



LOUISIANA MORBIDITY REPORT

EPIDEMIOLOGY

PUBLIC HEALTH STATISTICS

DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF PREVENTIVE AND PUBLIC HEALTH SERVICES
DIVISION OF RECORDS AND STATISTICS
P.O. BOX 60630 NEW ORLEANS, LOUISIANA 70160

SANDRA L. ROBINSON, M.D., M.P.H.
SECRETARY AND STATE HEALTH OFFICER
504/342-6711

ENVIRONMENTAL EPIDEMIOLOGY

Health Concerns

vs.

Phosphogypsum in the Mississippi River

The United States Environmental Protection Agency has not permitted the discharge of phosphogypsum into United States rivers for more than ten years. Human health concerns were a central consideration in establishing the no-discharge guideline. Before agreeing to remove the protection of a long-standing rule, it is incumbent on us to consider seriously the potential human health effects as well as the environmental consequences.

These are serious considerations, because the phosphogypsum contains five EPA priority pollutants for which the Mississippi River no longer has any assimilative capacity, as well as eight other priority toxic pollutants, plus long-lived radioactive isotopes of radium and uranium and a number of other pollutants of concern, including large amounts of phosphates and aluminum.

The pollutants of greatest concern from a human health standpoint are: 1) cadmium, 2) mercury, 3) radium, 4) uranium, 5) alu-

minum and 6) phosphate. See Table page 2.

For all of these pollutants except aluminum, the most important human health risks would be associated, not with drinking water taken from the river, but with the eating of fish and seafood taken from waters affected by the river pollution. With the possible exception of persons with severe kidney disease, no acute toxic effects would be expected. Rather, the chronic accumulation of toxic substances in the estuaries, in the aquatic food chain, and in the human body could lead to serious health problems in the future.

Even though the amounts of radium and uranium in the phosphogypsum would not cause the legal limits for these radionuclides in drinking water to be exceeded, we should bear in mind the EPA's recommendation that we set out goals for drinking water concentrations of radium and uranium at zero. This policy certainly provides the greatest margin of safety for the public health.

PHOSPHOGYPSUM POLLUTANTS**1. CADMIUM*:**

A toxic heavy metal. The average United States diet has a smaller margin of safety for cadmium intake than for other toxic metals, and a World Health Organization (WHO) expert committee has recommended that we try to prevent further increases in the cadmium content of our foods.

Toxic Effects:

Ingested cadmium has a long half-life (10 - 30 years) in the human body, and accumulates in the kidneys year after year. Excessive accumulations can lead to severe kidney disease and to painful and deforming bone disease.

Route of Exposure:

Eating fish and other seafood taken from waters fed by the river. Cadmium can be concentrated in fish and other seafood to thousands of times its concentration in the water they live in. Oysters concentrate cadmium a great deal, and the highest concentrations in oysters in Louisiana tend to occur in the bays that are most directly fed by undiluted Mississippi River water. The amount of cadmium carried by suspended sediments to the mouth of the Mississippi River has tripled in recent decades. It tends to persist for long periods of time in estuarine environments, and is considerably more toxic to sensitive aquatic species than it is to humans.

Safe Levels:

Up to five micrograms per liter (ug/l) in drinking water is considered safe for humans, but between 1 and 2 ug/l (depending on hardness) can be toxic to sensitive aquatic species.

Levels as Result of Proposed Dumping of Gypsum:

At a flow rate of 300,000 cfs, the proposed discharge would raise the average concentration of cadmium in the Mississippi River from 2.38 ug/l to 2.56 ug/l, a 7.6% increase.

2. MERCURY*:

A toxic heavy metal - only metal for which FDA has established a safe limit for foodstuffs.

Toxic Effects:

Severe nervous system damage, kidney damage, fetal losses, major birth defects.

Route of Exposure:

Eating fish and other seafood taken from waters fed by the Mississippi River. Mercury can be concentrated in fish and other seafood to thousands of times its concentration in the water they live in. It tends to persist for long periods of time in estuarine environments, and is considerably more toxic to sensitive aquatic species than it is to humans.

Safe Levels:

Up to 12 nanograms per liter (ng/l) for aquatic life. EPA considers it safe for humans to drink the water and eat the fish if it doesn't contain more than 144 ng/l of mercury.

Level as Result of Proposed Dumping of Gypsum:

At a flow rate of 300,000 cubic feet per second (cfs), the proposed discharges would raise the average concentration of mercury in the Mississippi River from 150 ng/l to 156 ng/l.

3. RADIUM*:

A naturally occurring radioactive heavy metal.

Toxic Effects:

Ingested radium can cause cancer in bone and in soft tissue of the head, especially in the nasal and paranasal cavities. There is good evidence that it also significantly increases the risk of multiple myeloma. The extent to which it may increase the risk of leukemias is uncertain.

Route of Exposure:

Eating fish and other seafood taken from waters fed by the river. Radium can be concentrated in fish and other aquatic organism to many times its concentration in the water they live in.

Safe Levels:

The national safe drinking water standards say that drinking water must not contain more than 5 picoCuries per liter (pCi/l) from radium. However, the United States Environmental Protection Agency recommends that our goal for maximum radium concentration in drinking water should be zero.

Level as Result of Proposed Dumping of Gypsum:

At a flow rate of 300,000 cfs, the proposed discharge would increase the average radium concentration in the Mississippi River from 0.78 pCi/l, to 2.60 pCi/l, an increase of 233%.

* One of EPA's priority toxic pollutants

Table
PHOSPHOGYPSUM POLLUTANTS (continued)

4. **URANIUM*:**

A naturally occurring radioactive heavy metal.

Toxic Effects:

Ingested uranium can cause cancer of the bone. The extent to which it may increase the risk of other cancers is uncertain. These effects are due to the radioactivity in natural uranium. It also has significant chemical toxicity unrelated to its radioactivity effects. Ingested uranium can cause severe kidney damage.

Route of Exposure:

Eating fish and other seafood taken from waters fed by the river. Uranium can be concentrated in fish and other aquatic organisms to many times its concentration in the water they live in.

Safe Levels:

The national safe drinking water standards say that drinking water must not contain more than 15 ug/l of uranium. However, the EPA recommends that our goal for maximum uranium concentration in drinking water should be zero.

Level as Result of Proposed Dumping of Gypsum:

At a flow rate of 300,000 cfs, the proposed discharges would increase the average uranium concentration in the river from 1.64 ug/l to 3.83 ug/l, a 133% increase.

5. **ALUMINUM:**

A common metal.

Toxic Effects:

Non-toxic to healthy persons except in extremely large doses. However, persons with severe kidney diseases may tend to accumulate aluminum in the bones, where it can cause debilitating, painful, and often deforming bone diseases.

Route of Exposure:

Aluminum in the drinking water may increase the problems of aluminum-related bone disease through ingestion, but an even greater risk occurs when aluminum in the tap water gets through into the fluid used for hemodialysis. Large amounts of aluminum from dialysis fluid can cross into the dialysis patient's blood. Before our increasingly sophisticated systems for purifying water for dialysis were developed, it was very common for dialysis patients to develop not only aluminum-related bone disease, but also a severe encephalopathy known as dialysis dementia caused by deposition of aluminum in the brain. Some public water supplies (such as Orleans Parish) use treatment processes which remove most of the aluminum in raw water. Others (such as Jefferson Parish) use treatment processes which let most of the aluminum get through into the finished water. The special purification processes used for dialysis water reduce the risks considerably, but none can dependably remove all the aluminum from tap water.

Safe Levels:

There is no standard for aluminum content in drinking water.

Level as Result of Proposed Dumping of Gypsum:

Based on the data in EPA's evaluation, at a flow rate of 300,000 cfs, the proposed discharges would increase the average aluminum content of the Mississippi River from 15.7 ug/l to 55.6 ug/l, a 254% increase.

6. **PHOSPHATE:**

An ion composed of oxygen and phosphorus, which is an essential nutrient for the human body. The ratio of the nutrient elements nitrogen and phosphorus in natural waters play a key role in determining the character of their biota.

Toxic Effects:

The additional nutrient loading from the proposed phosphogypsum discharges would be accompanied by a sharp reduction in N:P ratio, since the phosphogypsum is very low in nitrogen. These changes would tend to promote eutrophication, with algal overgrowth and oxygen depletion, in waters fed by the river. They would also tend to promote the growth of blue-green algae over that of green algae. The potential human health effects of these changes are twofold. First, eutrophication in marshes, bays, and bayous fed by the river makes the water more acidic and will tend to increase the solubility and thus, the bioavailability of toxic heavy metals present in the sediments. Second, increase in blue-green algae may promote the accumulation in certain food fish of toxins which can cause significant illness in people who eat fish.

Route Of Exposure:

Eating of certain food fish taken from waters fed by Mississippi River.

Safe Levels:

There are no standards for phosphorus content of drinking water.

Level as Result of Proposed Dumping of Gypsum:

At a flow rate of 300,000 cfs, the proposed discharge would increase the average phosphorus content of the Mississippi River from 0.26 mg/l to 0.61 mg/l, a 135% increase.

* One of EPA's priority toxic pollutants

It should be noted that as of this writing, the Department of Environmental Quality has refused to grant a permit to several industrial companies for dumping millions of tons of phosphogypsum into the Mississippi River. This office feels IT IS DEFINITELY IN THE BEST INTEREST OF THE PUBLIC HEALTH TO KEEP ANY

DISCHARGE OF WASTE PHOSPHO-GYPSUM INTO THE RIVER TO THE ABSOLUTE MINIMUM ACHIEVABLE.

For more information and references, contact the Environmental Epidemiology Section at 504-568-5329.

WILD ANIMALS AS PETS: THE REASONS WHY NOT

The Epidemiology Section has received several calls this past year regarding the problems and possible danger of keeping wild animals as pets, or in domesticating wild animals to a point where the animals look to humans for their meals on a regular basis.

The danger of keeping wild animals as pets and the necessity of seeking medical attention after accidental exposure to a wild animal cannot be over emphasized. A number of states have enacted legislation against owning and/or selling wild animals. There are two reasons for this: (1) Many owners tire of the specialized care required by these animals and either release them to a hostile environment or maintain them in inhumane living conditions; (2) Health concerns center around the fact that rabies has occurred in numerous species that were captured in the wild and then kept or sold as pets.¹ The Center For Disease Control, the National Association of State Public Health Veterinarians, Inc., The American Veterinary Medical Association and the Conference of State and Territorial Epidemiologist "strongly recommend the enactment of state laws prohibiting the interstate importation, distribution and relocation of wild animals." In addition, these same organizations recommend "the enactment of laws prohibiting the distribution and/or ownership of wild

animals as pets."

Wild animals acquired as pets pose a number of real and/or potential health hazards to humans with whom they come into contact. Numerous reports have associated salmonellosis with turtles sold as pets.² Parakeets and some other tropical birds may harbor psittacosis if they have undergone inadequate prophylactic tetracycline treatment after importation; pigeons and doves, however, are also among the avian species that can serve as reservoirs. Additionally, pigeons and other birds indigenous to this country can be sources of histoplasmosis. Wild rabbits captured and kept as pets could transmit tularemia to humans if mishandled. This disease has also been acquired from many animals, including deer, foxes, coyotes, woodchucks, sheep, skunks, squirrels, opossums and water rats, cats and dogs.³

Another infectious disease threat associated with wild animals is leptospirosis, which has been documented among not only people who have had contact with water contaminated with urine from infected animals but also among children who have played with infected animals such as rodents.⁴ A few cases of lymphocytic choriomeningitis have been associated with handling of infected wild mice.⁵ Also, the ectoparasites, such

as ticks and fleas, which commonly afflict many species of wild animals (deer, rabbits, etc.) represent a potentially serious health hazard. Systemic and enteric parasites also are prevalent among some animals. For example, human giardiasis has been linked to contamination of water sources by beavers and deer. Direct fecal-oral transmission might occur among people in contact with such wild species. Further, a recent report documents a fatal human case of a variant strain of visceral larva migrans acquired from a raccoon.⁶

In addition to the infectious disease problems mentioned, the bites of many wild animals can be quite serious from the standpoint of the sheer trauma involved, with its inherent secondary problems of wound infections, etc. In particular, raccoons, ferrets, canines such as foxes and wolves, various monkeys and other simian species, and even squirrels can inflict quite nasty bite wounds. In recent years the ferret, a descendant of the European polecat has been marketed as an ideal exotic pet. However, they are susceptible to rabies (at least seven pet ferrets in the United States have developed rabies) and capable of vicious biting without provocation. Ferrets have been responsible for one infant death and several maulings of young children including facial bites with loss of ears, noses and other exposed parts of their bodies.⁷ Attacks occur so fast that injury is not preventable. Responsible parents are encouraged to consider more suitable pets for their children. The wild cats such as bobcats, leopards, lynx, and lions sometimes cause injury through both bites and claws among both experienced and inexperienced human handlers. Of course, the danger involved in keeping poisonous snakes is obvious.

Raccoons, because of their cute appearance and playful habits, especially when young, are frequently taken in as

pets. However, these animals do pose a very real danger to human health and safety. Even animals purchased from pet stores and reported as being "pen bred" may not be safe.

Persons who keep captive raccoons must understand that there is no way to determine if any animal captured in the wild is incubating rabies and no rabies vaccine is licensed for use in wild animals. The incubation period for rabies can be as long as 107 days. Furthermore, rabies virus has been recovered from the saliva of raccoons which showed no signs of clinical illness.

Those who find an orphan baby wild animal should be fully aware of the risks in attempting to raise the animal. Further, it must be remembered that considerable expertise is required to adequately raise some species and return them to the wild. In most instances, attempting to raise a wild animal in captivity is unwise. People considering doing so should contact the closest Humane Society (Animal Rescue League, Society for the Prevention of Cruelty to Animals, etc.) a veterinarian, and/or the nearest zoo for counselling/information. In the case of sick or injured wild animals, humane euthanasia may be the wisest course. Humane Society and Game and Fresh Water Fish Commission (GFWFC) representatives should be contacted for advice.

REFERENCES:

1. CDC, Compendium of Animal Rabies Vaccines, 1983. Prepared by the National Association of State Public Health Veterinarians, Inc., MMWR, 1982; Vol. 31, No. 22, pp. 685-694.
2. Beneson, AS (Ed.): Control of Communicable Diseases in Man,

14th Ed., American Public Health Association, Washington, D.C., 1985.

3. Alexander, HE: Tularemia. In: Barnett, HC (Ed.). Pediatrics. 15th Edition Appleton Century Crofts, New York, p. 691, 1972.
4. Alexander, HE: Leptospirosis. In: Ibid., p. 621.
5. Florman, AL: Lymphocytic Choriomeningitis. In: Ibid, pp. 728-729.
6. Fox, AS, Kazacos, KR, Could, NS, et. al: Fatal Eosinophilic Men-

ingoencephalitis and Visceral Larva Migrans Caused by the Raccoon Ascarid Baylisascaris Procyonis. New England Journal of Medicine, 312:25, 1619-1623, 1985.

7. Middaugh, J., Ferrets - A New Menace to Health; Epidemiology Bulletin, State of Alaska, No.9, June 6, 1986.

Adapted from Phillips, B.J. and Conwill, D.E. Mississippi Morbidity Report Volume 4, Number 11, 1986, and Prather E. Charlton, Florida Morbidity Report, Volume 8, Issue 7, January, 1987.

LOUISIANA AIDS UPDATE

	CASES	DEATHS	PERCENT
TOTAL, 1986	136	54	40
TOTAL, ALL YEARS (as of 12/31/86)	349	229	66

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1986)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
REPORTED MORBIDITY NOVEMBER, 1986																			
TOTAL TO DATE 1985	42	0	2	17	1	74	185	182	3	1	27	42	327	1	221	4	19907	1013	19
TOTAL TO DATE 1986	4	0	3	15	5	95	146	249	5	18	23	255	349	1	409	3	16738	847	22
TOTAL THIS MONTH	0	0	0	2	0	11	16	22	1	1	1	34	12	0	68	0	953	62	3
ACADIA								1							2		3		
ALLEN																	5	1	
ASCENSION												1					4		
ASSUMPTION																	1		
AVOUELLES																	5		4
BEAUREGARD																	1		
BIENVILLE																	2		2
BOSSIER							1								1		10		5
CADDO						5	2					16	1		15		122		2
CALCASIEU															2		42	1	
CALDWELL																	1		
CAMERON																			
CATAHOULA																	4		
CLAIBORNE																	3	1	
CONCORDIA																	3		
DESOTO																	1		
EAST BATON ROUGE						1	1	2				1	1		7		62	11	
EAST CARROLL																	2	1	
EAST FELICIANA																			
EVANGELINE															1				
FRANKLIN																		1	
GRANT																		1	
IBERIA								3							1		18		
IBERVILLE						1							1				1	1	
JACKSON																			
JEFFERSON				1			5	4					1		7		23	3	
JEFFERSON DAVIS																	3	1	
LAFAYETTE						3									3		36		
LAFOURCHE													1		1		10	6	
LASALLE																			
LINCOLN																	8		
LIVINGSTON																		1	
MADISON						1	1										4		
MOREHOUSE																	7	1	
NATCHITOCHE																	1		1
ORLEANS				1			2	10	1	1		1	3		10		357	26	
OUACHITA							1					4	3				27		2
PLAQUEMINES																	4		
POINTE COUPEE																	4		
RAPIDES												1			5		62	1	6
RED RIVER																			
RICHLAND																			
SABINE																			
ST. BERNARD																	3		
ST. CHARLES																	3		
ST. HELENA												1					1		
ST. JAMES																	1		
ST. JOHN							1								1		7		
ST. LANDRY								1									8	3	
ST. MARTIN																	6		
ST. MARY															1		2		
ST. TAMMANY													1		4		6		
TANGIPAHOA																	9	1	
TENSAS																			
TERREBONNE												7			5		13	3	
UNION															1				
VERMILION							1								1				
VERNON							1	1									32		
WASHINGTON													2				1		
WEBSTER																	14		
WEST BATON ROUGE												1					6		
WEST CARROLL																			
WEST FELICIANA																		1	
WINN																		1	
OUT OF STATE																		1	

From January 1, 1986 - November 30, 1986, the following cases were also reported:

4-Amebiasis, 1-Brucellosis, 18-Cholera, 1-Psittacosis, 2-Reye Syndrome, 1-Rocky Mountain Spotted Fever, 1-Tularemia, 1-Typhus Fever, Endemic.

* Includes Rubella, Congenital Syndrome.

** Includes 21 cases of Hepatitis Non A, Non B.

*** Acquired outside United States unless otherwise stated.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1986)	
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS															
REPORTED MORBIDITY DECEMBER, 1986																				
TOTAL TO DATE 1985	42	0	2	18	1	87	193	212	3	4	28	50	345	3	264	4	21291	1081	20	
TOTAL TO DATE 1986	4	0	8	16	6	131	163	291	5	19	25	284	382	3	513	3	17792	917	22	
TOTAL THIS MONTH	0	0	5	1	1	36	18	42	0	1	2	29	33	2	104	0	1067	70	0	
ACADIA							1	2				2					6	1		
ALLEN																	3	1		
ASCENSION																	5			
ASSUMPTION															1		2	1		
AVOYELLES													1				2		4	
BEAUREGARD													1				2			
BIENVILLE																	2		2	
BOSSIER						6											7		5	
CADDO						18		1				8	1		21		79		2	
CALCASTEU															5		32			
CALDWELL																	5			
CAMERON																				
CATAHOULA																	2			
CLAIBORNE						1											2	10		
CONCORDIA																	4	5		
DESOTO						2														
EAST BATON ROUGE			4		1	2		2							5		57	2		
EAST CARROLL																	9			
EAST FELICIANA																			1	
EVANGELINE																	1	2		
FRANKLIN																	3			
GRANT													1		1		1			
IBERIA								3							1		9	2		
IBERVILLE													2		2		7			
JACKSON																	5			
JEFFERSON							8	11		1			3		17		73	2		
JEFFERSON DAVIS																	2			
LAFAYETTE						1	1	4				4			13		53	4		
LAFORCHE																	25	4		
LASALLE																				
LINCOLN						1											14			
LIVINGSTON																				
MADISON												6					9	3		
MOREHOUSE													1				26			
NATCHITOCHE																			1	
ORLEANS						1	4	11			2	2	11		20		317	17		
OUACHITA							1					6	6		3		88		2	
PLAQUEMINES																			1	
POINTE COUPEE																	4			
RAPIDES			1												7		28		6	
RED RIVER																				
RICHLAND																	11			
SABINE																			1	
ST. BERNARD								2												
ST. CHARLES				1													4			
ST. HELENA																			1	
ST. JAMES													1				8			
ST. JOHN								1						1			14			
ST. LANDRY						1		1				1					33	4		
ST. MARTIN						1		1							3		12	1		
ST. MARY						1											15			
ST. TAMMANY								2				1			2		11			
TANGIPAOHA																	2	3		
TENSAS																	3			
TERREBONNE												1			2		28	4		
UNION																	1			
VERMILION															1		2			
VERNON								1									13			
WASHINGTON																	6			
WEBSTER						1	2						2		1		9			
WEST BATON ROUGE																	6			
WEST CARROLL							1										4			
WEST FELICIANA																				
WINN													1							
OUT OF STATE																	1			

From January 1, 1986 - December 31, 1986, the following cases were also reported:

4-Amebiasis, 1-Brucellosis, 18-Cholera, 1-Leptospirosis, 2-Psittacosis, 3-Reye Syndrome, 1-Rocky Mountain Spotted Fever, 1-Tularemia, 1-Typhus Fever, Endemic.

* Includes Rubella, Congenital Syndrome.

** Includes 23 cases of Hepatitis Non A, Non B.

*** Acquired outside United States unless otherwise stated.

RAOULT C RATARD MD
4109 CLEVELAND PL
METAIRIE LA 70003

04591R

BULK RATE
U.S. POSTAGE
PAID
NEW ORLEANS, LA
PERMIT NO. 471

Department of Health and Human Resources
Office of Preventive and Public Health Services
P.O. Box 60630, New Orleans, LA 70160

This public document was published at a total cost of \$1825. 6500 copies of this public document were published in this first printing at a cost of \$572. This document was published for the Office of Preventive and Public Health Services by the Office of Management and Finance, Printing Operations, Baton Rouge, Louisiana to inform physicians, hospitals, and the public of current Louisiana morbidity status under authority of R.S. 40:36. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31.