John Bel Edwards
GOVERNOR

Rebekah E. Gee MD, MPH
SECRETARY

State of Louisiana

Louisiana Department of Health
Office of Public Health

March 2, 2018
Louisiana Department of Environmental Quality
605 N. Fifth Street
Baton Rouge, LA 70821

Dear Mr. Algero,

The purpose of this letter health consult is to inform you of the results of the St. John the Baptist Parish cancer incidence review in relation to the Denka Performance Elastomer facility which is located in LaPlace, La. The Louisiana Department of Health/Office of Public Health/Section of Environmental Epidemiology and Toxicology (LDH/OPH/SEET) has evaluated the Louisiana Tumor Registry's (LTR) cancer rate incidence data (1988-2014) for St. John the Baptist Parish for lung and liver cancers which are both related to chloroprene exposure, a chemical currently being emitted from the Denka facility. The following letter provides the results of SEET's cancer incidence review.

Background and Statement of Issues

In 1931, the DuPont chemical company invented Neoprene, a synthetic chemical and weather-resistant rubber best recognized for its use in wet suits and as a base resin in adhesives and coatings. DuPont's Ponchartrain Works facility, located on the east bank of the Mississippi River in LaPlace, LA, became the leading producer of Neoprene (the trade name for polychloroprene) in North America.[1] (See Appendix A for Maps)

On December 10, 2014, DuPont and Denka Co. Ltd. of Tokyo, Japan announced an agreement for Denka to acquire the DuPont's Neoprene facility. As a result of the acquisition of the Neoprene business, which was completed effective Nov. 1, 2015, a joint venture was formed between Denka Co. Ltd. and Mitsui Co. Ltd., which is also based in Tokyo. Through this joint venture, Denka Performance Elastomer, LLC now serves as owner and operator of the Neoprene facility.[1]

On December 17, 2015, the U.S. Environmental Protection Agency (EPA) 2011 National Air Toxics Assessment (NATA) was released. Mathematical modeling estimates performed by this screening tool indicated the possibility of elevated cancer risk from chloroprene emissions from Denka/Dupont Neoprene production facility operations in LaPlace.[1,2] Chloroprene is a component in the manufacture of Neoprene and has been classified by EPA as "likely to be carcinogenic to humans" since September 2010.[1,3]

The current total population of St. John the Baptist Parish is 45,924. Of this total population, 51.4% are female and 48.6% are male. Fifty-six point four percent (56.4%) are African American and 40.6% are White. The remaining 3.0% are from other races. Approximately 13.6% of the total population are 65 years of age or older. The median household annual income in 2016 is $51,406 and 18.5% of the population are living below the poverty threshold. [4]

Methodology

This report reviews cancer incidence for St. John the Baptist Parish and compares it with incidence for the State of Louisiana from 1988 to 2014. 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.

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 population.

Of the cancers associated with chloroprene exposure, only liver and lung tumors have a weight of evidence for carcinogenicity in humans. [3] However, note there are reports on various types of hematopoietic cancers in animal models not covered in our analyses.

Comparisons of incidence rates for liver and lung cancer for St. John the Baptist Parish and Louisiana are shown in Appendix B, Table B-1. Rolling 10 year average annual lung cancer and liver cancer incidence rates for 2000-2014 are shown in tables B-2 and B-3.

Discussion

Analysis of cancer incidence from 1988 to 2014 does not show statistically significant increased cancer incidence rates in St. John the Baptist parish for either liver or lung cancer. In fact, St. John the Baptist Parish cancer incidence rates for lung cancers in black males and white females are significantly lower than that of the lung cancer incidence rates for the state of Louisiana during some 10 year periods (see Table B-1).

Analysis of LTR's annual lung and liver cancer incidence rates show that the lung and liver cancer incidence rates are lower than the state of Louisiana lung cancer incidence rates for the years 2000-2014 based on 10 year aggregates (See Tables B-2 and B-3).

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, however, account for an estimated 5 to 10 percent of cancers. [5]

External factors, acting in concert with genetic factors, cause the majority of cancers. Smoking is the leading risk factor for lung cancer. About 80% of lung cancer deaths result from smoking, either from cigarettes or cigars or pipe smoking. The risk for lung cancer among smokers is substantially higher than among non-smokers. The longer a person smokes and the more packs a day the person smokes, the greater their risk. If a person does not smoke, breathing in the smoke of others (called secondhand smoke or environmental tobacco smoke) can increase a person's risk of developing lung cancer. Secondhand smoke is thought to cause more than 7,000 deaths from lung cancer each year in the United States. Other risk factors for the development of lung cancer include exposure to radon, asbestos, arsenic in drinking water, and air pollution. In addition, certain dietary supplements and previous radiation therapy to the lungs increase the chances of a person to develop lung cancer. [6]

The most common risk factor for a person developing liver cancer is chronic (long-term) infection with hepatitis B virus (HBV) or hepatitis C virus (HCV). Both of these infections lead to cirrhosis of the liver and are responsible for leading to cancer of the liver the most common cancer in many parts of the world. Other risk factors for a person potentially developing liver cancer are gender (more common in males than in females), race/ethnicity (Asian Americans and Pacific Islanders have the highest rates), cirrhosis, primary biliary cirrhosis, heavy alcohol use, obesity, inherited metabolic diseases, type 2 diabetes, and aflatoxins. [7]

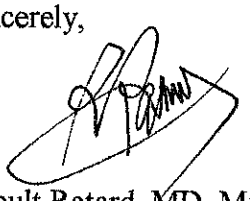
Conclusion

Overall, cancer incidence rates of the lung and liver in St. John the Baptist Parish from 1988-2014 did not differ significantly from those in the state of Louisiana. Analysis of cancer incidence rates at the census tract level was not performed for this site. Act 373 of the 2017 Louisiana Legislative Session will require the LTR to deliver yearly census tract to local parish governments in March 2018. [8]

Recommendations

There are no recommendations to be made at this time. LDH/OPH/SEET will continue to work closely with the LTR and the Centers for Disease Control/Agency for Toxic Substances and Disease Registry (CDC/ATSDR) to examine future cancer data as needed or requested as it becomes available.

Sincerely,



Raoult Ratard, MD, MS, MPH, FACPM
State Epidemiologist
LDH/Office of Public Health

REFERENCES

1. United States Environmental Protection Agency. LaPlace, Louisiana – Background Information. EPA in Louisiana website. https://www.epa.gov/la/laplace-louisiana-background-information . Accessed January 23, 2018.

2. Louisiana Department of Environmental Quality. "LDEQ and Denka sign AOC designed to reduce chloroprene emissions at LaPlace facility". Water News, LDEQ Newsroom. 2017 Jan. http://deq.louisiana.gov/news/ldeq-and-denka-sign-aoc-designed-to-reduce-chloroprene-emissions-at-laplace-facility . Accessed January 23, 2018.

3. United States Environmental Protection Agency. *Toxicological Review of Chloroprene (CAS No. 126-99-8). In Support of Summary Information on the Integrated Risk Information System (IRIS).* EPA/635/R-09/01F. U.S. Environmental Protection Agency, Washington, DC. 2010 Sept. Available online at: http://www.epa.gov/iris/toxreviews/1021tr.pdf . Accessed January 23, 2018.

4. United States Census Bureau. "St. John the Baptist Louisiana Quick Facts 2017."

5. Cotran R, Kumar V & Robbins S. Robbins Pathologic Basis of Disease (4th edition). W.B. Saunders, Philadelphia, 1989, p. 268.

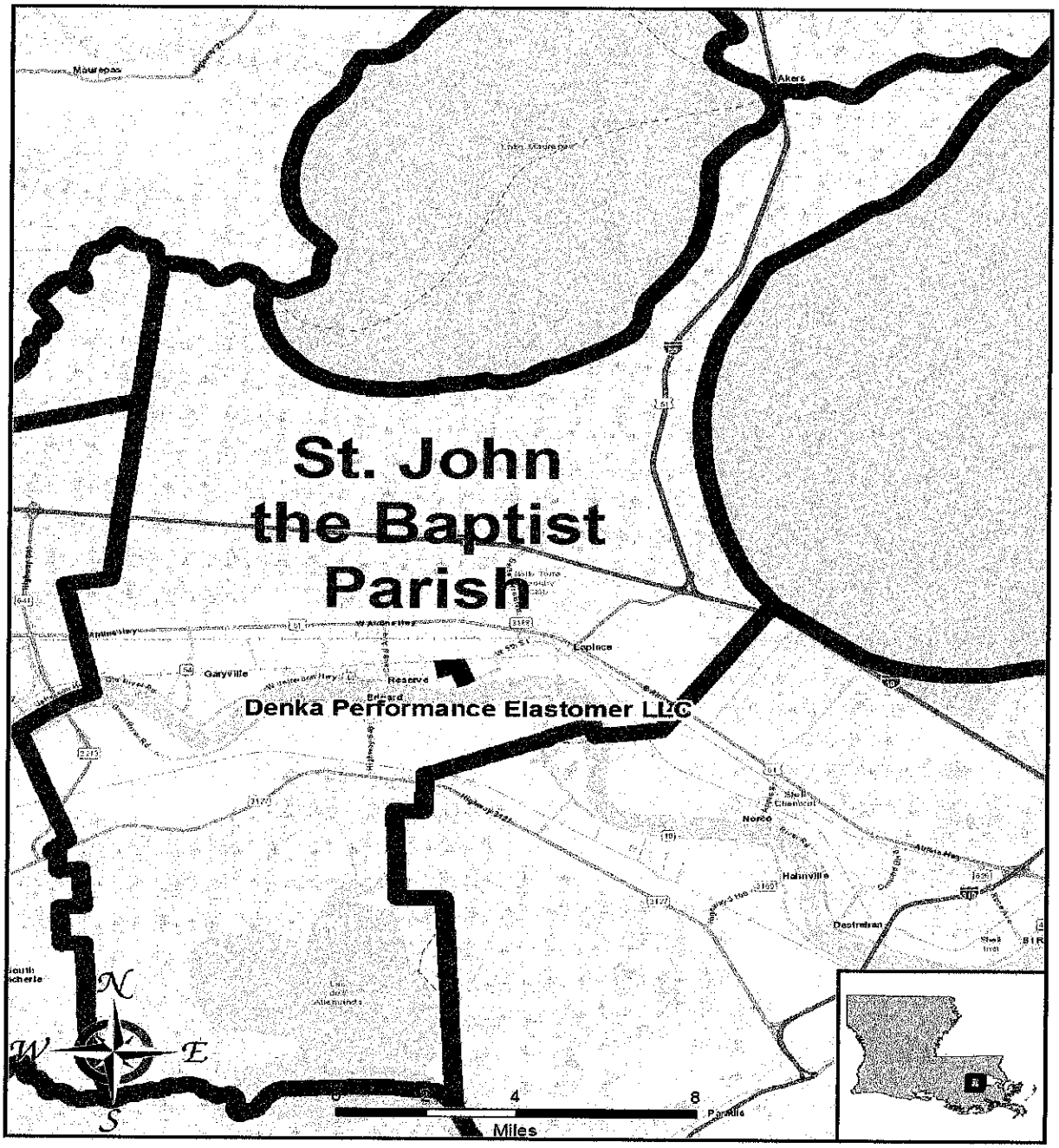
6. American Cancer Society. Lung Cancer Risk Factors. Updated 2016 February. Available online at: https://www.cancer.org/cancer/lung-cancer/prevention-and-early-detection/risk-factors.html. Accessed January 23, 2018.

7. American Cancer Society. Liver Cancer Risk Factors. Updated 2016 February. Available online at: https://www.cancer.org/cancer/liver-cancer/causes-risks-prevention/risk-factors.html

8. Louisiana Cancer Prevention Control Program. 2017 House Concurrent Resolution 103 Legislative Report.

APPENDIX A:

A-1: Map of Denka Facility



APPENDIX B

Table B-1 - LTR Cancer Incidence Rates* in Louisiana and St. John the Baptist Parish, Lung and Liver (1988-2014), (1995-2014), (1995-2004), and (2005-2014)

1988-2014

	White Males		Black Males		White Females		Black Females	
	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist
Lung and Bronchus	106.4	96.9	132.2	112.0 ↓	57.5	47.9 ↓	49.4	46.3
Liver	8.4	6.8	12.4	12.8	2.3	^	3.2	^

1995-2014

	White Males		Black Males		White Females		Black Females	
	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist
Lung and Bronchus	100.4	94.2	126.5	104.3 ↓	59.1	52.4	50.8	45.6
Liver	9.3	7.4	14.1	15.8	2.5	^	3.5	^

1995-2004

	White Males		Black Males		White Females		Black Females	
	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist
Lung and Bronchus	111.9	118.0	140.7	128.3	59.3	66.8	49.8	49.9
Liver	7.8	^	9.7	^	2.4	^	2.8	^

2005-2014

	White Males		Black Males		White Females		Black Females	
	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist	Louisiana	St. John the Baptist
Lung and Bronchus	90.7	76.3	114.7	92.0	59.2	40.1 ↓	51.7	43.8
Liver	10.4	^	17.3	23.1	2.7	^	4.1	^

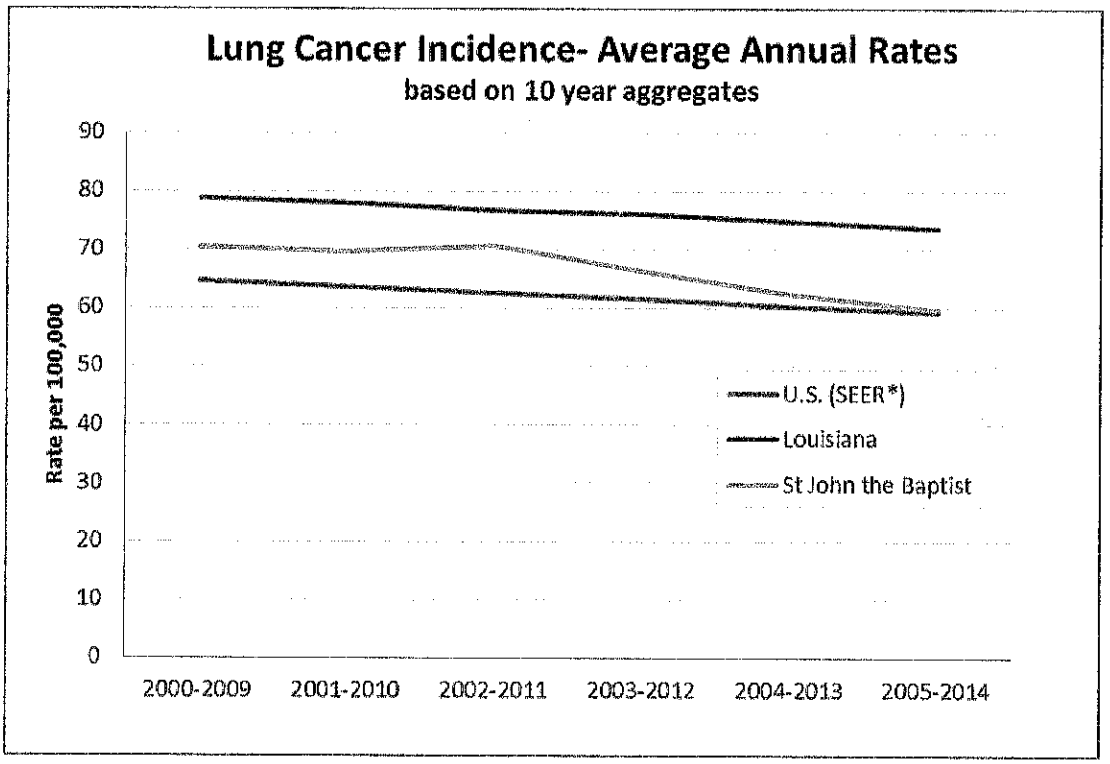
*Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard.

↓ The arrow indicates that the parish rate is significantly lower than that of Louisiana ($p<0.05$).

^ Statistic not displayed due to fewer than 16 cases

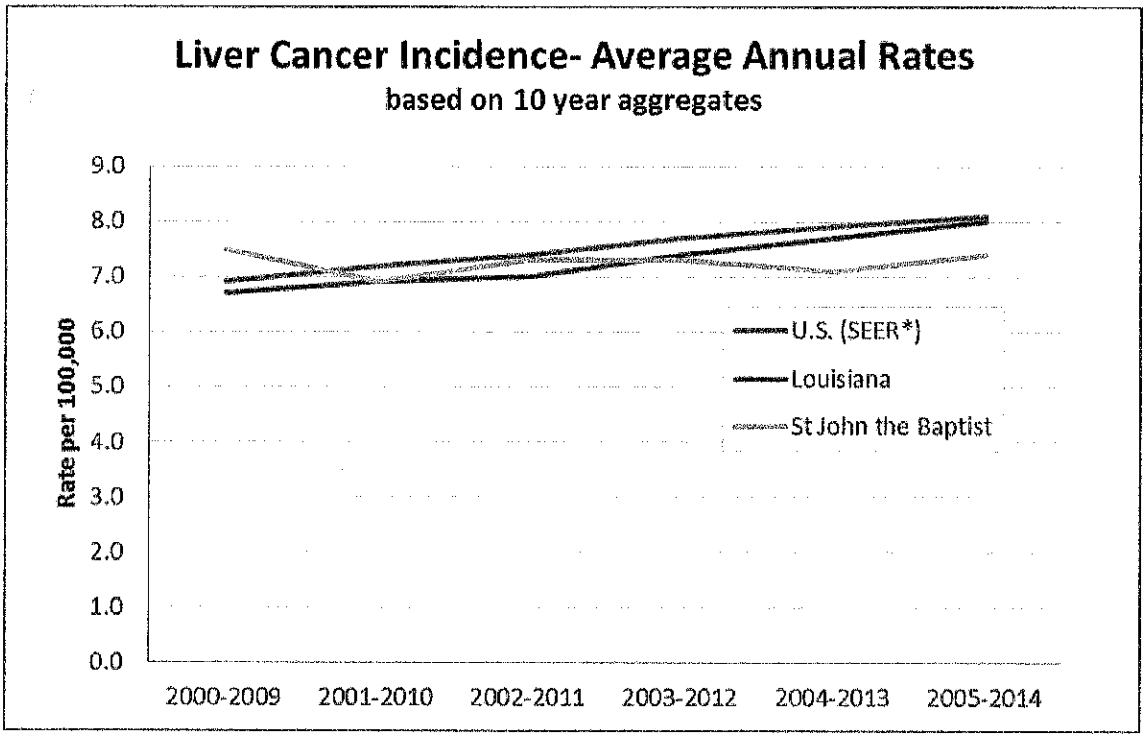
The LTR is supported by the SEER Program (NCI), the National Program of Cancer Registries (CDC), and the LSU Health Sciences Center- New Orleans.

Table B-2: Louisiana Tumor Registry- Lung Cancer Incidence-Average Annual Rates based on 10 year aggregates (2000-2014)



Rates are age adjusted to the U.S. 2000 standard.
Parish-level liver cancer rates for some years are not displayed due to fewer than 16 cases.
*U.S. Rates are based on data from the SEER 18 Regions.

Table B-3: Louisiana Tumor Registry - Liver Cancer Incidence-Average Annual Rates based on 10 year aggregates (2000-2014)



Rates are age adjusted to the U.S. 2000 standard.
Parish-level liver cancer rates for some years are not displayed due to fewer than 16 cases.
*U.S. Rates are based on data from the SEER 18 Regions.