Date: November 20, 2003

To: *E. coli* Workgroup

From: Catherine Hess, Chief
Municipal NPDES Permits Section, OWQ

Re: Effluent Data from Waste Stabilization Lagoons which currently monitor for *E. coli*

At our last workgroup meeting, we decided it was time once again to take a look at the effluent data IDEM has been receiving from the waste stabilization lagoons in Indiana which have been monitoring for *E. coli*. Unfortunately this monitoring requirement has not been added to very many of these NPDES permits as of yet, because we are still in the process of renewing many of them. (The permit renewals will contain monitoring requirements for *E. coli*.) Therefore, the amount of reported data is still very limited, and as you will see in the attached pages, the data has some problems, such as the following:

1. Some of the permittees appear to be reporting arithmetic averages, rather than the geometric mean for the monthly average values.
2. It is unclear whether the data has been QA/QC'd
3. One reason for the limited data is the fact that lagoon systems do not necessarily discharge every month, and *E. coli* monitoring is typically only required during the months of April 1 through October 31 (recreational season).

None of these facilities currently have any sort of disinfection equipment processes in place. While the data suggests that some of these facilities will need to have E. coli limits, there are also several that appear to be doing quite well at meeting the *E. coli* standard. The limited data makes it difficult to perform an analysis of the effluent data. It should be noted that it may be a hardship for some communities with lagoon systems to install disinfection equipment, in part because there may not be sufficient room there at the site of the lagoons to install such equipment.

MUNICIPAL EFFLUENT DATA

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ALLEN CNTY REGNAL SWR DIS. IN0048119 HOAGLAND ALLEN
4-celled controlled discharge waste stabilization lagoon with an average design flow of 0.084 MGD

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	08/31/00	E.COLI, MTEC-MF	40.0	40.0
001A	05/31/01	E.COLI, MTEC-MF	120.0	120.0
001A	04/30/02	E.COLI, COLONY FORMING UNITS (CFU)	1.0	
001A	07/31/01	E.COLI, COLONY FORMING UNITS (CFU)	NR	13500.0
001A	10/31/01	E.COLI, COLONY FORMING UNITS (CFU)	104.0	116.0
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	28.0	28.0
001A	10/31/02	E.COLI, COLONY FORMING UNITS (CFU)	5.2	5.2
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	3.0	17.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	54.0	54.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	163.0	276.0

NR = no data reported for this column.

BAINBRIDGE MUNICIPAL WWTP IN0040941 BAINBRIDGE PUTNAM
2-celled flow-through waste stabilization lagoon with an average design flow of 0.082 MGD

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	341.76	840.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	9.367	770.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	17.3	260.0
001A	08/31/03	E.COLI, COLONY FORMING UNITS (CFU)	23.2	160.0

BLOOMFIELD MUNICIPAL STP IN0022373 BLOOMFIELD GREENE
single-celled flow-through waste stabilization lagoon with an average design flow of 0.22 MGD

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	04/30/02	E.COLI, COLONY FORMING UNITS (CFU)	260.0	300.0
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	9.8	12.4
001A	06/30/02	E.COLI, COLONY FORMING UNITS (CFU)	35.0	40.0
001A	08/31/02	E.COLI, COLONY FORMING UNITS (CFU)	57.5	120.0
001A	09/30/02	E.COLI, COLONY FORMING UNITS (CFU)	95.0	120.0
001A	10/31/02	E.COLI, COLONY FORMING UNITS (CFU)	110.0	120.0
001A	04/30/03	E.COLI, COLONY FORMING UNITS (CFU)	0.000	0.000
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	12.0	32.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	3678.0	15900.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	105.2	500.0
001A	08/31/03	E.COLI, COLONY FORMING UNITS (CFU)	8.3	32.0

BOURBON MUNICIPAL STP IN0022438
2-celled controlled discharge waste stabilization lagoon with an average design flow of
Permittee has a land application permit and usually disposes of the effluent via land app.

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	**01/31/02**	**E.COLI, COLONY FORMING UNITS (CFU)**	**35.0**	**60.0**
001A	**02/28/02**	**E.COLI, COLONY FORMING UNITS (CFU)**	**2.1**	**NR**
001A	**03/31/02**	**E.COLI, COLONY FORMING UNITS (CFU)**	**4.0**	**5.0**
001A	**04/30/02**	**E.COLI, COLONY FORMING UNITS (CFU)**	**190.0**	**355.0**

NR = no data reported for this column.

BURNETTSVILLE MUNICIPAL STP IN0039802 BURNETTSVILLE WHITE
2-celled controlled discharge waste stabilization lagoon with an average design flow of 0.046

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	04/30/03	E.COLI, COLONY FORMING UNITS (CFU)	8.0	11.0
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	8.0	32.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	8.0	16.0
001A	08/31/03	E.COLI, COLONY FORMING UNITS (CFU)	1.0	1.0
001A	09/30/03	E.COLI, COLONY FORMING UNITS (CFU)	6.0	20.0

CAMPBELLSBURG MUNICIPAL WWTP IN0022489 CAMPBELLSBURG WASHINGTON
2-celled controlled discharge waste stabilization lagoon with an average design flow of 0.066

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	04/30/03	E.COLI, COLONY FORMING UNITS (CFU)	20.0	50.0
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	153.0	340.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	1374.0	6700.0

MATTHEWS MUNICIPAL STP IN0040321 MATTHEWS GRANT
3-celled controlled discharge waste stabilization lagoon with an average design flow of 0.110

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	0.56	2000.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	100.0	2000.0
001A	08/31/03	E.COLI, COLONY FORMING UNITS (CFU)	35.5	74.0

MONROEVILLE MUNICIPAL STP IN0021423 MONROEVILLE ALLEN
3-celled controlled discharge waste stabilization lagoon with an average design flow of 0.23

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	04/30/01	E.COLI, MTEC-MF	1226.6	2900.0
001A	08/31/01	E.COLI, COLONY FORMING UNITS (CFU)	660.0	660.0
001A	10/31/01	E.COLI, COLONY FORMING UNITS (CFU)	0.43	0.46
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	2065.0	3600.0

001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	600.0	420.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	528.0	1000.0
001A	09/30/03	E.COLI, COLONY FORMING UNITS (CFU)	865.0	1600.0

MONTPELIER MUNICIPAL STP IN0020117 MONTPELIER BLACKFORD
2-celled flow-through waste stabilization lagoon with an average design flow of 0.28

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	04/30/01	E.COLI, MTEC-MF	8121.0	12200.0
001A	05/31/01	E.COLI, MTEC-MF	3008.0	17000.0
001A	06/30/01	E.COLI, MTEC-MF	34022.0	49000.0
001A	07/31/01	E.COLI, COLONY FORMING UNITS (CFU)	21151.0	38000.0
001A	08/31/01	E.COLI, COLONY FORMING UNITS (CFU)	13795.0	120000.0
001A	10/31/01	E.COLI, COLONY FORMING UNITS (CFU)	1782.0	42000.0
001A	04/30/02	E.COLI, COLONY FORMING UNITS (CFU)	87.0	1920.0
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	156.0	1000.0
001A	06/30/02	E.COLI, COLONY FORMING UNITS (CFU)	37.0	450.0
001A	07/31/02	E.COLI, COLONY FORMING UNITS (CFU)	33.0	1000.0
001A	08/31/02	E.COLI, COLONY FORMING UNITS (CFU)	764.0	2000.0
001A	04/30/03	E.COLI, COLONY FORMING UNITS (CFU)	423.358	17000.0
001A	05/31/03	E.COLI, COLONY FORMING UNITS (CFU)	39.1	50.0
001A	06/30/03	E.COLI, COLONY FORMING UNITS (CFU)	76.6	150.0
001A	07/31/03	E.COLI, COLONY FORMING UNITS (CFU)	377.97	2000.0
001A	08/31/03	E.COLI, COLONY FORMING UNITS (CFU)	38.8	100.0
001A	09/30/03	E.COLI, COLONY FORMING UNITS (CFU)	65.0	110.0

POSEYVILLE MUNICIPAL STP IN0040517 POSEYVILLE POSEY
2-celled controlled discharge waste stabilization lagoon with an average design flow of 0.42

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	09/30/01	E.COLI, COLONY FORMING UNITS (CFU)	10.6	12.4
001A	10/31/01	E.COLI, COLONY FORMING UNITS (CFU)	22.7	32.4
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	1.0	1.0
001A	08/31/02	E.COLI, COLONY FORMING UNITS (CFU)	32.8	60.0

TENNYSON MUNICIPAL STP IN0041670 TENNYSON WARRICK
2-celled controlled discharge waste stabilization lagoon with an average design flow of 0.045

Outfall	MRO date	Parameter	Monthly Ave.	Daily Max.
001A	05/31/02	E.COLI, COLONY FORMING UNITS (CFU)	11.2399	142.0
001A	04/30/02	E.COLI, COLONY FORMING UNITS (CFU)	10.46	30.0
001A	01/31/02	E.COLI, COLONY FORMING UNITS (CFU)	27.31	200.0