

ARTICLE 39

Solid Waste Services

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History

SOLID WASTE COLLECTION and disposal (once called *garbage collection and disposal*)¹ are services that citizens have come to expect from North Carolina local governments. Over much of the state’s history, these services would be more accurately described as “collection and removal”; there was no disposal in the manner now considered essential. Removal was frequently to open dumps, sometimes with burning to reduce the accumulation of waste. Many of these historical open dumps have contaminated groundwater on which people rely for drinking water and their cleanup remains a major policy problem for the state. Solid waste collection and disposal are now much more automated, capital intensive, and highly regulated than they were historically.

The *Municipal Year Book* for 1902² provided brief descriptions of garbage services for the state’s twenty-four largest cities. A sample of the entries indicates the range of practices at that time:

Concord: “Collected by contract; used as fertilizer.”

Durham: “Collected by day-labor; dumped.”

Goldsboro: “Collected by day-labor; hauled out of city.”

Greensboro: “Collected by day-labor; cremated.”

Raleigh: “Collected by day-labor; hauled to city farm and burned.”

Winston and Salem: “Collected by contract and day-labor; burned.”

1. For an excellent early history of American public solid waste services, see Martin V. Melosi, *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present*, ch. 9 (Baltimore, Md.: Johns Hopkins University Press, 2000), 175–204.

2. M. N. Baker, ed., *The Municipal Year Book, 1902* (New York: The Engineering News Publishing Company, 1902), 128–32.

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The state first offered significant technical assistance regarding solid waste to local governments in the 1930s, through the State Board of Health's Sanitary Engineering Division.³ Government paid increased attention to waste disposal after World War II, starting with moves to replace open dumps with sanitary landfills—landfills in which clean dirt or other cover was used on top of layers of garbage. The environmental movement, which may roughly be dated as starting with the publication of Rachel Carson's *Silent Spring* in 1962, increased attention to solid waste. A decade later the energy crisis arrived with the Middle East oil embargo, bringing increased public attention to conservation of all natural resources and underscoring the value of waste reduction and recycling.

Efforts to improve the management of wastes continued throughout the 1960s and 1970s, but progress was slow. A survey in 1968 found North Carolina local governments operating 479 disposal sites. Of these, only 23 were determined to operate in a manner that provided reasonable protection of the public health. State and local efforts were directed mostly at improving landfill operations. By the mid-1970s most of the open dumps had been abandoned or consolidated into 160 sanitary landfills.⁴

The Resource Conservation and Recovery Act (RCRA), passed by Congress in 1976, brought more attention to and increased restriction on waste disposal.⁵ The major step affecting municipal landfills, however, came with the 1984 amendments to RCRA.⁶ This legislation required states to implement permit programs to ensure that municipal solid waste landfills complied with federal criteria for such landfills, creating the "Subtitle D" or "lined landfill" that is now the norm for municipal solid waste.⁷ The Environmental Protection Agency (EPA) has responsibility for determining whether state programs are adequate. North Carolina developed a permitting plan that EPA determined to be adequate on October 7, 1993.⁸

By October 1993, twenty lined, Subtitle D landfills (meeting the rules relating to siting, design, operation, financial assurance, closure, and postclosure care) had been permitted, and the applications of an additional nine landfills meeting the same standards were under review.⁹ Of the twenty-nine entities involved as owners, one was a city, seven were private corporations, and twenty-one were county governments.¹⁰ Through the 1990s, North Carolina moved aggressively to close all nonlined municipal solid waste landfills and convert to lined landfills. By fiscal year 1998–99, all municipal solid waste disposed of in North Carolina was disposed of in lined landfills.¹¹

3. North Carolina Department of Environment, Health, and Natural Resources, *North Carolina Recycling and Solid Waste Management Plan: Volume II, State Strategy* (Raleigh, N.C.: NCDEHNR, February 1992), 1–1.

4. Warren Jake Wicker, "Other Enterprises: Solid Waste, Electricity, Gas, Airports, Public Transportation, and Stormwater," *Municipal Government in North Carolina*, ch. 25 (Chapel Hill, N.C.: Institute of Government, The University of North Carolina at Chapel Hill, 1996).

5. U.S.C. § 6901-6992 (1995).

6. *Id.*

7. C.F.R. § 258 (1995).

8. Fed. Reg. 52,305 (October 7, 1993).

9. Report of Dexter R. Matthews, Chief, Solid Waste Section, Division of Solid Waste Management, to the Environmental Management Commission, October 28, 1993.

10. *Id.*

11. North Carolina Department of Environment and Natural Resources, *North Carolina Solid Waste Management: Annual Report, July 1, 1998–June 30, 1999* (Raleigh, N.C.: NCDENR, 2000).

Who Provides Solid Waste Services?

Since 1965 a major change in local responsibility for solid waste disposal has occurred. Before that time, most medium- and large-sized cities owned and maintained their own landfills or other disposal sites. State and federal programs to improve solid waste disposal encouraged a shift to fewer landfills that met higher environmental standards. Although the proportion of landfills that are owned and operated by private firms is increasing, most are still owned by counties. However, as of 2006, the percentage of permitted landfill *capacity* in the state represented by private landfills has reached or exceeded 50 percent.¹²

Private parties must obtain a franchise (not necessarily an exclusive franchise) from local governments with jurisdiction over proposed landfill sites to be owned by the private party.¹³ The process for cities and counties to enter into franchises for landfills and to approve proposed landfill sites has grown more complicated with the passage of several statutes in the 1990s as well as with the overall change in the private market for waste. In general, cities and counties can award franchises, exclusive or nonexclusive, of up to thirty years for waste collection and/or disposal.¹⁴ Local governments with jurisdiction over landfill sites have the power to give or withhold local government approval for the sites, based on local concerns such as land use planning consistency. Under a DENR rule, a public meeting to give details about the proposed site is required before that approval is given.¹⁵ The waste management statutes provide only a few details that must be included in franchise agreements, such as the population to be served, a description of the volume and characteristics of the waste stream, and a projection of the useful life of the landfill.¹⁶

Typically each landfill serves several cities as well as unincorporated areas of a county. Many serve more than one county, and the newer large private landfills serve several counties and cities as well as waste generators outside the state.¹⁷ Some of the county-owned landfills are operated by the county; a few by a city; and some by private firms under contracts with a county or with two or more cities and counties jointly. Usually each local unit makes some payment to meet its share of the cost. The payments may be based on population, the quantity of waste, or a negotiated share. In a few counties the landfill is county operated and financed, and no charge is made to either cities or private haulers that use it.

Regulation of Solid Waste and Its Market

The North Carolina requirements for landfills are a major part of the state's solid waste program. The basis for the program is found in G.S. Chapter 130A, Article 9, originally enacted in 1989, but the subject of numerous amendments since that time. The general citation is often to the 1989 legislation in its original bill form, Senate Bill 111. Rules covering the collection and the disposal of solid wastes, prepared by the Division of Solid Waste Management within the Department of Environment and Natural Resources (DENR), may be found in the North Carolina Administrative Code, Title 15A, Subchapter 13B. Landfills for municipal solid waste are, however, by no means the only important type of solid waste facility used or regulated by state and local government in North Carolina.

As the municipal waste market has grown more regional and national in scope, with waste traveling much farther to its eventual disposal site, the "transfer station" has become an important part of the waste handling system for many communities. A transfer station is a facility for moving waste from local collection trucks or containers to longer-haul

12. Analysis by UNC Environmental Finance Center, www.unc.efc.unc.

13. GEN. STAT. § 130A-294(b1)(3) (hereafter G.S.).

14. G.S. § 153A-136(a)(3) (counties); § 160A-319 (cities).

15. 15A N.C. A.C. 13B.1618.

16. G.S. § 130A-294(b1)(4).

17. In a series of decisions construing the "dormant" Commerce Clause of the U.S. Constitution, the Supreme Court has made clear that solid waste is an article of commerce and cannot be unduly discriminated within its flow across state and county boundaries. *See, e.g.,* C&A Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383 (1994); Fort Gratiot Sanitary Landfill, Inc. v. Michigan Dept. of Natural Resources, 504 U.S. 353 (1992); City of Philadelphia v. New Jersey, 437 U.S. 617 (1978).

trucks, trains, or barges. “Land-clearing” and “inert” debris is solid waste generated by land clearing and that is virtually inert; such debris does not have to be disposed of in Subtitle D landfills. Similarly, much construction and demolition waste is disposed of in special facilities or cells of Subtitle D landfills with less rigorous regulatory requirements. However, some construction debris (for example, asbestos-containing material or lead paint residue) is itself hazardous and subject to special, stringent regulatory requirements. Medical waste began to be separately regulated in the 1990s given the concern for infectious disease transmission. Several types of recycling facilities, such as oil reclaiming and battery handling facilities, are provided for under the regulations. In the 1980s and 1990s the state went through difficult and ultimately unproductive attempts to site disposal facilities for low-level radioactive and hazardous waste. The broader world of solid waste collection and disposal in North Carolina includes all these categories, but the principal source of local government attention continues to be residential and commercial municipal solid waste.

North Carolina has been fairly aggressive in creating bans on the landfilling of waste streams that are usually suitable for recycling; current bans include used oil, yard trash (except in special facilities), white goods, antifreeze, aluminum cans, scrap tires, lead-acid batteries, motor vehicle oil filters, recyclable rigid plastic containers, wooden pallets, and oyster shells (the last four bans are effective October 1, 2009).¹⁸ North Carolina has special programs for disposal of white goods and scrap tires, involving fees paid on purchase of new merchandise and special funds set up to handle these waste streams.

The seminal 1991 solid waste legislation put in place a state and local planning and reporting system that was intended to reduce waste generated in the state. Many elements of that system remain, even though the targeted waste reduction objective for the ten-year period ending in 2001 was missed by a wide margin. The legislation created a solid waste management hierarchy (from most to least desirable) as follows:

1. waste reduction at the source
2. recycling and reuse
3. composting
4. incineration with energy production
5. incineration for volume reduction
6. disposal in landfills

The numeric goal for the reduction of waste going into landfills was set at 40 percent for the period from July 1991 to July 2001. Each county, along with cities that were not working cooperatively with a county, was required to submit a solid waste management plan showing how it would achieve this 40 percent reduction. At the end of the ten-year period, only Allegheny, Cleveland, Martin, and Orange counties had attained the goal, and solid waste generation had in fact increased 12 percent per capita statewide.

The state began preparing a solid waste management plan and updating it every three years. Counties were to prepare a plan consistent with the state plan. Cities were to cooperate in the preparation of county plans, or prepare one of their own. Counties and cities still must report to the state on their solid waste management activities by December 1 of each year. For fiscal year 2002–3, 100 counties and 421 cities submitted annual reports. A status report on solid waste management in North Carolina is prepared each year by the Department of Environment, Health, and Natural Resources, Division of Solid Waste Management, as required by G.S. 130A-309.06, and this annual report is a very useful summary of solid waste practices.

Trends in Solid Waste Services

A comparison of the 1992¹⁹ and the 2002²⁰ reports on the status of solid waste management in North Carolina gives a good picture of trends in solid waste management in the state:

18. G.S. § 130A-309.10.

19. North Carolina Department of Environment, Health, and Natural Resources, *North Carolina Solid Waste Management: Annual Report, July 1, 1991–June 30, 1992* (Raleigh, N.C.: NCDEHNR, December 12, 1993).

20. North Carolina Department of Environment and Natural Resources, *North Carolina Solid Waste Management: Annual Report, July 1, 2002–June 30, 2003* (Raleigh, N.C.: NCDENR, December 12, 2004).

- Some 6.8 million tons of municipal solid waste were generated in North Carolina in 1992. This was approximately one ton per capita per year. By 2002, total tons of waste had risen to 10.2 million, approximately 1.23 tons per capita per year.
- Sixty local governments—twenty-two counties and thirty-eight cities—had source reduction programs under way in fiscal year 1992. One hundred twelve had programs in 2002, but the state reported that interest in and commitment to source reduction had “stagnated.”
- In fiscal year 1992, local governments reported recycling 433,695 tons of materials. By fiscal year 2002, total recycled tonnage had increased to 1,173,082, but the state reported that several local governments had ceased their recycling operations and that total tonnage and the recovery ratio (recycling:disposal) had flattened out.
- At the end of fiscal year 1992 there were 110 municipal solid waste landfills, 150 land-clearing and inert debris landfills, 9 incinerators, 14 yard-waste composting facilities, 11 mixed-waste processing facilities, and 94 scrap tire collection sites with permits in North Carolina. In 2002, there were only 41 operational municipal solid waste landfills. The state did not report that year on the total numbers of other permitted facilities, but in general, the numbers of land-clearing and inert debris, composting, mixed-waste processing, and yard-waste composting facilities have increased over time, as municipal solid waste landfills and incinerators have decreased (and the remaining municipal solid waste landfills have become much larger).
- In 1992 there were 17 permitted transfer facilities in the state. As of February 2005 there were 77 permitted transfer facilities, the 353 percent increase from 1992 showing clearly the direction that solid waste handling has gone.

One disturbing trend given the statewide effort to decrease solid waste disposal is a decline in curbside recycling programs in the early twenty-first century. Twenty-one curbside recycling programs were discontinued in 2003–4, capping five consecutive years of declines.²¹ DENR estimates that from 1999 to 2004, 55,000 households lost access to curbside recycling due to program cuts, equating to more than 6,000 nonrecovered tons of material.

Although cities have broad authority to provide solid waste services both inside and outside their boundaries, only a few have provided service outside. Those few have usually done so only within a limited area near their boundaries. North Carolina cities historically provided the collection service with city forces. But a 1993 survey by the North Carolina League of Municipalities (NCLM) found that an increasing number of cities were contracting with private firms to provide collection services.²² As of the 2005 NCLM survey, of 259 responding cities, 55 percent used a city-paid contractor for residential solid waste, while only 41 percent used city employees.²³ Some small cities provide no collection service; citizens and businesses are served under individual agreements with private collectors.

Collection frequency for residential areas varies from one to three times per week. At one time, most cities collected twice a week. The 1993 NCLM survey found over 60 percent of the cities collecting household wastes once a week. By the time of the 2005 NCLM survey, 81 percent had gone to once a week collection.

At one time most cities collected solid waste from the rear of the house in residential areas, but the 1993 NCLM survey found that over two-thirds of the cities were collecting from the curb. As of 2005, the percentage of responding cities with curbside collection had risen to 80 percent. The advent of large-capacity roll-out containers made the switch feasible (but not always without political fallout). Curb collection costs the city less than collection from the backyard because the resident helps to move the waste. Of sixteen cities participating in the School of Government’s benchmarking project in 2005, which included most of the larger cities in the state, only two provided backyard service, and their

21. North Carolina Department of Environment and Natural Resources, *North Carolina Solid Waste Management, Annual Report 2003–04*, ch. 2, available at http://www.wastenotnc.org/swhome/SW03-04_AR.doc.

22. Lee M. Mandell and David S. Kaplan, *What Are We Doing with Garbage: 1993?* (Raleigh, N.C.: North Carolina League of Municipalities, 1994). The survey covered some 75 percent of cities with populations above 2,500, and about 30 percent of cities below that population level.

23. Lee M. Mandell and Owen Franklin, *What Are We Doing with Garbage—2005?* (Raleigh, N.C.: North Carolina League of Municipalities, December 2005). The survey covered 62 percent of cities with solid waste operations.

average cost per ton for residential refuse collection was \$138. The average cost for curbside cities was \$85 per ton.²⁴ Most cities with curb collection make special provisions for people who are physically unable to move their waste to the curb.

Similar differences also prevail with respect to collection from commercial and industrial establishments and collection of leaves, household furnishings, recyclables, and other special items. Cities whose citizens have agreed to separate their own recyclables before they are collected have generally lower costs than cities where recyclables are all lumped and centrally sorted, although the technology for these central materials recovery facilities (MURFs) continues to improve, and citizens are more willing to recycle if they do not have to keep materials separated.²⁵ Large cities usually require commercial establishments, apartment units, and other places with lots of waste to use central containers (dumpsters) that can be handled with special transport equipment, and most cities do not collect wastes from manufacturing facilities or from construction sites or clearings, leaving this service to private firms or collectors. Most cities do remove dead animals.

A local government's policies, practices, and regulations relating to collection, storage, and control of solid wastes are usually set forth in an ordinance. The ordinance typically establishes the various classes of service; defines the minimum standards for containers and prescribes their placement; proscribes placement of leaves, refuse, and other banned materials into the landfill-bound waste stream; specifies charges and penalties; and defines the wastes to be collected.

In the past, the role of counties in the collection of solid waste was to do nothing, to license or franchise private haulers in areas not served by municipal collectors, or to provide collection sites at various locations around the county (sometimes called the "green box" system after the green dumpsters used to receive the waste). Most counties have moved away from the green box system and have instead chosen to have fewer, staffed, collection centers. At these centers, containers are provided for recyclable materials as well as for waste that is to be buried or burned. Under the current state planning and waste reduction requirements, doing nothing is rarely an option. As noted above, counties have ample legal authority to license or franchise private haulers, including authority to grant exclusive franchises and set the fees to be charged by private haulers. They may also require the separation of recyclable materials and participation in recycling programs.²⁶

Just as the collection of solid waste has traditionally been a municipal function, waste disposal has historically been a county function. At one time, most counties operated a county-owned landfill. This is no longer the typical pattern for two reasons: (1) it has become more and more difficult to site a landfill for political and environmental reasons, and (2) the federal requirements for Subtitle D landfills have made the construction and operation of landfills more difficult (from an engineering standpoint) and much more expensive. As a consequence, there is a trend for counties to dispose of waste in large, privately owned and operated landfills that serve several cities and counties or for several counties to operate jointly a landfill either through contractual arrangements or by creating a regional authority.

Financing of Solid Waste Services and Programs

Solid waste management activities are public enterprises within the meaning of G.S. Chapter 153A, Article 15, and G.S. Chapter 160A, Article 16. Therefore, local governments may finance solid waste services, including recycling programs, by levying property taxes, borrowing money, accepting grants, imposing fees and charges, or by any combination of these financing arrangements.

24. Calculated by author from North Carolina Benchmarking Project, *Final Report on City Services for Fiscal Year 2004–2005: Performance and Cost Data* (Chapel Hill, N.C.: School of Government, The University of North Carolina at Chapel Hill, 2006).

25. For cost figures, see *Final Report on City Services for Fiscal Year 2004–2005: Performance and Cost Data* (Chapel Hill, N.C.: School of Government, The University of North Carolina at Chapel Hill, 2006). Two cities in the group of sixteen participating in the project in fiscal year 2004–5 had commingled recycled pickup; their cost per ton averaged \$248, compared to the other fourteen cities' average of \$178 per ton.

26. G.S. § 153A-136.

Traditionally, cities and counties financed solid waste management activities from general fund revenues, usually supplemented by a user fee (called a “tipping fee”) for use of a county operated a landfill. As part of the trend toward service charges in local government—and also as a result of the escalating costs of solid waste management—more and more cities and counties have shifted some portion of solid waste financing to a fee basis. More than half of the 196 North Carolina cities that responded to the 2005 NCLM Solid Waste Practices and Finances Survey imposed general charges for residential garbage collection.²⁷ The typical residential charge for cities that imposed such charges was about \$10 a month.²⁸

Both cities and counties are authorized to charge fees for the collection of solid waste and the use and availability of a disposal facility (G.S. 153A-292; G.S. 160A-314.1). Since most cities and very few counties operate collection services, collection fees are a significant source of funding only for cities. User fees are typically charged for the use of a landfill or other disposal facility or transfer station and set at so much per ton of waste disposed. Availability fees, which have become more common in the past twenty years, are not based on use of a disposal facility, but rather are charges levied upon owners of all improved property who benefit from the existence of a solid waste facility. Counties frequently use availability fees to finance staffed collection centers and recycling facilities. Moreover, even in cities and counties that levy fees for solid waste services, property taxes remain a significant source of funding for such services.

Cities and counties imposing fees for solid waste services may not unreasonably discriminate in levying charges for such service.²⁹ Thus, cities and counties may not exempt certain users of services from fees or impose increased rates upon other users, without a rational basis for drawing such distinctions.³⁰ Cities and counties may not, however, charge uniform fees for nonuniform levels of service.³¹ Instead, fees for solid waste services must vary depending upon the level of service provided.³² For example, since residences do not typically generate the same amount of waste as commercial or industrial facilities, a county may not lawfully charge a flat fee for use of its landfill that applies to such residences and businesses alike. Instead, the use fee must differ based upon the actual waste disposed of or the nature of the entity generating the waste.³³

Collection fees charged by counties may not exceed the costs of collection; there is no corresponding statutory limitation for collection fees charged by cities. City and county use and availability fees may not exceed the cost of operating the disposal facility. Availability fees may fund both current operating costs and capital expenditures. In addition, counties have statutory authorization to use availability fees charged for more traditional disposal facilities to finance construction and operation of other methods of solid waste management, such as recycling facilities.³⁴ Fifty-seven cities responded to a 2005 NCLM survey question about the percentage of their recycling budgets covered by fees by indicating that fees covered nearly 75 percent of their recycling budgets.³⁵ More than half of the 195 responding cities indicated that they planned to cover the future costs of recycling and solid waste mandates by raising existing fees, rather than by using other methods such as raising property taxes, selling recovered materials, or levying new fees.³⁶

27. 2005 NCLM Survey, *supra* note 23, at 9 (Figure 9).

28. *Id.* (Figure 10).

29. William A. Campbell, “Legal Issues in the Financing of Solid Waste Disposal Facilities,” *Local Government Law Bulletin* 46 (October 1992) (David M. Lawrence, ed.).

30. *Id.* (citing North Carolina *ex rel.* Utilities Commission v. Mead Corp., 238 N.C. 451, 78 S.E.2d 290 (1953)). G.S. 153A-292 permits counties to pay all or part of the cost of solid waste service for low-income persons.

31. *Id.* (citing Town of Taylorsville v. Modern Cleaners, 34 N.C. App. 146, 237 S.E.2d 484 (1977); Wall v. City of Durham, 41 N.C. App. 649, 255 S.E.2d 739 (1979)).

32. *Id.*

33. *Id.*

34. G.S. 153A-292(b); Campbell, *supra* note ___, at 5.

35. 2005 NCLM Survey, *supra* note ___, at 33 (Figure 54).

36. *Id.*

Local governments may bill property owners for solid waste fees in a separate solid waste billing, or may elect to bill solid waste fees in conjunction with fees for other enterprise services. Cities and counties also are authorized to adopt local ordinances providing for the billing and collection of solid waste fees with property taxes.³⁷ Cities frequently elect to bill solid waste and recycling fees in conjunction with water and sewer service charges. A city may adopt an ordinance specifying that any partial payment of an enterprise bill be first applied to solid waste fees. Then, in the event the bill is not paid in full, the city may terminate water and sewer service to the property instead of, or in addition to, solid waste collection services.

Many counties opt to bill and collect solid waste fees with property taxes.³⁸ Counties increasingly are levying availability fees on a household basis, that is, based upon a fixed fee per living unit. Such fees may fund convenience centers for residential solid waste disposal and collection of recyclables, public education programs for waste reduction and recycling initiatives, household hazardous waste collection facilities, and telephone book recycling programs, among other solid waste programs and services. Solid waste fees billed and collected as property taxes are a lien on the underlying real property. In the event solid waste fees billed with property taxes are not timely paid, the billing city or county may foreclose upon the underlying real property or attach, garnish, or levy upon personal property of the property owner to secure payment of solid waste fees as well as taxes.

While recycling programs are still expensive when compared to the costs of disposal in a standard landfill, the Solid Waste Management Act of 1989 requires local governments to become proactive solid waste planners.³⁹ Given popular opposition to the construction of new landfills and limited existing landfill capacity, recycling is a critical component of any proactive solid waste plan. Moreover, while proceeds from the sale of recycled goods may not always be sufficient to cover all of the costs of curbside collection, the market for recycled goods has remained strong across the board, and prices for many common items increased significantly in 2004.⁴⁰

In addition, DENR, through the state Solid Waste Trust Fund, annually offers Community Waste Reduction and Recycling Grants (CWRARGs) to local government and nonprofit recycling programs. In 2003–4, DENR issued more than \$600,000 in grant awards to thirty-eight projects.

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37. G.S. 153A-292; 153A-293; 160A-314.

38. See G.S. 153A-293.

39. North Carolina Department of Environment and Natural Resources, *North Carolina Solid Waste Management, Annual Report 2003–04*, ch. 2, available at http://www.wastenotnc.org/swhome/SW03-04_AR.doc.

40. *Id.*