

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comments of Safer Chemicals Healthy Families on Persistent, Bioaccumulative, and Toxic (PBT) Chemicals Subject to Regulation under Section 6(h) of the Toxic Substances Control Act

Submitted via Regulations.gov (January 12, 2018)

Decabromodiphenyl ethers (DecaBDE): EPA-HQ-OPPT-2016-0724

Hexachlorobutadiene (HCBD): EPA-HQ-OPPT-2016-0738

Pentachlorothiophenol (PCTP): EPA-HQ-OPPT-2016-0739

Phenol, isopropylated, phosphate (3:1): EPA-HQ-OPPT-2016-0730

2,4,6-Tris(tert-butyl) phenol: EPA-HQ-OPPT-2016-0734

Safer Chemicals Healthy Families (SCHF), Alaska Community Action on Toxics, Center for Environmental Health, Earthjustice, Environmental Health Strategy Center, Natural Resources Defense Council, and Toxic-Free Future submit these comments on the five Persistent, Bioaccumulative, and Toxic (PBT) chemicals identified by the Environmental Protection Agency (EPA) for regulation under section 6(h) of the recently amended Toxic Substances Control Act (TSCA).

The signatory organizations are national and grassroots groups committed to assuring the safety of chemicals used in our homes, workplaces and the many products to which our families and children are exposed each day. They took a leadership role during the TSCA legislative process, advocating the most protective and effective legislation possible to reduce the risks of toxic chemicals in use today.

These comments focus on the broad goals and requirements of TSCA section 6(h). Additional comments by our groups and related organizations provide specific use and exposure information on the five PBTs that will enhance EPA's understanding of their presence in products, workplaces and the environment.

Section 6(h) is one of several improvements in health and environmental protection from chemical risks that Congress made in TSCA through the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act (LCSA). This provision reflects the long-standing recognition by EPA and international bodies of the special dangers that PBTs pose to people and ecosystems as a result of their long-term presence, wide distribution and accumulation in living organisms and the natural environment. To address these dangers, section 6(h) creates a fast-track process for stringently restricting manufacture, use and disposal of chemicals previously determined by EPA to possess PBT properties. These restrictions must reduce exposure to the extent practicable, thereby preventing further build-up of the PBTs in the environment and biota and the harmful consequences that result. Reflecting this sense of urgency, rules imposing these restrictions must be proposed no later than June of 2019 and finalized 18 months thereafter.

We strongly urge EPA to interpret and implement section 6(h) in a manner that achieves the goals of section 6(h). Congress framed its requirements so that EPA could act expeditiously, based on the presumption that chemicals determined to be PBTs are harmful to the health and the environment and must be restricted without further risk evaluation or analysis of costs and benefits. As discussed below, in implementing section 6(h), EPA should not create unnecessary roadblocks but should focus on the overriding Congressional objective of achieving the maximum possible reduction in human exposure and environmental release. This objective compels EPA, subject only to constraints on feasibility, to impose requirements under section 6(a)(1) that eliminate manufacturing, processing, distribution in commerce and disposal of the five PBTs. In addition, use and unsafe disposal of legacy PBT-containing products should be prohibited under sections 6(a)(5) and (6), and manufacturers and processors should be required to repurchase or replace these products under section 6(a)(7).

EPA Has on Numerous Occasions Highlighted the Serious and Unique Threats Posed by PBTs to Human Health and the Environment

In its 1989 PBT strategy, EPA noted that:¹

“EPA has a long history of successful programs in controlling PBT pollutants -- pollutants that are toxic, persist in the environment, and bioaccumulate in food chains, and thus pose risks to human health and ecosystems. The challenges remaining on PBT pollutants stem from the fact that they transfer rather easily among air, water, and land, and span boundaries of programs, geography, and generations, making single-statute approaches less than the full solution to reducing these risks. To achieve further reductions, a multi-media approach is necessary.”

“PBTs are associated with a range of adverse human health effects, including effects on the nervous system, reproductive and developmental problems, cancer, and genetic impacts. People who eat large amounts of fish from local waters contaminated with certain PBTs are at risk for adverse effects. The developing fetus and young child are at particular risk for developmental problems. Birds and mammals at the top of the food chain are also at risk. The most famous example is the serious decline of the bald eagle in the 1960's because the fish they ate contained DDT.”

In its presentation at the September 7, 2017 Webinar on section 6(h),² EPA further underscored that:

“EPA believes that, as a general matter, the release to the environment of toxic chemicals that persist and bioaccumulate **is of greater concern than the release of toxic chemicals that do not persist or bioaccumulate.**”

Since PBT chemicals can remain in the environment for a significant amount of time and can bioaccumulate in animal tissues, even relatively small releases of such chemicals from individual facilities have the potential to accumulate over time to higher levels and cause significant adverse impacts on human health and the environment.”

¹ <https://archive.epa.gov/p2/archive/web/pdf/pbtstrat.pdf>

² https://www.epa.gov/sites/production/files/2017-09/documents/pbt_public_webinar_-_9-5-17.pdf (emphasis in original).

As EPA has recognized, the special characteristics of PBTs dictate a comprehensive, multi-media strategy to reduce exposure and release – and thus potential accumulation in biological systems and the environment – to the lowest levels possible. This is the goal of section 6(h).

EPA Has Already Established that the Five Substances Meet the TSCA Criteria for Persistence and Bioaccumulation

6(h) builds on and incorporates previous EPA efforts to identify PBTs under TSCA. Under section 6(h)(1), chemicals subject to restriction are those that (1) are identified in the 2014 update of the TSCA Work Plan for Chemical Assessments and scored high for both persistence and bioaccumulation, or high for one and either high or moderate for another, based on EPA’s 2012 Work Plan methodology; (2) do not fall within statutory exclusions for metals and certain previous regulatory actions; and (3) were not the subject of timely industry requests for risk evaluations as described in section 6(h)(5).

As EPA has explained,³ the five chemicals that EPA has targeted for restriction under section 6(h) reflect a careful application of these criteria, including scoring of their persistence and bioaccumulation properties using the 2012 Workplan methodology. Thus, EPA’s determination that they are PBTs requiring restriction under section 6(h) is not in doubt.

EPA Should not Replace the Workplan PBT Criteria with a New PBT Identification Framework as Proposed by the Chemical Industry

In comments recently submitted to the PBT docket, the American Chemistry Council (“ACC”) has advocated replacing the Workplan criteria with a new “framework” for identifying PBTs and recommended reexamining the PBT properties of the 5 chemicals based on this framework.⁴ This suggestion should be rejected for many reasons.

For EPA to alter its criteria for what constitutes a PBT chemical would require an extensive public process with considerable input from the scientific community and have implications far beyond TSCA. The Workplan PBT criteria are linked to other EPA programs such as the TSCA new chemical review process,⁵ and are consistent with well-established international efforts to restrict PBTs such as the Stockholm Convention on Persistent Organic Pollutants.⁶ Describing provisions that form the basis for section 6(h), the House Report on the TSCA legislation states that “[t]he Committee hopes the Administrator will rely on its TSCA Work Plan Chemicals Methods Document published in February 2012 in identifying PBT candidate substances for listing.”⁷ To now jettison the Congressionally-approved and internationally-accepted Workplan criteria would be not only irresponsible but a reckless reversal of EPA’s determination nearly a year ago that the five PBTs are subject to section 6(h) because they meet these criteria.

³ <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act-0#pbt>; See Q&As 39-44

⁴ <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0724-0006>

⁵ Federal Register, Vol. 64, No 213. Nov 4, 1999. EPA: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances.

⁶ Stockholm Convention on Persistent Organic Pollutants, Annex D. Information Requirements and Screening Criteria. Available at: <http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-COP-CONVTEXT-D.En.pdf>

⁷ H.R Report 114–176, 114 Cong, 1st Sess, June 23, 2015, at 27.

Finally, even if it made sense for EPA to alter its criteria for what constitutes a PBT, the “framework” proposed by the ACC would not be an acceptable replacement for the TSCA Work Plan Chemicals Method Document. The 2008 Society of Environmental Toxicology and Chemistry (SETAC) Pellston Workshop is not incorporated in a peer-reviewed publication. The version that is peer-reviewed is 4 pages long and very general: It does NOT propose actual criteria for P, B or T. Moreover, the Workshop was industry funded and 6 out of 9 of the workgroups were chaired by industry participants. It strains credulity to suggest that a non-peer-reviewed document published ten years ago in 2008, sponsored by industry, is a “consensus” on the “current science” of PBTs.

Restriction of the Five PBTs under Section 6(h) Does Not Require a Determination of Risk but Simply Calls for Findings of Toxicity and Likely Exposure

Section 6(h)(2) is explicit that EPA is not “required to conduct risk evaluations” on PBTs identified under section 6(h)(1). This evidences Congress’ recognition that the examination of risk that TSCA requires as a condition for restricting other chemicals is inapplicable to PBTs because of the uniquely serious threats that their inherent properties pose to health and the environment.

In lieu of a risk determination, section 6(h) requires two simple findings that EPA has already made for each of the five chemicals.

First, under section 6(h)(1)(A), EPA must have a “reasonable basis to conclude” that a chemical meeting the criteria for persistence and bioaccumulation is also “toxic.” To meet this requirement, EPA must simply identify data or another basis to conclude that the chemical can cause one or more acute or chronic adverse effects in people or animal species.⁸

Using the criteria and methodology in its 2012 Work Plan Methods Document, EPA screened all the chemicals under review for “hazard” based on human health and environmental toxicity concerns and assigned each chemical a score reflecting the type and level of toxicity reported in the literature. Chemicals selected for inclusion in the final 2014 Work Plan list necessarily received “high” or “moderate” hazard scores based on this screening process. Thus, EPA has already concluded that the five PBTs under consideration for restriction under section 6(h) are “toxic.” No additional analysis is necessary to satisfy this element of section 6(h).

Under section 6(h)(1)(B), EPA must also determine that the general population, a potentially exposed or susceptible population, or the environment is “likely” to be exposed to the chemical under the conditions of use. This determination must be made on the basis of a “use and exposure assessment.” Again, however, the analysis EPA conducts need not be extensive or comprehensive, in contrast to the assessment of exposure that TSCA requires for risk evaluations conducted under section 6(b). Since EPA must only show that the occurrence of exposure is “likely,” it is not required to characterize the nature, magnitude and duration of exposure in any detail or even to document actual exposure. It is sufficient to show that people are likely to be exposed to the PBT or that it is likely to be present in the environment based on the nature of the PBT’s manufacture, processing and use.

Under the Work Plan Methods Document, the five PBTs have already been screened and scored for “exposure” and this should constitute an adequate “use and exposure assessment” under section

⁸ The severity of these effects, the exposure levels at which they occur and their underlying biological mechanism should be irrelevant because these considerations relate to “risk” rather than “toxicity.”

6(h)(1)(B).⁹ Moreover, EPA has supplemented the screening conducted under the Work Plan process by developing “use documents” on the five PBTs that summarize available information on the manufacturing (including importing), processing, distribution in commerce, use, and disposal of each chemical. These descriptions of the chemicals’ conditions of use provide further evidence of “likely” exposure and similarly satisfy the requirement of a “use and exposure assessment” under section 6(h)(1)(B).

Although EPA has already met its obligation to show likely exposure to the five PBTs, we encourage EPA to augment its use documents with any additional information submitted by interested parties. A comprehensive understanding of current use and exposure will help ensure that restrictions imposed by the Agency under section 6(h)(4) target all known or foreseeable pathways of exposure and eliminate them to the extent practicable. This will in turn ensure that EPA’s rules are effective in preventing long-term buildup of the PBTs in the environment and food chain and in preventing the resulting harm to people and biota.

Restrictions on PBTs under Section 6(h) Must Achieve the Greatest Feasible Reduction in Exposure and Environmental Release

Restrictions on PBTs identified in accordance with section 6(h)(1) must comply with section 6(h)(4). Under this provision, EPA must select restrictions on covered PBTs from the list of allowable requirements in section 6(a). However, in all other respects, the risk management provisions of sections 6 do not apply. Thus, EPA need not make a determination of “unreasonable risk,” need not conduct an analysis of costs, benefits and other economic consequences of its rule, and is not required to consider the availability of alternatives to the PBT.

Instead, section 6(h)(4) provides that the selection of restrictions must be based on only two factors. First, EPA must “address the risks of injury to health or the environment that [it] determines are presented by the” PBT. Second and in addition, EPA must impose requirements that “reduce exposure to [the PBT] to the extent practicable.”¹⁰

Addressing all Risks of Injury. The first requirement means that, in placing restrictions on the PBT, EPA must consider and seek to reduce all risks that are attributable to the PBT as a result of its adverse effects on health or the environment from near-term exposure and release and/or its potential for long-term buildup and accumulation in biological systems or the biosphere. A formal risk assessment should not be necessary to satisfy this requirement. But EPA should have a sufficient understanding of the PBT’s pathways of exposure and release and associated risks of harm so it can show that the requirements it imposes are likely to provide meaningful long-term protection against known or suspected adverse effects to people, animals and plant species.

⁹ Q&A 43 of its general TSCA Q&As confirms that: “In identifying these chemicals in the Work Plan, EPA considered the uses and potential for exposures.”

¹⁰ While earlier drafts of the legislation used the phrase “to the maximum extent practicable,” the legislative history indicates that this phrase was considered synonymous with the phrase “to the extent practicable” included in the enacted legislation. Thus, the deletion of “maximum” did not change EPA’s obligations. Congressional Record – Senate 3517 (June 7, 2016).

Reducing Exposure. The second requirement, which is independent of the first, should ensure that the selected restriction achieves the largest possible reduction in exposure by humans, plant and animal species, and environmental media (air, water and waste) that is “practicable.”

According to the Merriam-Webster dictionary, the term “practicable” means “capable of being put into practice or of being done or accomplished.” The dictionary lists as synonyms achievable, attainable, doable, feasible, possible, realizable, viable, and workable. Statutes and regulations using the term “to the extent practicable” have generally been interpreted to require all actions within the limits of available technology and other physical and practical constraints.¹¹ Costs and other economic considerations have generally been excluded from determinations of “practicability” unless they are so great as to make the desired goal impossible to achieve.

These considerations should govern the restrictions that EPA selects from the list of allowable requirements in section 6(a) to reduce PBT exposure. Since exposure must be reduced to the extent “practicable,” EPA must opt for those measures that result in the highest degree of exposure reduction which is technically and economically achievable, without regard to cost-benefit or cost-effectiveness factors. In most cases, the greatest exposure reduction will be obtained from a “requirement prohibiting . . . the manufacturing, processing, or distribution in commerce” of the PBT under section 6(a)(1)(A). Thus, EPA should impose such a prohibition unless the cessation of manufacturing, processing and distribution is not feasible.¹² Since disposal is an additional source of exposure, EPA should also impose a “requirement prohibiting . . . any manner or method of disposal” of the PBT, again subject to limits on feasibility, under section 6(a)(6)(A).¹³

Finally, even if manufacture and processing for a particular use have been discontinued, where “legacy products” containing the PBT remain in use and are a source of ongoing human exposure and release to the environment, EPA must take action to reduce such exposure and release to the extent practicable.¹⁴ Thus, barring feasibility constraints, EPA should invoke section 6(a)(7), under which manufacturers and processors must provide notice of the PBT to exposed persons and the general public and replace or repurchase products containing the PBT. EPA must also take action under section 6(a)(6) to reduce exposure to these “legacy” substances during future disposal and/or recycling.

We appreciate the opportunity to provide our views on section 6(h) of TSCA and look forward to continuing to work with EPA. Please contact SCHF counsel, Bob Sussman, with any questions at bobsussman1@comcast.net.

¹¹ The maximum extent practicable standard “imposes a clear duty on the agency to fulfill the statutory command to the extent that it is feasible or possible.” (*Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 131 (D.D.C. 2001); *Friends of Boundary Waters Wilderness v. Thomas*, 53 F.3d 881, 885 (8th Cir. 1995) (“feasible” means “physically possible”).)

¹² This prohibition should cover not just current manufacturing and processing but the resumption of previously discontinued activities in order to prevent future sources of exposure and release.

¹³ Thus, EPA could allow a particular use to continue if there is no available substitute but not if available substitutes are more expensive or provide inferior performance. These considerations would be relevant only in establishing use exemptions from section 6(a) restrictions under section 6(g).

¹⁴ The requirement to reduce exposure under section 6(h)(4) is not limited to a PBT’s “conditions of use” but applies to the substance broadly. EPA has argued (erroneously in our view) that it need not conduct risk evaluations on non-PBTs for “legacy uses” outside the definition of “conditions of use.” But whatever the merits of EPA’s position may be, it has no application under section 6(h)(4), which doesn’t contain this term.

Respectfully submitted,

Elizabeth Hitchcock, Acting Director
Safer Chemicals Healthy Families

Pamela Miller, Executive Director
Alaska Community Action on Toxics

Ansje Miller, Director of Policy and Partnerships
Center for Environmental Health

Eve Gartner, Staff Attorney
Earthjustice

Patrick MacRoy, Deputy Director
Environmental Health Strategy Center

Daniel Rosenberg, Senior Attorney
Natural Resources Defense Council

Laurie Valeriano, Executive Director
Toxic-Free Future

2,4,6-Tris(tert-butyl)phenol

CASRN: 732-26-3

Technical Report for EPA Docket No. EPA-HQ-OPPT-2016-0734
On production, imports, use, recycling, and other exposure scenarios

Healthy Building Network
In Collaboration with
Safer Chemicals Healthy Families, Earthjustice, Natural Resources Defense Council,
and the Environmental Health Strategy Center
January 12, 2018

Contents

1. Identifying Information
2. Research Methods
3. Production/Trade
 - a. Domestic Producers
 - b. Foreign Producers / Domestic Consumers
4. Use
5. Other release and exposure scenarios

APPENDICES (*EJSCREEN Summary Reports*)

- SI GROUP, ORANGEBURG, SC 29115
- SI GROUP TEXAS OPERATIONS, FREEPORT, TX 77541

BODY OF REPORT

1. Identifying Information

CAS No. 732-26-3

UN Shipping Code: UN 3145 (Alkylphenols, Liquid, NOS)

Harmonized Tariff Schedule Numbers: 2907.19 Phenol, phenol alcohols:

Monophenols: Other.

Synonyms: 2,4,6-TTBP; 2,4,6-Tri-t-butylphenol, 2,4,6-Tris(1,1-dimethylethyl)phenol;
Mixed butylated phenols

TSCA Docket: EPA-HQ-OPPT-2016-0734

2. Research Methods

In collaboration with Safer Chemicals Healthy Families and the Environmental Health Strategy Center, the Healthy Building Network (HBN) research team reviewed Chemical Data Reporting (CDR) submissions for 2,4,6-Tris(tert-butyl)phenol, as published on the EPA ChemView database, and EPA's Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal (published in August 2017). HBN cross-referenced this information with a variety of national, European and United Nations reports, chemical industry literature, and a shipping database (Panjiva) with the goal of identifying potentially missing producers, importers, uses and other potential sources of exposure to 2,4,6-Tris(tert-butyl)phenol.

Findings that are not included in the EPA Preliminary Information document, or are not named in CDR forms, are highlighted in **yellow**.

3. Production/Trade

Precise U.S. government trade and production data are not available for 2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP). These data are withheld in all CDR forms published to date.

The U.S. International Trade Commission includes 2,4,6-TTBP within a category of chemicals (HTS - 290719: MONOPHENOLS, Not Elsewhere Specified Or Included) that it tracks. On average, per year, the U.S. exports about 52,000 tons and imports about 16,500 tons of this chemical grouping. No imports specific to 2,4,6-TTBP could be found in Panjiva database records for the last three years, 2015 to 2017. **There were at least four exports of 2,4,6-TTBP, all to Australia, from the U.S. producer of this chemical between July 2015 and August 2017.**

Monophenols (NESOI) Trade, 2007 to 2016 (kilograms per year)

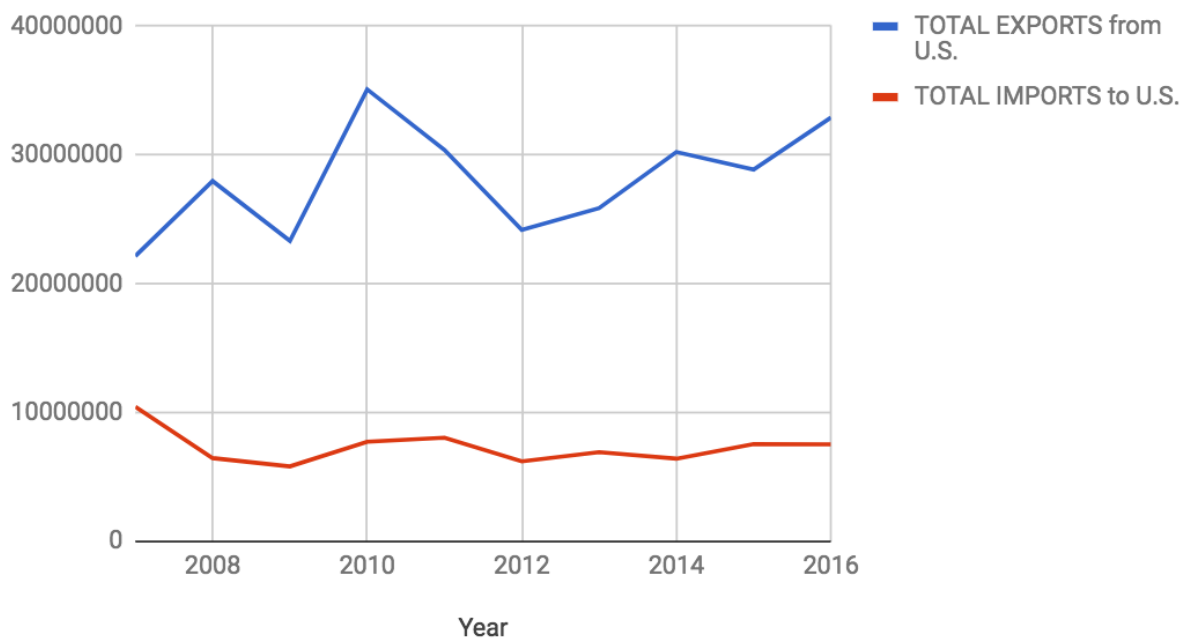


Chart by Healthy Building Network

Data source: HTS Code 290719: MONOPHENOLS, NESO, IUS International Trade Commission [DataWeb](#).

a. Domestic Producers

SI Group Inc. (formerly Albemarle Corp.)

SI Group Inc. acquired Albemarle Corporation in 2014. In CDR submissions to EPA, SI Group Inc. and Albemarle reported producing (in the U.S.) 2,4,6-TTBP for incorporation into fuels and fuel additives and as intermediates for producing other chemicals.

It manufactures the chemical in Orangeburg, S.C., and Freeport, Texas, according to CDR forms. According to summary reports run from EPA's EJSCREEN database, an estimated 857 people live within a mile radius of the Orangeburg plant, and 1,775 people live that close to the Freeport plant. Both are majority-minority and low-income communities. Around the Freeport plant, according to EJSCREEN, minorities comprise 81% of the population and 81% of the population is low income. The community around the Orangeburg plant is 65% minority and 78% low income population. For comparison, the U.S. average minority population is 38% and the average low income population is 34%. (See appendices to this submission for further EJSCREEN data.)

Fenceline communities may be exposed to airborne or waterborne releases of 2,4,6-TTBP from these facilities. The Freeport plant flooded during Hurricane Harvey.¹ EPA has found the SI Group factory in Freeport to be out of compliance with the Clean Water Act (CWA) in 9 of the last 12 quarters. Violations include discharging phenol into Lower Oyster Creek at levels 205% higher than permitted under the CWA in early 2016. There are no permit limits or pollution tracking requirements for 2,4,6-TTBP; the phenol releases are the best next indicator of general plant compliance with regulatory requirements and best practices for production of phenolic compounds.

Workers in factories manufacturing 2,4,6-TTBP may also be exposed to the chemical. In 2014, the Occupational Safety and Health Administration found ten serious violations of its respiratory protection standards at the SI Group plant in Orangeburg, S.C.² Further, in the last three years, EPA has found this plant to be in violation of CWA and Resource Conservation and Recovery Act (RCRA) regulations in eight and four quarters, respectively.³

b. Foreign Producers / Domestic Consumers

There appear to have been no imports of 2,4,6-TTBP over the last three years.⁴

4. Use

EPA notes that this chemical has been used as an antioxidant in plastic products. However, HBN has not encountered the use of this chemical in plastic building products.

It is a frequent additive in fuel and fuel products, as also noted by EPA. For at least a decade, Albemarle (now SI Group) has been producing an alternative antioxidant, Ethanox 4701, for fuel applications “where a TTBP-free antioxidant is required,” reads a 2005 brochure.⁵ This alternative contains 2,6-di-tert-butylphenol (CAS: 128-39-2). Toxicity assessments are scarce for this substance.

5. Other release and exposure scenarios

Accidents involving the transfer of phenol waste from the production to disposal facilities are an opportunity for release of and exposure to 2,4,6-TTBP. Phenolic wastes generated at the two SI Group plants that manufacture 2,4,6-TTBP are incinerated or burned for energy by third parties, large and small. Large recipients of phenol waste from these plants include Calgon Carbon of Houston and La Porte, Texas; Clean

Harbors in El Dorado, Arkansas, Reidsville, N.C., and La Porte, Texas; and, Laidlaw of Roebuck, S.C.⁶

After it enters commerce, the fate of 2,4,6-TTBP is tied to the the handling of motor oil, gasoline, and jet fuel: how these products are blended with fuel stabilizers, transported, stored, used, and disposed.

Anyone can purchase, online and in retail stores, fuel stabilizer containing 2,4,6-TTBP. Champion Brand blends 2,4,6-TTBP at concentrations up to 3%⁷ into its widely-available Champion 4205M fuel stabilizer. The company advertises the product's use in "all 2- and 4-cycle engines," gas or diesel. Two- and four-cycle engines power lawnmowers, leaf blowers, chainsaws, and other yard equipment. Other uses include recreational vehicles, such as All-Terrain Vehicles and motorboats. Spills from improper handling are common.

The use of this chemical in engine oil additives, such as Champion Brands' Engine Oil Protectant Oil Treatment (which contains up to one percent 2,4,6-TTBP),⁸ creates additional pathways of exposure through spills during application, leaky engines, accidents, disposal, and recycling. At the end of life, engine oil is recycled, burned, and, often, dumped illegally.

Consumer use of these products thus raises the potential for the wide dispersal of this chemical into lawns, forests, and surface water and groundwater. In aquatic ecosystems, the chemical will bioaccumulate up the food chain, potentially exposing people who eat fish and other seafood. In groundwater, contaminated drinking water could expose people to 2,4,6-TTBP.

The blending of 2,4,6-TTBP at facilities that produce fuel and oil additives creates additional pathways of exposure to workers, fenceline communities, and the broader environment through inadequate protection, spills and other releases. OSHA fined the Champion Brand plant in Missouri \$23,766 for six serious safety violations in 2017.⁹

Anywhere this chemical is used brings the potential for accidents and leaks. EPA has previously identified the likely presence of 2,4,6-TTBP in conjunction with fuel spills and storage. For example, EPA noted the likely presence of the chemical at the Red Hill Bulk Fuel Storage Facility in Hawai'i, and further noted that it would have the potential to contaminate water as the result of its use as an additive. According to an EPA analysis from 2016: "Estimated chemical and physical properties for 2,4,6-tri-ter-butylphenol indicate that this substance would adsorb to suspended solids and sediment in water."¹⁰

APPENDICES – EJSSCREEN Reports attached

-
- ¹ <https://dailygazette.com/article/2017/08/31/si-group-dealing-with-texas-flooding>
 - ² https://www.osha.gov/pls/imis/establishment.violation_detail?id=317497790&citation_id=01001
 - ³ <https://www3.epa.gov/enviro/facts/tri/ef-facilities/#/Facility/29116THYLCCANNO>
 - ⁴ Panjiva trade database.
 - ⁵ <https://www.scribd.com/document/153575866/Antioxidants-for-Fuel-Applications>
 - ⁶ https://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=29116THYLCCANNO&pPrev=1 and https://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=77541SCHNC702FM&pPrev=1
 - ⁷ <http://championbrands.com/MSDS/4205M-Champion Fuel Stabilizer MSDS.pdf>
 - ⁸ <http://championbrands.com/SpecSheet/Bowtie-4953l.pdf> and <http://www.championbrands.com/MSDS/BT-engine-protect.pdf>
 - ⁹ https://www.osha.gov/pls/imis/establishment.inspection_detail?id=1192056.015
 - ¹⁰ https://www.epa.gov/sites/production/files/2016-07/documents/red_hill_navy_fuel_additives_list.pdf

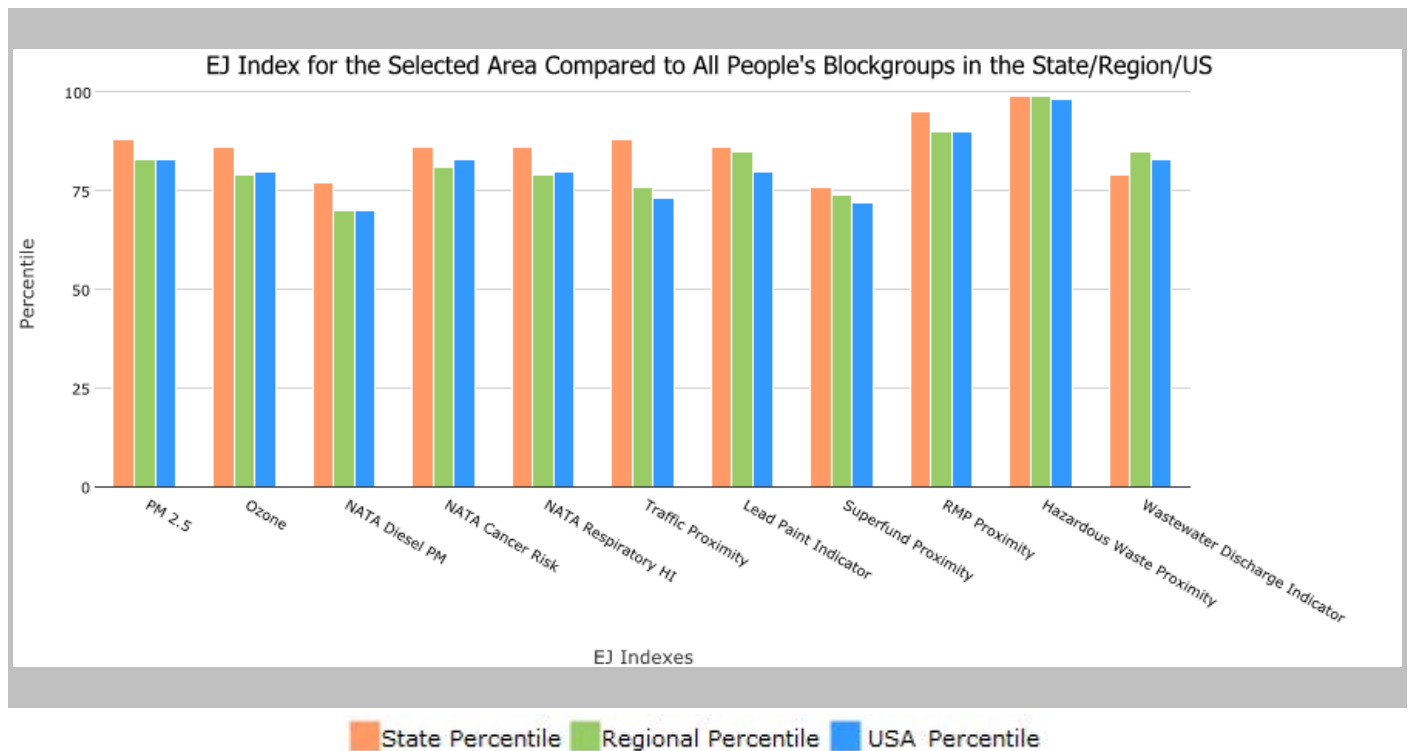
1 mile Ring Centered at 33.467500,-80.881111, SOUTH CAROLINA, EPA Region 4

Approximate Population: 857

Input Area (sq. miles): 3.14

SI GROUP, ORANGEBURG, SC

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	88	83	83
EJ Index for Ozone	86	79	80
EJ Index for NATA* Diesel PM	77	70	70
EJ Index for NATA* Air Toxics Cancer Risk	86	81	83
EJ Index for NATA* Respiratory Hazard Index	86	79	80
EJ Index for Traffic Proximity and Volume	88	76	73
EJ Index for Lead Paint Indicator	86	85	80
EJ Index for Superfund Proximity	76	74	72
EJ Index for RMP Proximity	95	90	90
EJ Index for Hazardous Waste Proximity	99	99	98
EJ Index for Wastewater Discharge Indicator	79	85	83



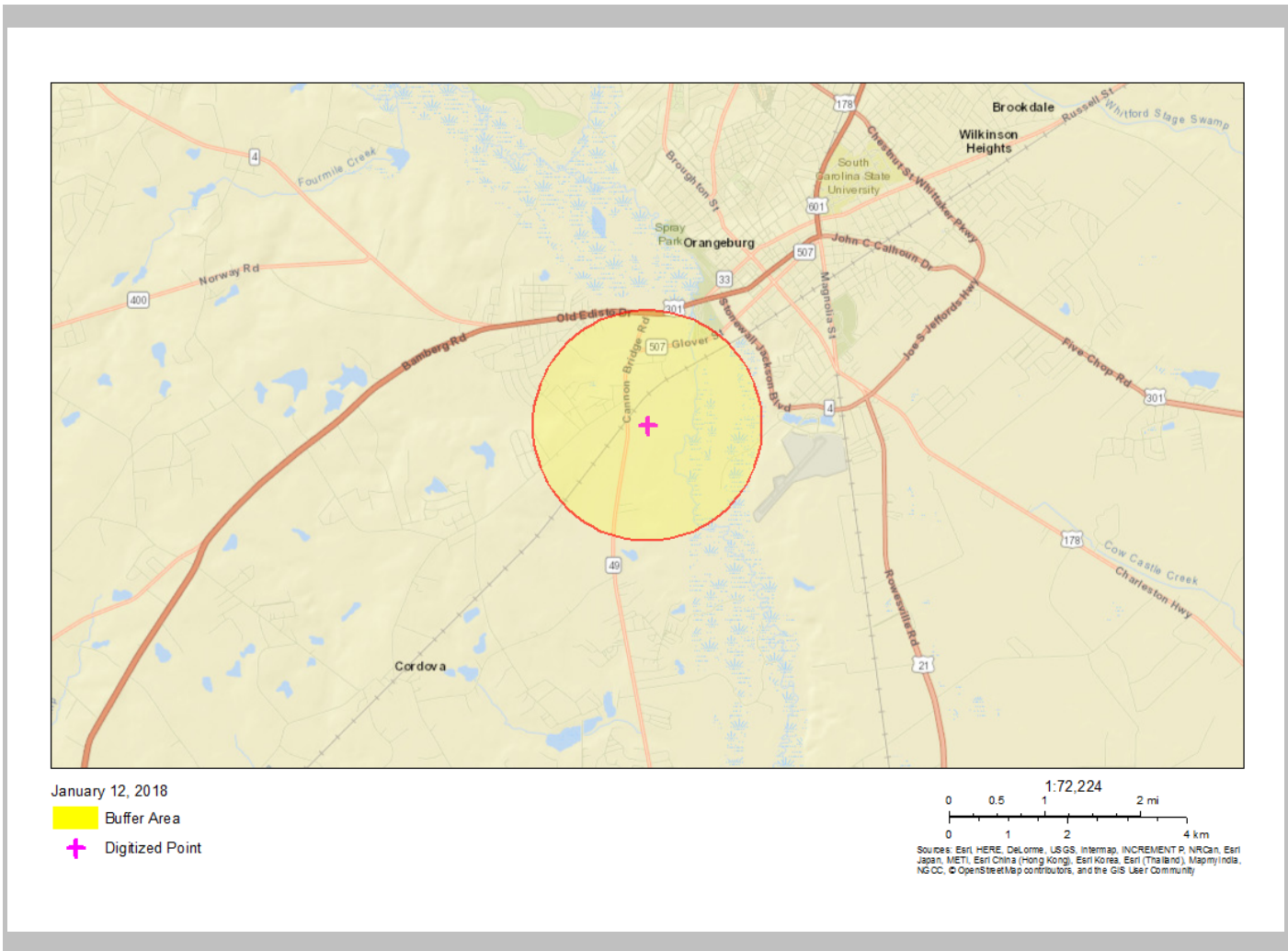
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 33.467500,-80.881111, SOUTH CAROLINA, EPA Region 4

Approximate Population: 857

Input Area (sq. miles): 3.14

SI GROUP, ORANGEBURG, SC



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	1

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 33.467500,-80.881111, SOUTH CAROLINA, EPA Region 4

Approximate Population: 857

Input Area (sq. miles): 3.14

SI GROUP, ORANGEBURG, SC

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	9.07	8.77	56	8.46	55	9.14	42
Ozone (ppb)	32.2	34.9	0	36.4	0	38.4	3
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.282	0.699	14	0.754	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	43	44	45	42	50-60th	40	60-70th
NATA* Respiratory Hazard Index	1.6	1.6	60	1.7	50-60th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	51	53	73	290	50	590	40
Lead Paint Indicator (% Pre-1960 Housing)	0.14	0.15	64	0.16	64	0.29	44
Superfund Proximity (site count/km distance)	0.022	0.09	19	0.083	35	0.13	19
RMP Proximity (facility count/km distance)	1.3	0.46	91	0.59	87	0.73	83
Hazardous Waste Proximity (facility count/km distance)	0.84	0.073	99	0.067	99	0.093	99
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0001	0.31	51	0.26	63	30	56
Demographic Indicators							
Demographic Index	72%	38%	92	38%	90	36%	90
Minority Population	65%	36%	84	37%	79	38%	77
Low Income Population	78%	39%	97	39%	96	34%	96
Linguistically Isolated Population	0%	2%	63	3%	51	5%	44
Population With Less Than High School Education	11%	14%	43	14%	44	13%	52
Population Under 5 years of age	17%	6%	98	6%	98	6%	98
Population over 64 years of age	15%	15%	59	15%	60	14%	64

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

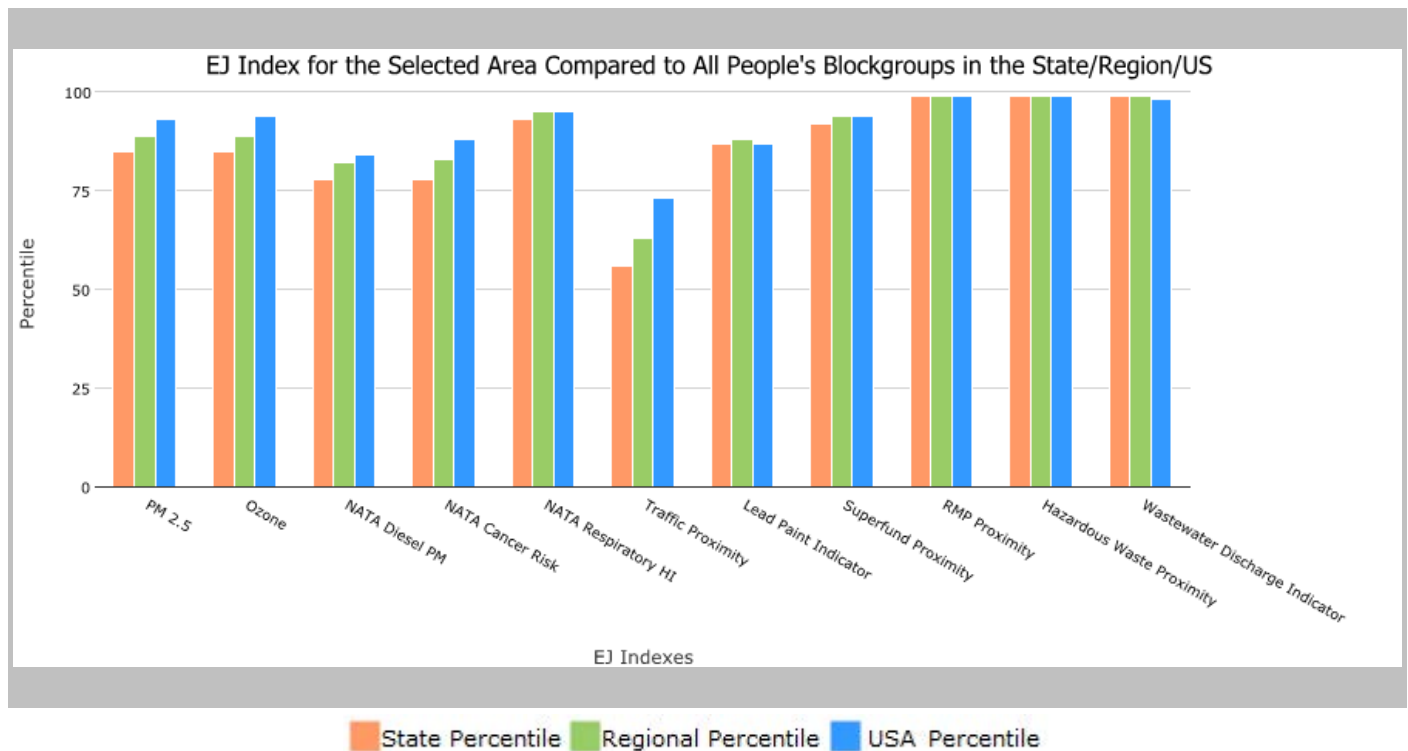
1 mile Ring Centered at 28.974400,-95.344530, TEXAS, EPA Region 6

Approximate Population: 1,775

Input Area (sq. miles): 3.14

SI Group Texas Operations, Freepport, TX

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	85	89	93
EJ Index for Ozone	85	89	94
EJ Index for NATA* Diesel PM	78	82	84
EJ Index for NATA* Air Toxics Cancer Risk	78	83	88
EJ Index for NATA* Respiratory Hazard Index	93	95	95
EJ Index for Traffic Proximity and Volume	56	63	73
EJ Index for Lead Paint Indicator	87	88	87
EJ Index for Superfund Proximity	92	94	94
EJ Index for RMP Proximity	99	99	99
EJ Index for Hazardous Waste Proximity	99	99	99
EJ Index for Wastewater Discharge Indicator	99	99	98



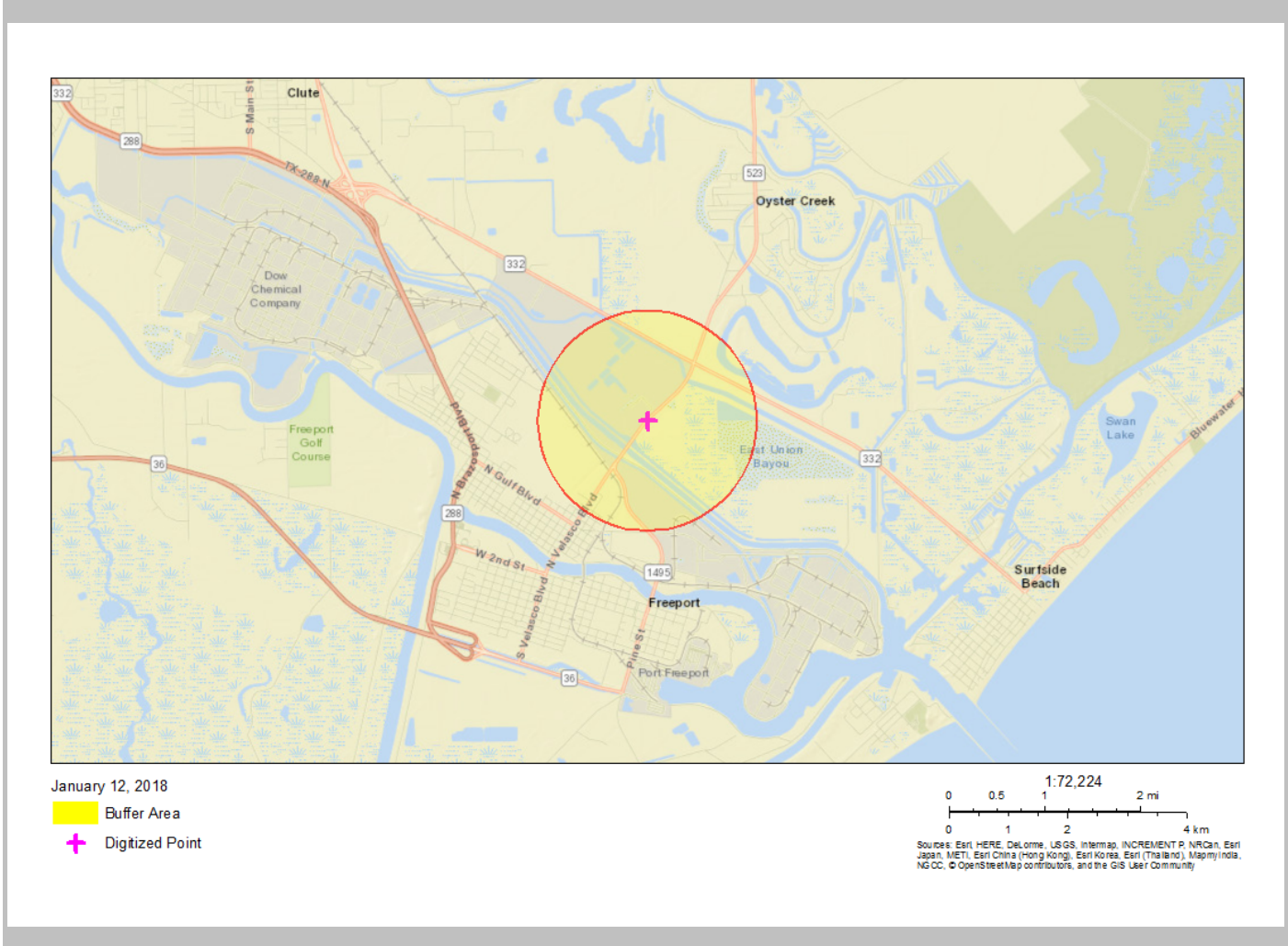
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 28.974400,-95.344530, TEXAS, EPA Region 6

Approximate Population: 1,775

Input Area (sq. miles): 3.14

SI Group Texas Operations, Freeport, TX



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)



1 mile Ring Centered at 28.974400,-95.344530, TEXAS, EPA Region 6

Approximate Population: 1,775

Input Area (sq. miles): 3.14

SI Group Texas Operations, Freeport, TX

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	8.63	9.38	23	9.15	27	9.14	33
Ozone (ppb)	36.1	39.7	17	40.2	14	38.4	26
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.539	0.756	36	0.721	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	29	41	6	42	<50th	40	<50th
NATA* Respiratory Hazard Index	2.5	1.8	86	1.8	80-90th	1.8	80-90th
Traffic Proximity and Volume (daily traffic count/distance to road)	21	390	21	320	26	590	27
Lead Paint Indicator (% Pre-1960 Housing)	0.16	0.16	69	0.18	65	0.29	46
Superfund Proximity (site count/km distance)	0.14	0.081	87	0.078	88	0.13	77
RMP Proximity (facility count/km distance)	6.9	0.89	99	0.8	99	0.73	99
Hazardous Waste Proximity (facility count/km distance)	1.2	0.088	99	0.083	99	0.093	99
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	1.5	0.27	98	0.37	98	30	96
Demographic Indicators							
Demographic Index	81%	47%	90	45%	92	36%	95
Minority Population	81%	56%	71	50%	77	38%	85
Low Income Population	81%	38%	96	39%	96	34%	97
Linguistically Isolated Population	7%	8%	61	6%	70	5%	77
Population With Less Than High School Education	29%	18%	76	17%	80	13%	88
Population Under 5 years of age	15%	7%	95	7%	96	6%	97
Population over 64 years of age	6%	11%	28	12%	22	14%	15

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.