Charter Township of Grand Blanc

Consumer Confidence Report

2000

Jeffrey Zittel
Supervisor

Charter Township of Grand Blanc
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This report covers the drinking water quality for the Charter Township of Grand Blanc for the calendar year 2000. This information is a snapshot of the quality of the water that we provided in 2000. Included in this report are details about where your water comes from, what it contains and how it compares to Environmental Protection Agency (EPA) and state standards.

Our water comes from Lake Huron, (see map on page 4) which is considered a surface water supply. An assessment of our source water will conducted by the Michigan Department of Environmental Quality by 2003. We will inform you on how to acquire this assessment report when it becomes available.

Contaminants and their presence in water: Drinking water, and bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants DOES NOT necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

Vulnerability of Sub Populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as chemotherapy patients, organ transplant recipients, those suffering from HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)

Contaminants that may be present in the source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.
- Radioactive contaminants, which are naturally occurring.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public systems. Food & Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Water Quality Data

The following tables list all the drinking water contaminants that we detected during the 2000 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in these tables are from testing done during the calendar year 2000. The State allows us to monitor certain contaminants less than once each year because the concentration of the contaminants is not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old.

Lead: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of the materials used in your homes plumbing. If you are concerned about elevated lead levels in your homes water, you may wish to have your water tested. You can also flush your tap for 30 seconds to 2 minutes before using your water. Additional information is available from the Safe Drinking Water Hotline at 1-800-426-4791.

Is our water system operating properly and meeting the rules established by the State and EPA?

YES! We have met all the State and EPA requirements, i.e., water testing, monitoring and reporting for 2000.

During 2000 we collected 96 bacteriological samples throughout our water distribution system and can proudly say there has been no presence of contamination detected. However, the laboratory misplaced one set of samples and a violation was issued for failure to report the results of the lost samples.

We are committed to providing you safe, reliable and healthy water. We are pleased to provide you with this information to keep you fully informed about your water. We will be updating this report annually, and will also keep you informed of any problems that may occur throughout the year

For more information on your water or the contents of this report, you may contact Norm Riopelle at 810-424-2642 or you can additional information on our web site www. twp@grand-blanc.mi.us or on the EPA web site www.epa.gov/epahome/rules.html

City of Detroit

Water and Sewerage Department

Laboratory Analysis of Water Samples collected at

Lake Huron Plant

on February 8, 2000

		Raw	Tap	MCL/ [SMCL] [1]	MDL [2]
Turbidity [3]		1.83	0.15	0.3/95%	
Total Solids		153	151	[500]	10
Total Dissolved Solids		106	113	[500]	10
Aluminum	(Al)	0.134	0.036	[0.05-0.2]	0.005
Iron	(Fe)	0.151	0.007	[0.3]	0.002
Copper	(Cu)	0.011	<0.001	1.3	0.001
Magnesium	(Mg)	7.65	8.80		0.2
Calcium	(Ca)	27.1	26.8		0.06
Sodium	(Na)	3.87	3.96	20 [4]	0.01
Potassium	(K)	0.98	0.96		0.01
Manganese	(Mn)	0.014	<0.001	[0.05]	0.001
Zinc	(Zn)	0.02	<0.01	[5.0]	0.01
Silica	(SiO_2)	1.89	2.38		0.4
Sulfate	(SO_4)	15.4	23.9		
Chloride	(Cl^-)	6.7	7.5	[250]	1.0
Phosphorus	(P)	0.02	0.29		0.01
Free Carbon Dioxide		2.2	7.4		
Total Hardness [5] [6]		100	99		
Total Alkalinity [5]		79	72		
Carbonate Alkalinity [5]		0	0		
Bi-Carbonate Alkalinity [5]		79	72		
Non-Carbonate Hardness [5]		21	27		
Chemical Oxygen Demand		4.7	2.7		2.0
Dissolved Oxygen		9.9	9.1		
Ammonia Nitrogen		<0.1	<0.1		0.1
Organic Nitrogen		0.1	<0.1		0.1.
Nitrite Nitrogen		<0.01	<0.01	1.0	0.01
Nitrate Nitrogen		0.41	0.34	10.0	0.01
Fluoride		0.1	1.0	4.0	0.1
pH in pH units		7.86	7.29	6.5-8.5	
Specific Conductance in micromhos at 25° C.		209	214		
Temperature in ° C.		0.8	5.8		

Notes: All units are mg/L unless otherwise noted. Raw sample is filtered and reported as Total Soluble Metals.
(1) MCL/[SMCL] = Maximum Contaminant Level/Secondary Maximum Contaminant Level. (2) MDL = Method Detection Limit. =
(3) NTU = Nephelometric Turbidity Units. Reported results are from a Grab sample. EPA requirements are for 95% of monthly readings to be <0.3 NTU. (4) EPA Guidance level. (5) = As Calcium Carbonate. (6) by EDTA titration. "<" = Less than.

Analyst: Brian Brown, Sr. Anl. Chemist

By: Pamela Turner

Pamela Turner
Manager, Water Quality Division

Stephen F. Gorden
Director, Water & Sewerage Department

Revised 10/10/99

STATE OF MICHIGAN

JOHN ENGLER, Governor
DEPARTMENT OF ENVIRONMENTAL QUALITY
"Better Service for a Better Environment"
HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: www.deq.state.mi.us
RUSSELL J. HARDING, Director

REPLY TO:
SHIAWASSEE DISTRICT OFFICE
10650 BENNETT DR
MORRICE MI 48857-9792

July 24, 2000

Mr. Norm Riopelle
Grand Blanc Township
P.O. Box 1833
Grand Blanc, MI 48439

WSSN: 02745
Grand Blanc Twp - Central

Dear Mr. Riopelle:

SUBJECT: Lead and Copper Monitoring
For Compliance with U.S. EPA Lead and Copper Regulations

We received your report for the monitoring period: **June 1, 2000 through September 30, 2000**

Action Levels	Results this monitoring period		Next monitoring period	
	90th Percentile	Number of Samples Above Action Level	# of Samples Required	Take Samples Within These Dates
Lead 15 ppb	5.4 ppb	0	**5**	**June 1 and September 30, 2001** Submit results by October 10, 2001
Copper 1300 ppb	525 ppb	0		

ppb = parts per billion

Your results are within the U.S. EPA directed action levels. Please report these results on your *2000 Consumer Confidence Report* due on July 1, 2001.

Samples due during the next period mark your **third** round of **reduced annual** monitoring. Please make every attempt to select the same sites used in the previous monitoring period, giving Tier 1 sites first priority. If original sites are unavailable, select replacement sites based on the Tier 1, 2, and 3 criterion.

Enclosed are report forms and bottle ordering forms (bottles will not be mailed automatically). Please sample early in the monitoring period. If you have questions, please call us at the numbers below.

Sincerely,

Michael F. Prysby, P.E.
District Engineer
517-625-4670

Jean M. Shekter
Resource Analyst
517-625-4625

MFP:JMS:lw
Enclosures
cc: Mr. Dan Potter
Genesee County Health Department

EQP 0100e
(Rev. 1/98)

Water Quality Table Footnotes

Copper The detected level is based on the 90th percentile values of the most recent round of sampling. No samples exceeded the action level (AL).

Lead The detected level is based on the 90th percentile values of the most recent round of sampling. One sample exceeded the action level (AL).

Total Trihalomethanes The detected level and range values are determined by calculating the running annual average of all samples taken at a sampling point.

Turbidity The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits, 1 NTU for our filtration technology. Turbidity is a measure of the cloudiness of the water.

Total coliform The MCL is based on the presence of coliform bacteria in more than or equal to the highest monthly percentage of positve samples.

Fecal coliform The MCL is based on routine and repeat sampling

Unregulated contaminants Contaminants which USEPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Key to Detected Contaminants Tables

Symbol	Abbreviation for	Definition/Explanation
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
ppb	Parts per billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts per million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
n/a	Not applicable	
≥	More than or equal to	

Tests conducted by DWSD 2000 Regulated Detected Contaminants Tables

Contaminant	Test Date	Units	Health Goal MCLG	Allowed Level MCL	Level Detected	Range Low	Range High	Major Sources in Drinking Water
Inorganic Chemicals – Annually – at Finished Water Tap								
Fluoride	Sept. 2000	ppm	4	4	0.99	n/a	n/a	Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	Sept. 2000	ppm	10	10	0.38	n/a	n/a	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural soils.
Disinfection By-Products – Quarterly Monitoring in Distribution System								
Total Trihalomethanes	3/00-11/00	ppb	n/a	100 *(80)	18.7	16.6	18.7	By-Product of Drinking Water Chlorination.

Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Compliance is based on the total. * New MCL effective December 16, 2001.

Turbidity – Monitored every 4 hours at Plant Finished Water Tap

Highest Single Measurement	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.5 NTU (minimum 95%)	
0.11 NTU	100%	Soil Runoff

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. For turbidity levels 5 NTU or above a treatment technique (TT) is required.

Tests conducted by the City of Flint

Microbiological Contaminants – Monthly Monitoring in Distribution System

Contaminant	MCLG	MCL	Highest Number Detected	Major Sources in Drinking Water
Total Coliform Bacteria	0	Presence of Coliform bacteria ≥ 5% of monthly samples	In one Month 4	Naturally present in the environment.
E.coli	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or E.coli positive.	Entire year 0	Human waste and animal fecal waste.

Lead and Copper Monitoring at Customers' Tap

Contaminant	Test Date	Units	Health Goal MCLG	Action Level AL	90th Percentile Value*	Number of Samples Over AL	Major Sources in Drinking Water
Lead	2000	ppb	0	15	7	2	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2000	ppm	1.3	1.3	.05	0	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives.

*The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL additional requirements must be met.

Tests conducted by DWSD 2000 Unregulated Detected Contaminants Tables

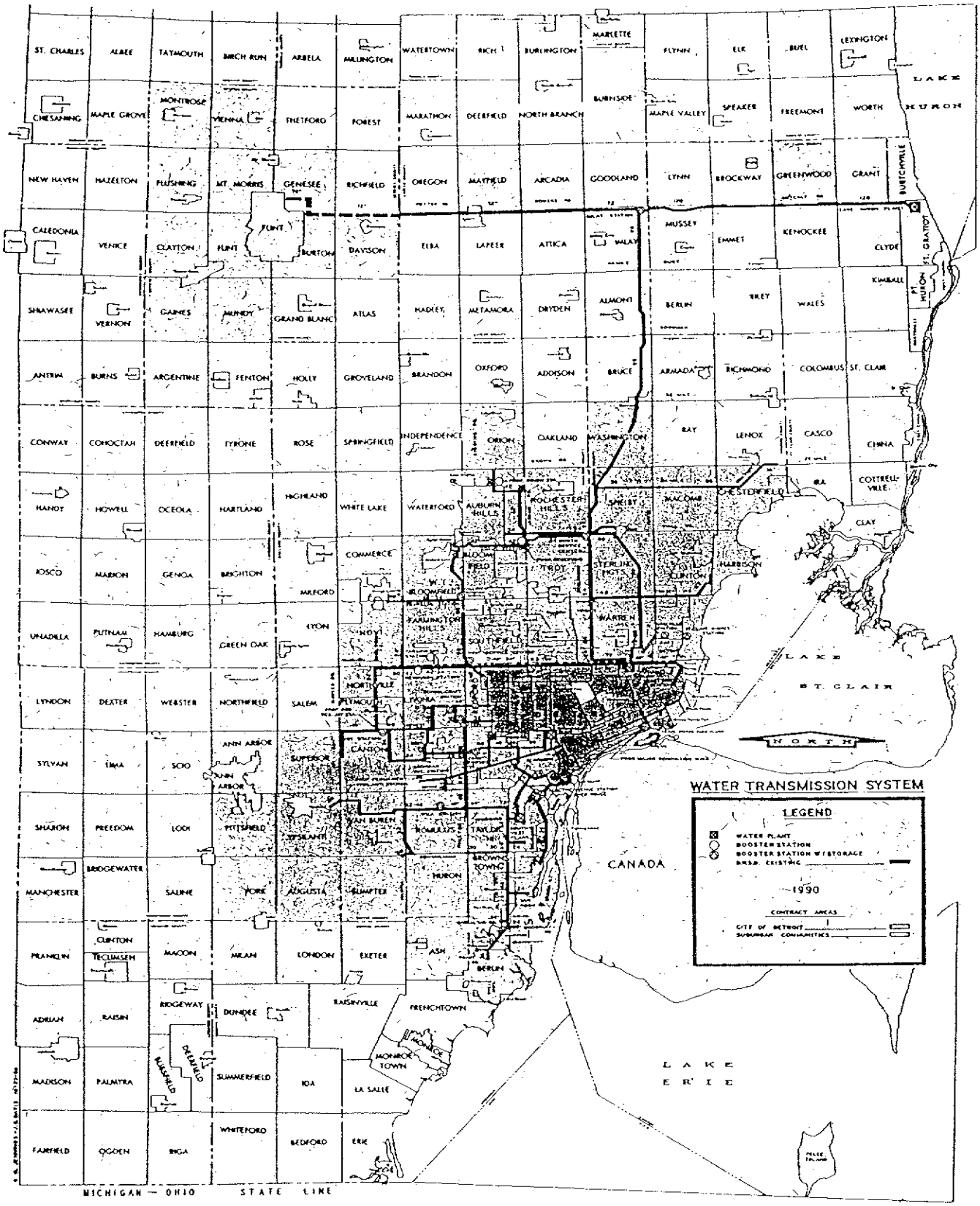
Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Contaminant	Test Date	Units	*Future MCLG	*Future MCL	Average Level Detected	Range Low	Range High
Trichloromethane (Chloroform)	3/00-11/00	ppb	0	n/a	10.4	4.2	18.0
Bromodichloromethane	3/00-11/00	ppb	0	n/a	6.0	3.4	9.9
Dibromochloromethane	3/00-11/00	ppb	60	n/a	2.2	1.7	2.7
Bromoform	3/00-11/00	ppb	0	n/a	0.1	0	0.2

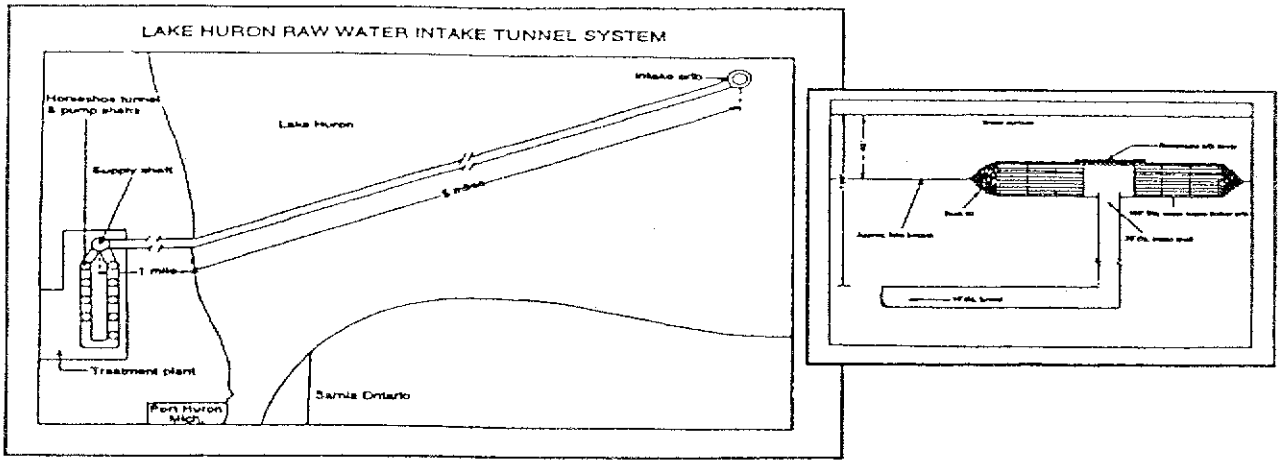
Chloroform, bromodichloromethane, dibromochloromethane, and bromoform are trihalomethanes. The MCL is set for the total or sum of these individual components.

*New MCLG effective December 16, 2001.

Water System: Service Area



Lake Huron Treatment Plant



Water for treatment at the Lake Huron Plant arrives via a deep tunnel with the intake off shore under 45 feet of water.

The six-mile long, 16-foot diameter raw water tunnel system and the Lake Huron Treatment Plant, located five miles north of the City of Port Huron, were constructed in the early 70's.

The main tunnel is 200 feet below the surrounding ground surface. After a 20-foot diameter vertical shaft was constructed at the plant site, an 18-foot diameter horizontal hole was bored through antrim shale deposits by means of a mechanical mole - one mile to the lake shore and five miles out under the lake to a second vertical shaft.

The second shaft as constructed from the tunnel vertically to the bottom of the lake using soil freezing methods. The free-standing horizontal hole was then lined with a one-foot- thick layer of concrete resulting in the 16-foot inside tunnel diameter.

The shaft facilities at the plant site were constructed using complex soil freezing techniques to insure that lake or ground water would not seep into the construction work.

For practical reasons and design economy, a raw water intake should be built at its ultimate or final desired size. Once a tunnel is in use, it is not feasible to close it down and enlarge at a later date. Constructing two smaller diameter tunnels at different times can be prohibitively expensive. Therefore, a mathematical principle used was allowing tunnel flow volume to be doubled without a tunnel diameter increase.

For example, the Lake Huron plant was sized to produce 800 million gallons a day (MGD) of treated water. Phase I called for a plant one-half that size of 400 MGD. A tunnel to supply Phase I would have been 11-feet, 4-inches in diameter. A second tunnel would have been required in the future.

By increasing the 11-foot, 4-inch tunnel by only 4-feet, 8-inches (to the 16-foot diameter size constructed), the tunnel's potential capacity was increased to 800 MGD. This was an investment in DWSD's future.

Due to the lowered population projections, the initial output capacity of the plant was scaled back to 240 MGD (300 MGD if all pumps are running). The 400 MGD can be reached by simply adding pumps. To reach the 800 MGD level, a transmission main, a sedimentation basin, pumps and filter sand would be needed.

Another built-in advantage for either population increases or for security and reliability purposes, allows an increase in the tunnel's capacity to 1,200 MGD simply by increasing intake velocities.

This additional 400 MGD increase can be made available under ideal no-icing (i.e., summer) conditions. However, to use this potential capacity on a permanent basis, additional pumps, treatment facilities and transmission mains would be necessary.

Construction of such facilities could increase the water system's reliability by providing alternate supplies to DWSD's two other downstream intake systems at Belle Isle and Fighting Island.

Lake Huron Treatment Plant

GENERAL STATISTICS

Area of site	- 457 Acres
Normal Rated Capacity	- 800 MGD
High Lift Pumping Capacity	- 300 MGD Present - 15 Future Pumps
Number of Filters	- 20 Present - 20 Future
Number of High Lift Pumps	- 5
Number of Low Lift Pumps	- 4
Total Reservoir Capacity	- 2 @ 15 MG Each

PRODUCTION RATES

Average Day	- 121.7 MG
Maximum Day	- 173 MG
Maximum Hour	- 210 MG

* MGD Million Gallons per Day

GENERAL INFORMATION

Location	-	3993 Metcalf Road, North Street, Fort Gratiot
Area of Site	-	457 Acres
Water Source	-	Lake Huron
Raw Water Tunnel	-	6 Miles - 16 ft. in diameter
Average Depth of Tunnel	-	190 Feet
Rated Plant Capacity	-	1200 MGD (Intake Capacity)
Reservoir Capacity	-	2 @ 15 Millions Gallons Each
Underfilter Storage	-	4 Million Gallons
Electric Power Supply	-	Detroit Edison
Transformers	-	2 @ 120 - 13.8 K.V.

PUMPING PLANTS

Low Lift Plant:

Function of Building	-	Houses pump which lift water from raw water tunnel to treatment plant level.
Building Shape	-	Rectangular
Cassion Depth	-	243 Feet
Building Height	-	59.5 Feet
Elevations (Sea Level)		
Pump Floor	-	618.5
Center Line of Pumps	-	623 (100 MGD) 624.7 (200 MGD)
Motor Floor	-	629.2 (100 MGD) 631.2 (200 MGD)
Number of Pumps	-	4
Type of Pumps	-	Byron Jackson Vertical Single Stage
Rated Capacity (53' Head)	-	2 @ 100 MGD, 2 @ 200 MGD
Pump Motors - Sychronous	-	2 @ 100 MGD 1250 Horse Power 450 RPM - 2 @ 200 MGD 2250 Horse Power 327 RPM

High Lift Plant:

Functions of Building	-	Houses pumps which supply potable water to the distribution system.
Elevations (Sea Level)		
Pump Floor - 603.5		
Motor Floor - 616.5		
Center Line of Pumps - 609		
Building Height	-	45.75 feet
Number of Pumps	-	5
Rated Capacity (416.5' Head)	-	5 @ 60 MGD
Pump Motors - Synchronous	-	5 @ 5500 Horse Power 600 RPM
Type of Pump	-	Johnson vertical four stage

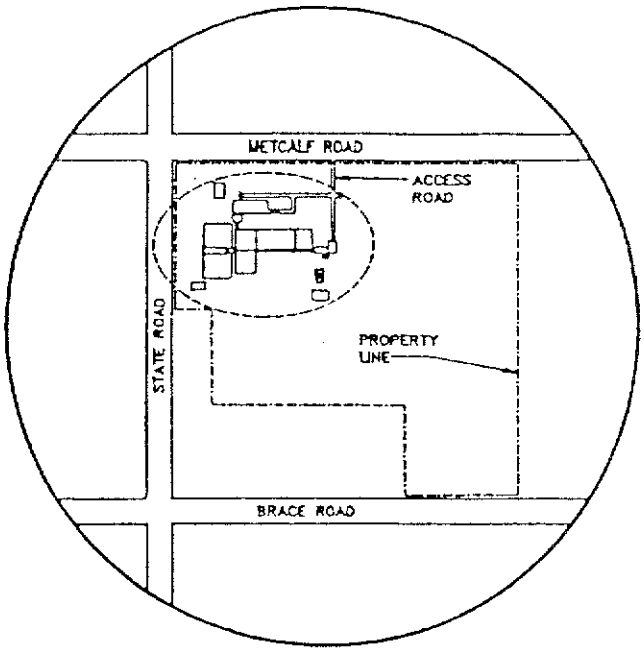
*MGD	=	Million Gallons Per Day
HP	=	Horsepower
RPM	=	Revolutions Per Minute

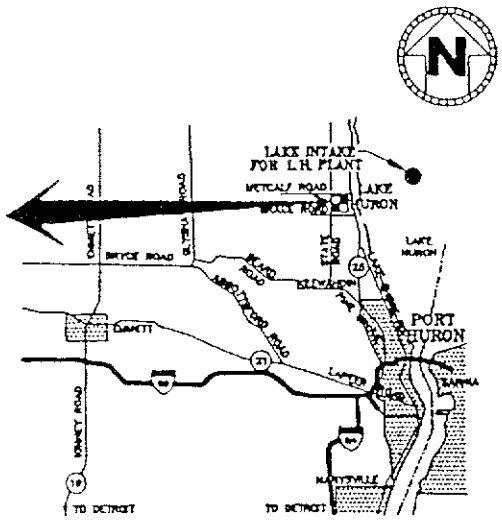
Disinfection		
Pre & Post Chlorination	-	Liquid chlorine to evaporators then gas to V-notch chlorinators
Turbidity Removal		
Chemical	-	Aluminum Sulfate (Aluminum Ion)
Feed system	-	3 Rotodip feeders
Rate of Feed	-	0.5 to 660 Gallons per hour
Taste & Odor Control		
Chemical	-	Powdered Activated Carbon
Feed System	-	3 Rotodip feeders
Rate of Feed	-	Raw water conduits
Sedimetation		
Rapid Mix Units	-	4 Vertical turbines
Number of Basins	-	2 Capacity 15 Million gallons each
Number of Flocculator Paddle Units	-	20 units 8 paddlels each
Flocculation Rotation	-	Vertical
Basin Retention Time	-	2.4 - 6.6 Hrs.
Filtration		
Number of Filters	-	20
Area Per Filter	-	2320 Square feet
Filtration Capacity	-	Average = 14 MGD
Water Per Unit	-	129,000 Gallons above the media
Length of Filter Run	-	Average 30 hours
Type of Underdrain	-	Wheeler
Gravel Layers	-	5 layers 14 inch deep reverse graded
Gravel Size	-	1/8" to 1" Diameter
Filter Media (Dual)	-	Sand - Anthracite
Effective Size	-	0.56mm - 0.9mm
Uniformity Coefficient	-	1.40 - 1.80
Troughs, Above Anthrafilt	-	32 inches
Frequency of Backwash	-	7 Per Day average
Wash Water Rates	-	5 & 60 MGD (2 - 28 inch rise/min.)
Length of Wash	-	13 Minutes
Surface of Wash Units	-	Palmer Sweeps
Wash Water System		
Capacity	-	3 Pumps @ 60 MGD each
Wash Water Pumps	-	3
Type of Pump	-	Johnson vertical single stage
Type of Motors	-	Induction 900 Horse power
Surface Wash	-	House service used

ppm	=	parts per million
mm	=	millimeter
gpm	=	gallons per minute

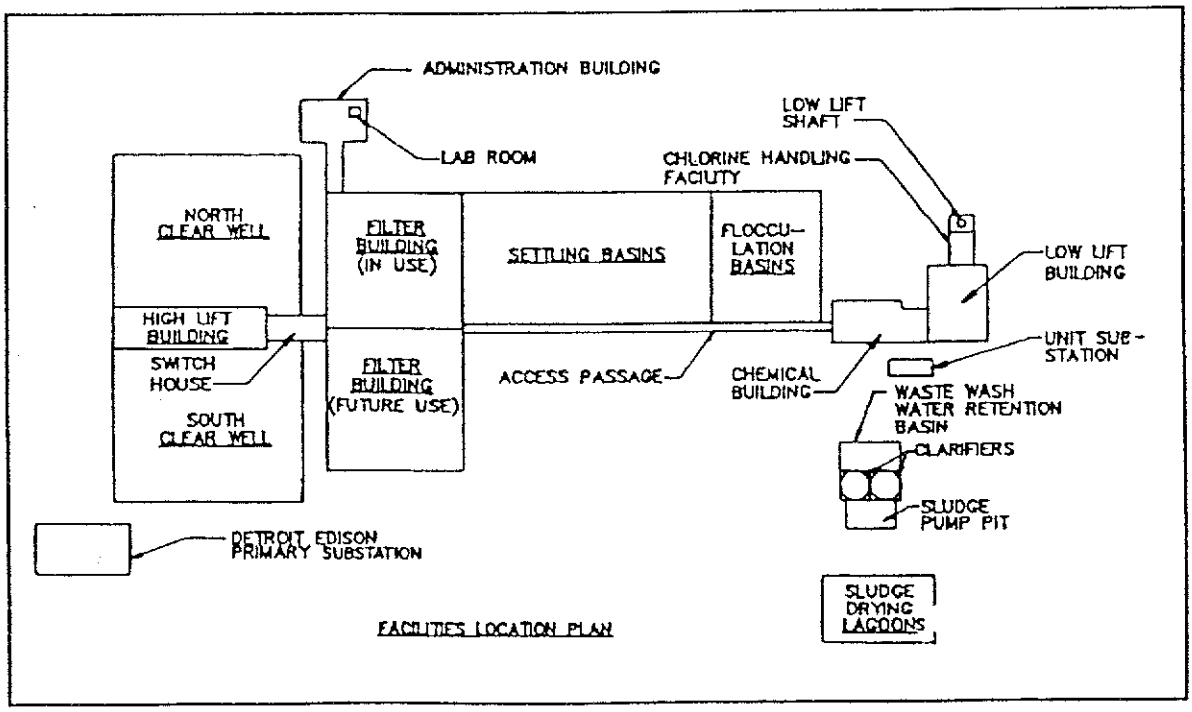
Lake Huron Treatment Plant

3993 Metcalf Road • Fort Gratiot, MI 48059





LOCATION MAP



FACILITIES LOCATION PLAN

Grand Blanc Township
Department of Public Works
G 5375 Saginaw Street
Grand Blanc, Michigan 48439