



BAYOU CITY INITIATIVE
Designing a flood-resilient Houston

July 26, 2022

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Certified Mail No. 7020 3160 0001 2226 9731

Lance Fritz
Chairman, President and Chief Executive Officer
Union Pacific Railroad
1400 Douglas Street
Omaha, Nebraska 68179

Certified Mail No. 7020 3160 0001 2226 9779

Michael Regan, Administrator
U.S. Environmental Protection Agency
Office of the Administrator, 1101A
1200 Pennsylvania Avenue, N.W.
Washington D.C. 20460
Micheal.regan@Epa.gov

Certified Mail No. 7020 3160 0001 2226 9755

Earthea Nance, PhD, PE
Regional Administrator
Environmental Protection Agency Region 6
1201 Elm Street
Suite 500
Dallas, Texas 75270

Certified Mail No. 7020 3160 0001 2226 9786

Hon. Merrick Garland
Attorney General of the United States
U.S. Department of Justice
950 Pennsylvania Avenue, N.W.
Washington, D.C. 20530-0001

Certified Mail No. 7020 3160 0001 2226 9809

Toby Baker
Executive Director
Texas Commission on Environmental Quality
MC 109
P.O. Box 13087
Austin, Texas 78711-3987

Certified Mail No. 7020 3160 0001 2226 9793

CT Corporation System
Registered Agent for Union Pacific Railroad
1999 Bryan Street
Suite 900
Dallas, Texas 75201-3136
info@ctadvantage.com

Re: 90-Day Notice of Intent to Sue Union Pacific Railroad Under the Resource, Conservation, and Recovery Act

Dear Mr. Fritz,

The Bayou City Initiative (BCI) hereby serves this NOTICE OF INTENT TO SUE Union Pacific Railroad (Union Pacific) under the citizen suit provision of the Resource Conservation and Recovery Act (RCRA) §7002(a)(1)(B). The Bayou City Initiative's Notice of Intent is aligned with, but independently issued in conjunction with that of the City of Houston's Notice of Intent to Sue Union Pacific. An imminent and substantial endangerment to the public is present and ongoing because of Union Pacific's creosote and arsenic contamination from their site along Liberty Road that affects both Kashmere Gardens and 5th Ward neighborhoods within the City of Houston. Moreover, new information has become available that links material from nearby notorious Superfund sites like Motco with the onsite usage of hazardous wastes and must immediately be acted upon. Well-known cancer clusters have been documented in neighborhoods adjacent to this site and the cancers are linked to chemicals present at this location. Further, this imminent and substantial endangerment has continued despite an ongoing response action by Union Pacific, overseen by the Texas Commission on Environmental Quality (TCEQ)—an action which has taken much too long and has not yet achieved risk reduction. To date the public, which is predominantly minority and lower income, continues to be exposed to cancer-causing chemicals that should have been removed long ago. The time for action to abate this wrong is now.

THE RESOURCE CONSERVATION AND RECOVERY ACT

Congress enacted the Resource Conservation and Recovery Act of 1976 to provide a comprehensive regulatory framework over hazardous waste storage, treatment and disposal. RCRA was amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, which banned land disposal of hazardous waste and provided for the regulation of older disposal and leak sites known as Solid Waste Management Units (SWMUs). Among its many provisions, RCRA provided a pathway for addressing truly dangerous situations posing imminent harm to the public through U.S. Code 6972(a)(1)(B), which is the basis of this Notice of Intent letter. Under HSWA, SWMUs were to be registered with the TCEQ in order to be studied, monitored and remediated. This notice involves SWMUs that have NOT been remediated and despite ongoing proceedings at the TCEQ represent an imminent and substantial endangerment to the public.

ELEMENTS OF IMMINENT AND SUBSTANTIAL ENDANGERMENT CLAIM

Several elements must be met to sustain a claim under the citizen suit provision of Section 7002 of RCRA. A claim under this citizen suit provision can be made because BCI's claim meets this statutory requirement, "against any (1) 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, (2) who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste, (3) which may present an imminent and substantial endangerment to health or the environment;"¹

1. Under RCRA, Union Pacific is a Person

Under RCRA regulations at 40 C.F.R. Part 260.10, a person is defined as: "an individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body." Union Pacific Railroads was incorporated in June 1861 and had 2021 revenues of over 21.8 billion dollars despite the COVID-19 pandemic; therefore, Union Pacific Corporation is a person under RCRA.²

2. Union Pacific Contributed to Past or Present Handling, Storage, Treatment, Transportation, or Disposal of Any Solid or Hazardous Waste

It is undisputed that Union Pacific is the owner of record of the property and facility formerly known as the Houston Wood Preserving Works where a chemical known as creosote was processed, used, disposed, spilled, leaked and/or released onto the property. As such, it would be classified as a solid waste. Creosote is further classified as a hazardous substance with the CAS identification number 8001-58-9 on the basis of carcinogenicity—it causes cancer. Several of these sites of leakage on the Houston Wood Preserving site have been identified and classified as SWMUs under RCRA while others are areas of interest and it is indisputable that Union Pacific remains responsible for the abatement of all solid and hazardous waste on this site.

¹ 42 U.S. Code §6972(a)(1)(B).

² Commissioners Organize Union Pacific Railroad, Union Pacific Timeline, Sep. 2, 1862 <https://www.up.com/timeline/index.cfm/commissioners-organize-railroad> (last visited Jul. 5, 2022); Union Pacific Stock Has More Room For Growth, Forbes, Feb. 25, 2022, <https://www.forbes.com/sites/greatspeculations/2022/02/25/union-pacific-stock-has-more-room-for-growth/?sh=21e7b1565287> (last visited Jul. 5, 2022).

3. Union Pacific's Pollution May Present an Imminent and Substantial Endangerment to Health or the Environment

To satisfy the endangerment provision, RCRA only requires that there “may” be imminent and substantial endangerment to health or the environment due to the solid or hazardous waste under consideration. Union Pacific’s Draft Renewal Permit and Compliance Plan No. 50343, ISWR No. 31547, submitted to TCEQ shows that the creosote remaining on the site has contaminated the groundwater and spread in a plume beneath neighboring residential areas, leading to liquid and/or gaseous release and exposure of residents living in the affected area.³ Although subject to TCEQ supervision, Union Pacific has failed to adequately contain and remediate this contamination plume, thereby creating the Imminent and Substantial Endangerment.⁴

Significantly, previously undisclosed information suggests that this site illegally incorporated hazardous waste into the creosote extender used in the wood treating preservation process. To date, the site has emitted, and continues to emit the pollutants creosote and arsenic, as well as other hazardous by-products that pose a significant threat to the public health of the residents of the 5th Ward. This means that not all “practicable means and measures” are being used to “foster and promote the general welfare.” Moreover, this contamination has still neither been adequately characterized, nor properly mitigated. Decades after the endangerment to Houston’s 5th Ward neighborhoods was acknowledged, it still remains substantial. Federal courts have opined that an “endangerment is substantial where there is reasonable cause for concern that someone or something may be exposed to risk of harm by release, or threatened release, of hazardous substances in the event remedial action is not taken.”⁵ Further, The Supreme Court noted that “if an error is to be made in applying the endangerment standard, the error must be made in favor of protecting the public health, welfare and the environment.”⁶

Under RCRA, endangerment is considered “imminent” if the factors giving rise to the endangerment are present, even if the resulting harm may not occur for years to come.⁷ The endangerment is considered “substantial” if there is reasonable cause for concern that human health or the environment may be seriously harmed.⁸ Given the known presence of groundwater contamination both on and off site, and the correlation between the hazardous waste and types of cancer found in the area that exceed expectations, the creosote and other solid waste contaminants of the site pose an imminent and substantial endangerment to the health of the adjacent Kashmere Gardens and 5th Ward communities.⁹

THE BAYOU CITY INITIATIVE HAS STANDING TO SUE

Incorporated in response to Hurricane Harvey’s record flooding and to address inequities revealed by flood recovery in Houston, the Bayou City Initiative’s purpose is “to educate, coordinate, advocate and litigate for flooding and hazardous waste solutions in Houston, Texas and surrounding areas.” The citizen suit provision

³ Response Action Plan, Revision 5. RCRA Part B Renewal Application Compliance Plan. Attachment XI.D. August 31, 2020. PDF p. 8.

⁴ Assessment of the Occurrence of Cancer Supplemental Assessment 2000-2016. Jan. 4, 2021. Prepared by the Texas Department of State Health Services. <https://dshs.texas.gov/epitox/CancerClusters/Supplemental-Assessment-of-the-Occurrence-of-Cancer-Houston-Texas-2000-2016.pdf> (last visited Jul. 5, 2022).

⁵ *Burlington Northern & Santa Fe Ry. v. Grant*, 505 F.3d 1013, 1021 (10th Cir. 2007).

⁶ *Id.*, Citing *Interfaith*, 399 F.3d at 259, (quoting *United States v. Conservation Chemical Co.*, 619 F. Supp. 162, 194 (W.D. Mo. 1985)).

⁷ *Burlington Northern & Santa Fe Ry. v. Grant*, 505 F.3d 1013, 1020-1021 (10th Cir. 2007).

⁸ *Id.* at 1021.

⁹ Assessment of the Occurrence of Cancer Supplemental Assessment 2000-2016. January 4, 2021. Prepared by the Texas Department of State Health Services. <https://dshs.texas.gov/epitox/CancerClusters/Supplemental-Assessment-of-the-Occurrence-of-Cancer-Houston-Texas-2000-2016.pdf> (last visited Jul. 5, 2022).

of RCRA is therefore germane to the Bayou City Initiative's purpose as this suit addresses flooding issues exacerbated by hazardous waste. Under the Bayou City Initiative's bylaws, Article III, Membership, 3.02, the Board of Directors may approve of classes of non-voting affiliates for membership in the organization. Among the Bayou City Initiative's approved non-voting affiliates are Kashmere Gardens Super Neighborhood Council # 52, the Northeast Super Neighborhoods United, Trinity Gardens Super Neighborhood # 48, Mr. Keith Downey, President of the Kashmere Gardens Super Neighborhood Council # 52—a board member of the Bayou City Initiative previously lived in Kashmere Gardens, Ms. Joetta Stephenson, Ms. Sandra Edwards and Ms. Huey German- Wilson, among others, all of which are persons and organizations adversely impacted by Union Pacific's Houston Wood Preserving Works facility. Moreover, Sandra Edwards lives above and within the plume management zone at 2925 Lavender Street. Hence, the Bayou City Initiative is an appropriate plaintiff.

THE SITE, PERMIT AND PROCEDURAL HISTORY

Kashmere Gardens and the 5th Ward remain historically African American neighborhoods within the City of Houston. They are predominantly residential and situated between a rail corridor and an industrial area bounded by Liberty Road along the southeastern border. In 1911, Southern Pacific Railroad began operations at the Houston Wood Preserving Works adjacent to this community, at 4910 Liberty Road. This facility treated wood with creosote and possibly pentachlorophenol, to prevent rotting. Creosote and creosote extenders were processed in areas Solid Waste Management Units (SWMUs) No. 4 and SWMU No. 5, which generated a liquid waste stream comprised of creosote and other harmful chemicals.¹⁰ Until 1975, this wastewater was discharged into SWMU No. 2, a wood lined drainage ditch that flowed west beneath the railroad tracks.¹¹ In 1979 and 1980, SWMU No. 1 was constructed as a surface impoundment on the southwest end of the site to dispose of creosote-contaminated debris and wastewater.¹²

The plant ceased wood treatment operations in 1984,¹³ and was subsequently acquired in 1997 by Union Pacific. Since the 1970s, creosote contamination, among other types of contamination, have been discovered in the groundwater and various areas of the Kashmere Gardens and 5th Ward communities. Here, creosote leakage and contamination originated from SWMU No. 1, SWMU No. 2, SWMU No. 4, SWMU No. 5, Area of Concern (AOC) No. 6, the Englewood Intermodal Yard, and Liberty Road Right of Way.¹⁴

After decades of contamination, Union Pacific finally began remedial site cleanup measures under RCRA Permit No. 50343, in coordination with TCEQ. These measures include soil excavation at the Liberty Road Right of Way, physical barriers on the Englewood Intermodal yard, AOC No. 6, and SWMU No. 2 and stormwater control. Nonetheless, surface seeps of creosote and other chemicals remain routine in areas in and around the site, spurring Union Pacific to engage in weekly and monthly inspections as well as chemical disposals. These cleanup efforts remain woefully insufficient.

At the onset of the EPA's Resource Conservation and Recovery Act program in 1976, Southern Pacific, Union Pacific's predecessor began cleanup of the creosote-contaminated site. The RCRA permit dictates the cleanup process and requires oversight by and coordination with TCEQ. Following the 1997 merger between

¹⁰ RCRA Facility Assessment Report, PRC Environmental Management, Inc., October 1993 at 6-7.

¹¹ *Id.* at 7.

¹² *Id.*

¹³ *Id.*

¹⁴ Union Pacific Cover Letter Response to EPA, Oct. 20, 2021, at 16, 17,

<https://www.epa.gov/system/files/documents/2021-10/union-pacific-resp.-package-to-epa-re-hwpw-10.20.pdf> (last visited Jul. 5, 2022).

Southern Pacific and Union Pacific Railroad, Union Pacific continued this “cleanup” under RCRA Hazardous Waste Permit Plan 50343/ISWR No. 31547.¹⁵

The “plume management zone”—the region with groundwater contamination—is the area targeted for testing and cleanup. It encompasses both property owned by Union Pacific and adjacent property belonging to the neighborhoods of 5th Ward and Kashmere Gardens. Under RCRA, Union Pacific is required to manage and dispose of the hazardous waste, discontinue activities in areas that used hazardous waste, use competent methods to prevent human and environmental exposures to hazardous waste and to reduce or eliminate contaminant migration away from the site.¹⁶ Yet, rather than removing or treating the contamination, an agreement between Union Pacific and The Texas Natural Resources Commission, now TCEQ, allowed the waste to be merely managed via Institutional Controls under the Texas Risk Reduction Program.¹⁷ This is not a “diligent” cleanup required by Texas under RCRA, but rather a protracted and lackluster effort, that has been far too permissive regarding Union Pacific’s site remediation. While these institutional controls may meet some of the requirements of RCRA, they do not fulfill the intent of RCRA because residents still suffer from cancers that continue to occur at high and aberrant rates.

On December 7, 2015 Union Pacific applied for the renewal and amendment of its’ RCRA permit to continue the cleanup (“Information on Houston Wood Preserving Works Site and Area Cancer Cluster”). In June 2021, the City of Houston publicly opposed Union Pacific’s cleanup plan. Mayor Silvester Turner raised concerns about Union Pacific’s lack of transparency, and requested the company release publicly available information about their cleanup process.¹⁸ In September 2021, the EPA’s Office of Environmental Justice wrote to Union Pacific requesting a rigorous review of their proposed RCRA permit renewal and corrective action amendments, in order to determine whether the permit terms and corrective action goals sufficiently addressed the severity of the pollution and the concerns of the residents.¹⁹ Yet, the danger to these residents remains imminent and substantial, which warrants immediate action beyond Union Pacific’s halfhearted efforts.

UNION PACIFIC’S LEGACY CONTAMINATION CONTINUES TO POSE AN IMMINENT AND SUBSTANTIAL ENDANGERMENT TO HOUSTON RESIDENTS

Today, known creosote and arsenic plumes extend from under the site to the surrounding neighborhoods of 5th Ward and Kashmere Gardens, particularly the area just north of the site. Further, these plumes are likely contaminated with other previously undisclosed toxins. Both creosote and arsenic are designated as hazardous waste under the Resource Recovery and Conservation Act’s hazardous constituents list as K001 and D004, and a RCRA 8 metal, respectively. RCRA’s hazardous waste management strategies and regulations can be found in §§239-282 of Title 40 of the Code of Federal Regulations (C.F.R.). The regulations for Releases from Solid Waste

¹⁵ Union Pacific Cover Letter Response to EPA, Oct. 20, 2021, at 1, <https://www.epa.gov/system/files/documents/2021-10/union-pacific-resp.-package-to-epa-re-hwpw-10.20.pdf> (last visited Jul. 5, 2022).

¹⁶ “Information on Houston Wood Preserving Works Site and Area Cancer Cluster.” City of Houston, Texas, City of Houston, Texas, Jun. 16, 2021, at 9, <https://www.houstontx.gov/health/Environmental/bcceh/documents/fwkgcc/kashmere/kashmere-gardens-community-meeting-agenda-20210616.pdf> (last visited Jul. 5, 2022).

¹⁷ “Environmental Testing in Fifth Ward/Kashmere Gardens.” Texas Health and Environmental Alliance, Center for Health, Environment & Justice, June 2022, at 2, <https://txhea.org/wp-content/uploads/2020/06/CHEJ-Environmental-Testing-in-Fifth-Ward.pdf> (last visited Jul. 5, 2022).

¹⁸ Barnhart, Toria. “EPA Seeks Info from Union Pacific about ‘Contaminated’ Site near Texas Cancer Cluster.” Newsweek, Sep. 10, 2021, <https://www.newsweek.com/epa-seeks-info-union-pacific-about-contaminated-site-near-texas-cancer-cluster-1627702> (last visited Jul. 5, 2022).

¹⁹ Breen, Barry N., United States Environmental Protection Agency, Received by Mr. Lance M. Fritz, Sep. 9, 2021, <https://www.epa.gov/system/files/documents/2021-10/uprr-letter-with-enclosure-sept-2021.pdf> (last visited Jul. 5, 2022).
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Management Units (SWMUs) are found in §§264 and include Required Monitoring and Response Programs (§ 264.91). Union Pacific stated in a letter to the EPA in October of 2021 that their monitoring and sampling of soil gas and groundwater “did not identify concerning results.” Yet, credible eyewitness accounts of neighborhood residents continue to report a visible rainbow sheen of contamination in the water that collects after rainfall on playgrounds, yards and ditches that is still accompanied by the acrid odors of creosote when the weather is hot. Moreover, as demonstrated below, the present cancer cluster shows types of cancer that correspond to those caused by the chemicals released from Union Pacific’s site. Shamefully, the elevated counts of cancer found in 5th Ward children demonstrate that the chemicals continue to cause harm, and present or may present an imminent and substantial endangerment to health and the environment.

Creosote contains over ten known carcinogenic and mutagenic toxins, including benzene, toluene and arsenic and long-term exposure to creosote is harmful.²⁰ In addition, creosote is composed of Polycyclic Aromatic Hydrocarbons (PAH), which the EPA classifies as Dense Non-Aqueous Phase Liquids (DNAPL) that are insoluble in water. These heavier DNAPLs slowly sink in the ground, releasing lighter toxins that contaminate groundwater. Significantly, creosote components remain in a tar-like mass, taking years to break down, leading to contamination accumulation in plants and animals. This contamination accrued over the 73 years between 1911 to 1984 in which Southern Pacific, now Union Pacific, operated the wood preservation facility at the site. This legacy contamination triggers a substantial threat to the community's health and the environment.

Houston Wood Preserving Works May Have Used “Additives” in their Creosote Extenders

Based on new information and belief, the Bayou City Initiative understands that for years, the Houston Wood Preserving Works added extra ingredients to their “Creosote Extenders,” transforming diesel fuel and other solvents into a witch’s brew of toxic wastes that contained many familiar toxic chemicals including dioxins, furans, vinyl chlorides, hexavalent chromium, PCBs lead and mercury. The addition of these toxic chemicals from well-known Superfund sites in the area such as Motco, Dixie Oil Processors and Brio Refining must be evaluated. Additionally, the creosote extenders used at the site purportedly included styrene tars, bunker fuel, naphtha and diesel fuel. The addition of this cornucopia of toxic chemicals to the creosote must be fully characterized because it adds new information to the issue of causality and calls into question the current legal characterization of the site. Significantly, there has been no testing for these toxic compounds given they were not previously known to have been used at the site, and that by extension, and for decades the hazards associated with this site have never been properly characterized. The time to fully characterize this hazardous waste is now.

Imminent Harm

In 2017, Union Pacific proposed a restrictive covenant to the neighboring residents of the 5th Ward and Kashmere Gardens, offering \$1000 to individuals who agreed not to consume or utilize the vicinity's groundwater. Texas permitting records reveal an ongoing dialogue with TCEQ about past creosote spills at the Union Pacific site. Yet, the company neglected any direct communication with the residents about the spills and associated risks, and devised this arguably conspiratorial covenant that intentionally failed to disclose the underlying concerns. The 7-decade period of Union Pacific's secrecy initiated the imminent harm provision; first, residents oblivious to the creosote toxicity of the area suffered mass exposure. Second, the cumulative effects of the prolonged non-disclosure continue with the seepage of the tar-like creosote mixture from crevices in the ground which created the formation of still existent mobile creosote plumes and exposure pathways.

²⁰ Paul E. Rosenfeld, Lydia G.H. Feng, Table 8.1, Risks of Hazardous Wastes, 2011.

²¹ “Railroad Workers & Creosote.” Hughes Law Offices, 20 Aug. 2021, www.dieselinjurylaw.com/blog/railroad-workers-exposed-to-creosote-are-at-increased-risk-for-leukemia-and-cancer-learn-more-today.

Endangerment and the Linkage between Creosote and the Cancer Cluster

Well-established evidence demonstrates that long-term exposure to creosote created a cancer cluster in Houston's 5th Ward community.²¹ In a detailed analysis done by Texas Health and Human Services on the Assessment of the Occurrence of Cancer from 2000-2016, children in the 5th Ward and Kashmere Gardens area contracted leukemia at five times greater rate than the state average.²²

Recent studies identified elevated incidents of cancer in the Kashmere Gardens and 5th Ward neighborhoods directly above the creosote plume contamination. The types of cancers found at higher rates in this community include lung cancer, leukemia, esophagus cancer, and larynx tumors.²³ The fact that this cancer cluster is geographically located above and adjacent to the creosote disposal site and aligns with the location of creosote plumes is no coincidence, since many chemicals that constitute creosote are known carcinogens.

Despite its widespread use in the United States as a wood preservative, many of the chemicals found in creosote fall into the categories of PAHs, cresols, and phenol, all of which pose adverse health effects of cancerous and non-cancerous natures.²⁴ Furthermore, creosote's constituent chemicals are considered hazardous solid waste under RCRA. Even in low concentrations, creosote is defined as a probable carcinogen by the EPA. Given direct contact or inhalation over long term exposure, there are many cases of former workers who worked with creosote who have been found to have higher rates of cancer. Benzene, also associated with creosote, has been linked to leukemia over long term exposure.²⁵ These cancers match those that show up in the cancer cluster report in the 5th Ward, and the many other cancerous and non-cancerous effects from other probable carcinogens in creosote pose a further threat to residents near the plume.

The Courts have interpreted endangerment to mean a "threatened or potential harm."²⁶ The endangerment in this case is causally related to the various health concerns the creosote contamination has imposed upon the 5th Ward community. In Houston's 5th Ward, creosote has contaminated both the underground and the surface, and adversely affected people living in this area. Among cancerous outcomes related to the chemicals of concern are: lung cancer; skin cancer; Leukemia, Hemangiosarcomas; Neoplastic liver nodules; Liver Angiosarcomas; forestomach, esophagus, tongue, and larynx tumors; and Squamous Cell Neoplasia in the larynx, pharynx, trachea, nasal cavity, esophagus, and forestomach. **See Figure 1. Below.**

²¹ Peters, Xander, et al. "A Lifetime of Damage' On a Creosote Plume in Houston's Fifth Ward." The Texas Observer, 26 Aug. 2021, www.texasobserver.org/a-lifetime-of-damage-on-a-creosote-plume-in-houstons-fifth-ward/ (last visited Jul. 5, 2021).

²² Assessment of the Occurrence of Cancer Supplemental Assessment 2000-2016. January 4, 2021. Prepared by the Texas Department of State Health Services, at 7, <https://dshs.texas.gov/epitox/CancerClusters/Supplemental-Assessment-of-the-Occurrence-of-Cancer-Houston-Texas-2000-2016.pdf> (last visited Jul. 5, 2022).

²³ Assessment of the Feasibility of an Epidemiological Study to Assess the Occurrence of Cancer Addendum 2000-2016. Sep. 30, 2020. Prepared by the Texas Department of State Health Services, at 2.

²⁴ "Facts About Benzene." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, Apr. 4, 2018, <https://emergency.cdc.gov/agent/benzene/basics/facts.asp> (last visited Jul. 5, 2022).

²⁵ "Facts about Benzene." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 4 April. 2018.

²⁶ *Burlington Northern & Santa Fe Ry. v. Grant*, 505 F.3d 1013, 1020 (10th Cir. 2007).

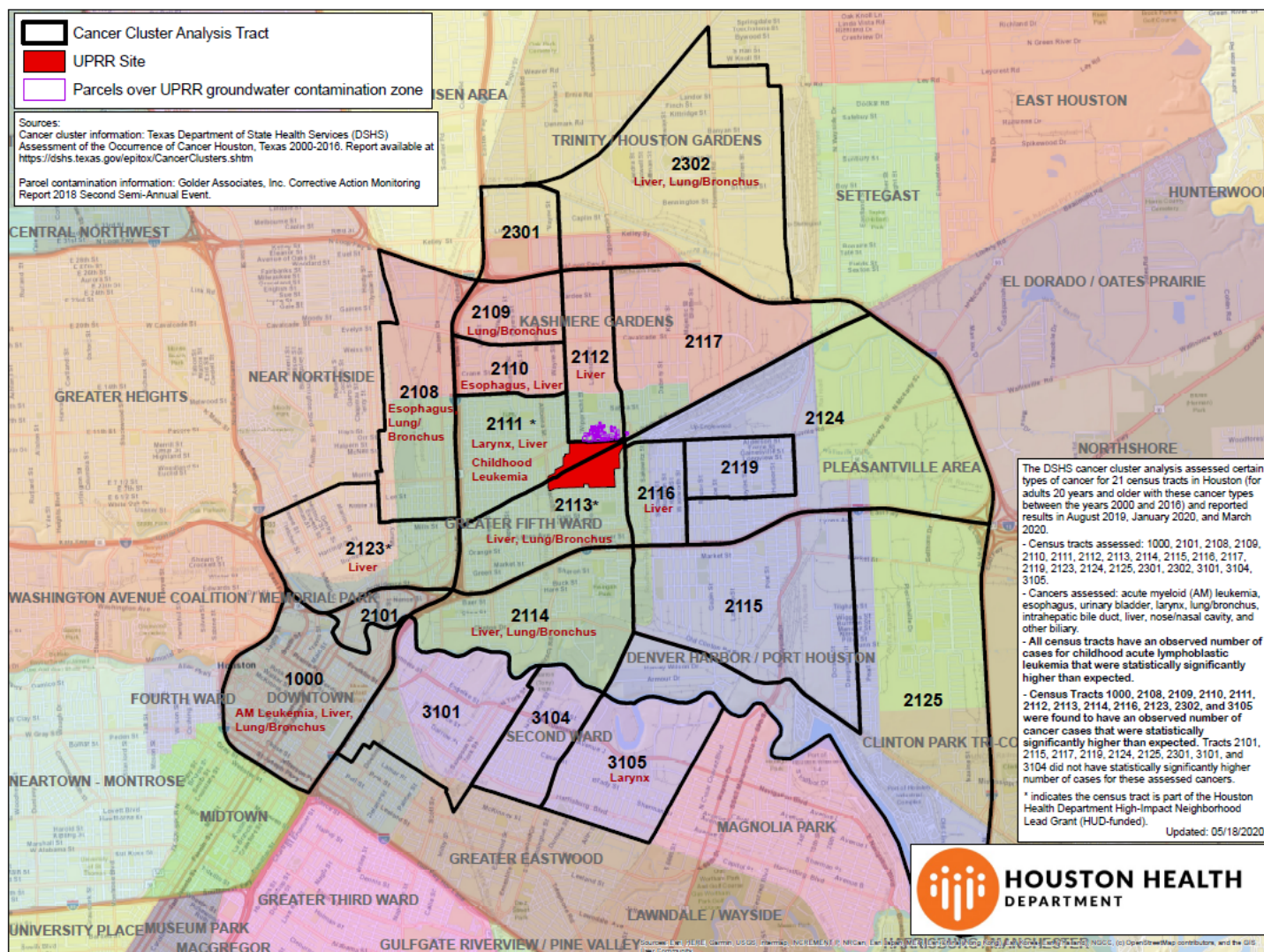


Figure 1. Map of Cancer Cluster and Associated Cancers Identified among 5th Ward Residents that identifies different types of cancers found to be elevated in these communities surrounding the wood preserving facility in red.²⁷

More specifically, children living in the 5th Ward and Kashmere Gardens are contracting acute lymphoblastic leukemia at a rate five times the state average.²⁸ Listed below are the non-cancerous outcomes of the chemicals of concern including but not limited to: decreased embryo/fetal survival; decreased lymphocyte count; hyperpigmentation; increased kidney weight; liver cell polymorphism; and neurobehavioral changes.

Significantly, in 2019 five sewer manholes in the neighborhood surrounding the site were sampled. In 3 of the 5 manholes, benzene was detected at higher levels than permitted by the Texas Surface Water and Quality Standard, and in 1 of the manholes the levels of naphthalene were higher than permitted by the Texas Risk

²⁷ Houston Health Department “Fifth Ward/Kashmere Gardens Union Pacific Railroad Site Contamination and Area Cancer Cluster.” Cancer Cluster Map, May 18, 2022, <https://www.houstontx.gov/health/Environmental/bcech/fifth-ward-kashmere-gardens-union-pacific-railroad-site-contamination-area-cancer-cluster.html>.

²⁸ Medley, Alison, “A new cancer cluster identified in Houston's Kashmere Gardens neighborhood”, Chron.com, Jan. 22, 2021, <https://www.chron.com/news/houston-texas/article/cancer-cluster-Houston-Kashmere-Gardens-creosote-15888089.php> (last visited Jul. 5, 2022).

Reduction Program. The red highlighted area shows an area polluted by creosote. The surrounding areas, symbolized by numbers, show the types of diseases manifested by people exposed to creosote.

Arsenic, which is another contaminant of concern in the 5th Ward, is a naturally occurring compound.²⁹ However, in this case, inorganic arsenic compounds were used as a wood preservative in addition to creosote.³⁰ These are commonly identified as trivalent or pentavalent compounds that show epidemiological evidence of increased cancer risk. Arsenic is a listed compound under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA), requiring that Union Pacific report the annual quantity being released into the environment.³¹ Although classified as a CERCLA hazardous substance, arsenic has no reportable quantity because of the broadness of its classification.

Mechanisms of Transfer: from Groundwater Plume to Human Exposure

Once released, creosote seeps into the ground and groundwater via vadose zones, and eventually forms a plume once dissolved.³² Significantly, vadose zones also allow vapors from the dissolved plume to reach the surface, where toxic fumes volatilize or are emitted into the atmosphere. The heavier contents within the contaminant do not dissolve and instead form dense non-aqueous phase liquid (DNAPL) below the groundwater. Union Pacific sampled over 100 monitoring wells onsite, as well as locations north and west of the operations. The sample locations, along with the suspected plumes are shown in **Figure 2 below**. Blue dots represent monitoring wells and locations of elevated creosote contamination. Green dots indicate areas where elevated arsenic concentrations were present. Light blue coloring shows the groundwater creosote plume, while the green outline reveals the groundwater arsenic plume. Union Pacific operations are outlined in the dashed blue line.

The plume north of the site is the result of groundwater contamination through vadose zones, which flowed downgradient into the residential area. The contamination at these sites originates from the original process area (SWMU 5) and recent process area (SWMU 4). Creosote and extender were stored in tanks and used to treat wood there. Like with SWMU 1, these tanks have since leaked into the surrounding environment. West of the site contains the remnants of a former inactive waste lagoon. This includes the area of Surface Impoundment (SWMU 1). Originally built to store creosote waste and contaminated soils, these tanks became leaky and entered Area of Concern 6 (AOC 6). This Area of Concern 6 was repeatedly flooded and also received discharges of creosote-contaminated wastewater and surface water runoff from the south drainage ditch (SWMU 2). Additionally, creosote-contaminated wastewater from SWMU 2 flowed to the natural lagoon via piping underneath the railroad tracks. The lagoon was formed because it is located in a low-lying area, which caused wastewater and runoff to flow downstream in its direction.³³

²⁹ Arsenic, Center for Disease Control and Prevention, Nov. 2009, https://www.cdc.gov/biomonitoring/pdf/arsenic_factsheet.pdf (last visited Jul. 5, 2022).

³⁰ Arsenic, Public Health Toxicology, Virginia Department of Health, 2021, <https://www.vdh.virginia.gov/environmentalhealth/public-health-toxicology/arsenic/> (last visited July 6, 2022).

³¹ Toxic Chemical Release Inventory Reporting Forms and Instructions Revised 2021 Version, Section 313 of the Emergency Planning and Community Right-to-Know Act.

https://ordspub.epa.gov/ords/guideme_ext/guideme_ext/guideme/file/ry_2021_rfi.pdf (last visited July 6, 2022).

³² (Vadose zones, or the unsaturated zone extends from the top of the ground water surface to the water table.)

³³ Response Action Plan, Revision 5. RCRA Part B Renewal Application Compliance Plan. Attachment XI.D. August 31, 2020. PDF p. 5402.



Figure 2 Map of extent of contamination that shows the old Houston Wood Preserving Works (HWPW) facility within the dashed blue outline. Creosote plumes (light blue shading) extend beneath the neighboring houses to the North of the facility, and the arsenic plume (green line) also extends beneath the neighboring houses close to the facility.

Heavy rainfall in Houston is common, and within Houston —specifically in Kashmere Gardens and the 5th Ward—there are several areas significantly prone to flooding.³⁴ This is an issue because the impounded rainwater contacts the creosote and other contaminants and then migrates off site into surface and groundwater.

Rainwater is Impounded by Union Pacific’s Railyard, Contaminated and Flows into Adjacent Properties

The City of Houston estimates that 79% of all homes in the Kashmere Gardens neighborhood flooded because of Hurricane Harvey.³⁵ After heavy rains, runoff contaminated with creosote and its’ associated compounds flow through storm drains and ditches and residents’ yards where community members come into close contact with the substance. The presence of this creosote and its associated compounds in such densely-populated areas means that residents remain acutely vulnerable to long-term creosote exposure. Here, contaminated rainwater often rises to the surface in the 5th Ward and Kashmere Gardens neighborhoods, where residents and their children remain exposed to this hazardous substance. Long time area residents recall playing in the contaminated “rainbow water” as children. For example, **Figure 3.** below depicts the Union Pacific juxtaposed on a recent NOAA floodplain map. Rainwater can contact creosote which is released from the Union Pacific site and flows through the South Drainage Ditch below the railroad tracks. The wastewater Lagoon (AOC 6) in the west receives the contaminated discharges.³⁶ Moreover, municipal sewage systems, once overwhelmed by the volume of heavy runoff caused by heavy rains, creates conditions whereby the contaminated runoff is released into the nearest waterbody. Such pollution is important because this rainwater is untreated and flows

³⁴ Jan, Tracey, “Black communities are last in line for disaster planning in Texas,” The Washington Post, May 12, 2022, <https://www.washingtonpost.com/business/interactive/2022/hud-texas-disaster-discrimination/> (last visited Jul. 5, 2022).

³⁵ Kashmere Gardens Trinity/ Houston Gardens Super Neighborhoods 52 and 48 Briefing Book, University of Houston, 2018, at 9, http://www.go-neighborhoods.org/wp-content/uploads/2021/06/KashmereTrinity_Briefing_Book.pdf (last visited Jul. 11, 2022).

³⁶ Union Pacific Cover Letter Response to EPA, Oct. 20, 2021, at 16, <https://www.epa.gov/system/files/documents/2021-10/union-pacific-resp-package-to-epa-re-hwpw-10.20pdf> (last visited July 5, 2021)

into local waterbodies that creates yet another path of exposure to unsuspecting people.³⁷ Yet, this is not the only source of exposure for neighborhood residents.

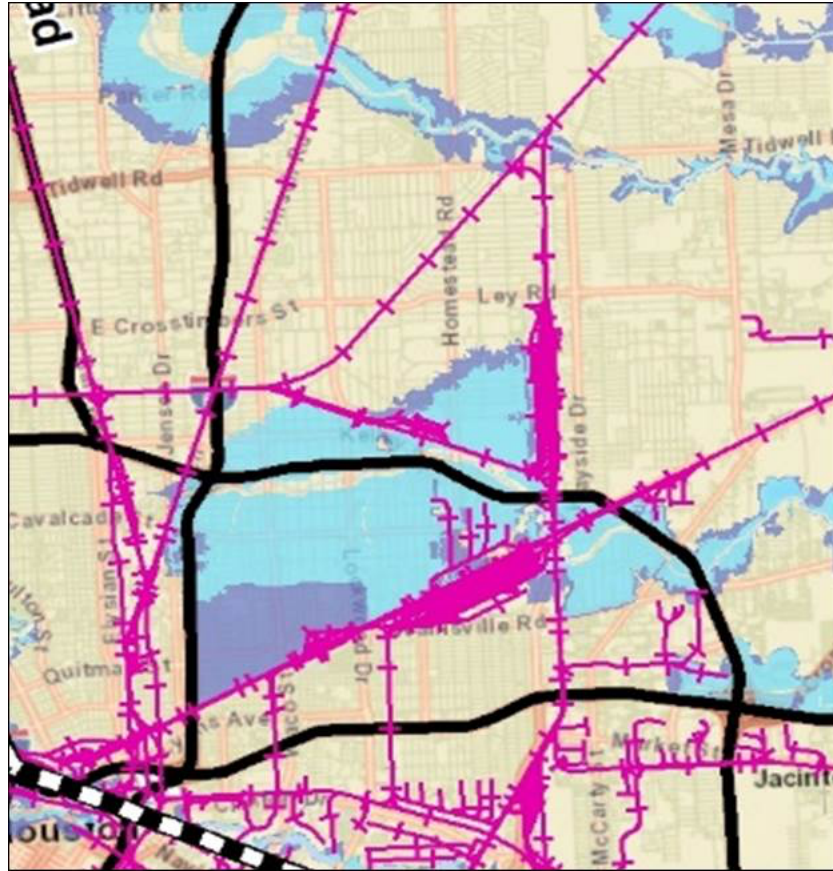


Figure 3. Flood Plain Map Showing Impoundment of Water near Hunting Bayou by Union Pacific Railyards which act as barriers to drainage. The water impoundment is distinctly visible in the sharp boundary created by the railyards.

Toxic Chemicals Rise to the Surface, Vaporize and Concentrate in Neighborhood Homes

Once rainwater is absorbed into the groundwater beneath the site it comes into contact with the DNAPL and other toxins. Some contaminated water rises to the surface and along with regular DNAPL seeps create an additional pathway of exposure for residents because of their inherent toxicity and potential to cause cancers for the surrounding community.³⁸ While Union Pacific regularly power washes the contaminations, those efforts fail to alleviate the danger and health concerns associated with cancer in residents around the Union Pacific via vapor intrusion pathways.³⁹ In short, power washing the surface is an insufficient solution to the real problem —the

³⁷ Union Pacific Response to TCEQ Comments on Permit Renewal Application. Houston Wood Preserving Works, Houston, Texas, Union Pacific, at Oct. 21, 2021.

³⁸ (DNAPL or the Dense Non-aqueous- Phase Liquid mass that has migrated into the groundwater bearing units continues to act as a source of material for dissolved phase Chemicals of Concern in the groundwater. Heavier than water and not capable of mixing in water, the DNAPL sinks farther into the subsurface as time goes on. Individual chemicals escape from the DNAPL mass where they dissolve in groundwater, cling to subsurface soils, or vaporize and then travel upward where they vaporize into the atmosphere.)

³⁹ “Information on Houston Wood Preserving Works Site and Area Cancer Cluster.” City of Houston, Texas, City of Houston, Texas, Jun. 16, 2021, at 13, <https://www.houstontx.gov/health/Environmental/bcceh/documents/fwkgcc/kashmere/kashmere-gardens-community-meeting-agenda-20210616.pdf> (last visited Jul. 5, 2022).

creosote underground. Moreover, the DNAPL continues to seep up out of the contaminated site, confirmed by routine monthly inspections, implicating the known contamination under the site and hazards imposed upon residents.⁴⁰ Consider the findings of other regulatory agencies besides that of TCEQ.

The Texas Department of State Health Services (DSHS) opined in a letter to TCEQ that it has not ruled out vapor intrusion pathways into homes. Soil samples collected in June 2020 near a residential home in Lavender St. were compared to the Agency for Toxic Substance and Disease Registry's (ATSDR) values. In those samples, benzene, a known carcinogen, was detected in both samples albeit one at a higher level than the ATSDR comparison value and one below it.⁴¹ Additionally, a soil gas survey conducted by the Houston Health Department around the area north of the Union Pacific site detected toluene and total petroleum hydrocarbons.⁴² These results led the DSHS to believe that additional soil samples need to be collected in residential locations not yet sampled to fully determine if the soil gas results are greater than the ATSDR health comparison values. Based on these findings, ample reasons exist to believe the creosote and the resulting plume underneath many residential homes are linked to the higher than average rate of cancer in the 5th Ward.⁴³

It is important to note that RCRA and TCEQ mandate that waste facilities be closed in a manner that minimizes or eliminates the need for further maintenance and controls, while also minimizing or eliminating, the post-closure escape of waste contaminants, leachate, runoff, or decomposition products to the surrounding environment. Yet, this has not been done and current efforts remain woefully insufficient.

Because the current situation requires frequent monitoring and removal of contaminants—which pose a causal link to health issues—it is imperative that Union Pacific act now, not in five or ten more years. Further, Union Pacific owes residents greater transparency regarding the future course of action and should cease the delay of meaningful site cleanup based on technical or procedural issues. The time to act is now, and the time for empty promises and platitudes has long passed. Affected residents have been overburdened by Union Pacific's inaction, while in this predominantly minority and low-income community the death toll continues to rise.

The 5th Ward Is a Classic Environmental Justice Community

Demographically, the Greater 5th Ward including Kashmere Gardens is uniquely vulnerable to the adverse effects of environmental hazards. A 2015 survey found that 94% of the population is Black or Hispanic, hence, the 5th Ward is a predominantly minority area.⁴⁴ Further, the median household income as of 2015 was \$30,535 compared to the overall Houston median of \$46,187, indicating it is a low-income community.⁴⁵ According to the 2015-2019 American Community Surveys, only 71% of individuals in the census tracts within the 5th Ward have health insurance. The racial composition and socioeconomic status of the community are relevant in environmental justice discussions as studies have found a link between a neighborhood's racial makeup and income juxtaposed against environmental hazards.⁴⁶ This research suggests that residents in neighborhoods like Houston's 5th Ward are limited in their ability to move out of "highly polluted, disorganized, and deteriorated

⁴⁰ Id. at 19.

⁴¹ Dr. John Hellerstedt, Commissioner of Texas Department of State Health Services, "Letter to TCEQ," Apr. 1, 2021.

⁴² Id.

⁴³ Assessment of the Occurrence of Cancer Supplemental Assessment 2000-2016. January 4, 2021. Prepared by the Texas Department of State Health Services, <https://dshs.texas.gov/epitox/CancerClusters/Supplemental-Assessment-of-the-Occurrence-of-Cancer-Houston-Texas-2000-2016.pdf> (last visited Jul. 5, 2022).

⁴⁴ *Super Neighborhood Resource Assessment: Greater Fifth Ward*, City of Houston Planning & Development Department, Nov. 2017, https://www.houstontx.gov/planning/Demographics/docs_pdfs/SN/55_Greater_FifthWard.pdf (last visited Jul. 5, 2022).

⁴⁵ Id.

⁴⁶ Downey, L., and Brian Hawkins. (Dec 1, 2008). *Race, Income, and Environmental Inequality in the United States*. Sociological Perspectives, 51(4):759-781. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2705126/>.

neighborhoods” and will therefore face greater exposure to environmental pollutants.⁴⁷ Moreover, low-income populations have more difficulty paying for healthcare for illnesses that arise from environmental health hazards. In short, this community needs help, and can ill-afford the additional health care costs associated with pollution made worse by decades of procrastination and neglect. Environmental justice is a sweeping term, the essence of which means that “everyone enjoys the same degree of protection from environmental and health hazards.”⁴⁸ Clearly, in the underserved minority neighborhoods surrounding the Union Pacific site, the conditions of environmental justice are not being met.⁴⁹ Moreover, the current situation violates Executive Orders and EPA mandates.

Relief Requested

RCRA allows several forms of relief for affected persons under the citizen suit provision provided by 42 U.S. Code § 6972 (a)(1)(A). The Bayou City Initiative requests a number of remedial actions be taken to address the imminent and substantial endangerment caused by Union Pacific and states its intent to compel Union Pacific to implement the following remedies:

- Immediately initiate a full investigation of the undisclosed use of hazardous materials from known Superfund sites that were improperly disposed of and used at the Houston Wood Preserving Works as creosote extenders;
- Fully investigate and re-determine the characterization of onsite and offsite contamination caused by operations at the Houston Wood Preservation Works site, including testing for furans, lead, arsenic, PCBs, dioxins, hexavalent chromium, PCBs, PFSA and mercury;
- Design and implement all technically feasible remediation and control measures including construction of a slurry wall separating the creosote based DNAPL plumes from the surrounding area to prevent the continuing spread of the underground contamination. Current plans indicate the slurry wall will bisect the DNAPL plumes thereby containing only the portions of the plume inside the slurry wall, but leaving the portion outside the wall free to migrate further into the community;
- Remedy the capture of rainwater caused by the elevated railyards, which improperly impounds rainfall and exacerbates contaminated surface and groundwater issues;
- Complete the removal and proper disposal of DNAPL and associated contamination plumes along with the contaminated soils in the area, including offsite contamination where contamination exceeds applicable standards for health and safety wherever technically possible;
- Utilize dust control measures sufficient to ensure that soil contaminants are not released by activities associated with remediation;
- Accomplish risk assessments for potentially affected neighborhoods that includes soil sampling at residential properties, actual indoor air monitoring and thorough soil gas assessments to ensure outdoor and indoor air quality is sufficiently protective of human health;

⁴⁷ Id.

⁴⁸ *Environmental Justice*, United States Environmental Protection Agency, Mar. 23, 2022, <https://www.epa.gov/environmentaljustice> (last visited Jul. 5, 2022).

⁴⁹ *EPA Administrator Announces Agency Actions to Advance Environmental Justice*, United States Environmental Protection Agency, Apr. 7, 2021, <https://www.epa.gov/newsreleases/epa-administrator-announces-agency-actions-advance-environmental-justice> (last visited Jul. 5, 2022).

- Establish protocols with the City of Houston to implement restrictions on the use of groundwater in and around the Union Pacific site and to replace compromised City infrastructure, specifically contaminated drainage systems;
- Establish a timetable for remediation and conduct activities in a transparent manner that ensures the sharing all relevant data with the City of Houston, Harris County, neighborhood associations and public health officials;
- Establish a fund to provide access to healthcare and preemptive screening including transportation costs to relevant medical facilities for all persons whose health may have been adversely impacted by this facility's contamination; and
- Provide funding for meaningful buyout and relocation expenses in tandem with local authorities to ensure affected residents are compensated for the off-site migration of contaminants from the facility and who wish to move while ensuring that the acquired properties remain available for community benefit and use and are not to be sold or otherwise transferred for commercial development.

It is indisputable that soil and groundwater at Union Pacific's site is contaminated and that the contamination has migrated off-site into the adjoining neighborhoods. The inexcusable absence of meaningful remediation necessitates more immediate action because nearby neighborhoods continue to suffer from higher incidents of cancers consistent with exposure to this site's known contaminants. Because this contamination and exposure to residents continues, an imminent and substantial endangerment to human health and the environment persists and is actionable under RCRA's citizen suit provision.

By filing this notice of intent to sue, the Bayou City Initiative has taken the first step to filing a lawsuit under RCRA §7002(a)(1)(B) to compel that the eminent and substantial endangerment is abated. It is the Bayou City Initiative's hope that Union Pacific will respond affirmatively to this notice in order that this ongoing harm may be rapidly abated and affected neighborhoods made livable.

Sincerely,

Jim Blackburn
President of Bayou City Initiative

Parties Giving Notice

Contact:
Bayou City Initiative
4709 Austin Street
Houston, TX 77004
hello@bcinitiative.org
713-516-5679

ATTORNEYS FOR THE BAYOU CITY INITIATIVE

Bryan French
4191 Pirates Beach
Galveston, Texas 77554
Bfrenchelcs@earthlink.net
(409) 599-3234

Jim Blackburn
4709 Austin Street
Houston, Texas 77004
jbb@blackburncarter.com
(713) 524-1012