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6
7 **UNITED STATES DISTRICT COURT**
EASTERN DISTRICT OF WASHINGTON

8 STATE OF WASHINGTON,
9
10 Plaintiff,

11 v.

12 ERNEST J. MONIZ, Secretary of
the United States Department of
Energy, the UNITED STATES
13 DEPARTMENT OF ENERGY,
and WASHINGTON RIVER
14 PROTECTION SOLUTIONS LLC,

15 Defendants.

NO.

STATE OF WASHINGTON'S
COMPLAINT FOR
DECLARATORY AND
INJUNCTIVE RELIEF

16
17 **I. NATURE OF ACTION**

18 1. This is a civil action for declaratory and injunctive relief against
19 Defendants United States Department of Energy (Energy) and Washington
20 River Protection Solutions LLC (WRPS) pursuant to the citizen suit provisions
21 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C.
22 § 6972(a)(1)(B). The Defendants' past and present storage, handling and

1 treatment of hazardous waste at the Hanford Site present an imminent and
2 substantial endangerment to human health or the environment. 42 U.S.C.
3 § 6972(a)(1)(B).

4 II. JURISDICTION

5 2. This action arises under RCRA, 42 U.S.C. § 6972(a)(1)(B). This
6 Court has subject matter jurisdiction over RCRA claims under 42 U.S.C.
7 § 6972(a) and 28 U.S.C. § 1331, as well as under the Declaratory Judgment
8 Act, 28 U.S.C. §§ 2201 and 2202.

9 3. The United States has waived sovereign immunity for claims under
10 RCRA respecting the control, abatement, disposal and management of
11 hazardous waste. 42 U.S.C. § 6961.

12 4. RCRA authorizes citizen suits against “any person . . . who has
13 contributed or who is contributing to the past or present handling, storage,
14 treatment, transportation, or disposal of any solid or hazardous waste which
15 may present an imminent and substantial endangerment to health or the
16 environment.” 42 U.S.C. § 6972(a)(1)(B). Under RCRA, a court may order
17 any person referred to in paragraph (1)(B) “to take such . . . action as may be
18 necessary” to eliminate the endangerment to health or the environment.
19 42 U.S.C. § 6972(a).

20 5. By letter dated November 19, 2014, the Washington State Attorney
21 General’s Office notified Energy and WRPS of its intent to file suit to restrain
22 or abate the conditions described in this Complaint which present or may

1 present an imminent and substantial endangerment to health or the environment.
2 The Attorney General's Office sent this letter pursuant to the notice
3 requirements found in 42 U.S.C. § 6972(b).

4 6. More than 90 days have passed since the Attorney General's
5 Office sent its RCRA notice of intent to file suit to the Defendants. The
6 conditions complained of are continuing, or are reasonably likely to continue or
7 reoccur.

8 7. The United States Environmental Protection Agency is not
9 prosecuting Defendants under RCRA to restrain or abate the conditions
10 described herein, nor is the United States Environmental Protection Agency,
11 under the Comprehensive Environmental Response, Compensation and
12 Liability Act, engaged in any of the actions described in 42 U.S.C.
13 § 6972(a)(2)(B) with respect to the conditions described herein.

14 **III. VENUE**

15 8. Venue is proper in this Court pursuant to 28 U.S.C. § 1391(e).
16 Venue is also proper in this Court pursuant to 42 U.S.C. § 6972(a), because the
17 action addresses endangerment occurring in this judicial district.

18 **IV. PARTIES**

19 9. Plaintiff is the State of Washington (State). The State owns the
20 groundwater and surface water of the State, including the groundwater beneath
21 the Hanford Site, and the Columbia River, which flows through and is
22 contiguous to the Hanford Site.

1 a. EPA has authorized the State to administer RCRA within
2 state boundaries, which includes authority to administer RCRA at federal
3 facilities such as Hanford. The Defendants store and treat mixed waste at
4 the Hanford site. Mixed waste contains hazardous waste and is subject to
5 RCRA. The State is also responsible for administering the state
6 Hazardous Waste Management Act (Wash. Rev. Code 70.105). That Act
7 and its implementing Dangerous Waste Regulations (Wash. Admin.
8 Code 173-303) provide the legal framework for the state hazardous waste
9 program authorized under RCRA by the United States Environmental
10 Protection Agency (EPA). *See* 51 Fed. Reg. 3,782 (Jan. 30, 1986);
11 52 Fed. Reg. 35,556 (Sept. 22, 1987); 55 Fed. Reg. 33,695 (Aug. 17,
12 1990); 59 Fed. Reg. 55,322 (Nov. 4, 1994); and 61 Fed. Reg. 7,736
13 (Feb. 29, 1996).

14 b. Pursuant to its regulatory authority, the State requires
15 facilities that manage hazardous waste to be safe and environmentally
16 sound, which is essential to protect public health and the environment.
17 The health and safety of state citizens and residents working at the
18 Hanford site are threatened by Defendants' storage, handling, and
19 treatment of hazardous and mixed hazardous wastes in violation of
20 RCRA and the state Hazardous Waste Management Act. The State has a
21 direct and tangible interest in the health, safety, and welfare of its
22 residents, which are threatened by Defendants' actions.

1 14. In addition to being stored, the waste in some of the underground
2 storage tanks at Hanford is treated by using sodium hydroxide and sluicing to
3 remove hardened waste materials in the tanks. This allows the hardened
4 materials to be broken up and pumped out. These methods have been used by
5 Energy's contractors since the 1990s.

6 15. The 177 underground storage tanks are located in "tank farms" at a
7 part of the Hanford Site designated as the 200 Area (East and West). There are
8 seven tank farms within the 200-West Area. There are eleven tank farms within
9 the 200-East Area. The tank farms are located near the plutonium processing
10 facilities where liquid wastes were generated. Chemical liquids were routed
11 from the processing facilities directly into the storage tanks located in the tank
12 farms.

13 16. Of the 177 underground storage tanks, 149 are single-shell tanks
14 and twenty-eight are double-shell tanks. Energy has identified all 149 single-
15 shell tanks as "unfit for use" pursuant to Washington Administrative Code
16 section 173-303-400(3) (incorporating by reference 40 C.F.R. § 265.196). The
17 "unfit-for-use" determination has triggered a regulatory obligation for Energy to
18 remove waste from the tanks (an activity known as tank "retrieval") and then
19 "close" the single-shell tank system to meet specific regulatory standards.
20 Wash. Admin. Code § 173-303-400(3) (incorporating by reference 40 C.F.R.
21 § 265.196); Wash. Admin. Code § 173-303-610(2); -640(8).

22

1 17. Numerous individuals work within the direct vicinity of the tanks
2 in the 200 Area, either as employees of WRPS and Energy or as contracted
3 workers. Some of these workers are directly involved in “retrieving” waste
4 from the unfit-for-use single-shell tanks and transferring the waste to
5 double-shell tanks. Other workers perform a wide variety of activities
6 including construction and maintenance work on the tanks and tank systems and
7 the monitoring of tank waste and the tank systems. The types of workers in the
8 tank farm areas include, but are not limited to, pipe-fitters, carpenters, riggers,
9 electricians, steel and iron workers, general training coordinators, safety
10 representatives, health physics technicians, industrial hygienists, nuclear
11 chemical operators, tank farm specialists, project planners, engineers, and
12 quality control inspectors. Many of these workers often perform their jobs
13 without personal protective equipment, including but not limited to respiratory
14 protection equipment.

15 **B. Hanford’s Tank Waste and Tank Vapors**

16 18. The chemical waste in the Hanford underground storage tanks
17 consists of varying mixtures of liquids, solids (including saltcake and sludge),
18 and vapors. Due to the complex and dynamic nature of the chemical
19 composition of the waste in the tanks, the waste undergoes continuous chemical
20 reactions. These reactions result in the production and build-up of gases/vapors
21 in the tanks’ headspaces.
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1 19. Over 1,500 different volatile chemicals have been reported in the
2 headspaces of tanks. These chemicals include, but are not limited to, hydrogen,
3 ammonia, mercury, N-nitrosodimethylamine, 2-nitrosamines, and volatile
4 organic compounds (e.g., benzene, nitrous oxide, butanol, acetone, hexane, and
5 xylene). Many or all of these chemicals can pose a threat to human health in
6 vapor form.

7 20. Potential health effects from exposures to these chemicals can
8 include, but are not limited to, irritation to the respiratory tract, reduced
9 pulmonary function, asthma, chronic obstructive pulmonary disease, chemical
10 pneumonitis, central nervous system suppression, neuropathy, and cancers of
11 the liver, lung, blood, and other organ systems. Additional adverse health
12 effects include nosebleeds, headaches, irritation to eyes and skin, difficulty
13 breathing, coughing, sore throats, dizziness, and nausea.

14 21. Hanford's single-shell and double-shell tanks are designed to vent
15 in order to prevent excess vapors from over-pressurizing a tank's headspace and
16 posing potentially serious safety consequences, such as explosions and fires.
17 However, neither the single-shell nor the double-shell tanks are equipped with
18 systems or filters to capture or remove the dangerous chemical components of
19 these vented vapors.

20 22. The twenty-eight double-shell tanks are fitted with active or
21 "forced" ventilation systems. The active ventilation systems have exhausters,
22 which forcibly ventilate the headspace, and HEPA filters. Active venting

1 dilutes chemical vapors by pulling atmospheric air into the tank headspace and
2 reducing the concentration of chemicals in the headspace. HEPA filters remove
3 particulates (radioactive and toxic) prior to venting, but do not effectively
4 remove chemical vapors.

5 23. Unlike the chemical vapors in the double-shell tanks, the vapors in
6 the single-shell tanks are passively vented, unless the waste is being actively
7 retrieved. The single-shell tanks allow chemical vapors to escape through vents
8 that have HEPA filters, but are not equipped with any of the aforementioned
9 exhausters. Since the venting is not actively controlled, the releases of
10 chemical vapors are highly unpredictable. In addition, under atmospheric
11 conditions, passive tank headspace releases are typically at a greater
12 concentration and are closer to the workers' breathing zones as compared to
13 active ventilation.

14 24. In addition to the release of vapors through active or passive
15 venting of the tanks in the 200 Area, chemical vapors can also leak through
16 other openings/leakage pathways in the tank farm areas and expose workers to
17 vapors. For example, chemical vapors from the tanks and tank systems can leak
18 out from the concrete-lined pits in which the tanks sit, electrical cabinets,
19 breather filters, unsealed tank penetration areas, areas that are being excavated
20 near the tanks, and breaks in containment. When the chemicals are released or
21 leak from the tanks and tank systems in the form of vapors, workers and other
22 individuals in the 200 Area are at risk of inhaling these vapors.

1 25. As a result of leaks and releases of chemical vapors at or near the
2 Hanford tank farms, individuals in the 200 Area have been exposed and
3 continue to be exposed to dangerous chemical vapors. These exposures to
4 vapors have caused tank farm workers to suffer adverse health effects.

5 26. There were more than fifty reported worker vapor exposure
6 incidents between January 2014 and April 2015. In one incident from 2014, a
7 worker was reportedly treated for chemical pneumonitis, an inflammation of the
8 lungs caused by chemical exposure.

9 **C. Hanford's Tank Vapor Investigations/Studies**

10 27. Energy has known about the problem of worker vapor exposures
11 since the late 1980s. As a result of a series of exposure events from 1987 until
12 1992, Energy initiated an investigation in 1992. This investigation examined
13 the technical and management problems related to the exposure of workers to
14 potentially hazardous vapors from the tank farms and led to the issuance of a
15 report, the Type B Investigation of Hanford Tank Farms Vapor Exposures¹
16 (1992 Report). In that 1992 Report, Energy concluded that the "root cause of
17 the recurring exposures is that implementation of management systems was less
18 than adequate." 1992 Report at 2-1. The 1992 Report pointed out a number of
19 failures and shortcomings at the tank farms, noting that there had not been a

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21 ¹ U.S. Department of Energy, Richland Field Office, *Type B Investigation*
22 *of Hanford Tank Farms Vapor Exposures* (Apr. 1992).

1 properly developed industrial hygiene program and that a technically adequate
2 characterization of tank emissions had not been completed.

3 28. Energy did not fix the problems identified in the 1992 Report, and
4 vapor exposure problems persisted at the tank farm areas.

5 29. In 2002, the National Institute for Occupational Safety and Health
6 of the Centers for Disease Control and Prevention (NIOSH) received a
7 confidential request to evaluate personal protection and health risks for
8 employees exposed to vapors from the tank waste. In July 2004, NIOSH issued
9 a NIOSH Health Hazard Evaluation Report.² NIOSH personnel evaluated
10 personal protection equipment issues and the potential for occupational
11 exposures to vapors at the Hanford tank farm site. NIOSH personnel found
12 that:

13 a. Employees are exposed to vapors during work activities.

14 b. Workers reported acute and chronic health effects after
15 vapor exposures.

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19 ² National Institute for Occupational Safety and Health, *NIOSH Health*
20 *Hazard Evaluation Report: HETA #2004-0145-2941 CH2M Hill Hanford*
21 *Group, Inc. and U.S. Department of Energy, Office of River Protection,*
22 *Richland, WA (July 2004).*

1 c. Workers had not been routinely provided with personal
2 protection equipment for exposures to tank vapors and there were
3 difficulties in the process to get a respirator.

4 d. Information about components of vapor exposures has not
5 been collected for all employee exposures.

6 e. Exposure monitoring was often not done at the time of the
7 exposure.

8 f. Employees' personal sampling data was not readily
9 accessible to employees or managers, limiting the ability to make
10 informed decisions about personal protection equipment choices.

11 g. Medical monitoring after vapor exposures was not
12 consistent.

13 h. The analysis of air samples collected from the tank
14 headspace could take weeks or months to complete, potentially resulting
15 in errors due to sample decay and a delay in selecting the appropriate
16 level of personal protection equipment.

17 30. More than a decade after the issuance of the NIOSH report, tank
18 vapor exposure events continue to endanger workers in the tank farm areas. As
19 noted above, there were more than fifty reported worker vapor exposure
20 incidents between January 2014 and April 2015, demonstrating that the problem
21 of worker safety in the tank farm areas has not been solved.

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1 31. Because of continued worker exposures at the Hanford Site, WRPS
2 asked the Savannah River National Laboratory to assemble a team of experts,
3 the Hanford Tank Vapor Assessment Team, to perform a review of the
4 chemical vapors program at the Hanford tank farms. In October 2014, the
5 Hanford Tank Vapor Assessment Team issued its Hanford Tank Vapor
6 Assessment Report³ (2014 Report). The 2014 Report was prepared under an
7 agreement with and funded by the U.S. Government. The Tank Vapor
8 Assessment Team examined the relationship between potential chemical
9 exposures in the tank farm environment and the health effects reported by
10 Hanford tank farm workers. The 2014 Report included the following
11 conclusions:

12 a. The weight of the evidence strongly suggests the existence
13 of a causal link between vapor releases from Hanford waste tanks and
14 adverse health effects to workers, and that those adverse health effects
15 are likely caused by acute, transitory exposures to relatively high
16 concentrations of chemicals, that is, “bolus exposures.” 2014 Report
17 at 13. The current industrial hygiene program at Hanford fails to detect
18 the short-term episodic (bolus) events that appear to be the cause of most,
19 if not all, current chemical exposures. 2014 Report at 17.

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21 ³ Savannah River National Laboratory, *Hanford Tank Vapor Assessment*
22 *Report*, SRNL-RP-2014-00791, Rev. 0 (Oct. 30, 2014).

1 b. WRPS and Energy need to implement significantly
2 enhanced industrial hygiene programs and processes in order to address
3 the problem of worker exposures at the Hanford tank farms. 2014 Report
4 at 15.

5 c. The ongoing tank vapor releases do not allow for the
6 provision of a safe and healthful workplace free from recognized hazards.
7 Leadership at the Department of Energy will need to be fully committed
8 to address the vapor exposure issues. 2014 Report at 15.

9 32. As a result of these conclusions, the Hanford Tank Vapor
10 Assessment Team made ten recommendations. 2014 Report at 15–20. These
11 recommendations include:

12 a. Energy and WRPS management must implement systemic
13 change, which includes acknowledging the health risk associated with
14 vapor releases.

15 b. Tank chemical vapor exposures must receive operational
16 and cultural emphasis that is functionally equivalent to that currently
17 being provided to protect workers from radiological and flammability
18 hazards.

19 c. Measures to characterize tank contents must be implemented
20 and sampling efforts must be improved to obtain meaningful information
21 about vapor exposure events.
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d. Accelerate the development and implementation of a revised industrial hygiene exposure assessment strategy that will be protective of worker health and will establish stakeholder confidence in the results for acute as well as chronic exposures.

e. Site and medical personnel evaluating workers, who report illness or injury, should rely upon relevant exposure information that recognizes the complex chemical mixture of tank vapors and the potential short-term, episodic nature of the vapor incidents.

f. Real time personal gas/vapor detection devices and personal protective equipment should be used to reduce impacts of bolus tank vapor exposures.

g. Accelerate implementation of tailored engineering technologies to detect and control vapor emissions and both acute and chronic exposures experienced in the Hanford tank farms.

h. Energy should increase its focus on chemical hazards at the tank farms and develop more specific industrial hygiene guidelines regarding the anticipation, recognition, evaluation, and control of chemical hazards.

i. WRPS should act in a proactive manner to effectively and timely communicate tank vapor exposure issues and risks to workers.

1 j. WRPS, in partnership with Energy and others, should
2 develop a research strategy to address data and technology gaps related to
3 tank vapor exposure, effects, and mitigation.

4 33. As of the filing of this complaint, the problems in the 200 Area that
5 exposed workers to tank vapors have not been fixed.

6 **VI. CLAIMS FOR RELIEF—RCRA CITIZEN SUIT**

7 34. The State re-alleges paragraphs 1–33 above.

8 35. 42 U.S.C. § 6972(a)(1)(B) authorizes any person to commence a
9 civil action against any other person, including the United States and any other
10 governmental instrumentality or agency, including any past or present
11 generator, past or present transporter, or past or present owner or operator of a
12 treatment, storage, or disposal facility who has contributed or who is
13 contributing to the past or present handling, storage, treatment, transportation,
14 or disposal of any solid or hazardous waste which may present an imminent and
15 substantial endangerment to health or the environment.

16 36. The Defendants are “persons” under section 1004 of RCRA,
17 42 U.S.C. § 6903(15).

18 37. The waste found in the Hanford tank farms is a “solid waste” under
19 RCRA section 1004, because it is discarded solid, liquid, and/or semisolid
20 material resulting from an industrial operation. 42 U.S.C. § 6903(27).

21 38. The Defendants contribute to the past or present storage, handling,
22 and treatment of the solid waste found in the tanks at the Hanford tank farms.

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E. Ordering such other relief as the Court may deem just and proper.
DATED this 2nd day of September 2015.

ROBERT W. FERGUSON
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