

An Overview of the Bubble Concept

I. INTRODUCTION

In an era of concern about double-digit inflation, industrial unemployment, unsatisfactory increases in economic growth, and antagonism toward government regulation, it is logical that the effort to abate industrial pollution should shift away from the traditional "command and control" approach, which operates by the enforcement of specific, categorical standards.¹ Under this approach, the same emission standard applies to smokestacks, vents, and loading and transfer operations, despite variations in the cost and ease of reducing the pollution associated with each.² This approach has the merit of clarity, but does not provide any reward for reducing pollution below the legal standards, and therefore fails to provide incentives for industries to find more effective methods of pollution control.³

The more recent policy innovations, prompted at least in part by executive action,⁴ rely on the concept of "controlled trading,"

1. More specifically, "command and control" regulations specify emission or discharge limits for each point source, i.e., each source of pollution, such as a smokestack. Seltz-Petrash, *Marketplace Solutions to Air Pollution*, CIV. ENGINEERING, Jan., 1980, at 68 [hereinafter cited as *Marketplace*]. See also Deland, *Market Incentives: Pollution Control in the 1980s*, 14 ENV'T'L SCI. & TECH. 147 (1980) [hereinafter cited as *Incentives*].

2. *Marketplace*, *supra* note 1, at 68.

3. *Id.*

4. In March, 1978, President Carter issued Exec. Order No. 12,044, 3 C.F.R. 152 (1979), reprinted in 5 U.S.C. § 553 (Supp. II 1978), which required that agencies analyze major regulations closely, examine their impact, search for alternatives, and choose the least burdensome method of achieving regulatory goals. See *Marketplace*, *supra* note 1, at 68; *Incentives*, *supra* note 1, at 147. Carter then formed the Regulatory Analysis Review Group and the Regulatory Council to avoid duplication of regulations and to reduce their financial impact. *Incentives*, *supra* note 1, at 147.

On February 17, 1981, President Reagan issued Exec. Order No. 12,291, 46 Fed. Reg. 13,193, which requires executive agencies to list alternatives, together with a cost-benefit analysis, when they release new regulations for public comment. The order gives the Office of Management and Budget, rather than the agency involved, the task of choosing the least costly method of achieving the regulatory objective. Like President Carter's, this new system applies only to "major" rules, those with a potential impact of more than \$100 million. N.Y. Times, Feb. 18, 1981, at D13, col. 1.

A new Presidential Task Force on Regulatory Relief will coordinate the Reagan effort. *Task Force to Look at Frozen Rules, To Spearhead Regulatory Reform Efforts*,

which uses the "market" to allocate the burden of controlling pollution. Instead of adopting categorical, source-specific regulations for firms to follow, the government creates economic incentives for firms to curb pollution, and leaves them free to choose the methods of abatement.⁵ Controlled trading is designed to "reconcile improved air quality with economic growth at the least possible cost, encourage firms to develop new ways to control pollution, and enable government and industry to solve problems more flexibly."⁶

The bubble concept,⁷ one of the first controlled trading mechanisms proposed,⁸ has to date been applied only in terms of air pollution.⁹ The bubble concept treats a plant with more than one emissions source as if the entire industrial plant were placed under a giant bubble with a hole at the top so that pollution regulations only affect net increases in the amount of pollutant leaving the bubble.¹⁰

[1981] 11 ENVIR. REP. (BNA) 1924, 1924-25. The central principles behind the task force effort include a requirement of compelling need for regulations, an interest in alternative approaches to find the least costly method of regulation, and using cost-benefit analysis to determine regulatory priorities. *Id.* at 1925.

One cautionary note should be added; an EPA study of capital forecasts demonstrated that both the EPA and industry tend to overestimate the actual costs of regulation. *Pollution Control Costs Exaggerated, Says Study*, ENGINEERING NEWS-REC., June 19, 1980, at 36 (1980).

5. Controlled trading can be viewed as a system of tradable permits in which a public decision has been made on the amount of pollution which the region or society is willing to tolerate. Rights to produce that amount of pollution are defined and distributed, with the creation of a market in those rights and a controlled price for them. The price is designed to stimulate economic efficiency and spur the development of improved pollution control technology. *Controlled Trading of Pollution Permits*, 15 ENV'T'L SCI. & TECH. 24, 25 (1981) [hereinafter cited as *Controlled Trading*]. Controlled trading rewards industry for exceeding legal requirements by creating a market in which industry can make a profit by cleaning the environment. *Marketplace*, *supra* note 1, at 68. For example, Standard Oil of Ohio was prepared to pay \$90 million to install scrubbers at a nearby power plant in return for approval to construct an oil terminal in Long Beach, California. *Incentives*, *supra* note 1, at 147.

6. 44 Fed. Reg. 71,780 (1979).

7. The bubble concept permits facilities to increase an emission at one source if emissions at other sources within the plant are decreased. Deland, *Bubble Concept*, 13 ENV'T'L SCI. & TECH. 277 (1979) [hereinafter cited as *Bubble Concept*]. See 44 Fed. Reg. 71,780-88 (1979).

8. The bubble concept first appeared in proposals of the nonferrous smelting industry and the U.S. Dep't of Commerce in 1972. *ASARCO, Inc. v. EPA*, 578 F.2d 319, 323 (D.C. Cir. 1978).

9. The EPA is expected to propose a similar plan for industrial water pollution, but it has not yet drafted such a plan. *Bubble to Clean Air at Less Cost*, 202 ENGINEERING NEWS-REC. 38 (1979) [hereinafter cited as *Bubble*].

10. Note, *The EPA's Bubble Concept After Alabama Power*, 32 STAN. L. REV. 943, 947 n.12 (1980) [hereinafter cited as *EPA's Bubble*].

This note considers whether the bubble concept may operate legally and effectively under the Clean Air Act.¹¹ Part I explains the theory of the bubble concept and the arguments advanced for and against its use under the Clean Air Act. Part II discusses whether the Environmental Protection Agency ("EPA") may define an "emission source" in a manner that allows the use of the concept. Part III assesses the legality of using the bubble concept in "nonattainment" areas.¹² Part IV discusses the practical obstacles that confront widespread use of the concept. The note concludes that the bubble concept is legal under the Act.¹³

II. THE BUBBLE CONCEPT

There are at least two types of situations in which the bubble concept may be used. First, where various sources within a facility

11. 42 U.S.C. §§ 7401-7642 (Supp. I 1977 & Supp. II 1978).

12. Non-attainment areas are those areas which exceed the national ambient air quality standards for particular pollutants. 42 U.S.C. § 7501(2) (Supp. I 1977).

13. The success of the bubble concept might portend success for other controlled trading approaches, such as offsetting, banking and emission fees.

Under offsetting, a new source may meet its obligation under the Clean Air Act by controlling emissions to the lowest possible levels and persuading an existing source to reduce emissions by an amount at least equal to the pollution the new source will add. The vast majority of offsets occur within a single plant or plants under common ownership, but external offsets are possible. For example, General Motors was permitted to build a new plant in Oklahoma because the Oklahoma Chamber of Commerce convinced oil companies within an 85-mile radius of the proposed plant site to reduce emissions from petroleum storage tanks. *Incentives*, *supra* note 1, at 147; *Marketplace*, *supra* note 1, at 69. The offsetting approach permits growth in non-attainment areas without allowing further deterioration of air quality. *Marketplace*, *supra* note 1, at 69.

Banking enables industry to control emissions to a greater degree than required and then receive credit for future use. *Incentives*, *supra* note 1, at 147. This approach would use the marketplace to coordinate offsets, bubbles and other similar concepts. There are currently two banking experiments underway in Louisville, Kentucky, and the San Francisco Bay Area. In Louisville, a non-attainment area, "depositors" are charged an automatic reduction. *Marketplace*, *supra* note 1, at 69. The EPA contemplates the development of "brokerage houses" to facilitate the trading process. *Incentives*, *supra* note 1, at 147.

Under an emission fee policy, companies are charged a fee for every pound of pollution emitted. Emission fees provide flexibility because they do not force the industry to reduce pollution but provide an economic incentive to do so. *Marketplace*, *supra* note 1, at 70.

These concepts are interrelated, along with the bubble concept, since, as one commentator has noted: "[b]anking would eventually convert bubbling and offsets from a barter economy to a money economy with a 'true market' in which pollution reductions can be freely bought and sold, making possible 'marketable permits' and 'futures and options' on reductions." *Incentives*, *supra* note 1, at 147. Therefore, a determination that the bubble concept may be employed under the Clean Air Act may be crucial to the success of controlled trading.

emit different pollutants, the facility's owner would be permitted to select an alternative to uniform emission standards by using equations to make sure that emissions under the alternative would be no more than what would be permitted under the uniform standards.¹⁴ Second, the bubble concept may be applied where the same kind of pollutant is emitted in different stages of a plant's production process.¹⁵

The bubble concept thus gives owners of existing sources the opportunity to substantially reduce¹⁶ expenditures made necessary by the Clean Air Act. A plant may increase emissions at one source if it either decreases emissions at another within the facility or controls existing emissions using a more economical method.¹⁷ Thus, industry can focus on controlling pollution where the marginal cost of such control is low and may reduce its efforts where costs are high.¹⁸ This approach also provides an incentive for industry to find new, more economical means of controlling pollution.¹⁹

14. 44 Fed. Reg. 71,780, 71,782 (1979).

15. *Id.* The example given by the regulations is that of an automotive plant where the surface coating, i.e., lacquer, and "miscellaneous metal" categories are both sources of hydrocarbons. By applying greater control to the "miscellaneous metal" category by switching to powder coating, the source could reduce the amount of control needed for the automobile assembly category which uses lacquer. *Id.*

16. *Incentives*, *supra* note 1, at 147.

17. *Bubble Concept*, *supra* note 7, at 277.

18. 44 Fed. Reg. 71,780, 71,781 (1979). This approach offers the greatest opportunities to multiprocess industries, such as steel mills, power plants, petroleum refineries, chemical plants and automobile assembly plants, where the marginal cost of control varies greatly. *Bubble*, *supra* note 9, at 38. One example of innovative use of the bubble in this type of situation is that developed by ARMCO Steel's Middletown, Ohio, plant. *Marketplace*, *supra* note 1, at 70. The EPA had required the reduction of suspended particulates, and ARMCO's data revealed that 60% of its emissions were wind-blown particulates which, if substantially reduced, would bring ARMCO into compliance. Control of these wind-blown particulates was thought to be less expensive than controlling process fugitives, those particles generated by the process of manufacturing steel. ARMCO spent \$7 million to reduce the wind-blown particulates by paving roads; building parking facilities to reduce traffic; automobile emissions and road dust; chemically treating unpaved roads; vacuuming paved roads frequently; and installing a spray system for raw material storage piles. In contrast, conventional control methods applied to process fugitives would have cost \$14 to \$20 million. This great cost differential results from the fact that controlling the process fugitives required rebuilding roofs to collect iron oxide. *Id.*

In addition to the money saved by not being required to control the process fugitives, ARMCO will save a substantial amount on energy costs since the process fugitives equipment would have required 5,500 horsepower motors which have a high rate of energy consumption. *EPA Accepts ARMCO Bubble Proposal to Control Emissions at Ohio Plant*, [1980] 11 ENVIR. REP. (BNA) 921, 921.

19. *Bubble*, *supra* note 9, at 38.

So far, industry has saved an average of two million dollars in each of the seventy instances in which the bubble concept has been employed.²⁰

Although the bubble concept promises to reduce pollution at a lower cost to industry than point-source emission standards, its critics contend that it will preserve the status quo since it fails to require that plants use the mandated level of technology.²¹ Environmentalists fear that it will provide polluters with an opportunity to delay cleanup efforts and, even if used with good faith, will harm the environment because of the emission points involved and the undetected presence of accompanying pollutants.²²

In order to ensure that use of the bubble concept does not jeopardize the attainment of Clean Air Act standards, the EPA has placed many restrictions on its use.²³ First, the bubble concept may be applied "only in areas that demonstrate attainment by the statutory deadlines (and reasonable further progress toward attainment) for those pollutants included in emission reduction alternatives."²⁴ This requirement may be met by a schedule of commitments to specific control measures which will result in attainment by the statutory deadline.²⁵

Second, the source must enter into agreements with the EPA which provide for compliance with all the requirements of the Clean Air Act for each emission point affected by the alternative approach.²⁶ If such compliance were absent, according to the EPA, consideration of revisions in state implementation plans²⁷ to pro-

20. *Industry Unsure Economic Incentives for Clean Air Will Work*, APCA Hears, [1981] 11 ENVIR. REP. (BNA) 1857, 1857 [hereinafter cited as *Industry Unsure*].

21. See Landau, *Economic Dream or Environmental Nightmare? The Legality of the "Bubble Concept" in Air and Water Pollution Control*, 8 B.C. ENV'T'L AFF. L. REV. 741 (1980) [hereinafter cited as Landau, *Economic Dream*].

22. *EPA's Widening Embrace of the "Bubble" Concept: The Legality and Availability of Intra-source Trade-offs*, [1979] 9 ENV'T'L L. REP. 10027 [hereinafter cited as *Widening Embrace*].

23. 44 Fed. Reg. 71,780 (1979). See 40 C.F.R. § 52 (1981) (specific EPA regulations for approval of state implementation plans).

24. 44 Fed. Reg. 71,780, 71,781 (1979). There is an exception for ozone. *Id.* The EPA also has proposed a new plan for allowing the use of the bubble concept in nonattainment areas. *EPA Relaxes Restrictions on Use of "Bubble Policy" for Industry*, [1981] 11 ENVIR. REP. (BNA) 1761, 1762 [hereinafter cited as *EPA Relaxes*].

25. 44 Fed. Reg. 71,780, 71,780 (1979).

26. *Id.* at 71,781.

27. States are required to adopt implementation plans for attaining national primary and secondary ambient air quality standards. 42 U.S.C. § 7410 (Supp. I 1977).

vide for the use of the bubble concept "would protract and confuse efforts to enforce" the plans.²⁸ Sources which had deferred compliance might use the bubble concept to argue for further delay or to alter emission standards in a manner which would frustrate the enforcement standard.²⁹

Third, all emissions placed under the bubble must be quantifiable and trade-offs among them must be equal in order to prove that the alternative emissions approach does not increase the level of overall emissions.³⁰ This requirement provides a scientific basis for the assertion that the bubble concept will not increase pollution loads.

Fourth, pollutants under the bubble must be comparable, and, even within a category of pollutants, trade-offs cannot be made between pollutants which pose significant health hazards and those which are less harmful, except where emissions of the more hazardous pollutants are decreased.³¹ The EPA also may restrict trade-offs of identical pollutants if the particles from the different emission sources have different sizes, because fine particles disperse more widely and stay in the air longer than coarse ones.³²

Fifth, the EPA insists upon specific, enforceable control requirements.³³ All of these EPA regulations are designed to ensure that the bubble concept and other alternative control strategies are used to improve air quality rather than to continue air pollution. However, the EPA's restrictions on the use of the bubble concept are inconsequential if the bubble concept violates the statutory demands of the Clean Air Act, because, in that case, use of the bubble concept would be illegal.

III. THE LEGALITY OF THE EPA'S DEFINITION OF SOURCE

The bubble concept allows an entire plant, composed of several point sources, to be considered a single source, rather than insisting that each point source, such as a smokestack, must be classified as a source. The Clean Air Act established three programs to

28. 44 Fed. Reg. 71,780, 71,781 (1979).

29. *Id.*

30. *Id.* at 71,783. Although the Act does not completely prohibit SIP revisions which increase overall emissions, the EPA does not wish to encourage such revisions as a matter of policy. The EPA believes that allowing such revisions may exacerbate regional air quality problems such as ozone and acid rain. *Id.* at 71,783-84.

31. *Id.* at 71,784.

32. *Id.*

33. *Id.*

regulate stationary sources of pollution: new source performance standards ("NSPS") to govern new sources;³⁴ prevention of significant deterioration ("PSD") of air quality standards to govern clean air areas;³⁵ and nonattainment plan requirements to govern polluted air areas.³⁶ Because the definition of "source" may vary depending on the program involved, the statutory and regulatory definitions will be discussed in the context of the particular program.

The central question involved in determining the legality of the bubble concept is whether the EPA has the statutory authority to incorporate into its regulations a definition of source which would consider a plant as a single source. The United States Court of Appeals for the District of Columbia has addressed this question on two occasions with conflicting results.³⁷

A. *New Source Performance Standards*

The EPA first allowed the use of the bubble concept under the NSPS, the regime designed to force new sources to use the best technology for emission reductions.³⁸ NSPS apply to any "new source," which is defined as "any stationary source, the construction or modification of which" begins after the standard established for that source is published.³⁹ A stationary source is "any building, structure, facility, or installation which emits or may emit any air pollutant."⁴⁰

This statutory definition is ambiguous. The term "building" implies that, at least where an entire plant is confined to one building, entire plants may be considered sources.⁴¹ However, the term "facility" is so vague that it could refer to either an entire plant or an individual machine or smokestack.⁴²

34. 42 U.S.C. § 7411 (Supp. I 1977 & Supp. II 1978).

35. 42 U.S.C. §§ 7470-7479, 7491 (Supp. I 1977).

36. 42 U.S.C. §§ 7501-7508 (Supp. I 1977).

37. *Alabama Power Co. v. Costle*, 606 F.2d 1068 (D.C. Cir. 1979), *modified*, 636 F.2d 323 (D.C. Cir. 1979); *ASARCO, Inc. v. EPA*, 578 F.2d 319 (D.C. Cir. 1978).

38. *ASARCO, Inc. v. EPA*, 578 F.2d 319, 323 (D.C. Cir. 1978).

39. 42 U.S.C. § 7411(a)(2) (Supp. I 1977). Under the regulations at issue in *ASARCO, Inc. v. EPA*, 578 F.2d 319 (D.C. Cir. 1978), the NSPS would apply only when a new plant was constructed or when an existing plant was physically or operationally altered so as to increase the net emissions from the entire plant. *Id.* at 322.

40. 42 U.S.C. § 7411(a)(3) (Supp. I 1977).

41. Currie, *Direct Federal Regulation of Statutory Sources Under the Clean Air Act*, 128 U. PA. L. REV. 1389, 1397 (1980) [hereinafter cited as Currie].

42. *Id.*

The relevant legislative history does not resolve this question. The senate report⁴³ lists, as major new facilities, "electric generating plants, kraft pulp mills, petroleum refineries, steel mills, primary smelting plants."⁴⁴ This list, however, may be considered to suggest the types of activities to be regulated rather than to define "source."⁴⁵

The initial EPA regulations promulgated under the NSPS defined a new source as "an affected facility,"⁴⁶ and again in the same materials as "any apparatus to which a standard of performance is specifically applicable."⁴⁷ However, revised regulations defined a stationary source as "any one or combination of . . . facilities."⁴⁸ This later definition clearly conflicted with the statutory definition of a source as "any facility," because the statute implies that each facility will be a source. Conflict between these two definitions would arise whenever anyone wanted to apply the bubble concept to emissions from more than one building, structure, facility or installation. Given the large size of modern industrial plants, this conflict could be expected to arise frequently.

In *ASARCO, Inc. v. EPA*,⁴⁹ the D.C. Circuit addressed the question of whether the EPA could employ the bubble concept under the NSPS. Both the affected industry and environmentalists had challenged the new regulations. ASARCO, Inc., and two other members of the nonferrous smelting industry⁵⁰ argued that the EPA had erred in refusing to extend its application of the bubble concept beyond "modifications" of existing sources to newly constructed sources as well.⁵¹ The Sierra Club, fearing that the bubble concept would be used to dilute regulatory standards, argued that

43. S. REP. NO. 1196, 91st Cong., 2d Sess. (1970).

44. *Id.* at 16.

45. The entire sentence reads: "[m]ajor new facilities such as electric generating plants, kraft pulp mills, petroleum refineries, steel mills, primary smelting plants, and various other commercial and industrial operations must be controlled to the maximum practical degree regardless of their location and industrial operations." *Id.* See also Currie, *supra* note 41, at 1397.

46. *ASARCO, Inc. v. EPA*, 578 F.2d 319, 323 (D.C. Cir. 1978). See 40 C.F.R. § 60.1 (1972).

47. 40 C.F.R. § 60.2(d) (1972).

48. *Id.*

49. 578 F.2d 319 (D.C. Cir. 1978).

50. These were the Newmont Mining Corp. and Magna Copper Co.

51. 578 F.2d at 329. See Landau, *Alabama Power Co. v. Costle: An End to a Decade of Controversy Over the Prevention of Significant Deterioration of Air Quality*, 10 ENV'T'L LAW. 585, 623-24 (1980) [hereinafter cited as Landau, *Alabama Power*].

the plain language of the Clean Air Act precluded the use of the bubble concept in any form.⁵² It contended that because the Act defines a source as an individual facility, rather than a combination of facilities, the bubble concept did not satisfy the requirements of the Act.⁵³

In a majority opinion written by Judge Wright, the court held that the regulations incorporating the bubble concept were inconsistent with the Clean Air Act.⁵⁴ The court based this decision on its interpretation of the purpose of the Clean Air Act, the inconsistency of the new regulations, and the insufficiency of the EPA's justifications for the bubble concept.⁵⁵

The court viewed the concept as harmful to the Act's central purpose, the enhancement of air quality,⁵⁶ because it delayed the time when the best technology must be employed. In the court's view this served, at best, to lock in the present level of emissions.⁵⁷

The court also concluded that the regulations were internally inconsistent, because they defined the term "stationary source" differently when a source had been merely modified than when it had been newly built or reconstructed.⁵⁸ Under the regulations, facilities which were newly built or reconstructed were considered to be independent stationary sources and were required to meet NSPS standards; modified facilities were not required to meet those standards unless the modification resulted in a net increase in the emission of a specific pollutant from the entire plant.⁵⁹

52. 578 F.2d at 325.

53. *Id.*

54. *Id.* at 327.

55. *Id.*

56. *Id.* at 327-28. The purposes of the Clean Air Act are:

(1) to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population; (2) to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution; (3) to provide technical and financial assistance to State and local governments in connection with the development and execution of their air pollution prevention and control programs; and (4) to encourage and assist the development and operation of regional air pollution control programs.

42 U.S.C. § 7401(b) (Supp. I 1977).

57. 578 F.2d at 328.

58. *Id.* Judge MacKinnon suggested that the exemption of routine maintenance from the NSPS requirements was within congressional intent since he could believe that Congress intended to dissuade manufacturers from repairing their equipment through the potentially harsh threat of being required to meet the NSPS. *Id.* at 332.

59. The NSPS applied to a stationary source which contained an affected facility,

Last, the court rejected the EPA's principal contention that the bubble concept provided essential flexibility in the application of NSPS standards. The court reasoned that even without the bubble concept, the operator of an existing facility can make desired changes without becoming subject to the NSPS provisions as long as the level of emissions does not rise.⁶⁰ The altered facility, therefore, must meet a standard defined not by the NSPS standard but by the level of emissions before alterations were made.⁶¹ The court wrote that the record did not explain why additional flexibility might be necessary or appropriate, and suggested that the statute itself permits cost considerations to be taken into account in setting the NSPS standard.⁶²

The court also examined the definition of "source" provided by the regulations. The court found that the proposed bubble regulations were deliberately drafted so as to define a statutory source as an entire plant.⁶³ The court concluded, however, that the EPA had no authority to rewrite the statute by redefining the term "source."⁶⁴ The majority opinion thus firmly rejected the bubble concept.

Judges Leventhal and MacKinnon wrote separate opinions. In a concurring opinion, Judge Leventhal suggested that the EPA had the statutory authority to make appropriate distinctions between

"the construction or modification of which is commenced after the date of publication in this part of any standard . . . applicable to that facility." 40 C.F.R. § 60.1 (1976). An affected facility was defined as "an apparatus to which a standard is applicable." 40 C.F.R. § 60.2(e) (1976).

A reconstructed facility also constituted an affected facility, 40 C.F.R. § 60.15(a) (1976), and thus was also subject to the NSPS. Reconstruction was defined as:

the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technologically feasible to meet the applicable standards set forth in this part.

40 C.F.R. § 60.15(b) (1976).

A modification would not occur "if an existing facility undergoes a physical or operational change where the owner or operator demonstrates to the Administrator's satisfaction . . . that the total emission rate of any pollutant has not increased from all facilities within the stationary source." 40 C.F.R. § 60.14(d) (1980).

60. 578 F.2d at 328.

61. *Id.* at 328-29.

62. *Id.* at 329. See 42 U.S.C. § 7411(a)(1)(C) (Supp. I 1977). This provision, however, may be viewed as permitting cost to be considered in setting standards for point sources without providing the Administrator with the discretion to allow attainment of the emission standards to be calculated on the basis of the net emissions from several point sources.

63. 578 F.2d at 324.

64. *Id.* at 327.

construction and modification.⁶⁵ Judge MacKinnon dissented because he thought that the EPA Administrator was within his discretionary authority in applying the bubble concept, but he concurred in the result, the dismissal of ASARCO's claim that the inconsistency of the Administrator's position required the extension of the bubble concept to new and reconstructed sources as well as modified sources.⁶⁶

The MacKinnon dissent suggested that the court had "inadequately appreciated the background of broad administrative discretion against which the Act is set."⁶⁷ From his reading of section 111⁶⁸ of the Act, he saw "a congressional intent to allow the Administrator a wide-ranging license to accommodate the environmental mandate of the Act with the exigencies of technology and economics."⁶⁹ Judge MacKinnon even praised the bubble concept for being a "laudable attempt to adjust regulations to be more consistent with the true intent of Congress."⁷⁰

The precedential weight of ASARCO is unclear. Despite the majority's apparently firm rejection of the bubble concept, Judge Wright's opinion included a footnote⁷¹ which one commentator has argued could serve as a loophole for the entire holding.⁷² Although the definition of source as a combination of facilities violated the Act, the footnote states that the EPA could use the term "facility" to encompass units which "are usually larger than individual machines or single pieces of equipment, and are sometimes whole plants."⁷³ The same commentator suggested that "[t]he laws of commutative properties⁷⁴ would seem to suggest that in spite of the court's protestations, a 'source' is, after all, a combination of polluting activities."⁷⁵

65. *Id.* at 330.

66. *Id.* at 337.

67. *Id.* at 331.

68. 42 U.S.C. § 7411 (Supp. I 1977 & Supp. II 1978).

69. 578 F.2d at 332. The Act provides considerable discretion, for the Administrator is required to publish and periodically revise a list of categories of stationary sources, and include a category in the list "if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7411(b)(1)(A) (Supp. I 1977).

70. 578 F.2d at 332.

71. *Id.* at 324 n.17.

72. Landau, *Economic Dream*, *supra* note 21, at 749 n.21.

73. 578 F.2d at 324 n.17.

74. If $A = B$, and $B = C$, then $A = C$. Landau, *Economic Dream*, *supra* note 21, at 749.

75. *Id.*

The footnote, however, states that the term "facility" is designed to apply to units of equipment which "the agency finds to be appropriate units for separate emissions standards."⁷⁶ Furthermore, the EPA should be "guided by a reasoned application of the terms of the statute."⁷⁷ Thus, the definition of facility may be limited to those combinations of units which are necessary for effective measurement of pollution and may not permit a combination of facilities based on economic expediency. The footnote does not substantially support the view that the EPA possesses the authority to define facility simply on the basis of cost-effectiveness.

While the majority opinion expressly rejected the bubble concept, two members of the three-judge panel apparently believed that the EPA had the discretion to distinguish between newly constructed or reconstructed plants and modifications under the NSPS provisions. However, after the decision, the EPA did not rewrite the regulations struck down by the court, thereby abandoning the use of the bubble concept under the NSPS provisions.⁷⁸ ASARCO remains the most definitive ruling on the question of whether the bubble concept may be applied to the NSPS provisions in the Clean Air Act.

B. *Prevention of Significant Deterioration*

Despite the failure of the bubble concept in ASARCO, the EPA has attempted to employ it under the PSD provisions, which are designed to maintain air quality in the nation's "clean air areas."⁷⁹ The question of the validity of the EPA's final PSD regulations⁸⁰ arose in *Alabama Power Co. v. Costle*,⁸¹ providing the D.C. Circuit with its next opportunity to confront the problem of defining "source." In a preliminary per curiam opinion,⁸² the court found that the definition of "source" provided in the NSPS provisions and interpreted by ASARCO controlled the meaning of the term when

76. 578 F.2d at 324 n.17.

77. *Id.*

78. EPA's *Bubble*, *supra* note 10, at 954.

79. "Clean air areas" are air quality control regions which have ambient air quality levels better than the applicable national primary or secondary ambient air quality standards, or for which there is insufficient data to make a determination of the air quality. 42 U.S.C. §§ 7407(d)(1)(D), 7407(d)(1)(E) (Supp. I 1977).

80. 40 C.F.R. § 51.24 (1978).

81. 606 F.2d 1068 (D.C. Cir. 1979), *modified*, 636 F.2d 323 (D.C. Cir. 1979).

82. *Id.* at 1075. This opinion, summarizing the court's rulings on the questions presented, was made to expedite the administrative procedures and thereby effectuate the congressional purpose of protecting and enhancing the quality of the nation's air.

used in the PSD provisions.⁸³ The regulations in question thus involved the identical definition of source as did those considered in ASARCO, despite the different functions of the NSPS and PSD provisions.⁸⁴

The court conceded that ASARCO controlled its holding.⁸⁵ However, it found that the EPA has flexibility in designing regulations to achieve the statutory objectives.⁸⁶ "While a 'stationary source' . . . may consist of only a single, *e.g.*, 'facility,' EPA has latitude to define the term 'facility,' to encompass an entire plant or other 'common sense industrial grouping' appropriate to the PSD review and permit process."⁸⁷ Despite the stated reliance on ASARCO, the court thus effectively reversed the earlier decision.

Nearly six months later, the court issued a full opinion which superseded the earlier *per curiam* opinion.⁸⁸ This opinion, in part, incorporated the earlier ruling with more detailed analysis and, in part, provided modifications in light of petitions for reconsideration.⁸⁹

The court drew four distinctions between the facts before it and those presented in ASARCO. First, "[t]he present EPA regulations allow offsets within a 'source'; it does not, in light of our decision in this case, allow offsets within any 'combination of facilities.'"⁹⁰ Second, the court reasoned that although the bubble concept was contrary to the intent of the NSPS provisions, it was not contrary to that of the PSD provisions.⁹¹ Third, the court suggested that the flexibility of the bubble concept coincided with the aims of the PSD provision.⁹² Fourth, the court found that legislative history indicated that Congress had approved the bubble regulations.⁹³

83. *Id.* at 1077.

84. *EPA's Bubble*, *supra* note 10, at 958-59.

85. 606 F.2d at 1077.

86. *Id.*

87. *Id.*

88. *Alabama Power Co. v. Costle*, 636 F.2d 323 (D.C. Cir. 1979).

89. Because of the large number of questions presented, the court's opinion appeared in three parts, with each part written by a different member of the panel. *Id.* at 344. Judge Wilkey wrote that part of the opinion dealing with the definition of source and the bubble concept. The other members of the panel were Judge Robinson and Judge Leventhal, who wrote a concurring opinion in ASARCO. Although Judge Leventhal did not address the question of the legality of the bubble concept under the PSD provisions, his agreement with Judge Wilkey's opinion may be assumed because of the manner in which the opinion was written.

90. *Id.* at 402.

91. *Id.*

92. *Id.*

93. *Id.*

Despite the court's obvious reluctance to overrule ASARCO expressly, these four distinctions are not sufficient to distinguish the cases. The first distinction, based on the difference between allowing the bubble within a "source" and allowing a bubble within a "combination of facilities," seems to rely on the puzzling footnote in ASARCO.⁹⁴ This distinction, however, seems meaningless, because the practical result is that both permit placing a plant under a bubble.

A more plausible argument is that the PSD provisions, unlike the NSPS provisions, provide a definition for the term "facility." According to this definition, "'major emitting facility' means any of the following stationary sources of air pollutants . . . : fossil-fuel fired steam electric plants, . . . Portland Cement plants, . . . iron and steel mill plants," and eleven other types of plants.⁹⁵ However, even though the NSPS provisions do not include a definition of facility, the senate report had indicated that plants similar to those in the PSD definition may be considered facilities.⁹⁶ Moreover, there is no logical reason why facility should be defined differently for PSD and NSPS provisions. Thus, this purported distinction is not compelling.

The court's second distinction relies on a difference in the purposes of the two provisions. The court did not elaborate on this point. It is particularly unpersuasive, however, because ASARCO clearly found that any version of the bubble concept was contrary to the purposes of the Clean Air Act,⁹⁷ a finding which takes in both the PSD and NSPS provisions. The court might be viewed as restricting the ASARCO holding to the NSPS provisions, but it failed to identify any significant factors distinguishing the PSD regime.

The court's third distinction presumes that the bubble concept will further "cost-efficient, flexible planning for industrial expansion and improvement."⁹⁸ This distinction seems more plausible, but the ASARCO court denied that the bubble concept would provide any flexibility in modifying facilities.⁹⁹ Furthermore, this point can

94. 578 F.2d at 324, n.17.

95. 42 U.S.C. § 7479(1) (Supp. I 1977).

96. S. REP. NO. 1196, 91st Cong., 2d Sess. 16 (1970).

97. 578 F.2d at 327; Landau, *Alabama Power*, *supra* note 51, at 626.

98. 636 F.2d at 402.

99. 578 F.2d at 328.

be considered a non sequitur because the Act does not sanction all mechanisms which may be suited to its purposes.¹⁰⁰

The court's final distinction depended on the theory that the House-Senate Conference Committee had approved existing EPA regulations during adoption of the 1977 Clean Air Act Amendments.¹⁰¹ Although the court was "reluctant" to assume that Congress had expressly endorsed the regulation,¹⁰² it effectively did so by relying on this action as indicating approval of the bubble regulations. However, because the congressional action occurred after the bubble concept had been enacted for NSPS but before it had even been proposed for PSD, any implicit congressional ratification should lead to validation of the bubble concept under NSPS and reversal of *ASARCO*.¹⁰³ Indeed, in the preliminary opinion, the court had come to the opposite conclusion: that *ASARCO* defined the initial intent of Congress and that as Congress had made no change, *ASARCO*'s interpretation controlled the ruling.¹⁰⁴ The court provided no explanation for this complete change; indeed, the court did not even acknowledge the inconsistency.

ASARCO and *Alabama Power* reach opposite conclusions, interpreting an identical definition of source but coming to completely different determinations about the validity of the bubble concept.¹⁰⁵ No clear reason emerges from the opinions to explain the differences. Because the D.C. Circuit failed to reexamine *ASARCO* in light of its conclusions in *Alabama Power*, and instead tried to distinguish it, the two decisions leave no clear holding on the validity of the bubble concept.¹⁰⁶ However, of the five judges who examined the legality of the bubble concept, only one, Judge Wright, found it illegal per se, and even he left the door open for use of the bubble concept in his puzzling footnote. The opinions of Judges Leventhal and MacKinnon in *ASARCO* are consistent with *Alabama Power* since each would give the EPA discretionary au-

100. Landau, *Alabama Power*, *supra* note 51, at 626 (citing intermittent control strategies, disallowed in *Kennecott Copper Corp. v. Train*, 526 F.2d 1149 (9th Cir. 1975), as such an example).

101. *Alabama Power Co. v. Costle*, 636 F.2d 323, 402 (D.C. Cir. 1979). See 123 CONG. REC. 27,066 (1977).

102. 636 F.2d at 402.

103. *EPA's Bubble*, *supra* note 10, at 959.

104. 606 F.2d at 1077.

105. Landau, *Economic Dream*, *supra* note 21, at 760.

106. *EPA's Bubble*, *supra* note 10, at 960.

thority to define source so as to include an entire plant. Thus, it seems likely that *Alabama Power* will govern.

Furthermore, *Alabama Power* should govern, even if its attempts to distinguish ASARCO were unconvincing. The congressional intent behind the use of the terms "source" and "facility" is unclear. As long as the terms are used so as to comport with effective measurement and control of pollution, interpretation of "source" to apply to entire plants should be valid under the Clean Air Act. Furthermore, the court in *Alabama Power* made a persuasive case for congressional adoption of the regulatory definition of source, which applies equally to the NSPS and PSD provisions. Thus, the bubble concept should be considered legal under the Clean Air Act.

IV. THE USE OF THE BUBBLE CONCEPT IN NONATTAINMENT AREAS

The courts have not yet addressed the question of whether the bubble concept may be used in areas where the level of air pollution has been deemed harmful to human health. Such areas are governed by the "nonattainment" provisions¹⁰⁷ of the Clean Air Act, which are designed to force compliance with air quality standards as quickly as possible. Even if the EPA can define "source" to allow application of the bubble concept, it is possible that the concept would delay attainment of the national ambient air quality standards.¹⁰⁸ Thus, the nonattainment provisions present the most serious questions to the bubble concept's legality.

107. 42 U.S.C. §§ 7501-7508 (Supp. I 1977). Nonattainment areas are those which, for specific pollutants, are shown to exceed the national ambient air quality standard. *Id.* § 7501(2). State implementation plans are required to provide for the attainment of each national ambient air quality standard in each nonattainment area as quickly as possible, but, in the case of primary ambient air quality standards, not later than December 31, 1982. *Id.* § 7502(a)(1). There is an exception for the attainment of the national primary ambient air quality standard for photochemical oxidants and carbon monoxides. If attainment for these pollutants is not possible before December 31, 1982, despite implementation of all reasonably available measures, then attainment must be met no later than December 31 1987. *Id.* § 7502(a)(2).

108. Ambient air quality standards are those concentrations of air pollution which are deemed truly harmless to human health, vegetation, crops, etc. In reality, they are "permitted levels of contamination." De Neveio, *Some Alternative PSD Policies*, 29 J. AIR POLLUTION CONT. ASS'N 1139 (1979). Primary ambient air quality standards are those necessary "to protect the public health." 42 U.S.C. § 7409(b)(1) (Supp. I 1977). Secondary ambient air quality standards are those necessary "to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air." *Id.* § 7409(b)(2).

The EPA initially determined not to allow use of emissions offsets, including the bubble concept, in nonattainment areas.¹⁰⁹ This decision, though, was based on policy concerns rather than legal difficulties, for the EPA General Counsel had determined that there was legal support for applying the bubble concept in the context of the nonattainment provisions.¹¹⁰ However, the EPA Administrator "deemed such an exemption from otherwise applicable technology-based control requirements to be less appropriate in areas where ambient air quality standards are currently being violated than in PSD areas, where allocation of the available deterioration increment is the main concern."¹¹¹ Thus, the EPA initially determined that use of the bubble concept was not consonant with the nonattainment provisions of the Clean Air Act.

Notwithstanding this early policy decision, the EPA recently announced its intention to allow use of the bubble concept in nonattainment areas.¹¹² The EPA decided to change the definition of "source" in the nonattainment regulations to make it consistent with the definition in the PSD regulations.¹¹³ The EPA reasoned that this change would "substantially reduce the burdens imposed on the regulated community without significantly interfering with timely achievement of the Clean Air Act."¹¹⁴

The use of the bubble concept in nonattainment areas presents difficult questions as to whether its use would be contrary to the purpose of the nonattainment provisions. First, use of the concept may prevent the attainment of the national ambient air quality standards. Second, its use may have a detrimental effect on the technology-forcing aim of the Clean Air Act.¹¹⁵

The most important issue in deciding whether the bubble concept may be used in nonattainment areas is whether such use will prevent or delay the attainment of the national ambient air quality standards. Use of the bubble policy to maintain the same level of pollution would thwart the goal of pollution reduction which is central to the nonattainment provisions.

109. *Widening Embrace*, *supra* note 22, at 10028.

110. *Id.*

111. *Id.* at 10028-29.

112. *EPA Relaxes*, *supra* note 24, at 1761. See 46 Fed. Reg. 16,280 (1981).

113. 46 Fed. Reg. 16,280, 16,281 (1981).

114. *Id.*

115. The major purpose of the Clean Air Act is protection of public health by reducing pollution levels to attainment levels and by "technology-forcing," forcing the development of new and improved pollution control technology. *EPA's Bubble*, *supra* note 10, at 961. See 42 U.S.C. § 7401(b) (Supp. I 1977).

Judge Wright noted in *ASARCO* that the bubble concept may delay fulfillment of the requirement that a plant use the mandated level of technology and maintain the present level of emissions.¹¹⁶ This would be contrary to the congressional mandate that existing sources be reduced at least by the amount made possible by application of "reasonably available control technology" ("RACT").¹¹⁷

The EPA has sought to meet this objection by requiring that emissions from a source (which may be an entire plant) not exceed a level equivalent to the amount that would be obtainable through RACT.¹¹⁸ Thus, a company may choose the most cost-efficient method of meeting that requirement so that pollution reduction is accomplished with less expense and more flexibility. As long as the net emissions permitted are no greater than those permitted by RACT, use of the bubble concept will not jeopardize the attainment of the national air quality standards by the statutory deadline.

Use of the bubble concept in nonattainment areas may also have a detrimental effect on the technology-forcing aim of the Clean Air Act.¹¹⁹ There are two means for government to force development of technology: first, by providing direct public funding, and second, by ensuring private developers a guaranteed market.¹²⁰ In the 1970 Amendments, Congress chose the latter course; by requiring

116. *ASARCO, Inc. v. EPA*, 578 F.2d 319, 328 (D.C. Cir. 1978).

117. 42 U.S.C. § 7502(b)(3) (Supp. I 1977). See also *ASARCO, Inc. v. EPA*, 578 F.2d 319, 327, 328 (D.C. Cir. 1978).

118. The plan requires that where a plant's emissions after current controls are more than 100 tons per year, it must agree to meet an acceptable RACT emission level for every emission point under the bubble for which RACT has not been established. The plant may meet that level by producing the equivalent emission reductions using the most cost-efficient method anywhere in the plant. If the bubble covers more than one plant and the combined emissions are more than 100 tons per year, the same standards apply.

If the plant's emission levels are less than 100 tons per year, it has the choice of either agreeing to RACT limits as the basis of the bubble or using existing emission limits as the basis, as long as it is committed to producing equivalent reductions when RACT requirements are imposed. Furthermore, the EPA will guarantee, to those plants which agree to RACT limits, immunity for at least five years from additional federal requirements concerning the control of sources under the bubble. However, if the plant uses existing limits, it may satisfy the commitment to meet further control requirements by obtaining equivalent reductions from other emission points within the plant or from other plants in the area. *EPA Relaxes*, *supra* note 24, at 1762.

119. See note 115 *supra*.

120. The Tennessee Valley Authority is the most prominent example of the use of this method. Hays, *Clean Air: From the 1970 Act to the 1977 Amendments*, 17 *DUQUESNE L. REV.* 33, 46 (1978-79) [hereinafter cited as Hays].

that sources use the best technology,¹²¹ it provided the necessary demand to create a guaranteed market. The bubble concept, however, may lessen the demand for pollution control devices¹²² since firms may choose different methods of pollution reduction than those required by the law as long as the net pollution reduction is the same.

On the other hand, it is possible that the bubble concept may actually have a beneficial effect on the development of pollution control technology. Traditional "command and control" regulations may actually deter the development of new technology, because firms, fearing that new items of capital equipment will be specifically required, may hide information about more effective means of pollution reduction.¹²³ By contrast, the bubble would serve as an incentive for developing cost-effective pollution control technology¹²⁴ since, when not forced to use particular technologies, a buyer will choose the least expensive means of satisfying emissions limitations.

Furthermore, there is no indication in the Clean Air Act of a congressional preference for mandatory use of more expensive means of pollution reduction. Indeed, the same sentence which describes the health aim of the statute also expresses an aim of promoting the "productive capacity" of the nation's population.¹²⁵ Use of more expensive means of pollution reduction may freeze investment capital and cause higher consumer prices, thereby harming the productive capacity of the nation.¹²⁶

In a different sense, the productive capacity of the population might best be promoted by the most vigorous air quality standards. Healthier people are more productive; the demands on medical treatment resources should not be strained more than necessary.

121. Under the PSD provisions, no major emitting facility in which construction is begun after August 8, 1977, may be constructed in any area subject to the provisions unless "the proposed facility is subject to the best available control technology for each pollutant subject to regulation under this Act emitted from, or which results from, such facility." 42 U.S.C. § 7475(a)(4) (Supp. I 1977).

122. *EPA's Bubble*, *supra* note 10, at 974-75. The forced development of new pollution control technology is crucial to the health aim of the Act, because the use of more effective air pollution control technology will result in less pollution and hence better health. *Id.* at 961.

123. Landau, *Economic Dream*, *supra* note 21, at 742-43 n.6.

124. *Id.* at 789.

125. 42 U.S.C. § 7401(b)(1) (Supp. I 1977).

126. In 1978 industry spent over \$30 billion for air, water and solid waste pollution abatement equipment. Landau, *Economic Dream*, *supra* note 21, at 741-42.

As long as the use of the bubble concept does not delay attainment nor prevent the development of air pollution control technology, its use should be legal under the Clean Air Act.

V. PRACTICAL OBSTACLES TO BUBBLE USE

In addition to questions surrounding the legality of the bubble concept, many practical obstacles block its widespread use. Administrative problems include long delays in obtaining approval to use the concept, and difficulties in enforcement. The bubble concept also gives rise to industrial managers' skepticism and the possibility of environmental and economic distortions.

The foremost administrative obstacle to widespread use of the concept is the great delay in processing applications for bubble use. This is compounded by the current regulatory requirement that each bubble be approved individually by the EPA as a revision to a state implementation plan ("SIP").¹²⁷ This requirement alone may add at least a year to the approval process.¹²⁸ The EPA is aware of this problem, and currently is testing a new approach in New Jersey to remedy it.¹²⁹ A "volatile organic compound" bubble provision has been added to the New Jersey SIP, thereby eliminating the need for case-by-case approval by the EPA.¹³⁰

The EPA has permitted this New Jersey experiment because the New Jersey bubble rules are very stringent; the state need only perform the essentially mechanical task of adding the new emission limits and then determining whether that sum equals the sum imposed by the SIP.¹³¹ The EPA believes that these rules, with certain changes,¹³² will contain adequate safeguards to prevent in-

127. 44 Fed. Reg. 71,782 (1979). See also *Marketplace*, *supra* note 1, at 71-72.

128. *Bubble Policy Must be Simplified, Industry, States, and Locals Tell EPA*, [1980] 11 ENVIR. REP. (BNA) 733; Landau, *Economic Dream*, *supra* note 21, at 771.

129. 45 Fed. Reg. 77,459 (1980).

130. *Id.* at 77,459. The SIP revision allows sources with many emission points to seek state approval of different emission limits for each emission point provided that the sum of the emission rates does not exceed a specified sum.

131. *Id.* at 77,460.

132. The EPA stated it would approve the New Jersey SIP if the following changes were made:

1. The bubble rules must provide that only emission points in compliance with the SIP or on a compliance schedule may use the bubble.
2. New Jersey must provide an adequate opportunity for public notice and comment on each alternative set of emission limitations developed under its bubble program.
3. New Jersey must require sources using the program to provide to EPA a written acknowledgment that the alternative limits are enforceable by EPA and

terference with attainment and maintenance of ambient air quality standards.¹³³ This experiment should prove successful, as the state will be monitoring the use of the bubble concept. Thus, incorporation of the bubble concept in SIPs may hasten use of the bubble concept.

The EPA is also substantially reducing other administrative restrictions on the use of the bubble concept. The EPA now allows trade-offs on sulfur dioxide and particulates in nonattainment areas.¹³⁴ The EPA has eliminated the requirement of EPA approval where, for any pollutant, emissions after current controls from each plant under a bubble are less than one hundred tons per year.¹³⁵ Additionally, the EPA has changed its policy to provide more flexibility for companies that may be discouraged from putting a bubble plan in place before the 1982 deadline. On a case-by-case basis, the EPA will defer non-compliance penalties for those firms which have proposed bubbles that seem likely to be approved,¹³⁶ thereby providing those firms with the time necessary to get official approval. The EPA also will consider extension of the 1987 compliance deadlines for hydrocarbon sources where the use of the bubble concept will produce more or faster controls than the conventional approach.¹³⁷

The difficulty in setting, verifying and enforcing environmental standards under the bubble concept may give rise to other administrative problems.¹³⁸ Although it is possible to monitor point sources, it may be very difficult to monitor an entire plant.¹³⁹

may be enforced pursuant to Section 304(a) of the Clean Air Act. Such acknowledgment shall also bind the source owner's successors.

4. New Jersey must promptly transmit to EPA copies of each alternative set of emission limitations when they are proposed by the source owner and when they are adopted pursuant to the bubble rules, and, if EPA requests, additional supporting documents.

Id.

The EPA also stipulated that the EPA may participate in the state's notice and comment procedures, and that the EPA may object to the alternative limitations after they have been adopted, but only if the alternative violates the SIP. If the EPA objects, the state will have an opportunity to cure the deficiencies, but if they are not corrected the EPA will consider the original SIP emission limits to remain enforceable. *Id.*

133. *Id.*

134. *EPA Relaxes*, *supra* note 24, at 1761.

135. *Id.* at 1762.

136. *Id.*

137. *Id.*

138. *Marketplace*, *supra* note 1, at 72.

139. *See id.*

Emissions of identical pollutants may have varying effects on pollution levels because of variations in placement, release heights, operating characteristics of the process, and even meteorological conditions.¹⁴⁰ The EPA, however, has concluded that this problem is illusory because, under the bubble policy, specific emission limits on point sources are still required.¹⁴¹ Furthermore, problems of verification, enforcement and noncompliance are present in all air pollution reduction plans,¹⁴² and therefore should not stigmatize the application of the bubble concept. Thus, it does not seem likely that the use of the bubble concept will prove impossible to enforce.

The lack of an adequate governmental structure for the administration of the bubble concept provides another reason for concern about its practicality. Government agencies may find it difficult "to make the transition from enforcers of rigid standards to overseers of emission banks and bubbles."¹⁴³ Moreover, there may be an insufficient number of enforcement personnel to oversee such a program,¹⁴⁴ and it is unlikely that sufficient staffing will be provided in light of current and prospective reductions in the federal budget. However, the lack of adequate staffing would also plague the command and control approach. Even though it may take time for government agencies to administer the controlled trading approach, its success may make the difficulties worthwhile.

Industry's cautious approach to the bubble concept poses a different sort of problem. Industry is accustomed to the present regulatory system and is reluctant to embrace new, untested strategies, especially where there is substantial doubt about the permanence and flexibility of these approaches.¹⁴⁵ For example, industry

140. *Id.*

141. Landau, *Economic Dream*, *supra* note 21, at 779.

142. *Id.* at 780. As one commentator has said:

[t]here is no precise way to translate air quality standards into emission limits for individual sources. Atmospheric diffusion models do exist to correlate concentration and emission levels, but there is great uncertainty about what model to use and what values to choose for key parameters. For example, there are no good ways to account for the long range transport of pollutants, the chemical reactions of the pollutants in the atmosphere, the variability of the weather, or the unevenness of the terrain. Moreover, there are often serious weaknesses in the meteorological and monitoring inputs for the models.

Note, *The Clean Air Act: A Realistic Assessment of Cost-Effectiveness*, 5 HARV. ENV'T'L L. REV. 184, 188 (1981).

143. *Industry Unsure*, *supra* note 20, at 1858.

144. Landau, *Economic Dream*, *supra* note 21, at 778.

145. *Industry Unsure*, *supra* note 20, at 1857.

is concerned that banked emissions might be confiscated by the agency administering the bank.¹⁴⁶ Industry's wariness might be dispelled, however, by local administration of emission banks.¹⁴⁷

Industry could be reassured by evidence of strong support for the incentive approach.¹⁴⁸ Of course, demonstrated success of the bubble concept by innovative firms would be the best means of spurring industrial acceptance of the bubble concept. The potential savings inherent in the use of the bubble concept may be sufficient to induce at least a few firms to use the bubble concept and serve as models for the less innovative firms.

Environmentalists are concerned about several bubble concept issues. Some fear that local administration of emission banks would turn the standard-setting process into bargaining sessions between the EPA and industry.¹⁴⁹ Environmentalists doubt that industry would apply the bubble concept in good faith and suspect that the bubble would be used to delay compliance with the attainment requirements.¹⁵⁰

The bubble concept may also cause environmental distortions, areas of heavy pollution, called "hot spots," if political boundaries restrict the trading of emission credits in a bank and thereby concentrate pollution in particular areas.¹⁵¹ This problem, however, could be resolved by placing limits on the number and size of bubbles that may be used in a particular geographic area.

The bubble concept may also cause economic distortions by imposing the greatest costs on new plants, thereby encouraging modification of old plants. This would be undesirable to the extent it saddles the economic growth process itself, rather than the older sources which have directly contributed to the pollution problem, with the burden of pollution reduction.¹⁵² This distortion may be

146. *Id.* Banking permits established firms "to control emissions to a greater degree than required and then 'bank' the extra for later sale to another company or for their own future use." *Incentives*, *supra* note 1, at 147. See note 13 *supra*.

147. *Industry Unsure*, *supra* note 20, at 1858.

148. *Id.*

149. Landau, *Economic Dream*, *supra* note 21, at 779. Such bargaining sessions might be considered inappropriate by those who believe that the sole concern in setting standards is the effect on human health. *Id.* However, these hazards of negotiation may be overestimated. In setting national ambient air quality and best available control technology standards, there has been extensive discussion of scientific evidence, energy implications and economic impact. Past practice, thus, indicates no real cause for alarm. *Id.* at 780.

150. *Id.* at 779.

151. *Id.*

152. See Hays, *supra* note 120, at 52. The bubble concept may affect most se-

smoothed by modifying maximum air contamination standards to include a margin for new growth and placing the responsibility for permitting growth on old sources which would be required to go to greater lengths to reduce pollution.¹⁵³ Furthermore, a policy decision might well be made that new, growing sources are better able to bear the burden of pollution reduction.

The practical problems confronting the bubble concept may be resolved as the bubble concept is better understood and used more often. The EPA has made a good start toward reducing the difficulties in obtaining bubble approvals with the incorporation of the bubble into the New Jersey SIP and its other recent reductions in the restrictions on the use of the bubble concept.

VI. CONCLUSION

The bubble concept has great potential for reducing pollution in the most cost-effective manner since, as an intrinsic part of the controlled trading approach, it will encourage innovative efforts by business to reduce pollution. Under *Alabama Power*, the bubble concept should be considered legal when used in conjunction with the NSPS, PSD and nonattainment provisions of the Clean Air Act, although the court's refusal to overrule *ASARCO* explicitly indicates that some doubts remain. These legal problems could be resolved by amendment of the Clean Air Act so as expressly to adopt the bubble concept.

The bubble concept furthers the goals of the Clean Air Act by providing a cost-effective method for reducing pollution and by encouraging the development of cost-effective pollution control technology. Resolution of practical problems, particularly the delay in obtaining approval for the use of the bubble, should hasten its widespread use.

Ellen M. Saideman

verely those who wish to construct industrial plants in areas where air pollution levels are just below the acceptable limit. Fewer new plants may be built in such an area without exceeding the acceptable pollution levels. *EPA's Bubble*, *supra* note 10, at 964.

Misallocation of capital resources also results when firms construct too few new plants. However, two factors may alleviate this problem. First, modifications which cost more than 50% of the cost of a new component are termed reconstruction, and treated as new components, thereby limiting a firm's ability to substitute modifications for construction of new sources. Second, a ceiling on bubble exemptions at any one plant would limit the size of any economic distortion that the bubble concept may induce. *Id.* at 967 n.97.

153. Hays, *supra* note 120, at 52.