January 26, 2026

Recent Investigations of Water Quality in Letts Creek

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Context

The compilation of results in this memo had an origin in the establishment of The Chelsea Community Garden in 2009. The Community Garden is located on the City-owned property behind Timbertown. A Google Earth image of the area surrounding the Community Garden is provided in Figure 1, which also includes relevant features described later in this narrative. The site had no access to City utilities and a water supply for irrigation of the plots was developed in the summer of 2010 that consisted of a small pump installed in Letts Creek powered by solar panels. This pump can supply a little less than two gallons per minute and is pumped from a sump installed in the creek at the location indicated as "CCG pump" in Figure 1 on the north side of the creek opposite the Chelsea Milling building that lies north of Buchanon Street. The pumped water is delivered to an 1800-gallon storage tower on the Community Garden site and the since pump has no battery storage, the pump can deliver perhaps 1200-1300 gpm per day on the longer summer days. Some of the founding Community Garden members were concerned about possible poor water quality in Letts Creek and whether the water was safe to use as an irrigation supply due to land uses in the nearby upstream portions of the watershed. A water sample was collected from the creek on June 29, 2010 and submitted for various water quality analyses prior to placing the irrigation system into operation; results are discussed further below. Water quality analyses are generally performed by analytical labs in groups of related chemicals and there is a fee charged for each group; it can be expensive to analyze a for a range of unknown chemicals. The creek water quality had not been resampled since 2010 because of concerns over the cost of periodic sampling without knowledge as to the best timing for sampling (high creek flow rates versus low flow conditions) and particularly what chemicals to analyze for.

More recently, I was reading though a document entitled "The Middle Huron River Water Management Plan, Section 1, Washtenaw County Michigan" authored by Paul Steen and Ric Lawson of the Huron River Watershed Council in August 2022. This report specifically covers the Mill Creek sub-watershed (among others) including Letts Creek. On page 2-85 of the report, there is s section 2.5.2.6 entitled "Letts Creek – Aquatic and

Wildlife Impairment from Causes Unknown" under the section heading "Specific Impairments: Critical Areas". The narrative indicates that the benthic insect diversity and number is less than would be expected for a stream in its environmental setting, but that there is no clear understanding of what the root cause of this problem is. Letts Creek is periodically sampled to survey aquatic insect populations in the reach upstream from M-52 upstream about 300 feet or basically adjacent to Vets Park. I learned that they had contacted EGLE (the Michigan department of Environment, Great Lakes and Energy) and EGLE subsequently took sediment samples at three points in Letts Creek and found some contaminants in the sediments. I obtained the results of that sampling and with this more specific information, I revisited the issue of Letts Creek water quality. This memo provides the results of the Huron River Watershed Council surveys, the EGLE sampling, and independent sampling that I performed in the spring of 2025. I had two objectives; 1.) determine if there were any implications on the irrigation water supply for the Chelsea Community Garden and 2.) having noticed that small children wade in that portion of Letts Creek during the summer (as did my own children back in the later 1980's), determine whether there were possibly any human health concerns. This memo summarizes what I have been able to learn.

Figure 1. Location map: North is to the left. M-52 just passes through upper left corner of map and Sibley Road is along left side of figure.

Macroinvertebrate Monitoring

The Huron River Watershed Council (HRWD) conducts regular surveys of benthic populations at numerous points along the Huron River and tributaries; a summary of the monitoring results is provided on the HREC website at link https://www.hrwc.org/what-we-do/programs/biological-habitat-monitoring/ . I am familiar with this program as I am the City of Chelsea representative to the HRWC and have been involved with the organization for a time period that spans almost fifty years. They have a volunteer program that performs periodic insect counts such as number of total insect families, number of families in a group of insects normally found in good quality habitats (abbreviated as EPT, meaning in the Mayfly, Stonefly and Caddisfly groups) and other insects sensitive to degraded water quality conditions. For their study reach in Letts Creek (about 300 feet upstream from M-52) there have been about 10-15 total families observed, 2-3 in the EPT group and 0-1 in the stonefly group over the last few years. In the report "Mill Creek Management Plan, Huron River Watershed, Michigan" prepared by HRWC in 2003 and revised in 2006, an independent survey at the upstream location where Letts Creek crosses under Sibley Road, found 29 total families, 9 EPT groups and 2 sensitive species. There is some speculation of possible causes of the impairment at the HRWC monitoring site, but no definite conclusions; the problem seems to be confined to the area close to Vets Park where Letts Creek flows through Chelsea.

There are several point source discharges into Letts Creek in that portion of the creek. I have not tried to determine all the locations, but I have walked the portion of Letts Creek upstream from M-52 to the general location of the old City well field which on Figure 1 is located immediately to the east of what is labeled as the Public Works Garage on the north side of the creek. Moving upstream from M52, those sources are:

- Outfall from the storm drain from the Vets Park parking lot located in the HRWC insect monitoring area.
- I believe I have seen another pipe at the south side of the creek further upstream a short distance past the HRWC monitoring reach,
- A drain that enters the south side of the creek a little west of the Chelsea Milling building that is located north of Buchanon Street in the first set of homes west of Chelsea Milling.
- There is a surface water ditch almost directly across the creek that appears to derive from the Gestamp parking lot. This drain originally flowed across the field area behind Timbertown but was diverted probably at least 30 years ago. The Gestamp parking lot was expanded more recently (between 2016 and 2018) and the area around the beginning of the drain has been regraded.

- There is a large storm drain that daylights further upstream from the above drains and flows to Letts Creek at a location that seems to suggest that it comes along Filmore Street and continues from the intersection of Filmore and Buchanon Streets. I have not examined stormwater utility maps, but I think the storm drain that passes across the old Federal Screw Works property may be a tributary to that drain. During excavation at the Federal site in 2013, excavations at several locations were made to remove oil-saturated soils https://www.michigan.gov/pfasresponse/investigations/sites-aoi/washtenaw-county/former-federal-screw-works . On January 20, 2023, there was an oil spill and oil sheen (see Figure 2) on Letts Creek that entered the creek through this ditch and apparently originated on the Chelsea Milling property south of Buchanon Street; all the connections to that discharge location are not clear.

Figure 2a. Oil sheen on Letts Creek on 1/20/23, apparently originating from Chelsea Milling.

Figure 2b. Closeup of oil sheen on Letts Creek on 1/20/23, apparently originating from Chelsea Milling. This was a corn oil spill in the parking lot.

Letts Creek Water Quality Sampling by Chelsea Community Garden

As mentioned in the Context section, a water sample was collected on 6/29/2010. The weather preceding the sample collection involved moderate rainfall a couple of days earlier and the creek was above normal in terms of flow for that time of year. The sample was submitted to National testing Laboratories, Ltd. For analysis. s mentioned previously, it was not clear what should be tested for, but some standard analyses (metals, other inorganics, total coliform and e. coli bacteria, and physical property analyses) were performed, potential industrial solvents (Trihalomethanes and Volatiles) and an additional class that tested for common pesticides and related chemicals. The results sheets are provided in Attachment A. The metals and inorganics will generally

be naturally present in the environment and nothing out of the ordinary was measured. None of the organic chemicals were detected at the measurement resolution. Both total coliform and e. coli bacteria were present as would be expected in runoff from agricultural fields and other non-industrial sources. While we have placed signs indicating the water as not for consumption to deal with the bacteria presence, We wouldn't have tested for all potential contaminants.

EGLE Sediment Sampling Program

As mentioned in the Context section, I learned from Paul Steen at the HRWC that EGLE had performed water quality sampling and detected contaminants in Letts Creek. Attachment B is a summary of tests from samples collected on August 10, 2022 at three locations; 1.) at Vets Park, 2.) upstream where Letts Creek flows under Sibley Road, and 3.) further upstream where Letts Creek flows under Cavanaugh Lake Road. The samples were analyzed for metals and what they called PAH-17 (also often referred to as PNA – polynuclear aromatic hydrocarbons). This analysis is essentially for a subset of organic molecules found in petroleum products such as diesel fuel, hydraulic fluid, asphalt, etc.) There are no federal regulatory limits on most of the components of this class of products, but some individual states have established regulatory limits on Total PAH concentration with significant differences between. Since the EGLE sampling was performed in response to the HRWC concern on aquatic insects, they compare the results to suggested limits for that target. These are presented in terms of metrics termed PEC (probable effect concentration0 and TEC (threshold effect concentration). These are not regulatory limits but can be considered as ecological screening ranges. The presumption is that for concentrations below the TEC, there will not be harm to the aquatic community while above the PEC, there is the potential for harmful effects. Although this sounds equivocal, the problem is that there are many species in an aquatic ecosystem, each with their own sensitivity and knowledge is incomplete on responses to individual compounds as well as mixtures of them that occur in different petroleum products. Attachment B includes columns for measured sediment concentrations and compares them to both TEV (highlighted in yellow for exceedance) and PEC (highlighted in red) as well as for a combined sum of the total for all analyzed constituents. They also computed two other metrics called DRO (Diesel Range Organics, more prevalent in light fluids such as kerosene or diesel fuel) and ORO (oil range organics, heavier constituents found more in petroleum products such as motor oil or asphalt). The conclusion was that the source was likely from a source in the latter category. These compounds are degraded by natural soil and water bacteria, but the DRO constituents are generally degraded more rapidly in a natural environment.

The only detections were in the sample from the Vets Park location, with no detection of any of the PAH constituents tested for in the two upstream samples. I recalled that the parking lot near Weber Field had been resurfaced several years earlier and considered that this was a likely source of the contamination, especially considering that stormwater runoff from the parking lot drains into Letts Creek through a concrete pipe. Checking a simple sketch provided describing the sampling location and the GPS coordinates provided by EGLE with my cellphone confirmed that the sampling location was within a few feet of the outfall pipe although the person from EGLE providing the information on the sampling didn't seem to be aware of the outfall presence; it seems likely that they just forgot.

My immediate thought was to confirm exactly when that parking lot resurfacing project took place in relation to the EGLE sampling and also whether the resurfacing project used a coal tar-based or an asphalt-based product since coal tar generally has much higher PAH concentrations than asphalt. I contacted the City in May 2024 to see if they had any records of the project but didn't receive any follow-up. I tried again in November 25 by contacting the interim City Manager Marc Thompson and within a few days, had a response that clarified the situation. He reported that the invoice for the project work was dated 7/28/2021 and by contacting the company, that they used a product called Sealmaster and also provided the Material Safety Data Sheet for the product confirming that is was an asphalt-based product. That MSDS sheet is included in Attachment D.

Additional Sediment Sampling Performed by Chelsea Community Garden

While waiting for information from the City, I decided to proceed with sediment sampling at the Vets Park location previously sampled by EGLE and various upstream locations. One objective was to sample the Community Garden water storage tank which had a sediment layer a few inches thick in the bottom that had been slowly accumulating since 2010. Another objective was to check upstream at nearby storm water discharges to the creek. In order to sample the sediment from the bottom of the storage tank, I had to wait until the tank had been emptied after the 2024 growing season and the tank could be entered. This was done on April 18 2025 at which time I collected five sediment samples and had them analyzed by Brighton Analytical LLC for PAHs (they refer to it as PNA Analysis); the results of which are included in Attachment C. This is basically the same set of compounds as the EGLE sampling with nearly the same detection limits. The five sampling locations are listed below, in order of sampling; the intention was to sample from least likely to contain contaminants to most likely. Samples were collected in the upper few inches, generally in locations where fine-grained sediments were present on the edge of the stream since the

hydrocarbon constituents are preferentially bound to fine-grained sediments as opposed to the water phase.

Sampling Locations

1. Bottom of Chelsea Community Garden water storage tower.
2. A few feet upstream from the surface ditch entering Letts Creek north of the Buchanon-Filmore streets intersection.
3. About 50 feet downstream from that surface ditch.
4. In the ditch near Letts Creek that apparently drains the Gestamp parking lot.
5. Near where EGLE sampled in 2022 below the shoreline next to the outfall from the storm drain in the Vets Park parking lot.

As can be seen from the data sheets in Attachment C, all of these samples came back with non-detects for all PAH constituents. Considering that nearly four years had passed since the parking lot was resurfaced, it is probably not surprising that this outcome was observed. I consider it to be the most plausible explanation that the resurfacing project was the source of the EGLE measurement results, which were obtained about a year after the parking lot project. Contamination would decline over time due to flushing by the creek flow during high flow periods and also due to natural biodegradation. These results also serve to confirm that coal-tar based products were not used in the parking lot project since coal tar generally has much higher PAH concentrations than asphalt and more of the heavier fractions that are more resistant to degradation. Observations following the Enbridge oil pipeline Line 6B spill into the Kalamazoo River in 2010 still showed residual contamination in the sediments more than five years later, but that was a much more significant source. It should be considered whether in the future, if a similar resurfacing project is implemented in Vets Park, for a warning to be posted along the creek for parents to decide whether to let their children play in the creek for a limited time afterwards, As for the Chelsea Community Garden, that source is sufficiently far upstream that the project would not impact the irrigation water supply, nor are there any PAHs currently in the water storage tank which would, by nature of the manner that the pumped water enters the tank, be oxygenated and experience enhanced biodegradation.

Acknowledgement

Thanks to the assistance provided by Paul Steen of the Huron River Watershed Council and Marc Thompson, interim City Manager for the City of Chelsea. This study was

limited in scope due to budgetary constraints, and no absolute conclusions are possible.

Attachment A – 2010 water quality analyses of Letts Creek water sample

Informational Water Quality Report

Watercheck w/PO

Client:

Ordered By:
Chelsea Community Garden 603 South Main Street Chelsea, MI 48118 ATTN: Thomas Knox

National Testing Laboratories, Ltd.
Quality Water Analysis
6571 Wilson Mills Rd
Cleveland, Ohio 44143
1-800-458-3330

Sample Number: 813357

Location:	Lett's Creek (Timbertown) Sample #1
Type of Water:	Other
Collection Date and Time:	6/29/2010 20:30
Received Date and Time:	6/30/2010 10:20
Date Completed:	7/13/2010

(Creek)

Definition and Legend

This informational water quality report compares the actual test result to national standards as defined in the EPA's Primary and Secondary Drinking Water Regulations.

Primary Standards:	Are expressed as the maximum contaminant level (MCL) which is the highest level of contaminant that is allowed in drinking water. MCLs are enforceable standards.
Secondary standards:	Are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor,or color) in drinking water. Individual states may choose to adopt them as enforceable standards.
Action levels:	Are defined in treatment techniques which are required processes intended to reduce the level of a contaminant in drinking water.
mg/L (ppm):	Unless otherwise indicated, results and standards are expressed as an amount in milligrams per liter or parts per million.
Minimum Detection Level (MDL):	The lowest level that the laboratory can detect a contaminant.
ND:	The contaminant was not detected above the minimum detection level.
NA:	The contaminant was not analyzed.

✓ The contaminant was not detected in the sample above the minimum detection level.

● The contaminant was detected at or above the minimum detection level, but not above the referenced standard.

▲ The contaminant was detected above the standard, which is not an EPA enforceable MCL.

✚ The contaminant was detected above the EPA enforceable MCL.

✖ These results may be invalid.

Status	Contaminant	Results	Units	National Standards		Min. Detection Level
			Microbiologicals			
✚	Total Coliform by P/A	Total coliform bacteria and E. coli bacteria were both present in this sample.				
			Inorganic Analytes - Metals			
✓	Aluminum	ND	mg/L	0.2	EPA Secondary	0.1
✓	Arsenic	ND	mg/L	0.01	EPA Primary	0.005
✓	Barium	ND	mg/L	2	EPA Primary	0.30
✓	Cadmium	ND	mg/L	0.005	EPA Primary	0.002
●	Calcium	117.0	mg/L	--		2.0
✓	Chromium	ND	mg/L	0.1	EPA Primary	0.010
✓	Copper	ND	mg/L	1.3	EPA Action Level	0.004
●	Iron	0.048	mg/L	0.3	EPA Secondary	0.020
✓	Lead	ND	mg/L	0.015	EPA Action Level	0.002
●	Magnesium	24.90	mg/L	--		0.10
●	Manganese	0.048	mg/L	0.05	EPA Secondary	0.004
✓	Mercury	ND	mg/L	0.002	EPA Primary	0.001
✓	Nickel	ND	mg/L	--		0.020
●	Potassium	2.1	mg/L	--		1.0
✓	Selenium	ND	mg/L	0.05	EPA Primary	0.020
●	Silica	17.900	mg/L	--		0.100
✓	Silver	ND	mg/L	--		0.002
●	Sodium	42	mg/L	--		1
✓	Zinc	ND	mg/L	5	EPA Secondary	0.004
			Physical Factors			
●	Alkalinity (Total)	310	mg/L	--		20
▲	Hardness	390	mg/L	100	NTL Internal	10
✓	pH	7.7	pH Units	6.5 to 8.5	EPA Secondary	
●	Total Dissolved Solids	490	mg/L	500	EPA Secondary	20
●	Turbidity	6.5	NTU	--		0.1

Status	Contaminant	Results	Units	National Standards		Min. Detection Level
			Inorganic Analytes - Other			
●	Chloride	72.0	mg/L	250	EPA Secondary	5.0
✓	Fluoride	ND	mg/L	4	EPA Primary	0.5
✓	Nitrate as N	ND	mg/L	10	EPA Primary	0.5
✓	Nitrite as N	ND	mg/L	1	EPA Primary	0.5
✓	Ortho Phosphate	ND	mg/L	--		2.0
●	Sulfate	23.0	mg/L	250	EPA Secondary	5.0
			Organic Analytes - Trihalomethanes			
✓	Bromodichloromethane	ND	mg/L	--		0.002
✓	Bromoform	ND	mg/L	--		0.004
✓	Chloroform	ND	mg/L	--		0.002
✓	Dibromochloromethane	ND	mg/L	--		0.004
✓	Total THMs	ND	mg/L	0.08	EPA Primary	0.002
			Organic Analytes - Volatiles			
✓	1,1,1,2-Tetrachloroethane	ND	mg/L	--		0.002
✓	1,1,1-Trichloroethane	ND	mg/L	0.2	EPA Primary	0.001
✓	1,1,2,2-Tetrachloroethane	ND	mg/L	--		0.002
✓	1,1,2-Trichloroethane	ND	mg/L	0.005	EPA Primary	0.002
✓	1,1-Dichloroethane	ND	mg/L	--		0.002
✓	1,1-Dichloroethene	ND	mg/L	0.007	EPA Primary	0.001
✓	1,1-Dichloropropene	ND	mg/L	--		0.002
✓	1,2,3-Trichlorobenzene	ND	mg/L	--		0.002
✓	1,2,3-Trichloropropane	ND	mg/L	--		0.002
✓	1,2,4-Trichlorobenzene	ND	mg/L	0.07	EPA Primary	0.002
✓	1,2-Dichlorobenzene	ND	mg/L	0.6	EPA Primary	0.001
✓	1,2-Dichloroethane	ND	mg/L	0.005	EPA Primary	0.001
✓	1,2-Dichloropropane	ND	mg/L	0.005	EPA Primary	0.002
✓	1,3-Dichlorobenzene	ND	mg/L	--		0.001

Status	Contaminant	Results	Units	National Standards		Min. Detection Level
✓	1,3-Dichloropropane	ND	mg/L	--		0.002
✓	1,4-Dichlorobenzene	ND	mg/L	0.075	EPA Primary	0.001
✓	2,2-Dichloropropane	ND	mg/L	--		0.002
✓	2-Chlorotoluene	ND	mg/L	--		0.001
✓	4-Chlorotoluene	ND	mg/L	--		0.001
✓	Acetone	ND	mg/L	--		0.01
✓	Benzene	ND	mg/L	0.005	EPA Primary	0.001
✓	Bromobenzene	ND	mg/L	--		0.002
✓	Bromomethane	ND	mg/L	--		0.002
✓	Carbon Tetrachloride	ND	mg/L	0.005	EPA Primary	0.001
✓	Chlorobenzene	ND	mg/L	0.1	EPA Primary	0.001
✓	Chloroethane	ND	mg/L	--		0.002
✓	Chloromethane	ND	mg/L	--		0.002
✓	cis-1,2-Dichloroethene	ND	mg/L	0.07	EPA Primary	0.002
✓	cis-1,3-Dichloropropene	ND	mg/L	--		0.002
✓	DBCP	ND	mg/L	--		0.001
✓	Dibromomethane	ND	mg/L	--		0.002
✓	Dichlorodifluoromethane	ND	mg/L	--		0.002
✓	Dichloromethane	ND	mg/L	0.005	EPA Primary	0.002
✓	EDB	ND	mg/L	--		0.001
✓	Ethylbenzene	ND	mg/L	0.7	EPA Primary	0.001
✓	Methyl Tert Butyl Ether	ND	mg/L	--		0.004
✓	Methyl-Ethyl Ketone	ND	mg/L	--		0.01
✓	Styrene	ND	mg/L	0.1	EPA Primary	0.001
✓	Tetrachloroethene	ND	mg/L	0.005	EPA Primary	0.002
✓	Tetrahydrofuran	ND	mg/L	--		0.01
✓	Toluene	ND	mg/L	1	EPA Primary	0.001
✓	trans-1,2-Dichloroethene	ND	mg/L	0.1	EPA Primary	0.002

tus	Contaminant	Results	Units	National Standards		Min. Detection Level
✓	trans-1,3-Dichloropropene	ND	mg/L	--		0.002
✓	Trichloroethene	ND	mg/L	0.005	EPA Primary	0.001
✓	Trichlorofluoromethane	ND	mg/L	--		0.002
✓	Vinyl Chloride	ND	mg/L	0.002	EPA Primary	0.001
✓	Xylenes (Total)	ND	mg/L	10	EPA Primary	0.001
			Organic Analytes - Others			
✓	2,4-D	ND	mg/L	0.07	EPA Primary	0.010
✓	Alachlor	ND	mg/L	0.002	EPA Primary	0.001
✓	Aldrin	ND	mg/L	--		0.002
✓	Atrazine	ND	mg/L	0.003	EPA Primary	0.002
✓	Chlordane	ND	mg/L	0.002	EPA Primary	0.001
✓	Dichloran	ND	mg/L	--		0.002
✓	Dieldrin	ND	mg/L	--		0.001
✓	Endrin	ND	mg/L	0.002	EPA Primary	0.0001
✓	Heptachlor	ND	mg/L	0.0004	EPA Primary	0.0004
✓	Heptachlor Epoxide	ND	mg/L	0.0002	EPA Primary	0.0001
✓	Hexachlorobenzene	ND	mg/L	0.001	EPA Primary	0.0005
✓	Hexachlorocyclopentadiene	ND	mg/L	0.05	EPA Primary	0.001
✓	Lindane	ND	mg/L	0.0002	EPA Primary	0.0002
✓	Methoxychlor	ND	mg/L	0.04	EPA Primary	0.002
✓	PCB	ND	mg/L	0.0005	EPA Primary	0.0005
✓	Pentachloronitrobenzene	ND	mg/L	--		0.002
✓	Silvex 2,4,5-TP	ND	mg/L	0.05	EPA Primary	0.005
✓	Simazine	ND	mg/L	0.004	EPA Primary	0.002
✓	Toxaphene	ND	mg/L	0.003	EPA Primary	0.001
✓	Trifluralin	ND	mg/L	--		0.002

Attachment B - Water quality analysis by EGLE of Letts Creek sediments, 2022

Table 1. 2022 Letts Creek Sediment Data

	Station ID					LET22-01	LET22-02	LET22-03
	Description					Letts Creek upstream M-52 @ Veterans Park	Letts Creek downstream Sibley Road	Letts Creek upstream Cavanaugh Lake Road
	Date					8/10/2022	8/10/2022	8/10/2022
	Latitude					42.323440	42.324323	42.312895
	Longitude	Sediment Quality Guidelines				-84.021586	-84.036225	-84.043318
	Matrix	R4 EPA ESV	R4 EPA RSV	TEC	PEC	Sediment	Sediment	Sediment
PAH17 ug/kg	Acenaphthene*			6.7	89	ND (235)	ND (260)	ND (210)
	Acenaphthylene*			5.9	128	ND (235)	ND (260)	ND (210)
	Anthracene*			57.2	845	ND (235)	ND (260)	ND (210)
	Benzo(a)-anthracene*			108	1,050	1,100	ND (260)	ND (210)
	Benzo(a)-pyrene*			150	1,450	1,400	ND (500)	ND (425)
	Benzo(b)-fluoroanthene*			240	13,400	2,400	ND (500)	ND (425)
	Benzo(g,h,i)-perylene*			170	3,200	ND (470)	ND (500)	ND (425)

	Benzo(k)-fluoroanthene*			240	13,400	ND (470)	ND (500)	ND (425)
	Chrysene*			166	1,290	1,600	ND (260)	ND (210)
	Dibenzo(a,h)-anthracene*			33.0	135	ND (470)	ND (500)	ND (425)
	Fluoranthene*			423	2,230	3,700	ND (260)	ND (210)
	Fluorene*			77.4	536	ND (235)	ND (260)	ND (210)
	Indeno(1,2,3-cd)-pyrene*			200	3,200	ND (470)	ND (500)	ND (425)
	2-Methynaphthalene			20.2	201	ND (600)	ND (650)	ND (550)
	Naphthalene*			176	561	ND (235)	ND (260)	ND (210)
	Phenanthrene*			204	1,170	1,700	ND (260)	ND (210)
	Pyrene*			195	1,520	2,800	ND (260)	ND (210)
	PAH17					18,355	ND	ND
	∑PAH17 N1%			1,610	22,800	3,905	--	--
TPH ug/kg	DRO^	340,000	510,000			ND	ND	ND
	ORO^	3,600,000	4,400,000			120,000	ND	ND
TOC	%TOC					4.7	2.3	3
General Chemistry mg/kg	% Total Solids					50.4	66.8	52.7
Metals mg/kg	Mercury			0.18	1.06	ND	ND	ND
	Arsenic			9.79	33	14	10	8
	Barium	20	60			86	86	71

	Cadmium			0.99	4.98	0.6	ND	ND
	Chromium			43.4	111	9.2	5.4	5
	Copper			31.6	149	9.9	4.9	4.1
	Lead			35.8	128	12	12	3.6
	Nickel			22.7	48.6	7.3	6.1	5.2
	Selenium			2	4	0.9	0.8	0.6
	Silver			1.6	2.2	ND	ND	ND
	Zinc			121	459	60	29	22

blue numbers are lab results reported as ND, these are presented in this table as 1/2 Reporting Limits for summation of PAH purposes.
* PAH17 is represented by 16 Parent EPA PAHs
plus 2-Methylnaphthalene
^ lab results compared to USEPA R4
Sediment Screening Values
Summation PAH17 N 1% represents the PAH concentrations in sediments normalized to 1% TOC

Concentrations greater than TEC

Concentrations greater than PEC

Attachment C – Water Quality analysis of Letts Creek sediments, 2025

Brighton Analytical LLC
2105 Pless Drive
Brighton, Michigan 48114
Phone: (810)229-7575 (810)229-8650
e-mail: labs@brightonanalytical.com
EGLE Certified #9404
NELAC Accredited #176507

Sample Date: 04/18/2025
Submit Date: 04/18/2025
Report Date: 04/25/2025

To: Steven Wright
Letts Creek

BA Report Number: **106697**
BA Sample ID: **CX06281**

Project Name: **Letts Creek**
Project Number: **001**
Sample ID: **001 Water Storage Tank**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
PNA Analysis						
Acenaphthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Acenaphthylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(b)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(g,h,i)perylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(k)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Chrysene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Dibenzo(a,h)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluorene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Indeno(1,2,3-cd)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
2-Methylnaphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Naphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Phenanthrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
PNA solid GC/MS (extraction)	**Extracted**			3510C/3545	MS	04/24/2025
%Solid	**31**	%		ASTM D2216	AP	04/21/2025

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

All soil results based on dry weight.

Released by Cynthia L Williams

Date 4/25/2025

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Sample Date: 04/18/2025
Submit Date: 04/18/2025
Report Date: 04/25/2025

To: Steven Wright
Letts Creek

BA Report Number: **106697**
BA Sample ID: **CX06282**

Project Name: **Letts Creek**
Project Number: **001**
Sample ID: **002 Upstream Jiffy**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
PNA Analysis						
Acenaphthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Acenaphthylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(b)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(g,h,i)perylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(k)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Chrysene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Dibenzo(a,h)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluorene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Indeno(1,2,3-cd)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
2-Methylnaphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Naphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Phenanthrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
PNA solid GC/MS (extraction)	**Extracted**			3510C/3545	MS	04/24/2025
%Solid	**75**	%		ASTM D2216	AP	04/21/2025

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

All soil results based on dry weight.

Released by Cynthia L Williams

Date 4/25/2025

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EGLE Certified #9404
NELAC Accredited #176507

Sample Date: 04/18/2025
Submit Date: 04/18/2025
Report Date: 04/25/2025

To: Steven Wright
Letts Creek

BA Report Number: **106697**
BA Sample ID: **CX06283**
Project Name: **Letts Creek**
Project Number: **001**
Sample ID: **003 Downstream Jiffy**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
PNA Analysis						
Acenaphthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Acenaphthylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(b)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(g,h,i)perylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(k)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Chrysene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Dibenzo(a,h)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluorene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Indeno(1,2,3-cd)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
2-Methylnaphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Naphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Phenanthrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
PNA solid GC/MS (extraction)	**Extracted**			3510C/3545	MS	04/24/2025
%Solid	**42**	%		ASTM D2216	AP	04/21/2025

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

All soil results based on dry weight.

Released by Cynthia L Williams

Date 4/25/2025

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NELAC Accredited #176507

Sample Date: 04/18/2025
Submit Date: 04/18/2025
Report Date: 04/25/2025

To: Steven Wright
Letts Creek

BA Report Number: **106697**
BA Sample ID: **CX06284**

Project Name: **Letts Creek**
Project Number: **001**
Sample ID: **004 Gestamp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
PNA Analysis						
Acenaphthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Acenaphthylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(b)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(g,h,i)perylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(k)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Chrysene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Dibenzo(a,h)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluorene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Indeno(1,2,3-cd)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
2-Methylnaphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Naphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Phenanthrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
PNA solid GC/MS (extraction)	**Extracted**			3510C/3545	MS	04/24/2025
%Solid	**75**	%		ASTM D2216	AP	04/21/2025

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

All soil results based on dry weight.

Released by Cynthia L Williams

Date 4/25/2025

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Sample Date: 04/18/2025
Submit Date: 04/18/2025
Report Date: 04/25/2025

To: Steven Wright
Letts Creek

BA Report Number: **106697**
BA Sample ID: **CX06285**

Project Name: **Letts Creek**
Project Number: **001**
Sample ID: **005 Vets Park Outfall**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
PNA Analysis						
Acenaphthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Acenaphthylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(a)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(b)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(g,h,i)perylene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Benzo(k)fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Chrysene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Dibenzo(a,h)anthracene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluoranthene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Fluorene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Indeno(1,2,3-cd)pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
2-Methylnaphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Naphthalene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Phenanthrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
Pyrene	**Not detected**	ug/Kg	330	SW846 8270D	RG	04/24/2025
PNA solid GC/MS (extraction)	**Extracted**			3510C/3545	MS	04/24/2025
%Solid	**33**	%		ASTM D2216	AP	04/21/2025

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

All soil results based on dry weight.

Released by Cynthia L Williams

Date 4/25/2025

Attachment D-MSDS sheet for Vets Park parking lot resurfacing product

SAFETY DATA SHEET

Issuing Date 23-June-2014 **Revision Date** 6-April-2023 **Revision Number** 5

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS Product Identifier
Product Name: Polymer Modified MasterSeal (PMM)

Other Means of Identification
Product Code(s): S1097
Synonyms None

Recommended Use of the Chemical and Restrictions on Use
Recommended Use: No Information Available
Uses Advised Against: No Information Available

Supplier's Details

Supplier Address	**Manufacturer Address**
SealMaster	SealMaster
Locations Nationwide	Locations Nationwide
www.sealmaster.net	www.sealmaster.net
1-800-341-7325	1-800-341-7325

Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification
This product is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label Elements, Including Precautionary Statements

Emergency Overview

Signal Word **Warning**

- Harmful if swallowed
- May cause skin irritation

Appearance: Black **Physical State:** Liquid **Odor:** Asphaltic

Precautionary Statements

Prevention	**Inhalation:**	May cause irritation of respiratory tract.
	Eye Contact:	Contact with eyes may cause irritation.
	Skin Contact:	May cause irritation.
	Ingestion:	Ingestion may cause stomach discomfort.
General Advice	• None	
Storage	• Keep container tightly closed	
Disposal	• Dispose of material/containers in accordance with the appropriate state, regional, or local regulations.	

Hazard Not Otherwise Classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %	Trade Secret
Limestone	1317-65-3	20-40	*
Water	7732-18-5	Minimum 50%	*
Asphalt	8052-42-4	20-40	*
Kaolin	1332-58-7	<10	*
Bentonite	1302-78-9	<10	*

**The exact percentage of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of Necessary First-Aid Measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions, see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most Important Symptoms/Effects, Acute and Delayed

Most Important Symptoms/Effects No information available

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Treat Symptomatically. May cause sensitization by skin contact.

Notes to Physician

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide (CO_2). Dry Chemical. Foam. Water Fog.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical
No information available

Explosion Data

Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure- demand MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental Precautions

Environmental Precautions: See Section 12 for additional Ecological Information

Methods and Materials for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling:

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage:
Incompatible Products: Keep container tightly closed
Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Limestone 1317-65-3	-	TWA: 15 mg/m³ TWA: 5 mg/m³ (vacated) TWA: 15 mg/m³ (vacated) TWA: 5 mg/m³	TWA: 5 mg/m³ respirable dust TWA 10 mg/m³ total dust

Asphalt 8052-42-4	TWA: 0.5 mg/m³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m³ fume 15 min.
Kaolin 1332-58-7	-	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 10 mg/m³ total dust (vacated) TWA 5 mg/m³ respirable fraction	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable dust
Bentonite 1302-78-9	TWA 1 mg/m³ respirable fraction	-	-

Appropriate Engineering Controls

Engineering Measures: Showers
Eyewash Stations
Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear: Safety glasses with side shields.
Skin and Body Protection: Impervious gloves.
Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Liquid **Appearance:** Black

Odor: Asphaltic **Odor Threshold:** No Information Available

Property	Values	Remarks/Method
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100° C	None known
Flash Point	Not applicable	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas) Flammability Limits in Air	No data available	None known
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Density	1.20 @ 77 F	None known
Water Solubility	Easily dispersible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known
Flammable Properties	Not Flammable	

Explosive Properties	No data available
Oxidizing Properties	No data available
VOC Content	Less than 15 g/l

10. STABILITY AND REACTIVITY

Reactivity: Non Reactive

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to Avoid: None known

Incompatible Materials: Strong oxidizing agents. Acids.

Hazardous Decomposition Products: Carbon Monoxide (CO), Carbon Dioxide (CO^2), Hydrogen Sulfide, Nitrogen Dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation:	May cause irritation of respiratory tract.
Eye Contact:	Contact with eyes may cause irritation.
Skin Contact:	May cause irritation.
Ingestion:	Ingestion may cause stomach discomfort.

Chemical Name	LD50 Oral	LD50 Dermal	LD50 Inhalation
Asphalt	5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	-
Bentonite	>5000 mg/kg (Rat)	-	-

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics

Symptoms: No information available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Sensitization:	No information available.
Mutagenic Effects:	No information available.
Carcinogenicity:	The table below indicates whether each agency has listed any ingredient as a carcinogen. The IARC, NTP, and OSHA do not list asphalt as a carcinogen. In general, the oxidation of polycyclic aromatic hydrocarbons destroys their carcinogenic potential. Petroleum asphalt, shale oil asphalts, and coal tars show distinct variation in their relative carcinogenicity for experimental animals.

Chemical Name	ACGIH	IARC	NTP	OSHA
Asphalt	A3	Group 2B	Reasonably Anticipated	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 – Animal Carcinogen
IRAC: (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)
Reasonably Anticipated – Reasonably Anticipated to be a Human Carcinogen
OSHA: (Occupational Safety & Health Administration)

X – Present

Reproductive Toxicity: No information available.
STOT - Single Exposure: No information available.

STOT – Repeated Exposure: No information available.

Aspiration Hazard: No information available.

Numerical Measures of Toxicity – Product
The following values are calculated based on Chapter 3.1 of the GHS document

LD50 Oral: 12542 mg/kg; Acute toxicity estimate

LD50 Dermal 6181 mg/kg, Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Bentonite 1302-78-9		LC50 96 h: 8.0-19.0 g/L (Salmo gairdneri) LC50 96 h: = 19000 mg/L static (Oncorhynchus mykiss)		

Persistence and Degradability: No information available.

Bioaccumulation

Chemical Name	Log Pow
Asphalt	6..006

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods:	This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.
Contaminated Packaging:	Do not re-use empty containers.

14. TRANSPORTATION INFORMATION

DOT: Not regulated

15. REGULATORY INFORMATION

International Inventories
TSCA – Complies
DSL/NDSL – Complies

Legend
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values %
Asphalt	8052-42-4	20-40	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations
California Proposition 65: This product does not contain any Proposition 65 chemicals.

U.S. State Right-To-Know Regulations
"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Limestone	X	X	X		X
Asphalt	X	X	X		X
Kaolin	X	X	X		X
Carbon Black	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard:** 1	**Flammability:** 0	**Instability:** 0	**Physical and Chemical Hazards-**
HMIS	**Health Hazard:** 1	**Flammability:** 0	**Physical Hazard:** 0	**Personal Protection: X**

Revision Date: 6-April-2023
Revision Note: Supersedes 6-April-2022

General Disclaimer

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