

Environmental Justice Analysis of Montana's Oil Refineries

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ENST 489S

Outline

1. History of Petroleum in Montana
2. Description of Refineries
3. EJScreen
4. TRI Reports
5. ECHO Violations
6. Local Contact Interview
7. Conclusion & Discussion
8. Citizen Science

Introduction



- Brief History of Petroleum Refining in MT.
 - First refinery built in 1920s
 - Consolidation
- Four Remaining Refineries
 - Par Montana (Lockwood)
 - Phillips 66 (Billings)
 - CHS (Laurel)
 - Calumet (Great Falls)
- Total Capacity (MT DEQ):
 - 211,100 bbl/day
 - 63-70 Million barrels per year
 - Sources of Crude Oil
 - Refined Products
 - Customers

Par Montana

(Previously named ExxonMobil)

Billings, MT



- Barrels produced per day: 61,500 bpd
- Formally known as ExxonMobil Billings Refinery
- History of violations (Montana Department of Quality 2021)
- Par Pacific donations (Big Sky Economic Development 2023)

Phillips 66

Billings, MT



- **Barrels produced per day:** 67,000 bpd
- Merger of Phillips Petroleum Company and Conoco → Phillips 66
 - Company Rankings
- History of Environmental Concerns (Montana Department of Environmental Quality Statement of Basis, 2022)
- History of Community Concerns (Billings Beat: abc FOX News, 2022)

CHS Inc.

Laurel, MT



- **Barrels produced per day:** 59,600 bpd
- Owns Cenex Pipeline LLC and Front Range Crude Line
- Multiple WET failures

Calumet Specialty Products Partners, L.P.

Great Falls, MT



- **Barrels produced per day:** 30,000 bpd
- Established in 1919
 - Fuels, rubbing oils, waxes, chemicals, and other items related to to fuels
- Shows environmental concern but historical emissions show otherwise
- Locals have expressed concerns about environmental and health impacts
- Little Shell Tribe of Chippewa (Landless Indians)
 - Potential environmental injustices due to health impacts caused from the refinery



(Environmental Protection Agency, 2023)

Calumet Specialty Products Partners, L.P., Great Falls, MT



RCRA Facility Investigation Calumet Montana Refining, LLC Fact Sheet Great Falls, Montana

Calumet is providing this fact sheet to explain investigation activities at the site, but it is not a technical document.

Introduction

The purpose of this document is to provide an update to the public and residents that live near Calumet Montana Refining, LLC (Calumet) located at 1900 10th Street N.E. Great Falls, Montana (as shown below). A summary of the ongoing Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) activities at the Site are described in this Fact Sheet.



Site History

The site has operated as a refinery since 1922 under numerous owners/operators. Between 1979 to 1985 a land treatment unit (LTU) was operated at the site to treat petroleum impacted wastes. The LTU was considered a regulated unit under the Montana Hazardous Waste Act and federal RCRA and required a hazardous waste permit.

PUBLIC MEETING Thursday, October 19, 2023

7:00 - 8:30 pm

C.M. Russell High School
Bill Will Auditorium
228 17th Ave. NW
Great Falls, MT 59404

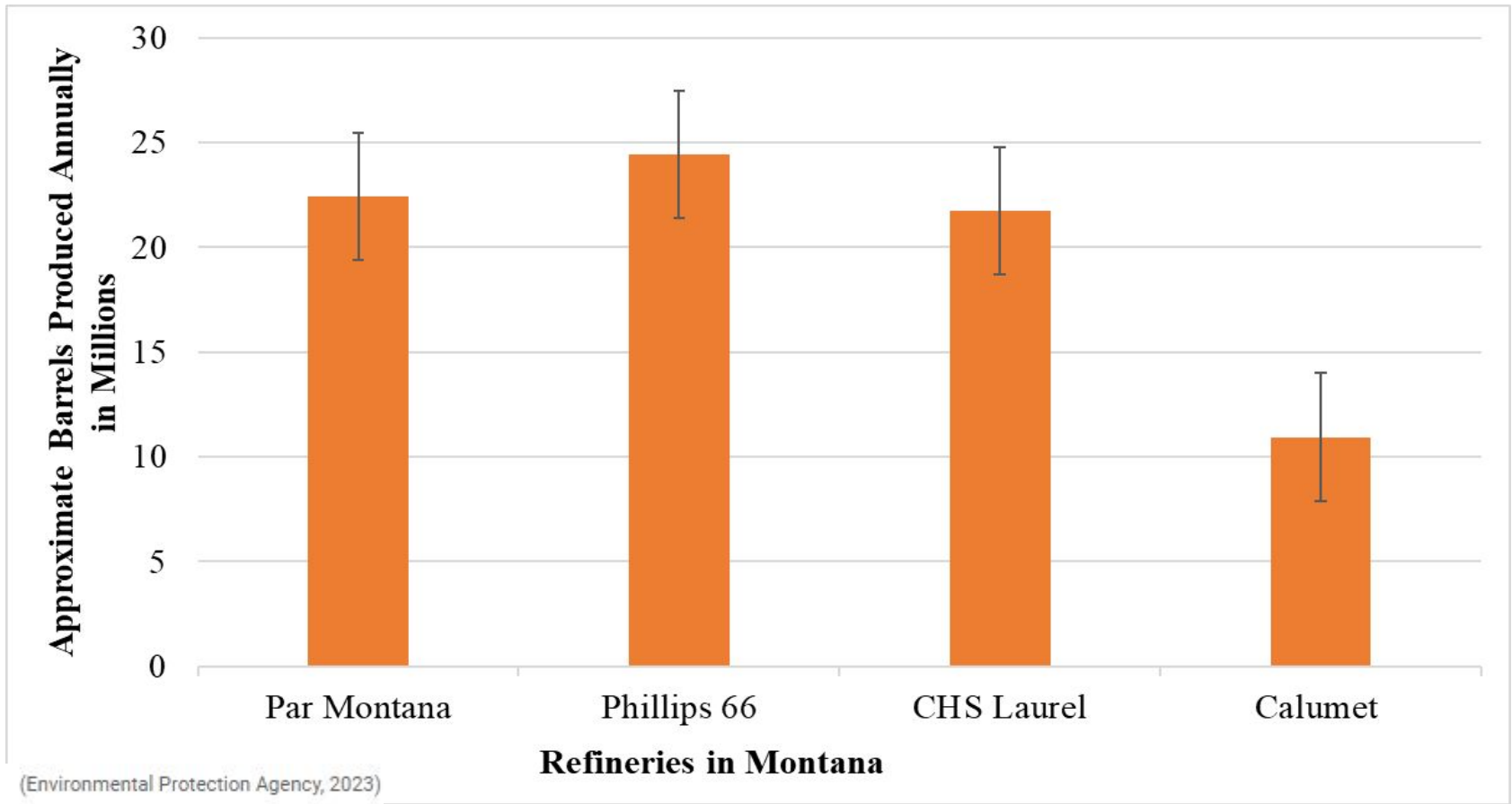
where solid wastes were historically placed and AOCs are areas where a release of a hazardous waste occurred (or is suspected to have occurred), which may present an unacceptable risk to the environment and/or human health. SWMUs and AOCs may have been impacted by hazardous wastes, spilled or released products, or other materials handled on-site. Since the Order was issued, additional SWMUs and AOCs have been identified.

Calumet acquired the refinery in 2012 and currently produces approximately 15,000 barrels a day of various petroleum products, in addition to approximately 15,000 barrels a day of renewable diesel from non-petroleum feedstocks on behalf Montana Renewables, LLC. The site occupies approximately 69 acres.

RCRA Facility Investigation

As part of the facility-wide corrective action, Calumet is required to complete an RFI, with the purpose of gathering enough information to characterize the nature and extent of site-related contamination and to assess the

- Resource Conservation and Recovering Act (RCRA) Calumet Facility Investigation
 - Fact Sheet made in August 2023
 - Public Meeting in October 2023
- Letter of Direction from MDEQ for a Facility Investigation (RFI)
- Facility Investigation (RFI)
 - Phase 1: this fall 2023
 - Phase 2: spring 2025
- Baseline Risk Assessment
 - Summer 2025
 - Data collected will be used to cover human health and ecological assessments



Found Annual Production by Multiplying Barrels-Per-Day by 365

Environmental Indicators

Oil Refineries EJ Report

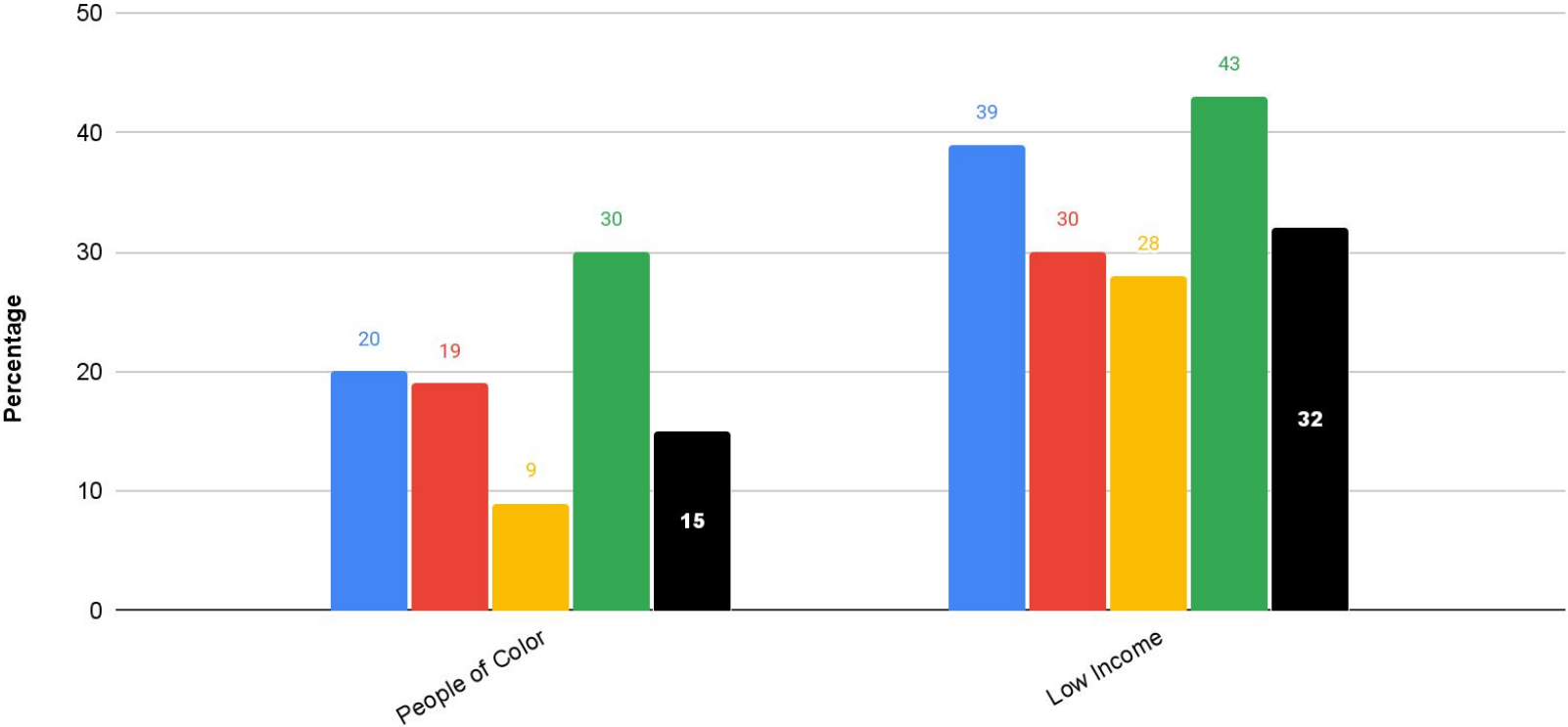
(Environmental Protection Agency, 2023)

	Par Montana Refinery	Par Montana Refinery	Phillips 66 Refinery	Phillips 66 Refinery	Laurel Refinery	Laurel Refinery	Calumet Refinery	Calumet Refinery	*RMP refers to a Risk Management Plan. A RMP Facility is a facility that must submit documents describing its risk management plan to the EPA.
	Percentile in state	Percentile in USA	Percentile in state	Percentile in USA	Percentile in state	Percentile in USA	Percentile in state	Percentile in USA	
Toxic Releases to Air	92	70	96	83	76	41	88	60	
Traffic Proximity (daily traffic count/distance from road)	68	45	92	79	61	41	83	57	
Superfund Proximity (site count/km distance)	91	93	98	98	47	41	87	72	
RMP Facility Proximity*	94	88	98	94	64	77	93	85	
Hazardous Waste Proximity	94	80	91	75	66	53	81	65	
Underground Storage Tanks	73	77	92	96	86	91	93	96	
Wastewater Discharge	87	82	99	98	68	64	98	71	

(Environmental Protection Agency, 2023)

MT Refineries Socioeconomic Indicators V. State

Calumet Par Pacific CHS Phillip 66 State value



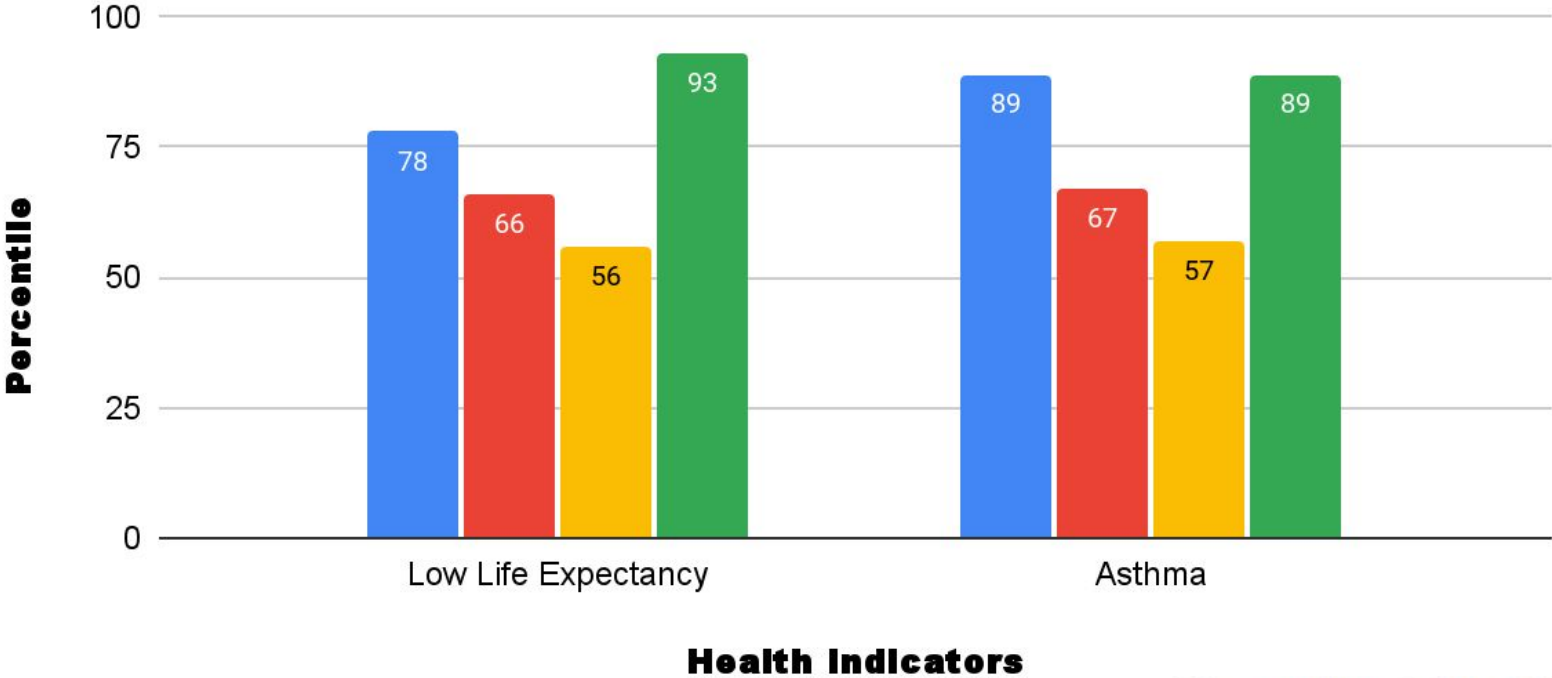
Socioeconomic Indicators

(Environmental Protection Agency, 2023)

MT Refineries EJ Health Indicators

State Percentile

Calumet Par Pacific CHS Phillip 66



(Environmental Protection Agency, 2023)

Par Montana Toxic Release Inventory Reports (TRI)

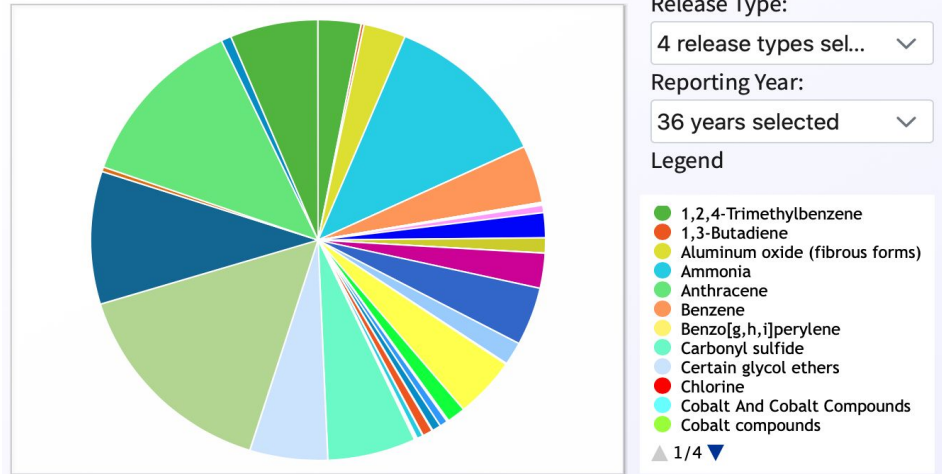
Total Number of lbs released from
1987-2022:

11,375,835 lbs

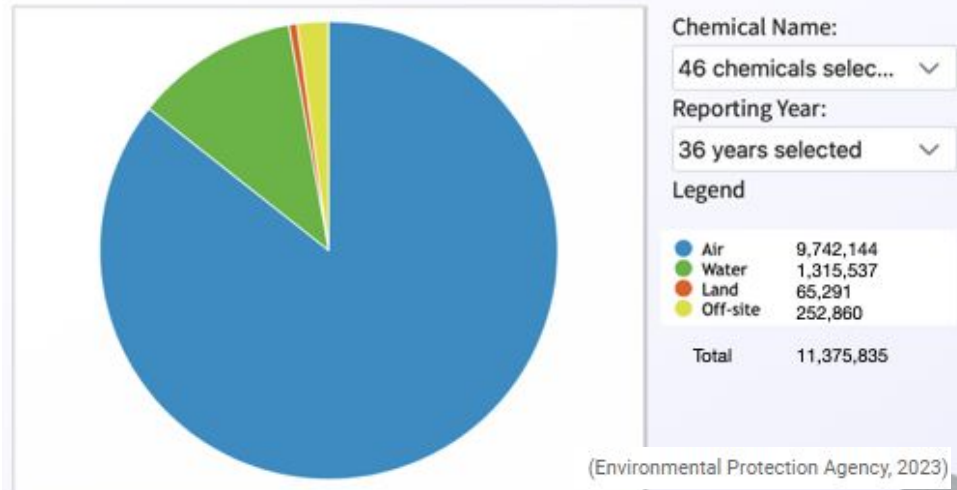
RSEI Scores

- Benzene	1,533
- 1,3-Butadiene	705
- Nickel	491

Releases of TRI Chemicals to the Environment, by Chemical in lbs



Releases of TRI Chemicals to the Environment, by Media in lbs



Phillips 66 Toxic Release Inventory Reports (TRI)

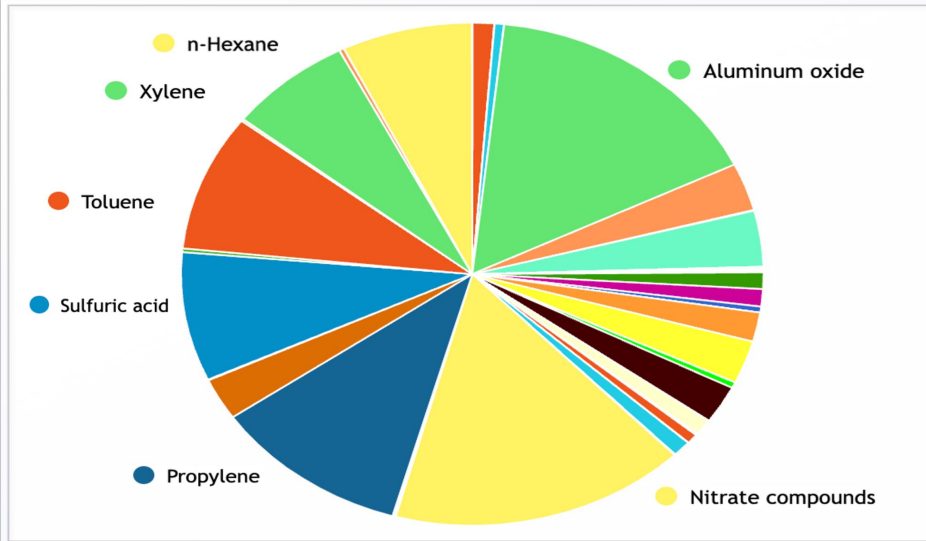
Total number of lbs released from 1987-2022:

7,781,776

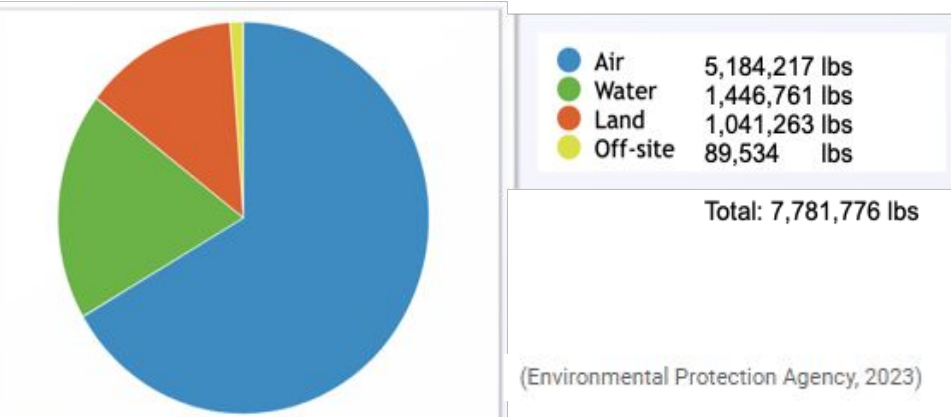
RSEI Scores

- Chromium 7,652
- 1,3-Butadiene 7,152
- Benzene 3,449

Releases of TRI Chemicals to the Environment



Releases of TRI Chemicals to the Environment, by Media in lbs



(Environmental Protection Agency, 2023)

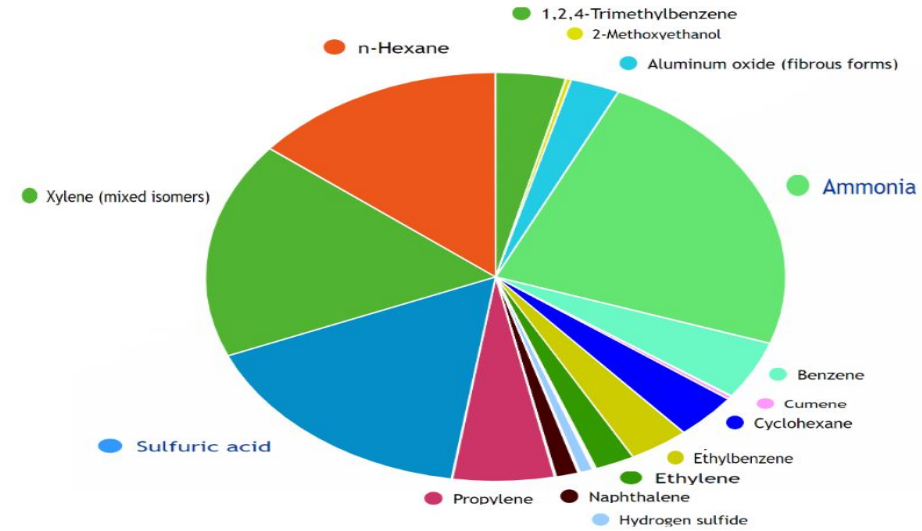
Calumet Toxic Release Inventory Reports (TRI)

- Total Number of Lbs Released from 1987-2022: 3,176,156.14 lbs.

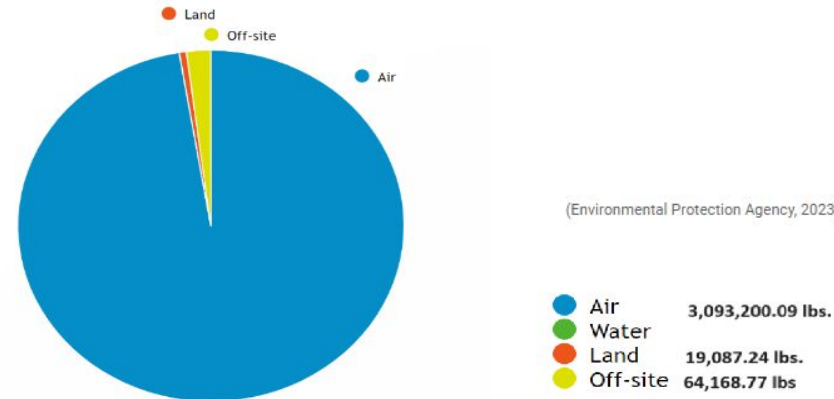
RSEI Scores:

- Benzene 4,230
- Naphthalene 404
- Ethylbenzene 71

Releases of TRI Chemicals to the Environment, by Chemical in lbs



Releases of TRI Chemicals to the Environment, by Media in lbs



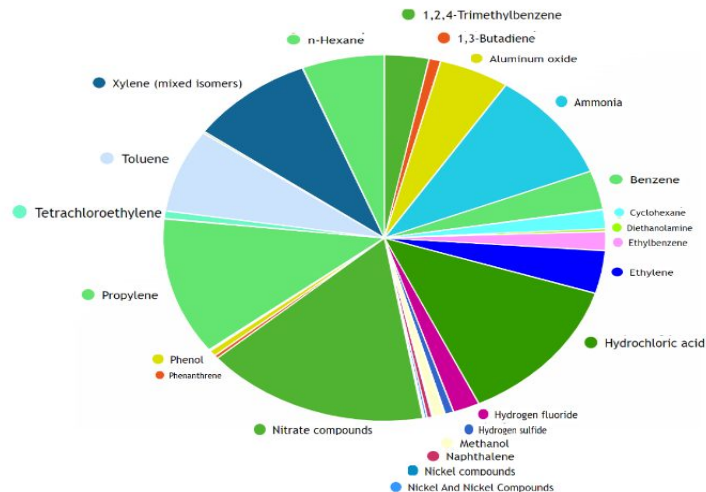
CHS Inc. Laurel Toxic Release Inventory Reports (TRI)

- Total number of Lbs released from 1987-2022: 7,3364,526.22 lbs.

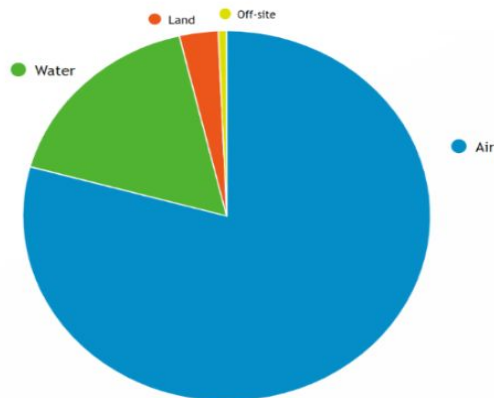
RSEI Scores:

- Benzene 448
- Nickel 287
- 1,3 Butadiene 240

Releases of TRI Chemicals to the Environment, by Chemical in lbs



Releases of TRI Chemicals to the Environment, by Media in lbs



(Environmental Protection Agency, 2023)

Air	5,839,241.45 lbs.
Water	1,250,791 lbs.
Land	227,044.10 lbs.
Off-site	47,449.67 lbs.

Pattern: Detrimental Respiratory Health Effects



- RSEI Scores:

Phillips 66: No standard for scores, but Phillips 66 has chemical scores that are exponentially larger than other 3 refineries.

Chemical Releases

Majority of chemicals with over 500,000 lbs. releases have detrimental respiratory health impacts (asthma, inflammation of lungs, respiratory failure, etc):

1. Sulfuric acid
2. Ammonia
3. Toluene
4. Propylene
5. Aluminum Oxide
6. Xylene
7. Hydrochloric Acid

Reports & Findings – ECHO Report

CHS Inc. Laurel Refinery

Statute	Compliance Monitoring Activities (5 years)	Compliance Status	Quarters with Noncompliance	Quarters with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 Years)	Penalties from EPA Cases (5 years)
CAA	1	High Priority Violation	12	12	1	--	--	--	--
CERCLA	--	--	--	--	--	--	--	--	--
CWA	--	Violation Identified	12	1	3	--	--	--	--
EPCRA	1	--	--	--	--	--	--	--	--
RCRA	4	No Violation Identified	1	0	2	--	--	--	--

Reports & Findings – ECHO Report

Phillips 66

Statute	Compliance Monitoring Activities (5 years)	Compliance Status	Quarters with Noncompliance	Quarters with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 Years)	Penalties from EPA Cases (5 years)
CAA	2	No Violation Identified	0	0	2	1	\$150,000	--	--
CWA	5	Violation Identified	3	0	2	--	--	--	--
EPCRA	3	--	--	--	--	--	--	--	--
RCRA	4	No Violation Identified	0	0	--	--	--	--	--

Reports & Findings – ECHO Report

Par Montana

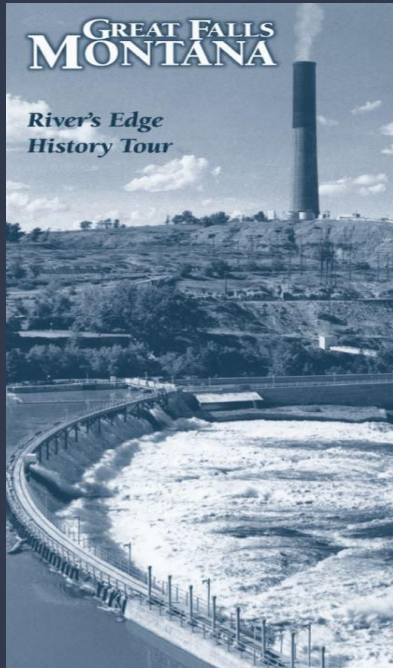
Statute	Compliance Monitoring Activities (5 years)	Compliance Status	Quarters with Noncompliance	Quarters with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 Years)	Penalties from EPA Cases (5 years)
CAA	2	No Violation Identified	0	0	2	--	--	--	--
CERCLA	--	--	--	--	--	--	--	--	--
CWA	3	Violation Identified	2	0	1	--	--	--	--
EPCRA	--	--	--	--	--	--	--	--	--
RCRA	4	Violation	5	0	9	--	--	--	--

Reports & Findings – ECHO Report

Calumet Refinery

Statute	Compliance Monitoring Activities (5 years)	Compliance Status	Quarters with Noncompliance	Quarters with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 Years)	Penalties from EPA Cases (5 years)
CAA	1	High Priority Violation	12	12	3	2	\$54,530	1	\$0
CWA	--	No Violation Identified	1	0	2	--	--	--	--
EPCRA	3	--	--	--	--	--	--	1	\$24,709
RCRA	5	No Violation Identified	4	0	12	--	--	--	--

Local Contact in Great Falls – Interview with Teresa Shiner



- Background:
 - Local of Great Falls
 - Nurse Educator at Montana State University's pediatric center
 - Emergency room at Great Falls
 - RN at Hospice Department
- “Constant Burning Flame” from Calumet refinery
- River's Edge Trail
- Community Practice Drills
 - Potential risks

Summary & Conclusions

- Air pollutants and asthma
- Phillips 66 was the poorest area with the worst health and environmental indicators
- Community mobilization

Recommendations For the Community

Bucket Brigade citizen air monitoring

- Sniffers : Once they catch a whiff of something suspicious, they sound the alarm.
- Samplers : They write down everything important and make calls to send the air to the lab for checking.
- Coordinator : He is the only individual to change the bags in the bucket and send the samples to the lab.

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OUR CULTURE. www.montanalittleshelltribe.org/our-culture.

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Thank you for being
here!

Any Questions?