Ambient Stream Chemistry Monitoring Network

Figure 1

Kansas Department of Health and Environment
2004 303(d) Listing Methodology
Kansas Department of Health and Environment
2004 303(d) Listing Methodology

Figure 3
Lake/Wetland Monitoring Network

Figure 4

Kansas Department of Health and Environment
2004 303(d) Listing Methodology
Cimarron River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Contributing Area (Lake Site)
Contributing Area (Stream Site)

County
Cimarron Basin Boundary

WQ Sampling Site
• Fixed Site
• Rotational Site

Stream
Lake (Station Number)
Contributing Area (Stream Site)
Contributing Area (Lake Site)

2004 303(d) Listing Methodology

Figure 5
Kansas/Lower Republican River Basin
Contributing Areas (Assessment Units) to
Ambient Surface Water Quality Sampling Sites

Figure 6

2004 303(d) Listing Methodology
Lower Arkansas River Basin
Contributing Areas (Assessment Units) to
Ambient Surface Water Quality Sampling Sites

WQ Sampling Site
- Fixed Site
- Rotational Site
- Biological Site
- Fish Tissue Site

Stream

Lake (Station Number)

Contributing Area (Stream Site)

Contributing Area (Lake Site)

County

Lower Arkansas Basin Boundary

Figure 7

2004 303(d) Listing Methodology
Figure 8

2004 303(d) Listing Methodology
Missouri River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Figure 9
Figure 10

Neosho River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

WQ Sampling Site
- Fixed Site
- Rotational Site
- Biological Monitoring Site
- Fish Tissue Site

Stream
- Lake (Station Number)
- Contributing Area (Stream Site)
- Contributing Area (Lake Site)
- County
- Neosho Basin Boundary

Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

2004 303(d) Listing Methodology
Solomon River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Figure 11
Smoky Hill/Saline River Basin Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

2004 303(d) Listing Methodology

Figure 12
Upper Arkansas River Basin
Contributing Areas (Assessment Units) to
Ambient Surface Water Quality Sampling Sites

2004 303(d) Listing Methodology

Figure 13
Upper Republican River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Figure 14

2004 303(d) Listing Methodology, Appendix
Verdigris River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Figure 15

2004 303(d) Listing Methodology
Walnut River Basin
Contributing Areas (Assessment Units) to Ambient Surface Water Quality Sampling Sites

Contributing Area (Lake Site)
Contributing Area (Stream Site)
County
Walnut Basin Boundary

WQ Sampling Site
- Fixed Site
- Rotational Site
- Biological Monitoring Site
Stream
Lake (Station Number)
Contributing Area (Stream Site)
Contributing Area (Lake Site)
County
Walnut Basin Boundary

Figure 16
Summary of logic used to place lake/wetland monitoring samples into the categories for the Kansas 2004 303(d) List

Figure 17a
Summary of logic used to place biological monitoring samples into the categories for the Kansas 2004 303(d) List

Start

Does AU/Pollutant have a TMDL?
  yes
  no

Does Analysis support Delisting?
  yes
  no

Is AU/Pollutant on 2002 List?
  yes
  no

Are there three or more samples over the latest five years?
  yes
  no

Is a TMDL completed?
  yes
  no

Do one or more of the metrics indicate partial or non-support?
  yes
  no

Does the 2004 305(b) report indicate full support?
  yes
  no

Does AU/Pollutant have a TMDL?
  yes
  no

Does Analysis support Delisting?
  yes
  no

Is a TMDL completed?
  yes
  no

Does two or more metrics showing non-support?
  yes
  no

Does two or more metrics showing partial support, or do the metrics show one full, one partial, and one non-support?
  yes
  no

Does percent mussel loss data show partial or non-support?
  yes
  no

2004 303(d) List

Category 1b

Category 1a

Category 2

Category 3

Category 4a

Category 5 1st priority

Category 5 2nd priority

Category 5 3rd priority

2004 Kansas 303(d) Listing Methodology, Appendix

Figure 17b
Summary of logic used to place fish tissue samples into the categories for the Kansas 2004 303(d) List

Start

- Does AU/Pollutant have a TMDL?
  - yes → Does Analysis support Delisting?
    - yes → Category 1b
    - no → Category 3
  - no → Is AU/Pollutant on 2002 List?
    - yes → Are there three or more years of data over the latest five years?
      - yes → Do fish tissue samples show excessive amounts of bioaccumulative pollutants?
        - yes → Category 2nd priority
        - no → Category 3
      - no → Category 1a
    - no → Category 4a

2004 303(d) List

Figure 17c
Summary of logic used to place watersheds (stream assessments units (AU)) into the categories for the Kansas 2004 303(d) List

Start

Does AU/Pollutant have a TMDL? yes no

Does Statistical Analysis support Delisting? yes no

Does AU/Pollutant on 2002 List? yes no

Did any samples exceed nitrate WQS? yes no

Did >2 samples exceed acute AL WQS (1996-2003)*? yes no

Was 2002 Listing in Error? yes no

Did 1-2 samples exceed acute AL WQS? yes no

Were >2 exceedances observed? yes no

Is the sample size >12? yes no

Nonparametric Analysis yes

Is there Statistical Evidence of Impairment at alpha = 0.10? yes no

Is # of Exceedances within 1 of critical #? yes no

Any of the Exceedances occur within the most recent Sampling Year? yes no

2004 303(d) List

Is LCL in Top 3rd? yes no

Parametric Analysis (rank LCLs)

Is LCL in Middle 3rd? yes no

Is LCL in Bottom 3rd? yes no

Category 1b

Category 1a

Category 4a

Category 4b

Category 4c

Category 3

Category 5 1st priority

Category 5 2nd priority

Category 5 3rd priority

Category 2

Category 5 1st priority

Category 5 2nd priority

Category 5 3rd priority

2004 Kansas 303(d) Listing Methodology, Appendix

Figure 18
II. What are the components of an Integrated Report?

- Category 1: All designated uses are met;
- Category 2: Some of the designated uses are met but there is insufficient data to determine if remaining designated uses are met;
- Category 3: Insufficient data to determine whether any designated uses are met;
- Category 4: Water is impaired or threatened but a TMDL is not needed;
- Category 5: Water is impaired or threatened and a TMDL is needed.