 In addition, WRPS seeks to further reduce its worker protection standards
8 by replacing supplied air with respirator cartridges or eliminating the requirement
9 for respiratory protection entirely. Crafton Decl., Ex. 17 (Way Dep. at 115:15–
10 24); Crafton Decl., Ex. 19 (Gregory Dep. at 78–79, 129:3–24). On April 13, 2016,
11 Mr. Gregory emailed his employees saying he believed that WRPS’s control
12 measures would protect employees because monitoring results showed that
13 airborne concentrations were below occupational exposure limits. Crafton Decl.,
14 Ex. 19 (Gregory Dep. at 67–74); Crafton Decl. Ex. 20. Yet, during the five days
15 prior to Gregory’s email, employees sought medical attention for exposures to
16 vapors in three events. Crafton Decl., Ex. 19 (Gregory Dep. at 74:15–22). After
17 that email, there were more such events, including one on April 28 where two
18 exposed workers were hundreds of yards beyond the established vapor control
19 zones. *Id.* at 95–97.

1 WRPS's policy permits workers to voluntarily request supplied air within
 2 the tank farms. Crafton Decl., Ex. 19 (Gregory Dep. at 90:7–15). Local Union
 3 598 members, however, have received fewer job opportunities at Hanford since
 4 they began making such requests. Declaration of Randall Walli ("Walli Decl.") at
 5 ¶ 4, Ex. 1. In any event, management is responsible for providing a safe working
 6 environment, and management cannot transfer that responsibility to the workers.

7 **E. Accepted Principles of Industrial Hygiene Demand Greater**
 8 **Protection of Worker Health**

9 Bernard Mizula is a Certified Industrial Hygienist with more than 20 years
 10 of comprehensive occupational health and safety experience, mostly in the areas
 11 of hazardous waste operations and emergency response. Mizula Decl. at ¶¶ 5–7.
 12 Mr. Mizula reviewed the numerous reports on worker safety at Hanford, reviewed
 13 discovery materials, and toured the Hanford site. Mizula Decl. at ¶ 2. His
 14 conclusion is that WRPS and DOE's Industrial hygiene programs "simply do not
 15 protect workers" from vapor exposures. *Id.* at ¶ 44. Mr. Mizula concludes that
 16 workers need immediate protection from exposures, which may be accomplished
 17 by adopting the administrative controls Citizen Plaintiffs ask this Court to require.
 18 *Id.* at ¶¶ 95, 52, 55–59.

19 WRPS has recently refused a demand by workers to implement similar
 20 safety measures. In June 2016, the Hanford Atomic Metal Trades Council
 (HAMTC) sent a letter to WRPS demanding that it immediately take several

1 specific steps to protect workers from continuing vapor exposures. Walli Decl.,
2 Ex. 3. HAMTC is the collective bargaining unit representative for all of the
3 unions working at Hanford. *Id.* at ¶ 9. Specifically, HAMTC demanded that
4 WRPS expand vapor control zones to no less than 200 feet away from the
5 perimeter fence line of the applicable tank farm where work is occurring, require
6 all works inside vapor control zones to use supplied air, and barricade all roads
7 and access points to prevent unauthorized entry into the vapor control zones. *Id.*,
8 Ex. 3. WRPS refused to accept these commonsense demands. *Id.*, Ex. 4 at 3.

9 III. AUTHORITY AND ARGUMENT

10 A. Citizen Plaintiffs Have Standing

11 To have standing, Citizen Plaintiffs must show a “threat of suffering ‘injury
12 in fact’ that is concrete and particularized; the threat must be actual and
13 imminent, not conjectural or hypothetical; it must be fairly traceable to the
14 challenged action of the defendant; and it must be likely that a favorable judicial
15 decision will prevent or redress the injury.” *Summers v. Earth Island Inst.*, 555
16 U.S. 488, 493 (2009). “An association has standing to bring suit on behalf of its
17 members when its members would otherwise have standing to sue in their own
18 right, the interests at stake are germane to the organization’s purpose, and neither
19 the claim asserted nor the relief requested requires the participation of individual
20

1 members in the lawsuit.” *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs.*, 528
2 U.S. 167, 181 (2000).

3 Hanford Challenge is a non-profit, public interest, environmental and
4 worker advocacy organization dedicated to creating a future for Hanford that
5 secures human health and safety, advances accountability, and promotes a
6 sustainable environmental legacy. Walli Decl. at ¶ 10. The present suit is germane
7 to Hanford Challenge’s purpose because it seeks to protect the health of its
8 members who work at Hanford such as Walli, [REDACTED] and [REDACTED]. UA Local
9 Union 598 is a labor organization that has more than 70 members who work at
10 Hanford. *Id.* at ¶ 5. The present suit is germane to its purpose, which includes
11 ensuring a safe working environment for its members, such as Walli and Cain. *Id.*
12 at ¶ 4. Plaintiff organizations have standing if their “members, or any one of
13 them” have standing. *Warth v. Seldin*, 422 U.S. 490, 511 (1975).

14 [REDACTED], [REDACTED], Walli, and Cain have standing to sue in their own right
15 because their health has been placed at risk or adversely affected by vapor
16 releases at the Hanford tank farms. Their risk of injury or actual injuries are fairly
17 traceable to Defendants’ challenged conduct in creating a dangerous work
18 environment at Hanford, because they were exposed while they were working
19 near vapor sources at the tank farms. Their risk of injury or actual injuries are also
20 redressable because Plaintiffs seek an injunction requiring Defendants to abate

1 the endangerment caused by toxic vapor releases at the Hanford tank farms,
2 including medical monitoring. *Cnty. Ass'n for Restoration of the Env't, Inc. v.*
3 *Cow Palace, LLC*, 80 F. Supp. 3d 1180, 1207–10 (E.D. Wash. 2015) (finding
4 standing to sue for RCRA endangerment based on health risks from exposure to
5 nitrate in groundwater). Since Plaintiffs seek only injunctive relief to improve
6 worker safety at Hanford and medical care for injured workers. They are not
7 seeking damages for their members' injuries, the participation of individual
8 members as parties to this case is unnecessary. *Presidio Golf Club v. Nat'l Park*
9 *Serv.*, 155 F.3d 1153, 1159 (9th Cir. 1998). Plaintiffs therefore have
10 organizational standing.

11 **B. Plaintiffs Are Entitled to a Preliminary Injunction**

12 Citizen Plaintiffs incorporate and adopt the State's arguments on the
13 standards for obtaining a preliminary injunction.

14 **C. Plaintiffs Are Likely to Prevail on Their Claim that Defendants**
15 **Are Contributing to an Imminent and Substantial**
16 **Endangerment to Human Health**

17 RCRA provides that citizens may commence a citizen suit against any
18 person "who has contributed or who is contributing to the past or present
19 handling, storage, treatment, transportation, or disposal of any solid or hazardous
20 waste which may present an imminent and substantial endangerment to health or
the environment." 42 U.S.C. § 6972(a)(1)(B). To prevail under this section a

1 plaintiff must prove (1) the existence of a solid or hazardous waste; (2) that the
2 defendant handled, stored, treated, transported, or disposed of; and (3) that may
3 present an imminent and substantial endangerment.

4 Defendants admit that the tanks at Hanford contain and store solid waste,
5 and that the vapors released from the tanks originate from that waste. DOE
6 Answer ¶¶ 22, 42–44; WRPS Answer ¶¶ 43–44. Defendants are handling and
7 disposing of that waste by moving it between tanks and venting it to the
8 atmosphere. DOE Answer ¶¶ 40, 46–51; WRPS Answer ¶¶ 46–51. A “disposal”
9 under RCRA occurs where, as in this case, “the solid waste is *first* placed ‘into or
10 on any land or water’ and is *thereafter* ‘emitted into the air.’” *Ctr. For Cmty.*
11 *Action and Env'tl. Justice v. BNSF Ry. Co.*, 764 F.3d 1019, 1024 (9th Cir. 2014)
12 (emphasis in original). Thus, the only issue is whether vapors released from that
13 waste pose an imminent and substantial endangerment to the health of Plaintiffs’
14 members and Hanford workers.

15 1. Endangerment Is a Lenient and Highly Protective Standard

16 Congress added the “imminent and substantial endangerment” provision to
17 § 6972 of RCRA in 1984 to give citizens a private means of obtaining the same
18 relief that EPA had previously been authorized to seek under RCRA § 6973.
19 *Middlesex Cty. Bd. v. N.J.*, 645 F. Supp. 715, 721 (D.N.J. 1986). The
20 endangerment provision contains “‘expansive language,’ which is ‘intended to

1 confer upon the courts the authority to grant affirmative equitable relief to the
2 extent necessary to eliminate any risk posed by toxic wastes.” *Interfaith Cmty.*
3 *Org. v. Honeywell Int’l, Inc.*, 399 F.3d 248, 259 (3d Cir. 2005). When it amended
4 RCRA, Congress directed that:

5 The primary intent of the provision is to protect human
6 health and the environment; hence, the courts should
7 consider both the nature of the endangerment which
8 may be presented and its likelihood, recognizing that
9 risk may be “assessed from suspected, but not
completely substantiated, relationships between facts,
from trends among facts, from theoretical projections,
from imperfect data, or from probative preliminary data
not yet certifiable as ‘fact.’”

10 *U.S. v. Conservation Chem. Co.*, 619 F. Supp. 162, 194 (D. Mo. 1985) (quoting S.
11 Rep. No. 284, 98th Cong., 1st Sess. 59 (1983)). “Courts asked to decide whether
12 RCRA has been violated often employ nondefinitive data in assessing the risk
13 posed by the waste.” *Maine People’s Alliance v. Holtrachem Mfg. Co.*, 211 F.
14 Supp. 2d 237, 247 (D. Me. 2002), *aff’d*, 471 F.3d 277, 296 (1st Cir. 2006).

15 RCRA requires only that a showing that a solid or hazardous waste “may
16 present” an imminent and substantial endangerment. 42 U.S.C. § 6972(a)(1)(B).
17 “[P]laintiffs must [only] show that there is a potential for an imminent threat of
18 serious harm.” *Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1015 (11th
19 Cir. 2004). “An endangerment is ‘imminent’ if factors giving rise to it are present,
20 even though the harm may not be realized for some time.” *Holtrachem*, 211 F.

1 Supp. 2d at 247. This Court has stated that “[t]he term ‘imminent’ does not
2 require a showing that actual harm will occur immediately so long as the risk of
3 threatened harm is present.” *Cow Palace*, 80 F. Supp. 3d at 1227.

4 An endangerment is “substantial” if “there is some reasonable cause for
5 concern that someone or something may be exposed to a risk of harm . . . if
6 remedial action is not taken.” *Interfaith*, 399 F.3d at 259. Endanger “means
7 something less than actual harm.” *U.S. v. Vertac Chem. Corp.*, 489 F. Supp. 870,
8 885 (E.D. Ark. 1980). “Danger is a risk, and so must be decided by an assessment
9 of risk.” *Id.* “In terms of substantiality, Plaintiffs need not quantify the risk of
10 harm in order to establish an endangerment.” *Holtrachem*, 211 F. Supp.2d at 247.

11 “Because hazardous substances are, by definition, capable of causing
12 serious harm, a substantial endangerment may exist whenever the circumstances
13 of a release or threatened release of a hazardous substance are such that the
14 environment or members of the public may become exposed to such substances
15 and are therefore put at risk.” *Conservation Chem.*, 619 F. Supp. at 195. “For very
16 hazardous substances, such as those that are toxic at low concentrations or known
17 or suspected carcinogens, a substantial endangerment will arise when small
18 amounts are released or threatened to be released.” *Id.* “Among those situations in
19 which the endangerment may be regarded as ‘substantial’ are . . . the threat of
20 substantial or serious harm (such as exposure to carcinogenic agents or other

1 hazardous contaminants).” *U.S. v. Reilly Tar*, 546 F. Supp. 1100, 1110 (D. Minn.
2 1982) (quoting H. Rep. No. 1185, 93rd Cong., 2d Sess. 35–36 (1974)).

3 The endangerment standard is a “lenient” one which “shall be developed in
4 a liberal, not a restrictive, manner.” *U.S. v. Waste Indus., Inc.*, 734 F.2d 159, 167
5 (4th Cir. 1984). “Courts should not undermine the will of Congress [in the
6 endangerment provisions] by either withholding relief or granting it grudgingly.”
7 *U.S. v. Price*, 688 F.2d 204, 214 (3d Cir.1982). “[I]f an error is to be made in
8 applying the endangerment standard, the error must be made in favor of
9 protecting public health, welfare and the environment.” *Interfaith*, 399 F.3d at
10 259.

11 2. Recent Worker Exposures and Injuries Are Sufficient to
12 Demonstrate Endangerment

13 Under this lenient standard of endangerment, the present working
14 conditions at the Hanford tank farms may—indeed do—present an imminent and
15 substantial endangerment to human health. In recent months, dozens of workers
16 have been exposed to vapor releases while working at Hanford. Crafton Decl.,
17 Ex. 11. The vapors contain hazardous substances, some of which have been
18 measured on site in excess of occupational exposure limits. Crafton Decl., Ex. 16.
19 Resulting worker injuries include both short-term, acute harm such as bloody
20 noses and difficulty breathing, and long-term, continuing harm such as reduced
respiratory function, neurological damage and inability to work. *See* Section II.B,

1 *supra*. The circumstances of the exposures and harm leave no doubt that vapor
2 releases are causing this harm. Workers are on site and healthy one minute, then
3 smell strong odors the next, and soon after are gasping for breath. At a minimum,
4 the documented exposures and subsequent injuries establish that there “may” be
5 an imminent and substantial endangerment.

6 The declarations by on-site workers are highly probative of endangerment.
7 They have worked at Hanford for years. They are familiar with the site and the
8 potential sources. They also have a strong economic interest in continuing to
9 work despite the difficult working conditions. While working, they have been
10 blind-sided by invisible vapors, and have suffered harm that has prevented them
11 from continuing to work, or in one instance have compelled a worker to quit his
12 employment. A formal epidemiological analysis in the TVAT and the opinions of
13 numerous other medical and industrial hygiene professionals support their
14 individual accounts of exposure and injury. These circumstances demonstrate
15 conclusively that the harm is both imminent and substantial.

16 Federal courts have frequently relied on much less evidence, such as
17 circumstantial or eyewitness testimony only, to find liability for violating federal
18 environmental laws. *Franklin Cnty. Convention Facilities Auth. v. Am. Premier*
19 *Underwriters, Inc.*, 240 F.3d 534, 547 (6th Cir. 2001) (when determining
20 CERCLA liability, “there is nothing objectionable in basing findings solely on

1 circumstantial evidence”); *State of Georgia v. City of East Ridge*, 949 F. Supp.
2 1571, 1577 (N.D. Ga. 1996) (relying on eyewitness testimony to find a violation
3 of the Clean Water Act); *Concerned Area Residents for the Env’t v. Southview*
4 *Farm*, 34 F.3d 114, 120 (2d Cir. 1994) (same); *U.S. v. Strandquist*, 993 F.2d 395,
5 397–98 (4th Cir. 1993) (same). “Circumstantial evidence is not only sufficient,
6 but may also be more certain, satisfying and persuasive than direct evidence.”
7 *Desert Palace, Inc. v. Costa*, 539 U.S. 90, 100 (2003). When it enacted RCRA,
8 Congress encouraged reliance on such evidence, recognizing that a finding of
9 endangerment can be based on non-definitive data and “suspected, but not
10 completely substantiated, relationships between facts.” *Holtrachem*, 211 F.
11 Supp.2d at 247; *Conservation Chem.*, 619 F. Supp. at 194. Here, eyewitness
12 worker testimony alone suffices to support a finding of imminent and substantial
13 endangerment. WRPS’ records confirm the danger. Crafton Decl., Ex. 11.

14 Even if the workers’ testimony by itself were insufficient, the considerable
15 additional expert testimony in this case further supports such a finding. WRPS
16 relies on flawed modeling data rather than worker exposures to establish vapor
17 protection zones, and that modeling underestimates the risk of harm. Palermo
18 Decl. ¶¶12–15, 19. WRPS’s modeling data must be rejected because it “bears no
19 rational relationship to the reality it purports to represent.” *Columbia Falls*
20 *Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998). If a model fails to

1 correlate with observed facts, it is the model that must be discarded, not the
2 reality of serious harm to workers.

3 Further, toxicologist Dr. Takaro concluded that given the uncertainty
4 around the nature of the exposures, the known source of the hazards and the
5 significant size of the population at risk, current practices at Hanford Tank Farms
6 are clearly inadequate to protect workers from harm. Takaro Decl. ¶ 28. Mr.
7 Mizula agrees that “the Hanford Tank Farms are an uncontrolled chemistry and
8 toxicology experiment that workers are currently subjected to without appropriate
9 hazard controls in place.” Mizula Decl. ¶ 23. Plaintiffs are therefore likely to
10 succeed on their endangerment claims.

11 **D. The Court Should Order WRPS to Expand Its Vapor Control**
12 **Zones and Require Mandatory Use of Supplied Air Within**
13 **Those Zones**

14 Preliminary injunctions are usually granted to prevent a defendant from
15 taking actions that change the status quo pending a trial on the merits. However,
16 the status quo cannot be a state of affairs whereby the potential for harm is
17 ongoing. *Golden Gate Rest. Ass’n v. City & Cty. of San Francisco*, 512 F.3d
18 1112, 1116 (9th Cir. 2008); *United Food v. Sw. Ohio Reg’l Transit*, 163 F.3d 341,
19 348 (6th Cir. 1998). Where a defendant’s current actions are causing irreparable
20 injury, even a request for affirmative action lies well within the “status quo.” *Id.*

1 This concept is even more firmly established under RCRA, where the usual
2 disfavor towards granting a preliminary injunction is overridden by Congress’
3 plain intent that RCRA “confer upon the courts the authority to grant affirmative
4 equitable relief to eliminate any risks posed by toxic wastes.” *Interfaith*, 399 F.3d
5 at 267. Indeed, under RCRA, it is well established that “the status quo in cases of
6 potential environmental contamination is not a ‘condition of rest,’ but one ‘of
7 action which, if allowed to continue or proceed unchecked or unrestrained, will
8 inflict serious irreparable injury.’” *Price*, 688 F.2d at 212.

9 In this case, the status quo threatens to cause further irreparable injury to
10 Hanford workers. It is not feasible to issue the usual preliminary injunction that
11 would simply prohibit Defendants from allowing new vapor releases that
12 endanger those workers. In the short term, tank releases cannot be stopped
13 entirely or controlled at source; tank venting “is driven by the safety
14 consideration of avoiding buildup of flammable gas in the head space of the
15 DSTs.” TVAT Report at 26. The TVAT team documented that the exposures
16 cause workers harm, but, despite its expertise, the TVAT team was unable to
17 exactly “identify the mode or mechanism by which the exposures are generated.”
18 *Id.* at 9. This is partly because there are so many chemicals at issue. Therefore,
19 absent complete control of the vapor releases, continuing injuries from toxic
20 exposures are inevitable unless workers are protected from the vapors. TVAT

1 could therefore only recommend “means by which the potential of exposure can
2 be reduced in the near term.” *Id.* WRPS’ Implementation Plan in response to the
3 TVAT report adopts this same strategy of exposure minimization “to help reduce
4 the potential for chemical vapor exposures in the near term.” Implementation Plan
5 at 1. WRPS concedes that “limiting worker exposure to bolus emissions of
6 chemical vapors ‘represents an extraordinary challenge that cannot be easily
7 addressed through traditional approaches.’” *Id.* at 2.

8 The simple fact that nearly 100 workers have been exposed since this case
9 was filed demonstrates the need for additional protective measures. *See* Crafton
10 Decl., Ex. 2. Dr. Takaro and Mr. Mizula agree that immediate action is needed to
11 minimize the risk of future harm. Takaro Decl. ¶ 28; Mizula Decl. ¶ 95, 52, 55–
12 59. Plaintiffs request this Court require:

- 13 1. Mandatory use of supplied air at all times for all
14 personnel working within the perimeter fence
lines of the tank farms;
- 15 2. During waste disturbing activities, establishment
16 of an expanded vapor control zone not less than
17 200 feet away from the perimeter fence line of
18 the affected tank farms, and effective barricading
19 of all roads and access points to prevent entry
20 into the expanded zone, should injuries
subsequently occur outside of this zone it should
be expanded to include the distance from the
disturbed tank to the site of the subsequent injury;

- 1 3. Mandatory use of supplied air for all personnel
2 working inside a vapor control zone, including
the expanded zone described above; and
- 3 4. Installation and use of additional monitoring and
4 alarming equipment in affected tank farms during
5 waste disturbing activities, to include optical gas
imaging cameras, optical spectrometers, optical
stack monitors, and VMD integration software.

6 Mr. Mizula explains in his declaration why these measures are needed and
7 appropriate. Mizula Decl. at ¶¶ 45–59.

8 Supplied air has been provided to all workers doing work in the tanks
9 farms in the past. Crafton Decl., Ex. 18 (Fletcher Dep. at 131:4–10). WRPS’s July
10 2016 response to HMATC does not dispute the feasibility of that measure, but
11 instead asserts that it is unnecessary. WRPS Letter at 3 (“Based on our technical
12 evaluations, the TVAT report, and the mitigation actions described above, there is
13 no basis for mandating SCBA equipment for routine work activities within
14 double-shell tank farms.”). WRPS’ position is simple defiance, and shows an
15 unreasonable willingness to sacrifice the health of Hanford workers. Sadly, this is
16 a repetition of a pattern that has occurred for over 20 years, where temporary
17 worker safety precautions increase in response to observed harms, but are then
18 rolled back until yet more harms occur. This Court should break that pattern
19 because both WRPS and DOE are unwilling to do so.
20

1 **E. Granting a Preliminary Injunction Avoids Potential Irreparable**
2 **Harm to Workers' Health That Outweighs any Harm to**
3 **Defendants**

4 Because RCRA uses endangerment, rather than actual harm, as the basis
5 for liability, the statute contemplates "a more lenient standard than the traditional
6 requirement of irreparable harm." *Waste Indus.*, 734 F.2d at 165. Consequently,
7 the requirement of irreparable harm for a preliminary injunction is satisfied by
8 showing a threat to public health or the environment. *Vertac Chem. Corp.*, 489 F.
9 Supp. at 885. As shown by the declarations submitted in this case, vapor releases
10 at Hanford unquestionably pose an urgent and serious threat to worker health and
11 safety.

12 In addition, the balancing of harms clearly favors Plaintiffs. The harm to
13 worker safety from continuing vapor releases outweighs any potential economic
14 harm to Defendants from implementing increased safety measures pending a trial
15 on the merits. DOE's Hanford manager agreed that worker safety trumps any loss
16 of work efficiency from using respiratory protection. Crafton Decl., Ex. 18 at
17 231:2-5. When it enacted RCRA, Congress decided that protecting public health
18 and the environment was of paramount importance. Congress put its "thumb on
19 the scale in favor of remediation." *Maine People's Alliance and NRDC v.*
20 *Mallinckrodt, Inc.*, 471 F.3d 277, 297 (1st Cir. 2006). As a result, in issuing
injunctive relief, the district court's "primary concern ought to be how best to

1 remedy a potentially serious near-term environmental hazard” and there is no
2 requirement for a “showing that the remedy’s demonstrable benefits exceeded its
3 probable costs.” *Id.* Furthermore, federal regulations require DOE and WRPS to
4 “provide a place of employment that is free from recognized hazards that are
5 causing or have the potential to cause death or serious physical harm to workers.”
6 10 C.F.R. § 851. Defendants therefore cannot rely on the costs of complying with
7 that requirement as a defense to RCRA compliance.

8 **F. No Bond or Only a Minimal Bond Should Be Required**

9 While Rule 65(c) provides that a movant for preliminary injunctive relief
10 should give security in an amount the Court considers proper to pay potential
11 costs or damages that a party may suffer if it is later found that party was
12 wrongfully enjoined or restrained, determination of the proper amount of security
13 includes the discretion to waive the bond entirely or to require a minimal bond.
14 *Barahona-Gomez v. Reno*, 167 F.3d 1228, 1237 (9th Cir. 1999); *California ex rel.*
15 *Van de Kamp v. Tahoe Reg. Planning Agency*, 766 F.2d 1319, 1325 (9th Cir.
16 1985). Waiver of the bond, or imposition of a very minimal bond, is customary
17 and favored in cases where non-profit organizations have brought suit in the
18 public interest to protect the environment. *Id.* No bond should be required here
19 because Plaintiffs are bringing this case in the public interest, and will obtain no
20 financial gain if they win. In addition, that Plaintiffs have a strong likelihood of

1 success on the merits weighs against a substantial bond. *Muckleshoot Indian*
2 *Tribe v. Hall*, 698 F. Supp. 1504, 1518 (W.D. Wash. 1988).

3 **IV. CONCLUSION**

4 For all of the foregoing reasons, Citizen Plaintiffs respectfully request that
5 the Court grant their motion for preliminary injunction.

6 RESPECTFULLY SUBMITTED AND DATED this 21st day of July,
7 2016.

8 **TERRELL MARSHALL LAW GROUP PLLC**

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CERTIFICATE OF SERVICE

I, Beth E. Terrell, hereby certify that on July 21, 2016, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which will send notification of such filing to the following:

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DATED this 20th day of July, 2016.

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