

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
WATER QUALITY STANDARDS AND)
EFFLUENT LIMITATIONS FOR THE) R08-9
CHICAGO AREA WATERWAY SYSTEM) (Rulemaking – Water)
AND THE LOWER DES PLAINES RIVER:)
PROPOSED AMENDMENTS TO 35 ILL..)
ADM. CODE PARTS 301, 302, 303 and 304)

NOTICE OF FILING

To: see attached Service List

PLEASE TAKE NOTICE that on the 4th Day of August, 2008, I filed with the Office of the Clerk of the Illinois Pollution Control Board the attached Prefiled Testimony of Peter Orris, M.D., M.P.H., a copy of which is hereby served upon you.



By: _____
Ann Alexander, Natural Resources Defense Council

Dated: August 4, 2008

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CERTIFICATE OF SERVICE

I, Ann Alexander, the undersigned attorney, hereby certify that I have served the attached Prefiled Testimony of Peter Orris, M.D., M.P.H. on all parties of record (Service List attached), by depositing said documents in the United States Mail, postage prepaid, from 227 W. Monroe, Chicago, IL 60606, before the hour of 5:00 p.m., on this 4th Day of August, 2008.

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Testimony of Peter Orris, M.D., M.P.H.

Introduction

My name is Dr. Peter Orris. I am a Professor and Chief of Occupational and Environmental Medicine at the University of Illinois at Chicago (“UIC”) Medical Center. I am pleased to offer testimony today on behalf of Natural Resources Defense Council, Environmental Law and Policy Center, Sierra Club – Illinois Chapter, Friends of the Chicago River, and Openlands in support of the regulations proposed by Illinois Environmental Protection Agency (“IEPA”) that would require disinfection of effluent from the Metropolitan Water Reclamation District (“MWRD”) wastewater treatment plants (“WWTPs”) discharging into the Chicago Area Waterway System (“CAWS”). Today’s testimony recaps and reiterates my earlier affidavit in opposition to the motion to stay proceedings filed by MWRD.

I fully support the MWRD’s emphasis on increasing our knowledge of the health effects of human usage of the waterways in the Chicago area through the design and implementation of epidemiological studies. These studies may well add to our understanding of human health effects of recreational use of these waterways, and may have implications for other settings as well. Such studies may aid in crafting preventive policies for the safe use of these waterways.

Yet, based on my extensive experience with the science of epidemiology, and my understanding of both its capabilities and limits, I believe that delaying disinfection at the MWRD facilities pending the outcome of the single study being conducted by my colleagues at the UIC School of Public Health on behalf of MWRD would be seriously misguided. It has long been established that waterborne pathogens associated with sewage are hazardous to public health. Perhaps no other area of medicine has been as well established for as long. No single epidemiological study – no matter how well designed and executed, and no matter what the ultimate result – is a sufficient basis to refuse to address waterborne pathogens in the CAWS.

An epidemiological study gives us the risk of events that may occur to a certain number of individuals within a population. In this situation, we are concerned in substantial part with unexpected events (falling in the water) affecting especially

vulnerable individuals, such as young children, and having potentially dire effects. This scenario is not susceptible to epidemiological conclusions about risk in the establishment of precautionary public policy. This precautionary rationale suggests, for instance, that a community should not hesitate to install a traffic light on a street corner because an epidemiological study indicated that only one child in the neighborhood was likely to die at the corner each decade if everyone obeyed the speed limits.

This reality is reflected in the proposed regulations of the IEPA, as well as in current practice in Illinois and throughout the nation. I support this approach, and believe it is appropriate public policy based on our current knowledge of the use of the waterways and potential hazard of exposure to waterborne pathogens.

Qualifications

A copy of my curriculum vitae is attached as Exhibit 1.

My educational degrees include the following: (a) M.D., Chicago Medical School, 1975; (b) Master of Public Health, Yale University, 1970; and (c) B.A., Harvard College, 1967.

My current professional appointments include the following: (a) Adjunct Professor of Occupational and Environmental Medicine and Chief of Service, Occupational and Environmental Medicine, UIC Medical Center, (b) Director, Occupational Health Services Institute (the "Institute"), Great Lakes Center for Occupational & Environmental Safety & Health, UIC School of Public Health; (c) Professor of Internal and Preventive Medicine, Rush University College of Medicine; (d) Adjunct Professor of Preventive Medicine, Northwestern University Feinberg School of Medicine; (e) Attending Physician, Stroger Hospital of Cook County.

As detailed in Exhibit 1, I have published peer-reviewed academic journal articles on issues pertaining to public health, and have extensive experience as an editor and reviewer of public health journals.

As a public health specialist, I have extensive opportunity and need to review epidemiological research and, where appropriate, apply it in my professional decisionmaking – both as a treating physician and as a policy specialist. During the decade I have served as Director of the Great Lakes Center's Health Hazard Evaluation Program, I have been responsible, among other things, for a joint initiative with the Illinois Department of Public Health that provides industry and communities with expertise in the planning and execution of environmental epidemiological studies.

Risks of waterborne pathogens associated with sewage

It is well established that pathogens associated with human sewage can cause serious illness. There are many hundreds of bacteria, viruses, and parasites that can be

present in water contaminated with undisinfected sewage. Many of them are quite dangerous to humans if the water is ingested, even in small amounts.

These waterborne pathogens are particularly dangerous to children, the elderly, pregnant women, and those with compromised immune systems such as people undergoing chemotherapy. These sensitive populations are more likely to contract serious illness from contact with sewage-contaminated water, and any resulting infection is likely to be more severe and dangerous than it would be for a healthy adult.

A few examples of some of the dangerous pathogens generally associated with ingesting sewage-contaminated water, and the illnesses they cause, are as follows:

- Cryptosporidium. Causes: diarrhea (which can lead to dehydration and other complications in sensitive populations). Cryptosporidium in drinking water caused the largest documented waterborne disease outbreak in U.S. history in Milwaukee in 1993, resulting in more than 400,000 illnesses and 100 deaths.
- Campylobacter. Causes: gastroenteritis (symptoms include nausea, vomiting, diarrhea, and abdominal pain). There are about 4 million cases of campylobacter infection per year in the U.S.
- Giardia lamblia. Causes: diarrhea. Giardia may be the most common cause of non-bacterial diarrhea in North America. Infections may be difficult to treat and can last for many months.
- Hepatitis A virus. Causes: infectious hepatitis. Hepatitis A tends to occur in epidemics and outbreaks, because many people infected by the virus do not themselves become ill but can spread the disease to others.
- Coxsackie virus. Causes: hemorrhagic conjunctivitis, can in some cases lead to viral meningitis, encephalitis, and myocarditis (infection of the heart muscle). The coxsackie virus believed to cause more than 10 million symptomatic infections per year in the U.S.
- Echovirus. Causes: fever, diarrhea, meningitis. Echovirus primarily infects children, and can cause severe illness. Echoviruses are believed to cause more than 10 million symptomatic infections per year in the U.S.
- Salmonella. Causes: salmonellosis (resulting in diarrhea, fever, vomiting, cramps, and on occasion long-term reactive arthritis), typhoid. Salmonella is one of the most common waterborne pathogens, and causes 2 to 4 million cases of illness per year in the U.S.
- Rotavirus. Causes: diarrhea, vomiting. Rotavirus is a leading cause of diarrhea in young children in the U.S.

- Pathogenic E. coli. Causes: gastroenteritis, and potentially hemolytic uremic syndrome. Hemolytic uremic syndrome can lead to permanent kidney damage or death. Young children and the elderly are particularly vulnerable to this illness.

I have reviewed a summary of sampling data collected by MWRD and posted to its web site, <http://www.mwrddc.dst.il.us/>. I have also reviewed charts summarizing this and related related data prepared by the United States Environmental Protection Agency (“USEPA”) Region 5, attached as Exhibit 2.¹ The data shows high levels of both fecal coliform and E. coli indicator bacteria (note that the indicator strain of E. coli bacteria is distinct from the pathogenic, i.e., disease-causing, strain of E. coli bacteria).

Indicator bacteria are not a perfect reflection of pathogenic bacteria levels, and do not provide specific information as to the precise pathogens present in water at any given time. However, high levels of indicator bacteria are strongly associated with the concomitant presence of harmful waterborne pathogens. Indeed, indicator bacteria often under-predict the presence of human pathogens, because many such pathogens are present even in the absence of the indicator bacteria. Here, the high levels of indicator bacteria found in the CAWS are very likely correlated with the presence of waterborne pathogens that threaten human health.

Ingestion of relatively small amounts of sewage-contaminated water can result in infection. Thus, accidental ingestion of a mouthful of water during boating or other recreational activity, for example from falling out of a canoe or kayak or falling into the water while wading, carries a risk of illness.

Limits of epidemiological studies for assessing risk

I am aware that my colleague, Sam Dorevitch, MD, MPH, a UIC School of Public Health Assistant Professor, is the principle researcher on an epidemiological study being conducted for MWRD. The purpose of the study is to further understand the health risks to humans from the recreational use of the CAWS, including secondary contact activities such as canoeing, kayaking, rowing, fishing, and other related activities.

I have the utmost respect for Dr. Dorevitch. While I have not reviewed his methodology in detail, I believe based on the study plans and design that it is a balanced, well designed study which will produce useful information. I know Dr. Dorevitch to be a thorough and highly competent scientist who has a reputation for high-quality work.

¹I have also reviewed the Dry and Wet Weather Risk Assessment of Human Health Impacts of Disinfection or No Disinfection of the Chicago Area Waterway System (CAWS) prepared by Geosyntec Consultants (the “Risk Assessment”) prepared for MWRD by Geosyntec Consultants. A full analysis of the Risk Assessment is beyond the scope of my testimony. However, I note in passing that the Risk Assessment does not look at all of the pathogens that can be associated with undisinfected wastewater, or even a substantial number of those I have listed above. Also, the Risk Assessment looks only at gastrointestinal illness and not other types of waterborne illness.

However, for the reasons stated above, I do not believe that the epidemiologic study being conducted by Dr. Dorevitch is a sufficient basis to delay implementation of the vitally important regulations proposed by IEPA requiring disinfection of MWRD sewage effluent. Even assuming the study does not identify an increased rate of health problems amongst the subjects, such a result would in no way provide a sufficient basis to conclude that disinfection is unnecessary, because it would not fully reflect the potential danger of unintended ingestions and significant exposures to especially vulnerable individuals.

More specifically, it would be ill advised to draw policy conclusions – particularly conclusions on so well documented, and historically important, a subject as protecting the public from waterborne pathogens – from any negative result in a single epidemiological study. Epidemiological studies are by nature blunt instruments, based in our everyday world with multiple influences. They require repetition and the study of large populations. Illness in recreational users of the CAWS may well be missed even in this excellent first epidemiologic look at this issue.

A complicating factor with respect to the ability of this study to identify disease amongst these recreational users of the CAWS is the issue of particularly vulnerable subgroups of subjects, e.g. young children. That is, even if a researcher has a large overall population sample, if the researcher is attempting to gather data concerning isolated subsets of that sample, then each of those subsets must be large enough to produce a statistically reliable result.

Compounding the problem is the fact that even within these higher-risk subgroups, the highest risk is to those who actually fall into the water. The likelihood of amassing a sufficiently large cohort of study participants who have fallen in the water while using the CAWS is remote. There may be real and very significant risk associated with falling in, particularly to vulnerable sub-groups, but that level of risk would likely be masked by data associated with lower-risk uses, resulting in a false negative result.

An additional limitation specific to epidemiological studies concerning waterborne pathogens is that the presence of those pathogens is highly dependent on ephemeral variables. That is, the actual number of disease-causing bacteria, viruses and parasites varies greatly according to such ever-changing factors as the amount of sunlight hitting the water and the water temperature. Thus, users in one part of the water where these variables are increasing the level of pathogens (e.g., higher temperature waters) might have significantly higher illness rates than users in another part of the water where these variables result in lower levels of pathogens (e.g., lower temperature waters). But when these results are lumped together, they would statistically cancel each other out, creating an overall negative result.

Conclusions

I am a strong supporter of scientific research, and am very pleased that UIC is involved, through Dr. Dorevitch, in the epidemiological study of CAWS recreational use.

I will be very interested to see the results of the study when they are finally available, whether they are positive or negative in terms of a finding of risk.

However, I believe it would be a serious mistake to place too much significance on any possible negative result of the study, and an even more serious mistake to delay disinfection of the CAWS pending the results of the study. Every year in which disinfection does not occur puts users of the CAWS at risk of infection, and discourages additional members of the public from making full use of the waterway out of fear for their health and safety. It would be improper to use the mere possibility of negative epidemiological study results as a reason to prolong the risk to the public from sewage-contaminated water.



Peter Orris, M.D., M.P.H.

EXHIBIT 1

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June 1, 2008

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EDUCATION

Undergraduate
Graduate

1967 B.A.
1970 M.P.H.
1975 M.D.

Harvard College
Yale University
Chicago Medical School

Residencies

1975-8 Internal Medicine
1977-9 Occupational Med.

Cook County Hospital
Cook County Hospital

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1965 Bio-medical Electronics
1968 Advanced Circuit Theory
1979 UICC/ILO System of
Radiographic Evaluation
of Pneumoconiosis
1995,7+ Medical Review Officer
2001,3 training Courses

Harvard University
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American College of
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CERTIFICATION AND LICENSES

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State of Illinois, Physician and Surgeon, #36-53014

1979-

Diplomat, American Board of Preventive Medicine
in Occupational Medicine

2001-

Certified Medical Review Officer #01-04536

POSITIONS

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Chief of Service, Occupational and Environmental Medicine
University of Illinois at Chicago Hospital and Medical Center

2000-

Director, Global Chemicals Policy Center, Great Lakes Centers For
Occupational & Environmental Safety & Hlth, UIC School of Public
Health,

1999-

Director, Occupational Health Services Institute, UIC School of Public

1979- Health,
Senior Attending Physician (Voluntary), Stroger Hospital of Cook County

ACADEMIC APPOINTMENTS

Professor of Internal and Preventive Medicine
Rush University College of Medicine
Adjunct Professor of Environmental & Occupational Health Sciences
University of Illinois at Chicago School of Public Health
Adjunct Professor of Preventive Medicine
Northwestern University Medical School

HOSPITAL STAFF APPOINTMENTS

2005- Rush University Medical Center (Attending)
1999- U. of I. Hosp & Medical Center (Attending)
1979- Cook County Hospital (Voluntary Senior Attending)

AWARDS AND HONORS

2007 Humanitarian For Healthcare Award, Cook County Board, Illinois
2007 Letter of Congratulations from the Governor of Illinois
2006 Certificate of Appreciation, World Federation of Public Health Assoc.
2005 Selection as a "Best Doctor" in the United States, Castle Connelly Pub
2005 Outstanding Service Award, Executive Medical Staff of Stroger Hosp.
2004 Certificate of Appreciation, University of the Philippines, Manila
2003 Certificate of Appreciation, Illinois State Medical Society
2001 Certificate of Appreciation, Arab Community Center for Economic and
Social Services Community Health and Research Center, Dearborn, MI
2001 Selection as a "Top Doctor" in Chicago Metro Area, Castle-Connolly
2000 Certificate of Appreciation, World Federation of Public Health Assoc.
1999 Certificates of Appreciation, American Medical Student Association, APHA
Occupational Health & Safety Section, Mt. Sinai Family Practice, Air and
Waste Management Association
1998 Certificates of Appreciation- Greenpeace USA, Peace Corps, Chicago
Medical Society
1992- Fellow, American College of Physicians
1988- Fellow, American Collge of Occupational and Environmental Medicine
1986 Certificate of Recognition, Health Policy Agenda For the Amer People
1984-8 Fellow, American Academy of Occupational Medicine
1981 Certificate of Appreciation, Nat'l Safety Council
1980-9 Fellow, American College of Preventive Medicine
1973 Ciba Community Affairs Award

PROFESSIONAL JOURNAL ACTIVITIES

Canadian Medical Association Journal (reviewer)
American Journal of Industrial Medicine (Contributing Editor)
Journal of Public Health Policy (Management Committee & Editorial Board)

Revista Cubana De Salud Y Trabajo (Member, Editorial Board)
New Solutions (Member, Editorial Board)
American Journal of Public Health, (Reviewer)
Environmental Research (Reviewer)
Journal of the American Medical Association (Reviewer)
Journal of Occupational and Environmental Medicine (Reviewer)
Journal of Health Services Research (Reviewer)
Environmental Toxicology and Pharmacology Journal (Reviewer)

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American Public Health Association
Association of Occupational and Environmental Health Clinics
Central States Occupational Medical Association
Cook County & Illinois State Medical Societies
Illinois Public Health Association
International Commission on Occupational Health
Medical Directors Club of Chicago
Physicians for a National Health Program
Physicians Forum
Physicians for Social Responsibility
Society for Occupational and Environmental Health

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2006-	Doctors Council, Cook County Bureau of Health Services, SEIU	200
2005-	Immediate Past President, Stroger Hospital Medical Staff	
1982-	Institutional Review Board, Cook County Bureau of Health Services (Co-Chair, 1991-4, Chair, 1994-2007)	

Professional Societies:

2007-	Chair, Public Health and Environment Committee of the World Federation of Public Health Associations
2002-	Director of Continuing Medical Education, Medical Directors Club of Chicago
1999-	Policy Committee, World Federation of Public Health Associations
1997-	Director, World Federation of Public Health Associations Persistent Organic Pollutants Project – Human Health Effects of Chemicals Project.
1993-	Delegate, Illinois State Medical Society
1992-	Councilor, Chicago Medical Society

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2007-	Member, Scientific Advisory Committee, World Trade Center Medical Programs, Mount Sinai School of Medicine, New York
2006-	Member, State of Illinois Board of Health

2005- Advisor, United Nations Development Program/Global Environmental Facility Health Care Waste Project
2004- Advisor, Healthy Schools Campaign
2004- Member, Board of Directors, Safer Pest Control Project
2002- Member, Executive Board, Illinois Safety Council
2001- Member, Board of Directors, Hecktoen Institute For Medical Research
2001- Advisor, Community Organizations in Chicago, Mossville, Norco, and New Sarpy, Louisiana, and Durban, South Africa.
2001- Member, Working Group on Occupational Health and Safety Intergovernmental Forum on Chemical Safety (IFCS)
2000- Medical Advisor, AFSCME Council 31
2000- Medical Advisor, Midwest Generation, LLC
1998- Advisor, Health Care Without Harm
1996- Senior Medical Advisor, Greenpeace, USA
1995- Medical Advisory Committee, John Redmond Foundation, International Association of Firefighters, AFL-CIO
1995- US Co- Chair, Health Professionals Task Force, International Joint Commission of the US and Canada
1993- Medical Advisory Com., Intern'l Brotherhood of Teamsters, AFL-CIO
1991- Hazmat Project Adv Bd, Service Employees Interntl Union, AFL-CIO

GOVERNMENT CONTRACTS:

2002 Contract X97523001-0, \$15,000, for consulting to EPA Central Office by organizing and performing a Peer Review of a report.
2004 Contract 200-199-00058, \$2,000 through Eastern Research Group for consulting to ATSDR by performing a Peer Review of a report
2007 Technical Medical Review of Commercial Truck and Bus safety Synthesis Program - Synthesis 15, for Federal Motor Carrier Safety Administration, "Health and Wellness Programs for Commercial Drivers" Krueger, G.P. et al Transportation Research Board, National Academies, Washington, D.C. 2007

BIBLIOGRAPHY

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- Orris, P. Sociology of Health and Medical Care: Citizen Involvement in Cuba: 1959-1980 Sociology of Medicine Series, No. 81, Red Feather Institute for Advanced Studies in Sociology, Livermore, Colorado, December, 1980, Revised September, 1981,
- John, E.R., Kimmelman, D.R, Haas, J., Orris, P.. The Cuban Health System Social Policy. 1971 Jan; 41-46,

Other Refereed Material:

- Halpin, J., Buchanan, S., Orris P., Hotel Housekeeper Injuries: Analysis In The Face Of Incomplete Data, (Abstract) International Commission on Occupational Health, Milan, Italy June 2006
- Orris, P. Dioxins and Health by Schechter and Gasiewicz, (book review), Journal of Occupational & Environmental Medicine, JOEM, 47:4, April 2005, P. 436
- Orris, P. Fifty Years of Hope and Concern for the Future Of Occupational Medicine (letter), JOEM, 46:6, June 2004, P. 515
- Meeks, P., Orris, P. Petrochemical Production And Community Health (Abstract) Proceedings, Eighth World Congress on Environmental Health, Durban, South Africa, February 24, 2004
- Orris, P. Forst, L. Obstacles And Opportunities Presented By Globalization For Occupational And Environmental Health (Abstract) Proceedings, Eighth World Congress on Environmental Health, Durban, South Africa, February 23, 2004
- Obafemi, A. Orris, P. Lead Toxicokinetics and Treatment, Proceedings International Seminar on Environmental and Occupational Lead Intoxication, Havana, Cuba, May, 1999, (in Press)
- Frumkin, H., Orris, P., Evidence of Excess Cancer Mortality in a Cohort of Workers Exposed to Polychlorinated Biphenyls (Letter), JOEM, 1999 Sept; 41(9), 741-2
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- Connett, P. et. al. Deep Concern about ICEM-CCC Sustainability Agreement (Letter), New Solutions, 1997; 7(3), 10-12
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- Orris, P., Book Review: Healing the Masses: Cuban Health Politics at Home and Abroad, Jr of Pub Hlth Pol, 1996; 17(2), 244-6
- Orris, P. Controversy Over Chlorine: A Proposal by Peter Orris, New Solutions, 1993; 4(1), 3-4
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- Orris, P., Unjustified Conclusion?(Letter) Jour of Occup Med, 1981 Jan; 23(1), 7
- Orris, P., The Role of the Consumer in the Cuban National Health System Master's Thesis, Yale University School of Public Health, February, 1970

Books, Book Chapters, and Monographs:

- Derr, J. Orris, P. Persistent Organic Pollutants (Chap. 45) in Textbook of Clinical Occupational and Environmental Medicine (Rosenstock, Cullen, Brodtkin, Redlich editors), Elsevier Saunders, 2005, P. 1061-73
- Orris, P. (Medical Consultant) Complete Medical Encyclopedia, Leikin, JB., Lipsky, MS., Editors, American Medical Association, Random House, New York, 2003
- Forst, L, Orris, P. (Ed) Ethics in the Workplace, State of the Art Reviews in Occupational Medicine, Oct –Dec, 2002, 17:4
- Mulloy, K, Orris, P., August, J. (Ed) Health and Safety of Municipal Employees, State of the Art Reviews in Occupational Medicine, Jan, 2001, 16:1,
- Orris, P., Katz-Chary, L., Perry, K, Asbury, J Persistent Organic Pollutants and Human Health, World Federation of Public Health Associations, May, 2000, Washington, DC
- Ross, M., Orris, P., Chlorine and Organochlorine Compounds, in Secrets of Occupational Medicine, Hanley Belfus, Philadelphia, 1999, P. 43-52
- Orris, P. (Ed) Occupational Health in the United States, Encyclopedia of Occupational Safety and Health, 4th Edition, International Labor Organization, Geneva, 1998; 16.32-44
- Orris, P. Morris, SL. Occupational Health in the United States:Introduction, Encyclopedia of Occupational Safety and Health, 4th Edition, International Labor Organization, Geneva, 1998; 16.32
- Orris, P., Melius, J., Duffy, R. (Eds) Firefighters' Safety and Health, State of the Art Reviews in Occupational Medicine, Hanley & Belfus, Philadelphia, 10:4, Oct- Dec, 1995
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- Orris, P. Cuban Health Care: A Case Study in Consumer Control. in Modern and Traditional Health Care in Developing Societies, University Press of America, Lanham, Mass. 1988
- Orris, P., Hessel, S., and Hryhorczuk, D.: Occupational Medicine a chapter in Preventive Medicine and Public Health, John Wiley and Sons, New York, 1987

Governmental Reports:

- Orris, P. Technical Medical Review of Commercial Truck and Bus safety Synthesis Program - Synthesis 15, sponsored by Federal Motor Carrier Safety Administration, "Health and Wellness Programs for Commercial Drivers" Krueger, G.P. et al., Transportation Research Board, National Academies, Washington, D.C. 2007
- Orris, P., Buchanan, S. Smiley, A., Davis, D., Dinges, D., Bergoffen, G. Literature Review on Health and Fatigue Issues Associated with Commercial Motor Vehicle Driver Hours of Work, Synthesis 9, Commercial Truck And Bus Safety Synthesis Program, Transportation Research Board, National Academy of Sciences – National Research Council, for the Federal Motor Carrier Safety Administration, May 05
- Health Professionals Task Force (Orris, P. Co-Chair), Great Lakes Fish Consumption Advisories: The Public Health Benefits and Risks, International Joint Commission (US – Canadian treaty organization) Jan 2004
- Goss, T.I., Turnbull, A., Nair, R., Smith, L., Orris, P., Da Ros, A., Cragg, S. Marchand, D. (Goss Gilroy Inc.) Health Study of Canadian Forces Personnel, prepared for the Gulf War Illness Advisory Committee,

Department of National Defense, Federal Government of Canada, May, 1998

Illinois Health Hazard Evaluation Reports published by the Illinois Health Hazard Evaluation Program, a joint Project of the University of Illinois School of Public Health and the Illinois Department of Public Health

Springs-Phillips, S. Pye, H. Orris, P. Outbreak Investigation: International Interior Design Association, IHHE 98H-001, 1998 July; 1-11

Orris, P. Hartman, D. Strauss, P. Collins, J. Knopp, C. Xu, Y. Anderson, R. Initial Findings and Recommendations Concerning the Psychological Effects of the Working Conditions of Package Truck Drivers at the United Parcel Service, IHHE Report 93-004, June, 1993

Hryhorczuck, D. Suero, M. Conroy, L. Orris, P. Toxicity Review of the Hobbico Lustrekote Paint Line HHE Report 95-005, August, 1995

NIOSH Health Hazard Evaluation Reports published by the Hazard Evaluation and Technical Assistance Branch, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, Cincinnati, Ohio

Daniels, W. Orris, P. Kramkowski, R. Almaguer, D. Health Hazard Report 86-121-1923, Evaluation of Health effects of Electroplating, September 1988.

Almaguer, D. Orris, P. Health Hazard Report 84-284-1701, Coal Tar Pitch Volatile Exposure at a Steel Mill, May, 1987.

Zey, J.N., Orris, P., Almaguer, D. Health Hazard Report 84-528-1764, Hazards of Trocal Roofing Installation, June, 1986.

Orris, P., Kominsky, J. Health Hazard Report 84-006-1639, Evaluation of A Potential Health Hazard Due To A Fire In A Polychlorinated Biphenyl Containing Transformer, Dec, 1985.

Daniels, W., Arnold, S., Orris, P. Health Hazard Report 84-102-1653, Health Effects of Metal Grinding, January, 1986.

Kramkowski, R. , Orris, P. Health Hazard Report 85-152-1684, Potential Health Hazards in A Printing Plant, April, 1986.

Almaguer, D. Orris, P. Health Hazard Report 82-309-1630, Coal Tar Pitch Volatiles at a Coke Oven Battery, Oct. 1985,

Daniels, W., Orris, P. Health Hazard Report 84-075-1634, Evaluation of Suspected Health Effects of Synthetic Coolants and additives Used In Metal Machining Operations, November, 1985

Daniels, W., Orris, P. , Arnold, S. Health Hazard Report 83-325-1564, Evaluation of Asbestos Exposure and Monitoring program in A Drop Forge, February, 1985.

Daniels, W., Orris, P. Health Hazard Report 84-046-1584, Health Effects of Ethylene Oxide and Trace anesthetic Gases In The Operating Rooms of A Public Hosp, April, 1985.

Daniels, W. Orris, P. Kramkowski, R. Health Hazard Report 83-127-1434, Evaluation of Health Effects of Quality Control laboratory Work in A Barley Malting Plant, March 1984.

Orris, P., Kominsky, J. Health Hazard Report 82-310-1475, Exposure to Polychlorinated Biphenyls At a Transformer Overheat, June 1984.

Almaguer, D., Orris, P., Health Hazard Report 83-296-1491, Symptoms Amongst Assembly Line Employees In An Electrical Control Plant, July 1984.

Orris, P., Health Hazard Report 81-157-1516, Evaluation of a Suspected Leukemia Cluster at a Steel Mill, October, 1984.

Orris, P. Daniels, W. Health Hazard Report 80-112-1261, Effects of Iron Oxide Exposure in A Steel Tubing Mill, Feb.1983

- Orris, P. Cone, J, Dozier, E., McQuilkin, S. Health Hazard Report 80-096-1359, Health Effects of Vanadium Pentoxide In thermal Battery Manufacture, Aug. 1983.
- Orris, P. Health Hazard Report 82-239-1355, A Suspected Cancer Excess in an Electrical Coil Manufacturing Dept, Aug. 1983.
- Daniels, W. Orris, P., Health Hazard Report 81-465-1323, Hazards of Fertilizer Manufacture, , 1981
- Almaguer, D., Orris, P. Health Hazard Report 81-450-1378, Toxic Exposures of a Continuous Casting Blast Furnace, Oct. 1983
- Daniels, W., Orris, P., Pryor, P. Health Hazard Report 81-064-1035, Polychlorinated Biphenyl Exposure to Electrical Workers in a Steel Mill, January 1982
- Orris, P. Health Hazard Report 80-235-1056, Cancer Mortality of Electrical Workers in a Steel Rolling Mill, March 1982,
- Almaguer, D., Orris, P. Health Hazard Report 81-128-1107, Low Dose TDI Exposure in a Foam Seat Manufacturing Process, May 1982,
- Almaguer, D. Orris, P. Health Hazard Report 82-054-1194, Low Dose Solvent Exposure In A Small Engine Manufacturing Plant, Sept. 1982
- Daniels, W. Orris, P. Fagan, K. Health Hazard Report 81-299-1201, 992 Health Hazards of Diatomaceous Earth and Phosphoric Acid at a Manufacturing Plant in Chicago, November, 1981
- Orris, P., Almaguer, D., Health Hazard 81-185-1007 Health Effects of a Spray Paint and Shot Blast Process, November, 1981,
- Orris, P., Daniels, W., Health Hazard Report 80-201-816 Effects of 1,1,1, Trichloroethane on Spray Can Assembly Employees, Feb. 1980,

Non-Refereed Materials:

- Orris, P Lecture, Privacy and Confidentiality, at Ethics of Human Research Conference, http://www.uic.edu/sph/glakes/global/conferences/sofia2003/irb/Orris_Privacy.pdf, Sofia, Bulgaria June 3, 2003
- Paranzino, G., Orris, P., Kirkland, K. Evaluation of the Clinical Activities of the Del Amo/Montrose Clinic Contract report for the Agency for Toxic Substances and Disease Registry July, 1996
- Kuntz, D., The Politics of Suffering: The Impact of The US Embargo On The Health Of The Cuban People, (participant in a fact finding delegation) APHA, Washington, DC, Oct. 1993. reprinted in The International Journal of Health Services, 24:1, 1994, P. 161-179 and in the Journal of Public Health Policy, 15:1, 1994, P. 86-108
- Orris, P., Higgins, P. Environmental Health Evaluation of the Plum Grove Junior High School, Northwest Community Hospital, Arlington Heights, IL, August, 1994
- Orris, P. Hinkamp, D. Program Planners Manual, Occupational Health Section, APHA, April, 1986
- Orris, P. Baron, S. Occupational Medicine: A Role for the Primary Care Physician, Hospital Practice, Vol.18, No. 3, 195-202, March, 1983.
- Orris, P. (Ed.) The Salaried Physician, A Physician's Forum Monograph, Academy Prof Info Servics, Inc, New York, 1982
- Orris, P. Guide to the Structure and Functioning of the American Public Health Association Soc.Caucus, American Public Health Association, 1979.

Invited/Accepted Presentations:

- Orris, P. Chemical Pollution and Health Impacts, Medical Waste & POPs Production, Mercury, Lead & Cadmium: Threat to Human Health, 2007 China NGO's Skillshare on Chemical Safety. Oct. 16-19, 2007,

Beijing, China

- Orris, P. Mercury Toxicity and Health Care Use, World Medical Association, General Assembly, Copenhagen, Denmark, October 4, 2007
- Orris, P. Occupational Medicine Residency Training in the US: UIC/CCH Experience, 3rd Postgraduate Conference On Occupational Health, Cartagena, Colombia, May 27-8, 2007
- Orris, P Neurotoxicity and Safer Substitution of Mercury in Health Care, II Congreso Salud Del Trabajo, Havana, Cuba, March, 2007
- Halpin, J., Buchanan, S., Orris P., Hotel Housekeeper Injuries: Analysis of OSHA mandated Injury Log Data II Congreso Salud Del Trabajo, Havana, Cuba, March, 2007
- Orris, Peter Asbestos, Health, Environment and Justice: Cancer and the Environment, and the International Legislative Protection of Ecosystems, An International Web Conference of the International Academy of Environmental Sciences, Venice, Italy, November 23, 2006
- Orris, Peter, DDT-Malaria: When a Debate is not a Debate, 11th World Congress on Public Health/8th Brazillian Congress on Collective Health, August 23, 2006, Rio de Janeiro, Brazil
- Eric Frumin, MA, Joan Moriarty, MS, Pamela Vossenias, MPH, John Halpin, MD, MPH, Peter Orris, MD, MPH, Niklas Krause, MD, PhD, MPH Laura Punnett, Sc.D., Workload-Related Musculoskeletal Disorders among Hotel Housekeepers: Employer Records Reveal a Growing National Problem, Presented to the NIOSH national NORA symposium, April, 2006
- Habib, F. Orris, P. Municipal Waste Incineration: Epidemiologic Evaluation of Hazards Utilizing Existing Health Data Bases, 12th International Symposium of the Scientific Committee on Epidemiology, International Commission on Occupational Health, Zimbabwe, Sept. 17, 1997
- Orris, P. Occupational Health and Managed Care, Amer Pub Hlth Assoc, Oct. 30, 1995, San Diego, CA
- Orris, P. Hartman, D. Strauss, P, Collins, J. Knopp, C. Xu, Y. Anderson, R. Psychological Effects of the Working Conditions of Package Truck Drivers, New Epidemics in Occupational Medicine Conf, WHO, Helsinki, Finland, May, 1994
- P., Orris, P. Providing Occupational Health Services to Small Industry: A Community Hospital Model, XXIV Internat'l Congress On Occup Health, Sept. 1993, Nice, France.
- Ugolini, C. Watkins Higgins,, J. Hessel, SM. Coe, J. Grammar, L. and Orris, P. Chronic Hypersensitivity Pneumonitis Caused by Diphenylmethane Diisocyanate Followed by Acute Hypersensitivity Pneumonitis After Exposure To A Toluene Diisocyanate Alkyd Paint, American Thoracic Society Meeting, May 18, 1992, Miami, Florida.
- Orris, P., Kahn, G., Melius, J., Rinsky, R. Mortality Study of Chicago Fire Fighters, Eighth Internat'l Symposium on Epidemiology in Occupational Health, Paris, Sept. 10, 1991
- Owi, E. , Orris, P. An Initial Look at a Group of Patients with Reversible Bronchospasm, a poster at the XXIII Internat'l Cong On Occupational Health, Sept. 1990, Montreal, Canada.
- Baron, S., Hryhorczuk, D. Orris, P., Hessel, S., Siegesmund, K., Funahashi, A., Fitzpatrick, J. Energy-Dispersive X-ray Anal. of Transbronchial Biopsy Specimens In The Diagnosis of Silicosis at the XXII Internat'l Cong On Occupational Health, Sept. 1987, Sydney, Australia.
- Orris, P., Hryhorczuk, D., Kominsky, J.R., Melius, J. Exposure to Polychlorinated Biphenyls From An Overheated Transformer, 5th Int'l Symp on Chlorinated Dioxins and Related Compounds, Sept. 17, 1985, Bayreuth, Germany.
- Hryhorczuk, D., Orris, P., Burton, W., Melius, J., Kominsky, J.R., Exposure to Polychlorinated Dibenzofurans From A PCB Transformer Fire, at the 5th Int'l Symp on Chlorinated Dioxins and Related Compounds, Sept. 17, 1985, Germany
- Orris, P., Matticks, R. X-ray and Pulmonary Function Alterations in Patients with Simple Silicosis: A

- Case Series, presented at the 2nd International Research Colloquium on Occupational Health: Pulmonary Disease, March 20, 1984
- Orris, P., Kominsky, J. Firefighter Exposure to Polychlorinated Biphenyls At A Transformer Overheat, American Public Health Association Convention, Anaheim, California, November 14, 1984
- Saxena, K., Johnson, P., Hryhorczuk, D., and Orris, P. Initial Medical Management of a Mini-Disaster with a Transformer Fire Emitting PCBs 3rd World Congress on Emergency and Disaster Medicine, Rome, Italy, May 25, 1983
- Orris, P. Hryhorczuk, D. Diagnosis of TCDD Intoxication, APHA, Occupational Health Section Midwest Regional Meeting, June, 2, 1983
- Orris, P. Socioeconomic Determinants of Adult Disease, National Medical Association Conv, August 1, 1983
- Hogan, M.M., Smith, R.F., Orris, P., The Integration of Occupational Medical Services Within The Internal Medicine Department of A Tertiary Care Public Hospital, American Public Health Association Convention, Dallas, Texas, November 14, 1983
- Orris, P. The Cook County Hospital Occupational Medicine Clinic NIOSH Conference on Occupational Health and Safety of Minority Workers, July 8, 1981
- Orris, P., Kahn, H.S., Sayres, B.B., Physician's Forum Task Force Report: The Salaried Physician American Pub. Health Assoc. Convention, November 3, 1981
- Orris, P., Kennedy, M.J. Guerriero, J. Hessel, S.M. Hryhorczuk, D.O. and Hoffman, D. Activities of An Employer Independent Occupational Medicine Clinic APHA Conv, Nov. 4, 1981
- Orris, P. Occupational Medicine in a Public General Hospital APHA Convention, October, 1979
- Kientz, R., Orris, P. The Economic Feasibility of a National Health Service American Public Health Assoc Conv, October, 1976
- Orris, P., Sheaf, L., Boyd, D., Freeland, J., & Zydlow, S. Mobile Intensive Care Units, Costs, and Effectiveness: An Assessment of Two Pilot Projects in Illinois APHA Conv, Oct, 1975
- Orris, P., Carlson, C., & Conibear, S. Occupational Health Education of Industrial Workers: A New Approach American Public Health Association Annual Convention, October, 1975

TEACHING:

Medical School Courses

2007-	Co-Direct, Ethical Issues in Clinical Research, Northwestern U. Feinberg School of Medicine,
1998-	Co-Direct, <u>Environmental & Occupational Health</u> , one quarter course for MD & MPH Students, Northwestern U. School of Medicine
2002-3	<u>International Comparison of Health Care Systems</u> , on one quarter elective seminar, Northwestern U. School of Medicine
1996,7	<u>Occupational Medical Practice Seminar</u> , Rush Medical College
1981-94	<u>Occupational Health Practice</u> , one quarter elective seminar, Northwestern University Medical School
1980-93	<u>International Comparison of Health Care Systems</u> , one quarter elective seminar, Northwestern U. Medical School
1979,80, 91	<u>Cuban Health Care System Research Seminar</u> , ten day field study course, Amer Medical Student Assoc.
1978	<u>International Health Care Systems</u> , U of Illinois School of Medicine
1977	<u>The Epidemiology of Cardiovascular Disease</u> , UIC Sch. of Medicine.

Industrial Hygienists, Nurses, & Physicians

- 2004 Environmental Health and Nursing, CEI Course 1006.0, APHA
132 Annual Meeting, Washington, DC. November 6, 2004
- 2003 Lecture, Ethics of Occupational Medical Practice, Institute of Occupational
Medicine, Ukranian Academy of Sciences, Kiev, Dec. 9, 2003
- 2003 Lecture, Privacy and Confidentiality, at Ethics of Human Reseach
Conference, Sofia, Bulgaria June 3, 2003
- 2003 Lectures, Toxicity of Medical Waste, for Kerala State Pollution Control
Board, Thiruvananthapuram, India, February 21 &22, 2003 to:
State Level Meeting for Heads of Offices & Staff of Head Office
Senior Doctors and Officers under DME and DHS
- 2003 Lecture, Medical Waste Management, Sree Chitra Trunal Institute for
Medical Sciences and Technology, Thiruvananthapuram, India, February
21, 2003
- 2002 Lecture, Hospitals and the Environment: Global Trends, Plenary, Philippine
Hospital Association, Manila, November 28, 2002
- 2002 Lecture, Toxicity of Medical Waste, National Seminar, Philippine
Department of Health, Manila, Nov. 28, 2002
- 2002 Lecture, Toxicity of Medical Waste and Non Incineration Alternatives For
Disposal, Private Hospitals Association of the Philippines, Manila,
November 27, 2002
- 2002 Lectures, Toxicity of Polychorinated Biphenyls, Dioxins, and Related
Compounds, Grand Rounds, New Liskeard and Kirkland Lake Medical
and Nursing Staffs, Ontario Canada,
- 2002 Lecture, Seminario El Hospital Ambientalmente Saludable, Direcccion
General De Salude Ambiental, Federal Government, Mexico City, DF
- 2001 Delegates Technical Briefing, Toxicity of Medical Waste, World Health
Assembly, Geneva Switzerland,
- 2001 Lecture, Medical Waste and Human Health, 2nd Biennial National
Conference on Health Issues in the Arab American Community, May,
2001, Dearborn Michigan
- 2000 Lecture, Medical Waste: Dioxins and Health Effects, 9th International
Congress, World Federation of Pubic Health Associations, Beijing
China, Sept. 4, 2000
- 2000 Lecture, Medical Waste Toxicity, Dept. of Anesthesiology, Peking
University Medical College, Beijing China
- 2000 Lecture, Medical Waste Toxicity, Universidad De Ciencias Empresariales Y
Sociales, Buenos Aires, Argentina
- 2000 Co-Direct and Lectures on Medical Research Ethics, Collaborative Seminar
with the Institute for Occupational Hygiene, Russian Academy of Sciences,
Moscow
- 2000 Co-Direct and Lectures on Medical Waste Toxicity, Seminar on Medical
Waste, sponsored by the Institute of Occupational Health, Ministry of Public
Health, Havana, Cuba as part of the Carribean Medical Society Meeting

2000-1999 Lectures, Research Ethics, Cook Cnty Bureau of Health Services
Lecture on Medical Waste to the Delegates of the Third Intergovernmental Negotiations for a Treaty to Eliminate or Reduce Persistent Organic Pollutants. Geneva, Switzerland.

1999 Lectures, Toxicity of Medical Waste, University of Nairobi, University of Toronto

1998 Director, Occupational Disease Course, UIC School of Public Health
1997 Toxicity of Persistent Pollutants, World Federation of Public Health Associations Triennial Conference, Arusha, Tanzania

1995-7 Annual lecture, Health Administration Program of Rush Medical School

1993- Annual lectures in Occupational Epidemiology Course, UIC Sch. of Pub. Health

1990-99 Co Director Occupational Health Weekly Seminar, University of Illinois
1990- Regular lectures on Occ Health, Env Toxins, Global Warming, and Epidemiology in several courses, UIC Sch. of Pub. Health

Residents

1980- Occasional Grand Rounds or formal departmental lectures at Cook County Hospital, Rush Medical College, Northwestern University Medical School, University of Chicago, Loyola University, Michael Reese Hospital, Mt. Sinai Hospital, University of Illinois, St. Louis University Medical School, SUNY Binghamton and Stony Brook, Mayo Clinic Medical School, Medical College of Wisconsin, University of Wisconsin, University of Tennessee, Illinois Masonic Hospital, Baystate Medical Center/University of Massachusetts. Wayne State University etc.

1979-2007 Several months a year general medicine ward attending, Cook County Hospital

1979- Regular weekly rotation supervising the Occupational Medicine consultation service, Cook County Hospital

1979- Weekly lectures on occupational and internal medicine topics, Cook County Hospital

Continuing Medical Education

2005 Central States AOMA, Medical Waste Incineration: Point Counter Point
2004 Rush University, Department of Medicine Grand Rounds, "Malaria Control and DDT Toxicity: A Public Health Delima" Mar. 26, 2004

2004 Midwest Clinical Conference, "Fish Consumption: Advice for the General Internist", Mar. 25, 2004

2004 Grand Rounds, Evanston Northwestern Hospital, "Mercury Implications for Office Practice", Mar 5, 2004

2004 Mercury, Low Dose Effects, Medical Directors Club of Chicago, Mar 4, 2004

2003 Lecture, Ethics of Occupational Medical Practice: International Codes

Institute for Occupational Medicine, Ukrainian Academy of Sciences, Kiev, December 9,

2003 Research Ethics of Special Populations at Ethical Issues in Health Research Workshop, June 3-6, Sofia, Bulgaria

2000 Lecture, Persistent Organic Pollutants, Orlando County Medical Society and Florida Physicians for Social Responsibility, Orlando, FL

2000 The Physician's Role Under The Americans With Disabilities Act, Midwest Clinical Conference of the Chicago Medical Society

1999- Monthly Departmental Lectures on Research Ethics at Cook County Hospital and the Cook County Bureau of Health Services

1999- Lecture Series on Occupational and Environmental Health, Roseland Community Hospital

1998 Lecture Series on Occupational Medicine, Holy Cross Hospital

1998 Clinical Management of Toxic Exposures, Michigan State University Kalamazoo Center for Medical Studies, Oct. 15. Three seminars for healthcare providers and public health officials.

1995,6 Rendering a Medical Opinion in a Legal Case, One day seminar at The American College Of Occupational and Environmental Medicine

1994 Clinical Aspects of Environmental Exposures, Bloomington Hospital, Bloomington, IN, ATSDR, US Public Health Service

1990-2 The Physician and the Law, UIC School of Public Health

1991-2 Occupational Medicine for the Primary Care Physician, UIC Sch of Public Health

1992 Epidemiology for Non-Epidemiologists, Applied Statistics Training Institute, National Center For Health Statistics, CDC, USPHS

1992 Worksite Evaluation & Pre-Placement Screening Schwab Rehab Inst

1983- Meet the Professor Sessions (nearly annually), to review the Self Assessment Examination at The American College Of Occupational and Environmental Medicine

Testimony and Briefings For Government Or Elected Officials:

2005 Medical Waste Toxicity: Status of Knowledge of Dioxins and Mercury United Nations Development Program/Global Environmental Facility Health Care Waste Project, PDFB Inception Meeting, Dakar, Senegal

2003 Briefing, US Congress, Chemical Security

2000 Briefing, US Congress, Great Lakes Congressional Staff, POPS and the Great Lakes- Issues for the POPS Negotiations

1998 Testimony, Illinois Legislature, Labor Committee, Physician Unionization

1999 Briefing, US Department of the Interior, Update on POPS and Human Health

1999 Briefing, US State Department Staff, Scientific Issues of the POPS Negotiations

PAST EMPLOYMENT AND POSITIONS

1995-07 Rush-Cook County Affiliation Research Committee

(Chair, 1996)

1979-2007 Senior Attending Physician, Div. of Occupational Medicine, Cook County Hospital (Stroger Hospital)

2005-6 International Ad Hoc Reviewer, 11th World Congress on Public Health/8th Brazillian Congress on Collective Health, Rio de Janeiro, Brazil

2003 President, Wood Street Branch, Chicago Medical Society, AMA

2001-5 President, Medical Staff, Cook County Hospital

2002- 4 Member, International Planning Committee, 10th WFPHA
International Congress April 19 - 22, 2004, Brighton, England

2004 Consultant, National Academy of Science's Board on Global Health, Malaria Control: A Reconsideration of the Role of DDT, Washington, DC, July 21-22, 2004

2003 Advisor, World Health Organization at the Workshop in Preparation of a GEF-Funded Global Medical Waste Project, New Delhi, India, February 17-19, 2003

1999-01 Scientific Program Committee, Global Conference on Childrens Environmental Health, HHS/EPA/Health Canada/Env. Canada

1998-02 Cleaner Technologies Substitutes Assessment: Professional Fabricare Processes Technical Peer Review Panel, USEPA (EPA 744-B-98-001)

1992-00 Director, Health Hazard Evaluation Program,
University of Illinois Sch. of Public Hlth & Illinois Dept. of Public Hlth

1990-9 Director, Research & Interdisciplinary Projects,
Great Lakes Center for Occupational and Environmental Health and Safety, University of Illinois School of Public Health,

1993-9 Medical Director, Corporate Health Services, Northwest Community Healthcare

1990-9 Internal Medicine, U. of I. Hosp & Medical Center (attending)

1993-6 Associate Professor of Medicine, University of Illinois at Chicago School of Medicine

1983-97 Internal Medicine, Mercy Hosp & Medical Center (consultant)

1984-93 Medical Director, Managed Care Occupational Health Program, Chicago, Illinois

1980-86 Medical Officer, Region V, Nat'l Institute For Occupational Safety & Health, U.S.PHS, Chicago, Illinois

1980-88 Attending Physician, Division of General Medicine, Cook Cty Hospital

1979-80 Medical Director, Southeast Health Plan, Chicago, Illinois

1979-80 Attending Physician, Div. of Emergency Medicine, Cook Cty Hospital

1972-75 Research Assist, Div. of Emergency Medical Svcs, IL Dept. of Health

1971-72 Nurse Technician, Trauma Unit, Cook County Hospital, Chicago, IL

1970 Administrative Intern, Hill Health Center, New Haven, Connecticut

1967-68 Research Assist to Dr. J. Hobson, Harvard Med School, Boston, MA

1966-67 Research Assist to Dr. David T. Denhardt, Harvard U, Cambridge, MA

PAST APPOINTED OR ELECTED POSITIONS

2001-6 Member, Technical Committee on Epidemiology and Air Quality

Monitoring (TCEAQM), Department of Health, Republic of South Africa

2004-6 Member, State of Illinois Panel on Health of Hispanic Workers
1992-2005 Global Health Task Force Occupational Health Advisory Com.
American Medical Student Association

2002-7 Chair, Public Health Committee, Chicago Medical Society
2004-6 Board Member, Physicians for Responsible Negotiations, SEIU
1997-03 Member, Government Affairs Committee, IL State Medical Society
1993-01 Internal Medicine, Northwest Community Hospital (consultant)
2000-1 President, Wood Street Branch, Chicago Medical Society
1999-01 Secretary, Medical Staff, Cook County Hospital
1998-9 Vice President, Medical Staff, Cook County Hospital
1998-0 Scientific Committee, World Federation of Public Health Associations'
9th International Congress, Beijing, China

1997-8 Chair, Ad Hoc Committee on Physician Unionization, Chicago Medical Soc
1995-8 Clinical Advisory Committee, Del Amo Occupational Health Clinic,
University of California, Irvine

1996-7 President, Wood Street Branch, Chicago Medical Society
1987-97 Executive Medical Staff, Cook County Hospital
1992-6 Executive Board, Assoc. of Occupational and Environmental Clinics
(President 1994-5)

1983-1996 Self Assessment Committee, American College of Occupational and
Environmental Medicine

1996 Consultant, United States Peace Corps
1993-5 Task Force on Environmental Health, University of Toronto &
1995 Advisor, Office of Global & Integrated Environmental Health, World
Health Organization, Geneva, Switzerland

1994 Advisor, Occupational Health Program, World Health Organization,
Moscow, Russian Republic

1994 Occupational Medical Advisor, Health and Safety Com., Local 974,
United Automobile Workers Union, AFL-CIO, Peoria, Illinois

1992-3 Consultant, US/Canada International Joint Commission on boundary
Waters and the Ecosystem of the Great Lakes

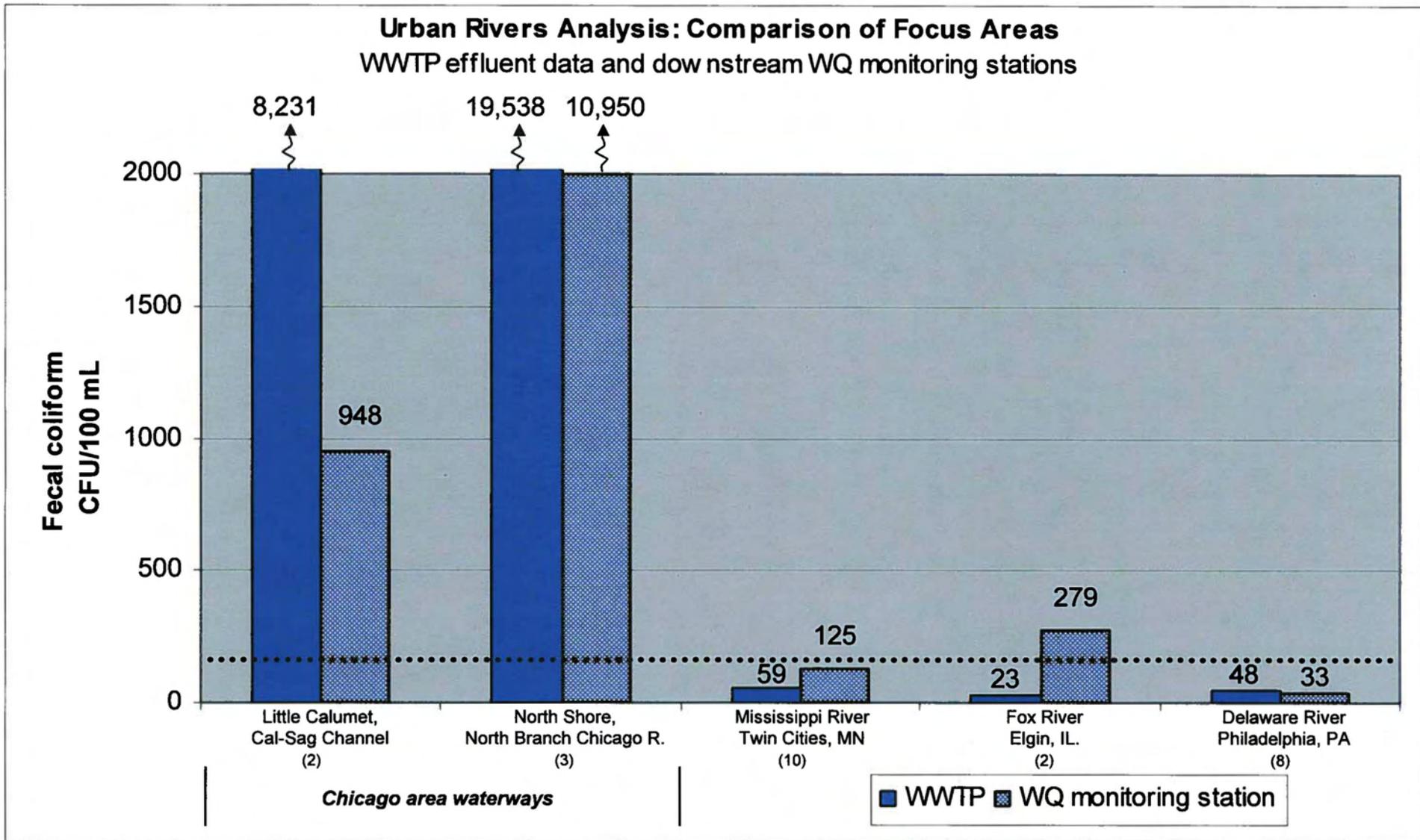
1992-3 Nominating Committee, Amer Public Health Association, (Chair-1993)
1991-2 Governing Council, American Public Health Association
1991-2 Ad Hoc Task Force on Expert Witness Testimony, Chicago Med. Soc.
1990-2 Alternate Councilor, Chicago Medical Society
1990-1 Consultant, SOYUZMEDINFORM, Ministry of Health, USSR
1989 Consultant, United Steelworkers of America, AFL-CIO, Local 1010,
1988-92 Atomic Radiation and Dioxin Poisoning Victims Advisory Council,
State of Illinois

1988-90 AIDS Proj Adv Bd, Service Employees International Union, AFL-CIO
1987-89 Nat'l Sanitation Foundation Drinking Water Additives Health
Effects Task Group

1987-9 Health Advisory Committee, National Safety Council, for the Am

Occupational Medical Assoc
1987-8 Consultant, United Association of Journeymen & Apprentices of the
Plumbing & Pipe Fitting Industry of the U S and Canada, AFL & CIO
1986-9 Executive Board, Nat'l Union of Hospital & Health Care
Employees/1199, AFL-CIO
1986-8 Governing Council, American Public Health Association
1986-7 Consultant, Local 75, United Assoc of Journeymen & Apprentices
of the Plumbing & Pipe Fitting Industry of US & Canada AFL/CIO
1985-7 Advisory Committee, Health Policy Agenda for the American People for the
APHA
1985-8 Advisory Committee, Hospital Occupational Safety and Health Program,
American Hospital Association
1984-5 Chairman, Program Committee, Occupational Health Section, APHA
1984-7 Research Committee, Dept. of Medicine, Cook County Hospital
1982-4 Action Board, American Public Health Association
1982-4 Joint Policy Committee, American Public Health Association,
1979-82 Program Committee, Medical Care Section, APHA
1978-86 Occupational Health Committee, Cook County Hospital
1978-80 Resolutions Committee, Illinois Public Health Association
1977-80 Com. on Nat'l Health Proposals, Med Care Sect, APHA
1976-9 Chairman, National Health Insurance/Service Com, The Physicians
National House staff Association
1975-9 Executive Medical Staff, Cook County Hospital
1972-5 Chicago Area Committee on Occupational Safety and Health

EXHIBIT 2



Illinois Water Quality Standards:



General Use

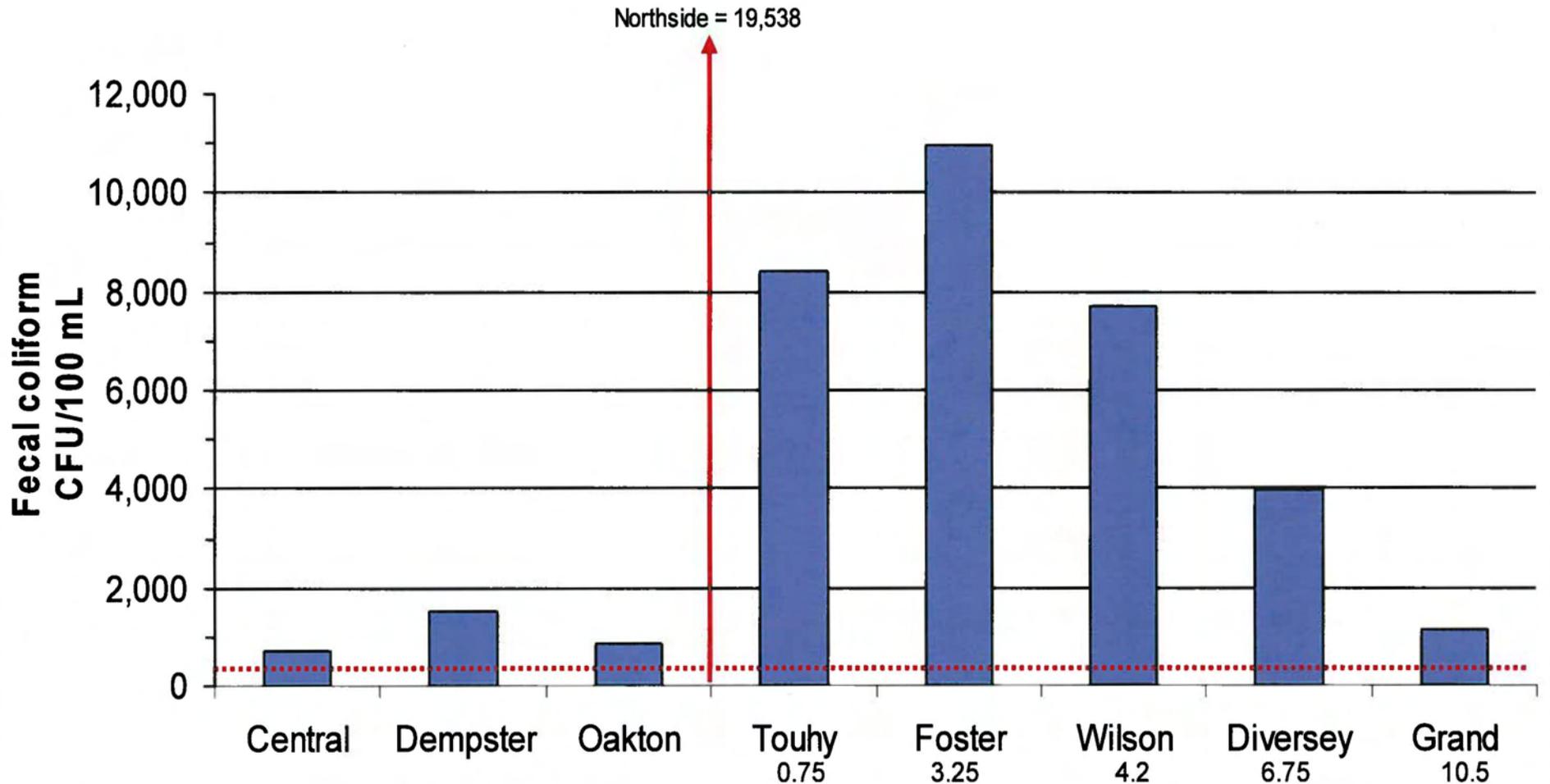
Fecal coliform:
30 day geometric mean 200 per 100mL limit



Note: WWTP results – effluent; WQ station results - ambient

- Fecal coliform monitoring results are expressed in the number of colony forming units (CFU) per 100mL
- Samples were taken monthly, May-October
- (#) – Distance downstream of monitoring station from WWTP

North Shore Channel and North Branch Chicago River Ambient May to October 2002 Geometric Mean Fecal Coliform



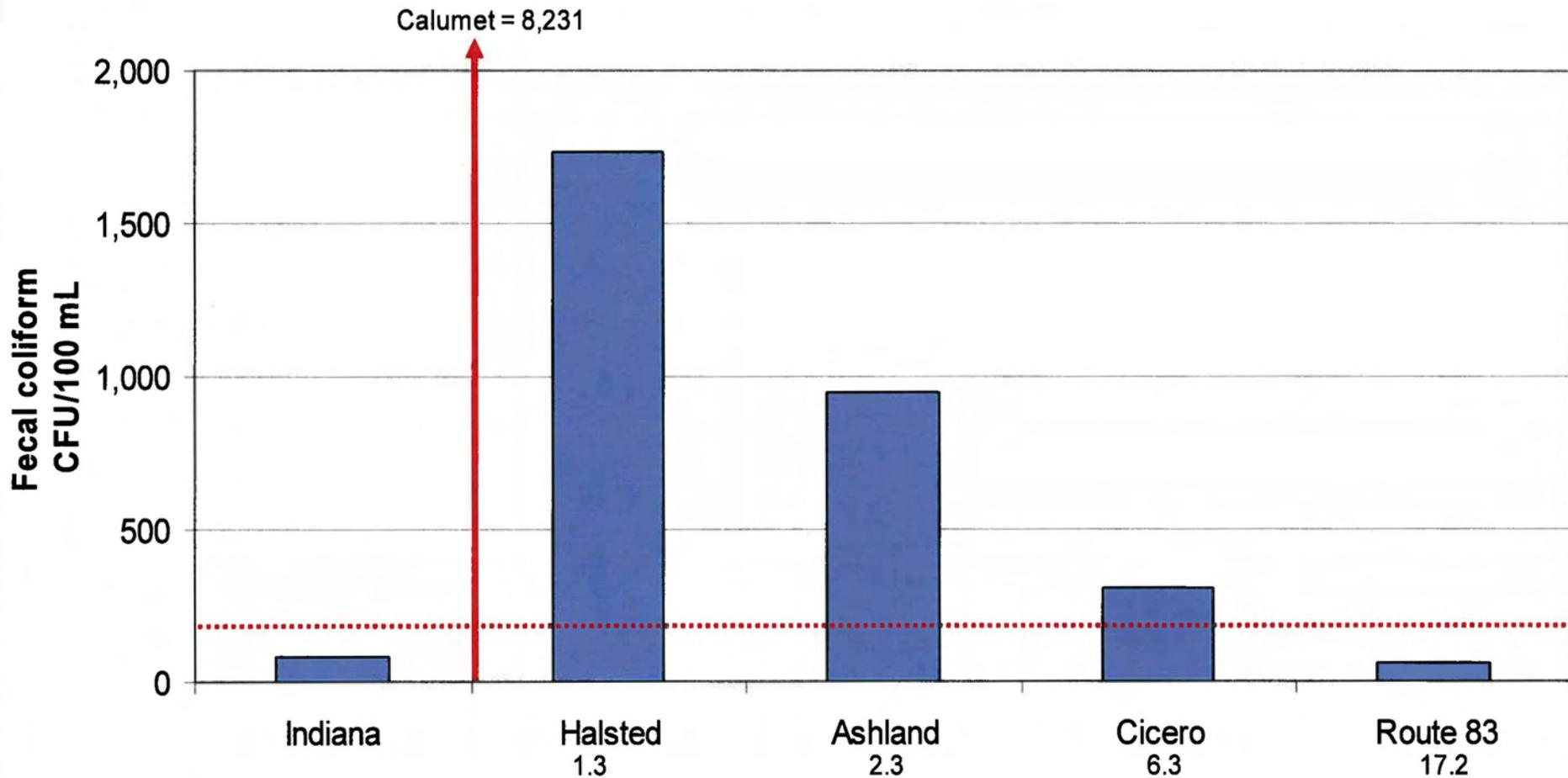
Source: MWRDGC

Sampled Monthly

..... General Use 30 day geometric mean 200 per 100mL limit

- Distance downstream of monitoring station from WWTP

Little Calumet River and Cal-Sag River May to October 2002 Geometric Mean Fecal Coliform

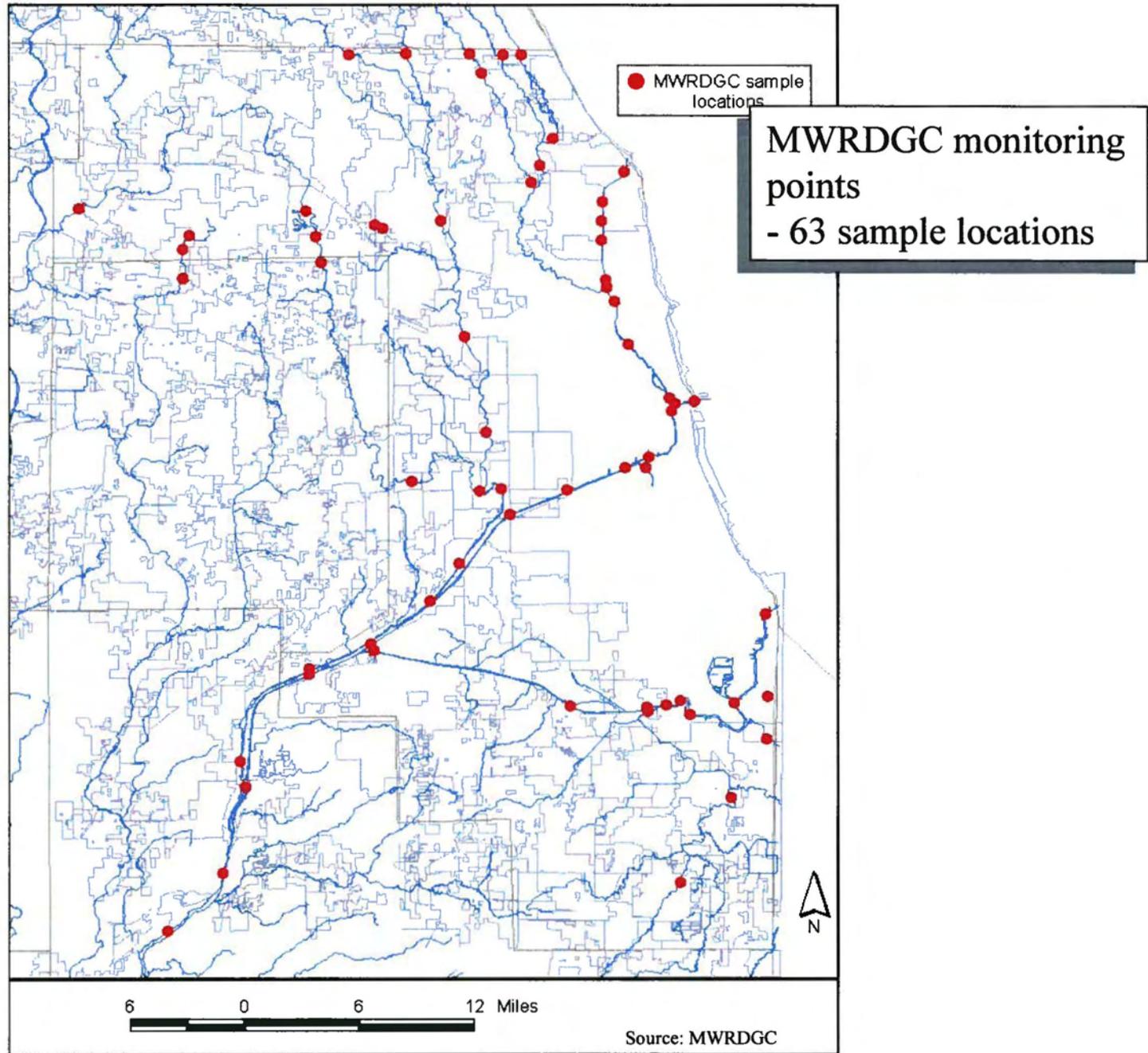


Source: MWRDGC

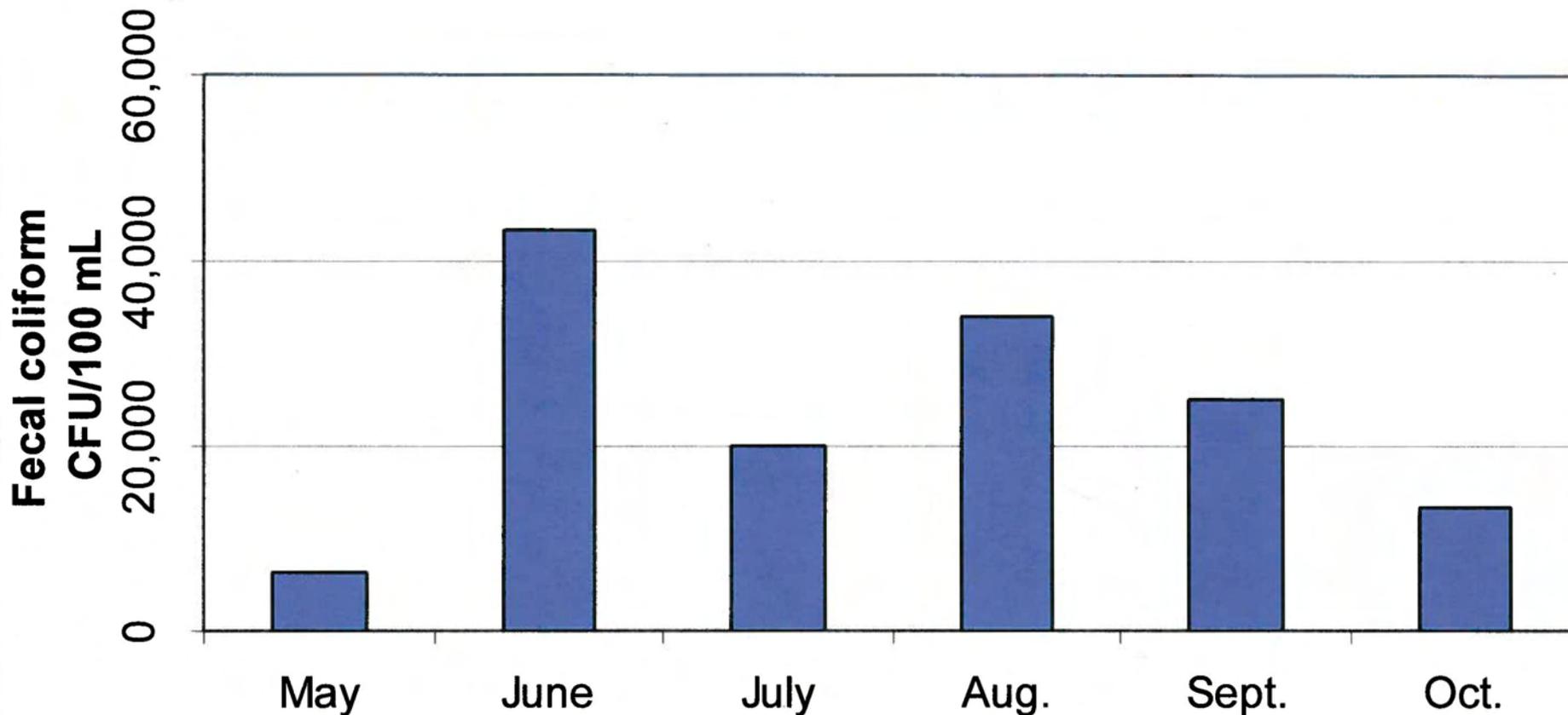
Sampled Monthly

..... General Use 30 day geometric mean 200 per 100mL limit

- Distance downstream of monitoring station from WWTP

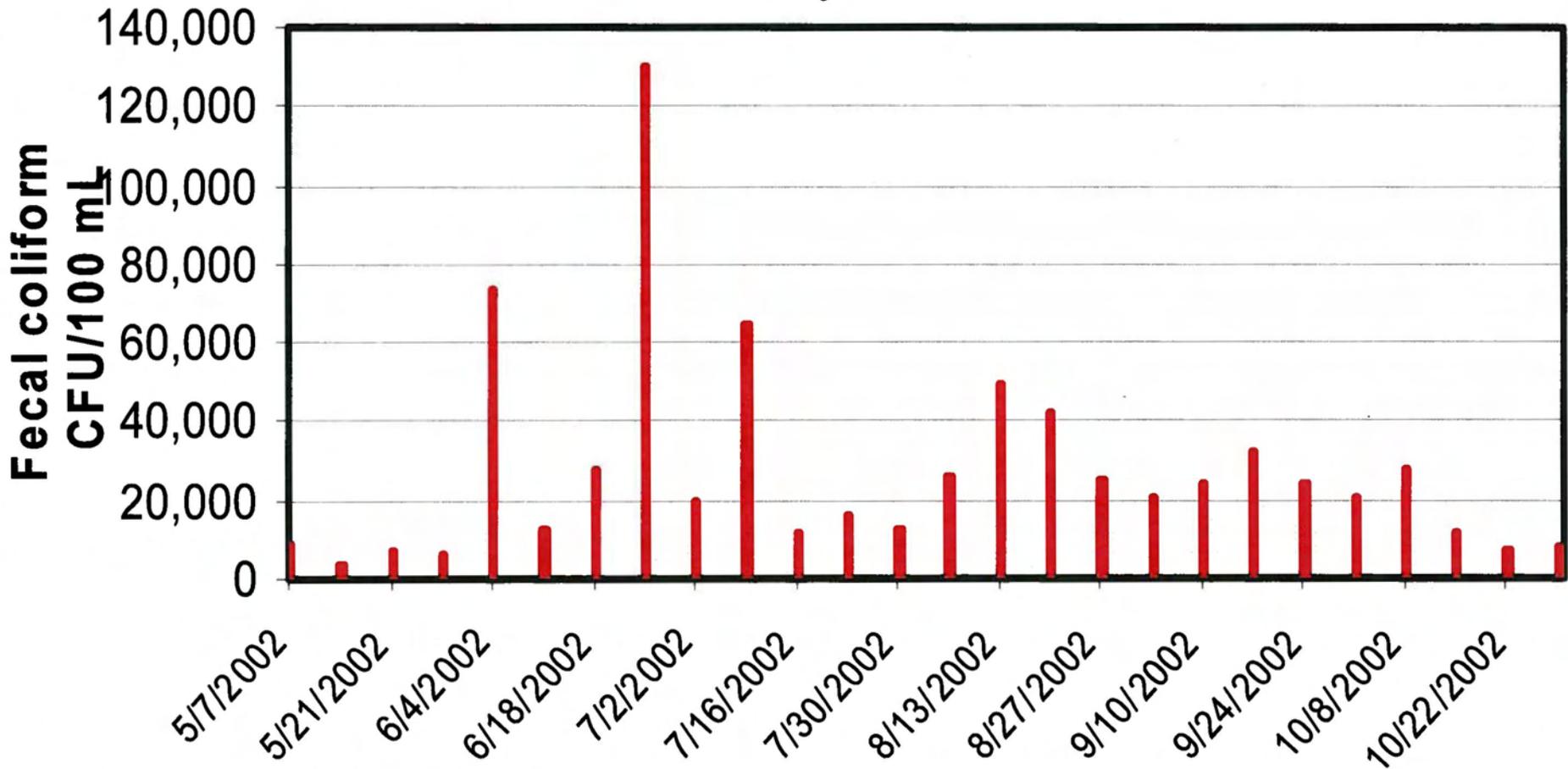


Northside WRP Effluent May to October 2002 Geometric Mean Fecal Coliform



Source: MWRDGC

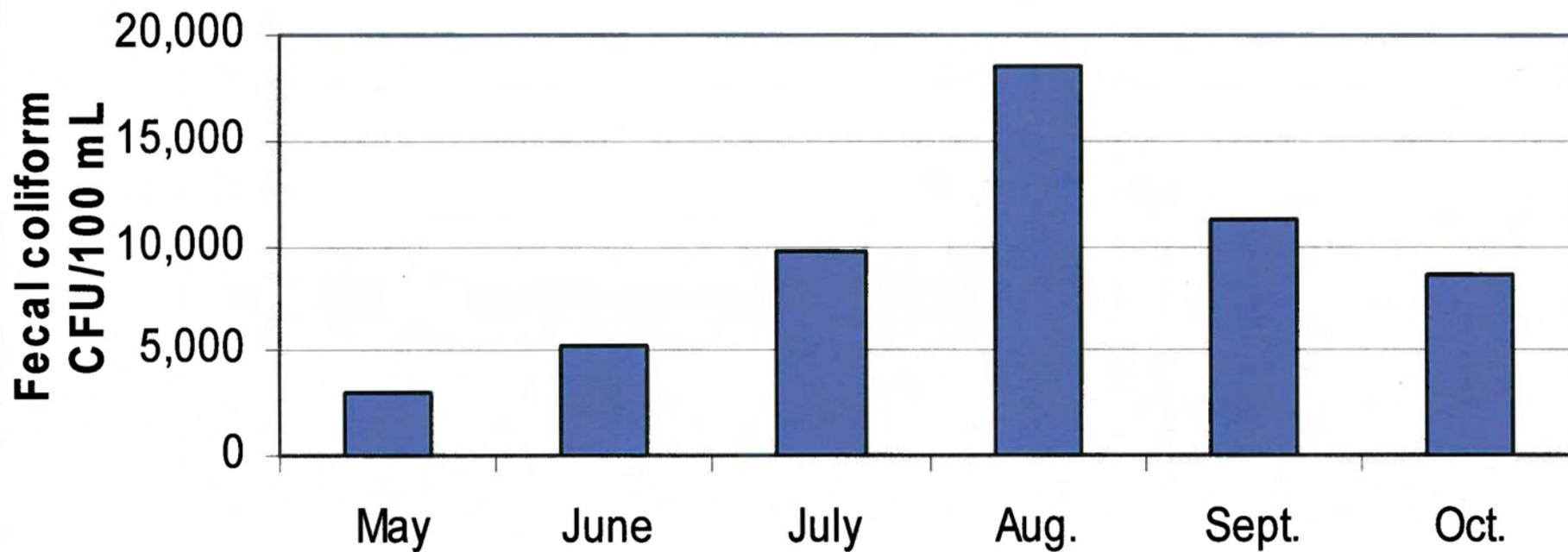
Northside WRP Effluent Fecal Coliform May to October 2002



Source: MWRDGC. Samples collected weekly.

Calumet WRP Effluent May to October 2002

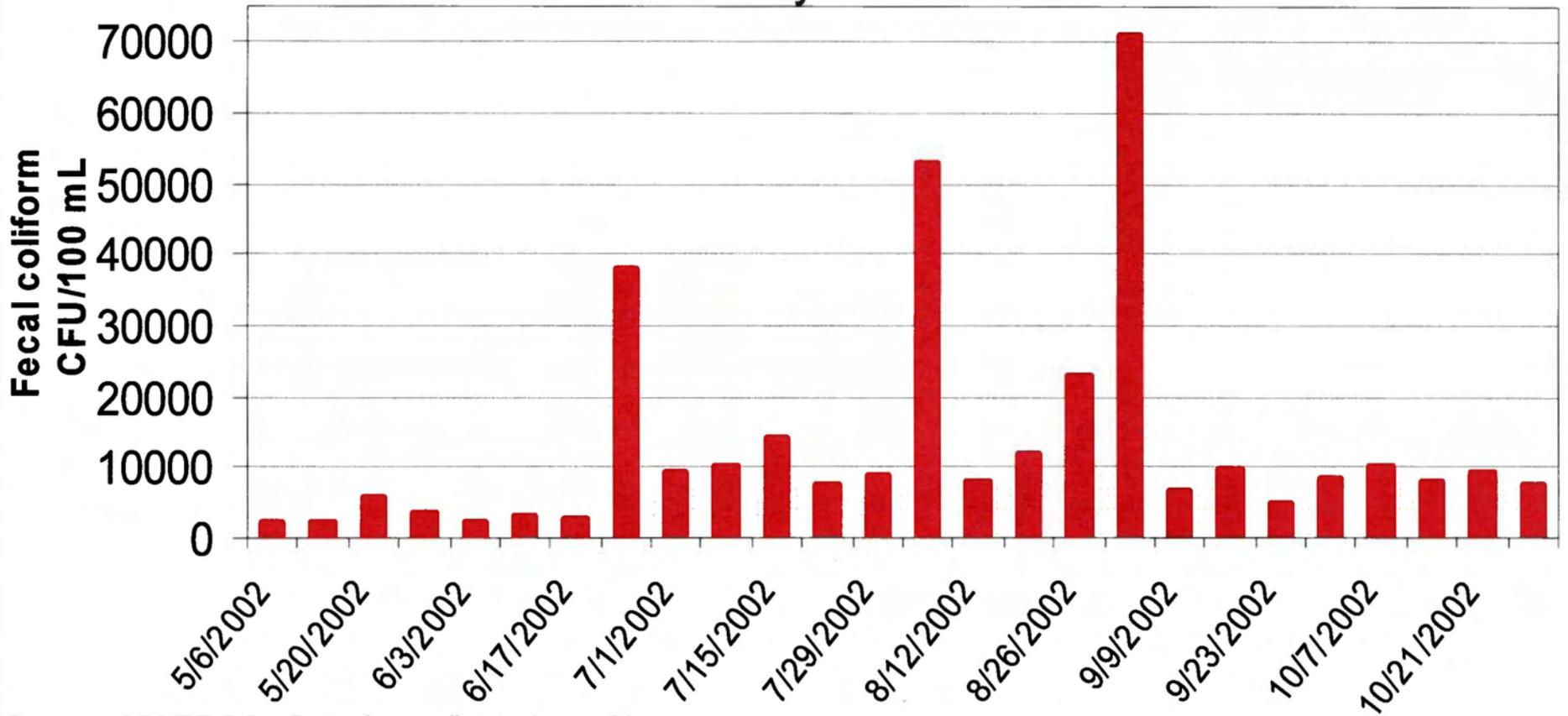
Geometric Mean Fecal Coliform



Source: MWRDGC

Calumet WRP Effluent

Fecal Coliform May to October 2002



Source: MWRDGC. Samples collected weekly.