

Status of Performance
Evaluation CSO Basins in
Oakland County, Wayne
County, and the City of Detroit

Report to Judge Feikens at U.S. District
Court Hearing

April 19, 2001

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Rouge Watershed CSO Evaluation Status

<i>CSO Eval. Phase</i>	<i>CSO Evaluation Goal</i>	<i>CSO Evaluation Status</i>								
		<i>(A = achieved; P = partially achieved)</i>								
		<i>Wayne County</i>			<i>Oakland County</i>			<i>City of Detroit</i>		
		<i>Inkster</i>	<i>Redford</i>	<i>Dearborn Heights</i>	<i>Birmingham</i>	<i>Bloomfield Village</i>	<i>Acacia Park</i>	<i>Puritan-Fenkell¹</i>	<i>Seven Mile¹</i>	<i>Hubbell/¹ Southfield¹</i>
II	<i>Protect Public Health</i>	A	A	A	A	A	A	P	P	P
	<i>Eliminate Raw Sewage</i>	A	A	A	A	A	A			
III	<i>Achieve Water Quality Standards</i>		P ²		A ²	A ²	A ²			

¹The data obtained from this facility to date are insufficient for conducting the evaluation.

²The Total Residual Chlorine standard evaluation has not yet been conducted.

- This table summarizes the overall CSO evaluation status. It shows where the work groups have reached a consensus based on MDEQ’s “Criteria for Success in CSO Treatment”.
- The Phase II Goal of *Protecting Public Health* is being achieved at the six Oakland and Wayne County CSO basins. While monitoring at the three Detroit CSO basins is ongoing, data collected to date also show this goal is being achieved.
- The Phase II Goal of *Eliminating Raw Sewage* is being achieved at the six Oakland and Wayne County CSO basins.
- The Phase III Goal of *Achieving Water Quality Standards At Times of Discharge* is being achieved at the three Oakland County CSO basins, except for the Total Residual Chlorine (TRC) Standard (final acute value under Rule 323.1082) which is yet to be evaluated. This is also true for the Redford CSO basin, except for downstream areas affected by uncontrolled CSOs that have yet to be evaluated.

Eliminating Raw Sewage

Visual Observations of CSO Basin Effluent

CSO Basin	# of Observations	# of Observations w/ Sanitary Trash	Comments
Inkster	19	0	
Redford	14	1	Sanitary trash discharged following power failure (see netting study)
Dearborn Heights	9	0	
Acacia Park	3	0	
Birmingham	0	NA	Rarely discharges
Bloomfield Village	0	NA	Discharges to storm sewer. Outfall not accessible.

- The Phase II Goal of eliminating raw sewage was evaluated by visual observations and a netting study.
- Visual observations were performed during daylight hours at the four CSO basins where it was feasible, and were taken as representative of the six Oakland and Wayne County basins.
- No evidence of sanitary trash was seen in the effluent of those basins observed, except for a small amount on one occasion at the Redford CSO basin. This event was not viewed as a concern as it was caused by abnormal basin operation following a power failure.

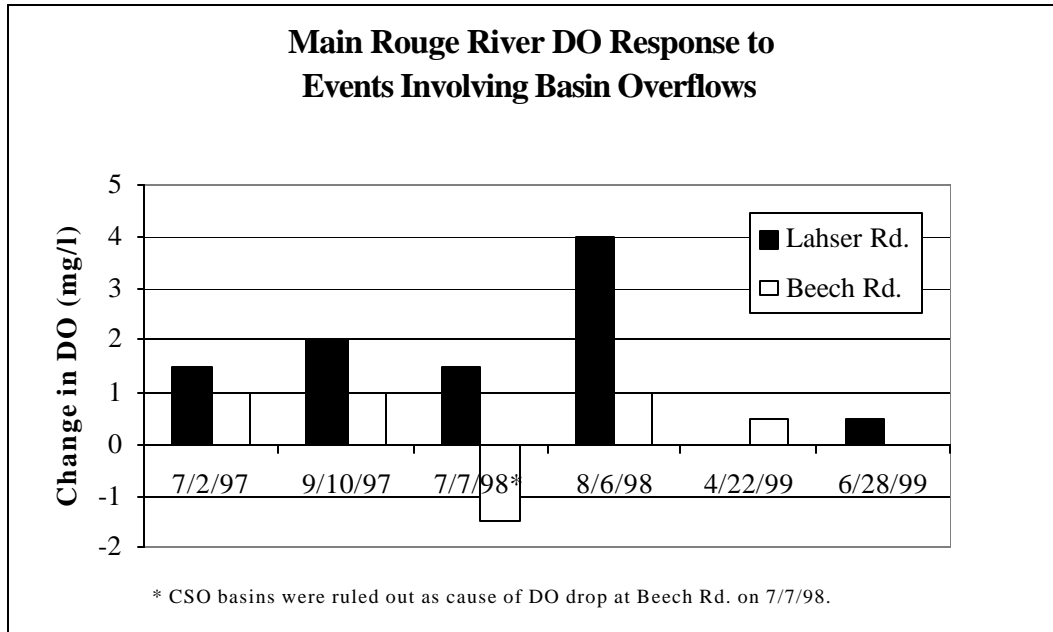
Eliminating Raw Sewage (continued)

Netting Study Results

Overflow Date	Basins with Discharge <u>AND</u> Effluent Nets Installed	Sanitary Debris Collected in Nets?
Jan. 22, 1999	Acacia Park	No
April 22, 1999	Acacia Park	No
	Dearborn Heights	No
June 12, 1999	Dearborn Heights	No
	Inkster	No
	Redford	Yes
June 28-29, 1999	Acacia Park	No
	Dearborn Heights	No
	Inkster	No
	Redford	No

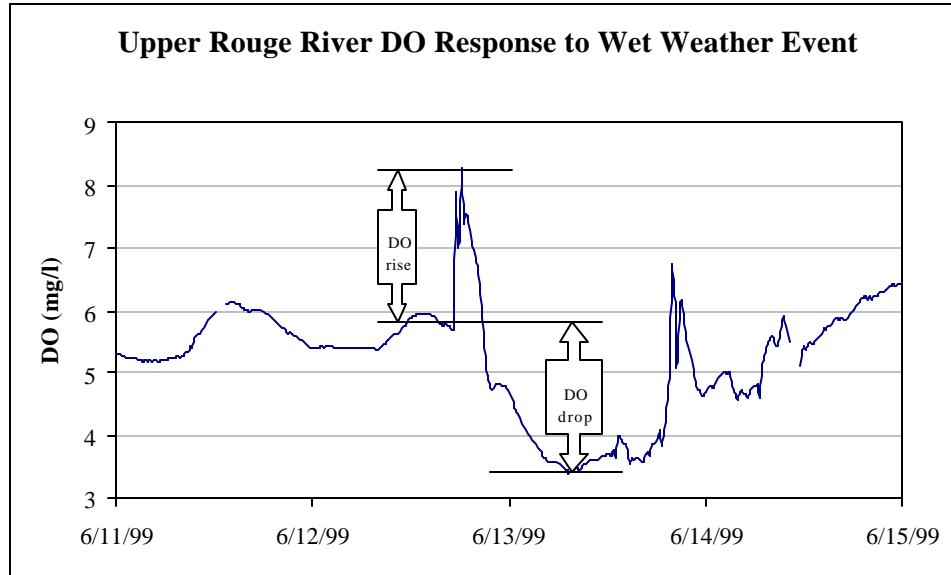
- A netting study was performed as a second aspect of evaluating the Phase II Goal of eliminating raw sewage. Mesh nets with small rectangular openings were placed over a portion of the basin outfall grating to determine if any sanitary trash were being discharged from the CSO basin into the river.
- Nets were placed on the outfalls of the four basins where it was feasible and examined after four overflow events. Results were taken to be representative of the six Oakland and Wayne County CSO basins.
- No sanitary trash was found in the nets following overflow events, except for a small amount in the net at the Redford CSO basin following the event that involved a power failure. Again, this was not viewed as a concern since it was an abnormal operating condition.

Dissolved Oxygen Standard – Main Rouge



- The State DO standard (Rule 323.1064) for the three Oakland County CSO basins was evaluated using continuous river DO monitoring and predictive models.
- At the two sites downstream of the Oakland County basins, the DO consistently increased during wet weather events with CSO basin overflows, except for DO sags caused by other sources. Models demonstrated that the monitoring locations were properly located to detect DO sags caused by the basins.
- All available monitoring and modeling data indicate the State DO standard is being achieved downstream of the Oakland County CSO basins at times of discharge, except for DO sags caused by other unknown sources.

Dissolved Oxygen Standard – Upper Rouge



- The State DO standard (Rule 323.1064) for the Redford CSO basin was evaluated using river monitoring upstream and downstream of the basin.
- While the DO downstream of the Redford basin generally increased initially during wet weather events, it sometimes dropped below the DO standard later in the event. Since this pattern was nearly identical upstream and downstream of the Redford basin, it was clearly not attributable to the basin but to another unknown source.
- All available monitoring data indicate the state DO standard is being achieved from the Redford CSO basin downstream to the Bell Branch confluence at times of basin discharge, except for DO sags caused by other unknown sources. Predictive modeling will be used to identify any impacts farther downstream where direct monitoring is not possible due to uncontrolled CSOs.

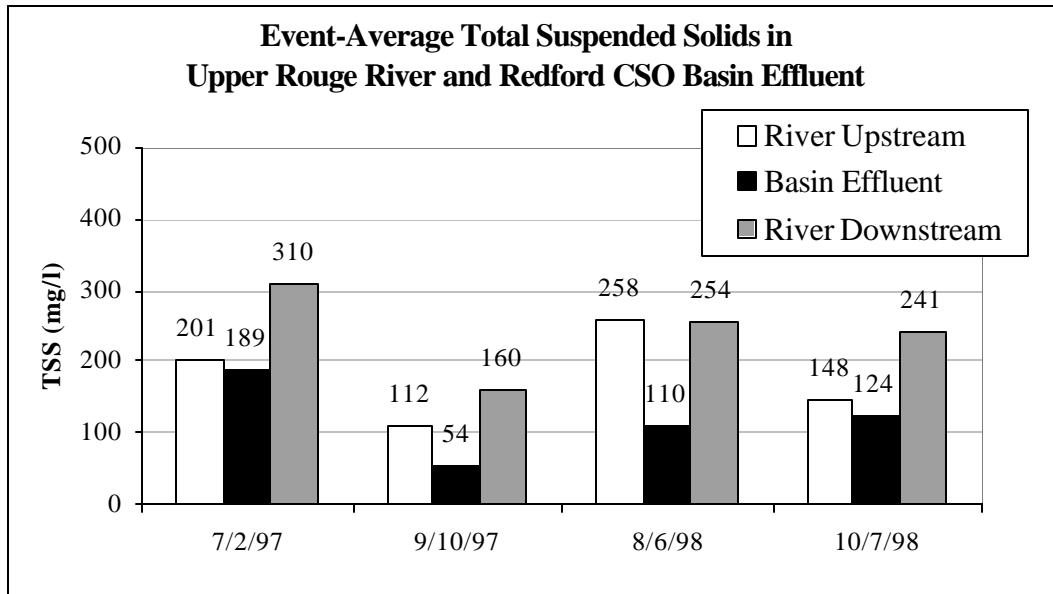
Health of the Biological Community

Biological Community Scoring Example

Metric #	Metric Description	Scores at Site B5
1	Total Number of Taxa	-1
2	Total Number of Mayfly Taxa	-1
3	Total Number of Caddisfly Taxa	-1
4	Total Number of Stonefly Taxa	-1
5	Percent Mayfly Composition	1
6	Percent Caddisfly Composition	0
7	Percent Contribution of the Dominant Taxon	-1
8	Percent Isopods, Snails, and Leeches	1
9	Percent Surface Dependent	1
	TOTAL SCORE:	-2

- As specified in MDEQ’s “[Criteria for Success in CSO Treatment](#)”, the health of the biological community was used as a surrogate for toxic materials (Rule 323.1057) and other pollutants in the basin effluent.
- Macroinvertebrate samples were collected at sites upstream and downstream of the three Oakland County CSO basins and the Redford CSO basin. A total score was determined for each site, as shown in this example. Macroinvertebrate communities at all sites scored in the acceptable range, although scores were neutral to low both upstream and downstream of the CSO basins.
- Water quality standards for toxic substances and other pollutants are presumed to be achieved upstream and downstream of the Oakland County and Redford CSO basins, even at times of discharge, based on no measurable effect of these discharges on the health of the biological community.

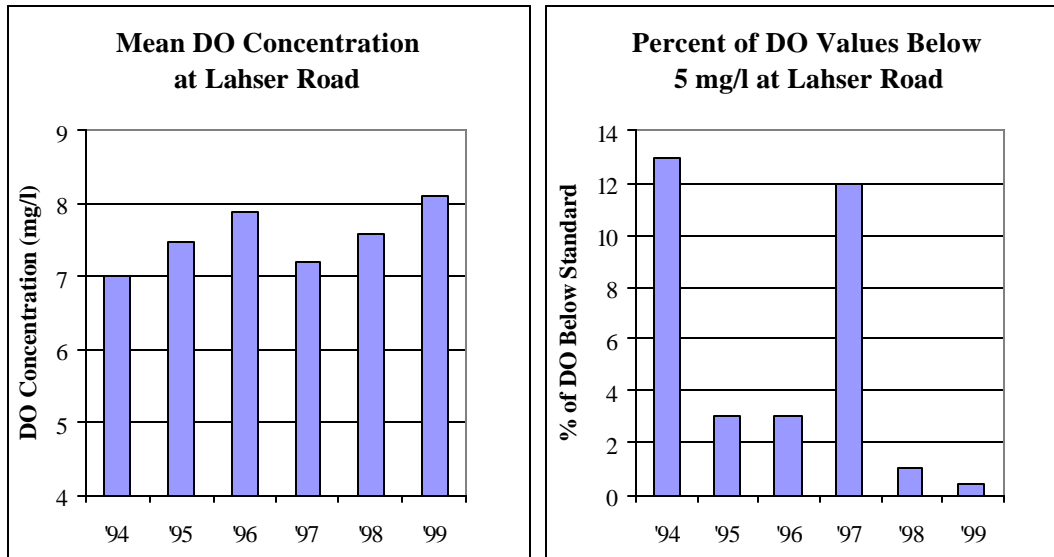
Physical Characteristics Standard



- The Physical Characteristics Standard (Rule 323.1050) for the six Oakland and Wayne County CSO basins was evaluated based on the presence of turbidity, suspended solids, oil films or deposits in “quantities which are or may become injurious to a designated use”.
- As an example of part of this evaluation, event-averaged basin effluent concentrations of Total Suspended Solids (TSS) were consistently found to be lower than event-averaged river concentrations of TSS, both upstream and downstream of the basins.
- The documented data for the physical properties considered indicate there are no unnatural physical properties in quantities that are considered injurious to any designated use at times of basin discharge.

Main Rouge River DO Improvements

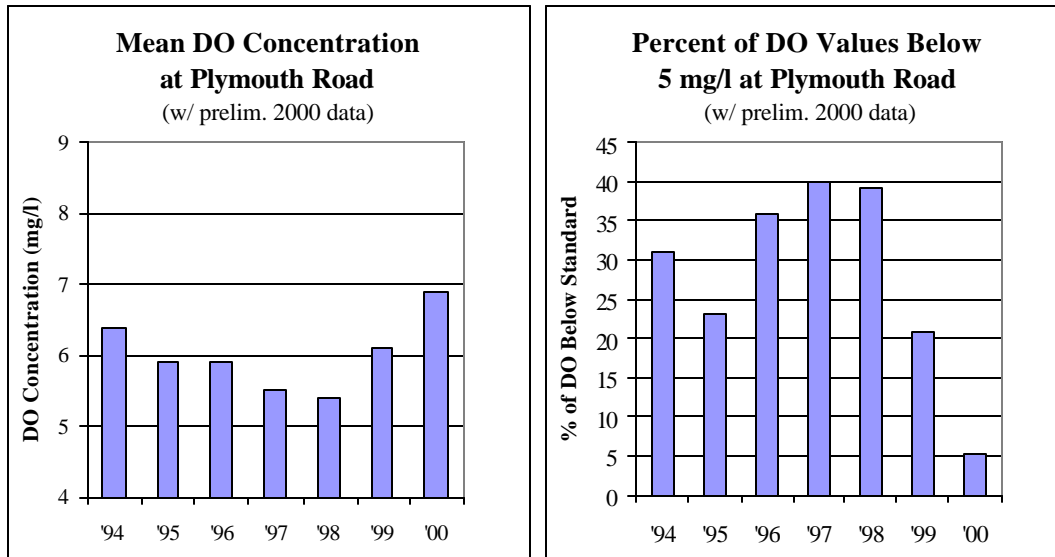
Main Rouge River DO at Lahser Road (May-Oct)



- The various CSO control measures implemented to date are a big part of the reason for positive trends in the Rouge River, as seen in river DO measurements from the Wayne County Rouge Program Office monitoring network. While temperature and rainfall differences can cause some variations from year to year, the overall trends are clear. Here are a couple examples:
- In the Main Rouge River within Beverly Hills, improvements are evident downstream of the Oakland County CSO basins and a sewer separation project that became operational in 1997 and 1998.
 - Mean DO concentrations have increased from 7.0 mg/l in 1994 to 8.1 mg/l in 1999 – the best year on record.
 - The percent of DO measurements below the 5 mg/l State standard dropped from 13 percent in 1994 to near zero in 1999.

Main Rouge River DO Improvements (cont.)

Main Rouge River DO at Plymouth Road (May-Oct)



- In the Main Rouge River within Detroit, improvements are evident downstream of two Detroit CSO basins, the Redford CSO basin, and a number of other CSO control measures that became operational in 1997 through 1999.
 - Mean DO concentrations have increased significantly from 5.4 mg/l in 1998 to 6.9 mg/l in 2000.
 - The percent of DO measurements below the 5 mg/l State standard dropped from 40 percent in 1998 to 5 percent in 2000 – the best year on record.