TMDL FACT SHEET

NEWCOMBE CREEK

Project Name:	Newcombe Creek: Chlorides/TDS/Salinity
Location:	Elliott County, Kentucky
Scope/Size:	Newcombe Creek: River mile 0.0 to 11.9
TMDL Issues:	Point and Nonpoint Sources
Data Sources:	Kentucky Department for Environmental Protection, Division of Water (KDEP-DOW), SMC Martin Inc.
Control Measures:	KPDES Regulations, Kentucky Non-point Source TMDL Implementation Plan, Kentucky Watershed Framework
Summary:	Newcombe Creek, a tributary to the Little Sandy River was determined not to be supporting the designated use of aquatic life. Therefore, the stream was listed on the 303(d) list for Total Maximum Daily Load (TMDL) development. The stream segment is impacted by chlorides (in conjunction with total dissolved solids [TDS] and salinity), the result of brine discharges to surface streams from oil production activities (stripper wells). The period of greatest impact is during low base-flow conditions.

TMDL Development: Total maximum daily loads in pounds per day (lbs/day) were computed based on the allowable maximum concentration for chloride (the standard for chronic exposure is 600 milligrams per liter [mg/l] for warm water aquatic habitat) and the estimated 7-day, 10-year low-flow value (0.01 ft^3/sec). The TMDL was done for chloride because numerical criteria are available for chloride but not for TDS or salinity. Because these parameters are so closely related to chloride, the TMDL for chloride will also account for impairments resulting from TDS and salinity.

Summary of Total Maximum Daily Load Allocations for Chloride for Newcombe Creek (in pounds per day)

Source:	Chloride Load At River Mile 0.0
All Sources	31
Background	1
Waste Load Allocations (WLAs)	
Existing permits	14
New permits (no offset)	8
Maximum of (with offset)	13
Load Allocation (LAs)	
If no offset for WLAs	8
Minimum of (with offset)	3

Background loads are based on an in-stream concentration of 11 mg/l (from Ruin Creek). After background and permitted discharge loads were subtracted from the Total Maximum

Daily Load from all sources, the Remaining Allowable Load (16 lbs/day at river mile 0.0) will be allocated as follows:

(1) 50% of the Remaining Allowable Load, 8 lbs/day at river mile 0.0, will be made available for future permitted point source discharges (WLAs);

(2) 50% of the Remaining Allowable Load, 8 lbs/day at river mile 0.0, will be allocated for nonpoint source discharges (LAs).

In addition, if point discharge permit requests should exceed the above criteria (50% of the Remaining Allowable Load), then the KDEP-DOW will allow a permittee to remove an existing nonpoint source (such as an abandoned well, holding pond, or [holding] tank) such that the 50% value of the Remaining Allowable Load allocated for point discharges (WLAs) could be increased (referred to as an offset) based on an estimate in the reduction of the load contributed by the source(s), to the nonpoint source load to the stream (LA). However, the total amount of the Remaining Allowable Load allocated for permitted point source discharges (WLAs) shall not exceed 80%, 13 lbs/day at river mile 0.0. This will allow for a potential nonpoint source (LA) contribution of 3 lbs/day at river mile 0.0, and constitutes an explicit margin of safety. The allocations were made in this manner because of the uncertainty of the impact of abandoned ponds and failing separator tanks.

Implementation Controls: Discharge permits were required from oil producers starting in 1987. Many of these permits were not renewed by the producers because production has ceased or has significantly decreased. Production in Kentucky has dropped from 17,700 barrels in 1986 to 9,400 barrels in 1996. Correspondingly, production has decreased in the Newcombe Creek basin. The drop in production is the result of a drop in crude oil prices worldwide, making production less economical, particularly for smaller producers. Chloride levels from nonpoint sources should decrease over time as dilution lowers concentration levels in existing ponds. The stream was initially monitored for chloride in 1985 and a concentration value of 2,020 mg/l was obtained, which is greater than the water quality standard for Warm Water Aquatic Habitat of 600 mg/l. In 1991, the stream was monitored again and a chloride concentration of 181 mg/l was determined, which is lower than the chloride standard. Kentucky is currently conducting stream monitoring on a watershed basis. Sampling to determine levels of chloride, TDS, and salinity will be conducted during the period of April 2002 to March 2003 in this watershed. If chloride concentrations are determined to be below 600 mg/l, then a request will be made to remove the site from the list of impaired waters.

If oil production in the basins appreciably increases (which would most likely result from increasing oil prices or an oil supply shortage), permit compliance will be pursued and periodic monitoring of stream water quality including chloride, TDS, and salinity levels will be conducted as deemed appropriate.