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Office of Continuing Legal Education at the University of Kentucky College of Law

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CASE LAW UPDATE

CERCLA, RCRA, Other Waste Cases, and Administrative Practice

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SECTION A



**CASE LAW UPDATE:
CERCLA, RCRA, OTHER WASTE CASES,
AND ADMINISTRATIVE PRACTICE**

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I. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 et seq.

A. Bestfoods and Its Progeny

United States v. Bestfoods,

524 U.S. 51, 118 S.Ct. 1876, 141 L.Ed.2d 43 (1998).

ISSUE:

Under what circumstances may a parent corporation be held liable for environmental cleanup costs incurred as a result of actions of a subsidiary when a cost recovery action is brought pursuant to § 107(a)(2) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9607(a)(2)?

HOLDING:

The parent corporation may be indirectly liable for the actions of the subsidiary if the facts and circumstances warrant piercing the corporate veil. The parent corporation may be directly liable if it is an "operator" under CERCLA. As described by the Court an operator is simply someone who directs the workings of, manages, or conducts the affairs of a facility. To sharpen the definition for purposes of CERCLA's concern with environmental contamination, an operator must manage, direct, or conduct operations specifically related to pollution, that is, operations having to do with the leakage or disposal of hazardous waste, or decisions about compliance with environmental regulations.

Bestfoods, 524 U.S. at 59.

The Court remanded the case so that the district court could evaluate whether the parent corporations had exercised sufficient control to incur direct liability as operators.

FACTS:

Over time two different parent corporations had, through their wholly owned subsidiaries, been associated with a chemical plant where the subsidiaries manufactured chemicals. CPC International, Inc. owned Ott Chemical Co. (Ott II), and Aerojet-General Corp. owned Cordova Chemical Company which, in turn, owned Cordova Chemical Company of Michigan. Ott II and Cordova of Michigan manufactured chemicals at the facility. After contamination was discovered at the site, the Environmental Protection Agency became involved in the cleanup effort and then brought a cost recovery action under § 107 against the parent corporations, the subsidiaries, and one individual defendant, Arnold Ott.

ANALYSIS:

The Court noted two well-established principles of corporate law: (1) in general, a parent corporation is not liable for the acts of its subsidiary; and (2) a parent corporation may be held liable for the acts of its subsidiary if the facts warrant piercing the corporate veil. Because the

legislature did not indicate that CERCLA changed these common-law principles, the Court found no reason to depart from them. The Sixth Circuit had held that the facts of the case did not support the indirect or derivative liability that arises from piercing the corporate veil. In a footnote the Court recognized that various authorities differed on whether state or federal common law should apply to indirect liability under CERCLA but, because the parties had not challenged that aspect of the Sixth Circuit's decision, the Court left open the question of which law is applicable.

The Court then turned to a parent corporation's direct liability as an operator of the chemical manufacturing facility. "Operator" is defined by 42 U.S.C. § 9601(20)(A)(ii), but the statutory definition provides little guidance. The Court rejected a test that asked only "whether the parent actually operated the business of its subsidiary." Bestfoods, 524 U.S. at 59. The Court also rejected imposing direct liability merely because a parent and a subsidiary share officers or directors. Instead, the Court focused on whether the parent was involved in operating the facility in question.

The Court outlined broad categories of actions that could lead to a finding that the parent operated the facility and thereby incurred direct liability under CERCLA: (1) if the parent itself operates the facility or operates the facility in a joint venture with the subsidiary; (2) if shared officers or directors of the parent and subsidiary perform their duties in a manner that it is obvious that they act on behalf of the parent corporation, even to the detriment of the subsidiary; and (3) if an agent who represents the parent but who has no official connection to the subsidiary controls the facility. The Court noted that the critical inquiry into the parent's operation of the facility was whether its actions were merely those that are consistent with the legitimate oversight that a parent corporation, acting as an investor, exercises over its subsidiary or whether the parent's actions go further into control of the facility.

Unites States v. Township of Brighton,
153 F.3d 307 (6th Cir. 1998).

ISSUE:

Under what circumstances may a governmental entity be liable for environmental response costs as an “operator” of a facility under CERCLA?

(Other issues that are not summarized here included what constitutes a “facility” and what factors allow divisibility of environmental harm.)

HOLDING:

In order to find a governmental entity an “operator” of a facility the entity must have exercised actual control by way of affirmative acts or by “macromanagement.” The mere authority to regulate the facility, without more, does not make the entity an operator.

FACTS:

Brighton Township, Michigan, contracted with the owner of a parcel of land to allow residents to use the land as a waste dump. The agreement changed over time to allow commercial as well as residential waste. The township paid monthly rental and maintenance fees which increased in amount over time. The township also made special appropriations from time to time for various projects such as bulldozing and snow removal at the site. Township officials visited the site and discussed compliance with state regulations.

The federal government eventually investigated the site, determined that a removal action was needed, and incurred response costs. The United States then sought recovery of the response costs from the owner and from the township. The owner defaulted, and the district court found the owner and the township jointly and severally liable.

ANALYSIS:

The township’s appeal was based, in part, on its assertion that it was not an “operator” of the facility under the meaning of CERCLA. In a three-part opinion (majority opinion, a concurrence, and a dissent) the three-judge panel remanded to the district court to determine whether the township had exhibited the requisite control over the site. The court provided some guidance for the district court to use in its determination.

Referring to the Supreme Court’s decision in Bestfoods, the court stated as follows: “The plain meaning of the term ‘operator’ as expounded upon in Bestfoods does, after all, require that [the township] have performed some affirmative acts – that they ‘operated’ the site by

‘direct[ing] the workings,’ ‘manag[ing],’ or ‘conduct[ing] the affairs’ – before they can be held responsible.” Brighton, 153 F.3d at 314. With regard to the operator liability of a governmental entity, the court declared that the entity’s exercise of its police power to regulate a dump to ensure public health and safety would not necessarily lead to liability. However, if the entity’s regulation extended further and was in reality a means to “macromanage” the facility, then the entity could be found to be an operator.

Noting explicitly that governmental entities may be liable as operators, the concurring opinion agreed that actual control – that is, not mere regulatory authority – is necessary before liability attaches. The concurrence listed several factors that should be considered in evaluating whether the entity had exercised the requisite control as follows:

the government’s expertise and knowledge of the environmental dangers . . . , establishment and design of the facility, participation in the opening and closing of a facility, hiring or supervising employees involved in activities related to pollution, determination of the facility’s operational plan, monitoring of and control over hazardous waste disposal, and public declarations of responsibility over the facility and/or its hazardous waste disposal.

Brighton, 153 F.3d at 327 (Moore, J., concurring).

Carter-Jones Lumber Co. v. Dixie Distrib. Co.,
166 F.3d 840 (6th Cir. 1999).

ISSUE:

Under what circumstances are a corporation and a person who is an officer and 100% shareholder of the corporation jointly and severally liable in an action for recovery of response costs brought under CERCLA?

HOLDING:

An officer and sole shareholder of a corporation may be held personally liable as an "arranger" under CERCLA if state law would allow piercing the corporate veil to impose indirect or derivative liability on the shareholder. The officer or shareholder also may be liable if the person participated in arranging for disposal so that direct liability would attach.

FACTS:

The defendant, Harry Denune was the President, CEO, and 100% shareholder of the defendant, Dixie Distributing Company. Dixie and Denune purchased transformers that contained PCBs. PCBs from some of the transformers contaminated the plaintiff's property. The plaintiff sought to recover its cleanup costs from the Dixie and Denune. In this contribution action under CERCLA, 42 U.S.C. § 9613(f), the district court found Dixie and Denune to be severally liable for 50% and 30% of the costs, respectively.

ANALYSIS:

The defendants' CERCLA liability arose due to their role as "arrangers" for disposal of hazardous waste. 42 U.S.C. § 9607(a)(3). In determining whether Denune, the officer and sole shareholder, was personally liable as an arranger, the Sixth Circuit applied the analysis of operator liability announced by the United States Supreme Court in Bestfoods. Denune would be personally liable, therefore, if state law would allow piercing the corporate veil to reach him as a shareholder or if he had participated in arranging for disposal to such an extent that he would be directly liable. Citing Ohio law, the court stated that "a corporate officer can be held liable for a tort committed while acting within the scope of his employment." The court of appeals affirmed the district court's assessment of personal liability and held that the lower court's findings of fact satisfied the requirement under Bestfoods for an officer's direct involvement.

The court of appeals stated that Dixie would be jointly and severally liable for Denune's actions because under Ohio law a corporation and an officer both are responsible for the acts of the officer in the scope of his duties. However, whether Denune could be liable for Dixie's portion of the damages depended on whether the facts supported piercing the corporate veil, and the court remanded to the district court to determine that issue.

Natural Resources and Environmental Protection Cabinet v. Cumberland Wood and Chair Corp.,

File Nos. DOW-18965-042 and DWM-13064-042, 1998 WL 665654
(KNREPC Dec. 28, 1998).

(This case addressed many issues. The only one summarized here is individual liability for hazardous waste violations. It is included under the Bestfoods heading because of the related analysis.)

ISSUE:

Under what circumstances may a corporation's president and sole shareholder and a non-shareholder employee be held individually liable for violations of state law regarding hazardous waste.

HOLDING:

Imposing liability on individual as an operator does not require piercing the corporate veil. An individual employee or an officer/shareholder may be liable as an operator of a waste facility on the basis of weighing three factors: "(1) the seriousness of the violation, (2) the degree of control exercised by the corporate officer or agent over the affairs of the corporation, and (3) the amount of the corporate officer's or agent's knowledge, participation or culpability in the violation."

FACTS:

The defendant, Cumberland Wood and Chair Corp. (CWC) manufactured furniture and generated hazardous waste. Kupchick was the president and sole shareholder of CWC. Pawlak was the plant manager. CWC was cited for several water quality and hazardous waste violations. The Cabinet brought an action against the corporation and against Kupchick and Pawlak individually. The individual defendants argued that they could not be liable absent piercing the corporate veil. The hearing officer held, among other things, that both Kupchick and Pawlak could be liable for some of the hazardous waste violations. The hearing officer's initial report was remanded by the Secretary for evaluation in light of the United State Supreme Court's decision in Bestfoods.

ANALYSIS:

The individual defendants were charged with various hazardous waste violations. The hearing officer noted that these were violations of state law, but he looked to federal law interpreting CERCLA and RCRA for guidance. The Hearing Officer rejected the argument that individual liability could attach only by piercing the corporate veil. The analysis of the individual defendants' liability focused on whether the defendants could be characterized as "operators" of the facility. Announcing the three-part test described above, the hearing officer found sufficient evidence of both of the defendants' involvement, knowledge, and control

regarding matters of environmental hazards and compliance so as to warrant their classification as "operators."

Upon remand the hearing officer thoroughly reviewed the history and rationale of the Bestfoods decision and concluded that it had "no direct relevance to the facts of this case" and thus the decision did not necessitate modification of his recommendation. In particular, he distinguished Bestfoods because that case did not address the individual liability of one who was not a corporate shareholder. Also, Bestfoods addressed operator liability under CERCLA while the instant case involved liability under state law that was patterned after RCRA; the definitions of "operator" differ under these laws.

B. Other Cercla Cases

Centerior Serv. Co. v. Acme Scrap Iron & Metal Corp.,
153 F.3d 344 (6th Cir. 1998).

ISSUE:

May one party who is a potentially responsible party (PRP) for a cleanup action under CERCLA bring a cost recovery action for joint and several liability against other PRPs under § 107(a) of CERCLA, 42 U.S.C. § 9607(a), or is the party limited to an action for contribution under § 113(f) of CERCLA, 42 U.S.C. § 9613(f)?

HOLDING:

A party that is itself a PRP and that is compelled to perform cleanup may not recover from other PRPs jointly and severally under § 107(a). Instead, one PRP's recovery from other PRPs is limited to an action for contribution under § 113(f).

FACTS:

The EPA identified four parties who were potentially responsible parties for contamination at a site. None of these initial parties objected to or denied their liability. The EPA ordered the parties to perform cleanup work. One of the parties conducted its own investigation and identified about 250 additional parties who could have liability. The initial party brought actions pursuant to § 107(a) to recover the cleanup costs jointly and severally from the additional parties. The district court ruled that the plaintiffs, as PRPs, could recover only under § 113(f) for contribution.

ANALYSIS:

The court of appeals affirmed the ruling of the district court. The court recognized and discussed the features of an action under § 107 (joint and several liability, burden on the defendant to prove divisible harm, six-year statute of limitations) compared to an action under § 113 (burden on the plaintiff to prove the defendant's equitable share, three-year statute of limitations). Analyzing statutory language and the common law of contribution, the Sixth Circuit held that a party that is required to pay response costs may recover from others who are liable only by way of the contribution action allowed under § 113(f). One PRP may not seek joint and several recovery from other PRPs. The court did not answer the question of whether an innocent volunteer may engage in cleanup then seek to recover jointly and severally from responsible parties.

Olin Corp. v. Yeargin, Inc.,
146 F.3d 398 (6th Cir. 1998).

ISSUE:

Whether a particular indemnity agreement provided for indemnification for CERCLA and other environmental costs. The relevant portion of the agreement stated as follows:
[the contractor agrees to] protect, indemnify and hold Owner harmless from any and all loss, damage, liability, claims, demands, costs, or suits of any nature whatsoever asserted by employees of Contractor or any third persons . . . for property damage, personal injury or death, or otherwise

Olin Corp., 146 F.3d at 407.

HOLDING:

By a two-to-one vote the Sixth Circuit held that under Tennessee law the indemnity agreement covered environmental losses.

FACTS:

The defendant, Yeargin, was a contractor at the plaintiff's electrochemical plant. During the contract work, Yeargin's employees were injured by exposure to mercury, among other causes. The employees brought suit against the instant plaintiff, Olin. Olin settled these claims. Olin also suffered losses related to environmental costs under CERCLA. Olin then brought the instant suit seeking indemnification for its losses from Yeargin under the parties' contractual agreement as well as other relief. On motions for summary judgment the district court held that the indemnification clause did not cover losses under environmental statutes.

ANALYSIS:

This analysis is limited to the Sixth Circuit's discussion of the indemnification agreement as it relates to the environmental costs. The Sixth Circuit did not affirm the district court's ruling on this matter.

The court started its discussion with the basic assumptions that environmental liabilities may be shifted by means of indemnity agreements and that "whether a particular agreement has shifted such liabilities is a question of state law." Olin Corp., 146 F.3d at 407.

The plaintiff argued that the term, "or otherwise," was broad enough to bring into the agreement coverage for the environmentally-related losses. The court however did not reach this question. Instead, the court found that the environmental costs stemmed from violations of environmental statutes and regulations and that these violations caused property damage and personal injuries. Because property damage and personal injuries were included in the agreement and because the agreement extended to "all loss, damage, liability . . ." the court found that the agreement covered losses attributable to the environmental violations.

II. Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq.

A. Jurisdiction and “Imminent and Substantial Endangerment”

Davis v. Sun Oil Co.,

148 F.3d 606 (6th Cir.), cert. denied, -U.S.-, 119 S.Ct. 543, 142 L.Ed.2d 451 (1998).

ISSUES:

1. Do the federal courts have exclusive jurisdiction over citizen suits brought pursuant to the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6972?
2. Does the presence in the soil of high levels of contaminants, in the absence of other facts, allow the determination as a matter of law that there exists an imminent and substantial endangerment to health or the environment?

HOLDING:

1. Federal and state courts have concurrent jurisdiction over citizen suits under RCRA.
2. The mere fact of the presence in the soil of high levels of the contaminants in this case did not support granting summary judgment on the issue of whether the contamination presented an imminent and substantial endangerment.

FACTS:

The defendants sold to the plaintiffs a piece of property on which the defendants had operated a gasoline filling station. The defendants removed the underground storage tanks but left in the ground pipes that had connected the tanks. Gasoline leaked from the pipes and contaminated the soil. The plaintiffs sued in Ohio state court for breach of contract, nuisance, and fraud. The state court found that high levels of various contaminants were present in the soil.

The plaintiffs also brought suit in federal court under RCRA. They charged that the defendant had disposed of hazardous waste that presented an imminent and substantial endangerment. Relying on the state court’s finding of contamination, the plaintiffs moved for summary judgment in the federal court on the issue of the existence of imminent and substantial endangerment. The district court denied the plaintiffs’ motion. The defendant moved for summary judgment on the basis of res judicata, and the district court granted the motion.

ANALYSIS:

The court of appeals affirmed the district court’s decisions. Contamination is not necessarily, as a matter of law, an imminent and substantial endangerment. The Sixth Circuit remarked that certain circumstances may allow such a determination. Davis, 148 F.3d at 610 (“[W]here . . . such large and unmitigated hazards (such as the amount and type of waste, combined with its proximity to the public) that ‘reasonable minds could not differ as to the

import of the evidence.”). The facts of the instant case did not rise to that level and so the district court was correct to deny the plaintiff’s motion for summary judgment.

In the course of examining the defendant’s defense of res judicata the court considered whether the RCRA claim could have been brought in state court. The court held that the language in 42 U.S.C. § 6972 did not give the federal courts exclusive jurisdiction over citizen suits under RCRA. The dissent argued however, that other courts have held that the federal courts have exclusive jurisdiction over RCRA. Davis, 148 F.3d at 614 n.2 (Boggs, J., concurring in part and dissenting in part).

Because the RCRA action could have been brought in the state court and because the court of appeals found that the defendant had not waived objection to the plaintiffs’ claim-splitting, the court of appeals affirmed the district court’s dismissal of the action on the basis of claim preclusion.

B. Mens Rea for Criminal Liability

United States v. Kelley Technical Coatings, Inc.,
157 F.3d 432 (6th Cir. 1998).

ISSUE:

In a criminal action under RCRA, 42 U.S.C. § 6928(d)(2)(A) for knowingly storing and disposing of hazardous waste, must the prosecution prove that the defendant knew that a permit was required and that the material stored or disposed of was a regulated hazardous waste?

HOLDING:

It is sufficient if the government proves the defendant's knowledge as follows: that the material was stored or disposed of, that the material was waste, and that the material had the potential to be harmful. It is not necessary to prove that the defendant knew that a permit was required and that the material was a regulated hazardous waste.

FACTS:

The defendants, a corporation and an individual, were involved with manufacturing paint. The process generated hazardous waste which was accumulated and stored in drums on the site without a permit. Some of the drums deteriorated, and these leaking drums, along with handling of the waste, resulted in some of the waste being spilled onto the ground. The defendants were prosecuted for knowingly storing and disposing of hazardous wastes.

Regarding the charge of storing hazardous waste the district court instructed the jury as follows:

Each individual defendant can be found guilty as to Count Two of the indictment only if all of the following facts are proved beyond a reasonable doubt with respect to that defendant.

First, that . . . the defendant knowingly stored material on the premises of Kelley Plant Two for a period exceeding 90 days.

Second that the material was hazardous waste.

Third, that the defendant did not have a permit to store hazardous waste.

Fourth, that the defendant knew that the material was waste and that it had the potential to be harmful to others or to the environment.

Kelley Technical Coatings, 157 F.3d at 436.

ANALYSIS:

In United States v. Dean, 969 F.2d 187 (6th Cir. 1992), the Sixth Circuit had addressed the nature of the defendant's requisite knowledge for a violation of 42 U.S.C. § 6928(d). The court reviewed Dean and the instant case in light of recent decisions by the United States Supreme Court. The court found that these decisions did not require modifying the holding in Dean and held that the district court's instructions to the jury were adequate.

III. Other Waste Cases

A. Federal Court Jurisdiction

American Landfill, Inc. v. Stark/Tuscarawas/Wayne Joint Solid Waste Management Dist.,
166 F.3d 835 (6th Cir. 1999).

ISSUE:

Does the Tax Injunction Act, 28 U.S.C. § 1341, deprive the federal district court of subject matter jurisdiction over a suit in which the operator of a solid waste facility challenges the monetary assessments that are imposed by a solid waste management district and seeks reimbursement for payments made under those assessments?

HOLDING:

The court held that the assessment in question was a tax and therefore the district court did not have jurisdiction.

FACTS:

Ohio law allows a solid waste management district to impose an assessment on persons who dispose of solid waste at a facility in the management district. The assessments are to be used to fund such activities as preparing and implementing the solid waste management plan and recycling programs, assisting local boards of health, maintaining roads and other public services that are related to the solid waste facility, and assisting law enforcement related to litter and open dumping. The plaintiff brought suit in federal district court to challenge the assessment schedule and to obtain reimbursement. The district court dismissed because the Tax Injunction Act deprived the court of subject matter jurisdiction.

ANALYSIS:

The crucial inquiry for the court was whether the assessment was a tax or a fee. The Tax Injunction Act, 28 U.S.C. § 1341, provides as follows: "The district courts shall not enjoin, suspend or restrain the assessment, levy or collection of any tax under State law where a plain, speedy and efficient remedy may be had in the courts of such State." 28 U.S.C.A. § 1341 (West 1993).

The court discussed different tests that may be used to distinguish a "tax" from a "fee." The most important element in these tests was whether the revenue would be used to benefit the general public and contribute to the general welfare (a "tax") or whether the revenue was related more to an individual privilege and benefited the payer or the facility (a "fee"). The court found that the assessment in question was a tax because the revenue benefited the entire community; the benefit was not limited to the waste facility or to those who used the facility directly. The court of appeals affirmed the ruling of the district court because the assessment was a tax and thus under the Tax Injunction Act the district court did not have jurisdiction to consider the case.

B. Penalties

Natural Resources and Environmental Protection Cabinet v. Deguzman,
File No. DWM-30567-039, 1998 WL 741845 (NREPC Oct. 9, 1998).

ISSUE:

Is one who disposes of waste one time at an unpermitted site liable for civil penalties for each day that the waste remains at the site?

HOLDING:

A civil penalty is assessed for each day of prohibited act or omission. Because the prohibited act is the disposal of the waste, only one day's penalty would be assessed for one day's disposal.

FACTS:

Eleven bags of office waste from the defendant's business were found at an unpermitted dump site. The defendant was adjudged liable for disposing of solid waste without a permit in violation of KRS 224.40-100(1). The hearing officer recommended imposing a civil penalty for one day's violation.

ANALYSIS AND SIGNIFICANCE:

The Cabinet argued that KRS 224.40-100(1) was violated each day that the waste remained at the unpermitted site. The hearing officer rejected this argument because, among other reasons, KRS Chapter 224 contains no penalty for failing to abate a violation (unlike laws on coal mining in KRS Chapter 350). The hearing officer stated that the assessment of additional days of penalties would require proof of a separate violation – that is, prohibited conduct or omission – for each day charged. Because there was no evidence of more than one day's improper disposal, only one day's penalty would be charged.

The hearing officer also stated, however, that failure to take the remedial action as ordered in a Final Order by the Secretary would be subject to a maximum penalty of \$5,000 per day.

IV. Administrative Practice

A. Judicial Review

Swatzell v. Commonwealth,
962 S.W.2d 866 (Ky. 1998).

ISSUE:

Is a party's failure to file exceptions to a hearing officer's report a failure to exhaust administrative remedies such that the party is barred from seeking judicial review of the final order?

HOLDING:

A party is barred from seeking circuit court review of an administrative order because the party has failed to exhaust administrative remedies if the party fails to file exceptions to the hearing officer's report.

FACTS:

The Natural Resources and Environmental Protection Cabinet (Cabinet) brought an administrative action to forfeit the bonds on Swatzell's surface coal mining permit. The hearing officer recommended bond forfeiture. The Cabinet filed exceptions to the hearing officer's report. Swatzell did not file exceptions to the report, and he did not respond to the Cabinet's exceptions. After the Secretary's Final Order adopted the hearing officer's report with the Cabinet's exceptions, Swatzell filed for review by the Franklin Circuit Court. The circuit court granted the Cabinet's motion to dismiss for failure to exhaust administrative remedies, and the Court of Appeals affirmed.

ANALYSIS:

The Court acknowledged that the language of statute and regulation appears to suggest that filing of exceptions is permissive and not mandatory. See, e.g., KRS 350.0301(2) and 405 KAR 7:091 Section 3(5)(a). But see KRS 350.032(2). However, the Court stated that requiring the objecting party to file exceptions as part of the administrative review would ensure that issues would be raised with the Secretary to correct errors before an appeal to the courts and would thus serve judicial expedience. Affirming the decision of the Court of Appeals, the Supreme Court held as follows: "the Appellant's failure to file exceptions to the report of the hearing officer constitutes a failure to exhaust his administrative remedies, thereby precluding review by the circuit court." Swatzell, 962 S.W.2d at 870.

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CASE LAW UPDATE

Clean Air, Clean Water, and Resource Statutes

**Timothy J. Hagerty
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Louisville, Kentucky**

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SECTION B



CASE LAW UPDATE:
CLEAN AIR, CLEAN WATER, AND
RESOURCE STATUTES

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I. SUPREME COURT DECISION

Ohio Forestry Ass'n v. Sierra Club, 118 S. Ct. 1665 (1998)

ISSUE:

Is a challenge to a federal land and resource management plan adopted by the U.S. Forest Service pursuant to the National Forest Management Act ("NFMA") subject to judicial review on the ground that the plan permits too much logging and too much clearcutting?

HOLDING:

The Sierra Club's challenge was not ripe for judicial review because (1) delayed judicial review would not cause significant hardship to the parties, (2) immediate judicial intervention could hinder the Forest Service's efforts to refine its policies through revision of the plan and application of the plan in practice, (3) the courts would benefit from further factual development of the issues, and (4) Congress did not provide for pre-implementation judicial review of forest plans.

FACTS:

This was an appeal of a 1997 decision of the Sixth Circuit, Sierra Club v. Thomas, 105 F.3d 248, in which the Court of Appeals had held that the Forest Plan for the Wayne National Forest in southern Ohio improperly favored clearcutting, in violation of the NFMA. The Supreme Court granted review to determine whether the controversy was justiciable, and if so, whether the Forest Plan conformed to the statutory and regulatory requirements for a forest plan.

DISCUSSION:

The Court avoided the merits of the challenge to the Forest Plan by holding that the suit was not justiciable, because it was not ripe for court review. The Supreme Court therefore vacated the decision of the lower court and remanded with instructions to dismiss. The Court applied a three-part test to determine whether the case was ripe: "(1) whether delayed review would cause hardship to the plaintiffs; (2) whether judicial intervention would inappropriately interfere with further administrative action; and (3) whether the courts would benefit from further factual development of the issues presented." In this case, the Court noted that delay would not cause hardship because the Forest Plan did not actually authorize any immediate activity; individual logging actions still require a site-specific decision, including NEPA review. Second, the Court found that its intervention would interfere with the Forest Service's ability to refine its policies through revisions to the Forest Plan and/or application of the Plan in practice (e.g., in response to site-specific logging proposals). Finally, the Court noted that review of such site-specific decisions would allow the courts to avoid the "time-consuming judicial consideration of the details of an elaborate, technically based plan," i.e., the Forest Plan. The Court also noted that Congress has not provided for pre-implementation review of forest plans, as it has for other statutes (such as pre-enforcement review under RCRA, TSCA, the Clean Air Act, etc.).

The most notable result of this decision is that future plaintiffs will not be able to challenge the substance of an adopted forest plan. Rather, they will be required to challenge individual actions proposed pursuant to such a plan. The Court acknowledged that this case-by-case approach may be more burdensome, but noted that this is the traditional, normal mode of operations of the courts, and that it allows courts to avoid the disadvantages of premature review. The Court did note, however, at the end of the opinion, that it may be possible to challenge forest plans based on harms that the forest plan will allow to occur immediately (such as opening trails to motorcycles or using heavy machinery in the forest). While acknowledging this argument, the Court refused to consider it in this case because the Sierra Club had not raised the argument in its original complaint.

II. SIXTH CIRCUIT COURT OF APPEALS DECISIONS

Southwestern Pennsylvania Growth Alliance v. Browner,
144 F.3d 984 (6th Cir. 1998)

ISSUE:

Did the U.S. Environmental Protection Agency ("EPA") act arbitrarily and capriciously in redesignating the Cleveland-Akron-Lorain, Ohio, area as an "attainment" area for ozone, pursuant to 42 U.S.C. § 7407(d)(3)(D), because EPA failed to take into account the "regional" effect of ozone pollution?

HOLDING:

The court held that the Petitioner had standing to challenge EPA's redesignation order, but that EPA's redesignation decision was not arbitrary and capricious.

FACTS:

The Petitioner, an organization of major manufacturers and local governments in the Pittsburgh-Beaver Valley area of Southwestern Pennsylvania, challenged EPA's 1996 decision to grant the request of the Governor of Ohio to redesignate the Cleveland-Akron-Lorain area as being in "attainment" of ozone standards. The Cleveland-Akron-Lorain area had been designated as a moderate ozone nonattainment area in 1991, and Ohio sought to regain attainment status for the area so that sources of air pollutant emissions in the area would be subject to the less stringent, and less costly, standards applicable in attainment areas.

When EPA sought comment on the redesignation, the Petitioner submitted comments claiming "strong evidence" that the ozone problem in southwestern Pennsylvania was caused by emissions of ozone precursors from states to its west, particularly Ohio and West Virginia. EPA responded that interstate transport is not relevant to the narrow issue of attainment of air quality standards but that it is relevant in a determination of redesignation. EPA also noted that it was addressing the ozone transport problem separately through requirements on 22 states, including Ohio, to reduce emissions of oxides of nitrogen and thereby mitigate the transport of ozone to other states. In addition to challenging EPA's decision, Petitioner filed an unsuccessful lawsuit in the Third Circuit challenging EPA's refusal to redesignate the Pittsburgh-Beaver Valley area to attainment status.

DISCUSSION

The Court first held that the Petitioner had standing to challenge EPA's decision. The Court found two factors that supported the Petitioner's standing. First, the Petitioner argued that it was injured by EPA's process of dealing with the regional transport of ozone, and that its appeal was the only way it could attack EPA's separation of the attainment decision from the regional transport decision. Second, the Petitioner argued persuasively that EPA's decision placed southwestern Pennsylvania at an economic disadvantage to the Cleveland-Akron-Lorain area because it allowed Ohio businesses to pay less for ozone controls than businesses in southwestern Pennsylvania. The court found this to constitute "injury in fact" for purposes of establishing standing.

With respect to the merits of the Petitioner's claim, the court found that EPA had not acted arbitrarily and capriciously in making its redesignation decision. The Petitioner argued that EPA could not rely on Ohio's state implementation plan ("SIP") in making its redesignation decision, because that plan did not contain a provision addressing emissions that contribute significantly to nonattainment in another state. However, the court approved of EPA's decision to address the regional transport problem on a regional basis, and, pending recommendations on that problem by a regional study group, EPA could reasonably rely on its prior approval of Ohio's state implementation plan ("SIP") which complied with the interstate transport requirement.

UNPUBLISHED DECISIONS

Commonwealth of Kentucky v. U.S. Env'tl. Protection Agency,
1998 U.S. App. LEXIS 21686 (6th Cir. Sept. 2, 1998)
(UNPUBLISHED DECISION)

DISCUSSION:

Kentucky appealed EPA's denial of its request to redesignate the Kentucky portion of the Cincinnati-Northern Kentucky Area to attainment status for ozone, and to approve Kentucky's associated attainment maintenance plan. EPA had denied Kentucky's request because Kentucky experienced an additional violation of the ozone standard after submitting its request, thereby violating the standard for a fourth time in three years. Attainment status requires three or fewer exceedances in a three-year period. Kentucky argued that EPA should consider its redesignation request based solely on the number of violations that occurred during the three-year period prior to the submission of Kentucky's request.

The Sixth Circuit rejected Kentucky's arguments. The court found that an area must remain in attainment pending a redesignation request, and therefore, EPA may consider any violations that occur after the request is submitted, but before a decision is made. The court also held that EPA's consideration of a violation that occurred outside the period specified in the state's request did not violate the Administrative Procedures Act. EPA is "free to examine the most recent three year period for which air quality control data exists or the period identified in a state redesignation request." (Emphasis added) Finally, the court rejected Kentucky's request that it be allowed to address the post-request violation through the remedial contingency provisions included in the maintenance plan that was submitted with the redesignation request. "Until the EPA approves a request for redesignation, the existing requirements for nonattainment areas 'continue in force and effect.'"

United States v. Shurelds, 1999 U.S. App. LEXIS 3521 (6th Cir. March 2, 1999)
(UNPUBLISHED DECISION)

DISCUSSION:

A defendant appealed his conviction under the Clean Air Act for improperly removing and disposing of asbestos. Among other arguments, the defendant alleged that the criminal liability provisions of the Clean Air Act are unconstitutionally vague. In particular, the defendant argued that 42 U.S.C. § 7413(c)(1) and 42 U.S.C. § 7413 (h) specify conflicting mental state requirements. Section 7413(c)(1) applies to "any person who knowingly violates" the Clean Air Act. Section 7413(h) provides that, "[e]xcept in the case of knowing and willful violations, for purposes of [Section 7413(c)(1)] the term 'a person' shall not include an employee who is carrying out his normal activities and who is acting under orders from the employer." The defendant argued that these provisions create conflicting mental state standards--"knowingly" vs. "knowing and willful."

The court rejected the defendant's argument because Section 7413(h) provides an exception to Section 7413(c)(1), which the court construed to be an affirmative defense. Thus, a "knowing violation establishes criminal liability unless the defendant establishes that he was 'an employee who is carrying out his normal activities and who is acting under orders from the employer.' If the defendant establishes that defense, the government must show a 'knowing and willful violation' by the defendant to establish criminal

liability." The court also rejected the defendant's argument that the statute is vague because it does not define "normal activities." Because the defendant had not invoked this affirmative defense, and because the Sixth Circuit will not hear facial challenges to the vagueness of criminal statutes outside the First Amendment context, the court refused to hear the defendant's challenge.

**Bylinski v. City of Allen Park, 1999 U.S. App. LEXIS 1221 (6th Cir. Jan. 25, 1999)
(UNPUBLISHED DECISION)**

DISCUSSION:

A class action suit was brought by taxpayers seeking a refund of certain taxes paid and an injunction against such further taxation by defendant municipalities. The taxes were assessed to satisfy the municipalities' obligations under a consent decree settling an action brought by the State of Michigan and EPA under the Clean Water Act to remedy illegal discharges of raw sewage and other pollutants into Michigan waterways. The funds were used to update wastewater treatment facilities. The plaintiffs objected to the taxation as a violation of a "tax revolt" provision of the state constitution.

The court affirmed the District Court's grant of summary judgment to defendants. The District Court had held that the plaintiffs' claims were barred by the doctrine of laches, that the court had inherent power to enforce its judgments (*i.e.*, the consent decree), and that the constitutional provision invoked by the plaintiffs was not applicable to the tax levies in question. The Sixth Circuit avoided the merits of the suit, and simply held that the plaintiffs' claims were barred by laches; "we find it unnecessary to reach the question of the district court's inherent authority to order the levy of taxes in this case, and we decline to interpret the scope of the Michigan Constitution, an exercise better left to the Michigan state courts."

**Holtzclaw v. Secretary of Labor, 1999 U.S. App. LEXIS 841 (6th Cir. Jan. 15, 1999)
(UNPUBLISHED DECISION)**

DISCUSSION:

Petitioner Holtzclaw appealed the dismissal of his whistleblower action brought pursuant to several federal environmental statutes. The Petitioner, a former EPA engineer, had been employed by the Kentucky Natural Resources and Environmental Protection Cabinet ("Cabinet") pursuant to an intergovernmental agreement with EPA. When the Cabinet opted not to renew his contract, the Petitioner filed a complaint, alleging an adverse employment action precipitated by his attempts to emphasize governmental deficiencies in the handling of environmental concerns.

The Sixth Circuit found substantial evidence in the record to support the determination of the Department of Labor's Administrative Review Board that the decision not to renew the Petitioner's employment agreement was not made in retaliation for any protected activities undertaken by the Petitioner pursuant to environmental statutes. Kentucky properly sought to bring the Petitioner's former position "in house" to ensure continuity. Kentucky also was properly concerned about the Petitioner's continued employment because of his previous efforts to represent his personal positions as departmental stances. The court also found that the lack of evidence of retaliatory action with respect to the Petitioner's continued employment also deprived the Petitioner of a "continuing violation" argument so as to bring in other alleged violations that occurred outside the statutory limitations period.

III. FEDERAL DISTRICT COURT (KY) DECISIONS

Kentucky Heartwood v. Worthington, 20 F. Supp. 2d 1076 (E.D. Ky. 1998)

ISSUE:

Should the U.S. Forest Service be enjoined from proceeding with logging in the Daniel Boone National Forest pending compliance with the Endangered Species Act, 16 U.S.C. § 1531 et seq. ("ESA"); the National Forest Management Act, 16 U.S.C. § 1600 et seq. ("NFMA"); and the National Environmental Policy Act, 42 U.S.C. § 4321 et seq. ("NEPA")?

HOLDING:

The court held that the Plaintiffs had standing, that their suit was not barred by the doctrine of laches, and that they were entitled to a preliminary injunction with respect to a portion of their ESA and NFMA claims. The court, however, held that the Plaintiffs' claim challenging the content of the Forest Plan pursuant to the NFMA was not ripe, and that their ESA challenges to the validity of the original Forest Plan and several subsequent actions related thereto, as well as their NEPA claim, were barred by the statute of limitations.

FACTS:

The Forest Service adopted the Daniel Boone Land and Resource Management Plan (the "Forest Plan") in 1985, pursuant to the requirements of the NFMA, along with an Environmental Impact Statement ("EIS"). The Forest Plan is designed to establish the overall management direction for the forest for ten to fifteen years, and is to be reviewed at least every five years and revised every ten years. The Forest Service subsequently adopted nine amendments to the Forest Plan, as well as three policies that were not officially adopted as amendments. At the time of the litigation, the Forest Service was in the process of preparing a new Forest Plan.

The Plaintiffs challenged the Forest Service on four grounds. First, they claimed that the Forest Service violated the ESA by not formally consulting with the U.S. Fish & Wildlife Service ("FWS") on the Forest Plan, amendments, and policies, because the Plan may affect list endangered, threatened, or sensitive species. Second, they alleged that the Forest Service had violated the NFMA by permitting the exclusive use of "even-aged management" (e.g., clear cutting). Third, the Plaintiffs alleged that the Forest Service violated NEPA by failing to consider alternatives to even-age management. Finally, the Plaintiffs contended that the three "policies" adopted by the Forest Service violated the NFMA because they were not adopted as amendments to the Forest Plan.

DISCUSSION:

While upholding the Plaintiffs' standing, the court dismissed most of the Plaintiffs' claims prior to reaching the merits. The court concluded, based on the Supreme Court's recent decision in Ohio Forestry Ass'n v. Sierra Club, 118 S. Ct. 1665 (1998), that the Plaintiffs' NFMA challenge to the Forest Plan was not ripe for review, and that plaintiffs generally must wait and challenge site-specific actions proposed under the Forest Plan at the time they are proposed. The court also found that it lacked jurisdiction over the NEPA claim, most of the ESA claims, and one of the NFMA claims, because more than six years had passed since

the occurrence of the complained of actions, and those claims were thereby barred by the six-year statute of limitations for civil actions found at 28 U.S.C. § 2401.

With respect to the Plaintiffs' surviving claims (several ESA claims related to the Forest Service's alleged failure to formally consult with FWS, and their NFMA claims related to the failure to adopt two of the "policies" as amendments to the Forest Plan), the court awarded preliminary injunctive relief. The court found that the traditional four-part "balancing of harms" test for granting injunctive relief does not apply when violations of the ESA are alleged. In that case, "the Court must simply ascertain whether there has been a violation of the ESA. If so, the Court must grant injunctive relief." Thus, in this case, the court granted such relief. With respect to the remaining NFMA claims, the court found that all four factors of the traditional test weighed in favor of granting relief: the Plaintiffs were likely to prevail (based, in part, on previous success on similar claims); irreparable environmental injury was likely; the federal defendants likely would not be harmed by injunctive relief, and private intervenors would not suffer substantial harm; and the public interest supports protecting endangered species.

IV. RELATED DECISION WITH APPLICATION IN KENTUCKY

National Mining Ass'n v. U.S. Army Corps of Engineers, 145 F.3d 1399 (D.C. Cir. 1998)

ISSUE:

Does the so-called "Tulloch Rule" exceed the Corps of Engineers' statutory jurisdiction by subjecting "incidental fallback" associated with excavation activities to the requirement for a "discharge" permit under Section 404 of the Clean Water Act?

HOLDING:

The D.C. Circuit held that "by asserting jurisdiction over 'any redeposit,' including incidental fallback, the Tulloch Rule outruns the Corps' statutory authority." Thus, the court upheld the district court's judgment enjoining enforcement of the Tulloch Rule anywhere in the United States.

FACTS:

In response to a lawsuit (known as the "Tulloch" litigation) brought against the Corps in the early 1990s, the Corps promulgated a rule in 1993, known as the "Tulloch Rule," that redefined "discharge of dredged material" to include "[a]ny addition, including any redeposit, of dredged material, including excavated material, into waters of the United States which is incidental to any activity, including mechanized landclearing, ditching, channelization, or other excavation." 33 C.F.R. § 323.2(d)(1)(iii). Thus, the rule covers "incidental fallback," such as the clod of dirt that falls off the bucket used to excavate material from the bottom of a stream, river or wetland. When that dirt falls back into the water from which it came, the Tulloch Rule considers that to be the "discharge of dredged material," thus requiring a permit. Moreover, because it is virtually impossible to conduct excavation or related activities without some incidental fallback, the effect of the Tulloch Rule was to subject all such activities to permitting under Section 404--except for those limited circumstances where the applicant can demonstrate that the activities will have no adverse effects on waters of the United States.

DISCUSSION:

In response to litigation brought by several industry groups, the U.S. District Court for the District of Columbia held in early 1997 that the Tulloch Rule exceeded the Corps' statutory, and therefore enjoined its application anywhere in the United States. On appeal, the D.C. Circuit upheld the decision of the District Court. The court stated, "We agree . . . that the straightforward statutory term 'addition' cannot reasonably be said to encompass the situation in which material is removed from the waters of the United States and a small portion of it happens to fall back. Because incidental fallback represents a net withdrawal, not an addition, of material, it cannot be a discharge." The court also upheld the District Court's nationwide injunction against the enforcement of the Tulloch Rule, which injunction prohibits enforcement against any person, not just the plaintiffs in this case.

Notably, the court emphasized that "we do not hold that the Corps may not legally regulate some forms of redeposit under its § 404 permitting authority." Indeed, several previous decisions have upheld the application of Section 404 to certain "redeposit" activities. For example, in Avoyelles Sportsmen's League v. Marsh, 715 F.2d 897 (5th Cir. 1983), the Fifth Circuit held that Section 404 applied to a large-scale

mechanized landclearing project, which involved the deliberate leveling of sloughs that formerly contained rainwater. Other cases have applied Section 404 to "prop dredging"--using a water vessel's propeller to displace bottom materials onto adjacent areas--and placer mining--excavating dirt and gravel in and around waterways, extracting any gold, and discharging the leftover material back into the water. However, none of these cases involved the sort of "incidental fallback" covered by the Tulloch Rule.

The court also noted that, "[i]f the agencies and [intervenors] believe that the Clean Water Act inadequately protects wetlands and other natural resources by insisting upon the presence of an 'addition' to trigger permit requirements, the appropriate body to turn to is Congress. Without such an amendment, the Act simply will not accommodate the Tulloch Rule."

Corps headquarters has instructed all Corps districts not to enforce the Tulloch Rule, pending further regulatory or judicial action. However, the Corps has stressed that it will continue to be vigilant and require a Section 404 permit when activities involve more than "incidental fallback."

**ENVIRONMENTAL REGULATION OF
AGRICULTURAL OPERATIONS**

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SECTION C



**ENVIRONMENTAL REGULATION
OF AGRICULTURAL OPERATIONS**

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Here Today, Gone Tomorrow? Act Now for FQPA!

Pesticide Loss Could Destroy Your Bottom Line

Hard times are here again as farmers face unprecedented bottom line pressures from the weather, record low commodity prices and increasingly burdensome government regulations, especially the Food Quality Protection Act (FQPA). This complex 1996 law dramatically changes the way pesticides are evaluated and registered by the Environmental Protection Agency (EPA).

If EPA does not implement the law fully and fairly, many effective and reliable pesticide uses could be lost to farmers, nursery managers, public health officials, pest control operators and all other businesses that rely upon pesticides.

Pesticides Under the Gun

Most organophosphate (OP) and carbamate insecticides are in the August 1999 group of pesticides to be reassessed under FQPA. Since EPA must reassess all pesticides within 10 years, what happens now to the OP's and carbamates sets the stage for all crop protection products.

The Problem: EPA Implementation of FQPA

Arguing that it must meet the short deadlines for pesticide reassessment imposed in the law, EPA appears to be rushing to judgment on valuable pesticide products before sound science policies are in place. Rather than listen to farmers, business people and public health professionals about how they use pesticides, EPA is using unrealistic, theoretical assumptions instead of actual data. Based on preliminary, incomplete information, it is about to remove or restrict certain pesticides and their uses.

This isn't fair. It's not sensible. And it certainly doesn't make for good, science-based public policy.

Farmers could lose products or uses, increasing their costs and making it more difficult to control crop diseases, weeds and insect pests, which reduce yields and lower crop quality. Public health officials, pest control operators, nursery and greenhouse managers and many other businesses would lose, too, big time.

Economic, Environmental and Consumer Consequences

Fewer pest control products will mean lower crop yields and quality, less conservation tillage, less Integrated Pest Management (IPM) and the potential for more pesticide resistance.

Able to choose from a wider array of pesticides, foreign growers would enjoy a competitive edge on world markets over U.S. farmers.

Fewer pesticides could undermine public health programs, resulting in more cockroaches (associated with asthma), more mosquitoes (which carry encephalitis and malaria), more ticks (which transmit Lyme disease) and more termites (which destroy houses, barns and businesses).

Consumers could find fewer fruits, vegetables and grain products - at higher prices - in the supermarket.

What is the "Risk" Cup?

Enacted in 1996, FQPA contains far-reaching provisions to revise the standards pesticides must meet to be registered by EPA for use. To help understand the changes brought about by FQPA, think of the exposure that can be safely allowed for a particular pesticide as filling a "risk" cup. This cup contains the amount of pesticide residue that a person can be exposed to daily without affecting health.

Before FQPA, each pesticide had its own risk cup, which held only the risk from use on food crops; for example, from corn and apples.

Under FQPA, the risk cup must now make room not only for residues on food, but also from those found in drinking water, from uses in and around the home, such as on lawns and gardens, and on public spaces, such as parks, rights-of-way and golf courses. Exposure from these multiple sources is combined as "aggregate" risk.

When data pertaining to a pesticide's effects on children's health call for it, EPA also may add an extra tenfold or more margin of safety. In these cases, the risk cup becomes even smaller, resulting in potentially fewer pesticides and/or pesticide uses.

Furthermore, under a concept known as "cumulative" risk, if two or more pesticides act on human health in the same manner, FQPA requires them to share a common risk cup, again shrinking the number of available pesticides and/or pesticide uses.

When applying these new standards, EPA frequently uses the most extreme, unimaginable assumptions; for example, that a farmer drinks directly from a farm pond, filled with runoff from the cornfield and the barnyard! Such assumptions ignore real-world data, disregard sound science and make the risk cup

artificially overflow, crowding out pesticide uses. Safety is not enhanced. Valuable pesticides and their uses are lost unnecessarily.

FQPA ACTION LINE

MARCH 19, 1999/VOLUME 2, ISSUE 13

A confidential news communication to American Crop Protection Association (ACPA) members, crop protection industry representatives and other allied groups. Please do not forward this information. Those wishing to receive the newsletter should contact ACPA.

FQPA DISCUSSION GROUP INITIATED

The National Pesticide Telecommunications Network (NPTN) has opened a FQPA discussion group to provide "objective, science-based information" on a variety of pesticide-related topics. NPTN is a cooperative effort of Oregon State University and EPA. Topics to be addressed will include the 10x safety factor, future of organophosphates and carbamates, the risk cup and common mechanism of toxicity. Discussion is open seven days per week from 6:30 a.m. to 4:30 p.m. PST. To subscribe, call 1-800/858-7378; e-mail subscribe-fqpa@lists.ace.orst.edu; or visit the website at <http://ace.orst.edu/info/nptn>.

OP CROP "MATRICES" ISSUED ON 10 CROPS

Ten FQPA crop "matrices" related to organophosphates are now available on the Internet for apples, brussels sprouts, peaches, pears, oats/rye, rice, sorghum, soybeans, sugarcane and tomatoes. Detailed information on OP use patterns is being posted while still in draft form, EPA says, to allow growers and other interested parties an opportunity to review and comment. EPA will use this data in reassessing residue limits in foods under the safety standard required by FQPA. You'll find the information at <http://www.epa.gov/oppbead1/matrices>.

**PUBLIC VOICE CONFERENCE HEARS ABOUT FQPA;
KENNEY TO DEPART CONSUMERS UNION FOR USDA**

A group of consumer advocates and others heard about the need for full and fair implementation of FQPA during the annual National Food Policy Conference presented by Public Voice, an advocacy group. Nancy Foster, ACPA, noted that the pesticide industry can comply with the 1996 act "if given a reasonable and fair chance." She added that although the comment period on critical FQPA science policies won't be completed before year's end, "EPA is scheduled to make tolerance decisions by August." Scott Rawlins, American Farm Bureau Federation, told the group that EPA must provide more information to U.S. agriculture on FQPA implementation.

Another panelist, Jeannine Kenney of Consumers Union, faulted those in agriculture and industry who, she claimed, believe that more reliable, complete science will ensure that all pesticides pass the FQPA safety tests. In a separate conversation with ACPA's Jay Vroom, Kenney said that she is leaving Consumers Union at the end of March to take a career job at USDA.

CENEX/HARVEST STATES BOARD MEMBERS VISIT CONGRESS

Tuesday, March 16, farm-based members of Cenex/Harvest States board of directors were briefed on FQPA status and need for fair, science-based implementation by ACPA's Nancy Foster. Then, they journeyed to Capitol Hill and delivered the messages during more than 100 meetings with members of Congress.

GEORGIA GROUP VISITS THE HILL

Jim Bone, Griffin Co., Valdosta, GA, reports participating with other members of the University of Georgia's Agricultural College Advisory Council in visiting a number of elected officials in Washington, DC this week. Visits included ones with Sen. Coverdell, and Reps. Bishop, Chambliss, Deal, Isakson and Linder. Although the primary topic was related to competitive grant funding for land grant universities, Jim made sure that FQPA concerns were discussed, as well.

SEMINAR AT USDA WILL FOCUS ON FQPA POLICY

USDA will hold another seminar in its series on Integrated Pest Management (IPM) March 25. This one will focus on FQPA policy. Therese Murtagh, deputy director, and Wilfred Burr, pest management specialist, of EPA's Office of Pest Management Policy, will discuss their office's involvement in FQPA implementation. The one-hour seminar starts at 9:30 a.m. in Room 107-A of the Jamie A. Whitten Building (USDA's administration building). For information, contact Nicole Shaw at nshaw@reeusda.gov or 202/401-4866.

CRITICISM OF CONSUMERS UNION REPORT GROWS

In last week's FQPA Spotlight, the criticism by the Society of Toxicologists of Consumers Union's "food alarm" report was reported. Now, the executive director of Consumer Alert, Frances Smith, has commended the society for its stand. Smith writes, "As a consumer group that promotes the need for sound science to underlie public policy, [we have] frequently pointed to...negative consequences of fear-mongering campaigns regarding the safety of the food supply." Smith is concerned that, "...as a result of 'studies' such as CU's, and ...media headlines about 'killer produce,' many consumers will drastically cut back on fresh fruits and vegetables."

IDAHO TOXICOLOGIST SPEAKS OUT FOR FOOD SAFETY

In a February 22 editorial in Boise's The Idaho Statesman, Bernadene Magnuson, University of Idaho extension food toxicologist, emphasizes the need for science-based, rather than politically influenced, FQPA implementation. She urges EPA to "get the process right" before making decisions on such pesticides as organophosphates and carbamates. She writes that, "If these pest-control tools are lost, that could mean a more expensive and lower quality diet, and more pests around the home." Then she concludes, "I have yet to see clear evidence of health risks from the low levels of pesticides found in our food. Let's use the best science to keep it that way."

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PART 170—WORKER PROTECTION STANDARD

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AUTHORITY: 7 U.S.C. 136w.

SOURCE: 57 FR 38151, Aug. 21, 1992, unless otherwise noted.

Subpart A—General Provisions

§ 170.1 Scope and purpose.

This part contains a standard designed to reduce the risks of illness or injury resulting from workers' and handlers' occupational exposures to pesticides used in the production of agricultural plants on farms or in nurseries, greenhouses, and forests and also from the accidental exposure of workers and other persons to such pesticides. It requires workplace practices designed to reduce or eliminate exposure to pesticides and establishes procedures for responding to exposure-related emergencies.

§ 170.3 Definitions.

Terms used in this part have the same meanings they have in the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. In addition, the following terms, when used in this part, shall have the following meanings:

Agricultural employer means any person who hires or contracts for the services of workers, for any type of compensation, to perform activities related to the production of agricultural plants, or any person who is an owner of or is responsible for the management or condition of an agricultural establishment that uses such workers.

Agricultural establishment means any farm, forest, nursery, or greenhouse.

Agricultural plant means any plant grown or maintained for commercial or research purposes and includes, but is not limited to, food, feed, and fiber plants; trees; turfgrass; flowers, shrubs; ornamentals; and seedlings.

Chemigation means the application of pesticides through irrigation systems.

Commercial pesticide handling establishment means any establishment, other than an agricultural establishment, that:

(1) Employs any person, including a self-employed person, to apply on an agricultural establishment, pesticides used in the production of agricultural plants.

(2) Employs any person, including a self-employed person, to perform on an agricultural establishment, tasks as a crop advisor.

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Crop advisor means any person who is assessing pest numbers or damage, pesticide distribution, or the status or requirements of agricultural plants. The term does not include any person who is performing hand labor tasks.

Early entry means entry by a worker into a treated area on the agricultural establishment after a pesticide application is complete, but before any restricted-entry interval for the pesticide has expired.

Farm means any operation, other than a nursery or forest, engaged in the outdoor production of agricultural plants.

Forest means any operation engaged in the outdoor production of any agricultural plant to produce wood fiber or timber products.

Fumigant means any pesticide product that is a vapor or gas, or forms a vapor or gas on application, and whose method of pesticidal action is through the gaseous state.

Greenhouse means any operation engaged in the production of agricultural plants inside any structure or space that is enclosed with nonporous covering and that is of sufficient size to permit worker entry. This term includes, but is not limited to, polyhouses, mushroom houses, rhubarb houses, and similar structures. It does not include such structures as malls, atriums, conservatories, arboretums, or office buildings where agricultural plants are present primarily for aesthetic or climatic modification.

Hand labor means any agricultural activity performed by hand or with hand tools that causes a worker to have substantial contact with surfaces (such as plants, plant parts, or soil) that may contain pesticide residues. These activities include, but are not limited to, harvesting, detasseling, thinning, weeding, topping, planting, sucker removal, pruning, disbudbing, roguing, and packing produce into containers in the field. Hand labor does not include operating, moving, or repairing irrigation or watering equipment or performing the tasks of crop advisors.

Handler means any person, including a self-employed person:

(1) Who is employed for any type of compensation by an agricultural estab-

lishment or commercial pesticide handling establishment to which subpart C of this part applies and who is:

(i) Mixing, loading, transferring, or applying pesticides.

(ii) Disposing of pesticides or pesticide containers.

(iii) Handling opened containers of pesticides.

(iv) Acting as a flagger.

(v) Cleaning, adjusting, handling, or repairing the parts of mixing, loading, or application equipment that may contain pesticide residues.

(vi) Assisting with the application of pesticides.

(vii) Entering a greenhouse or other enclosed area after the application and before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established by this part (§ 170.110(c)(3)) or in the labeling has been met:

(A) To operate ventilation equipment.

(B) To adjust or remove coverings used in fumigation.

(C) To monitor air levels.

(viii) Entering a treated area outdoors after application of any soil fumigant to adjust or remove soil coverings such as tarpaulins.

(ix) Performing tasks as a crop advisor:

(A) During any pesticide application.

(B) Before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established by this part (§ 170.110(c)(3)) or in the labeling has been met.

(C) During any restricted-entry interval.

(2) The term does not include any person who is only handling pesticide containers that have been emptied or cleaned according to pesticide product labeling instructions or, in the absence of such instructions, have been subjected to triple-rinsing or its equivalent.

Handler employer means any person who is self-employed as a handler or who employs any handler, for any type of compensation.

Immediate family includes only spouse, children, stepchildren, foster children, parents, stepparents, foster parents, brothers, and sisters.

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Nursery means any operation engaged in the outdoor production of any agricultural plant to produce cut flowers and ferns or plants that will be used in their entirety in another location. Such plants include, but are not limited to, flowering and foliage plants or trees; tree seedlings; live Christmas trees; vegetable, fruit, and ornamental transplants; and turfgrass produced for sod.

Owner means any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment covered by this part. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner for purposes of this part.

Restricted-entry interval means the time after the end of a pesticide application during which entry into the treated area is restricted.

Treated area means any area to which a pesticide is being directed or has been directed.

Worker means any person, including a self-employed person, who is employed for any type of compensation and who is performing activities relating to the production of agricultural plants on an agricultural establishment to which subpart B of this part applies. While persons employed by a commercial pesticide handling establishment are performing tasks as crop advisors, they are not workers covered by the requirements of subpart B of this part.

§ 170.5 Effective date and compliance dates.

(a) **Effective date.** The effective date for this part, including § 170.112(e), shall be October 20, 1992.

(b) **Accelerated provisions.** The compliance date shall be April 21, 1993, for:

- (1) Section 170.112(a) through (c)(3);
- (2) Section 170.112(d)(1) through (d)(2)(11);
- (3) The requirement of § 170.112(c)(3) as referenced in § 170.112(d)(2)(11);
- (4) The requirement of § 170.112(c)(3) as referenced in § 170.112(e)(5);
- (5) Section 170.120(a)(3); and
- (6) Section 170.120(b)(3).

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(c) **All other provisions.** The compliance date for all other provisions of this part shall be April 15, 1994.

§ 170.7 General duties and prohibited actions.

(a) **General duties.** The agricultural employer or the handler employer, as appropriate, shall:

(1) Assure that each worker subject to subpart B of this part or each handler subject to subpart C of this part receives the protections required by this part.

(2) Assure that any pesticide to which subpart C of this part applies is used in a manner consistent with the labeling of the pesticide, including the requirements of this part.

(3) Provide, to each person who supervises any worker or handler, information and directions sufficient to assure that each worker or handler receives the protections required by this part. Such information and directions shall specify which persons are responsible for actions required to comply with this part.

(4) Require each person who supervises any worker or handler to assure compliance by the worker or handler with the provisions of this part and to assure that the worker or handler receives the protections required by this part.

(b) **Prohibited actions.** The agricultural employer or the handler employer shall not take any retaliatory action for attempts to comply with this part or any action having the effect of preventing or discouraging any worker or handler from complying or attempting to comply with any requirement of this part.

§ 170.9 Violations of this part.

(a) Under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 *et seq.*) (FIFRA) section 12(a)(2)(G) it is unlawful for any person "to use any registered pesticide in a manner inconsistent with its labeling." When this part is referenced on a label, users must comply with all of its requirements except those that are inconsistent with product-specific instructions on the labeling. For the purposes of this part, EPA interprets the term "use" to include:

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(1) Preapplication activities, including, but not limited to:

(i) Arranging for the application of the pesticide;

(ii) Mixing and loading the pesticide; and

(iii) Making necessary preparations for the application of the pesticide, including responsibilities related to worker notification, training of handlers, decontamination, use and care of personal protective equipment, emergency information, and heat stress management.

(2) Application of the pesticide.

(3) Post-application activities necessary to reduce the risks of illness and injury resulting from handlers' and workers' occupational exposures to pesticide residues during the restricted-entry interval plus 30 days. These activities include, but are not limited to, responsibilities related to worker training, notification, and decontamination.

(4) Other pesticide-related activities, including, but not limited to, providing emergency assistance, transporting or storing pesticides that have been opened, and disposing of excess pesticides, spray mix, equipment wash waters, pesticide containers, and other pesticide-containing materials.

(b) A person who has a duty under this part, as referenced on the pesticide product label, and who fails to perform that duty, violates FIFRA section 12(a)(2)(G) and is subject to a civil penalty under section 14. A person who knowingly violates section 12(a)(2)(G) is subject to section 14 criminal sanctions.

(c) FIFRA section 14(b)(4) provides that a person is liable for a penalty under FIFRA if another person employed by or acting for that person violates any provision of FIFRA. The term "acting for" includes both employment and contractual relationships.

(d) The requirements of this part, including the decontamination requirements, shall not, for the purposes of section 653(b)(1) of title 29 of the U.S. Code, be deemed to be the exercise of statutory authority to prescribe or enforce standards or regulations affecting the general sanitary hazards addressed by the OSHA Field Sanitation Stand-

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ard, 29 CFR 1928.110, or other agricultural, nonpesticide hazards.

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§ 170.103 Applicability of this subpart.

Except as provided by §§ 170.103 and 170.104, this subpart applies when any pesticide product is used on an agricultural establishment in the production of agricultural plants.

(60 FR 21952, May 3, 1995)

§ 170.103 Exceptions.

Exceptions. This subpart does not apply when any pesticide is applied on an agricultural establishment in the following circumstances:

(a) For mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities;

(b) On livestock or other animals, or in or about animal premises;

(c) On plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses;

(d) On plants that are in ornamental gardens, parks, and public or private lawns and grounds that are intended only for aesthetic purposes or climatic modification;

(e) By injection directly into agricultural plants. Direct injection does not include "hack and squirt," "frill and spray," chemigation, soil-incorporation, or soil-injection;

(f) In a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use;

(g) For control of vertebrate pests;

(h) As attractants or repellents in traps;

(i) On the harvested portions of agricultural plants or on harvested timber; and

(j) For research uses of unregistered pesticides.

(57 FR 38151, Aug. 21, 1992. Redesignated at 60 FR 21952, May 3, 1995)

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§ 170.104 Exemptions.

The workers listed in this section are exempt from the specified provisions of this subpart.

(a) Owners of agricultural establishments. (1) The owner of an agricultural establishment is not required to provide to himself or members of his immediate family who are performing tasks related to the production of agricultural plants on their own agricultural establishment the protections of:

- (i) Section 170.112(c)(5) through (9).
- (ii) Section 170.112(c)(5) through (9) as referenced in §§ 170.112(d)(2)(iii) and 170.112(e).
- (iii) Section 170.120.
- (iv) Section 170.122.
- (v) Section 170.130.
- (vi) Section 170.135.
- (vii) Section 170.150.
- (viii) Section 170.160.

(2) The owner of the agricultural establishment must provide the protections listed in paragraph (a)(1)(i) through (viii) of this section to other workers and other persons who are not members of his immediate family.

(b) Crop advisors. (1) Provided that the conditions of paragraph (b)(2) of this section are met, a person who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by EPA or a State or Tribal lead agency for pesticide enforcement, and persons performing crop advising tasks under such qualified crop advisor's direct supervision, are exempt from the provisions of:

- (i) Section 170.150.
- (ii) Section 170.160.

A person is under the direct supervision of a crop advisor when the crop advisor exerts the supervisory controls set out in paragraphs (b)(2)(iii) and (iv) of this section. Direct supervision does not require that the crop advisor be physically present at all times, but the crop advisor must be readily accessible to the employees at all times.

(2) Conditions of exemption. (1) The certification or licensing program requires pesticide safety training that includes, at least, all the information in § 170.230(c)(4).

- (ii) Applies only when performing crop advising tasks in the treated area.
- (iii) The crop advisor must make specific determinations regarding the ap-

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propriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(iv) Before entering a treated area, the certified or licensed crop advisor must inform, through an established practice of communication, each person under his direct supervision of the pesticide product and active ingredient(s) applied, method of application, time of application, the restricted entry interval, which tasks to undertake, and how to contact the crop advisor.

(c) Grace period for persons performing crop advisor tasks who are not certified or licensed. (1) Provided that the conditions of paragraph (c)(2) of this section are met, a person who is neither certified nor licensed as a crop advisor and any person performing crop advising tasks under his direct supervision is exempt until May 1, 1996, from the requirements of:

- (i) Section 170.130.
- (ii) Section 170.150.
- (iii) Section 170.160.

(2) Conditions of exemption. (1) Applies only when the persons are performing crop advising tasks in the treated area.

(ii) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(iii) Before entering a treated area, the crop advisor must inform, through an established practice of communication, each person under his direct supervision of the active ingredient, method of application, time of application, the restricted entry interval, which tasks to undertake, and how to contact the crop advisor.

[60 FR 21952, May 3, 1995]

§ 170.110 Restrictions associated with pesticide applications.

(a) Farms and forests. During the application of any pesticide on a farm or in a forest, the agricultural employer shall not allow or direct any person,

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other than an appropriately trained and equipped handler, to enter or to remain in the treated area.

(b) Nurseries. In a nursery, during any pesticide application described in column A of Table 1 of this paragraph, the agricultural employer shall not allow or direct any person, other than an ap-

propriately trained and equipped handler, to enter or to remain in the area specified in column B of Table 1 of this paragraph. After the application is completed, until the end of any restricted-entry interval, the entry-restricted area is the treated area.

TABLE 1—ENTRY-RESTRICTED AREAS IN NURSERIES DURING PESTICIDE APPLICATIONS

A. During Application of a Pesticide:	B. Workers are Prohibited in:
(1)(a) Applied: <ul style="list-style-type: none"> (i) Aerially, or (ii) In an upward direction, or (iii) Using a spray pressure greater than 150 psi, or 	Treated area plus 100 feet in all directions on the nursery
(b) Applied as a: <ul style="list-style-type: none"> (i) Fumigant, or (ii) Smoke, or (iii) Mist, or (iv) Fog, or (v) Aerosol. 	Treated area plus 25 feet in all directions on the nursery
(2)(a) Applied downward using: <ul style="list-style-type: none"> (i) A height of greater than 12 inches from the planting medium, or (ii) A fine spray, or (iii) A spray pressure greater than 40 psi and less than 150 psi. 	Treated area
(b) Not as in 1 or 2(a) above but for which a respiratory protection device is required for application by the product labeling.	
(c) Applied otherwise.	

(c) Greenhouses. (1) When a pesticide application described in column A of Table 2 under paragraph (c)(4) of this section takes place in a greenhouse, the agricultural employer shall not allow or direct any person, other than an appropriately trained and equipped handler, to enter or to remain in the area specified in column B of Table 2 until the time specified in column C of Table 2 has expired.

(2) After the time specified in column C of Table 2 under paragraph (c)(4) of this section has expired, until the expiration of any restricted-entry interval, the agricultural employer shall not allow or direct any worker to enter or to remain in the treated area as specified in column D of Table 2 under paragraph (c)(4) of this section, except as provided in § 170.112.

(3) When column C of Table 2 under paragraph (c)(4) of this section specifies that ventilation criteria must be met, ventilation shall continue until

the air concentration is measured to be equal to or less than the inhalation exposure level the labeling requires to be achieved. If no inhalation exposure level is listed on the labeling, ventilation shall continue until after:

- (i) Ten air exchanges are completed; or
- (ii) Two hours of ventilation using fans or other mechanical ventilating systems; or
- (iii) Four hours of ventilation using vents, windows or other passive ventilation; or
- (iv) Eleven hours with no ventilation followed by 1 hour of mechanical ventilation; or
- (v) Eleven hours with no ventilation followed by 2 hours of passive ventilation; or
- (vi) Twenty-four hours with no ventilation.

(4) The following Table 2 applies to paragraphs (c) (1), (2), and (3) of this section.

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TABLE 2—GREENHOUSE ENTRY RESTRICTIONS ASSOCIATED WITH PESTICIDE APPLICATIONS

A. When a Pesticide is Applied:	B. Workers are Prohibited In:	C. Until:	D. After the Expiration of Time in Column C Until the Restricted-Entry Interval Expires, the Entry-Restricted Area Is:
(1) As a fumigant	Entire greenhouse plus any adjacent structure that cannot be sealed off from the treated area	The ventilation criteria of paragraph (c)(3) of this section are met	No entry restrictions after criteria in column C are met
(2) As a	Entire enclosed area	The ventilation criteria of paragraph (c)(3) of this section are met	Entire enclosed area is the treated area
(i) Smoke, or (ii) Mist, or (iii) Fog, or (iv) Aerosol	Entire enclosed area	The ventilation criteria of paragraph (c)(3) of this section are met	Treated area
(3) Not in 1 or 2 above, and for which a respiratory protection device is required for application by the product labeling	Treated area plus 25 feet in all directions in the enclosed area	Application is complete	Treated area
(4) Not in 1, 2, or 3 above, and:			
(i) From a height of greater than 12 in. from the planting medium, or (ii) As a fine spray, or (iii) Using a spray pressure greater than 40 psi			
(5) Otherwise	Treated area	Application is complete	Treated area

§ 170.112 Entry restrictions.

(a) *General restrictions.* (1) After the application of any pesticide on an agricultural employer shall not allow or direct any worker to enter or to remain in the treated area before the restricted-entry interval specified on the pesticide labeling has expired, except as provided in this section.

(2) Entry-restricted areas in greenhouses are specified in column D in table 2 under § 170.110(c)(4).

(3) When two or more pesticides are applied at the same time, the restricted-entry interval shall be the longest of the applicable intervals.

(4) The agricultural employer shall assure that any worker who enters a treated area under a restricted-entry interval as permitted by paragraphs (c), (d), and (e) of this section uses the personal protective equipment specified in the product labeling for early-entry workers and follows any other requirements on the pesticide labeling regarding early entry.

(b) *Exception for activities with no contact.* A worker may enter a treated area during a restricted-entry interval if the agricultural employer assures that both of the following are met:

(1) The worker will have no contact with anything that has been treated with the pesticide to which the restricted-entry interval applies, including, but not limited to, soil, water, air, or surfaces of plants; and

(2) No such entry is allowed until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by § 170.110(c)(3) or in the labeling have been met.

(c) *Exception for short-term activities.* A worker may enter a treated area during a restricted-entry interval for short-term activities if the agricultural employer assures that the following requirements are met:

(1) No hand labor activity is performed.

(2) The time in treated areas under a restricted-entry interval for any worker does not exceed 1 hour in any 24-hour period.

(3) No such entry is allowed for the first 4 hours following the end of the application, and no such entry is allowed thereafter until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by § 170.110(c)(3) or in the labeling have been met.

(4) The personal protective equipment specified on the product labeling for early entry is provided to the worker. Such personal protective equipment shall conform to the following standards:

(i) Personal protective equipment (PPE) means devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.

(ii) Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered personal protective equipment for the purposes of this section and are not subject to the requirements of this section, although pesticide labeling may require that such work clothing be worn during some activities.

(iii) When "chemical-resistant" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of the pesticide being used through the material during use.

(iv) When "waterproof" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of water or aqueous solutions through the material during use.

(v) When a "chemical-resistant suit" is specified by the product labeling, it shall be a loose-fitting, one- or two-piece, chemical-resistant garment that covers, at a minimum, the entire body except head, hands, and feet.

(vi) When "coveralls" are specified by the product labeling, they shall be a

loose-fitting, one- or two-piece garment, such as a cotton or cotton and polyester coverall, that covers, at a minimum, the entire body except head, hands, and feet. The pesticide product labeling may specify that the coveralls be worn over a layer of clothing. If a chemical-resistant suit is substituted for coveralls, it need not be worn over a layer of clothing.

(vii) Gloves shall be of the type specified by the product labeling. Gloves or glove linings made of leather, cotton, or other absorbent materials must not be worn for early-entry activities unless these materials are listed on the product labeling as acceptable for such use. If chemical-resistant gloves with sufficient durability and suppleness are not obtainable for tasks with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant liners. However, once leather gloves have been worn for this use, thereafter they shall be worn only with chemical-resistant liners and they shall not be worn for any other use.

(viii) When "chemical-resistant footwear" is specified by the product labeling, it shall be one of the following types of footwear: chemical-resistant shoes, chemical-resistant boots, or chemical-resistant shoe coverings worn over shoes or boots. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable for workers, then leather boots may be worn in such terrain.

(ix) When "protective eyewear" is specified by the product labeling, it shall be one of the following types of eyewear: goggles; face shield; safety glasses with front, brow, and temple protection; or a full-face respirator.

(x) When "chemical-resistant headgear" is specified by the product labeling, it shall be either a chemical-resistant hood or a chemical-resistant hat with a wide brim.

(5) The agricultural employer shall assure that the worker, before entering the treated area, either has read the product labeling or has been informed, in a manner that the worker can understand, of all labeling requirements related to human hazards or precautions, first aid, symptoms of poisoning, personal protective equipment

specified for early entry, and any other labeling requirements related to safe use.

(6) The agricultural employer shall assure that:

(i) Workers wear the personal protective equipment correctly for its intended purpose and use personal protective equipment according to manufacturer's instructions.

(ii) Before each day of use, all personal protective equipment is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

(iii) Personal protective equipment that cannot be cleaned properly is disposed of in accordance with any applicable Federal, State, and local regulations.

(iv) All personal protective equipment is cleaned according to manufacturer's instructions or pesticide product labeling instructions before each day of reuse. In the absence of any such instructions, it shall be washed thoroughly in detergent and hot water.

(v) Before being stored, all clean personal protective equipment is dried thoroughly or is put in a well-ventilated place to dry.

(vi) Personal protective equipment contaminated with pesticides is kept separately and washed separately from any other clothing or laundry.

(vii) Any person who cleans or launders personal protective equipment is informed that such equipment may be contaminated with pesticides, of the potentially harmful effects of exposure to pesticides, and of the correct way(s) to handle and clean personal protective equipment and to protect themselves when handling equipment contaminated with pesticides.

(viii) All clean personal protective equipment is stored separately from personal clothing and apart from pesticide-contaminated areas.

(ix) Each worker is instructed how to put on, use, and remove the personal protective equipment and is informed about the importance of washing thoroughly after removing personal protective equipment.

(x) Each worker is instructed in the prevention, recognition, and first aid treatment of heat-related illness.

(xi) Workers have a clean place(s) away from pesticide-storage and pesticide-use areas for storing personal clothing not in use; putting on personal protective equipment at the start of any exposure period; and removing personal protective equipment at the end of any exposure period.

(7) When personal protective equipment is required by the labeling of any pesticide for early entry, the agricultural employer shall assure that no worker is allowed or directed to perform the early-entry activity without implementing, when appropriate, measures to prevent heat-related illness.

(8) During any early-entry activity, the agricultural employer shall provide a decontamination site in accordance with § 170.150.

(9) The agricultural employer shall not allow or direct any worker to wear home or to take home personal protective equipment contaminated with pesticides.

(d) Exception for an agricultural emergency. (1) An "agricultural emergency" means a sudden occurrence or set of circumstances which the agricultural employer could not have anticipated and over which the agricultural employer has no control, and which requires entry into a treated area during a restricted-entry interval, when no alternative practices would prevent or mitigate a substantial economic loss. A substantial economic loss means a loss in profitability greater than that which would be expected based on the experience and fluctuations of crop yields in previous years. Only losses caused by the agricultural emergency specific to the affected site and geographic area are considered. The contribution of mismanagement cannot be considered in determining the loss.

(2) A worker may enter a treated area under a restricted-entry interval in an agricultural emergency to perform tasks, including hand labor tasks, necessary to mitigate the effects of the agricultural emergency, if the agricultural employer assures that all the following criteria are met:

(i) A State, Tribal, or Federal Agency having jurisdiction declares the existence of circumstances that could cause an agricultural emergency on that agricultural establishment.

(ii) The agricultural employer determines the agricultural establishment is subject to the circumstances declared under paragraph (d)(2)(i) of this section that result in an agricultural emergency meeting the criteria of paragraph (d)(1) of this section.

(iii) The requirements of paragraphs (c) (3) through (9) of this section are met.

(e) Exception requiring Agency approval. The Agency may, in accordance with paragraphs (e) (1) through (3) of this section, grant an exception from the requirements of this section. An exception may be withdrawn in accordance with paragraph (e)(6) of this section.

(1) Requesting an exception. A request for an exception must be submitted to the Director, Office of Pesticide Programs (H-7501C), Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 and must be accompanied by two copies of the following information:

(i) The name, address, and telephone number of the submitter.

(ii) The time period for which the exception is requested.

(iii) A description of the crop(s) and specific crop production task(s) for which the exception is requested. Such a description must include an explanation as to the necessity of applying pesticides of a type and at a frequency such that the restricted-entry interval would interfere with necessary and time-sensitive hand labor tasks for the period for which the exception is sought.

(iv) A description of the geographic area for which the exception is requested. If the exception request is for a limited geographic area, the explanation must include a description as to why the circumstances of exposure or economic impact resulting from the prohibition of routine hand labor tasks during the restricted-entry interval are unique to the geographic area named in the exception.

(v) An explanation as to why, for each requested crop-task combination, alternative practices would not be technically or financially viable. Such alternative practices might include: rescheduling the pesticide application or hand labor activity; using a non-chemi-

cal pest control alternative; using an alternative to the hand labor tasks, such as machine cultivation; or substituting a pesticide with a shorter restricted-entry interval. This information should include estimates or data on per acre revenue and cost of production for the crop and area for which the exception is requested. These estimates or data should include: the situation prior to implementation of this final rule, the situation after implementation of this final rule if the exception is not granted, the situation after implementation of this final rule if the exception is granted, and specific information on individual factors which cause differences in revenues and costs among the three situations.

(vi) A description or documentation of the safety and feasibility of such an exception, including, but not limited to, the feasibility of performing the necessary hand labor activity while wearing the personal protective equipment required for early entry for the pesticide(s) expected to be applied, the means of mitigating heat-related illness concerns, the period of time required daily per worker to perform the hand labor activity, any suggested methods of reducing the worker's exposure, and any other mitigating factors, such as the availability of running water for routine and emergency decontamination and mechanical devices that would reduce the workers' contact with the treated surfaces. The information should include the costs associated with early-entry, such as decontamination facilities, special information and training for the workers, heat stress avoidance procedures, and provision, inspection, cleaning, and maintenance of personal protective equipment. EPA will not grant exceptions where the costs of early entry equal or exceed the expected loss in value of crop yield or quality.

(2) Notice of receipt. (1) When a request for an exception is submitted to the Agency along with all of the information required in paragraph (e)(1) of this section, the Agency shall issue a notice in the FEDERAL REGISTER stating that an exception is being considered, describing the nature of the exception, and allowing at least 30 days for interested parties to comment.

(ii) If a request for an exception is submitted to the Agency without all of the information required in paragraph (e)(1) of this section, the Agency shall return the request to the submitter.

(3) **Exception decision.** EPA will publish in the FEDERAL REGISTER its decision whether to grant the request for exception. EPA will base its decision on whether the benefits of the exception outweigh the costs, including the value of the health risks attributable to the exception. If the exception is granted, the notice will state the nature of and reasons for the exception.

(4) **Presumptive denial.** (i) Except as provided in paragraph (e)(4)(ii) of this section, persons requesting an exception may assume that the exception has been denied if EPA has not issued its decision whether to grant the exception within 9 months from the comment-closure date specified in the FEDERAL REGISTER notice in which the Agency announced, in accordance with paragraph (e)(2) of this section, that it would consider the exception.

(ii) Persons requesting an exception may not assume that the request has been denied as provided by paragraph (e)(4)(i) of this section if the Agency has taken action to extend its review period for a specified time interval due to the complexity of the exception request or to the number of exception requests concurrently under Agency review. EPA shall state the reason(s) for the delay in issuing a decision on the exception request. A notice of such an action may be published in the FEDERAL REGISTER or persons who requested the exception may be directly notified of the action.

(5) **Agricultural employer duties.** When a worker enters a treated area during a restricted-entry interval under an exception granted under paragraph (e) of this section, the agricultural employer shall assure that the requirements of paragraphs (c) (3) through (9) of this section are met, unless the notice granting the exception specifically indicates otherwise.

(6) **Withdrawing an exception.** An exception may be withdrawn by the Agency at any time if the Agency receives poisoning information or other data that indicate that the health risks imposed by this early-entry exception

are unacceptable or if the Agency receives other information that indicates that the exception is no longer necessary or prudent. If the Agency determines that an exception should be withdrawn, it will publish a notice in the FEDERAL REGISTER, stating the basis for its determination. Affected parties would then have 30 days to request a hearing on the Agency's determination. The exception, however, would be discontinued as of the date specified by EPA in the notice, which may include any of the 30-day period and the time required for any subsequent hearing process. Thereafter the Agency will decide whether to withdraw the exception and will publish a notice in the FEDERAL REGISTER stating its decision.

(7) **List of exceptions granted by EPA.** The following administrative exceptions from the requirements of this section have been granted by EPA. Each exception listed in paragraph (e)(7) of this section contains a reference to the FEDERAL REGISTER notice in which EPA has granted the exception and the effective dates of the exception. The terms and conditions of the exception appear in the referenced FEDERAL REGISTER notice.

(i) Exception for hand labor to harvest greenhouse-grown cut roses published in the FEDERAL REGISTER of June 10, 1994, effective from June 10, 1994, to June 10, 1996.

(ii) Exception to perform irrigation tasks under specified conditions published in the FEDERAL REGISTER of May 3, 1995.

(iii) Exceptions to perform limited contact tasks under specified conditions published in the FEDERAL REGISTER of May 3, 1995.

(iv) Exception for hand labor to harvest greenhouse-grown roses under specified conditions published in the FEDERAL REGISTER of October 3, 1997, effective December 18, 1996 to October 4, 1999.

[57 FR 38151, Aug. 21, 1992, as amended at 59 FR 30264, June 10, 1994; 60 FR 21964, May 3, 1995; 62 FR 52003, Oct. 3, 1997]

§ 170.120 Notice of applications.

(a) **Notification to workers of pesticide applications in greenhouses.** The agricultural employer shall notify workers of

any pesticide application in the greenhouse in accordance with this paragraph.

(1) All pesticide applications shall be posted in accordance with paragraph (c) of this section.

(2) If the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the agricultural employer shall also provide oral notification of the application to the worker in accordance with paragraph (d) of this section.

(3) Notice need not be given to a worker if the agricultural employer can assure that one of the following is met:

(i) From the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through the greenhouse; or

(ii) The worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all information required by paragraphs (d)(1) through (3) of this section.

(b) **Notification to workers on farms, in nurseries, or in forests of pesticide applications.** The agricultural employer shall notify workers of any pesticide application on the farm or in the nursery or forest in accordance with this paragraph.

(1) If the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the agricultural employer shall post signs in accordance with paragraph (c) of this section and shall provide oral notification of the application to the worker in accordance with paragraph (d) of this section.

(2) For any pesticide other than those for which the labeling requires both posting and oral notification of applications, the agricultural employer shall give notice of the application to the worker either by the posting of warning signs in accordance with para-

graph (c) of this section or orally in accordance with paragraph (d) of this section, and shall inform the workers as to which method of notification is in effect.

(3) Notice need not be given to a worker if the agricultural employer can assure that one of the following is met:

(i) From the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through on foot the treated area or any area within 1/4 mile of the treated area; or

(ii) The worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all information required by (d)(1) through (3) of this section.

(c) **Posted warning signs.** The agricultural employer shall post warning signs in accordance with the following criteria:

(1) The warning sign shall have a background color that contrasts with red. The words "DANGER" and "PELIGRO," plus "PESTICIDES" and "PESTICIDAS," shall be at the top of the sign, and the words "KEEP OUT" and "NO ENTRE" shall be at the bottom of the sign. Letters for all words must be clearly legible. A circle containing an upraised hand on the left and a stern face on the right must be near the center of the sign. The inside of the circle must be red, except that the hand and a large portion of the face must be in a shade that contrasts with red. The length of the hand must be at least twice the height of the smallest letters. The length of the face must be only slightly smaller than the hand. Additional information such as the name of the pesticide and the date of application may appear on the warning sign if it does not detract from the appearance of the sign or change the meaning of the required information. A black-and-white example of a warning sign meeting these requirements, other than the size requirements, follows:



(2) The standard sign shall be at least 14 inches by 16 inches with letters at least 1 inch in height. Farms and forests shall use the standard size sign unless a smaller sign is necessary because the treated area is too small to accommodate a sign of this size. In nurseries and greenhouses, the agricultural employer may, at any time, use a sign

smaller than the standard size sign. Whenever a small sign is used on any establishment, there are specific posting distances depending on the size of the lettering and symbol on the sign. If a sign is used with DANGER and PELIGRO in letters at least 3/8 inch in height and the remaining letters at least 1/2 inch in height and a red circle

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at least 3 inches in diameter containing an upraised hand and a stern face, the signs shall be no further than 50 feet apart. If a sign is used with DANGER and PELIGRO in letters at least 3/8 inch in height and the remaining letters at least 1/4 inch in height and a red circle at least 1 1/2 inches in diameter containing an upraised hand and a stern face, the signs shall be no further than 25 feet apart. A sign with DANGER and PELIGRO in letters less than 3/8 inch in height or with any words in letters less than 1/4 inch in height or a red circle smaller than 1 1/2 inches in diameter containing an upraised hand and a stern face will not satisfy the requirements of the rule. All signs must meet the requirements of paragraph (c)(1) of this section.

(3) The employer may replace the Spanish portion of the warning sign with a non-English language read by the largest group of workers who do not read English. The replacement sign must be in the same format as the original sign and be visible and legible.

(4) On farms and in forests and nurseries, the signs shall be visible from all usual points of worker entry to the treated area, including at least each access road, each border with any labor camp adjacent to the treated area, and each footpath and other walking route that enters the treated area. When there are no usual points of worker entry, signs shall be posted in the corners of the treated area or in any other location affording maximum visibility.

(5) In greenhouses, the signs shall be posted so they are visible from all usual points of worker entry to the treated area including each aisle or other walking route that enters the treated area. When there are no usual points of worker entry to the treated area, signs shall be posted in the corners of the treated area or in any other location affording maximum visibility.

(6) The signs shall:

(i) Be posted no sooner than 24 hours before the scheduled application of the pesticide.

(ii) Remain posted throughout the application and any restricted-entry interval.

(iii) Be removed within 3 days after the end of the application and any restricted-entry interval and before agri-

cultural-worker entry is permitted, other than entry permitted by § 170.112.

(7) The signs shall remain visible and legible during the time they are posted.

(8) When several contiguous areas are to be treated with pesticides on a rotating or sequential basis, the entire area may be posted. Worker entry, other than entry permitted by § 170.112, is prohibited for the entire area while the signs are posted.

(d) Oral warnings. The agricultural employer shall provide oral warnings to workers in a manner that the worker can understand. If a worker will be on the premises during the application, the warning shall be given before the application takes place. Otherwise, the warning shall be given at the beginning of the worker's first work period during which the application is taking place or the restricted-entry interval for the pesticide is in effect. The warning shall consist of:

(1) The location and description of the treated area.

(2) The time during which entry is restricted.

(3) Instructions not to enter the treated area until the restricted-entry interval has expired.

[57 FR 38161, Aug. 21, 1992, as amended at 61 FR 33207, June 26, 1996]

§ 170.123 Providing specific information about applications.

When workers are on an agricultural establishment and, within the last 30 days, a pesticide covered by this subpart has been applied on the establishment or a restricted-entry interval has been in effect, the agricultural employer shall display, in accordance with this section, specific information about the pesticide.

(a) Location, accessibility, and legibility. The information shall be displayed in the location specified for the pesticide safety poster in § 170.135(d) and shall be accessible and legible, as specified in § 170.135 (e) and (f).

(b) Timing. (1) If warning signs are posted for the treated area before an application, the specific application information for that application shall be posted at the same time or earlier.

(2) The information shall be posted before the application takes place, if workers will be on the establishment

during application. Otherwise, the information shall be posted at the beginning of any worker's first work period.

(3) The information shall continue to be displayed for at least 30 days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least 30 days after the end of the application) or at least until workers are no longer on the establishment, whichever is earlier.

(c) Required information. The information shall include:

(1) The location and description of the treated area.

(2) The product name, EPA registration number, and active ingredient(s) of the pesticide.

(3) The time and date the pesticide is to be applied.

(4) The restricted-entry interval for the pesticide.

§ 170.124 Notice of applications to handler employers.

Whenever handlers who are employed by a commercial pesticide handling establishment will be performing pesticide handling tasks on an agricultural establishment, the agricultural employer shall provide to the handler employer, or assure that the handler employer is aware of, the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within 1/4 mile of) and that may be treated with a pesticide or that may be under a restricted-entry interval while the handler will be on the agricultural establishment:

(a) Specific location and description of any such areas; and

(b) Restrictions on entering those areas.

§ 170.130 Pesticide safety training for workers.

(a) General requirement.—(1) Agricultural employer assurance. The agricultural employer shall assure that each worker, required by this section to be trained, has been trained according to this section during the last 5 years, counting from the end of the month in which the training was completed.

(2) Requirement for workers performing early-entry activities. Before a worker enters a treated area on the agricul-

tural establishment during a restricted-entry interval to perform early-entry activities permitted by § 170.112 and contacts anything that has been treated with the pesticide to which the restricted-entry interval applies, including but not limited to, soil, water, or surfaces of plants, the agricultural employer shall assure that the worker has been trained.

(3) Requirements for other agricultural workers.—(1) Information before entry. As of January 1, 1996, and except as provided in paragraph (a)(2) of this section, before a worker enters any areas on the agricultural establishment where, within the last 30 days a pesticide to which this subpart applies has been applied or the restricted-entry interval for such pesticide has been in effect, the agricultural employer shall assure that the worker has been provided the pesticide safety information specified in paragraph (c), in a manner that agricultural workers can understand, such as by providing written materials or oral communication or by other means. The agricultural employer must be able to verify compliance with this requirement.

(ii) Training before the 6th day of entry. Except as provided in paragraph (a)(2) of this section, before the 6th day that a worker enters any areas on the agricultural establishment where, within the last 30 days a pesticide to which this subpart applies has been applied or a restricted-entry interval for such pesticide has been in effect, the agricultural employer shall assure that the worker has been trained.

(iii) Exceptions during interim period. Until December 31, 1995, and except as provided by paragraph (a)(2) of this section, before the 16th day that a worker enters any areas on the agricultural establishment where, within the last 30 days a pesticide to which this subpart applies has been applied or a restricted-entry interval has been in effect, the agricultural employer shall assure that the worker has been trained. After December 31, 1995 this exception no longer applies.

(b) Exceptions. The following persons need not be trained under this section:

(1) A worker who is currently certified as an applicator of restricted-use

pesticides under part 171 of this chapter.

(2) A worker who satisfies the training requirements of part 171 of this chapter.

(3) A worker who satisfies the handler training requirements of § 170.230(c).

(4) A worker who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by EPA or a State or Tribal lead agency for pesticide enforcement, provided that a requirement for such certification or licensing is pesticide safety training that includes all the information set out in § 170.230(c)(4).

(c) Pesticide safety information. The pesticide safety information required by paragraph (a)(3)(i) shall be presented to workers in a manner that the workers can understand. At a minimum, the following information shall be provided:

(1) Pesticides may be on or in plants, soil, irrigation water, or drifting from nearby applications.

(2) Prevent pesticides from entering your body by:

(i) Following directions and/or signs about keeping out of treated or restricted areas.

(ii) Washing before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wearing work clothing that protects the body from pesticide residues.

(iv) Washing/showering with soap and water, shampoo hair, and put on clean clothes after work.

(v) Washing work clothes separately from other clothes before wearing them again.

(vi) Washing immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(3) Further training will be provided within 5 days.

(d) Training programs. (1) General pesticide safety information shall be presented to workers either orally from written materials or audiovisually. The information must be presented in a manner that the workers can understand (such as through a translator) using nontechnical terms. The pre-

sender also shall respond to workers' questions.

(2) The person who conducts the training shall meet at least one of the following criteria:

(i) Be currently certified as an applicator of restricted-use pesticides under part 171 of this chapter; or

(ii) Be currently designated as a trainer of certified applicators or pesticide handlers by a State, Federal, or Tribal agency having jurisdiction; or

(iii) Have completed a pesticide safety train-the-trainer program approved by a State, Federal, or Tribal agency having jurisdiction; or

(iv) Satisfy the training requirements in part 171 of this chapter or in § 170.230(c).

(3) Any person who issues an EPA-approved Worker Protection Standard worker training certificate must assure that the worker who receives the training certificate has been trained in accordance with (c)(4) of this section.

(4) The training materials shall convey, at a minimum, the following information:

(i) Where and in what form pesticides may be encountered during work activities.

(ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.

(iii) Routes through which pesticides can enter the body.

(iv) Signs and symptoms of common types of pesticide poisoning.

(v) Emergency first aid for pesticide injuries or poisonings.

(vi) How to obtain emergency medical care.

(vii) Routine and emergency decontamination procedures, including emergency eyeflushing techniques.

(viii) Hazards from chemigation and drift.

(ix) Hazards from pesticide residues on clothing.

(x) Warnings about taking pesticides or pesticide containers home.

(xi) Requirements of this subpart designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of

warning signs, oral warnings, the availability of specific information about applications, and the protection against retaliatory acts.

(e) **Verification of training.** (1) Except as provided in paragraph (e)(2) of this section, if the agricultural employer assures that a worker possesses an EPA-approved Worker Protection Standard worker training certificate, then the requirements of paragraph (a) and (c) of this section will have been met.

(2) If the agricultural employer is aware or has reason to know that an EPA-approved Worker Protection Standard worker training certificate has not been issued in accordance with this section, or has not been issued to the worker bearing the certificate, or the training was completed more than 5 years before the beginning of the current month, a worker's possession of that certificate does not meet the requirements of paragraph (a) of this section.

[57 FR 38151, Aug. 21, 1992, as amended at 60 FR 21947, 21952, May 3, 1995]

§ 170.135 Posted pesticide safety information.

(a) **Requirement.** When workers are on an agricultural establishment and, within the last 30 days, a pesticide covered by this subpart has been applied on the establishment or a restricted-entry interval has been in effect, the agricultural employer shall display, in accordance with this section, pesticide safety information.

(b) **Pesticide safety poster.** A safety poster must be displayed that conveys, at a minimum, the following basic pesticide safety concepts:

(1) Help keep pesticides from entering your body. At a minimum, the following points shall be conveyed:

(i) Avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications.

(ii) Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf).

(iv) Wash/shower with soap and water, shampoo hair, and put on clean clothes after work.

(v) Wash work clothes separately from other clothes before wearing them again.

(vi) Wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(vii) Follow directions about keeping out of treated or restricted areas.

(2) There are Federal rules to protect workers and handlers, including a requirement for safety training.

(c) **Emergency medical care information.**

(1) The name, address, and telephone number of the nearest emergency medical care facility shall be on the safety poster or displayed close to the safety poster.

(2) The agricultural employer shall inform workers promptly of any change to the information on emergency medical care facilities.

(d) **Location.** (1) The information shall be displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by workers.

(2) The information shall be displayed in a location in or near the forest in a place where it can be readily seen and read by workers and where workers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

(e) **Accessibility.** Workers shall be informed of the location of the information and shall be allowed access to it.

(f) **Legibility.** The information shall remain legible during the time it is posted.

§ 170.150 Decontamination.

(a)(1) **Requirement.** The agricultural employer must provide decontamination supplies for workers in accordance with this section whenever:

(i) Any worker on the agricultural establishment is performing an activity in the area where a pesticide was applied or a restricted-entry interval (REI) was in effect within the last 30 days; and

(ii) The worker contacts anything that has been treated with the pesticide, including, but not limited to

soil, water, plants, plant surfaces, and plant parts.

(2) **Exception.** The 30-day time period established in paragraph (a)(1)(i) of this section shall not apply if the only pesticides used in the treated area are products with an REI of 4 hours or less on the label (but not a product without an REI on the label). When workers are in such treated areas, the agricultural employer shall provide decontamination supplies for not less than 7 days following the expiration of any applicable REI.

(b) **General conditions.** (1) The agricultural employer shall provide workers with enough water for routine washing and emergency eyeflushing. At all times when the water is available to workers, the employer shall assure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

(2) When water stored in a tank is to be used for mixing pesticides, it shall not be used for decontamination or eyeflushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.

(3) The agricultural employer shall provide soap and single-use towels in quantities sufficient to meet worker's needs.

(4) To provide for emergency eyeflushing, the agricultural employer shall assure that at least 1 pint of water is immediately available to each worker who is performing early-entry activities permitted by § 170.112 and for which the pesticide labeling requires protective eyewear. The eyeflush water shall be carried by the early-entry worker, or shall be on the vehicle the early-entry worker is using, or shall be otherwise immediately accessible.

(c) **Location.** (1) The decontamination supplies shall be located together and be reasonably accessible to and not more than 1/4 mile from where workers are working.

(2) For worker activities performed more than 1/4 mile from the nearest place of vehicular access:

(i) The soap, single-use towels, and water may be at the nearest place of vehicular access.

(ii) The agricultural employer may permit workers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water located at the nearest place of vehicular access.

(3) The decontamination supplies shall not be maintained in an area being treated with pesticides.

(4) The decontamination supplies shall not be maintained in an area that is under a restricted-entry interval, unless the workers for whom the supplies are provided are performing early-entry activities permitted by § 170.112 and involving contact with treated surfaces and the decontamination supplies would otherwise not be reasonably accessible to those workers.

(d) **Decontamination after early-entry activities.** At the end of any exposure period for workers engaged in early-entry activities permitted by § 170.112 and involving contact with anything that has been treated with the pesticide to which the restricted-entry interval applies, including, but not limited to, soil, water, air, or surfaces of plants, the agricultural employer shall provide, at the site where the workers remove personal protective equipment, soap, clean towels, and a sufficient amount of water so that the workers may wash thoroughly.

[57 FR 38151, Aug. 21, 1992, as amended at 61 FR 33212, June 26, 1996]

§ 170.160 Emergency assistance.

If there is reason to believe that a person who is or has been employed on an agricultural establishment to perform tasks related to the production of agricultural plants has been poisoned or injured by exposure to pesticides used on the agricultural establishment, including, but not limited to, exposures from application, splash, spill, drift, or pesticide residues, the agricultural employer shall:

(a) Make available to that person prompt transportation from the agricultural establishment, including any labor camp on the agricultural establishment, to an appropriate emergency medical facility.

(b) Provide to that person or to treating medical personnel, promptly upon

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request, any obtainable information on:

(1) Product name, EPA registration number, and active ingredients of any product to which that person might have been exposed.

(2) Antidote, first aid, and other medical information from the product labeling.

(3) The circumstances of application or use of the pesticide on the agricultural establishment.

(4) The circumstances of exposure of that person to the pesticide.

Subpart C—Standard for Pesticide Handlers

§ 170.202 Applicability of this subpart.

Except as provided by §§170.203 and 170.204, this subpart applies when any pesticide is handled for use on an agricultural establishment.

[60 FR 21952, May 3, 1995]

§ 170.203 Exceptions.

Exceptions. This subpart does not apply when any pesticide is handled for use on an agricultural establishment in the following circumstances:

(a) For mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities.

(b) On livestock or other animals, or in or about animal premises.

(c) On plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses.

(d) On plants that are in ornamental gardens, parks, and public or private lawns and grounds and that are intended only for aesthetic purposes or climatic modification.

(e) In a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use.

(f) For control of vertebrate pests.

(g) As attractants or repellents in traps.

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(h) On the harvested portions of agricultural plants or on harvested timber.

(i) For research uses of unregistered pesticides.

[57 FR 38151, Aug. 21, 1992. Redesignated at 60 FR 21952, May 3, 1995]

§ 170.204 Exemptions.

The handlers listed in this section are exempt from the specified provisions of this subpart.

(a) *Owners of agricultural establishments.* (1) The owner of an agricultural establishment is not required to provide to himself or members of his immediate family who are performing handling tasks on their own agricultural establishment the protections of:

- (i) Section 170.210(b) and (c).
- (ii) Section 170.222.
- (iii) Section 170.230.
- (iv) Section 170.232.
- (v) Section 170.234.
- (vi) Section 170.235.
- (vii) Section 170.240 (e) through (g).
- (viii) Section 170.250.
- (ix) Section 170.260.

(2) The owner of the agricultural establishment must provide the protections listed in paragraphs (a)(1) (i) through (ix) of this section to other handlers and other persons who are not members of his immediate family.

(b) *Crop advisors.* (1) Provided that the conditions of paragraph (b)(2) of this section are met, a person who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by EPA or a State or Tribal lead agency for pesticide enforcement, and persons performing crop advising tasks under such qualified crop advisor's direct supervision, are exempt from the provisions of:

- (i) Section 170.232.
- (ii) Section 170.240.
- (iii) Section 170.250.
- (iv) Section 170.260.

A person is under the direct supervision of a crop advisor when the crop advisor exerts the supervisory controls set out in paragraphs (b)(2)(iv) and (v) of this section. Direct supervision does not require that the crop advisor be physically present at all times, but the crop advisor must be readily accessible to the employees at all times.

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(2) Conditions of exemption. (1) The certification or licensing program requires pesticide safety training that includes, at least, all the information in §170.230(c)(4).

(ii) No entry into the treated area occurs until after application ends.

(iii) Applies only when performing crop advising tasks in the treated area.

(iv) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(v) Before entering a treated area, the certified or licensed crop advisor must inform, through an established practice of communication, each person under his direct supervision of the pesticide products and active ingredient(s) applied, method of application, time of application, the restricted entry interval, which tasks to undertake, and how to contact the crop advisor.

(c) *Grace period for persons performing crop advisor tasks who are not certified or licensed.* (1) Provided that the conditions of paragraph (c)(2) of this section are met, a person who is neither certified nor licensed as a crop advisor and any person performing crop advising tasks under his direct supervision is exempt until May 1, 1996, from the requirements of:

- (i) Section 170.230.
- (ii) Section 170.232.
- (iii) Section 170.240.
- (iv) Section 170.250.
- (v) Section 170.260.

(2) Conditions of exemption. (1) No entry into the treated area occurs until after application ends.

(ii) Applies only when the persons are performing crop advising tasks in the treated area.

(iii) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(iv) Before entering a treated area, the crop advisor must inform, through

an established practice of communication, each person under his direct supervision of the pesticide products and active ingredient(s) applied, method of application, time of application, the restricted entry interval, which tasks to undertake, and how to contact the crop advisor.

[60 FR 21953, May 3, 1995]

§ 170.210 Restrictions during applications.

(a) *Contact with workers and other persons.* The handler employer and the handler shall assure that no pesticide is applied so as to contact, either directly or through drift, any worker or other person, other than an appropriately trained and equipped handler.

(b) *Handlers handling highly toxic pesticides.* The handler employer shall assure that any handler who is performing any handling activity with a product that has the skull and crossbones symbol on the front panel of the label is monitored visually or by voice communication at least every 2 hours.

(c) *Fumigant applications in greenhouses.* The handler employer shall assure:

(1) That any handler who handles a fumigant in a greenhouse, including a handler who enters the greenhouse before the acceptable inhalation exposure level or ventilation criteria have been met to monitor air levels or to initiate ventilation, maintains continuous visual or voice contact with another handler.

(2) That the other handler has immediate access to the personal protective equipment required by the fumigant labeling for handlers in the event entry into the fumigated greenhouse becomes necessary for rescue.

§ 170.222 Providing specific information about applications.

When handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment and, within the last 30 days, a pesticide covered by this subpart has been applied on the establishment or a restricted-entry interval has been in effect, the handler employer shall display, in accordance with this section, specific information about the pesticide.

§ 170.224

(a) Location, accessibility, and legibility. The information shall be displayed in the same location specified for the pesticide safety poster in §170.235(d) of this part and shall be accessible and legible, as specified in §170.235(e) and (f) of this part.

(b) Timing. (1) If warning signs are posted for the treated area before an application, the specific application information for that application shall be posted at the same time or earlier.

(2) The information shall be posted before the application takes place, if handlers (except those employed by a commercial pesticide handling establishment) will be on the establishment during application. Otherwise, the information shall be posted at the beginning of any such handler's first work period.

(3) The information shall continue to be displayed for at least 30 days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least 30 days after the end of the application) or at least until the handlers are no longer on the establishment, whichever is earlier.

(c) Required information. The information shall include:

- (1) The location and description of the treated area.
- (2) The product name, EPA registration number, and active ingredient(s) of the pesticide.
- (3) The time and date the pesticide is to be applied.
- (4) The restricted-entry interval for the pesticide.

§ 170.224 Notice of applications to agricultural employers.

Before the application of any pesticide on or in an agricultural establishment, the handler employer shall provide the following information to any agricultural employer for the establishment or shall assure that any agricultural employer is aware of:

- (a) Specific location and description of the treated area.
- (b) Time and date of application.
- (c) Product name, EPA registration number, and active ingredient(s).
- (d) Restricted-entry interval.
- (e) Whether posting and oral notification are required.

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(f) Any other product-specific requirements on the product labeling concerning protection of workers or other persons during or after application.

§ 170.230 Pesticide safety training for handlers.

(a) Requirement. Before any handler performs any handling task, the handler employer shall assure that the handler has been trained in accordance with this section during the last 5 years, counting from the end of the month in which the training was completed.

(b) Exceptions. The following persons need not be trained under this section:

(1) A handler who is currently certified as an applicator of restricted-use pesticides under part 171 of this chapter.

(2) A handler who satisfies the training requirements of part 171 of this chapter.

(3) A handler who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by EPA or a State or Tribal lead agency for pesticide enforcement, provided that a requirement for such certification or licensing is pesticide safety training that includes all the information set out in §170.230(c)(4).

(c) Training programs. (1) General pesticide safety information shall be presented to handlers either orally from written materials or audiovisually. The information must be presented in a manner that the handlers can understand (such as through a translator). The presenter also shall respond to handlers' questions.

(2) The person who conducts the training shall meet at least one of the following criteria:

- (i) Be currently certified as an applicator of restricted-use pesticides under part 171 of this chapter; or
- (ii) Be currently designated as a trainer of certified applicators or pesticide handlers by a State, Federal, or Tribal agency having jurisdiction; or
- (iii) Have completed a pesticide safety train-the-trainer program approved by a State, Federal, or Tribal agency having jurisdiction.

(3) Any person who issues an EPA-approved Worker Protection Standard

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handler training certificate must assure that the handler who receives the training certificate has been trained in accordance with paragraph (c)(4) of this section.

(4) The pesticide safety training materials must convey, at a minimum, the following information:

(i) Format and meaning of information contained on pesticide labels and in labeling, including safety information such as precautionary statements about human health hazards.

(ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.

(iii) Routes by which pesticides can enter the body.

(iv) Signs and symptoms of common types of pesticide poisoning.

(v) Emergency first aid for pesticide injuries or poisonings.

(vi) How to obtain emergency medical care.

(vii) Routine and emergency decontamination procedures.

(viii) Need for and appropriate use of personal protective equipment.

(ix) Prevention, recognition, and first aid treatment of heat-related illness.

(x) Safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup.

(xi) Environmental concerns such as drift, runoff, and wildlife hazards.

(xii) Warnings about taking pesticides or pesticide containers home.

(xiii) Requirements of this subpart that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with workers or other persons, the requirement to use personal protective equipment, the provisions for training and decontamination, and the protection against retaliatory acts.

(d) Verification of training. (1) Except as provided in paragraph (d)(2) of this section, if the handler employer assures that a handler possesses an EPA-approved Worker Protection Standard handler training certificate, then the requirements of paragraph (a) of this section will have been met.

§ 170.232

(2) If the handler employer is aware or has reason to know that an EPA-approved Worker Protection Standard handler training certificate has not been issued in accordance with this section, or has not been issued to the handler bearing the certificate, or the handler training was completed more than 5 years before the beginning of the current month, a handler's possession of that certificate does not meet the requirements of paragraph (a) of this section.

[57 FR 38151, Aug. 21, 1992, as amended at 60 FR 21953, May 3, 1995]

§ 170.232 Knowledge of labeling and site-specific information.

(a) Knowledge of labeling information.

(1) The handler employer shall assure that before the handler performs any handling activity, the handler either has read the product labeling or has been informed in a manner the handler can understand of all labeling requirements related to safe use of the pesticide, such as signal words, human hazard precautions, personal protective equipment requirements, first aid instructions, environmental precautions, and any additional precautions pertaining to the handling activity to be performed.

(2) The handler employer shall assure that the handler has access to the product labeling information during handling activities.

(b) Knowledge of site-specific information. Whenever a handler who is employed by a commercial pesticide handling establishment will be performing pesticide handling tasks on an agricultural establishment, the handler employer shall assure that the handler is aware of the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within 1/4 mile of) and that may be treated with a pesticide or that may be under a restricted-entry interval while the handler will be on the agricultural establishment:

- (1) Specific location and description of any such areas; and
- (2) Restrictions on entering those areas.

§ 170.234 Safe operation of equipment.

(a) The handler employer shall assure that before the handler uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment, including, when relevant, chemigation safety requirements and drift avoidance.

(b) The handler employer shall assure that, before each day of use, equipment used for mixing, loading, transferring, or applying pesticides is inspected for leaks, clogging, and worn or damaged parts, and any damaged equipment is repaired or is replaced.

(c) Before allowing any person to repair, clean, or adjust equipment that has been used to mix, load, transfer, or apply pesticides, the handler employer shall assure that pesticide residues have been removed from the equipment, unless the person doing the cleaning, repairing, or adjusting is a handler employed by the agricultural or commercial pesticide handling establishment. If pesticide residue removal is not feasible, the handler employer shall assure that the person who repairs, cleans, or adjusts such equipment is informed:

- (1) That such equipment may be contaminated with pesticides.
- (2) Of the potentially harmful effects of exposure to pesticides.
- (3) Of the correct way to handle such equipment.

§ 170.235 Posted pesticide safety information.

(a) Requirement. When handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment and, within the last 30 days, a pesticide covered by this subpart has been applied on the establishment or a restricted-entry interval has been in effect, the handler employer shall display, in accordance with this section, pesticide safety information.

(b) Pesticide safety poster. A safety poster must be displayed that conveys, at a minimum, the following basic pesticide safety concepts:

- (1) Help keep pesticides from entering your body. At a minimum, the following points shall be conveyed:

(i) Avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications.

(ii) Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf).

(iv) Wash/shower with soap and water, shampoo hair, and put on clean clothes after work.

(v) Wash work clothes separately from other clothes before wearing them again.

(vi) Wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(vii) Follow directions about keeping out of treated or restricted areas.

(2) There are Federal rules to protect workers and handlers including a requirement for safety training.

(c) Emergency medical care information.

(1) The name, address, and telephone number of the nearest emergency medical care facility shall be on the safety poster or displayed close to the safety poster.

(2) The handler employer shall inform handlers promptly of any change to the information on emergency medical care facilities.

(d) Location. (1) The information shall be displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by handlers.

(2) The information shall be displayed in a location in or near the forest in a place where it can be readily seen and read by handlers and where handlers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

(e) Accessibility. Handlers shall be informed of the location of the information and shall be allowed access to it.

(f) Legibility. The information shall remain legible during the time it is posted.

§ 170.240 Personal protective equipment.

(a) Requirement. Any person who performs tasks as a pesticide handler shall use the clothing and personal protective equipment specified on the labeling for use of the product.

(b) Definition. (1) Personal protective equipment (PPE) means devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.

(2) Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered personal protective equipment for the purposes of this section and are not subject to the requirements of this section, although pesticide labeling may require that such work clothing be worn during some activities.

(c) Provision. When personal protective equipment is specified by the labeling of any pesticide for any handling activity, the handler employer shall provide the appropriate personal protective equipment in clean and operating condition to the handler.

(1) When "chemical-resistant" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of the pesticide being used through the material during use.

(2) When "waterproof" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of water or aqueous solutions through the material during use.

(3) When a "chemical-resistant suit" is specified by the product labeling, it shall be a loose-fitting, one- or two-piece chemical-resistant garment that covers, at a minimum, the entire body except head, hands, and feet.

(4) When "coveralls" are specified by the product labeling, they shall be a loose-fitting, one- or two-piece garment, such as a cotton or cotton and polyester coverall, that covers, at a minimum, the entire body except head,

hands, and feet. The pesticide product labeling may specify that the coveralls be worn over another layer of clothing.

(5) Gloves shall be of the type specified by the product labeling. Gloves or glove linings made of leather, cotton, or other absorbent material shall not be worn for handling activities unless such materials are listed on the product labeling as acceptable for such use.

(6) When "chemical-resistant footwear" is specified by the product labeling, one of the following types of footwear must be worn:

- (i) Chemical-resistant shoes.
- (ii) Chemical-resistant boots.
- (iii) Chemical-resistant shoe coverings worn over shoes or boots.

(7) When "protective eyewear" is specified by the product labeling, one of the following types of eyewear must be worn:

- (i) Goggles.
- (ii) Face shield.
- (iii) Safety glasses with front, brow, and temple protection.
- (iv) Full-face respirator.

(8) When a "chemical-resistant apron" is specified by the product labeling, an apron that covers the front of the body from mid-chest to the knees shall be worn.

(9) When a respirator is specified by the product labeling, it shall be appropriate for the pesticide product used and for the activity to be performed. The handler employer shall assure that the respirator fits correctly.

(10) When "chemical-resistant headgear" is specified by the product labeling, it shall be either a chemical resistant hood or a chemical-resistant hat with a wide brim.

(d) Exceptions to personal protective equipment specified on product labeling—

(1) Body protection. (i) A chemical-resistant suit may be substituted for "coveralls," and any requirement for an additional layer of clothing beneath is waived.

(ii) A chemical-resistant suit may be substituted for "coveralls" and a chemical-resistant apron.

(2) Boots. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable, then leather boots may be worn in such terrain.

(3) Gloves. If chemical-resistant gloves with sufficient durability and suppleness are not obtainable, then during handling activities with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant glove liners. However, once leather gloves are worn for this use, thereafter they shall be worn only with chemical-resistant liners and they shall not be worn for any other use.

(4) Closed systems. If handling tasks are performed using properly functioning systems that enclose the pesticide to prevent it from contacting handlers or other persons, and if such systems are used and are maintained in accordance with that manufacturer's written operating instructions, exceptions to labeling-specified personal protective equipment for the handling activity are permitted as provided in paragraphs (d)(4)(i) and (ii) of this section.

(i) Persons using a closed system to mix or load pesticides with a signal word of DANGER or WARNING may substitute a long-sleeved shirt, long pants, shoes, socks, chemical-resistant apron, and any protective gloves specified on the labeling for handlers for the labeling-specified personal protective equipment.

(ii) Persons using a closed system to mix or load pesticides other than those in paragraph (d)(4)(i) of this section or to perform other handling tasks may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment.

(iii) Persons using a closed system that operates under pressure shall wear protective eyewear.

(iv) Persons using a closed system shall have all labeling-specified personal protective equipment immediately available for use in an emergency.

(5) Enclosed cabs. If handling tasks are performed from inside a cab that has a nonporous barrier which totally surrounds the occupants of the cab and prevents contact with pesticides outside of the cab, exceptions to personal protective equipment specified on the product labeling for that handling activity are permitted as provided in paragraphs (d)(5) (i) through (iv) of this section.

(1) Persons occupying an enclosed cab may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device is specified on the pesticide product labeling for the handling activity, it must be worn.

(ii) Persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer or by a governmental agency to provide respiratory protection equivalent to or greater than a dust/mist filtering respirator may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device other than a dust/mist-filtering respirator is specified on the pesticide product labeling, it must be worn.

(iii) Persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer or by a governmental agency to provide respiratory protection equivalent to or greater than the vapor- or gas-removing respirator specified on pesticide product labeling may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If an air-supplying respirator or a self-contained breathing apparatus (SCBA) is specified on the pesticide product labeling, it must be worn.

(iv) Persons occupying an enclosed cab shall have all labeling-specified personal protective equipment immediately available and stored in a chemical-resistant container, such as a plastic bag. They shall wear such personal protective equipment if it is necessary to exit the cab and contact pesticide-treated surfaces in the treated area. Once personal protective equipment is worn in the treated area, it must be removed before reentering the cab.

(6) Aerial applications—(1) Use of gloves. Chemical-resistant gloves shall

be worn when entering or leaving an aircraft contaminated by pesticide residues. In the cockpit, the gloves shall be kept in an enclosed container to prevent contamination of the inside of the cockpit.

(ii) Open cockpit. Persons occupying an open cockpit shall use the personal protective equipment specified in the product labeling for use during application, except that chemical-resistant footwear need not be worn. A helmet may be substituted for chemical-resistant headgear. A visor may be substituted for protective eyewear.

(iii) Enclosed cockpit. Persons occupying an enclosed cockpit may substitute a long-sleeved shirt, long pants, shoes, and socks for labeling-specified personal protective equipment.

(7) Crop advisors. Crop advisors entering treated areas while a restricted-entry interval is in effect may wear the personal protective equipment specified on the pesticide labeling for early-entry activities instead of the personal protective equipment specified on the pesticide labeling for handling activities, provided:

(i) Application has been completed for at least 4 hours.

(ii) Any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by § 170.110(c)(3) or in the labeling have been met.

(e) Use of personal protective equipment. (i) The handler employer shall assure that personal protective equipment is used correctly for its intended purpose and is used according to the manufacturer's instructions.

(2) The handler employer shall assure that, before each day of use, all personal protective equipment is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

(f) Cleaning and maintenance. (1) The handler employer shall assure that all personal protective equipment is cleaned according to the manufacturer's instructions or pesticide product labeling instructions before each day of reuse. In the absence of any such instructions, it shall be washed thoroughly in detergent and hot water.

(2) If any personal protective equipment cannot be cleaned properly, the

handler employer shall dispose of the personal protective equipment in accordance with any applicable Federal, State, and local regulations. Coveralls or other absorbent materials that have been drenched or heavily contaminated with an undiluted pesticide that has the signal word DANGER or WARNING on the label shall be not be reused.

(3) The handler employer shall assure that contaminated personal protective equipment is kept separately and washed separately from any other clothing or laundry.

(4) The handler employer shall assure that all clean personal protective equipment shall be either dried thoroughly before being stored or shall be put in a well ventilated place to dry.

(5) The handler employer shall assure that all personal protective equipment is stored separately from personal clothing and apart from pesticide-contaminated areas.

(6) The handler employer shall assure that when dust/mist filtering respirators are used, the filters shall be replaced:

(i) When breathing resistance becomes excessive.

(ii) When the filter element has physical damage or tears.

(iii) According to manufacturer's recommendations or pesticide product labeling, whichever is more frequent.

(iv) In the absence of any other instructions or indications of service life, at the end of each day's work period.

(7) The handler employer shall assure that when gas- or vapor-removing respirators are used, the gas- or vapor-removing canisters or cartridges shall be replaced:

(i) At the first indication of odor, taste, or irritation.

(ii) According to manufacturer's recommendations or pesticide product labeling, whichever is more frequent.

(iii) In the absence of any other instructions or indications of service life, at the end of each day's work period.

(8) The handler employer shall inform any person who cleans or launders personal protective equipment:

(i) That such equipment may be contaminated with pesticides.

(ii) Of the potentially harmful effects of exposure to pesticides.

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(iii) Of the correct way(s) to clean personal protective equipment and to protect themselves when handling such equipment.

(9) The handler employer shall assure that handlers have a clean place(s) away from pesticide storage and pesticide use areas where they may:

(1) Store personal clothing not in use.

(ii) Put on personal protective equipment at the start of any exposure period.

(iii) Remove personal protective equipment at the end of any exposure period.

(10) The handler employer shall not allow or direct any handler to wear home or to take home personal protective equipment contaminated with pesticides.

(g) Heat-related illness. When the use of personal protective equipment is specified by the labeling of any pesticide for the handling activity, the handler employer shall assure that no handler is allowed or directed to perform the handling activity unless appropriate measures are taken, if necessary, to prevent heat-related illness.

§ 170.250 Decontamination.

(a) Requirement. During any handling activity, the handler employer shall provide for handlers, in accordance with this section, decontamination supplies for washing off pesticides and pesticide residues.

(b) General conditions. (1) The handler employer shall provide handlers with enough water for routine washing, for emergency eyeflushing, and for washing the entire body in case of an emergency. At all times when the water is available to handlers, the handler employer shall assure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

(2) When water stored in a tank is to be used for mixing pesticides, it shall not be used for decontamination or eye flushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.

(3) The handler employer shall provide soap and single-use towels in quantities sufficient to meet handlers' needs.

(4) The handler employer shall provide one clean change of clothing, such as coveralls, for use in an emergency.

(c) Location. The decontamination supplies shall be located together and be reasonably accessible to and not more than ¼ mile from each handler during the handling activity.

(1) Exception for mixing sites. For mixing activities, decontamination supplies shall be at the mixing site.

(2) Exception for pilots. Decontamination supplies for a pilot who is applying pesticides aerially shall be in the airplane or at the aircraft loading site.

(3) Exception for handling pesticides in remote areas. When handling activities are performed more than 1/4 mile from the nearest place of vehicular access:

(1) The soap, single-use towels, clean change of clothing, and water may be at the nearest place of vehicular access.

(ii) The handler employer may permit handlers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water located at the nearest place of vehicular access.

(4) Decontamination supplies in treated areas. The decontamination supplies shall not be in an area being treated with pesticides or in an area under a restricted-entry interval, unless:

(1) The decontamination supplies are in the area where the handler is performing handling activities;

(ii) The soap, single-use towels, and clean change of clothing are in enclosed containers; and

(iii) The water is running tap water or is enclosed in a container.

(d) Emergency eyeflushing. To provide for emergency eyeflushing, the handler employer shall assure that at least 1 pint of water is immediately available to each handler who is performing tasks for which the pesticide labeling requires protective eyewear. The eyeflush water shall be carried by the handler, or shall be on the vehicle or aircraft the handler is using, or shall be otherwise immediately accessible.

(e) Decontamination after handling activities. At the end of any exposure period, the handler employer shall provide at the site where handlers remove personal protective equipment, soap,

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clean towels, and a sufficient amount of water so that the handlers may wash thoroughly.

[57 FR 38151, Aug. 21, 1992, as amended at 61 FR 33213, June 26, 1996]

§ 170.260 Emergency assistance.

If there is reason to believe that a person who is or has been employed by an agricultural establishment or commercial pesticide handling establishment to perform pesticide handling tasks has been poisoned or injured by exposure to pesticides as a result of that employment, including, but not limited to, exposures from handling tasks or from application, splash, spill, drift, or pesticide residues, the handler employer shall:

(a) Make available to that person prompt transportation from the place of employment or the handling site to an appropriate emergency medical facility.

(b) Provide to that person or to treating medical personnel, promptly upon request, any obtainable information on:

(1) Product name, EPA registration number, and active ingredients of any product to which that person might have been exposed.

(2) Antidote, first aid, and other medical information from the product labeling.

(3) The circumstances of handling of the pesticide.

(4) The circumstances of exposure of that person to the pesticide.

KENTUCKY DEPARTMENT OF AGRICULTURE - PESTICIDE REGULATIONS

Kentucky Administrative Regulations

Title 302 - Department of Agriculture Chapter 31 - Pesticides

(302 KAR 31)

**CHAPTER 31
PESTICIDES**

- 005. General provisions.
- 010. Hearings to determine suspension, modification, or revocation of license.
- 011. Settlement proceedings.
- 015. Certification.
- 025. Commercial structural pest control and fumigation.
- 030. Fine schedule for violation of KRS 217B.550.
- 035. Fine schedule for violation of KRS 217B.120.
- 040. Storage and handling of pesticides and bulk fertilizer.

302 KAR 31:040. Storage and handling of pesticides and bulk fertilizer.

RELATES TO: KRS Chapter 217B, 40 CFR, 49 CFR
STATUTORY AUTHORITY: KRS 217B.050(1)
NECESSITY, FUNCTION, AND CONFORMITY: KRS 217B.050(1) authorizes the department to promulgate administrative regulations prescribing the methods of storing fertilizers and pesticides. This administrative regulation regulates the storage and handling of pesticides and bulk fertilizers at commercial facilities.

Section 1. Definitions. (1) "Approved" means approval by an agent of the Kentucky Department of Agriculture, except where otherwise stated.

(2) "Best management practices" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the Commonwealth. Best management practices also includes treatment requirements, operating procedures, practices to control facility run-off, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(3) "Bulk fertilizer" means dry or liquid fertilizer in any unpackaged quantity.

(4) "Bulk pesticide" means a pesticide that is held in a nonmobile container in an undivided quantity greater than:

- (a) 300 U.S. gallons of liquid measure; or
- (b) 300 U.S. pounds of net dry weight.

(5) "Bulk repackaging" means the transfer, in an unaltered state, of a pesticide from one (1) bulk container to an approved mobile container in preparation for sale or distribution, with both containers containing undivided quantities of greater than:

- (a) Fifty-five (55) U.S. gallons liquid measure; or
- (b) 100 U.S. pounds net dry weight.

(6) "Commercial purposes" means selling a pesticide or fertilizer for compensation or other consideration.

(7) "Commercial storage facility" means a site used for a commercial purpose that, in a year, sells, uses, stores, mixes, repackages, or transfers from one (1) container to another more than:

- (a) 300 U.S. gallons of liquid pesticide;
- (b) 300 U.S. pounds of a dry pesticide;
- (c) 5,000 U.S. gallons of a liquid bulk fertilizer; or
- (d) Twenty-five (25) tons of dry bulk fertilizer.

(8) "Elephant ring" means a temporary operational containment device:

- (a) With an open top that has a storage capacity of:
 - 1. Not less than twenty-five (25) U.S. gallons; and
 - 2. Not more than 100 U.S. gallons; and
- (b) Used for recovering spillage and leakage from a transfer connection or pump.

(9) "Fertilizer" is defined in KRS 217B.040, but for purposes of this administrative regulation shall not include anhydrous ammonia fertilizer material or fertilizer packaged for household use.

(10) "Impervious" means restricting the passage of water at a rate greater than 1×10^{-6} centimeters per second (cm/sec).

(11) "Impregnation" means the application of a pesticide onto fertilizer.

(12) "Lead agency" means the Kentucky Department of Agriculture, Division of Pesticides, that shall be responsible for the enforcement of this administrative regulation.

(13) "Liquid pesticide" means any pesticide in fluid form.

(14) "Liquid fertilizer" means fertilizer in fluid form, and includes solutions, emulsions, suspensions, and slurries.

(15) "Load" means the transfer of pesticides, or bulk fertilizer from the storage facility to transport vehicles, application equipment, or mobile containers.

(16) "Low pressure nitrogen solutions" means an aqueous solution of ammonium nitrate or urea or other nitrogen carriers, containing various quantities of free ammonia exceeding two (2) percent by weight. It does not include aqua ammonia and nonpressure nitrogen solutions commonly referred to as twenty-eight (28), thirty (30), or thirty-two (32) percent nitrogen solutions.

(17) "Minibulk pesticides" means an amount of:

(a) Liquid pesticide in an undivided quantity in a mobile container designed for handling and transport that is:

- 1. Greater than fifty (55) U.S. gallons; and
- 2. Less than 300 U.S. gallons; or

(b) Dry pesticide held in an undivided quantity in a mobile container designed for handling and transport that is:

- 1. Greater than 100 U.S. pounds; and
- 2. Less than 300 U.S. pounds.

(18) "Mobile container" means a container designed and used for transporting a pesticide or fertilizer.

(19) "New" means a storage facility not in existence at the time of the effective date of this administrative regulation.

(20) "Operational area" means a site at a facility where the following occurs:

- (a) Loading, unloading, repackaging, mixing, impregnation, or transferring of a pesticide or fertilizer; or

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(b) Rinsing, washing, or cleaning of pesticide or fertilizer application equipment.

(21) "Operational area containment" means any structure or system designed and constructed to effectively intercept and contain operational spills of fertilizer and pesticides including rinsate, or rain water resulting from any operational activity in an operational area.

(22) "Package pesticides" means a pesticide not defined as bulk or minibulk pesticides.

(23) "Pesticide" is defined in KRS 217B.040(2), but for purposes of this administrative regulation shall not include a pesticide packaged for household use.

(24) "Primary containment" means any storage container or device used to contain a bulk pesticide, fertilizer or rinsate in a storage container at a storage facility.

(25) "Reportable release" means an uncontrolled release of a reportable substance outside an operational area containment or secondary containment structure that equals or exceeds the reportable quantity for that substance.

(26) "Reportable quantity" means a quantity that equals or exceeds the reportable quantity for substances listed in the Appendix to 49 CFR 172.101 or in Appendix A of 40 CFR 355.

(27) "Reportable substance" means any substance listed in the Appendix to 49 CFR 172.101 or in Appendix A of 40 CFR 355.

(28) "Rinsate" means water or other liquid resulting from the washing of equipment, operational areas, or containers used in the application, loading, unloading, mixing, transferring or storing of any fertilizer or pesticide.

(29) "Roofed" means protected from precipitation.

(30) "Storage container" means a container used for the storage of fertilizer or pesticides. A storage container includes a rail car, nurse tank, or other mobile container used for the storage of bulk fertilizers or pesticides. The definition of a "storage container" does not include:

(a) A mobile container storing fertilizer or pesticide at a storage facility for less than fifteen (15) days, if this storage is incidental to the loading or unloading of a storage container at the storage facility.

(b) A container used solely for temporary emergency storage of leaking fertilizer or pesticide containers.

(31) "Secondary containment" means a dike, liner, structure, or other device used to:

(a) Contain a product spill from a primary bulk storage container; and

(b) Prevent runoff or leaching.

(32) "Storage facility" means commercial storage facilities.

(33) "Temporary operational containment" means any structure or system designed and constructed with the capability of movement between operational areas and to intercept and contain discharges from operational activities including the loading, unloading, repackaging, impregnation, and transfer of pesticides or fertilizer or the rinsing, washing or cleaning of pesticide and fertilizer application equipment.

(34) "Unload" means the transfer of pesticide, or bulk fertilizer from the transport vehicle into the storage facility.

Section 2. Scope and Application. (1) The Kentucky Department of Agriculture Division of Pesticides shall be the designated lead agency.

(2) A commercial storage facility shall comply with this administrative regulation.

(3) A commercial storage facility:

(a) Shall have a written emergency response plan to be followed in the event of an emergency. A plan required by another regulatory program may be used.

(b) Shall:

1. Register with the Kentucky Department of Agriculture, Division of Pesticides within ninety (90) day after the effective date of this administrative regulation; and

2. Define the scope of the existing operation and facility pursuant to the procedures established by the department.

(c) Subject to SARA Title III (42 USCA Sec. 9601) shall:

1. Be in full compliance by the required dates; and

2. Promptly and accurately complete the required annual reporting forms.

Section 3. Compliance Schedule. (1) On the effective date of this administrative regulation, a new facility shall come under immediate

compliance. A compliance schedule shall not be in effect.

(2) On the effective date of this administrative regulation, dry bulk fertilizer material shall be stored and handled using best management practices.

(3) Within one (1) year of the effective date of this administrative regulation, a nonmobile bulk pesticide storage container shall be located within impervious secondary containment.

(4) Within two (2) years of the effective date of this administrative regulation, impregnation shall be performed within an impervious operational area containment unless performed in the field of application.

(5) Within three (3) years of the effective date of this administrative regulation, unless performed in the field of application, the loading, unloading, repackaging, or transferring of the following shall be performed within an impervious operational area containment:

(a) Bulk pesticide;

(b) Minibulk pesticide; or

(c) Liquid bulk fertilizer.

(6) Within three (3) years of the effective date of this administrative regulation, unless performed in the field of application, the rinsing, washing, or cleaning of pesticide or fertilizer application equipment shall be performed within an impervious operational area containment.

(7) Within four (4) years of the effective date of this administrative regulation, a nonmobile bulk liquid fertilizer storage container shall be located within an impervious secondary containment.

(8) Within five (5) years of the effective date of this administrative regulation, unless performed in the field of application, the loading, unloading, mixing and handling of dry bulk fertilizer shall be performed on an impervious operational containment area.

Section 4. Operational Area Site Specifications. (1) New permanent operational area containment located in a flood plain shall be protected from inundation by floods.

(2) New permanent operational area containment shall be located a minimum of 100 feet from on-site wells and sinkholes, 200 feet from private domestic wells, and 400 feet from any community wells used as a public water source.

Section 5. Primary Containment of Liquid Pesticides and Liquid Fertilizer. (1) Basic requirements.

(a) A storage container and appurtenances shall be constructed, installed and maintained so as to prevent the release of liquid fertilizer or pesticides.

(b) Storage containers and appurtenances shall be constructed of materials, which are resistant to corrosion, puncture, or cracking and compatible with the product being stored.

(c) A storage container and appurtenance used for the storage of a liquid fertilizer containing potassium chloride (muriate of potash) may be constructed of ferrous materials if the following provisions are met:

1. The container and appurtenance are coated or treated with protective substances; and

2. The container or appurtenance is used for a storage period of not more than six (6) months and is completely emptied between storage periods, and the empty container and appurtenance are cleaned and inspected for leaks prior to being refilled for a subsequent period;

(d) Metals used for valves, fittings, repairs on metal containers shall be compatible with the materials used in the construction of the storage container, so that the combination of metals does not cause or increase corrosion which may weaken the storage container or its appurtenances, or create a risk of release.

(e) Storage containers and appurtenances shall be designed to handle all operating stresses, taking into account static head, pressure buildup from pumps and compressors, and any other mechanical stresses to which the storage containers and appurtenances may be subjected to in the foreseeable course of operations.

(f) Storage containers shall be properly labeled according to state and federal regulations for fertilizers and pesticides during active use of the container.

(2) Prohibition against underground storage and plumbing.

(a) The storage of liquid fertilizer or pesticide in an underground storage container shall be prohibited unless an impervious catch basin

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is used for the temporary collection of run-off or rinsate from containment or operational areas and it is emptied within seventy-two (72) hours of use.

(b) Underground plumbing shall be restricted to the use of concentric piping.

(3) Abandoned containers.

(a) Storage containers and other containers used at a storage facility to hold liquid bulk fertilizer or pesticide, or pesticide and fertilizer rinsate shall be considered abandoned if they have been out of service for more than six (6) months because of a weakness or leak, or have been out of service for any reason for more than two (2) years and no integrity tests have been performed.

(b) Abandoned aboveground containers shall be thoroughly cleaned. All hatches on the containers shall be secured, and all valves or connections shall be severed or sealed.

(c) A secondary containment facility shall not be considered abandoned for the sole reason that there have been no releases into the secondary containment.

(4) Prohibited materials.

(a) Storage containers and appurtenances shall not be constructed of copper, brass, zinc, or copper base alloys.

(b) Storage containers and appurtenances used for the storage of liquid fertilizers containing phosphate or chlorides shall not be constructed of aluminum alloys.

(c) Storage containers and appurtenances used for the storage of low pH (<5) liquid fertilizers shall not be constructed of ferrous materials other than stainless steel unless the materials are coated or treated with protective substances.

(d) Storage containers and appurtenances used for the storage of low-pressure nitrogen solutions shall not be constructed of mild steel, fiberglass, polyolefins, or plastic. This prohibition shall not extend to nonpressure solutions commonly referred to as twenty-eight (28), thirty (30), or thirty-two (32) percent nitrogen solutions. This prohibition against the use of mild steel shall not extend to aqua ammonia.

(e) Storage containers and appurtenances used for the storage of phosphoric acid shall not be constructed of ferrous materials other than stainless steel unless the container is lined with a suitable substance.

(5) Filling storage containers. Storage containers shall not be filled beyond the capacity for which they are designed.

(6) Pipes and fittings. Pipes and fittings shall be adequately supported to prevent sagging and possible breakage because of gravity and other forces, which may be encountered in the ordinary course of operations. Underground plumbing shall be prohibited except as specified in subsection (2)(b) of this section.

(7) Liquid level gauging device.

(a) Every storage container shall be equipped with a liquid level-gauging device by which the level of liquid in the storage container can be readily and safely determined. A liquid level-gauging device shall not be required if the level of liquid in a storage container can be readily and reliably measured by other means.

(b) Liquid level gauging devices shall be secured, in a safe manner, to protect against breakage or vandalism.

(c) External sight gauges shall be prohibited.

(8) Venting. Storage containers shall be vented to manufacturer's specifications for the product being stored in the container.

(9) Facility inspection and maintenance by owner or operator. Inspections by the operator shall be conducted quarterly to assure the early detection of cracks and other defects that may compromise the integrity of the primary containment. Repairable defects that occur in a primary containment shall be sealed or repaired immediately.

Section 6. Secondary Containment of Liquid Bulk Pesticide and Liquid Bulk Fertilizer. (1) In accordance with Section 3 of this administrative regulation, a nonmobile storage container for liquid bulk pesticides and liquid bulk fertilizer shall be located within a secondary containment.

(2) Basic requirements shall include:

(a) The floor and walls of a secondary containment structure shall be constructed of:

1. Concrete;
2. Concrete block that has been capped and filled with concrete;
3. Steel; or
4. Another impervious material compatible with the product being

stored.

(b) The floor and walls of a secondary containment structure which contains a pesticide shall be constructed of material which will maintain structural integrity under fire conditions.

(c) Secondary containment structures shall not have relief outlets or release valves.

(d) Underground plumbing shall be prohibited except as provided in Section 5(2)(b) of this administrative regulation.

(e) Secondary containment may provide for the separation between bulk pesticides and bulk fertilizer to the extent that a common wall or curbing exists between the fertilizer and pesticide areas and shall provide for the interception and recovery including clean-up of pesticide releases. The entire secondary containment area shall meet or exceed the total capacity requirements specified in this section.

(f) Secondary containment structures shall be cleaned and rinsed within seventy-two (72) hours after any release into the secondary containment.

(g) An inspection shall be conducted quarterly by the owner or operator to assure the early detection of cracks or other defects that may compromise the integrity of the secondary containment. Repairable defects that occur in a secondary containment shall be sealed or repaired immediately. Inspections shall be documented in a legible and accurate form.

(h) Containers, pipes, hoses and valves shall be protected against reasonably foreseeable risks of damage by trucks and other moving vehicles.

(i) Clay, natural soil clay mixtures, or clay or bentonite mixtures shall not be used to contain any bulk pesticide.

(j) Temporary operational containment or elephant rings shall not be used as secondary containment for any bulk pesticide.

(k) Secondary containment structures shall include a sump or collection point for collection of spillage, leakage, rinsate or other residues. A sump or collection point shall not be greater than two (2) feet deep and shall not contain more than 109 U.S. gallons. A sump shall be cleaned and rinsed within seventy-two (72) hours of use.

(3) Secondary containment structures shall provide the following capacity:

(a) If not roofed, the containment shall have a minimum containment volume that equals a six (6) inch rain storm in a twenty-four (24) hour period, plus 100 percent of the capacity of the largest tank, and the volume displaced by the bases of the other tanks located within the secondary containment structure.

(b) If roofed, the containment shall have a minimum containment volume of 100 percent of the capacity of the largest tank, plus the volume displaced by the bases of the other tanks located within the secondary containment structure.

(4) Basic requirements for the secondary containment of liquid fertilizer.

(a) Secondary containment shall be provided which meets or exceeds the requirements in subsection (2) of this section.

(b) Secondary containment shall be constructed to a water permeability rate of 1×10^{-6} centimeters per second and maintained so that liquid movement through the walls and base does not exceed a rate of 1×10^{-5} centimeters per second permeability rate. The secondary containment structure shall be designed and maintained to withstand a full hydrostatic head of any contained liquid.

(c) Synthetic materials or liners may be used as secondary containment if they are compatible with the substances being contained and are installed according to manufacturer's recommendations. These directions and recommendations shall be maintained at the storage facility.

(d) Earthen walls used for secondary containment of fertilizer shall be protected against erosion. Side slopes shall not exceed a three (3) to one (1) ratio of horizontal to vertical. The top width of earthen walls shall not be less than two and one-half (2 1/2) feet.

(e) Provisions shall be made for safe emergency access and exit to and from the secondary containment structure.

(f) Floors shall be constructed to allow the safe and expeditious removal of precipitation or any spilled liquid to a collection point.

(g) A soil liner used for secondary containment of fertilizer shall be constructed of suitable soil or soil treated with bentonite clay or other comparable material, with a minimum depth of twelve (12) inches, if the other requirements stated in this section are met. The liner shall be covered by a soil or smooth aggregate layer not less than six (6)

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inches thick and shall be maintained to prevent cracking or puncture.

(h) Prefabricated secondary containment devices shall be constructed of a rigid prefabricated basin having both a base and walls constructed of steel, reinforced concrete or synthetic liner or synthetic materials which are resistant to corrosion, puncture or cracking.

(5) Exemptions from secondary containment.

(a) A liner shall not be required to be installed directly under a storage container having a capacity of 100,000 gallons or more which has been constructed on site and put into use prior to the effective date of these regulations, if all the following conditions are met:

1. A second bottom made of steel shall be constructed for the storage container. The second bottom shall be placed over the original bottom and a layer of smooth fine gravel or coarse sand having a minimum thickness of three (3) inches shall be installed between the layers;

2. The original bottom of the storage container is tested for leaks before the sand layer or second bottom is installed. A record of the test shall be maintained at the storage facility;

3. The newly constructed bottom is tested for leaks before any liquid fertilizer is stored on the newly constructed bottom. A record of the test shall be maintained at the storage facility; and

4. There is a method by which leaks from the newly constructed bottom into the sand layer may be readily detected unless the storage containers are constructed of nonferrous materials which have a protection system in place consisting of synthetic liners and monitoring system.

(b) The secondary containment requirements under this section shall not apply to railcars, which are periodically transferred to and from storage.

(6) A storage facility with existing secondary containment on site and in place on the date of adoption of these administrative regulations shall be exempt from this section if the following conditions are met:

(a) All requirements specified in Section 5 of this administrative regulation are met; and

(b) All requirements specified in subsection (2) of this section are met; and

(c) A minimum secondary containment capacity of 110 percent of the largest container, plus the volume displaced by the other tanks located within the secondary containment structure exists.

Section 7. Operational Containment For Pesticides and Liquid Fertilizer. (1) In accordance with Section 3 of this administrative regulation, the transfer of a pesticide or liquid fertilizer between storage containers at a commercial facility shall be performed within an impervious operational containment designed to intercept, retain, and recover an accidental release or leakage of rinsate and residue. Transfer shall include the following:

(a) Loading;

(b) Unloading;

(c) Repackaging;

(d) Impregnating;

(e) Mixing; or

(f) The cleaning of equipment.

(2) Temporary operational area containment may be used in lieu of impervious operational containment for loading or unloading of rail cars or barges.

(3) The basic requirements for permanent operational containment structures for a pesticide and a liquid fertilizer shall include:

(a) The material of construction and the design of a containment structure shall be compatible with the products handled and be maintained in a condition to retain recovered material until it is used or properly disposed of.

(b) Operational containment shall be constructed of reinforced concrete or other impervious materials compatible with the products being handled.

(c) The owner or operator to assure the early detection of cracks and other defects that may compromise the integrity of the operational containment structure shall conduct inspections at least quarterly. Repairable defects that occur in an operational containment structure shall be sealed or repaired immediately. Inspections shall be documented in a legible and accurate form.

(d) Stormwater drainage shall be diverted away from all operational containment structures.

(e) Operational containment shall include a sump or collection point for the temporary collection of spillage, leakage, rinsate, or other residues. A sump or collection point shall not be greater than two (2) feet deep nor contain more than 109 U.S. gallons. A sump shall be cleaned and rinsed within seventy-two (72) hours of use.

(f) Operational containment shall not have a relief outlet or release valve.

(g) Operational containment shall be large enough in area to prevent spillage onto unprotected areas and to prevent any release to the surrounding environment.

(h) The use of underground plumbing shall be prohibited except as provided in Section 5(2)(b) of this administrative regulation.

(4) Operational containment shall provide the following capacity:

(a) Operational area containment for a roofed permanent structure shall have a volume sufficient to contain a minimum of 1,000 U.S. gallons. Containment capacity of the sump shall be figured in addition to the containment capacity of the structure.

(b) Operational area containment for an unroofed permanent structure shall have a volume sufficient to contain a minimum of 1,250 U.S. gallons. Containment capacity of the sump shall be figured in addition to the containment capacity of the structure.

(5) Temporary operational containment may be utilized to meet the requirements of this section if the following conditions are met:

(a) The capacity of temporary operational containment shall not be less than 1,250 U.S. gallons; and

(b) The temporary operational containment shall be constructed of material which is compatible with products handled and a written copy of the manufacturer's installation directions, compatibility statement, and expected life expectancy is maintained at the storage facility; and

(c) All requirements specified in subsection (3) of this section are met.

(6) An elephant ring may be utilized to meet the requirements of this section if a minimum capacity of twenty-five (25) U.S. gallons is provided for the use of recovering spillage and leakage from the transfer connections and pumps associated with the unloading of a truck, barge, or railcar into a storage facility.

(7) A combination of an elephant ring and concentric piping may be utilized to meet the requirements of this section if a minimum capacity of twenty-five (25) U.S. gallons is provided for the use of recovering spillage and leakage from the transfer connections and pumps associated with the loading or unloading of a railcar or barge.

Section 8. Containment of Dry Bulk Pesticides. (1) In accordance with Section 3 of this administrative regulation, a nonmobile storage container for dry bulk pesticides shall be located within secondary containment.

(2) Dry bulk pesticide storage shall be segregated from other containment areas and be segregated by a six (6) inch curb of an area that extends at least two (2) feet beyond the perimeter of the walls of the storage container.

Section 9. Dry Bulk Fertilizer Storage and Handling. (1) Dry bulk fertilizer material shall be stored and handled using best management practices.

(2) Dry bulk fertilizer shall be stored inside a structure or device having a cover or rooftop, sidewalls and base sufficient to prevent contact with precipitation and surface waters.

(3) The loading, unloading, mixing or handling of dry bulk fertilizer, unless performed in the field of application, shall be conducted in a manner to provide for the collection and reuse of any spilled fertilizer.

Section 10. Containment Management. (1) A pesticide, fertilizer, pesticide residue, fertilizer residue, or rinsate recovered from secondary or operational containment shall be field applied at agronomic rates, used in a liquid mixing operation, or otherwise recycled or disposed of in accordance with the product's label. A pesticide residue or rinsate that is to be land applied shall be handled in accordance with the product's labels. Rinsates may be used to make up the total spray mixture if the mixture does not exceed the pesticide label application rates.

(2) Best management practices shall be used to keep rinsate, and other recovered material segregated by compatible uses.

(3) Uncontaminated precipitation collected shall be discharged from containment areas. Contaminated precipitation shall be field

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applied pursuant to subsection (1) of this section.

(4) Recovered or rinsate material collected in a containment system shall not be considered a hazardous waste unless it is determined that the rinsate or other recovered material can not be applied to a labeled target area.

Section 11. Field Mixing and Transferring. (1) In accordance with Section 3 of this administrative regulation, the following shall be performed at the field site or within operational area containment:

- (a) Field mixing of a pesticide or fertilizer;
- (b) Transferring of a pesticide or fertilizer; or
- (c) Rinsing of a pesticide container.

(2) The following shall not be conducted on a public highway, road, or street:

- (a) Mixing of a pesticide or fertilizer;
- (b) Transferring of a pesticide or fertilizer; or
- (c) Rinsing of pesticide or fertilizer equipment.

Section 12. Distribution. (1) Sale by weight or meter shall be the approved method of resale for pesticides and fertilizer. Both methods shall meet the specifications, tolerances and other technical requirements for weighing and measuring devices as determined by the Kentucky Department of Agriculture.

(2) A separate meter shall be required for each product distributed for sale if the product is sold through a meter. (24 Ky.R. 2243; Am. 25 Ky.R. 308; eff. 8-17-98.)

**ANIMAL WASTE MANAGEMENT STRATEGY
ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SOUTHERN LEGISLATIVE CONFERENCE
CHARLESTON PLACE HOTEL, CHARLESTON, SOUTH CAROLINA
August 9, 1998
by
Ira Linville¹**

ISSUE

The animal production industry is rapidly growing in the Environmental Protection Agency Region 4. That growth has caused serious concerns about environmental pollution emanating from such industries. Region 4 is developing a strategy to address those concerns.

BACKGROUND

- Government regulators now recognize animal waste as a significant and widespread environmental problem. Contaminants in surface and ground water have been attributed to the animal production industry, especially in areas of high concentration.
- A 1989 summary of state nonpoint source water quality assessments conducted under Section 319 of the Clean Water Act revealed that over one-third of all water impairments attributed to agricultural pollution were caused by animal waste.
- Waste disposal practices used by many animal production operations cause water quality degradation. Most operations collect manure from animal confinement areas in solid or liquid form and apply it to farmland as a nutrient for crops or simply as a disposal method. With heavy rainfalls, huge waste lagoons sometimes overflow into waters of the United States causing severe environmental impairments.
- Significant animal production industry growth continues in the Region. Swine and poultry production facilities have shown the largest increase. Overall, the animal production industry is growing by nearly 7 percent annually.
- In North Carolina and other states, the number of hog factory farms has grown dramatically. In 1988, just 7 percent of the nation's hogs were raised in factory farms. Today, 17 percent are, and projections are that number will double in five years. North Carolina is expected to produce up to 16 million hogs in 1997. It is now second nationwide in hog production.

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ENVIRONMENTAL PROTECTION AGENCY OPTIONS

-EPA Enforcement Options-

EPA Region 4 states have been delegated primary authority to address environmental problems associated with animal production pursuant to several EPA statutes and regulations. However, the EPA retains an oversight role which allows it to take enforcement action if necessary to ensure compliance with applicable environmental laws.

- Clean Water Act

Section 301(a) establishes statutory requirements for the discharge of pollutants from point sources to waters of the United States. Section 502(14) and implementing regulations at 40 CFR Part 122 set forth National Pollutant Discharge Elimination System (NPDES) permitting requirements for concentrated animal feeding operations (CAFO), concentrated aquatic animal production facilities, and discharges into aquaculture projects. Section 504 of the Clean Water Act allows the EPA to file a suit to immediately restrain any person causing or contributing to pollution which presents an imminent and substantial endangerment to the health of persons.

- Costal Zone Act Reauthorization Amendment of 1990

This subjects smaller animal production operations to requirements similar to those found in NPDES regulations. Feedlots located in Section 6217 program management areas that are not concentrated animal feeding operations under the NPDES program may be subject to the Act's requirements. Those requirements outline management measures for confined animal facilities.

- The Safe Drinking Water Act

The Underground Injection Program (UIC) helps protect underground sources of drinking water by controlling the pollutants disposed of in injection wells. Injection wells that accept feedlot drainage are classified as Class V agricultural drainage wells which are subject to inventory requirements at 40 CFR Part 144. Class V wells are subject to a performance standard that prohibits movement of contaminants into an underground source of drinking water, if the contaminants could cause a violation of a drinking water standard or otherwise adversely affect human health.

The Sole Source Aquifer Program includes development of a comprehensive management plan requiring identification of existing and potential point and nonpoint sources of ground water degradation, an assessment of the relationship between activities on the land surface and ground water quality, and development of management practices to be implemented. If identified as a source of ground water degradation, an animal production operation could be subjected to additional management practices.

The Surface Water Treatment Rule establishes criteria that public water systems must meet in order to avoid filtration. These criteria include identification of activities that may have an adverse effect on the quality of water sources and a demonstration that all sources of activities with potential for adverse impact can be controlled.

In addition, the EPA can take action under the emergency powers of the Safe Drinking Water Act, Section 1431, based on public health endangerment from contaminated drinking water or the underground source of drinking water.

- Resource Conservation and Recovery Act

Under Section 7003 of the Solid Waste Disposal Act, the EPA could take enforcement action against a person upon receipt of evidence that the past or present handling, storage, treatment, transportation or disposal of any solid waste resulting from animal production operations causes imminent and substantial endangerment to health or the environment.

- - EPA Non-Enforcement Options -

- Provide technical and grant assistance to assess long-term impact and risk on environment, provide environmental training and compliance assistance to the state.
- Reinvent statutes and regulations to target large animal production operations.
- Address point, nonpoint and ground water pollution stemming from the pollutants contained in waste from animal production operations.
- Provide information such as the published document entitled "Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations" (December 1995) which promotes uniform permitting and enforcement for CAFOs.
- Enter into Performance Partnership Agreements and Community-Based Environmental Protection activities with states and communities for greater autonomy and responsibility for results and to achieve coordinated community-wide environmental improvements.
- Set additional guidelines for national standards of performance for the animal production industry in terms of environmental quality and pollution control.
- Provide opportunities and incentives for voluntary compliance, including environmental audit and self-disclosure and correction policies and technology transfer.

- Review TMDLs to ensure that implementation of best management practices to address water quality problems stemming from animal production operations.
- Increase on-site inspections of animal production operations.

OVERVIEW OF UNIFIED NATIONAL STRATEGY FOR ANIMAL FEEDING OPERATIONS
OF
THE U.S. DEPARTMENT OF AGRICULTURE
AND
THE U.S. ENVIRONMENTAL PROTECTION AGENCY

USDA-EPA
Unified National Strategy for
Animal Feeding Operations

Kentucky Department of Agriculture



What is an animal feeding operation (AFO)?

- A facility, such as a farm or livestock market, that confines animal feeding activities
- Concentrates animal populations
- Results in manure generated in a small or confined area
- Pasture operations generally are not considered AFOs

Kentucky Department of Agriculture



Guiding Principles

- Minimize water quality and public health impacts
- Focus on greatest risks
- Long-term sustainability of livestock production
- National goal and performance expectations
- Incentives for sustainable agriculture practices and systems

Kentucky Department of Agriculture



Guiding Principles

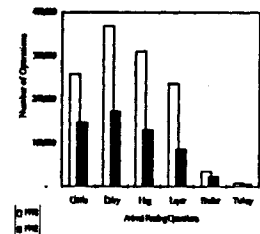
- Foster public confidence that AFOs are meeting their performance expectations
- Coordinate Federal, State, Tribal and local activities Coordinate Federal, State, Tribal and local activities
- Focus technical and financial assistance to support AFOs in meeting the national performance expectations established in this Strategy

Kentucky Department of Agriculture



AFOs in the United States

- Estimated 450,000 AFOs Nationwide
- Approximately 6,600 Concentrated AFOs (CAFOs)
- Consolidation
 - Increased production at fewer facilities results in more animals, animal manure, and animal carcasses per facility



Kentucky Department of Agriculture



Environmental Impacts from AFOs

- AFOs Can Affect All Media
 - Water quality
 - In the 22 States that categorized impacts from specific types of agriculture, animal operations impact about 35,000 miles of those miles assessed
 - Fish kills
 - Oxygen depletion (anoxia or hypoxia)
 - Transmission of pathogens
 - Nutrient enrichment of ponds, lakes, and estuaries
 - Drinking water contamination

Kentucky Department of Agriculture



Environmental Impacts from AFOs

- Air quality
 - Animal manure management systems account for 10 percent of all methane emissions in United States — projected to increase to 15 percent in 2000.
 - Manure storage lagoons also emit ammonia, resulting in deposition of nitrogen into surface waters
- Soil quality
 - Excessive levels of nutrients
 - Erosion
- Conflicts over land for development

Kentucky Department of Agriculture



Pfiesteria piscicida



- **First Discovered in 1991**
- **Dinoflagellate — A Single-Cell Aquatic Organism**
- **Fish Kills in Maryland, North Carolina, and Florida**
- **Human Health Impacts**
 - In NC and MD, anglers, commercial divers, and marine construction workers appeared affected by *Pfiesteria* toxin

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National Goal and Performance Expectations

- **National goal: Take actions to minimize water pollution**
- **National performance expectation: Develop and implement CNMPs**

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National Goal and Performance Expectations

- **Comprehensive Nutrient Management Plans :**
 - Feed Management
 - Manure handling and storage
 - Land application of manure
 - Land management
 - Recordkeeping
 - Other utilization options

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Relationship of Vol. and Reg. Programs

- **Clear and complimentary roles**
- **Voluntary programs for most**
 - 95 percent of AFOs
- **Regulatory program for highest risk**
 - 5 percent of AFOs

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Relationship of Vol. and Reg. Programs

- **Voluntary Programs**
 - Locally led conservation
 - Environmental education
 - Technical and financial assistance programs
- **Owners and operators encouraged, but not required, to develop and implement CNMPs**

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Relationship of Vol. and Reg. Programs

- **Regulatory Program**
 - 1972 - Section 502(14) CWA defines CAFO as a point source
 - 1974 - Effluent Guideline >1,000 A.U.s (40 CFR 412)
 - 1976 - NPDES regs. (40 CFR 122.23 and Appendix B)
 - Coastal Zone Act Reauthorization Amendments

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Relationship of Vol. and Reg. Programs

- **NPDES Regulation:**
 - Facilities with more than 1,000 A.U.s
 - Facilities 301 and 1,000 A.U.s that may or does discharge by one of the methods covered by the regulations at 40 CFR Part 122, Appendix B
 - Designated a CAFO by permitting authority on a case-by-case basis

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Relationship of Vol. and Reg. Programs

- **Effluent guideline requirements**
 - For feedlots over 1,000 A.U.s: no discharge to waters of the US except when chronic or catastrophic storm events cause an overflow from a facility designed, constructed, and operated to hold process generated wastewater plus runoff from a 25-year, 24-hour storm event

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Relationship of Vol. and Reg. Programs

- **Coastal Zone Reauthorization Amendments (CZARA):**
 - Requires the 29 States and territories to develop and implement nonpoint source controls (management measures)
 - Permitted CAFOs covered by the NPDES program
 - Other AFOs covered by the CZARA management measures

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Relationship of Vol. and Reg. Programs

- **Land application of manure**
 - Has agricultural benefits
 - In accordance with a CNMP, qualifies for CWA Agricultural Stormwater Exemption
 - Can cause water quality and public health impacts
 - Not in accordance with a CNMP

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Relationship of Vol. and Reg. Programs

- **Priorities for Regulatory Program**
 - Significant manure production
 - Unacceptable conditions
 - Significant contributors to water quality impairment
 - Watershed Scale
 - Individual waterbody

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Relationship of Vol. and Reg. Programs

- **CAFO CNMPs**
 - In accordance with guidance of regulatory authority
 - NRCS's practice standards adopted by regulatory authority as appropriate standards
 - Developed by a person certified to do CNMPs
 - Responsibility of CAFO owner or operator

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Relationship of Vol. and Reg. Programs

- Smaller CAFOs can exit the Regulatory Program
- Good Faith incentive

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Strategic Issues

- Building capacity for CNMP
- Accelerating voluntary programs
- Improving the Regulatory Program
- Coord. research, tech. innovation, compliance assistance, and tech. transfer
- Encouraging industry leadership
- Data coordination
- Performance measures & accountability

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Strategic Issue # 1: Building Capacity for CNMPs

- Increase the number of certified specialists from private and public sector
- Ensure implementation under the guidance of qualified specialists
- Consistent quality
- All AFO owners have a CNMP developed by a certified specialist by 2008

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Strategic Issue # 2: Accelerating Vol. Programs

- All AFOs with CNMPs by 2008
- Maximize environmental benefits per dollar
- Ensure equal opportunity to all producers to participate
- National standards and guidance for CNMPs
- Options for financial assistance

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Strategic Issue # 3: Improving the Reg. Program

- Phased permitting approach
- CAFO permitting guidance
- State permitting strategies
- Review and revise existing regulations
- Improved compliance and enforcement

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Strategic Issue # 4: Coordination

- Research
- Technical innovation
- Compliance assistance
- Technology transfer
- Actions:
 - Coordinated research plan
 - Coordinated technology transfer plan
 - Virtual center

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Strategic Issue # 5: Encouraging Ind. Leadership

- Industry role in development and implementation of CNMPs
- Industry-led initiatives
- USDA and EPA actions to encourage industry involvement

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Strategic Issue # 6: Data Coordination

- Preserve trust relationship between USDA and producers
- Joint policy statement
- Cost-benefit methodology

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Strategic Issue # 7: Performance Measures & Acct.

- Government Performance and Results Act
- Gauge success
 - Programmatic activity
 - Environmental outcome

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Roles

- Nine groups
 - Federal /State/Local Government
 - Individual Producers
 - Integrators
 - Livestock Industry
 - Other Private Sector
 - Research and Educational Institutions
 - Watershed or Community Responsibilities
 - Environmental Groups

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Next Steps

- USDA's website at: nhq.nrcs.usda.gov/
- EPA's website at: epa.gov/owm/afostat.htm
- USDA Service Centers
- EPA Offices and Water Resource Center (202) 260-7786

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Next Steps

- 120-day comment period began 9/17/98
- Outreach meetings to be announced
- Submit comments to:
Denise C. Coleman
USDA, Natural Resources Conservation Service
Washington, D.C. 20013-2890
- Final Strategy early 1999

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CLEAN WATER ISSUES:

THE KENTUCKY
WATERSHED MANAGEMENT FRAMEWORK

Lee Colten
Department for Environmental Protection, Division of Water
Kentucky Natural Resources and Environmental Protection Cabinet
Frankfort, Kentucky

SECTION D



CLEAN WATER ISSUES:
THE KENTUCKY WATERSHED MANAGEMENT FRAMEWORK

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Kentucky Watershed Management Framework

June 30, 1997

Version

Prepared for the Kentucky Watershed
Framework Steering Committee
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6/30/97

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6/30/97

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Executive Summary

The Kentucky Watershed Management Framework is a dynamic, flexible structure for coordinating watershed management across the Commonwealth of Kentucky. The Watershed Management Framework is not a new program, but rather a way of coordinating existing programs and building new partnerships that will result in more effective and efficient management of the state's land and water resources. Inherent in the design of the Framework is the belief that many stakeholder groups and individuals must have ongoing opportunities to participate in the process of managing the abundant natural resources that characterize Kentucky's watersheds.

Benefits to the people of Kentucky include

- Better information for decision making
- Increased ability to resolve complex water resource problems
- Improved coordination among governmental agencies
- More opportunities for citizens to get involved
- Increased ability to demonstrate results and benefits of environmental management
- More cost-effective use of public and private funds

Core Components of the Framework

The Framework consists of five core components.

Basin management units provide the spatial basis for coordinating watershed ecosystem protection and restoration activities in Kentucky. The 12 basin management units are based on Kentucky's major river basins and tributaries that drain directly to the Ohio and River.

A *basin management cycle* facilitates coordinated timing of key watershed management activities within each basin management unit. The cycle is composed of five phases: (1) scoping and data gathering, (2) assessment, (3) prioritization and targeting, (4) plan development, and (5) implementation. The five activity phases of the basin management cycle are sequenced and repeated in each basin management unit at fixed five-year intervals to ensure that watershed management goals, priorities, and strategies are routinely updated and implemented on an ongoing basis.

A *statewide basin management schedule* establishes a statewide calendar and a sequence for conducting key management activities in each basin management unit and throughout the state. The statewide schedule facilitates efficient use of available human and financial resources by focusing major watershed management efforts on one portion of the state at any given time.

Forums to support cooperative action involve all interested parties to achieve better coordination, more cost-effective use of resources, and increased public support for watershed management efforts. A Partner Network, linking partner agencies and stakeholders via existing local organizations and forums, is a key element of the Framework approach to achieving broad public participation in watershed management. Coordination of activities will take place on three different levels: state, river basin, and watershed. Efforts taking place at each level will be linked together and integrated through communication forums including a Statewide Steering Committee, River Basin Teams, and Local Watershed Task Forces.

Basin Management Plans and Watershed Action Plans document management priorities and provide a common reference guide for implementation of the Watershed Management Framework at both the basin management unit and watershed levels.

Forums for Communication and Public Participation

More than 30 organizations are working together to plan and implement the Kentucky Watershed Management Framework and to encourage other partners to join in the cooperative effort. Successful implementation of the Watershed Management Framework will require the support and efforts of citizens and organizations at many different levels. A *Partner Network* will be used to help coordinate and carry out watershed management activities. The Partner Network consists of agencies, organizations, and individuals who willingly invest their time and resources to learn about watershed management needs, develop and implement strategies to address those needs, and promote public involvement in the Watershed Management Framework.

Coordination of activities under the Watershed Management Framework will take place at three levels:

At the watershed level, *Local Watershed Task Forces* will rally public support and encourage stakeholders to become involved in the Watershed Management Framework process. Each Local Watershed Task Force formed in a watershed identified as a priority watershed will provide a forum for local government officials, industry representatives, and farming, environmental, and other stakeholder groups to develop and implement an Action Plan to address specific watershed problems. The Task Force will assist in determining which problems within a watershed can and should be addressed, in order to ensure the most cost-effective use of limited resources.

A *River Basin Team* will be formed to provide a forum for coordinating and carrying out watershed management activities in each of the state's 12 basin management units. The River Basin Team will facilitate communication among the Local Watershed Task Forces in a basin management unit. Working with the Task Forces, the River Basin Team will compile existing information and make plans for collecting data to fill information gaps. Using this information, the Team will evaluate water-

shed conditions and prioritize watershed management needs. A Basin Management Plan for addressing the highest priority problems in the basin will then be drafted and shared with stakeholders and the public.

A *Statewide Steering Committee* will address issues of statewide coordination and policy related to the Watershed Management Framework. The Steering Committee will provide a forum for communication among the River Basin Teams and will coordinate watershed management activities taking place throughout the basin management cycle in all basin management units across the state.

Participation of partner agencies and organizations in any one of these forums will involve an ongoing commitment to identify and offer resources to support shared watershed management activities and costs. Each partner program involved in watershed management will also be responsible for orienting its day-to-day activities to support aspects of the basin management cycle. The Kentucky Division of Water (DOW) has agreed to take leadership responsibility for general coordination and oversight of the framework, providing administrative support to maintain the forums and strong lines of communication.

Resource Needs to Implement the Watershed Approach

Many of the activities needed to successfully implement a watershed management approach are already being conducted, although the method and timing of operations may be revised under the new framework. Nonetheless, the Kentucky Watershed Framework Development Workgroup identified the need for ongoing coordination of these activities consistent with the basin management cycle. Basin Coordinator and Public Information Coordinator positions are recommended to fulfill this need.

Basin Coordinators will be assigned to one or more basin management units, and will be responsible for facilitating River Basin Team meetings and supporting the Statewide Steering Committee. Additionally, Basin Coordinators can serve as liaisons between Local Watershed Task Forces and the River Basin Teams. They will make sure that partners understand how the Kentucky Watershed Framework operates and are aware of key milestone dates so that the basin schedule of activities stays on track. Basin Coordinators will also compile information at key points along the basin management cycle, and bring together specific partners to troubleshoot issues or carry out planning and implementation functions.

Public Information Coordinators will be used to help communicate technical and policy information in a manner that promotes understanding among a broad range of audiences. They will work with River Basin Teams, Local Watershed Task Forces, Basin Coordinators, and the Partner Network to prepare messages regarding Basin Status Reports, public surveys, draft priority watershed rankings, and action plans. Information Coordinators will also be responsible for ensuring that information about ongoing activities and progress in basin management reaches key audiences.



CHAPTER 1

Introduction and Overview

What Are the Challenges and Opportunities Facing Kentucky?

The Commonwealth of Kentucky boasts abundant natural resources and a high quality of life for its citizens. However, as we enter the 21st century, the people of Kentucky are faced with several significant challenges:

- ***Protecting Water Quality***—In 1996, approximately 3,250 miles of rivers and streams and 18,650 acres of lakes in Kentucky were impaired. The causes of impairment include industrial and municipal waste water discharges, storm runoff from agricultural land and city streets, and loss of critical fishery habitat. As Kentucky continues to grow, these and other sources of impairment are likely to increase.
- ***Maintaining Economic Growth***—If Kentucky is to continue to grow, its citizens and industries will need clean and abundant water. Fish and wildlife resources and other environmental

In This Chapter...

- ***Challenges and Opportunities***
- ***Why a Watershed Approach***
- ***Benefits to the People of Kentucky***
- ***How Partners Are Developing the Approach***
- ***Mission and Goals of the Framework***
- ***Purpose of This Framework Document***

Sustaining high-quality water, land, and air resources is essential to the quality of life in the Commonwealth of Kentucky.

Watershed management is a way of coordinating existing programs geographically in order to manage the state's land and water resources more effectively and efficiently.

To manage land and water resources wisely, it is necessary to describe the condition of the watershed, identify sources of pollution, and then develop and implement efficient solutions that meet a range of environmental and economic goals.

amenities must also be protected to promote tourism and preserve the quality of life for many Kentuckians. New approaches must be found to manage Kentucky's farms wisely to limit the impact of agricultural chemicals and soil erosion on the environment, while protecting the farming economy.

- **Saving Taxpayer Money**—Demands on state and federal budgets continue to grow, while our willingness to pay for more government services diminishes. As a result, many environmental and economic development programs are likely to receive smaller shares of our government budgets in coming years. Therefore, we need to eliminate duplication of effort, spend the available resources more effectively, and focus on achieving results.
- **Working Together and Supporting Local Action**—If Kentucky is to address these challenges, multiple agencies and programs from federal, state, and especially local governments must work together to make the best use of available funds, people, and management tools. The work of local watershed protection groups and other citizen groups must also be better supported.

This document provides background information and guidance for improving the way we address these challenges through a watershed management approach. Many local, state, and federal agencies and organizations (see the box on page 1-5) have come together to implement this approach. Together, we recognize that sustaining high-quality water, land, and air resources is essential to a high quality of life in the Commonwealth of Kentucky. Our mission is soundly based in both governmental statute and resource conservation ethic, with a mandate to address contamination problems created in the past, to ensure that current activities are consistent with recognized principles of sound environmental management, and to protect the environment of the future by seizing opportunities for pollution prevention and resource allocation.

Why Does Kentucky Need This New Approach to Environmental Management?

The many agencies and organizations involved in environmental management in Kentucky have achieved great successes in controlling pollution sources and cleaning up past contamination problems, but much more remains to be done. Our ability to manage the complex environmental problems of today, while maintaining economic growth, requires coordinated solutions that focus resources geographically on specific problems.

Organizing management activities geographically is a resource-centered approach. Success is measured in terms of improving and maintaining environmental quality and protecting public health by fostering the protection and restoration of specific resource uses while sustaining economic activities that depend on natural resources. By using a watershed approach, agencies and organizations can cooperate to achieve common resource management goals within a specific geographic unit.

Why a Watershed Approach?

Why design for *watershed* units and not some other geographic unit, such as *ecoregions* or *groundwater aquifers*? All of these geographic units are critical to our understanding and management of resources.

Watersheds can be viewed as landscape units that integrate land, groundwater, surface water, and atmospheric processes over time. The topographical ridge lines that define the boundaries of watersheds provide a natural basis for organizing stakeholders, tying the people to the resource, and helping them to focus on solving common problems. As a result, watersheds serve as a convenient tool for integrating water resource protection and restoration activities.

Ecoregions help us in evaluating and establishing environmental criteria in tune with regional characteristics. Aquifers describe naturally formed underground water bodies that frequently provide vital drinking water supplies. Unfortunately, neither ecoregions nor aquifers are easy for most people to relate to or recognize. Watersheds, on the other hand, have more recognizable boundaries. For this reason, the watershed is a practical choice as a management unit.

Watersheds Include Both Surface Water and Groundwater

Watersheds should be thought of as three-dimensional systems that include both surface water and groundwater flow. After a rainfall, water moves through a watershed to the lake or stream by either flowing over the land or seeping into the soil and moving more slowly to a lake or river as groundwater. As a result, shallow groundwater flow should be considered when the boundaries of a watershed are defined. This is especially important in the approximately one-fourth of Kentucky that is primarily karst terrain. The seeps found in karst regions (irregular limestone regions characterized by sinkholes, underground streams, and caverns) provide a rapid conduit for water movement from the land surface to a lake or stream.

How Will a Watershed Approach Benefit the People of Kentucky?

The watershed management approach will allow Kentucky agencies to do more with existing resources. Some of the benefits of this approach are listed below.

- Biological monitoring efforts will be combined and capabilities increased by using Division of Water staff for algae and macroinvertebrate collections and Department of Fish and Wildlife Resources staff for fisheries collections.

Watershed boundaries provide a natural basis for organizing stakeholders, tying people to watershed resources, and focusing on solving common problems.

Sound watershed management decisions must be based on an understanding of the relationship of resource quality, resource use, and physical processes within the watershed.

III ➔ **Benefit:** *Better information about Kentucky's rivers and streams without higher monitoring costs*

- The U.S. Geological Survey (USGS), Natural Resources Conservation Service (NRCS), University of Kentucky-Kentucky Geological Survey (KGS), University of Kentucky-Cooperative Extension Service (CES), NREPC-Kentucky Division of Water (KDOW), Kentucky Department of Conservation (DOC), and Kentucky Department of Fish And Wildlife (F&W) have jointly funded a major project to delineate small-scale watersheds (14-digit hydrologic units) for management purposes. This project could not have occurred without the contributions of all the agencies involved.

Benefit: *Stretching of financial resources*
- Currently only about 20 percent of Kentucky's streams have been assessed for water quality; enhanced cooperation among monitoring partners will result in better coverage of the state.

Benefit: *Assessment of water quality in more of the state's streams*
- It has taken several years to rally cooperative efforts among the Division of Water, Letcher County Fiscal Court, Kentucky River Authority, Mountain Association for Economic Development (MACED), and Kentucky River Area Development District to address the problem of untreated sewage in Letcher County. The Watershed Management Framework will provide a forum for resolving these types of issues.

Benefit: *Increased ability to resolve complex water resource problems*
- Water supply planning is mandated for all counties in Kentucky; cooperation among the Area Development Districts, the Division of Water, and the counties is resulting in better planning. Implementation of these water supply plans will require cooperation through the watershed approach among even more partners, as potential sources of contamination, alternate supplies, and quantity issues are addressed through drinking water supply protection plans.

Benefit: *More effective coordination of water supply planning . . .*
- Local watershed planning and management are currently conducted as fragmented efforts of existing Conservation Districts, Water Supply Planning Councils, Sanitation Districts, Waterways Alliances, and others. These efforts can be better coordinated and supported by state and federal partners in watershed management.

. . . and local watershed management
- The Division of Water produces a biennial report to Congress on water quality (305(b) report) and a priority watershed list (303(d) list). The U.S. Department of Agriculture's Environmental Quality Incentives Program (EQIP) allows for local priority setting and regional plans to improve water quality through better management of agricultural chemicals. Through the watershed approach, these planning and reporting efforts can be better coordinated with water quality management activities implemented by participating agencies.

Benefits: *Better information collection and communication with the public*

Targeting of available funds to address the state's most pressing water quality problems
- The Framework provides key avenues for public participation throughout the basin management cycle described in the next chapter. Waterways Alliances, Conservation Districts, Water Supply Planning Councils, and local governments will be given the opportunity to comment on watershed management priorities and to provide insight on potential solutions suited to the locality, technical and fiscal feasibility, and local support for implementation.

Benefit: *More opportunities for citizens to get involved in solving water resource problems*

How Are Partners Working Together to Develop This Approach?

The watershed management approach depends on cooperation among many agencies and organizations in Kentucky involved in water quality and water resource management, water research, public outreach, and land use management relating to watershed protection. Kentucky is one of many states in the Nation that recognize this fact and are developing statewide frameworks to support a multipartner approach to managing and protecting water resources. Several federal agencies are promoting a watershed approach by retraining their staff and supporting education of others. The U.S. Environmental Protection Agency (EPA) is investing many of its resources in watershed management, including resources to help states and regions develop their own watershed management frameworks. EPA has provided funding to Kentucky to conduct the Executive Short Course on Statewide Watershed Management, and to design and tailor an approach that best meets the needs of Kentucky.

Over 30 organizations are working to plan and implement the watershed approach and to encourage new partners to join in the cooperative effort.

Participants Helping to Develop a Watershed Management Framework for Kentucky

Area Development District (ADD) Council	Kentucky Geological Survey
Environmental Education Council	Kentucky League of Cities
Kentucky Association of Counties	Kentucky State Nature Preserves Commission
Kentucky Chamber of Commerce Environmental Forum	Kentucky River Authority
Kentucky Department of Agriculture, Division of Pesticides	Kentucky Water Resources Research Institute
Kentucky Cabinet for Health Services	Ohio River Valley Water Sanitation Commission (ORSANCO)
Kentucky Department of Surface Mining Reclamation and Enforcement	Tennessee Valley Authority, Water Management
Kentucky Department of Transportation, Office of Environmental Affairs	University of Louisville, Institute for the Environment and Sustainable Development
Kentucky Department of Fish and Wildlife Resources	U.S. Army Corps of Engineers, Louisville District
Kentucky Department for Environmental Protection (DEP), Commissioner's Office	U.S. Department of Agriculture, Natural Resources Conservation Service
Kentucky DEP, Division for Air Quality	U.S. Fish and Wildlife Service
Kentucky DEP, Division of Waste Management	U.S. Forest Service
Kentucky DEP, Division of Water	U.S. Geological Survey, Water Resources Division
Kentucky Department of Natural Resources (DNR), Commissioner's Office	Sierra Club
Kentucky DNR, Division of Forestry	Kentucky Waterways Alliance
Kentucky DNR, Division of Conservation	University of Kentucky Cooperative Extension Service
	Environmental Quality Commission

Watershed Management Is Being Implemented Throughout the United States

Efforts to develop and implement statewide watershed management frameworks are taking place in many states including Alaska, Arizona, Delaware, Georgia, Idaho, Kentucky, Massachusetts, Minnesota, Nebraska, New Jersey, North Carolina, Oregon, South Carolina, Tennessee, Texas, Utah, Washington, and West Virginia. Although no federal mandate requires states to implement watershed management frameworks, these states have chosen to do so for several reasons:

- **Meeting the Need for Integrated Solutions**—Today's environmental issues often cut across program boundaries and political jurisdictions so that individual agencies lack the capability to address problems fully. Statewide frameworks make it easier to work together to solve complex problems. In Utah, implementation of a statewide framework led to a strategy for solving problems of flooding, nonpoint source nutrient runoff, and biological habitat loss in the Bear River Basin that involves multiple organizations and landowners.
- **Increasing Cost-Effectiveness**—In a climate of decreasing budgets and increasing demands, public and private agencies are searching for ways to make the best use of limited funds. Statewide frameworks help by targeting staff and funds to highest priority concerns, pooling expertise and funds, and eliminating duplication of efforts. South Carolina estimates that implementation of a statewide framework is producing 40%-50% more raw water quality data at the same cost. North Carolina's watershed approach helped create a nutrient pollutant trading program in the Tar-Pamlico River Basin that allows municipalities to fund more cost-effective nonpoint source controls rather than more expensive additional point source treatment.
- **Demonstrating Results**—The public and private sectors are demanding proof that their efforts and expenditures are improving the environment. Many frameworks are designed to produce better information on risk to the environment, to focus on solving the problems posing the greatest risk, and to track progress. Delaware is using its statewide framework as the basis for reaching a performance partnership agreement with the U.S. Environmental Protection Agency. Incorporating environmental indicators, watershed assessment, and program implementation based on priority setting within a statewide framework has given the states a mechanism for demonstrating that block grants can be used to address environmental priorities effectively.
- **Growing Beyond a Top-Down Approach**—Many traditional water resource management programs use a top-down approach driven by federal or state mandates, often emphasizing regulatory actions to solve specific problems. Although this approach is sometimes needed, many of today's problems require innovative solutions incorporating stakeholder capabilities and voluntary actions. Statewide frameworks use integrated forums to encourage approaches that a broad range of stakeholders can support. In Georgia, basin advisory committees and stakeholder forums augment technical basin teams to provide opportunities for involvement at local, state, and federal levels and achieve broad-based support for management strategies.
- **Improving the Information Base for Decision-Making**—Through cooperative data collection and information sharing, statewide frameworks can build a stronger base of information to support decision-making. In Washington State, framework implementation is producing a database that enables stakeholders to prioritize areas most in need of cooperative management efforts.

The Kentucky Division of Water (DOW) has agreed to help lead the development of the Kentucky Watershed Management Framework by coordinating logistics for a series of work sessions. In March 1996, an EPA workshop was conducted with a broad range of leaders from many agencies to identify the challenges facing resource managers in Kentucky and to assess whether a watershed management approach would help address those challenges better than current approaches. Strong interest on the part of workshop participants led to follow-up meetings to discuss whether common goals and objectives could provide the foundation for building a multiparty framework for watershed management in Kentucky. In July 1996, DOW began to host meetings of interested participants (referred to as the Watershed Framework Development Workgroup) to begin designing and developing such an approach. Partner agencies and organizations on the Workgroup were represented by managers and key staff, who were in turn responsible for reporting back to their organizations regarding the issues involved in adopting the watershed management approach. Early in this process, the Workgroup determined that a series of subcommittees would be needed to address specific technical issues raised under the Watershed Management Framework. Beginning in August 1996, five technical subcommittees (see Appendix A for the list of participants) were established to address the following issues:

- Public participation
- Watershed monitoring and assessment
- Data management and geographic information systems
- Prioritizing, planning, and implementing watershed management activities
- Funding and resource needs

These subcommittees met through the fall of 1996 and early 1997 to complete final findings and recommendations. Those findings and recommendations are included in this Framework Document.

Throughout the Framework development process, the Watershed Framework Development Workgroup and technical subcommittees confirmed the need to implement the watershed management approach by building on existing programs. Initial efforts will focus on orienting existing permitting, technical assistance, monitoring, and grant-making activities around a basin management cycle (see Chapter 2). Beginning in July 1997, emphasis will be placed on coordinating other program's and partner's work plans to support monitoring, assessment, planning, data management, and implementation activities within the basin management cycle and statewide schedule described in this document.

Over the long term, Kentucky envisions a dynamic, flexible framework for watershed management in which all interested parties can participate. As opportunities and needs arise, current Framework partners will encourage participation from other stakeholder groups to improve the effectiveness of watershed protection and restoration activities.

The Kentucky Watershed Framework Development Workgroup, representing a cross section of interests, has been developing a statewide watershed management approach.

The Framework will be dynamic and flexible for watershed management in which all can participate.

The primary goal of the Watershed Management Framework is to ensure sustainable use of the state's water and other natural resources into the future.

The goals of the Watershed Management Framework can best be achieved through statewide communication, cooperation, creative problem solving, and sharing of resources.

What Are the Mission and Goals of Kentucky's Watershed Management Framework?

The Watershed Framework Development Workgroup established the following mission statement, goals, and objectives for the Kentucky Watershed Management Framework.

Mission Statement

The Kentucky Watershed Framework will serve as a means for coordinating and integrating the programs, tools, and resources of stakeholders to better protect, maintain, and restore the ecological composition, structure, and function of watersheds and to support the sustainable uses of watersheds for the people of the Commonwealth.

Goals

The Kentucky Watershed Management Framework is designed to facilitate an approach that focuses on meeting individual program goals to one that can achieve watershed-based goals. The Framework design reflects the following watershed resource management goals:

- Protect and enhance public health and safety.
- Conserve and enhance watershed ecosystems.
- Support sustainable watershed resource use that meets water quality standards and conservation goals.
- Reduce or prevent pollutant loadings and other stressors in watersheds.
- Preserve and enhance esthetic and recreational values of watersheds.
- Provide adequate water supply to support sustainable human use and ecological integrity.

Objectives

To attain the six goals listed above, the Kentucky Watershed Framework will be implemented to accomplish the following objectives:

- Increase communication and consensus among local, state, and federal programs and other stakeholder groups to strengthen information and data collection and exchange, share expertise and tools, and implement cooperative solutions to watershed management problems.
- Identify indicators of watershed integrity, and establish watershed management priorities to guide integrated efforts.
- Implement integrated, yet practical and flexible, solutions that achieve watershed objectives by coordinating regulatory (standards, permitting, monitoring, enforcement, and federal report-

ing) and nonregulatory (planning, technical assistance, and outreach) activities in targeted watersheds or problem areas within watersheds.

- Provide a forum for networking and cooperation among agencies and programs so that critical watershed management functions can be carried out despite changing funding levels.
- Develop stronger partnerships among federal, state, regional, and local governments and organizations to more effectively address local watershed problems.
- Coordinate existing public communication and education forums and develop new avenues for participation by citizens in watershed management in order to promote a stronger resource conservation ethic and understanding of watershed ecosystems.

What Is the Purpose of This Framework Document?

This Framework Document is designed to provide information and guidance to all participants involved in planning and implementing the watershed approach in Kentucky. The remaining chapters describe the following:

- The major components of a "framework" to support watershed management in Kentucky (Chapter 2)
- The timing of activities and specific roles for River Basin Teams, Local Watershed Task Forces, Partner Network, Basin Coordinators, and Public Information Coordinators (Chapter 3)
- Schedules and key activities for making the transition to the watershed management approach (Chapter 4)
- The resource needs involved in making the transition to and implementing Kentucky's watershed management approach (Chapter 5)

The Framework Document is a guide for ongoing coordination of water resource management activities by organizations throughout the state.

The Framework for Watershed Management

Core Components of the Framework

Five core components constitute the statewide Watershed Management Framework for Kentucky:

1. *Basin management units* provide the spatial basis for coordinating watershed ecosystem protection and restoration activities in Kentucky. The management units are based on Kentucky's 12 major river basins and tributaries that drain directly to the Ohio River.
2. A *basin management cycle* facilitates coordinated timing of key watershed management activities within each basin management unit.
3. A *statewide basin management schedule* establishes a statewide calendar and a sequence for conducting key watershed management activities in basin management units and throughout the state.
4. *Forums to support cooperative action and public participation* reflect a concerted effort to involve all interested parties in watershed management activities to achieve better coordination, more cost-effective use of resources, and increased public support for watershed management efforts.



In This Chapter...

- **Core Components of the Framework**
- **Basin Management Units**
- **Basin Management Cycle**
- **Statewide Basin Management Schedule**
- **Forums to Support Cooperative Action and Public Participation**
- **Basin Management and Watershed Action Plans**

5. *Basin and Watershed Management Plans* document management priorities and Action Plans to provide a common reference guide for implementation.

Core Component 1: Basin Management Units

Basin management units provide the spatial basis for coordinating all watershed management activities in Kentucky.

There are 12 major river basins in Kentucky: Big Sandy, Green, Kentucky, Licking, Little Sandy, Lower Cumberland, Mississippi, Salt, Tennessee, Tradewater, Tygarts, and Upper Cumberland (Figure 2-1). The Ohio River also borders the state, and numerous small watersheds drain directly to its main stem. Under the Kentucky Watershed Framework, the 12 large river basins are combined with the smaller watersheds draining directly to the Ohio River to form 12 basin management units. These basin management units provide the spatial basis for coordinating watershed ecosystem protection and restoration activities.

The basin management units for the Kentucky Watershed Framework are based on 6-digit hydrologic unit codes (HUCs), within which are nested 11-digit HUCs (watersheds) (see Figure 2-2). The Framework will emphasize the 6- and 11-digit watersheds for information collection and reporting purposes. Written basin summaries will be organized by 6-digit HUCs, while watershed information will be organized by smaller 11-digit HUCs (see Basin and Watershed Management Plans section at the end of this chapter for more details on these documents).

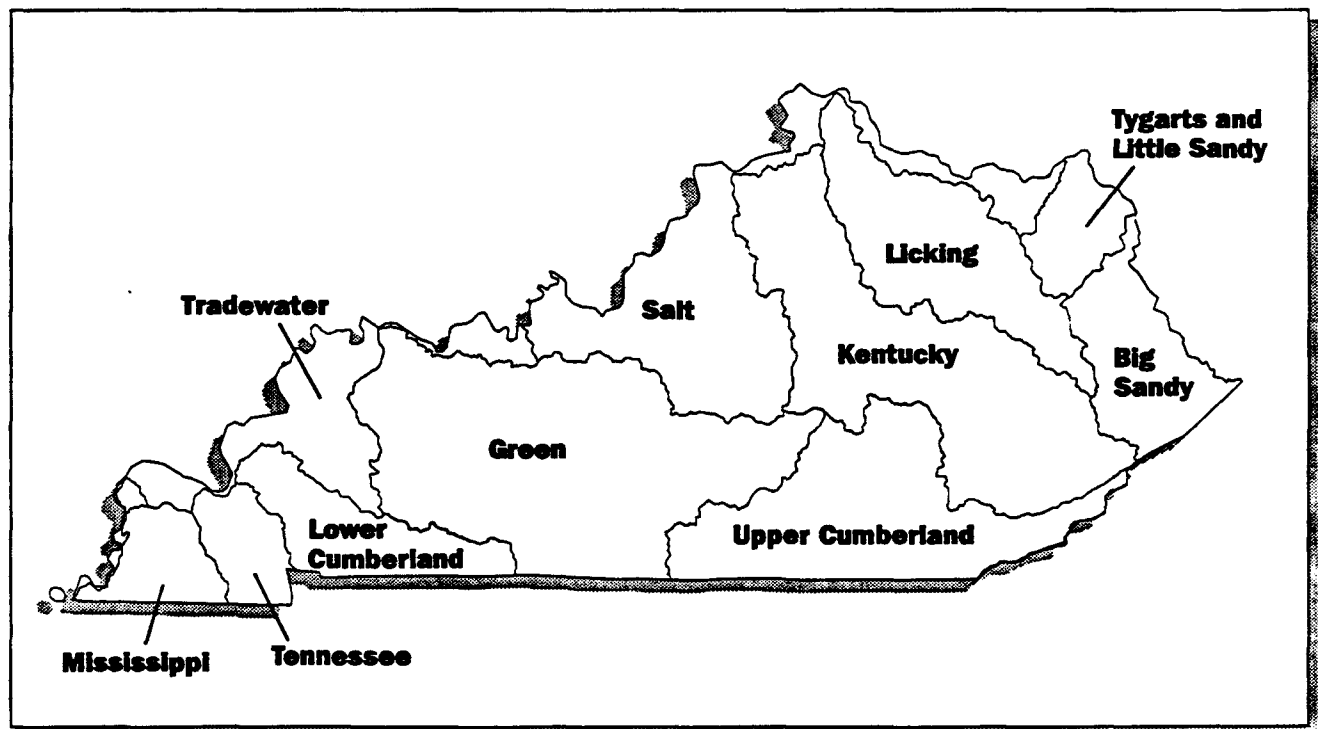


Figure 2-1. Map of Kentucky showing river basins.

Hydrologic Unit Codes

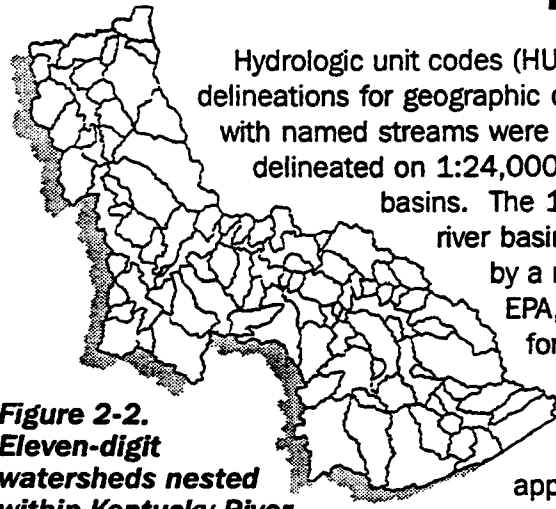


Figure 2-2.
Eleven-digit
watersheds nested
within Kentucky River
Basin (6-digit HUC).

Hydrologic unit codes (HUCs) were developed to standardize hydrologic unit delineations for geographic description and data storage purposes. All basins with named streams were identified on 1:100,000 scale maps, and then delineated on 1:24,000 scale maps. The 6-digit HUCs are major river basins. The 11-digit HUCs are watersheds "nested" within a major river basin. HUC watershed boundaries have been accepted by a number of agencies (e.g., U.S. Forest Service, USGS, EPA, NRCS, TVA, Division of Water) as the standard unit for watershed delineation within a geographic information system (GIS). Their broad base of acceptance makes HUCs a logical choice for information exchange among agencies under a watershed approach.

Core Component 2: Basin Management Cycle

Coordinating the timing and location of watershed management activities is paramount to successful implementation of a statewide watershed approach. While the state's river basins and nested watersheds

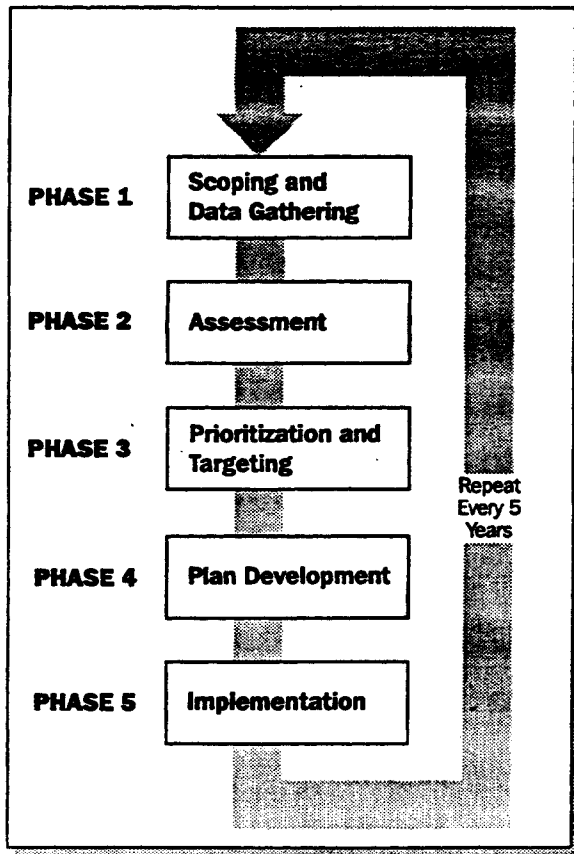


Figure 2-3. Basin management cycle.

provide the spatial basis for coordination, the basin management cycle is the temporal component for coordination. The cycle provides a time frame for a series of watershed management activities to occur in each basin management unit.

Kentucky's basin management cycle has five activity phases that are sequenced and repeated for each basin management unit at fixed 5-year intervals. This cycle ensures that management goals, priorities, and implementation strategies are routinely updated and implemented on an ongoing basis (Figure 2-3).

The basin management cycle establishes a schedule for key watershed management activities:

- 1) *Scoping and data gathering*
- 2) *Assessment*
- 3) *Prioritization and targeting*
- 4) *Action Plan development*
- 5) *Implementation*

The basin management cycle is repeated every five years.

*Scoping and Data
Gathering:*

Identify key audiences

*Issue a Basin Status
Report*

*Educate the public and
create a dialogue about
public concerns*

*Collect existing and new
information*

*Prepare a Strategic
Data Collection Plan*

Planning and implementation are not one-time activities. The repeating management cycle reflects Kentucky Watershed Framework partners' understanding that the nature of watershed management is dynamic, and that the Framework must be flexible enough to address this dynamic nature in a systematic manner.

Phase 1: Scoping and Data Gathering

The first phase of the basin management cycle has several purposes:

- To identify key audiences for two-way communication about basin management goals, priorities, planning needs, and the process for developing and implementing management strategies.
- To enable technical partners to issue a joint Basin Status Report on existing conditions, ongoing management activities, and management priorities and needs within the basin management unit.
- To work with stakeholders within the basin to increase their understanding of the Watershed Management Framework, to refine short- and long-term management goals for the basin, and to identify important information gaps.
- To gather existing information and collect new information about the river basin and to assess the level of interest and resources available within the basin.

A core team of partners begin the scoping and data gathering process by identifying key audiences in the basin and preparing a Basin Status Report to communicate with those audiences about apparent watershed problems and the sources of these problems. Preparation of the report will require assigning responsibilities for compiling key pieces of information and ensuring their quality prior to public presentation. The Status Report is to be communicated through existing forums and followed up by stakeholder surveys and brainstorming sessions to refine management goals and identify important information gaps.

Interested partners then develop and implement a Strategic Data Collection Plan. Example areas to be addressed in a Strategic Data Collection Plan include data needed to characterize river basin features and conditions, review water quality standards, clarify and quantify

What is a Basin Status Report?

The Basin Status Report is the first document prepared as activities are initiated in each basin management unit under the Kentucky Watershed Management Framework. The report is written during the first phase (Scoping and Data Gathering) of the basin management cycle. The purpose of the report is to communicate conditions and trends in water quality and quantity and watershed integrity to a broad audience. The information in the Basin Status Report will assist the River Basin Team in preparing a Strategic Data Collection Plan and, in phase 3 of the basin management cycle, identifying those watersheds within the basin that are in most urgent need of attention.

causes and sources of watershed problems, calibrate assessment models, and evaluate the effectiveness of previous management efforts. The Strategic Data Collection Plan should

- Clarify the issues in the basin that require further study,
- Identify existing sources of information that can be obtained to characterize those issues,
- Specify new data to be obtained through expanded or revised monitoring activities,
- Identify resources that can be devoted to existing data compilation or new monitoring activities, and
- Outline complementary roles and responsibilities for existing data collection and monitoring.

As part of activities outlined in the Strategic Data Collection Plan, new or expanded watershed monitoring activities will be addressed in a Basin Monitoring Work Plan. Guidance for Monitoring Work Plans is currently being developed (see Chapter 4). As will be described in the guidance, raw data collected as part of new monitoring activities should be checked for quality and entered into electronic databases with corresponding geographic location identifiers, such as latitude and longitude as well as other metadata, where appropriate.

What is a Strategic Data Collection Plan?

A Strategic Data Collection Plan is prepared after all readily available data on a river basin have been gathered. The plan outlines data still needed to fully understand the land and water resource problems within the basin. The Strategic Data Collection Plan establishes objectives for new data collection efforts to be carried out and identifies physical, chemical, biological, geological, hydrologic, land use, and other data that can be collected with available resources. These new data may be drawn from sources not usually included in water quality assessments, such as information from health districts, planning agencies, or chambers of commerce. A schedule for collecting new data through revised or expanded monitoring activities is also part of the plan, which will be carried out during phases 1 and 2 of the basin management cycle by a number of agencies working cooperatively.

Phase 2: Assessment

During the second phase of the basin management cycle, information gathered under the Strategic Data Collection Plan is interpreted. Quantitative and qualitative analyses are performed to evaluate and document the severity, extent, causes, and sources of stress to watershed resources. Partners are assigned assessment responsibilities according to their expertise, available resources, and willingness to participate. For example, the Kentucky Department of Fish and Wildlife Resources could focus its expertise and resources on assessing critical habitat restoration and protection needs for fish and wildlife, while the Division of Water's Water Resources Branch could assess water quantity within the basin. Key summaries of partners' assessments are compiled to

Assessment:

Evaluate and document watershed problems

Prioritization and Targeting:

Establishes a priority ranking for watersheds within the basin

Targets the most urgent problems for immediate attention

update the Basin Status Report and provide the basis for establishing management priorities and allocating resources to address the most urgent problems.

Phase 3: Prioritization and Targeting

Prioritizing Watersheds

In the third phase of the basin management cycle, Framework partners and interested stakeholders work together to establish a priority ranking of watersheds within the basin, using 11-digit HUCs as the basis for discussion. The initial effort by partners to rank all of the 11-digit watersheds within a basin management unit will be based solely on technical factors related to human health risk and ecological impairment, including

- severity of impact or threat
- spatial scale or extent of impact or threat

In establishing priorities, it is important that partners strike a balance between (1) restoring impaired resources (the traditional emphasis of regulatory agencies) and (2) protecting resources from impending threats before significant damage is done. The prioritization methods developed for the Framework attempt to address both of these goals. (A more detailed discussion of the Framework's priority-ranking method is being developed in a separate guidance document.)

Once a preliminary ranking of watersheds in a basin has been established, it will be presented for public review. The list will then be reconsidered and adjustments made as necessary to incorporate stakeholders' values and concerns.

Once priority watersheds within a basin management unit have been identified, another process, referred to as targeting, must take place. Through the targeting process, partners and stakeholders can evaluate the feasibility and advisability of allocating limited resources to address particular issues within a priority watershed. Some issues can

Why Prioritize and Target?

In developing the Framework, partners recognize that stakeholder resources (people, funds, equipment) are limited. Effective and efficient use of these resources therefore requires that management efforts be directed where they are most needed and where they are most cost-effective. The prioritization process, whereby watersheds within a basin management unit are ranked in order of priority for management actions, helps to clarify the interrelatedness of resource management issues. It also can help partners gauge the level of public interest and support, and can sometimes create synergy for directing more resources at priority problems so that strategies can be developed for resolving the most pressing problems. In addition to prioritizing watersheds, partners will frequently be faced with the need to identify and rank lower priority watersheds in which further data collection and assessment are needed.

be so difficult to deal with that they may not be solvable or cost effective, given that human and financial resources are not infinite. After watersheds are ranked, therefore, the next activity is to figure out which problems within a priority watershed should be addressed under the Framework.

Targeting Available Resources Within Priority Watersheds

Decisions about targeting available resources toward solving particular problems in priority watersheds are expected to be consensus-based, bringing in real-world considerations to determine what is doable. Criteria that might, for example, be used to determine which problems within a watershed will be targeted include

- **Priority ranking:** Is it a high priority relative to other concerns in the basin management unit?
- **Technical feasibility:** Can the problem be solved through available means?
- **Political feasibility:** Are stakeholders willing, ready, interested in doing something?
- **Cost-effectiveness:** How much benefit is expected per dollar spent relative to other concerns?
- **Programmatic feasibility:** Are needed staff and financial resources available?

Phase 4: Action Plan Development

Technical experts from partner agencies work with other stakeholders during phase 4 of the basin management cycle to identify, evaluate, and select management strategies to address targeted issues in priority watersheds. Sound science and stakeholder consensus are emphasized to establish cost-effective solutions that are supported or accepted by those who must take the actions. Implementation strategies are documented in draft basin and watershed Action Plans. These plans outline specific actions and funding sources to guide the efforts of Framework partners to resolve the problem. Draft Action Plans are communicated to a broader public audience and fine-tuned as necessary to strengthen public support for the final Action Plan.

Action Plan Development:

Choose strategies for addressing highest priority problems

Document these strategies in draft basin and watershed Action Plans

What is an Action Plan?

An Action Plan is a written document that outlines specific activities that Framework partners and stakeholders will implement to address problems within a basin (basin Action Plan) or targeted issues within a priority watershed (watershed Action Plan). The activities included in an Action Plan are designed to achieve a cost-effective solution to important problems. Action Plans emphasize resource management goals, proposed resource management actions, responsible parties, funding and scheduling, and methods for tracking and evaluating success. Prior to implementation, draft Action Plans are communicated to citizens and fine-tuned to strengthen public support for the final Action Plan.

Implementation:

Carry out cost-effective management activities in accordance with basin and watershed Action Plans designed to protect or restore the watershed resources

A fixed sequence of activities throughout each five-year cycle ensures progressive implementation of watershed management activities.

Phase 5: Implementation

During phase 5 of the basin management cycle, Framework partners carry out and guide management actions in accordance with basin or watershed Action Plans. Probable actions include

- Conducting education and outreach to promote broad public understanding and participation
- Issuing, modifying, or denying regulatory permits such as KPDES permits for wastewater discharges
- Awarding Nonpoint Source Program grants to facilitate implementation of best management practices
- Funding and constructing pollution control and abatement facilities
- Modifying agency programs to support the Action Plan
- Revising regulations, statutes, and ordinances
- Sharing information among partners and stakeholders regarding activities
- Targeting enforcement activities toward priority problem areas and persistent violators
- Monitoring progress of Action Plan implementation
- Providing technical assistance to stakeholders
- Supporting drinking water source protection and planning

Time Frames for Activities in Each of the Five Phases

Time frames for specific activities during each of the five phases are shown in Figure 2-4. These schedules are fixed to ensure timely transition from planning to implementation. The schedule does not limit when a partner can conduct an activity; those decisions remain at the discretion of the partner. Rather, the schedule indicates the time frame dedicated to integrated planning and implementation or, in other words, the time during which partners emphasize working together to accomplish a specific task. Partners have the opportunity to tie into the schedule during these key time frames, knowing that other partners will also be focusing on the same activities simultaneously. For example, a local government might monitor its drinking water watershed on a monthly basis every year. By tying into the basin management cycle during scheduled monitoring design and assessment periods, however, the locality might gain more information without increasing monitoring costs since a number of partners would be coordinating data gathering activities at that time and sharing the resulting information.

Delays in moving through the basin management cycle are discouraged. Rather, partners are encouraged to go on to the next phase even if results are less than ideal. Open-ended schedules can lead to an endless period of planning. The Framework is based on the principle that cost-effective implementation of actions that protect or restore the watershed resources should be the primary emphasis. The fixed cycle ensures progressive implementation of Framework activities. Issues that are not addressed in one iteration of the cycle can be top priorities for the next.

Phase	Activity	Year 1				Year 2				Year 3				Year 4				Year 5				
		J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	
Scoping & Data Gathering	Organize and orient River Basin Team	■																				
	Compile available scoping-level data	■																				
	Prepare Basin Status Report	■																				
	Communicate Basin Status Report to public		■																			
	Receive public input		■																			
	Develop & document draft Strategic Data Collection Plan		■																			
	Distribute draft Plan, receive public comments, & finalize Plan			■																		
	Prepare Data Management/GIS Work Plans			■																		
Collect monitoring and other strategic data				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Assessment	Develop Sample Analysis and Data Entry Work Plans			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Analyze data and produce Final Monitoring Report				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Develop Assessment Work Plans					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Assess data & produce draft Basin Assessment Report						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Prioritization & Targeting	Develop preliminary ranking of watersheds								■	■	■	■	■	■	■	■	■	■	■	■	■	
	Distribute preliminary rankings for public review and comments									■	■	■	■	■	■	■	■	■	■	■	■	
	Conduct focus groups to achieve final consensus on rankings										■	■	■	■	■	■	■	■	■	■	■	
	Apply targeting criteria to determine where efforts should be directed											■	■	■	■	■	■	■	■	■	■	
Plan Development	Develop watershed Action Plans & prepare basin planning documentation												■	■	■	■	■	■	■	■	■	
	Distribute draft findings and Action Plans to public & collect comments													■	■	■	■	■	■	■	■	
	Produce final Basin Management Plan including findings and Action Plans															■	■	■	■	■	■	
Implementation	Communicate goals and objectives of Action Plans with public																			■	■	
	Carry out Action Plans																			■	■	
	Monitor progress on Action Plans & adjust as needed																			■	■	
	Continue implementing ongoing protection and restoration actions																			■	■	

Start date for cycle is July 1 (state fiscal year calendar). J-S=July, August, September O-D=October, November, December J-M=January, February, March A-J=April, May, June

Figure 2-4. Basin management cycle activity time frames.

Core Component 3: Statewide Basin Management Schedule

A statewide basin management schedule establishes a calendar and sequence for conducting key watershed management activities within each basin management unit and throughout the state.

By creating five basin management unit groups, the schedule provides a regional focus for watershed management efforts.

The grouping also helps partners involved in watershed management on a statewide basis to balance workloads over time.

The basin management cycle will not be initiated in all basin management units at the same time for practical reasons. For Framework scheduling purposes, the 12 basin management units have been combined to form five basin management groups (Table 2-1 and Figure 2-5). These groups are designed to make it possible for partners to focus watershed management activities on one portion of the state during a given period of time, allowing more efficient use of human and financial resources. The five basin groups are based on geographical proximity of river basins to one another, equal distribution of land area, and equal distribution of critical workloads.

Table 2-1. Basin management groups for the Kentucky Watershed Framework.

Basin Management Group Number and Description	Area (mi.²)	Percent of Total Area
1. Kentucky River	6,966	17.2
2. Salt and Licking Rivers	9,037	22.4
3. Upper and Lower Cumberland, Mississippi, and Tennessee Rivers	9,853	24.4
4. Green and Tradewater Rivers	11,109	27.5
5. Big Sandy, Little Sandy, and Tygarts Rivers	3,424	8.5

A statewide schedule is in place for sequencing the phases of the management cycle within each of the five basin management groups. Figure 2-6 shows how the schedule for basin management cycle activities will be phased in each group of river basins (see Appendix B for a more detailed schedule). The sequence for initiating activities in the five basin management groups was established based on several factors. These included the Kentucky River Authority's presence in the Kentucky River basin, permitting issues, and Tennessee's basin management cycle within the Cumberland River basin.

Basin management cycle activities will begin in each of the five groups of river basins as follows:

- | | |
|--|-----------|
| 1. Kentucky River Basin | July 1997 |
| 2. Salt and Licking Rivers | July 1998 |
| 3. Upper and Lower Cumberland, Mississippi, and Tennessee Rivers | July 1999 |
| 4. Green and Tradewater Rivers | July 2000 |
| 5. Big Sandy, Little Sandy, and Tygarts Rivers | July 2001 |

Thus, by the year 2001, activities will have been initiated, and will be ongoing, in each basin management unit. This illustrates one of the core features of the Framework: at any one point in time, different activities are happening across all five basin groups, providing regional focus and balanced workloads among partners operating statewide. More information about the transition to the statewide basin management schedule is provided in Chapter 4.

Basin Management Units by Sequence

- 1—Kentucky
- 2—Salt / Licking
- 3—Tennessee / Mississippi / Cumberland
- 4—Tradewater / Green
- 5—Big and Little Sandy / Tygarts

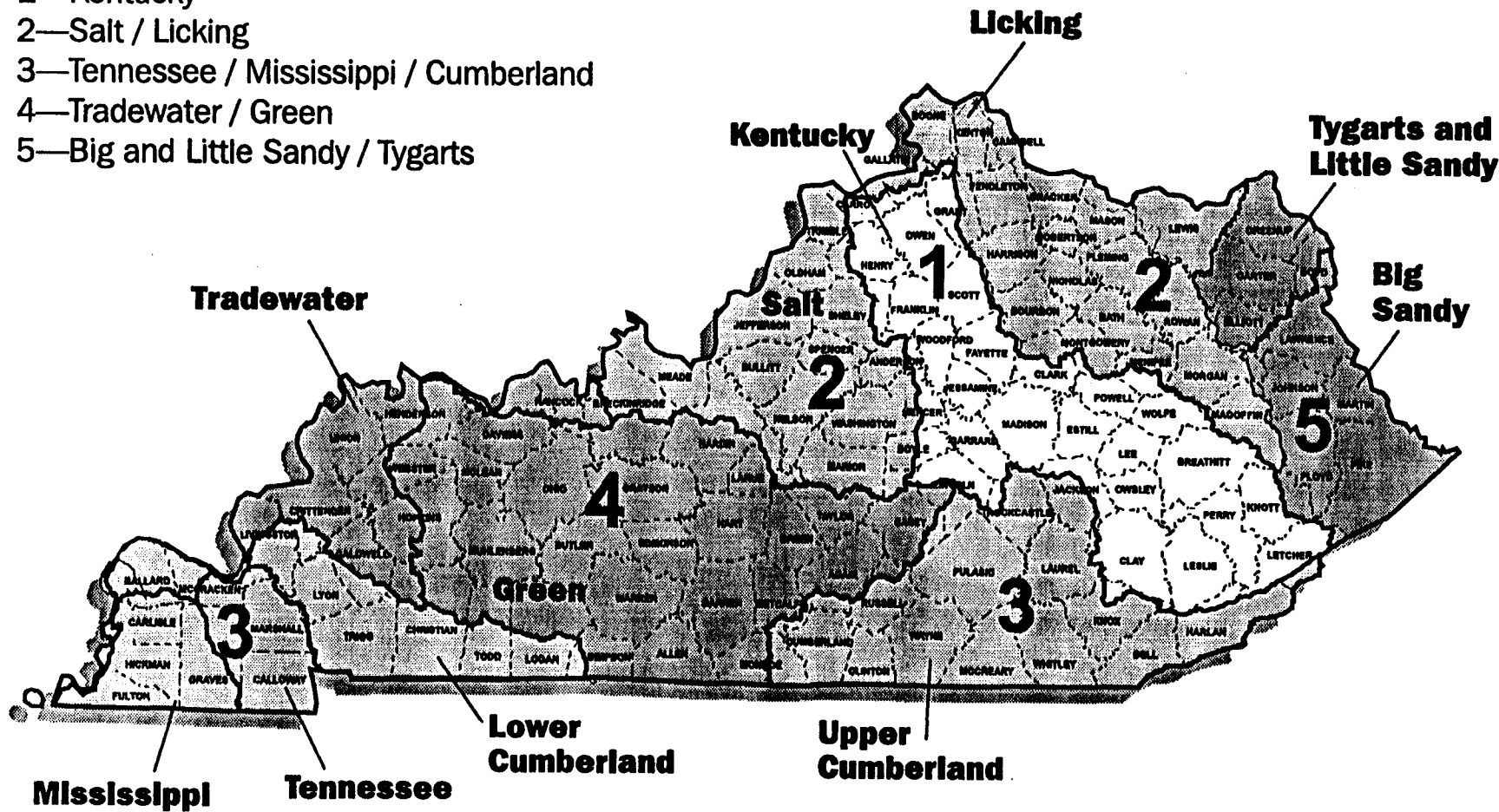


Figure 2-5. Map of basin management groups for scheduling activities.

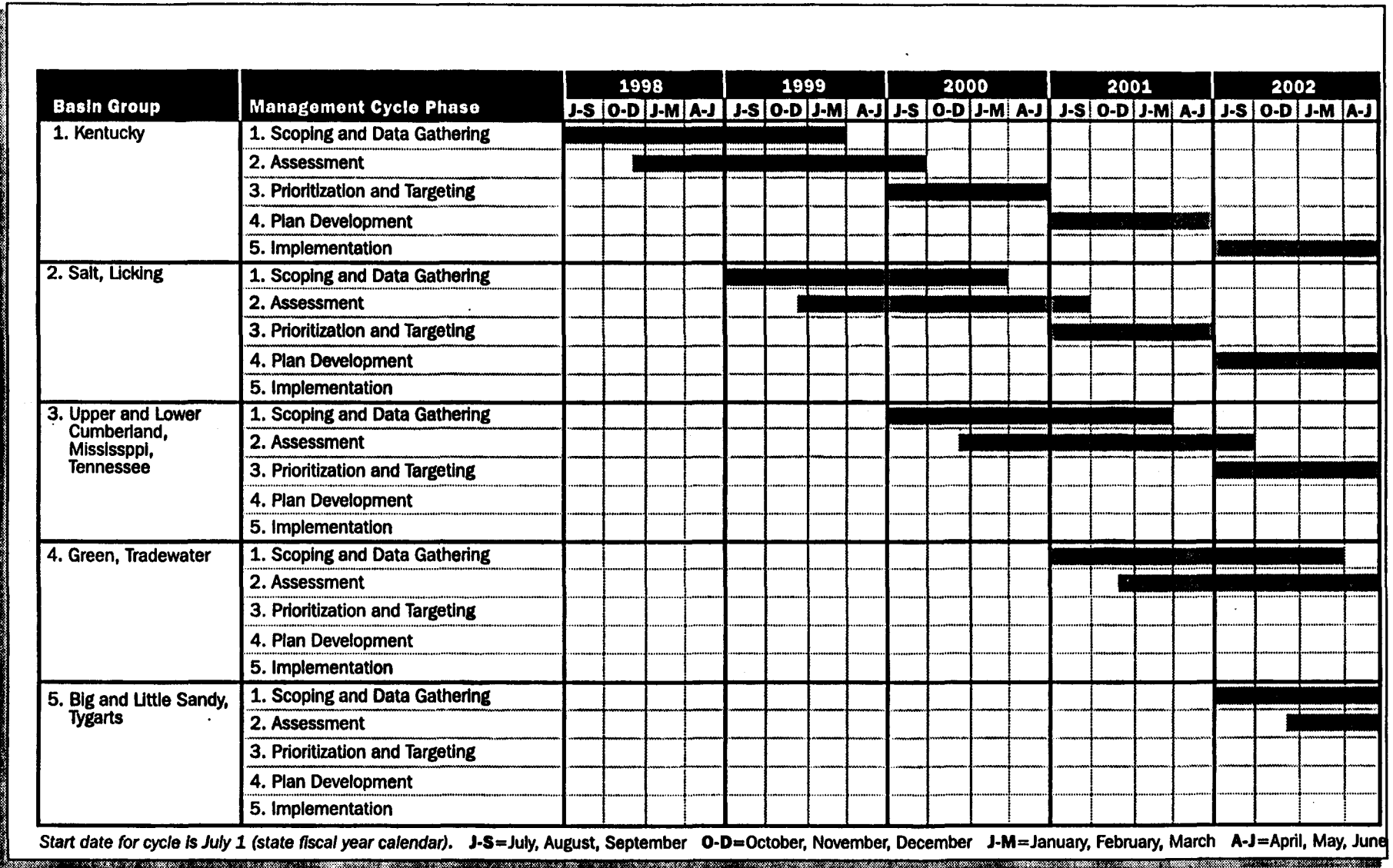


Figure 2-6. Statewide basin management schedule.

Basin Group	Management Cycle Phase	2003				2004				2005				2006				2007				
		J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	
1. Kentucky	1. Scoping and Data Gathering																					
	2. Assessment																					
	3. Prioritization and Targeting																					
	4. Plan Development																					
	5. Implementation																					
2. Salt, Licking	1. Scoping and Data Gathering																					
	2. Assessment																					
	3. Prioritization and Targeting																					
	4. Plan Development																					
	5. Implementation																					
3. Upper and Lower Cumberland, Mississippi Tennessee	1. Scoping and Data Gathering																					
	2. Assessment																					
	3. Prioritization and Targeting																					
	4. Plan Development																					
	5. Implementation																					
4. Green, Tradewater	1. Scoping and Data Gathering																					
	2. Assessment																					
	3. Prioritization and Targeting																					
	4. Plan Development																					
	5. Implementation																					
5. Big and Little Sandy, Tygarts	1. Scoping and Data Gathering																					
	2. Assessment																					
	3. Prioritization and Targeting																					
	4. Plan Development																					
	5. Implementation																					

Start date for cycle is July 1 (state fiscal year calendar). J-S=July, August, September O-D=October, November, December J-M=January, February, March A-J=April, May, June

Figure 2-6. (continued)

Core Component 4: Forums to Support Cooperative Action and Public Participation

Forums to support cooperative action and public participation reflect a concerted effort to involve all interested parties in watershed management activities.

The Partner Network consists of organizations and individuals willing to invest their time and resources to learn about watershed management needs, develop and implement strategies to address those needs, and promote public involvement.

Involving all who have a stake in watershed management is a challenge that requires the combined resources and commitment of many partners.

Forums to Support Cooperative Action

Partner Network

A Partner Network is being used to help coordinate and carry out watershed management in Kentucky. Involving all citizens and organizations who have a stake in watershed management, planning, and implementation is a challenge that requires the combined resources and commitment of many partners. Successful implementation of the Kentucky Watershed Management Framework will depend on the use of existing communication networks and expertise from these key partners to ensure broad-based support among the diverse audiences and participants. The Partner Network consists of agencies, organizations, and individuals willing to invest their time and resources to learn about watershed management needs, to develop and implement strategies to address those needs, and to promote awareness of and public involvement in the watershed approach. Table 2-2 lists key partners to lead and support communication and planning efforts for specific audiences considered integral to the watershed management process.

The partners in watershed management in Kentucky need an organizational structure that they can depend on to support and facilitate their efforts. Coordination is needed at three levels:

- *Within local watersheds*, to rally public support and participation of local stakeholders in watershed management.
- *At the basin level*, to assess watershed conditions and prioritize watershed management needs.
- *Statewide*, to conduct watershed management activities across the entire state, and to target and synchronize efforts by all partners.

To meet these needs, the Framework uses the forums described in the next three sections. No hierarchical relationship is associated with these forums. They are meant to coexist and address different needs at each of the three geographic levels (see Figure 2-7).

Statewide Steering Committee

The purpose of the Statewide Steering Committee is to address issues of statewide coordination and policy related to the Framework. Members of the Statewide Steering Committee will represent a large cross section of organizational interests, including the Kentucky Watershed Framework Development Workgroup and local governments, environmental groups, business, industry, and others.

Table 2-2. Key audiences and partners.

AUDIENCE: GENERAL

Lead Partners:

Environmental Education Council
 Cooperative Extension Service
 Division of Conservation

Supporting Partners:

Participants for Reform Initiatives in Science and Math (PRISM)
 Area Development Districts (ADDs)
 Kentuckians for the Commonwealth
 Kentucky Waterways Alliance
 Environmental Quality Commission (EQC)
 WaterWatch (DOW program)
 Know Your Watershed (CTIC)

AUDIENCE: LOCAL GOVERNMENT

Lead Partners:

ADD Districts (local lead)
 Dept. of Local Government (state lead)

Supporting Partners - State Level:

League of Cities
 Kentucky Association of Counties
 Chambers of Commerce
 Health Services Cabinet
 Resource Conservation & Development Councils

Supporting Partners - Local Level:

Local Solid Waste Coordinators
 Kentucky Rural Water Association
 Water & Wastewater Operators Association
 County Health Departments
 Environmental Directors Association
 Health Supervisors Association
 Water Supply Planning Councils

AUDIENCE: BUSINESS

Lead Partners:

Chamber of Commerce - Environmental Forum
 Kentucky Farm Bureau

Supporting Partners:

Associated Industries of Kentucky
 Water Well Drillers Association
 Kentucky On-site Wastewater Association
 Coal Operators Association
 Kentucky Coal Association
 Kentucky Fertilizer and Chemical Assn
 Local Kentucky Utilities
 Home Builders Association
 Cabinet for Tourism/Tourism Association
 Economic Development Cabinet
 Kentucky Forest Industry Association
 Kentucky Oil and Gas Association
 Kentucky Rural Electric Cooperative
 Publicly and Privately-owned Utilities

AUDIENCE: LANDOWNERS/LAND USERS

Lead Partners:

Kentucky Farm Bureau
 Cooperative Extension Service
 Conservation Districts

Supporting Partners:

Kentucky Woodland Owner Association
 Kentucky Farm Alliance
 Private Lands Council
 Resource Conservation and Development Councils
 Neighborhood Associations
 Commodity Groups

AUDIENCE: CHILDREN/SCHOOLS (K-12)

Lead Partners:

PRISM
 Kentucky Science Teachers Association (KSTA)
 Environmental Education Council

Supporting Partners:

Project WET
 Kentucky Environmental Education Association
 Kentucky Association for Environmental Education
 Ag and the Environment in the Classroom
 4-H (partner lead with PRISM)
 Vocational Agriculture (FFA)
 WaterWatch

AUDIENCE: ENVIRONMENTAL ADVOCACY

GROUPS

Lead Partners:

Sierra Club
 Waterways Alliance

Supporting Partners:

Kentucky Resources Council
 The Nature Conservancy
 Kentuckians for the Commonwealth
 Kentucky Conservation Committee
 Kentucky League of Sportsmen
 Trout Unlimited
 Ducks Unlimited
 Community Farm Alliance

AUDIENCE: LEGISLATORS

Lead Partner:

Legislative Research Commission

Supporting Partners:

Natural Resources & Environmental Protection Cabinet
 Long-Term Policy Research Center
 Legislative Committee/Subcommittees

- Agricultural & Natural Resources
- Economic Development

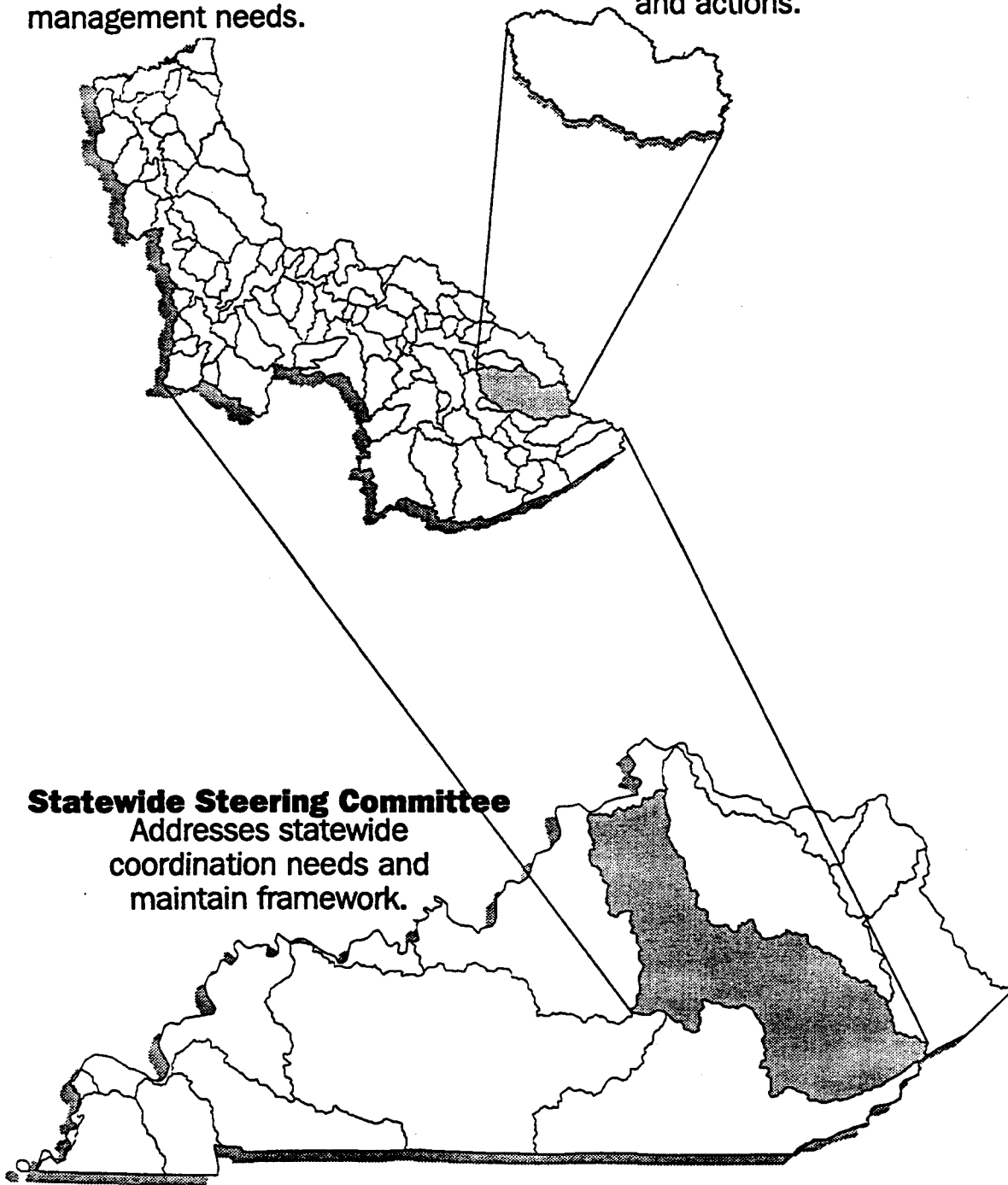
Environmental Quality Commission
 Cabinet for Health Services
 Kentucky Resources Council

River Basin Teams

Assess basin-scale conditions and management needs.

Local Watershed Task Forces

Determine local needs and actions.



Statewide Steering Committee

Addresses statewide coordination needs and maintain framework.

Figure 2-7. Relationship of statewide, basin-level, and watershed-level forums.

Functions of the Statewide Steering Committee will include the following:

- Representing a cross-section of organizations
- Coordinating watershed management activities statewide
- Communicating activities and exchanging ideas
- Identifying Basin Coordinators (see page 2-20)
- Recruiting River Basin Team members (see below)
- Identifying Local Watershed Task Force members
- Developing policy
- Resolving disputes
- Designing the statewide Watershed Management Framework
- Supporting framework implementation
- Evaluating and updating the Framework

A Statewide Steering Committee will address issues of statewide coordination and policy, facilitate communication, and evaluate how the Framework is working.

Members will represent a wide cross section of interests.

Other Forums That Complement the Statewide Steering Committee

Many existing groups and forums (some of which are listed below) can provide important building blocks for the Statewide Steering Committee of the Kentucky Watershed Management Framework. These groups or forums address specific issues that relate directly to the Framework mission. Their participation and involvement in developing and implementing the Framework will constitute an important contribution to the realization of the watershed approach in Kentucky. The Statewide Steering Committee can, in turn, provide a means of communication for these and other groups and forums that has not existed before.

Agricultural Water Quality Authority (AWQA)
Area Development District (ADD) Council
Chamber of Commerce (CofC)
Kentucky Association of Counties (KACo)
Kentucky Water Interagency Coordinating Council (KWICC)
Kentucky Waterways Alliance (KWA)
Kentucky League of Cities (KLC)
Private Lands Council (PLC)

More information about the missions of these groups is presented in Appendix C.

River Basin Teams

A River Basin Team will be formed in each basin management unit to provide a forum for carrying out joint watershed management efforts. Functions of the River Basin Teams will include:

- Developing Basin Status Reports
- Facilitating public communication and conducting outreach activities
- Developing Strategic Monitoring Plans

River Basin Teams will be formed in each basin management unit to provide a forum for conducting joint watershed management efforts.

- Assessing watershed conditions
- Prioritizing watersheds and targeting resources to issues within watersheds
- Developing Basin Management Plans
- Overseeing Basin Management Plan implementation

River Basin Team members will be skilled experts in technical fields and public relations, including

- Communication (writing, public speaking, education, outreach)
- Monitoring and assessment (physical, chemical, and biological)
- Resource management (agriculture, fisheries, forestry, ground-water, mining, surface water, wildlife)
- Modeling
- Land use planning
- GIS and data management
- Economic development

Other Forums That Complement the River Basin Teams

Several existing groups or forums have complementary roles to the River Basin Teams, including the Area Development Districts (ADD), Kentucky River Authority (KRA), and Tennessee Valley Authority (TVA). There will be many opportunities for these groups to participate in the River Basin Teams, and the Teams will benefit from the knowledge the other groups possess. In turn, the River Basin Teams can provide a useful forum for these groups as well as a larger context for their work. More information about the missions of these groups or forums is presented in Appendix C.

Local Watershed Task Forces will be formed or identified in watersheds where high priority problems have been identified.

The Task Forces will provide opportunities for stakeholders to develop and implement Action Plans.

Local Watershed Task Forces

Local Watershed Task Forces will be formed in watersheds where high priority problems have been identified. The Task Forces will provide a forum for local government officials, industry representatives, farming, environmental, and other stakeholder groups to participate in Action Plan development and implementation.

The functions of the Local Watershed Task Forces will include the following:

- Providing a forum for all interested parties to participate in Framework activities

- Assisting in targeting resources to issues in priority watersheds
- Developing watershed Action Plans; including establishing goals and objectives; identifying, evaluating, and selecting options; and writing plans
- Implementing Action Plans
- Coordinating with and recruiting willing local participants.

The Statewide Steering Committee and River Basin Team will work with local contacts to recruit willing participants for the Local Watershed Task Force. Local watershed groups that already exist, and that have a broad cross-section of representatives and balanced perspectives, will be encouraged by Framework partners to take on this organizational role.

Local watershed groups that already exist, and that represent a broad range of perspectives, may assume this organizational role.

Other Forums That Complement the Local Watershed Task Forces

Existing agencies and organizations will complement and contribute to the work of the Local Watershed Task Forces. These include the Soil and Water Conservation Districts, existing watershed groups, Water Supply Planning Councils, and Sanitation Districts. There will be many opportunities for these groups to participate in the Local Watershed Task Forces, and the Task Forces will benefit from the knowledge the other groups possess. In turn, the Watershed Task Forces can provide a useful forum for these groups as well as a larger context for their work. More information about the missions of these groups or forums is presented in Appendix C.

Coordination Among Forums

The activities of the Statewide Steering Committee, River Basin Teams, Local Watershed Task Forces, and Partner Network will be coordinated using three mechanisms: general administration by the Division of Water, management by Basin Coordinators, and outreach by Public Information Coordinators.

General Administration

The Division of Water (DOW) has offered to take leadership responsibility for general coordination and oversight of the Kentucky Watershed Framework. This is consistent with DOW's statutory authority for water quality and quantity management. A primary DOW responsibility will be to ensure that coordination and communication are maintained. This task will require that DOW take an active role in recruiting partners and maintaining partnerships by means of letters of intent, memoranda of agreement, and other mechanisms.

The Division of Water (DOW) will provide overall administration and leadership, ensuring coordination and communication among all partners.

Basin Coordinators

assigned to each basin management unit will provide key facilitation and coordination services.

Public Information

Coordinators will communicate the Framework mission and goals with a broad range of audiences and look for ways to involve the public on an ongoing basis.

Basin Coordinators

Successful management of the basin management units in Kentucky will require substantial ongoing coordination among many agencies and organizations. Basin Coordinators will be assigned to facilitate Framework activities within one or more of the 12 basin management units. Coordinators will provide key facilitation and coordination services, including facilitating dialogue and planning functions among Framework partners. The coordinators will be responsible for facilitating River Basin Team meetings and supporting the Statewide Steering Committee. Additionally, Basin Coordinators can serve as liaisons between Local Watershed Task Forces and the River Basin Teams. Basin Coordinators will make sure that partners understand how the Kentucky Watershed Framework operates and are aware of key milestone dates so that the basin schedule of activities stays on track. They will help compile information at key points along the basin management cycle, work with public information coordinators (see next section), and bring together specific partners to troubleshoot issues or carry out planning and implementation functions.

Framework partners will seek as Basin Coordinators individuals with both strong communication and organizational skills and technical backgrounds that include an understanding of the basics of all facets of watershed function and management. It is critical that the Basin Coordinators be perceived by Framework partners as highly approachable, knowledgeable about the Framework's components and operations, and capable of facilitating communication among many partners.

Public Information Coordinators

Communication about the mission, goals, and activities of the Watershed Framework with a broad range of audiences must occur throughout the basin management cycle. Successfully transmitting messages that contain technical and policy information is challenging, and many scientists, engineers, and planners do it poorly. Because public and private sector support is critical to the success of any watershed management effort, the Framework includes public information coordinators.

Responsibilities of the Public Information Coordinators will include working with River Basin Teams, Local Watershed Task Forces, Basin Coordinators, and the Partner Network to prepare messages for the diverse audiences. Information about Basin Status Reports, public surveys, draft priority watershed rankings, and draft Action Plans will need to be disseminated effectively to the public. Information Coordinators will also be responsible for ensuring that information about ongoing activities and progress in basin management reach key audiences. The Coordinators will also work with the Partner Network to coordinate public input into the watershed management process.

The Public Information Coordinators should be people who have strong written and oral communication skills. They must be able to help partners take technical and policy information and make it understandable for a diverse set of audiences. These Coordinators will need to have frequent exchanges with key contacts in the Partner Network to help maintain the flow of communication.

Basin Champion

While each basin management unit will be assigned a Basin Coordinator, that person may be called upon to serve as coordinator for several basin management units. For this reason, the Basin Coordinator cannot always be a person who lives and works in a particular basin. In order to ensure that basin-specific issues are carefully monitored and articulated, and that key players and stakeholders are kept involved, Basin Coordinators will look for a volunteer in each basin to serve as Basin Champion. This individual will serve as a reference person for both the Basin Coordinator and the River Basin Team. The Basin Champion may be an employee of a partner agency or organization, either public or private. A Basin Champion must have a strong interest in the basin, be very knowledgeable about the basin and its land and water resources, and be willing to engage stakeholders in the watershed approach on an ongoing basis.

Public Participation

The Purpose and Importance of Public Participation

Public participation is critical to the success of the watershed approach. The Kentucky Watershed Framework is based on the following key principles regarding public participation:

- Success of the watershed approach is dependent on early and strong efforts to educate and involve the public.
- Existing public forums and communication networks should be used whenever possible:
 - There is no reason to “recreate the wheel”; use means that have demonstrated effectiveness.
 - The public tends not to come out for special-topic meetings unless the meetings involve controversial issues; reach out to people in forums they already attend frequently.
- Methods for involving the public must be able to hold their interest.
- The public must have trust that their input and involvement will make a difference.
- Communication with the public must address both immediate and long-term watershed management needs.

Activities to Involve the Public in the Framework Process

The Kentucky Watershed Framework emphasizes two purposes for public participation: *education* and *involvement*. Rather than being tied to one specific phase of the proposed basin management cycle, education is an ongoing need. Educational approaches used will vary depending on the audience. Specific types of education should be tied to key activities within the basin management cycle and agendas of public meetings. Table 2-3 gives examples of typical relationships between audience and type of education.

Public participation is critical to the success of the watershed approach.

Existing forums and communication networks will be used whenever possible.

Table 2-3. Audiences and purposes of education for the Watershed Approach.

Targeted Audience	Type or Purpose of Education and Involvement
General public	<ul style="list-style-type: none"> • Acquire basic understanding of watershed management • Learn about statewide watershed management framework • Understand opportunities and reasons for participation • Provide outreach to those who have not been involved
Local government	<ul style="list-style-type: none"> • Communicate technical and regulatory information <ul style="list-style-type: none"> - drinking water regulations and source water protection measures - wastewater discharge regulations and impacts - storm water runoff impacts and control measures - pollution prevention programs and measures • Understand roles and benefits in watershed management
Business community, including utilities	<ul style="list-style-type: none"> • Communicate technical and regulatory information <ul style="list-style-type: none"> - wastewater discharge/pretreatment regulations and impacts - storm water runoff regulations, impacts, and control measures - pollution prevention programs and measures • Understand roles and benefits in watershed management
Landowners/land users	<ul style="list-style-type: none"> • Communicate technical information <ul style="list-style-type: none"> - nonpoint source pollution impacts and control measures • Learn reasons for management and participation • Understand roles and benefits in watershed management
Legislators	<ul style="list-style-type: none"> • Build support for watershed management concept • Keep apprised of legislative and appropriation needs • Understand roles and benefits in watershed management
School/children	<ul style="list-style-type: none"> • Acquire basic understanding of watershed function and management • Develop conservation ethic at early age • Learn why and how to participate • Enhance education efforts for general public (children help parents learn)

In addition to providing opportunities for learning about watersheds and their management, the Framework should *involve* the public throughout the basin management cycle. Table 2-4 lists important types of public involvement at key points in the cycle.

Table 2-4. Important types of public involvement in the basin management cycle.

Type of Involvement	Timing Within the Basin Management Cycle
Public and stakeholder meetings	Strategically timed within - Scoping and Data Gathering (Phase 1) - Prioritization and Targeting (Phase 3) - Plan Development (Phase 4)
Outreach and education - mailings, web pages, and newsletters	Ongoing throughout basin management cycle
Surveys - input on issues and needs of basin - input on watershed priorities	During: - Scoping and Data Gathering (Phase 1) - Prioritization and Targeting (Phase 3)
Local Watershed Task Force	During Plan Development (Phase 4)
Voluntary monitoring (e.g., participate in WaterWatch)	Ongoing with emphasis on reporting during Scoping and Data Gathering (Phase 1)
Management implementation - spending time and funds	Receives emphasis during Implementation (Phase 5), but requires ongoing commitment

Core Component 5: Basin Management and Watershed Action Plans

A Basin Management Plan will be developed for each basin management unit and updated on a five-year basis according to the state-wide schedule. The primary purpose of these Basin Management Plans is to provide a common reference guide for implementation of watershed management activities. Specific audiences and corresponding purposes for Basin Management Plans are listed in Table 2-5.

Basin Management Plans will have four major sections (see Appendix D for an example outline):

- A *User's Guide* that will provide an overview of the watershed management approach and help the reader understand the purpose and organization of the Plan.
- A *Basin Summary* that will provide the reader with the "big picture" of the entire basin management unit. The Summary should contain physical and cultural descriptions of the entire basin management unit, information on current resource conditions, and profiles of Action Plans for priority watersheds.
- *Watershed Summaries and Action Plans*. The Watershed Summaries will describe each 11-digit HUC in a basin management unit, including features and conditions. For priority watersheds,

Basin Management and watershed Action Plans document the most urgent problems within a basin or watershed and record plans for addressing those problems.

These Plans provide a common reference for Framework partners and guide implementation of watershed management activities.

Action Plans will be included in the Summaries. The Action Plans will emphasize management goals and objectives, proposed management actions, responsible parties, funding and scheduling, and methods for tracking and evaluating success.

- *Technical appendices* that will contain more technical information on management methodologies and results.

Table 2-5. Anticipated audiences and purposes of basin planning documentation.

Audience: Who Can Use the Plans?	Purpose: How Can Plans be Used?
Governmental Framework partners (local, state, and federal)	<ul style="list-style-type: none"> • Meet reporting mandates • Support communication and coordination • Guide operations and policy decisions • Highlight information needs
Regulated community	<ul style="list-style-type: none"> • Provide education and guidance • Promote involvement • Support long-term planning
Special interest groups	<ul style="list-style-type: none"> • Encourage private leadership initiatives • Highlight areas of priority concern • Provide information • Promote involvement in watershed management
State legislature	<ul style="list-style-type: none"> • Keep legislators well-informed • Guide appropriations • Identify legislation needs
Landowners, land users (e.g., agriculture, forestry, mining, urban development, homeowners)	<ul style="list-style-type: none"> • Provide information • Promote involvement in watershed management strategy implementation
General public	<ul style="list-style-type: none"> • Raise public awareness • Generate public support for and participation in watershed management

What Is a Basin Management Plan?

A Basin Management Plan is a written plan that documents anticipated Framework activities in a particular basin management unit over a five-year period. The purpose of the Basin Management Plan is to provide a common reference guide for implementation of watershed management activities.

The Basin Management Plan consists of four parts: (1) a User's Guide that provides an overview of the watershed management approach and states the purpose and organization of the Plan, (2) a Basin Summary that describes the physical and cultural characteristics of the basin management unit as well as the condition of land and water resources, (3) Watershed Summaries for all 11-digit watersheds in the basin management unit and an Action Plan for each priority watershed, and (4) technical information on management methodologies and results.



CHAPTER 3

Core Watershed Management Activities

This chapter builds on the Kentucky Watershed Framework components outlined in Chapter 2 by describing the specific management activities carried out during implementation of the basin management cycle in each basin management unit. Timing of activities and specific roles are detailed for the River Basin Teams, Local Watershed Task Forces, Partner Network, Basin Coordinators, and Public Information Coordinators. An activity reference guide summarizing key activities, end products and outcomes, responsible parties, and timing within the cycle in a step-by-step matrix format is provided in Appendix E.

Strategic Data Collection, Monitoring, and Assessment

As described in Chapter 2, watershed management decisions are based on reviews of historical data and new information collected through strategic monitoring and assessment efforts. The term *strategic*

In This Chapter...

- **Strategic Data Collection, Monitoring, and Assessment**
- **Setting Priorities and Developing Management Strategies**
- **Action Plan Implementation**

Strategic data collection, monitoring, and assessment constitute key activities as the Watershed Management Framework is initiated in each basin management unit.

These activities provide information that partners can use to set priorities and make management decisions.

During the first few months of the basin management cycle, technical experts and the public are brought together to identify the most pressing concerns in each basin.

The River Basin Team prepares the Basin Status Report.

The Partner Network distributes the draft Basin Status Report to diverse audiences throughout each basin management unit.

Stakeholders are encouraged to become involved in the Watershed Management Framework.

refers to efforts that are targeted to make best use of limited resources. A number of programs and agencies in Kentucky are already collecting information relevant to watershed management. The inventory of Kentucky monitoring and assessment activities in Appendix F provides a summary of these previous and ongoing data collection efforts. It will be challenging to compile all the information needed for a basinwide assessment because of the large number of agencies and programs involved in data collection and the range of data management and assessment tools used in the state. Communication among partners and with the stakeholders in each basin is essential to this task. Several activities to support strategic data collection, monitoring, and assessment are planned under the Kentucky Watershed Framework.

Scoping and Data Gathering (Phase 1)

Compiling Relevant Data and Information

During the first few months of the basin management cycle, technical experts and the public are brought together to identify the most important concerns in each basin. This is referred to as a scoping process: it represents the first phase of the basin management cycle. Data on the basin are needed to (1) prepare the Basin Status Report and (2) provide the background information partners need to rank watersheds in order of priority. Additional data collected during this phase will further support the watershed ranking process and the development of strategies for solving the most urgent problems in priority watersheds. Important data related to watershed resources are currently collected by the Kentucky DEP in order to meet the reporting requirements under Sections 305(b) (a report to Congress on the condition of waters within the state) and 303(d) (a list of impaired waters requiring development of total maximum daily loads for problem pollutants) of the Clean Water Act. Additional data are collected by other programs and agencies, including the Kentucky Department of Fish and Wildlife Resources, Kentucky and U.S. Geological Surveys, and regional programs, including the Louisville-Jefferson County Metropolitan Sewer District, the Tennessee Valley Authority, and the U.S. Army Corps of Engineers (Appendix F).

Month 1 of the basin management cycle is largely spent organizing and orienting the River Basin Team and clarifying monitoring and assessment objectives and activities planned for the early phases of the cycle. During months 1 and 2 of the cycle, River Basin Team members assigned to a Monitoring and Assessment Workgroup will compile readily available data and prepare a Basin Status Report (see Figure 3-1). The Status Report is intended to communicate conditions and trends in water quality and quantity and watershed integrity to a broad audience, and to support the River Basin Team's determination of priorities for strategic monitoring.

The draft Basin Status Report will be communicated to the public during months 3 and 4, using the Framework's Partner Network. The Public Information Coordinator will act as a liaison between the River Basin Team and the Partner Network to ensure that the issues and

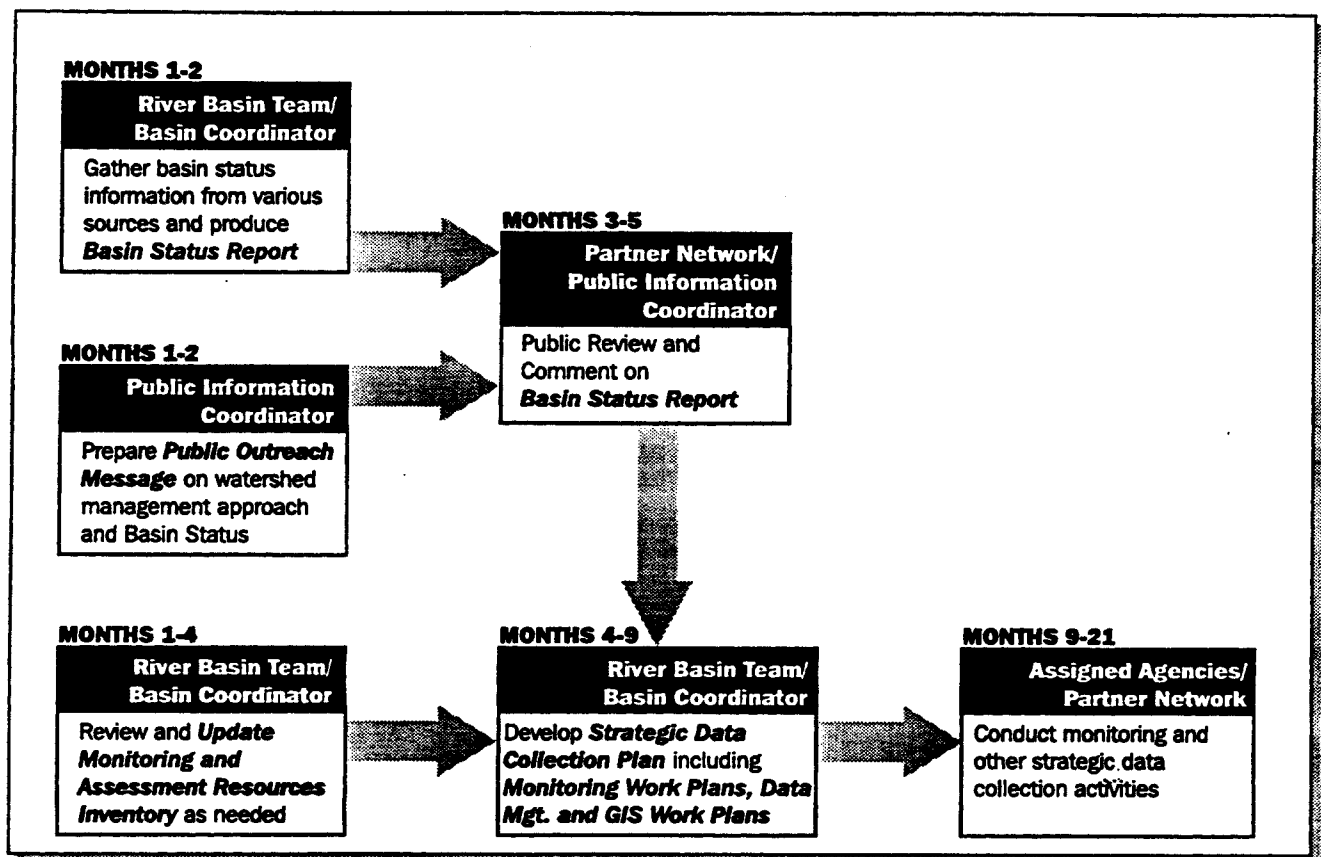


Figure 3-1. Phase 1: Scoping and Data Gathering.

concerns described in the Basin Status Report are understandable and accurately portrayed. A survey designed by a Public Participation Workgroup of the River Basin Team will accompany the Basin Status Report to elicit the public's perceptions of conditions within the basin and problems that warrant attention. The Public Information Coordinator will see that survey responses obtained through the Partner Network are returned to the River Basin Team for incorporation into plans developed during later phases of the management cycle.

Designing and Implementing a Monitoring Work Plan

Also during the scoping and data gathering phase of the basin management cycle, partners will begin developing Monitoring Work Plans (part of the Strategic Data Collection Plan) by clarifying monitoring objectives during month 1. The Monitoring Work Plans will detail sampling designs, partner roles, and monitoring schedules. Most efforts by the Monitoring and Assessment Workgroup to design and document the Monitoring Work Plans, however, will occur during months 4 through 6 of the basin management cycle. Draft Monitoring Work Plans will be distributed by the Basin Coordinator for comment and refined during months 7 to 9.

Months 9 to 21 will be spent implementing the Monitoring Work Plans. Physical, chemical, biological, and hydrologic data will be

Using the Basin Status Report and readily available data, partners begin to identify gaps in information that need to be filled.

As part of an overall Strategic Data Collection Plan, Monitoring Work Plans are written to provide detailed information about sampling design, partner roles, and monitoring schedules.

collected according to the Work Plans. These data will be augmented by ongoing monitoring activities throughout the basin (e.g., habitat analyses, reference reach monitoring, ambient surface water and groundwater monitoring). The Monitoring and Assessment Workgroup will work with the Basin Coordinator to see that monitoring activities stay on track.

Standard monitoring protocols and guidance are needed to ensure consistent data collection, assessment, and management. Separate guidance is being developed by a Technical Workgroup which is part of the Kentucky Watershed Framework Development Workgroup (see Chapter 4). The guidance will, in turn, be adopted and implemented through the River Basin Teams.

Assessment (Phase 2)

Integrating Assessment Components

Partners within the Kentucky Watershed Framework possess a broad range of assessment capabilities (Appendix F). Depending on the issues of concern within the basin, the agencies conducting relevant assessment activities will be identified.

During months 6 to 9 of the basin management cycle, the Basin Coordinator and River Basin Team will develop Sample Analysis and Data Entry Work Plans assigning roles, responsibilities, and schedules for sample analysis and data management that correspond to the Monitoring Work Plans (Figure 3-2). Months 9 through 24 are reserved for carrying out Work Plans.

Sample Analysis and Data Entry Work Plans specify roles, responsibilities, and schedules for analyzing and managing data collected under Monitoring Work Plans.

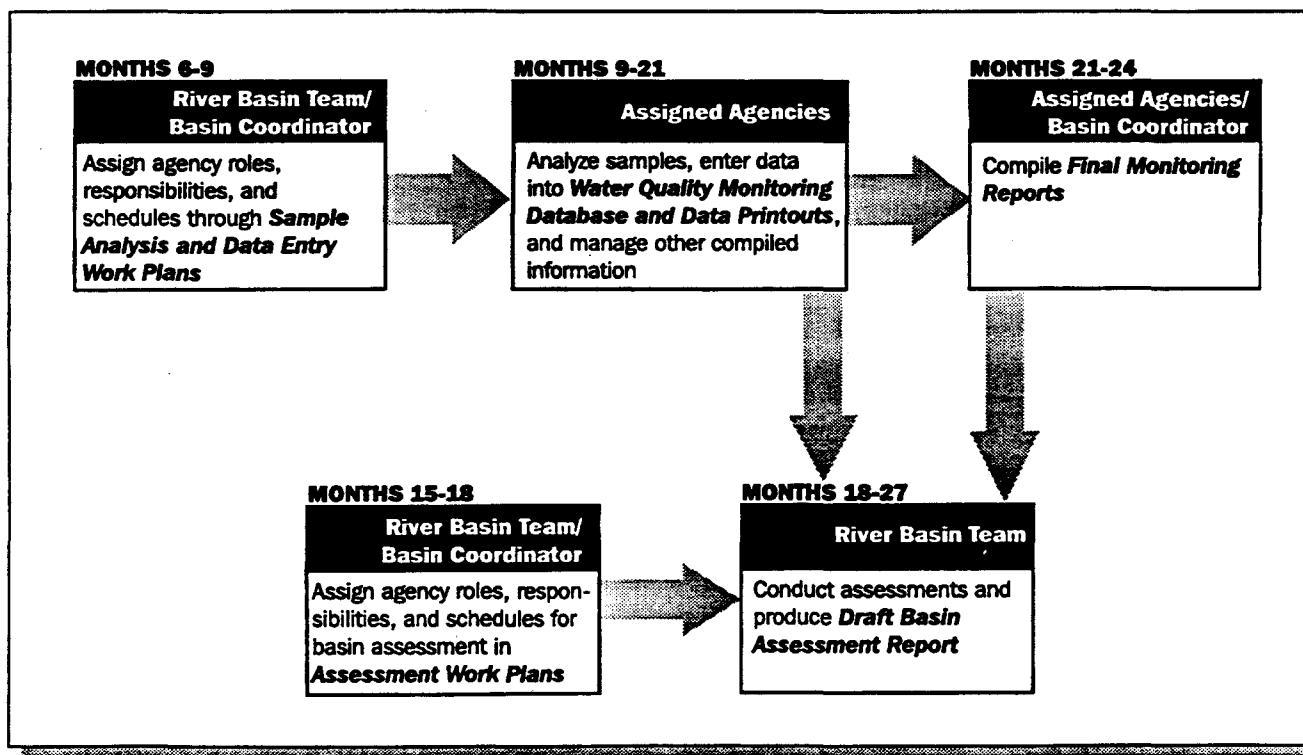


Figure 3-2. Phase 2: Assessment.

During months 15 to 18 of the cycle, the Basin Coordinator, with assistance from the River Basin Team, develops Assessment Work Plans for evaluation and analysis of the compiled data. Partner roles, responsibilities, and schedules are detailed such that assessment activities are coordinated efficiently and effectively from months 18 to 27.

The result of the implementation of the Monitoring, Sample Analysis and Data Entry, and Assessment Work Plans is the production of final reports on monitoring results. These Final Monitoring Reports are interim reports that are used by the River Basin Team to prepare a draft Basin Assessment Report.

Managing Information

Kentucky is supporting several programs to promote consistent data management practices in the state and to support the application of metadata objectives across programs. (Metadata include information about data, such as period represented, techniques used to generate the data, and quality assurance measures applied to data.) The DEP is developing a "data warehouse" to manage information collected as part of its field collection and assessment efforts. This warehouse will support greater information exchange and needs. This database will be linked to the ongoing geographic information system (GIS) development activities within the state. In addition, DEP is developing modeling tools and will support work on the statewide data dictionary and GIS/modeling integration.

Setting Priorities and Developing Management Strategies

Prioritization and Targeting (Phase 3)

Ranking Watersheds by Priority

The Kentucky Watershed Framework supports a process for identifying watershed priorities. The purpose of the process is to (1) efficiently achieve consensus on the most pressing watershed concerns (balancing restoration and protection goals) in the basin management unit (prioritization) and then (2) determine where efforts can be directed most cost-effectively (targeting). This process takes place during the third year of the five-year basin management cycle, beginning in month 25.

Priority setting follows the assessment activities in phase 2 of the basin management cycle. In the first part of the prioritization process, technical information from the Final Monitoring Reports and draft Basin Assessment Report is entered into a numeric indexing formula by the River Basin Team (see Figure 3-3). The index uses technical information to produce a relative ranking for each 11-digit HUC (watershed) within the basin (see Chapter 2 for a discussion of HUCs). This represents a preliminary ranking of watershed priorities to be presented for public consideration.

The outcome of monitoring, sample analysis and data entry, and assessment activities is preparation of Final Monitoring Reports that are used to produce a draft Basin Assessment Report.

A data warehouse is being developed that can be linked to geographic information systems and modeling tools.

The River Basin Team works with stakeholders to establish a priority ranking of watersheds within the basin.

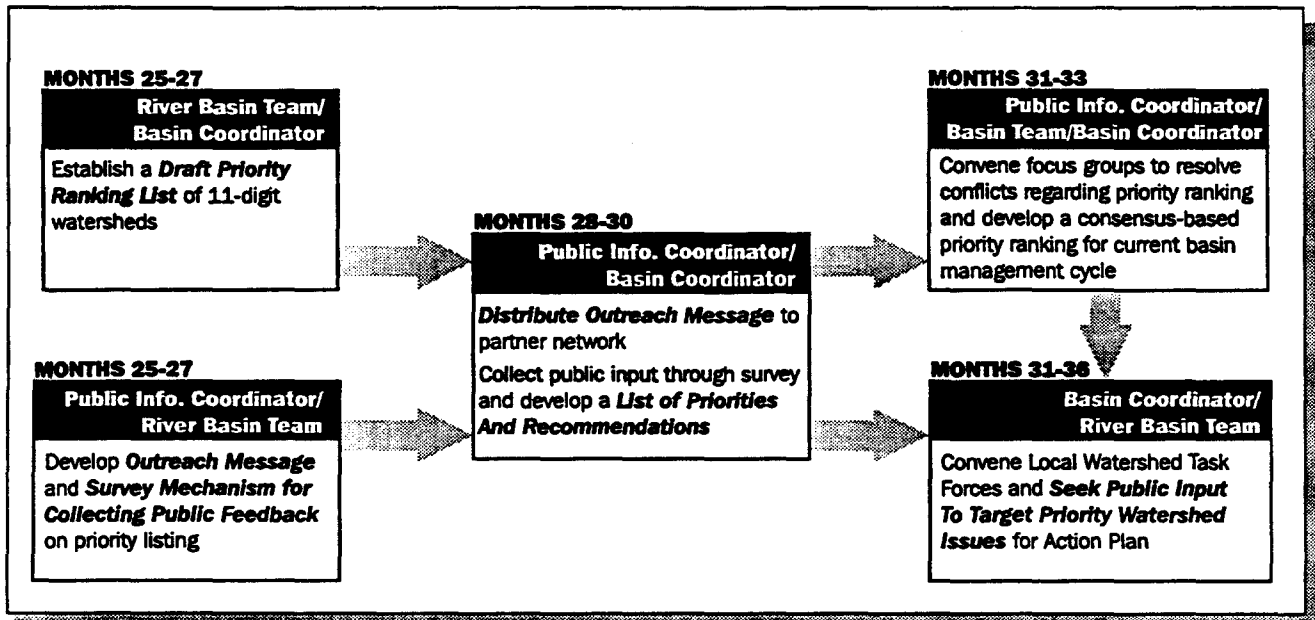


Figure 3-3. Phase 3: Prioritization and Targeting.

Watersheds in which the most urgent problems have been documented are ranked as the highest priorities for action.

The draft ranking is shared with stakeholders and revised to incorporate their input.

Local Watershed Task Forces and the River Basin Team decide where to allocate limited resources within priority watersheds so that efforts and funds are directed where they are most effective.

With the help of the Public Information Coordinator for the basin management unit, the River Basin Team distributes the preliminary ranking through the Partner Network for public review and comment during months 28 to 30. Key contacts within the Partner Network will help compile comments for their constituencies and return them to the River Basin Team for review and consideration. If specific concerns are preventing consensus on watershed priorities, the River Basin Team can conduct focused discussions with relevant participants to resolve the issues and achieve a ranking supported by basin stakeholders by month 33.

Targeting Resources to Priority Watershed Problems

Once stakeholders have agreed on a ranking of watersheds in order of priority, partners on the River Basin Team will apply targeting criteria to determine where collaborative efforts should be directed. The targeting process should be completed by month 36 of the cycle.

Practical considerations typically influence where participants are willing to put forth (target) significant effort. Factors to consider generally fall under two categories: the probability of success and cost-effectiveness. In relation to probability of success, specific criteria include:

- **Technical feasibility:** What is the level of certainty that the problems can be solved?
- **Political feasibility:** Is there sufficient local support and interest to solve the problems?
- **Economic feasibility:** Are the necessary funds available to solve the problems?

In evaluating cost-effectiveness, partners are interested in knowing where their time and funds will do the most good. For example, it might be very expensive to address problems in one priority watershed, while the same level of investment might solve problems in several other priority watersheds. Information on cost-effectiveness can help guide partners in making these difficult choices.

Good information for targeting might not always be readily available. Nonetheless, River Basin Teams can make a first attempt at targeting based on the interaction with other partners and the public that has occurred up until this point in the basin management cycle (phases 1 to 3). Working with parties who have been active in earlier phases could help to clarify projections of feasibility or cost-effectiveness. Additionally, these contacts might lead directly to the formation of Local Watershed Task Forces to support the next phase of watershed management.

Action Plan Development (Phase 4)

Action Plans for Priority Watersheds

Solutions to many of the problems in priority watersheds will undoubtedly require the efforts of many stakeholders. Partners can use the Kentucky Watershed Management Framework to plan how their actions can be integrated to achieve management goals. The first step in developing integrated management strategies is to establish an effective local forum for planning. These local forums are called Local Watershed Task Forces. Ideally they already exist in some form or will establish themselves during the targeting phase as logical extensions of public involvement in the previous phases of the basin management cycle. Representatives from a cross section of interests and existing forums will be recruited by the River Basin Team and Statewide Steering Committee to serve on the Task Forces.

It is anticipated that Local Task Forces will eventually be able to sustain themselves. However, early efforts may require substantial input and guidance from the Basin Coordinator. Additionally, circumstances might arise where Local Task Forces would benefit from the skill and experience of River Basin Team members (e.g., in developing tools to evaluate management options). Working relationships will evolve as the new approach is phased in, and differences are likely to exist among basin management units because of the unique circumstances of each unit. Appendix G provides a listing of implementation tools for consideration when developing Action Plans.

With the help of the Basin Coordinator and River Basin Team, Local Watershed Task Forces work during months 37 to 42 to develop draft Action Plans for their particular priority watershed. Each Action Plan contains specific management goals and objectives, discussion of alternative management options, and preferred approaches to solving watershed problems. Each draft Watershed Action Plan will be distributed for public comment and revised accordingly.

For each priority watershed, the Local Watershed Task Force develops an Action Plan outlining specific activities to be carried out to address problems.

Solutions to problems in priority watersheds often require efforts by many stakeholders. Partners can use the Framework to plan how their actions can be integrated to achieve watershed goals.

The River Basin Team and the Local Watershed Task Forces work together during the fourth year of the basin management cycle to develop an overall Basin Management Plan which contains a specific Action Plan for each targeted priority watershed.

The River Basin Team and Basin Coordinator work together to compile the Basin Summary.

Basin Management Plans

During year 4 (months 37 to 48), the River Basin Team and Local Watershed Task Forces will pull together all the information about the basin and draft an overall Basin Management Plan, which will include specific Action Plans for targeted priority watersheds. A Basin Management Plan is a written plan that documents Watershed Management Framework activities in a particular basin management unit over a five-year period. The purpose of the Basin Management Plan is to provide a common reference guide for implementation of watershed management activities. The Basin Coordinator will oversee development of the Basin Management Plan by facilitating meetings of the River Basin Team, compiling Team output, and working as a liaison with the Local Watershed Task Forces to compile their results as well.

The audiences, purpose, and contents of Basin Management Plans were discussed in Chapter 2. This section describes the activities conducted by watershed framework partners to document and adopt Basin Management Plans, scheduled for the fourth year in the basin management cycle.

A Basin Management Plan has three primary components:

- User's Guide
- Basin Summary
- Watershed Summaries and an accompanying Action Plan for each priority watershed

User's Guide

The User's Guide will provide an overview of the watershed management approach and state the purpose and organization of the Plan. Once developed, the user's guide is expected to contain "boilerplate" information that will be applicable to and that can be included in the User's Guide section of each of the 11 Basin Management Plans throughout the state.

The Basin Summary and Watershed Summaries, however, will require substantial effort to tailor and update the Plans to the specifics of a given basin management unit. Some parts of the Basin and Watershed Summaries, especially geology and number and size of watersheds, will not change from year to year. Other components will require substantial revision with each item of the basin management cycle.

Basin Summary

The Basin Summary, as currently designed, has four sections:

- Description of the basin management unit's physical and cultural features and an assessment of their conditions
- Overview of issues and concerns throughout the basin management unit
- Brief summary of priority watersheds and Action Plans
- Brief discussion of future issues and challenges

Content for these sections will be generated primarily through activities of the River Basin Team and Local Watershed Task Forces occurring throughout the basin management cycle. For example, most of the basin management unit description will be developed during the initial scoping phase when the River Basin Team prepares a Basin Status Report to support public participation in the Framework process and identification of primary concerns in the basin. Refinement of basin features and condition descriptions is likely to occur following the River Basin Team's completion of the assessment phase. A preliminary ranking of priority watersheds will be drafted by the River Basin Team in phase 3 of the management cycle, and Action Plans for priority watersheds will be generated by the joint efforts of the Local Watershed Task Forces and River Basin Team in phase 4. Future issues and challenges will likely come from both the Task Forces and the River Basin Team, based on dialogue and planning efforts during phases 3 and 4 of the basin management cycle. The Basin Coordinator will oversee compilation of the various sections and subsections of text into a complete draft Basin Summary for review by month 42 and final adoption by month 48 (see Figure 3-4).

Watershed Summaries

The Watershed Summaries will follow the Basin Summary portion of the Basin Management Plan and will provide watershed-level information. Watershed Summaries are expected to include four sections:

- Brief "watershed-at-a-glance" overview
- More thorough description of physical and cultural features and their condition
- Summary of issues and priorities
- Detailed Action Plan for each priority watershed

Local Watershed Task Forces will take the lead in compiling information available only at the local level. This information is likely to include descriptions of ongoing management initiatives and watershed

Local Watershed Task Forces lead development of Watershed Summaries and Action Plans.

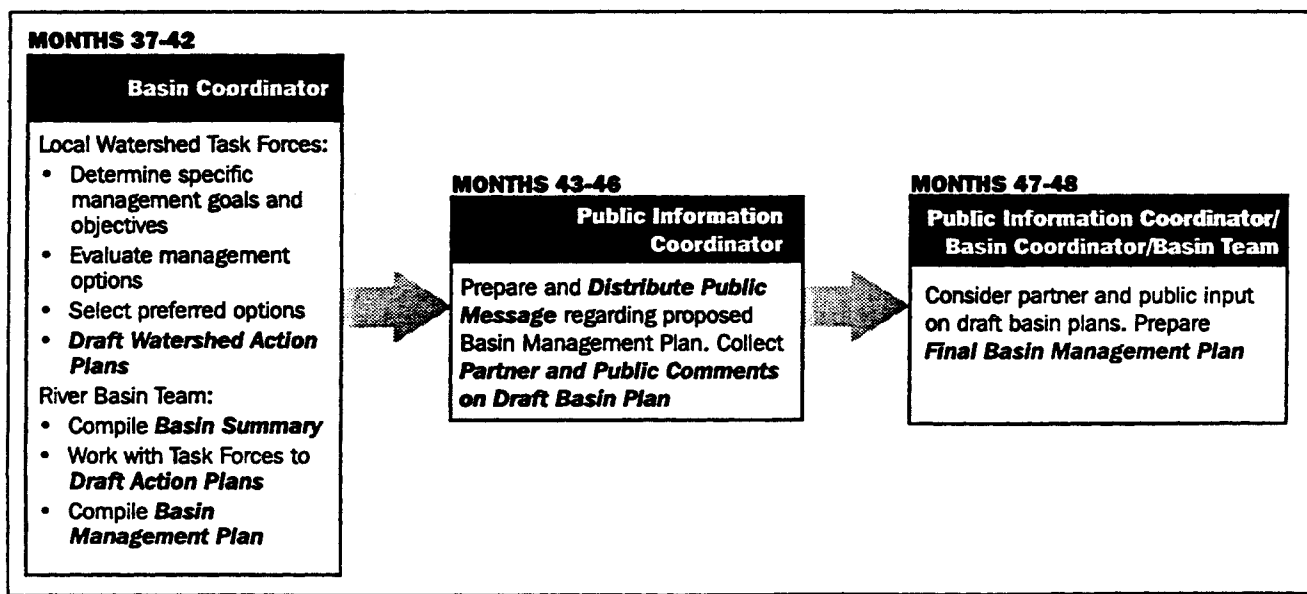


Figure 3-4. Phase 4: Plan Development.

protection measures, locally defined management goals and objectives, and technically and politically feasible management options that can be implemented at the local level. The Action Plans should include milestones, which are specific objectives to achieve within a certain time frame.

The Basin Coordinator can help compile Action Plans into the Watershed Summaries, and act as a liaison between the Task Forces and Basin Team. The Public Information Coordinator can provide guidance on effective communication of Action Plans and act as a liaison with the Partner Network that will distribute and refine the Action Plans. These activities are performed in year 4 (months 37 to 48) and generally follow the same schedule as that outlined above for the Basin Summary.

Reviewing Basin Management Plans

The Public Information Coordinator will work with the River Basin Team, Local Watershed Task Forces, and Basin Coordinator to ensure that the Basin Management Plan communicates effectively with its intended audiences. The Public Information Coordinator's responsibilities include offering guidance prior to development of sections by Framework partners and helping to edit the draft Plan before it is distributed for public comment. Additionally, the Public Information Coordinator can act as a liaison between the River Basin Team and Local Watershed Task Forces and key contacts within the Partner Network. The Partner Network will be used to help distribute the draft Plan and gather comments during months 43 to 47. Responses from stakeholders will be considered by the authors as they finalize the Basin Management Plan during months 47 to 48.

The Public Information Coordinator involves stakeholders and the public in reviewing the Basin Management Plan.

During year 5 of the basin cycle, partners implement Action Plans in priority watersheds.

Action Plan Implementation (Phase 5)

Year 5 (months 49 to 60) of the basin management cycle is devoted to implementation of the priority watershed Action Plans. Although implementation will go on past this one year of activity, extra emphasis is placed on implementation during this period to ensure efforts get off to a good start. Success is dependent on partners remaining committed to the Action Plans, and helping to ensure that others know how they can contribute to achieving agreed-upon goals and objectives. Several activities considered critical during this focused implementation period are described below (see also Figure 3-5).

Outreach

It is important that partners and the general public know and understand the goals of the Action Plans, and how they can participate in implementing the Plans. The Public Information Coordinator will be responsible for outreach, working closely with the River Basin Team, Local Watershed Task Forces, Basin Coordinator, and Partner Network to prepare informative materials that communicate this message effectively.

The Public Information Coordinator plays a key role by clearly and effectively articulating the Framework message to the public.

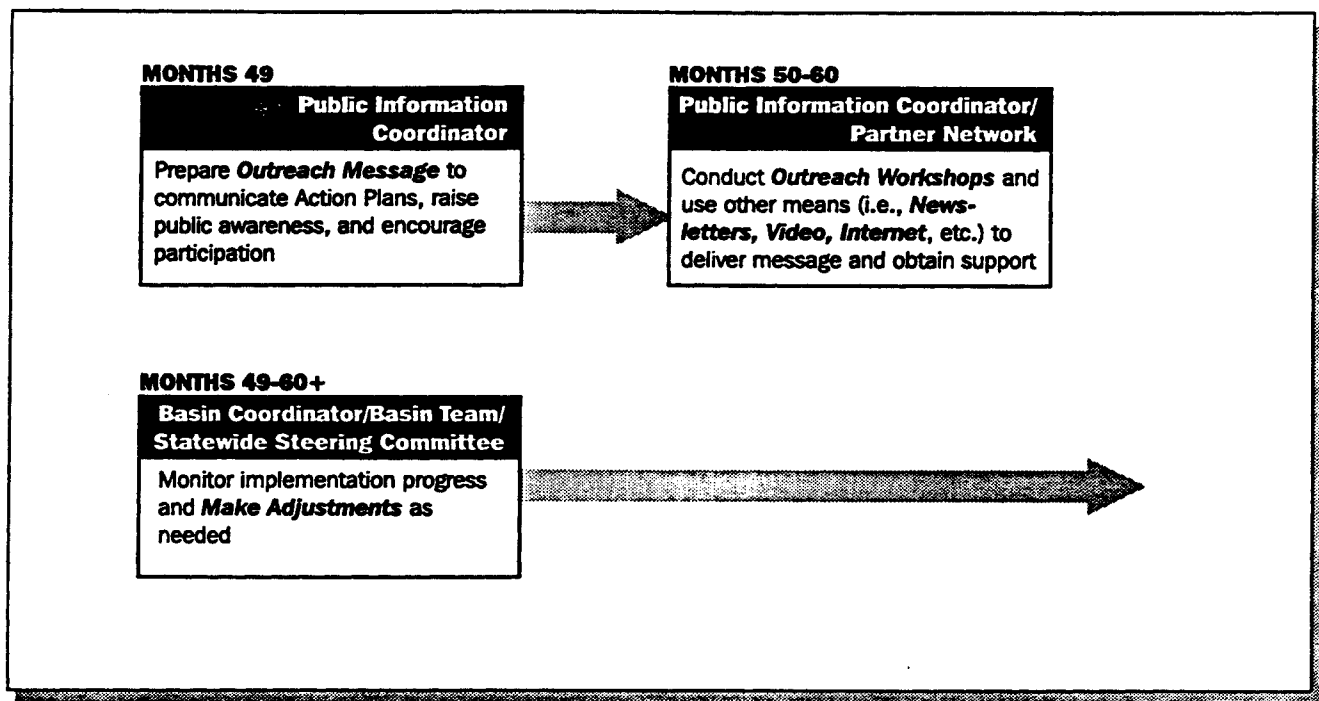


Figure 3-5. Phase 5: Implementation.

Carrying Out Action Plans

Kentucky's Watershed Management Framework coordinates the activities of partner organizations to achieve effective watershed management and protection. As a result, rather than creating new bureaucracies to implement the program, the watershed management approach must be adopted as part of the mission and day-to-day activities of the agencies and organizations that have participated in developing this Framework Document. The priority watershed Action Plan milestones will be translated into partner work plans. As a result, it is the responsibility of each participant to ensure that those tasks included in their work plans are implemented. As described below, tracking the success of these implementation activities will be the responsibility of the Basin Coordinators, working cooperatively with the partner organizations.

Rather than creating new bureaucracies to implement Action Plans, the watershed management approach must be adopted as part of partners' day-to-day activities.

Monitoring Progress and Evaluating Success

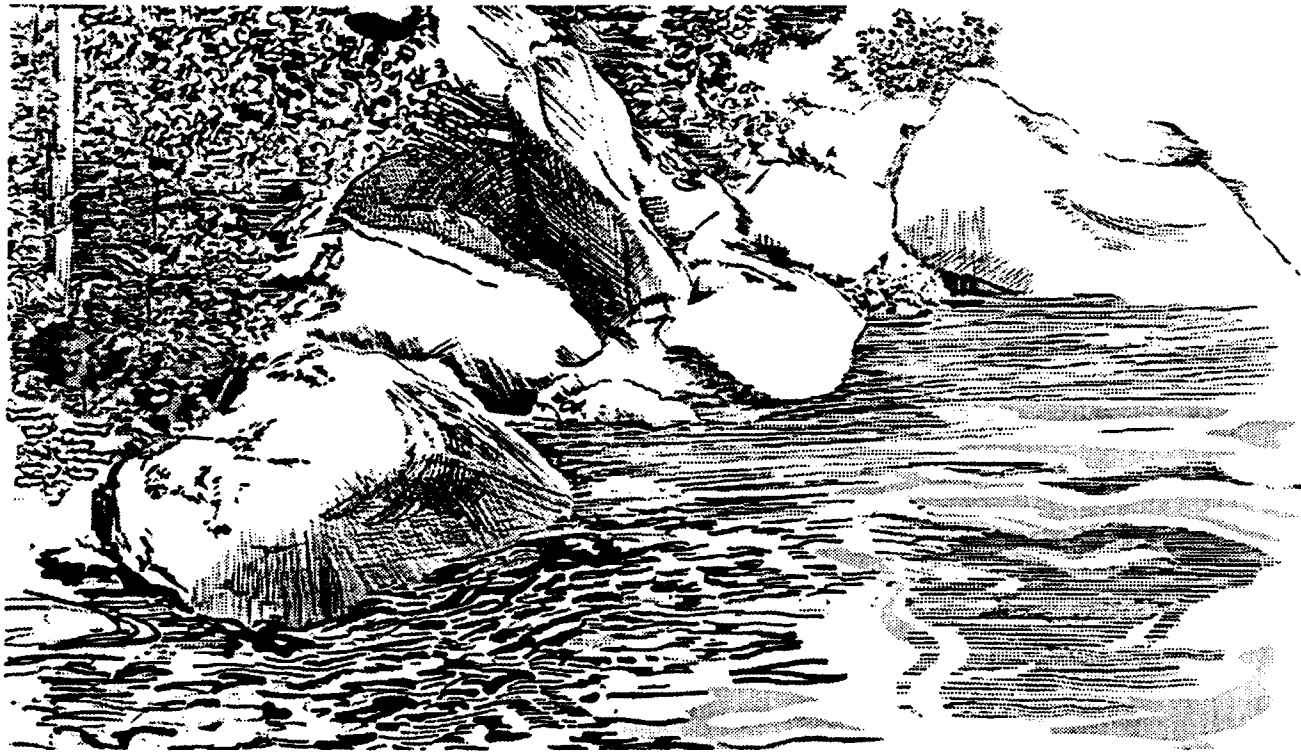
The success of Kentucky's watershed management approach will ultimately be measured in terms of improvements in water quality and habitat, and restoration of watershed functions. Indicators of such improvements in water quality and watershed function will be incorporated into strategic Monitoring Plan Guidance (being developed as a separate document, see Chapter 4). By measuring improvements in this way, Kentucky will be able to build a database that will allow the state to track improvements in watershed resources statewide.

Efforts outlined in Action Plans are translated into partner Work Plans.

The effectiveness of the Kentucky Watershed Management Framework will be measured by the achievement of specific actions to address the most pressing watershed problems in each basin management unit.

In the near term, however, the effectiveness of the Watershed Management Framework will be measured in terms of the achievement of critical milestones described in the priority watershed Action Plans. It will be the responsibility of the Basin Coordinator to track achievement of the critical milestones and identify the need for additional resources from or renewed efforts by partners. By carefully tracking progress from Action Plan milestones to partner Work Plan commitments to achievement in the field, the Basin Coordinator will be responsible for assessing the status of watershed management implementation.

If the Basin Coordinator, working with the River Basin Team, identifies a need for additional support to achieve a critical Action Plan milestone, the Statewide Steering Committee will serve as a forum for responding to those needs. The Basin Coordinator will be responsible for anticipating and clearly identifying additional resources needed, communicating those needs to the Steering Committee, and making sure that additional resources committed by the members of the Steering Committee are implemented. If additional support is not available, the Basin Coordinator will document the shortfall in achieving the Action Plan milestone so that future planning activities within the basin and in other basins can anticipate and account for the shortfall.



CHAPTER 4

Transition to the Watershed Approach

Creating an Organizational Structure for the Watershed Management Approach

To support its watershed approach, Kentucky will establish organizations to implement the administrative structure outlined in Chapters 2 and 3. This chapter summarizes the key groups and issues involved in making the transition to full implementation of the state's Watershed Management Framework.

Establish a Statewide Steering Committee

In 1996, the Kentucky Watershed Framework Development Workgroup began developing the core components of the statewide Watershed Management Framework. As described in Chapter 2, these core components are:

- Basin management units
- Basin management cycle

In This Chapter...

- ***Creating an Organizational Structure for the Watershed Management Approach***
- ***Developing Guidance and Implementation Tools***
- ***Aligning Ongoing Program Activities with the Basin Management Cycles***

A statewide workgroup began developing the core components of the Kentucky Watershed Management Framework in 1996.

A Statewide Steering Committee is needed to convene the Partner Network and to provide ongoing support for basin and watershed planning and implementation.

The Kentucky Watershed Framework Development Workgroup will provide a starting point for organizing a permanent Steering Committee to provide coordination and oversight.

- Statewide basin management schedule
- Forums to support cooperative action and public participation
- Basin Management and Watershed Action Plans

As part of the development of this Framework Document, the Kentucky Watershed Framework Development Workgroup has addressed the first three of these core components: designating five groups of basin management units, describing key basin management cycle activities, and developing a five-year basin management schedule and activity reference guide. However, key statewide management activities remain to be completed. A Statewide Steering Committee is needed to (1) convene the Partner Network that will support critical public participation and outreach activities, and (2) provide ongoing review and consultation for basin- and watershed-level planning and implementation.

To support these long-term activities, Kentucky will create a permanent Statewide Steering Committee to oversee implementation of the Framework. Critical steps involved in establishing the Steering Committee include

- Developing a charter to define ongoing Steering Committee activities and responsibilities
- Adopting rules of operation to guide future meetings and deliberations, including an approach for selecting a Committee Chairperson
- Reviewing the organizations represented on the existing Workgroup to identify needs for new Steering Committee members
- Finalizing the Framework Document and establishing a method for indicating endorsement by the partner organizations

Steering Committee Charter

In its deliberations, the Kentucky Watershed Framework Development Workgroup recognized the need for statewide coordination of watershed management activities. As the basin management cycle tasks are implemented in each of the five basin management unit groups, multiple activities will be occurring throughout the state by the fifth year of implementation (see Figure 2-6). Because many different organizations will be involved in conducting these tasks, some mechanism is needed to provide coordination and oversight.

The Workgroup was specifically charged with identifying any existing statewide organizations that could fulfill the oversight role. While several groups and organizations in Kentucky address certain aspects of watershed management, the Workgroup concluded that there are no existing statewide organizations that encompass the expertise or mandates to implement all basin management cycle tasks. As a result, the Kentucky Water-

shed Framework Development Workgroup was seen as a starting point for organizing a permanent Steering Committee to provide these coordination and oversight functions.

The Workgroup further concluded that the charter for this Steering Committee should be narrowly focused. The Steering Committee will assist the River Basin Teams and Local Watershed Task Forces by ensuring that appropriate expertise and resources are directed to watershed management efforts. This will be accomplished through Steering Committee review of the membership of River Basin Teams and Local Watershed Task Forces. The Steering Committee members will be expected to offer additional expertise and resources as needed. In this way, the Steering Committee will consult with and support the basinwide and watershed-level forums.

Overall, the Steering Committee will serve as the body to best achieve the objectives described in Kentucky's Watershed Management Mission Statement. In particular, the Steering Committee will

- Increase communication and consensus among state programs and other stakeholder groups
- Review watershed management priorities and targeted management activities
- Coordinate statewide regulatory and non-regulatory program revisions
- Provide a forum for program networking to manage changes in program funding
- Develop strong partnerships with regional, county, and local governments
- Coordinate existing public communication and education forums through the Partner Network

Rules of Operation

The Kentucky Watershed Framework Development Workgroup and its Technical Subcommittees have operated under Rules of Operation adopted in early 1996. These same Rules of Operation will be reviewed and revised by the Steering Committee as needed. The Rules address membership, coordination, decision making, and conflict resolution (see sidebar on the next page).

In addition, the Workgroup recommended that a Steering Committee Chairperson be chosen to provide administrative coordination for Committee activities. The Chair will be chosen by consensus of the whole Committee.

As a first order of business, the steering committee will review the Rules of Operation adopted by the Framework Development Workgroup, and refine them as needed.

Rules of Operation

Rules of Operation will be reviewed and revised by the Steering Committee as needed.

Membership

- In general, Steering Committee members should have statewide or basinwide involvement in natural resource activities
- Ability to bring resources (people, funding, authorities) to the Framework process
- Willingness to participate in a constructive manner
- Ability to make a long-term commitment
- Membership should represent a broad spectrum of agencies, organizations, and non-governmental interests.

Coordination

Kentucky Division of Water will continue to provide the following ongoing coordination functions:

- Maintain mailing lists
- Arrange Steering Committee meetings
- Document Steering Committee sessions
- Distribute Steering Committee materials (agendas, meeting summaries)

Decision Making

Work toward general consensus, which is defined as achieving "solutions with which everyone can live" and not necessarily with which everyone is in complete agreement

Conflict Resolution

Conflicts over issues not central to watershed approach implementation should be settled outside of the Steering Committee process.

Conflicts involving key decisions of the Steering Committee will be addressed by

- Identifying conflicting positions and clarifying the rationale behind them (i.e., interests represented, main issues, and motivations)
- Obtaining additional information as needed to help clarify issues or reduce uncertainties
- Developing alternative strategies that address interests (i.e., search for common ground or compromise)

The Steering Committee will review its membership and invite additional participation if key groups or subject areas have been omitted.

Steering Committee Membership

The Workgroup recommended that Steering Committee membership initially include all groups represented on the Workgroup and Technical Subcommittees. As a first order of business, the Steering Committee will review its membership and invite additional participation if key groups or subject areas have been omitted.

Framework Endorsement

The Workgroup members recommended that some form of endorsement be requested from each of the organizations represented on the Steering Committee to reflect commitment to the Watershed Management Framework. Once the final Framework Document is reviewed by the Workgroup, it should be forwarded to senior management in each partner organization with an accompanying letter requesting written endorsement.

The Workgroup concluded that such endorsement is needed to ensure commitment to membership in the Steering Committee. As a result, the Workgroup will continue to perform the coordination functions of a Steering Committee, including the creation of a Kentucky River Basin Team, until the Framework Document has been endorsed. It is expected that this Framework Document will be forwarded for endorsement by early summer 1997 and the Steering Committee will convene by midsummer 1997.

Create the Kentucky River Basin Team

The Kentucky River Basin will be the first management unit to initiate the basin management cycle. As a result, a Basin Coordinator must be identified prior to the start of phase I of the Kentucky River management cycle in July 1997. The Statewide Steering Committee will select the Basin Coordinator. The Coordinator will, in turn, consult with each of the partner organizations on the Steering Committee to identify appropriate individuals to serve on the Kentucky River Basin Team.

The Statewide Steering Committee and the River Basin Teams are intended to complement one another. The Steering Committee will ensure that key people are involved on each River Basin Team. This is not an approval process (the Steering Committee will not vote on River Basin Team membership); rather, the Steering Committee will obtain additional resources or expertise to support the Basin Team if needed. In turn, the River Basin Team will implement the basin management cycle activities designed by the Steering Committee. To facilitate its implementation activities, each River Basin Team will need to

- Adopt rules of operation (see sidebar on Rules of Operation on page 4-4)
- Brief River Basin Team members on the Framework and basin management cycle activities
- Begin work on Phase 1 scoping and data gathering activities, including preparing the Basin Status Report and Strategic Data Collection Plan

These same actions will be completed by each of the River Basin Teams as they are convened. The Steering Committee should note that the Basin Teams will benefit from getting an early start on basin management activities, especially as each Team begins the basin management cycle. For this reason, the Steering Committee should begin considering River Basin Team membership three to six months before the basin

Organizations represented on the Steering Committee will be asked to endorse the Framework to signify their commitment to the watershed approach.

The Kentucky River Basin will be the first management unit to initiate the basin management cycle.

To implement the basin management cycle, each River Basin Team will need to:

- *Adopt Rules of Operation*
- *Brief team members on the Framework and basin management cycle*
- *Begin work on scoping and data gathering activities*

River Basin Teams will benefit from getting an early start on basin management activities.

Public involvement with the River Basin Teams will be critical to successful implementation of the Framework.

Key members of the Partner Network need to be oriented to Framework goals and opportunities.

Guidance to support the development of strategic Monitoring Work Plans is being written.

The guidance will help the River Basin Teams review existing monitoring activities and identify critical gaps.

management cycle begins each July (for the next five years) in a new group of basin management units. In this way, the Basin Teams will have an opportunity to get organized before they are scheduled to start producing materials, such as the Basin Status Report.

As described in Chapter 2, public involvement and consultation with the River Basin Teams will be critical to successful implementation of the watershed approach. Consultation with stakeholders and the public will be supported through a Partner Network.

Convene a Partner Network

The Statewide Steering Committee and Public Information Coordinator will support a Partner Network which will assist with the work of the River Basin Teams (see Chapter 2). The Public Information Coordinator will recruit members of the Partner Network and orient them so they have a clear understanding of the goals and objectives of the Framework and basin management cycle. The Network members will, in turn, advise the River Basin Teams on the local organizations and individuals who should be actively involved in basin management activities.

The Partner Network is critical to the long-term success of the watershed approach. The partners will identify local organizations and individuals who are needed to carry out local watershed management. Some or all of these key participants are likely to be strong candidates for the Local Watershed Task Forces, which will design and implement priority watershed Action Plans. Without this key link to the public, many critical watershed management activities may not succeed.

Developing Guidance and Implementation Tools

In addition to the organizational and administrative activities needed to implement the Kentucky Watershed Management Framework, certain guidance and implementation tools will also be needed.

Monitoring Guidance

A Technical Workgroup convened in January 1997 to begin work on guidance to support the development of strategic Monitoring Work Plans within each basin management unit. The guidance will help the River Basin Teams review existing monitoring activities and identify critical gaps (see Appendix F for a current inventory of monitoring activities in Kentucky). These gaps may include

- (1) An absence of regular monitoring in major water resources of the state
- (2) Limited monitoring for critical indicators of watershed integrity or stress (e.g., habitat measures or other indicators of biological resource value)

- (3) Limited monitoring for stressors within the watershed (e.g., changes in land use).

The River Basin Teams will develop strategic Monitoring Work Plans to ensure that sufficient data are collected to set watershed management priorities within the basin and target resources in a cost-effective manner. In addition, the Monitoring Guidance will help ensure that the many agencies and programs collecting monitoring data throughout the state follow common data quality and metadata objectives.

The Statewide Steering Committee will continue to support the Monitoring Technical Workgroup. An initial draft of the monitoring guidance will be completed by July 1997.

Prioritization and Targeting Methods

As described in Chapter 3, a subcommittee of the Kentucky Watershed Framework Development Workgroup is developing methods for reaching consensus on the most pressing problems within each basin management unit. An initial draft of a quantitative formula to guide the development of priority rankings for watersheds will be drafted as a separate guidance document. The Steering Committee will continue to gather comments on the draft priority-ranking formula and revise it as needed.

Education and Outreach Materials

As part of the ongoing public outreach and consultation activities built into the basin management cycle, the River Basin Teams and Public Information Coordinator will continue to develop and disseminate education and outreach materials. These materials will include work products generated as part of the basin management cycle activities, such as Basin Status Reports, as well as more general educational materials on watershed management. Many of these materials can be adapted from outreach information produced by other states, federal agencies, or non-profit organizations. A small workgroup is currently inventorying existing outreach materials and identifying important topics to focus on initially. It will be the responsibility of the Steering Committee, River Basin Teams, and Public Information Coordinator to ensure that these materials are tailored to appropriate audiences within Kentucky.

Guidance is being prepared on methods for reaching consensus on priority ranking of watersheds.

Important education topics and existing outreach materials need to be identified.

Aligning Ongoing Program Activities with the Basin Management Cycle

Each partner involved in watershed management will need to orient day-to-day activities to support the basin management cycle.

Membership in the Steering Committee and River Basin Team includes an obligation to offer resources to support shared watershed management activities.

Each partner program involved in watershed management will also be responsible for orienting its day-to-day activities to support aspects of the basin management cycle. This can be accomplished by revising work plans and standard operating procedures and shifting resources within program budgets. Programs should conduct self-audits to identify resources that can be reallocated to support Framework activities. These audits can identify activities that are no longer relevant to the mission of the program or resources that can be reallocated to support watershed management.

In some cases, key basin management cycle activities can be implemented by Framework partners without the need for significant, additional resources. For example, partners can help disseminate Basin Status Reports, pamphlets, and other public outreach materials through existing regional offices and media contacts, or as part of other, ongoing outreach activities.

In addition, those partners who can volunteer additional resources will be asked to support certain fixed costs, such as document printing. Each partner should understand that participation on the Steering Committee and River Basin Teams includes an obligation to identify and offer resources to support shared watershed management activity costs.

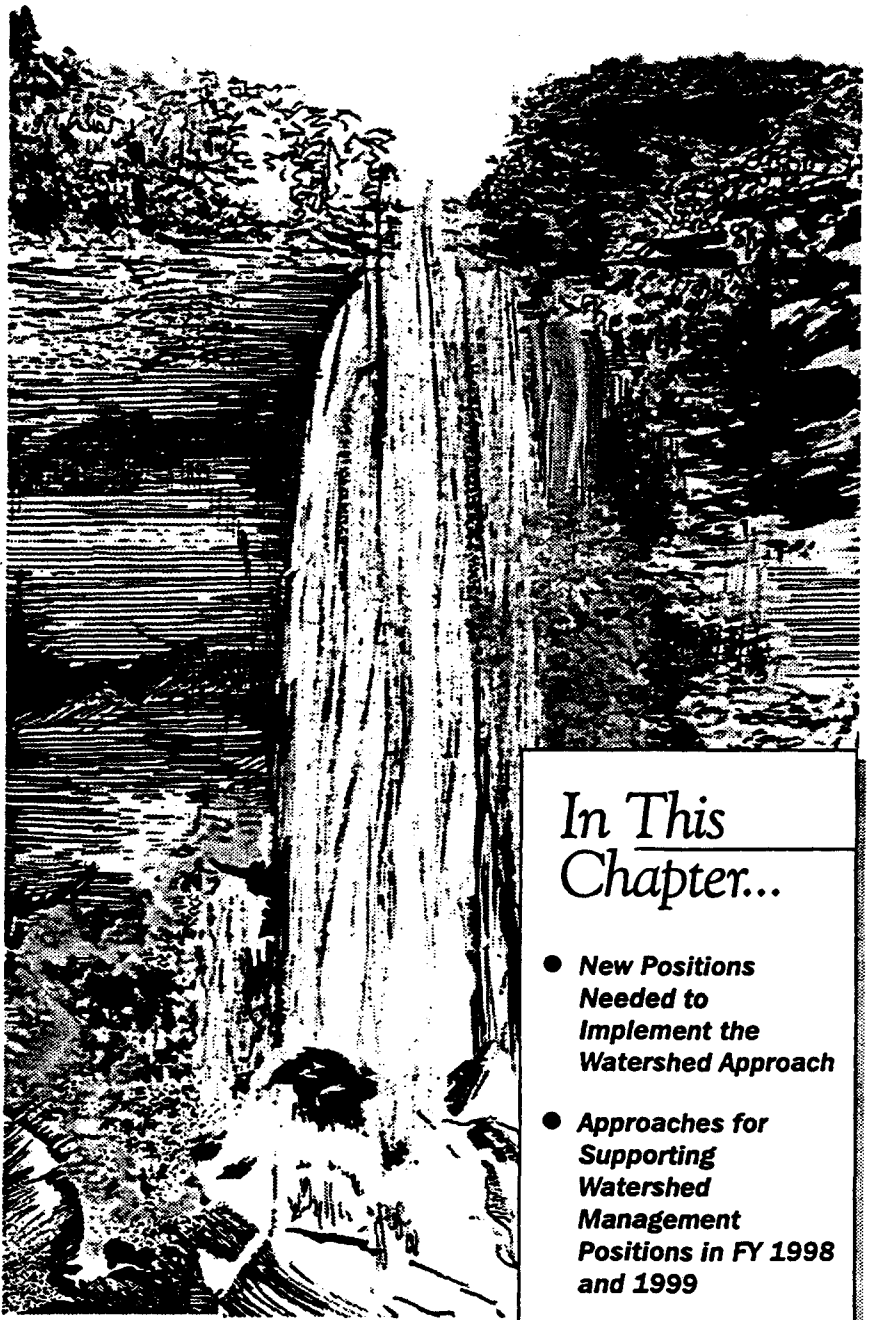
Resource Needs

New Positions Needed to Implement the Watershed Approach

The partner organizations that have come together to develop this Framework Document are already conducting many of the activities needed to successfully implement a watershed management approach in Kentucky. Nonetheless, the Kentucky Watershed Framework Development Workgroup identified the need for ongoing coordination of these activities to ensure that basin management cycle tasks are completed and the goals and objectives of this Framework are met. The Workgroup concluded that these coordination functions can be best implemented through the creation of several new positions.

Basin Coordinators

A Basin Coordinator will be assigned to each basin management unit to coordinate and facilitate the activities of the River Basin Team members (see Chapters 2 and 3). For the Kentucky River Basin, no additional funding is anticipated to support the Coordinator position. As a result, the Coordinator responsibilities will be shared between the Kentucky River Authority and the Kentucky Division of Water. For other basin management units, the Coordinator may be provided by one program or funded jointly by the members of each River Basin Team in the basin management unit.



In This Chapter...

- ***New Positions Needed to Implement the Watershed Approach***
- ***Approaches for Supporting Watershed Management Positions in FY 1998 and 1999***
- ***Options for Supporting Future Watershed Management Positions***

Initially, Basin and Public Information Coordinator responsibilities for the Kentucky River Basin will be shared between the Kentucky River Authority and the Kentucky DOW.

Coordinators for other basin management units may be provided by a program or funded jointly by River Basin Team members.

A Funding Subcommittee reported that new funds to support Coordinator positions are unlikely in the next budgeting cycle.

However, partner agencies can identify and reallocate appropriations to support Coordinator positions.

The Steering Committee, Framework partners, and Partner Network members can support requests to the legislature for new positions or expanded agency staffing caps.

Public Information Coordinator

The Kentucky Watershed Framework Development Workgroup also endorsed the need for a Public Information Coordinator to maintain the Partner Network and lead public outreach, education, and communication activities (see Chapters 2 and 3). As for the Kentucky River Basin Public Information Coordinator, no additional funds are currently available to support this position. As a result, the Watershed Framework Development Workgroup initially considered delegating these responsibilities to the Kentucky Environmental Education Council. Future funding will be sought to create a new position located within the Council.

Approaches for Supporting Watershed Management Positions in FY 1998 and 1999

The Kentucky Watershed Framework Development Workgroup convened a Funding Subcommittee in February 1997 to discuss options for supporting the Basin and Public Information Coordinator positions in the future. The Funding Subcommittee included representatives from the Governor's office, legislators, state program staff involved in budgeting and grants administration, and others with experience raising and administering grants and other discretionary monies. The Subcommittee was briefed on the watershed management approach and the need to support Basin Coordinator and Public Information Coordinator positions. The Funding Subcommittee reached the following conclusions:

- (1) New funds will not likely be available to support the Coordinator positions in the next budgeting cycle.
- (2) No legislative action would be needed for the partner agencies to identify and reallocate appropriations to support the positions.
- (3) If existing funds are shared among agencies, memoranda of agreement (MOAs) should be used to provide accountability for the manner in which the funds are used.

As a result, the Kentucky River Basin Coordinator and Public Information Coordinator positions will be supported by the Kentucky River Authority and DOW using existing appropriations.

Options for Supporting Future Watershed Management Positions

In future budgeting cycles, additional state funds might become available to support the Basin and Public Information Coordinator positions. To best support requests for new funds, the Steering Committee should draft a joint statement for the legislature supporting the positions. This statement could also be supported by other organizations and members of the Partner Network. Even if new funds do not become available, a joint request would bolster the argument for expanding corresponding agency staffing caps to allow new Basin and Public Information Coordinator positions to be established under current funding levels.

Acronyms

ADD - Area Development District

DEP - Kentucky Department for Environmental Protection

DNR - Kentucky Department of Natural Resources

DOW - Division of Water, Kentucky Department of Environmental Protection

EPA - U.S. Environmental Protection Agency

EQIP - Environmental Quality Incentives Program (see definition in the glossary)

GIS - geographic information system (see definition in the glossary)

HUC - hydrologic unit code (see definition in glossary)

KPDES - Kentucky Pollutant Discharge Elimination System

MACED - Mountain Association for Community Economic Development

NRCS - Natural Resources Conservation Service (an agency of the U.S. Department of Agriculture)

ORSANCO - Ohio River Valley Sanitation Commission

TMDL - Total Maximum Daily Load (see definition in glossary)

USGS - U.S. Geological Survey

Glossary

Action Plan - a written document that outlines specific activities that Framework partners and stakeholders will implement to address problems with a basin (basin Action Plan) or a priority watershed (watershed Action Plan).

aquifer - an underground layer of rock or soil containing useable amounts of water.

Basin Champion - a volunteer, who lives and works in a basin management unit, whose responsibilities are to ensure that basin-specific issues are carefully monitored and articulated, and that key players and stakeholders are kept involved in the Framework process.

Basin Coordinator - a person responsible for facilitating Kentucky Watershed Management Framework activities in one or more of the state's basin management units.

basin management cycle - the temporal component for coordinating watershed management activities under the Kentucky Watershed Management Framework. The cycle provides a time frame for a series of watershed management activities to occur in each of the state's 12 basin management units.

Basin Management Plan - a written document that serves as a common reference guide for implementing activities under the Kentucky Watershed Management Framework for a particular basin management unit. The Plan consists of a User's Guide, a Basin Summary, Watershed Summaries, and technical information on management methods and results.

basin management unit - one of 12 geographically based units that form the spatial basis for coordinating watershed ecosystem protection and restoration activities throughout Kentucky. The 12 basin management units are based on the 12 large river basins of the state combined with the smaller watersheds draining directly to the Ohio River.

Basin Status Report - a report prepared during the first phase of the basin management cycle to communicate conditions and trends in water quality and quantity and watershed integrity to a broad audience.

ecoregions - geographic regions that exhibit similarities in the mosaic of geologic, climatic, and biological systems

Environmental Quality Incentives Program - a program administered by the U.S. Department of Agriculture to provide technical assistance and resources to help farmers control agricultural runoff.

geographic information system (GIS) - computer programs linking features commonly seen on maps (such as roads, town boundaries, water bodies) with related information not usually presented on maps, such as type of road surface, population, type of agriculture, type of vegetation, or water quality information. A GIS is a unique information system in which individual observations can be spatially referenced to each other.

groundwater - water found in the pore spaces of bedrock or soil. Groundwater reaches the land surface through springs or it can be pumped using wells.

hydrologic unit code (HUC) - a cataloging system developed by the U.S. Geological Survey and the Natural Resource Conservation Service to identify watersheds in the United States. HUCs are typically reported at the large river basin (6-digit HUC) or smaller watershed (11-digit and 14-digit HUC) scale. These codes were developed to standardize hydrological unit delineations for geographic description and data storage purposes.

karst - a type of terrane and/or hydrologic regime that is formed by dissolution of limestone, dolomite, gypsum, and other soluble rocks. It is characterized by underground drainage and conduit-fed springs, and may include sinkholes, caves, and sinking streams.

Kentucky Watershed Framework Development Workgroup - a group of agency representatives who began developing the core components of the Kentucky Watershed Management Framework in 1996.

Kentucky Watershed Management Framework - a dynamic, flexible structure for coordinating watershed management throughout the Commonwealth of Kentucky in which all interested parties can participate

Local Watershed Task Force - a group formed in a priority watershed to provide a forum for local government officials, industry representatives, the farming community, environmental advocacy groups, and other stakeholder groups to participate in Action Plan development and implementation.

metadata - information about data, such as period represented, techniques used to generate the data, and quality assurance measures applied to data.

nonpoint source pollution - pollution originating from runoff from diffuse areas (land surface or atmosphere) having no well-defined source.

partner - an agency, organization, or individual who participates in and supports the Kentucky Watershed Management Framework.

Partner Network - a broad network of agencies, organizations, and individuals who are willing to invest their time and resources to learn about watershed management needs, to develop and implement strategies to address those needs, and to promote awareness of and public involvement in the watershed approach.

prioritization - the process of ranking all of the watersheds within a basin management unit in terms of their relative need or importance for management.

priority watershed - a watershed which has received a high ranking as a result of the prioritization process within a basin management unit.

Public Information Coordinator - a person responsible for communicating about the mission, goals, and activities of the Watershed Management Framework with a broad range of audiences throughout all phases of the basin management cycle.

6/30/97

River Basin Team - a group formed in each of the state's basin management units to provide a forum for carrying out joint watershed management efforts.

seep - an area of groundwater flow to the land surface or surface water.

stakeholder - anyone who is involved in or affected by watershed management. Stakeholders include landowners, government agencies, businesses, private individuals, and special interest groups.

statewide basin management schedule - a calendar and sequence for conducting key watershed management activities within each basin management unit and throughout the state under the Kentucky Watershed Management Framework.

Statewide Steering Committee - a group representing a cross section of organizational interests within the state that will address issues of statewide coordination and policy related to the Kentucky Watershed Management Framework.

Strategic Data Collection Plan - a document prepared by each of the River Basin Teams that identifies information needs to support basin assessment and watershed prioritization, establishes a schedule for data collection, and identifies agencies responsible for data gathering. The data may include existing information and new data collected as part of basin monitoring.

sustainable use - the conservative use of a resource such that it may be used in the present and by future generations.

targeting - the allocation of available resources to address particular issues within a priority watershed based on a set of criteria.

Total Maximum Daily Load - the pollutant loading from point, nonpoint, and background sources for a segment of water that results in an ambient concentration equal to the numerical concentration limit required for that pollutant by numerical or narrative criteria in the water quality standards.

water quality standards - established limits of certain chemical, physical, and biological parameters in a water body; water quality standards are established for the different designated uses of a water body.

watershed - the boundaries of a water body system (a lake, stream, or river) and the land area that drains into it.

watershed approach - the watershed approach is a coordinating framework for environmental management that focuses public and private sector efforts to address the highest priority problems within hydrologically defined geographic areas, taking into consideration both ground and surface water flow.

Participants in Kentucky Watershed Framework Development

Kentucky Statewide Watershed Steering Committee

State

- John McCauley, Director (Ernest Collins), Division of Pesticides, Department of Agriculture
- David Nichols, Environmental Management Branch, Cabinet for Health Services
- Russ Renaud, Executive Director, Office of Environmental Affairs, Cabinet of Transportation
- Tom Bennett, Commissioner (Lynn Garrison) Kentucky Department of Fish and Wildlife Resources
- Robert McCance, Director, Kentucky State Nature Preserves Commission
- Jack Wilson (Bob Ware, Lee Colten), Division of Water
- Kay Harker, Branch Manager (Margaret Shanks), Planning and Program Coordination Branch, Department for Environmental Protection
- Rob Daniel, Director (Jeff Pratt), Division of Waste Management
- John Hornback, Director (John Lyons), Division for Air Quality
- John Mark Clements, Department for Surface Mining Reclamation and Enforcement
- Bill Martin, Commissioner, Department for Natural Resources
- Steve Coleman, Director, Division of Conservation
- Mark Matuszewski, Director (Cary Perkins), Division of Forestry

- Hugh Archer, Executive Director, Kentucky River Authority
- Jim Dinger (Dan Carey, Phil Conrad), Kentucky Geological Survey
- Lyle Sendlein (Lindell Ormsbee), KY Water Resources Research Institute

Federal

- Robert Beil, Chief Water Mgt. Section, U.S. Army Corp of Engineers District, Louisville
- Randolph B. See (Tom Mesko), U.S. Geological Survey, Water Resources Division
- David Sawyer (Billy Hartsell), Natural Resources Conservation Service
- Lee Barkley (Steve Alexander), U.S. Fish and Wildlife Service
- Peter Tennant, Ohio River Valley Water Sanitation Commission (ORSANCO)
- Janet Herrin (Frank Sagona), Tennessee Valley Authority, Water Management
- Gary Coleman (Jon Walker), U.S. Forest Service
- Dave Beam, Office of Surface Mining, Lexington Field Office

Organizational

- James Evertt (Michael Dant), Area Development District (ADD) Council
- Curtis Absher, Cooperative Extension Service
- Mike Magee, Exe. Director (Karen Garrison), KY Association of Counties

- Ken Oilschlager, President (John Brazel), KY Chambers of Commerce
- Sylvia Lovely, Exe. Director (Jerry Deaton), KY League of Cities
- Jane Wilson, Environmental Education Council
- Russ Barnett, University of Louisville, Institute for the Environment and Sustainable Development
- Frank Elsen, Kentucky Waterways Alliance
- Betsy Bennett (Hank Grady), Sierra Club

Public Participation Subcommittee

- Maleva Chamberlain, Kathleen O'Leary, Ken Cooke, Division of Water
- Pamla Wood, National Resources and Environmental Protection Cabinet
- Sue Ann Elliston, Kentucky River Authority
- Jane Wilson, Environmental Education Council
- Bill Thom, Cooperative Extension Service
- Martin Bess, Division of Conservation
- Nancy Fouser, Natural Resources and Environmental Protection Cabinet
- Ron Pasch, Tennessee Valley Authority
- John Wilson, Department of Fish and Wildlife Resources
- David Nichols, Division of Environmental Services & Community Safety
- Scott Richards, Environmental Quality Commission

Data Management and GIS Subcommittee

- Vicki Ray, Ted Stumber, Kathy Collins, Division of Water
- Margaret Shanks, Department for Environmental Protection

- Steve Czajkowski, Department of Fish and Wildlife Resources
- John Mark Clements, Department for Surface Mining, Reclamation, and Enforcement
- Hugh Archer, Kentucky River Authority
- Ken Bates, Office of Information Services
- John Penfield, Office of Information Services
- Dan Carey, Kentucky Geological Survey
- Lindell Ormsbee, Water Resources Research Institute
- Susan Lambert, Office of GIS
- Steve Crabtree, Natural Resources Conservation Services
- Jason Duke, US Fish and Wildlife Service
- Steve Holstrom, US Army Corps of Engineers

Monitoring and Assessment Subcommittee

- Vicki Ray, Jim Webb, Tom VanArsdall, Melissa Lenn, Kevin Flowers, Division of Water
- Fazi Sherkat, Division of Waste Management
- Martin Bess, Steve Coleman, Division of Conservation
- Charles Wright, Department for Surface Mining, Reclamation, and Enforcement
- Wes Combs, Cabinet for Health Services
- Benjy Kinman, Department of Fish and Wildlife Resources
- Ron Cicerello, Robert McCance, Nature Preserves Commission
- Lindell Ormsbee, Water Resources Research Institute
- Phil Conrad, Kentucky Geological Survey
- Peter Tennant, Ohio River Valley Water Sanitation Commission (DRSANCO)

- Steve Alexander, US Fish & Wildlife Service
- Gary Coleman, US Forest Service
- Douglas Hines, Natural Resources Conservation Service
- Lynn Jarrett, US Geological Survey
- Bill Perry, US Army Corps of Engineers
- Jeff Hohman, East Kentucky Power, Cooperative (Chamber of Commerce Environmental Forum)
- Patie Grace-Jarrett, Metropolitan Sewer District

Prioritization and Planning Subcommittee

- Tom VanArsdall, Vicki Ray, Bruce Scott, D. S. Nagda, Beverly Oliver, Corrine Wells, Division of Water
- Steve Coleman, Division of Conservation
- Hugh Archer, Kentucky River Authority
- Ernest Collins, Division of Pesticides, Dept. of Agriculture
- Cary Perkins, Division of Forestry
- Jim Grider, Office of Environmental Affairs, Transportation Cabinet
- Jim Dinger, Kentucky Geological Survey
- Gary Coleman, John Walker, U.S. Forest Service
- James Everett, Area Development District (ADD) Council

- Karen Garrison, Association of Counties
- John Brazel, Chamber of Commerce Environmental Forum
- Jerry Deaton, League of Cities
- Derek Guthrie, Metropolitan Sewer District
- Joyce Hobbs, Tom Howard, Farm Services Agency
- Mike Childress, Long-Term Policy Research Center (contacted, but reviewing literature)

Funding Committee

- Charlie Collier, Bill Gatewood, Vicki Ray, Corrine Wells, Division of Water
- Hugh Archer, Kentucky River Authority
- Patti Kirk, Economic Development Cabinet
- Scott Kimmich, Department of Local Government
- Nancy Osborne, Legislative Research Commission
- Harry Moberly, Representative
- Marshall Long, Representative
- Tom Howard, Joyce Hobbs, Farm Services Agency
- Don Mullis, Kentucky Infrastructure Authority
- Vallerie Timmons, Lt. Governor's Office
- Paula Moore-Carson, Governor's Office

Statewide Basin Management Schedule

Start date for cycle is July 1 (state fiscal year calendar)

Phase	Activity	1997		1998		1999		2000		2001		2002													
		FY 98		FY 99		FY 00		FY 01		FY 02		FY 03													
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Scoping and Data Gathering	Organize and orient River Basin Team	1																							
	Compile available scoping-level data	1	1																						
	Prepare Basin Status Report	1	1																						
	Communicate Basin Status Report to public		1	1																					
	Receive public input		1	1	1																				
	Develop & document draft Strategic Data Collection Plan		1	1	1																				
	Distribute draft Plan, receive public comments, & finalize Plan				1	1	1																		
	Prepare Data Management/GIS Work Plans				1	1	1																		
	Collect monitoring and other strategic data				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Assessment	Develop Sample Analysis and Data Entry Work Plans				1	1	1	1																
	Analyze data and produce Final Monitoring Report				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Develop assessment Work Plans				1	1	1	1																	
	Assess data & produce draft Basin Assessment Report				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Prioritization & Targeting	Develop preliminary ranking of watersheds																								
	Distribute preliminary rankings for public review and comments																								
	Conduct focus groups to achieve final consensus on rankings																								
	Apply targeting criteria to determine where efforts should be directed																								
Plan Development	Develop watershed Action Plans & prepare basin planning documentation																								
	Distribute draft findings and Action Plans to public & collect comments																								
	Produce final Basin Management Plan including findings and Action Plans																								
Implementation	Communicate goals and objectives of Action Plans with public																								
	Carry out Action Plans																								
	Monitor progress on Action Plans & adjust as needed																								
	Continue implementing ongoing protection and restoration actions	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Phase	Activity	2002		2003		2004		2005		2006		2007													
		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08													
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Scoping and Data Gathering	Organize and orient River Basin Team	1																							
	Compile available scoping-level data	1	1																						
	Prepare Basin Status Report	1	1																						
	Communicate Basin Status Report to public		1	1																					
	Receive public input		1	1	1																				
	Develop & document draft Strategic Data Collection Plan		1	1	1																				
	Distribute draft Plan, receive public comments, & finalize Plan				1	1	1																		
	Prepare Data Management/GIS Work Plans				1	1	1																		
	Collect monitoring and other strategic data				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Assessment	Develop Sample Analysis and Data Entry Work Plans				1	1	1	1																
	Analyze data and produce final monitoring Report				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Develop Assessment Work Plans				1	1	1	1																	
	Assess data & produce draft Basin Assessment Report				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Prioritization & Targeting	Develop preliminary ranking of watersheds																								
	Distribute preliminary rankings for public review and comments																								
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	Produce final Basin Management Plan including findings and Action Plans																								
Implementation	Communicate goals and objectives of action plans with public																								
	Carry out Action Plans																								
	Monitor progress on action plans & adjust as needed																								
	Continue implementing ongoing protection and restoration actions	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

LEGEND
 1 = Basin Group 1 = Kentucky River
 2 = Basin Group 2 = Salt & Licking Rivers
 3 = Basin Group 3 = Upper & Lower Cumberland and Tennessee Rivers
 4 = Basin Group 4 = Green & Tradewater Rivers
 5 = Basin Group 5 = Big Sandy, Little Sandy, & Tygart's Rivers
 + = Basin Group Overlap = Activity is carried out in two basin groups simultaneously
 * = All Basin Groups

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Organization Mission Statements and Descriptions

Kentucky Waterways Alliance

The mission of the Kentucky Waterways Alliance is to protect and restore Kentucky's waterways and their watersheds by building an effective alliance for their stewardship.

The work of Kentucky Waterways Alliance is to help citizens protect their local waterways. Kentucky Waterways Alliance provides support for implementing solutions to shared problems; networking opportunities; annual conference; training for citizen groups; cost-share for projects by citizen groups; quarterly newsletter; news bulletins; legislative updates; and education and information.

Membership is open not only to citizen groups, but individuals and families, water resource organizations, corporations, and anyone concerned about the future of Kentucky's water resources.

Area Development District Council

Area Development Districts grew out of the efforts by local elected officials and citizens in the Commonwealth to find collaborative means with which to deal with problems affecting their communities.

The Districts serve as forums, clearinghouses, technical centers and meeting places for the region. Unlike many other organizations structured along multi-jurisdictional lines, the ADDs have both federal and state statutory authority.

The ADDs share some common characteristics with other regional councils throughout the United States:

- Extensive program and service delivery experience
- Fiscal Accountability
- Technical and Professional Staff
- Non-partisan approach
- Flexibility

- Broad-based partnership development
- Established capacity

The ADD network is best characterized by the following distinctions, unique among regional organizations:

- The 15 ADDs provide a system of complete coverage to all 120 counties.
- ADDs provide systematic links between local leadership and the Governor's Office and state and federal agencies and private organizations.
- The ADDs deal with all program areas within the Commonwealth.

Kentucky Association of Counties

The county officials who formed the Kentucky Association of Counties in 1974 defined its mission as "...rendering technical, informational, and other services to the various counties of the state; to the state for the improvement of county government; and, for the general welfare of the people of the state."

League of Cities

The Kentucky League of Cities is a non-profit organization that represents approximately 350 cities in the Commonwealth of Kentucky. The League offers services such as legislative lobbying, insurance pools, financial services, and legal assistance to member cities. The League also conducts training and informational seminars in areas of importance to municipalities of all classes.

The cities of Kentucky bring an abundance of resources to the table in the area of clean water. Cities are the primary entities in Kentucky with responsibility for sewage treatment and storm water management. Cities are also responsible for providing safe drinking water to urban residents, who

make up approximately one-half of the state's population, and often residents of rural areas. Cities are generally the driving force behind economic development in each county, and are increasingly utilizing the services of a professional economic development coordinator. The combined expertise of mayors, economic development officers, and water and sewer personnel provide an excellent resource for determining the extent of local water use, resource protection and conservation.

Private Lands Council

The Kentucky Private Lands Council (PLC) is a coordinated effort of state and federal agencies and nongovernmental organizations which offer natural resource management assistance to private landowners. The Council's goals are to coordinate services to Kentucky landowners and to help landowners be more efficient and cost effective. The PLC members work together to integrate the services and financial assistance available to private landowners. This will provide the best programs possible for protecting and enhancing Kentucky's natural resources. All members of the PLC are extremely excited about the potential of this program. The PLC will be a customer service organization able to adapt programs based upon input from the local level.

The goals of the PLC are to:

1. Coordinate distribution of information about landowner assistance programs;
2. Coordinate and provide technical support;
3. Coordinate cost-share and other incentive programs;
4. Form county-level private lands councils;
5. Develop integrated resource management plans for private landowners;
6. Eliminate any contradictory advice currently being given to landowners;
7. Eliminate or reduce duplications of services;
8. Seek alternate funding sources to replace shrinking federal funds.

Sierra Club

The purposes of the Sierra Club are to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the

earth's ecosystems and resources; to educate and enlist humanity; to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

Our Vision:

For nearly 100 years, Sierra Club members have shared a vision of humanity living in harmony with the Earth.

We envision a world where wilderness areas and open spaces are protected habitats sustaining all species ... a world where oceans and streams are clean and the air is pure... a world where a healthy biosphere and a nontoxic environment are inalienable rights. In short, we envision a world saved from the threat of unalterable planetary disaster.

To save our planet, we must change the world – Priorities must change: People must learn to live in ways that preserve and protect our precious resources.

Policies must change: Our institutions must abandon practices that recklessly endanger the environment.

Values must change: Progress must be measured by its long-term value to living systems and creatures rather than its short-term value to special interests or the economy.

To achieve this vision, people across the nation and around the world must speak out with a powerful voice that cannot be ignored. Aggressive grassroots action on an unprecedented scale is essential to protect our environment and our species. There is no other choice. It will require leadership that is visionary, experienced, and strong.

Chamber of Commerce

The Kentucky Chamber of Commerce will create and support a competitive business climate in the Commonwealth through advocacy, information, and customer service.

Environment Mission:

The Kentucky Chamber of Commerce believes that economic growth and environmental protection are compatible, in fact, complementary goals. Furthermore, the Chamber recognizes that legitimate uses of the environment should be protected and that business and

development many affect environmental quality. To achieve rational regulatory objectives, it is the chamber's policy to encourage legislative and administrative actions of government which satisfy the following three criteria:

Scientific validity. The need for government action should be established on the basis of objective information available for public review on which meaningful consensus of opinion can be achieved. Such information should demonstrate that any proposed action will result in avoidance of environmental harms or creation of environmental benefits.

Technical feasibility. To achieve the objective of governmental regulation information must be available or reasonably anticipated to become available to those required to take action within the time provided by government mandates.

Economic rationality. Government action must consider the appropriate allocation of resources over time. Requirements for compliance should also consider business' ability to operate profitably within the confines of a legal requirement.

Kentucky Water Interagency Coordinating Committee

The Kentucky Water Interagency Coordinating Committee (KWICC) was formed in 1991 to convene representatives of nonpoint source pollution control interests on a quarterly basis to discuss water quality issues. The charge of the group is to share water information, review and facilitate Section 319(h) Nonpoint Source Implementation Grant projects and project proposals, coordinate watershed activities and data, and promote program accomplishments. Representatives of the following agencies are involved:

University of Kentucky (UK), Dept. of Agriculture Engineering

UK Dept. of Agronomy

UK Cooperative Extension Service

KY Dept. of Agriculture, Division of Pesticides

US Dept. of Agriculture, Natural Resources Conservation Service

US Dept. of Agriculture, Farm Service Agency

KY Farm Bureau

KY Division of Water

KY Division of Conservation

US Geological Survey, Water Resources Division

KY State University Cooperative Extension Programs

KY Geological Survey

KY Dept. of Fish and Wildlife

Western Kentucky University

Agricultural Water Quality Authority

The Agricultural Water Quality Authority is administratively attached to the Natural Resources and Environmental Protection Cabinet. It consists of a multidisciplinary peer group that is charged with evaluating, developing, and improving best management practices in conservation plans, compliance plans, and forest stewardship management plans; establishing statewide and regional agriculture water quality plans; and otherwise promoting soil and water conservation activities that protect waters of the Commonwealth from the adverse impacts of agriculture operations within the Commonwealth.

Tennessee Valley Authority

TVA has a rich history as a steward of the Tennessee Valley's natural resources. Established as a federal corporation in 1933, TVA was charged with providing electricity to the Valley region which includes most of Tennessee and parts of Alabama, Georgia, Mississippi, North Carolina, Kentucky, and Virginia. TVA was also mandated to provide flood control, manage lands and recreation areas held in the name of the United States, tend and manage the Tennessee River system, and promote economic development.

Kentucky River Authority

The Kentucky River Authority was first established by the Kentucky General Assembly in 1986 to take over operation of the Kentucky River Locks and Dams 5 through 14 from the United States Corps of Engineers. Following the drought of 1988, the Authority was given a mission to protect and improve the waters of the Kentucky River through environmental management of the entire water-

shed. It is the first effort by the Commonwealth of Kentucky to protect a great water resource through watershed management. Watershed management recognizes that a river is more than the water flowing in the main channel. Human activities through the drainage area of the river affect the amount and quality of water that flows through the main channel. The Authority is charged with developing comprehensive plans for the management of the Kentucky River Basin, including long range water supply, drought response and ground water protection plans. It is to adopt regulations to improve and coordinate water resource activities within the basin among state agencies. The Authority may adopt water quality standards for the basin that are more stringent than those applied to the rest of the state. It is also charged with developing recreational areas within the basin.

Sanitation Districts

Pursuant to KRS 220.030, sanitation districts may be established for any of the following purposes:

- to prevent and correct the pollution of streams
- to regulate the flow of streams for sanitary purposes
- to clean and improve stream channels for sanitary purposes
- to provide for the collection and disposal of sewage and other liquid wastes produced within the district; and incident to such purposes and to enable their accomplishment, to construct, with all appurtenances thereto, laterals, trunk sewers, intercepting sewers, siphons, pumping stations, treatment and disposal works, to maintain, operate, and repair same, and do all other things necessary for the fulfillment of the purposes of KRS 220.010 to 220.520
- to provide for the management of onsite sewage disposal systems
- to develop and implement plans for the collection and disposal of storm drainage to the extent that collection and disposal of storm drainage is required by applicable federal and state regulations.

Water Supply Planning Council

Water supply planning council is designed to be representative of the people or agencies who make or are affected by water supply decisions in the planning unit. The planning council is the decision-making body for water supply planning. Their duties are to oversee the planning process, be responsible for placing public decisions, elect a planning council chair, select a planning representative, determine what constitutes a quorum, keep local media informed throughout the planning process, keep minutes of all meetings and a list of attendees, set planning goals and objectives, assure that consensus is reached in all planning activities, when possible, document differences of opinion and to oversee plan implementation.

Soil and Water Conservation Districts

Pursuant to KRS 262.020, the purpose of soil and water conservation districts are as follows:

The purpose of a soil and water conservation district is to conserve and develop all renewable natural resources within the district. In so doing, the district is authorized to undertake, sponsor, or participate in projects and activities which promote the conservation, development, maintenance and use of the land, water, trees and other renewable natural resources of the district. Such projects and activities shall include but not be limited to conservation practices on agricultural lands, the control of soil erosion, retardation of water runoff, the construction of flood prevention and control reservoirs, the maintenance of flood plains, the promotion of projects to assure an adequate municipal, industrial and agricultural supply of water, watershed stabilization, the avoidance and abatement of sedimentation and pollution in streams and other bodies of water, forestation and reforestation, the establishment of parks and outdoor recreation areas, the protection of open space, greenbelt areas and scenery, the preservation of wilderness areas, the protection of open space, greenbelt areas and scenery, the preservation of wilderness areas, the protection of fish and wildlife, working for the location of highways, industries, housing developments, airports and other structures as are consistent with the district's objectives and will offer the least possible natural resources development of the district.

Proposed Basin Management Plan Outline

User's Guide (general audience)

- I. User's Guide Introduction – Description of whole *Basin Management Plan*, explanation of parts, and user's guide: e.g. "If this is your concern, see"
- II. Overview of the Watershed Management Approach – includes purpose of plan, stakeholders, general description of involvement, and benefits and uses of priority watersheds and watershed action plans
- III. Process Overview
 - A. How was information collected and assessed?
 - B. How were priority watersheds selected?
 - C. Who was involved in this process?

Basin Summary (general audience)

- I. Basin _____ at-a-glance – one or two page general public flyer [updated from Phase I *Basin Status Report*]
- II. Basin Management Unit Description – includes physical and cultural description and current condition and trends of resource, and summary tables (summarizes results by watersheds and issues to meet 305(b) reporting requirements) [Prepared in Phase I as Basin Status Report]
- III. Priority Watersheds [prepared at Phase III] and Action Plan Profiles (watershed name and HUC, why a priority, responsible party, what to do) – includes various priority designations and mandated lists, such as 303(d), 314, 319, etc.
- IV. Future Issues and Challenges

Watershed Summary and Action Plans – 11-digit HUC watershed (local audience)

- I. Introduction – includes discussion of organization and use of document, references to Executive Summary and Technical Appendices for further information
- II. Watershed Summaries – repeated for each watershed
 - A. Watershed _____ at-a-glance – one or two page general public flyer

- B. Tell me about the _____ watershed... (Watershed Description) [prepared at Phase II as *Monitoring Report*]
 1. Physical characteristics – geology, hydrology, precipitation [KGS, NRCS, USGS]
 2. What lives in _____ watershed (Ecological characteristics)
 - a) Things in the water (Aquatic) [KDFWR, DOW, NPC, USFW]
 - b) Things on the land (Terrestrial: includes land cover/land use — existing and projected) [NPC, KDFWR, USFW, USFS]
 3. Special areas [NPC, DOW, KDFWR]
 4. Populations and change [UL, Census data]
 5. Water supply & usage: now and in the future [DOW, County/ADD water supply plans]
- C. What information was used to rank _____ watershed? (Data Summary and Assessments – includes current conditions, and restoration and preservation needs, 305(b) use support data) [prepared from Phase III priority formula calculations]
 1. What's wrong with _____ watershed? (Restoration Goal)
 - a) ...with the natural world? (Ecological Health)
 - b) ...with the human world? (Human Health)
 2. What's will happen if we do nothing? (Protection Goal)
 - a) What are the threats? (Threats and projected conditions)
- D. Action Plans
 1. Why prepare an Action Plan? (Goals and objectives)
 2. What are the options? (Management options and evaluations – may include brief cost-benefit analysis)
 3. What is the best option and how you can help? (Proposed actions)

4. Who's going to do it? (Responsible parties)
5. How will this be funded? (Funding)
6. When will it be done? (Scheduling)
7. How do we know if we have been successful?

Technical Appendices (regulatory & technical audience)

- I. Introduction Technical Appendices
- II. Methodology
 - A. Information Gathering Methods and Overview of Sources

- B. Information Gaps
- C. Assessment Methods
- D. Prioritization Formula
- E. Targeting Criteria
- F. Public Participation

III. Watershed Results – repeated for each 11-digit HUC watershed

- A. Data tables
- B. Priority Formula
- C. Problem Quantification – TMDL (if applicable)

APPENDIX E

Draft Watershed Management Activity Reference Guide for the Kentucky Basin Management Cycle

Action	End Product/Outcome	Responsible Party	Timing Within Cycle
PHASE I. SCOPING AND DATA GATHERING			
Convene River Basin Team to conduct planning activities for watershed monitoring in basin management unit	Initial River Basin Team meeting to develop (1) monitoring and assessment workgroup roster and (2) monitoring and assessment planning schedule	Basin Coordinator	Month 1
Communicate statewide and basin-specific monitoring objectives and activities to River Basin Team	(1) Presentation materials on statewide monitoring objectives and proposed activities in basin (2) List of monitoring inputs/recommendations from River Basin Team	Monitoring and assessment technical specialist on River Basin Team	Month 1
Identify key stakeholders to address in the scoping phase and when conducting outreach	(1) List of key stakeholders and contacts	Public Information Coordinator works with subcommittee of River Basin Team	Month 1
Gather basin status information from 305(b) and 303(d) reports, fish and wildlife, KGS, and other sources	(1) Current Basin Status Report	Basin Coordinator; report sections completed by relevant agencies. Public Information Coordinator guides message content	Months 1 to 2
Prepare outreach message regarding watershed management and public participation to accompany basin status report	(1) Written outreach materials (possibly internet, video, and other formats as capabilities increase)	Public Information Coordinator works with key partners to prepare message(s)	Months 1 to 2
Review Monitoring and Assessment Resources Inventory and update as needed	(1) Updated Monitoring and Assessment Resources Inventory	River Basin Team with monitoring and assessment specialist lead	Months 1 to 4
Distribute outreach message and basin status report via Partner Network	(1) Distributed materials	Designated support staff distribute information to Partner Network	Months 3 to 4
Collect public input regarding perceived problems in the basin	(1) List of perceived problems	Public Information Coordinator and Basin Coordinator work with Partner Network to collect input	Months 3 to 5
Distribute inventoried public input and other scoping data to River Basin Team and Monitoring Subcommittee for review	River Basin Team reviews and evaluates: (1) Public input summaries (2) Other scoping information	Public Information Coordinator	Months 3 to 5

Action	End Product/Outcome	Responsible Party	Timing Within Cycle
PHASE I. (CONTINUED)			
Assign agency roles, responsibilities, and schedules for data collection	Draft Strategic Data Collection Plan: (1) Monitoring Work Plans (2) Assignments for other data collection	Basin Coordinator, with assistance of River Basin Team	Months 4 to 6
Coordinate data management/GIS	(1) Data Management/GIS Work Plans	Data Management/GIS technical specialists supporting River Basin Team	Months 7 to 9
Distribute draft Strategic Data Collection Plan; gather comments; distribute and track implementation of final plan	Final Strategic Data Collection Plan revised in response to comments	River Basin Team	Months 7 to 9
Collect data as specified in the Strategic Data Collection Plan	(1) Water quality monitoring database (2) Related data	Assigned agencies	Months 9 to 21
Continue ongoing monitoring (e.g., habitat analyses, use attainability studies, ambient ground water monitoring)	(1) Water quality monitoring database	Various agencies	Ongoing
PHASE II. ASSESSMENT			
Assign agency roles, responsibilities and schedules for sample analysis and data management	(1) Sample Analysis and Data Entry Work Plans	Basin Coordinator, with assistance of River Basin Team	Months 6 to 9
Analyze samples and enter data	(1) Water quality monitoring data base and data printouts	Assigned agencies	Months 9 to 21
Assign agency roles, responsibilities, and schedules for basin assessment	(1) Assessment Work Plans	Basin Coordinator, with assistance of River Basin Team	Months 15 to 18
Compile final monitoring results	(1) Final Monitoring Reports	Basin Coordinator and assigned agencies	Months 21 to 24
Conduct assessments and document results	(1) Draft Basin Assessment Report	River Basin Team	Months 18 to 27
PHASE III. PRIORITIZATION AND TARGETING			
Apply prioritization formula to establish preliminary ranking of 11-digit watersheds	(1) Draft Priority Ranking List	River Basin Team with support from Basin Coordinator	Months 25 to 27
Develop message and survey mechanism for public on assessment results and preliminary priority ranking	(1) Outreach message (2) Survey for collecting public feedback on priority listing	Public Information Coordinator works with Prioritization Subcommittee	Months 25 to 27
Distribute outreach message to Partner Network	(1) Distributed materials	Public Information Coordinator works with designated support staff	Month 28 to 29

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Action	End Product/Outcome	Responsible Party	Timing Within Cycle
PHASE III. (CONTINUED)			
Collect public input through survey indicating publicly perceived priorities	(1) List of perceived priorities and recommendations for revisions to preliminary ranking	Public Information and Basin Coordinators work with key partners to collect input	Months 28 to 30
Convene focus groups as needed to resolve conflicts regarding priority ranking	(1) Consensus-based priority ranking for current iteration of basin management cycle	Public Information and Basin Coordinators work with River Basin Team	Months 31 to 33
Convene Local Watershed Task Forces to identify political feasibility and willingness to address priority issues	(1) Public input for specific targeting criteria (2) List of issues targeted for Action Plan development	Basin Coordinator works with Statewide Steering Committee and River Basin Teams to establish task forces and conduct targeting analyses	Months 31 to 36
PHASE IV. PLAN DEVELOPMENT			
Use Local Watershed Task Forces to: - determine specific management goals and objectives - evaluate management options - select preferred options	(1) Draft Watershed Action Plans (2) Draft Basin Management Unit Plan	Basin Coordinator works with river basin teams to integrate local watershed Action Plans with Basin Management Plans	Months 37 to 42
Prepare and distribute public message regarding proposed plans, and collect comments on drafts	(1) Outreach message on draft plans (2) Partner and public comments on draft plans	Public Information Coordinator works with River Basin Team, Local Watershed Task Forces, and Partner Network	Months 43 to 46
Consider partner and public input on draft plans and prepare final plan	(1) Final Basin Management Plan	Public Information Coordinator, Basin Coordinator and River Basin Team	Months 47 to 48
PHASE V. IMPLEMENTATION			
Prepare outreach message to communicate Action Plans; raise public awareness; and encourage participation	(1) Outreach message	Public Information Coordinator works with River Basin Teams, Local Watershed Task Forces, and Partner Network	Month 49
Conduct outreach workshops and use other means to deliver message and obtain support	(1) workshops (2) newsletters, videos, Internet web page, etc.	Public Information Coordinator works with Partner Network	Months 50 to 60
Carry out Action Plans	(1) Protection and restoration milestones	Assigned agencies and partners; public	Months 49 to 60 and beyond
Monitor implementation progress and make adjustments as needed	(1) Implementation plan adjustments (2) Framework adjustments	Basin Coordinator works with River Basin Team and Statewide Steering Committee as needed	Months 49 to 60 and beyond

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APPENDIX F

Kentucky Watershed Monitoring Activities

Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies						
Ambient Surface Water	Terry Anderson, DOW	The monitoring program is intended to provide information on ambient surface water quality in key KY watersheds and to provide data to support 305(b) and 303(d) reporting. The program consists of: <ul style="list-style-type: none"> - 45 fixed stations - physical and chemical parameters; fecal coliform during recreational season - biological and sediment monitoring at 12 stations - 6 to 8 lakes monitored during recreation season 	<ul style="list-style-type: none"> - monthly monitoring at fixed stations - biological and sediment sampling once per year - lake monitoring April through October 	Annual Report		SW
USGS Surface Water and Ground Water Stations	Amy Haliday, USGS Water Resources Division	USGS collects records of stage, discharge, and water quality for streams and lakes; and water levels of wells. Annual reports for 83 stream-gaging stations, also includes water-quality data for 33 stations samples at regular intervals (*see attached list of monitoring sites). GW levels for 13 recording and 70 partial sites.	See USGS monitoring network summary.	Kentucky Water Resources Data Water Year 1995		SW, GW
Intensive Surveys	Mike Mills, DOW	45 least impacted sites across State are monitored for algae, macroinvertebrates, and fish as well as physical and chemical parameters used for reference Biological and chemical surveys of watersheds to assess problems	Spring and Fall sampling One time sampling	Data Report Data Report		SW

Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Lake Studies during Stratification (April - September)	Pat Neichter, USACE Hydrology and Hydraulics Branch, Water Management Section	Monitor ambient water quality conditions at Corps projects and support project operations to meet authorized project purposes and Federal and State water quality standards. Data and samples are usually taken 4 times during the summer at inflow, outflow, and lake sites.	<p>Fixed sample sites in: Barren River Lake, Green River Lake, Nolin River Lake, Rough River Lake, Buckhorn Lake*, Carr Fork Lake, Cave Run Lake**, Taylorsville Lake</p> <p>Field data recorded using instrumentation for pH, DO, and temperature. Water samples are taken for lab analysis of metals, chlorophyll a, N, and P. Algae and invertebrate samples are taken from inflow, outflow, and lake sites.</p> <p>Four sample events in 1995, except: * = 1 sample event ** = 10 sample events</p>	Annual report	Field and laboratory data are maintained in Corps databases and eventually sent to STORET	SW
Lake Profiles (April - September)	Pat Neichter, USACE Hydrology and Hydraulics Branch, Water Management Section	Depth profiles of temperature and DO taken weekly at the dam during reservoir stratification. Data uses include the operation of selective withdrawal systems at projects to provide dam releases to meet downstream water quality criteria.	<p>Weekly profiles from: Barren River Lake, Green River Lake, Nolin River Lake, Rough River Lake, Buckhorn Lake, Carr Fork Lake, Cave Run Lake, Taylorsville Lake</p> <p>Temperature and DO measurements are made from calibrated instrumentation.</p>	Weekly Reports	Water and air temp., DO, and water elevation in dBase format. Data plotter using Clipper and HEC.	SW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Priority Pollutant Screening Survey	Pat Neichter, USACE Hydrology and Hydraulics Branch, Water Management Section	Sediment clutriate samples are tested every 5 years for the presence of priority pollutants. (*see attached list of compounds)	Most recent surveys: Barren River Lake '95, Green River Lake '94, Nolin River Lake '96, Rough River Lake '96, Buckhorn Lake '94, Carr Fork Lake '96, Cave Run Lake '96, Taylorsville Lake '93	Annual Reports	Field and lab data maintained in Corps databases	Sediment
Dredge Material Analysis	Pat Neichter, USACE Hydrology and Hydraulics Branch, Water Management Section	Analyze sediment samples to screen for contamination that may affect disposal of dredged material from the Ohio River adjacent to locks and mooring areas.	Lock and dam projects at: Marland, McAlpine, Newburgh, Uniontown, Smithland	Sediment evaluation report	Field and lab data maintained in Corps databases	Sediment
Remote Monitoring	Pat Neichter, USACE Hydrology and Hydraulics Branch, Water Management Section	Measurement of water quality variables on the lower Ohio River and specific reservoir sites with remote monitors and telemetry.	Telemetered sites-DO and temp: Ohio River - Cannelton L&D - Newburgh L&D - Smithland L&D - Uniontown L&D Barren River Lake - Inflow of Boyds Cr. Caesar Creek Lake - Inflow Cave Run Lake - Inflow, for chlorides	Monthly and Annual Reports	Data maintained in Corps databases and eventually sent to STORET	SW
Contaminant Investigations	USFWS	Assessments include fish and wildlife tissue, egg, blood, water and sediment samples for reproductive hormones, organic and inorganic contaminants, and physicochemical parameters.	Periodic sampling in Tennessee R., Cumberland R., and Mississippi R. and adjacent counties	Reports to participating federal, state, and local entities.	GIS, ECDMS, CIMAS	SW, Sed
Water Resource Investigations	USFS/Daniel Boone National Forest, Jon Walker, Hydrologist Vickie Bishop, Fisheries Biologist	Monitoring data are used to prepare Water Resource Inventory Reports on a watershed basis, develop forest plans, and write environmental assessments and biological evaluations. Principal parameters include inorganics and physical habitat.	Watersheds within Daniel Boone National Forest (see attached).	Water Resource Inventory Reports	Water data in ORACLE. Physical habitat data in dBase. Developing GIS layers.	SW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Ground Water Monitoring Network	DOW/Ground Water Branch/James Webb	Assessment of ambient ground water quality throughout the State; support wellhead and ground water protection plans and 319 studies.	70 sites representing each of KY's physiographic provinces sampled quarterly for 60 parameters including metals, pesticides, and nutrients. VOCs samples at select sites.	Year-end Report (attached) and raw data available from KGS or GWB.	Paper files and data base on VAX; Bill Yarnell, GWB; Bart Davidson, KGS	GW
Nonpoint Source Pollution (NPS)-319(h) Demonstration Projects and Contractual Projects	Corrine L. Wells, DOW/Water Quality Branch	Provide funding of efforts to mitigate deterioration of water quality due to nonpoint source pollution impacts in Kentucky watersheds and collect and disseminate water quality data documenting pre-and post-best management practice (BMP) implementation of multiple projects with various types of monitoring: - physical and chemical - fecal - biological - fish tissue	Sampling schedules and locations vary for each of numerous contractual and demonstration projects: - pre-BMP - post-BMP - recreational season - storm events	Demonstration Projects: - pre-BMP report - final close-out report Contractual Projects: - annual reports - final close-out reports		SW, NPS
Kentucky Groundwater Monitoring Network	Phil Conrad, KGS, Water Resources Section	State network that collects groundwater samples, amasses data from other organizations, and summarizes/characterizes groundwater resource to: (1) provide baseline data on ambient groundwater resources, (2) characterize ambient groundwater resources in publications, and (3) disseminate information collected and created by the network.	Variable schedule. Now selecting new sites for ground water sampling.	"Framework for the Kentucky Groundwater Monitoring Network" Working on summary document.	Data Repository at KGS, Bart Davidson.	GW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Hydrogeology of Agricultural Lands	James Currens, KGS, Water Resources Section	To determine the quality of groundwater in agricultural areas of Kentucky. Projects are developed as funding becomes available.	Ongoing; well installation and selection of monitoring sites is irregular as projects develop. Collected approximately 500 spring, stream, and well samples in FY 96. Sampling at each site varies from hourly to quarterly.	Reports and maps.	GW Data Repository at KGS.	GW
Hydrogeology of Karst Terrains	James Currens, KGS, Water Resources Section	To develop an understanding of karst aquifers in the State for their promotion as a groundwater resource and to minimize economic loss from pollution, sinkhole flooding, or sinkhole collapse.	Varies with specific projects and issues. Collapse sinkhole and flooding investigations are conducted as the events occur. Dye tracing and aquifer characterization are conducted seasonally. Water quality monitoring ongoing.	Maps, reports, and data bases; publications.	KY GW Data Repository	GW
Dye Tracing and Kentucky Dye Tracing Database	James Currens, KGS, Water Resources Section	Maintain a database and files of groundwater dye trace data for use in preparing maps and reports and for public access.	Ongoing, varies with receipt of new data.	Summary data tables	KY GW Data Repository	GW
KWRRI Research Project	Barbara Ramey, ECU	Chemical and biological monitoring of a constructed wetland on Jones Branch acid mine drainage	Jones Branch	1995 Research Report No. 192		SW, wetland
KWRRI Research Project	Lyle V.A. Sendlein, KWRRI	Groundwater study at the Toyota Motor Manufacturing Plant in Georgetown, KY	Georgetown, KY	1995 Research Report No. 194		GW
KWRRI Research Project	Lindell Ormsbee, KWRRI	CSO impact assessment for the Licking River; CSO impact assessment for the Banklick Creek	Licking River Banklick Creek	1995 Research Report Nos. UKCE9502, UKCE9501		

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Compliance Monitoring	Neil Woomer, TVA Env. Compliance	Provides toxicity monitoring data for regulatory compliance reporting	Monthly at Paradise (Green R.) and quarterly at Shawnee (Ohio R.) power plants	Compliance Reports		SW
SDWA Compliance Monitoring	Vicki Ray, DOW/DWB	Determine compliance with the regulations for: - 526 community water systems - 114 transient PWS - 124 nontransient non-community PWS	Each PWS submits a list of sample sites for approval, samples are collected from these sites monthly, quarterly, annually and must be analyzed for specific contaminants by a certified laboratory and results submitted to DWB.	Violations of standards are generated during various compliance periods. Various letters and reports.	KYSDWIS, using SAS software.	DW
Landfill monitoring	George Gilbert, Solid Waste Branch, DWM	The monitoring program is intended to provide information non both surface and groundwater quality and to ensure that the landfill is not contaminating the waters of the Commonwealth. The program consists of approximately: - 198 surface water monitoring points - 297 groundwater monitoring points - chemical parameters found in 401 KAR 48:300	Each location is sampled quarterly.	Quarterly monitoring report		SW, GW
UST site investigation and assessment	Submitted by the facility owner's consultant to be reviewed by the Corrective Action Section of the UST Branch, DWM	Groundwater (and soil) samples are collected in order to determine the extent of contamination from UST (primarily petroleum constituents, i.e., BTEX, PAH's, lead, etc.). Ground water flow rate and direction also collected.	Sample coverage area is typically less than 400 sq meters (the size of a gas station lot) but the areas can easily be much greater. Data gathered up to 2 years and over variable sample areas.	Site Investigation Report		GW
UST Corrective Action plan formulation and implementation	Submitted by the facility owner's consultant to be reviewed by the Corrective Action Section of the UST Branch, DWM	Develop and implement a plan to remediate the contamination identified in the above process.	Most data collected during site investigation.	Corrective Action Plan		GW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
UST formal quarterly ground water monitoring	Submitted by the facility owner's consultant to be reviewed by the Corrective Action Section of the UST Branch, DWM	Groundwater samples collected from the affected area and analyzed for contaminants involved in site contamination.	Samples are collected quarterly from as many points as necessary over the affected areas. The number of sampling points is variable and site-specific.	Quarterly Monitoring Report		GW
Oversight Ground Water Monitoring	Dale Burton, Corrective Action Section, HWB, DWM	Facilities required to conduct long-term groundwater monitoring are evaluated every three years. At least 4 wells (1 up, 3 down) are monitored semi-annually at each site, although more monitoring sites may be required. Typical parameters include heavy metals, volatile organic compounds, and semi-volatile compounds.	Currently approximately 50 sites are undergoing monitoring.	Comprehensive Groundwater Monitoring Evaluations		GW
Unscheduled Groundwater and Surface Water Monitoring	Dale Burton, DWM	Occasional samples are taken outside of regulatory requirements.	Sampling locations generally near hazardous waste management facilities.	Notices of Violation		GW, SW
Superfund Site Assessment	Herb Petitjean, Superfund Branch, DWM	Superfund Branch conducts sampling to: <ul style="list-style-type: none"> - establish the presence, levels and extent of contamination at potential abandoned or uncontrolled waste sites - establish the attribution of observed releases - insure the effectiveness of remediation activities - monitor those sites where waste is contained in-place 	Frequency of sampling varies with sites. Statewide summary of media, frequency, and parameters samples is not readily available.	Individual site reports	Paper reports maintained by DWM. GIS layers being developed. CERCLIS data maintained by EPA.	GW, SW
Continuous Emissions Monitoring and Industrial Air Monitors	DAQ, Technical Services Branch; Larry Garrison, DWM	Determine compliance with ambient air standards; assess air quality trends; and assess effectiveness of regulations and programs.	102 continuous monitors for criteria pollutants (except Pb and PM10); 35 air toxics monitors at 7 sites in tri-State area; 2 acid deposition monitors	KY Ambient Air Quality Annual Report	Data retrieved daily from remote monitoring sites and stored in mainframe and EPA AIRS	Air

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Bimonthly Sampling	ORSANCO	<ul style="list-style-type: none"> - detection of long term trends; biennial assessment of aquatic life use support; ambient WQ conditions; problem identification - 31 fixed stations - physical/chemical water column monitoring 	<ul style="list-style-type: none"> - bimonthly grab samples - 17 Ohio River sites and 14 major tribs. - location descriptors include lat-long, GIS, and river mile 	<ul style="list-style-type: none"> - semiannual Quality Monitor publication - 305(b) Report - Trends Report 	STORET	SW
Organics Detection System	ORSANCO	<ul style="list-style-type: none"> - detection of VOCs/spills; biennial assessment of public water supply use support - 14 fixed stations-water column monitoring for 22 volatile organics 	<ul style="list-style-type: none"> - daily or more frequent grab samples - 11 Ohio River sites and 3 tribs - locations descriptors include lat-long, GIS, and river mile 	<ul style="list-style-type: none"> - semiannual Quality Monitor publication - 305(b) Report - Trends Report 	STORET, in-house data base in Paradox	SW
Contact Recreation	ORSANCO	<ul style="list-style-type: none"> - assessment of contact recreational use support; notification to health depts. on suitability of conditions for contact recreation; evaluation of urban impacts on bacteria levels - 6 fixed stations - fecal coliform, E. Coli 	<ul style="list-style-type: none"> - 5 grab samples per month; May-October - sites are downstream of major urban areas - location descriptors include lat-long, GIS, and river mile 	<ul style="list-style-type: none"> - 305(b) Report 	in-house data base	SW
Interrogation of Dissolved Oxygen Monitors	ORSANCO	<ul style="list-style-type: none"> - assessment of suitability for aquatic life; identification of need to modify hydropower operations - 13 fixed stations; owned and operated by USACOE and hydropower-operators - ORSANCO does not generate these data, but interrogates and reports results - DO and temperature 	<ul style="list-style-type: none"> - hourly measurements - sites at 12 dams and one power plant - weekly interrogations of data from May-October 	<ul style="list-style-type: none"> - monthly Quality Updates to States 	- hard copy	SW
Water Quality Instream Monitoring	MSD, Terhune/Nichol	<ul style="list-style-type: none"> provide baseline water quality data; document impact of package plant removal; assess point source impacts; adjust metals interference; evaluate nutrient processes; identify contamination of food chain 	<ul style="list-style-type: none"> - routine sampling - physical parameters, chemical (nutrients, metals, etc.), and biological (macros, fish, bacteria) 	MSD stream reports, State 305(b) Reports	lotus and IWIS	SW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Chemical/Physical Water Quality Parameter Studies (Continued)						
Emergency Response	MSD, Terhune	response to emergency spills/releases to/near streams which may impact aquatic community; protect environment, sewers, public	incident related sampling	enforcement and mitigation	IWIS	SW
CSO Sampling	MSD/RGEV, Inc.	evaluate impacts to water quality due to overflow discharges	- samples collected for two rain events at 5-6 CSOs - TS, TVSS, BOD, TSS, settleable solids; instream sampling - fecals, pH, solids, metals, toxics, DO, sediment, nutrients, bioassessment - MSD will maintain some stormwater outfall sampling		Hard cop logs in file	SW, sediment
Biological/Habitat Assessments						
Rare Species Surveys	USFWS	Identify populations and habitat requirements	Variable sampling schedules	Management Plans, Recovery Plans	GIS GAP Analysis	SW
Native/Baseline Mussel Surveys	USFWS	Mussel population monitoring	Annual Ohio River sampling; may conduct surveys in Green and Licking R. in FY 97.	Management Strategies, Rec Plans	GIS	SW
Water Resource Investigations	USFS/Daniel Boone National Forest Jon Walker, Hydrologist Vickie Bishop, Fisheries Biologist	Monitoring data are used to prepare Water Resource Inventory Reports on a watershed basis, develop forest plans, and write environmental assessments and biological evaluations. Principal parameters include inorganics and physical habitat.	Watersheds within Daniel Boone National Forest (see attached).	Water Resource Inventory Reports		

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Biological/Habitat Assessments (Continued)						
Inventory and Classification of Streams	KDFWS; Jim Axon	Inventory and classify streams of fishery importance and re-inventory certain streams; to assess current fish population and stream habitat conditions.	All major drainage basins completed since the 1960's except for some Ohio R. tributaries; Order II and larger sampled for fish species, composition, and physical/chemical characteristics.	Annual Performance Report	Paradox database manages all fish data; developing data layer for GIS	SW
Warmwater Streams Investigation	KDFWS; Jim Axon	Determine the status of sport fisheries in warmwater streams or importance and develop fish management plan.	Short-term, finite studies direct at fish stock assessments.	Annual Performance Report	Paradox database manages all fish data; developing data layer for GIS	SW
Nonpoint Source Pollution (NPS)-319(h) Demonstration Projects and Contractual Projects	Corrine L. Wells, DOW/Water Quality Branch	Provide funding of efforts to mitigate deterioration of water quality due to nonpoint source pollution impacts in Kentucky watersheds and collect and disseminate water quality data documenting pre-and post-best management practice (BMP) implementation of multiple projects with various types of monitoring: - physical and chemical - fecal - biological - fish tissue	Sampling schedules and locations vary for each of numerous contractual and demonstration projects: - pre-BMP - post-BMP - recreational season - storm events	Demonstration Projects: - pre-BMP report - final close-out report Contractual Projects: - annual reports - final close-out reports		SW, NPS
Intensive Surveys	Mike Mills, DOW	45 least impacted sites across State are monitored for algae, macroinvertebrates and fish as well as phys/chemical parameters used for reference Biological and chemical surveys of watersheds to assess problems	Spring and Fall sampling One time sampling	Data Report Data Report		SW
Zebra Mussel Monitoring	Benny Kerley, TVA Env. Compliance	Provide status of zebra mussel populations at intakes of TVA power plants.	Twice weekly at Paradise and Shawnee power plants (April - November)	Internal Report		SW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Biological/Habitat Assessments (Continued)						
Reservoir Catch Depletion Surveys	Donny Lowery, TVA Clean Water Unit	Provides data and information on density, biomass, health and condition of black bass populations for use in fishery management decisions by State.	Annual spring sampling (pre-spawn) at 3 locations in Kentucky Reservoir	Annual Report		SW
Stream Bioassessments	Richard Starkey, TVA Clean Water Unit	Support river action teams to assess aquatic resource conditions of hydrologic units. Index of biotic integrity is used for fish communities, and rapid bioassessment protocols (EPT and nutrient tolerant) for macroinvertebrates.	23 locations in the TN River drainage for fish and benthic communities in spring-early summer on a 1-3 cycle.	Annual Report		SW
Vital Signs Monitoring	Don Dycus, Dennis Meinert, TVA Clean Water Unit	Provides information on the ecological health of TVA reservoirs and major tributary streams to rate the system for fishable, swimmable uses. Includes physical, chemical, and bacteriological sampling, fish tissue analysis, and fish and benthic community diversity assessment.	- 4 sites in Kentucky Reservoir (1 in KY at TRM 23) monthly during summer for DO, pH, nutrients, chlorophyll; annual in autumn for sediment (metals, pesticides); annual for diversity of fish and benthic communities; bacteria surveys at 19 sites during summer - Clarks R. Mile 9.8, quarterly physical, chemical; annual fish and benthic community	Annual Reports, e.g., RiverPulse	Data entry on STORET	SW
Endangered Species Monitoring Program	R. McCance, KY State Nature Preserves Commission	Identify the location of species considered rare in Kentucky by the KSNPC and USFWS and periodically verify their continued existence.	Statewide sampling focusing on individual watersheds. Rare plants counted to determine population status.		Biological and Conservation Database at KSNPC	SW, terrestrial

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Biological/Habitat Assessments (Continued)						
Freshwater Mussel Monitoring Program	R.R. Cicerello, KSNPC	Monitoring program for freshwater mussels in the Green River within Mammoth Cave National Park.	Project completed in 1997. Quadrat sampling in 95 and 96 at miles 198.6 and 206. Species composition, length frequency, and reproductive success.	Interim Progress Report	BCD at KSNPC	SW
Biological Monitoring	ORSANCO	<ul style="list-style-type: none"> - development of aquatic life assessment criteria; assessment of aquatic community health; characterization of habitat - currently 2 pools per year are being assessed - multiple sites and sampling events are conducted in each pool - fish population and macroinvertebrate surveys - habitat characterization 	<ul style="list-style-type: none"> - currently fish population surveys are conducted at approximately 20 sites per pool; 500 meter zones - macroinvertebrate sampling conducted at approximately 10 sites per pool - 2 rounds of sampling per site - shoreline habitat recorded at each site 	<ul style="list-style-type: none"> - development of biological criteria - riverwide habitat characterization - Biological Information System Database 	<ul style="list-style-type: none"> - fish population and macroinvertebrate data stored in Paradox - habitat data in spreadsheet - Biological Information System on electronic bulletin board 	SW
Fish Tissue	ORSANCO	<ul style="list-style-type: none"> - assessment of fish consumption use support for human health protection - facilitate states' issuance of fish consumption advisories 	<ul style="list-style-type: none"> - approximately 12 Ohio River sites per year - channel catfish, carp, and game species sampled at each site - tissue analyzed for PCBs, pesticides and metals, and dioxin 	<ul style="list-style-type: none"> - annual summary of results to states; teleconf of states to coordinate issuance of Ohio River fish consumption advisories 	in-house data base	SW
Hydrology/Hydraulic Process Studies						
Basin Hydrology	Dan Carey, KGS, Water Resources Section	Develop a data base on small watershed hydrology for a variety of setting in Kentucky. Use data to develop better models of surface and ground water movement and the associated movement of contaminants.	Four stream monitoring stations were installed in the Eastern Coal field. Nine stations were installed in the central Kentucky karst regions.	Continuous and storm flow data and water quality data.	Ongoing	GW, SW

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Monitoring Program/Activity	Responsible Party/Branch	Program Mission/Summary of Activities	Sampling Schedule and Locations	Product	Data Management	Media Sampling
Hydrology/Hydraulic Process Studies (Continued)						
Water Supply	David Wunsch, KGS, Water Resources Section	Presently funded to study the occurrence of high-yield wells in coal field area using remote sensing and GIS technologies.	Presently selecting areas of study. Test wells will be installed in 96/97.	Reports with data and recommendation for well locations.	KY GW Data Repository	GW
Kentucky Groundwater Monitoring Network	Phil Conrad, KGS, Water Resources Section	State network that collects groundwater samples, amasses data from other organizations, and summarizes/characterizes groundwater resource to: (1) provide baseline data on ambient groundwater resources, (2) characterize ambient groundwater resources in publications, and (3) disseminate information collected and created by the network.	Variable schedule. Now selecting new sites for ground water sampling.	"Framework for the Kentucky Groundwater Monitoring Network" Work on summary document.	Data Repository at KGS, Bart Davidson.	GW
USGS Surface Water and Ground Water Stations	Amy Haliday, USGS Water Resources Division	USGS collects records of stage, discharge, and water quality for streams and lakes; and water levels of wells. Annual reports for 83 stream-gaging stations, also includes water-quality data for 33 stations samples at regular intervals (*see attached list of monitoring sites). GW levels for 13 recording and 70 partial sites.	See attached list of sites.	Kentucky Water Resources Data Water Year 1995		SW, GW
Land Use/Soils/Other Studies						
Cooperative Soil Survey	Bill Craddock, USDA/NRCS	Soil survey is intended to provide information about the spatial distribution, physical properties, and use interpretations of soils in a survey area.	Ongoing. Refer to soil survey progress map.	Soil Survey Publication	Soils	
National Resources Inventory (NRI)	Bill Craddock, USDA/NRCS	The NRI is intended to provide information about natural resource trends in the United States. The NRI is an inventory of land cover and use, soil erosion, prime farmland, wetlands, and other natural resource characteristics on nonfederal rural land in the United States. The NRI also provides a record or resource trends over time.	Nationwide. Conducted every 5 years.	NRI data base.	Land use, soils	

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Kentucky Basin Assessment Tools

Assessment Activity	Responsible Party/Contact Person	Setting/Reason for Application
Fish and Wildlife Contaminant and Hormone Analysis	USFWS/Patuxent Analytical Control Facility, Laurel, MD	Fish and wildlife contaminant occurrence and population assessments
303(d) Analyses	DOW	Surface water use assessment
KPDES Permit Limits	DOW	KPDES compliance assessment/instream activities
Surface Water Quality Standards	DOW	Use assessment
Maximum Contaminant Limits/Goals	Vicki Ray, DOW/DWB	Public health
Bacteriological Assessment	DOW	Recreation use assessment
Trophic Status Assessment	DOW	Aquatic life use assessment
Biological Indices (algae, fish, IBI, macroinvertebrates)	DOW	Comparison streams (least impacted)
FDA Action Levels or Risk Levels	DOW	Surface water use assessment
Reservoir Water Quality Modeling	Pat Neichter, Hydrology and Hydraulics Branch, USACOE	Water quality model (CEQUAL-W2) will be applied to Taylorsville and Cave Run Lakes. The model will be used to evaluate proposed changes in land use and management practices in the watershed relative to water quality in the reservoir.
Tools for Groundwater/Surface Water Interaction	Jim Dinger, KGS/Water Resources Section	Determine interaction between surface water and groundwater, residence time/velocity of groundwater, groundwater discharge and recharge zones, water budgets, impact of GW on SW quality and quantity.
Tools for assessing water quality for drinking and other uses	KGS	EPA MCLs, secondary quality standards, water-quality needs for aquaculture, agriculture, livestock, industry, water-chemistry models, water-type diagrams, statistics.
Tools for karst groundwater basin delineation	James Currens, KGS/WRS	Ground water dye tracing (qualitative and quantitative), spring discharge measurement, potentiometric surface mapping (synoptic water levels in wells), continuous monitoring capability, cave maps.
Tools for water-chemistry/quality modeling over time and flow systems	David Wunsch, KGS/WRS	Model applications including PHREEQE, MINTEQ, BALANCE, and WATEQ to assess water quality and chemistry evolution over time and changes within a flow system.

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Assessment Activity	Responsible Party/Contact Person	Setting/Reason for Application
Tools for assessing the quality of groundwater resources	Phil Conrad, Jim Currens, KGS/WRS	Sampling, field measurements of private wells, springs, monitoring wells, tile drains, streams; analyses for nutrients, pesticides, inorganics and organics; statistics to assess current and changing ground water quality.
Tools for hydrologic modeling for surface water quantity and quality	Dan Carey, Alex Fogle, KGS/WRS	Computer modeling using ANSWERS, AGNPS, SWRBBWQ, and others.
Fish tissue	Don Dycus, TVA Clean Water Initiative (CWI)	Reservoir ecological health assessments
Bacteriological assessments	Joe Fehring, TVA CWI	Reservoir swimming areas assessments
Trophic status assessments	Dennis Melnert, TVA CWI	Reservoir ecological health assessments
Fish populations	Donny Lowery, TVA CWI	Reservoir stock depletion surveys
Stream bioassessments	Bob Wallus, TVA CWI	Hydrologic unit (streams) fish and benthic assessments
Zebra mussel assessments	Benny Kerley, TVA CWI	Water intake (reservoirs) populations

Basin Management Implementation Tools

Division of Water

Name	Program	Description
Water Watch - "Adopt a Stream" - River Assessment and Monitoring Program (RAMP)	Division of Water Program Planning and Administration Branch	- Outreach, training, and on going support for local citizen groups "Adopt a Stream" - Citizen monitoring groups - Concentrated student monitoring project involving science students carrying-out monitoring and analysis on a selected waterbody; students prepare presentation for "responsible public body"
Water Quality Management Planning Mini-grants	Division of Water Program Planning and Administration Branch	40% of State's 604(b) Water Quality Management Planning funds (approx. 70-80K per year) is provided to regional planning agencies for planning projects; most projects focus on Wastewater Facility regionalization/201 plan development
KPDES Permits	Division of Water KPDES Branch	5 year wastewater discharge operating permits, general permits and "no-discharge" permits for all point sources of water pollution
Municipal Wastewater Pretreatment Program Certification	Division of Water KPDES Branch	Technical assistance in developing and operating and approval of municipal programs to insure proper pretreatment of industrial/commercial wastewater prior to discharge to the public system
Enforcement	Division of Water Enforcement Branch	Informal and formal conferences to resolve violations of DOW statutes and regulations; development and monitoring of agreed orders to resolve and/or mitigate violations; development of cases for further administrative and legal action
Operator Certification and Training	Division of Water Enforcement Branch	Training and certification of Drinking water and Wastewater Plant and system operators
Groundwater Technical Assistance	Division of Water Groundwater Branch	Technical assistance in the protection and management of groundwater; assistance on approval of groundwater protection plans; technical assistance in the drilling of water wells
Facility Construction State Revolving Loan Funds (SRF)	Division of Water Facilities Construction Branch	Low interest loans for the construction and renovation of public wastewater collection and treatment systems
Facility Construction Technical Assistance	Division of Water Facilities Construction Branch	Technical assistance in all aspects of design, planning, construction, operation and maintenance wastewater collection and treatment systems
Comptrain Program (Comprehensive Training Program)	Division of Water Enforcement Branch	On-site on hands training in the operation and maintenance of small community wastewater collection and treatment systems

Division of Water (Continued)

Name	Program	Description
Drinking Water State Revolving Loan Funds (SRF)	Division of Water Drinking Water Branch	Low interest loans for the construction and renovation of drinking water treatment and distribution systems to serve existing customers
Drinking Water Technical Assistance	Division of Water Drinking Water Branch	Technical assistance in all aspects of design, planning, construction, operation and maintenance drinking water treatment and distribution systems
CTAP (Comprehensive Technical Assistance Program)	Division of Water Drinking Water Branch	On-site on hands training in the operation and maintenance of small community drinking water treatment and distribution systems
Dams and Floodplain Management	Division of Water Water Resources Branch	Permitting and technical assistance in the construction of dams and any construction in streams, floodplains or floodways that could impact flooding
NFIP (National Flood Insurance Program)	Division of Water Water Resources Branch	Technical assistance to communities for participation in the National Flood Insurance Program under The Federal Emergency Management Agency
Flood Damage Mitigation	Division of Water Water Resources Branch	Assistance in the responses, assessment and mitigation of disasters declared due to flooding
Nonpoint Source (319) Grants	Division of Water Water Quality Branch	Grant for projects that implement nonpoint pollution control programs; 40% local match required
Emergency Response	Division of Water Field Operations Branch	Assistance in the responses, assessment and mitigation of spills and other environmental emergencies
Education/Information Dissemination	Division of Water Director's Office	The director's office public information officer provides coordination and direct distribution of education and information resources to all clients of DOW
Waste Water Facility Needs/Priority Formula	Division of Water Facilities Construction Branch	Assessment of statewide wastewater facility needs the development of the priority formula that governs the distribution of funds under the Wastewater Facility SRF
Drinking Water Facility Needs/Priority Formula	Division of Water Drinking Water Branch	Assessment of statewide wastewater facility needs the development of the priority formula that governs the distribution of funds under the Drinking Water Facility SRF
Drought Response Plans	Division of Water Water Resources Branch	Technical assistance in the development of local plans for response to drought and/or water supply shortages
Groundwater & Mineralogical Technical Assistance	KY Geological Survey	Data, inventories, and GIS capabilities available for site characterization and source identification

Division of Water (Continued)

Name	Program	Description
Wellhead Protection Program	Division of Water Groundwater Branch	Technical assistance in the designation and protection of groundwater public water supply sources
Water Supply Planning	Division of Water Water Resources Branch	Technical assistance in development of and approval of local water supply plans
Water Withdrawal Permits	Division of Water Water Resources Branch	Records all withdrawals of over 10,000 gal/day

Division of Waste Management

Resource Name	Contact	Description of Resource
Brownfields	Division of Waste Management Superfund Branch (Billy Hill and Herb Petitjean)	Provides financial incentives and environmental liability protection to foster the reuse of abandoned, idle, or under-used industrial lands where expansion or redevelopment is complicated by environmental contamination
Composting and Landfarming	Division of Waste Management Solid Waste Branch (Mark Crim)	Provides technical assistance to persons who wish to establish composting programs, and conducts permit review of commercial composting and landfarming facilities
Customer Training	Division of Waste Management Program Planning and Administration Branch (Sharon Watkins)	Coordinates training for the Division's external customers (primarily the regulated public), including operator certification programs for solid and hazardous waste facilities
Federal Superfund Cleanups	Division of Waste Management Superfund Branch (Rick Hogan)	Oversees the cleanup of sites in Kentucky that are listed on the federal National Priority List for Superfund (CERCLA) cleanup
Field Assistance	Division of Waste Management Field Operations Branch (Hannah Helm)	Inspects sites/facilities for violations, initiates proactive efforts to help the regulated public avoid violations, and responds to public complaints
Hazardous Waste Corrective Action and Groundwater Monitoring	Division of Waste Management Hazardous Waste Branch (Dale Burton & Ron Gruzsky)	Reviews groundwater monitoring plans and corrective action plans for releases at hazardous waste facilities; processes permit applications for hazardous waste disposal and incineration
Landfill Permitting, Construction, & Monitoring	Division of Waste Management Solid Waste Branch (George Gilbert)	Processes permit applications, oversight on construction, and review monitoring plans for the disposal of solid or special waste
Non-UST Petroleum Cleanups	Division of Waste Management Superfund Branch (Tim Hubbard)	Oversees the cleanup of petroleum releases at sites other than those regulated by the underground storage tank program
Open Dump Initiative	Division of Waste Management Resource Conservation and Local Assistance (Joy Morgan)	Provides leadership, public outreach, and coordination in efforts to identify and clean up Kentucky's open dumps
Recycling Programs	Division of Waste Management Resource Conservation and Local Assistance (Charles Peters)	Provides assistance to local communities and businesses to aid in their establishment of recycling programs
State Superfund Cleanups	Division of Waste Management Superfund Branch (Bob Padgett)	Oversees the cleanup of truck spill and other releases not addressed by another division program
Underground Storage Tank Actions	Division of Waste Management Underground Storage Tank Branch (Fazi Sherkat)	Educates the regulated public on tank installation, construction, and leak detection requirements; oversees the proper site characterization, cleanup, and closure of UST contamination sites

Division of Waste Management (Continued)

Resource Name	Contact	Description of Resource
Waste Enforcement	Division of Waste Management Enforcement Branch (Connie Smith)	Interfaces with the regulated public, program staff, cabinet attorneys, and field office personnel in response to violations of waste management statutes and regulations
Waste Minimization	Division of Waste Management Director's Office (Mohammad Alauddin)	Works with various division personnel to incorporate waste minimization efforts and practices into all applicable processes of the division
Waste Tires	Division of Waste Management Resource Conservation and Local Assistance Branch (Paul Rawlings); Director's Office (Jeff Pratt)	Provides grants, loans, and advice for the cleanup of waste tire piles and for the recycling and reuse of waste tires; coordinates cleanup of existing tire piles
Hazardous Waste Generator List	Division of Waste Management Program Planning and Administration Branch (Tiffany Mobley and Maria Wood)	Maintains a list of all the hazardous waste generators registered in Kentucky
CERCLIS List	Division of Waste Management Program Planning and Administration Branch (Tiffany Mobley and Maria Wood)	Maintains federal information on release reporting, site assessment, and clean up database
Release Reporting Database	Division of Waste Management Superfund Branch (Bob Padgett)	Maintains information on release reporting and site cleanup in Kentucky
Underground Storage Tanks Database	Division of Waste Management Underground Storage Tank Branch (Colleen Thomas)	Maintains records on UST sites across Kentucky
Hazardous Waste Facility Database (RCRIS)	Division of Waste Management Hazardous Waste Branch (Linda Shearer)	Maintains records on hazardous waste storage, transportation, and disposal facilities across Kentucky
Waste Files (other than Underground Storage Tanks)	Division of Waste Management Program Planning and Administration Branch (Tiffany Mobley and Maria Wood)	Maintains the main files of the Division of Waste Management

[Note: This appendix contains only Division of Water and Division of Waste Management tools; tool lists from other partners are still needed.]



CLEAN WATER ISSUES

**Triennial Review of Water Quality Standards
Under the Clean Water Act**

**Tom C. Van Arsdall
Kentucky Department for Environmental Protection
Division of Water
Frankfort, Kentucky**



**CLEAN WATER ISSUES:
 TRIENNIAL REVIEW OF WATER QUALITY STANDARDS
 UNDER THE CLEAN WATER ACT**

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TRIENNIAL REVIEW OF WATER QUALITY STANDARDS

I. INTRODUCTION

- A. Background
- B. Federal requirements

II. WATER QUALITY STANDARDS REGULATIONS

- A. 401 KAR 5:002 Definitions
- B. 401 KAR 5:026 Classification of waters
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III. PREVIOUS TRIENNIAL REVIEW

- A. Stakeholder involvement
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IV. CURRENT TRIENNIAL REVIEW

- A. Schedule and regulatory process
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- C. Issues
 - 1. Updating classifications
 - 2. Strengthening mixing zone language
 - 3. Addressing items of EPA disapproval on antidegradation
 - 4. Updating numeric criteria

Water Quality Standards Revisions - 1998
Division of Water
February 24, 1999

Background

Kentucky's water quality standards are the foundation of the state's surface water quality management program. A water quality standard consists of the beneficial designated use or uses of a waterbody or a segment of a waterbody and the water quality criteria which are necessary to protect these uses. Water quality standards should, wherever attainable, provide for the protection of public health and aquatic life and provide for recreation in and on the water. Standards serve the dual purposes of establishing the water quality goals for a specific water body and forming the regulatory basis for the development of water quality-based treatment controls and strategies beyond the technology-based levels of wastewater treatment required by Sections 301(b) and 306 of the Clean Water Act.

The state's water quality standards are subject to periodic review and revision in accordance with federal and state laws. The regulations which are the subject of the current review include:

- 401 KAR 5:026. Classification of Waters.
- 401 KAR 5:029. General Provisions
- 401 KAR 5:030. Nondegradation Policy Implementation Methodology.
- 401 KAR 5:031. Surface Water Standards.

The following discussion indicates what changes are being considered by the Cabinet to each of the four regulations. It is hoped that this paper will initiate a dialog between interested parties and the Division of Water that will aid the Cabinet in developing regulatory changes in this review period.

Revisions to 401 KAR 5:026 Classification of Waters

Section 3 of this regulation addresses the priorities for reclassifying surface waters for designated uses. **We intend to delete this entire section.** It was placed in the regulation in 1979 because of a requirement that municipalities could only receive federal funds for installing a new facility or upgrading existing facilities if a use attainability analysis was conducted of waters that they used for public water supplies or for assimilating a treated wastewater. This requirement is no longer in effect. Section 4 will be changed in order for the Cabinet to document its determination to propose or deny a redesignation made by petition and that it provides a copy of the determination to the petitioner and other interested parties.

Section 7 contains a list of streams, locations, and use designations and exceptions to specific criteria. Several new outstanding resource waters that contain federally endangered or

threatened species will be added in addition to a section of the Licking River that qualifies by nature of its exceptional ecological value because of its diverse freshwater mussel and fish communities. Use reclassifications for several streams are also proposed as shown below.

<u>Stream</u>	<u>Location</u>	<u>Reclassification</u>
White Oak Creek	Near Ashland, KY	WAH removed
Razor Fork	Harlan County	CAH to WAH
Little Clear Creek	Bell County	ORW to WAH
Little Yellow Creek	Near Middlesboro, KY	ORW to WAH

ORW - Outstanding Resource Water
 WAH - Warmwater Aquatic Habitat
 CAH - Coldwater Aquatic Habitat

White Oak Creek and Razor Fork were submitted for reclassification by petition. The lower end of White Oak Creek has been modified substantially and runs through a storm drain and culvert before it enters the Ohio River. Razor Fork was never populated with trout. The Cabinet determined that Little Clear Creek and Little Yellow Creek should not have been classified as ORW's because they do not support the *blackside dace* as previously thought. In addition several cold water aquatic habitat streams will be reclassified to warmwater aquatic habitat because they never supported trout populations. New coldwater aquatic habitat streams are proposed because they do support trout populations. Documentation for this was provided by the Department of Fish and Wildlife Resources and other agencies. They are shown below.

<u>Stream</u>	<u>Basin</u>	<u>County</u> <u>Location</u>	<u>Zone</u>
Russell Fork of Big Sandy R.	Big Sandy	Pike	KY-VA State Line (R. Mile 16.0 to River Mile 13.3)
Indian Creek	Licking	Menifee	River Mile 5.2 to River Mile 2.1
Minor Creek	Licking	Rowan	River Mile 2.8 to Craney Creek
Slabcamp Creek	Licking	Rowan	Basin
War Fork of Station Camp Ck	Kentucky	Jackson	River Mile 8.5 to River Mile 2.0
Clover Bottom Creek	U. Cumberland	Jackson	River Mile 1.4 to Horselick Creek
Hawk Creek	U. Cumberland	Laurel	River Mile 4.1 to River Mile 1.1

Attachment A shows the list of streams proposed for reclassification as new outstanding resource waters.

Revisions to 401 KAR 5:029 General Provisions

The definitions section of this regulations will be moved to 401 KAR 5:002, the definition regulation for Chapter 5, as required by statute. Section 5 contains provisions for mixing zones. New zones of initial dilution are proposed only to be available for submerged

multiport outfall structures. Limitations on the size of the zone are also proposed. Mixing zone language for lakes is also proposed for revision. Attachment B shows the changes.

**Revisions to 401 KAR 5:030
Antidegradation Policy Implementation Methodology**

Several new high quality streams have been identified by field investigations of the Division of Water. These streams all scored excellent using the fish Index of Biotic Integrity and thus qualify as high quality waters. They are listed below.

<u>Stream</u>	<u>Basin</u>	<u>Zone</u>
Blackwater Creek	Licking	River Mile 11.4 to River Mile 3.8
Cavanaugh Creek	Kentucky	River Mile 5.3 to Confluence with S. Fork Station Camp Creek
Gladie Creek	Kentucky	River Mile 10.3 to Confluence with Red River
Goose Creek	Kentucky	River Mile 9.3 to Confluence with Red Bird River
Hardwick Creek	Kentucky	River Mile 3.2 to Confluence with Red River
Lulbehrad Creek	Kentucky	River Mile 7.3 to Confluence with Red River
Middle Fork Kentucky R.	Kentucky	River Mile 84.0 to River Mile 76.1
Middle Fork Kentucky R.	Kentucky	River Mile 12.5 to Confluence with N. Fork Kentucky River
Red Bird River	Kentucky	River Mile 60.1 to River Mile 45.1
Russell Creek	Green	River Mile 68.1 to River Mile 23.8
South Fork Kentucky R.	Kentucky	River Mile 27.7 to River Mile 11.3
South Fork Red River	Kentucky	River Mile 3.9 to Confluence with Middle Fork Red River

Two portions of this regulation were not approved by the U.S. Environmental Protection Agency (EPA). They disapproved the exclusion of carcinogenic compounds from more stringent limitations in high quality waters. The Cabinet now intends to include them and they will be restricted to one-half of the limitation that would have been permitted for use protected waters. EPA also disapproved the criteria for designating waters as high quality waters because they were not inclusive enough. EPA felt that additional selection criteria were necessary so that more waters could be considered for classification in the high quality category. To address this issue, the Cabinet will assure that applicants of new and expanded discharges to waters meeting designated uses have performed on alternatives analysis. Also, the Cabinet intends to add the use of another biological index to the criteria to increase the potential for more qualifying waters as excellent. A macroinvertebrate bioassessment index (MBI) score of excellent is proposed. The Division of Water has developed this index and has used it for several years in assessing water quality. An excellent score indicates that water quality exceeds that necessary to support propagation of fish, shellfish, and wildlife in the water. The use of this index will allow more streams to be categorized as high quality. The fish IBI often is not applicable to small streams because there may not be enough habitat to support a diverse fish community even though the

water quality may be high. The MBI can be used in small streams and will indicate if they are high quality. A draft of the index and supporting documentation is being developed and will be provided at a later date.

EPA also wanted clarification on sanitary discharge requirements to high quality waters. In order to satisfy their concerns, we are proposing that no new, or expanded private sanitary wastewater discharges be allowed, unless a demonstration is made of the socio-economic necessity of the facility, or its expansion, and instream dissolved oxygen be maintained at 6.0 mg/l.

Revisions to 401 KAR 5:031 Surface Water Standards

The criteria for protection of human health from the consumption of fish tissue, for the protection of warmwater aquatic habitat, and for protection of domestic water supply are being updated. The basis for the updates in this revised discussion paper are the national recommended water quality criteria published by the EPA in the federal register (FR Vol.63, No.234/Monday, December 7, 1998). In addition, domestic water supply criteria that were based on maximum contaminant levels (MCL) or secondary contaminant maximum levels were updated according to the Kentucky Public Water Supply Regulations (401 KAR 8:250, 8:300 and 8:600). Metals criteria for all uses are expressed as the total recoverable form, except for hexavalent chromium which is in the dissolved form.

The EPA has disapproved of the deletion of dioxin from the human health protection criteria. Dioxin is now added to that list of criteria for the protection of human health from the consumption of fish tissue. The criterion is 0.00000012 ug/l (0.12 parts per quadrillion). Attachment C indicates the proposed changes. Adjustments to the criteria listed for the Ohio River in Section 8 will also be made to conform with Attachment C. A new Section 10 will be added that allows individual discharges to obtain exceptions to criteria under certain circumstances. It is shown in Attachment D. Exceptions are allowed under federal water quality standards regulations.

The EPA has proposed to revise criteria for mercury, selenium, and polychlorinated biphenyls (PCBs). Any final criteria published by EPA during this triennial review will be included in proposed revisions to 401 KAR 5:031.

New Outstanding Resource Waters

WATERBODY	BASIN	Counties	ZONE	Criteria
Licking River	Licking	Kenton, Campbell	River Mile 115.0 to River Mile 18.9	FE&T - Mussel
Licking River	Licking	Flaming, Montgomery	River Mile 165.0 to River Mile 154.5	Ecological Significance
Green River	Green	Green	River Mile 305.6 (Green River Lake dam) to River Mile 291.0	FE&T - Mussel
Green River	Green	Hart	River Mile 290.0 to River Mile 207.8	FE&T - Mussel
Whippoorwill Creek	Lower Cumberland	Logan	Source to Red River	FE&T - Mussel
Ohio River	Ohio	McCracken	River Mile 949.5 to River Mile 948.2	FE&T - Mussel
Bayou de Chien	Mississippi	Hickman	Source to River Mile 17.0	FE&T - Fish
Cane Creek of Bayou de Chien	Mississippi	Graves	Basin	FE&T - Fish
Jackson Creek	Mississippi	Graves	Basin	FE&T - Fish
Sand Creek	Mississippi	Graves	Basin	FE&T - Fish
South Fork of Bayou de Chien	Mississippi	Graves	Basin	FE&T - Fish
Adams Branch	Upper Cumberland	Whitley	Basin	FE&T - Fish
Big Branch	Upper Cumberland	McCreary	Basin above River Mile 0.8	FE&T - Fish
Blacksnake Branch	Upper Cumberland	Bell	Basin	FE&T - Fish
Breeders Creek	Upper Cumberland	Hartan	Basin	FE&T - Fish
Briars Creek	Upper Cumberland	Knox	Basin	FE&T - Fish
Campbell Branch	Upper Cumberland	Whitley	Basin	FE&T - Fish
Caney Creek	Upper Cumberland	Bell	Basin	FE&T - Fish
Cannon Creek	Upper Cumberland	Bell	Basin above Cannon Creek Lake	FE&T - Fish
Coles Branch	Upper Cumberland	Knox	Basin	FE&T - Fish
Colliers Creek	Upper Cumberland	Letcher	Basin	FE&T - Fish
Crisolis Branch	Upper Cumberland	Whitley	Basin	FE&T - Fish
Four Mile Creek	Upper Cumberland	Bell	Basin above River Mile 2.5	FE&T - Fish
Four Mile Run	Upper Cumberland	Bell	Basin Above River Mile 1.0	FE&T - Fish
Hale Fork	Upper Cumberland	Knox	Basin	FE&T - Fish
Hinkle Branch	Upper Cumberland	Knox	Basin	FE&T - Fish
Honeycut Branch	Upper Cumberland	Knox	Basin	FE&T - Fish
Hunting Shirt Branch	Upper Cumberland	Knox	Basin Above River Mile 1.0	FE&T - Fish
Jennys Branch	Upper Cumberland	McCreary	Basin	FE&T - Fish
Kilburn Fork of Indian Creek	Upper Cumberland	McCreary	Basin	FE&T - Fish
Laurel Creek	Upper Cumberland	McCreary	River Mile 9.0 to River Mile 3.4	FE&T - Fish
Laurel Fork of Clear Fork	Upper Cumberland	Bell	River Mile 16.0 to River Mile 4.7	FE&T - Fish
Laurel Fork of Clear Fork	Upper Cumberland	Bell	Basin above River Mile 16.0	FE&T - Mussel and Fish
Laurel Fork of Indian Creek	Upper Cumberland	McCreary	Basin	FE&T - Fish
Laurel Fork of Middle Fk, Rockcastle	Upper Cumberland	Jackson	Source to Middle Fork of Rockcastle River	FE&T - Mussel
Lick Fork	Upper Cumberland	Bell	Basin	FE&T - Fish
Little Poplar Creek	Upper Cumberland	Knox	Basin above and including East Ridge Branch	FE&T - Fish
Marsh Creek	Upper Cumberland	McCreary	Basin above River Mile 24.0	FE&T - Fish
Marsh Creek	Upper Cumberland	McCreary	River Mile 24.0 to confluence with Cumberland River	FE&T - Mussel and Fish
Meadow Fork	Upper Cumberland	Letcher	Basin	FE&T - Fish
Mill Branch	Upper Cumberland	Knox	Basin	FE&T - Fish
Mill Creek	Upper Cumberland	McCreary	Basin	FE&T - Fish
Moones Creek	Upper Cumberland	Knox	Basin	FE&T - Fish
Mud Creek	Upper Cumberland	Whitley	Basin Above River Mile 6.5	FE&T - Fish
Mud Lick	Upper Cumberland	Knox	Basin	FE&T - Fish
Ned Branch	Upper Cumberland	Laurel	Basin	FE&T - Fish
Paterson Creek	Upper Cumberland	Whitley	Basin Above River Mile 7.4	FE&T - Fish
Poor Fork of Cumberland River	Upper Cumberland	Letcher	Basin Above River Mile 742.5	FE&T - Fish
Richland Creek	Upper Cumberland	Knox	Basin above River Mile 15.7	FE&T - Fish
Roaring Fork	Upper Cumberland	Knox	Basin	FE&T - Fish
Ryans Creek	Upper Cumberland	Whitley	Basin	FE&T - Fish
Sinking Creek	Upper Cumberland	Laurel	Source to Rockcastle River	FE&T - Mussel
Smith Creek	Upper Cumberland	Letcher	Basin	FE&T - Fish
South Fork of Dog Slaughter Creek	Upper Cumberland	Whitley	Basin to Dog Slaughter Creek	FE&T - Fish
South Fork of Rockcastle River	Upper Cumberland	Laurel	River Mile 2.1 to Rockcastle River	FE&T - Mussel
Stevenson Creek	Upper Cumberland	Bell	Basin	FE&T - Fish
Straight Creek	Upper Cumberland	Hartan	Basin above River Mile 17.9	FE&T - Fish
Sugar Run	Upper Cumberland	Bell	Source to Cumberland Gap National Historical Park Boundary	FE&T - Fish
Trace Branch	Upper Cumberland	Knox	Basin	FE&T - Fish
Turkey Creek	Upper Cumberland	Knox	Basin Above River Mile 2.1	FE&T - Fish
Watts Creek	Upper Cumberland	Hartan	Basin above Camp Blanton Lake	FE&T - Fish
Underground River System Mammoth Cave National Park Area				
Turnhole Spring	Green	Edmonson, Barren	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Echo River	Green	Edmonson	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Pike Spring	Green	Edmonson	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Mile 205.7 Spring	Green	Hart	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
McCoy Spring	Green	Hart	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Suds Spring	Green	Hart, Barren	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Double Sink Spring	Green	Edmonson, Barren	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Ganter Spring	Green	Edmonson, Barren	Outside Mammoth Cave National Park	FE&T - Cave Shrimp
Running Spring	Green	Edmonson, Barren	Outside Mammoth Cave National Park	FE&T - Cave Shrimp

401 KAR 5:029
Mixing Zone Revisions

Section 5. Mixing Zones. The following conditions shall govern all mixing zones.

- (1) The cabinet may assign, on a case-by-case basis, definable geometric limits for mixing zones for a discharge or a pollutant or pollutants within a discharge. Applicable limits shall include, but may not be limited to, the linear distances from the point of discharge, surface area involvement, and volume of receiving water, and shall take into account other nearby mixing zones. Mixing zones shall not be allowed until applicable limits are assigned by the cabinet in accordance with this section.**
- (2) Concentrations of toxic substances which exceed the acute criteria for protection of aquatic life in 401 KAR 5:031 shall not exist at any point within an assigned mixing zone or in the discharge itself unless a zone of initial dilution is assigned. A zone of initial dilution may be assigned on a case-by-case basis pursuant to subsection (3) of this section. Chronic criteria for the protection of aquatic life and criteria for the protection of human health from the consumption of fish tissue shall be met at the edge of the assigned mixing zone.**
- (3) The following requirements shall govern zones of initial dilution;**
 - (a) The cabinet may require an applicant to provide a technical evaluation and justification for a zone of initial dilution.**
 - (b) Concentrations of toxic substances shall not exceed the acute criteria for the protection of aquatic life at the edge of the assigned zone of initial dilution however, numeric acute criteria may be exceeded within this zone if the frequency and duration of exposure of aquatic organisms are not sufficient to cause acute toxicity.**
 - (c) New zones of initial dilution shall not be allowed in high quality waters and publicly owned lakes and reservoirs.**
- (4) New zones of initial dilution shall be available only to submerged multi-port outfall structures and shall be limited in size to the most restrictive of the following:**
 - (a) The acute criteria shall be met within ten (10) percent of the distance from the edge of the outfall structure to the edge of the regulatory mixing zone in any spatial direction;**
 - (b) The acute criteria shall be met within a distance of fifty (50) times the square root of the cross-sectional area of any discharge port, in any spatial direction;**
 - (c) The acute criteria shall be met in any horizontal direction within a distance of five (5) times the natural water depth which prevails under mixing zone design conditions, and exists prior to the installation of a discharge outlet; or**
 - (d) The acute criteria shall be met within a distance of ten (10) feet from the discharge port in any spatial direction. This requirement may be used by the cabinet in establishing the size of the mixing zone.**
- (5) The location of a mixing zone shall not interfere with fish spawning or nursery areas, fish migration routes, public water supply intakes, or bathing areas, nor preclude the free passage of fish or other aquatic life.**

- (6) Whenever possible the mixing zone, from the point of discharge in any spatial direction, shall not exceed one-third (1/3) of the width of the receiving stream and shall not exceed one-half (1/2) of the cross-sectional area.**
- (7) In publicly owned lakes and reservoirs the mixing zone, from the point of discharge in any spatial direction, shall not exceed one-tenth (1/10) of the width of the lake at that point and shall be kept to a minimum within this restricted area.**
- (8) A mixing zone shall be limited to an area or volume which will not adversely affect the designated uses of the receiving water, nor be so large as to adversely affect an established community of aquatic organisms.**
- (9) For thermal discharges, a successful demonstration conducted under Section 316(a) of the Clean Water Act shall constitute compliance with all provisions of this section.**

Revisions to Numerical Criteria
401 KAR 5:031 Changes are in boldface.

Table 1

Water Quality Criteria for Protection of Human Health from the
Consumption of Fish Tissue

Substances Not Linked to Cancer	Concentrations (ug/l)
Metals (total recoverable)	
Antimony	45,000/4,300
Chromium (III) (to be deleted)	670,000
Mercury	0.146/0.051
Nickel	4,600
Thallium	48/6.3
Zinc	69,000
Organics	
Acenaphthene	2,7000
Acrolein	780
Anthracene	110,000
Chlorobenzene	21,000
1,2,4,5 - tetrachlorobenzene	48
Pentachlorobenzene	85
1,1,1 trichloroethane (to be deleted)	1,030,000
bis (2-chloroisopropyl) ether	4,360/170,000
Cyanide	220,000
1,2-dichlorobenzene	17,000
1,3-dichlorobenzene	2,600
1,4-dichlorobenzene	2,600
1,2,4-trichlorobenzene	940
Dichlorobenzenes (to be deleted)	2,600
Dichloropropenes (to be deleted)	14,600
1,3 - dichloropropene	1,700
alpha-Endosulfan	159/240
beta-Endosulfan	240
Endosulfan sulfate	240
Endrin	0.81
Endrin aldehyde	0.81
Ethylbenzene	29,000
Fluoranthene	54/370

Fluorene	14,000
Hexachlorocyclopentadiene	17,000
Isophorone (to be deleted)	520,000
2-chloronaphthalene	4,300
2-chlorophenol	400
2,4-dichlorophenol	790
2,4-dimethylphenol	2,300
2,4-dinitrophenol	14,000
2,4-dinitro-o-cresol (deleted and renamed as below)	765
2-methyl-4,6-dinitrophenol	
Phenol	4,600,000
Di-n-butylphthalate (Dibutyl phthalate, renamed)	154,000/12,000
Diethyl phthalate	1,800,000/120,000
Di-2-ethylhexyl phthalate (to be deleted)	50,000
Dimethyl phthalate	2,900,000
Pyrene	11,000
Methyl bromide	4,000
Nitrobenzene	1,900
Toluene	424,000/200,000

Substances Linked to Cancer

Metals

Beryllium (to be deleted)	0.117
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Organics

Acrylonitrile	0.65
Aldrin	.000079/0.00014
Benzene	71
Benzidine	.00053/0.00054
Benzo (a) anthracene	0.049
Benzo (a) pyrene	0.049
Benzo (b) fluoranthene	0.049
Benzo (k) fluoranthene	0.049
Bromoform	360
Carbon tetrachloride	6.94/4.4
Chlordane	.00048/0.0022
Chlorodibromomethane	34
Dichlorobromomethane	46
Hexachlorobenzene	.00074/0.00077
1,2-dichloroethane	243/99
1,1,2-trichloroethane	41.8
1,1,2,2-tetrachloroethane	10.7

Hexachloroethane	8.74/8.9
1,2-dichloropropane	39
1,3-dichloropropene	1,700
2,4,6-trichlorophenol	3.6/6.5
Pentachlorophenol	8.2
bis (2-chloroethyl) ether	1.36
bis (2-ethylhexyl) phthalate	5.9
Chloroform	470
Chrysene	0.049
4,4'-DDT (DDT to be deleted)	0.000024/0.00059
4,4'-DDE	0.00059
4,4'-DDD	0.00084
Dibenzo (a,h) anthracene	0.049
3,3' - dichlorobenzidine	0.02/0.077
1,1 - dichloroethylene	1.85/3.2
1,2-trans-dichloroethylene	140,000
Dieldrin	0.000076/0.00014
2,4-dinitrotoluene	9.1
Dioxin (2,3,7,8-TCDD)	0.00000012
1,2- diphenylhydrazine	0.56/0.54
Halomethanes (to be deleted)	15.7
Heptachlor	0.00029/0.00021
Heptachlor epoxide	0.00011
Hexachlorobutadiene	50
alpha Hexachlorocyclohexane (BHC)	0.031/0.013
beta - BHC (HCH renamed to BHC)	0.0547/0.046
gamma - BHC (lindane)	0.0625/0.063
Technical HCH (to be deleted)	0.0414
Indeno (1,2,3 - cd) pyrene	0.049
Isphorone	2,600
Methylene chloride	1,600
N-nitrosodiethylamine (to be deleted)	1.24
N-nitrosodimethylamine	16.0/8.1
N-nitrosodibutylamine (to be deleted)	0.587
N-nitrosodiphenylamine	16.1/16.0
N-nitrosodi-n-propylamine	1.4
Polychlorinated Biphenyls (PCBs)	0.000079/0.00017
Polynuclear Aromatic Hydrocarbons (PAHs) (to be deleted)	0.0311
Tetrachloroethylene	8.85
Toxaphene	0.00073/0.00075
Trichloroethylene	80.7
Vinyl chloride	525

Table 2Warmwater Aquatic Habitat Criteria Metals (total recoverable)

Substance	Acute Criteria	Chronic Criteria
Arsenic (mg/l)		50
Arsenic (III) (ug/l)	360/340	190/150
Beryllium (ug/l) (will be deleted)		11 soft water, 1100 hardwater
Cadmium (ug/l) (formula change)	-3.828/-3.687	-3.490/-2.715
(at 100 mg/l hardness)	3.9/4.5	1.1/2.5
Chromium (III) (ug/l) (formula change)	+3.688/+3.726	+1.561/+0.685
(at 100 mg/l hardness)	1742.9/1803.8	207.0/86.2
Chromium VI (ug/l)	16	11
Copper (ug/l) formula change)	-1.464/-1.700	-1.465/-1.702
(at 100 mg/l hardness)	17.7/14.0	11.8/9.3
Iron (mg/l)	4.0	1.0
Lead (ug/l) (no formula change)		
(at 100 mg/l hardness)	81.6	3.2
Mercury (ug/l)	2.4/1.7	0.012/0.91
Nickel (ug/l) formula change)	+3.3012/+2.255	+1.1645/+0.0584
(at 100 mg/l hardness)	1418.2/469.2	157.7/52.2
Selenium (ug/l)	20	5
Silver (ug/l) (no formula change)		
(at 100 mg/l hardness)	4.0	-
Zinc (ug/l) (formula change)	+0.8604/+0.884	+0.7614/+0.884
(at 100 mg/l hardness)	117.0/119.8	106.0/119.8
	Organics (ug/l)	
Aldrin	3.0	
gamma-BHC (lindane)	0.95	
Chlordane	2.4	0.0043
Chloropyrifos	0.083	0.041
4,4'-DDT	1.1	0.001
Dieldren	2.5/0.24	0.0019/0.056
alpha-Endosulfan	0.22	0.056
beta-Endosulfan	0.22	0.056
Endrin	0.18/0.086	0.0023/0.036
Guthion		0.01
Heptachlor	0.52	0.0038
Heptachlor epoxide	0.52	0.0038
Lindane	2.0	0.080

Organics (mg/l)

Acenaphthene	1.200
Acrolein	0.320
Anthracene	9.6
Monochlorobenzene (renamed to Chlorobenzene)	0.488/.680
1-2-4-5 tetrachlorobenzene	0.038
Pentachlorobenzene	0.074
1,1,1-trichloroethane (to be deleted)	18.4
1,2-trans-dichloroethylene	0.100
2,4,5-trichlorophenol	2.6
Bis (2-chloroisopropyl) ether	0.0347/1.4
1,2-dichlorobenzene	0.600
1,3-dichlorobenzene	0.400
1,4-dichlorobenzene	0.075
1,2,4-trichlorobenzene	0.070
Dichlorobenzenes (to be deleted)	0.400
2-chlorophenol	0.120
2,4-dichlorophenol	3.090/0.093
Dichloropropenes (to be deleted)	0.087
1,3-dichloropropene	0.010
alpha-Endosulfan	0.074/0.110
beta-Endosulfan	0.110
Endosulfan sulfate	0.110
Endrin	0.001/0.00076
Endrin aldehyde	0.00076
Ethylbenzene	3.1
Fluoranthene	0.042/0.300
Fluorene	1.3
Hexachlorocyclopentadiene	0.206/0.05
Methylbromide	0.048
2-chloronaphthalene	1.700
Nitrobenzene	19.8/0.017
2,4-dimethylphenol	0.540
2-4 dinitro-o-cresol (2-methyl-4,6- dinitrophenol)	0.0134
2,4-dinitrophenol	0.070
Pentachlorophenol (to be deleted)	1.0
Phenol	3.5/21
Dibutylphthalate (renamed Di-n-butyl phthalate)	34/2.7
Diethyl phthalate	350/23
Dimethyl phthalate	313

Pyrene	0.960
Toluene	14.3/1.0

Others

Chloride	250
Color	75 Platinum Cobalt Color Units
Cyanide (free)	0.200
Fecal Coliform	2000/100 ml (Geometric mean)
Fluoride	1.0/2.0
Methylene Blue Active Substances	0.5
Nitrate (NO ₃ -N)	10
Sulfate	250
Total Dissolved Solids	750/500

Substances Linked to Cancer

Organics (ug/l)

Acrylonitrile	0.058
Aldrin	0.000074/0.00013
Asbestos (fibers/liter)	30,000/7,000,000
Benzene	1.2
Benzidine	0.00012
Benzo(a)anthracene	0.0044
Benzo(a)pyrene	0.0044
Benzo(b)fluoranthene	0.0044
Benzo(k)fluoranthene	0.0044
Bromoform	4.3
Carbon tetrachloride	0.40/0.25
Chlordane	0.00046/0.0021
Chlorodibromomethane	0.41
Dichlorobromomethane	0.56
Hexachlorobenzene	0.00072/0.00075
1,2-dichloroethane	0.94/0.38
1,1,1-trichloroethane	200
1,1,2-trichloroethane	0.60
1,1,2,2,-tetrachloroethane	0.17
1,2-dichloropropane	0.52
Hexachloroethane	1.9
2,4,6-trichlorophenol	1.2/2.1
Pentachlorophenol	0.28
bis (2-chloroethyl) ether	0.03
bis (2-ethylhexyl) phthalate	1.8

Chloroform	5.7
Chrysene	0.0044
4,4'-DDT	0.000024/0.00059
4,4'-DDE	0.00059
4,4'-DDD	0.00083
Dibenzo(a,h)anthracene	0.0044
3-3'-dichlorobenzidine	0.01/0.04
1,1-dichloroethylene	0.033/0.057
Dieldrin	0.000071/0.00014
2,4-dinitrotoluene	0.11
1,2-diphenylhydrazine	0.042/0.040
Heptachlor	0.00028/0.00021
Heptachlor epoxide	0.00010
Hexachlorobutadiene	0.45/0.44
alpha Hexachlorocyclohexane (BHC) (HCH renamed)	0.009/0.0039
beta BHC (HCH renamed to BHC)	0.016/0.014
gamma BHC (Lindane)	0.019
Ideno (1,2,3-cd) pyrene	0.0044
Isophrone	36
Methylene chloride	4.7
Technical HCH (to be deleted)	0.012
N-nitrosodiethylamine (to be deleted)	0.0008
N-nitrosodimethylamine	0.0014/0.00069
N-nitrosodibutylamine (to be deleted)	0.0064
N-nitrosodiphenylamine	4.9/5.0
N-nitrosodi-n-propylamine	0.005
N-nitrosopyrrolidine (to be deleted)	0.016
Polychlorinated Biphenyls (PCBs)	0.000079/0.00017
Polynuclear Aromatic Hydrocarbons (to be deleted)	0.0028
Tetrachloroethylene	0.8
Toxaphene	0.00071/0.00073
Trichlorethylene	2.7
Vinyl Chloride	2.0

Addition to 401 KAR 5:031

Section 10. Exceptions to Criteria for Individual Dischargers. (1) An exception to criteria may be granted to an individual discharger based on a demonstration by the discharger that KPDES permit compliance with existing instream criteria will result in substantial and widespread adverse economic and social impacts.

- (2) The demonstration shall include an assessment of alternative pollution control strategies and biological assessments that indicated designated uses are being met.
- (3) Before granting an exception, the cabinet shall ensure that the water quality standards of downstream waters are attained and maintained.
- (4) All exceptions shall be submitted to the Cabinet for review at least every five (5) years. Upon review, the discharger shall demonstrate to the cabinet that a reasonable effort has been made to reduce the pollutants in the discharge to levels that would achieve existing applicable water quality criteria.
- (5) The highest level of effluent quality that can be economically and technologically achieved shall be ensured while the exception is in effect.
- (6) The Kentucky Pollution Discharge Elimination System permitting program shall be the mechanism for the review and public notification of intentions to grant exceptions to criteria for individual dischargers.

Triennial Review of Water Quality Standards

- Required by Section 303(c) of Clean Water Act
- Kentucky has dealt with water quality regulations since 1950 with the creation of the Water Pollution Control Committee. Since 1978, the Kentucky Division of Water has completed 4 triennial reviews
- Previous triennial review completed in July 1995
- Present triennial review began Fall of 1998

Outstanding Resource Waters

- Automatic inclusion of waters containing federally listed threatened or endangered species, Kentucky Wild River, Federal Wild and Scenic River, or nature preserve or natural area under KY Nature Preserves Act
- Dischargers to these ORWs perform biological monitoring
- Another class of ORWs are those with diverse or unique aquatic community

Water Quality Standards Regulations

- 401 KAR 5:002 Definitions
- 401 KAR 5:026 Classification of Waters
- 401 KAR 5:029 General Provisions
- 401 KAR 5:030 Nondegradation Implementation Procedures
- 401 KAR 5:031 Surface Water Standards

Current Antidegradation Regulation

- 3 Outstanding National Resource Waters in federal lands: Red River, Underground system Mammoth Cave, and Big South Fork Cumberland River
- Defines High Quality waters as those having an "excellent" fish community, in reference reach program, and Kentucky Wild Rivers
- 45 High Quality Waters, most from Division's Reference Reach Network
- Places stricter permit limits on dischargers to High Quality waters
- Demonstration of socio-economic importance exempts discharger from more strict limits
- All other waters are protected for maintaining or re-establishing support of designated uses

Link between Designated Uses in 5:026 and Criteria in 5:031

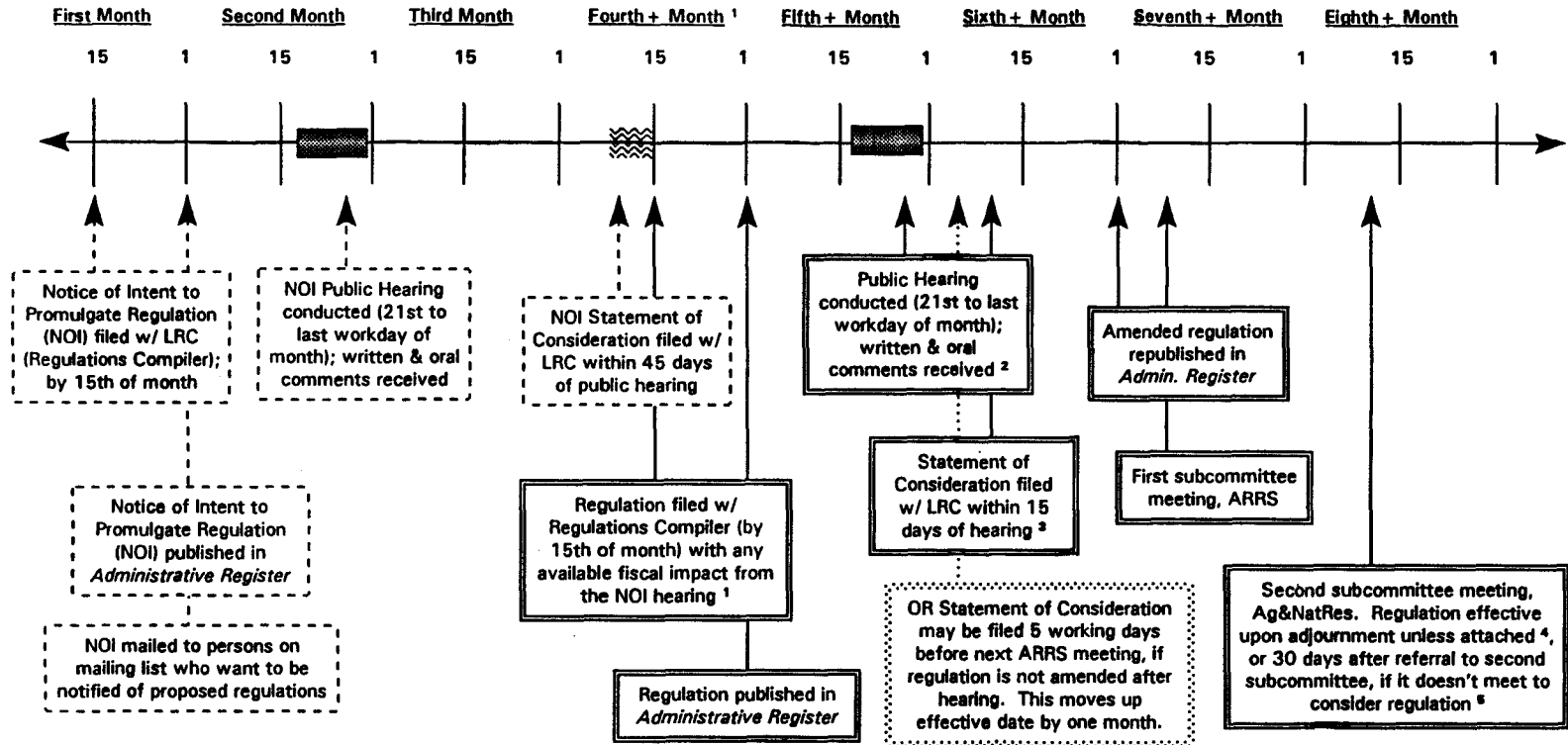
- Unless specifically listed otherwise, all waters are classified in 5:026 for Warmwater Aquatic Life, Contact Recreation, and Domestic Water Supply. CAH another designated use
- Criteria contained in 5:031 for waters with these designated uses constitute surface water standards
- 5:031 also contains minimum criteria, including those for protection of human health from consumption of fish tissue and important narrative statements, applicable to all waters

Items of EPA Disapproval

- Carcinogens did not receive twice as stringent limits in HQ Waters
- New and expanded facilities only on a small number of waters receive antidegradation review
- Previous disapproval for lack of dioxin criteria

REGULATION DEVELOPMENT TIMELINE

July 1998



- ¹ Proposed or Amended Regulation must be filed w/ LRC within 120 days of the scheduled NOI public hearing date.
- ² Agency may extend close of comment period for 15 days, if significant comments are expected. Must notify LRC by letter by date of hearing.
- ³ Agency may delay submittal of Statement of Consideration by 30 days (total of 45 days after hearing), if significant comments are received. Must notify LRC by letter by original due date of Statement of Consideration.
- ⁴ If regulation is attached, notice is sent to the Governor for his recommendation on withdrawal of regulation, withdrawal of regulation and amending regulation to conform to the finding of deficiency, or promulgation of regulation despite the finding of deficiency. Governor notifies LRC and the Regulations Compiler of his determination. Regulation becomes effective after subcommittee of appropriate jurisdiction has reviewed the regulation (or 30 days have past since referral) and Regulations Compiler has received the Governor's determination.
- ⁵ If quorum is not present at either subcommittee meeting, regulation is treated as if subcommittee had not met: after 30 days of referral it is passed to next subcommittee; if second subcommittee does not meet or does not have a quorum, the regulation goes into effect 30 days after referral to the subcommittee.

Revisions to Classifications and New High Quality Waters

- 71 additions to ORW list in current reg, mostly because of blackside dace (see App. A of Discussion Paper)
- Removal of Warmwater Aquatic Habitat Use in White Oak Creek
- Change from Coldwater Aquatic Habitat to Warmwater Aquatic Habitat in several streams where KDFWR did not stock trout
- 12 new High Quality Waters, mostly from intensive watershed monitoring program

MIXING ZONES

- More clearly defines mixing zones in lakes
- No new zones of initial dilution in lakes or high quality waters
- Zones of initial dilution restricted to submerged multiport high rate diffusers
- Absolute limit of 10 ft for zone of initial dilution

ANTIDEGRADATION

- Carcinogens restricted in similar manner as other toxicants in High Quality waters
- Addition of macroinvertebrate index rating of "excellent" (to existing fish index) as criterion for qualifying water as High Quality
- Alternatives analysis required of all new and expanded discharges

Numeric Criteria

- Criteria updated based on December 1998 Federal Register publication by EPA (changes bolded in App. C Discussion Paper)
- Dioxin criteria proposed
- Kentucky appraising ongoing EPA review of mercury, arsenic, PCBs, and selenium criteria

**ETHICAL CONCERNS
IN
ENVIRONMENTAL LAW PRACTICE**

John R. Leathers - *MODERATOR*
Buchanan Ingersoll Professional Corporation
Pittsburgh, Pennsylvania

and

Clinton J. Elliott
Wyatt, Tarrant & Combs
Louisville, Kentucky

and

Thomas J. FitzGerald
Kentucky Resources Council
Frankfort, Kentucky

and

Jeffrey M. Sanders
Sanders & Associates
Covington, Kentucky

and

Richard H. Underwood
University of Kentucky College of Law
Lexington, Kentucky



**UNIVERSITY OF KENTUCKY
15TH ANNUAL ENVIRONMENTAL LAW INSTITUTE**

**ETHICAL CONCERNS IN
ENVIRONMENTAL LAW PRACTICE**

By John R. Leathers

1. Citizen comes to Enviro, a lawyer who specializes in representation of clients with claims relating to environmental damage. Citizen states that he lives on property which adjoins the refining plant of Refinery and that he believes the refinery is discharging some sort of hazardous liquid material. Enviro goes to the property and observes a pond on the refinery grounds. Below the pond, one can see a broad area of dead and discolored vegetation. At the point of departure from the refinery property (where it enters Citizen's property), Enviro sees a rust-colored, odorous liquid stream which is in the midst of similarly dead and discolored vegetation. Eventually that liquid intersects a stream, at which point the stream becomes discolored and odorous. Enviro sees dead fish, a few dead birds and dead, discolored vegetation around the edges. Citizen states that his children have come into contact with the substance and are now exhibiting a variety of medical problems which did not exist before the contact. How should Enviro proceed in taking action on behalf of Citizen?

2. Assume that Enviro files a lawsuit on behalf of Citizen against Refinery, seeking injunctive relief and damages. Lawyer is contacted by an insurance claims agent of Insurer, a company for which the Firm is approved counsel for defense of claims under Comprehensive General Liability policies. A claim of property damage and personal injury occasioned by a chemical spill has been asserted by Citizen regarding property which adjoins that of Refinery and

regarding injuries allegedly sustained by Citizen's children. The claims agent cautions Lawyer that Insurer's position is that CGL policies apply only to claims of property damage and that Insurer wishes to reserve its rights on the personal injury claims. Refinery is placed into contact with Lawyer with the understanding that defense work will be performed and payment for the expenses thereof will be made by Insurer. One of Insurer's requirements of its approved counsel is that they periodically provide to the claims agent a report on the status of the litigation, along with a plan for how matters will proceed. How should Lawyer proceed in counseling Refinery at the outset of this relationship?

3. An additional requirement of Insurer for payment of bills for legal services is that they be submitted for review by LegalReview, a firm which specializes in analysis of law firm billings. Such billings must be extremely detailed, including standardized "task codes" which categorize the nature of the work done. How, if at all, should this alter the counseling which Lawyer will provide at the outset to Refinery?

4. Assume that the Complaint which Enviro has filed in state court on behalf of Citizen (for himself and on behalf of his children), naming Refinery (the corporation only) as a defendant, seeks damages and injunctive relief. Enviro discovers after the filing of the Complaint that Citizen is not the owner of the property; rather, he is renting that property on a month by month basis. How should Enviro proceed?

5. Assume that Enviro contacts Owner, they examine the problem together and that Owner wishes to proceed with the litigation. Enviro plans to amend the Complaint to add Owner as a plaintiff. In the meantime, however, an investigator for Enviro has tracked the path of the discoloration and odor off property, downstream to another receiving stream and discovered that similar conditions of apparent damage exist for many miles. Ultimately it is discovered that over one hundred tracts of property are impacted thereby. Enviro then changes his draft amended Complaint to be a 23.02(c) class action, with Owner and Citizen as the representative parties and defining the class to include the owners and occupants of all the properties impacted by the discharge. The Amended Complaint also adds as defendants the Board of Directors of Refinery, its President, CEO and COO (the same individual) and its Environmental Director. Lawyer has previously been approved by Insurer to represent Refinery. Insurer indicates that it will similarly assume the defense of the Directors, President and Environmental Director, again under a reservation of rights and with the same requirements about status reports and billing review. How should Lawyer proceed in deciding whether to represent these additional persons?

6. As the Court proceeds toward certification of the class action, Lawyer learns that one member of the represented class is an active client of Lawyer's firm. That firm now represents the member in a contract dispute over his business and has a long-standing representational relationship with the class member. Is the firm disqualified from representing defendant(s) in the action?

7. After the action has been certified, the Court proceeds through the opt-out process under the Rules. During that time period, it is the desire of Enviro that as many members of the represented class as possible not opt out. May Enviro contact those represented class members in order to encourage them to stay in the class?

8. During that same time period, it is the wish of Lawyer that as many members of the represented class as possible do opt out. May Lawyer contact those represented class members to encourage them to exercise their opt out rights?

9. Suppose that the class is certified and that only five out of one hundred members opt out. The litigation is proceeding. Enviro is informed through local contacts that Laborer, an hourly, low-level employee of Refinery, has stated that he knows that the discharge was known to Refinery officials and that company documents were falsified to conceal that fact. May Enviro contact Laborer without going through Lawyer?

10. In the course of the litigation, Enviro is asked several times via interrogatory to specify the amount of damages sought in litigation but has failed to answer, in violation of CR 8.01(2). Enviro has also twice ordered in standard pre-trial orders to specify amount of damages sought but has never complied. Had the response been given, any recovery would have been limited to the amount so stated. On the morning of trial, counsel for defendant(s) moves to dismiss because no damages are sought and that is an essential element of a claim under Kentucky law. Upon discussion with the Court, Lawyer suggests that trial could proceed IF the

plaintiffs would agree to accept the limits of the defendants' CGL policy as the upper limit of the damage claim. The Court states that it would, in the interest of justice, grant a continuance but that an alternate trial date is not available for at least eight months. How should Enviro proceed in dealing with his clients on this issue?

QUICK REFERENCE GUIDE TO....

KENTUCKY RULES OF PROFESSIONAL CONDUCT **KENTUCKY SUPREME COURT RULE 3.130**

ADOPTED EFFECTIVE JANUARY 1, 1990

Terminology

- Rule 1.1 Competence**
Comment
- Legal knowledge and skill
 - Thoroughness and preparation
 - Maintaining competence
- Rule 1.2 Scope of Representation**
Comment
- Scope of representation
 - Independence from client's views or activities
 - Services limited in objectives or means
 - Criminal, fraudulent and prohibited transactions
- Rule 1.3 Diligence**
Comment
- Rule 1.4 Communication**
Comment
- Withholding information
- Rule 1.5 Fees**
Comment
- Basis or rate of fee
 - Terms of payment
 - Division of fee
 - Disputes over fees
- Rule 1.6 Confidentiality of Information**
Comment
- Authorized disclosure
 - Disclosure adverse to client
 - Withdrawal
 - Dispute concerning lawyer's conduct
 - Disclosures otherwise required or authorized
 - Former client
- Rule 1.7 Conflict of Interest: General Rule**
Comment
- Loyalty to a client
 - Consultation and consent
 - Lawyer's interests
 - Conflicts in litigation
 - Interest of person paying for lawyer's service
 - Other conflict situations
 - Conflict charged by an opposing party
- Rule 1.8 Conflict of Interest: Prohibited Transactions**
Comment
- Transactions between client and lawyer
 - Literary rights
 - Person paying for lawyer's services
 - Limiting liability
 - Family relationships between lawyers
 - Acquisition of interest in litigation

- Rule 1.9 Conflict of Interest: Former Client**
Comment
- Rule 1.10 Imputed Disqualification: General Rule**
Comment
- Definition of "firm"
 - Principles of imputed disqualification
 - Lawyers moving between firms
 - Confidentiality
 - Adverse positions
- Rule 1.11 Successive Government and Private Employment**
Comment
- Rule 1.12 Former Judge or Arbitrator**
Comment
- Rule 1.13 Organization as Client**
Comment
- The entity as client
 - Relation to other rules
 - Government agency
 - Clarifying the lawyer's role
 - Dual representation
 - Derivative actions
- Rule 1.14 Client Under a Disability**
Comment
- Disclosure of the client's condition
- Rule 1.15 Safekeeping Property**
Comment
- Rule 1.16 Declining or Terminating Representation**
Comment
- Mandatory withdrawal
 - Discharge
 - Optional withdrawal
 - Assisting the client upon withdrawal

COUNSELOR

- Rule 2.1 Advisor**
Comment
- Scope of advice
 - Offering advice
- Rule 2.2 Intermediary**
Comment
- Confidentiality and privilege
 - Consultation
 - Withdrawal
- Rule 2.3 Evaluation for Use by Third Persons**
Comment
- Definition
 - Duty to third person
 - Access to and disclosure of information
 - Financial auditor's requests for information

ADVOCATE

- Rule 3.1 Meritorious Claims and Contentions**
Comment
- Rule 3.2 Expediting Litigation**
Comment
- Rule 3.3 Candor Toward the Tribunal**
Comment
- Representations by a lawyer
 - Misleading legal argument
 - False evidence
 - Perjury by a criminal defendant
 - Remedial measures
 - Constitutional requirements
 - Duration of obligation
 - Refusing to offer proof believed to be false
 - Ex parte proceedings
- Rule 3.4 Fairness to Opposing Party and Counsel**
Comment
- Rule 3.5 Impartiality and Decorum of the Tribunal**
Comment
- Rule 3.6 Trial Publicity**
Comment
- Rule 3.7 Lawyer as Witness**
Comment
- Rule 3.8 Special Responsibilities of a Prosecutor**
Comment
- Rule 3.9 Advocate in Nonadjudicative Proceedings**
Comment

TRANSACTIONS WITH PERSONS OTHER THAN CLIENTS

- Rule 4.1 Truthfulness in Statements to Others**
Comment
- Misrepresentation
 - Statements of fact
- Rule 4.2 Communication With Person Represented by Counsel**
Comment
- Rule 4.3 Dealing With Unrepresented Person**
Comment
- Rule 4.4 Respect for Rights of Third Persons**
Comment

LAW FIRMS AND ASSOCIATIONS

- Rule 5.1 Responsibilities of a Partner or Supervisory Lawyer**
Comment
- Rule 5.2 Responsibilities of a Subordinate Lawyer**
Comment
- Rule 5.3 Responsibilities Regarding Nonlawyer Assistants**
Comment
- Rule 5.4 Professional Independence of a Lawyer**
Comment
- Rule 5.5 Unauthorized Practice of Law**
Comment
- Rule 5.6 Restrictions on Right to Practice**
Comment

PUBLIC SERVICE

- Rule 6.1 Donated Legal Services**
Comment
- Rule 6.2 Accepting Appointments**
Comment
 - Appointed counsel
- Rule 6.3 Membership in Legal Services Organization**
Comment
- Rule 6.4 Law Reform Activities Affecting Client Interests**
Comment

INFORMATION ABOUT LEGAL SERVICES

- Rule 7.01 Applicability**
- Rule 7.02 Definitions**
- Rule 7.03 Attorneys' Advertising Commission**
- Rule 7.04 Advertising Of Fees**
- Rule 7.05 Approval Of Advertisements**
- Rule 7.06 Disapproval of Advertisements**
- Rule 7.07 Appeal**
- Rule 7.08 Open Records**
- Rule 7.09 Waiver And Forfeiture Of Fees For Prohibited Solicitation**
- Rule 7.10 Communications Concerning A Lawyer's Service**
Comment
- Rule 7.20 Advertising**
Comment
 - Paying others to recommend a lawyer
- Rule 7.25 Identification Of Advertisements**
- Rule 7.30 Direct Contact With Prospective Clients**
- Rule 7.40 Communication Of Fields Of Practice**
Comment
- Rule 7.50 Firm Names and Letterheads**
Comment
- Rule 7.60 Kentucky Disaster Response Plan**

MAINTAINING THE INTEGRITY OF THE PROFESSION

- Rule 8.1 Bar Admission and Disciplinary Matters**
Comment
- Rule 8.2 Judicial and Legal Officials**
Comment
- Rule 8.3 Misconduct**
Comment
- Rule 8.4 Jurisdiction**
Comment

15th Annual Environmental Law Institute
Richard H. Underwood
Ethics Presentation

Here are some recommended readings:

Kenefick, et al., *Assessing Conflicts of Interest At Multi-Party Superfund Sites: From First Involvement To Litigation*, 4 **Envtl. Law.** 721 (June 1998).

Marshall, *Conducting Internal Investigations in Environmental Cases*, **ALI-ABA Course Mat'ls J.** 5 (June 1998).

Thompson, et al., *Environmental Investigations: Compliance Issues and Parallel Investigations*, SD19 **ALI-ABA** 55 (September 1998).

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**NITROGEN OXIDE
STATE IMPLEMENTATION PLAN (NO_x SIP) CALL
AND
OTHER CLEAN AIR ACT MATTERS**

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**NITROGEN OXIDE
STATE IMPLEMENTATION PLAN (NO_x SIP) CALL
AND
OTHER CLEAN AIR ACT MATTERS**

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STATE IMPLEMENTATION PLAN (NO_x SIP) CALL
AND
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NO_x SIP CALL AND OTHER CAA MATTERS

I. Clean Air Act

- A. Requires EPA to set National Ambient Air Quality Standards (NAAQS)
CAA §109 42 USC §7409
- B. Provides Mechanisms for Compliance with NAAQS
 - 1. SIPs CAA §182 42 USC §7511 (a)
 - 2. FIPs CAA §183 42 USC §7511 (b)
- C. SIP or FIP require attainment designation for all air quality control regions within state - some regions are overlapping - both Louisville and Covington are in interstate regions
- D. Air Quality Regions categorized with different attainment dates and requirements
 - 1. Nonattainment Classifications
 - a. Extreme
 - b. Severe
 - c. Serious
 - d. Moderate
 - e. Marginal
 - 2. Classification impacts permitting of facilities
 - a. RACT offsets
 - b. Definition of a major source

3. Consequences of failure to meet attainment dates
 - a. Sanctions
 - b. More stringent permitting requirements
 - c. Bump-up to next classification
4. KY Ozone Status
 - a. Jefferson County - Moderate Nonattainment
 - b. Northern Kentucky - originally - moderate - Nonattainment
 - c. Rest of State - attainment

II. Ozone Standard Revision

- A. 7/18/97 - EPA promulgates 8 hour ozone standard
 1. States given to year 2000 to identify status of air quality regions
 2. 3 years to develop SIPs
- B. 2/8/98 - EPA Guidance on implementing 1 hour standard
- C. 6/5/98 - 1 hour ozone revoked but for Boone, Campbell, Kenton, Bullitt (part), Oldham (part) , Jefferson (63 FR 31014 1998)
- D. 6/22/98 - EPA Guidance on implementing ozone standard
 1. States to recommend attainment designations by 7/99
 2. Meantime, DAQ may require offsets if new source may impact on potential nonattainment area (51:017§10)
- E. Based on preliminary data, counties that may fail - Campbell, Kenton, Hancock, Oldham, Livingston, Fayette, Boone, Daviess, Henderson, McClean, Boyd, Greenup, Bullitt, McCracken, Simpson

- F. Where no data, source may be required to do preconstruction monitoring 401
KAR 51:017 §12
- G. 8/19/98 - EPA guidance for implementation of New Ozone Standard
 - 1. 3 Nonattainment classifications
 - a. Traditional
 - (1) SIP submitted by 7/2003
 - (2) Attainment by 2008 or 2010
 - b. Transitional
 - (1) SIP submitted by 5/2000
 - (2) Attainment by 12/31/2003
 - c. International Transport
 - (1) SIP submitted by 7/2003
 - (2) Attainment by 12/31/2005
- H. 11/17/98 - Guidance - amends above
 - 1. Finalize nonattainment designation by 7/18/2000
 - 2. Traditional nonattainment SIP 7/18/2003
 - 3. Transitional SIP 9/30/99
 - a. Modeling by 8/1/2000 - meet standard with NOx SIP

III. NOx SIP CALL

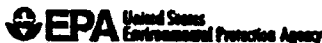
- A. 11/7/97 - EPA ANPR on NOx in OTAG Region
 - 1. KNREP Comment

- B. 5/11/98 - Supplemental notice of ozone impacts on NE
 - 1. Revised SIP due by 9/30/99
 - a. Demonstrate how to comply with NOx budget
 - b. KY 158,360 ton limit during Ozone Season - based on EPA view of cost effectiveness
 - 2. Implement NOx reductions by 9/30/2002
 - 3. Would require 85% reduction
- C. 9/24/98 - Final NOx SIP Call regulation
 - 1. Proposed action on §126 petitions
- D. Litigation following NOx SIP Call
- E. 12/14/98 - NOI to amend 401 KAR 51 for NOx SIP Call
 - 1. Public hearing 1/28/99
- F. §126 Petitions
 - 1. 8/1997 - 8 NE states filed §126 petitions
 - 2. 12/18/97 - EPA/NE states delay petitions until 4/30/99

IV. Other Issues

- A. Status of Title V Permits
- B. Repeal of DAQ Air Toxic Regulation

CLEAN AIR ACT
- Table of Contents -
including 1990 amendments



Office of Air & Radiation

Regulations

Clean Air Act

This page lists the sections of the Clean Air Act as amended in 1990. Click on a specific title to see a list of that title's sections. Click on a specific section to see the text of that section.

[Title I - Air Pollution Prevention and Control](#)

[Part A - Air Quality and Emission Limitations](#)

[Part B - Ozone Protection \(replaced by Title VI\)](#)

[Part C - Prevention of Significant Deterioration of Air Quality](#)

[Part D - Plan Requirements for Nonattainment Areas](#)

[Title II - Emission Standards for Moving Sources](#)

[Part A - Motor Vehicle Emission and Fuel Standards](#)

[Part B - Aircraft Emission Standards](#)

[Part C - Clean Fuel Vehicles](#)

[Title III - General](#)

[Title IV - Acid Deposition Control](#)

[Title V - Permits](#)

[Title VI - Stratospheric Ozone Protection](#)

TITLE I - AIR POLLUTION PREVENTION AND CONTROL

Part A - Air Quality and Emission Limitations

[Sec. 101. Findings and purposes.](#)

[Sec. 102. Cooperative activities and uniform laws.](#)

[Sec. 103. Research, investigation, training, and other activities.](#)

[Sec. 104. Research relating to fuels and vehicles.](#)

[Sec. 105. Grants for support of air pollution planning and control programs.](#)

[Sec. 106. Interstate air quality agencies or commissions.](#)

[Sec. 107. Air quality control regions.](#)

[Sec. 108. Air quality criteria and control techniques.](#)

[Sec. 109. National ambient air quality standards.](#)

[Sec. 110. Implementation plans.](#)

[Sec. 111. Standards of performance for new stationary sources.](#)

[Sec. 112. National emission standards for hazardous air pollutants.](#)

[Sec. 113. Federal Enforcement.](#)

[Sec. 114. Inspections, monitoring, and entry.](#)

[Sec. 115. International air pollution.](#)

[Sec. 116. Retention of state authority.](#)

Sec. 117. President's air quality advisory board and advisory committees.
Sec. 118. Control of pollution from federal facilities.
Sec. 119. Primary nonferrous smelter orders.
Sec. 120. Noncompliance penalty.
Sec. 121. Consultation.
Sec. 122. Listing of certain unregulated pollutants.
Sec. 123. Stack heights.
Sec. 124. Assurance of adequacy of state plans.
Sec. 125. Measures to prevent economic disruption or unemployment.
Sec. 126. Interstate pollution abatement.
Sec. 127. Public notification.
Sec. 128. State boards.
Sec. 129. Solid Waste Combustion.
Sec. 130. Emission Factors.
Sec. 131. Land Use Authority.

Part B - Ozone Protection

The 1990 CAA Amendments replaced Part B with Title VI - Stratospheric Ozone Protection, which follows later on this page. The following sections of Part B were replaced:

Sec. 150. Purposes.
Sec. 151. Findings and definitions.
Sec. 152. Definitions.
Sec. 153. Studies by environmental protection agency.
Sec. 154. Research and monitoring by other agencies.
Sec. 155. Progress of regulation.
Sec. 156. International cooperation.
Sec. 157. Regulations.
Sec. 158. Other provisions unaffected.
Sec. 159. State authority.

Part C - Prevention of Significant Deterioration of Air Quality

SUBPART 1 - Clean Air

Sec. 160. Purposes.
Sec. 161. Plan requirements.
Sec. 162. Initial classifications.
Sec. 163. Increments and ceilings.
Sec. 164. Area redesignation.
Sec. 165. Preconstruction requirements.
Sec. 166. Other pollutants.
Sec. 167. Enforcement.
Sec. 168. Period before plan approval.
Sec. 169. Definitions.

SUBPART 2 - Visibility Protection

Sec. 169a. Visibility protection for federal class I areas.
Sec. 169b. Visibility

Part D - Plan Requirements for Nonattainment Areas

SUBPART 1 - Nonattainment Areas in General

Sec. 171. Definitions.

Sec. 172. Nonattainment plan provisions.

Sec. 173. Permit requirements.

Sec. 174. Planning procedures.

Sec. 175. Environmental protection agency grants.

Sec. 176. Limitation on certain federal assistance.

Sec. 176A. Interstate Transport Commissions.

Sec. 177. New motor vehicle emission standards in nonattainment areas.

Sec. 178. Guidance documents.

Sec. 179. Sanctions and consequences of failure to attain

Sec. 179B. International border areas

SUBPART 2 - Additional Provisions for Ozone Nonattainment Areas

Sec. 181. Classifications and attainment dates.

Sec. 182. Plan submissions and requirements.

Sec. 183. Federal ozone measures.

Sec. 184. Control of interstate ozone air pollution.

Sec. 185. Enforcement for Severe and Extreme ozone nonattainment areas for failure to attain.

Sec. 185A. Transitional areas.

Sec. 185B. NO_x and VOC study.

SUBPART 3 - Additional Provisions for carbon monoxide nonattainment areas

Sec. 186. Classification and attainment dates.

Sec. 187. Plan submissions and requirements.

SUBPART 4 - Additional Provisions for particulate matter nonattainment areas

Sec. 188. Classification and attainment dates.

Sec. 189. Plan provisions and schedules for plan submissions.

Sec. 190. Issuance of RACM and BACM guidance.

SUBPART 5 - Additional provisions for designated nonattainment for sulfur oxides, nitrogen dioxide, or lead

Sec. 191. Plan submission deadlines.

Sec. 192. Attainment dates.

SUBPART 6 - Savings provisions

Sec. 193. General savings clause.

TITLE II - EMISSION STANDARDS FOR MOVING SOURCES

Sec. 201. Short title.

Part A - Motor Vehicle Emission and Fuel Standards

Sec. 202. Establishment of standards.

Sec. 203. Prohibited acts.

Sec. 204. Injunction proceedings.

Sec. 205. Penalties.

Sec. 206. Motor vehicle and motor vehicle engine compliance testing and certification.

Sec. 207. Compliance by vehicles and engines in actual use.

Sec. 208. Records and reports.

Sec. 209. State standards.

Sec. 210. State grants.

Sec. 211. Regulation of fuels.

Sec. 212. Development of low-emission vehicles.

Sec. 213. Fuel economy improvement from new motor vehicles.

Sec. 214. Study of particulate emissions from motor vehicles.

Sec. 215. High altitude performance adjustments.

Sec. 216. Definitions for part A.

Sec. 217. Motor vehicle compliance program fees.

Sec. 218. Prohibition on production of engines requiring leaded gasoline.

Sec. 219. Urban bus standards.

Part B - Aircraft Emission Standards

Sec. 231. Establishment of standards.

Sec. 232. Enforcement of standards.

Sec. 233. State standards and controls.

Sec. 234. Definitions.

Part C - Clean Fuel Vehicles

Sec. 241. Definitions.

Sec. 242. Requirements Applicable to clean fuel vehicles.

Sec. 243. Standards for light-duty clean fuel vehicles.

Sec. 244. Administration and enforcement as per California standards.

Sec. 245. Standards for heavy-duty clean-fuel vehicles(GVWR above 8,500 up to 26,000 lbs).

Sec. 246. Centrally fueled fleets.

Sec. 247. Vehicle conversions.

Sec. 248. Federal agency fleets.

Sec. 249. California pilot test program.

Sec. 250. General provisions.

TITLE III - GENERAL

Sec. 301. Administration.

Sec. 302. Definitions.

Sec. 303. Emergency powers.

Sec. 304. Citizen suits.
Sec. 305. Representation in litigation.
Sec. 306. Federal procurement.
Sec. 307. General provisions relating to administrative proceedings and judicial review.
Sec. 308. Mandatory licensing.
Sec. 309. Policy review.
Sec. 310. Other authority not affected.
Sec. 311. Records and audit.
Sec. 312. Comprehensive economic cost studies and studies of cost effectiveness analysis.
Sec. 313. Additional reports to congress.
Sec. 314. Labor standards.
Sec. 315. Separability.
Sec. 316. Sewage treatment grants.
Sec. 317. Short title.
Sec. 318A. Economic impact assessment.
Sec. 318B. Financial disclosure: conflicts of interest.
Sec. 319. Air quality monitoring.
Sec. 320. Standardized air quality modeling.
Sec. 321. Employment effects.
Sec. 322. Employee protection.
Sec. 323. Cost of emission control for certain vapor recovery to be borne by owner of retail outlet.
Sec. 324. Vapor recovery for small business marketers of petroleum products.
Sec. 325. Exemptions for certain territories.
Sec. 326. Construction of certain clauses.
Sec. 327. Appropriations.
Sec. 328. Air pollution from outer continental shelf activities

TITLE IV - ACID DEPOSITION CONTROL

Sec. 401. Findings and purpose.
Sec. 402. Definitions.
Sec. 403. Sulfur dioxide allowance program for existing and new units.
Sec. 404. Phase I sulfur dioxide requirements.
Sec. 405. Phase II sulfur dioxide requirements.
Sec. 406. Allowances for States with emissions rates at or below 0.80lbs/mmBtu.
Sec. 407. Nitrogen oxides emission reduction program.
Sec. 408. Permits and compliance plans.
Sec. 409. Repowered sources.
Sec. 410. Election for additional sources.
Sec. 411. Excess emissions penalty.
Sec. 412. Monitoring, reporting, and recordkeeping requirements.
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Sec. 415. Clean coal technology regulatory incentives.
Sec. 416. Contingency guarantee; auctions. reserve.

TITLE V - PERMITS

Sec. 501. Definitions.

Sec. 502. Permit programs.

Sec. 503. Permit applications.

Sec. 504. Permit requirements and conditions.

Sec. 505. Notification to Administrator and contiguous States.

Sec. 506. Other authorities.

Sec. 507. Small business stationary source technical and environmental compliance assistance program.

TITLE VI - STRATOSPHERIC OZONE PROTECTION

Sec. 601. Definitions.

Sec. 602. Listing of class I and class II substances.

Sec. 603. Monitoring and reporting requirements.

Sec. 604. Phase-out of production and consumption of class I substances.

Sec. 605. Phase-out of production and consumption of class II substances.

Sec. 606. Accelerated schedule.

Sec. 607. Exchanges. [Exchange authority.]

Sec. 608. National recycling and emission reduction program.

Sec. 609. Servicing of motor vehicle air conditioners.

Sec. 610. Nonessential products containing chlorofluorocarbons.

Sec. 611. Labeling.

Sec. 612. Safe alternatives policy.

Sec. 613. Federal procurement.

Sec. 614. Relationship to other law.

Sec. 615. Authority of Administrator.

Sec. 616. Transfers among Parties to the Montreal Protocol.

Sec. 617. International cooperation.

Sec. 618. Miscellaneous [provisions].

CLEAN AIR ACT
- Section 109 (42 USC §7499) -
addressing National Ambient Air Quality Standards

Sec. 109. (a)(1) The Administrator -

(A) within 30 days after the date of enactment of the Clean Air Amendments of 1970, shall publish proposed regulations prescribing a national primary ambient air quality standard and a national secondary ambient air quality standard for each air pollutant for which air quality criteria have been issued prior to such date of enactment; and

(B) after a reasonable time for interested persons to submit written comments thereon (but no later than 90 days after the initial publication of such proposed standards) shall by regulation promulgate such proposed national primary and secondary ambient air quality standards with such modifications as he deems appropriate.

(2) With respect to any air pollutant for which air quality criteria are issued after the date of enactment of the Clean Air Amendments of 1970, the Administrator shall publish, simultaneously with the issuance of such criteria and information, proposed national primary and secondary ambient air quality standards for any such pollutant. The procedure provided for in paragraph (1)(B) of this subsection shall apply to the promulgation of such standards.

(b)(1) National primary ambient air quality standards, prescribed, under subsection (a) shall be ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health. Such primary standards may be revised in the same manner as promulgated.

(2) Any national secondary ambient air quality standard prescribed, under subsection (a) shall specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air. Such secondary standards may be revised in the same manner as promulgated.

(c) The Administrator shall, not later than one year after the date of the enactment of the Clean Air Act Amendments of 1977, promulgate a national primary ambient air quality standard for NO₂ concentrations over a period of not more than 3 hours unless, based on the criteria issued under section 108(c), he finds that there is no significant evidence that such a standard for such a period is requisite to protect public health.

(d)(1) Not later than December 31, 1980, and at five-year intervals thereafter, the Administrator shall complete a thorough review of the criteria published under section 108 and the national ambient air quality standards promulgated under this section and shall make such revisions in such criteria and standards and promulgate such new standards as may be appropriate in accordance with section 108 and subsection (b) of this section. The Administrator may review and revise criteria or promulgate new standards earlier or more frequently than required under this paragraph.

(2)(A) The Administrator shall appoint an independent scientific review committee composed of seven members including at least one member of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies.

(B) Not later than January 1, 1980, and at five-year intervals thereafter, the committee referred to in subparagraph (A) shall complete a review of the criteria published under section 108 and the national primary and secondary ambient air quality standards promulgated under this section and shall recommend to the Administrator any new national ambient air quality standards and revisions of existing criteria and standards as may be appropriate under section 108 and subsection (b) of this section.

(C) Such committee shall also (i) advise the Administrator of areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised national ambient air quality standards, (ii) describe the research efforts necessary to provide the required information, (iii) advise the Administrator on the relative contribution to air pollution concentrations of natural as well as anthropogenic activity, and (iv) advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such national ambient air quality standards.

[42 U.S.C. 7409]

SEC. 182. PLAN SUBMISSIONS AND REQUIREMENTS.

(a) Marginal Areas.- Each State in which all or part of a Marginal Area is located shall, with respect to the Marginal Area (or portion thereof, to the extent specified in this subsection), submit to the Administrator the State implementation plan revisions (including the plan items) described under this subsection except to the extent the State has made such submissions as of the date of the enactment of the Clean Air Act Amendments of 1990.

(1) Inventory.- Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a comprehensive, accurate, current inventory of actual emissions from all sources, as described in section 172(c)(3), in accordance with guidance provided by the Administrator.

(2) Corrections to the state implementation plan.- Within the periods prescribed in this paragraph, the State shall submit a revision to the State implementation plan that meets the following requirements-

(A) Reasonably available control technology corrections.- For any Marginal Area (or, within the Administrator's discretion, portion thereof) the State shall submit, within 6 months of the date of classification under section 181(a), a revision that includes such provisions to correct requirements in (or add requirements to) the plan concerning reasonably available control technology as were required under section 172(b) (as in effect immediately before the date of the enactment of the Clean Air Act Amendments of 1990), as interpreted in guidance issued by the Administrator under section 108 before the date of the enactment of the Clean Air Act Amendments of 1990.

(B) Savings clause for vehicle inspection and maintenance.- (i) For any Marginal Area (or, within the Administrator's discretion, portion thereof), the plan for which already includes, or was required by section 172(b)(11)(B) (as in effect immediately before the date of the enactment of the Clean Air Act Amendments of 1990) to have included, a specific schedule for implementation of a vehicle emission control inspection and maintenance program, the State shall submit, immediately after the date of the enactment of the Clean Air Act Amendments of 1990, a revision that includes any provisions necessary to provide for a vehicle inspection and maintenance program of no less stringency than that of either the program defined in House Report Numbered 9509294, 95th Congress, 1st Session, 28109291 (1977) as interpreted in guidance of the Administrator issued pursuant to section 172(b)(11)(B) (as in effect immediately before the date of the enactment of the Clean Air Act Amendments of 1990) or the program already included in the plan, whichever is more stringent.

(ii) Within 12 months after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall review, revise, update, and republish in the Federal Register the guidance for the States for motor vehicle inspection and maintenance programs required by this Act, taking into consideration the Administrator's investigations and audits of such program. The guidance shall, at a minimum, cover the frequency of inspections, the types of vehicles to be inspected (which shall include leased vehicles that are registered in the nonattainment area), vehicle maintenance by owners and operators, audits by the State, the test method and measures, including whether centralized or decentralized, inspection methods and procedures, quality of inspection, components covered, assurance that a vehicle subject to a recall notice from a manufacturer has complied with that notice, and effective

implementation and enforcement, including ensuring that any retesting of a vehicle after a failure shall include proof of corrective action and providing for denial of vehicle registration in the case of tampering or misfueling. The guidance which shall be incorporated in the applicable State implementation plans by the States shall provide the States with continued reasonable flexibility to fashion effective, reasonable, and fair programs for the affected consumer. No later than 2 years after the Administrator promulgates regulations under section 202(m)(3) (relating to emission control diagnostics), the State shall submit a revision to such program to meet any requirements that the Administrator may prescribe under that section.

(C) Permit programs.- Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision that includes each of the following:

(i) Provisions to require permits, in accordance with sections 172(c)(5) and 173, for the construction and operation of each new or modified major stationary source (with respect to ozone) to be located in the area.

(ii) Provisions to correct requirements in (or add requirements to) the plan concerning permit programs as were required under section 172(b)(6) (as in effect immediately before the date of the enactment of the Clean Air Act Amendments of 1990), as interpreted in regulations of the Administrator promulgated as of the date of the enactment of the Clean Air Act Amendments of 1990.

(3) Periodic inventory.-

(A) General requirement.- No later than the end of each 3-year period after submission of the inventory under paragraph (1) until the area is redesignated to attainment, the State shall submit a revised inventory meeting the requirements of subsection (a)(1).

(B) Emissions statements.- (i) Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the State implementation plan to require that the owner or operator of each stationary source of oxides of nitrogen or volatile organic compounds provide the State with a statement, in such form as the Administrator may prescribe (or accept an equivalent alternative developed by the State), for classes or categories of sources, showing the actual emissions of oxides of nitrogen and volatile organic compounds from that source. The first such statement shall be submitted within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990. Subsequent statements shall be submitted at least every year thereafter. The statement shall contain a certification that the information contained in the statement is accurate to the best knowledge of the individual certifying the statement.

(ii) The State may waive the application of clause (i) to any class or category of stationary sources which emit less than 25 tons per year of volatile organic compounds or oxides of nitrogen if the State, in its submissions under subparagraphs (1) or (3)(A), provides an inventory of emissions from such class or category of sources, based on the use of the emission factors established by the Administrator or other methods acceptable to the Administrator.

(4) General offset requirement.- For purposes of satisfying the emission offset requirements of this part, the ratio of total emission reductions of volatile organic compounds to total increased emissions of such air pollutant shall be at least 1.1 to 1.

The Administrator may, in the Administrator's discretion, require States to submit a schedule for submitting any of the revisions

CLEAN AIR ACT
- Sections 182-184 (42 USC §7511 a-d) -

** State Implementation Plans **
** Federal Ozone Measures **
** Control of Interstate Ozone Air Pollution **

or other items required under this subsection. The requirements of this subsection shall apply in lieu of any requirement that the State submit a demonstration that the applicable implementation plan provides for attainment of the ozone standard by the applicable attainment date in any Marginal Area. Section 172(c)(9) (relating to contingency measures) shall not apply to Marginal Areas.

(b) Moderate Areas.- Each State in which all or part of a Moderate Area is located shall, with respect to the Moderate Area, make the submissions described under subsection (a) (relating to Marginal Areas), and shall also submit the revisions to the applicable implementation plan described under this subsection.

(1) Plan provisions for reasonable further progress.-

(A) General rule.- (i) By no later than 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the applicable implementation plan to provide for volatile organic compound emission reductions, within 6 years after the date of the enactment of the Clean Air Act Amendments of 1990, of at least 15 percent from baseline emissions, accounting for any growth in emissions after the year in which the Clean Air Act Amendments of 1990 are enacted. Such plan shall provide for such specific annual reductions in emissions of volatile organic compounds and oxides of nitrogen as necessary to attain the national primary ambient air quality standard for ozone by the attainment date applicable under this Act. This subparagraph shall not apply in the case of oxides of nitrogen for those areas for which the Administrator determines (when the Administrator approves the plan or plan revision) that additional reductions of oxides of nitrogen would not contribute to attainment.

(ii) A percentage less than 15 percent may be used for purposes of clause (i) in the case of any State which demonstrates to the satisfaction of the Administrator that-

(I) new source review provisions are applicable in the nonattainment areas in the same manner and to the same extent as required under subsection (e) in the case of Extreme Areas (with the exception that, in applying such provisions, the terms "major source" and "major stationary source" shall include (in addition to the sources described in section 302) any stationary source or group of sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 5 tons per year of volatile organic compounds);

(II) reasonably available control technology is required for all existing major sources (as defined in subclause (I)); and

(III) the plan reflecting a lesser percentage than 15 percent includes all measures that can feasibly be implemented in the area, in light of technological achievability.

To qualify for a lesser percentage under this clause, a State must demonstrate to the satisfaction of the Administrator that the plan for the area includes the measures that are achieved in practice by sources in the same source category in nonattainment areas of the next higher category.

(B) Baseline emissions.- For purposes of subparagraph (A), the term "baseline emissions" means the total amount of actual VOC or NOx emissions from all anthropogenic sources in the area during the calendar year of the enactment of the Clean Air Act Amendments of 1990, excluding emissions that would be eliminated under the regulations

described in clauses (i) and (ii) of subparagraph (D).

(C) General rule for creditability of reductions.- Except as provided under subparagraph (D), emissions reductions are creditable toward the 15 percent required under subparagraph (A) to the extent they have actually occurred, as of 6 years after the date of the enactment of the Clean Air Act Amendments of 1990, from the implementation of measures required under the applicable implementation plan, rules promulgated by the Administrator, or a permit under title V.

(D) Limits on creditability of reductions.- Emission reductions from the following measures are not creditable toward the 15 percent reductions required under subparagraph (A):

(i) Any measure relating to motor vehicle exhaust or evaporative emissions promulgated by the Administrator by January 1, 1990.

(ii) Regulations concerning Reid Vapor Pressure promulgated by the Administrator by the date of the enactment of the Clean Air Act Amendments of 1990 or required to be promulgated under section 211(h).

(iii) Measures required under subsection (a)(2)(A) (concerning corrections to implementation plans prescribed under guidance by the Administrator).

(iv) Measures required under subsection (a)(2)(B) to be submitted immediately after the date of the enactment of the Clean Air Act Amendments of 1990 (concerning corrections to motor vehicle inspection and maintenance programs).

(2) Reasonably available control technology.- The State shall submit a revision to the applicable implementation plan to include provisions to require the implementation of reasonably available control technology under section 172(c)(1) with respect to each of the following:

(A) Each category of VOC sources in the area covered by a CTG document issued by the Administrator between the date of the enactment of the Clean Air Act Amendments of 1990 and the date of attainment.

(B) All VOC sources in the area covered by any CTG issued before the date of the enactment of the Clean Air Act Amendments of 1990.

(C) All other major stationary sources of VOCs that are located in the area.

Each revision described in subparagraph (A) shall be submitted within the period set forth by the Administrator in issuing the relevant CTG document. The revisions with respect to sources described in subparagraphs (B) and (C) shall be submitted by 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, and shall provide for the implementation of the required measures as expeditiously as practicable but no later than May 31, 1995.

(3) Gasoline vapor recovery.-

(A) General rule.- Not later than 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the applicable implementation plan to require all owners or operators of gasoline dispensing systems to install and operate, by the date prescribed under subparagraph (B), a system for gasoline vapor recovery of emissions from the fueling of motor vehicles. The Administrator shall issue guidance as appropriate as to the effectiveness of such system. This subparagraph shall apply only to facilities which sell more than 10,000 gallons of gasoline per month (50,000 gallons per month in the case of an independent small business marketer of gasoline as defined in section 325).

(B) Effective date.- The date required under subparagraph (A) shall be-

(i) 6 months after the adoption date, in the case of gasoline dispensing facilities for which construction commenced after the date of the enactment of the Clean Air Act Amendments of 1990;

(ii) one year after the adoption date, in the case of gasoline dispensing facilities which dispense at least 100,000 gallons of gasoline per month, based on average monthly sales for the 2-year period before the adoption date; or

(iii) 2 years after the adoption date, in the case of all other gasoline dispensing facilities.

Any gasoline dispensing facility described under both clause (i) and clause (ii) shall meet the requirements of clause (i).

(C) Reference to terms.- For purposes of this paragraph, any reference to the term "adoption date" shall be considered a reference to the date of adoption by the State of requirements for the installation and operation of a system for gasoline vapor recovery of emissions from the fueling of motor vehicles.

(4) Motor vehicle inspection and maintenance.- For all Moderate Areas, the State shall submit, immediately after the date of the enactment of the Clean Air Act Amendments of 1990, a revision to the applicable implementation plan that includes provisions necessary to provide for a vehicle inspection and maintenance program as described in subsection (a)(2)(B) (without regard to whether or not the area was required by section 172(b)(11)(B) (as in effect immediately before the date of the enactment of the Clean Air Act Amendments of 1990) to have included a specific schedule for implementation of such a program).

(5) General offset requirement.- For purposes of satisfying the emission offset requirements of this part, the ratio of total emission reductions of volatile organic compounds to total increase emissions of such air pollutant shall be at least 1.15 to 1.

(c) Serious Areas.- Except as otherwise specified in paragraph (4), each State in which all or part of a Serious Area is located shall, with respect to the Serious Area (or portion thereof, to the extent specified in this subsection), make the submissions described under subsection (b) (relating to Moderate Areas), and shall also submit the revisions to the applicable implementation plan (including the plan items) described under this subsection. For any Serious Area, the terms "major source" and "major stationary source" include (in addition to the sources described in section 302) any stationary source or group of sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 50 tons per year of volatile organic compounds.

(1) Enhanced monitoring.- In order to obtain more comprehensive and representative data on ozone air pollution, not later than 18 months after the date of the enactment of the Clean Air Act Amendments of 1990 the Administrator shall promulgate rules, after notice and public comment, for enhanced monitoring of ozone, oxides of nitrogen, and volatile organic compounds. The rules shall, among other things, cover the location and maintenance of monitors. Immediately following the promulgation of rules by the Administrator relating to enhanced monitoring, the State shall commence such actions as may be necessary to adopt and implement a program based on such rules, to improve monitoring for ambient concentrations of ozone, oxides of nitrogen and volatile organic compounds and to improve monitoring of emissions of oxides of nitrogen and volatile organic

compounds. Each State implementation plan for the area shall contain measures to improve the ambient monitoring of such air pollutants.

(2) Attainment and reasonable further progress demonstrations.- Within 4 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the applicable implementation plan that includes each of the following:

(A) Attainment demonstration.- A demonstration that the plan, as revised, will provide for attainment of the ozone national ambient air quality standard by the applicable attainment date. This attainment demonstration must be based on photochemical grid modeling or any other analytical method determined by the Administrator, in the Administrator's discretion, to be at least as effective.

(B) Reasonable further progress demonstration.- A demonstration that the plan, as revised, will result in VOC emissions reductions from the baseline emissions described in subsection (b)(1)(B) equal to the following amount averaged over each consecutive 3-year period beginning 6 years after the date of the enactment of the Clean Air Act Amendments of 1990, until the attainment date:

(i) at least 3 percent of baseline emissions each year; or

(ii) an amount less than 3 percent of such baseline emissions each year, if the State demonstrates to the satisfaction of the Administrator that the plan reflecting such lesser amount includes all measures that can feasibly be implemented in the area, in light of technological achievability.

To lessen the 3 percent requirement under clause (ii), a State must demonstrate to the satisfaction of the Administrator that the plan for the area includes the measures that are achieved in practice by sources in the same source category in nonattainment areas of the next higher classification. Any determination to lessen the 3 percent requirement shall be reviewed at each milestone under section 182(g) and revised to reflect such new measures (if any) achieved in practice by sources in the same category in any State, allowing a reasonable time to implement such measures. The emission reductions described in this subparagraph shall be calculated in accordance with subsection (b)(1)(C) and (D) (concerning creditability of reductions). The reductions creditable for the period beginning 6 years after the date of the enactment of the Clean Air Act Amendments of 1990, shall include reductions that occurred before such period, computed in accordance with subsection (b)(1), that exceed the 15-percent amount of reductions required under subsection (b)(1)(A).

(C) NOx control.- The revision may contain, in lieu of the demonstration required under subparagraph (B), a demonstration to the satisfaction of the Administrator that the applicable implementation plan, as revised, provides for reductions of emissions of VOC's and oxides of nitrogen (calculated according to the creditability provisions of subsection (b)(1)(C) and (D)), that would result in a reduction in ozone concentrations at least equivalent to that which would result from the amount of VOC emission reductions required under subparagraph (B). Within 1 year after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall issue guidance concerning the conditions under which NOx control may be substituted for VOC control or may be combined with VOC control in order to maximize the reduction in ozone air pollution. In accord with such guidance, a lesser percentage

of VOCs may be accepted as an adequate demonstration for purposes of this subsection.

(3) Enhanced vehicle inspection and maintenance program.-

(A) Requirement for submission.- Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the applicable implementation plan to provide for an enhanced program to reduce hydrocarbon emissions and NOx emissions from in-use motor vehicles registered in each urbanized area (in the nonattainment area), as defined by the Bureau of the Census, with a 1980 population of 200,000 or more.

(B) Effective date of state programs; guidance.- The State program required under subparagraph (A) shall take effect no later than 2 years from the date of the enactment of the Clean Air Act Amendments of 1990, and shall comply in all respects with guidance published in the Federal Register (and from time to time revised) by the Administrator for enhanced vehicle inspection and maintenance programs. Such guidance shall include-

(i) a performance standard achievable by a program combining emission testing, including on-road emission testing, with inspection to detect tampering with emission control devices and misfueling for all light-duty vehicles and all light-duty trucks subject to standards under section 202; and

(ii) program administration features necessary to reasonably assure that adequate management resources, tools, and practices are in place to attain and maintain the performance standard.

Compliance with the performance standard under clause (i) shall be determined using a method to be established by the Administrator.

(C) State program.- The State program required under subparagraph (A) shall include, at a minimum, each of the following elements-

(i) Computerized emission analyzers, including on-road testing devices.

(ii) No waivers for vehicles and parts covered by the emission control performance warranty as provided for in section 207(b) unless a warranty remedy has been denied in writing, or for tampering-related repairs.

(iii) In view of the air quality purpose of the program, if, for any vehicle, waivers are permitted for emissions-related repairs not covered by warranty, an expenditure to qualify for the waiver of an amount of \$450 or more for such repairs (adjusted annually as determined by the Administrator on the basis of the Consumer Price Index in the same manner as provided in title V).

(iv) Enforcement through denial of vehicle registration (except for any program in operation before the date of the enactment of the Clean Air Act Amendments of 1990 whose enforcement mechanism is demonstrated to the Administrator to be more effective than the applicable vehicle registration program in assuring that noncomplying vehicles are not operated on public roads).

(v) Annual emission testing and necessary adjustment, repair, and maintenance, unless the State demonstrates to the satisfaction of the Administrator that a biennial inspection, in combination with other features of the program which exceed the requirements of this Act, will result in emission reductions which equal or exceed the reductions which can be obtained through such annual inspections.

(vi) Operation of the program on a centralized basis, unless the State demonstrates to the satisfaction of the

Administrator that a decentralized program will be equally effective. An electronically connected testing system, a licensing system, or other measures (or any combination thereof) may be considered, in accordance with criteria established by the Administrator, as equally effective for such purposes.

(vii) Inspection of emission control diagnostic systems and the maintenance or repair of malfunctions or system deterioration identified by or affecting such diagnostics systems.

Each State shall biennially prepare a report to the Administrator which assesses the emission reductions achieved by the program required under this paragraph based on data collected during inspection and repair of vehicles. The methods used to assess the emission reductions shall be those established by the Administrator.

(4) Clean-fuel vehicle programs.- (A) Except to the extent that substitute provisions have been approved by the Administrator under subparagraph (B), the State shall submit to the Administrator, within 42 months of the date of the enactment of the Clean Air Act Amendments of 1990, a revision to the applicable implementation plan for each area described under part C of title II to include such measures as may be necessary to ensure the effectiveness of the applicable provisions of the clean-fuel vehicle program prescribed under part C of title II, including all measures necessary to make the use of clean alternative fuels in clean-fuel vehicles (as defined in part C of title II) economic from the standpoint of vehicle owners. Such a revision shall also be submitted for each area that opts into the clean fuel-vehicle program as provided in part C of title II.

(B) The Administrator shall approve, as a substitute for all or a portion of the clean-fuel vehicle program prescribed under part C of title II, any revision to the relevant applicable implementation plan that in the Administrator's judgment will achieve long-term reductions in ozone-producing and toxic air emissions equal to those achieved under part C of title II, or the percentage thereof attributable to the portion of the clean-fuel vehicle program for which the revision is to substitute. The Administrator may approve such revision only if it consists exclusively of provisions other than those required under this Act for the area. Any State seeking approval of such revision must submit the revision to the Administrator within 24 months of the date of the enactment of the Clean Air Act Amendments of 1990. The Administrator shall approve or disapprove any such revision within 30 months of the date of the enactment of the Clean Air Act Amendments of 1990. The Administrator shall publish the revision submitted by a State in the Federal Register upon receipt. Such notice shall constitute a notice of proposed rulemaking on whether or not to approve such revision and shall be deemed to comply with the requirements concerning notices of proposed rulemaking contained in sections 553 through 557 of title 5 of the United States Code (related to notice and comment). Where the Administrator approves such revision for any area, the State need not submit the revision required by subparagraph (A) for the area with respect to the portions of the Federal clean-fuel vehicle program for which the Administrator has approved the revision as a substitute.

(C) If the Administrator determines, under section 179, that the State has failed to submit any portion of the program required under subparagraph (A), then, in addition to any sanctions available under section 179, the State may not receive credit, in any demonstration of attainment or reasonable further progress for the area, for any emission

reductions from implementation of the corresponding aspects of the Federal clean-fuel vehicle requirements established in part C of title II.

(5) Transportation control.- (A) Beginning 6 years after the date of the enactment of the Clean Air Act Amendments of 1990 and each third year thereafter, the State shall submit a demonstration as to whether current aggregate vehicle mileage, aggregate vehicle emissions, congestion levels, and other relevant parameters are consistent with those used for the area's demonstration of attainment. Where such parameters and emissions levels exceed the levels projected for purposes of the area's attainment demonstration, the State shall within 18 months develop and submit a revision of the applicable implementation plan that includes a transportation control measures program consisting of measures from, but not limited to, section 108(f) that will reduce emissions to levels that are consistent with emission levels projected in such demonstration. In considering such measures, the State should ensure adequate access to downtown, other commercial, and residential areas and should avoid measures that increase or relocate emissions and congestion rather than reduce them. Such revision shall be developed in accordance with guidance issued by the Administrator pursuant to section 108(e) and with the requirements of section 174(b) and shall include implementation and funding schedules that achieve expeditious emissions reductions in accordance with implementation plan projections.

(6) De minimis rule.- The new source review provisions under this part shall ensure that increased emissions of volatile organic compounds resulting from any physical change in, or change in the method of operation of, a stationary source located in the area shall not be considered de minimis for purposes of determining the applicability of the permit requirements established by this Act unless the increase in net emissions of such air pollutant from such source does not exceed 25 tons when aggregated with all other net increases in emissions from the source over any period of 5 consecutive calendar years which includes the calendar year in which such increase occurred.

(7) Special rule for modifications of sources emitting less than 100 tons.- In the case of any major stationary source of volatile organic compounds located in the area (other than a source which emits or has the potential to emit 100 tons or more of volatile organic compounds per year), whenever any change (as described in section 111(a)(4)) at that source results in any increase (other than a de minimis increase) in emissions of volatile organic compounds from any discrete operation, unit, or other pollutant emitting activity at the source, such increase shall be considered a modification for purposes of section 172(c)(5) and section 173(a), except that such increase shall not be considered a modification for such purposes if the owner or operator of the source elects to offset the increase by a greater reduction in emissions of volatile organic compounds concerned from other operations, units, or activities within the source at an internal offset ratio of at least 1.3 to 1. If the owner or operator does not make such election, such change shall be considered a modification for such purposes, but in applying section 173(a)(2) in the case of any such modification, the best available control technology (BACT), as defined in section 169, shall be substituted for the lowest achievable emission rate (LAER). The Administrator shall establish and publish policies and procedures for implementing the provisions of this paragraph.

(8) Special rule for modifications of sources emitting 100 tons or more.- In the case of any major stationary source of

volatile organic compounds located in the area which emits or has the potential to emit 100 tons or more of volatile organic compounds per year, whenever any change (as described in section 111(a)(4)) at that source results in any increase (other than a de minimis increase) in emissions of volatile organic compounds from any discrete operation, unit, or other pollutant emitting activity at the source, such increase shall be considered a modification for purposes of section 172(c)(5) and section 173(a), except that if the owner or operator of the source elects to offset the increase by a greater reduction in emissions of volatile organic compounds from other operations, units, or activities within the source at an internal offset ratio of at least 1.3 to 1, the requirements of section 173(a)(2) (concerning the lowest achievable emission rate (LAER)) shall not apply.

(9) Contingency provisions.- In addition to the contingency provisions required under section 172(c)(9), the plan revision shall provide for the implementation of specific measures to be undertaken if the area fails to meet any applicable milestone. Such measures shall be included in the plan revision as contingency measures to take effect without further action by the State or the Administrator upon a failure by the State to meet the applicable milestone.

(10) General offset requirement.- For purposes of satisfying the emission offset requirements of this part, the ratio of total emission reductions of volatile organic compounds to total increase emissions of such air pollutant shall be at least 1.2 to 1.

Any reference to "attainment date" in subsection (b), which is incorporated by reference into this subsection, shall refer to the attainment date for serious areas.

(d) Severe Areas.- Each State in which all or part of a Severe Area is located shall, with respect to the Severe Area, make the submissions described under subsection (c) (relating to Serious Areas), and shall also submit the revisions to the applicable implementation plan (including the plan items) described under this subsection. For any Severe Area, the terms "major source" and "major stationary source" include (in addition to the sources described in section 302) any stationary source or group of sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 25 tons per year of volatile organic compounds.

(1) Vehicle miles traveled.- (A) Within 2 years after the date of enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision that identifies and adopts specific enforceable transportation control strategies and transportation control measures to offset any growth in emissions from growth in vehicle miles traveled or numbers of vehicle trips in such area and to attain reduction in motor vehicle emissions as necessary, in combination with other emission reduction requirements of this subpart, to comply with the requirements of subsection (b)(2)(B) and (c)(2)(B) (pertaining to periodic emissions reduction requirements). The State shall consider measures specified in section 108(f), and choose from among and implement such measures as necessary to demonstrate attainment with the national ambient air quality standards; in considering such measures, the State should ensure adequate access to downtown, other commercial, and residential areas and should avoid measures that increase or relocate emissions and congestion rather than reduce them.

(B) Within 2 years after the date of enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision requiring employers in such area to implement programs to reduce work-related vehicle trips and miles traveled by employees. Such revision shall be developed in accordance with

guidance issued by the Administrator pursuant to section 108(f) and shall, at a minimum, require that each employer of 100 or more persons in such area increase average passenger occupancy per vehicle in commuting trips between home and the workplace during peak travel periods by not less than 25 percent above the average vehicle occupancy for all such trips in the area at the time the revision is submitted. The guidance of the Administrator may specify average vehicle occupancy rates which vary for locations within a nonattainment area (suburban, center city, business district) or among nonattainment areas reflecting existing occupancy rates and the availability of high occupancy modes. The revision shall provide that each employer subject to a vehicle occupancy requirement shall submit a compliance plan within 2 years after the date the revision is submitted which shall convincingly demonstrate compliance with the requirements of this paragraph not later than 4 years after such date.

(2) Offset requirement.- For purposes of satisfying the offset requirements pursuant to this part, the ratio of total emission reductions of VOCs to total increased emissions of such air pollutant shall be at least 1.3 to 1, except that if the State plan requires all existing major sources in the nonattainment area to use best available control technology (as defined in section 169(3)) for the control of volatile organic compounds, the ratio shall be at least 1.2 to 1.

(3) Enforcement under section 185.- By December 31, 2000, the State shall submit a plan revision which includes the provisions required under section 185.

Any reference to the term "attainment date" in subsection (b) or (c), which is incorporated by reference into this subsection (d), shall refer to the attainment date for Severe Areas.

(e) Extreme Areas.- Each State in which all or part of an Extreme Area is located shall, with respect to the Extreme Area, make the submissions described under subsection (d) (relating to Severe Areas), and shall also submit the revisions to the applicable implementation plan (including the plan items) described under this subsection. The provisions of clause (i) of subsection (c)(2)(B) (relating to reductions of less than 3 percent), the provisions of paragraphs (6), (7) and (8) of subsection (c) (relating to de minimus rule and modification of sources), and the provisions of clause (ii) of subsection (b)(1)(A) (relating to reductions of less than 15 percent) shall not apply in the case of an Extreme Area. For any Extreme Area, the terms "major source" and "major stationary source" includes (in addition to the sources described in section 302) any stationary source or group of sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 10 tons per year of volatile organic compounds.

(1) Offset requirement.- For purposes of satisfying the offset requirements pursuant to this part, the ratio of total emission reductions of VOCs to total increased emissions of such air pollutant shall be at least 1.5 to 1, except that if the State plan requires all existing major sources in the nonattainment area to use best available control technology (as defined in section 169(3)) for the control of volatile organic compounds, the ratio shall be at least 1.2 to 1.

(2) Modifications.- Any change (as described in section 111(a)(4)) at a major stationary source which results in any increase in emissions from any discrete operation, unit, or other pollutant emitting activity at the source shall be considered a modification for purposes of section 172(c)(5) and section 173(a), except that for purposes of complying with the offset requirement pursuant to section 173(a)(1), any such increase shall not be considered a modification if the owner or operator of the source elects to offset the increase by a

greater reduction in emissions of the air pollutant concerned from other discrete operations, units, or activities within the source at an internal offset ratio of at least 1.3 to 1. The offset requirements of this part shall not be applicable in Extreme Areas to a modification of an existing source if such modification consists of installation of equipment required to comply with the applicable implementation plan, permit, or this Act.

(3) Use of clean fuels or advanced control technology.- For Extreme Areas, a plan revision shall be submitted within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990 to require, effective 8 years after such date, that each new, modified, and existing electric utility and industrial and commercial boiler which emits more than 25 tons per year of oxides of nitrogen-

(A) burn as its primary fuel natural gas, methanol, or ethanol (or a comparably low polluting fuel), or

(B) use advanced control technology (such as catalytic control technology or other comparably effective control methods) for reduction of emissions of oxides of nitrogen.

For purposes of this subsection, the term "primary fuel" means the fuel which is used 90 percent or more of the operating time. This paragraph shall not apply during any natural gas supply emergency (as defined in title III of the Natural Gas Policy Act of 1978).

(4) Traffic control measures during heavy traffic hours.- For Extreme Areas, each implementation plan revision under this subsection may contain provisions establishing traffic control measures applicable during heavy traffic hours to reduce the use of high polluting vehicles or heavy-duty vehicles, notwithstanding any other provision of law.

(5) New technologies.-The Administrator may, in accordance with section 110, approve provisions of an implementation plan for an Extreme Area which anticipate development of new control techniques or improvement of existing control technologies, and an attainment demonstration based on such provisions, if the State demonstrates to the satisfaction of the Administrator that-

(A) such provisions are not necessary to achieve the incremental emission reductions required during the first 10 years after the date of the enactment of the Clean Air Act Amendments of 1990; and

(B) the State has submitted enforceable commitments to develop and adopt contingency measures to be implemented as set forth herein if the anticipated technologies do not achieve planned reductions.

Such contingency measures shall be submitted to the Administrator no later than 3 years before proposed implementation of the plan provisions and approved or disapproved by the Administrator in accordance with section 110. The contingency measures shall be adequate to produce emission reductions sufficient, in conjunction with other approved plan provisions, to achieve the periodic emission reductions required by subsection (b)(1) or (c)(2) and attainment by the applicable dates. If the Administrator determines that an Extreme Area has failed to achieve an emission reduction requirement set forth in subsection (b)(1) or (c)(2), and that such failure is due in whole or part to an inability to fully implement provisions approved pursuant to this subsection, the Administrator shall require the State to implement the contingency measures to the extent necessary to assure compliance with subsections (b)(1) and (c)(2).

Any reference to the term "attainment date" in subsection (b), (c), or (d) which is incorporated by reference into this subsection, shall refer to the attainment date for Extreme Areas.

(f) NOx Requirements.- (1) The plan provisions required under this subpart for major stationary sources of volatile organic compounds shall also apply to major stationary sources (as defined in section 302 and subsections (c), (d), and (e) of this section) of oxides of nitrogen. This subsection shall not apply in the case of oxides of nitrogen for those sources for which the Administrator determines (when the Administrator approves a plan or plan revision) that net air quality benefits are greater in the absence of reductions of oxides of nitrogen from the sources concerned. This subsection shall also not apply in the case of oxides of nitrogen for-

(A) nonattainment areas not within an ozone transport region under section 184 if the Administrator determines (when the Administrator approves a plan or plan revision) that additional reductions of oxides of nitrogen would not contribute to attainment of the national ambient air quality standard for ozone in the area, or

(B) nonattainment areas within such an ozone transport region if the Administrator determines (when the Administrator approves a plan or plan revision) that additional reductions of oxides of nitrogen would not produce net ozone air quality benefits in such region.

The Administrator shall, in the Administrator's determinations, consider the study required under section 185B.

(2)(A) If the Administrator determines that excess reductions in emissions of NOx would be achieved under paragraph (1), the Administrator may limit the application of paragraph (1) to the extent necessary to avoid achieving such excess reductions.

(B) For purposes of this paragraph, excess reductions in emissions of NOx are emission reductions for which the Administrator determines that net air quality benefits are greater in the absence of such reductions. Alternatively, for purposes of this paragraph, excess reductions in emissions of NOx are, for-

(i) nonattainment areas not within an ozone transport region under section 184, emission reductions that the Administrator determines would not contribute to attainment of the national ambient air quality standard for ozone in the area, or

(ii) nonattainment areas within such ozone transport region, emission reductions that the Administrator determines would not produce net ozone air quality benefits in such region.

(3) At any time after the final report under section 185B is submitted to Congress, a person may petition the Administrator for a determination under paragraph (1) or (2) with respect to any nonattainment area or any ozone transport region under section 184. The Administrator shall grant or deny such petition within 6 months after its filing with the Administrator.

(g) Milestones.-

(1) Reductions in emissions.- 6 years after the date of the enactment of the Clean Air Amendments of 1990 and at intervals of every 3 years thereafter, the State shall determine whether each nonattainment area (other than an area classified as Marginal or Moderate) has achieved a reduction in emissions during the preceding intervals equivalent to the total emission reductions required to be achieved by the end of such interval pursuant to subsection (b)(1) and the corresponding requirements of subsections (c)(2) (B) and (C), (d), and (e). Such reduction shall be referred to in this section as an applicable milestone.

(2) Compliance demonstration.- For each nonattainment area referred to in paragraph (1), not later than 90 days after the date on which an applicable milestone occurs (not including an attainment date on which a milestone occurs in cases where the

standard has been attained), each State in which all or part of such area is located shall submit to the Administrator a demonstration that the milestone has been met. A demonstration under this paragraph shall be submitted in such form and manner, and shall contain such information and analysis, as the Administrator shall require, by rule. The Administrator shall determine whether or not a State's demonstration is adequate within 90 days after the Administrator's receipt of a demonstration which contains the information and analysis required by the Administrator.

(3) Serious and severe areas; state election.- If a State fails to submit a demonstration under paragraph (2) for any Serious or Severe Area within the required period or if the Administrator determines that the area has not met any applicable milestone, the State shall elect, within 90 days after such failure or determination-

(A) to have the area reclassified to the next higher classification,

(B) to implement specific additional measures adequate, as determined by the Administrator, to meet the next milestone as provided in the applicable contingency plan, or

(C) to adopt an economic incentive program as described in paragraph (4).

If the State makes an election under subparagraph (B), the Administrator shall, within 90 days after the election, review such plan and shall, if the Administrator finds the contingency plan inadequate, require further measures necessary to meet such milestone. Once the State makes an election, it shall be deemed accepted by the Administrator as meeting the election requirement. If the State fails to make an election required under this paragraph within the required 90-day period or within 6 months thereafter, the area shall be reclassified to the next higher classification by operation of law at the expiration of such 6-month period. Within 12 months after the date required for the State to make an election, the State shall submit a revision of the applicable implementation plan for the area that meets the requirements of this paragraph. The Administrator shall review

such plan revision and approve or disapprove the revision within 9 months after the date of its submission.

(4) Economic incentive program.- (A) An economic incentive program under this paragraph shall be consistent with rules published by the Administrator and sufficient, in combination with other elements of the State plan, to achieve the next milestone. The State program may include a nondiscriminatory system, consistent with applicable law regarding interstate commerce, of State established emissions fees or a system of marketable permits, or a system of State fees on sale or manufacture of products the use of which contributes to ozone formation, or any combination of the foregoing or other similar measures. The program may also include incentives and requirements to reduce vehicle emissions and vehicle miles traveled in the area, including any of the transportation control measures identified in section 108(f).

(B) Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall publish rules for the programs to be adopted pursuant to subparagraph (A). Such rules shall include model plan provisions which may be adopted for reducing emissions from permitted stationary sources, area sources, and mobile sources. The guidelines shall require that any revenues generated by the plan provisions adopted pursuant to subparagraph (A) shall be used by the State for any of the following:

(i) Providing incentives for achieving emission reduc-

tions.

(ii) Providing assistance for the development of innovative technologies for the control of ozone air pollution and for the development of lower-polluting solvents and surface coatings. Such assistance shall not provide for the payment of more than 75 percent of either the costs of any project to develop such a technology or the costs of development of a lower-polluting solvent or surface coating.

(iii) Funding the administrative costs of State programs under this Act. Not more than 50 percent of such revenues may be used for purposes of this clause.

(5) Extreme areas.- If a State fails to submit a demonstration under paragraph (2) for any Extreme Area within the required period, or if the Administrator determines that the area has not met any applicable milestone, the State shall, within 9 months after such failure or determination, submit a plan revision to implement an economic incentive program which meets the requirements of paragraph (4). The Administrator shall review such plan revision and approve or disapprove the revision within 9 months after the date of its submission.

(h) Rural Transport Areas.- (1) Notwithstanding any other provision of section 181 or this section, a State containing an ozone nonattainment area that does not include, and is not adjacent to, any part of a Metropolitan Statistical Area or, where one exists, a Consolidated Metropolitan Statistical Area (as defined by the United States Bureau of the Census), which area is treated by the Administrator, in the Administrator's discretion, as a rural transport area within the meaning of paragraph (2), shall be treated by operation of law as satisfying the requirements of this section if it makes the submissions required under subsection (a) of this section (relating to marginal areas).

(2) The Administrator may treat an ozone nonattainment area as a rural transport area if the Administrator finds that sources of VOC (and, where the Administrator determines relevant, NOx) emissions within the area do not make a significant contribution to the ozone concentrations measured in the area or in other areas.

(1) Reclassified Areas.- Each State containing an ozone nonattainment area reclassified under section 181(b)(2) shall meet such requirements of subsections (b) through (d) of this section as may be applicable to the area as reclassified, according to the schedules prescribed in connection with such requirements, except that the Administrator may adjust any applicable deadlines (other than attainment dates) to the extent such adjustment is necessary or appropriate to assure consistency among the required submissions.

(j) Multi-State Ozone Nonattainment Areas.-

(1) Coordination among states.- Each State in which there is located a portion of a single ozone nonattainment area which covers more than one State (hereinafter in this section referred to as a "multi-State ozone nonattainment area") shall-

(A) take all reasonable steps to coordinate, substantively and procedurally, the revisions and implementation of State implementation plans applicable to the nonattainment area concerned; and

(B) use photochemical grid modeling or any other analytical method determined by the Administrator, in his discretion, to be at least as effective.

The Administrator may not approve any revision of a State implementation plan submitted under this part for a State in which part of a multi-State ozone nonattainment area is located if the plan revision for that State fails to comply

with the requirements of this subsection.

(2) Failure to demonstrate attainment.- If any State in which there is located a portion of a multi-State ozone nonattainment area fails to provide a demonstration of attainment of the national ambient air quality standard for ozone in that portion within the required period, the State may petition the Administrator to make a finding that the State would have been able to make such demonstration but for the failure of one or more other States in which other portions of the area are located to commit to the implementation of all measures required under section 182 (relating to plan submissions and requirements for ozone nonattainment areas). If the Administrator makes such finding, the provisions of section 179 (relating to sanctions) shall not apply, by reason of the failure to make such demonstration, in the portion of the multi-State ozone nonattainment area within the State submitting such petition.

[42 U.S.C. 7511a]

SEC. 183. FEDERAL OZONE MEASURES.

(a) Control Techniques Guidelines for VOC Sources.- Within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall issue control techniques guidelines, in accordance with section 108, for 11 categories of stationary sources of VOC emissions for which such guidelines have not been issued as of such date of enactment, not including the categories referred to in paragraphs (3) and (4) of subsection (b) of this section. The Administrator may issue such additional control techniques guidelines as the Administrator deems necessary.

(b) Existing and New CTGS.- (1) Within 36 months after the date of the enactment of the Clean Air Act Amendments of 1990, and periodically thereafter, the Administrator shall review and, if necessary, update control technique guidance issued under section 108 before the date of the enactment of the Clean Air Act Amendments of 1990.

(2) In issuing the guidelines the Administrator shall give priority to those categories which the Administrator considers to make the most significant contribution to the formation of ozone air pollution in ozone nonattainment areas, including hazardous waste treatment, storage, and disposal facilities which are permitted under subtitle C of the Solid Waste Disposal Act. Thereafter the Administrator shall periodically review and, if necessary, revise such guidelines.

(3) Within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall issue control techniques guidelines in accordance with section 108 to reduce the aggregate emissions of volatile organic compounds into the ambient air from aerospace coatings and solvents. Such control techniques guidelines shall, at a minimum, be adequate to reduce aggregate emissions of volatile organic compounds into the ambient air from the application of such coatings and solvents to such level as the Administrator determines may be achieved through the adoption of best available control measures. Such control technology guidance shall provide for such reductions in such increments and on such schedules as the Administrator determines to be reasonable, but in no event later than 10 years after the final issuance of such control technology guidance. In developing control technology guidance under this subsection, the Administrator shall consult with the Secretary of Defense, the Secretary of Transportation, and the Administrator of the National Aeronautics and Space Administration with regard to the establishment of specifications for such coatings. In evaluating VOC reduction strategies, the guidance shall take into account the applicable requirements of section 112 and the need to protect stratospheric ozone.

(4) Within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall issue control techniques guidelines in accordance with section 108 to reduce the aggregate emissions of volatile organic compounds and PM-10 into the ambient air from paints, coatings, and solvents used in ship-building operations and ship repair. Such control techniques guidelines shall, at a minimum, be adequate to reduce aggregate emissions of volatile organic compounds and PM-10 into the ambient air from the removal or application of such paints, coatings, and solvents to such level as the Administrator determines may be achieved through the adoption of the best available control measures. Such control techniques guidelines shall provide for such reductions in such increments and on such schedules as the Administrator determines to be reasonable, but in no event later than 10 years after the final issuance of such control technology guidance. In developing control techniques guidelines under this subsection, the Administrator shall consult with the appropriate

Federal agencies.

(c) Alternative Control Techniques.- Within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall issue technical documents which identify alternative controls for all categories of stationary sources of volatile organic compounds and oxides of nitrogen which emit, or have the potential to emit 25 tons per year or more of such air pollutant. The Administrator shall revise and update such documents as the Administrator determines necessary.

(d) Guidance for Evaluating Cost-Effectiveness.- Within 1 year after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall provide guidance to the States to be used in evaluating the relative cost-effectiveness of various options for the control of emissions from existing stationary sources of air pollutants which contribute to nonattainment of the national ambient air quality standards for ozone.

(e) Control of Emissions From Certain Sources.-

(1) Definitions.- For purposes of this subsection-

(A) Best available controls.- The term "best available controls" means the degree of emissions reduction that the Administrator determines, on the basis of technological and economic feasibility, health, environmental, and energy impacts, is achievable through the application of the most effective equipment, measures, processes, methods, systems or techniques, including chemical reformulation, product or feedstock substitution, repackaging, and directions for use, consumption, storage, or disposal.

(B) Consumer or commercial product.- The term "consumer or commercial product" means any substance, product (including paints, coatings, and solvents), or article (including any container or packaging) held by any person, the use, consumption, storage, disposal, destruction, or decomposition of which may result in the release of volatile organic compounds. The term does not include fuels or fuel additives regulated under section 211, or motor vehicles, non-road vehicles, and non-road engines as defined under section 216.

(C) Regulated entities.- The term "regulated entities" means-

(i) manufacturers, processors, wholesale distributors, or importers of consumer or commercial products for sale or distribution in interstate commerce in the United States; or

(ii) manufacturers, processors, wholesale distributors, or importers that supply the entities listed under clause (i) with such products for sale or distribution in interstate commerce in the United States.

(2) Study and report.-

(A) Study.- The Administrator shall conduct a study of the emissions of volatile organic compounds into the ambient air from consumer and commercial products (or any combination thereof) in order to-

(i) determine their potential to contribute to ozone levels which violate the national ambient air quality standard for ozone; and

(ii) establish criteria for regulating consumer and commercial products or classes or categories thereof which shall be subject to control under this subsection.

The study shall be completed and a report submitted to Congress not later than 3 years after the date of the

enactment of the Clean Air Act Amendments of 1990.

(B) Consideration of certain factors.- In establishing the criteria under subparagraph (A)(ii), the Administrator shall take into consideration each of the following:

(i) The uses, benefits, and commercial demand of consumer and commercial products.

(ii) The health or safety functions (if any) served by such consumer and commercial products.

(iii) Those consumer and commercial products which emit highly reactive volatile organic compounds into the ambient air.

(iv) Those consumer and commercial products which are subject to the most cost-effective controls.

(v) The availability of alternatives (if any) to such consumer and commercial products which are of comparable costs, considering health, safety, and environmental impacts.

(3) Regulations to require emission reductions.-

(A) In general.- Upon submission of the final report under paragraph (2), the Administrator shall list those categories of consumer or commercial products that the Administrator determines, based on the study, account for at least 80 percent of the VOC emissions, on a reactivity-adjusted basis, from consumer or commercial products in areas that violate the NAAQS for ozone. Credit toward the 80 percent emissions calculation shall be given for emission reductions from consumer or commercial products made after the date of enactment of this section. At such time, the Administrator shall divide the list into 4 groups establishing priorities for regulation based on the criteria established in paragraph (2). Every 2 years after promulgating such list, the Administrator shall regulate one group of categories until all 4 groups are regulated. The regulations shall require best available controls as defined in this section. Such regulations may exempt health use products for which the Administrator determines there is no suitable substitute. In order to carry out this section, the Administrator may, by regulation, control or prohibit any activity, including the manufacture or introduction into commerce, offering for sale, or sale of any consumer or commercial product which results in emission of volatile organic compounds into the ambient air.

(B) Regulated entities.- Regulations under this subsection may be imposed only with respect to regulated entities.

(C) Use of CTGS.- For any consumer or commercial product the Administrator may issue control techniques guidelines under this Act in lieu of regulations required under subparagraph (A) if the Administrator determines that such guidance will be substantially as effective as regulations in reducing emissions of volatile organic compounds which contribute to ozone levels in areas which violate the national ambient air quality standard for ozone.

(4) Systems of regulation.- The regulations under this subsection may include any system or systems of regulation as the Administrator may deem appropriate, including requirements for registration and labeling, self-monitoring and reporting, prohibitions, limitations, or economic incentives (including marketable permits and auctions of emissions rights) concerning the manufacture, processing, distribution, use, consumption, or disposal of the product.

(5) Special fund.- Any amounts collected by the Adminis-

trator under such regulations shall be deposited in a special fund in the United States Treasury for licensing and other services, which thereafter shall be available until expended, subject to annual appropriation Acts, solely to carry out the activities of the Administrator for which such fees, charges, or collections are established or made.

(6) Enforcement.- Any regulation established under this subsection shall be treated, for purposes of enforcement of this Act, as a standard under section 111 and any violation of such regulation shall be treated as a violation of a requirement of section 111(e).

(7) State administration.- Each State may develop and submit to the Administrator a procedure under State law for implementing and enforcing regulations promulgated under this subsection. If the Administrator finds the State procedure is adequate, the Administrator shall approve such procedure. Nothing in this paragraph shall prohibit the Administrator from enforcing any applicable regulations under this subsection.

(8) Size, etc.- No regulations regarding the size, shape, or labeling of a product may be promulgated, unless the Administrator determines such regulations to be useful in meeting any national ambient air quality standard.

(9) State consultation.- Any State which proposes regulations other than those adopted under this subsection shall consult with the Administrator regarding whether any other State or local subdivision has promulgated or is promulgating regulations on any products covered under this part. The Administrator shall establish a clearinghouse of information, studies, and regulations proposed and promulgated regarding products covered under this subsection and disseminate such information collected as requested by State or local subdivisions.

(f) Tank Vessel Standards.-

(1) Schedule for standards.- (A) Within 2 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator, in consultation with the Secretary of the Department in which the Coast Guard is operating, shall promulgate standards applicable to the emission of VOCs and any other air pollutant from loading and unloading of tank vessels (as that term is defined in section 2101 of title 46 of the United States Code) which the Administrator finds causes, or contributes to, air pollution that may be reasonably anticipated to endanger public health or welfare. Such standards shall require the application of reasonably available control technology, considering costs, any nonair-quality benefits, environmental impacts, energy requirements and safety factors associated with alternative control techniques. To the extent practicable such standards shall apply to loading and unloading facilities and not to tank vessels.

(B) Any regulation prescribed under this subsection (and any revision thereof) shall take effect after such period as the Administrator finds (after consultation with the Secretary of the department in which the Coast Guard is operating) necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period, except that the effective date shall not be more than 2 years after promulgation of such regulations.

(2) Regulations on equipment safety.- Within 6 months after the date of the enactment of the Clean Air Act Amendments of 1990, the Secretary of the Department in which the Coast Guard is operating shall issue regulations to ensure the safety of the equipment and operations which are to

control emissions from the loading and unloading of tank vessels, under section 3703 of title 46 of the United States Code and section 6 of the Ports and Waterways Safety Act (33 U.S.C. 1225). The standards promulgated by the Administrator under paragraph (1) and the regulations issued by a State or political subdivision regarding emissions from the loading and unloading of tank vessels shall be consistent with the regulations regarding safety of the Department in which the Coast Guard is operating.

(3) Agency authority.- (A) The Administrator shall ensure compliance with the tank vessel emission standards prescribed under paragraph (1)(A). The Secretary of the Department in which the Coast Guard is operating shall also ensure compliance with the tank vessel standards prescribed under paragraph (1)(A).

(B) The Secretary of the Department in which the Coast Guard is operating shall ensure compliance with the regulations issued under paragraph (2).

(4) State or local standards.- After the Administrator promulgates standards under this section, no State or political subdivision thereof may adopt or attempt to enforce any standard respecting emissions from tank vessels subject to regulation under paragraph (1) unless such standard is no less stringent than the standards promulgated under paragraph (1).

(5) Enforcement.- Any standard established under paragraph (1)(A) shall be treated, for purposes of enforcement of this Act, as a standard under section 111 and any violation of such standard shall be treated as a violation of a requirement of section 111(e).

(g) Ozone Design Value Study.- The Administrator shall conduct a study of whether the methodology in use by the Environmental Protection Agency as of the date of the enactment of the Clean Air Act Amendments of 1990 for establishing a design value for ozone provides a reasonable indicator of the ozone air quality of ozone nonattainment areas. The Administrator shall obtain input from States, local subdivisions thereof, and others. The study shall be completed and a report submitted to Congress not later than 3 years after the date of the enactment of the Clean Air Act Amendments of 1990. The results of the study shall be subject to peer and public review before submitting it to Congress.
[42 U.S.C. 7511b]

SEC. 184. CONTROL OF INTERSTATE OZONE AIR POLLUTION.

(a) Ozone Transport Regions.- A single transport region for ozone (within the meaning of section 176A(a)), comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia, is hereby established by operation of law. The provisions of section 176A(a) (1) and (2) shall apply with respect to the transport region established under this section and any other transport region established for ozone, except to the extent inconsistent with the provisions of this section. The Administrator shall convene the commission required (under section 176A(b)) as a result of the establishment of such region within 6 months of the date of the enactment of the Clean Air Act Amendments of 1990.

(b) Plan Provisions for States in Ozone Transport Regions.- (1) In accordance with section 110, not later than 2 years after the date of the enactment of the Clean Air Act Amendments of 1990 (or 9 months after the subsequent inclusion of a State in a transport region established for ozone), each State included within a transport region established for ozone shall submit a State implementation plan or revision thereof to the Administrator which requires the following-

(A) that each area in such State that is in an ozone transport region, and that is a metropolitan statistical area or part thereof with a population of 100,000 or more comply with

the provisions of section 182(c)(2)(A) (pertaining to enhanced vehicle inspection and maintenance programs); and

(B) implementation of reasonably available control technology with respect to all sources of volatile organic compounds in the State covered by a control techniques guideline issued before or after the date of the enactment of the Clean Air Act Amendments of 1990.

(2) Within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall complete a study identifying control measures capable of achieving emission reductions comparable to those achievable through vehicle refueling controls contained in section 182(b)(3), and such measures or such vehicle refueling controls shall be implemented in accordance with the provisions of this section. Notwithstanding other deadlines in this section, the applicable implementation plan shall be revised to reflect such measures within 1 year of completion of the study. For purposes of this section any stationary source that emits or has the potential to emit at least 50 tons per year of volatile organic compounds shall be considered a major stationary source and subject to the requirements which would be applicable to major stationary sources if the area were classified as a Moderate nonattainment area.

(c) Additional Control Measures.-

(1) Recommendations.- Upon petition of any State within a transport region established for ozone, and based on a majority vote of the Governors on the Commission (or their designees), the Commission may, after notice and opportunity for public comment, develop recommendations for additional control measures to be applied within all or a part of such transport region if the commission determines such measures are necessary to bring any area in such region into attainment by the dates provided by this subpart. The commission shall transmit such recommendations to the Administrator.

(2) Notice and review.- Whenever the Administrator receives recommendations prepared by a commission pursuant to paragraph (1) (the date of receipt of which shall hereinafter in this section be referred to as the "receipt

date"), the Administrator shall-

(A) immediately publish in the Federal Register a notice stating that the recommendations are available and provide an opportunity for public hearing within 90 days beginning on the receipt date; and

(B) commence a review of the recommendations to determine whether the control measures in the recommendations are necessary to bring any area in such region into attainment by the dates provided by this subpart and are otherwise consistent with this Act.

(3) Consultation.- In undertaking the review required under paragraph (2)(B), the Administrator shall consult with members of the commission of the affected States and shall take into account the data, views, and comments received pursuant to paragraph (2)(A).

(4) Approval and disapproval.- Within 9 months after the receipt date, the Administrator shall (A) determine whether to approve, disapprove, or partially disapprove and partially approve the recommendations; (B) notify the commission in writing of such approval, disapproval, or partial disapproval; and (C) publish such determination in the Federal Register. If the Administrator disapproves or partially disapproves the recommendations, the Administrator shall specify-

(i) why any disapproved additional control measures are not necessary to bring any area in such region into attainment by the dates provided by this subpart or are otherwise not consistent with the Act; and

(ii) recommendations concerning equal or more effective actions that could be taken by the commission to conform the disapproved portion of the recommendations to the requirements of this section.

(5) Finding.- Upon approval or partial approval of recommendations submitted by a commission, the Administrator shall issue to each State which is included in the transport region and to which a requirement of the approved plan applies, a finding under section 110(k)(5) that the implementation plan for such State is inadequate to meet the requirements of section 110(a)(2)(D). Such finding shall require each such State to revise its implementation plan to include the approved additional control measures within one year after the finding is issued.

(d) Best Available Air Quality Monitoring and Modeling.- For purposes of this section, not later than 6 months after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall promulgate criteria for purposes of determining the contribution of sources in one area to concentrations of ozone in another area which is a nonattainment area for ozone. Such criteria shall require that the best available air quality monitoring and modeling techniques be used for purposes of making such determinations.

[42 U.S.C. 7511c]

July 17, 1998

FACT SHEET

POLICY TO PROVIDE FOR EXTENDING THE DATE TO MEET GROUND-LEVEL OZONE AIR QUALITY STANDARDS FOR AREAS AFFECTED BY TRANSPORT OF POLLUTANTS FROM UPWIND AREAS

Today's Action...

- ◆ The Environmental Protection Agency (EPA) is issuing a policy which would enable an area to obtain an extension of the applicable Clean Air Act "attainment date" if the area meets certain criteria. The attainment date is the Clean Air Act's prescribed date by which the area is required to meet the air quality standard for ground-level ozone.
- ◆ Specifically, the policy provides flexibility in setting the target "attainment date" if the area's ability to meet the ground-level ozone standard is affected by transport of pollutants from an upwind area. The policy also requires that areas adopt all necessary measures at the local level to reduce pollutants that contribute to ground-level ozone, and submit an approvable "attainment plan" to EPA which includes these local measures.
- ◆ This policy applies to all areas now subject to EPA's 1-hour ground level ozone standard which are classified as "moderate" or "serious" (Note that area classifications are Clean Air Act designations which are based on the severity of the ground-level ozone problem). Currently, there are seven areas classified as "moderate" and fourteen areas classified as serious.
- ◆ EPA will take action on requests to extend the attainment date through subsequent rulemaking actions on an area by area basis, as appropriate. Areas that meet requirements of this policy will not be reclassified or "bumped-up" (e.g., from "moderate" to "serious") for failing to meet Clean Air Act specified attainment dates.

Background

- ◆ The Clean Air Act Amendments of 1990 outline a classification scheme for EPA to use to designate areas. This scheme is based on the extent to which the air quality within an area exceeds levels needed to meet the ozone standard (i.e., marginal, moderate, serious, severe, and extreme). The Act also sets specific deadlines for these designated areas to attain the ozone standard, with later deadlines for areas that are more polluted.

- ◆ The Act calls on areas classified as "moderate" to demonstrate attainment with the ozone standard by November 1996 (unless EPA grants an extension) and calls on "serious" areas to demonstrate attainment by November 1999 (unless EPA grants an extension).
- ◆ A number of areas in the country that have been classified as "moderate" or "serious" are affected by pollutants that have traveled downwind from other areas. For these downwind areas, transport of pollutants from upwind areas has interfered with their ability to meet the ozone standard by the dates prescribed by the Clean Air Act. As a result, many of these areas find themselves facing the prospect of being reclassified, or "bumped up," to a higher classification (e.g., from "moderate" to "serious") for failing to meet the ozone standard by the specified date.
- ◆ EPA recognized that pollutant transport can impair an area's ability to meet air quality standards. As a result, in March 1995, EPA called for a collaborative, federal-state process to assess the ozone transport problem. Through a 2-year effort known as the Ozone Transport Assessment Group (OTAG), EPA worked in partnership with the 37 easternmost States and the District of Columbia, industry representatives, and environmental groups to develop recommended strategies to address transport of ozone-forming pollutants across State boundaries.
- ◆ In October 1997, EPA acted on OTAG's recommendations and issued a proposal requiring 22 states and the District of Columbia to submit State Implementation Plans addressing the regional transport of ozone. These State plans will decrease the transport of ozone across State boundaries in the eastern half of the United States by reducing emissions of nitrogen oxides (a precursor to ozone formation known as NOx). EPA expects to issue the final rule in September 1998.
- ◆ EPA expects the final ozone transport rule will assist many areas in attaining the ozone standard and has taken the schedule for implementation of this rule into consideration in developing this policy. In addition, EPA has also included in the policy considerations for other areas that are affected by transport from upwind areas with a later attainment date.
- ◆ On July 17, 1997, following a lengthy scientific review process, EPA revised the national ambient air quality standards for ground-level ozone. Specifically, EPA is phasing out and replacing the previous 1-hour ozone standard with a new 8-hour standard to protect against longer exposure periods. However, until the 1-hour standard is revoked for a particular area (based on no current measured violation of the 1-hour ozone standard), the area must continue to

July 17, 1998

United States Environmental Protection Agency Policy
To Provide for Extending the Date to Meet Ground Level Ozone Air Quality Standards
For Areas Affected by Transport of Pollutants from Upwind Areas

FACT SHEET:

ATTACHMENT D

implement the requirements aimed at meeting the 1-hour standard.

For Further Information

- Interested parties can download this policy from EPA's web site on the Internet at the following address: www.epa.gov/airlinks. For further information about the policy, contact Denise Gerth of EPA's Office of Air Quality Planning and Standards at (919) 541- 5550.
- EPA's Office of Air and Radiation's homepage on the Internet contains a wide range of information on the ozone and particulate matter standards, as well as many other air pollution programs and issues. The Office of Air and Radiation's home page address is: (<http://www.epa.gov/oar/>). The web site for general information about the new ozone and particulate matter standards is: (<http://www.epa.gov/airlinks>).

8/19/98

FACT SHEET

PROPOSED IMPLEMENTATION GUIDANCE FOR THE REVISED GROUND-LEVEL OZONE AND PARTICULATE MATTER NATIONAL AMBIENT AIR QUALITY STANDARDS AND REGIONAL HAZE PROGRAM

TODAY'S ACTION

- The Environmental Protection Agency (EPA) is issuing proposed planning guidance for public comment for States to use in meeting EPA's revised air quality standards for ground-level ozone (smog) and particulate matter.
- EPA is making the guidance available for 30-days comment, which will begin on the date EPA publishes a notice of availability in the Federal Register. EPA will publish the notice shortly.
- The guidance addresses four major areas:
 - It lays out a scheme for "classifying" areas that do not meet the ozone or particulate matter standards, including designation and classification dates, anticipated State implementation plan due dates and anticipated attainment dates.
 - It clarifies the requirement that States adopt reasonably available control measures into ozone and particulate matter State implementation plans.
 - It provides details on the State implementation plan requirements for ozone "transitional" nonattainment areas and PM₁₀ nonattainment areas.
 - It provides initial guidance on the "reasonable further progress" requirement for ozone nonattainment areas classified as "traditional."
- In October 1998, EPA plans to issue additional draft guidance covering other areas related to the revised ozone and particulate matter standards and the regional haze program which are indicated in today's guidance by placeholders. EPA plans to consolidate the later guidance with this guidance to issue one document by December 1998.
- This guidance reflects President Clinton's July 16, 1997 directive to EPA Administrator Browner, which laid out a common-sense implementation strategy for the revised air quality standards.

WHAT IS THE CLASSIFICATION SCHEME FOR THE 8-HOUR OZONE STANDARD?

- The Clean Air Act Amendments of 1990 prescribed a specific classification scheme for designating areas not meeting the 1-hour ozone standard. However, the Clean Air Act does not prescribe a classification scheme for the revised ozone standard. The Clean Air Act grants EPA authority, when revising air quality standards, to create classifications for

nonattainment areas, as needed.

- The EPA is planning on creating three classifications for the 8-hour ozone standard: transitional, traditional, and international transport. By July 2000, all areas of the country that do not meet the 8-hour ozone standard will be designated and classified into one of these three categories.

"Transitional" Nonattainment Areas

- An area can seek "transitional" classification provided that, by 2000, it meets the 1-hour standard (and thus has that standard revoked) and submits an early plan meeting the various requirements outlined below.
- For areas in the East projected to meet the revised ozone standard based on EPA's rule requiring regional reductions of nitrogen oxides (a precursor to ozone formation known as NOx), the transitional area plan will consist primarily of the plan States will be required to submit by that rule, plus documentation referencing EPA modeling showing that the area will attain through the rule (both proposed to be due by September 1999).
- For other areas covered by the regional NOx rule, the plan for areas classified as transitional will also consist primarily of the additional control measures needed for attainment (due by May 2000).
- For areas outside the region covered by EPA's regional NOx rule, the plan for areas classified as transitional will consist primarily of control measures sufficient to show attainment (due by May 2000).
- For these areas, EPA anticipates the attainment date will be by no later than December 31, 2003.

"Traditional" Nonattainment Areas

- No special qualifications are required for an area to be classified as "traditional." If an area does not qualify for or does not pursue one of the other two classifications, then EPA will classify the area as "traditional." Areas that violate only the 8-hour ozone standard and areas that violate both the 1- and 8-hour standards can be classified as "traditional." The areas violating both standards will continue to implement all the programs required under the Clean Air Act (e.g., rate of progress improvements, etc.).
- Areas classified as "traditional" will be required to submit their plans demonstrating attainment with the 8-hour ozone standard by July 2003. EPA anticipates the attainment date for areas that violate only the 8-hour standard will be no later than December 31, 2005. EPA anticipates the attainment dates for areas that violate both the 1-hour and 8-hour standards will be no later than December 31, 2008 or July 18, 2010, depending on the area's 1-hour standard classification.

G-27

United States Environmental Protection Agency
National Ambient Air Quality Standards and Regional Haze Program
August 19, 1998
Proposed Implementation Guidance for the Revised Ground Level Ozone and Particulate Matter

FACT SHEET:

ATTACHMENT E

“International” Transport Nonattainment Areas

- Certain areas affected by international emissions can be classified as “international transport” areas. These areas may include places that violate only the 8-hour standard, and those that violate both the 1- and 8-hour standards.
- Such an area must submit a plan that shows that it would attain the 8-hour ozone standard if it were not for the international emissions. That plan will be due by July 2003. EPA anticipates an attainment date for these areas of no later than December 31, 2005.

WHAT ARE THE CLASSIFICATION SCHEMES FOR THE REVISED PARTICULATE MATTER (PM) STANDARDS?**Revised PM₁₀ Standard**

- The Clean Air Act Amendments of 1990 explicitly set out a classification scheme for PM₁₀ nonattainment areas. EPA will use that same classification scheme for the revised PM₁₀ standard. For that standard, all area designations will be made by July 2000. All initial nonattainment areas will be classified as “moderate”. The attainment plan for the “moderate” areas will be due by January 2002. The attainment date for these areas will be no later than December 31, 2006.
- A “moderate” area can be reclassified as “serious” if EPA determines it cannot practicably attain the air quality standard or it fails to attain the standards. If an area fails to attain and becomes “serious,” it must submit a plan delineating the best available control measures, as well as a plan demonstrating attainment. (These plans are due either by 18 months or by 4 years from reclassification, depending on the plan and the circumstances of reclassification.) Areas classified as “serious” will have to attain no later than December 31, 2010.

New PM_{2.5} Standard

- EPA believes it is premature to lay out a classification scheme for the new PM_{2.5} standard until more air quality data become available. Consistent with the July 1997 Presidential Directive, EPA will not be requiring control measures for PM_{2.5} until after the PM_{2.5} standards are reviewed and EPA makes PM_{2.5} nonattainment area designations. However, if the PM_{2.5} air quality problem is regional in nature (i.e., if, like ozone, fine particles are transported long distances, so that emissions from one State can impact another downwind), EPA believes that a classification scheme similar to that being established for ozone may be appropriate for PM_{2.5} nonattainment areas.

WHAT IS EPA’S POLICY FOR AREAS TO IMPLEMENT CONTROL MEASURES UNDER THE REVISED STANDARDS FOR OZONE AND PM?

- Nonattainment areas must provide for implementation of all reasonably available control measures as expeditiously as practicable for attainment of the air quality standards.
- Under the 8-hour ozone standard, if an area demonstrates it can attain the standard with the emission control measures in its State implementation plan, then EPA will consider that the area has met the Act’s requirements for “reasonably available control measures” and additional measures will not be required.
- EPA’s policy on the requirement for “reasonably available control measures” for the revised PM₁₀ standards remains the same as the policy that applied to the pre-existing PM₁₀ standards. PM₁₀ nonattainment areas classified as moderate must adopt all reasonable measures that help the area attain.
- For PM_{2.5}, EPA expects that the approach on “reasonably available control measures” for the PM_{2.5} NAAQS will be similar to the general approach for the ozone 8-hour NAAQS and the PM₁₀ NAAQS. Under the approach, the requirement is based on measures that are needed for attainment and not on specific source control measures mandated under the Clean Air Act. Once additional information becomes available, including PM_{2.5} monitoring data, EPA will provide further guidance. Consistent with the Presidential Directive, EPA will not be requiring control measures until after the PM_{2.5} standards are reviewed and EPA makes PM_{2.5} nonattainment area designations.

REVISED NATIONAL AMBIENT AIR QUALITY STANDARD FOR OZONE: WHAT ARE THE STATE IMPLEMENTATION PLAN REQUIREMENTS FOR TRANSITIONAL AREAS?

- **Attainment demonstration.** (1) For areas that attain the 8-hour ozone standard through EPA’s regional NOx reduction rule, the State can rely on EPA modeling for that rule as the demonstration (unless the State elects to do its own modeling). (2) Areas that will not attain the ozone standard without additional measures beyond the emissions reductions associated with the NOx rule must submit a demonstration that uses existing data and analyses to show attainment with a technique EPA will provide (unless the State elects to do its own modeling). (3) For areas not covered by EPA’s regional NOx rule, EPA will provide attainment demonstration guidance later this year.
- **Reasonably available control measures.** For areas projected to attain the ozone standard through EPA’s regional NOx rule, this requirement will be met if a State submits a State implementation plan, as required by the rule. If an area needs measures for attainment beyond the emissions reductions required by the rule, this requirement will be met if the area submits a plan including the additional measures needed for attainment.
- **Transportation conformity.** The plan for “transitional” areas must contain a transportation conformity “budget” (i.e., the amount of emissions an area can emit) based on an area’s plan to demonstrate attainment with the ozone standard. The details of how transportation conformity will work for these areas will be explained in a forthcoming

rulemaking.

- **Reasonable further progress.** For areas projected to attain the ozone standard through EPA's regional NOx reduction rule, the reasonable further progress requirement will be met if the State achieves and tracks the emissions reductions on schedule in that rule to ensure they are achieved. For areas where additional measures are needed to attain or EPA's rule does not apply, reasonable further progress will be the emission reductions achieved by the control measures needed for attainment.
- **New source review.** EPA will address this requirement in a forthcoming rule.
- **Contingency measures.** For areas projected to attain through EPA's regional NOx reduction rule, contingency measures for failure to attain will consist of a commitment to analyze the cause of the failure and to adopt necessary measures. For other areas, contingency measures for failure to attain will consist of emission reductions of the ozone precursor providing most of the emission reductions needed for attainment.

REVISED NATIONAL AMBIENT AIR QUALITY STANDARDS for PM₁₀: WHAT ARE THE PLAN REQUIREMENTS FOR MODERATE AND SERIOUS AREAS?

- **Attainment demonstration.** States must develop attainment demonstrations by performing local modeling consistent with existing EPA modeling guidelines
- **Control measures.** For "moderate" areas, reasonable available control measures must be implemented by July 2004 based on an analysis of the attainment needs of the area. For "serious" areas, best available control measures must be implemented four years from the date of reclassification and must be based on the maximum degree of emission reduction determined on a case-by-case basis taking into account certain factors.
- **Reasonable further progress.** Plans must provide for quantitative milestones. If an area fails to make a milestone, the State must submit a plan revision assuring it will achieve the next milestone (or attain the standard, if there is no next milestone).
- **Contingency measures.** Once EPA determines an area must be reclassified as "serious" for failure to attain, the State must implement contingency measures.
- **New source review/conformity.** States must comply with the existing program under EPA regulations. In addition, when EPA revokes the pre-existing PM₁₀ standard in areas attaining those standards as of September 16, 1997, conformity will no longer apply if the areas do not have EPA-approved maintenance plans.

WHAT ELSE DOES THE GUIDANCE ADDRESS?

- The guidance provides initial information on reasonable further progress for "traditional" ozone areas that violate both the 8-hour and 1-hour ozone standards. For these areas, this

requirement is satisfied up to the time the area attains the 1-hour standard if the area meets the "reasonable further progress" requirements for the 1-hour standard through that date.

BACKGROUND

- In the upper atmosphere, ozone occurs naturally and protects people from the sun's ultraviolet radiation. At ground-level, ozone results from pollution and can harm human health and the environment. Ground-level ozone is the primary constituent of smog. Particulate matter consists of the solid particles and liquid droplets found in the air. Individually, these particles and droplets are invisible to the naked eye. Collectively, however, they can appear as clouds or a fog-like haze. Both coarse and fine particles are of concern to human health.
- On July 17, 1997, following a lengthy scientific review process, EPA revised the national ambient air quality standards for ground-level ozone and particulate matter.
- Specifically, EPA is phasing out and replacing the previous 1-hour ozone standard with an 8-hour standard to protect against longer exposure periods. The 1-hour standard will continue to apply to an area for an interim period until EPA makes a determination that the area has air quality meeting the 1-hour standard. In addition, EPA revised the primary and secondary particulate matter standards by establishing annual and 24-hour standards for smaller or "fine" particles (particles 2.5 micrometers in diameter or smaller) and by changing the form of the existing 24-hour and annual particulate matter standards (for particles 10 micrometers in diameter or smaller).
- EPA will make area designations for the revised ozone and PM₁₀ standards by July 2000. For the PM_{2.5} standards, EPA will designate areas in the 2004 to 2005 timeframe. For the ozone and PM_{2.5} standards, within three years after EPA designates an area nonattainment the State must submit a plan to EPA. (A State seeking the ozone transitional classification for an area must submit the plan by 2000.) The plan must address several elements: (1) attaining the standard, (2) implementing control measures, (3) showing "reasonable further progress" toward attainment, (4) providing for contingency measures for failure to make progress or attain, (5) conducting "new source review," and (6) requiring conformity of transportation and air quality planning.
- On November 7, 1997, EPA proposed to require 22 states and the District of Columbia to submit state implementation plans that address the regional transport of ground-level ozone, the main component of smog (referred to as the "regional NOx rule"). By improving air quality and reducing emissions of NOx, the actions directed by these plans will decrease the transport of ozone in the East. EPA plans to finalize the action by September 1998.

For Further Information

- Interested parties can download the implementation guidance from the Internet (<http://ttnwww.rtpnc.epa.gov/implement/actions.htm>). The guidance is listed in a document entitled "Major Action Items to Reinvent Ozone and PM NAAQS and Regional Haze Implementation," which also contains a complete list of planned activities related to implementation of the new national ambient air quality standards.
- For further information about the draft implementation guidance being made available now, contact Chris Stoneman of EPA's Office of Air Quality Planning and Standards at (919) 541-0823. For further information about the draft implementation guidance to be made available in October 1998, contact John Silvasi of EPA's Office of Air Quality Planning and Standards at (919) 541-5666.
- EPA's Office of Air and Radiation's homepage on the Internet contains a wide range of information on the ozone and particulate matter standards, as well as many other air pollution programs and issues. The Office of Air and Radiation's home page address is: (<http://www.epa.gov/oar/>). The web site for general information about the new ozone and particulate matter standards is: (<http://www.epa.gov/airlinks>).

Guidance on Extension of Attainment Dates for Downwind Transport Areas

Preface

The purpose of this guidance is to set forth EPA's current views on the issues discussed herein. EPA intends soon to set out its interpretation in an advance notice of proposed rulemaking on which the Agency will take comment.

While EPA intends to proceed under the guidance that it is setting out today, the Agency will finalize this interpretation only when it applies in the appropriate context of individual rulemakings addressing specific attainment demonstrations. At that time and in that context, judicial review of EPA's interpretation would be available.

Introductory Summary

A number of areas in the country that have been classified as moderate or serious nonattainment areas for the 1-hour ozone standard are affected by pollution transported from upwind areas. For these downwind areas, transport from upwind areas has interfered with their ability to demonstrate attainment by the dates prescribed in the Clean Air Act (Act). As a result, many of these areas find themselves facing the prospect of being reclassified, or "bumped up," to a higher nonattainment classification in spite of the fact that pollution that is beyond their control contributes to the levels of ozone they experience. In the policy being issued today, EPA is addressing this problem by planning to extend the attainment date for an area that is affected by transport from either an upwind area with a later attainment date or an upwind area in another State that significantly contributes to downwind nonattainment, as long as the downwind area has adopted all necessary local measures, and has submitted an approvable attainment plan to EPA which includes those local measures. (By "affected by transport," EPA means an area whose air quality is affected by transport from an upwind area to a degree that affects the area's ability to attain.) EPA intends to initiate rulemaking for each area seeking such relief and contemplates providing such relief to those who qualify. If after consideration of public comments EPA acts to approve an area's attainment demonstration and extend its attainment date, the area will no longer be subject to reclassification or "bump-up" for failure to attain by its otherwise applicable attainment date.

Background

The Act may be interpreted to allow a later attainment date than generally applicable to a particular ozone nonattainment area if transport of ozone or its precursors (nitrogen oxides (NO_x) and volatile organic compounds (VOCs)) prevents timely attainment. This principle has

already been advanced in EPA's Overwhelming Transport Policy, which allowed a downwind area to assume the later attainment date if it could meet certain criteria, including a demonstration that it would have attained "but for" transport from an upwind nonattainment area with a later attainment date. See Memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation, entitled, "Ozone Attainment Dates for Areas Affected by Overwhelming Transport," September 1, 1994. In the four years since the issuance of that memorandum, the history of the efforts to analyze and control ozone transport has led EPA to believe that it should expand the policy's reach to ensure that downwind areas are not unjustly penalized as a result of transport.

In March 1995, EPA called for a collaborative, Federal-State process for assessing the regional ozone transport problem and developing solutions, and the Ozone Transport Assessment Group (OTAG) was subsequently formed. See Memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation, entitled "Ozone Attainment Demonstrations," March 2, 1995. The OTAG was an informal advisory committee with representatives from EPA, thirty-seven states in the Midwestern and eastern portions of the country, and industry and environmental groups. OTAG's major functions included developing computerized modeling analyses of the impact of various control measures on air quality levels throughout the region and making recommendations as to the appropriate ozone control strategy. Based on OTAG's modeling analyses, it developed recommendations concerning control strategies. These recommendations, issued in mid-1997, called upon EPA to calculate the specific reductions needed from upwind areas.

In November 1997, using OTAG's technical work, EPA issued a proposed NO_x State implementation plan (SIP) call, directing certain States to revise their SIPs in order to satisfy section 110(a)(2)(D) by reducing emissions of NO_x to specified levels, which in turn will reduce the amounts of ozone being transported into nonattainment areas from upwind areas. 62 FR 60318 (November 7, 1997). In July 1997, the EPA promulgated a revised 8-hour ozone NAAQS. 62 FR 38856 (July 18, 1997). That promulgation included regulations providing that the 1-hour NAAQS would be phased out, and would no longer apply to an area once EPA determined that the area had air quality meeting the 1-hour standard. 40 CFR section 50.9(b). Until the 1-hour standard is revoked for a particular area, the area must continue to implement the requirements aimed at attaining that standard.

The Current Problem

The Act called on areas classified as moderate ozone nonattainment areas to submit SIPs that demonstrate attainment by 1996 (unless they receive an extension), and called on serious nonattainment areas to demonstrate attainment by November 1999 (unless they receive an extension). Section 181 and 182(b) and (c). For many of these areas, EPA has preliminarily determined in the proposed SIP call that transport from upwind areas is contributing to their nonattainment problems. Such transport also appears to be interfering with their ability to demonstrate attainment by the statutory attainment dates.

The graduated control scheme in sections 181 and 182 of the Act expressed Congress's

intent that areas be assigned varying attainment dates, depending upon the severity of the air quality problem they confront. Sections 181 and 182 provide for attainment "as expeditiously as practicable," but establish later deadlines for attainment in more polluted areas, and additional control measures that the more polluted areas must accomplish over the longer time frame. Thus, many of the upwind areas have later attainment dates than the downwind areas which are affected by emissions from the upwind States. On the other hand, section 110(a)(2)(D)(i)(I) of the Act requires SIPs to prohibit "consistent with the other provisions of [title I]," emissions which will "contribute significantly to nonattainment in...any other State." The EPA interprets section 110(a)(2)(A) to incorporate the same requirement in the case of intrastate transport. Sections 176A and 184 provide for regional ozone transport commissions that may recommend that EPA mandate additional regional control measures to allow areas to reach timely attainment in accordance with section 110(a)(2)(D)(i)(I).

These provisions demonstrate Congressional intent that upwind areas be responsible for preventing interference with timely downwind attainment. They must be reconciled with express Congressional intent that more polluted areas be allotted additional time to attain. As EPA pointed out in its overwhelming transport policy, Congress does not explicitly address how these provisions are to be read together to resolve the circumstance where more polluted upwind areas interfere with timely attainment downwind, during the time provided for those upwind areas to reduce their own emissions.

In the 1994 overwhelming transport policy, EPA stated that it would harmonize these provisions to avoid arguably absurd or odd results and to give effect to as much of Congress' manifest intent as possible. The EPA struck a balance in the overwhelming transport policy by requiring that the upwind and downwind areas reduce their contribution to the nonattainment problem while avoiding penalizing the downwind areas for failure to do the impossible.

In the 1994 policy, EPA reasoned that Congress did not intend the section 110(a)(2)(D)(i)(I) obligation to supersede the practicable attainment deadlines and graduated control scheme in sections 181 and 182, especially since section 110(a)(2)(D)(i)(I) specifically applies only "to the extent consistent with the provisions of [title I]." The same rationale applies in the intrastate context under section 110(a)(2)(A).

Developments since the issuance of the overwhelming transport policy in 1994 have prompted EPA once again to interpret these provisions so that they can be reconciled in light of existing circumstances. Since the issuance of that policy, EPA and the States, through OTAG, have made significant progress in addressing interstate transport in the eastern United States, and have worked to analyze the flow of transport and to allocate among the States their respective responsibilities for control. During the period required for this effort, which took longer than was anticipated, the resolution of the regional transport issue was held in abeyance. The effort to address regional transport recently resulted in EPA's proposed NO_x SIP call, expected to be finalized in the next few months. For areas in the OTAG region affected by transport, the conclusion of the OTAG and SIP call processes in September 1998 will result in assignments of responsibility that will assist in the design of SIPs and the formation and implementation of attainment demonstrations.

Because EPA had not previously determined how much to require upwind States in the OTAG region to reduce transport, downwind areas were handicapped in their ability to determine the amounts of emissions reductions needed to bring about attainment. While operating in this environment of uncertainty, many of these downwind areas confronted near-term attainment dates. Moreover, as described in the NO_x SIP call proposal, the reductions from the proposed NO_x SIP call will not likely be achieved until at least 2002, well after the attainment dates for many of the downwind nonattainment areas that depend on those reductions to help reach attainment.

The Solution

The EPA believes that a fair reading of the Act would allow it to take these circumstances into account to harmonize the attainment demonstration and attainment date requirements for downwind areas affected by transport both with the graduated attainment date scheme and the schedule for achieving reductions in emissions from upwind areas. Thus, EPA will consider extending the attainment date for an area that:

- (1) has been identified as a downwind area affected by transport from either an upwind area in the same State with a later attainment date or an upwind area in another State that significantly contributes to downwind nonattainment. (By "affected by transport," EPA means an area whose air quality is affected by transport from an upwind area to a degree that affects the area's ability to attain);
- (2) has submitted an approvable attainment demonstration with any necessary, adopted local measures and with an attainment date that shows that it will attain the 1-hour standard no later than the date that the reductions are expected from upwind areas under the final NO_x SIP call and/or the statutory attainment date for upwind nonattainment areas, i.e., assuming the boundary conditions reflecting those upwind reductions;
- (3) has adopted all applicable local measures required under the area's current classification and any additional measures necessary to demonstrate attainment, assuming the reductions occur as required in the upwind areas. (To meet section 182(c)(2)(B), serious areas would only need to achieve progress requirements until their original attainment date of November 15, 1999);
- (4) has provided that it will implement all adopted measures as expeditiously as practicable, but no later than the date by which the upwind reductions needed for attainment will be achieved.

EPA contemplates that when it acts to approve such an area's attainment demonstration, it will, as necessary, extend that area's attainment date to a date appropriate for that area in light of the schedule for achieving the necessary upwind reductions. The area would no longer be subject to reclassification or "bump-up" for failure to attain by its original attainment date under section 181(b)(2).

Legal Rationale

The legal basis for EPA's interpretation of the attainment date requirements employs and updates the rationale invoked in the Agency's overwhelming transport policy. By filling a gap in the statutory framework, EPA's interpretation harmonizes the requirements of sections 181 and 182 with the Act's requirements (sections 110(a)(2)(D)(i)(I), 110(a)(2)(A), 176A and 184) on inter-area transport. It reconciles the principle that upwind areas are responsible for preventing interference with downwind attainment with the Congressional intent to provide longer attainment periods for areas with more intractable air pollution problems. It also takes into account the amount of time it will take to achieve emission reductions in upwind areas under the NO_x SIP call, which EPA expects to finalize in September 1998.

The EPA's resolution respects the intent of sections 181 and 182 to provide longer attainment dates for areas burdened with more onerous air pollution problems, while allowing reductions from upwind areas to benefit the downwind areas. Under EPA's interpretation, upwind areas will be required to reduce emissions to control transport, but should not find that the requirements imposed upon them amount to an acceleration of the time frames Congress envisioned for these areas in sections 181 and 182. Downwind areas will be provided additional time to accommodate the delayed control contributions from upwind areas, while at the same time being held accountable for all measures required to control local sources of pollution.

The EPA's interpretation of the Act allows it to extend attainment dates only for those areas which are prevented from achieving timely attainment due to a demonstrated transport problem from upwind areas, and which submit attainment demonstrations and adopt local measures to address the pollution that is within local control. The EPA believes that Congress, had it addressed this issue, would not have intended downwind areas to be penalized by being forced to compensate for transported pollution by adopting measures that are more costly and onerous and/or which will become superfluous once upwind areas reduce their contribution to the pollution problem.

This interpretation also recognizes that downwind areas in the OTAG region have been operating in a climate of uncertainty as to the allocation of responsibility for controlling transported pollution. Section 110(a)(2)(D) is not self-executing and, until the NO_x SIP call rulemaking, downwind areas in the OTAG region could not determine what boundary conditions they should assume in preparing attainment demonstrations and determining the sufficiency of local controls to bring about attainment. By allowing these areas to assume the boundary conditions reflecting reductions set forth in the NO_x SIP call and/or reductions from the requirements prescribed for upwind nonattainment areas under the Act, EPA will hold upwind areas responsible for reducing emissions of transported pollution, and downwind areas will be obliged to adopt and implement local controls that would bring about attainment but for the transported pollution.

The EPA's interpretation harmonizes the disparate provisions of the Act. It avoids accelerating the obligations of the upwind States so that downwind States can meet earlier attainment dates, which would subvert Congressional intent to allow upwind areas with more severe pollution longer attainment time frames to attain the ozone standards. In addition, EPA's interpretation of the Act takes into account the fact that, under the SIP call, upwind area

reductions will not be achieved until after the attainment dates for moderate and serious ozone nonattainment areas. To refuse to interpret the Act to accomplish this would unduly penalize downwind areas by requiring them to compensate for the transported pollution that will be dealt with by controls adopted in response to the requirements of the NO_x SIP call or to achieve attainment in an upwind area. The EPA is thus interpreting the requirements to allow the Agency to grant an attainment date extension to areas that submit their attainment demonstrations and all adopted measures necessary locally to show attainment. This solution preserves the responsibility of these downwind areas to prepare attainment demonstrations and adopt measures, but does not penalize them for failing to achieve timely attainment by reclassifying them upwards, since such attainment was foreclosed by transport beyond their control.

Under this policy, once EPA has acted to approve the attainment demonstration and extend the area's attainment date, the area would no longer be subject to reclassification or "bump-up" for failure to attain by its original attainment date under section 181 (b)(2).

Proposed EPA Guidance (November 17, 1998 Draft)

Classification Scheme for Nonattainment Areas for the 8 Hour Ozone NAAQS
Table 1: Summary of Requirements by Classification [Revised since 8/14/98 version]
 (Table footnotes in parentheses)

Three formal classifications:	Transitional		Traditional	International Transport
Type of Area Eligible:	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and that project attainment of the 8-hour standard through the regional NOx strategy	Areas that have had the 1-hour standard revoked that are designated nonattainment for the 8-hour standard, and for which the regional NOx strategy is not sufficient for attainment of the 8-hour standard or does not apply	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard (and do not qualify for or want transitional); and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard; and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked
Designation By:	July 18, 2000			
Classification By:	July 18, 2000 (1)	July 18, 2000 (1)	July 18, 2000	July 18, 2000 (1)
SIP Due By:	September 30, 1999 (2) - NOx SIP call SIP, including attainment demonstration (i.e., documentation referencing EPA modeling and emissions inventory)	September 30, 1999 (2) - NOx SIP call SIP, where applicable, and May 1, 2000 attainment SIP	July 18, 2003 (3)	July 18, 2003 (3)

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CLASSIFICATION SCHEME FOR NON-ATTAINMENT AREAS
 FOR THE 8-HOUR OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS

Proposed EPA Guidance (November 17, 1998 Draft)

Three formal classifications:	Transitional		Traditional	International Transport
Type of Area Eligible:	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and that project attainment of the 8-hour standard through the regional NOx strategy	Areas that have had the 1-hour standard revoked that are designated nonattainment for the 8-hour standard and for which the regional NOx strategy is not sufficient for attainment of the 8-hour standard or does not apply	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard (and do not qualify for or want transitional); and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard; and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked
RFP/Implementation by:	May 1, 2003 (4) RFP is NOx SIP call emissions reductions on schedule	May 1, 2003 (4) Where applicable, RFP is NOx SIP call emissions reductions on schedule. Other emissions reductions needed for attainment on same schedule.	May 1, 2005 (4) May 1, 2007 (4) or May 1, 2008 (4) <u>For areas that are nonattainment for only the 8-hour NAAQS:</u> RFP is emissions reductions needed for attainment by the implementation date (3 ozone seasons before attainment date) <u>For areas that are nonattainment for both NAAQS:</u> until the attainment date for the 1-hour standard, RFP required under subpart 2 for the 1-hour standard should be sufficient to meet RFP for the 8-hour standard; RFP after final attainment date for 1-hour standard is emissions reductions needed for attainment by the implementation date (3 ozone seasons before attainment date)	May 1, 2005 States should follow the RFP guidance discussed under traditional areas, in consultation with the EPA Regional Offices
Attainment By: (5)	December 31, 2005 (6)	December 31, 2005 (6)	December 31, 2007 (6); December 31, 2009 (6); or December 31, 2010 (6)	December 31, 2007

Proposed EPA Guidance (November 17, 1998 Draft)

Three formal classifications:	Transitional		Traditional	International Transport
Type of Area Eligible:	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and that project attainment of the 8-hour standard through the regional NOx strategy	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and for which the regional NOx strategy is not sufficient for attainment of the 8-hour standard or does not apply	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard (and do not qualify for or want transitional); and 2. Areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard; and 2. Areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked
Attainment Demonstration:	EPA modeling and emissions inventory for the SIP call budget, unless State elects to perform other modeling	<u>In OTAG domain and receive SIP call:</u> no additional modeling required; may use other demonstration techniques EPA will provide; State may elect to do additional modeling <u>Inside OTAG domain but do not receive SIP call:</u> no new modeling if projected air quality concentrations close to NAAQS; additional analysis if projected air quality concentrations much greater than NAAQS <u>Outside the OTAG domain:</u> additional modeling required if none exists; may use other EPA demonstration techniques available	Modeled attainment test relying on ambient data. Use model in "relative" rather than "absolute" fashion with optional weight of evidence test to reduce uncertainty. Encourage use of CMAQ/MODELS3, subject to same criteria as "alternative" models; EPA will not identify guideline model. Technical guidance available.	Demonstrate attainment "but for" international emissions. Use same guidance as for traditional areas, subject to negotiation between Region and State based on area-specific characteristics.
Emissions Inventory:	Rely on emissions inventories from NOx SIP call modeling	Rely on emissions inventories from SIP call modeling, as appropriate, plus other existing inventories	Draft emissions inventory guidance recommends the use of a 1999 base year emission inventory for attainment demonstration purposes. See detailed technical guidance.	Use same guidance as for traditional areas, subject to negotiation between Region and State based on area-specific characteristics

Proposed EPA Guidance (November 17, 1998 Draft)

Three formal classifications:	Transitional		Traditional	International Transport
Type of Area Eligible:	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and that project attainment of the 8-hour standard through the regional NOx strategy	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and for which the regional NOx strategy is not sufficient for attainment of the 8-hour standard or does not apply	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard (and do not qualify for or want transitional); and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard; and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked
Control Measures:	RACM/RACT will be met if the area submits a SIP that EPA approves as providing for attainment. The SIP providing for attainment will be the NOx SIP call SIP, including attainment demonstration (i.e., documentation referencing EPA modeling and emissions inventory).	RACM/RACT will be met if the area submits a SIP that EPA approves as providing for attainment. The SIP providing for attainment will consist of: <ul style="list-style-type: none"> • If applicable, the SIP States submit in response to the NOx SIP call, and • A SIP with additional measures needed for attainment. 	RACM/RACT will be met if the area submits a SIP that demonstrates attainment of the standard	RACM/RACT will be met if the area submits a SIP that demonstrates attainment "but for" the international emissions impacting the area
Contingency Measures for RFP Failure or Failure to Attain:	Modeling predicts area will attain by a "margin of safety;" this is sufficient to satisfy the requirement for contingency measures	Provide contingency measures that reduce emissions of the ozone precursor providing most additional emissions reductions	Provide contingency measures that reduce emissions of the ozone precursor providing most additional emissions reductions	Provide contingency measures that reduce emissions of the ozone precursor providing most additional emissions reductions
NSR:	Forthcoming rulemakings will cover	Forthcoming rulemakings will cover	Program under EPA regulations	Program under EPA regulations
Supplemental Attainment Planning:	SIPs should contain an enforceable commitment for a SIP revision upon having pollutant concentrations for 2 years after the SIP implementation date that are above the level of the NAAQS (i.e., unclean data). (7) This process is designed to ensure areas that don't attain by the attainment date can submit SIPs in accordance with section 179(c).			

Proposed EPA Guidance (November 17, 1998 Draft)

Three formal classifications:	Transitional		Traditional	International Transport
Type of Area Eligible:	Areas that have had the 1-hour standard revoked, that are designated nonattainment for the 8-hour standard and that project attainment of the 8-hour standard through the regional NOx strategy	Areas that have had the 1-hour standard revoked that are designated nonattainment for the 8-hour standard, and for which the regional NOx strategy is not sufficient for attainment of the 8-hour standard or does not apply	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard (and do not qualify for or want transitional); and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked	1. Areas that have had the 1-hour standard revoked but are designated nonattainment for the 8-hour ozone standard; and 2. areas that are nonattainment for the 8-hour standard and for which the 1-hour standard is not revoked
Framework for Planning:	Not applicable		Specifies conditions under which SIP credit toward attainment demonstrations can be obtained from emissions reductions outside nonattainment areas; and provides an attainment demonstration and attainment date alignment process	Not applicable
Conformity:	Need on-road mobile emissions budget and VMT projection that reflects SIP attainment inventory; forthcoming rulemaking will cover	Need on-road mobile emissions budget and VMT projection that reflects SIP attainment inventory; forthcoming rulemaking will cover	Program under EPA regulations. Need on-road mobile emissions budget and VMT projection that reflects SIP attainment inventory; forthcoming rulemaking will cover.	Program under EPA regulations. Need on-road mobile emissions budget and VMT projection that reflects SIP attainment inventory; forthcoming rulemaking will cover.

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- (1) The transitional and international transport classifications will be assigned by July 18, 2000 before EPA completes rulemaking action on the SIPs. If EPA does not approve a transitional area SIP, EPA will withdraw the classification.
- (2) The September 30, 1999 due date for the NOx SIP call SIP is based on the final SIP call.
- (3) The EPA is required to establish the SIP submittal date through rulemaking. The EPA plans to take rulemaking action on the SIP submittal date at the time it designates areas and to establish no later than July 18, 2003 as the date.
- (4) As discussed in the RFP section, this is the date that areas will need to implement the control measures needed for attainment to ensure reasonable progress toward attainment. They are:
 - May 1, 2003-- Transitional areas
 - May 1, 2005--Traditional areas--
 1. Areas designated nonattainment for only the 8-hour standard;
 2. Areas that are nonattainment for both standards and have attainment dates of 2003 or earlier under the 1-hour standard; and also
 3. Other areas that are nonattainment for the 8-hour standard, have not had the 1-hour standard revoked, and are designated attainment/unclassifiable for the 1-hour standard..

Proposed EPA Guidance (November 17, 1998 Draft)

Also, International Transport areas

May 1, 2007--Traditional areas that are nonattainment for both standards and classified as severe-15 for the 1-hour standard.

May 1, 2008--Traditional areas that are nonattainment of both standards and classified as severe-17 for the 1-hour standard.

Not yet determined--EPA will develop--see text for discussion--The area that is nonattainment of both standards and classified as extreme for the 1-hour standard.

- (5) Attainment is as expeditiously as practicable, as required by the Act. The EPA anticipates that the attainment date for areas within each classification will be no later than the date indicated. The EPA will formally establish these dates when EPA takes rulemaking action on the specific SIPs submitted by the States. The formal assignment of attainment dates will be based on EPA's review of the facts and circumstances specific to each nonattainment area and the SIP for the area. The definition of attainment date is the same for all three classifications of ozone area. The attainment date is defined as the date by which areas must attain the 8-hour ozone standard.
- (6) December 31, 2005-- Transitional areas
December 31, 2007-- Traditional areas:
1. Areas designated nonattainment for only the 8-hour standard;
 2. Areas that are nonattainment for both standards and have attainment dates of 2003 or earlier under the 1-hour standard; and also
 3. Other areas that are nonattainment for the 8-hour standard, have not had the 1-hour standard revoked, and are designated attainment/unclassifiable for the 1-hour standard.

Also, International transport areas.

December 31, 2009-- Traditional areas that are nonattainment for both standards and classified as severe-15 for the 1-hour standard.

End of the ozone season, 2010--Traditional areas that are nonattainment for both standards and classified as severe-17 for the 1-hour standard.

December 31, 2010--Traditional areas that are nonattainment for both standards and classified extreme for the 1-hour standard.

- (7) E.g., for the 8-hour ozone standard, the level is 0.08 ppm, 4th highest daily maximum 8-hour ozone concentration. Under EPA's rounding convention, a monitored value greater than 0.084 ppm is considered "unclean." Thus if at any monitoring site in the nonattainment area, the average of the 4th highest concentrations for the two years is greater than 0.084 ppm, the area would have unclean data.

Proposed EPA Guidance (November 17, 1998 Draft)

Table 2: Overall Timeline by Ozone Classification [Revised since 8/14/98 version]

Action:	Activity
Transitional Areas	
By September 30, 1999	<ul style="list-style-type: none"> • States submit SIP in response to the NOx SIP call. The SIP serves as the required SIP for areas that attain through the SIP call and serves as part of the SIP for areas that benefit partially from the SIP call.
By May 1, 2000	<ul style="list-style-type: none"> • For areas that attain through the SIP call, States submit attainment demonstration documentation referencing EPA modeling and emissions inventory. • For areas that benefit partially or not at all from the SIP call, States submit attainment demonstration SIP with any control measures needed to demonstrate attainment • The EPA expects to complete rulemaking on NOx SIP call SIPs
By July 18, 2000	<p>For all areas, EPA finalizes:</p> <ul style="list-style-type: none"> • Determination on transitional classification • Nonattainment designation (1)
By December 2000	<p>For areas that attain through the NOx SIP call, EPA finalizes:</p> <ul style="list-style-type: none"> • Rulemaking on the attainment demonstration and documentation associated with the NOx SIP call SIP • Assignment of an attainment date <p>For areas that rely partially on the SIP call for attainment, EPA finalizes:</p> <ul style="list-style-type: none"> • Rulemaking on attainment SIP, including any control measures needed to demonstrate attainment • Assignment of an attainment date <p>For areas outside the SIP call region, EPA finalizes:</p> <ul style="list-style-type: none"> • Rulemaking on attainment SIP, including any control measures needed to demonstrate attainment • Assignment of an attainment date
By May 1, 2003	Control measure implementation date
By December 31, 2005 (2)	Transitional area attainment date

Proposed EPA Guidance (November 17, 1998 Draft)

Action:	Activity
Traditional Areas	
By July 18, 2000	Finalize designation (1), classification and SIP due date (3)
By July 18, 2003 (3)	Nonattainment area SIP due for areas
By January 18, 2005 (4)	The EPA completes rulemaking action on SIPs, including assigning attainment dates
By May 1, 2005	Control measure implementation date for: 1. Areas designated nonattainment for only the 8-hour standard; 2. Areas that are nonattainment for both standards and have attainment dates of 2003 or earlier under the 1-hour standard; and also 3. Other areas that are nonattainment for the 8-hour standard, have not had the 1-hour standard revoked, and are designated attainment/unclassifiable for the 1-hour standard..
By May 1, 2007	Control measure implementation date for areas that are nonattainment for both standards that are classified severe-15 under the 1-hour standard
By December 31, 2007 (2)	Attainment date for: 1. Areas designated nonattainment for only the 8-hour standard; 2. Areas that are nonattainment for both standards and have attainment dates of 2003 or earlier under the 1-hour standard; and also 3. Other areas that are nonattainment for the 8-hour standard, have not had the 1-hour standard revoked, and are designated attainment/unclassifiable for the 1-hour standard.
By May 1, 2008	Control measure implementation date for areas that are nonattainment for both standards that are classified severe-17 under the 1-hour standard
By December 31, 2009 (2)	Attainment date for areas that are nonattainment for both standards that are classified severe-15 under the 1-hour standard
Not yet determined; EPA will develop; see discussion in text	Control measure implementation date for the area classified extreme for the 1-hour standard.
By the end of the ozone season, 2010 (2)	Attainment date for areas that are nonattainment for both ozone standards that are classified severe-17 under the 1-hour standard
By December 31, 2010 (2)	Attainment date for areas that are nonattainment for both ozone standards that are classified extreme under the 1-hour standard
International Transport Areas	
By July 18, 2000	Finalize designation (1), classification and SIP due date (3)
By July 18, 2003 (3)	Nonattainment area SIP due.
By January 18, 2005 (4)	The EPA completes rulemaking action on SIPs, including assigning attainment dates

Proposed EPA Guidance (November 17, 1998 Draft)

Action:	Activity
By May 1, 2005	Control measure implementation date
December 31, 2007 (2)	Attainment date for areas that are nonattainment for only the 8-hour NAAQS and for areas that are nonattainment for both ozone standards

- (1) This footnote denotes an activity that has a deadline under the Act. Designations must be completed no later than 3 years from promulgation of revised NAAQS, in this case by July 18, 2000.
- (2) This footnote denotes an activity that has a deadline under the Act. Nonattainment areas must attain as expeditiously as practicable but by no later than 5 years from the date of designation. This attainment date can be extended for up to an additional 5 years.
- (3) This footnote denotes an activity that has a deadline under the Act. Nonattainment SIPs are due by a date established by EPA (at the time of designation) which can be no later than 3 years from the date of designation. As provided in the table, EPA will establish this date by July 2000.
- (4) This footnote denotes an activity that has a deadline under the Act. The EPA must complete rulemaking action on SIPs no later than 18 months from when the SIP is submitted: 6 months for completeness and 12 months for review to determine if a complete SIP meets the statutory requirements. For example, if a SIP is submitted on July 18, 2003, then EPA would have no later than January 18, 2005, the date indicated in the table, to complete action on it.

Proposed EPA Guidance (November 17, 1998 Draft)

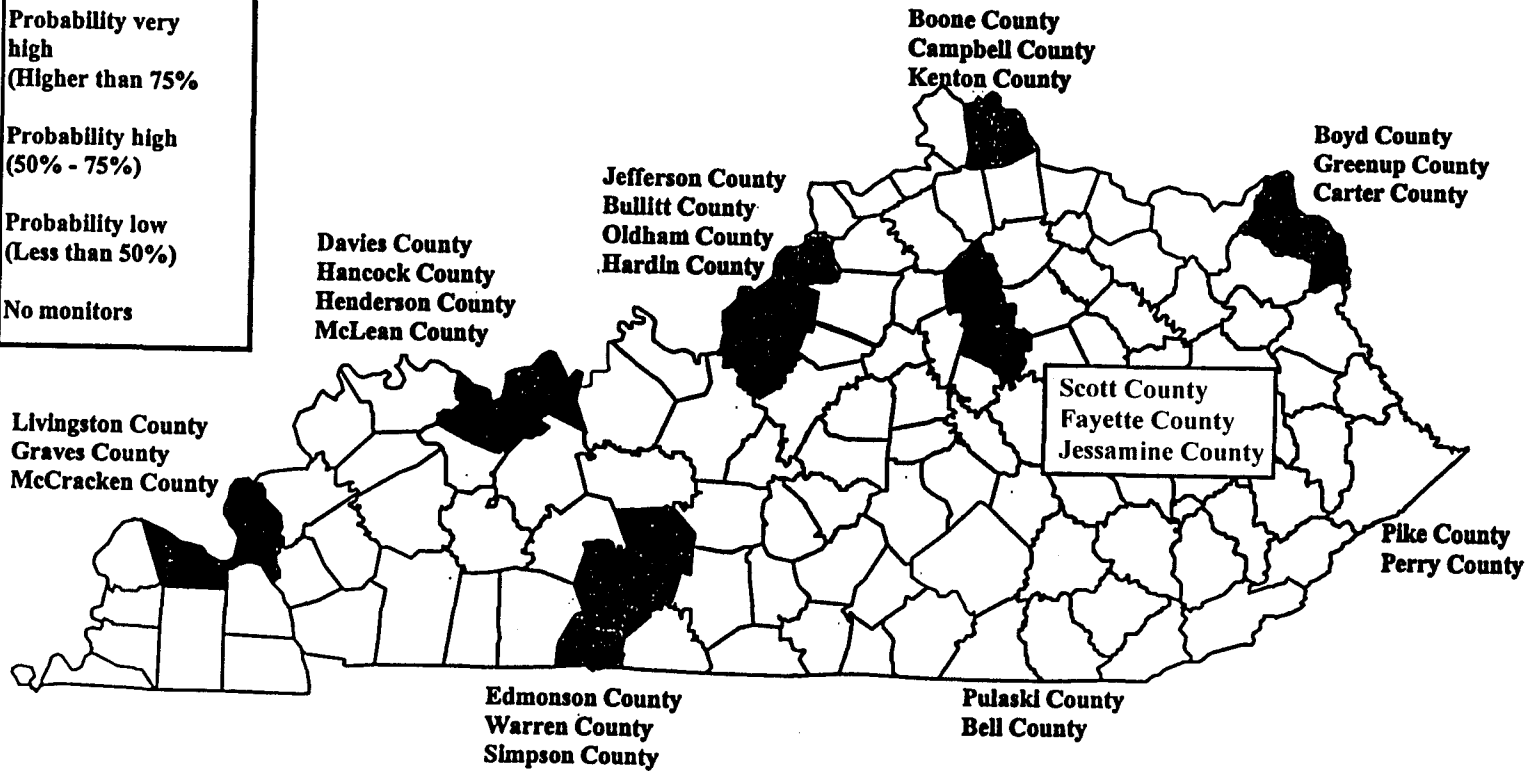
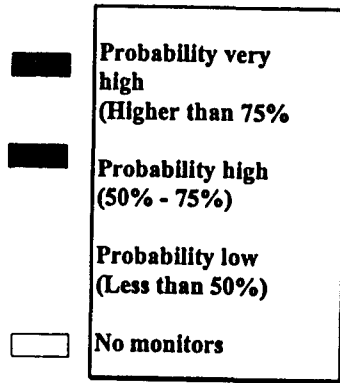
Table 3: Supplemental Attainment Planning Timeline [New since 8/14/98 version]

Type of Area	SIP Submittal	SIP Implementation Date	RFR Check	2 Year Clean Data Check	Attainment date *	Attainment Determination	SIP Revision Due for Areas with 2 Years of Unclean Data	SIP Revision Due for Areas that Failed to Attain
Transitional	September 1999/May 2000	May 1, 2003	December 31, 2003	June 30, 2005	December 31, 2005	June 30, 2006	December 31, 2006	June 30, 2007
Traditional - Nonattainment for the 8-hour NAAQS**	July 2003	May 1, 2005	December 31, 2005	June 30, 2007	December 31, 2007	June 30, 2008	December 31, 2008	June 30, 2009
Traditional - 8- and 1-hour (Severe-15) Nonattainment Areas	July 2003	May 1, 2007	December 31, 2007	June 30, 2009	December 31, 2009	June 30, 2010	December 31, 2010	June 30, 2011
Traditional - 8- and 1-hour (Severe-17) Nonattainment Areas	July 2003	May 1, 2008	December 31, 2008	June 30, 2010	End of 2010 ozone season	June 30, 2011	December 31, 2011	June 30, 2012
Traditional - 8- and 1-hour (Extreme) Nonattainment Area	July 2003	Not yet determined; EPA will develop; see discussion in text	December 31 of the year of the implementation date	June 30, 2010	December 31, 2010	June 30, 2011	December 31, 2011	June 30, 2012
International Transport	July 2003	May 1, 2005	December 31, 2005	June 30, 2007	December 31, 2007	June 30, 2008	December 31, 2008	June 30, 2009

*Dates are as expeditiously as practicable but no later than those listed

**Includes: 1. Areas designated nonattainment for only the 8-hour standard;
 2. Areas that are nonattainment for both standards and have attainment dates of 2003 or earlier under the 1-hour standard; and also
 3. Other areas that are nonattainment for the 8-hour standard, have not had the 1-hour standard revoked, and are designated attainment/unclassifiable for the 1-hour standard..

**Probability of Kentucky Counties
Not Meeting the New Ozone
Standard
(Based on Historic Monitoring Data)**



PROBABILITY OF KENTUCKY COUNTIES
 NOT MEETING
 THE NEW OZONE STANDARD

***Historic 4th Highest Maximum Readings
Compared to levels that would provide violations in 1999***

Location	Site #	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Fayette	227	0.080	0.071	0.063	0.077	0.093	0.080	0.077	0.077	0.083	0.095
Fayette	263	0.086	0.081	0.065	0.086	0.087	0.090	0.086	0.082	0.089	0.084
Jessamine	332		0.062	0.069	0.077	0.086	0.088	0.076	0.080	0.089	0.086
Scott	333				0.080	0.093	0.089	0.077	0.073	0.088	0.094
Boone	189	0.095	0.087	0.073	0.079	0.092	0.083	0.085	0.081	0.084	0.090
Campbell	257	0.088	0.093	0.073	0.080	0.093	0.096	0.086	0.089	0.089	0.077
Kenton	199	0.088	0.085	0.075	0.079	0.100	0.099	0.089	0.084	0.091	0.080
Dayless	58	0.085	0.076	0.075	0.082	0.092	0.089	0.087	0.087	0.085	0.083
Hancock	281	0.104	0.077	0.077	0.084	0.090	0.095	0.090	0.085	0.095	0.075
Henderson	310	0.074	0.070	0.073	0.070	0.080	0.089	0.081	0.075	0.078	0.102
Henderson	344			0.075	0.083	0.090	0.089	0.089	0.082	0.085	0.088
McLean	334		0.076	0.076	0.082	0.098	0.088	0.082	0.083	0.085	0.087
Boyd	341				0.088	0.087	0.091	0.079	0.084	0.080	0.091
Greenup	282	0.090	0.092	0.078	0.087	0.091	0.085	0.078	0.079	0.099	0.077
Carter										0.096	0.159
Jefferson	54	0.070	0.084	0.070	0.091	0.093	0.086	0.087	0.090	0.097	0.068
Jefferson	55	0.080	0.088	0.069	0.090	0.089	0.091	0.096	0.089	0.088	0.078
Jefferson	111			0.055	0.092	0.096	0.092	0.085	0.087	0.090	0.073
Bullitt	337			0.066	0.087	0.084	0.086	0.084	0.086	0.096	0.073
Hardin	336			0.066	0.090	0.095	0.096	0.079	0.071	0.083	0.101
Oldham	293	0.090	0.086	0.069	0.088	0.089	0.088	0.090	0.082	0.101	0.072
Graves	328		0.075	0.064	0.077	0.070	0.071	0.075	0.078	0.085	0.092
Livingston	288	0.082	0.085	0.080	0.086	0.088	0.087	0.081	0.093	0.093	0.069
Livingston	324	0.082	0.068	0.075	0.086	0.084	0.085	0.085	0.085	0.085	0.085
McCracken	280	0.082	0.083	0.074	0.068	0.082	0.080	0.077	0.086	0.090	0.079
Edmonson	353	0.084	0.078	0.073	0.073	0.077	0.089	0.082	0.085	0.098	0.072
Pulaski	339			0.070	0.078	0.080	0.080	0.074	0.073	0.084	0.098
Simpson	331		0.076	0.080	0.074	0.078	0.085	0.079	0.087	0.092	0.076
Bell	340			0.067	0.073	0.072	0.079	0.079	0.074	0.082	0.099
Perry	342			0.074	0.071	0.075	0.077	0.069	0.063	0.073	0.119
Pike	343					0.082	0.087	0.074	0.065	0.085	0.105

The numbers given for 1999 are the levels that would need to be recorded for a 4th highest value for 1999. The numbers in green under the columns 1990-1998 are the times when the 4th highest value for that year was at or above the level needed to violate in 1999. The numbers in red are 4th highest maximum values that were at or over the standard, but did not represent the level necessary to violate in 1999.

**8-Hour Ozone Data
Industrial Monitors In Kentucky**

	GM/Edmonson #092	GM/ Warren #091	Troyoff Scott County	TVA Christian Cnty	TVA Trigg Cnty
1996	0.085	0.071	0.077	0.079	0.082
1997	0.098	0.082	0.083	0.082	0.082
1998 to date	0.099	0.102	0.109	0.103	0.095
	0.097	0.101	0.102	0.101	0.093
	0.094	0.101	0.100	0.089	0.087
	0.092	0.100	0.094	0.086	0.083
3-Year Average	0.092	0.084	0.085	0.082	0.082
To be in Violation after 1999	0.065	0.073	0.078	0.087	0.090

1996		1997	
Christian	Trigg	Christian	Trigg
0.084	0.090	0.085	0.092
0.081	0.088	0.084	0.090
0.079	0.085	0.083	0.083
0.079	0.082	0.082	0.082

Ozone Levels to Date
8-hour Standard

	Fayette #227	Fayette #283	Jessamine #332	Scott #333	Boone #189	Campbell #257	Kenton #199	Boyd #341	Greenup #282	Carter #
1996	0.077	0.086	0.076	0.077	0.085	0.087	0.089	0.079	0.078	
1997	0.077	0.082	0.080	0.073	0.081	0.089	0.084	0.084	0.079	
1998 to date	0.111	0.105	0.102	0.104	0.103	0.103	0.108	0.102	0.118	0.104
	0.097	0.093	0.098	0.093	0.093	0.093	0.096	0.097	0.110	0.100
	0.084	0.092	0.098	0.091	0.091	0.091	0.095	0.091	0.108	0.097
	0.083	0.089	0.089	0.088	0.084	0.089	0.091	0.080	0.099	0.096

1999 Reading To Violate 0.095 0.084 0.086 0.094 0.090 0.077 0.080 0.091 0.077 0.159

	Davless #58	Hancock #281	Henderson #310	Henderson #344	McLean #334	Jefferson #54 (Bates)	Jefferson #55 (WELK)	Jefferson #56 (Walt)	Bullitt #337	Hardin #336	Oldham #293
1996	0.087	0.090	0.081	0.089	0.082	0.087	0.096	0.085	0.084	0.079	0.090
1997	0.087	0.085	0.075	0.082	0.083	0.090	0.089	0.092	0.086	0.071	0.082
1998 to date	0.109	0.109	0.088	0.096	0.103	0.112	0.098	0.098	0.102	0.091	0.112
	0.103	0.100	0.084	0.095	0.091	0.097	0.093	0.095	0.100	0.085	0.106
	0.088	0.095	0.078	0.087	0.086	0.097	0.089	0.093	0.098	0.084	0.102
	0.085	0.095	0.078	0.085	0.085	0.097	0.088	0.090	0.096	0.083	0.101

1999 Reading to Violate 0.083 0.075 0.102 0.088 0.087 0.068 0.078 0.073 0.073 0.101 0.072

	Graves #328	Livingston #288	Livingston #324	McCracken #280	Edmonson #353	Pulaski #339	Simpson #331	Bell #340	Perry #342	Pike #343
1996	0.075	0.081	0.085	0.077	0.082	0.074	0.079	0.079	0.069	0.074
1997	0.078	0.093	0.085	0.086	0.085	0.073	0.087	0.074	0.063	0.065
1998 to date	0.100	0.111	0.103	0.098	0.103	0.094	0.106	0.094	0.080	0.094
	0.088	0.107	0.093	0.096	0.100	0.089	0.101	0.089	0.080	0.088
	0.087	0.099	0.087	0.093	0.100	0.086	0.092	0.087	0.073	0.086
	0.085	0.093	0.085	0.090	0.098	0.084	0.092	0.082	0.073	0.085

1999 Reading to violate 0.092 0.069 0.085 0.079 0.072 0.098 0.076 0.099 0.119 0.105

Areas may have had more readings at or over the standard only the top 4 are listed.

Data through 9/30/98

**INDIANA LETTER TO REGION V - ENVIRONMENTAL PROTECTION AGENCY
REGARDING OZONE STANDARDS ATTAINMENT
Clark and Floyd Counties (Louisville Moderate Ozone Nonattainment Area)**



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Frank O'Bannon
Governor

John M. Hamilton
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.iem.org/idem

RECEIVED

DEC 23 1998

David A. Ullrich, Acting Regional Administrator
United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, IL 60604-3590

**A.P.C.D.
ADMINISTRATION**

**Re: Ozone Attainment Plan for Clark and Floyd
County, Indiana**

Dear Mr. Ullrich:

This letter is in response to the letter you sent to Governor O'Bannon on October 19, 1998 which set forth the requirements necessary for states to obtain a compliance extension of the attainment date for areas that failed to attain the one-hour standard by the statutory date. Indiana commits to following the criteria specified in the July 16, 1998 compliance date extension policy, for developing and submitting a plan for Clark and Floyd Counties, Indiana, which are part of the Louisville moderate ozone nonattainment area.

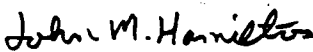
Indiana agrees with the United States Environmental Protection Agency's (US EPA) policy decision to not impose additional inflexible mandates on areas that are doing everything possible to comply with Clean Air Act (CAA) requirements. Imposing additional federal requirements may have a negative impact on the advances in attaining cleaner air sooner in areas that are continuing to make progress with the development of local measures.

Indiana has made significant progress in complying with Clean Air Act requirements in Clark and Floyd Counties. Control programs are in place requiring substantial reductions from mobile sources, industry and area sources. However, monitoring values from recent summers indicate that air quality does not yet fully meet one-hour ozone standard. Therefore, Indiana intends to follow the steps outlined in the July 16, 1998 compliance date extension policy and to pursue additional local measures that may be needed to achieve attainment. Indiana also commits to submitting an attainment plan as expeditiously as possible to meet the schedule set out in the US EPA's policy document. Indiana is committed to pursuing further reductions. We must also work with Jefferson County and the state of Kentucky, which contains the highest

document, once EPA approves the attainment date extension the area will no longer be subject to bump up and the additional mandatory control efforts associated with the reclassification status.

If you or your staff have additional questions regarding this letter, please contact Janet McCabe, Assistant Commissioner for IDEM's Office of Air Management, at 317-232-8222.

Sincerely,


John M. Hamilton
Commissioner

JH/pad

cc: Mr. John E. Hornback
Mr. Arthur L. Williams
Mr. John H. Hankingson
Mr. Jay Bortzer

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
OXIDES OF NITROGEN STATE IMPLEMENTATION PLAN COMMENTS

Tennessee



Department of Environment and Conservation

June 25, 1998

Air and Radiation Docket and Information Center (6101)
United States Environmental Protection Agency
401 M Street SW
Room M-1500
Washington DC 20460

Re: Docket Number A-96-56

Ladies and Gentlemen:

The State of Tennessee submits the following comments regarding the supplemental notice of proposed rulemaking appearing in the Federal Register Volume 63, No. 90/ Monday, May 11, 1998:

1. Tennessee believes that the purpose of the Clean Air Act is to protect human health and our natural resources. This means that Tennessee should direct its efforts to meeting the standards set to protect human health. The supplemental notice however, is directed towards mitigation against failure to meet the standards, not the full attainment of the standards. Tennessee believes that the EPA is taking the wrong approach. The goal is attainment, not mitigation, not only within Tennessee's borders but also for our neighbors. Therefore, Tennessee objects to the proposal because it contains arbitrary reductions, apparently designed to "mitigate" ozone problems. This is a serious deficiency because these mitigating reductions would take away the flexibility needed to solve the ultimate problem. An immediate 85 percent reduction in NO_x removes all the options needed by the utilities to direct their efforts where they are most needed in order to fully attain the standards.
2. Air quality is the sole legitimate purpose for the proposal. The proposed rules promulgated on November 7, 1997, state the "EPA plans to publish a supplemental notice of proposed rulemaking in

early 1998. The Agency intends to include...an air quality analysis of the proposed statewide emission budgets...". Tennessee has not seen any such analysis of the effects of its own reductions in the supplemental notice or any reference thereto. All EPA did was lump 37 OTAG states together. This does not give Tennessee or any other state the opportunity to see how much they affect each other. This flaw is so serious as to throw the entire proposal into question. Unless EPA can adequately address this most elementary issue, the proposal is without foundation and must be rejected in its entirety.

Rejection of the proposal in no way eliminates Tennessee's obligation or desire to take the appropriate steps to protect the health of its citizens and those of its neighbors as it is presently doing independent of this proposal.

3. Tennessee continues to question the scientific basis for the proposal. We repeat by reference our concerns previously submitted. In a free society, rulemaking is based on full access to information which is verifiable and subject to peer review. EPA is using expanded modeling based on OTAG work to justify its position concerning the need for reductions to meet the new eight (8) hour average ozone ambient standard. EPA is using this modeling without ever providing the states with the protocol to perform air quality analysis for the new ozone standard. The states cannot adequately comment on an air quality analysis without having the EPA protocol.
4. EPA is relying in large part on modeling that was performed by OTAG. This modeling for ozone was performed for only four (4) meteorological episodes. EPA has not evaluated the worst case meteorological events for the states and subregions allowing the determination of the most cost effective strategies to demonstrate compliance with the ozone ambient standard. The broad sweeping approach of EPA for regional NOx reductions is nothing more than reducing NOx for the sake of reducing NOx.
5. Tennessee suggests that EPA allow utilities to meet the targeted reduction for utilities on a systemwide basis. Tennessee further recommends that implementation of a flexible trading program on a regionwide basis. There is no need for a "cap" for NOx emissions during the ozone season as all NOx sources are not equal when it comes to ozone nonattainment. The states should develop state implementation plans to meet the new ozone standard and have the responsibility to insure that any trades that are proposed would not cause any ozone nonattainment problems.

Tennessee endorses the comments that are made by the Tennessee Valley Authority concerning the proposed NOx Budget Cap and Trade Program to be implemented by EPA.

6. Tennessee opposes a "cap" on NOx emissions from industrial sources.

This has no bearing on industrial sources being included in the trading program. As with the acid rain trading program, the states should have the responsibility to determine if an industrial source can opt in and purchase an allowance under the trading system.

7. The NOx reduction strategies for a state should be based on the actual NOx emission potential and not provide credit where a state has non-fossil fuel electricity generating units. Such rewards would not help reduce the NOx emissions contributing to ozone nonattainment problems.
8. Tennessee has concerns about the ability of the utilities to comply with the mandates of the Section 110 SIP call and for them to be able to still provide a reliable source of electricity needed by the nation. Such disruptions could be catastrophic and have very adverse effects on the health of our citizens.

9. The following comment is offered though a recent conversation with an EPA official has apparently explained the change in the use of terminology: "utility units versus electricity generating units." Final rulemaking should confirm that cogeneration units should be treated the same as other large industrial boilers in the NOx budget.

The Governor of Tennessee has joined other Governors in the Southeast and Midwest in making an alternative proposal. For the reasons set forth therein, Tennessee believes this alternate proposal better protects human health consistent with the Clean Air Act.

Thank you for the opportunity to comment upon these proposed rules.

Sincerely,

Justin P. Wilson

Deputy Governor for Policy

Copy to: Tennessee Air Pollution Control Board

INDIANA GOVERNOR'S PRESS RELEASE
ON LITIGATION OVER THE NITROGEN OXIDES EMISSIONS
STATE IMPLEMENTATION PLAN RULE FROM THE ENVIRONMENTAL PROTECTION AGENCY



OFFICE OF THE GOVERNOR
INDIANAPOLIS, INDIANA 46204-2797

FRANK O'BANNON
GOVERNOR

For immediate release

Monday, December 21, 1998

***Indiana sues over 'one-size-fits-all'
EPA rule to reduce ozone pollution***

Indiana has a strong commitment to clean air but now is suing the U.S. Environmental Protection Agency over one of its rules, Governor Frank O'Bannon said today.

At O'Bannon's request, Indiana Attorney General Jeff Modisett's office today joined other states in a lawsuit against the EPA. The suit asks the court to overturn an EPA rule for reducing ozone, issued September 24.

The rule affects Indiana and 21 other states in the Midwest and East. It requires electric utilities in those states to reduce their emissions of nitrogen oxides (NOx) by 85 percent from 1990 levels by May 2003. The EPA has rejected Indiana's own plan for a 65 percent cut.

The rule was originally intended to reduce the amount of ground-level ozone drifting across the eastern half of the United States. EPA also has said its rule should help states meet the new federal ozone standards on health, which were implemented in July 1997. Nitrogen oxides are a main ingredient in ground-level ozone pollution, which can cause smog and breathing problems.

"Hoosiers expect and deserve clean air. We are committed to meeting or exceeding all clean air standards," O'Bannon said.

"And we will continue to work closely with the EPA," he added, noting that state agencies worked side by side with the EPA to protect the environment after last week's huge fire in a plastics warehouse at Mount Vernon.

"But we disagree with the EPA's desire to dictate the amount of pollution to cut, what type and when," the governor continued. "Decisions of that magnitude should remain with the people who have to live with the consequences. And nobody breathes more of Indiana's air than the people of Indiana."

The lawsuit, he emphasized, is aimed at the mandatory implementation of one federal plan and will not detract from the scope or timing of Indiana's own efforts to clean the air.

"We are not convinced that the EPA had the right to do all this or that it chose the smartest, most cost-effective strategy for Hoosiers. And Hoosiers will be bearing the cost," said **John Hamilton**, commissioner of the Indiana Department of Environmental Management (IDEM), which is also filing suit.

If the EPA's "one-size-fits-all" strategy prevails, O'Bannon said, Indiana homes and businesses could face higher energy costs and disruptions in electric service. In addition, he said, the state's industries could be at a competitive disadvantage.

Indiana is asking the District of Columbia Circuit Court in Washington, D.C., to prevent the EPA from imposing air pollution control strategies without the approval of the affected state. The EPA finalized its plan despite objections from Indiana and several other states. They objected that the EPA was taking away their authority by prescribing the exact amount of pollution cuts, the time frame for those cuts and which pollutants to control.

Since the new ozone standard took effect, IDEM has established local steering committees in the seven areas of the state that are at risk of not meeting the standard, Hamilton explained. Each steering committee consists of local government officials, environmentalists, health organizations and representatives of small and large business. Each committee is working to map out pollution reduction measures that would work best for its area, achieving healthful air and at the same time making sense for local residents and businesses, he noted.

"Indiana is working hard to develop plans to clean its air and comply with the more protective health standard for ground-level ozone," said Governor O'Bannon. "We are doing this by involving the communities. They are in the best position to decide what measures make sense for their environment and their economy. The EPA should not be dictating these decisions."

Indiana is among 37 states that have been cooperating since 1995 to resolve the smog transport issue. In addition, O'Bannon is chairman of the Midwestern Governors' Conference, which has been trying for more than a year to persuade the EPA to make room for alternative plans to reduce smog.

*For details: Phil Bremen or Cheryl Reed, 317-232-4578;
Ann Germann, IDEM, 317-232-8560;
Jeff Viohl, Indiana liaison in Washington, D.C., 202-624-1474*

FACT SHEET:
United States Environmental Protection Agency Correction Notice and
Reopening of Emissions Inventory Comment Period for
Final Rule Requiring Regional Nitrogen Oxide Reductions in the Eastern United States

December 11, 1998

FACT SHEET

Correction Notice and Reopening of Emissions Inventory Comment Period for EPA's Final Rule Requiring Regional NOx Reductions in the Eastern U.S.

TODAY'S ACTION

- ◆ The Environmental Protection Agency (EPA) is announcing two actions regarding EPA's recent requirements for 22 eastern states to address the regional transport of ground-level ozone (known as the NOx SIP call): a reopening of the public comment period for revisions to specific components of the SIP call's emissions inventories; and four corrections or clarifications to the final, October 27, 1998 SIP call rule.
- ◆ EPA is reopening the the period for emissions inventory revisions to 2007 baseline sub-inventory information used to establish each State's budget in the NOx SIP Call for 60 days from publication of this notice. This includes source-specific emission inventory data and vehicle miles traveled (VMT) and nonroad mobile growth rates, VMT distribution by vehicle class, average speed by roadway type, inspection and maintenance program parameters, and other input parameters used in the calculation of highway vehicle emissions.
- ◆ This notice also:
 - corrects Table III-1 of the final SIP call: a list of State NOx budgets on an energy source basis;
 - clarifies the large source classification for electricity generating units and non-electricity generating units;
 - clarifies the dates by which large electricity generating units and large non-electricity generating units must have controls in place and demonstrate compliance if emission credits are used; and
 - corrects the formula for distributing unused new source allowances by removing an extra parenthesis.

BACKGROUND

- ◆ Signed on September 24, 1998 and published in the Federal Register on October 27, 1998 (63 FR 57356), EPA's "Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone", also known as the NOx SIP call, requires 22 States and the District of Columbia to submit State implementation plans that address the regional transport of ground-level ozone.
- ◆ By reducing emissions of nitrogen oxides (a precursor to ozone formation known as NOx) by about 28 percent in the affected 22 states and the District of Columbia, the actions directed by these plans will decrease the transport of ozone across State boundaries in the eastern half of the United States.

- ◆ EPA projects, that when finalized this rule will bring the vast majority of all new nonattainment areas into attainment with the 8-hour standards without having to implement more costly local controls. It will also help reduce ozone levels in the remaining nonattainment areas east of the Mississippi River.
- ◆ Ozone is not emitted directly into the atmosphere. It is formed when emissions of nitrogen oxides and volatile organic compounds react in the presence of sunlight. While beneficial in the upper atmosphere, ozone in the lower atmosphere can cause a variety of health problems because it damages lung tissue, reduces lung function, and adversely sensitizes the lungs to other irritants.
- ◆ The States subject to the final SIP call action are:

Alabama, Connecticut, District of Columbia, Delaware, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Wisconsin, and West Virginia.
- ◆ Through a 2-year effort known as the Ozone Transport Assessment Group (OTAG), EPA worked in partnership with the 37 eastern-most States and the District of Columbia, industry representatives, and environmental groups to address ozone transport.

NEXT STEPS

- ◆ EPA intends to reopen the comment period for 2007 baseline sub-inventory revisions for two related notices of proposed rulemaking concerning Clean Air Act section 126 petitions (the section 126 proposal) and Federal implementation plans for the NO_x SIP call (the FIP proposal) in a future action.

FOR MORE INFORMATION

- ◆ Interested parties can download the correction notice from EPA's web site on the Internet at the following address: (<http://www.epa.gov/ttn/oarpg/otagsip.html>). Information about the OTAG process can also be found on the Internet at: (<http://www.epa.gov/ttn/otag>). For further information about the correction notice, contact Kimber Scavo of EPA's Office of Air Quality Planning and Standards at (919) 541-3354. For specific information about the emission inventory comment period, contact Greg Stella of EPA's Office of Air Quality Planning and Standards at (919) 541-3649.

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
NITROGEN OXIDE REDUCTION BUDGET INFORMATION

Development of Budgets for the Regional NO_x SIP Call

Office of Air Quality Planning and Standards



Budget Calculation

- Electric Generating Units (EGUs)
 - Any Unit That Sells Any Portion of Its Produced Electricity to a Grid or Power Pool Under Contract
 - Unit-By-Unit Determination
 - A Facility Can Contain EGU and Non-EGU Sources

Budget Calculation (Con't)

- Non-EGU Point Source Budget Affected Units
 - Industrial, Commercial, Institutional Boilers
 - 60 % Reduction from Uncontrolled 2007 Base
 - Gas Turbines
 - 60 % Reduction from Uncontrolled 2007 Base
 - Internal Combustion Engines
 - 90 % Reduction from Uncontrolled 2007 Base
 - Cement Manufacturers
 - 30 % Reduction from Uncontrolled 2007 Base

Budget Calculation (Con't)

- Stationary Area, Nonroad, Highway Mobile
 - 1995 HPMS Data Used for Base VMT
 - Except Where Comments Accepted
- Budget Controls Equal Base Control Levels
 - OTAG "Level 0" for Highway Mobile
 - OTAG "Level 1" for Stationary Area and Nonroad

Budget Calculation

- Electric Generating Units (EGUs)
 - Greater of 1995/1996 Heat Input for State Grown to 2007 with IPM Growth Factors
 - 0.15 lbs/MMBtu NO_x Emission Limit Applied to Sources of > 25 MW
 - CAA Base Case Controls (including Title IV and NO_x RACT, where applicable) Applied to Rest

Budget Calculation (Con't)

- Non-EGU Point Sources
 - Large vs. Small Size Determination Made for Affected Categories
 - Percent Reduction Applied to Uncontrolled 2007 NO_x Emissions for Affected Categories
 - CAA Base Case Controls (including RACT and MACT, where applicable) Applied to Rest

Definition of Large Non-EGU Point Sources for Budget Calculation

- Non-EGU Point Source Budget Affected Units
 - Industrial, Commercial, Institutional Boilers
 - > 250 mmBtu/hr Boiler Capacity
 - Gas Turbines
 - > 250 mmBtu/hr Boiler Capacity
 - Internal Combustion Engines
 - > 1 ton NO_x per day
 - Cement Manufacturers
 - > 250 mmBtu/hr Boiler Capacity or > 1 ton NO_x per day

Definition of Large Non-EGU Point Sources for Budget Calculation (cont.)

- Determination of boiler capacity was done in three steps:
 1. Use boiler heat input capacity data where available.
 2. Estimate boiler heat input capacity using SCC's, as described in the NPR and SNPR.
 3. Use 1 ton/day cutoff as a surrogate where boiler heat input capacity data were not available for a unit and where the boiler capacity estimated in step 2 was less than 250 mmBtu/hr.

Existing Non-EGU Controls

- Percent reduction were intended to be applied to uncontrolled levels.
- Where information was available that controls were already in place, those controls were removed before the percent reduction was applied.
- If no information on existing controls was available sources were assumed to be uncontrolled and the percent reductions were applied to that level of emissions.
- Additional information on controls already in place will be accepted as source-specific corrections in the 60-day time period.

Calculation of Seasonal Mobile Source Emissions

- Mobile5a was used to calculate emission factors by month for each unique control area within a State. Monthly average temperatures over the period 1970 to 1997 were used.
- Annual VMT was temporally allocated to the four seasons. The summer VMT was allocated to June, July and August based on the number of days in each month. A portion of the spring VMT was allocated to May and a portion of the fall VMT was allocated to September.
- Emission factors were applied to monthly VMT to come up with emissions for each month.
- Monthly emissions were summed to get the seasonal total.

VOC Emission Reductions Assumed for Modeling

- Additional VOC reductions beyond Base Case levels were not assumed.
- The Base Case included VOC reductions that are mandated by the Clean Air Act and reductions that occur as a result of other programs (e.g., LEV).
- Base Case control measures are shown on the following table:

2007 SIP Call Base Case Controls

Utilities	<ul style="list-style-type: none"> • Title IV Controls (phases 1 & 2) • 250 Ton PSD and NSPS • RACT & NSR in non-walved NAAs
Non-Utility Point	<ul style="list-style-type: none"> • NOx RACT on major sources in non-walved NAAs • 250 Ton PSD and NSPS • NSR in non-walved NAAs • CTG & Non-CTG VOC RACT at major sources in NAAs & OTR • MACT Standards • New Source LAER
Stationary Area	<ul style="list-style-type: none"> • Two Phases of VOC Consumer and Commercial Products & One Phase of Architectural Coatings controls • VOC Stage 1 & 2 Petroleum Distribution Controls in NAAs • VOC Autobody, Degreasing & Dry Cleaning controls in NAAs
Nonroad Mobile	<ul style="list-style-type: none"> • Fed Phase II Small Eng. Stds • Fed Marine Eng. Stds • Fed Nonroad Heavy-Duty (>50 hp) Engine Stds - Phase 1 • Fed RFG II (stationary and opt-in areas) • 0.2 RVP maximum elsewhere in OTAG domain • Fed Locomotive Stds (not including opt-out) • Fed Nonroad Diesel Engine Stds - Phases 2 & 3
Highway Vehicles	<ul style="list-style-type: none"> • National LEV • Fed RFG II (stationary and opt-in areas) • 0.2 RVP maximum elsewhere in OTAG domain • High Enhanced I/M (serious and above NAAs) • Low Enhanced I/M for rest of OTR • Basic I/M (mandated NAAs) • Clean Fuel Fleets (mandated NAAs) • On-board vapor recovery • HDV 2 gm std
Rate of Progress Requirements	<ul style="list-style-type: none"> • Effectively, ROP through 1999

ENVIRONMENTAL PROTECTION AGENCY
NITROGEN OXIDE ALLOWANCE ALLOCATION FOR KENTUCKY

**NO_x ALLOWANCE ALLOCATION TABLES FOR AFFECTED SOURCES UNDER
SECTION 126 OF THE ACT**

Table A.1 Allocations to Fossil Fuel-Fired EGUs by mmBtu and MWh

State	Plant ID	Point ID	Plant	Unit 2007 Summer HI	Unit 2007 Summer GWh	Unit Allocations by HI	Unit Allocations by GWh
AL	3	1	BARRY	4,444,705	452,203	336	333
AL	3	2	BARRY	4,457,926	453,456	337	334
AL	3	3	BARRY	7,758,632	798,049	587	587
AL	3	4	BARRY	12,886,737	1,375,025	975	1,012
AL	3	5	BARRY	25,069,820	2,649,527	1,897	1,950
AL	56	**4	CHARLES R LOWMAN	903,512	68,448	68	50
AL	56	1	CHARLES R LOWMAN	2,337,265	205,745	177	151
AL	56	2	CHARLES R LOWMAN	8,251,949	786,199	625	578
AL	56	3	CHARLES R LOWMAN	7,476,176	712,220	566	524
AL	5	110	CHICKASAW	293,278	27,668	22	20
AL	47	1	COLBERT	5,401,036	528,115	409	389
AL	47	2	COLBERT	5,586,222	546,223	423	402
AL	47	3	COLBERT	5,294,661	517,714	401	381
AL	47	4	COLBERT	5,512,314	538,996	417	397
AL	47	5	COLBERT	13,750,384	1,387,106	1,041	1,021
AL	26	1	E C GASTON	7,187,848	760,699	544	560
AL	26	2	E C GASTON	7,037,596	752,765	533	554
AL	26	3	E C GASTON	7,568,867	809,591	573	596
AL	26	4	E C GASTON	7,279,128	767,031	551	564
AL	26	5	E C GASTON	24,100,992	2,589,277	1,824	1,905
AL	7	1	GADSDEN	1,915,860	162,803	145	120
AL	7	2	GADSDEN	1,777,783	151,069	135	111
AL	8	10	GORGAS	24,048,187	2,517,344	1,820	1,852
AL	8	6	GORGAS	3,271,407	292,953	248	216

IN	981	3	STATE LINE	4,973,309	527,225	386	405
IN	981	4	STATE LINE	5,883,063	631,027	456	485
IN	988	U1	TANNERS CREEK	3,131,631	325,770	243	250
IN	988	U2	TANNERS CREEK	3,098,674	328,493	240	252
IN	988	U3	TANNERS CREEK	4,041,085	434,899	314	334
IN	988	U4	TANNERS CREEK	11,950,298	1,394,271	927	1,071
IN	1010	1	WABASH RIVER	851,343	94,804	66	73
IN	1010	2	WABASH RIVER	1,727,253	167,046	134	128
IN	1010	3	WABASH RIVER	1,705,031	163,067	132	125
IN	1010	4	WABASH RIVER	2,662,911	254,678	207	196
IN	1010	5	WABASH RIVER	1,897,229	176,536	147	136
IN	1010	6	WABASH RIVER	7,024,392	683,706	545	525
IN	6705	1	WARRICK	3,774,805	362,962	293	279
IN	6705	2	WARRICK	3,986,462	383,314	309	294
IN	6705	3	WARRICK	4,055,995	390,000	315	299
IN	6705	4	WARRICK	11,135,585	1,098,184	864	843
IN	1040	1	WHITewater VALLEY	971,576	93,421	75	72
IN	1040	2	WHITewater VALLEY	1,877,419	168,122	146	129
KY	1353	BSU1	BIG SANDY	7,613,037	812,057	609	655
KY	1353	BSU2	BIG SANDY	22,241,768	2,407,118	1,781	1,942
KY	1363	4	CANE RUN	4,925,774	444,084	394	358
KY	1363	5	CANE RUN	4,304,294	417,487	345	337
KY	1363	6	CANE RUN	5,587,828	543,616	447	439
KY	1384	1	COOPER	2,306,853	231,658	185	187
KY	1384	2	COOPER	4,882,718	478,651	391	386
KY	6823	W1	D B WILSON	14,381,701	1,449,768	1,151	1,170
KY	1385	3	DALE	1,906,453	159,723	153	129
KY	1385	4	DALE	1,935,939	164,202	155	132
KY	1355	1	E W BROWN	2,464,832	222,357	197	179

KY	1355	2	E W BROWN	4,028,960	405,859	323	327
KY	1355	3	E W BROWN	10,080,565	954,870	807	770
KY	1355	5	E W BROWN	188,516	14,282	15	12
KY	1355	6	E W BROWN	188,516	14,282	15	12
KY	1355	7	E W BROWN	188,516	14,282	15	12
KY	6018	2	EAST BEND	19,048,549	1,915,390	1,525	1,545
KY	1374	1	ELMER SMITH	5,140,226	513,099	412	414
KY	1374	2	ELMER SMITH	9,068,247	1,021,659	726	824
KY	1356	2	GHENT	13,610,812	1,345,607	1,090	1,086
KY	1356	3	GHENT	13,909,380	1,328,372	1,114	1,072
KY	1356	4	GHENT	14,120,228	1,415,846	1,130	1,142
KY	1357	1	GREEN RIVER	312,489	30,047	25	24
KY	1357	2	GREEN RIVER	313,882	30,181	25	24
KY	1357	3	GREEN RIVER	300,246	28,870	24	23
KY	1357	4	GREEN RIVER	2,445,115	199,422	196	161
KY	1357	5	GREEN RIVER	2,133,890	190,356	171	154
KY	6041	1	H L SPURLOCK	9,369,673	933,792	750	753
KY	6041	2	H L SPURLOCK	19,888,084	2,012,964	1,592	1,624
KY	1372	6	HENDERSON I	424,577	40,825	34	33
KY	1382	H1	HMP&L STATION 2	4,765,405	466,282	382	376
KY	1382	H2	HMP&L STATION 2	5,002,527	490,925	400	396
KY	1381	C1	K C COLEMAN	4,738,308	471,005	379	380
KY	1381	C2	K C COLEMAN	5,366,408	527,411	430	426
KY	1381	C3	K C COLEMAN	4,937,546	480,306	395	388
KY	1364	1	MILL CREEK	7,116,202	701,035	570	566
KY	1364	2	MILL CREEK	7,466,807	706,749	598	570
KY	1364	3	MILL CREEK	12,691,840	1,234,015	1,016	996
KY	1364	4	MILL CREEK	14,102,495	1,387,495	1,129	1,119
KY	1378	1	PARADISE	21,860,472	2,197,916	1,750	1,773

KY	1378	2	PARADISE	24,632,519	2,476,626	1,972	1,998
KY	1378	3	PARADISE	27,629,156	2,743,437	2,212	2,213
KY	1360	3	PINEVILLE	588,364	56,573	47	46
KY	1383	R1	R A REID	462,060	41,072	37	33
KY	6639	G1	R D GREEN	8,342,047	809,122	668	653
KY	6639	G2	R D GREEN	7,435,113	714,228	595	576
KY	1379	1	SHAWNEE	4,299,562	426,671	344	344
KY	1379	10	SHAWNEE	10,578,503	993,473	847	802
KY	1379	2	SHAWNEE	4,324,438	429,139	346	346
KY	1379	3	SHAWNEE	4,428,585	439,475	355	355
KY	1379	4	SHAWNEE	4,240,262	420,786	339	339
KY	1379	5	SHAWNEE	4,409,569	437,587	353	353
KY	1379	6	SHAWNEE	7,296,781	724,102	584	584
KY	1379	7	SHAWNEE	8,781,086	871,399	703	703
KY	1379	8	SHAWNEE	5,000,057	496,185	400	400
KY	1379	9	SHAWNEE	5,884,725	583,976	471	471
KY	6071	1	TRIMBLE COUNTY	16,103,567	1,599,321	1,289	1,290
KY	1361	1	TYRONE	35,370	3,337	3	3
KY	1361	3	TYRONE	35,800	3,377	3	3
KY	1361	4	TYRONE	36,606	3,453	3	3
KY	1361	5	TYRONE	1,019,264	82,685	82	67
MA	50002	CC (*)	ALTRESCO (PITTSFIELD) (*)	1,121,457	131,936	114	130
MA	50002	CS (*)	ALTRESCO (PITTSFIELD) (*)	587,755	69,148	60	68
MA	1619	1	BRAYTON POINT	7,692,885	785,068	783	773
MA	1619	2	BRAYTON POINT	7,497,386	790,530	763	778
MA	1619	3	BRAYTON POINT	18,238,259	2,030,082	1,857	1,999
MA	1619	4	BRAYTON POINT	5,455,025	511,969	555	504
MA	1599	1	CANAL	11,606,453	1,290,897	1,182	1,271
MA	1599	2	CANAL	10,108,445	1,024,989	1,029	1,009

**ENVIRONMENTAL PROTECTION AGENCY
REGIONAL NITROGEN OXIDE STATE IMPLEMENTATION PLAN
CALL MODIFICATION REQUEST FORM**

Regional NO_x SIP Call Modification Request Form

FIPSSST	13	FIPSCNTY		PLANTID	
Plant Name and Location:				Primary SIC Code:	
Emission Unit ID Number:			Facility's Name for This Emission Unit:		
Description of Emission Unit:					
Design Capacity or Name Plate Heat Input Capacity:					
Location of Unit:		Latitude	°	'	"
		Longitude	°	'	"
		NO _x Budget ID Number:			

Ozone Season (May 1 - September 30) Fuel Consumption Information				Year of Record:	
Fuel Type & Grade	Heating Value (BTUs/gal, BTUs/lb, BTUs/cu. ft., etc.)	Fuel Consumed During May 1 - September 30 (gals, lbs, cu. ft., etc.)	Total Heat Content of the Fuel Consumed (BTUs)	SCC	Primary SCC

Ozone Season (May 1 - September 30) NO _x Emissions:			Year of Record:	
NO _x Emissions during May 1 - September 30:		Description of NO _x Control:	NO _x Control Efficiency: %	

Operating Parameters for the Emission Unit during May 1 - September 30			Year of Record:	
Hours per Day:	Days per Week:	Weeks per Season:		

Stack Parameters Information				
Stack Height:	Stack Diameter:	Stack Temperature:	Stack Flow Rate:	Stack Velocity:
ft	ft	degrees F	cu. ft./min	ft/sec

I certify that I have personally examined and am familiar with the statements and information contained in this form and its attachments. To the best of my knowledge, after reasonable inquiry, I believe the statements contained herein to be true, accurate, and complete.

SIGNATURE OF RESPONSIBLE OFFICIAL

Signature: _____ Date: _____
 Name: _____
 Official Title: _____
 Address: _____

ACRONYMS

BACT	Best Available Control Technology
FIP	Federal Implementation Plan
LAER	Lowest Achievable Emission Reductions
NAAQS	National Ambient Air Quality Standards
OTAG	Ozone Transport Assessment Group
PSD	Prevention of Significant Deterioration
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
SIP	State Implementation Plan

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**COMMON LAW REMEDIES AVAILABLE
FOR PETROLEUM CONTAMINATION
OF SOIL AND GROUNDWATER IN KENTUCKY**

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Professor of Law
Salmon Chase College of Law
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SECTION H

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**COMMON LAW REMEDIES AVAILABLE
FOR PETROLEUM CONTAMINATION
OF SOIL AND GROUNDWATER IN KENTUCKY**

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**COMMON LAW REMEDIES AVAILABLE FOR
PETROLEUM CONTAMINATION OF SOIL
AND GROUNDWATER IN KENTUCKY**

by

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I. INTRODUCTION

For anyone with a modicum of awareness of current events, it is unfortunately axiomatic that soil and groundwater contamination attributable to petroleum leaked from underground storage tanks (USTs) is widespread throughout the nation. The United States Environmental Protection Agency (EPA) has estimated the number of USTs nationally to be in excess of two million, involving more than 700,000 facilities.² Further, over seventy-five percent of the existing tanks were made of unprotected steel; twenty-five percent of these were estimated to be defective, and the average percent remediation cost per tank was placed at \$70,000.³ In Kentucky, as of 1995, the location of more than 38,529 tanks have been reported and it is estimated that this number will likely increase. Assuming a twenty percent rate of failure and an average remediation cost of \$100,000.00, estimates place aggregate remediation costs in Kentucky at between \$444 million and \$3.16 billion.⁴ Though costs may be reduced somewhat

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² See Birge, Taylor, and Grant, "Risk Assessment Plan for Petroleum Underground Storage Tanks in Kentucky," School of Biological Sciences and Graduate Center for Toxicology, University of Kentucky (April, 1995) (hereinafter, "The UK Study") at B.3.

³ *Id.*

⁴ *Id.* (citing Blomquist, "Costs of Closure and Remediation for Petroleum Underground Storage Tanks," Research Reports from October 18, 1993, Status Report: Identification of Appropriate Standards for Corrective Action for a Release from Petroleum Underground Storage Tanks, L.V.A. Seindlein, ed., Kentucky Resources Institute, University of Kentucky).

with timely implementation based upon innovative remedial guidance, the rate of UST failure between 1995 and the end of the century is predicted to rise above twenty percent.⁵

Notwithstanding the fact that all USTs must be upgraded to current standards by December 22, 1998,⁶ petroleum contamination in the environment continues to be a problem affecting soils and groundwater on property which houses or may have housed on or more USTs and also perhaps neighboring property as well. Persons seeking to convey property upon which soil or underlying groundwater is contaminated from petroleum from neighboring sources will effectively find that such contamination operates as a cloud on the title, thereby making buyers and lenders alike reluctant to take title to or a mortgage upon such property until such time as such contamination is remediated.

This article explores statutory and common law remedies available to persons whose property has been contaminated by petroleum attributable to leaks from or usage upon adjoining or nearby properties.⁷ While the United States Congress may have ameliorated petroleum leaks into the environment from USTs with the underground storage tank provisions of the Hazardous and Solid Waste Amendments of 1984,⁸ causes of action arising under other statutes are alive and

⁵ *Id.*

⁶ 40 C.F.R. § 280.40 (1994); 401 KY. ADMIN. REG. 42:040 (1995).

⁷ The scope of this article is limited to analysis of those statutory and common law causes of action which an *adjoining* landowner may assert against an adjacent landowner. As the Kentucky courts have yet to rule upon the issue, no attempt is herein made to analyze whether a subsequent occupier of commercial property has a cause of action in strict liability, negligence or trespass against a former occupant whose activities during its occupancy allegedly caused the property to become contaminated by petroleum. However, it is likely that the Kentucky Supreme Court, when faced with claims brought by a subsequent occupier against a former occupier would adopt the reasoning of the Maryland Court of Appeals in *Rosenblatt v. Exxon Co.*, 642 A.2d 180 (Md. 1994). The *Rosenblatt* court declined to extend strict liability to a claim for economic loss, stemming from gasoline contamination by a lessee of commercial property against a former lessee. *Id.* at 187. The *Rosenblatt* court also granted defendant Exxon summary judgment on the negligence claim, finding that the company owed the plaintiff no legally cognizable duty. *Id.* at 188-89. The court also dismissed a trespass claim because Exxon did not cause any contamination to occur during plaintiff's occupancy of the property. *Id.* at 189-90.

⁸ Pub. L. 98-616, title VI, § 601 *et. seq.*, 98 Stat. 3277, 42 U.S.C. § 6991 *et. seq.* (West, 1998).

well in the common law and continue to provide non-UST owners with the mechanisms to seek redress from leaks from USTs.⁹

To date, reported cases throughout the United States illustrate that plaintiffs seeking recovery for damages attributable to petroleum-based soil and groundwater contamination have generally alleged causes of action sounding in common law counts of nuisance, trespass and negligence, as well as statutory causes of action under various state and federal laws and strict liability.¹⁰ In light of the United States Court of Appeals for the Sixth Circuit's recent interpretation of Kentucky law in *Hahn v. Chevron*,¹¹ strict liability is not presently available in Kentucky as a theory upon which liability for contamination from storage of gasoline or petroleum in underground storage tanks may be predicated. However, as discussed in more detail, *infra*, ample Kentucky authority exists upon which plaintiffs may establish common law as well as statutory causes of action to seek relief from petroleum contamination attributable to actions undertaken by an adjoining or nearby land owner.

⁹ Litigation concerning petroleum contamination primarily attributable to leaking underground storage tanks is a relatively recent phenomenon. As a consequence, there are a limited number of reported cases in the area. In the author's experience, most of the major suits have been settled before trial with the result that the potential theories of liability have not been fully tested with a court or jury.

¹⁰ See, e.g., 325-343 E. 56th Street Corp. v. Mobil Oil Corp., 906 F. Supp.669 (D. D.C., 1995). In its complaint, the plaintiff asserted the following claims: strict liability, trespass, common law indemnification, negligence, a violation of the District of Columbia UST Act, restitution, negligence per se for violations of the Resource, Conservation, and Recovery Act (RCRA) regulations contained at 40 C.F.R. §§ 280-81 and contractual indemnification.

¹¹60 F.3d 828, (6th Cir. 1995).

II. APPLICATION OF THE "DISCOVERY RULE" TO STATUTES OF LIMITATION APPLICABLE TO CAUSES OF ACTION PLAINTIFFS MAY ASSERT.

Typically, an adjoining landowner may discover the possibility of soil or groundwater contamination attributable to petroleum leaked from an adjoining or nearby property when an investigation concerning environmental contamination on his/her property is undertaken, usually in advance of a proposed sale of the property and at the behest of a commercial lender.¹² As most of the causes of action available to plaintiffs under either Kentucky or federal law will be governed by the applicable five year statute of limitations,¹³ plaintiffs face a threshold question concerning when applicable causes of action accrue; that is, when does the statute of limitations applicable to any cause of action plaintiffs may assert begin to run?

The opinion of the United States District Court for the Western District of Kentucky in *Farm Credit Bank of Louisville v. United States Mineral Products Company*¹⁴ is instructive in resolving this issue. In construing the "Discovery Rule" as applied by the courts in Kentucky, the court in *Farm Credit Bank* determined that the "Discovery Rule" applies to statutes of limitations applicable to claims alleging property damage in Kentucky.¹⁵ As explained by the court, "The

¹² Normally, commercial lenders will insist upon the performance of a "Phase I Environmental Site Assessment" pursuant to the standards set forth in ASTM-E-1527-94, the standard practice for environmental site assessments. Such investigations are usually limited to a review of pertinent records and regulatory data bases and a limited inspection of the site. Only in the event that the review of pertinent records and regulatory data bases discloses a release of petroleum on adjacent property or in the remote event a site inspection discloses soil staining on the property near the adjacent property boundaries will a Phase I site assessment provide information to the owner sufficient to form a conclusion that the property has been contaminated by petroleum utilized on adjacent property. More commonly, owners become aware of the existence of petroleum contamination when a Phase II environmental site assessment is performed. A Phase II assessment, conforming to sound engineering guidance, provides additional information beyond that conveyed in a Phase I analysis and generally includes undertaking soil borings, analyses of soil samples obtained and perhaps analyses of groundwater through the establishment of groundwater wells or "hydropunch" techniques.

¹³ See *infra* text accompanying notes 57-59, 104, 191.

¹⁴ 864 F. Supp. 643 (W.D. Ky. 1994).

¹⁵ *Id.* at 649.

'Discovery Rule' can be stated as follows: A cause of action will not accrue until the plaintiff discovers, or in the exercise of reasonable diligence should have discovered, not only that he has been injured, but that his injury may have been caused by the defendant's conduct."¹⁶

The court's opinion in *Farm Credit Bank* concludes that "the 'discovery rule' should apply equally, as a matter of public policy, to property damage claims in situations where the claimant is unaware of the dangerous propensities of [the] product" [there, asbestos].¹⁷

To date, the Kentucky courts have yet to apply the "Discovery Rule" to cases of petroleum contamination. However, given that such contamination in soil or groundwater may remain undiscovered until detected through undertaking soil borings or groundwater monitoring, it would appear that the rationale of *Farm Credit Bank* applying the "Discovery Rule" to asbestos claims would apply equally well to claims of soil or groundwater contamination attributable to petroleum. Thus, as stated by the court in *Farm Credit Bank*, "until such time as the plaintiff can prove some harmful result..., his cause of action has yet to accrue."¹⁸ Nevertheless, landowners presented with a Phase I environmental site assessment disclosing the existence of *possible* soil or groundwater contamination should consider undertaking further investigation of site conditions to avoid the risk that a court could subsequently rule that the Phase I environmental site assessment alone provided sufficient support to invoke the "Discovery Rule," thereby triggering the accrual of causes of action.¹⁹

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.* at 650 (citing *Capitol Holding Corp. v. Bailey*, 873 S.W.2d 187, 195 (Ky. 1994)).

¹⁹ See *supra* text accompanying notes 16-17 (emphasis added).

**III. COMMON LAW REMEDIES AVAILABLE TO PLAINTIFFS SEEKING REDRESS
OF PETROLEUM-BASED SOIL AND GROUNDWATER
CONTAMINATION IN KENTUCKY.**

A. NUISANCE

As held by the Kentucky Court of Appeals in *Somerset v. Sears*,²⁰ nuisances are “that class of wrongs which arise from the unreasonable, unwarranted or unlawful use by a person of his own property or produce such material annoyance, inconvenience, discomfort or hurt to others that the law will presume a consequential damage.”²¹ In addition, as held in the venerable case of *Louisville Refining Company v. Mudd*,²² whether a nuisance exists is determined on the basis of two factors: the gravity of the harm to the plaintiff and the reasonableness of the defendant’s use of his property.²³

Kentucky’s law of nuisance was codified by the Kentucky General Assembly in 1991.²⁴ Citing KRS Section 411.550(2),²⁵ the United States District Court for the Eastern District of Kentucky stated in *Fletcher v. Tenneco, Inc.*²⁶ that “Kentucky’s codification of the common law of nuisance frames the inquiry concerning the gravity of the harm as a determination of whether a defendant’s use of his property would substantially interfere with the use and enjoyment of property by a person of ordinary health and sensibilities.”²⁷ In *Fletcher*, the court, in ruling on

²⁰ 233 S.W.2d 530, 532 (Ky. 1950).

²¹ *Id.*

²² 339 S.W.2d 181, 186 (Ky. 1960).

²³ *Id.*

²⁴ KY. REV. STAT. ANN. §§ 411.500-570 (Michie 1997).

²⁵ KY. REV. STAT. ANN. § 411.550(2) (Michie 1997).

²⁶ 1993 WL 86561 *1 (E.D. Ky. 1993) (opinion withdrawn at request of the court).

²⁷ *Id.* at *2.

plaintiff's right to compensation in private nuisance for PCB²⁸ contamination on his property, held that, "as a matter of law, the contamination of plaintiffs' land by a substance widely accepted as hazardous constitutes a condition that would substantially annoy or interfere with the use and enjoyment of property by a person of ordinary sensibilities."²⁹ Whether the interfering conduct is unreasonable is determined by evaluating "all relevant facts and circumstances," using a plethora of factors.³⁰ Evidence of negligence by the defendant is an important,³¹ but not necessary factor in weighing reasonableness.³² In addition to the court's holding in *Fletcher*, the Kentucky courts have long recognized that the pollution of groundwater by any means constitutes a private nuisance.³³

Further, to the extent that soil and groundwater contamination is attributable to the unremediated depositing of petroleum substances on soil in the absence of a permit issued by the Kentucky Natural Resources and Environmental Protection Cabinet, such action on the part of a

²⁸ "PCB"s are the acronym for a category of polychlorinated biphenyls which are denominated "hazardous substances" pursuant to 40 C.F.R. § 302.4 (1998).

²⁹ *Fletcher*, 1993 WL 86561 at * 4.

³⁰ KY. REV. STAT. ANN. § 411.550 (1)(a-g). Such factors include the lawful nature of the defendant's use of his property, the manner in which defendant has used it, the importance of the defendant's use of the property to the community, and the influence of [his] use of property on the growth and prosperity of the community. The kind, volume, and duration of the annoyance or interference with the use and enjoyment of the claimant's property may also be considered, as well as the respective situations of the defendant and claimant, and the character of the area in which the defendant's property is located, including but not limited to, all applicable statutes, laws, or regulations. John S. Palmore, *Kentucky's New Nuisance Statute*, 7 J. MIN. L. & POLICY 1, 3 (1991-92).

³¹ *Louisville & Jefferson County Air Bd. v. Porter*, 397 S.W.2d 146, 151-52 (Ky. 1965).

³² *George v. Standard Slag Co.*, 431 S.W.2d 711, 715 (Ky. 1968).

³³ See *Kinnaird v. Standard Oil Co.*, 12 S.W. 937 (Ky. 1890) (oil leak polluted domestic and livestock spring); *Miley v. A'Hearn*, 18 S.W. 529 (Ky. 1892) (privy allegedly would pollute domestic well); *Livezey v. Schmidt*, 29 S.W. 25 (1895) (manure pile seepage allegedly percolated to house cellar during rains); *Louisville & Nashville R.R. Co., v. Simpson*, 33 S.W. 395 (Ky. 1895) (buried cow polluted domestic spring); *Davis v. Atkins*, 35 S.W. 271 (Ky. 1896) (privy allegedly would pollute domestic spring); *Rogers v. Bond Bros.*, 130 S.W.2d 22 (Ky. 1939) (creosote allegedly polluted public water supply well); *McCaw v. Harrison*, 259 S.W.2d 457 (Ky. 1953) (cemetery seepage allegedly would pollute livestock well). See also, Davis, *Groundwater Pollution: Case Law Theories for Relief*, 39 MO. L. REV. 117 (1994).

putative defendant may constitute nuisance *per se*.³⁴ In *Branch v. Western Petroleum, Inc.*, the Utah Supreme Court reasoned that where the defendant had ponded oil well formation waters on its property in violation of Utah law, plaintiff could recover under the doctrine of nuisance *per se*, when such waters polluted plaintiff's well.³⁵ As the court explained, "When the conditions giving rise to a nuisance are also a violation of a statutory prohibition, those conditions constitute a nuisance *per se*, and the issue of the reasonableness of the defendant's conduct and the weighing of the relative interests of the plaintiff and the defendant is precluded because the legislature has, in effect, already struck a balance in favor of the innocent party."³⁶

In Kentucky, K.R.S. Section 224.40-100(1) provides the requisite statutory prohibition necessary for the imposition of nuisance *per se* in the petroleum contamination of soil and groundwater.³⁷ This section provides that "no person shall transport to or dispose of waste at any site or facility other than a site or facility for which a permit for waste disposal has been issued by the Cabinet."³⁸

K.R.S. Section 224.01-405(1) imposes obligations on persons who own or operate a source from which a release of petroleum has occurred to characterize the effect of the release as necessary to determine the effect of the release on the environment and perform corrective action, including remedial actions to clean up contaminated groundwater, surface waters, sediment and soil.³⁹

³⁴ See *infra* text accompanying notes 37-41 .

³⁵ 657 P.2d 267 (Utah 1982).

³⁶ *Id.* at 276.

³⁷ KY. REV. STAT. ANN. § 224.40-100(1) (Michie 1997).

³⁸ *Id.* The term "Cabinet" as utilized in K.R.S. § 224.40-100 (1) means the Natural Resources and Environmental Protection Cabinet. See KY. REV. STAT. ANN. § 224.01-010(9) (Michie 1997).

³⁹ KY. REV. STAT. ANN. § 224.01-405(1) (Michie 1997).

Soil or groundwater contamination attributable to a person failing to undertake the remediation obligation statutorily imposed by K.R.S. Section 224.01-405 will be deemed to be “the disposal of waste at [a] site or facility, other than a site or facility for which a permit for waste disposal has been issued by the Cabinet,” in violation of KRS Section 224.40-100(1).⁴⁰ Therefore, utilizing *Branch* as persuasive authority, a Kentucky court could conclude that a defendant’s unremediated contamination of soil and groundwater attributable to leaking petroleum constitutes a nuisance *per se*.⁴¹

Kentucky’s codification of the common law of nuisance provides that a private nuisance is to be cast as either a permanent nuisance or a temporary nuisance, but not both.⁴² A permanent nuisance is defined as a private nuisance that cannot be corrected or abated at a reasonable expense to the owner⁴³ and is relatively enduring and not likely abated voluntarily or by court order.⁴⁴ Creation of a permanent nuisance results in damages amounting to the resulting loss in market value of the claimant’s property.⁴⁵

Similarly, “temporary nuisance” is defined as “any private nuisance that is not a permanent nuisance...”⁴⁶ As a consequence, a temporary nuisance is that category of nuisance that *can* be

⁴⁰ KY. REV. STAT. ANN. § 224.40-100 (1).

⁴¹ *Branch*, 657 P.2d at 267. As will be discussed in more detail, *infra*, K.R.S. § 224.99-020(2) may provide a separate statutory cause of action that may be asserted against a defendant for its violation of K.R.S. § 224.40-100(1). K.R.S. Section 224.99-020(2) provides that “[n]othing contained in this Chapter shall abridge the right of any person to recover actual compensatory damages resulting from any violation of this Chapter.” *See infra* text accompanying notes 195-201. As discussed therein, if asserted as a statutory cause of action, the five year statute of limitations applicable to statutory causes of action embodied in K.R.S. Section 413.120(2) would control.

⁴² KY. REV. STAT. ANN. § 411.520(2) (Michie 1997).

⁴³ *City of Ashland v. Kittle*, 305 S.W.2d 768, 769 (Ky. 1957).

⁴⁴ KY. REV. STAT. ANN. § 411.530(1)(a);(b) (Michie 1997). *See Ky.-Ohio Gas Co. v. Bowling*, 95 S.W.2d 1, 4-5 (Ky. 1936); *See also Kentland-Elkhorn Coal Co. v. Charles*, 514 S.W.2d 659, 664 (Ky. 1974).

⁴⁵ *Kentland-Elkhorn*, 514 S.W.2d at 664.

⁴⁶ KY. REV. STAT. ANN. § 411.540(1) (Michie 1997).

abated at a reasonable cost.⁴⁷ In such cases, KRS Section 411.540(2) provides that the measure of damages for temporary nuisance is to be determined by calculating the diminution in the value of use or the rental value of the claimant's property.⁴⁸ In the event that the claimant occupied the property during the continuance of the nuisance, damages are to be measured by the diminution in the value of the use of the property which resulted from the nuisance.⁴⁹ On the other hand, if the claimant did not occupy the property during the continuance of the nuisance, compensatory damages are to be measured by the diminution in the fair rental value of the property which resulted from the nuisance.⁵⁰

However, to the extent that a claimant wishes to claim redress for annoyance, discomfort, sickness, emotional distress or similar claims attributable to private nuisance, damages for such injuries must emanate from a claim for personal injury joined in an action for nuisance, but will not be awarded predicated on the existence of the nuisance alone.⁵¹

A majority of courts will not uphold a cause of action in private nuisance by a current landowner against a prior owner,⁵² reasoning that the court will not interfere where parties have prior contractual relationships.⁵³

As most soil and groundwater contamination is of such a character that it is capable of being corrected or abated at a reasonable expense, claimants establishing the existence of a private

⁴⁷ *Lynn Mining Co. v. Kelly*, 394 S.W.2d 755, 759 (Ky. 1965).

⁴⁸ KY. REV. STAT. ANN. § 411.540(2) (Michie 1997).

⁴⁹ KY. REV. STAT. ANN. § 411.560(1)(b)(1) (Michie 1997).

⁵⁰ *Id.* at (1)(b)(2).

⁵¹ KY. REV. STAT. ANN. § 411.560(3) (Michie 1997). *See Kentland-Elkhorn*, 514 S.W.2d at 664.

⁵² *Lilly Industries, Inc. v. Health-Chem Corp.*, 974 F. Supp. 702, 706 (S.D. Ind. 1997); *Cf. Newhall Land & Farming Co. v. Superior Ct. (Mobil Oil Corp.)*, 19 Cal.App.4th 334, 342 (Cal. Ct. App. 1993) (sustaining a cause of action in nuisance even though the plaintiff had no property interest at the time of the defendant's conduct. The court premised the plaintiff's standing on his present inability to sell the property in question because of the contamination).

⁵³ *Id.*

nuisance predicated on contamination constituting an unreasonable and substantial annoyance to the occupants of the claimant's property would likely be awarded damages for temporary nuisance.⁵⁴ Alternatively, if the extent of contamination is so pervasive that it cannot be abated at a reasonable expense and it is relatively enduring,⁵⁵ damages to be awarded are to be measured by the reduction in the fair market value of the claimant's property, not to exceed the fair market value of such property.⁵⁶

Whether the plaintiff's claim is deemed to constitute a permanent or a temporary nuisance is a critical distinction with respect to when the applicable period of limitations begins to run. As held by the Kentucky Court of Appeals in *Lynn Mining Co. v. Kelly*, the five year statute of limitations embodied in KRS Section 413.120(4) governs the bringing of an action in nuisance.⁵⁷ Further, a claim for relief from a permanent nuisance accrues when a plaintiff first suffers an injury resulting from it.⁵⁸ However, in the case of a temporary nuisance, the court in *Lynn Mining Co.* analogized such an injury as tantamount to a "continuing trespass" "for which damages could be recovered for each recurring injury, subject to the limitation that damages could not be recovered for so much of the injury as occurred more than five years before the commencement of the action."⁵⁹

In summary, soil and groundwater contamination caused by an unremediated release of petroleum to soil and/or groundwater is clearly actionable in private nuisance and will likely

⁵⁴ See *supra* text accompanying notes 48-50 (This relates to the proper measure of damages for temporary nuisance).

⁵⁵ See *supra* text accompanying note 45, relating to the definition of permanent nuisance.

⁵⁶ See KY. REV. STAT. ANN. § 422.560(1)(a) (Michie 1997).

⁵⁷ 394 S.W.2d at 755 (citing K.R.S. § 413.120).

⁵⁸ *Id.* at 758. See also *Huffman v. United States*, 82 F.3d 703, 705 (6th Cir. 1996).

⁵⁹ *Lynn Mining Co.*, 394 S.W.2d at 757 (citing *West Kentucky Coal Co. v. Rudd*, 328 S.W.2d 156 (Ky. 1959)).

constitute a nuisance per se in Kentucky.⁶⁰

B. TRESPASS

The tort of trespass will lie in Kentucky where one enters or remains upon the land in possession of another without the possessor's consent.⁶¹ The interest protected is the right of exclusive possession of the land.⁶² The gravamen of the cause of action is the interference with the plaintiff's current possessory interest in the property.⁶³ Accordingly, standing to pursue a claim of trespass can be found in both the landowner and the tenant.⁶⁴

However, Kentucky courts hold that a possessory interest supporting a trespass cause of action cannot *simultaneously* exist in the landowner and tenant.⁶⁵ The tenant must establish that the interference was to property in which he/she had a possessory interest at the time of the occurrence.⁶⁶ Similarly, an owner who is out of possession cannot maintain trespass.⁶⁷ Thus, a Kentucky landowner cannot sue for trespass to land his tenant occupies,⁶⁸ however, such landowner retains a future possessory interest in which he may base a claim for injury to the reversion.⁶⁹ In this regard, the landowner must aver damage to the property which affects the

⁶⁰ In addition to nuisance per se being predicated upon a violation of K.R.S. Section 224.40-100(1), to the extent that petroleum contamination is attributable to the defendant's violation of Kentucky regulations which prescribe the operation and maintenance of underground storage tanks (*See generally*, 401 KY. ADMIN. REG. Chapter 42. Nuisance per se may be predicated upon violations of such administrative regulations).

⁶¹ *Bradford v. Clifton*, 379 S.W.2d 249 (Ky. 1964).

⁶² RESTATEMENT (SECOND) OF TORTS § 157 (1963-64).

⁶³ *Id.*

⁶⁴ W. PAGE KEETON, ET.AL., PROSSER & KEETON ON THE LAW OF TORTS § 13, 77-78 (5th ed. 1984) (explaining that a tenant may bring an action up to end of his term with any permanent damage beyond that time recoverable by the landlord).

⁶⁵ *Walden v. Conn*, 1 S.W. 312 (1886) (emphasis added).

⁶⁶ *See, e.g.*, *Carroll v. Litton Systems, Inc.*, 1990 WL 312969, *56 (W.D. N.C. 1990).

⁶⁷ KEETON, ET. AL., *supra* note 64, § 13, at 78.

⁶⁸ *Walden*, 1 S.W. at 78. *Cf.*, *Starr v. Jackson*, 11 Mass. 519, *Davis v. Nash*, 32 Me. 411, where the courts held that where a tenant is merely a tenant at will, the landlord may bring trespass, as having "constructive possession."

⁶⁹ *Id.*

value of his interest.⁷⁰ Liability will extend to one who intentionally causes “a thing to [enter such land] or...fails to remove from the land a thing which he is under a duty to remove.”⁷¹ Proof of causation is met where the plaintiff establishes a specific act carried out by the defendant.⁷²

In the ancient case of *Chesapeake, Ohio & SouthWest Railroad Co. v. Etheridge*⁷³ the court established a cause of action in trespass where a tree was the “thing” which blew upon the land of the plaintiff and the owner thereof refused to remove it after being notified.⁷⁴ Similarly, an environmental contaminant has consistently been held to be such a “thing,” as where harmful “waste” was deposited on the plaintiffs’ property and the defendant failed to remove it after the plaintiffs acquired the property.⁷⁵ Accordingly, courts have likewise held that invasions of land by crude oil and gasoline are trespasses.⁷⁶ Significantly, one’s liability in trespass is not limited to surface encroachments, but extends to invasions subterranean to the land in which the plaintiff

⁷⁰ *Id.* (holding that damage to sustain such an action may be found in loss of rents if the tenant is forced to leave as a result of the trespass, or damages in the destruction or dilapidation of the premises).

⁷¹ RESTATEMENT (SECOND) OF TORTS § 158 (1963-64). *See also* RESTATEMENT (SECOND) OF TORTS § 160, cmt.e (1963-64), which emphasizes that this form of trespass is based on the defendant’s intentional violation of its duty of removal: “A trespass may be committed by the continued presence on the land of a structure, chattel, or other thing which the actor or his predecessor in legal interest has placed on the land...with the consent of the person then in possession of the land if the actor fails to remove it after the consent has been effectively terminated....” *Id.* *See also infra* text accompanying notes 73-82.

⁷² Michael J. Maher & Sheila Horan, *Lessons in L.U.S.T.: The Complete Story of Liability for Leaking Underground Storage Tanks*, 16 N. ILL. L. REV. 581, 602 (1996).

⁷³ 7 Ky. L. Rptr. 758 (Ky. 1886).

⁷⁴ *Id.*

⁷⁵ *Mangini v. Aerojet-General Corp.*, 21 ENVTL. L. REP. 21429 (1991). Courts have further held intangible, invisible gases and microscopic particles to be “things” supporting a trespass cause of action where the Court obviated the requirement of tangible physical invasion to property in the case of alleged air pollution. The Court said that the course of science had changed with the times, requiring the bench to reframe its concept of “things.” *Martin v. Reynolds Metal Co.*, 342 P.2d 790 (1959), *cert. denied*, 362 U.S. 918 (1960).

⁷⁶ *Phillips v. Sun Oil*, 121 N.E.2d 249 (1954) (gasoline seepage from defendant’s pump into plaintiff’s water well) (*cited in* Page Keeton & Lee Jones, Jr., *Tort Liability in the Oil & Gas Industry*, 39 TEX. L. REV. 253, 267 (1961); *Cf. Burr v. Adams Eidemiller, Inc.*, 126 A.2d 403 (1956) (acknowledging the leakage of slag from defendant’s operations to be an intentional invasion of plaintiff’s land, but categorizing the tort as a nuisance, the unreasonableness of which is a matter of fact for the jury). *See also supra* text accompanying notes 20-60 for a discussion of the common law remedy of nuisance.

has a possessory interest.⁷⁷ Indeed, courts have held that a trespass cause of action may be invoked where underground oil tanks leak, assuming all other elements of proof for the tort are met.⁷⁸ The aforesaid failure of the defendant to remove the contaminants from the plaintiff's land is traditionally held to be a "continuing trespass."⁷⁹ The gravamen of a "continuing trespass" also incorporates continued presence of contaminants on the plaintiff's property, and may also give rise to a cause of action against former owners and occupiers.⁸⁰ Consent granted by a former holder of a possessory interest is no defense as against a subsequent possessor if the actor fails to remove the thing after consent is terminated.⁸¹ Hence, a demand by the owner that the offender remove the contaminant followed by the defendant's failure to do so manifests a purposeful intent to commit an intentional continuing trespass.⁸² Abandonment of waste which may be traced to a defendant can analogously be argued to be active disposal without consent.⁸³ However, just as a continuing nuisance cause of action will not lie against an innocent lessor landowner for contamination by a tenant,⁸⁴ lessor landowners cannot be held liable on a continuing trespass theory unless they actively caused or contributed to the contamination.⁸⁵ Typically, in determining whether a plaintiff has established a prima facie case in trespass, the

⁷⁷ RESTATEMENT (SECOND) OF TORTS § 158; RESTATEMENT (SECOND) OF TORTS, § 159, cmt.1 (1963-64); "subterranean" means those invasions "being or lying under the surface of the earth" and includes geological structures found therein such as springs"; *See also* North Georgia Petroleum Co. v. Lewis, 197 S.E.2d 437 (Ga. Ct. App. 1973), where the court noted that contamination of subterranean waters by oil or gas renders a person liable in damages.

⁷⁸ *Kulpa v. Stewart's Ice Cream*, 144 A.D.2d 205, 207 (N.Y. App. Div. 1988); *Hudson v. Peavy Oil Co.*, 556 P.2d 175 (Or. 1977); *Wilson v. McLeod Oil Co.*, 398 S.E.2d 586 (N.C. 1990) (hereinafter "McLeod Oil").

⁷⁹ KEETON, ET. AL., *supra* note 64, § 13, at 83.

⁸⁰ *Newhall Land & Farming Co. v. Superior Ct. (Mobil Oil Corp.)*, 19 Cal. App. 4th 334, 345-47 (1993) (owner v. remote predecessor in title). *But see Lilly Industries*, 974 F. Supp. at 709 (owner v. immediate predecessor) (holding that actions the prior owner took while in "lawful possession of the property that were alleged to have continued to affect the same property after the change of possession" do not sustain a trespass cause of action).

⁸¹ RESTATEMENT (SECOND) OF TORTS § 160.

⁸² *Maier & Horan*, *supra* note 72, at 602.

⁸³ *Id.*

⁸⁴ *See supra* text accompanying notes 52-53.

court's principal focus will be upon the element of intent.⁸⁶ It is not necessary to prove that the tortfeasor had an intention to effect the harm, but merely had the requisite intention to do the act which, as a logical and natural result, brings about or results in the harm or damage.⁸⁷ Knowingly allowing oil to seep into soil or groundwater is sufficient to establish the element of intent, assuming the plaintiff establishes that the defendant was aware of the act leading to the contamination.⁸⁸ However, an actor's awareness of a high degree of likelihood that his activities will result in a trespass may be proved circumstantially.⁸⁹ Moreover, a defense of mistake will not be entertained.⁹⁰

Further, a defendant may be liable in trespass even where the trespassory invasion causes no damage to the plaintiff's property or interest in the property, as long as other elements of the tort are proved.⁹¹ The action is founded in the vindication of a legal right,⁹² but the plaintiff is limited to nominal damages in such situations unless title to or rights in real property are threatened.⁹³ Similarly, if the defendant's act causes no immediate harm but later contributes to damage, the action will lie.⁹⁴ Additionally, causal intervention of natural conditions, such as deterioration, wind or rain, in initiating or exacerbating the trespass will not absolve the defendant of liability.⁹⁵ Thus, by way of illustration, where the defendant intentionally dumped asphalt and asphalt-like matter on his own land in such a manner that it was carried onto the plaintiff's land by a

⁸⁵ Resolution Trust Corp. v. Rossmoor Corp., 40 Cal. Rptr. 328, 331 (Cal. App. 4th 1995).

⁸⁶ Gary W. Napier & Samuel L. Perkins, 'Ownership' of Underground Storage Tanks, 9 J. NAT. RESOURCES & ENVTL. L. 1, 6 (1993-94).

⁸⁷ Randall v. Shelton, 293 S.W.2d 559 (Ky. 1956).

⁸⁸ Cooper v. Whiting Oil Co., 311 S.E.2d 757 (Va. 1984) (hereinafter "Whiting Oil").

⁸⁹ Bradley v. American Smelting & Refining Co, 709 P.2d 782, 786 (Wash. 1985).

⁹⁰ RESTATEMENT (SECOND) OF TORTS § 164 (1963-64).

⁹¹ RESTATEMENT (SECOND) OF TORTS § 158. *But see* Borland v. Sanders Lead Co., Inc., 369 So.2d 523 (Ala. 1979).

⁹² KEETON, ET. AL., *supra* note 64, § 13, at 75.

⁹³ Cissell v. Grimes Invs., Inc., 383 S.W.2d 128, 129 (Ky. Ct. App. 1964).

⁹⁴ Rushing v. Hooper-McDonald, Inc., 300 So.2d 94 (Ala. 1974) (hereinafter "Rushing").

contiguous stream, he was held liable for trespass.⁹⁶ The court emphasized the act must be done with knowledge that it will, to a substantial certainty, result in entry of the foreign matter onto the plaintiff's property.⁹⁷

Kentucky law provides a five year statute of limitations for trespass to real property.⁹⁸ However, the designation of "continuing trespass" serves to relieve some of the strictures of limitations periods within which the possessor would have to bring a toxic tort claim.⁹⁹ Additionally, in trespasses which are temporary in nature but recurrent, as a periodical seepage, each identifiable incident of contamination will give rise to another cause of action.¹⁰⁰ Under these circumstances, it is important to note that the statute of limitations contained in KRS Section 413.120(4) will not present a bar to such actions, as long as the contamination is present at the time the action is filed.¹⁰¹

Kentucky law holds that the measure of damages for a trespass of temporary duration will be the cost of restoring plaintiff's property to as good a condition as it was prior to the trespass, in

⁹⁵ RESTATEMENT (SECOND) OF TORTS § 158, cmt.1.

⁹⁶ *Rushing*, 300 So.2d at 100.

⁹⁷ *Id.* at 97. See also *Borland*, 369 So.2d at 529 (requiring "reasonable foreseeability that the act done could result in an invasion of plaintiff's possessory interest" and also "substantial damages to the res.") See also *W.T. Ratliff v. Henley*, 405 So.2d 141, 145 (Ala. 1981). The "substantial certainty" standard imposes a heavy evidentiary burden on the plaintiff in underground contamination cases, but must be met for the action to lie.

⁹⁸ KY. REV. STAT. ANN. § 413.120(4) (Michie 1997). An act characterized as a "continuing trespass" relieves the possessor of some of the strictures of limitations periods in which he would have to bring the claim. See *infra* text accompanying note 101.

⁹⁹ RESTATEMENT (SECOND) OF TORTS § 161, cmt.6 1963-64).

¹⁰⁰ *Wimmer v. City of Fort Thomas*, 733 S.W.2d 759 (Ky. Ct. App. 1987).

¹⁰¹ *Id.* Further, in some recent decisions where the defendant has refused to remove the contaminating agents after demand has been made, the courts have classified the continual seepage of contaminants from the defendant's property at the time the action is filed to constitute a "renewing" rather than a "continuing" trespass. *McLeod Oil*, 398 S.E.2d at 586. The Court noted that, "[T]ests reveal that the plaintiff's well remained contaminated with gasoline as of the filing of this action and gasoline was found in the dirt surrounding the defendant's tank, indicating that the seepage from the defendant's property had not stopped at the time this suit was filed." Accordingly, the Court held that where contaminants continued to leach at the time the action is filed, such a trespass was "recurrent" and thus not barred by the five year statute of limitations applicable to trespass and nuisance claims in North Carolina. *Id.*

addition to diminution in the value of the use of the property, if any, during restoration to its original condition.¹⁰² Courts in other states have required proof of abatability in continuing trespass actions wherein plaintiffs seeking to prevail must present substantial evidence that the condition can be removed at a reasonable cost and by reasonable means.¹⁰³ Without any evidence that the contamination is both subject to clean-up and that the remediation cost is reasonable, courts in these jurisdictions classify the trespass as "permanent," and hold that the traditional state law statute of limitations applies.¹⁰⁴ In Kentucky, the measure of damages where injury to land is permanent is the difference in fair market value immediately before the trespass and its fair market value immediately thereafter.¹⁰⁵ Finally, a jury is warranted in awarding punitive damages in the case of trespass if the act is attended by rudeness, wantonness, recklessness, or an insulting manner or is accompanied by circumstances of fraud and malice, oppression, aggravation, or gross negligence.¹⁰⁶

C. NEGLIGENCE

An individual injured by petroleum contamination will often combine a cause of action in negligence with nuisance and trespass. Whether property owners who are damaged from contamination originating on adjacent land can establish a prima facie case of negligence against the neighboring landowner turns on general negligence principles.¹⁰⁷

¹⁰² *United Co-op Realty v. Morrison*, 89 S.W.2d 331 (Ky. 1936). *See also* *B & B Oil Co. v. Townsend*, 192 S.W.2d 953, 954 (Ky. 1946).

¹⁰³ *Mangini*, 21 *Envtl. L. Rep.* at 1103.

¹⁰⁴ *Id.*

¹⁰⁵ *Chapman v. Beaver Dam Coal Co.*, 327 S.W.2d 397, 399-400 (Ky. Ct. App. 1959).

¹⁰⁶ *Rushing*, 300 *So.2d* at 98.

¹⁰⁷ Dennis L. Greenwald & Michael Asimow, *Real Property Transaction, Environmental Hazards Liability*, California Practice Guide Ch. 5:171.1 (1995-97). Plaintiffs must show the defendant owed them a duty of care, that the defendant breached that duty, and that the plaintiff suffered injury which was proximately caused by the defendant's breach. *See also* *Exxon Corp. v. Amoco Oil Co.*, 875 F.2d 1085, 1090 (4th Cir. 1989) (citing *Jacques v. First Nat'l Bank*, 515 A.2d 756 (Md. Ct. App. 1986)).

1. Duty and Breach

The pertinent duty is traditionally framed as that standard of care which a reasonable person would exercise under the same or similar circumstances.¹⁰⁸ However, a defendant may additionally be charged with any specialized knowledge that he had or should have had in the conduct of his activities,¹⁰⁹ such as knowledge about the danger of tank corrosion, tank piping design, chemical reactions likely to result from normal tank usage, or affordable testing procedures.¹¹⁰

Prior to enactment of federal and state statutory provisions, there was no formally recognized legislatively imposed duty to inspect or test tanks or piping for leaks.¹¹¹ However, courts, both before and subsequent to such legislative interventions, have judicially recognized a general duty to act in specified situations.¹¹² Thus, such a duty is identified where reasonable persons would foresee that property of another is at risk,¹¹³ and where the UST should be periodically inspected for potential leaks.¹¹⁴ Likewise, courts have established duties (1) to avoid infringement on neighboring ownership rights via contamination of groundwater,¹¹⁵ (2) to maintain UST's in a reasonably safe condition,¹¹⁶ and (3) to act upon actual or constructive notice of a UST leak.¹¹⁷

¹⁰⁸ RESTATEMENT (SECOND) OF TORTS § 283 (1963-64).

¹⁰⁹ *Lerro v. Wynne*, 301 A.2d 705, 707 (Pa. 1973).

¹¹⁰ *Id.* at 707-708. The court stated that "ordinary men know that large quantities of oil soaking into the ground, if uncontrolled, flow in unpredictable directions and therefore involve a risk of seriously affecting other properties." *Id.*

¹¹¹ Samuel L. Perkins, *Petroleum Storage Regulation in Kentucky*, 22 N. KY. L. REV. 59, 62 (1995).

¹¹² See *infra* text accompanying notes 113-117.

¹¹³ *Nischke v. Farmers & Merchants Bank & Trust*, 522 N.W.2d 542, 550 (Wis. Ct. App. 1994) (holding that a bank with a security interest in a UST on the landowner's property may be negligent for failure to inform the landowner that the tank was to be abandoned).

¹¹⁴ *Lerro*, 301 A.2d at 707.

¹¹⁵ *Exxon Corp. v. Yarema*, 516 A.2d 990, 1005 (Md. Ct. Spec. App. 1986).

¹¹⁶ *Leone v. Leewood Serv. Station Inc.*, 212 A.D.2d 669 (N.Y. App. Div. 1995).

¹¹⁷ *New York Tel. Co. v. Mobil Oil Corp.*, 99 A.D.2d 185 (N.Y. App. Div. 1984).

Breach of such duties is found whenever the conduct of the defendant falls below the relevant standard of care,¹¹⁸ and the elements of duty and breach are often addressed together.¹¹⁹

Kentucky law has long recognized that a cause of action in negligence may lie for the pollution of groundwater. In *Long v. Louisville and Nashville Railroad Company*,¹²⁰ the plaintiff sued the defendant railroad for contamination of her well alleged to have been caused by the defendant's burial of a dead cow in its right-of-way.¹²¹ The court found a "duty of care and regard to the rights of others as a prudent and just man would and should have in the same situation."¹²² The court elaborated that an absence of such care and regard would constitute a breach of duty if the injury was "plainly shown to be anticipated and easily preventable with reasonable care and expense."¹²³ Although the court in *Long* did not find that defendant negligent, the case recognizes negligence as a cause of action available to plaintiffs upon proper proof.

While no cases in Kentucky have addressed a defendant's liability in negligence for leaking underground storage tanks or the generation of petroleum contamination by other means, the Maryland Court of Appeals, in *Exxon v. Yarema*,¹²⁴ held that leaking underground storage tanks, as well as Exxon's tardy remedial response to contain the contamination, constituted a breach of its duty to its neighboring landowners not to impair their ownership rights through water contamination.¹²⁵ Similarly, the Georgia Court of Appeals, in *North Georgia Petroleum*

¹¹⁸ *Tolin v. Terrell*, 117 S.W. 290, 291 (Ky. 1909) (explaining that the standard of care required in Kentucky is an objective standard of knowledge and understanding held by members of the community).

¹¹⁹ William B. Johnson, J.D., *Tort Liability for Pollution from Underground Storage Tanks*, 5 A.L.R. 5th § 2 (1993-97).

¹²⁰ *Long v. Louisville & Nashville R.R. Co.*, 107 S.W. 203 (Ky. 1908).

¹²¹ *Id.*

¹²² *Id.* at 205.

¹²³ *Id.*

¹²⁴ 516 A.2d at 1005.

¹²⁵ *Id.*

Company v. Lewis,¹²⁶ explained that a landowner acting with negligent conduct may be liable to a neighboring landowner for pollution of percolating water, notwithstanding the fact that the defendant has been putting the land to reasonable use. The court noted that several states recognize oil and gas contamination of groundwater sufficient to render the person liable in damages to the aggrieved landowner.¹²⁷ “Reasonableness of use” is for the fact finder to decide, utilizing factors such as the nature of the watercourse, its adaptability for particular purposes, and the extent of injury caused to the lower riparian owner.¹²⁸

Further, in *P. Ballentine & Sons v. Public Service Corporation*,¹²⁹ the New Jersey Supreme Court instructively identified a duty of landowners to prevent any future escape of contaminants from one’s premises once a landowner is notified his tanks are a potential source of contamination.¹³⁰ In *Ballentine*, the landowner inspected and removed or repaired some of the petroleum tanks and connection pipes on his property after contamination of a neighbor’s wells was brought to his attention.¹³¹ However, his failure to inspect another receptacle to ascertain its imperviousness rendered him liable in negligence when it was found to be the culprit tank.¹³² While Kentucky courts have held that although the law of negligence imposes no absolute duty to prevent the escape of contaminants,¹³³ there is, at a minimum, a duty imposed on a landowner to conduct activities with due care and in good faith.¹³⁴

¹²⁶ 197 S.E.2d at 437.

¹²⁷ *Id.* at 439.

¹²⁸ *Long v. Louisiana Creosoting Co.*, 69 So. 281 (La. 1915).

¹²⁹ 70 A. 167, 168 (N.J. 1908).

¹³⁰ *Id.*

¹³¹ *Id.*

¹³² *Id.*

¹³³ *Rogers v. Bond Bros.*, 130 S.W.2d 22, 24 (Ky. 1939).

¹³⁴ *B & B Oil Co.*, 192 S.W. at 953.

The duty established in *Ballantine* to maintain, inspect, test, or otherwise monitor one's tanks was reiterated by the New York courts in *New York Telephone v. Mobil Oil Corporation*.¹³⁵ There, the court emphasized that a defendant may be liable upon actual or constructive notice of the alleged dangerous condition if he fails to act to prevent injury or if he creates such a condition in his manner of maintenance or service of the tank.¹³⁶ Further, courts more heavily weigh a defendant's failure to act once notified of contamination than his inadequate manner of maintenance, as it has been held that a defendant who adequately maintained his gasoline UST was still negligent by filling the tank after it had knowledge of the leak.¹³⁷

In contrast, a lessor landowner's obligation to adjacent property owners does not extend to a duty to enter and inspect the leased property at the outset of a lease merely because some leakage is inherent in the gas station business which is to be operated there.¹³⁸ The lessor neither has a duty to terminate a lease or even to perform rigorous testing after notification of leaks,¹³⁹ but meets its duty by promptly remediating leaks of which he has knowledge.¹⁴⁰

Where duties are not commonly understood by ordinary men, a court may require specific evidence regarding company policy or industry practice to be presented to establish the exact duties with which the defendant is charged. Thus, the Supreme Court of Virginia, in *Cooper v. Whiting Oil Company, Inc.*,¹⁴¹ affirmed a judgment for the defendant oil company where the plaintiff failed to establish that the defendant had any duty to inspect and maintain tanks, and

¹³⁵ 99 A.D.2d at 191.

¹³⁶ *Id.*

¹³⁷ *Whiting Oil*, 311 S.E.2d at 757.

¹³⁸ *Resolution Trust Corp.*, 40 Cal. Rptr. 2d at 333 .

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 334.

¹⁴¹ 311 S.E.2d at 757.

failed to demonstrate how leaks could be prevented or even detected by appropriate inspection or maintenance procedures.¹⁴²

2. Injury

In addition to establishing duty and breach, the plaintiff must establish injury or damage.¹⁴³ Proof of injury from oil leakage is more straightforward than in other cases of toxic contamination because the contaminant is generally detectable by odor or taste.¹⁴⁴ Notwithstanding the fact that many injuries are manifested in an obvious manner,¹⁴⁵ some harms are not as apparent, and courts will hold the plaintiff to his obligation of proof of damage. Such was the case in *Exxon Corporation v. Amoco Oil Company*,¹⁴⁶ where the plaintiff oil company had purchased property for a service station from the defendant oil company.¹⁴⁷ The plaintiff succeeded in proving a breach of the defendant's duty to see that its USTs did not contaminate groundwater, but had "failed entirely" in proving that it suffered any damages as a result of the breach.¹⁴⁸ Significant to the decision was the court's distinction that even though the groundwater in the *area* was contaminated, no damage had been shown to the specific property of the plaintiff.¹⁴⁹

Exposure to uncertain but probable, substantial risk will support a finding of injury in some

¹⁴² *Id.*

¹⁴³ Johnson, *supra* note 119, at § 6(a).

¹⁴⁴ Allison Rittenhouse Hayward, *Common Law Remedies & the UST Regulations*, 21 B. C. ENVTL. L. REV. 619, 661 (1994). Other toxins are less readily detectable by the injured party yet may be harmful in minute doses, giving rise to latent manifestations of injury years after exposure. *Id.* at 666 n.263.

¹⁴⁵ *Cornell v. Exxon Corp.*, 162 A.D.2d 892, (N.Y. App. Div. 1990). (The plaintiffs' children were sickened after ingestion of gasoline traced to the defendant oil company's USTs. The court held that there was sufficient medical evidence in the record to sustain the claim of personal injury).

¹⁴⁶ 875 F.2d at 1091.

¹⁴⁷ *Id.* at 1087; 1091.

¹⁴⁸ *Id.* at 1091.

¹⁴⁹ *Id.*

jurisdictions, and the finder of fact has broad discretion in such cases,¹⁵⁰ so long as its results comports with the preponderance of the evidence.¹⁵¹ It has thus been held that even a *potential* health threat can be actionable if sufficiently serious.¹⁵² More conservative courts hold that the mere probability or likelihood of harm is not enough, and that the factfinder must also consider imminence and magnitude.¹⁵³

3. Causation

It is generally accepted that tort liability is dependent on proof that the defendant's culpable conduct or activity was the actual cause of the plaintiff's injury.¹⁵⁴ In petroleum related cases, the majority of courts have consistently required proof that the defendant's conduct was "more likely than not" the cause of the plaintiff's injury or that the injury would not have occurred "but for" that conduct.¹⁵⁵

Proof of actual causation has been upheld where the plaintiff established the proximity of the tank to the contamination,¹⁵⁶ and there were no other sources in the area nor any contamination until the installation of the particular UST.¹⁵⁷ Results of leak tests performed to determine if USTs were "tight" have also been held to be conclusive as to causation,¹⁵⁸ as has the expert

¹⁵⁰ *Environmental Defense Fund v. EPA*, 598 F.2d 62, 89 (D.C. Cir. 1978) (upholding EPA's prohibition of discharge of PCBs based on evidence that was "at least suggestive of carcinogenicity"). *See also Ethyl Corp. v. EPA*, 541 F.2d 1, 17 (D.C. Cir. 1976) (holding that no proof of actual harm was necessary to support regulation of lead in gasoline).

¹⁵¹ *National Lime Ass'n v. EPA*, 627 F.2d 416, 453 (D.C. Cir. 1980).

¹⁵² *Reserve Mining Corp. v. EPA*, 514 F.2d 492, 520 (8th Cir. 1975); *Cf. Harrison v. Indiana Auto Shredders Co.*, 528 F.2d 1107, 1125 (7th Cir. 1976), where the Reserve holding was cited to deny damages to plaintiffs based on unpredictable health consequences. *See also Spannaus v. Maple Hill Estates*, 317 N.W.2d 53, 55 (Minn. 1982).

¹⁵³ *Sierra Club v. Sigler*, 695 F.2d 957, 970 (5th Cir. 1983); *Ayers v. Jackson*, 525 A.2d 287 (N.J. 1987).

¹⁵⁴ *Southern Bell Tel. & Tel. Co. v. Spears*, 93 S.E.2d 659, 661 (Ga. 1956).

¹⁵⁵ *See infra* text accompanying notes 156-162.

¹⁵⁶ *South Cent. Bell Tel. Co. v. Gaines Petroleum Co.*, 499 So.2d 521, 523 (La. Ct. App. 1986).

¹⁵⁷ *Monroe "66" Oil Co. v. Hightower*, 80 So.2d 8 (La. App. 2d Cir. 1965).

¹⁵⁸ *Malone v. Ware Oil Co.*, 534 N.E.2d 1003, 1004 (Ill. App. Ct. 1989).

testimony of a chemist that the material contained in the UST matched samples at the contaminated site.¹⁵⁹

Additionally, unexplained financial losses to a business where USTs were located were held definitive on the issue of causation,¹⁶⁰ as were unexplained losses of gasoline,¹⁶¹ and results of regulatory agencies' investigations substantiating leakage.¹⁶²

4. Proof

Proof of causation through the use of circumstantial evidence has been held to require more than a scintilla of circumstantial evidence,¹⁶³ although courts liberally allow inferences to suffice as the level of proof that the conduct did or did not cause the plaintiff's harm.¹⁶⁴ Thus, proof that groundwater flowed from the defendant's USTs in the direction of the plaintiff's land has been held to be sufficient to prove causation.¹⁶⁵ Likewise, the plaintiff's compounded evidence of test results from upgradient and downgradient monitoring wells, onset of gasoline odor one year after installation of the USTs, plaintiffs' own sample results corroborating those of the state agency, and witness testimony of observance of soil contamination upon UST removal has been sufficient for courts to infer that the leak caused the plaintiff's harm.¹⁶⁶

Alternatively, failing to conduct leakage testing of similar tanks used by other gas stations in the area caused the inference of causation from the defendant's tanks to likewise fail.¹⁶⁷

¹⁵⁹ *Gaines Petroleum*, 499 So.2d at 523.

¹⁶⁰ *Id.*

¹⁶¹ *Sinclair Refining Co. v. Bennett*, 123 F.2d 884 (Tenn. Ct. App. 1941).

¹⁶² *Gaines Petroleum*, 499 So.2d at 523.

¹⁶³ *Masten v. Texas Co.*, 140 S.E. 89, 90 (N.C. 1927).

¹⁶⁴ *Harthman*, 846 F. Supp. at 1282.

¹⁶⁵ *McLeod Oil*, 398 S.E.2d at 596.

¹⁶⁶ *Malone*, 534 N.E.2d at 1005.

¹⁶⁷ *Moore v. Mobil Oil Co.*, 480 A.2d 1012, 1019 (Pa. Super. Ct. 1984).

Similarly, the Kentucky Supreme Court, in *Maise v. Imperial Oil Company*, refused to infer that the defendant oil company's tanks caused an explosion in a nearby residential well where there was no positive evidence of gasoline in the well.¹⁶⁸

Mere location was held to be sufficient to infer causation where the defendant admitted his tanks leaked and they were situated over an aquifer supplying wells.¹⁶⁹ Consequently, the North Carolina Supreme Court in *Masten v. Texas Company* relied on the well location in relation to the implicated UST in finding causation.¹⁷⁰ There, the gas tank was the only one within a half mile or more of the plaintiff's home, the contour of the ground sloped from the tank to the well, and a strata of rock ran from the tank to the well.¹⁷¹ Even more significantly, the vein of water running to the well came from the direction of the pump associated with the tank.¹⁷² All these geographic location factors led to an inference of causation.¹⁷³ Where several sources within the possession, control and peculiar knowledge of a defendant may be implicated, it is not incumbent on the plaintiff to prove in which specific tank the leak occurred.¹⁷⁴ Indeed, in *Southern Company v. Graham*, the court reached an inference of causation by the process of elimination.¹⁷⁵ There, the plaintiff negated other causes and showed that the presence of gasoline in a water system gradually diminished and had become practically eliminated, after the removal, testing,

¹⁶⁸ 137 S.W.2d 1104, 1106 (Ky. 1940).

¹⁶⁹ *Harthman*, 846 F. Supp. at 1281.

¹⁷⁰ *Masten*, 140 S.E. at 89.

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.* at 90.

¹⁷⁴ *Ballentine*, 70 A. at 168.

¹⁷⁵ *Southern Co. v. Graham*, 607 S.W.2d 677, 679 (Ark. 1980).

improvement and reinstallation of the tanks and its supportive structure.¹⁷⁶

5. Negligence per se

Just as a violation of Kentucky statutes may support a claim for nuisance per se,¹⁷⁷ likewise a violation of Kentucky statutes may support a claim for negligence per se.¹⁷⁸ The cause of action arises irrespective of whether the defendant breaches the standard set out in a statute, ordinance, or administrative regulation.¹⁷⁹ The Kentucky Supreme Court has theorized that the action lies “because negligence per se is merely a negligence claim with a statutory standard of care substituted for the common law standard of care.”¹⁸⁰

Standing to assert a cause of action sounding in negligence per se is contingent upon the plaintiff establishing that he/she is a member of the class of persons that the statute, ordinance or regulation was intended to protect,¹⁸¹ and the injury suffered must be the type of harm that such enactment was designed to prevent.¹⁸² Curiously, however, at least one court has refused to allow a statute, ordinance, or regulation to supply the standard of care in the absence of evidence that the enacting body intended to create a private cause of action.¹⁸³ In *Fortier v. Flambeau Plastics Company*, the Wisconsin Court of Appeals illustrated these elements in holding that the class of persons envisioned to be protected by the statute were “those persons whose water supplies may be affected.”¹⁸⁴ The court then ruled that the plaintiff’s use of the water supplies placed him in

¹⁷⁶ *Id.*

¹⁷⁷ See *supra* text accompanying notes 34-41.

¹⁷⁸ *Real Estate Marketing, Inc. v. Franz*, 885 S.W.2d 921,926-27 (Ky. 1994).

¹⁷⁹ *Maier & Horan*, *supra* note 72, at 597.

¹⁸⁰ *Real Estate Marketing*, 885 S.W.2d at 927.

¹⁸¹ *Fortier v. Flambeau Plastics Co.*, 476 N.W.2d 593, 601 (Wis. Ct. App. 1991).

¹⁸² *Id.*

¹⁸³ *Id.* at 602. See also *infra* text accompanying notes 194-201, explaining the legislative intent to create a private cause of action in KY. REV. STAT. ANN. § 224.99-020(2).

¹⁸⁴ *Fortier*, at 601.

the protected class,¹⁸⁵ giving him standing to sue the defendant whose deposit of waste at an unlicensed landfill had contaminated the water supply.¹⁸⁶ However, the court denied recovery because neither the solid waste disposal regulations which were violated nor the statutory chapter under which they were promulgated evinced an intent to provide a private cause of action.¹⁸⁷

The negligence per se duty is not limited to injury to persons, but extends to property damage.¹⁸⁸ Thus, where the UST regulations, which were contained in the state fire code, resulted in gasoline in the plaintiff's soil, courts have upheld an action for negligence per se.¹⁸⁹ K.R.S. Section 446.070 elevates proof of violation of statutory standards to the status of negligence per se by providing that, "a person injured by the violation of any statute may recover from the offenders such damages as he sustained by reason of the violation, although a penalty or forfeiture is imposed for such violation."¹⁹⁰

Finally, the five year statute of limitations embodied in K.R.S. Section 413.120(4) applies to an action for damages to real property resulting from negligence.¹⁹¹

IV. STATUTORILY CREATED CAUSES OF ACTION

A. Kentucky

Notwithstanding the existence of the traditional common law remedies previously discussed, a plaintiff may be able to take advantage of a defendant's failure to conform his/her

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ *Id.* at 602. The court seems to have confused the notion that a statutory duty can supply an element of a common law cause of action with the prerequisites for establishing a statutory cause of action.

¹⁸⁸ *Mini Mart, Inc. v. Direct Sales Tire Co.*, 889 F.2d 182, 185 (S.D. 1989).

¹⁸⁹ *Id.* The court opined that the statute was enacted to prevent not only fire and explosion, but also contamination of the soil and groundwater by a leaking tank. *Id.* See also *Johnson*, *supra* note 119, at § 3[a].

¹⁹⁰ *Real Estate Marketing*, 885 S.W.2d at 926-27; KY. REV. STAT. ANN. § 446.070 (Michie 1997).

¹⁹¹ *Commonwealth Dep't of Highways v. Ratliff*, 392 S.W.2d 913 (Ky. 1965).

conduct to the requirements of Kentucky statutes and regulations, and thereby afford himself a remedy against the defendant to the extent that harm to the plaintiff can be shown to have been actually caused by the defendant's violation.¹⁹² As many, if not most, petroleum leaks are attributable to leaks from either underground or aboveground storage tanks, a plaintiff should evaluate whether a leak from an underground or aboveground storage tank system has caused the petroleum contamination in question and, if so, whether the leak can be attributable to a failure on the part of the defendant to abide by Kentucky's statutes and regulations governing storage of petroleum in such tanks.

1. STATUTORY OBLIGATIONS RESPECTING THE USE OF UNDERGROUND STORAGE TANKS

In response to the federal mandate in Subtitle I of the Resource, Conservation, and Recovery Act,¹⁹³ (RCRA) that states adopt provisions regulating the storage and dispensing of petroleum from USTs, the Kentucky General Assembly adopted the K.R.S. Section 224.60-155, which empowers the Kentucky Natural Resources and Environmental Protection Cabinet ("Cabinet") to promulgate regulations requiring the owner and operator of such tanks to register USTs as well as to undertake appropriate release response, site characterization, and corrective action regarding leaks from petroleum USTs.¹⁹⁴ However, conceived as a regulatory, rather than a compensatory scheme, 401 KAR Chapter 42¹⁹⁵ contains no provision affording private persons a

¹⁹² KY. REV. STAT. ANN. § 224.99-020(2) provides a private right of action where the defendant can be shown to have violated an administrative regulation promulgated under any of its sections.

¹⁹³ 42 U.S.C.A. §§ 6901 *et. seq.* (1988).

¹⁹⁴ KY. REV. STAT. ANN. § 224.60-155 (Michie 1997). These rules are embodied in Chapter 42 of the Kentucky Administrative Regulations. See, for example, 401 K.A.R. 42:060 which charges owners and operators with responsibility to undertake corrective action for releases.

¹⁹⁵ 401 K.A.R. 42:005 *et. seq.* (hereinafter "Chapter 42").

cause of action against one who violates its parameters.¹⁹⁶ Nevertheless, K.R.S. Section 224.99-020(2) provides such a cause of action if indeed any provision of K.R.S. Section 224 is violated.¹⁹⁷ That subsection provides that "Nothing in this chapter shall abridge the right of any person to recover actual compensatory damages resulting from any violation of this chapter."¹⁹⁸ The Kentucky courts have ruled that a violation of an administrative regulation is tantamount to a violation of the enabling statute which authorized the administrative agency to promulgate such administrative regulation.¹⁹⁹ Accordingly, to the extent that a plaintiff can adduce competent evidence that the defendant has violated any provision of 401 KAR Chapter 42 regarding USTs,²⁰⁰ and to the extent that the violation can be said to be causally related to the contamination for which the plaintiff seeks recovery of damages, such regulatory violation will,

¹⁹⁶ *Id.* Indeed, the chapter contains no penalty provision.

¹⁹⁷ KY. REV. STAT. ANN. § 224.99-020(2) (Michie 1997).

¹⁹⁸ *Id.*

¹⁹⁹ *Home Ins. Co. v. Hamilton*, 253 F. Supp. 752, 755 (E.D. Ky. 1966); *Phillips Petroleum Co. v. Stokes Oil Co.*, 863 F.2d 1250 (6th Cir. 1988). State statutes should be intricately reviewed as to whether they do indeed provide a private cause of action and, if so, to what degree. For example, Ohio UST regulations do not provide a private cause of action. *See Lyden Co. v. Citgo Petroleum Corp.*, 1991 WL 325786 at * 3 (N.D. Ohio Dec. 5, 1991). Some states only provide for declaratory or equitable relief, but no monetary damages. *See Zoufal v. Amoco Oil Co.*, 1993 WL 208812 at *4 (E.D. Mich. Mar. 19, 1993)).

²⁰⁰ 401 K.A.R. 42: 005 *et. seq.* The Cabinet, in promulgating regulations governing the operation of USTs, chose to adopt the federal regulations without significant modifications. The violation of any one of these technical or remedial requirements, embodied in Chapter 42, will subject the owner and operator of a UST to liability. Identification of ownership of USTs became critical upon promulgation of UST regulations, because, prior to that, the subject was relatively ignored. *See Napier & Perkins*, *supra* note 86, at 15. Promulgation of the UST regulations thrust the issue into the forefront of industry regulation because, since the drafting of the Kentucky regulations adopted the wording of CERCLA, the terms "owner/ownership" were used. *Id.* at 16-17. In reality, the discernment between owner/operator appears to be merely semantical. There is no statutory definition for "owner," *Id.* at 15, and there is usually no documentation from which one can clearly determine the ownership of a UST. *Id.* at 16. On the other hand, just who is an "operator" is clear from the explicit statutory definition. *Id.* at 17. Ultimately it makes no difference, as like duties are generally imposed on both the owners and operators. *Id.* Additionally, when duties and responsibilities as between the two are ambiguous, the court may hold the terms "owner/operator" to have their ordinary meanings rather than unusual or technical meanings. *See Edward Hines Lumber Co. v. Vulcan Materials Co.*, 861 F.2d 155, 156 (7th Cir. 1988). Owners and operators are bound to performance standards and notification requirements, release response parameters, site characterization elements, and corrective action requirements for both new and existing systems. *See* 401 K.A.R. 42: 020-080.

under the authority of *Home Insurance* and *Phillips Petroleum*, be tantamount to a violation of K.R.S. Section 224.99-020(2),²⁰¹ under which the person is entitled to damages.

2. STATUTORY OBLIGATIONS RESPECTING THE USE OF ABOVEGROUND STORAGE TANKS

An individual damaged by a release from an aboveground petroleum storage tank (AST) is afforded a more straightforward statutorily created cause of action than one harmed by a leaking UST. The Superfund Branch of the KNREPC is charged with regulatory oversight of petroleum releases from ASTs,²⁰² and authority to promulgate administrative regulations establishing standards and procedures for the performance of corrective action for releases from ASTs is granted to that Branch in K.R.S. Section 224.01-405.²⁰³ Such regulations had not yet been promulgated at the time of this writing.²⁰⁴ Alternatively, until such regulations are adopted, the

²⁰¹ KY. REV. STAT. ANN. § 224.99-020(3) (Michie 1997). Some classes of USTs are excluded from regulation. *See* 401 K.A.R.42:011 § 1 (1) (a-f) (applicability exclusions); 401 K.A.R.42:011 § 1 (1)(g) (definitional exclusions). Applicability exclusions are granted to certain tank systems according to their characteristics or uses. *Id.* These include tank systems holding hazardous wastes, or systems containing mixtures of hazardous wastes and other regulated substances as well as wastewater tank systems regulated under the Clean Water Act. *See* 401 K.A.R. 42:011 § 1 (1)(a); (b). Equipment or machinery tanks used for operational purposes, USTs of less than one hundred ten gallon capacity, and tanks with a de minimis concentration of regulated substances are likewise excluded. *Id.* at (1)(d); (e). The regulations also offer exemption to emergency spill or overflow containment systems emptied immediately after use. *Id.* at (1)(f). The second class of USTs which are not subject to regulation are those which are excluded by definition from Chapter 42. *See* 401 K.A.R. 42:011 21 1 (1)(g) (citing exclusions delineated in K.R.S. § 224.60-100). These are comprised of UST systems which do not fall within the definition of "UST" provided in K.R.S. Section 224.60-100: "an underground storage tank or combination of tanks... used to contain an accumulation of regulated substances...." *See* K.R.S. § 224.60-100 (1). "Regulated substance" excludes any substance regulated as a hazardous waste under RCRA and petroleum, including crude oil or any fraction thereof...." *See* K.R.S. § 224.60-100 (2). Therefore, a tank containing any substance listed as a "hazardous substance" in RCRA is not subject to Chapter 42, nor is petroleum, crude oil or any fraction of petroleum or crude oil contained in such a tank or tank system.

²⁰² Telephone interview with Eric Liebenauer, P.E., Environmental Assistant Chief, Superfund Branch, KNREPC (Aug. 10, 1998) (hereinafter "Liebenauer Interview").

²⁰³ KY. REV. STAT. ANN. § 224.01-405 (Michie 1997).

²⁰⁴ Liebenauer Interview, *supra* note 202.

Cabinet is to allow a person responsible for a release from an AST to use the provisions found in KRS Section 224.01-400 (18) to (21).²⁰⁵

KRS Section 224.01-400 (18) contains the substantive corrective action parameters,²⁰⁶ and offers any responsible party four options from which to choose the corrective action he/she will take.²⁰⁷ If the violator can demonstrate by use of UST regulation soil tables²⁰⁸ that no action is necessary to protect human health, safety, and the environment, he may be absolved of the requirement to remediate the leak.²⁰⁹ Alternatively, the responsible party may choose to either manage the release in a manner that controls and minimizes the harmful effects of the release and protects human health, safety, and the environment,²¹⁰ or restore the environment through the removal of the hazardous substance, pollutant, or contaminant.²¹¹ Lastly, the individual may combine any of these options to fashion the corrective action.²¹²

The common law statutory cause of action pursuant to KRS Section 224.99-020(2) arises when the responsible party fails to effect the chosen corrective action option. Such failure would

²⁰⁵ KY. REV. STAT. ANN. § 224.01-405 (3). See KY. REV. STAT. ANN. § 224.01-400 (18) (requiring characterization of the release and corrective action); KY. REV. STAT. ANN. § 224.01-400 (19) (stipulating exemptions from the requirements of subsection (18)); KY. REV. STAT. ANN. § 224.01-400 (20) (eliminating the requirements of restoration through removal of the hazardous substance if the violator manages the release so as to minimize its harmful effects and manages the release so as to protect human health, safety, and the environment); and KY. REV. STAT. ANN. § 224.01-400 (21) (delineating factors the violator is to use in implementation of corrective action).

²⁰⁶ Liebenauer Interview, *supra* note 202.

²⁰⁷ KY. REV. STAT. ANN. § 224.01-400 (18)(a)-(d) (Michie 1997).

²⁰⁸ The "soil tables" are guidance standards developed by the Cabinet to determine if and to what degree a potentially responsible party must undertake steps to remediate the soil. (Liebenauer Interview, *supra* note 202). (Liebenauer explains that the method by which one demonstrates that no action is necessary is by utilization of the soil tables to establish that the concentration of the hazardous substance is at a level below that necessary for action to render the soil suitable for residential, commercial, or industrial use).

²⁰⁹ KY. REV. STAT. ANN. § 224.01-400 (18)(a).

²¹⁰ KY. REV. STAT. ANN. § 224.01-400 (18)(b).

²¹¹ KY. REV. STAT. ANN. § 224.01-400 (18)(c).

²¹² KY. REV. STAT. ANN. § 224.01-400 (d).

constitute a violation of KRS Section 224.01- 405 and accordingly afford the harmed individual the recovery of actual compensatory damages.²¹³

B. Federal

Any cause of action the plaintiff may have under federal law will be governed by RCRA Section 7002 (a)(1)(B).²¹⁴ Although CERCLA Section 107 allows recovery for injury from contamination by releases of hazardous substances, such recovery is limited.²¹⁵ Indeed, CERCLA contains a petroleum exclusion rendering that statute virtually inapplicable.²¹⁶ Moreover, even in the remote event that one is able to assert a cause of action for petroleum contamination pursuant to CERCLA Section 107, such as where the leaked substance is used oil, the section only provides a cause of action for recovery of response costs.²¹⁷ These costs, in all likelihood, are less inclusive than the kinds of damages provided by the common law, such as those for loss of use and loss of rental value.²¹⁸

Costs incurred from past or ongoing remedial efforts are not available under Section 7002 (a)(1)(B), as clarified by the United States Supreme Court in *Meghrig v. KFC Western, Inc.*²¹⁹ There, KFC Western discovered petroleum contamination on property it purchased from the Meghriks.²²⁰ KFC Western remediated the contamination pursuant to a county order, then invoked Section 7002 (a)(1)(B) to recover costs, claiming the contamination had previously

²¹³ KY. REV. STAT. ANN. § 224.99-020(2).

²¹⁴ 42 U.S.C. § 6972 (a)(1)(B); RCRA § 7002 (a)(1)(B).

²¹⁵ 42 U.S.C. § 9607; CERCLA § 107.

²¹⁶ 40 C.F.R. § 280.12.

²¹⁷ 42 U.S.C. § 9607; CERCLA § 107.

²¹⁸ *Id.*; *See also supra* text accompanying notes 45-50.

²¹⁹ 516 U.S. at 485, 116 S.Ct. at 1255.

²²⁰ *Id.* at 481.

posed an “imminent and substantial endangerment to health or the environment.”²²¹ The Ninth Circuit allowed recovery, interpreting the “imminent and substantial endangerment” clause to apply where harm was posed by the waste at issue at the time it was cleaned up.²²²

The United States Supreme Court, in reversing the Ninth Circuit, held that while CERCLA was passed to address many of the same toxic waste issues as RCRA, the remedies provided by the two statutes differ markedly.²²³ The Court held that the language in Section 7002 (a)(1)(B), “may present...” evinced an intent to provide recovery of response costs only where the endangerment “threatens to occur immediately.”²²⁴ Therefore, the court concluded, a party may not undertake a cleanup, incur costs, and then proceed to recover those costs after the cleanup concludes.²²⁵

Neither is recovery for ongoing remedies is available pursuant to RCRA.²²⁶ Although RCRA Section 7002 (a)(1)(B) allows citizens to bring suit to require responsible parties to abate conditions that may present an “imminent and substantial endangerment” to health or the environment,²²⁷ the court in *Express Car Wash Corporation v. Irinaga Brothers, Inc.* held that no costs incurred under a remedy that is “in place or substantially in place” prior to the filing of a RCRA citizen suit could be recovered under the act.²²⁸ Even though the plaintiff alleged the imminent danger continued, and that injunctive relief and future costs should therefore be

²²¹ *Id.* at 479.

²²² *Id.* at 482.

²²³ *Id.* at 485.

²²⁴ *Meghrig v. KFC Western, Inc.*, 516 U.S. at 485, 116 S.Ct. at 1255.

²²⁵ *Id.* at 487.

²²⁶ *Express Car Wash Corp. v. Irinaga Bros., Inc.*, 967 F. Supp. 1188, 1193 (D. Or. 1977).

²²⁷ 42 U.S.C. § 6972 (a)(1)(B).

²²⁸ *Id.*

available, the court denied recovery, saying that state law provides the best avenue for recovering these costs, given CERCLA's petroleum exclusion.²²⁹

However, the invocation of a Section 7002 (a)(1)(B) cause of action is not barred where the plaintiff seeks current and future unexpended costs of remediation, even though response costs were incurred prior to the filing of the citizen suit.²³⁰ Thus, in *Organic Chemicals Site PRP Group v. Total Petroleum, Inc.*, the court sustained an action where the plaintiffs alleged contamination of a different soil unit for which the cleanup would be "different in scope and duration," than the unit subject to existing EPA orders.²³¹ Thus the court left the door open to the use of Section 7002 (a)(1)(B) for mandatory injunctions to complete cleanup or initiate a different cleanup.²³²

V. CONCLUSION

It is undisputed that the harm created by leakage from petroleum USTs is of utmost importance. Sheer numbers of such tanks, as well as the exorbitant costs associated with the remediation of leaks therefrom, escalate concerns about potential resultant harm. Concern is exacerbated by a realization that property already contaminated by a UST leak incurs a stigma which may cloud the title until remediation is effected.

Although CERCLA provides opportunity for redress to private parties in its citizen suit provision,²³³ the exclusion of much petroleum-based contamination from the scope of its remedial provisions drastically reduces its effectiveness as a remedy for petroleum

²²⁹ *Id.*

²³⁰ *Organics Chem. Site PRP Group v. Total Petroleum, Inc.*, 6 F. Supp.2d 660, 666 (W.D. Mich. 1998).

²³¹ *Id.*

²³² *Hazardous Waste: Court Allows Plaintiff to Proceed with Suit for RCRA Injunctive Relief at Superfund Site*, 28 Env't Rep. 2159 (Feb. 20, 1998).

²³³ See *supra* text accompanying notes 215-225.

contamination. Moreover, RCRA based citizen suits are limited to recovery of current or future response costs. Consequently, state based causes of action in nuisance, trespass, and negligence serve a vital role in providing recourse to parties injured by petroleum contamination.

Further, the availability of a statutory cause of action under Kentucky law through the invocation of the provisions of KRS Section 224.99-020 (2), obviates the need for much proof associated with establishing the common law causes of action, at least where a plaintiff can establish that one or more operative standards embodied in Chapter 42 of the Kentucky Administrative Regulations have been violated.

Therefore, plaintiffs injured from petroleum contamination are fortunate to be able to avail themselves of ample judicial remedies. The availability of such remedies serves to bolster the sound legislative purposes underlying the enactment of federal and state petroleum contamination remediation legislation.



**VOLUNTARY CLEANUP PROGRAMS
AND
BROWNFIELDS RELATED ISSUES:**

Federal, State and Local Initiatives

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BROWNFIELDS AND VOLUNTARY CLEANUPS
(FEDERAL, STATE AND LOCAL INITIATIVES)

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BROWNFIELDS AND VOLUNTARY CLEANUPS: FEDERAL, STATE AND LOCAL INITIATIVES

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What are "Brownfields"? Most people have heard of the concept, and have an idea that it has to do with developing inner-city properties. The ideal on which it is based is that of returning contaminated urban properties to productive use. Brownfields is one of those "warm and fuzzy" concepts that no one can disagree with, at least in principle. In practice, laws and policies relating to Brownfields have developed in a piecemeal fashion that may confuse and frustrate uninitiated. Nevertheless, there quite a few resources and programs in place for community-minded developers who are willing to invest in their community.

But first, what is the working definition of "Brownfields"? The federal Environmental Protection Agency ("EPA") defines them as "abandoned, idled, or under-used industrial and commercial properties where redevelopment is complicated by real or perceived environmental contamination. Because of the stigma of contamination and other barriers to redevelopment, brownfields remain unproductive, blighting communities while developers resort to 'greenfields' outside cities."¹

What is conspicuously absent from this definition is any mention of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), a.k.a. the federal Superfund law.² However, the threat of CERCLA liability has certainly frightened investors away from former industrial properties, which then go on to become brownfields. From an investor's standpoint, this is understandable. CERCLA liability is strict, joint and several and retroactive. It is also broadly defined³ and, once liability attaches, seemingly permanent. Superfund cleanups can and do cost millions of dollars.⁴ The only statutory defenses under CERCLA are an act of God, an act of war, and the so-called third party or "innocent purchaser" defense.⁵ The latter has probably exacerbated the brownfields problem; it encourages prospective purchasers to perform an

¹From the 1996 Memorandum of Understanding between EPA and HUD.

²42 USC Sections 9601 to 9675. To avoid confusion between state and federal "Superfund" programs, the federal law will be referred to as CERCLA.

³42 USC 9607.

⁴See generally Moskowitz, *Environmental Liability and Real Property Transactions* (2d ed. 1995), Chapters 1 and 4.

⁵42 USC 9607(b).

environmental site assessment, and then to back out of buying any property that does prove contaminated.

The result is that investors and developers refuse to have anything to do with contaminated properties, preferring so-called "greenfields," undeveloped suburban or rural properties. In the last five years, partly in response to public pressures and widespread criticism of the CERCLA program, EPA and other branches of the federal government have launched an ambitious agenda designed to promote the cleanup and redevelopment of Brownfields. State and local governments are developing their own initiatives. There are now enough resources and tax breaks in place to give you the idea that your governments (local, state and federal) really, really want you to invest in Brownfields. This outline will summarize some of the major resources, tax incentives, and regulatory relief programs that have been designed to stimulate Brownfields development. It will focus on state and federal initiatives, as well as developments in the city of Louisville, whose Brownfields program is the most developed one in Kentucky.

I. LOUISVILLE BROWNFIELDS PROGRAM

One of the first steps EPA took to launch the Brownfields program was the announcement that it would make grants of up to \$200,000 to municipalities to aid in the development and implementation of local Brownfields programs. The city of Louisville received a \$200,000 Pilot Project grant in 1995; in 1997-8, the city received another \$320,000 to continue its Pilot Project. The city's Office of Health and Environment ("OHE") has also received a \$350,000 grant to establish the Brownfields Revolving Loan Fund, through which it disperses funds to environmental projects tied to redevelopment in Louisville's Empowerment and Investment Zones.⁶

To implement the Brownfields program, the OHE put together a Brownfields Working Group composed of representatives from banks, Greater Louisville, Inc. (the local Chamber of Commerce), county government, MSD, environmental consultants and attorneys. In the 1996 legislative session, the city successfully lobbied for Brownfields legislation. Although the law is limited in scope, Kentucky now at least has a Brownfields law on the books.⁷ This is described below, under State Programs.

To date, the OHE has performed environmental assessment work on six properties:

Garfield:	No Further Remediation letter issued August 26, 1997
Trolley Barn:	Louisville Development Authority is managing; possible site for African-

⁶The Empowerment Zone was delineated in 1994 by a Community Board of over 100 citizen representatives. It includes the neighborhoods of Park DuValle, Portland, Russell, California, Parkland, Park Hill, Algonquin, Phoenix Hill, Smoketown and Shelby Park. The Investment Zone is slightly larger, encompassing pretty much all of the West End of Louisville.

⁷KRS 224.01-450 through 224.01-465.

American Museum
Exmet: Cleanup almost complete; city beginning foreclosure process
Rowan Street
Tobacco Whse: Bought by private purchaser at tax sale
Park DuValle: A "town center" with a retail commercial area being developed
Meriwether: Feasibility study performed on former incinerator site

In addition, the following local resources have been created:

Louisville Community Development Bank (LCDB)--Provides loans to businesses in the Empowerment Zone and larger Investment Zone; the Bank can provide loans outside either Zone if there is a beneficial impact within the targeted area.

LCDB Enterprise Group--A subsidiary of the LCDB, the Enterprise Group provides business advice and technical assistance to qualified persons wishing to start or expand businesses; it can provide loans to applicants who would not otherwise qualify.

Brownfields Cleanup Revolving Loan Fund--The fund manager is the LCDB. The OHE evaluates and disperses funds to pay for environmental projects.

Brownfields Database: The database, put together by the Brownfields Working Group, is a list of Brownfields sites in the Empowerment Zone that are available for development.

Nia Center: Occupies the for Tube Turns property at 29th and Broadway, which was renovated with help from the OHE. The Nia Center houses the Workforce Development Partnership Center which, among other things, provides employment training to residents of the Empowerment Zone.

II. STATE PROGRAMS

Kentucky Enterprise Zones:

Established by KRS 154.45-001 through 154.45-120, this is a package of tax breaks available to ten areas designated as "Enterprise Zones" by the Kentucky Enterprise Zone Authority. "Enterprise Zones" are economically depressed areas that meet the statutory criteria of KRS 154.45-040. Louisville has an Enterprise Zone, as do Lexington, Owensboro, Covington, Ashland and Paducah. For qualified businesses within each zone, the following tax breaks are available:

- (1) Building materials used in remodeling, rehabilitation, or new construction within a zone are exempt from sales and use taxes;
- (2) New and used equipment and machinery purchased by a qualifying business is exempt from sales and use tax;
- (3) Commercial vehicles are exempt from motor vehicle usage tax;
- (4) Noncommercial vehicles used by a qualified business are exempt from the motor vehicle

usage tax for the first \$20,000 of the retail price;

(5) The business is allowed a credit against the tax levied pursuant to KRS 141.040 equal to 10% of the wages paid to each employee who is a member of the targeted workforce, up to \$1500 per employee. Unused credit may be carried forward for up to five years;

(6) A local government may levy an ad valorem tax of \$.001 on each \$100 of value on qualified property within an enterprise zone, regardless of the rates provided for in KRS Chapter 132.⁸

State Environmental Programs:

Kentucky's state superfund law, KRS 224.01-400, allows for so-called risk-based remedies for contaminated properties. This means that the amount of cleanup that must be done is tied to actual risk to human health and the environment, rather than to ideal standards of cleanliness.⁹ KRS 224.01-405 makes the same cleanup options available to non-UST¹⁰ petroleum cleanups. KRS 224.01-450 through 224.01-465, Kentucky's only formal Brownfields legislation, applies to public entities. All state environmental laws are overseen by the Natural Resources and Environmental Protection Cabinet (the "Cabinet").

Some facts about the state superfund program:

(1) KRS 224.01-400(26) and (27) provide more or less the same lender liability protection that is available under the federal CERCLA program (see below). In addition, KRS 386.740 protects fiduciaries from liability to their beneficiaries if they use estate assets to conduct environmental cleanups.

(2) KRS 224.01-465 allows public entities to obtain a "No Further Remediation" letter from the Cabinet, which acts as a release from further responsibilities under state superfund law. It is not clear from the law whether the letter can be issued only when all cleanup is completed, or while work is still going on--since, after all, many environmental remediation projects involve years of monitoring. What is clear is that the letter can only be issued to public entities. Once issued, however, it applies to any successor in interest to the public entity.

(3) The Cabinet is authorized by EPA to use as much as 20% of the Cabinet's CERCLA grant money to conduct Phase I and Phase II environmental assessments of publicly owned properties that meet federal Brownfields criteria.

In addition, EPA Region IV, which includes Kentucky, has agreed to perform a limited

⁸KRS 154.45-090.

⁹KRS 224.01-400(18), (20) and (21).

¹⁰Underground Storage Tank; see footnote 11 below.

number of Phase I and Phase II site assessments on qualified brownfields properties. Local governments may apply for EPA assistance on a site-by-site basis.

III. ON THE FEDERAL LEVEL:

Federal Laws:

(1) Taxpayer Relief Act of 1997: Applies to environmental cleanup expenditures in designated target areas through the end of the year 2000. Under the Brownfields Tax Incentive portion of the law, a qualifying developer may elect to treat remediation costs as expenses deductible in the year incurred or paid, rather than as a capital improvement to the property.¹¹ The developer must obtain a statement from the state environmental agency that the site meets the contamination and geographic requirements of the law. The Cabinet's Division of Waste Management has developed state-wide maps showing areas that qualify for the federal Brownfield Tax Incentive.

(2) Asset Conservation, Lender Liability, and Deposit Insurance Act of 1996: This legislation basically codifies an EPA policy on lender liability that had been invalidated by a federal court. Under the Asset Conservation Act, a lender is protected from liability as an owner or operator under CERCLA or Underground Storage Tank¹² law if it holds indicia of ownership primarily to protect its security interest, and does not participate in management of the site or facility. The lender may monitor or re-negotiate the terms of credit, or even require the borrower to respond to a release of contamination, without being deemed to participate in management. After foreclosure, the lender can conduct some business activities, or even undertake a CERCLA response action, if those activities are done to preserve the property or assets prior to sale. The statute protects fiduciaries as well.¹³

(3) Community Reinvestment Act regulations: The Community Reinvestment Act ("CRA")¹⁴ requires federal financial supervisory agencies¹⁵ to assess how lending institutions meet the credit needs of their communities, including low- and moderate-income neighborhoods. These assessments

¹¹PL 105-34, Title IX, Subtitle E.

¹²Underground storage tanks (USTs) are governed by Subtitle I of the Resource Conservation and Recovery Act, 42, USC 6991, 6991a-i. The federal regulations are found at 40 CFR Part 280. In Kentucky, USTs are governed by KRS 224.60-100 through 224.60-160, and by regulations found at 401 KAR Chapter 42.

¹³PL 104-208, 110 Stat. 1344.

¹⁴12 USC 2901 through 2906.

¹⁵These are: the Department of the Treasury; the Office of the Comptroller of the Currency; the Federal Reserve System; the Federal Deposit Insurance Corporation; and the Office of Thrift Supervision.

are taken into account when the supervisory agency evaluates the lender's application for a deposit facility.¹⁶ On May 4, 1995, the federal agencies involved amended their CRA regulations to allow lenders to claim community development loan credits for loans made to finance the environmental cleanup or redevelopment of an industrial site, when it is part of an effort to revitalize the low- or moderate-income community in which the site is located.¹⁷

EPA Initiatives:

In the last three years, the federal EPA has developed a number of initiatives that can be combined to facilitate Brownfields development and, in general, provide some much-needed liability relief. Besides the Brownfields Pilot Projects program (see above, under Louisville Brownfields Program), these include the following:

(1) Prospective Purchaser Agreements. The purpose of these agreements with EPA is to assure investors or developers who are interested in buying contaminated property that they are not buying CERCLA liability. A previous guidance had required the purchaser to commit to perform or pay for remedial activities itself.¹⁸ Under the current guidance, issued in 1995,¹⁹ EPA will accept fewer direct benefits in exchange for work that benefits the community. The criteria are:

A. EPA has either completed actions, is in the midst of activities or is considering involvement at the site. (The purpose of this criterion is to keep EPA out of purely private transactions.)

B. As consideration, the prospective purchaser must offer EPA either direct or indirect benefits, or a combination of both. A "direct" benefit is either cleanup work performed at the site, or payment of EPA's costs. "Indirect" benefits include reduction of the risk posed by the site; creation or retention of jobs; development of abandoned or blighted property; creation of conservation or recreation areas; or provision of community services.

C. In return for these commitments, the purchaser can buy property with known contamination without incurring CERCLA liability. The covenant not to sue in the model agreement is, by EPA standards, quite broad, and is (at least theoretically) available to operators and lessees of contaminated sites as well as owners.

¹⁶12 USC 2903.

¹⁷60 Federal Register 22155 (May 4, 1995). The amended regulations are found in 12 CFR Parts 25, 203, 228, 345, and 563e.

¹⁸54 Federal Register 34235 (August 18, 1989).

¹⁹60 Federal Register 34792 (July 3, 1995).

NOTE: The Kentucky Cabinet has indicated a willingness to enter into prospective purchaser agreements modeled on EPA's.²⁰

(2) Comfort Letters. These are also, and more accurately, known as "status letters." They provide information rather than assurances. If the site meets certain criteria, the appropriate EPA Region (for Kentucky, Region IV in Atlanta) will issue a letter setting out the information EPA currently has on a site, and what EPA's intentions are with regard to the site.²¹

(3) Land Use Directive. This directive provides that EPA and potentially responsible parties ("PRPs") may take reasonable future land use assumptions into account in choosing the appropriate remedy for a CERCLA site. In practice, this means that if a site has always been used, and most likely will continue to be used, for industrial or commercial purposes, the PRP will not have to remove as much contamination as would be required to support, for instance, residences or schools. A deed restriction is usually required.²² NOTE: The Kentucky Cabinet basically agrees with this philosophy.

(4) Contaminated Aquifer Policy. The gist of this policy is that EPA will not pursue property owners for groundwater contamination that comes from off-site sources. In addition, EPA will consider entering a de minimis settlement with the landowner that will protect him or her from third-party lawsuits.²³

(5) Soil Screening Guidance. This guidance establishes site-specific soil cleanup levels, risk-assessment methodology and standards for identifying sites ripe for redevelopment.²⁴

Brownfields National Partnership Action Agenda:

This is an ambitious agenda announced on May 13, 1997 by the Clinton administration. It involves fifteen federal agencies and a number of non-governmental organizations. The idea is to make a coordinated effort to spur cleanup and redevelopment of Brownfields sites around the country. The entities involved made certain commitments to training, education and funding, including the following:

²⁰See the Cabinet's document entitled "Kentucky's Voluntary Cleanup Program," which can be found at its web site at <http://www.nr.state.ky.us/nrepc/dep/waste/programs/sf/vcpguide.htm>.

²¹"Policy on the Issuance of Comfort/Status Letters," Memorandum of the EPA Office of Enforcement and Compliance Assurance, November 8, 1996.

²²60 Federal Register 29595 (June 5, 1995).

²³60 Federal Register 34790 (May 24, 1995).

²⁴61 Federal Register 27349 (May 31, 1996).

(1) EPA will set aside \$100 million to fund additional Brownfields site assessment and cleanup at Brownfields pilots.

(2) EPA will provide \$25 million to support the development of state voluntary cleanup programs.

(3) EPA will delete at least 3000 sites from the inventory of potential Superfund sites.

(4) GSA will provide \$1 million to fund environmental assessments on federal properties to expedite potential Brownfields development.

(5) HHS/OCS will provide \$500,000 to community development corporations and community action agencies for restoration of the physical environment, economic revitalization and job training activities at Brownfields pilots.

(6) HUD will provide \$155 million in support of local Brownfields cleanup and redevelopment activities through Community Development Block Grants, the agency's Economic Development Initiative, and its Housing and Enterprise Zone programs.

Brownfields redevelopment has been, at least in theory, a growth industry over the last four years. For further information about Brownfields programs around the country, the best starting point is the EPA's Brownfields home page, at <http://www.epa.gov/swerosps/bf>.

**VOLUNTARY CLEANUP PROGRAMS
AND
BROWNFIELDS RELATED ISSUES:**

Varying Approaches From Comparative Jurisdictions

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**VOLUNTARY CLEANUP PROGRAMS
AND BROWNFIELDS-RELATED ISSUES**

(VARYING APPROACHES FROM COMPARATIVE JURISDICTIONS)

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KENTUCKY'S VOLUNTARY CLEANUP PROGRAM

Kentucky is joining other states throughout the nation attempting to foster remediation of contaminated sites through a brownfields or voluntary cleanup program. Kentucky's program is designed to provide persons who voluntarily remediate a contaminated site with several incentives to perform and complete the necessary work. As is the case with most states, Kentucky's program is in its infancy and has yet to be tested with "real world" application.

Historically, most all cleanups have been conducted as the result of enforcement actions initiated by the Kentucky Natural Resources and Environmental Protection Cabinet ("Cabinet"). These actions were based upon Kentucky's RCRA authority, the state superfund law (KRS 224.01-400), or the state's petroleum cleanup law (KRS 224.01-405). Obviously, enforcement actions breed animosity among the parties, which all too often leads to litigation. Enforcement actions and litigation are expensive and result in infinite delay of essential activities necessary to protect human health, safety, and the environment.

Prompted by the Kentucky General Assembly, the Cabinet has committed to the development and implementation of a Voluntary Cleanup Program ("VCP"). Kentucky industry advocated legislation during the 1998 legislative session to remove the distinction between public and private entities relating to voluntary cleanups. However, after a request from the Cabinet's Secretary to allow the Cabinet to administratively resolve the issue, industry withdrew its legislative agenda. On September 10, 1998, the Cabinet published its guidance to implement the VCP¹. Since the VCP has not been promulgated as a regulation pursuant to the state's administrative procedures requirements,

¹ The Cabinet's publication is available on the Internet at <http://www.state.ky.us/agencies/nrepc/waste/programs/sf/vcpguide.htm>.

the guidance does not have the effect of law. However, to the extent that the program is consistent with existing statutory authority, the Cabinet, and the regulated community, may utilize the document as guidance in administering the program.

The VCP allows persons to volunteer to initiate and perform remediation of contaminated sites. Once a volunteer has completed a cleanup, the Cabinet will issue a Notice of Completion (or No further Remediation Letter for public entities), giving the volunteer assurance that the Cabinet is unlikely to require further cleanup of the release in the future.

The VCP was developed pursuant to three statutory programs. First, KRS 224.01-400 and 224.01-405 require characterization and remediation of releases of hazardous substances, pollutants and contaminants, as well as petroleum and petroleum products that are not governed by the underground storage tank program under RCRA. Second, KRS 224.01-450 to 244.01-465 require the Cabinet to issue No Further Remediation Letters for public entities conducting remediation of publicly owned property under KRS 224.01-400. Third, the Cabinet also bases its VCP on Kentucky's environmental audit privilege and immunity law (KRS 224.01-040).

According to the Cabinet's guidance, "most property is eligible for clean up after the VCP. This includes all locations, whether urban, suburban or rural, and all land uses, including residential, commercial, and industrial." The Cabinet's initial belief when the VCP was on the drawing board was that the program should only apply to brownfields -- abandoned, idled or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. However, the limiting nature of "brownfields," as well as the tremendously positive effect the VCP can be expected to have on sites that do not meet the definition of "brownfields," spurred the Cabinet to expand the scope of the program.

Although the Cabinet's guidance cites several incentives, most of which are generally available without the program², the true value of the Cabinet's VCP is that it provides volunteers with a mechanism through which property can be considered "clean" in the eyes of the state -- a status few site owners have had the luxury of claiming under Kentucky's remediation programs. This benefit comes through the Cabinet's issuance of No further Remediation Letters and Notices of Completion. Mandated by the 1996 General Assembly, KRS 224.01-450 to 224.01-465 requires the Cabinet to issue No Further Remediation Letters to public entities conducting Superfund cleanups. A No Further Remediation Letter runs with the property in favor of the owner and all subsequent purchasers as long as the property is managed in accordance with the cleanup plan approved by the Cabinet. A letter may be revoked if the property is not managed in accordance with the approved cleanup plan, or if the Cabinet determines that any facts on which the cleanup plan was based were unknown when the letter was issued or known, but not disclosed, or false.

By virtue of the VCP, the Cabinet intends to issue similar letters, called Notices of Completion, when remediation of non-publicly owned property is completed. The expansion of the use of No Further Remediation Letters to non-publicly owned property is the result of a cooperative effort between the Gov. Paul Patton administration (James Bickford, Cabinet Secretary), local government officials, industry leaders, financial institutions, legislative leaders, and public interest groups. All parties recognized that properties were being "held hostage" under the state superfund remediation system. Although the system is designed to function efficiently, the Cabinet has read its mandate to ensure that cleanups are protective of human health, safety, and the environment in

² Those incentives cited by the Cabinet include: 1) generally available defenses to liability under KRS 224.01-400; (2) U.S. EPA-led "prospective purchaser agreements"; and 3) established federal tax incentives.

such a strict manner as to result in extremely reluctant final determinations by the Cabinet with regard to releasing a person from liability under the statute. This reluctance culminated in Cabinet settlement proposals with "reopeners" far too broad to be accepted by the regulated community. The open-ended "reopeners" hamstrung regulated parties, prospective purchasers, and lending institutions in dealing with property that had been remediated, but had not received, and likely would not receive, final clearance from the Cabinet. The VCP represents the Cabinet's recognition of the necessity to certify sites as closed, or at least closed to a point which the property may be usable or marketable.

Kentucky's program does not encompass one key concept that many stakeholders desire -- lessened cleanup standards in true brownfields situations. At the present time, all cleanups must be performed in such a manner as to correct the effects of a release on the environment. Options for cleanup include removal to background, demonstrating no action is necessary to protect human health and the environment, managing the release to control and minimize the effects of the release on the environment, or any combination of these.

Although the Cabinet's VCP does not address all desirable aspects of an effective program, publication of the VCP is certainly the first step. The issuance of Notices of Completion will relax the fears of regulated parties, lending institutions, and the general public relating to previously contaminated sites and will likely free those properties for sale, use, and development.

As previously stated, the program is in its early infancy and is bound to create confusion in its implementation. However, once it is digested and understood, the VCP can be expanded to include additional enhancements to ensure that cleanups are more environmentally and economically efficient and effective.

THE NORTH CAROLINA BROWNFIELDS PROGRAM

North Carolina's Brownfields law, Session Laws 1997-357, was ratified by the General Assembly on July 24, 1997, signed by Governor James B. Hunt on August 1, 1997, and took effect on October 1, 1997. It is titled "*The Brownfields Property Reuse Act*" (hereinafter "BPRA," "Brownfields Act" or "Act") and is codified at North Carolina General Statutes §130A-310.30, et seq. Among the General Assembly's findings regarding the bill was that: "The safe redevelopment of brownfields would benefit the citizens of North Carolina in many ways, including improving the tax base of local governments and creating job opportunities for citizens in the vicinity of brownfields."

The bill was a product of just under a year's worth of discussions and negotiations among the stakeholders. The ultimate product is still relatively untested: as of a few months ago, only one "Brownfields Agreement" (the vehicle which memorializes the "deal" between the state and the regulated entity; sometimes hereinafter "BFA" or "Agreement") had been entered into, while two others were close to finalization.

I. The Law.

To be eligible for brownfields status under the BPRA, a site must be an:

abandoned, idled, or underused property at which expansion or redevelopment is hindered by actual environmental contamination or the possibility of environmental contamination and that is or may be subject to remediation under any State remedial program other than Part 2A of Article 21A of Chapter 143 of the General Statutes or that is or may be subject to remediation under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended.

N.C.G.S. §130A-310.31(b)(3). Part 2A of Article 21A of Chapter 143 of the General Statutes codifies the Leaking Petroleum Underground Storage Tank Program. To be eligible for a Brownfields Agreement, a party must be a "person who desires to either buy or sell a brownfields property for the purpose of developing or redeveloping that brownfields property and who did not cause or contribute to the contamination at the brownfields property." N.C.G.S. §130A-310.31(b)(10). (Person is as defined at N.C.G.S. §130A-2(7). See N.C.G.S. §130A-310.31(a).)

The North Carolina Department of Environment and Natural Resources (DENR) "*may, in its discretion, enter into a Brownfields Agreement*," N.C.G.S. §130A-310.32(a) (emphasis added), if a Prospective Developer (the term for those eligible for BFAs) survives examination of:

- (1) its compliance with:
 - a. any brownfields or similar agreement to which it or any parent, subsidiary or other affiliate (as defined at 17 CFR §240.12b-2; see N.C.G.S. §130A-310.31(b)(1), (8) & (14) has been a party;
 - b. the requirements applicable to any remediation in which the applicant has engaged;
 - c. Federal and state laws, regulations and rules for protection of the environment.
- (2) whether, as a result of the implementation of the brownfields agreement, the brownfields property will be suitable for the uses specified in the agreement while fully protecting the public health and the environment instead of being remediated to current standards. ("Current standards" are the non-risk-based ones that would apply in the absence of a BFA).

- (3) whether there is a public benefit commensurate with the liability protection provided under the Brownfields Act.
- (4) whether the applicant has or can obtain the financial, managerial and technical means to fully implement the brownfields agreement and assure the safe use of the brownfields property.
- (5) whether the applicant has complied or will comply with all applicable procedural requirements.

N.C.G.S. §130A-310.32(a). The same statutory subsection states that a Brownfields Agreement must contain a description of the property that would be sufficient in an instrument of conveyance and, as applicable, a statement of:

- (1) any remediation to be conducted (in statutorily mandated detail);
- (2) any land use restrictions that will apply;
- (3) the desired results of any remediation or land use restrictions;
- (4) the guidelines within which the desired results are to be accomplished; and
- (5) the consequences of achieving or not achieving the desired results.

Not only must an applicant successfully negotiate a Brownfields Agreement with DENR, but the "Public notice and community involvement" section of the statute mandates submission, and approval by DENR, of a Notice of Intent to Redevelop a Brownfields Property and a summary of that notice.

The Notice of Intent shall provide, to the extent known, a legal description of the location of the brownfields property, a map showing the location of the brownfields property, a description of the contaminants involved and their concentrations in the media of the brownfields property, a description of the intended future use of the

brownfields property, any proposed investigation and remediation, and a proposed Notice of Brownfields Property...

N.C.G.S. §130A-310.34(a). A Notice of Brownfields Property "shall include a survey plat of areas designated by DENR that has been prepared and certified by a professional land surveyor and that meets the requirements of ..." North Carolina's statute on maps and plats, shall include a legal description of the brownfields property sufficient in an instrument of conveyance, and shall identify:

- (1) the location and dimensions of the areas of potential environmental concern with respect to permanently surveyed benchmarks;
- (2) the type, location and quantity of regulated substances and contaminants known to exist on the property; and
- (3) any restrictions on the current or future use of the property or, with the owner's permission, other property that are necessary or useful to maintain the level of protection appropriate for the designated current or future use of the property and that are designated in the BFA.

N.C.G.S. §130A-310.35(a).

Upon approval of the Notice of Intent and the summary thereof, the applicant provides a copy of the Notice of Intent to local governments having jurisdiction over the property, and causes publication of the summary in a local newspaper of general circulation and in the North Carolina Register. N.C.G.S. §130A-310.34(a). The summary shall also be "conspicuously" posted at the property. N.C.G.S. §130A-310.34(a). A public comment period of at least 60 days follows.

N.C.G.S. §130A-310.34(b). The Department is to hold a public meeting if it determines there is "significant public interest in the proposed brownfields agreement." N.C.G.S. §130A-310.34(c).

The Department shall incorporate into the brownfields agreement provisions that reflect comment received during the comment period and at the public meeting to the extent practical. The Department shall give particular consideration to written comment that is supported by valid scientific and technical information and analysis.

N.C.G.S. §130A-310.34(d).

If all of the foregoing falls into place - and assuming the absence of negative public comment sufficient to terminate the process, and successful negotiations between DENR and the Prospective Developer - the result will be a Brownsfield Agreement. This will give the Prospective Developer liability protection.¹ The extent of that protection is defined at N.C.G.S. §130A-310.33. It is tied to "areas of contaminants identified in the brownfields agreement," N.C.G.S. §130A-310.33(a), providing an incentive to maximize assessment of the site, and revelation of the results thereof to the state.

Of course, the liability protection provided is hemmed in by reopeners and reservations of rights. In sum, cleanup of the site² cannot be required beyond what is specified in the BFA (and whether additional cleanup must be to "current standards" is unclear³) unless, to summarize the reopeners:

- (1) a land use restriction is violated;

¹ It includes the Prospective Developer and any person under the direction or control of the Prospective Developer who directs or contracts for remediation or redevelopment of the property; any future owner of the property; a person who develops or occupies the property; a successor or assign of any person to whom the liability protection provided under the Act applies; and any lender or fiduciary that provides financing for remediation or redevelopment of the property. N.C.G.S. §130A-310.33.

² Cleanup must be performed by, in the event of the occurrence of reopener (1) on the list that follows in the text, the owner at the time the restriction is violated, its successors and assigns, and/or its agents who direct or contract for alteration of the property in violation of a restriction; in the event of the occurrence of the other items, by the Prospective Developer and/or other person who receives liability protection under the Act (see fn. 1 above). N.C.G.S. §130A-310.33(c).

³ It is unclear except in the case of land use restriction violations (reopener (1)), in which case cleanup is explicitly to be to current standards. N.C.G.S. §130A-310.33(c).

- (2) the Prospective Developer knowingly or recklessly provides false information or fails to disclose relevant information;
- (3) new information indicates the existence of previously unreported contaminants or an area of previously unreported contamination;
- (4) the level of risk to public health or the environment is unacceptable due to changes in exposure conditions, including changes in land use or the failure of remediation to mitigate risks as anticipated;
- (5) DENR obtains new information about a contaminant associated with the property or exposures at or around the property that raises the risk to public health or the environment beyond an acceptable range; or
- (6) a Prospective Developer fails to file a timely and proper Notice of Brownfields Property.

It is worthwhile to note the BPRA's savings subsection at N.C.G.S. §130A-310.37 "Construction of Part." This provision's nine subdivisions preserve in the brownfields context, among other things, local government land use regulatory authority, the applicability of remedial programs under DENR's enforcement authority (except as provided in a BFA), DENR's emergency response authority, liability for contamination caused subsequent to receiving liability protection, rights to seek relief regarding the property against any party to a BFA, except that such parties' liability for remediation is limited to that required in the BFA nor has liability protection. The same section of the statute grants absolute immunity to the state, its agencies, officers, employees and agents from, in effect, any liability in connection with the Brownfields Act, and precludes Brownfields Agreements in relation to Superfund sites identified by EPA pursuant to 40 CFR 300.

II. Some Process Information.

A party believing that it fits the definition of Prospective Developer in relation to a qualifying site that it wants to develop must submit to the North Carolina Superfund Section a Letter of Intent declaring its desire for a Brownsfield Agreement. The Superfund Section (sometimes hereinafter the "Section") is the DENR agency charged with administering the Brownfields Act. The letter should be addressed to:

Bruce Nicholson, Head
Special Remediation Branch
Superfund Section
Division of Waste Management
N.C. Department of Environment and Natural Resources
401 Oberlin Road - Suite 150
Raleigh, North Carolina 27605

The letter must also provide certain statutorily required information. See the State Brownfields Program's homepage at <http://wastenot.ehnr.state.nc.us/sfhome/brnfld.htm> and go to the box headed "Guidance Documents for the Brownfields Program." Among other things, an affidavit will be required in the form provided at the webpage containing statements addressing the applicant's qualifications for Prospective Developer status and environmental compliance history. The Section, of course, reserves the right to further investigate these matters.

Essential to the process is the applicant's commitment to a particular land use. The more specific the plans are, the less conservative the Section may have to be in whatever cleanup and institutional controls it requires. The point is that the use to be made of the property determines to an important degree the cleanup/controls to be required. It has been stated that the statute mandates that sites be made safe (for the use intended) rather than clean. See N.C.G.S. §130A-310.32(a)(2).

Survival of the Appendix A phase (which commences with submission of the Letter of Intent) starts the Appendix B phase. See "Guidance Documents" box at Brownfields homepage. At this point an applicant must submit the \$1,000 application fee mandated by N.C.G.S. §130A-310.38, and supply the information necessary to fill in the blanks in the Model Brownfields Agreement, perhaps most significantly environmental information sufficient for the Section to determine the appropriate cleanup and/or restrictions, given the use to be made of the land. If agreement is reached on the wording of a Brownfields Agreement, and on a Notice of Brownfields Property, Notice of Intent to Redevelop a Brownfields Property and the Summary thereof (though models do not yet exist for the latter two documents, they are expected soon), a public comment period of at least 60 days commences. A public meeting must be requested within the first 30 days of that period. If the Agreement successfully runs that gauntlet, it is signed and implemented. Note the required payment of \$500 for certification of the completion of any remedial work required pursuant to a Brownfields Agreement, N.C.G.S. §130A-310(a)(2).

III. Some Issues.

When would expansion or redevelopment not be "hindered by actual environmental contamination or the possibility of environmental contamination"? In other words, what "abandoned, idled, or underused property" with even *possible* contamination on which a developer had its eye would not be an eligible site under the definition of "brownfields property" provided at N.C.G.S. § 130A-310.31(b)(3)?

Despite the eligibility of qualifying sellers of brownfields properties for Prospective Developer status, and thus for Brownfields Agreements, how could a seller make the commitments (regarding land use, cleanup and land use restrictions) required for a Brownfields Agreement?

In practical terms, what connections between applicants for sBrownfields Agreements and parties who caused or contributed to the site's contamination should disqualify applicants?

What is the optimal way of dealing at brownfields sites with contamination from petroleum underground storage tanks, contamination the addressing of which is carved out of the brownfields program?

Should the Superfund Section's reading of the statute's exclusion of federal Superfund sites be more restrictive, so as to preclude sites in addition to those on the National Priorities List ("NPL") and those of NPL caliber?

To read a consideration of some of these, and other pertinent issues, see "Program Guidelines and Issue Resolutions," reachable from the "Guidance Documents" box at the brownfields homepage cited above.

FLORIDA'S BROWNFIELDS PROGRAM: EMPHASIZING LOCAL CONTROL AND RISK-BASED DECISIONS

I. Introduction

Florida established a state program to support redevelopment and environmental cleanup of brownfields sites through legislative action in 1997 - the Brownfields Redevelopment Act, Section 376.77-85, Florida Statutes. Following the directions of the initial act the state's environmental agency, Florida Department of Environmental Protection (FDEP), implemented rules pertaining to the cleanup criteria for brownfields sites in July, 1998 -- Chapter 62-785, Florida Administrative Code.

The 1998 legislative session also brought a series of updates intended to create stronger incentives to stimulate brownfield redevelopment and revise minor inadequacies of the language identified during the early implementation.

The 1998 revisions include the following:

- Chapter Law 98-189, Laws of Florida - providing a tax credit incentive for brownfields cleanup activities
- Chapter Law 98-118, L.O.F. - creating a revolving loan trust fund that communities can use to purchase properties or clear liens on property to help consolidate a brownfields area
- Chapter Law 98-75, L.O.F. - providing clarifying language and corrects technical glitches

FDEP provides collected information on the brownfields program, along with links to documentation and other related programs on its internet website:

<http://www.dep.state.fl.us/waste/programs/brwnfld/index.htm>

II. Program Highlights

The Florida Brownfields Program uses the general approaches common in other state initiatives to stimulate redevelopment of otherwise desirable properties that are stigmatized by real or perceived environmental problems. These include attempting to provide a streamlined process for addressing potential environmental risks, financial incentives favoring the redeveloping of such properties, and some degree of liability protection against additional cleanup requirements. The program is intended to provide a stimulus for private redevelopment and does not provide for direct governmentally controlled cleanup.

Florida's landscape has played into the need for a program providing certain incentives. Unlike more densely congested states, there is limited stimulus related to the scarcity of property to boost brownfield redevelopment. The accessibility of new, greenfields sites in most areas makes it challenging to provide a preferential basis for redeveloping brownfields.

Consequently, a major factor in brownfields redevelopment in Florida is the involvement of local governments and communities where abandoned properties are located. These may be the organizations with the strongest interest in getting a particular area back into the local commerce, and back on the tax books. One of the notable highlights of the Florida Brownfields Program is the impetus, and direction that the local government and community provide in guiding sites through the process. Another highlight relates to the ability of communities to encourage developers to take on projects - - economic incentives and liability protection. A third notable highlight of the Florida program is the direct inclusion into the rule of a set of tables with default cleanup target levels for most commonly encountered environmental contaminants, along with a methodology for deriving and proposing alternative levels.

III. Local Input - Government, Community & Developer

The process for cleaning up and redeveloping a site under the state brownfields program in Florida begins with a municipal resolution designating a certain contiguous area as a "brownfields area." The properties located within this area are then eligible to be handled as "brownfields sites," under the terms of the program. This approach allows the municipality to identify a relatively large area impacted by previous industrial activity where the community wishes to stimulate revitalization. Once the area is designated, the various properties within it have the common advantage of being eligible for the brownfields program, helping encourage consolidation and larger development projects. A designated brownfield area does not have to contain multiple sites, however, and individual property owners can request municipal designation as a brownfields area if they meet certain criteria.

To establish the eligibility of a particular site for the brownfields program, a developer (or the municipality) negotiates a Brownfields Site Rehabilitation Agreement (BSRA) with the state environmental agency or approved local pollution control program. Again, the local government designates the individual who will enter the BSRA. This agreement deals with the specifics of the cleanup process for a particular site and establishes various responsibilities. The requirements for the BSRA include completing an agreement with the local government on the terms of redevelopment and establishing a Local Advisory Committee that ensures public comment on rehabilitation and redevelopment of the site.

Three Florida communities have completed the designation process to establish brownfields areas - Clearwater, Miami (Wynwood area) and Ocala. A BSRA has been completed in the Miami-Wynwood brownfields area. The downtown area of Clearwater designated as a brownfields area has

also been part of the USEPA brownfields initiative and a redeveloper has been identified for a portion of this area.

IV. Making an Advantage for the Brownfield - Economic Incentives and Liability Limitation

Florida is concerned with providing financial support, incentives, and liability protection sufficient to stimulate interest in brownfield redevelopment. Potential developers found limited incentive or security in the original act and provided input to the 1998 revisions. These aspects of the program will likely continue to evolve as the state identifies a set of tools that the local organizers find effective for interesting developers in taking on brownfields projects. Since the program is aimed at private redevelopment, it is clear that offering some economic advantage to anyone selecting a brownfields site for development is an important factor. The current economic and liability incentives are outlined below:

Cleanup Tax Credit Incentive - Chapter Law 98-189, L.O.F.

- Credit against corporate state income tax or intangible personal property tax up to 35% of the costs of voluntary cleanup activity integral to site rehabilitation
- Limited to \$25,000 per site per year
- Unused credits can be carried forward for up to 5 years
- Tax credit may be transferred once
- An additional 10% of the cleanup costs, not to exceed \$50,000, can be taken as a tax credit in the final year of cleanup

Brownfields Trust Fund - Chapter 98-118, L.O.F.

- Funds loans for the purchase of outstanding liens, tax certificates, or other claims on designated brownfields sites in a brownfield area
- Loans can be made to local governments, community redevelopment agencies, or non-profit corporations responsible for brownfields areas

- Low-interest, linked to bonds
- Terms of the loan may not exceed 5 years

Liability Protection - Chapter 98-75, L.O.F.

- **Anyone** executing and successfully completing a BSRA is relieved of further cleanup liability, subject to certain "reopener" provisions

Reopeners:

- Fraud
- Areas of previously unknown contamination
- Cleanup fails to achieve criteria established in RBCA rule
- Substantial changes in exposure conditions creating unacceptable risk
- New releases
- 3rd parties can pursue an action for damages, but cannot compel more stringent cleanup
- "Nonprofit conservation organizations acting for the public interest" receive protection from liability
- Lenders are protected from liability as long as they have not caused or contributed to a release at a BF site and are not engaged in decision making control of the site rehabilitation or site operations or management activities

Other State Brownfields Tools

- Job Bonus Refunds for Qualified Targeted Industry - \$2,500 per job created
- Loan Guarantees Program - limited state guarantee for a lender's loan, applies only to 10% of the primary lenders loans for redevelopment projects in brownfields areas

V. Specifying Risk-Based Cleanup Goals

Interest in brownfields redevelopment has increased coincident with another initiative related to environmental cleanup, the risk-based corrective action initiative (RBCA). The basic idea of the

RBCA approach is to gear the degree (and expense) of assessment to the complexities of a particular site and to provide a more direct means for establishing cleanup target levels that are calculated based on potential risks at the site. The emphasis is on identifying and controlling potential risks rather than completing a set series of site assessment activities. RBCA is intended to expedite cleanup completion and encourage the use of cleanup targets derived on the basis of potential site-specific risks. This approach complements the goals of brownfields programs and RBCA has been tied to brownfields initiatives in varying ways in different programs.

The Florida Brownfields Program has taken perhaps the most complete approach to integrating brownfields cleanups and the state's version of RBCA. The Brownfields Redevelopment Act includes specific language directing risk-based decision making and even goes to the extent of proscribing the risk assessment criteria that are to be used in calculating cleanup goals - 1 in 1,000,000 (1×10^{-6}) excess cancer risk or hazard quotient of 1 (ratio of site exposure to conservatively safe dose) for non-carcinogens. The cleanup criteria rule promulgated at the direction of the act includes tables of soil and water cleanup target levels derived upon this risk criteria and generic set of exposure assumptions. The rule also specifies equations that can be used to derive alternative cleanup targets making use of site-specific factors.

The advantages of the degree of specification provided in the Florida Brownfields program regarding risk-based cleanup goals are that:

- Potential developers can more easily determine the extent of rehabilitation likely to be required
- Site assessments can be expedited and necessary rehabilitation can begin faster
- Reduces potential for "moving target" cleanup targets to extend rehabilitation

The degree of specification does, however, have disadvantages, primarily related to the lack of flexibility associated with laws and promulgated rules. For example, the reliance on a single value to represent the acceptable risk level in all situations runs counter to standard USEPA approaches and the growing push among risk assessment scientists to make more sophisticated representations of risks as occurring within a range or distribution. Also, demonstrating compliance with the specifications of the rule when innovative approaches to controlling risks are used can be complicated. Remedies that appear sensible to all stakeholders can be difficult to frame in terms of the specific exposure assumptions included in the rule. The rule's language does provide for the proposal of alternative cleanup targets. However, both calculating specific targets and assembling the appropriate information to back-up the proposals can be resource intensive.

VI. Summary

Florida has begun a state brownfields program through legislative mandate and regulatory rule-making. The program incorporates the general approaches common in other brownfields initiatives, but has several notable characteristics. The accessibility of new greenfields sites and subsequent need for local motivation to encourage the redevelopment of specific properties has led to extensive involvement of local governments in the identification, rehabilitation, and redevelopment of brownfields. By relying on substantial inter-dependence and teamwork between the community and the redevelopers, the Florida program tries to optimize the opportunities for mutually beneficial projects. Also, the program has incorporated a series of financial incentives, again substantially involving the local government, and some protections for additional liability that serve to encourage preferential redevelopment of sites within a designated brownfields area. Finally, the

act establishing the program and the promulgated cleanup rule both incorporate RBCA approaches and substantial specification of the risk-based approaches that must be used, perhaps to an extreme.

MISSISSIPPI BROWNFIELDS VOLUNTARY CLEANUP AND REDEVELOPMENT ACT OF 1998

I. Purpose of the MBVCRA

The Mississippi Brownfields Voluntary Cleanup and Redevelopment Act (MBVCRA)¹ was established pursuant to legislation that went into effect July 1, 1998. Administered by the Mississippi Department of Environmental Quality (MDEQ), the MBVCRA was established for the purpose of providing incentives for the voluntary cleanup of brownfield property without use of taxpayer funds.² The MBVCRA defines "brownfield property" as:

any property where use is limited by actual or potential environmental contamination, or the perception of environmental contamination, and that is or may be subject to remediation under any state environmental program or under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 USCS 9601 et seq (1997) (CERCLA), but does not include any of the following:

(i) Those sites proposed by the United States Environmental Protection Agency for the National Priorities List (NPL) but not listed on the NPL or those sites listed on the NPL, except those NPL sites for which the United States Environmental Protection Agency has issued certificates of completion of the remediations set forth in the records of decision for those sites;

(ii) Those sites for which an order or enforcement action is issued or entered under CERCLA or Sections 3008(h), 3013(a) or 7003(c) of the Resource Conservation and Recovery Act of 1976, as amended, 42 USCS 6901 et seq. (1994 and Supp. 1997) (RCRA) and which is still in effect; and

(iii) Those sites undergoing corrective action under RCRA Section 3004(u), 3004(v) or 3008(h), except those sites that the United States Environmental Protection Agency determines have completed corrective action.³

The MBVCRA allows qualified voluntary parties who are accepted into the program the opportunity to enter into a remediation agreement with the Commission on Environmental Quality (CEQ) through which the qualified parties will be responsible for completion of the remediation

under this "brownfield agreement." The CEQ has discretion to determine which applications should be accepted for the program.⁴

II. Incentives Provided by the MBVCRA

The major incentives provided by the voluntary program established under the MBVCRA are: (1) the remediation criteria must be based on public health and environmental risk specific to the brownfield agreement site; and (2) relief from liability to all persons other than the United States with regard to remediation of the brownfield agreement site beyond that provided in the brownfield agreement.⁵ The "brownfield agreement" is defined as "an agreement between the Commission [CEQ] and a brownfield party for the remediation of a brownfield agreement site."⁶ A "brownfield agreement site" is defined as:

[b]rownfield property that is remediated under a brownfield agreement. The site shall consist of brownfield property that is the subject of the application and any other brownfield property (i) for which the source of contamination is environmental contamination or activities on or under the brownfield property that is the subject of the application, and (ii) concerning which the commission determines that remediation is necessary.⁷

It is important to point out that the MDEQ's evaluation of the brownfield agreement application will include a determination of any contiguous property that is in need of remediation due to environmental contamination on or under the brownfield property that is the subject of the application. MDEQ will require this contiguous property to be included in the brownfield agreement site for purposes of determining the scope of the proposed brownfield agreement. The MBVCRA requires that "[i]f brownfield property other than that property which is the subject of the original application is identified, the applicant shall obtain written approval from the brownfield property owner for inclusion of that brownfield property in the brownfield agreement site."⁸ If the

contaminated contiguous property is not made part of the site by the applicant, then MDEQ will not recommend to the CEQ that it approve a brownfield agreement for the brownfield property that is the subject of the application.

A. Mandatory Risk-Based Remediation

Every brownfield agreement that the CEQ approves by order "shall establish remediation requirements that are based on public health and environmental risk specific to the brownfield agreement site."⁹ In establishing the risk-based remediation requirements in a brownfield agreement, the CEQ shall consider the use of appropriate land-use restrictions or engineering controls proposed by the brownfield party.¹⁰ The MBVCRA defines a "land use restriction" as:

[t]he limitation on use or access to a brownfield agreement site to reduce or eliminate the potential for exposure for contaminants. These restrictions may include, but are not limited to, deed restrictions, use restrictions, or restrictive zoning.¹¹

An "engineering control" is defined as:

a modification to a brownfield agreement site to reduce or eliminate the potential for exposure to contaminants. These modifications may include, but are not limited to, physical or hydraulic control measures, capping, point of use treatment, or slurry walls, but shall not include the exclusive use of security fencing.¹²

The CEQ may determine that permanent engineering controls in conjunction with appropriate land-use restrictions satisfy the remediation required by the CEQ in the brownfield agreement. The risk-based remediation requirements may include contaminate-specific, state-specific, site-specific and/or likelihood of risk methodologies for the implementation of these risk-based remediation requirements. Any risk-based remediation requirements, land-use restrictions and engineering controls implemented under a brownfield agreement shall be conducted in a cost-

effective manner, consistent with the projected future uses of the brownfield agreement site.¹³ The brownfield party and the CEQ may agree to the remediation of a brownfield property which is not the subject of the brownfield agreement application (contiguous brownfield property included in the brownfield agreement site after MDEQ's evaluation due to its contamination) to a risk level of unrestricted use.¹⁴

B. Remediation Liability Protection

With certain limited exceptions¹⁵, a brownfield party who executes a brownfield agreement shall be relieved of liability to all persons other than the United States for (a) remediation of the brownfield agreement site other than the remediation required by the brownfield agreement; and (b) all costs reasonably related to the remediation other than the remediation and costs required by the brownfield agreement" or the MBVCRA.¹⁶ This remediation liability protection becomes effective upon execution of the brownfield agreement and remains effective unless the CEQ removes the liability protection due to failure of the brownfield party to comply with an order of the CEQ.¹⁷ The MBVCRA does not affect the right of any person to seek relief against any brownfield party who may have liability with respect to a brownfield agreement site except for this remediation liability protection.¹⁸

The remediation liability protection provided by the MBVCRA extends to the following categories of persons to the same extent as to a brownfield party:

- (1) any person under the direction or control of the brownfield party who directs or contracts for remediation or redevelopment of the brownfield agreement site;
- (2) any current owner and any future owner of the brownfield agreement site;

- (3) any person who develops, redevelops or lawfully occupies the brownfield agreement site;
- (4) any successor or assign of any person to whom the remediation liability protection applies; and
- (5) any lender or fiduciary that provides financing for remediation or redevelopment at a brownfield agreement site.¹⁹

The remediation liability protection is subject to certain reopeners that are effective even after the brownfield party completes the remediation required under a brownfield agreement.

These are as follows:

- (1) the brownfield party provides the CEQ false information or fails to disclose to the CEQ relevant information about environmental contamination on or under the brownfield agreement site that forms a basis for the brownfield agreement or that is offered to demonstrate compliance with the brownfield agreement;
- (2) new information becomes available after execution of the brownfield agreement indicating the existence of previously unknown contaminants or an area of previously unknown environmental contamination that has not been remediated to standards required by applicable federal or state law other than the MBVCRA;
- (3) the level of risk to public health or the environment resulting from the brownfield agreement site is increased beyond the level that forms the basis for the risk-based remediation requirements in the brownfield agreement due

to the changes in exposure conditions, including (a) a change of land use of the site or contiguous to the site that increases the probability of exposure to contaminants on or under the brownfield agreement or (b) the failure of remediation to mitigate risk to the extent required to make the brownfield agreement site fully protective of public health and the environment as provided in the brownfield agreement;

- (4) the MDEQ obtains new information after execution of the brownfield agreement about a contaminate on or under the brownfield agreement site that increases the risk to public health or the environment on or under the brownfield agreement site beyond the level that is the basis for the risk-based remediation requirements in the brownfield agreement and in a manner or to a degree not anticipated in the brownfield agreement; or
- (5) the brownfield party fails to file a timely and proper public notice or the brownfield agreement site that is required by the MBVCRA.²⁰

III. Eligibility Under the MBVCRA

A. Persons Eligible to Become a "Brownfield Party"

Persons eligible to enter into a brownfield agreement with CEQ is purposefully broad under the MBVCA. A "brownfield party" is defined as:

Any person who desires to execute and implement a brownfield agreement including but not limited to, the record owner of the brownfield agreement site, a person who desires to either buy or sell the brownfield agreement site for the purpose of developing or redeveloping that site and the successors and assigns of these owners and persons, and local governments and other political subdivisions that desire to promote the development or redevelopment of the brownfield agreement site.²¹

The MBVCRA authorizes the CEQ to include in its implementing regulations to specific provisions for determining the eligibility of any person to enter into a brownfield agreement.²²

B. Eligibility of brownfield property for brownfield agreement

A brownfield agreement site may be eligible for the MBVCRA voluntary program if the applicant submits an application and pays to MDEQ advance administrative costs of \$2,000 at the time the application is submitted. The application must provide information necessary to demonstrate the following:

- (1) as a result of the proposed remediation, the brownfield property will be suitable for the use or uses specified in the application while fully protecting public health and the environment;
- (2) the brownfield party has or can obtain the financial, managerial and technical resources to implement fully and complete the proposed remediation and assure the safe use of the brownfield property;
- (3) the current owner of the brownfield property that is the subject of the application is an applicant or has given written approval for submission of the application; and
- (4) the brownfield party will comply with all applicable procedural requirements.²³

The brownfield party who submits an application is required to pay all reasonable direct and indirect costs of MDEQ associated with the processing of the brownfield agreement

application and administration of the brownfield agreement less these advanced costs paid at the time the application is submitted.²⁴

IV. Procedures Under the MBVCRA.

The following are the administrative processing milestones under the MBVCRA after the filing of the application and \$2,000 advance administrative costs:

- (1) MDEQ evaluates the application in accordance with a processing schedule agreed upon with the brownfield party within thirty (30) days after filing of the application. If brownfield property other than the property which is the subject of the original application is determined by MDEQ to be part of the brownfield agreement site, the applicant must obtain written approval from that property owner for inclusion of that brownfield property in the site.²⁵
- (2) After review of the application and any other information available to it, MDEQ must prepare a proposed brownfield agreement. In preparation of the agreement, the MDEQ must consult with the applicant brownfield party.²⁶
- (3) If MDEQ and a brownfield party reach a proposed agreement, then at least thirty (30) days before the date that the CEQ considers the proposed brownfield agreement, MDEQ must publish a public notice in the county or counties in which the brownfield agreement site is located. The public notice must (a) described the proposed brownfield agreement, (b) request public comment on the proposed agreement during the thirty (30) day period and (c) provide the date and location of the CEQ's consideration of the proposed brownfield agreement. Additionally, a copy of the proposed brownfield agreement must be filed for public inspection in the county

courthouse of the county or counties in which the proposed brownfield agreement site is located. The CEQ must also notify in writing the governing authority of the local government in which the proposed site is located.²⁷

- (4) At the time of the publication of this public notice, an applicant brownfield party must notify by certified mail each record owner of property contiguous to the brownfield agreement site, identified by the brownfield party after examination of the land records of the county or counties in which the site is located at the address contained in the county records if available. However, the brownfield agreement will not be declared invalid based on failure of any person to receive this notice. The CEQ may by regulation require additional public notice.²⁸
- (5) In its discretion, the MDEQ may conduct a public hearing on the proposed brownfield agreement in the county which the majority of the proposed brownfield agreement site is located, or in any other location in the local area of the site is convenient to the public after publication of notice of the hearing.
- (6) After public notice and any discretionary public hearing is held by MDEQ and all other public participation requirements, the CEQ will make a decision on the proposed brownfield agreement and enter an order approving or denying the proposed brownfield agreement. The Commission may modify the agreement before entering into it. If the CEQ disapproves or declines to enter into a brownfield agreement, its order must state the reasons for disapproval of the agreement or declining to enter into the agreement.²⁹

- (7) The brownfield property who will enter into a brownfield agreement approved by the CEQ must submit to the MDEQ for its approval a proposed notice of brownfield agreement site before execution of the brownfield agreement. This notice, entitled Notice of a Brownfield Agreement Site, must include (a) a survey plat of the brownfield agreement site prepared and certified by a professional land surveyor, (b) a legal description of the brownfield agreement site and (c) information concerning location, dimension, type and quantity or environmental contamination, and all land use restrictions and engineering controls.³⁰
- (8) The brownfield party or parties and the Executive Director of MDEQ will execute the brownfield agreement.³¹ Then fifteen (15) days after the brownfield agreement is executed, the brownfield party must file a certified copy of the brownfield agreement and the Notice of Brownfield Site Agreement in the office of the chancery clerk of the county which the site is located.³²
- (9) The brownfield party or parties will implement and complete the brownfield agreement in accordance with the implementation schedule provided in the brownfield agreement. The CEQ may subsequently modify the brownfield agreement by entry of an order after appropriate public participation.³³
- (10) Upon completion of the brownfield agreement, the brownfield party may petition the CEQ to determine that the performance of the brownfield agreement has been completed.³⁴

- (11) After MDEQ conducts an inspection of the brownfield agreement site, the CEQ will determine whether the brownfield agreement has been completed. If so, the CEQ shall issue an order determining that the brownfield agreement has been completed.³⁵
- (12) After entry of the CEQ's order, the Executive Director of MDEQ must issue a "no further action" letter confirming that no further action is required to assure that the remediation required under the agreement is protective of public health and the environment.³⁶
- (13) If a brownfield party subsequently decides to do additional remediation on the site in order to accomplish an unrestricted use risk, then it may petition for cancellation of the Notice of Brownfield Agreement Site in the land records of the county or counties in which the site is located.³⁷
- (14) If the remediation to an unrestricted use risk is accomplished and this is confirmed by MDEQ, then the Commission will issue an order canceling the Notice of Brownfield Agreement Site.³⁸
- (15) If the Commission issues the order canceling the Notice, the current owner of the brownfield agreement site will file a statement issued by the Executive Director of MDEQ which cancels the notice. The filing shall be in the office of the chancery clerk in any county in which the brownfield agreement site is located. The Executive Director's statement must contain the names of the owners of the brownfield agreement site as shown in the Notice and reference the book and page where the Notice is recorded.³⁹

V. Limitations on Applicability of the MBVCRA

The MBVCRA includes a nonapplicability section intended to clarify its scope and legal effect. The section states that it does not affect the following:

- (1) The authority of local governments to regulate land use;
- (2) The CEQ's authority to enforce violations of environmental laws;
- (3) The immediate response of MDEQ or responsible party to an environmental emergency;
- (4) Liability of a person receiving liability protection for environmental contamination later caused or made worse by that person on or under a brownfield agreement site;
- (5) Contribution rights of persons who have liability with respect to the brownfield agreement site;
- (6) CEQ's authority to enforce remediation requirements required for MDEQ to receive or maintain program authorization, delegation, primacy or federal funds;
- (7) Liability for environmental administrative enforcement remedies (including criminal and civil penalties) resulting from illegal disposal or pollution on or under a brownfield agreement site;
- (8) Liability for failure to exercise due diligence and reasonable care in performing an environmental assessment; and
- (9) Real or personal property rights.⁴⁰

VI. Enforcement of the MBVCRA

A. Violations of Brownfield Agreement

Any material failure of a brownfield agreement or its agents or employees to comply with a brownfield agreement will be enforced by a mandatory order of the CEQ requiring the brownfield party to correct the violation in an appropriate time period established by the order. If the brownfield party fails to comply with the order, the CEQ may remove the liability protection provided by the MBVCRA and assess the brownfield party or parties who executed the brownfield agreement with civil penalties. Administrative remedies, including criminal and civil penalties, may also be assessed against a brownfield party while implementing or failing to implement the brownfield agreement.⁴¹

B. Land-Use Restrictions and Engineering Controls

Any land-use restriction or engineering control in a brownfield agreement and in a Notice of Brownfield Agreement may be enforced by the following persons:

- (1) Any current owner of the brownfield agreement;
- (2) The CEQ through an administrative proceeding or a civil action, without having first exhausted administrative remedies;
- (3) Any local government having jurisdiction over any part of the brownfield agreement site by filing a civil action, without having first exhausted administrative remedies;
- (4) Any person provided liability protection who will lose the protection if the land-use restriction or engineering control is violated; and
- (5) Any adjacent property owner.⁴²

A land-use restriction or engineering control will not be unenforceable due to lack of privity of estate or contract, lack of benefit to particular land or lack of any property interest in particular brownfield property within the brownfield agreement site. An owner or lessee of brownfield property within the site must abide by the land-use restriction or engineering control.⁴³

VII. Regulations Implementing the MBVCRA.

The CEQ is required to promulgate regulations necessary to implement the MBVCRA by January 1, 1999. The regulations may include provisions for (1) eligibility for persons to enter into brownfield agreements; (2) criteria for inclusion of brownfield property into a brownfield agreement site; (3) requirements for additional information to be submitted as part of an application or during the processing by MDEQ of the application; and (4) additional public notice requirements. The brownfield inclusion criteria specifically include brownfield property that is subject to an existing CEQ order or agreement.⁴⁴

VIII. Studies and Surveys Prepared by MDEQ.

Before January 1 of each year, MDEQ must make a report to the Governor, the Lieutenant Governor, the Speaker of the Mississippi House of Representatives, and the chairmen of the legislative environmental committees on the status of the implementation of the MBVCRA. The report must include a list of all brownfield parties and brownfield agreement sites, as well as other identification and status information.⁴⁵ Before January 1, 1999, MDEQ must conduct a survey of contaminated property remediation incentive programs provided in other states. Based on the survey, the MDEQ must make recommendations for incentives to be enacted in Mississippi.⁴⁶

1. 1998 Miss. Laws ch. 528.
2. 1998 Miss. Laws ch. 528 § 2(e).

3. 1998 Miss. Laws ch. 528 § 3(d).
4. 1998 Miss. Laws ch. 528, § 6(2).
5. 1998 Miss. Laws ch. 528, §§ 4(6) & 8.
6. 1998 Miss. Laws ch. 528, § 3(a).
7. 1998 Miss. Laws ch. 528, § 3(b) .
8. 1998 Miss. Laws ch. 528, § 4(3).
9. 1998 Miss. Laws ch. 528, § 4(6).
10. 1998 Miss. Laws ch. 528, § 4(6).
11. 1998 Miss. Laws ch. 528, § 3(i).
12. 1998 Miss. Laws ch. 528, § 3(g).
13. 1998 Miss. Laws ch. 528, § 4(6).
14. 1998 Miss. Laws ch. 528, § 4(8).
15. 1998 Miss. Laws ch. 528, § 8(5) (reopeners) and § 7(2) (removal of liability protection due to failure to comply with CEQ order).
16. 1998 Miss. Laws ch. 528, § 8(1).
17. 1998 Miss. Laws ch. 528, § 8(4).
18. 1998 Miss. Laws ch. 528, § 8(1).
19. 1998 Miss. Laws ch. 528, § 8(2).
20. 1998 Miss. Laws ch. 528, § 8(5).
21. 1998 Miss. Laws ch. 528, § 3(c).
22. 1998 Miss. Laws ch. 528, § 11.
23. 1998 Miss. Laws ch.528, § 4(1)(a).

24. 1998 Miss. Laws ch.528, § 13(1) & (2).
25. 1998 Miss. Laws ch. 528, § 4(1)-(3).
26. 1998 Miss. Laws ch. 528, § 4(4).
27. 1998 Miss. Laws ch. 528, § 5(1)(a) & (b).
28. 1998 Miss. Laws ch. 528, § 5(c) & (d).
29. 1998 Miss. Laws ch. 528, § 6(1) & (2).
30. 1998 Miss. Laws ch. 528, § 9(1) & (2).
31. 1998 Miss. Laws ch. 528, § 6(1).
32. 1998 Miss. Laws ch. 528, § 9(3)(a).
33. 1998 Miss. Laws ch. 528, § 4(5)(c), (7); 6(2).
34. 1998 Miss. Laws ch. 528, § 8(6).
35. 1998 Miss. Laws ch. 528, § 8(6).
36. 1998 Miss. Laws ch. 528, § 8(6).
37. 1998 Miss. Laws ch. 528, § 9(4).
38. 1998 Miss. Laws ch. 528, § 9(4).
39. 1998 Miss. Laws ch. 528, § 9(4).
40. 1998 Miss. Laws ch. 528, § 12.
41. 1998 Miss. Laws ch. 528, § 7(1), (2), & (3).
42. 1998 Miss. Laws ch. 528, § 10(1) & (2).
43. 1998 Miss. Laws ch. 528, § 10(3).
44. 1998 Miss. Laws ch. 528, § 11.
45. 1998 Miss. Laws ch. 528, § 14(1).
46. 1998 Miss. Laws ch. 528, § 14(2).