

Cancer Incidence Review of Colfax, LA and Grant Parish

House Resolution 226 of 2018 Regular Legislative Session

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Executive Summary

Grant Parish cancer incidence rates can be accurately documented by the Louisiana Tumor Registry which has been recognized as one of the most proficient tumor registries in the nation. Most incidence rates at the parish or at the census tract levels show rates that are similar to those of the State of Louisiana. The only issues of concern are in census tract 300, where the city of Colfax is located, for lung/bronchus and colorectal cancer sites.

Since there are many confounding factors for cancers (including higher rates of smoking in the parish), it is not possible to link the burning of waste materials, including explosives which are occurring at the Clean Harbor Colfax facility, to cancer incidence rates. Burning has been occurring since 1985, for more than 30 years without having a definite impact on air quality monitoring or cancer incidence.

However, air pollution from burning waste materials should not be discounted as a possible risk factor for some of the cancers, particularly for lung/bronchus cancers. Monitoring of air quality and cancer incidence should continue.

Cancer evolves from a complicated combination of multiple exposures. Attempting to assign specific exposures (i.e. diet, smoking, environment, etc.) certain roles in causing cancer that will account for 100% of all contributing factors is inappropriate given that no one exposure singlehandedly produces cancer and many causes of cancer are still unknown. Comprehensive cancer prevention programs should work to reduce exposures from all avoidable sources.

1-INTRODUCTION

The main goal of this assessment is “to study cancer incidence in the Colfax, Louisiana area and to report findings of the study to the legislative committees on health and welfare” as requested by House Resolution 226 of the 2018 Regular Session (See Appendix B).

This review compares the incidence rates of cancers in Grant Parish, where Colfax is located, to Louisiana’s cancer incidence rates. In addition, cancer incidence rates from individual census tracts located within Grant Parish were compared to Louisiana’s cancer incidence rates.

2-BACKGROUND

2.1-Facility Description

The Clean Harbors Colfax, LLC facility is located in central Louisiana approximately 35 miles northwest of Alexandria and about five miles northwest of the town of Colfax. This commercial facility is on approximately 730 acres of land in a rural and heavily wooded area. The facility receives, stores, and treats over 300 different types of reactive wastes. Since 1996, the Clean Harbors Colfax facility has been using the EPA-approved thermal treatment method to destroy and treat the waste materials.

This thermal treatment is carried out in 20 burn units. Residue is collected from the treatment process and shipped off-site for disposal at an approved facility. Metal byproducts are shipped off-site for recycling. Open burning is a disposal method whereby hazardous waste is placed in large metal trays and set on fire, releasing into the environment a multitude of potential air pollutants.

In June 1985, the facility was first permitted to open burn explosives by an exemption issued by the Louisiana Department of Environmental Quality (LDEQ); in August 1992, they were permitted to open burn propellant explosive waste. In August 2015, the facility began accepting and burning waste transported from the Camp Minden site, which is located approximately 100 miles northwest of the Colfax facility. Because of an explosion which occurred at the Camp Minden site in 2012,¹ Camp Minden had stockpiled approximately 15,687,247 pounds of M6 propellant and approximately 320,890 pounds of clean burning igniter.

2.2- Environmental Monitoring

During the 2016 legislative session, a Louisiana House Concurrent Resolution 118 (HCR 118) requested the LDEQ “to develop and implement a sampling plan for testing of the soil, groundwater, and air at the commercial facility permitted to open burn and open detonate, during normal operations, to determine sufficient information to make informed decisions on the use of the process in normal operations.”⁴

2.2.1-Air Sample Data Results

The LDEQ collected three air monitoring samples between October 30, 2016 and November 11, 2016 and tested for the criteria and non-criteria pollutants, particulate matter, metals, explosives, volatile organic compounds, semi-volatile organic compounds, and dioxins/furans. Upon review of these three air monitoring samples by the Louisiana Department of Health/Section of Environmental Epidemiology and Toxicology (LDH/SEET), it was found that all were below their respective comparison values with the exception of one of the volatile organic compounds: acrolein. The concentration of **acrolein** was detected above the risk-based screening level at the fenceline; in the Colfax community (collected in residential area about 2 miles downwind south of the burn site); and in the background sample (collected about 1 mile west of the burn site). The background value for acrolein (0.66 ug/m³) was above the values found at the fenceline (0.27 ug/m³) and community (0.46 ug/m³) which may be indicative of other sources of acrolein in the area.¹

All volatile organic compounds tested include the following: acetone, acrolein, acrylonitrile, allyl chloride, 1,3-butadiene, benzene, benzyl chloride, bromodichloromethane, bromoform, bromomethane, 2-butanone, n-butylbenzene, sec-butylbenzene, carbon disulfide, carbon tetrachloride, chlorobenzene, chloroethane, chloroform, chloromethane, cyclohexane, dibromochloromethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dibromomethane, 1,1-dibromoethane, 1,2-dichloroethane, 1,2-dichloropropane, 1,4-dioxane, dichlorodifluoromethane, trans 1,2-dichloroethene, cis-1,2-dichloroethene, cis-1,3-dichloropropene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, trans-1,3-dichloropropene, 1,2-dichlorotetrafluoroethane, di-isopropyl ether, ethanol, ethylbenzene, ethyl acetate, ethyl tert-butyl ether, 4-ethyltoluene, heptane, hexachloro-1,3-butadiene, hexane, 2-hexanone, isopropylbenzene, isopropanol, p-isopropyltoluene, methylene chloride, 4-methyl-2-pentanone, methyl tert-butyl ether, methyl methacrylate, naphthalene, pentane, n-propylbenzene, propene, styrene, 1,1,2,2-tetrachloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2,4-trichlorobenzene, 1,1,2-trichlorotrifluoroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 2,2,4-trimethylpentane, t-butyl alcohol, tert amyl methyl ether, tetrachloroethene, tetrahydrofuran, toluene, trichloroethene, trichlorofluoromethane, vinyl acetate, vinyl bromide, vinyl chloride, m,p-xylene, o-xylene, and total xylenes.

2.2.2-Acrolein

People may be exposed to acrolein from environmental tobacco smoke, vehicle exhausts, and the heating of fats. Acrolein is present in certain foods such as raw cocoa beans, chocolate liquor, roasted coffee, raw and cooked turkey, and fried potatoes or fried onions.⁵ The levels of acrolein are usually low in outside air, averaging around 0.20 parts acrolein in one billion parts air (0.2 ppb) in urban air and 0.12 ppb in rural air. However, in several large cities, acrolein has been measured at levels of 5.6 ppb. The levels of acrolein within the air of a typical home range between less than 0.02 and 12 ppb but can be higher if tobacco is smoked in the home.⁵

Acrolein is classified by the International Agency for Research on Cancer (IARC) as a Group 3A agent. It is not classified as a carcinogen in humans by IARC or the EPA. Acute effects from exposure to acrolein in air include eye, nasal and respiratory track irritations; these effects may increase with dose and time of exposure and these effects will decrease after the exposure stops.⁶

3-POPULATION & METHODS

3.1-Demographics

As of 2016, the town of Colfax had a population of 1,817 people with a median age of 34.3 years and Grant Parish had a population of 22,372 with a median age of 37.5 years. Unlike the state and parish, the largest percentage of the population (15%) of the town of ColfaxLA is under 5 years of age based on the age groupings presented in Table 1.² The populations of Grant Parish and the town of Colfax also differ by both race and by gender. Colfax has a predominantly black population (61%), whereas Grant Parish is predominantly white (82%). Sixty-two percent (62%) of the town of Colfax are females, whereas only 44% of Grant Parish are females.³ (See Table 1 below).

The median age of the state of Louisiana is 36.2 years with 64% of the entire population being white. Fifty-one percent (51%) of Louisiana's residents are female and 49% are male.³ (See Table 1 below).

Table 1: Demographics for Louisiana, Grant Parish and Colfax, Louisiana (2016) ³

		Louisiana	Grant parish	Colfax Town
	Total Population	4,645,670	22,372	1,817
Sex:	Male	2,271,684 (49%)	12,543 (56%)	699 (39%)
	Female	2,373,986 (51%)	9,829 (44%)	1,118 (62%)
Race:	White	2,983,369 (64%)	18,415 (82%)	713 (39%)
	Black	1,539,681 (33%)	3,346 (15%)	1,108 (61%)
	Asian	93,947 (2%)	160 (1%)	0 (0%)
	Other	123,741 (1%)	1,089 (2%)	51 (0%)
Age:	under 5 years	309,257 (7%)	1,335 (6%)	270 (15%)
	5 to 14 years	620,335 (13%)	2,755 (12%)	253 (14%)
	15 to 24 years	650,099 (14%)	2,565 (11%)	172 (10%)
	25 to 34 years	666,210 (14%)	3,559 (16%)	226 (12%)
	35 to 44 years	569,307 (12%)	3,371 (15%)	194 (11%)
	45 to 54 years	610,677 (13%)	3,052 (14%)	195 (11%)
	55 to 64 years	586,060 (13%)	2,629 (12%)	144 (8%)
	65 to 74 years	371,899 (8%)	1,927 (9%)	189 (10%)
	75 to 84 years	188,842 (4%)	893 (4%)	96 (5%)
	85+ years	72,984 (2%)	286 (1%)	78 (4%)

3.2-Cancer Surveillance

3.2.1-Cancer Surveillance Quality Control

The Louisiana Tumor Registry (LTR) at LSU Health Sciences Center’s School of Public Health in New Orleans has been awarded a one-year \$1.8 million contract by the National Cancer Institute (NCI) to continue its work as a SEER (Surveillance, Epidemiology and End Results) Program-designated cancer registry. *“The SEER Program is one of NCI’s most important data collection and dissemination activities,”* says Robert T. Croyle, PhD, Director of NCI’s Division of Cancer Control and Population Sciences. *“In addition to providing essential information for tracking the nation’s progress against cancer, SEER data and data analysis tools provide researchers with unique opportunities to explore and explain cancer trends. The impact of SEER on science, policy, and practice reflects both the quality of the data collected and the creative expertise of the many scientists who use it.”* <https://www.lsuhscc.edu/newsroom>

3.2.2-The Louisiana Tumor Registry

The Louisiana Tumor Registry (LTR) is mandated by law to gather data on cancers occurring in Louisiana residents from in-state and out-of-state medical/health records, as well as provide cancer statistics to aid in the assessment of cancer incidence, survival rates, and other aspects of cancer in Louisiana.

The primary function of a cancer registry is to record the occurrence of cancer in a population. Information collected includes demographics, tumor characteristics, stage of disease at diagnosis, treatment, and survival. Information on risk factors is usually not available from the reporting sources. However, data from the registry often provide clues to be pursued in special research studies conducted by qualified scientists.

The LTR data has been used to guide statewide cancer control programs, assess the magnitude of cancer burden in Louisiana, identify areas and populations of high risk of cancer, monitor trends in cancer incidence over time, advance clinical, epidemiologic and health services, research, assess the quality and effectiveness of care in terms of patient-reported quality of life, project future needs of healthcare facilities, and help set priorities for allocating health resources.

Since 1996, the LTR has published dozens of Cancer in Louisiana monographs, which report cancer incidence in Louisiana by race, sex, cancer type, age group, and geographic area. However, due to legislative restrictions, the LTR has not previously published cancer incidence data below the parish level until now.⁷

3.2.3-Granularity (Level of Detail) for Incidence Rates

During the 2017 legislative session, legislators passed House Bill 483 (Act No. 373), authorizing the LTR to publish cancer incidence counts and rates for **individual census tracts**. In March 2018, the LTR published the report titled Cancer Incidence in Louisiana by Census Tract, 2006-2014. The report combines 2006-2014 cancer incidence data for census tracts that meet the following publication criteria:

- Population greater than 20,000 and case count greater than or equal to 16.
- Nine years of cancer incidence data by census tract were combined in the report due to the following reasons: The LTR was unable to include the years prior to 2006 since some census tract boundaries were re-drawn from the 2000 Census to the 2010 Census, therefore, the years 1996-2005 would use the 2000 Census, whereas for years 2006-2014, the 2010 Census would be used. Cases diagnosed after 2014 were not included because the most recent, complete cancer incidence data in Louisiana was from diagnosis year 2014, which is consistent with other state cancer registries in the U.S.⁷

3.2.4-Cancer Incidence (Table 2)

The LTR Census Tract report reviews cancer incidence for Grant Parish, individual census tracts in this parish, and compares it with incidence for the State of Louisiana from 2006 to 2014. Cancer incidence data used for this report were collected by the Louisiana Tumor Registry from all healthcare facilities that diagnose and/or provide treatment and care to Louisiana cancer patients. Cancer incidence is the number of new cancer cases diagnosed, often expressed as a rate over a specified time. In this document, the rate is the average number of new cases diagnosed in a year per 100,000 people. Cancer incidence rate is calculated as:

$$\text{Incidence Rate} = \frac{\text{number of new cancers diagnosed in the specified year(s)}}{\text{population count in the specified year(s)}} \times 100,000$$

3.2.5-Age Adjusted Rates, Rate Ratios (Table 3)

Because cancer is diagnosed more frequently among the elderly and some geographic areas have a larger proportion of elderly residents than others, age-adjusted rates are used to allow meaningful comparisons of rates from different areas by controlling for varying age distributions. These are weighted averages of age-specific rates, where the weights represent the distribution of a standard population, in this case the U.S. 2000 standard population.

To compare the cancer incidence rate of individual census tracts in Grant Parish with the rate for Louisiana, rate ratios and 95% confidence intervals are provided. Rate ratios are calculated as follows:

Rate Ratio = Age-adjusted incidence rate for a specific census tract

Age-adjusted incidence rate for Louisiana

- If the rate ratio = 1.0 then the cancer incidence rate for a specified census tract = Louisiana's Cancer incidence rate;
- If the rate ratio > 1.0, then the cancer incidence rate for a specified census tract > Louisiana's Cancer incidence rate;
- If the rate ratio < 1.0, then the cancer incidence rate for a specified census tract < Louisiana's Cancer Incidence rate.

Also, the wider the confidence interval (CI), the less precise the rate ratio. ⁷

3.2.6-Age Adjusted Cancer Incidence Rates by Louisiana Census Tract (Table 4)

Table 4 shows rates per 100,000 and age-adjusted to the 2010 US population, the rate ratios and 95% CIs for comparing incidence rates in each census tract in Grant Parish with Louisiana rates by cancer site. For breast cancer, only female cases were included in the cancer incidence rates. A p-value is also provided in Table 4 to show whether the incidence rate for Grant Parish is statistically different from the state of Louisiana. Typically, a p-value that is less than 0.05 indicates that the cancer incidence rate for the census tract is significantly different from the state rate. ⁷

4-GRANT PARISH CANCER INCIDENCE

Cancer incidence rates vary by population characteristics such as race and sex. For example, males usually have a higher cancer incidence rate than women, and the rates of some types of cancer are much higher in certain racial groups. Therefore, differences in cancer incidence rates for all races and both genders combined may be partially attributable to the variations in population characteristics. ⁷

4.1-Cancer Incidence Rates for Grant Parish, 1988-2015

Analysis of overall cancer incidence rates in Grant Parish for the years 1988-2015 for all cancer sites combined is not significantly different from the cancer incidence rates for Louisiana. As shown in the table below, the rate ratio is close to one and the calculated p-value is greater than 0.05.

Table 2: Cancer incidence rates /100,000 age adjusted for Grant Parish and Louisiana (1988-2015)

	Rate	Lower CI	Upper CI	Count	Rate Ratio	Ratio Lower CI	Ratio Upper CI	Ratio P-Value
Louisiana	445	443.5	446.6	321,573				
Grant Parish	434.8	412.7	457.8	1,484	0.98	0.93	1.03	0.39

Reference: Cancer incidence rates, CIs, Counts, rate ratios and p values provided by Louisiana Tumor Registry

via email on July 11, 2018

Rates are per 100,000 and age-adjusted to the 2000 US Population (19 age groups - Census P25-1130) Standard; Confidence intervals are 95% for rates and ratios.

4.2-Cancer Incidence Rates for Grant Parish, 2006-2014

For the years 2006-2014, a summary of incidence rates /100,000 population (all sex, race and age group combined)/year is presented below. A more detailed table is presented in Appendix A Table A-1.

Table 3: Cancer incidence rates /100,000 age adjusted for Grant Parish and Louisiana, 2006-2014

Cancer site	Grant Parish	Louisiana
All cancers	477.2	484.7
Oral cavity	11.1	12.8
Digestive	94.7	93.0
Esophagus	7.4	4.9
Colon and rectal	53.0	49.9
Liver & Bile ducts	8.8	8.2
Pancreas	13.7	13.7
Lung & Bronchus	96.7	73.2
Melanoma	18.7	15.5
Breast	40.1	66.2
Corpus uteri	20.6	17.6
Prostate	56.0	70.6
Urinary system	42.1	40.9
Thyroid	15.6	11.6
Lymphoma	23.0	23.5
Leukemia	13.0	13.1

Red: Statistically significantly higher lung and bronchus cancer incidence rate when compared with LA

Reference: All cancer incidence rates provided by the Louisiana Tumor Registry via email on June 26, 2018

- For **most of the cancer sites**, there is no significant difference between the rates observed in Grant Parish versus the entire state of Louisiana. Overall, the rates observed in Grant are lower than those of Louisiana.
- For **lung and bronchus**, the higher rates are observed in white males (124.9/100,000 in Grant / 89.9/100,000 in Louisiana) and white females (79.7/100,000 in Grant / 61.7/100,000 in Louisiana). Rates for blacks in Grant Parish could not be calculated due to the small number of cases.
- The incidence rates of lung cancer are statistically significantly higher in Grant Parish than in Louisiana (39% higher for white males and 29% higher for white females, and 32% higher for all races and both sexes combined).
- According to County Profile Health Data for Grant Parish, smoking among males and females was more prevalent in 2012 in Grant Parish than in the state of Louisiana. Twenty-four point two percent (24.2%) of females and 31.1% of males in Grant Parish reported smoking as compared to 22.1% of females and 27.9% of males in Louisiana.⁸

4.3-Cancer Incidence Rates for Grant Parish Census Tracts, 2006-2014

- Four out of five census tracts examined have cancer incidence rates equal to or lower than the Louisiana rates.
- Census tract 200 is the census tract where Clean Harbors and the burn sites are located. It has an all cancer combined rate (per 100,000) slightly lower than Louisiana (486.6 vs 486.7). Census tract 300 where Colfax is located is 16% higher than the state, although not statistically significant (566.2 vs 486.7).

- The only statistically significantly higher rates when compared with the state were observed for colorectal cancer in census tract 300 which includes the town of Colfax.
- For lung and bronchus cancer sites which could be the main concern because of air pollutants, while not statistically significantly different than Louisiana rates, the rates observed in Grant Parish census tracts ranged from 11-44% higher. The lack of significance is due to the small number of cases (3 to 5 per census tract per year). The highest rate is in census tract 300 which is where Colfax is located.
- Due to the small numbers, prostate cancer rates are available only for census tract 401 and 402.
- In summary, the Colfax census tract (300) is the one where cancer has a higher incidence rate when compared with the state of Louisiana. The census tract where the burn site is located (200) shows lower incidence rates.

Table 4: Age-adjusted cancer incidence rates by census tract, Grant Parish, 2006-2014 ⁷

Cancer	Area	Average Annual Case Count	RATE	95% Confidence Interval of Rate	Rate Ratio	95% Confidence Interval of Rate Ratio	P-value
All Cancers	Louisiana	23169.4	486.7	484.6-488.9			
	22043020100	13.8	488.7	402.4-588.5	1.00	0.83-1.21	0.9914
	22043020200	19.7	486.6	414.9-567.9	1.00	0.85-1.17	1.0000
	22043020300	17.9	566.2	478.6-665.5	1.16	0.98-1.37	0.0777
	22043020401	29.7	439.7	387.2-497.4	0.90	0.80-1.02	0.1092
	22043020402	20.4	390.1	331.7-455.2	0.80	0.68-0.94	0.0043
Breast (Female only)	Louisiana	3123.6	122.1	120.7-123.6			
	22043020401	3.1	91.2	60.0-133.1	0.75	0.49-1.09	0.1449
Colon and rectal	Louisiana	2376.3	50.1	49.4-50.8			
	22043020100	1.9	63.9	35.4-106.9	1.28	0.71-2.13	0.4229
	22043020300	2.7	83.7	51.9-128.0	1.67	1.04-2.56	0.0362
	22043020401	3.6	49.5	33.5-70.8	0.99	0.67-1.41	1.0000
	22043020402	2.2	40.8	23.9-64.4	0.81	0.48-1.29	0.4366
Lungs & Bronchus	Louisiana	3493.7	73.7	72.9-74.5			
	22043020100	2.8	96.5	61.3-145.6	1.31	0.83-1.98	0.2415
	22043020200	4.4	103.8	73.6-143.6	1.41	1.00-1.95	0.0509
	22043020300	3.6	106.3	71.9-152.3	1.44	0.98-2.07	0.0654
	22043020401	5.6	81.8	60.3-108.7	1.11	0.82-1.48	0.5063
	22043020402	4.6	90.4	63.4-124.3	1.23	0.86-1.69	0.2560
Prostate	Louisiana	3531.6	158.0	156.2-159.8			
	22043020401	2.9	83.8	54.3-124.6	0.53	0.34-0.79	0.0007
	22043020402	1.8	66.4	36.5-109.7	0.42	0.23-0.69	0.0002

*Rates are per 100,000 and age-adjusted to the 2010 US Population (19 age groups – Census P25-1130) standard.

Red: Statistically significantly higher colorectal cancer incidence rate when compared with LA

Green: Statistically significantly lower for all cancer sites and prostate cancer incidence rates when compared with LA

There are limitations to data at the census tract level. Due to small case counts, the reliability of certain cancer incidence rates is limited. In addition, due to small case counts, cancer incidence rates vary by population characteristics such as race and sex. Therefore, differences in cancer incidence rates for all races and both genders combined between individual census tracts and the state may be partially attributable to the variations in population characteristics.

Another limitation to this data at the census tract level is the over- or underestimation of populations for some of the census tracts. Since the population estimates based on the counting of each resident for the intercensal years is not available, the single-year population count from the 2010 Census was used for all years. In addition, 3% of cancer cases were excluded from the calculation of cancer incidence rates at the census tract level due to P.O. Box addresses, which may result in the underestimation of cancer incidence for some census tracts. Since the LTR relies

on other state cancer registries to provide cancer data on Louisiana residents who were diagnosed or treated at out-of-state-facilities, there is no way to confirm the completeness of reporting.⁷

5-CANCER RISK FACTORS

Cancers have both genetic (inherited) and external risk factors. Some individuals have genes that predispose them to cancer, irrespective of environmental influences. Genetic factors alone account for an estimated 5 to 10 percent of cancers.⁹ The majority of cancers are caused by external factors acting in concert with genetic factors.

The main cancer sites of concern in this parish are lung/bronchus cancers and colorectal cancers, all in the Colfax census tract.

5.1-Lung/Bronchus Risk Factors

From the American Cancer Society Facts & Figures 2018:

*Cigarette smoking is by far the most important risk factor for lung cancer; 80% of lung cancer deaths in the US are still caused by smoking. Risk increases with both quantity and duration of smoking. Cigar and pipe smoking also increase risk. Exposure to radon gas released from soil and building materials is thought to be the second-leading cause of lung cancer in the US. Other risk factors include occupational or environmental exposure to secondhand smoke, asbestos (particularly among smokers), certain metals (chromium, cadmium, arsenic), some organic chemicals, radiation, air pollution, and diesel exhaust. Some specific occupational exposures that increase risk include rubber manufacturing, paving, roofing, painting, and chimney sweeping. Risk is also probably increased among people with a history of tuberculosis. Genetic susceptibility (e.g., family history) plays a role in the development of lung cancer, especially in those who develop the disease at a young age.*¹⁰

5.2-Colorectal Cancer Risk Factors

From the American Cancer Society Facts & Figures 2018:

*Modifiable factors that increase risk include obesity, physical inactivity, long-term smoking, high consumption of red or processed meat, low calcium intake, moderate to heavy alcohol consumption, and very low intake of fruits and vegetables and whole-grain fiber. Hereditary and medical factors that increase risk include a personal or family history of colorectal cancer and/or polyps (adenomatous), certain inherited genetic conditions (e.g., Lynch syndrome and familial adenomatous polyposis), a personal history of chronic inflammatory bowel disease (ulcerative colitis or Crohn's disease), and Type 2 diabetes.*¹¹

6-RECOMMENDATIONS

LDH/SEET will continue to work closely with the LTR to examine future cancer data as needed or requested and when it becomes available. Health education outreach to enhance screening for lung and colorectal cancers will be made available to Grant Parish residents by the LTR.

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APPENDIX A

Table A-1: Cancer incidence rates /100,000 age adjusted for Grant Parish and Louisiana, 2006-2014

<u>Site:</u>	All Races, Both Sexes, LA	All Races, Both Sexes, Grant	White Males, LA	White Males, Grant	White Females, LA	White Females, Grant	Black Males, LA	Black Males, Grant	Black Females, LA	Black Females, Grant
All Sites	484.7	477.2	567.6	540.0	415.4	440.3	643.4	698.7	417.4	353.4
Oral Cavity and Pharynx	12.8	11.1	21.1	^	6.9	^	17.2	^	5.6	^
Digestive System	93.0	94.7	106.9	109.4	67.5	75.9	145.4	^	93.1	^
Esophagus	4.9	7.4	8.6	^	1.7	^	9.0	^	2.6	^
Colon and Rectal	49.9	53.0	55.8	53.7	39.3	43.6	71.6	^	51.8	^
Colon excluding Rectal	35.5	38.4	38.2	37.8	28.7	30.5	50.7	^	39.0	^
Liver and Intrahepatic Bile Duct	8.2	8.8	11.3	^	3.2	^	18.2	^	4.6	^
Liver	7.6	8.2	10.6	^	2.8	^	17.7	^	4.2	^
Pancreas	13.7	13.7	14.7	^	11.4	^	17.5	^	14.8	^
Lung and Bronchus	73.2	96.7	89.8	124.9	61.7	79.7	128.4	^	54.4	^
LB Rate Ratio (95% CI)	1.32	1.39	1.29							
LB P value	0.0002	0.002	0.0061							
Melanoma of the Skin	15.5	18.7	28.4	33.6	16.1	^	1.1	^	1.0	^
Breast (M and F)	66.2	40.1	1.1	^	120.1	88.2	2.0	^	129.2	^

Corpus and Uterus, NOS	9.8	9.6	^	^	17.6	20.6	^	^	20.6	^
Corpus Uteri	9.4	9.6	^	^	17.1	20.6	^	^	19.4	^
Prostate	NA	NA	139.7	99.5	^	^	216.0	265.4	^	^
Urinary System	40.9	42.1	68.5	67.1	24.7	19.4	47.5	^	22.4	^
Urinary Bladder	19.0	19.6	38.4	36.8	8.5	^	20.2	^	6.6	^
Kidney and Renal Pelvis	20.9	22.4	28.5	30.3	15.6	^	26.4	^	15.2	^
Thyroid	11.6	15.6	6.9	^	19.7	29.4	2.9	^	11.9	^
Lymphoma	23.0	23.5	29.6	28.8	21.1	19.4	21.0	^	14.4	^
Non-Hodgkin Lymphoma	20.2	20.8	26.3	24.9	18.4	^	17.9	^	12.1	^
NHL - Nodal	13.3	13.1	17.7	^	12.2	^	11.8	^	7.1	^
NHL - Extranodal	6.9	7.7	8.6	^	6.2	^	6.1	^	5.0	^
Leukemia	13.1	13.0	18.1	^	11.0	^	13.1	^	8.7	^
Lymphocytic Leukemia	6.0	8.3	8.8	^	5.2	^	6.0	^	2.6	^

NA= Not applicable

Reference: All cancer incidence rates were provided by the Louisiana Tumor Registry via email on June 26, 2018. Rates are per 100,000 and age-adjusted to the 2000 US Population.

Table A-2: Cancer average annual case counts for Grant Parish and Louisiana, 2006-2014

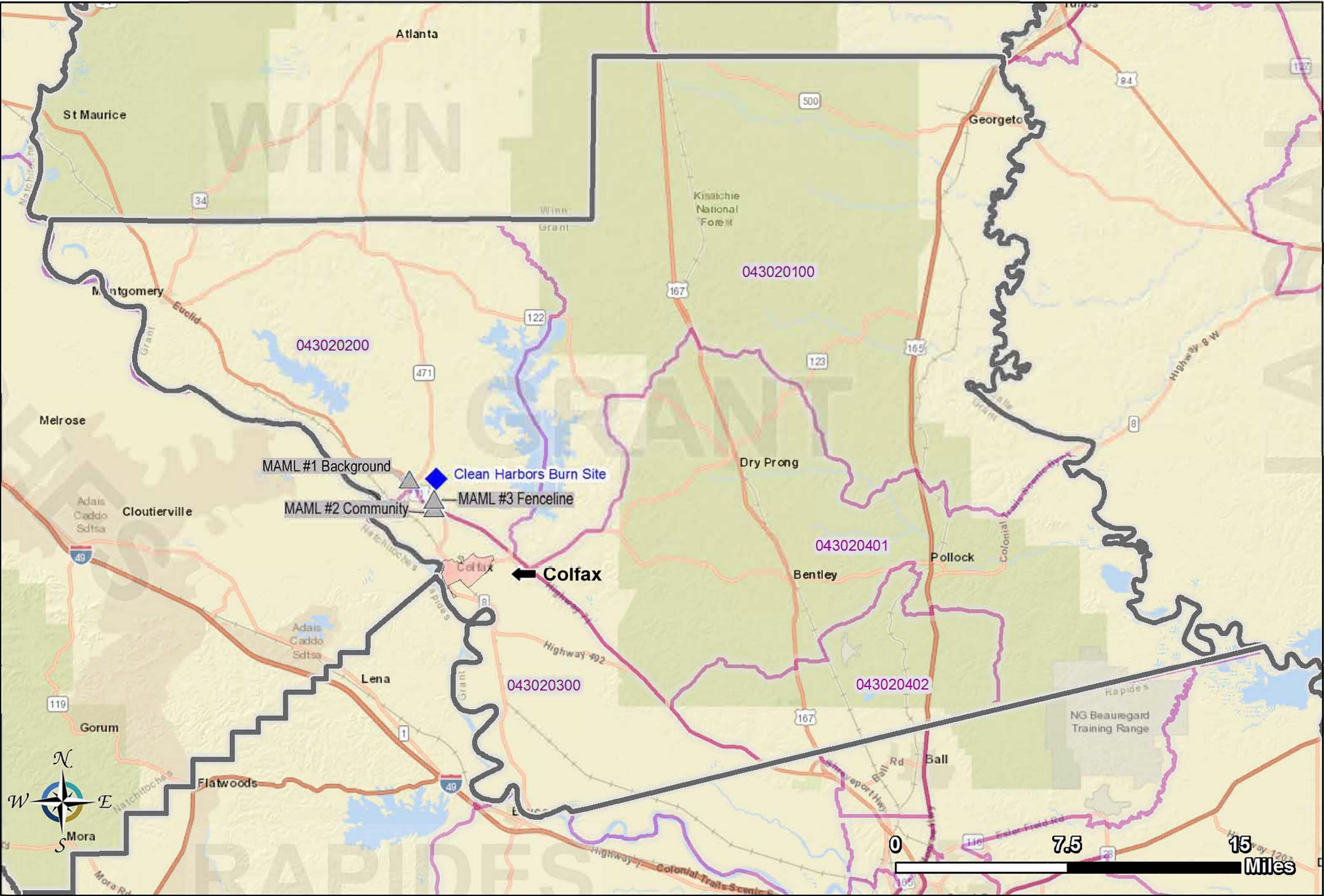
Site:	All Races, Both Sexes, LA	All Races, Both Sexes, Grant	White Males, LA	White Males, Grant	White Females, LA	White Females, Grant	Black Males, LA	Black Males, Grant	Black Females, LA	Black Females, Grant
All Sites	23177.6	110.2	9,000.6	53.1	7,527.3	43.3	3,449.7	8.7	2,962.9	4.4
Oral Cavity and Pharynx	626.6	2.6	348.2	^	126.8	^	103.8	^	40.9	^
Digestive System	4443.8	21.9	1,690.7	11.4	1,265.8	7.4	777.1	^	649.8	^
Esophagus	241.2	1.8	138.9	^	32.7	^	49.4	^	18.4	^
Colon and Rectal	2376.4	12.4	877.1	5.8	733.4	4.3	376.4	^	364.3	^
Colon excluding Rectal	1680.9	9.1	591.9	4.2	541.4	3.1	260.6	^	271.4	^
Liver and Intrahepatic Bile Duct	411.4	2.0	188.9	^	60.4	^	114.4	^	33.3	^
Liver	385.6	1.9	177.2	^	52.0	^	111.8	^	30.8	^
Pancreas	644.2	3.0	230.3	^	218.2	^	89.8	^	99.4	^
Lung and Bronchus (LB)	3494.7	22.4	1,409.3	12.1	1,116.6	8.3	581.1	^	361.0	^
Melanoma of the Skin	720.7	3.9	437.0	2.7	268.1	^	5.6	^	6.6	^
Breast(M and F)	3151.6	9.6	17.3	^	2,164.2	8.8	10.1	^	931.7	^
Corpus and Uterus, NOS	480.9	2.4	^	^	324.9	2.2	^	^	149.2	^
Corpus Uteri	463.3	2.4	^	^	315.6	2.2	^	^	141.2	^
Prostate	NA	NA	2,324.6	10.4	^	^	1,177.1	3.0		^
Urinary System	1939.2	9.7	1,066.2	6.6	459.3	2.1	243.7	^	155.7	^

Urinary Bladder	888.8	4.3	582.3	3.3	162.7	^	92.9	^	43.7	^
Kidney and Renal Pelvis	1006.3	5.3	459.8	3.2	285.8	^	146.3	^	107.3	^
Thyroid	538.0	3.6	109.4	^	312.0	2.8	17.8	^	87.8	^
Lymphoma	1071.0	5.3	450.9	2.6	382.8	1.8	122.2	^	103.6	^
Non-Hodgkin Lymphoma	940.1	4.7	403.4	2.1	341.3	^	101.2	^	85.7	^
NHL - Nodal	622.8	2.9	272.9	^	226.7	^	67.3	^	50.9	^
NHL - Extranodal	317.3	1.8	130.6	^	114.7	^	33.9	^	34.8	^
Leukemia	601.7	2.8	270.4	^	194.0	^	69.6	^	61.2	^
Lymphocytic Leukemia	276.7	1.8	132.9	^	91.7	^	32.2	^	18.1	^

NA= Not applicable

Reference: All case counts were provided by the Louisiana Tumor Registry via email on October 15, 2018.

Figure B-1: Map of Grant Parish depicting census tracts and the town of Colfax, La.



Selected Facilities Near Colfax, LA

- Clean Harbors Burn Site
- Air Monitor
- Camp Minden (State Map)
- Colfax City Boundary
- Census Tracts (Grant Parish)
- Parish Boundary



Map produced January 29, 2019 by the Louisiana Department of Health / Office of Public Health / Section of Environmental Epidemiology & Toxicology (SEET) using data provided by LDH and the Louisiana Department of Environmental Quality. SEET cannot guarantee the accuracy of the information contained on this map, and expressly disclaims liability for errors and omissions in their contents. Census Data are provided by the U.S. Census Bureau, 2010.

APPENDIX C

2018 Regular Session: HOUSE RESOLUTION NO. 226 BY REPRESENTATIVE MARCELLE

A RESOLUTION

To urge and request the office of public health of the Louisiana Department of Health to study cancer incidence in the Colfax, Louisiana area and to report findings of the study to the legislative committees on health and welfare.

WHEREAS, with the recent issuance of a permit by the Louisiana Department of Environmental Quality to a commercial operation in the Colfax, Louisiana area for the open burning and detonation of explosives from a military facility, Louisiana became home to the largest expired munitions disposal project in the history of the United States; and

WHEREAS, an open burn of munitions and other hazardous waste is ongoing at the disposal facility near Colfax, which holds the nation's only federal permit to conduct open burning and open detonation in this manner; and

WHEREAS, this permit subjects the disposal facility to regulation by the United States Environmental Protection Agency pursuant to the authority of Resource Conservation and Recovery Act; and

WHEREAS, open burning is a disposal method whereby hazardous waste is placed in large metal trays and set on fire, releasing into the environment a multitude of toxins including chlorine, lead, and perchlorate; and

WHEREAS, many of these toxins are known carcinogens; and

WHEREAS, according to the National Cancer Institute of the National Institutes of Health, the American Cancer Society, and the annual America's Health Rankings report, Louisiana historically has had one of the highest cancer mortality rates in the nation, and this trend continues to the present day; and

WHEREAS, effective cancer investigation programs endeavor to improve understanding of cancer incidence by geographic area and to evaluate cancer control interventions; and

WHEREAS, as the open burn of munitions near Colfax continues, it is appropriate for the legislature to call for a study of and report concerning cancer incidence in that area of the state.

THEREFORE, BE IT RESOLVED that the House of Representatives of the Legislature of Louisiana does hereby urge and request the office of public health of the Louisiana Department of Health to study cancer incidence in the Colfax, Louisiana area.

BE IT FURTHER RESOLVED that in conducting the study called for in this Resolution, the office of public health shall engage and solicit input from agencies, research institutions, and other groups with expertise in cancer research and environmental sciences including but not limited to the following:

- (1) The United States Centers for Disease Control and Prevention.
- (2) The Louisiana Cancer Research Center.
- (3) The Louisiana Cancer Prevention and Control Programs of the School of Public Health of the Louisiana State University Health Sciences Center at New Orleans.
- (4) The Louisiana State University Health Sciences Center at Shreveport.
- (5) The Louisiana Department of Environmental Quality.
- (6) The Louisiana Environmental Action Network.
- (7) The Agency for Toxic Substances and Disease Registry.

BE IT FURTHER RESOLVED that the office of public health shall develop a report of findings from the study called for in this Resolution, and shall submit the report to the House Committee on Health and Welfare and the Senate Committee on Health and Welfare no later than thirty days prior to the convening of the 2019 Regular Session of the Legislature.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the secretary of the Louisiana Department of Health, the assistant secretary of the office of public health of the Louisiana Department of Health, the director of the United States Centers for Disease Control and Prevention, the chief administrative officer of the Louisiana Cancer Research Center, the chancellor of the Louisiana State University Health Sciences Center at New Orleans, the chancellor of the Louisiana State University Health Sciences Center at Shreveport, the secretary of the Louisiana Department of Environmental

Quality, the director of the Agency for Toxic Substances and Disease Registry, and the executive director of the Louisiana Environmental Action Network.

SPEAKER OF THE HOUSE OF REPRESENTATIVES

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