Integrated Waste Management Plan (IWMP) 2006

Montana Department of Environmental Quality
Air, Energy and Pollution Prevention Bureau
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Acknowledgements

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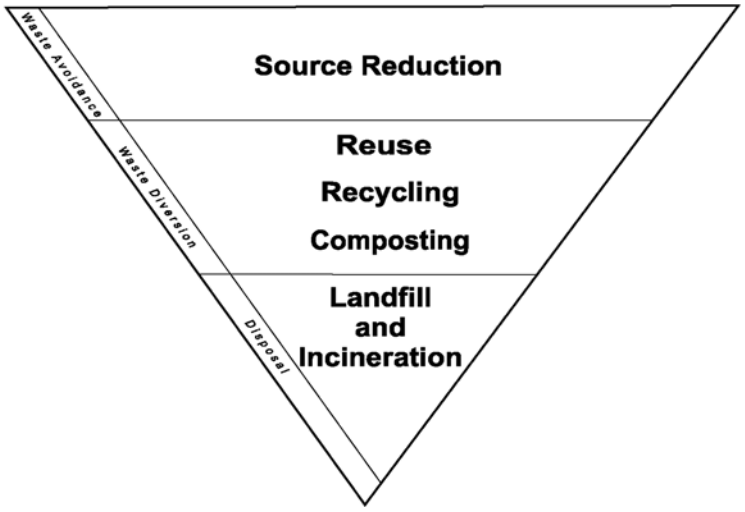
Executive Summary

IWMP 2006

Under the Integrated Waste Management Act of 1991, Montana Department of Environmental Quality prepares for the Board of Environmental Review consideration and implements a statewide Solid Waste Management Plan. This plan is a policy document to provide direction in implementing an integrated approach to solid waste management. The original plan, completed in 1994, was to be reviewed every five years and updated as necessary. The plan was considered adequate in 1999. It has now been revised to address new practices and challenges in waste management. This 2006 plan provides current information, assesses the state of solid waste management and recommends new goals be established in the Integrated Waste Management Act. The plan addresses the challenges of waste management in Montana with an integrated approach that focuses on long-term solutions that value resources, health and the environment.

The Integrated Waste Management Act established a hierarchy of waste management priorities. Those priorities are: 1) source reduction; 2) reuse; 3) recycling; 4) composting; and 5) landfilling or incineration.

HIERARCHY OF INTEGRATED WASTE MANAGEMENT



Each of these priorities is addressed in the plan. In addition, the plan includes a history of solid waste management and recycling, a description of the roles and responsibilities of different government agencies and private interests, a summary of regulations, and a characterization of solid wastes in Montana. A common theme throughout the plan is the interconnectedness of the different groups involved in solid waste management, recycling and composting. Many recommendations state or

assume the need to form partnerships between different interests and to work together to accomplish the goals of the plan.

The plan has two key components. The first is a new goal statement for the Integrated Waste Management Act. This is necessary because the current goal statement is out of date. The 2005 Legislature amended the Act to include the goal statement proposed in the 2006 draft plan. (See H.B. 144, adopted at § 2, Ch. 62, Laws of 2005). The second key component is the recommendations that are made throughout the plan. These recommendations are at the end of the chapters on source reduction, reuse, recycling and composting. Recommendations are also made throughout the chapter on special wastes. The recommendations address the barriers to achieving policies and goals identified for each area of the plan. Recommendations made in the 1994 plan, and a short description of some of the progress made toward implementing those recommendations can be found in Appendix B.

This plan proposes an updated solid waste reduction goal and recycling and composting target. This target aims to increase the amount of material that is recycled or composted, while maintaining the focus on source reduction and reuse as high priorities in reducing the amount of solid waste that must be disposed of. The new goal statement, adopted by the Legislature in H.B. 144, is:

"75-10-803. Solid waste reduction goal and targets target. (1) It is the goal of the state, by January 1, 1996, to reduce by at least 25% the volume of solid waste that is either disposed of in a landfill or incinerated to reduce, through source reduction, reuse, recycling, and composting, the amount of solid waste that is generated by households, businesses, and governments and that is either disposed of in landfills or burned in an incinerator, as defined in 75-2-103.

(2) Targets for the rate of recycling and composting are:

(a) 17% of the state's solid waste referenced in subsection (1) by 2008;

(b) 19% of the state's solid waste referenced in subsection (1) by 2011; and

(c) 22% of the state's solid waste referenced in subsection (1) by 2015."

Source Reduction

Source reduction is the highest of the waste management priorities. It includes the design, manufacture, purchase, or use of materials or products, including packaging, that reduce its amount or toxicity before it enters the waste stream.

Source reduction recommendations include:

1. Implement life cycle cost purchasing for state and local governments.

2. Educate consumers about the benefits of source reduction.

3. Educate businesses about the benefits of source reduction.

4. Encourage Pay-As-You-Throw pricing.

Reuse

Reuse is the second highest priority on the waste management hierarchy. It means using a product in its original form for a purpose that is similar to or different from the purpose that it was designed for.

Reuse recommendations include:

1. Increase the number of reuse areas at transfer facilities and landfills.

2. Provide recognition of reuse programs.

3. Promote waste exchanges.

4. Promote business and government reuse resources.

Recycling

Recycling is the third highest priority on the waste management hierarchy. It means remanufacturing all or part of a product into a new product. Recycling is challenging in Montana because of the long distances from Montana communities to the major areas where commodities are accepted for remanufacture. Recycling is also challenging in Montana because of the relatively small amount of material that can be collected in any one community. Recommendations in this chapter often focus on the importance of establishing local markets for recycled goods, and on sharing resources to collect and process materials for recycling.

Recommendations to increase recycling include:

1. Develop local markets for recyclable goods.

2. Provide economic incentives for recycling.

3. Support national legislation that requires manufacturers to take back their products at the end of their useful life.

4. Provide opportunities to work together to increase opportunities for recycling.

5. Work collaboratively with other solid waste and recycling interests to identify barriers to recycling. Propose legislative solutions to those barriers when there is agreement of the affected parties.

6. Expand recycling opportunities through additional funding mechanisms with support of the solid waste industry.

Composting

Composting is the fourth priority on the waste management hierarchy. It is often considered a type of recycling because it changes biodegradable materials from one form to another. Biodegradable wastes make up 23% of the waste stream nationally. It is an area where there are many opportunities to increase the amount of materials composted in Montana. A discussion of the recommendations to increase composting can be found on pages 63 and 64.

Recommendations to increase composting include:

1. Conduct highly visible demonstration projects using compost.

2. Increase markets for compost.

3. Enact specifications for compost.

4. Educate the public about the benefits for compost.

5. Educate businesses about the value of composting.

6. Develop partnerships to reach common goals.

Landfilling and Incineration

Landfilling and incineration are the last steps on the hierarchy of integrated waste management. Landfill capacity, operator training and regulatory issues are covered in the plan in Chapters 3, 4, 10 and 11.

Special Wastes

There is a large section of the plan on special wastes. These wastes are identified for specific attention usually because of the toxicity of the wastes and the higher possibility of contamination from small amounts of the wastes. Occasionally materials are identified as special wastes because of special handling that is needed. Special wastes that are discussed in the plan, and recommendations for handling them are listed below. As with other recommendations, more information on

recommendations made, as well as strategies considered, are found in the plan. See Chapter 12, starting on page 78.

Household Hazardous Waste Recommendations:

1. Establish additional opportunities for collecting household hazardous waste. Increase the number of drop off sites that are routinely open in communities. Increase the frequency of collection events throughout Montana.

2. Coordinate collection events in several communities.

3. Provide a source of funding for collection of hazardous wastes generated by households and conditionally exempt small quantity generators.

Universal Waste Recommendations:

1. Establish collection sites.

2. Establish recycling centers for mercury thermostats and thermometers, spent fluorescent light tubes and pesticides.

Infectious Waste Recommendations:

1. Educate small dental, medical and veterinary generators of infectious waste about the proper disposal of these wastes.

2. Educate households about the proper disposal of infectious wastes.

Clandestine Methamphetamine Labs Recommendations:

1. Develop outreach materials to educate property owners and law enforcement personnel on cleanup procedures and standards.

Waste Tires Recommendations:

1. Ban whole tires from landfills.

2. Collect a fee on new tires that can be used to support tire recycling.

3. Look for opportunities to recycle the tires locally.

4. Form partnerships with other groups and agencies to reach goals.

White Goods Recommendations:

1. Continue to educate consumers on the need to recycle white goods.

Construction and Demolition Recommendations:

1. Educate consumers to request that materials from their homes and commercial buildings be recycled.

2. Educate builders about the incentives available for recycling and for purchasing recycled materials.

3. Look for local solutions for reuse of building materials. Support reuse and recycling centers for building materials.

4. Reduce the amount of material that needs to be reused or recycled by carefully purchasing supplies and materials.

Asbestos Recommendations:

1. Educate contractors and the public about the need for asbestos abatement and proper disposal.

2. Train contractors in proper handling and disposal of asbestos.

3. Form partnerships with other groups and agencies to reach goals. These partners may include the DEQ, the Montana Department of Public Health and Human Services (DPHHS) and the Montana Contractors Association.

Used Oil Recommendations:

1. Post information on where to recycle oil.

2. Educate the public about used oil.

3. Encourage responsible use of waste oil heaters.

4. Develop a collection process for used oil filters.

5. Form partnerships with other groups and agencies to reach goals. These partners may include the DEQ, the Montana Department of Public Health and Human Services (DPHHS) and the Montana Contractors Association.

Batteries Recommendations:

1. Label batteries or place signage at locations where batteries are sold to direct consumers to battery recycling locations.

2. Arrange convenient drop off locations.

3. Form partnerships with other groups and agencies to reach goals.

Contaminated Soils Recommendations:

1. Establish stronger recommendations and standards for contaminated soils. The DEQ has prepared guidelines for the operation of soil treatment facilities and licenses these facilities.

2. Assure that regulations are being applied equally to all and that they are understood. DEQ has prepared guidelines for the operation of soil treatment facilities and licenses these facilities.

3. Encourage the use of contaminated soils as daily landfill cover when it is appropriate to do so.

4. Educate farmers and ranchers.

Electronics Recommendations:

1. Educate consumers on the importance of recycling electronics waste.

2. Encourage reuse of electronic equipment.

3. Partner with retailers for buy back or recycling programs.

4. Work with other states on national policies and laws.

5. Establish procurement guidelines to choose the best environmental option for electronic purchases for both the public and private sectors.

Toner Cartridges Recommendations:

1. Promote community efforts in collecting print cartridges for recycling and manufacturing.

2. Encourage the purchase of remanufactured cartridges. Lead the way with state agencies and their purchasing power.

Animal Waste Recommendations:

1. State agencies continue to develop contingency plans to safely and quickly dispose of animal wastes in the event of an outbreak of threatening animal disease.

2. Ensure landfill operators receive adequate training to handle waste.

Industrial Waste Recommendations:

1. Examine all exemptions for waste not going to landfills.

2. Examine the agriculture exemption and the cumulative effect.

3. Examine the quantity and impacts of ash from combustion processes.

Descriptions of the goals for each waste management strategy and barriers to achieving those strategies are discussed in each chapter. These goals and barriers are important to fully understanding the recommendations listed above. Education and information is identified as a need in achieving many of the recommendations throughout the plan.

This plan was written as a combined effort of the Department of Environmental Quality and representatives of local governments, solid waste managers, recycling organizations, businesses, industries, environmental groups, and private citizens. DEQ established a task force of knowledgeable individuals representing these groups. This task force met four times to review progress and advise DEQ on the plan. In addition, the plan was available for public comment for 90 days beginning in October 2004. Comments will be incorporated. The Board of Environmental Review will hold a hearing and consider adoption of the final plan in late 2005 or early 2006.

Chapter 1: INTRODUCTION

Background

Montana's Constitution guarantees the right to a clean and healthful environment for our and future generations. Under this charter, the Montana Legislature passed the Integrated Waste Management Act in 1991, which includes the mandate for an Integrated Solid Waste Management Plan. In the spirit of that act the Montana Department of Environmental Quality (DEQ) prepares and the Board of Environmental Review (BER) adopts this plan. This plan strives to strike a balance between managing waste and conserving resources.

The plan sets forth an agenda that focuses on the 3 R's--Reduce, Reuse, and Recycle--ultimately hoping to avoid 25% of the state's traditional solid waste. This mandate focuses on reducing the amount of waste in the state of Montana, that in turn focuses on recovering energy and raw materials when possible, and looking to landfills and incineration only after these other options have been exhausted.

There are several reasons why it is important to reduce the amount of waste that is produced. The first is the impact that solid waste disposal has on land resources. While Montana may seem to have an abundance of land that can be used for landfills, other potential uses for the land and uses of adjoining land create conflict. Property owners are not anxious to have a landfill adjoin their property. It is more and more difficult to develop new landfill sites. Reducing the volume of waste entering landfills extends the life of existing landfills.

The second reason to reduce the amount of material entering landfills is to reduce potential long-term environmental impacts of materials in landfills. While new landfills are designed to entomb wastes and perform very well, the materials placed in landfills will stay there for generations and will require long-term monitoring to ensure public safety. Reducing the toxicity of materials and providing alternatives for disposal of certain materials will protect human and environmental health.

The third reason to implement an integrated approach to solid waste management is one of global responsibility. The United States has just 5% of the world's population, yet uses 25% of the world's resources. Waste that is not recovered or prevented often involves an irrecoverable loss of energy and resources. The acquisition of raw materials, the manufacture or refinement of materials and the product manufacture are all phases of production that use energy and create waste before the use or consumption of a product.

For a product or one similar to it to be made again, without recycling, these initial phases of manufacture are needlessly repeated. Our first viewing of a product is often at the time of purchase, so these costs and impacts are often difficult to perceive. The

use of more of the world's resources includes use of oil and other non-renewable energy resources to process the raw materials and manufacture goods. This has the inherent risks of oil spills, increased prices and continued dependence on unstable regions of the world for economic and domestic security.

Content And Purpose Of The Plan

The Integrated Waste Management Act requires DEQ to prepare and implement a state solid waste management plan. The plan is a policy document to provide guidance for the state of Montana in implementing an integrated approach to solid waste management. The original Integrated Solid Waste Management Plan was written in 1994. That plan was to be reviewed every five years and updated as necessary. The plan was reviewed in 1999 and determined to be adequate at that time. There have been many changes to the way solid waste is managed in Montana since 1994. Therefore an update is necessary. This 2006 Montana Integrated Solid Waste Management Plan provides current information, assesses the state of solid waste management, and makes recommendations on how to meet the goals established in the Integrated Waste Management Act.

This plan may also serve as a guidance document and educational tool for local and tribal governments as they plan for solid waste management in the coming decades. The plan does not place requirements on local or tribal governments, citizens, or the private sector. Rather, it invites these stakeholders to participate in solid waste management at the state level and encourages local action.

The plan seeks to be forward-looking and practical. It sets long-term goals for substantial solid waste reduction. Further, it assesses alternative strategies for reaching that goal and makes recommendations for practical next steps the state and local governments must take to reach those goals.

The primary purpose of the plan is to set direction for the next five years. The plan will be a continually evolving document. Information and policies in the area of solid waste management will continue to change, and in order to remain current and relevant, the plan must change along with them. DEQ will review the plan regularly and update it as needed. Specific requirements of the plan are outlined in the Integrated Solid Waste Management Act located in Appendix A.

This plan was completed with the input, insight and assistance of a wide range of people knowledgeable in the areas of solid waste, recycling, and environmental protection. A task force of volunteers from various backgrounds and regions was established to review the background information presented in the plan, identify the barriers, and make recommendations that will move the state forward in reducing the volume of materials going into landfills in Montana and increasing the amount of material that is recycled, reused, or composted. Please see the Acknowledgement Section of this plan to see those who participated in writing the plan.

Roles And Responsibilities

Once the minimum standards set by the federal government are met, solid waste management becomes the concern of many segments of Montana's economy and society. Tribal, state, and local governments, the legislature, the private sector and citizens each have specific roles and responsibilities.

Federal Government

The United States Congress passed the Resource Conservation and Recovery Act (RCRA) in 1976. It banned open dumping of waste and required the federal Environmental Protection Agency (EPA) to adopt regulations that define and prohibit open dumping and establish criteria for states to use when regulating the disposal of solid waste, especially municipal solid waste, which can break down and cause ground water contamination if not properly managed.

Municipal solid waste (MSW) is regulated under Subtitle D of RCRA, which encourages environmentally sound disposal practices and recovery of resources. The federal regulations that implement Subtitle D, found at Volume 40 of the Code of Federal Regulations in part 258 (40 CFR Part 258), specifically establish technical standards for siting, design, operation, closure, post-closure, financial assurance, ground water monitoring, and corrective action for municipal solid waste landfills (MSWLFs).

The Clean Air Act requires incinerators to meet performance standards that limit toxic emissions to the air by using the best available technology. The Clean Water Act affects waste disposal facilities that generate leachate or discharge to surface waters.

The Montana State Legislature

The legislature has enacted laws regulating management of solid waste and conservation of resources. These laws and the administrative rules adopted under them must meet the minimum requirements of federal law, but may set more stringent standards. The primary laws regulating solid waste are:

1. The Solid Waste Management Districts Act (Title 7, Chapter 13, Part 2, Montana Code Annotated (MCA).

2. The Montana Environmental Policy Act (Title 75, Chapter 1, Parts 1-3, MCA)

3. The Montana Solid Waste Management Act (Title 75, Chapter 10, Parts 1 and 2, MCA)

4. The Integrated Waste Management Act (Title 75, Chapter 10, Part 8, MCA)

5. The Infectious Waste Management Act (Title 75, Chapter 10, Part 10, MCA)

The legislature has also established incentives (see below) to encourage waste reduction and recycling. These incentives are described in Appendix G.

1) Recycling tax credit
2) Recycling tax deduction
3) Air permit fee reduction incentive for glass

State Government

The legislature has delegated to DEQ the authority to license, regulate and inspect solid waste facilities, to write and implement an integrated solid waste management plan, to provide technical assistance to solid waste facility operators and decision-makers and to serve as an information and educational clearinghouse to the public for integrated waste management issues. These functions are shared between the Permitting and Compliance Division that licenses and inspects solid waste facilities and the Planning, Prevention and Assistance Division that provides education and assistance in developing markets for materials that would otherwise be considered wastes.

DEQ has adopted administrative rules reflecting the requirements of the federal regulations found in 40 CFR Part 258 (Subtitle D Regulations) and EPA has approved DEQ's regulatory program. Therefore, within the state of Montana, the state has the main responsibility of regulating the disposal of solid waste. The EPA shares that authority in Indian Country. The state's responsibility is discussed in Chapter 3. DEQ also has responsibility for air quality, water quality, and superfund clean up in Montana. These programs affect solid waste management issues in certain situations.

DEQ will examine the recommendations and strategies in this plan to determine what practices, guidelines and regulations need revision as Montana moves forward toward integrated waste management.

Local Government

Local governments are responsible for assuring that the planning, financing, designing, constructing and operating of solid waste management systems are consistent with the state's solid waste management plan and applicable state laws and regulations. They may also contract with the private sector for these functions. County commissioners have the authority to create solid waste management districts for the purpose of collection and/or disposal of municipal solid waste (MSW). The districts may include cities and towns, and parts or all of one or more counties.

Local governments are responsible for involving the public in solid waste decision-making. Using a combination of public input and the information presented in

this plan, they are asked to develop and implement integrated waste management strategies that will help the state achieve its waste reduction goals.

Tribal Government

There are 10 federally recognized Indian tribes on seven reservations covering more than 8.3 million acres in Montana. Tribes are required to comply with all federal laws and regulations mentioned above. Regardless of complex legal questions around state authority for solid waste management on reservations, all parties recognize that environmental impacts and issues are not contained by jurisdictional boundaries. Because there is a common interest in planning for effective and environmentally sound solid waste management, tribal governments are encouraged to consider the recommendations presented in this plan and work with neighboring local governments for area-wide solutions to disposal, recycling and waste reduction. The State-Tribal Cooperative Agreements Act has defined legal issues and jurisdictional boundaries.

The Private Sector

Private solid waste management companies have played an active role in Montana. Due to increasing costs of waste management, private participation is likely to expand in the future. The Solid Waste Management Act sets the policy that "private industry is to be utilized to the maximum extent possible in planning, designing, managing, constructing, operating, manufacturing, and marketing functions related to solid waste management systems." The Act then reaffirms that local governments retain primary responsibility for adequate solid waste management including the overall planning, financing and operation of the entire solid waste management system.

Private businesses are key to the success of source reduction, recycling and composting. Very small businesses to large industries are important in managing wastes and in creating markets for recycled goods. There are both economic and social benefits to the businesses that use recycled materials in their products. This plan will help private industry understand the direction the state is headed in solid waste management so they can make better business decisions. The state cannot meet its waste reduction goals without the cooperation and participation of the private sector.

All private businesses, whether or not they are associated with solid waste management, are encouraged to adopt appropriate recommendations for integrated waste management as presented in this plan. Businesses should make a commitment to implementing waste reduction measures in their purchasing and operations.

Citizens

Citizens are encouraged to take every opportunity to attend meetings and public hearings to learn about, help develop and participate in integrated waste management opportunities in their communities. Citizens have a responsibility to seek out accurate

information on waste management options and to take personal measures to help the state achieve waste reduction. Ultimately, it is the citizens of Montana who are served by this plan.

Individuals may also use this plan to inform themselves and local decision-makers about the direction in which the state is headed in solid waste management. They may use it to encourage local decision-makers to form citizens' advisory committees and to involve the public in solid waste management through public meetings, workshops and presentations to civic organizations, schools and churches. They may use it to encourage their local waste managers, institutions, businesses, or community organizations to write and implement a local solid waste management plan.

A Vision For Montana

If these plans are fulfilled, a vision for Montana will include that Montana citizens will be fully informed about waste management options. Montanans will choose to participate in planning and implementing waste reduction strategies in their communities and homes. Products will be designed to last longer and will be sold with less packaging. Environmentally safe alternatives will be readily available for all hazardous products. Waste facilities will become community resource centers as more broken products are repaired and more old products are reused. More resources will be recovered through recycling. More organic wastes will be recycled through composting. The remaining amount of waste will go to a landfill where the best available technology will be operating to protect the environment.

Chapter 2: HISTORY OF SOLID WASTE MANAGEMENT AND RECYCLING IN MONTANA PRIOR TO THE INTEGRATED WASTE MANAGEMENT ACT

The 1960s

In response to federal legislation, Montana passed its first solid waste management law in 1965. This resulted in a major change in how communities managed their wastes. Prior to the legislation each community likely had their own "dump." These dumps were usually unattended piles of burned refuse with some of the waste occasionally buried. There were 514 Montana communities identified on the state map, and probably about the same number of dumps. After the legislation, communities began to consolidate their dumps and operate "sanitary landfills." This essentially meant to stop open burning, apply daily cover, and control litter. State government was given the responsibility to oversee the management of solid wastes.

The Refuse Disposal District Law, passed in 1969, made it possible for a county or several counties to set up a refuse district to develop waste management plans and to implement fees for waste disposal. At the same time, Montana Department of Health and Environmental Sciences (MDHES) set deadlines for Montana landfills to comply with specific operational criteria. Compliance was to occur between 1971 and 1974, depending on population. State government approval of operations was required, but local governments issued the licenses.

The 1970s

The move toward consolidation and closure of dumps continued. By 1975, Montana had 227 known municipal solid waste (MSW) disposal sites, of which 102 were judged by DHES to be in compliance with operating criteria. However, only 11 actually had local licenses. The DHES took over the responsibility of issuing licenses in 1978. By 1979, 87 licenses had been issued, 35 of which were conditional licenses requiring closure or compliance by the end of the year.

The 1975 Montana State Legislature authorized a statewide solid waste management study. That study, completed in January 1977, recommended the development of comprehensive statewide solid waste management services. It suggested a regional strategy based on transfer stations and three waste-to-energy incinerators. As a result of the statewide study, the legislature made major revisions to the Solid Waste Management Act in 1977. The new laws established mechanisms for the state to provide financial and technical assistance to local governments in the formation and implementation of solid waste management systems. They made it clear that local governments could design, finance, construct, own and operate solid waste

management systems; enter into agreements for marketing recovered materials; or contract for any of these services.

The new laws also required a state solid waste management plan. The DHES completed a short plan outlining remedial measures to upgrade disposal sites, and offering model procedures for planning and implementation of area-wide waste management systems. The plan was later submitted to EPA to meet the requirements of the federal Resource Conservation and Recovery Act (RCRA).

The 1980s

The early 1980's were quiet with reduced federal and state funding for solid waste activities. However, the late 1980's brought renewed interest in solid waste issues because of a national solid waste crisis. This crisis was typified by Islip, New York's wandering garbage barge and the difficulty many large communities were having finding places to dispose of their garbage. Initially, this did not have much impact on Montana because landfilling was convenient and cheap and there were large areas of land available. Montana's dry climate and numerous areas with suitable conditions for waste disposal also minimized most of the environmental concerns from landfilling. The waste crisis came home to Montana when inquiries were made about the potential for importing large amounts of out-of-state waste for disposal. Our state government and the public questioned whether Montana's landfills and its incinerators were designed well enough to safely accept a large influx of waste and still protect the public health and the environment. Debates occurred over whether Montana wanted to import waste from other states, or whether the practice should be banned.

In response to the national issues and under the authority of RCRA, the EPA adopted new regulations in 40 CFR Part 258, commonly known as Subtitle D Regulations, in 1988. The new rules set minimum technical requirements for municipal solid waste landfills (MSWLFs) and had a major impact on waste disposal in Montana for the next decade. In 1989, the Montana Legislature responded to the solid waste issues by imposing a moratorium on the importation of waste into Montana, and directed the Environmental Quality Council (EQC) to complete an interim study on solid waste management. The legislature also required MSWLFs serving an area with a population of 5,000 or more to implement ground water monitoring.

The 1990s

The year 1991 brought many changes. The EQC report made 38 recommendations regarding solid waste. A total of 30 bills dealing with solid waste were introduced at the legislature including 11 that dealt with the EQC recommendations. Eighteen of the bills passed, including nine of the EQC bills. The legislature authorized license application fees and annual license renewal fees for waste management facilities to assist in paying for solid waste programs.

One new law was the Montana Integrated Waste Management Act. It set a goal to reduce the amount of waste landfilled in Montana by 25% by 1996 and established a hierarchy for waste management that included waste reduction, reuse, recycling, composting, and landfilling or incineration in priority order. This law also required integrated solid waste planning by state government. The first Integrated Solid Waste Management Plan was written by the DHES with input from an advisory council including state and local governments, private waste management businesses, recycling businesses and non-profit organizations in 1994. The plan described policy, set goals, described status of waste management, identified issues and made recommendations to reach the overall 25% waste reduction goal. Public comments were solicited and recommendations were made on waste reduction priorities. Periodic updates were called for and the purpose of this document is to update the original Integrated Solid Waste Management Plan.

The 1995 Legislature reorganized the natural resource and public health agencies of state government. Solid waste responsibilities were moved from DHES to the newly created Department of Environmental Quality (DEQ). Responsibilities for permitting landfills, inspections and monitoring of ground water were placed in the Permitting and Compliance Division of DEQ and the waste reduction and recycling responsibilities were placed in the Planning, Prevention and Assistance Division.

During the 1990's, landfills continued to come into compliance with Subtitle D regulations. This resulted in the regional planning and consolidation of solid waste landfills. There are now 30 sanitary landfills in Montana, compared to about 514 municipal dumpsites in the 1960's. Waste is being hauled farther than in the past in order to be disposed of in facilities engineered to contain leachate and minimize environmental harm. Currently, over 20 closed landfill sites are identified as potentially hazardous waste sites and are listed under the state's Comprehensive Environmental Cleanup Responsibility Act (CECRA) or the state's Water Quality Act. Eleven landfill sites have been delisted since December 1996.

History Of Recycling

Recycling in Montana began on an organized scale in 1916 when Carl Weissman began buying and selling buffalo bones, furs, steel scrap and junk car parts. In 1919, Pacific Hide and Fur Depot opened operations in the state with the merchandising of furs and scrap metals. As the needs of Montanans changed, these recyclers expanded their list of commodities bought and sold. Weissman began selling new auto parts, pipe, steel and supplies during the 1930s as repeat orders indicated that there was a demand. Pacific Hide and Fur expanded into new steel sales in the early 1950s.

Montana Recycling, Inc. deviated from the established industrial recycling and pioneered household recycling operations in 1971. They initially concentrated on home-generated recyclables such as aluminum cans and bottles. Paper products and non-ferrous scrap were added as facility space and markets allowed. Since recycling was a

new subject, educating the public about recycling through tours and presentations became an important part of Montana Recycling's operations.

During the 80's and 90's, the increase in recycling escalated in Montana along with the rest of the nation. Households and offices began choosing to save their recyclables rather than throw them in the trash. This encouraged the established recyclers to attempt to expand the commodities accepted. Additional private buy-back centers, both for-profit and not-for-profit, opened in many Montana towns and recycling opportunities became available at landfills and transfer stations. In addition to recycling opportunities at landfills and transfer stations, recycling centers are currently located in more than 35 communities. Composting in Montana has also increased, with over 30 facilities operating during 2002.

Most recyclable materials are collected for shipment to out-of-state markets for processing. The large distance to markets combined with the small population and corresponding small volume of materials collected has always been a challenge for recycling in Montana. The market for recyclables is volatile and is quickly influenced by international markets. Prices increase and decrease quickly which adds to the challenge of cost-effective recycling in Montana. By the mid 1990's the cost of shipping to out-of-state markets exceeded the value of the commodities and curtailed the recycling of several materials, particularly glass and plastic in many parts of the state. This resulted in an effort to establish more local markets for materials to be recycled. A market for glass was created when two cement companies agreed to use glass containers as a source of silica for the manufacturing process and DEQ changed pertinent regulations to allow glass to be recycled this way.

Another Montana solution to recycling challenges was the collaboration of local solid waste managers to form Headwaters Cooperative Recycling in September 1997. The solid waste managers were concerned about the lack of landfills in the area. The state had gone from several hundred landfills to fewer than one hundred because of consolidation. Only three landfills remained in the 10-county region served by the cooperative. The cooperative is modeled on recycling programs that proved successful and cost-effective in Europe and rural Colorado. Headwaters collected over 9,000 tons in fiscal year 2004 and has continued to expand to include more counties and entities throughout southwest Montana. They have evolved to become a not-for-profit corporation that enables recycling by linking rural and urban communities, as well as Yellowstone National Park.

The reuse of products is an effective way to handle the waste locally and is higher on Montana's waste hierarchy than recycling. Legislation passed in 1999 made it possible for state agencies to donate outdated electronic equipment to public schools for reuse. Computers no longer needed by state agencies are now being shipped to school districts throughout the state with the Office of Public Instruction coordinating their allocation and shipping. State agencies also worked to improve recycling practices by increasing the amount of materials that were recycled and purchasing products made from post-recycled materials. State agencies committed to "leading the way"

purchased trash can liners, printer cartridges, office paper and housekeeping supplies containing post-consumer content.

Chapter 3: SUBTITLE D

Summary of Requirements for Federal Regulations 40 CFR Part 258, Subtitle D

Federal regulations in 40 CFR Parts 257 and 258, commonly known as "Subtitle D regulations", were adopted October 9, 1991. These regulations define and prohibit open dumps and set forth the minimum criteria for location, operation, design, ground water monitoring, corrective action, closure and post-closure care, and financial assurance at municipal solid waste landfills. These criteria were applied to both landfills that existed at the time the law was passed and to any landfills that were opened later.

In 1993, the EPA approved the regulatory program contained in rules adopted by the DEQ at Administrative Rules of Montana (ARM) 17.50.501 through 17.50.542, which were authorized by the legislature in the Montana Solid Waste Management Act at sections 75-10-201 through 75-10-233, MCA. These laws and regulations generally reflect the requirements of the federal law and the EPA 40 CFR Part 258 regulations. As an approved state, DEQ regulates disposal of solid waste and prosecutes violations under state law. In an approved state, EPA cannot sue an alleged violator unless it claims a likelihood of imminent and substantial harm. If EPA had not approved Montana's program, EPA could have directly enforced the 40 CFR Part 258 standards without any showing of harm. EPA's approval of Montana's program provides the state with some flexibility to allow alternative standards or variances from EPA's standards for the siting, design, operation, monitoring and closure of MSWLFs.

The following sections summarize the criteria in 40 CFR Part 258 and compare them with Montana regulations. Montana's SWM Program has sought the maximum flexibility allowed by the EPA, while still maintaining standards that protect public health and the environment.

Subpart A - Small Landfill Exemption

Small municipal solid waste landfills that meet all of the following criteria may be exempted by DEQ from landfill design criteria described in ARM 17.50.506:

- Receive less than 20 tons of waste per day on an annual average;
- Have no evidence of existing ground water contamination from the landfill;
- Receive 25 inches or less of precipitation per year; and
- Serve a community for which no practicable waste management alternative exists.

The DEQ considers the "practicable waste management alternative" to mean a complying MSWLF, transfer station, or materials recovery facility within the region which

can accept the waste which would otherwise be going to the landfill in question. If there is a complying facility within 100 miles of the landfill that can be used at a cost per year of less than 1% of the median household income, that would be considered a "practicable alternative."

If an exemption is granted, all location, operation, closure and post-closure care, ground water monitoring and corrective action requirements still apply. These landfills will also be required to comply with all financial assurance requirements. DEQ has the authority to revoke an exemption if any ground water contamination is found or if any of the required conditions can no longer be met.

The small landfill exemption is rarely granted since DEQ already has flexibility to approve alternative design criteria based on geologic features. This flexibility is more protective of the environment than exemptions based on size. Also, many small landfills have closed over the past 10 years because of the costs associated with required ground water monitoring, methane monitoring and financial assurance requirements. Finally, most Montana communities have a "practicable alternative" within 100 miles.

Subpart B - Location Criteria

Municipal solid waste landfills cannot be located or operated in wetlands, floodplains, fault areas, seismic impact zones or unstable areas. Since landfills attract scavenger birds such as seagulls, crows and vultures, MSWLFs cannot be located with 10,000 feet of an airport that has jet aircraft landing or taking off or within 5,000 feet in the case of airports used by propeller aircraft. Exceptions may be made if the operator of the landfill can demonstrate that the facility does not pose a bird hazard to aircraft.

Much of western Montana lies in seismic impact zones. The DEQ has the authority to approve landfills in seismic impact zones if all containment structures are designed to adequately resist the expected impact of an earthquake.

Landfills that already existed in restricted areas before the 1993 passage of the regulations were evaluated on a site-specific basis. Those sites that were designed, or which could be re-engineered, to address the issues, were allowed to continue operation. Even so, as stated in Chapter 2, 50% of Montana's landfills have been closed since 1994.

Subpart C - Operational Criteria

Owners and operators of municipal solid waste landfills must comply with the following operational standards:

- Implement procedures for prohibiting the dumping of regulated hazardous wastes and PCB wastes;

- Conduct random inspections of incoming loads, maintain records of inspections, train workers to recognize hazardous waste, and notify state and/or federal officials of unauthorized materials;
- Cover disposed waste with six inches of earthen material at the end of each operating day (but more frequently if necessary);
- Prevent or control populations of disease vectors such as rodents;
- Ensure that the concentration of methane gas generated by the landfill does not exceed set limits at the facility boundary by implementing methane monitoring programs and, if methane gas concentrations do exceed those limits, take necessary steps to reduce them, while also notifying the DEQ;
- Ensure that the landfill meets all applicable air quality standards;
- Conduct open burning according to applicable regulations and never burn mixed MSW;
- Control public access, prevent unauthorized traffic, and prevent illegal dumping;
- Design the landfill to prevent run-on to its active portion during the peak of a 25-year storm;
- Control run-off from the active portion of the landfill in the event of a 24-hour, 25-year storm;
- Prevent the discharge of pollutants into any water in violation of federal or state standards;
- Refuse to accept bulk, non-containerized, or large containers of liquid wastes; and
- Record and retain information relating to all aspects of ARM 17.50.511.

Under ARM 17.50.501 through 542, the DEQ has the authority to approve alternate daily cover that meets performance standards, provide some flexibility governing the number and location of methane monitoring wells, and approve alternate waste-screening methods if the landfill operator is able to ensure that incoming loads do not contain regulated hazardous or PCB-containing waste. Federal law, however, does not allow any state to waive random inspections for hazardous waste, methane monitoring, ground water monitoring, run-on/run-off controls and recording-keeping requirements.

Subpart D - Design Criteria

Design standards that have been proven to be protective of human health and the environment in most circumstances, must be employed. These include a composite liner and leachate collection system for any new landfill or for the expansion of an existing landfill. The liner consists of a layer of compacted soil and a flexible, 30-ml, flexible, high-density polyethylene membrane. (See ARM 17.50.506).

Montana may accept alternative designs, based on performance standards and local geological and hydro-geological conditions, allowing the use of other technologies that the applicant can demonstrate is protective of the environment in site-specific circumstances. For example, in areas where natural clay soils are unsuitable, a geo-synthetic clay liner may be approved. DEQ also has the authority to approve various

low-cost options for leachate collection systems and alternative landfill covers, depending on site-specific circumstances.

Subpart E - Ground Water Monitoring and Corrective Action

Under ARM 17.50.701 through 726, all municipal solid waste landfills must monitor ground water. Each monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from the uppermost aquifer. Each system must include sampling of wells up-gradient and down-gradient from the landfill. An operator must conduct monitoring semi-annually over the life of the landfill and during the post-closure period. Samples must be analyzed for at least 17 heavy metals and 47 volatile organic compounds.

If elevated levels of any of these metals or compounds are detected, the operator must implement an assessment monitoring program as specified in ARM 17.50.710. If ground water monitoring shows that contamination exceeds legal limits, the regulations prescribe a corrective action program.

The DEQ has the authority to suspend monitoring requirements if the landfill operator can demonstrate that there is no potential for contamination of ground water.

Subpart F - Closure and Post-closure

Under ARM 17.50.530 and 531, all MSWLFs must prepare and submit for approval to the DEQ a closure and post-closure care program. The closure process must include notification to the state as to when the closure will occur, placement of a final cover over that landfill and placing a notation on the property deed that landfilling has occurred on the property. This final cover must be designed to minimize infiltration and erosion. The design features of the final cover are specified in the rules (ARM 17.50.530). As an approved state, Montana's DEQ may allow an alternative final cover design.

The landfill owner or operator must also submit a post-closure plan that outlines how the integrity and effectiveness of the final cover will be maintained and describes the leachate collection system, the ground water monitoring system, and the gas monitoring system. This plan must describe how the final cover and all other systems will be maintained for 30 years after closure. It may also approve extensions of deadlines for closure, increase or decrease the post-closure monitoring period or frequency, and even allow the operator to suspend monitoring entirely.

Subpart G - Financial Assurance

Landfill operators are required, under ARM 17.50.540, to provide an annual estimate of the costs to have a third party perform closure, post-closure care and any

corrective action. They are also required to provide and fund “financial assurance,” which is a way for DEQ to pay for these costs if they run out of money to do it themselves. The mechanism may be a trust fund, insurance policy, surety bond, letter of credit, local government financial test or a combination of these.

Chapter 4: SOLID WASTE CHARACTERIZATION

Data indicates that the generation of solid waste in Montana has increased throughout the decade from 743,631 tons in 1991 to 1,018,825 tons in 2001. Data also indicates that the per capita waste generation rate has increased from the 1991 rate of 5.0 pounds per day to the 2001 rate of 6.1 pounds per day. The Montana waste generation rate remains higher than the national average of 4.5 pounds per day.

The actual picture of waste generation in Montana is not clear and simple, however. A historic look at waste generation in Montana is difficult to evaluate due to lack of regulations prior to Subtitle D and the lack of standardization in measurement that is just now being established as measured weights by scales are replacing a tradition of estimates. In the early 1990's, only a few Class II landfills had scales. Most facilities estimated weight as a function of volume. Since licensing fees for facilities were calculated based on landfill tonnage, it was economically advantageous for facilities to estimate their landfill volumes conservatively. One such facility reported a 150% increase in tonnage after scales were installed. Half of the licensed facilities closed between 1991 and 1994. It will be impossible to determine how closely tonnage estimates from those facilities approached actual values. Some landfills simply estimated waste tonnage as a function of population. The lack of uniformity and accuracy in waste measurement casts doubt on the 1991 data.

Other wastes contribute to the high per-capita waste generation in Montana, even though they do not meet the standard definition of municipal solid waste. For example, construction and demolition wastes and industrial wastes are not considered true municipal solid wastes. In many states they are disposed of in separate landfills. However, in Montana these wastes are often disposed of in Class II landfills because there is no other place for them. In many instances, these wastes are disposed of and weighed with municipal solid waste, falsely elevating state MSW totals. In the mid 1990's, the Bureau of Land Management discontinued the allowance of landfill of agricultural waste on leased land. All agricultural waste from leased BLM land must now be landfilled with municipal solid waste. Hailstorms, snowstorms, and forest fires of the late 1990's all created waste in excess of normal. Most of this was landfilled with municipal solid waste. The landfilling of construction and demolition and industrial waste, the landfilling of agricultural waste from BLM leased farm and ranch land and the landfilling of storm and fire debris are contributing factors to Montana's higher-than-national per capita MSW rate.

Solid Waste Importation Into Montana

In 1993, the prohibition of importation of out-of state waste ended. Since then, states have engaged in an interstate cooperation in the management of solid waste. Given the demographics of Montana and neighboring states, the most efficient and

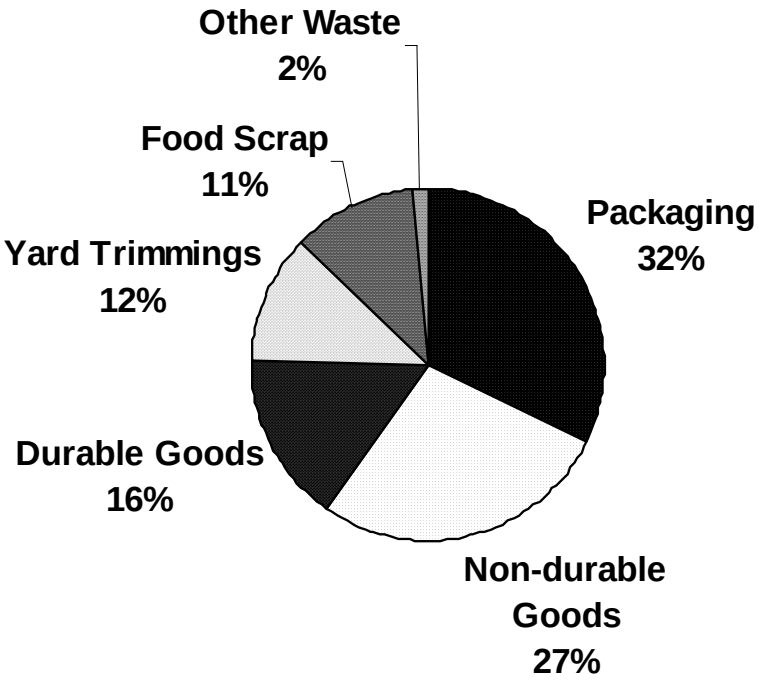
reasonable management of waste may very well involve the transportation of waste across state borders. Montana imports solid waste from communities in Wyoming, North Dakota, Washington and from Yellowstone National Park. Montana exports solid waste to neighboring communities in Idaho and North Dakota. A fee of $0.27 cents per ton of waste, in addition to the standard volume based fee of $44.00 per ton, is assessed for the disposal of imported solid waste. This fee is based on actual administrative costs to the state of Montana. The total imported tonnage for the five facilities accepting out of state waste has averaged 34,460 from 1996 through the first quarter of 2002. Although export tonnages are not tracked by DEQ, the agency estimates that exports and imports are well balanced.

Municipal Solid Waste-Definition and Characterization

Municipal Solid Waste (MSW) refers to those materials that historically have come from municipal sources with disposal at municipal landfills. MSW may be generated in residential, commercial, institutional, or industrial settings. MSW includes packaging, newspapers, miscellaneous paper, magazines, glass and plastic bottles, cardboard, aluminum and steel cans, wood pallets, food scraps, yard waste, furniture, appliances, tires, electronics, clothing and batteries. These materials may be characterized by product type or by material. A 1975 study of waste composition in Montana indicated that Montana's waste was similar in composition to national figures published by EPA at that time. The waste characterization data presented here was taken from the EPA document *Municipal Solid Waste in the United States: 2000 Facts and Figures.*

The following figure compares waste generation by product type:

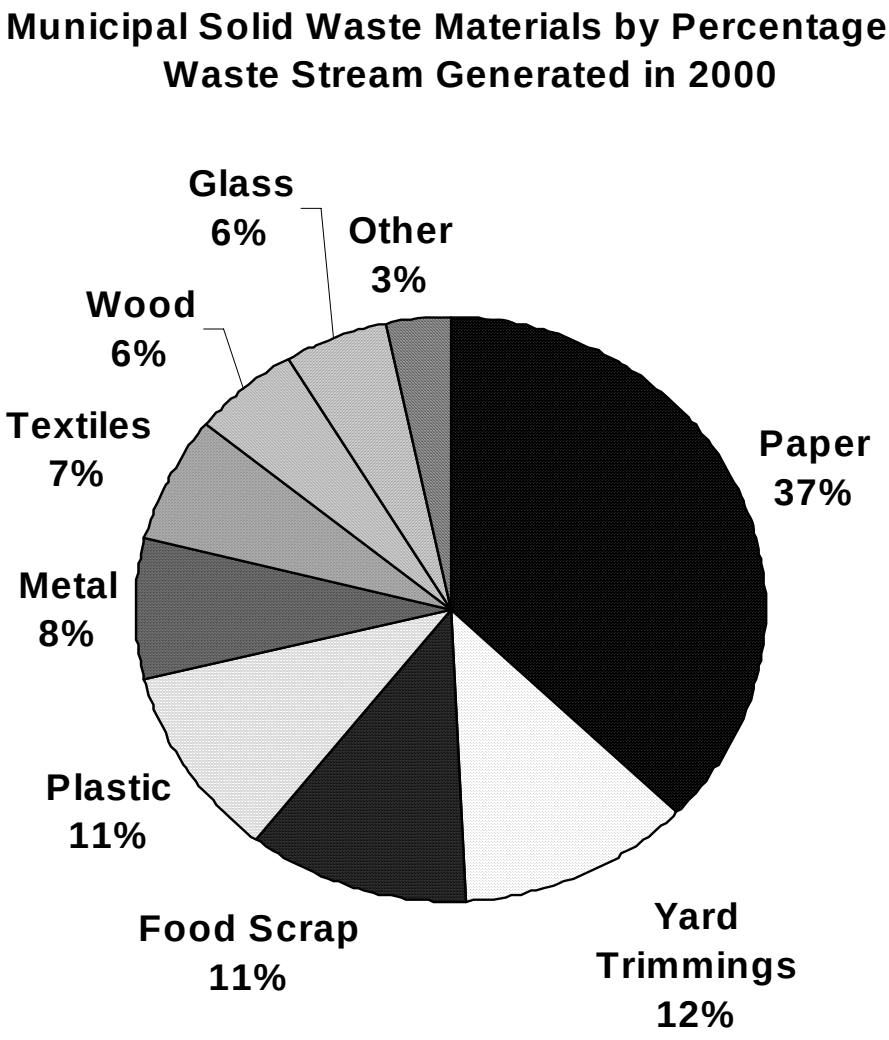
Municipal Solid Waste Product Categories Generated in 2000



Solid Waste Categories	% of Waste Stream by Weight
Packaging	32.2
Non-durable Goods	27.4
Durable Goods	15.7
Yard Trimmings	12.0
Food Scrap	11.2
Other waste	1.5

- Packaging includes plastic and glass bottles, cans, boxes, paper and plastic bags, and wood pallets
- Durable goods include furniture, appliances, and electronics.
- Non-durable goods include clothing, newspapers, and magazines.
- Yard trimmings include grass, branches, and leaves.
- Miscellaneous inorganic waste includes office paper, batteries, and disposable diapers.

The following figure compares waste generation by material:



Municipal Solid Waste Generated in 2002 By Percentage of Waste Stream & Weight

Product Material	% of Waste Stream	Estimated Tonnage (2002)
Paper	37.4	381,041
Yard Trimmings	12.0	122,259
Food Scrap	11.2	114,108
Plastic	10.7	109,104
Metal	7.8	79,467
Textiles	6.7	68,261
Wood	5.5	56,035
Glass	5.5	56,035
Other	3.2	32,604

- Paper includes cardboard, office paper, newspapers and paper napkins.
- Plastic includes soda and milk containers, plastic wrap, electronics casing and disposable tableware.
- Textiles include clothing, leather and rubber.
- Metals include aluminum and steel cans, appliances and scrap metal.
- Wood includes pallets.

MSW does **not** include:

- Construction and demolition waste*
- Municipal sludges
- Industrial non-hazardous process waste*
- Agricultural wastes
- Oil and gas waste
- Mining waste
- Automobile salvage waste

* The EPA does not refer to construction and demolition waste and non-hazardous industrial waste as part of the municipal solid waste stream. However, in Montana, these materials are often disposed of in MSW landfills with MSW wastes because special landfills for these wastes are not available. These wastes are included with MSW in total landfilled tonnage. It is difficult to determine the actual quantity of construction and demolition waste and industrial non-hazardous waste that is being disposed of in MSW landfills and to separate out the tonnages of MSW wastes versus these special wastes. The tons of MSW, together with population, are used to determine waste generation rates and to compare disposal rates. Montana appears to have high MSW generation because these other wastes are included.

Chapter 5: INTEGRATED WASTE MANAGEMENT

Policy: The State of Montana will plan and implement an integrated approach to solid waste management, based on the following order of priority:

Reduction of waste generated at the source
Reuse
Recycling
Composting of biodegradable waste
Landfilling or incineration

What Is Integrated Waste Management And Why These Goals?

Integrated waste management is defined in Montana state law as “the coordinated use of a priority of waste management methods, including waste prevention, or specified in 75-10-8014." The purpose of managing wastes in an integrated and prioritized way is to effectively handle municipal solid waste with the least adverse impact on human health and the environment. The Montana Integrated Waste Management Act, passed in 1991, established integrated waste management as the policy for the state and established the priorities for waste management described in the policy statement above. In addition, the Montana Integrated Solid Waste Management Act set a solid waste reduction target, required state government to implement source reduction and recycling programs and to procure recycled supplies and materials, and required a state solid waste management plan to be prepared and implemented.

The Montana Integrated Solid Waste Management Plan was first published in July of 1994 after considerable involvement on the part of the Department of Health and Environmental Sciences (now DEQ), local governments, solid waste managers, educational groups, environmental and recycling organizations and citizens. While much progress has been made in integrated solid waste management since 1994, many of the issues remain the same. Landfilling continues to be the most common method of waste disposal, and challenges continue to exist with source reduction, reuse, recycling and composting options. The benefits of integrated waste management also remain very much the same.

Montana adopted an integrated waste management policy, because in the long term, it makes sense, environmentally and economically. While landfilling may be the cheapest method of waste management, compliance with federal and state regulations to protect public health and the environment have increased costs of landfilling significantly. Post closure costs will have an impact on local governments well after they are closed. New landfills are more difficult to site, more expensive to construct and operate and more controversial to the public. Space in well-sited, well-designed and well-operated landfills is a valuable commodity to be conserved for waste that cannot be

handled effectively by other methods. Source reduction, reuse, recycling and composting all prolong the life of landfills, recognizing the value of this space. In addition, integrated waste management conserves valuable energy and natural resources.

The 25% Waste Reduction Goal

The 1991 Legislature set a 25% waste reduction goal to influence the direction and policy of solid waste activities in state government and to inspire action from tribal and local governments, the private sector and the public. This very ambitious goal was to be accomplished by 1996. Progress has been made toward meeting the goal, but it is difficult to quantify that progress. There is no reliable way to calculate the actual amount of waste reduced through source reduction and reuse because it occurs in small amounts in a large number of places. Recycling information is more available, but Montana does not require reporting of the amount of materials collected for recycling and often this information is considered proprietary. Although available data suggests that Montana has greatly increased the amount of solid waste recycled, reused, and composted, the overwhelming majority of solid waste in Montana continues to be landfilled. In 2001, Montanans landfilled enough municipal solid waste to cover all four lanes of Interstate 90, to a depth of 1 1/2 feet, from Glendive to Missoula.

The 1994 Integrated Solid Waste Management Plan identified that it would be difficult to quantify progress toward meeting the goal for several reasons. Source reduction and reuse efforts are the most important steps to reducing waste disposal, but there are no effective ways to measure the impact of these efforts. There are no reporting requirements for the types or amounts of materials that are recycled or composted. Sometimes this information is made available and sometimes it is considered proprietary. Determining the effect of source reduction, reuse, recycling and composting is also difficult because recommended activities often focused on education and local involvement that are always difficult to measure.

The 1994 Plan stated that the DEQ would attempt to measure that (the 25%) reduction based on weight. Although volume is a more significant measure in terms of landfill capacity, weight is more consistent and therefore comparable. Precise measurement of the goal, while it would certainly help in evaluating policies, tracking progress, and revising plans, is not feasible in Montana at this time. The mechanisms are not currently in place to accurately measure wastes or recyclables. As discussed in the previous chapter, data concerning waste generation are not entirely reliable. Resources have not been committed within the DEQ to undertake data gathering activities.

As discussed in the previous chapter, there have been many changes to landfills since 1994. Many landfills have closed and new ones have opened. Solid waste that could have been disposed of on private property before 1993 must now be disposed of in landfills. Landfills and transfer stations that estimated waste disposal based on volume or population have now installed scales. This provides a more accurate

measurement of the amount of waste disposed of today. However, this is inconsistent with the measurement process used in 1991; and, it does not allow for accurate comparison or for clear conclusions to be drawn from the data. It is only over the time of this revised plan that we shall begin to have solid annual numbers to evaluate progress.

The 25% reduction goal was to be measured against the 1991 waste disposal baseline of 743,631 tons and adjusted for population. Readers should note that the 25% goal is not a recycling goal but a waste reduction goal. In other words, the reduction can take place through recycling and composting, but also through source reduction and reuse. As noted earlier, source reduction and reuse are particularly difficult to measure. DEQ has developed surveys to better identify and track both the volume of waste generated and the amount of material recycled.

All landfills now have scales, so collection of waste disposal data from 2003 forward will be consistent and accurate. There are no requirements for recyclers to report information on what or how much they recycle. Some recyclers consider this information proprietary, however, recyclers have voluntarily provided information for this plan update. DEQ will continue to survey recyclers periodically to update this information.

Proposed New Goal

This plan adopts an updated solid waste reduction goal and recycling and composting target. This target aims to increase the amount of material that is recycled or composted, while maintaining the focus on source reduction and reuse as high priorities in reducing the amount of solid waste that must be disposed of. The new goal statement, taken from § 75-10-803, MCA, as amended by H.B. 144 (§ 2, Ch. 62, Laws of 2005), is:

"75-10-803. Solid waste reduction goal and targets target. (1) It is the goal of the state, by January 1, 1996, to reduce by at least 25% the volume of solid waste that is either disposed of in a landfill or incinerated to reduce, through source reduction, reuse, recycling, and composting, the amount of solid waste that is generated by households, businesses, and governments and that is either disposed of in landfills or burned in an incinerator, as defined in 75-2-103.

(2) Targets for the rate of recycling and composting are:

(a) 17% of the state's solid waste referenced in subsection (1) by 2008;

(b) 19% of the state's solid waste referenced in subsection (1) by 2011; and

(c) 22% of the state's solid waste referenced in subsection (1) by 2015."

DEQ estimates that about 15% of the state’s solid waste stream currently is diverted for recycling or composting. This new goal requires a steady increase in the amount of material that is diverted from the waste stream. The new goal was enacted by the 2005 Legislature.

Source Reduction and Reuse

Source reduction means reducing the amount or toxicity of a waste by decreasing the amount of a product consumed, decreasing packaging, increasing product durability and manufacturing or using less toxic products. It can be one of the greatest factors in waste reduction, because solid waste is not generated to begin with and will never need to be disposed of. Source reduction requires consumers to make informed choices about the products they buy. Educating consumers about source reduction occurs throughout Montana from a variety of sources. DEQ, the Montana State University Extension Service and non-profit organizations provide fact sheets and web site information. Youth education and awareness raising events like Earth Day and America Recycles Day are encouraged throughout the state.

Reuse is simply reusing materials rather than disposing of them. There are many opportunities for reuse and progress has been made in encouraging reuse of materials. Many landfills have areas where goods with a remaining useful life can be set-aside for people to take and reuse. There has been growth in the number of second hand stores and consignment stores. Many Montanans reuse items by selling or purchasing goods at garage sales. Legislation passed in 1999 allowed for the reuse of state government computers by schools and resulted in the distribution of over 3000 to Montana public schools. More detail on source reduction and reuse is provided in Chapters 6 and 7.

Recycling

Recycling involves the collection, storage, sorting, shredding, shearing, baling, and chipping of recyclable material including, but not limited to, glass, paper, plastic, metal or textiles. Recycling also includes the purchase of recycled goods. Both the collection and processing of materials and the purchase of recycled goods are important for recycling to be viable. State policy supports recycling through tax incentives. Tax incentives were enacted in 1995 and have been extended through December 31, 2011. The incentives include a tax credit for businesses that purchase equipment used for recycling and a tax deduction for consumers that purchase recycled materials. An additional incentive was passed in the 2001 Legislative session that reduces the air permit fees businesses pay if they accept and recycle glass. There are over 50 separate businesses operating recycling facilities, with collection points in hundreds of locations. Many of these locations are in areas with higher populations. There are also several rural recycling successes including the Headwaters Cooperative Recycling, a joint venture of thirteen counties and Yellowstone National Park covering over 37,000 square miles of southwest Montana.

Information on which materials can be recycled in individual communities is published annually by Recycle Montana and is available on their web site at

http://www.recyclemontana.org/. Montana DEQ maintains a list of recycled materials, other than office supplies, that can be purchased in Montana. It is available at http://www.deq.state.mt.us.

The greatest challenges to recycling in Montana are the distance to markets, small number of remanufacturing operations located within the state and a small, dispersed population. There is a lack of economy of scale for new or existing businesses. Plastic and glass recycling, for example, is limited or unavailable in several parts of the state. These items require less traditional, innovative approaches that form partnerships to overcome the obstacles in recycling these items. A partnership was established for a mobile process for recycling glass and it enables a new concept for the state by pulverizing glass. The glass cullet product can be used in a variety of applications including landscaping and road base construction.

Currently cement plants are able to use glass as a silica substitute in their manufacture process, another local solution that enables Montana to recycle without the transportation cost to distant markets. Headwaters' approach of networking communities has provided great success by pooling resources together to expand recycling possibilities.

A major commodity recycled in Montana is junk vehicles. The DEQ administers a recycling program for junk vehicles. This program has three major objectives: to avoid community decay, to prevent water and air pollution from leaking fluids and chemicals, and to promote recycling. In 2001, 12,525 tons of junk vehicles were recovered and sent to smelters by county and state officials. DEQ estimates that private companies recycled four times that tonnage. This is a 100% increase over the previous decade. However, there are many junk cars not recovered. Junk vehicles are not included in Municipal Solid Waste generation or recycling data.

Composting

Composting converts organic and biological wastes into humus that can be used to enrich soils. Because yard wastes make up a large portion of the municipal waste stream, composting has a large impact on waste reduction. The number of composting operations is growing. In 2001, there were over 30 composting operations in Montana. Facilities are classified according to the material accepted for composting. Most facilities manage primarily yard and garden wastes and a limited amount of barn waste (not to exceed 25% of total waste). Four facilities are licensed to compost biosolids and municipal solid waste.

Landfills and Incineration

Materials that cannot be reused, recycled or composted are disposed of in landfills or in an incinerator. Over the past 10 years, many landfills have been closed and new state-of-the-art landfills have been opened. Waste is transported to these new

landfills from many areas of the state. A discussion of Montana's landfills and transfer sites occurs in Chapter 10.

The Public Education Component

Changing consumer behaviors and attitudes is essential to all types of waste reduction--source reduction, reuse, recycling and composting. Public education, along with increased waste reduction opportunities, is one important strategy for encouraging this change. The next six chapters recommend specific strategies for each method of the integrated waste management hierarchy. Public education is a component to each of them. Waste managers must support education using all available resources as a part of any integrated waste management strategy they select. A public education campaign can also be an effective waste reduction strategy by itself, an important step leading to new programs and strategies that cannot be immediately implemented.

Appendix F contains a list of educational resources.

Barriers to Integrated Waste Management

1. It is very difficult to measure source reduction and reuse and evaluate progress.

2. It is difficult to measure recycling without mandatory reporting.

3. The goal statement is out of date and not measurable from the beginning of the first plan.

Recommendations

1. Establish a new goal statement. A new goal is needed that is current and that is measurable. This was done by legislature with revised goals of; by 2008, 17% of the state's solid waste; by 2011, 19% of the state's solid waste stream; by 2015, 22% of the state's solid waste stream.

2. Implement full-cost accounting and reporting to ratepayers.

Local waste managers should set garbage disposal fees based on a full-cost accounting method. This method includes all costs associated with a landfill from siting through post-closure. It differs from the common current practice in which fees are largely based on operating costs only. This practice artificially lowers the price paid by ratepayers for waste disposal, and slows movement toward integrated waste management systems.

Costs associated with new regulations for siting, engineering, construction, closure and post-closure, are the fastest growing areas of cost and are often paid out of general tax revenues. Full-cost accounting means that local waste managers will need

to update the costs of the landfill annually. Current costs and the anticipated costs of upgrading to meet new regulations are factored in and absorbed immediately by the ratepayer.

The move toward full-cost accounting allows for better long-term planning and cost control. Landfill space will be viewed as an asset to be used more wisely. To be fully useful to ratepayers, local officials should itemize waste management costs separately on tax bills. The SWM Program officials should be fully informed about the full-cost accounting methods and encourage local waste managers to consider implementing them.

The full-cost accounting method is not without problems. It requires local governments or private landfill operators to estimate future costs and set up reserves.

Chapter 6: SOURCE REDUCTION

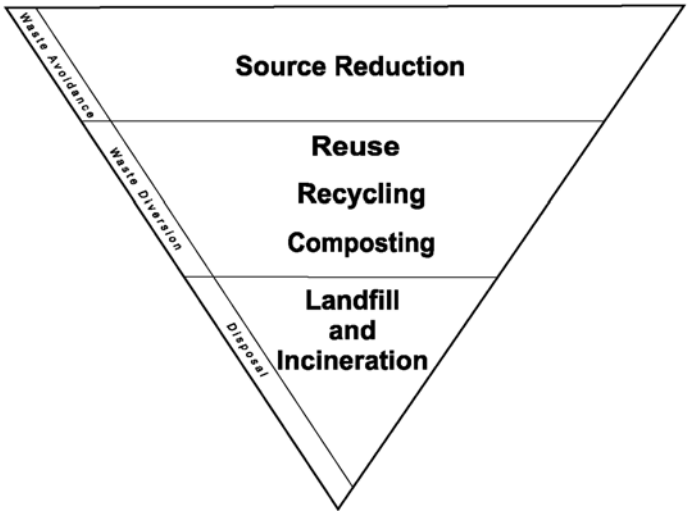
Policy: The State of Montana will promote source reduction as the most important method of solid waste management.

Goal: Every community will participate in a source reduction program, encouraging source reduction through purchasing decisions and waste disposal options for individual homes and businesses.

What Is Source Reduction?

Section 75-10-802(7) of the Montana Integrated Waste Management Act defines "source reduction" as "The design, manufacture, purchase, or use of a material or product, industry, packaging to reduce the amount or toxicity before it enters the solid waste stream." This simple concept has major implications. Source reduction requires manufacturers to change how goods are produced, packaged, and sold. It requires consumers to change their attitudes, habits, and behaviors concerning how and what they buy.

HIERARCHY OF INTEGRATED WASTE MANAGEMENT



Avoiding the creation of waste is the first and most important step in reducing the amount of waste that requires disposal in Montana. Source reduction avoids the costs of recycling, municipal composting, landfilling and incineration. It also conserves natural resources and reduces pollution, including greenhouse gases that contribute to global warming. It is imperative that the State of Montana makes waste reduction a priority and

actively encourages its practice as the first method of waste management. Methods of source reduction are as follows:

Decreased Consumption

Consumers can decrease waste by carefully planning their purchases to buy fewer and more durable items. Manufacturers typically design for short product life and then spend millions on advertising to encourage consumption. Consumers can reduce waste by changing these consumptive patterns; however, these patterns are quite embedded in the American consumer.

Increasing Product Durability

Often, products are manufactured cheaply with poor materials or workmanship. They may be designed in such a way that they cannot be easily repaired. Waste is encouraged when it becomes more economical for consumers to buy cheap replacements for their products than to repair existing ones. Building things to last longer reduces waste. Consumers must learn to look at the lifetime cost of products before buying the apparently cheapest model.

Reducing Packaging

Packaging has an important role in our society. It can help to keep food fresh, protect products, prevent shoplifting and tampering, give instructions and product information and make purchasing more convenient. Packaging also accounts for one third of municipal solid waste. Manufacturers have implemented programs to reduce the weight and/or volume of packaging without jeopardizing their products. EPA estimates that 12 million tons of containers and packaging were source reduced in 1999. An example is the reduction of the weight of 2-liter plastic soft drink bottles from 68 grams to 51 grams. Consumers can make a difference by making more careful choices when they shop, avoiding products that are overly packaged, buying products in bulk and using their own containers when possible.

Manufacturing and Using Less Toxic Products

Because the toxic portion of our waste stream creates the most serious water quality problems associated with landfills, decreasing the toxicity of our waste is an important part of source reduction. Many common home and shop products, in addition to industrial and commercial waste, contain toxic substances. In many cases, alternative products that are not toxic, or are far less toxic, can be substituted. This is not only environmentally protective, but reduces health risks. Consumers should choose to buy less toxic alternatives at work and at home. Retailers should stock and promote them.

Composting Yard Waste and Food Scrap

According to EPA waste characterization studies (Chapter 4), over 23% of municipal solid waste is yard waste and food scrap. Cutting lawns longer and leaving clippings to naturally decompose can easily reduce yard waste. Food waste can be composted with leaves for soil amendment. (See Chapter 9) Although Montana has several compost facilities in operation, the majority of lawn waste and nearly all food scrap are landfilled.

Calculating Source Reduction

The EPA has conducted intensive studies designed to measure source reduction of the municipal solid waste stream. This includes reduction in durable and non-durable goods, packaging, food scraps and yard waste. The EPA uses consumer spending as a benchmark of waste generation. Using the ratio of consumer spending to waste generation from 1960 through 1990, the EPA estimated the amount of waste that would have been generated in 2000, if no source reduction had taken place. Comparing these estimates to actual waste generation data indicates that 55 million tons of solid waste was eliminated at the source nationally in 2000. Since source reduction is largely a matter of manufacture and promotion, we assume the rate of source reduction in Montana to be consistent with national rate. By this formula, without source reduction, Montana would have generated an additional 229,400 tons of solid waste in 2000. The largest category of reduction was yard trimmings, which accounted for nearly 40% of the total reduction. The packaging category was also substantially reduced, as large quantities of glass packaging were replaced by lighter weight plastic. For a more detailed explanation of methodology for measuring waste generation and source reduction, please refer to the EPA document *Municipal Solid Waste in the United States: 2000 Facts and Figures, Appendices A & B.*

Environmental Issues

Source reduction is Montana's first waste management priority because it alleviates environmental problems associated with disposal by reducing the amount of waste that must be handled. This means less landfill leachate, ash disposal, transportation, and fewer landfills, incinerators and recycling facilities. Decreasing consumption and using more durable goods reduces the manufacturing pressure, which, in turn, reduces the use of energy and natural resources.

Economic Issues

Implementing source reduction educational programs may be the least costly of waste management methods. Source reduction activities eliminate further handling and disposal costs, as well as the initial impacts of manufacturing an item.

Source Reduction Resources

Green Reports, published by Green Seal, can be found on-line at http://www.greenseal.org/index.html. Green Reports are comprehensive lists of products determined to be environmentally preferable, based on durability, toxicity and packaging options. Montana DEQ also maintains a list of environmentally preferable products. MSU provides source reduction information in its Precycle Shopping Program Small Business Pollution Prevention Program and Headwaters Recycling provides information through its school program.

Barriers to Source Reduction

1. Social and cultural values favor convenience, lower costs, time savings and newness in consumer products. We live in a consumption-driven economy.

2. Consumers do not generally think about source reduction and often confuse it with recycling. There is a general lack of understanding about what consumers can do to prevent waste at its source. People do not know how to recognize products that have less packaging, use fewer resources or are less toxic.

3. Source reduction alternatives are often less available and less known to consumers. It can be difficult to find products that are less toxic, environmentally preferred, concentrated, available from bulk sources, or built to be repaired. It is often more economical to replace a product than repair it.

4. Few economic incentives exist for consumers to practice source reduction.

5. Source reduction is hard to measure. This makes public and government support and funding difficult to obtain.

6. Concerns over health safety and cleanliness have created a need, or perceived need, for additional packaging.

7. Many purchasing policies focus on purchase price rather than costs over the life of the product. This often results in selecting products that are less durable and more expensive over the long run. Products that have a higher purchase price may be a better choice if they will last longer.

Recommendations

1. Implement life cycle cost purchasing for state and local governments. Life cycle cost purchasing considers the costs of repair, maintenance and replacement over the lifetime of a product in addition to the initial cost. It can even include the final disposal cost. This can be implemented by state and local governments and by businesses and consumers. Purchasing policies may need to be implemented or changed to focus on life cycle cost. Education and resources

that assist purchasing agents in making choices resulting in source reduction are needed as part of the effort to implement life cycle cost purchasing.

2. Educate consumers about the benefits of source reduction. Consumers as a group and over a lifetime of purchasing do have influence. Manufacturers market their products by appealing to what they believe consumers want. An educated public can influence packaging and product availability by stating what they want, choosing to purchase products that last longer and have less packaging.

3. Educate businesses about the benefits of source reduction. This education should focus both on business practices used in selecting products and in their processes when providing goods and services to the public.

4. Encourage Pay-As-You-Throw pricing. This will provide an economic incentive for consumers, businesses and governments to reduce the amount of waste they generate. Pay-As-You-Throw pricing sets the cost for disposing of waste based on how much is thrown away. A sliding scale can be used to provide some waste disposal at a low rate, then increase the rate as more waste is disposed of.

5. Strengthen and support existing education programs for consumers and businesses.

Other Strategies Considered

1. Legislation to require less packaging or certain types of packaging. It is difficult to recycle many packaging materials because of their content, so these materials often end up in the landfill. Requiring consistency in plastic, wood, and paper materials would reduce the amount of these materials going into the landfill. Montana would have to join with other states in order to accomplish this, as we do not have the volume of materials crossing our borders to be able to influence the national industries.

2. Implement a per ton surcharge on MSW to fund educational programs for businesses, citizens and schools throughout the state.

Chapter 7: REUSE

Policy: The State of Montana will promote reuse of products and materials that would otherwise become part of the waste stream. Reuse is preferred over recycling, landfilling and incineration as a solid waste management method.

Goal: Every community will have an active reuse program.

What Is Reuse?

Reuse is defined as using a product, in its original form, for a similar or different purpose from what it was originally designed. Reuse of products and packages delays the times when the items must finally be discarded as waste. The purchase of a new product is delayed or eliminated through reuse, saving raw materials and transportation costs.

Forms of Reuse

There is a long history of informal reuse of commodities as neighbors and family members pass usable goods from one to another. Large appliances and furniture often find second homes when their original life is spent. Most cities of size in Montana have a least one "second-hand" store with products including kitchenware, clothing, yard and garden supplies, furniture and house wares. Landfills and transfer stations often set aside areas for the drop-off and retrieval of usable items.

Refillable containers can be reused numerous times. The Glass Packaging Institute estimates that refillable glass bottles achieve a rate of 8 refills per bottle. Reusable plates, cups and dinnerware are preferable to disposable products when sufficient sanitation can be achieved. A washable, reusable cloth can replace paper towels for most spills and kitchen cleanups. Appliances, furniture and clothing that are not in reuse condition may still be reused with repair or cleaning. Refurbished appliances, electronic equipment and auto parts are all readily available to consumers. Corrugated boxes, wood pallets, and other shipping containers can generally be used more than once.

Reuse in Montana

Montanans continue their informal tradition of reusing clothing, toys, household goods, appliances, and vehicles, through backyard sales, second-hand stores and donations to numerous charities. Legislation in 1999 allowed obsolete electronic equipment from state agencies to be distributed to Montana public schools. By 2002, the Office of Public Instruction had facilitated the distribution of over 3,000 computers to

Montana schools. Government agencies and private businesses reuse file folders, office paper and refurbished ink cartridges. Although the quantification of these activities is beyond the scope of this document, reuse efforts have made a substantial positive impact on waste reduction in Montana.

Reuse Resources

The Montana State University maintains a *Materials Exchange* website with a listing of products available for reuse. Telephone directories contain listings by product type, as *Furniture-Used*. Newspaper classified ads list merchandise available for reuse. Several newspapers will run "give-away" ads at no cost.

Environmental Issues

The Environmental Protection Agency discusses reuse as a form of source reduction. Although most materials will eventually enter the waste stream, reuse delays that process and may lessen the need for production of new materials. Reuse relieves environmental problems associated with disposal. A smaller waste stream may result in less landfill leachate, less ash disposal, less transportation, and extended landfill life. All of these have associated environmental impacts. Reuse is preferable to recycling because products do not have to be remanufactured. Markets for reused items are generally local, eliminating transportation barriers. Reusing goods reduces the manufacturing pressure and the resulting environmental impacts associated with resource extraction, energy consumption, transportation and pollution.

Economic Issues

Public education about reuse is probably the single most important strategy for implementing a reuse program. Consumers need to be made aware of the quality of used and refurbished products. The negative concept of buying "used" must be countered with a positive image of "waste reducer", "earth protector" or "environmental guardian".

Barriers to Reuse

1. Manufacturers may design products to become obsolete and to be more expensive to repair than replace. These issues must most often be addressed at the national level.

2. Public perception affects consumers desire to reuse goods. In some cases there is a perception that used items are of little value and that it is not proper to use what others have discarded. There is also a perception that new is better.

3. There are barriers to salvaging at waste facilities involving liability and public health and safety issues. Reuse areas can become unsightly if not well organized. County ordinances against community decay might deter these sites.

4. People must invest time and energy to find, clean and repair used items.

5. It is not always clear what the quality or life of the used material will be. There are no warranties for used materials.

6. Reuse programs take time, money and energy to organize and maintain. There is not a large margin of profit for the resale of used items.

7. Vendors and distributors of used materials for business use are difficult to find.

8. Technology changes rapidly. Items that may be working well for their intended purpose become out of date quickly and of little value to others.

Recommendations

1. Increase the number of reuse areas at transfer facilities and landfills. Provide a place to set aside goods that can be reused. Promote the reuse area so the public is aware of it and will participate.

2. Provide recognition of reuse programs. Reuse programs provide a good way to get a community involved in solid waste issues. Paint swaps and similar events encourage reuse and promote civic good will. Reuse programs can be promoted as "green" or good for the environment. While reuse of items sometimes has a stigma associated with it, there is a positive association with "green" programs.

3. Promote waste exchanges. Waste exchanges do not need to involve a central location; they can occur through newspapers, publications of civic organizations, community bulletin boards, and computer networks. Information about people who have useable products they do not want, and people who need products they do not have, should be listed and made available to the public. The two parties negotiate the exchange on their own. The Montana Materials Exchange operated by the MSU Extension service is a valuable resource in promoting useable materials that are available electronically for businesses and people who want to dispose of wastes or purchase used goods. The Montana Materials Exchange can be contacted at http://www.montana.edu/mme.

4. Promote business and government reuse resources. The State of Montana offers surplus property to state agencies, local governments, non-profits and others. There are new businesses offering used construction materials. Awareness of these and other avenues to purchase used materials will lead to additional use of used materials.

Other Strategies Considered

1. Provide economic incentive for reuse. Policy makers should consider the economic incentives and disincentives recommended in Chapters 5 and 6 for their impact on reuse as well as source reduction. In addition, tax credits should be given to businesses specializing in repair, restoration, or remanufacture of products; or to businesses participating in efforts to standardize products to facilitate reparability and interchangeability of parts.

2. Legislation requiring long life or reparability. Mandating that materials be manufactured to certain standards so they could be repaired or reused would make it easier for reuse to occur and would change the perception that items need to be new. However, Montana is not in a position to influence the market in this way because of our small population. Montana should follow other states and join together to influence product legislation when it is possible to do so.

3. Educate consumers, businesses and governments. Conduct public education campaigns on precycling and making choices to reuse goods.

Chapter 8: RECYCLING

Policy: The State of Montana will promote the steady increase in the amounts and types of materials recycled by promoting collection, processing and remanufacture of materials, as well as the purchasing of recycled goods. Recycling is preferable to both landfilling and incineration as a solid waste disposal method for all recyclable materials. Markets for all recyclable materials will be established whenever possible; recycled and recyclable materials will be purchased and used when available.

Goal: Every community will participate in a recycling program, recycling all solid waste that can be practically recycled, encouraging the development of markets for collected materials, and purchasing used and recycled commodities when available.

Information on the type and amount of materials that are being recycled will be collected and made available to businesses and the public.

Introduction

When the useful life of a product is over and no way has been found to reuse it in its original form, it may be recycled through the remanufacture of all or part of it into a new product. Recycling is a higher priority than landfilling and incineration, because it helps conserve valuable resources and energy. At every stage in the production of a product, virgin materials, energy and resources are consumed. In some cases, these resources are scarce, must come from long distances, and take large amounts of energy to process. Metals take great amounts of energy to mine and smelt, and additional energy to manufacture into containers and products. Recycling aluminum, for example, saves 70-95% of the energy involved in production of aluminum from bauxite ore.

Recycling requires changes in behavior and habits of consumers, retailers and manufacturers. When buying a product, consumers need to consider whether it is made from recycled material, and if it can be recycled in their community. They must take the time to separate it from wastes destined for disposal. At the community-wide level, retailers and other businesses must purchase recycled products for their own use and for sale, in addition to collecting their own wastes for recycling. Manufacturers in many industries have begun to make investments in the equipment and processes needed to use post-consumer materials in manufacturing their products.

The Recycling Process

The major steps in recycling are the collection of materials from consumers, the processing and transportation of those materials, the conversion of those materials into useful products through remanufacturing, and finally, the purchase and use of those new products. It is important to find a balance of each of these parts of the equation. Without a strong commitment in each of these areas, the recycling process cannot succeed.

Collection

Several collection methods are currently in use in Montana. They include:

- Drop-off centers operate in many areas of the state. Separate bins for source-separated materials are placed at convenient locations for consumers to drop off their recyclables. Often, the collected materials will then be transported to a buy-back center.

- Buy-back centers depend on consumers to deliver their recyclables; however, they are attractive options because they pay for some materials.

- Community collection events require a great deal of volunteer effort and careful planning. Community residents store their recyclables until the collection event, when they bring them to a central location. These events have been effective for collection of Household Hazardous Wastes and Universal Wastes. At least one event has been held for collection of computers and other electronics waste.

- Commercial collection programs target the large commercial sources of recyclables. Commercial collections may generate larger volumes of separated materials for recycling than residential collections.

- Curbside collection programs, often called blue bag programs, are the most convenient for consumers and produce the best results. They are also the most costly to maintain compared to the above options.

- A hybrid of two or more programs may be the most effective alternative for some communities.

Commonly in Montana, private recycling companies operate buy-back centers and work with communities that may have a variety of other collection mechanisms. In many communities, non-profit groups or local recyclers operate drop-off bins. Some communities sponsor occasional high-visibility collection drives. Several landfills and transfer stations offer recycling areas where recyclable waste can be separated by material. There are few curbside collection programs operating in Montana.

Processing and Transportation

After materials have been collected, they must be prepared for market. This may involve additional separation, baling, compaction, shredding and/or storage, followed by aggressive marketing, and finally, transportation to markets. Transporting post-consumer materials long distances will be profitable only when the value of the commodity exceeds the cost of transportation. Typically, prices are higher for metals, which cost more to extract and manufacture from virgin materials than for materials made from petroleum and wood products. Recycling opportunities in Montana for many items are limited by the high cost of transportation to regional markets and for lower value commodities such as plastics and glass. An important factor in increasing recycling will be decreasing transportation costs by developing local markets.

Remanufacture

Successful recycling requires a consistent supply of good-quality materials for the manufacturing process and a demand for the end product. Remanufacturers need assurance of consistent supplies of materials in order to maintain their own production schedule and to meet their own customer requirements. Given Montana's vast area and minimal population density, collection of sufficient quantities of goods to recycle can be difficult. It is unlikely that major new industries will develop to remanufacture goods. Efforts must focus on finding existing or new local opportunities for remanufacturing or recycling of materials.

DEQ, local governments, private industry and non-profit organizations continue to work to develop new markets. Together, beginning in the late nineties, great strides were made in recycling post-consumer glass. The cities of Great Falls, Bozeman and Missoula used a total of over 1200 tons of recycled glass between 1997 and 2000. The glass was used as fill, aggregate and surface material in construction and road construction projects. By the close of 2002, the Montana Department of Transportation and the Montana DEQ were preparing plans for the use of glass as fine aggregate in road base. Pilot projects were being planned for the spring or summer of 2003. Two cement manufacturers used over 800 tons of crushed glass in 2000 as a sandstone substitute. In addition, in 2000, a fledgling business in Gallatin County began using crushed glass in the manufacture of composite products ranging from countertops and benches to curb stops.

Remanufacturers are concerned about the net cost of the post-consumer materials, and the existence and location of the end-user markets. They must be able

to buy the supply at a low enough price to sell their product at a profit. Remanufacturers want assurance of long-term commitments by the supplier of the post-consumer material and by the end-user to purchase the recycled product. In other words, they need to be confident of supply and demand. With such assurances, the remanufacturer can justify the capital investment needed to buy new equipment or revamp processes for using more post-consumer material.

Purchasing

Without a consistent demand for products, remanufacturers cannot maintain production. When remanufacture production decreases, so does the remanufacturer's demand for supply of materials. For the recycling process to work and continue to expand, consumers must purchase products containing recycled content. A vital recycling strategy is to educate consumers on the availability and quality of recycled products. Consumers must demand that their suppliers provide products with recycled content or shop elsewhere. Cooperative buying can produce the purchasing power to make such demands. *Green Reports*, published by Green Seal, can be found on-line at http://www.greenseal.org/. Green Reports are comprehensive lists of products determined to be environmentally preferable, based on post-consumer content, durability, toxicity, and packaging options. The Montana Department of Environmental Quality publishes the *Montana Guide For Buying Recycled Products.* It is available in hard copy and at http://www.deq.state.mt.us/.

Recycling Activities In Montana

Recycling activities have expanded throughout the decade. By 2001, over 50 separate organizations, cooperatives and businesses operated recycling facilities, with collection points in hundreds of locations. A listing of organizations in Montana can be found in Appendix D. Although exact calculation of recycling success continues to be hindered by incomplete reporting, DEQ reports a substantial increase over the previously reported 5% recycling rate, with some counties nearing 20%. DEQ estimates an overall recycling rate in Montana of 15%.

State Agency Recycling

State government has taken a leadership role in promoting waste reduction and recycling. A 3 R's (Reduce, Reuse, Recycle) Program was implemented by Governor Racicot. Governor Schweitzer continues to encourage waste reduction, with an emphasis on energy conservation. Examples of state agency waste reduction efforts include availability and use of recycled-content products, energy-efficient products, and toxic-alternative products by the Central Stores, the office product supplier for state government. In 1999, 302,609 of the 393,081 reams of the Bond paper sold by Central Stores contained at least 30% post-consumer content. An additional 1,000 cases of miscellaneous paper containing at least 30% post-consumer content was sold. All of the 11,155 cases of coarse paper (tissue, napkins, towels, toilet tissue) sold through

Central Stores contained post-consumer content. Other state agencies are taking lead roles in the use of recycled products other than paper. The Department of Transportation purchased 1.5 million pounds of recycled glass beads for pavement striping. The Highway Patrol Division of the Department of Justice chose to purchase a refurbished photographic mini-lab, saving an estimated $58,000 over the price of a comparable new system.

As quality and availability of products containing post-consumer recycled content products is improving, the practice of buying products manufactured from post-consumer materials continues to expand. The need remains for stronger commitments from large and small consumers to seek out and purchase products with recycled content.

Waste Diversion Through Recycling

Although recycling efforts have been encouraging, Montana continues to be plagued by a lack of accessible markets. Glass, plastic and rubber remain largely untouched by recycling. The recycling process in Montana must be market-driven. With weak or absent markets for otherwise recyclable materials, these items will continue to be landfilled.

Incentives

The Montana State legislature has provided for financial incentives to encourage the use of goods made from reclaimed materials and to discourage consumption of the same goods made from virgin materials. These incentives include:

- A tax credit to individuals and businesses for investments in property used for collection or processing of post-consumer materials, or for re-manufacture from post-consumer materials. (Title 15, Chapter 32, Part 6, MCA).
- A tax deduction for the purchase of recycled materials used by business and claimed as a business expense. (Title 15, Chapter 32, Part 6, MCA).
- Persons with beneficial interest in a business may receive a credit of up to $500 against the air quality permit fees for businesses using post-consumer glass (§ 75-2-225, MCA).

See Appendix G for a complete explanation of Montana's financial incentives.

Environmental Issues

Recycling offers environmental benefits similar to source reduction and reuse. Recycling impacts far more than landfill capacity. Recycling conserves energy and natural resources, and reduces air and water pollution. For example:

- Aluminum recycling saves 70-95% of the energy needed to make aluminum from bauxite ore. *
- The energy saved from recycling one aluminum can will operate a computer for three hours. Energy savings from nation-wide aluminum can recycling in one year are enough to light a city the size of Pittsburgh for six years. (http://www.cancentral.com)
- Steel recycling saves 76% of the energy needed to make steel from iron ore. *
- The annual recycling of steel saves the energy equivalent of electrically powering 18 million homes for a year. *
- In 1993, the amount of energy saved by recycling was equivalent to 19,300,000 barrels of oil. *

Recycling reduces the amount of greenhouse gases, carbon dioxide and methane generated. For example:

- Recycling the newsprint, cardboard, glass, and metal from one home would prevent the generation of nearly a half-ton of carbon dioxide each year. *
- Purchasing food in recyclable packaging would prevent the generation of an additional 230 pounds of carbon dioxide per year. *

*Courtesy of University of Colorado at Boulder and the Tri Community Recycling and Sanitary Landfill of Caribou Maine.

Diversion of material from landfills also reduces the potential for toxic concentration of leachate introduced into ground water systems. Landfill leachate requires costly treatment for ammonia, nitrates, oil, cyanide, phosphorus, or other hazardous materials.

An assessment of the environmental impact of waste diversion must consider these long-term and future benefits when looking at the initial challenges and cost.

Using data compiled by the University of Colorado at Boulder, the Tri Community Recycling and Sanitary Landfill of Caribou Maine, and Montana DEQ, the following estimate of environmental benefits from recycling in Montana for the year 2002 has been determined.

2002 Total Savings From Recycling (without compost)
Tons Recycled - 80,065

Trees	Electricity KWh	Water gallons	Pollution lbs air	Landfill yd^3	Landfill Tip Fee
17/ton	4100/ton	7000/ton	60/ton	3/ton	$33/ton
1,361,105	328,266,500	560,455,000	4,803,900	240,195	2,642,145

Economic Issues

Recycling can help expand economic activity, provide new local market development and create jobs, as shown by the experience of states across the country. In Montana alone, recycling already provides more than 300 jobs and revenues of more than 89 million dollars, as shown in a recent report published July 2004 by DEQ*. The analysis included recycling related collection, processing and manufacture. The report found that recycling in Montana is a "model point for the interplay between private sector activity and social concern-between economic incentive and environmental responsibility." That recycling has an economic base that reaches throughout the majority of the state.

Collection programs can be costly to develop and maintain. The demands for recycling are less visible than traditional waste management, and may not break even when those costs are considered as well. The development and sustainability of a recycling program depends on cost-effectiveness. Capital, operating, transportation and external cost must be considered.

Local governments and citizens alike must recognize that recycling will cost money and must be paid for as a public benefit like police protection, water treatment, and garbage collection and disposal.

All recycling options incur collection costs. However, curbside collection of source-separated recyclables is significantly higher than for mixed waste. Using the same collection vehicles on the same routes to collect mixed waste and recyclables on an alternating schedule can lessen the difference. Drop-off bins, buy-back centers, materials recycling facilities and collection events are much cheaper for local governments, because residents do their own hauling. Studies on the costs of recycling vary widely, depending on the location and type of program. Decision-makers can only determine true costs by examining the unique factors at their specific site.

*The *Economic and Ecological Impacts of Recycling in Montana,* July 2004, Air, Energy, and Pollution Prevention, Montana Department of Environmental Quality

Barriers to Recycling

1. Long distances to markets and high costs of transportation make recycling difficult for many commodities in Montana. Our low population density results in low volumes of recyclable materials. This low volume of materials can make it even more difficult for transportation to be cost effective.

2. Lack of local markets for recyclable materials is a barrier to recycling. Local markets are needed particularly for the commodities that are heavy, difficult to consolidate, or low in value and therefore not cost effective to ship long distances.

3. Landfills are easy and convenient, and still relatively inexpensive in Montana. The low cost of landfilling wastes makes it difficult for recycling to be an economic choice based just on the cost of disposal. Consumers and policymakers are often unaware of the full cost of waste management.

4. There is a lack of commitment by the public to fully support recycling in all its forms. Recycling can be more expensive than disposing of waste in a landfill. Yet, the public expects there to be an economic benefit from recycling. Products made from recycled materials sometimes cost more than from virgin materials. But, consumers base many of their buying decisions on price.

5. There is a lack of funding for recycling programs. This includes local funding for equipment needed for collection and processing, and funding for programs that assist public and private recycling efforts through collaboration, partnerships and information.

Recommendations

1. Develop local markets for recyclable goods. Collaborate and form partnerships between private and public entities to create these local markets. Follow the example set for recycling glass in Montana, where private industry was able to use the glass as a substitute raw material providing a benefit to the local communities for recycling. This required changing state regulations to allow an alternative source of material that provided many benefits.

2. Provide economic incentives for recycling. Consider extending or making permanent the recycling tax credits and tax deduction. The recycling tax credit is for businesses that purchase equipment needed to process materials for recycling. The tax deduction is for persons who use recycled materials.

3. Support national legislation that requires manufacturers to take back their products at the end of their useful life. Montana does not have enough influence in the market to require anything of manufacturers. Yet, mandates similar to what is in place in other countries would have great impact on creating markets and making collection cost effective.

4. Provide opportunities to work together to increase opportunities for recycling. Collaboration and coordination of efforts between local governments, private and public landfills are necessary. These opportunities need to be both formal and informal, and include sharing both information and resources. For example, sharing equipment between sites and providing centralized sites for storage and processing may reduce costs and improve services. By working together, larger volumes of materials can be collected more efficiently and with lower cost to the communities.

5. Work collaboratively with other solid waste and recycling interests to identify barriers to recycling. Propose legislative solutions to those barriers when there is agreement of the affected parties.

6. Expand recycling opportunities through additional funding mechanisms with support of the solid waste industry. Increase solid waste fees to help pay for recycling programs. This was one way of increasing funding for recycling in Montana. It had conceptual support from many members of the task force, depending on how the funds would be set up and used. Collecting special fees and directing them back to local areas through grants or loans was of interest to many members. However, there was concern over the need to carefully set up a process to ensure that funds would be used as planned. Increasing solid waste fees would only be done with support of those involved, particularly the fee payers. Proposed programs for using solid waste fees would be coordinated through the Solid Waste Advisory Council.

Other Strategies Considered

1. Make consumers more aware of why recycling is important. Consumers need to understand the importance of recycling because of the savings of resources and energy. In American society there is an emphasis on consumerism with a constant bombardment of advertising that encourages more purchasing of products with special needs and short lives. New is considered better. We as a nation consume large amounts of the world's resources for a relatively small population. Consumers need to be educated that recycling is a preferred method of waste disposal.

2. Training for government and business purchasers. Government and businesses purchase large amounts of goods and have the ability to influence the market by their purchases. Training of purchasing agents could result in larger amounts of goods with recycled content being purchased and gaining better acceptance and better market share.

3. Training for teachers. Teachers reach students when they are forming their opinions about the importance of recycling. These opinions are important in gaining acceptance of the need to recycle that will be carried into their adult lives. The students also have an immediate impact on recycling, because they influence their parents and the recycling practices of their homes. Students are often the ones responsible for recycling efforts in their homes.

Chapter 9: COMPOSTING

Policy: The State of Montana will promote the composting of organic materials.

Goals: Increase composting of residential and commercial wastes in Montana communities. Increase the use of compost by individual citizens, businesses and governments.

Introduction

According to EPA figures, yard and food wastes, alone, make up 23% of the waste stream. (EPA, 2002. *Municipal Solid Waste in The United States: 2000 Facts and Figures.*) This waste can be reduced fairly easily by making the waste into compost. Composting is the biological decomposition of organic matter, such as food and yard waste, into humus. Humus is the nutrient-rich organic matter that makes soil "rich". This process occurs continuously in nature as organic matter is exposed to air and moisture. Waste managers can accelerate the process by controlling the mix of air, moisture and temperature. Commonly composted materials are food, yard waste, wood waste, feedlot waste, treated sewage sludge and paper products.

Composting provides a useful product in addition. The quality of the final compost will determine the possible markets. A high-quality compost can be used as an amendment for marginal soils or as a top dressing on lawns and golf courses. Nurseries, schools, farmers, landscapers, homeowners, and various public works projects can use compost. A lower quality product can be used as daily cover at a landfill or in construction projects, road building, or mine reclamation. Landfill operators can use compost as final cover to provide a cap, which will help establish the plants required to reduce percolation and erosion.

Composting is preferred to landfilling or incineration as a solid waste management method, because it recycles organic wastes into a useful product. Consumers & businesses should consider source reduction of organic wastes (leaving grass clippings on the lawn) and reuse (using organic wastes as mulches or bedding) in addition to composting.

Composting can occur on a small scale in the backyard or in small-to-large scale municipal operations. All composting operations benefit from pre-composting processes such as inspection, plastic bag removal and grinding.

Composting in Montana

Currently three licensed commercial facilities, composting yard waste and bio-solids, produce approximately 42,000 tons of compost annually in Montana. Thirty municipal facilities, composting yard wastes, produce an additional 29,000 tons of compost annually. One facility opened in West Yellowstone in June 2003. That facility

composts food waste and other municipal solid waste from Yellowstone National Park and the surrounding area. Backyard composting by individual homeowners is gaining in popularity in several communities.

Composting methods

Turned Windrows are elongated piles that are turned regularly to control moisture, temperature and oxygen. Turning can be accomplished with a front-end loader or a specialized compost turner. The inside of the piles will reach 140 degrees F, even in below freezing weather. This method will produce finished compost in 12-24 months. The costs can be competitive with landfilling. This is the most common municipal composting design.

Aerated static piles differ from windrows, in that a network of perforated pipes under the piles accomplishes aeration. The piped air eliminates the need for pile turning. Aerated static piles are commonly used for composting treated sewage sludge, food waste, and high volumes of fresh grass clippings where aeration and temperature control are crucial. A bulking agent such as wood chips, yard waste, shredded paper, or sawdust is used to increase aeration and carbon content. Aerated static piles are a more expensive option than windrows, but may be necessary for communities that wish to compost sludge, food and yard waste.

In-Vessel systems are highly mechanized systems that produce compost very quickly, often in a few weeks. They are the most expensive option. The University of Montana in 2004 initiated a compost system at the campus food facility using an In-Vessel system. Leachate and wash solutions are disposed directly into the sewer system. The totally enclosed design of the In-Vessel system also eliminates pest concerns in the food facility.

Bioconversion is a relatively new process not currently in use in Montana. Anaerobic digestion is carried out in an enclosed tank. It produces a liquid organic fertilizer, methane gas, and by-products.

Home composting is gaining popularity across Montana. A backyard composting system can cost as much as several hundred dollars or as little as a few cents. Many companies market bins, barrels, and tumblers, each with an assortment of accessories.

Environmental Issues

Composting reduces the amount of waste going into landfills and the problems associated with decomposition of organic waste. Organic materials, such as food and grass clippings, often are the primary source of moisture in the landfilled waste stream. Elimination of compostable waste can result in a reduction of leachate generation at landfills. Organic materials are also the source of methane gas, one of the primary air pollutants produced at landfills. Methane is produced in insignificant amounts during the

aerobic composting process. Composting also provides a valuable soil amendment with numerous uses, including:

- Reforestation, wetlands restoration and habitat revitalization
- Erosion control and turf remediation
- Disease control for plants and animals
- Bioremediation of contaminated sites
- Remediation of soils contaminated by explosions

It is clear that compost markets extend far beyond landscaping.

The primary problem associated with composting is the odor that can result from improperly run operations. Operators can control odor by pile management or air filtration. Odors are generally not a problem in low-technology operations involving yard waste only, as long as piles are properly turned. Odors can result when grass clippings begin decomposing anaerobically (without adequate oxygen). Leachate may form when excess water is allowed to run through the composting material. Composting leachate can contaminate ground and surface waters.

Heavy metals contamination can be a problem associated with mixed municipal solid waste and sludge composting. This results in compost products unsuitable for food-producing applications. Most pesticides do not persist through a proper composting process, but some persistent pesticides have remained in compost. From compost, they can find their way into the food supply. Proper site selection, preparation and proper operational practices will reduce the negative impacts associated with odors, metals, and leachate formation.

When complex waste streams, such as sewage sludge and food waste are composted, the potential for leachate production, heavy metal contamination, and public opposition increases. Animal wastes contain proteins, fats, and oils that are difficult to degrade, may attract pests, and may carry microbial pathogens. Such co-composting operations are carefully regulated by DEQ.

Economic Issues

There is a growing market for compost in Montana. Besides the traditional use of compost as a garden and yard soil amendment, numerous new and innovative uses of compost have been documented. Compost can help in the reclamation of environmentally damaged areas resulting from agriculture, mining, construction and natural causes.

Cost savings include the deferred cost savings of avoided landfilling of compostable waste and the revenue from sales of finished compost. In 2003 the Montana Department of Transportation launched a three-year project researching the use of compost for re-vegetation of areas disturbed in highway construction. Mining companies are using compost in the reclamation of mined lands. These new or expanded uses of compost will continue to strengthen markets. There is a strong potential for growth in compost markets in Montana.

Barriers to Composting

1. Wide availability of landfills at low cost is a barrier to composting. Yard wastes can be disposed of safely and cheaply at all landfills.

2. Composting can be more expensive compared to landfill disposal. Compost operations take a considerable amount of space to operate and need a constant supply of materials with the right mix of carbon and nitrogen.

3. There are inconsistent standards for compost making it difficult for companies to compete with various products and difficult for consumers to choose between compost products.

4. Public apathy for sorting organic waste materials and delivering them for composting reduces the amount of feedstock available for composting and increases the amount of materials going to the landfills.

5. There is a lack of adequate markets for compost. Consumers may not understand the value of composting, or may be concerned about the biosolids or herbicides that have been included in the compost. Sometimes people are willing to use compost, but expect it to be free or very low cost.

Recommendations

1. Conduct highly visible demonstration projects using compost. Consider applications along roadsides and in public parks. Share the results of the demonstration projects widely so that businesses, governments and citizens can see the benefits of the application.

2. Increase markets for compost. Focus on markets that will provide an economic benefit to the company or local government that is producing the compost. Develop acceptance of the product by state and local governments for re-vegetation along roads and use in public parks. Work with businesses to specify compost to be used in landscaping applications. Develop additional markets for the application of compost in land reclamation.

3. Enact specifications for compost. Review the standards that have been produced or used by different government or private organizations. Enact

standards or specifications so that competition is fair in manufacturing compost and so the consumer has confidence in the product. Incorporate the ability for different products to be used for different applications.

4. Educate the public about the benefits of compost. Include educational components on how to sort wastes, how to select compost, and what to expect from compost. Provide information on back yard composting and municipal composting that citizens can participate in. Also provide education on the purchase and use of compost and the benefits of compost for the environment.

5. Educate businesses about the value of composting. Grocery stores and restaurants produce wastes that can provide reliable feedstock for composing operations. They need education, both factual and persuasive on the benefits of composting and how to participate in local composting opportunities. Contractors and landscapers may also need education on the benefits of using compost over traditional chemical fertilizers and on the opportunities for composting the waste materials from their businesses.

6. Develop partnerships to reach common goals. Private and public entities need to work together to increase composting. By combining efforts, available feedstock materials for composting can be increased, additional markets can be developed, and the amount of waste materials going into landfills can be reduced.

Chapter 10: LANDFILLING

Policy: The State of Montana will regulate all landfilling of solid waste in Montana and enforce laws to protect the public health and welfare of Montana citizens. Landfilling is a lower priority than source reduction, reuse, composting, and recycling as a method for solid waste management.

Goals: Landfills will be operated in a manner to protect public health and welfare and to protect the environment. The best available science will be used in managing landfills while keeping operating costs low. Material should be diverted from the waste stream to reduce both the volume of materials and the toxicity of materials entering landfills.

Introduction

Local and regional landfills continue to be the most common destination for Municipal Solid Waste (MSW) in Montana. Although the amount of waste recycled and composted has increased over the past decade, disposal in landfills still accounted for over 80% of the total municipal solid waste generated in 2000.

Landfill operations have evolved from non-regulated open dumps into regulated sanitary entombments, complete with liners, leachate collection systems, and gas monitors. Modern landfills are well-engineered facilities that are located, designed, operated, monitored, closed, cared for after closure, cleaned up when necessary, and financed to ensure compliance with federal regulations. Federal regulations were established to protect human health and the environment. Through its Solid Waste Act (Title 75, chapter 10, part 2, MCA), and administrative rules contained in Title 17, chapter 50, subchapter 5, Administrative Rules of Montana, Montana has adopted similar requirements. These Montana and federal landfill standards include:

- Location restrictions ensure that landfills are built in suitable geological areas away from faults, wetlands, flood plains, or other restricted areas.
- Liners are geo-membrane or plastic sheets reinforced with two feet of clay on the bottom and sides of landfills.
- Operating practices such as compacting and covering waste frequently with several inches of soil help reduce odor; control litter, insects, and rodents; and protect public health.
- Ground water monitoring requires the installation of ground water wells and regular sampling to determine whether waste materials have escaped from the landfill.
- Closure and post-closure care include covering landfills and providing long-term care of closed landfills.

- Corrective action controls and cleans up landfill releases and achieves ground water protection standards.
- Financial assurance provides funding for environmental protection during and after landfill closure (i.e., closure and post-closure care).

Although current landfills do not pose the health and environmental hazards of their primitive predecessors, they require continued care and monitoring for many decades beyond closure.

Classification of waste

Solid wastes are grouped based on physical and chemical characteristics, which determine the degree of care required in handling and disposal and the potential of the wastes for causing environmental degradation or public health hazards. Solid wastes in Montana are categorized into three groups:

Group II waste includes decomposable wastes and mixed solid wastes containing decomposable material, but excludes regulated hazardous wastes. Included in Group II wastes are:

- Municipal and household solid wastes such as garbage, paper, cardboard, glass, metal, plastics, yard waste, sewage treatment sludges, dead animals, offal, appliances, automobiles, and non-infectious medical facility waste
- Commercial and industrial solid wastes such as packaging materials, non-hazardous process wastes, crop residues, manure, and fertilizers

Group III waste includes wood wastes and non-water soluble solids. These wastes are generally inert and have low potential for adverse environmental impacts. Included in Group III wastes are:

- Unpainted brick, dirt, rock and concrete
- Untreated and unglued lumber
- Vehicle tires
- Inert, non-hazardous, non-water soluble industrial mineral wastes.

Group IV waste includes construction and demolition wastes and asphalt. Conditionally exempt small quantity generator hazardous waste (see Hazardous Waste section) that is generated as part of a construction or demolition project and that cannot practicably be removed from the waste can be deposited in a Group IV landfill. To keep the levels of hazardous waste to a minimum, liquid paints, solvents, glues, resins, dyes, oils, pesticides, and other household waste must be removed from buildings before demolition.

Hazardous waste

Any waste material that is flammable, corrosive, reactive, or toxic, or is listed as a RCRA hazardous waste is defined as a hazardous waste. (CFR Title 40, Subtitle C) ARM 17.55.501. Examples are gasoline, solvents, antifreeze, and caustic cleaning solutions. Individual households, farms, and ranches can dispose of small volumes of hazardous waste in a Class II landfill; however, all Montanans are encouraged to dispose of hazardous waste through a collection/recycling center or a licensed hazardous waste treatment, storage, or disposal facility. Any business that generates less than 220 pounds of hazardous waste per month is defined as "conditionally exempt" and can dispose of hazardous waste in a Class II landfill. However, a Class II landfill may refuse to accept such waste, and not all landfills will accept it. Any business generating more than 220 pounds per month must follow special procedures to store, ship, and dispose of hazardous waste (see Chapter 12).

Disposal facilities

Disposal facilities are classified according to their respective abilities to handle various types of solid waste. Although facilities are broadly classified according to the solid waste groups they may accept, specific restrictions may be placed by the DEQ on individual licenses.

1. Class II landfills may accept Group II, III, or IV wastes, but not regulated hazardous wastes.
2. Class III landfills may accept only Group III wastes.
3. Class IV landfills may accept Group III or IV wastes. Conditionally exempt, small quantity generator hazardous waste that is generated as part of a construction or demolition project, may be accepted at Class IV landfills, when it is not practical to remove it from the C & D waste.

History of Disposal Facilities

The Montana license program meets the standards of the Environmental Protection Agency's Subtitle D Regulation (Chapter 3). Numerous landfills closed in the mid-1990's when they were unable to comply with design and operation criteria required by the license program. 50% of existing landfills were permanently closed between 1993 and 2002. In March 2002, 47 Class II waste management facilities were licensed by the state of Montana. These included 30 landfills, four transfer stations, one incinerator, three composting operations, one infectious treatment facility, eight soil treatment facilities, and one facility that operated as both a Class II transfer station and a Class III landfill. The number of Class III disposal sites increased by 68% between 1993 and 2002. In March 2002, 61 Class III disposal sites were licensed in Montana. These included 44 landfills, nine burn sites, two transfer stations, two resource recovery

facilities, and the combination Class II transfer station/Class III landfill. In March 2002, there were three licensed Class IV landfills.

Landfill Capacity

As Montana continues to move forward in implementing waste reduction and a more integrated approach to solid waste management, it is obvious that landfills are and will continue to be an important part of the state's management of solid waste. As the population of Montana grows, the need for sufficient and properly operated waste disposal facilities also grows. Landfill capacity assurance is the process of planning for the future so that local governments and their citizens can be more certain that they will have access to adequate solid waste disposal capacity.

Although Montana seems to have limitless space for landfills, the costs of siting, operating, and maintaining landfills are higher than ever before. These costs will continue well into the future in order to monitor and control leachate from the landfills. 30-year monitoring and care regulations make it clear that no landfill can ever be forgotten. Nationally, communities have suffered the cost of poorly sited, inadequately maintained, and improperly closed landfills. Montana has largely avoided such catastrophes, but the tragedies of others underline the importance of environmentally sound landfills. It is important to conserve space in properly sited and operated landfills. Because of the difficulty of siting new landfills, it is increasingly important for citizens, local governments, and DEQ to work together to plan for future landfill needs. Everyone involved must be aware of trends in population growth, waste generation rates, new regulations, and other factors that influence the available landfill capacity in all regions of Montana.

Current Landfill Capacity

In 2002, there were 30 licensed Class II landfills in Montana, compared to 59 in 1993 and 87 in 1979. All of these 30 facilities must meet federal Subtitle D and state of Montana requirements for liner design, leachate, collection, methane monitoring, and other criteria. The average remaining life of these facilities is about 37 years. However, the life of the landfills in Western Montana is only 33 years. It is shorter because of the rapid growth in Western Montana. Eastern Montana landfills average 41 years of remaining capacity.

The eight largest landfills accepted almost 79% of Montana's total landfilled MSW in 2002. The eleven largest accepted 86% of the total. Each of the remaining eighteen landfills received an average of less than 8000 tons of MSW in 2002 (page 70).

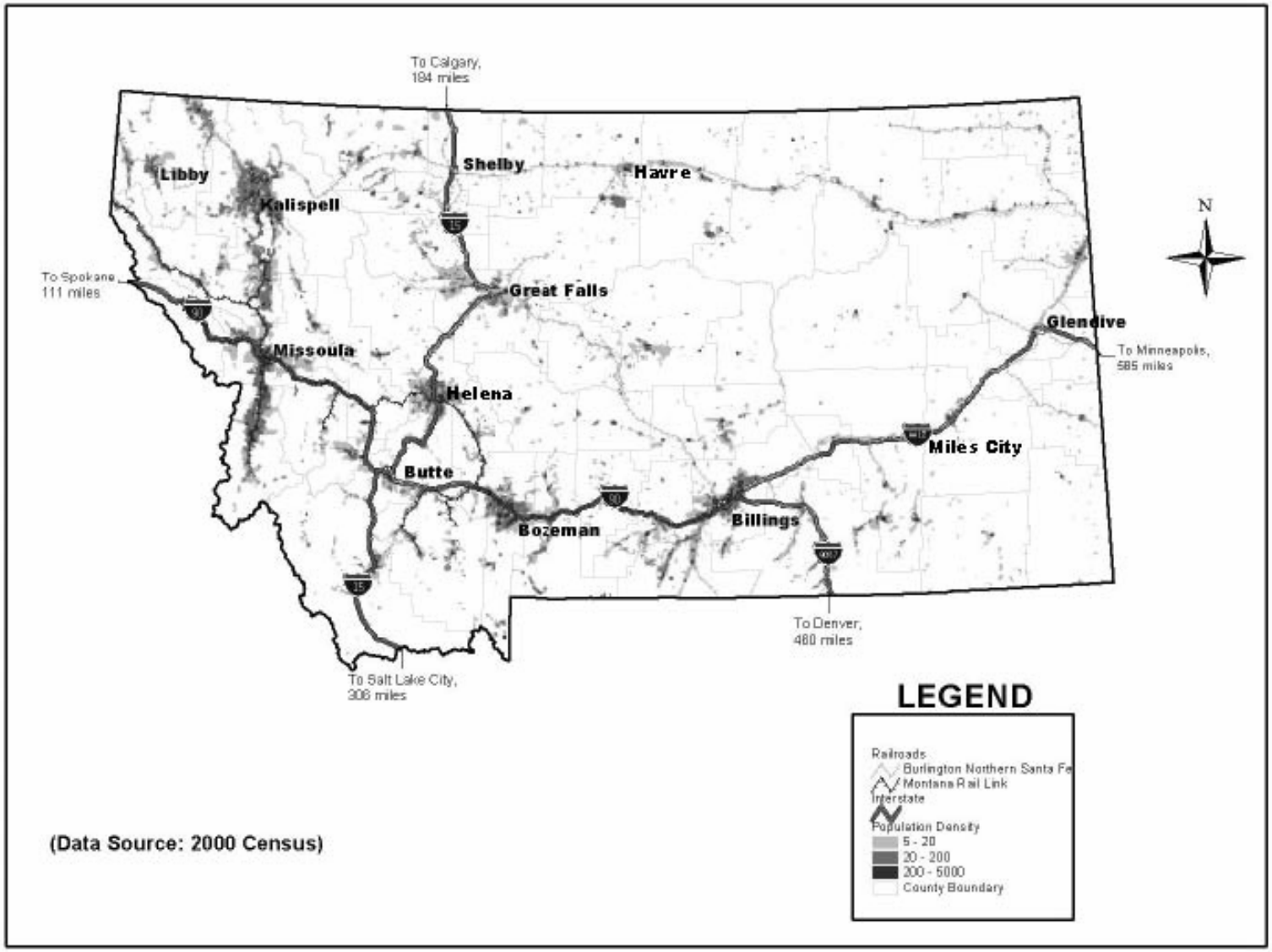
Future Capacity Needs and Population

Population projections from the Montana Department of Commerce Census and Economic Information Center project slow but steady population increase throughout the next decade. The population is expected to continue to shift to the high-density centers in Gallatin, Yellowstone, and Lewis and Clark Counties and the four-county region of Flathead, Lake, Missoula, and Ravalli along the western slope of the Rocky Mountains. In 1990, these seven counties comprised less than 50% of Montana's population. By 2010 projections, they will comprise over 58% (page 71).

Montana Solid Waste Distribution for Class II Wastes

Class	Location by County	FACILITY OPERATOR	1998 Tonnage	1999 Tonnage	2000 Tonnage	2001 Tonnage	2002 Tonnage
Class II	Yellowstone	City of Billings	**212,454**	**226,424**	**201,860**	**201,761**	**208,757**
Class II	Missoula	BFI Missoula	**137,904**	**150,036**	**144,775**	**151,142**	**152,353**
Class II	Cascade	High Plains & Recycling Center	**129,717**	**132,129**	**150,884**	**136,234**	**134,127**
Class II	Flathead	Flathead County Solid Waste Dist.	**32,935**	**76,003**	**82,729**	**88,254**	**93,775**
Class II	Gallatin	City of Bozeman Landfill	**39,468**	**43,908**	**56,760**	**63,358**	**63,081**
Class II	Silver Bow	Butte Silver Bow	**46,476**	**50,395**	**41,115**	**44,068**	**47,341**
Class II	Lake	Lake County	**50,670**	**39,643**	**38,461**	**39,946**	**42,281**
Class II	Lewis & Clark	Lewis & Clark County	**35,294**	**46,539**	**41,363**	**40,014**	**40,651**
Class II	Gallatin	Logan	**11,446**	**36,346**	**24,356**	**26,043**	**26,372**
Class II	Jefferson	Valleyview	**25,826**	**10,830**	**19,547**	**28,013**	**24,891**
Class II	Hill, Blaine, & Chouteau	Unified Disposal District	**16,886**	**23,587**	**23,027**	**23,027**	**22,241**
Class II	Lincoln	City of Libby	**25,826**	**19,444**	**19,590**	**19,590**	**19,590**
Class II	Big Horn	City of Hardin	**16,886**	**19,170**	**18,267**	**23,307**	**17,867**
Class II	Dawson	City of Glendive	**9,201**	**15,409**	**13,335**	**13,063**	**13,810**
Class II	Pondera	Northern Montana Joint Refuse Dist.	**10,292**	**15,156**	**11,000**	**12,584**	**11,220**
Class II	Richland	Richland County	**15,162**	**10,075**	**10,640**	**11,491**	**10,814**
Class II	Valley	Valley County Refuse District	**10,850**	**9,406**	**10,787**	**14,573**	**10,734**
Class II	Custer	Miles City Area Solid Waste District	**11,000**	**13,000**	**9,000**	**11,000**	**10,000**
Class II	Rosebud	Rosebud County	**7,773**	**6,692**	**7,637**	**10,129**	**9,929**
Class II	Beaverhead	Beaverhead County	**9,777**	**11,000**	**9,166**	**9,790**	**9,350**
Class II	Fallon	Coral Creek	**9,257**	**6,558**	**7,330**	**7,770**	**8,848**
Class II	Roosevelt	City of Wolf Point	**7,565**	**9,114**	**8,937**	**8,430**	**8,790**
Class II	Toole	City of Shelby	**1,225**	**4,700**	**4,735**	**4,223**	**4,589**
Class II	Powell	Deer Lodge Disposal District	**3,488**	**4,374**	**3,666**	**4,198**	**4,211**
Class II	Sheridan	Sheridan County Solid Waste Dist.	**4,461**	**2,239**	**3,289**	**3,862**	**3,731**
Class II	Phillips	Malta	**2,285**	**2,799**	**2,572**	**2,748**	**2,258**
Class II	Daniels	Daniels County	**2,514**	**1,323**	**1,295**	**5,460**	**1,231**
Class II	Liberty	Town of Chester	**830**	**276**	**276**	**780**	**780**
Class II	Powder River	Powder River County	**595**	**595**	**595**	**595**	**638**
Class II	Park	Park County Landfill	**750**	**750**	**750**	**375**	**375**
Class II	Park	Park Cty Refuse Dist. #1 Incinerator	**13,900**	**13,500**	**12,900**	**12,997**	**13,037**
Class II	Fergus	Sanitation Inc. (Closed)	**6,654**				
Class II	Fergus	Mr. M (Closed)	**1,691**				
		Total Tonnage	**911,058**	**1,001,420**	**980,644**	**1,018,825**	**1,017,672**

Major Population Centers



Environmental Issues

The environmental impacts of landfills depend primarily on what goes into them. Hazardous wastes from households and unregulated commercial sources, which comprise less than 1% of the waste stream, present the greatest risks to human health and the environment. Many factors affect the risks of landfills to human health and the environment. Among them are annual precipitation, proximity of human populations, sensitivity of environmental resources and the effectiveness of environmental control equipment.

As water moves through garbage it picks up dissolved and finely suspended particles and forms what is called leachate. The major environmental concern of landfills is the potential for leachate generation, migration, and subsequent contamination of ground water. There is evidence that leachate has migrated from some landfills in Montana and has impacted ground water quality. Since greater than 50% of Montanans depend on ground water for their drinking water supply, potential contamination from landfill leachate is a concern. The Federal Landfill Standards established landfill design requirements that minimize leachate generation and migration. The state has established regulations for the monitoring of regulated hazardous wastes and polychlorinated biphenyls (PCB) to prevent their disposal in municipal landfills. See Administrative Rules of Montana 17.50.511(1)(e).

MSW landfills have the potential to cause other environmental problems. They can produce explosive gases, such as methane. Litter, dust, noise and disease vectors can all be problems in improperly maintained landfills. Adequate enforcement of monitoring requirements and operational criteria should control these problems. Methane produced at municipal solid waste landfills can, potentially, be used to produce electricity or be captured as a fuel. There are no facilities in Montana capturing methane, but it has been done in other parts of the country where there are very large landfills.

Economic Issues

Currently, land disposal fees in Montana are low compared to other parts of the country. These apparently low costs are one of the barriers to waste reduction and recycling activities in the state. Local waste managers should consider new fee mechanisms and rate structures. For example, Pay-As-You-Throw programs establish consumer costs based on actual volume or weight of trash. Increased health protection, in the form of environmental regulations, has caused a dramatic increase in the cost of construction and operation. In many cases, the public is unaware of the total costs of disposal. The costs of a new MSW landfill include capital and interest payments during development, operations, maintenance, collection, transportation and financial assurance for post-closure activities. Economies of scale can be achieved by building one large landfill rather than several small facilities.

Landfill Operator Training

Operational practices at MSW landfills can have a major impact on the environment and public health. Training of landfill operators improves landfilling practices and standardizes operations around the state. DEQ, using fees paid by landfills, has provided training through contract and in conjunction with the Montana Association of Counties, Montana State University Extension Service, and the Solid Waste Association of North America. As a result, 95% of all landfill operators in Montana are Manager of Landfill Operations (MOLO) certified by the Solid Waste Association of North America.

Barriers to Landfills

1. There is a public concern about landfills and the environmental damage that they can do. This is based on a history of environmental damage from poorly operated landfills prior to a clear understanding of the effects of landfills on air and water quality and public health, and prior to strong regulations.

2. Finding locations for new landfills is controversial and difficult. Citizens do not want to have a landfill in their backyards.

3. Costs are increasing. Operational costs have increased and transportation costs are high for regional landfills.

Recommendations

1. Keep and maintain current level of landfill management with good design and siting. Operate the landfills on provable, sustainable science. Use best management practices and stay up to date as those practices evolve.

2. Divert household hazardous waste from landfills. Evaluate and implement programs that will provide ways to minimize the amount of household cleaners, pesticides, paints and solvents and similar materials that go into landfills. This may include education on alternative products and collection events, as well as other strategies to reduce and limit household hazardous wastes that need to be disposed of in landfills.

3. Minimize the number of landfills. The number of landfills in Montana has been reduced from 59 to 30 in the past 10 years. This number should remain fairly constant with efforts to manage the landfills carefully to prolong the life of existing landfills and protect human health and the environment, rather than build new landfills.

Strategies Considered

1. Implement Pay-As-You-Throw programs to reduce the amount of materials going into landfills and create incentives for recycling and source reduction.

2. Consider an additional fee on solid waste to be used to fund recycling.

3. Ban household hazardous waste from landfills in four to six years.

4. Provide public education on landfills including information on where garbage goes, operational practices and safety controls.

5. Communicate with manufacturers and distributors about the amount of packaging in products.

Chapter 11: INCINERATION

Policy: The State of Montana will regulate solid waste incineration and enforce laws to protect the public health and welfare of Montana citizens. Source reduction, reuse, composting, and recycling of materials will be encouraged as a preferred alternative to incineration of solid waste.

Goal: Solid waste incinerators will be operated in a manner to protect the public health and welfare and to protect the environment. Material should be diverted from the waste stream to reduce both the volume of materials and the toxicity of materials that need to be incinerated. This will be done through source reduction, reuse, recycling and composting.

Introduction

Incineration, with landfilling, is the lowest priority on Montana's waste management hierarchy. Incineration of waste has the potential to reduce the volume and weight of waste and to produce energy. However, incineration is a waste treatment method, rather than a means of disposal. While there is some potential to recover metals from incinerator ash, most of the 10-30% residue that remains after incineration must still be landfilled. Incineration does not include open burning.

Incinerators in Montana

In 2004, the Park County Refuse District was the only incinerator specifically intended for municipal solid waste treatment. It was closed in March 2005. In 1993, Montana state law governing the operation of incinerators was changed (Montana Code Annotated 75-2-215).

The law provides three incinerator categories: Solid waste Plain (which included crematories and veterinary waste incinerators; Hazardous Waste; and Medical Waste. There are 35 facilities, including 27 crematories, 1 medical waste incinerator, and 2 used oil incinerators now included in the incinerator category, and thus, are subject to regulation. A number of crematories and hospital incinerators were in operation prior to 1993 and do not fall under DEQ regulation because of their existence prior to the adoption of the law.

The two existing cement plants in Montana are permitted to use glass as an alternate source of silica as a way to recycle glass locally. They are permitted as incinerators and they must comply with incinerator regulations when burning glass. All

conditions required under the incinerator regulations were placed into their pre-construction permits and air quality operating permits.

The Park County Incinerator

The Park County Incinerator has been in operation in Livingston since 1981, providing service to Park and Gallatin Counties. The incinerator was designed as an energy recovery (steam) facility. It operated that way until1986 when its steam customer, the Burlington Northern Railroad, left Livingston. For lack of a new customer, the steam producing capabilities are no longer utilized. To meet the 2000 regulations for emissions and capacity, the incinerator was closed in March 2005.

Environmental Issues

MSW incineration can interfere with the preferable methods of waste management, including source reduction, reuse, recycling, and composting. It discourages consumer incentive to sort, separate and reduce waste.

As waste streams have become more complex, the health issues associated with incinerated waste have become paramount. Non-separated MSW may include materials containing polyvinyl chloride (PVC), polycyclic aromatic hydrocarbons (PAH), dioxins, and other carcinogenic organic compounds. Waste may include mercury, lead, chromium and other toxic heavy metals. All of these chemicals, as well as acid gases, may be released into the air during incineration. In 2000, the EPA finalized new rules that further limit the amount of emissions allowed by a MSWI. The standards apply to commercial and industrial incinerators that burn non-hazardous solid waste. These incinerators had previously only been subject to state and local requirements. The new federal regulations set emission limits for nine pollutants and opacity, based on stringent pollution controls known as Maximum Achievable Control Technology (MACT). The new regulations will require existing incinerators to install wet scrubbers to meet the emission limits.

Economic Issues

Due to the potential detrimental health effects caused by toxic air emissions, environmental standards for construction of incinerators are extensive and compliance is very expensive.

Barriers to Incineration

1. The public is concerned about air emissions from incinerators and potential health effects.

2. Incineration is a very expensive way to process solid waste before it is landfilled. It is expensive to build and expensive to manage.

Recommendations

1. Evaluate incineration very carefully. Incineration is an option to reduce the volume of material that needs to be landfilled. It also can offer a benefit in recovering energy from solid waste before it is disposed of as ash in a landfill. However, the air quality emissions need to be carefully studied and the best available science needs to be applied in the design and operation of an incinerator

Chapter 12: SPECIAL WASTES

Several waste streams, because of their unique physical and/or chemical characteristics, present additional handling and management challenges. These challenges may be associated with the size of the volume generated, the mass of the individual components, or the potential toxicity or hazard of the particular waste stream. This chapter will discuss the specific challenges and opportunities associated with the management and disposal of the most common of these "special wastes". Individual goals, barriers and recommendations will be made for each type of special waste.

Hazardous Waste

Policy: The State of Montana will promote an integrated approach to the management of hazardous wastes. Source reduction, reuse and recycling will be encouraged to reduce the volume and toxicity of wastes. Landfilling and incineration will be discouraged. Use of non-toxic alternatives will be encouraged.

Goals: Reduce hazardous waste generation through source reduction. Assure that hazardous waste is disposed of in a manner protective of human health and the environment.

What is Hazardous Waste and Why This Goal?

A waste is considered hazardous by the DEQ and EPA if it has one or more of the following characteristics, or if it appears on any list of hazardous wastes contained in 40 CFR 261.20 through 261.33.

1. Ignitable - A liquid with a flashpoint below 140^0 F.
2. Corrosive - A liquid with a pH less than or equal to 2.0 or greater than or equal to 12.5. Also, a liquid that dissolves steel at an established rate.
3. Reactive - It is unstable or undergoes rapid or violent chemical reaction with water or other substances (waste bleaches and other oxidizers).
4. Toxic - It contains high concentrations of heavy metals (lead, cadmium, mercury, etc.), specific pesticides, selected volatile organic compounds that could be released into the environment.

"Acutely hazardous" wastes are those that the DEQ and EPA have determined to be so dangerous in small amounts that they warrant more stringent regulation. Certain pesticides fall into this category.

Generators of Hazardous Waste

The Montana Hazardous Waste Rules, which adopt federal RCRA regulations, classify generators of hazardous waste according to the total amount of hazardous waste they generate in a calendar month, measured in pounds.

- Large Generator: Businesses generating more than 2,200 pounds (1,000kg) of hazardous waste in any month or more than 2.2 pounds (1 kg) of acute hazardous waste.
- Small Generator: Businesses generating between 220 pounds (100kg) and 2,200 pounds (1,000kg) of hazardous waste and no more than 2.2 pounds (1kg) of acutely hazardous waste in any month.
- Conditionally Exempt Small Quantity Generator (CESQG): Businesses generating no more than 220 pounds (100kg) of hazardous waste in any month and no more than 2.2 pounds (1kg) of acutely hazardous waste in any month.

For comparison, 30 gallons of liquid hazardous waste with a density similar to water will weigh 220 pounds.

Generation of Hazardous Waste

The generation of hazardous waste is difficult to track because the definition of "hazardous waste" used by DEQ and EPA is updated as new chemicals are identified or as regulations change. Montana experienced a 100% increase in hazardous waste generated in the mid 1990s. DEQ attributes this increase to several large one-time clean ups of remediation wastes (Idaho Pole, Montana Pole, Alberton Train Wreck, and Somers BNSF Plant), increased waste generation at the Asarco East Helena and Columbia Falls Aluminum Company plants, and the periodic turn-arounds from the Billings-area refineries (ExxonMobil, ConocoPhillips and Cenex Harvest States).

Hazardous Waste Management

The handling, transportation, storage and disposal of hazardous waste is regulated by stringent federal law and state law and rules. Hazardous waste must be sent to a treatment, storage and disposal facility that is designed and permitted to accept hazardous wastes. Montana has no treatment, storage, or disposal facilities for hazardous waste that are open to the public. All hazardous waste generated in Montana by large and small generators must be shipped out of state. Conditionally Exempt Generators can dispose of hazardous waste in municipal Class II landfills if the landfill will accept it. Hazardous waste containers must be marked "Hazardous Waste" and must have the accumulation start date annotated on the label. See Appendix F for resources on hazardous waste disposal.

Household Hazardous Waste

Household Hazardous Waste (HHW) is any product that is commonly used in the home and that exhibits flammability, corrosivity, reactivity, or toxicity. Almost every home generates some waste that could be hazardous if improperly discarded. HHW includes cleaning products, lead-based paint, home and yard maintenance products, automotive products, and some personal care products. A large portion of HHW is paint, solvents, pesticides, and batteries.

HHW in any amount is exempt from hazardous waste regulation because it is generated by households, even though its constituents may be identical to hazardous wastes generated by industry. HHW may be legally disposed of in a municipal solid waste landfill, an incinerator, or a sewage treatment plant. Several Montana communities hold periodic HHW collection events. For example, Billings collected approximately five tons of household hazardous waste in 1995 and over eight tons in 1997. Although similar community collection events divert a large volume of household hazardous waste, most still ends up in landfills.

Environmental Issues

DEQ recognizes HHW and Conditionally Exempt Small Quantity Generator (CESQG) waste as posing serious environmental and health risks. Poured down storm sewers, wastes can flow into rivers and aquifers and enter the food chain. In landfills, they commingle with other waste and may produce leachate. They can cause fires, explosions, and the release of toxic fumes. The use of hazardous products is associated with toxic health effects and environmental degradation. These risks can be significantly reduced through proper use, storage, and disposal techniques. Numerous alternatives to hazardous cleaning, maintenance, and personal products are currently available. The thoughtful selection of products, based on health and environmental characteristics, would do much to reduce the amount of HHW and CESQG waste generated in small quantities by business and industry.

Economic Issues

The collection, storage, transportation, and disposal of hazardous waste can be costly to waste management. Although the selection of non-hazardous products may prove to be an expensive alternative to commonly available chemicals, the ease of disposal may offset the higher initial cost. As more companies are demanding non-hazardous product options, "green" alternatives may become more accessible and economical.

Barriers to Reducing the Amount of Hazardous Wastes Entering Landfills

1. There are many different kinds of hazardous wastes. These different wastes cannot be mixed. It is difficult to handle the variety of wastes.

2. There is only one HHW facility in Montana that takes household hazardous wastes on a regular basis. It is located in Kalispell at the Flathead County Landfill and is open by appointment only.

3. Cost of collecting, holding, and transporting hazardous waste is high.

4. Difficult to control many small users, including households and businesses. Conditionally Exempt Small Quantity Generators are exempt from rules.

5. Lack of understanding of the toxicity of many products that are easily available to consumers for household cleaning, fertilizers, pesticides, paint, automotive repair, wood finishing and hobbies.

6. Current collection opportunities are infrequent and limited. They are usually held only once a year, if at all, and are limited to taxpayers in a certain locality.

Recommendations

1. Establish additional opportunities for collecting household hazardous waste. Increase the number of drop off sites that are routinely open in communities. Increase the frequency of collection events throughout Montana.

2. Coordinate collection events in several communities. Coordinated events could reduce the cost to individual solid waste districts or local governments by reducing costs. Transportation of hazardous wastes is one of the highest costs of the collection. Coordinated events could lead to higher volumes of materials collected at locations close enough to each other for a transporter to collect the wastes more efficiently.

3. Provide a source of funding for collection of hazardous wastes generated by households and conditionally exempt small quantity generators. Consider increasing solid waste fees statewide and then funding collection events on a statewide basis or dispersing funds back to communities for collection events.

4. Educate businesses and the public on what hazardous waste is and what options are available for disposal. Consumers are often unaware that common products are hazardous and should be disposed of in a particular manner. While

education has increased awareness over the past 10 years, there is still confusion and lack of understanding on proper disposal methods and options.

5. Educate consumers and promote products that have less environmental impact. Much of the need to properly dispose of hazardous wastes for households and small businesses can be avoided by choosing products that are not hazardous. Many products are introduced into the marketplace each year. Some are hazardous, but many are not. Consumers have a significant impact on the market, and if educated can use their buying power to support products that have less environmental impact.

6. Form partnerships with other groups and agencies to reach goals. These partners may include DEQ, EPA, MSU, USDA, the Legislature and the Secretary of State.

Strategies Considered

1. Site and build a Class 1 Hazardous Waste Collection Facility in Montana. Pay for this facility with a statewide levy.

2. Legislatively mandate the type of chemicals that could go into household cleaners.

3. Ban Small Quantity Generator Waste from Montana landfills.

4. Put a tax on products that contain harmful chemicals. Use the proceeds to fund collection of these wastes.

5. Penalize generators of these wastes when not properly disposed of.

Universal Waste

Policy: The State of Montana will promote recycling of certain hazardous wastes that can be recycled. These wastes are called universal wastes. Source reduction, reuse, and recycling will be encouraged to reduce the volume of these wastes that reach the landfill.

Goal: Increase the recycling of rechargeable batteries, mercury containing devices, and spent heavy-metal-bearing electric lamps.

<u>What is Universal Waste and Why This Goal?</u>

(See Attachment A)

Attachment A

Universal Wastes are a special category of hazardous wastes that are intended to be recycled. In a few situations, i.e. recalled pesticides, disposal may be an option. Universal Wastes, when properly managed, are subject to regulations less stringent than those applied to hazardous waste. The U.S. EPA and Montana recognize the following Universal Wastes: spent rechargeable batteries; suspended or cancelled pesticides that are subject to recall; unused pesticides that are collected or managed as part of waste pesticide collection program; mercury-containing devices; and spent electric lamps that contain heavy metals.

Universal Waste Management

Regulations set forth in Part 273 of Title 40 of the Code of Federal Regulations guide all operations involving Universal Wastes. Handlers receive Universal Waste from other handlers and send it via a Universal Waste Transporter to a Transfer or Destination Facility. Small Quantity Handlers cannot accumulate more than 11,000 pounds. Large Quantity Handlers can accumulate more than 11,000 pounds of Universal Waste. Handlers may not hold Universal Waste for more than one year. A Universal Waste Transfer Facility is a transportation-related site, where Universal Waste may be held during transportation for no more than 10 days before being transferred to a Universal Waste Destination Facility, where it is treated, recycled, or disposed of.

Environmental Issues

Although Universal Wastes contain hazardous materials, they are usually contained in the product, constitute a small percentage of the total waste, and are recyclable. Universal Waste, therefore, is subject to different regulations than Hazardous Wastes. The primary goal of the Universal Waste management system is to recycle Universal Waste.

Barriers to Recycling Universal Wastes

1. Consumers do not understand what universal waste is, and that it can be recycled.

2. There are few recyclers of universal waste materials in Montana.

3. There are few collection points for universal wastes.

4. It is easy to circumvent recycling universal wastes because disposal with household or business waste is easy.

5. It is difficult to collect spent light tubes because of breakage.

Recommendations

1. Establish more collection centers for universal wastes. Establish recycling centers for mercury containing devices, spent fluorescent light tubes, and pesticides. (Batteries are covered separately later in this chapter).

2. Educate retailers on universal wastes and the importance of recycling these wastes. Partner with retailers to collect universal wastes and promote those partnerships.

3. Educate consumers on universal wastes and the proper disposal of those wastes through recycling.

4. Use government and business purchasing power to select suppliers that offer recycling of universal wastes. Educate government and businesses on the proper disposal of universal wastes. Encourage government and business to write recycling of wastes into their purchasing processes.

5. Provide for collection and recycling of universal wastes.

6. Form partnerships with other groups and agencies to reach goals. These partners may include the Department of Agriculture, Extension Service, retailers, and manufacturers.

Strategies Considered but not Recommended

1. Require that batteries on appliances be made available for removal.

2. Put a surcharge on materials that contain universal wastes, and use this surcharge to fund recycling.

3. Request legislative funding for collection of these wastes and recycling.

4. Produce a directory of regional collection sites.

5. Tighten up rules on commercial waste.

Infectious Waste

Policy: The disposal of infectious waste will be protective of public health and the environment.

Goal: All infectious waste generated by hospitals, doctors' offices, dental offices, veterinary clinics and households will be disposed of properly.

What is Infectious Waste and Why This Goal?

Infectious waste, sometimes referred to as medical waste, is any waste capable of transmitting a disease to humans. It includes the blood-soaked wastes from patients with infectious diseases, certain laboratory wastes, and health care items designed to cut or puncture. Examples are bandages, lancets, syringes, microbiological cultures, blood and tissue specimens, and personal care items. Most infectious waste is generated in hospitals; however, infectious waste may be generated in numerous other settings, including clinics, dental offices, veterinary offices, nursing homes, laboratories and private homes.

The probability of spreading disease to the public through contact with infectious waste is quite low, although it can happen. The spread of disease through contact with infectious waste would require that: (1) the infective agent be present in sufficient strength and numbers to cause infection; (2) the infective agent have access to the human body; and (3) the human be susceptible to the infective agent. The public may perceive the risk to be much greater than it is. At much greater risk are waste transporters and landfill operators, because the potential for exposure for these workers is much greater. Without proper containerization and labeling of infectious wastes, these workers may be injured by sharp instruments or infected by exposure to infectious wastes.

Regulation

In 1991, the Montana legislature passed the Infectious Waste Management Act to set standards for the storage, transportation, treatment and disposal of infectious waste. The Act requires that generators: separate infectious waste from regular waste at the point of origin; store it in specially marked containers; and store it in a secured area until it is rendered non-infectious. Sharp waste, such as hypodermic needles, must be placed in rigid "Sharps" containers. Infectious waste that has been treated and rendered non-infectious by incineration, steam sterilization, or chemical sterilization, may be disposed of in a Class II municipal solid waste landfill. The Infectious Waste Management Act requires the state licensing board of any profession or facility that generates infectious waste to ensure compliance with the provisions of the Act.

Infectious Waste Handling In Montana

Waste managers may treat and dispose of infectious waste through "incineration with complete combustion that reduces infectious waste to carbonized or mineralized ash". (§ 75-10-1005, MCA) Two medical waste incinerators operate in Montana. DEQ regulates both air emissions from the incinerators and solid waste aspects of the facilities. These incinerators treat wastes from their own facilities. One commercial autoclave treats infectious waste from Montana, northern Wyoming, and Spokane, Washington. In 2000, this facility collected and treated 2394 tons of infectious waste. After being autoclaved at 238 degrees and 46 PSI for 44 minutes, the now non-infectious waste is transported to a specially designated area for disposal where it is immediately covered. All medical waste containers are cleaned at the company's warehouse/processing facility by heat and chemical sterilization. They are then stored and distributed for reuse by customers.

Environmental Issues

When burned, hospital waste and medical/infectious waste can emit various air pollutants, including hydrochloric acid, dioxin/furan, and the toxic metals lead, cadmium and mercury; however, 85% to 90% of hospital waste is not infectious. Perhaps the greatest environmental impact medical facilities have on the waste stream is the large volume of waste they generate. These facilities commonly use disposable items, some of which may be necessary to control infection. However, medical facilities should examine the opportunities for source reduction, reuse, and recycling of all their waste streams.

Economic Issues

Following the adoption of stricter air emission regulation, all but two medical incinerators in Montana have ceased operation. These incinerators handle only their own waste. Two other medical facilities autoclave and landfill their own waste. The remainder of medical waste generated in Montana is stored and transported to the one commercial autoclave, which is located in Butte.

Barriers to Proper Disposal of Infectious Waste

1. Lack of cost effective sterilization options for small clinics may result in more waste being disposed of than is necessary.

2. Lack of information for small household generators.

Recommendations

1. Educate small dental, medical and veterinary generators of infectious wastes about the proper disposal of these wastes.

2. Educate households about the proper disposal of infectious wastes.

Strategies Considered but not Recommended

None

Clandestine Methamphetamine Labs

Goal: Residual wastes resulting from the discovery of a clandestine methamphetamine (Meth) lab will be landfilled in a manner that protects public health and the environment.

Generally, as part of the initial response to a meth lab bust or discovery, a hazardous materials team is called to respond and collect all materials deemed hazardous materials or hazardous waste. This waste is handled as hazardous and is managed accordingly. However, residual lab wastes remain. Although these residual wastes are not labeled as hazardous, a threat to public health and the environment remains. These materials could include tools and equipment used in the actual “cook” process or they could be materials saturated with chemicals emitted during the process. Examples of these types of materials include: carpets, drywall, clothes, etc. To protect human health and the environment, it is essential that these residual wastes are landfilled in a manner protective of both.

Issues

Methamphetamine, sometimes called "crank" or "speed," is a highly addictive stimulant manufactured from a variety of chemical ingredients. Examples of some of the ingredients that may be used in a meth cook include anhydrous ammonia and iodine, which may be stolen from farms and ranches or bought in large quantities from local agricultural businesses like Big R or Cenex; and ephedrine, which can can be purchased from local pharmacies

In recent years, Montana has seen a substantial increase in the local production of methamphetamine by small, but dangerous, clandestine labs. These labs can be assembled in apartments, hotel rooms, cars, camper trailers, abandoned buildings and outdoors. The waste these labs generate poses significant risks to public health and safety risks. For every pound of meth produced, the process generates five to eight pounds of highly hazardous waste. The 2005 Legislature enacted an indoor property

decontamination standard and rules are currently under development. (§ 75-10-1301 through 1306, MCA)

Economic Issues

The cost of removing the contaminants from clandestine lab sites has increased substantially over the past few years. The costs to property owners to render these sites habitable also continue to rise.

Barriers to Proper Disposal of Meth Lab Waste

1. Lack of communication link with responding agencies.
2. Cost of additional "handling" requirements.
3. Lack of knowledge on meth lab wastes.

Recommendations

1. Develop outreach materials to educate property owners and law enforcement personnel on cleanup procedures and standards.

Strategies Considered but not Recommended

1. Establish decontamination standard for cleanup of indoor property contaminated by clandestine manufacture of methamphetaime.

Waste Tires

Policy: The State of Montana encourages the beneficial use of waste tires.

Goal: Increase the number of tires that are reused or recycled, thereby decreasing the number of tires that are landfilled, stockpiled, or disposed of improperly.

By EPA estimates, Montana generates over 900,000 waste tires each year. Waste tires are a problem across the United States because they are not easily disposed of, they accumulate quickly, and when stockpiled, they present special fire and disease hazards. Stockpiled tires may cause environmental and health hazards. Uncontrolled fires produce toxic air emissions and oil seepage to water supplies. In

landfills whole tires take up a large volume of space, may collect gas, and tend to rise to the surface, destroying final cover.

To conserve resources, save landfill space, and reduce the environmental problems associated with tire stockpiles, waste tire managers should apply integrated waste management principles. Source reduction can be achieved by increasing the life of tires through technological advances and consumer education for proper maintenance.

The 1997 Legislature directed the Environmental Quality Council (EQC) to conduct a study to determine whether a comprehensive policy regarding waste tire management was needed. The Environmental Quality Council's 1998 study found that *"At this time, Montana does not have a problem with waste tire management which is significant enough to warrant statewide policy changes in the current situation."* Status of and Alternatives for the Management of Waste Tires in Montana: Report to the 56th Legislature, 1998. The study did recognize, however, that there were potential problems associated with waste tire management and that the issue required continued attention. The study looked at the number of waste tires generated, the number landfilled, the amount of illegal dumping, and whether waste tire haulers should be regulated. Specific conditions that exist in Montana made it difficult for study participants to justify unilateral policy changes in waste tire management practices:

- Montana generates less than one million waste tires annually over a large geographic area. This inhibits the economic feasibility of many waste tire management options available to other states, including attracting tire processors and recyclers. These businesses must locate enough waste tires within a geographically economic area to be viable.
- Landfills within Montana, in general, have sufficient capacity and the authority necessary to address problems.
- Illegal tire dumps exist but are manageable and can be effectively dealt with under current law.
- DEQ is responsible for providing assistance to emerging markets for waste materials.

The relatively small number of waste tires generated in Montana may minimize the severity of management problems; but it also increases the difficulty of offering management programs, such as recycling and use in civil engineering projects, which have been successful in other states.

Reuse and Recycling of Tires

Reuse refers to using a product again without further processing. Examples of tire reuse are: retread for resale; baling whole tires for use in bridge or roadbed construction; using on docks as boat bumpers; and using tire-filled concrete blocks for retaining walls.

Recycling refers to the reprocessing of waste products into raw materials, followed by remanufacture into new products. Examples of tire recycling are: using crumb rubber in asphalt, mats, and playground surfaces; cutting new products from scrap tire rubber; and using tire chips as daily landfill cover and as fill for drainage fields.

Energy Recovery

Energy recovery is the controlled combustion of tires or other solid waste to capture the energy value of materials as they burn. The energy can either be converted to electricity (waste-to-energy facilities), or used directly as a fuel source or to supplement other fuel sources. Tires have a high fuel value when compared to other materials in municipal solid waste and even some traditional fuel sources. Disposal of tires represents a loss of resources. It takes about 22 gallons of oil to manufacture a new truck tire, but only seven gallons to retread it. Tires have an energy value of 15,000 BTU's per pound, which is greater than most coals (http://dep.state.ct.us/).

Waste Tires in Montana

Minimal reuse or recycling of tires occurs in Montana. Some tires are baled and used for fencing, although a law passed in 2003 placed restrictions on when and where these bales can be used. (§ 75-10-250, MCA). One facility will chip tires when a market is available. One cement kiln is currently in the permitting process for using waste tires as a fuel source in their operation. Three private businesses operate Class III tire monofills (tires only landfills) and these operators are required to keep records of tires buried or recycled. Montana has one resource recovery facility dealing exclusively with tires that also operates a monofill. Some monofill operations actively solicit business from other states, bringing additional waste tires into Montana. Exact quantities of imported waste tires are unknown.

Environmental Issues

Chemical composition tests on waste rubber show that it contains numerous toxic and hazardous pollutants. Although combustion of tires for energy recovery provides an inexpensive energy source, uncontrolled combustion of waste tires releases these hazardous pollutants into the air.

Those properties that make tires suitable for energy recovery combustion also make them susceptible to unwanted and uncontrolled combustion. Open, uncontrolled tire fires are difficult to extinguish and can release large amounts of crude oil and other toxins into our air, soil and ground water resources.

Tires occupy a large space in landfills. They are not easily compressed and nearly 75% of the space occupied by a whole waste tire is dead space, or air. Stockpiled tires can harbor disease. Tires provide a habitat for both rodents and insect vectors. In the late 90's, the DEQ identified 14 illegal tire dumps ranging in size from

sites containing forty to several thousand tires each. It is not certain how many of these sites are still active.

Economic Issues

The nearest crumb rubber manufacturer is several hundred miles from Montana's major population centers and transportation costs are prohibitive. Retread tires are available in limited quantity throughout the state; however, the low price of some imported tires limits the economic appeal of buying retreads. The sales price of every tire sold in Montana includes an "end of life disposal" fee. These fees could be beneficially used to transport tires to recyclers or rubber manufacturers. The 1997 legislature passed a law establishing financial assurance requirements for new waste tire recycling or disposal facilities (§ 75-10-216, MCA).

Barriers to Reuse and Recycling of Tires

1. Tires are large and bulky making them difficult to transport economically.

2. Traditional markets for recycling tires are far away.

3. Montana does not generate enough tires to attract businesses that would use waste tires.

4. Recovery of energy from tires is controversial. Opinions on the benefits and detriments vary. Public policy has not yet been set on energy recovery from tires.

5. It is inexpensive to landfill waste tires.

Recommendations

1. Ban whole tires from landfills. This would save landfill space. It would also eliminate or greatly reduce the problem of tires floating in landfills and finding their way to the surface.

2. Collect a fee on new tires that can be used to support tire recycling. Fees would go into a special fund that could be used to support recycling activities or the collection and proper disposal where recycling was not available. Funds could be used to look are larger facilities and to help pay for transportation of waste tires to those facilities.

3. Look for opportunities to recycle the tires locally. Consider chipping or grinding and use in roads, septic system aggregate, alternative landfill cover or other applications.

4. Form partnerships with other groups and agencies to reach goals. These partners may include the Department of Transportation, tire dealers, collectors, and manufacturers.

Strategies Considered but not Recommended

1. Adopt a specification that would require a certain amount of waste tires used in asphalt.

2. Use them for energy. Adopt a policy favoring the burning of tires to recover their energy value.

3. Require that manufacturers collect used tires when they sell new ones and take them back for processing.

White Goods

Policy: It is the policy of the State of Montana to encourage the recycling of all appliances and to safely remove any parts of the appliances that would be detrimental to the environment.

Goal: Increase the amount of white goods diverted from the waste stream for reuse and recycling in all communities in Montana.

What Are White Goods and Why This Goal?

White goods are large, discarded appliances that are made primarily of metals. They may be from either residential or commercial sites and include such items as stoves, refrigerators, freezers, air conditioners, water heaters, washers and dryers. Montana laws and regulations do not mention white goods, or establish specific procedures for handling them. Landfilling of white goods represents a waste of natural resources and landfill space. The operations of mining, processing and refining virgin metals consume vast amounts of energy and often result in environmental degradation. Scrap processors can recover the metal from discarded white goods for reuse in mills and foundries to produce new steel.

Retailers retrieve large portions of non-functional white goods at the time of new purchases. The retailers then transfer the white goods to scrap metal brokers. Some retailers' offer used white goods to appliance repair services at no cost. The repair service refurbishes units for resale and reuse. Non-reparable units are recycled as scrap.

Environmental Issues

The primary environmental concern over refrigerant-containing appliances that enter the waste stream is the presence of chlorofluorocarbons (CFCs) in the refrigerants. When released into the atmosphere, CFCs break apart, releasing chlorine, which reacts with and destroys the ozone layer of the stratosphere. Revisions of the Federal Clean Air Act prohibit the release of CFCs into the atmosphere, require the recycling of refrigerants, and ban certain non-essential uses. In most Montana communities, appliance repair services, transfer stations and landfills have employees certified in refrigerant removal. Removal fees begin as low as $7.00. Often, the expense of refrigerant removal is transferred to consumers in the form of delivery charges for new appliance purchases.

Polychlorinated biphenyls (PCBs) may still be present in the electrical components of a small fraction of older appliances. PCB-containing lubricating oils are a contaminant in the scrap metal process and a potential threat to water supplies when landfilled.

Economic Issues

In addition to retrieval by retailers, over fifteen brokers and salvage operations throughout Montana accept white goods for metal recovery. Although scrap metal markets have remained solid, metal recovery may not be enough to offset the labor and time involved in recycling large appliances.

Barriers to Recycling White Goods

1. Markets are driven by the price of metal. Recycling that is cost effective one month may be less so the next month.

2. Recyclers must have a large amount of storage to hold the white goods.

3. It is expensive and labor intensive to remove Freon from white goods.

Recommendations

1. Continue to educate consumers on the need to recycle white goods. While most appliances are recovered, some are still put into the waste stream and make it into the landfill. Consumers need to understand the value of the metals in the white goods. They also need to know who will collect the white goods from them and cost of disposing of Freon.

Strategies Considered but not Recommended

1. Consider incentives for consumers to recycle white goods.

Construction and Demolition Waste

Policy: The state of Montana will promote resource and energy efficient construction practices that result in less waste being generated on construction sites. Waste that is generated from construction and demolition will be reused or recycled for beneficial purposes. Waste going to landfills will be minimized.

Goal: Reduce the amount of construction and demolition waste going into Montana landfills.

What is Construction and Demolition Waste and Why This Goal?

Construction and demolition (C&D) debris consists of the waste generated during construction, renovation and demolition projects. Waste is generated every time a building, road, or bridge is constructed, remodeled or demolished. C&D waste often contains bulky, heavy materials, including concrete, wood, asphalt, gypsum, metals, bricks and plastics. C&D debris also includes salvaged building components such as doors, windows, and plumbing fixtures. The majority of C&D waste (approximately 92%) comes from building demolition and renovation, and the remainder comes from new construction. The Environmental Protection Agency (EPA) estimates that roughly equal amounts of waste come from the residential and commercial building sectors. (http://www.epa.gov/epaoswer/non-hw/debris/about.htm)

The EPA estimated per capita generation of C&D waste in 1996 was 2.8 pounds per day, or an annual total of 449,000 tons in the state of Montana. Residential new construction averages 4.5 pounds of debris per square foot of dwelling. The estimated C&D debris generated during demolition of a single-family house is 111 pounds per square foot of dwelling. While the majority of debris from new construction is wood, the majority of debris from demolition is concrete.

Construction and Demolition Waste in Montana

C&D debris is generally a non-hazardous waste, although demolition waste may contain hazardous components. C&D data should not be included in Municipal Solid Waste generation statistics when comparisons are made to other states. However, it is impractical to separate it in most cases.

It is uncertain how much of Montana's C&D debris is disposed of with Municipal Solid Waste. Significant quantities of building materials, particularly renovation scraps, are discarded in the municipal waste stream. C&D waste can be discarded in Class II, III, or IV landfills. Montana has two licensed Class IV C&D landfills in operation. In addition, 45 Class III landfills are licensed. In Montana, most C&D waste is discarded at

Class II landfills. Operators may separate C&D waste from the rest of the waste stream, but they are not required to do so.

C&D Waste Reduction and Recycling

The key to overall reduction of waste at new construction sites lies in education. Waste reduction opportunities begin in the design process and selection of building materials. Environmentally conscious building professionals must adopt the concepts of waste prevention, durability, and recyclability.

Significant amounts of material from demolition products could be reclaimed for recycling. Metals, in particular, maintain good market value. Concrete can be crushed and used as aggregate in new concrete. Asphalt shingles can be used in hot mix asphalt for paving and for new roofing. Wood from demolition projects may contain lead paint or toxic sealant that render it undesirable for recycling.

Wood is the largest waste from new construction. Often, wood waste can be reused in smaller projects or crafts. The remaining wood waste can be shipped and used as mulch, composting bulking agent, animal bedding, and fuel. The following resources are available to facilitate reuse, recycling, and the reduction of construction waste.

- The Environmental Protection Agency posts waste prevention materials, including the WasteWise Update, *Building for the Future*, on their website.
- DEQ, in collaboration with Montana State University, the Montana Building Industry Association, and the National Center for Appropriate Technology, published *TOOLS FOR BETTER BUILDING: A Practical Guide to Reducing Waste and Improving Efficiency*.
- Montana State University maintains a Materials Exchange website plus other information on construction and demolition waste.
- DEQ publishes the *Montana Guide for Buying Recycled Products*.
- The National Center for Appropriate Technology and the Center for Resourceful Building Technology have built demonstration homes and make plans for resource efficient building available to the public.

See Appendix D for contact information.

Environmental Issues

Demolition debris, in particular, may contain hazardous components. Lead is present in solder, flashing and some old paint. Treated wood also contains chromium, copper, arsenic, mercury, barium, and cadmium. Drywall and plaster consist of gypsum, which contains high levels of sulfate. Asphalt, roofing tar, and tarpaper contain leachable petroleum products. All of these are commonly found in C&D waste and have the potential to contaminate water supplies if disposed of improperly. In properly sited,

designed, and operated landfills, C&D wastes likely do not pose a significant threat to ground water. Laws prohibit unlicensed on-site disposal of C&D waste on private land.

Economic Issues

The most significant factor resulting in the landfilling of C&D waste is the high cost of material separation. Time and space to separate the wastes, together with the lack of demand for the materials, and the ease of landfilling are deterrents to recycling and reuse. Separation costs also limit the amount of C&D material taken to Class III landfills. At least in the case of new construction, however, materials are not mixed when being used. On-site roll off bins could effectively keep materials separated.

Barriers to Reducing Construction and Demolition Waste

1. It is difficult and time consuming to separate recyclables from wastes.

2. It is easy to contaminate recyclable materials with other materials.

3. The cost of disposal is low and often it is less expensive to send everything to the landfill than to sort materials.

4. It is difficult to match the source of materials that may be available to the needs for reuse.

5. Supplies of reused materials are inconsistent and must be considered individually for each job.

Recommendations

1. Educate consumers to request that materials from their homes and commercial buildings be recycled. Time needed to recycle materials is one of the difficulties to reducing demolition and construction wastes. Consumers can influence this waste reduction by stressing the importance of it. Consumers can also sort and recycle the waste materials themselves in many cases.

2. Educate builders about the incentives available for recycling and for purchasing recycled materials. Builders may be able to benefit from tax credits for the purchase of equipment to collect and process recyclables. Builders or consumers may benefit from tax deductions for the purchase of recycled materials.

3. Look for local solutions for reuse of building materials. Support reuse and recycling centers for building materials. Donate wood scraps to groups that could use them.

4. Reduce the amount of material that needs to be reused or recycled by carefully purchasing supplies and materials. Select building materials that are the size needed for the job. Plan materials to most efficiently use the entire sheet of material or piece of wood. Use composite materials and materials made from small diameter timbers.

Strategies Considered but Not Recommended

None

Asbestos

Policy: Regulated asbestos-containing materials will be landfilled and back-filled in a manner that protects the public health.

Goal: To ensure that materials containing asbestos are properly identified and handled to remove the risk of exposure to these materials.

What is Asbestos and Why This Goal?

Asbestos is the name for a group of naturally occurring minerals that separate into strong, very fine fibers. The fibers are heat-resistant and extremely durable, and because of these qualities, asbestos has become very useful in construction and industry in a wide variety of applications.

Asbestos-containing materials (ACM) are defined as materials that contain more than 1% asbestos. Asbestos is typically found in pipe and boiler insulation, duct wrap/insulation, fireproofing, plaster, drywall materials, linoleum, wall and attic insulations, wall and ceiling texture, floor or ceiling tiles, and many other materials. In the United States, asbestos was used extensively in a variety of materials from the late 1800s to the 1980s. Although asbestos use has declined, some materials, primarily nonfriable asbestos materials, are still being made with asbestos, or are being imported, and these materials are in consumer products in the U.S. (See www.epa.gov/asbestos/ban.html for information on the Ban & Phase Out of Asbestos Rule.) Asbestos tends to break down into a dust of microscopic fibers. Because of their size and shape, these tiny fibers remain suspended in the air for long periods of time and can easily penetrate body tissues after being inhaled. (http://www.epa.gov/asbestos/asbe.pdf)

Asbestos is present in many materials in the home and workplace, but is a health hazard only when the materials can be crushed by hand pressure, when they are damaged in some way, or when the surface is not sealed, thus releasing fibers. In these conditions the asbestos can become airborne and is considered "friable." State and federal asbestos regulations require friable asbestos-containing materials to be removed from public and commercial buildings prior to demolition activities. Friable

asbestos-containing materials also need to be removed if renovation activities will impact asbestos-containing materials. Non-friable asbestos-containing materials rendered friable from demolition and renovation activities must also be removed prior to such activities. State and federal asbestos regulations require that only accredited asbestos abatement contractors perform asbestos removal activities. Homeowners are advised to take the same precautions. In Montana, homeowners are excluded from asbestos removal requirements; however, they must follow specific asbestos waste transport and disposal requirements under ARM 17.74.303 Exclusions.

Because of its potential environmental and public health impacts, asbestos is one of the most highly regulated substances in the U.S. In Montana, asbestos-related activities are regulated by federal, state, and local agencies, including the Environmental Protection Agency (EPA), http://www.epa.gov/asbestos/, the Occupational Safety and Health Administration (OSHA), http://www.osha-slc.gov/SLTC/asbestos/index.html, the Department of Environmental Quality (DEQ), the Department of Labor and Industry (L&I), county health departments, and city building departments. State, EPA, and OSHA regulations outline standards for careful removal, bagging, transport, and landfilling of the materials. Landfilling is currently the most reasonable disposal option for asbestos waste. Friable asbestos waste may never be disposed of at a Class III or Class IV facility. Friable asbestos waste must be disposed of at licensed Class II disposal facilities that choose to accept asbestos. The asbestos disposal area must be segregated from the other waste areas at the landfill. Friable asbestos waste must be packaged and transported according to state and federal asbestos regulations. Like the removal of friable asbestos-containing materials, only trained and accredited asbestos abatement contractors can transport friable asbestos waste. The asbestos waste must be contained in leak-tight wrappings such as plastic asbestos disposal bags and/or plastic sheeting secured with duct tape. Each load of asbestos waste disposed of at the asbestos landfill must be covered with six inches of soil at the end of each operating day. Most Class II landfills that accept friable asbestos waste cover the asbestos waste with soil immediately after placement.

Friable asbestos can only be landfilled at state-licensed Class II landfills and is regulated under the Administrative Rules of Montana (ARM) Title 17, Chapter 74, Subchapters 3 and 4 and Subpart A of Part 61 of title 40 of the Code of Federal Regulations (CFR). Subpart A of Part 61 is the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP). The asbestos NESHAP governs building demolitions, renovations, active and inactive asbestos landfills, and other sources of asbestos emissions.

Before demolition or renovation of a public or commercial building, a trained and licensed asbestos inspector must conduct an asbestos inspection. The asbestos inspector must be accredited (licensed) through the DEQ (Asbestos Control Program). Homes demolished or renovated by the non-homeowner also need to be inspected for asbestos-containing materials. Disposal Site Operators are strongly encouraged to screen waste loads for asbestos-containing materials and ask for proof of an asbestos inspection before accepting construction/demolition waste. Additionally, the generator

and transporter are required to obtain an asbestos abatement project permit from the DEQ (Asbestos Control Program) if three or more linear or square feet of friable or potentially friable ACM is abated, transported, or disposed of. Furthermore, only trained and accredited asbestos abatement contractors can perform asbestos activities or handle regulated asbestos containing material, including handling the waste at a landfill. In Montana, Department-permitted and accredited asbestos abatement contractors handle most of the legally abated asbestos-containing materials.

Disposal Site Operators are required to report information to DEQ regarding asbestos waste disposal operations. They must include a description of the waste disposal site, a description of the method to be used to comply with the asbestos NESHAP if warranted, and methods to be used to suppress dust. Disposal Site Operators are also required to retain records on waste shipments and the location of asbestos waste.

Asbestos in Montana

Because of the longtime operation of the vermiculite mine in Libby, Montana, residents of Libby face a level of hazard far greater than normal. Because asbestos has become more widespread in Libby than would normally be anticipated, the sources of exposure to asbestos fibers are more widespread as well. Additionally, recent research shows that the asbestos that contaminates vermiculite from Libby (Libby amphibole) is more toxic than chrysotile asbestos, which is found in most ACMs. Fibers have entered homes on the shoes, clothing, and skin of vermiculite miners. Asbestos-containing/contaminated vermiculite was distributed throughout the world including Montana. Vermiculite was/is used predominantly as attic insulation. Asbestos-containing vermiculite was used as a cover for running tracks and athletic fields. It was added as a soil amendment to numerous residential gardens. Because employees of the mines could often obtain off-spec insulation at low or no cost, asbestos-containing/contaminated vermiculite insulation is common in Libby homes. The large volumes of asbestos-contaminated soils and construction and demolition materials are currently being backfilled into the closed vermiculite mine and landfilled at the Lincoln County landfill.

In addition to building renovations and demolitions, another source of asbestos exposure in Montana is from anthophyllite attic insulation. Anthophyllite asbestos was historically mined near Big Sky and transported to Bozeman for processing. The final product is called "Karstolite." The anthophyllite insulation has been found in the attics of several residences and commercial buildings in and around Bozeman, Livingston, and Helena. The material appears mousy-bed in consistency; however, upon further analysis, one can visibly detect the raw anthophyllite asbestos fibers. It appears the material was primarily used to protect buildings from roof fires.

Environmental Issues

Since the early 1970s, the EPA and the Occupational Safety and Health Administration have been concerned about the potential health hazards relating to the generation, handling, and disposal of asbestos wastes. Over a period of many years following asbestos exposure, serious respiratory diseases and cancers can result from the inhalation of airborne (friable) asbestos fibers. Renovation and demolition of asbestos-containing properties pose significant health hazards to construction, transportation, and waste disposal workers as well as persons who might be exposed in their home or workplace.

Economic Issues

The removal and disposal of asbestos-containing materials from residential and commercial properties may involve the services of numerous specialties at significant cost. Handling, transportation, and disposal must all be performed in accordance with federal, state and local regulations.

The presence of asbestos in homes, schools, and other public or commercial buildings may pose significant liability for the owners of those properties and the contractors who renovate or demolish them.

The health care costs associated with diagnosing and treating asbestos-related illnesses such as asbestosis, mesothelioma, and other asbestos-related cancers can be staggering for individuals and insurance providers.

Barriers and recommendations for asbestos as a special waste focus on its identification and safe disposal. There are no reuse or recycling options for this waste.

Barriers to Proper Disposal of Asbestos

1. There is an abundance of asbestos in building materials.
2. The cost of inspection, abatement and disposal is high.
3. There are a limited number of landfills accepting asbestos.
4. There are long-term liability and environmental concerns.
5. The public does not easily recognize asbestos-containing materials.

Recommendations

1. Educate building owners, contractors, and the public about the need for inspecting for asbestos prior to building demolition and renovation activities, asbestos abatement, and proper disposal. Education has started and needs to continue for all sectors. (Contractors and landfill operators can use the asbestos inspection required prior to demolition/renovation activities as a waste characterization.)

2. Train non-asbestos contractors, i.e. general contractors, plumbers, electricians, flooring contractors, drywall contractors, insulators, etc., in asbestos regulations. Proper training is essential to maintaining the health of those working with the asbestos materials, waste transporters and landfill operators who accept the materials, and the public who use the buildings where the asbestos is being removed.

3. Form partnerships with other groups and agencies to reach goals. These partners may include DEQ, DPHHS, building code officials, building owners, the asbestos abatement industry, and Montana Contractors Associations.

Strategies Considered but Not Recommended

1. Increase the number of staff at DEQ working on asbestos issues.

Used Oil

Policy: Used oil will be collected and recycled or reused.

Goal: Every community will have a used oil collection center. Used oil will not be disposed of on the ground, deposited in landfills, or poured down drains. Burning used oil for energy recovery will be controlled.

What is Used Oil and Why This Goal?

Used oil is exactly what its name implies, any petroleum-based or synthetic oil that has been used. Used oil is regulated by DEQ under ARM 17.53.1401, which adopts the federal used oil regulations contained in 40 CFR Part 279. During normal use, impurities such as dirt, metal scrapings, water or chemicals, can get mixed in with the oil, so that in time, the oil no longer performs well. Eventually, this used oil must be replaced with virgin or re-refined oil to do the job correctly. It is generated from automobiles, trucks, industrial equipment and individual households. Used oil is a

valuable resource because of the energy that goes into refining lubricating oils. There are approximately two million gallons of used oil generated in Montana each year.

Used oil may not be disposed of in landfills because landfills are prohibited from accepting bulk liquid wastes for disposal. However, households do not fall under the used oil regulations and some may be disposing of their used oil in the landfill. There are no state or federal regulations concerning disposal of used oil filters. Used filters from households and some commercial applications are likely being landfilled throughout Montana. DEQ recommends puncturing or crushing used oil filters and allowing them to drain for twenty-four hours before disposal or recycling. DEQ maintains a list of used oil collection sites that individuals or businesses may use. (See Appendix F) Used oil has not been allowed as a dust suppressant since 1993 when EPA regulations went into effect.

In order to ensure that used oil does not pollute the environment, Montana adopted the federal used oil management regulations in 2001. As a result, the DEQ permits and regulates used oil generators, collection centers, transporters, processors, and in some cases, burners of used oil. The regulations also specify the standards and allowable levels for arsenic, cadmium, chromium, lead, halogens and flash point. These standards were set nationally to allow used oil to be burned for energy recovery safely. Individual households and farmers and ranchers who generate an average of 25 gallons per month or less of used oil from vehicles or machinery are exempt from these regulations.

Generators of used oil, typically automotive, commercial and industrial facilities, have several options for disposing of their used oil. Many have their used oil picked up by a licensed transporter. This used oil is then processed and either burned for energy recovery or re-refined for use as fuel or lubricating fluid. Generators also have the option of burning their used oil and of accepting and burning household-generated used oil in an approved space heater. The heater must have a maximum capacity of 500,000 BTU's per hour and the combustion gases from the heater must be vented to the outside air. As an example, the Montana Department of Transportation burns used oil to heat its maintenance shops. Generators may also mix used oil with diesel fuel for use in their own vehicles.

Environmental Issues

Used oil can be a serious threat to the environment if not managed properly. When dumped in sewers or storm drains, oil can disrupt treatment plants or discharge directly to surface waters. From landfills or dust suppression applications, oil can find its way to ground water or to surface water. Just one gallon of used oil can foul a million gallons of fresh water—a year's supply for 50 people. Films of oil on the surface of water disrupt plant and animal life. Oil has toxic effects on aquatic organisms. Dumped on land, oil can reduce soil productivity.

Economic Issues

Re-refining used oil to meet certified lubricant quality takes only one-third the energy of refining crude to the same standard. However, the nearest re-refinery is located near Chicago and transportation costs make this option unrealistic. A gallon of used oil contains about 140,000 BTU's of energy when burned, and is competitive in price and performance to other industrial fuels. As a result, the used oil generated in Montana is most often used for energy recovery in commercial or industrial applications.

Barriers to Recycling Used Oil

1. Oil can easily be contaminated with other liquids, resulting in hazardous waste that is no longer recyclable as used oil.

2. Collectors do not have to report the amount of used oil collected, so it is difficult to know what is being collected and where there is a need for additional collection.

3. Consumers do not know where to recycle used oil. The law that requires retailers to post where consumers can recycle oil is not being enforced.

4. Oil filters contain a significant quantity of oil, but there is no recycling facility for used oil filters in the state and it is difficult to collect or transport them.

Recommendations

1. Post information on where to recycle oil. Montana statute requires DEQ to design a sign telling where used oil can be recycled, and it requires retailers to display this sign. This program needs to be emphasized so that consumers have information available to them at the point of purchase of used oil.

2. Educate the Public about used oil. Educate the public about the environmental effects of disposing of used oil by pouring onto the ground or down storm drain. Focus education at technical schools and high school shop classes where people are learning to change oil.

3. Encourage responsible use of waste oil heaters. Waste oil heaters are appropriate for heating shops and other areas. Oil collected for burning in these heaters needs to be properly handled and stored.

4. Develop a collection process for used oil filters. Explore ways to collect used oil filters to recycle the remaining oil in the filters.

5. Form partnerships with other groups and agencies to reach goals. These partners may include DEQ, EPA, used oil haulers and the auto industry.

Strategies Considered but not Recommended

1. Require shops to report used oil collected and how it was disposed of.

Batteries

Policy: Batteries will be collected and recycled throughout Montana. The use of rechargeable batteries will be encouraged.

Goal: There will be collection centers for batteries in all Montana communities.

What Are Batteries and Why This Goal?

In 1998, over 3 billion industrial and household dry-cell batteries were sold in the United States. (http://www.epa.gov/garbage/battery.htm) Dry-cell batteries include button (hearing aids, watches), alkaline (A, AA, AAA, C, D, 9V, etc), lithium (computers, cameras), and nickel-cadmium rechargeable (tools, toys, appliances) batteries. A battery is a convenient electrochemical device with the ability to convert chemical energy to electrical energy to provide power to electronic devices. As lifestyles rely more heavily on electronic items, battery usage continues to increase. Although described as "dry-cell", dry-cell batteries contain a moist acid or alkaline electrolyte paste. Batteries may contain cadmium, mercury, copper, zinc, lead, manganese, nickel, and lithium. Any of these metals may create a hazard to human health when disposed of incorrectly. In landfills, heavy metals have the potential to leach slowly into soil, ground water, or surface water, aided by the corrosive activity of the battery electrolyte. One mercury battery contained in six tons of garbage exceeds the allowable limit for mercury in solid waste as established by the federal government. (http://www.epa.gov/grtlakes/seahome/housewaste/house/battdr.htm) Dry-cell batteries are not considered "hazardous waste" and are not banned from landfills in Montana.

Source Reduction of Hazardous Components

Newer alkaline batteries may contain about one-tenth the mercury previously contained in the typical alkaline battery. Several mercury free batteries are on the market. Cadmium free nickel batteries are being researched. Currently approximately 80 percent of all Ni-Cd batteries have been permanently sealed inside appliances. Changing regulations may result in easier access to the batteries for recycling. Rechargeable batteries, although also containing heavy metals, may replace and outlive alkaline batteries. Careful adherence to instructions will greatly prolong the life of rechargeable batteries.

A growing number of companies collect discarded batteries for metal reclamation. DEQ maintains a list of battery recyclers that can be viewed at: http://www.deq.state.mt.us/recycle/index.asp. In 2002, twelve companies requested inclusion on that list. Several small appliance and electronics retailers offer collection services for discarded batteries. The Rechargeable Battery Recycling Corporation (http://www.rbrc.org/) is a non-profit organization promoting and facilitating the recycling of rechargeable batteries.

Lead-Acid Batteries

Lead-Acid batteries, commonly referred to as car batteries, contain lead and sulfuric acid. The toxicity of lead and the corrosiveness of sulfuric acid warrant the designation of hazardous waste for automobile batteries. Fortunately, lead has inherent value and it is recyclable. In the US, over 95% of all automotive batteries are recovered and recycled. Virtually any place that sells batteries will accept used ones in trade.

Environmental Concerns

Unfortunately, evidence suggests that many batteries are sent to overseas smelters that operate under lax environmental and occupational regulations.

Barriers to Battery Recycling

1. Consumers do not understand the toxicity of batteries.
2. There are not enough convenient places to dispose of batteries.
3. Rechargeable batteries do not hold a charge as long as single use batteries.
4. Batteries are easy to include in household waste.

Recommendations

1. Label retail locations where batteries are sold. Montana law requires that there be a sign placed at every place oil is sold to inform consumers about where to take their used oil for recycling. Many of the stores selling used oil also sell batteries. DEQ could ask the retailers to post signs indicating where batteries can be recycled as well as where oil can be recycled.
2. Arrange convenient drop off locations. DEQ can work with retailers to arrange for convenient drop off locations for batteries and help advertise the locations for drop off.

3. Form partnerships with other groups and agencies to reach goals. These partners may include large and small retail establishments, local governments, and recycling centers.

Contaminated Soils

Policy: Contaminated soils will be handled in a manner that protects the public health and the environment.

Goal: Ensure adequate and consistent processes to remediate contaminated soils and return them to beneficial uses.

When petroleum products, solvents or other toxic chemicals leak or spill onto soils, action must be taken to prevent the migration of the contaminants to ground water or surface water. Contaminated soils are considered solid waste when two conditions are met: first, the corrective action plan for cleaning the site requires the removal of the contaminated soils from the site rather than "in-situ treatment", and secondly, the soils are not hazardous. Contaminated soils and sump solids from vehicle service centers and car washes are regarded as Group II solid waste and are handled as contaminated soils, provided that they are not RCRA listed or characteristic hazardous waste. If soils are determined to be hazardous, they are regulated under hazardous waste rules. Waste managers must ensure environmentally sound treatment and disposal. DEQ has prepared guidelines for the operation of soil treatment facilities and licenses these facilities. DEQ is currently preparing amendments to its solid waste rules that will address soil treatment facilities. (http://www.deq.state.mt.us/pcd/emb/index.asp)

Landfarms

Landfarming, also known as land treatment or land application, is an aboveground remediation technology for soils that reduces concentrations of petroleum constituents through biodegradation. (www.epa.gov/swerust1/cat/landfarm.htm) In a landfarming process, the contaminated soils are spread on the land surface in 6-12-inch lifts, and are occasionally tilled, allowing sunlight, air, and soil microorganisms the opportunity to break down or evaporate the contaminants. Bioremediation of excavated contaminated soils by indigenous or introduced soil microorganisms may be effective if the environmental conditions and management practices can support microbial metabolism.

The siting of a Soil Treatment Facility (landfarm) is dependent upon ground water levels, proximity to drinking water supplies and residential areas, slope of landfarm area, public accessibility, and adequacy of treatment area for volume of contaminated soil. Facilities are categorized according to the acreage required to remediate the contaminated soil. In 2002, five facilities were licensed as soil treatment facilities, five Class II Landfills were licensed to include soil treatment facilities, and four additional

licensed soil treatment facilities were closed. In Montana, contaminated soils are typically landfarmed on-site or taken to landfills. Numerous sites may have been licensed as "one-time" landfarms for in situ remediation.

Treatment Alternatives

Other treatment processes are available at varying cost, effectiveness, and environmental concern. Thermal desorption, aeration, and mechanical techniques have been developed that remove volatile organic compounds into a contained air space. The contaminated air stream can be subsequently treated through carbon filtration, water scrubbers, or afterburners to reduce air emissions. Incineration, air venting systems, soil washing, biopile, and composting processes are also in development.

Environmental Issues

While treatment and disposal methods may provide greater protection than leaving the soils untreated on-site, they raise some environmental concerns. Depositing large amounts of petroleum-contaminated soil in a landfill takes up valuable space and introduces contaminants that may eventually leach from the landfill. Landfarming also releases Volatile Organic Chemicals into the air, which may be of concern to surrounding residents. Petroleum products generally contain more than one hundred different constituents that possess a wide range of volatility. The volatility of contaminants proposed for treatment by landfarming is important because volatile constituents tend to evaporate from the landfarm, particularly during tilling or plowing operations, rather than being biodegraded by bacteria. In general, gasoline, kerosene, and diesel fuels contain constituents with sufficient volatility to evaporate from a landfarm. Lighter (more volatile) petroleum products (gasoline) tend to be removed by evaporation during landfarm aeration processes. Heavy precipitation increases the danger of leachate formation. Landfarms must regularly monitor air, water, and soil contaminants.

Economic Issues

Landfarming is a cost-competitive treatment for contaminated soils running between $30-60/ton of contaminated soil (www.epa.gov/swerust1/cat/landfarm.htm) . If contaminated soils are shallow (less than three feet below ground surface), it may be possible to effectively treat the contamination without excavating the soils.

Barriers to Reclaiming Contaminated Soils

1. The general public lacks clear understanding of what is a contaminated soil.

2. There is a lack of clear criteria for what to do with contaminated soils.

3. Contaminated soil can now be used as daily cover, but not many landfills are doing so yet.

Recommendations

1. Establish stronger recommendations and standards for contaminated soils.

2. Assure that regulations are being applied equally to all and that they are understood. DEQ has prepared guidelines for the operation of soil treatment activities and licenses these activities.

3. Educate landfill operators about the ability to use contaminated soils as daily landfill cover.

4. Educate farmers and ranchers. There are many opportunities to contaminate soils in agricultural applications because of on-farm fuel tanks. The importance of proper containment, and clean up of spills needs to be stressed.

Strategies Considered but not Recommended

1. Discontinue the use of one-time permits for contaminated soil reclamation through DEQ.

Electronics

Policy: Electronics waste will be disposed of safely. The amount of electronics disposed of in landfills will be reduced through source reduction, reuse and recycling.

Goal: Montana communities will reduce the amount of electronics waste going into landfills through reuse and, when practical, recycling.

Electronics waste includes radios, stereos, televisions, cellular telephones, computer parts, and related waste. All of these products contain toxic chemicals in their tubes, connectors, and solder. Computer equipment, in particular, is a complicated assembly of more than 1,000 materials, many of which are highly toxic. The health impacts of the mixtures and material combinations in the products often are not known. The speed of computer innovation leads to rapid product obsolescence. In 1997, the average lifespan of a computer tower was 4-6 years. By 2002, the average computer tower had a lifespan of less than two years, and hardware and software companies constantly generate new programs that fuel the demand for more speed, memory and power. It is frequently cheaper and more convenient to buy a new machine to accommodate the newer generations of technology than it is to upgrade the old. No solution to the rising

quantities of discarded electronics waste has been proven effective. A recent report, "Electronic Product Recovery and Recycling Baseline Report", published by the National Safety Council's Environmental Health Center, found that:

- In 1998, only 6% of computers were recycled compared to the numbers of new computers put on the market that year.
- By the year 2004, experts estimate that the U.S. will house over 315 million obsolete computers, many of which will be destined for landfills, incinerators or hazardous waste exports.

Hazardous Materials in Computer Waste

Computer waste encompasses a variety of hazardous materials, including:

- Lead, cadmium, antimony, chromium, zinc, tin, and copper in circuit boards
- Cadmium in batteries
- Lead and barium in cathode ray tubes
- Poly Vinyl Chloride (PVC) coated copper cables and plastic computer casings
- Mercury switches.
- Poly Chlorinated Biphenyls (PCBs) in older capacitors & transformers

A more complete list of materials used in desktop computers, their relative percentages by weight, and the efficiency of current recycling processes for each material are listed in Table 12-1 on page 113.

Reuse

There are many opportunities for reuse of working computers. Legislation passed in 1999 made it possible for state agencies to donate their outdated electronic equipment to public schools. The Office of Public Instruction facilitates the distribution of usable equipment. By 2002, over 3000 computers had found new homes in Montana public schools. Private donations are accepted by numerous non-profit groups and youth organizations. For example, the Beaverhead Angel Fund, a one-woman volunteer project, facilitates the collection and distribution of computers to schools in Beaverhead County. This expands the useful life of these computers, benefits the environment and provides charitable service.

Recycling

Dioxins and furans are generated if plastics are burned as part of the process of recycling the metal content of electronics waste. Their generation can be avoided or minimized through proper separation and recovery practices. Although opportunities for recycling exist with metals recovery industries, the customary cost to the consumer is between $25 and $50 per computer.

Dioxins and furans are also created during the extrusion of plastics, which is part of plastics recycling. If the temperature is properly controlled, smaller amounts of dioxins and furans are created. It is unclear whether the presence of brominated flame retardants in plastics such as computer casings and keyboards increases the production of dioxins and furans during the recycling process.

Disposal

The stream of waste from electronic equipment contributes significantly to the heavy metals and halogenated organic substances contained in the municipal waste stream. With this variety of different substances found together in electroscrap, incineration can be particularly dangerous, because of the tendency of organic compounds and metals to volatilize at high temperatures. The vaporization of metallic mercury and dimethylene mercury is also of concern. The majority of electronics waste in Montana is landfilled. Mercury, lead, cadmium, and PCBs can leach when circuit breakers, cathode ray tubes, and monitors are mixed with acid waters, which commonly occur in landfills. The export of electronic scrap to China and Taiwan is profitable because health and environmental regulations are lax and labor costs are low compared to those in the United States. A pilot program that collected electronic scrap in San Jose, CA, estimated that it was 10 times cheaper to ship CRT monitors to China than it was to recycle them in the U.S.

Environmental Issues

The overwhelming majority of the world's hazardous waste is generated by industrialized market economies. Exporting this waste to less developed countries has been one way in which the industrialized world has avoided dealing with the problem of expensive disposal and close public scrutiny at home. In 1989, the world community established the *Basel Convention on the Transboundary Movement of Hazardous Waste for Final Disposal* to stop the industrialized nations of the Organization for Economic Cooperation and Development from dumping their waste on less developed countries. The USA, however, has declined to sign the Convention.

A growing lobby of consumers, government agencies, and environmental groups are calling for increased manufacturer responsibility. Although one major computer manufacturer has initiated a trade-in program with purchase of a new PC, other manufacturers have failed to follow the example.

Economic Issues

Consumers are constantly encouraged to replace electronic equipment with new and more powerful models. The growth of applications and software choices rapidly renders computers obsolete. Computers have become inexpensive enough that replacement is an attractive and economical alternative to repair or upgrades. Solid

waste handlers have just begun to see the "tip of the iceberg" in electronics waste, as consumers continue to upgrade their electronics equipment. Research throughout Montana indicates that many businesses and recycling facilities are currently stockpiling obsolete computers, in anticipation of federal guidance. With recyclers typically charging $25 to $50 per unit, and in the absence of specific bans, individual consumers are likely to send non-working computers to landfills.

Barriers to Recycling Electronics Waste

1. There are many different components in electronics waste. It is labor intensive to separate the waste components for recycling.

2. Manufacturers build for obsolescence.

3. There are few recycling centers for electronics waste in the United States.

4. Transportation costs to recycling areas are high.

5. There is no incentive to recycle because it is legal to place these wastes in landfills.

6. The environmental and human impacts from recycling electronics in some third world countries have been severe. These improper recycling practices were worse than the impacts of landfilling electronics waste. These practices are being corrected, but the general public does not know where their electronics waste will be recycled, if it is recycled.

7. There are so many products and places to purchase these products that it is difficult to ascertain the amount of electronics waste that is generated in Montana and the amount that could be recycled.

Recommendations

1. Educate consumers on the importance of recycling electronics waste, to increase individual actions to recycle and inform people about where they can recycle. Educating consumers could also help create consumer demand for take back and recycling services from retailers. Consumer choice of retailers and manufacturers that support recycling could provide an incentive for retailers and manufacturers to provide recycling opportunities. Education should include point of sale information on where to recycle because the consumer is often purchasing a replacement for existing electronics and will have an item to dispose of.

2. Encourage reuse of electronic equipment. Rapidly changing technology results in the need for new equipment for certain applications because of increased power in the electronics and the need to be compatible with other software and

hardware systems. However, much of the electronics waste that is discarded still has useful life and may be beneficial to another group or individual. The state government program that provides used computers to schools should be continued and expanded. Other public and private entities should be encouraged to donate used computers, cell phones and other electronic equipment to agencies and individuals that need them.

3. Partner with retailers for buy-back or recycling programs. State and local governments should partner with businesses to promote recycling. This could occur through advertising retailers who recycle on web sites and in publications provided to consumers about recycling. It could also be a focus of special events in a community. For example, America Recycles Day, National Pollution Prevention Week and Earth Day all provide opportunities to promote recycling of electronics.

4. Work with other states on national policies and laws. The recycling of electronics is not likely to be solved at a local level. Montana needs to join with other states and environmental interests to set up policies and incentives for national recycling of all types of electronics. This could include encouraging voluntary actions, providing incentives, and establishing regulatory requirements.

5. Establish procurement guidelines to choose the best environmental option for electronic purchases. Procurement guidelines can encourage the purchase of electronics that will last longer by choosing features that are the best available or that can be upgraded easily. They can also be used to favor companies that offer recycling and/or have programs to ensure environmentally safe disposal. Procurement guidelines should be developed for both the public and private sectors.

Strategies Considered but not Recommended

1. Legislation that would prohibit landfilling of electronics waste in Montana.

2. Legislation that would mandate the take back of electronics waste.

3. Rebate or tax incentive for reuse or recycling of electronics.

4. Surcharge or fee on electronics to pay for later recycling.

Electronics

Table 12-1

Composition of a Typical 60-lb Desktop Personal Computer With Monitor

Element	% of Total Weight	Weight (ozs)	Recycling Efficiency *
Silica	24.8803	238.85	0%
Plastics	22.9907	220.71	20%
Iron	20.4712	196.52	80%
Aluminum	14.1723	136.05	80%
Copper	6.9287	66.52	90%
Lead	6.2988	60.47	5%
Zinc	2.2046	21.16	60%
Tin	1.0078	9.67	70%
Nickel	0.8503	8.16	80%
Barium	0.0315	0.30	0%
Manganese	0.0315	0.30	0%
Beryllium	0.0157	0.15	0%
Cobalt	0.0157	0.15	85%
Silver	0.0189	0.18	98%
Tantalum	0.0157	0.15	0%
Titanium	0.0157	0.15	0%
Antimony	0.0094	0.09	0%
Bismuth	0.0063	0.06	0%
Cadmium	0.0094	0.09	0%
Chromium	0.0063	0.06	0%
Mercury	0.0022	0.02	0%
Selenium	0.0016	0.02	70%
Germanium	0.0016	0.02	0%
Indium	0.0016	0.02	60%
Gold	0.0016	0.02	99%
Ruthenium	0.0016	0.02	80%
Arsenic	0.0013	0.01	0%
Gallium	0.0013	0.01	0%

* Current recyclability

Printer or Toner Cartridges

Policy: To encourage the recycling and reuse of printer and toner cartridges in all sectors.

Goal: To increase the opportunities for recycling of printer and toner cartridges and to increase market acceptance of recycled printer and toner cartridges.

Over time, the price of print cartridges will often exceed that of the initial cost of the printer that uses them. There are easily hundreds of thousands of printer cartridges in Montana and hundreds of millions nationally that are generated each year. Most are not recycled or remanufactured, despite the existence of by-mail programs, benefit to the environment, savings, and the many charities providing collection. The two most common types of printer cartridges are laser and inkjet. The laser are the larger cartridges common in office printers and copying machines, while the inkjet cartridges are typical for smaller printers common to personal computers.

Printer cartridges can be remanufactured, refilled and recycled. Refilling a printer cartridge is something a consumer can do himself or herself by purchasing a refill kit for their cartridge. This is not feasible or enabled by the manufacturer on all models. There are companies that collect and remanufacture used cartridges. These companies operate by mail, so access is relatively easy. They then remanufacture them by checking components, replacing them as necessary, and then refilling the cartridge for their final product. Printer cartridges can be reused many times by this method.

Because of their relatively small size and high value as a remanufactured commodity, companies will often pay for shipping as well as a cost per cartridge to organizations, schools, and individuals who collect and then ship the cartridges. There are many organizations and schools that participate in such programs throughout the state. Many office stores sell the remanufactured cartridges and there are several businesses that themselves remanufacture printer cartridges in Montana. Once a cartridge can no longer be remanufactured, it may be recycled for plastic, remaining toner, metal and other materials.

<u>Environmental issues</u>

Printer cartridges can be remanufactured and recycled with benefit to the environment by saving energy and resources. The purchase of remanufactured printer cartridges for reuse utilizes these benefits.

Economic issues

Companies that remanufacture and recycle printer cartridges resell the component at a cost that is lower than the new cartridges. Because of the value and size of cartridges, these companies will often pay schools, not-for-profits, and individuals for used cartridges, typically providing labels and boxes for shipping. There are many organizations throughout the state of Montana that participate in these national programs, as well as many retailers who purchase remanufactured printer cartridges. Some original manufacturers will provide incentives, such as a discount, for returning printer cartridges.

Barriers to Recycling

1. Original manufacturers make money selling new cartridges.
2. Some manufacturers are considering including chips that disable cartridges from working when they have run out of ink once.
3. Easily thrown away with household waste.
4. Lack of consumer awareness on recycling options.

Recommendations

1. Promote community efforts for collecting print cartridges for recycling or remanufacture.
2. Encourage the purchase of remanufactured cartridges. Lead the way with state agencies and their purchasing power.

Animal Wastes: Livestock, Wildlife and Associated Wastes

Policy: Protect human and animal health by ensuring the proper disposal of animal wastes and carcasses, especially that of diseased animals.

Goal: Implement Best Management Practices (BMPs) to dispose of animals and wastes. Prevent outbreak or spread of disease from infected wastes by containment, proper disposal and decontamination of infected areas.

What is Animal Waste and Why This Goal?

Animal wastes are primarily derived from the agricultural sector, i.e. farms, ranches and livestock holding areas. They also include wild game and animals coming from managed game farms. Animal waste includes whole carcasses and parts that come from butchering or as a result of veterinary medical procedures.

There are two primary concerns with disposal of animal waste. One is the effect animal wastes may have on water quality in the process of natural decomposition when left alone. The second is the possibility that animals may have died from an unusual disease that could spread if the wastes are not properly disposed of. Special and foreign diseases, such as Anthrax, Foot and Mouth Disease, Chronic Wasting Disease, and Bovine Spongiform Encephalopathy, require special attention when and if they become present in Montana to ensure the agents do not spread by inadequate disposal. While these diseases do not currently pose a threat in Montana, a few national and international incidents have occurred. Montana landfills need to carefully dispose of animal wastes and be prepared in case a special disease was to show up here. In the event of an outbreak of a highly contagious animal disease, special measures must be taken to ensure the disease agent is eradicated to contain the outbreak and prevent its revivification at a future time. In some cases, the agent will not survive long after the death of the infected organism and proper burial is sufficient for the animal carcass. Other diseases can require incineration. Determining the required option to contain the disease and protect future animals from it is addressed on a case-by-case basis by state agencies. It is the owner's responsibility to properly dispose of animals he or she knows to be sick.

Animals found on public roadways are handled by the Montana Department of Transportation. They typically remove the carcasses from the roadway and take them to landfills for disposal. Where animal carcasses may be found in the wild, they can typically be left to naturally decompose, unless they appear to have died from a threatening disease. In this case, the animal should be reported to the Montana Department of Fish, Wildlife and Parks.

Entrails and other organic remnants from hunting can typically be disposed of with regular household waste. Skins can often be sold at Hide and Fur locations throughout the state. The animal corpse can also be disposed of on private property with the consent of the owner and without an effect to the public. The Department of Fish, Wildlife & Parks has been testing the heads of deer and elk for CWD since 1998 in many areas of Montana with emphasis on high-risk areas. There has not yet been a case of CWD in Montana's wild game population. However, CWD was found in one game farm in Montana. As a result, 83 animals from the game farm were slaughtered with nine animals testing positive for the disease. The carcasses were incinerated.

DEQ regulates some aspects of the disposal of dead animals under §§ 75-10-212 and 213, MCA. DEQ provides guidelines for proper burial of animals. For animals

that did not die from a contagious disease, the primary disposal method is to bury them in a high and dry location to protect state water and wells. Animals buried on site must be covered with a minimum of two feet of soil. The Montana Department of Livestock provides guidelines for the disposal of animals from agricultural operations.

To handle large numbers of animals, control disease, and decontaminate the environment of an animal disease, the state of Montana maintains an air curtain incinerator. This can be used in times where a large number of animals need to be disposed of. In the event of an outbreak of animal disease, this is an option that may be considered.

New issues will continue to arise with changes in food production and industry. The threats of foreign and special diseases require vigilance from citizens and on behalf of several state agencies. New methods and continued study will be required for containing these threats. Landfills need to be prepared to quickly handle any situation that could arise.

Environmental Issues

Water and air quality can be adversely affected by large operations. Human health and animal health similarly must be protected from these wastes where they can contaminate the environment. Concentrated feed lots, or other operations that have large volume and high concentrations of animals and wastes must follow guidelines set forth by state and federal government agencies.

Economic Issues

The image of the cowboy riding the range guiding his cattle and families living off the land remains more than a myth throughout Montana today. Livestock, mainly cattle and sheep, continue to graze the vast federal, state and private lands throughout the state. Dairy and other animal products are harvested to all corners. Hunting draws a large group of visitors to the state each year. The health of the industries related to animals is vital to the image, economy and environment of the state.

Recommendations

1. State agencies continue to develop contingency plans to safely and quickly dispose of animal wastes in the event of an outbreak of threatening animal disease.

2. Ensure landfill operators receive adequate training to handle animal waste.

Chapter 13: INDUSTRIAL WASTE

Policy: The State of Montana will plan for and implement an integrated approach to non-hazardous industrial solid waste management, based on the following order of priority: (1) source reduction; (2) reuse; (3) recycling; (4) composting; and (5) landfill disposal or incineration.

Goal: The state of Montana will steadily reduce the amount of non-hazardous industrial waste that is disposed of by landfilling or incineration.

What is Industrial Waste?

Industrial solid wastes are all non-hazardous wastes generated by industries and businesses. Industrial wastes are not covered under the Montana Integrated Waste Management Act. However, they are handled as wastes in the state and discussed briefly in this plan.

The Standard Industrial Codes (SIC) lists the following range of business activities:

SICs 01-09 Agriculture, Forestry & Fishing
SICs 10-14 Mining
SICs 15-17 Construction
SICs 20-39 Manufacturing
SICs 40-49 Transportation, Communication & Utilities
SICs 50-51 Wholesale Trade
SICs 52-59 Retail Trade
SICs 60-67 Finance, Insurance & Real Estate

SICs 70-89 Services
SICs 91-97 Public Administration

The wastes associated with activities with SICs above 50, generally go into the municipal waste stream and have been included in the discussion in the first 10 chapters of the plan. Construction and demolition wastes (SICs 15-17) also are generally part of municipal solid waste (MSW) and were discussed in Chapter 12.

The waste streams for the remaining industries--agriculture, forestry, fishing, mining, and manufacturing (including oil and gas production, utility coal combustion, cement production, and other manufacturing processes) are extremely large and complex, and far beyond the scope of this plan.

Industrial Waste in Montana

Before October 1991, Montana law (§ 75-10-214, MCA) allowed persons to dispose of their own solid waste on their own land unless the land was a subdivision of fewer than five acres. "Persons" included businesses, industries, and any private or governmental entities. In 1991, the law changed to allow only persons whose waste is generated in "reasonable association with (their) household or agriculture operations," to dispose of their own waste on their own land. In other words, businesses and industries are now required to either haul their wastes to a licensed site or license their own site. The law specifically excludes certain industries from this requirement on the premise that they are regulated by other state agencies. These are electric generating facilities, operations related to the drilling, production, and refining of natural gas or petroleum, and the operation of a mine, mill, smelter, or electrolytic facilities. Various state agencies regulate portions of the waste stream of these industries. Regulating agencies usually consider only the dominant wastes such as hazardous materials, waste rock, fly ash, petroleum or other contaminated soils, metal slag, and spoils. Other solid wastes, such as low-volume, non-toxic wastes from operations, shops, or offices, may not be regulated.

Environmental Issues

The U.S. Environmental Protection Agency (EPA) estimates that about 7.6 billion tons of industrial solid waste are generated and managed on-site at industrial facilities each year. Almost 97% is wastewater managed in surface impoundments; the remainder is managed in landfills, waste piles, and land application units. Most of these wastewaters are treated and ultimately discharged into surface waters under Clean Water Act permits issued by EPA or state governments' National Pollutant Discharge Elimination System permits.

Guidance

EPA, in collaboration with states, industry, and environmental groups has published *Guide for Industrial Waste Management, June 1999, EPA530-R-00-001,* which can be retrieved in its entirety at http://www.epa.gov/industrialwaste/. The focal point of the guide is the protection of human health and the environment. It emphasizes surface water, ground water, and air protection. The guide does not address certain extractive wastes, such as from mining and oil and gas production. The guide is designed to assist facility managers, state and tribal environmental managers, and the public in evaluating and choosing protective practices for managing industrial waste in new landfills, waste piles, surface impoundments, and land application units.

Recommendations

1. Examine all exemptions for waste not going to landfills. Study the issue and determine the need for changes in industrial waste laws.

2. Examine the agriculture exemption and the cumulative effect.
3. Examine the quantity and impacts of ash from combustion processes.

Chapter 14: PLANNING AND IMPLEMENTING INTEGRATED SYSTEMS

Earlier chapters of this plan have discussed numerous recommendations and strategies for integrated waste management which local governments may wish to implement. This chapter provides a framework for implementing those suggestions and highlights some important components for communities. The framework is designed with rural communities in mind.

Local Government Framework For Implementing An Integrated Waste Management System

1. Set up a citizen's solid waste advisory committee. Many local decision-makers have found that citizen's solid waste advisory committees are helpful in providing a forum for a variety of opinions, tapping into local expertise, generating community commitment, and organizing volunteer efforts. A balance of interests should be represented on the committee, such as local elected officials, municipal employees, community or neighborhood groups, landfill operators, waste haulers, recyclers, environmentalists, major waste producing industries, regulatory agencies, and citizens. If the planning area encompasses more than one municipality or county, geographic representation must also be considered. The committee's role should be clearly outlined, and local governments may wish to provide official status and operational support (access to meeting space, staff time, telephones, office supplies, etc.). Subcommittees may help accomplish more specialized tasks.

2. Do an audit of the local waste stream. Implementation of a local integrated waste management system depends on accurate waste generation and composition data, and an understanding of existing waste management systems and the primary sources of the waste. One of the first tasks of the citizens' advisory committee may be to oversee a waste audit that will give the community this information. The information will not only give a representation of the current situation, but will establish a foundation for projections. The committee must examine residential and commercial waste, industrial and agricultural waste, institutional waste, non-resident waste, seasonal variations, demographics, the state of the economy, etc. A waste audit may be conducted by calculating from existing data from similar areas, or by sorting, measuring and categorizing samples of the actual waste coming into local facilities. The Solid Waste Management (SWM) Program will provide waste audit information to communities.

3. Assess recommendations and strategies in the state plan and write a local integrated solid waste management plan. The citizens' advisory committee

should examine each recommendation and strategy discussed in this plan and determine its application to their community. Committee members should do additional research into those suggestions that seem appropriate to their communities. The citizens' advisory committee should then adopt portions of the state plan, or write their own local plan using a similar format.

4. Implement aggressive public education. Integrated waste management efforts, particularly in rural areas, depend strongly on public education activities. The basic components of a public education program are described throughout this plan. They include distributing prepared literature and audio-visual materials, and making presentations to churches, schools, civic organizations, grange halls, business groups, and environmental groups. Integrated waste management information can best be promoted in rural communities by tapping into these existing lines of communication and by providing printed materials at community gathering points, retail locations, and waste disposal sites. Existing businesses, institutions, or clubs can be asked to sponsor workshops or demonstrations on various components of integrated waste management.

5. Provide incentives for waste reduction. The solid waste rate or fee structure in many areas does not provide an incentive for source reduction, reuse, and recycling. Communities should explore innovative ways to provide incentives for those who reduce their waste. In addition to economic incentives and disincentives, communities can offer awards programs and other public recognition programs to businesses or individuals that reduce their waste.

6. Target large industrial waste components. If a dominant industry exists in the community, its cooperation should be sought in any integrated waste management program. A small community may be able to do more to efficiently reduce its waste stream by working with one industry, than with all its individual residents.

7. Explore cooperative agreements and structures. Through cooperative efforts between neighboring communities, and private and public entities, communities can streamline administrative costs, increase the feasibility of processing recyclables, and reach more residents more efficiently through education programs. Regional processing facilities have good potential. Small communities may be able to coordinate recycling drives, taking advantage of higher volumes of materials and lower transportation costs. Communities may be able to share mobile balers, shredders, and crushers. Transportation and manufacturing industries can help ease barriers to recycling.

8. Build on existing programs. Waste education groups and recyclers, either for-profit or not-for-profit, exist in many communities (Appendix D). By building on these existing programs, local governments can minimize capital costs and benefit from their expertise. Rural communities should consider using existing

container sites, landfills, and transfer stations as the center of their new integrated waste management system.

Model Integrated Systems

The following models are suggestions, based on what has worked in some communities across the nation. Montana waste decision-makers will want to examine these models and adapt them to suit the specific needs of their communities.

For Towns and Rural Communities

In Montana, 49% of the population lives in communities of less than 1,000 people.

Major Components of a Model System:

1. Community advisory committee
2. Integrated waste management plan
3. Basic public education
4. Recycling drop-off bins with marketing to nearest buy-back center
5. Drop-off for yard waste and windrow composting
6. Roll-off waste containers for disposal

For Small Cities

In Montana, 11% of the people live in 39 cities with a population of 1,000 - 5,000.

Major Components of a Model System:

1-6. Above as applicable
7. Expanded public education
8. Waste exchange, swap programs, yard sales, thrift stores
9. Community recycling collection events
10. "Buy-recycled" policy for local government
11. Rate structure incentives
12. Materials recovery facility/transfer station

For Mid-sized Cities

In Montana 8% of the people live in eight cities with a population of 5,000 - 20,000.

Major Components of a Model System:

1-12. Above as applicable
13. Reuse/repair center
14. Collection programs for commercial sector recycling
15. Curbside collection of yard waste and aerated static pile composting with sewage sludge and green wastes
16. Environmentally sound landfill in the region

For Large Cities

In Montana, 32% of the people live in six cities with a population greater than 20,000.

Major Components of a Model System:

1-16. Above as applicable
17. Residential and commercial curbside collection of recyclables

Chapter 15: SUMMARY OF RECOMMENDATIONS AND TIMELINES FOR ACTION

This chapter outlines all the recommendations described in the IWMP 2006. The recommendations are listed in the same order as they are in the plan. Starting with Chapter 5 and going through to Chapter 13, recommendations and timelines are listed in the following table.

Each recommendation is listed under the first heading to which it applies, even though it may logically fit under subsequent headings. Most recommendations will require the collaboration of many partners and organizations.

Recommendations and Timelines for Action

Chapter, Title	Recommendation	Timeline
5, Integrated Waste Management	Establish a new goal statement. A new goal is needed that is current and that is measurable. A proposed new goal is discussed in the Executive Summary and was adopted by in the 2005 Legislative Session.	2005 Legislative Session
	Implement full-cost accounting and reporting to ratepayers.	2006-2009
6, Source Reduction	Implement life cycle cost purchasing for state and local governments.	On-going
	Educate consumers about the benefits of source reduction.	2005
	Educate businesses about the benefits of source reduction.	2005
	Encourage Pay-As-You-Throw pricing.	On-going
	Strengthen and support existing education programs for service providers.	2007, 2008
7, Reuse	Increase the number of reuse areas at transfer facilities and landfills.	2005
	Provide recognition of reuse programs.	2005
	Promote waste exchanges.	On-going
	Promote business and government reuse resources.	2006- 2007
8, Recycling	Develop local markets for recyclable goods.	On-going
	Provide economic incentives for recycling.	2005 Legislative Session
	Support national legislation that requires	On-going

	manufacturers to take back their products at the end of their useful life.	
	Provide opportunities to work together to increase opportunities for recycling.	Each Legislative Session, starting in 2005
	Involve the Legislature to increase recycling.	2006-2009
	Increase solid waste fees to help pay for recycling programs.	2005-2006
9, Composting	Conduct highly visible demonstration projects using compost.	2005
	Increase markets for compost.	2005
	Enact specifications for compost.	2007-2010
	Educate the public about the benefits for compost.	Annually
	Educate businesses about the value of composting.	2007-2010
	Develop partnerships to reach common goals.	2005-2006
10, Landfilling	Keep and maintain current level of landfill management with good design and siting.	On-going
	Divert household hazardous waste from landfills.	On-going
	Minimize the number of landfills.	On-going
11, Incineration	Evaluate incineration very carefully.	On-going
12, Special Wastes		
Household Hazardous Waste	Establish additional opportunities for collecting household hazardous waste.	2005-2008
	Coordinate collection events in several communities.	2006-2009
	Provide a source of funding for collection of hazardous wastes generated by households and conditionally exempt small quantity generators.	2006-2011
	Educate businesses and public on what hazardous waste is and what options are available for disposal.	2005-Indefinitely
	Educate consumers and promote products that have less environmental impact.	2005-Indefinitely
	Form partnerships with other groups and agencies to reach goals.	2006
Universal Waste	Establish collection sites.	2008
	Establish recycling centers for mercury containing devices, spent fluorescent light	2007

	tubes and pesticides.	
Universal Waste (cont.)	Educate consumers on universal wastes and the proper disposal of those wastes through recycling.	2006
	Use government and business purchasing power to select suppliers that offer recycling and universal wastes.	2005
	Provide for collection and recycling of universal wastes.	2006
	Form partnerships with other groups and agencies to reach goals.	On-going
Infectious Waste	Educate small dental, medical and veterinary generators of infectious waste about the proper disposal of these wastes.	2007
	Educate households about the proper disposal of infectious wastes.	2007
Clandestine Methamphetamine Labs	Establish decontamination stands for cleanup of indoor labs.	2006
	Develop outreach materials to educate property owners and law enforcement personnel on cleanup procedures and standards.	2006
Waste Tires	Ban whole tires from landfills.	2010
	Collect a fee on new tires that can be used to support tire recycling.	2006
	Look for opportunities to recycle the tires locally.	2006
	Form partnerships with other groups and agencies to reach goals.	On-going
White Goods	Continue to educate consumers on the need to recycle white goods.	2006
Construction and Demolition	Educate consumers to request that materials from their homes and commercial buildings be recycled.	2007
	Educate builders about the incentives available for recycling and for purchasing recycled materials.	2006
	Look for local solutions for reuse of building materials.	On-going
	Reduce the amount of material that needs to be reused or recycled by carefully purchasing supplies and materials.	On-going
Asbestos	Educate contractors and the public about the need for asbestos abatement and proper disposal.	On-going
Asbestos (cont.)	Train contractors in proper handling and	On-going

	disposal of asbestos.	
	Form partnerships with other groups and agencies to reach goals.	On-going
Used Oil	Post information on where to recycle oil.	2005
	Educate the public about used oil.	2005
	Encourage responsible use of waste oil heaters.	On-going
	Develop a collection process for used oil filters.	On-going
	Form partnerships with other groups and agencies to reach goals.	2008
Batteries	Label batteries or places where batteries are sold.	2006
	Arrange convenient drop off locations.	2006
	Form partnerships with other groups and agencies to reach goals.	2006
Contaminated Soils	Establish stronger recommendations and standards for contaminated soils.	On-going
	Assure that regulations are being applied equally to all.	On-going
	Encourage the use of contaminated soils as daily landfill cover when it is appropriate to do so.	On-going
	Educate farmers and ranchers.	2008
Electronics	Educate consumers on the importance of recycling electronics waste.	2007
	Encourage reuse of electronic equipment.	2007
	Partner with retailers for buy-back or recycling programs.	2007
	Work with other states on national policies and laws.	2005
	Establish procurement guidelines to choose best environmental option for electronic purchases.	2007
Toner Cartridges	Promote community efforts collecting print cartridges for recycling and manufacturing.	2006
	Encourage the purchase of remanufactured cartridges.	2005
Animal Waste	State agencies continue to develop contingency plans to safely and quickly dispose of animal wastes in the event of an outbreak of threatening animal disease.	On-going
	Ensure landfill operators receive adequate training to handle waste.	2006

13, Industrial Waste	Examine all exemptions for waste not going to landfills.	2008
	Examine the agriculture exemption and the cumulative effect.	2008
	Examine quantity and impacts of ash from combustion process.	2008

Chapter 16: PUBLIC COMMENT SUMMARY

The Montana Legislature established, in § 75-10-111, MCA, a two-stage public involvement process for preparation and adoption of this Solid Waste Management Plan. First the Department is required to prepare and issue a draft plan; circulate it to government entities, solid waste licensees, and interested members of the public; hold three public hearings around the state; and then take the public comments into account and prepare a final draft plan for the Board of Environmental Review (Board).

Second, the Board is required to consider the plan submitted by the Department after holding a public hearing under the rulemaking procedures of the Montana Administrative Procedure Act.

First Stage - Public Involvement in Department Process

Approximately 300 copies of the draft plan were distributed to Montana public and university libraries. County commissions and governing bodies of all incorporated cities and other entities directly involved in the management of solid waste were also given copies of the draft plan. The public comment period was opened October 8, 2004 and closed January 6, 2005. Public hearings were held pursuant to § 75-10-111(1), MCA, to give the public the opportunity to make verbal comment, in Missoula on October 25, 2004, in Great Falls on October 26, 2004, and in Billings on November 8, 2004.

Twelve oral and written public comments were received in response to the draft plan. All the comments were carefully read and reviewed. All comments were in support of the draft plan. Several were focused on incineration, particularly regarding the closing of the incinerator near Livingston, MT.

The following comments were received and appear with the Department's responses:

COMMENT 1: Two comments were received in general support of the Integrated Waste Management Plan and appreciation of the hierarchy of waste management which are contained in Chapter 6.

RESPONSE: The Department agrees with the comments and no action is needed.

COMMENT 2: The Department received a comment that all aspects of recycling, especially tires and incineration, should be taken into account when considering waste hierarchy.

RESPONSE: The Department agrees with the comments and has taken into account all aspects of recycling when drafting the Integrated Waste Management Plan.

COMMENT 3: Eight comments were received in support of the hierarchy of waste management, specifically that other alternatives are used to replace incineration.

RESPONSE: The Department agrees with the comments and no action is necessary.

Second Stage - Public Involvement in Board of Environmental Review Process

At its September 30, 2005, meeting, the Board approved the publication of a notice of hearing in the Montana Administrative Register to consider the adoption of this Plan as the State Solid Waste Management and Resource Recovery Plan. The Notice was published at MAR notice 17-235 at p. 2016, 10/27/05).

On November 18, 2005, at 2:00 p.m., the Board of Environmental Review (BER) held a public hearing in Room 111, DEQ Metcalf Building, 1520 E. 6th Ave, Helena Montana, to consider the adoption of New Rule 1, which was the State Solid Waste Management and Resource Recovery Plan.

Three comments were received from two parties in response to the draft plan. All comments were carefully read and reviewed. The comments and responses follow.

COMMENT NO. 1: One commentor asked whether DEQ can enforce progress toward meeting the new and updated solid waste reduction goals, which include recycling and compost targets for the state. The new goals, which are set by the Legislature in the Montana statutes at 75-10-803, MCA, are discussed in Chapter 5.

RESPONSE: As stated throughout the draft plan, the recycling and composting goals are voluntary. They are not implemented by mandatory rules. The intent of the plan is to achieve the goals by educating the public through workshops, by offering incentives to consumers and the private sector through recycling tax credits, by having available a mobile glass pulverizer that can allow glass to be reused, and by having the state use its purchasing power, for instance, to increase the demand for and use of recycled paper. No modification to the plan is necessary.

COMMENT NO. 2: A commentor asked whether the Department can measure progress toward achieving the recycling and composting goals.

RESPONSE: In the draft plan at page 39, Chapter 5, Integrated Waste Management, and pages 141-42, Appendix B, the Department described how it seeks to measure progress toward meeting the recycling and composting goals set in law and in the plan. The Department surveys solid waste landfills, transfer facilities, composters and recyclers to determine the amount of waste disposed of and the amounts composted and recycled. The comment has been adequately addressed in the plan, and no modification is needed.

COMMENT NO. 3: A commentor addressed brominated flame retardants in Electronics Recycling (discussed in Chapter 12, Special Wastes). The commentor:

a. disagreed with the classification, on page 109 of the plan, of brominated flame retardants (BFRs) as hazardous materials. The commentor cited research published by the European Union, the U.S. National Academy of Sciences, and the U.S. Consumer Product Safety Commission as indicating that the primary BFRs used in electronics applications are not hazardous.

b. disagreed with the statement on page 109 of the plan that: "Due to the halogenated substances found in plastics, both dioxins and furans are generated as a consequence of recycling the metal content of electronic waste." The commentor also disagreed with a statement on page 109 of the plan that most recyclers refrain from recycling electronics waste because the recycling of plastics containing BFRs creates a risk of emissions of dioxins and furans, and because it is difficult to distinguish plastics with BFRs from those without BFRs. The commentor stated that these assertions were incorrect, and requested that they be modified. The commentor cited a research poster presented at a conference, "Dioxin 2004," that cited several published research papers for the proposition that the burning of brominated plastics does not increase dioxin or furan emissions, and that such emissions are "well within" standards. BFRs are one type of halogenated substance. The commentor also criticized the statement at p. 109 of the plan that the extrusion of plastics with BFRs, which is part of recycling, created a risk of generating dioxins and furans. The commenter cited research indicating that there is no increased risk of generating dioxins or furans from the extrusion of plastic.

c. stated that the recycling of plastics, including those that contain flame retardants, should be encouraged, not discouraged, by public policy. The commentor disagreed with statements in the plan (Chapter 12, Special Wastes, Barrier 6 on p. 111) that recycling of electronic wastes in the third world has produced harmful effects to health and the environment, that improper recycling of these wastes has been worse than landfilling, and that people might be reluctant to recycle if they thought the recycling would harm people and the environment in other countries.

RESPONSE: The Board responds to the comments as follows:

a. A hazardous substance "means a substance that because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose an imminent and substantial threat to public health, safety, or welfare or the environment and is: 1) defined as hazardous in the federal Superfund law; 2) defined by the Environmental Protection Agency (EPA) as hazardous in Superfund regulations; or 3) is defined as a hazardous waste under the federal hazardous waste laws, which means it must be either a listed hazardous waste, or be hazardous because of a characteristic (ignitability, corrosivity, reactivity, or toxicity). See § 75-10-701(8), MCA, § 75-10-403, MCA, and ARM 17.53.301 and 40 CFR 261.3 and 261.20.

BFRs on printed circuit boards, cables, and plastic casings are not a hazardous substance as defined in Montana law or rule. Therefore, the Board is modifying the

Plan to eliminate BFRs from the list under the heading “Hazardous Materials in Computer Waste” in Chapter 12, Special Wastes, Computer Waste, on page 109.

There is controversy about the safety of BFRs. A review article, “Brominated Flame Retardant: Cause for Concern,” by an Environmental Protection Agency scientist in Environmental Health Perspectives Vol. 112, No. 1 (January 2004), a publication of the National Institute of Environmental Health Sciences, stated that: “The widespread production and use of BFRs; strong evidence of increasing contamination of the environment, wildlife, and people; and limited knowledge of potential effects heighten the importance of identifying emerging issues associated with the use of BFRs. … Overall, the toxicology database is very limited; the current literature is incomplete and often conflicting. Available data, however, raise concern over the use of certain classes of brominated flame retardants.”

b. Plastics are associated with electronics waste, and, in the past, plastics containing brominated flame retardants (in computer casings, for example) were burned in uncontrolled situations to reduce their volume and to expose the metal for recycling. Dioxins and furans were produced in these circumstances. Now, many recyclers are separating plastics from metals, so the plastics are not always being burned in uncontrolled situations. However, some dioxins and furans are created when plastics are burned or heated between about 300 and 900 degrees Fahrenheit. Properly controlled heating or combustion minimizes but does not eliminate the production of dioxins and furans.

In addition, research cited by the commentor indicates that the use of brominated flame retardants in plastic does not increase the production of dioxins or furans when the plastic is burned. However, other sources indicate that heating or burning of plastics containing BFRs does create dioxins and furans. See World Health Organization, “Polybrominated Dibenzo-p-Dioxins and Dibenzofurans," Environmental Health Criteria, No 205, 1998, summarized at http://www.who.int/bookorders/anglais/detart1.jsp?sesslan=1&codlan=1&codcol=16&codcch=205 and cited in http://www.computertakeback.com/the_problem/bfr.cfm.

Therefore, the Board has made the following modifications to the Plan: The discussion under the Recycling heading, page 109, was changed to recognize that the recycling of metals associated with plastics produces some dioxins and furans, but that it is unclear if the presence of BFRs increases the total amounts of dioxins or furans produced.

Because plastics containing BFRs are now being recycled from electronics waste, the Board has deleted the discussion in the same paragraph stating that most recyclers do not process any plastics from electronics waste.

c. Regarding the last comment, concerning the past negative effects of improper recycling practices of electronics wastes, it is possible that those past practices may have exposed residents of third world countries to potentially harmful heavy metals, and Montanans may be reluctant to recycle electronic wastes because they may be aware of these concerns. These past practices, and the awareness of them, are properly listed in the plan as a barrier to recycling of electronic wastes.

The proper recycling of plastics, including those that contain brominated flame retardants, should be encouraged by public policy, and the plan sets policy to encourage such recycling with the changes to a. and b. above.

However, because the proposed plan was accurate in listing the risks from past practices, and the public's awareness of them, as a barrier, a modification to barrier number 6 is unnecessary.

Appendices A – H

APPENDIX A: THE INTEGRATED WASTE MANAGEMENT ACT

"75-10-803. Solid waste reduction goal and targets target. (1) It is the goal of the state, by January 1, 1996, to reduce by at least 25% the volume of solid waste that is either disposed of in a landfill or incinerated to reduce, through source reduction, reuse, recycling, and composting, the amount of solid waste that is generated by households, businesses, and governments and that is either disposed of in landfills or burned in an incinerator, as defined in 75-2-103.

(2) Targets for the rate of recycling and composting are:

(a) 17% of the state's solid waste referenced in subsection (1) by 2008;

(b) 19% of the state's solid waste referenced in subsection (1) by 2011; and

(c) 22% of the state's solid waste referenced in subsection (1) by 2015."

75-10-801. Short title. This part may be cited as the "Montana Integrated Waste Management Act".

History: En. Sec. 1, Ch. 222, L. 1991.

75-10-802. Definitions. As used in this part, the following definitions apply:

(1) "Composting" means the controlled biological decomposition of organic matter into humus.

(2) "Department" means the department of environmental quality provided for in 2-15-3501.

(3) "Integrated waste management" means the coordinated use of a priority of waste management methods, including waste prevention, as specified in 75-10-804.

(4) "Post consumer material" means only those paper products generated by a consumer that have served their intended end uses and have been separated or diverted from the solid waste stream.

(5) "Recycling" means all activities involving the collection of recyclable material, including but not limited to glass, paper, or plastic; the processing of recyclables to prepare them for resale; the marketing of recovered material for use in the manufacture of similar or different products; and the purchase of products containing recycled material.

(6) "Special waste" means solid waste that has unique handling, transportation, or disposal requirements to ensure protection of the public health, safety, and welfare and the environment.

(7) "Waste reduction" means practices that decrease the weight, volume, or toxicity

of material entering the solid waste management stream after consumer or commercial use but prior to incineration or disposal.

History: En. Sec. 2, Ch. 222, L. 1991; and. Sec. 204, Ch. 418, L. 1995.

75-10-803. Solid waste reduction target. It is the goal of the state, by January 1, 1996, to reduce by at least 25% the volume of solid waste that is either disposed of in a landfill or incinerated.

History: En. Sec. 3, Ch. 222, L. 1991.

75-10-804. Integrated waste management priorities. It is the policy of the state to plan for and implement an integrated approach to solid waste management, which must be based upon the following order of priority:

(1) reduction of waste generated at the source;
(2) reuse of waste;
(3) recycling of waste;
(4) composting of biodegradable waste; and
(5) landfill disposal or incineration.

History: En. Sec. 4, Ch. 222, L. 1991.

75-10-805. State government source reduction and recycling program. (1) In order to progress toward achieving the waste reduction target identified in 75-10-803, each state agency, the legislature, and the university system shall:

(a) prepare a source reduction and recycling plan by January 1, 1992, to reduce the solid waste generated by state government. This plan must be submitted to the department and must include, at a minimum, provisions for the composting of yard wastes and the recycling of office and computer paper, cardboard, used motor oil, and other materials produced by the state for which recycling markets exist or may be developed.

(b) establish and implement a source reduction and recycling program by July 1, 1992; and

(c) apply computer technology to reduce the generation of waste paper through:
(i) the use of electronic access systems;
(ii) the transfer of information in electronic rather than paper form; and
(iii) other applications of computer technology.

(2) The plan must be evaluated every 5 years and updated as necessary.

History: En. Sec. 5, Ch. 222, L. 1991; and. Sec. 4, Ch. 440, L. 1997.

75-10-806. State government procurement of recycled supplies and materials. (1) The department of administration shall write purchasing specifications that incorporate requirements for the purchase of materials and supplies made from recycled materials if

the use is technologically practical and reasonably cost-effective. These requirements must be incorporated into the purchase of:

(a) paper and paper products;

(b) plastic and plastic products;

(c) glass and glass products;

(d) automobile and truck tires;

(e) motor oil and lubricants; and

(f) other materials and supplies as determined by the department of administration.

(2) It is the goal of the state that 95% of the paper and paper products used by state agencies, universities, and the legislature must be made from recycled material that maximizes post consumer material content.

(3) The state shall, to the maximum extent possible, purchase for use by state agencies paper and paper products that contain postconsumer material rather than new material.

(4) To the extent practical, guidelines for the recycled material content of paper should be consistent with nationwide standards for recycled paper.

(5) The department and the department of administration shall establish a joint recycling market development task force. Task force membership must include but is not limited to representatives of the recycling industry, wholesalers, state agencies, and citizen and environmental organizations, as well as other interested persons. The task force shall:

(a) assist the department of administration in developing purchasing specifications as required in subsection (1);

(b) develop additional mechanisms for state government to develop markets for recycled materials;

(c) identify procurement barriers that discriminate against the purchase of supplies and products that contain recycled material; and

(d) develop recommendations for an informational program designed to educate state employees on how to reduce waste and recycle in the workplace.

History: En. Sec. 6, Ch. 222, L. 1991; amd. Sec. 271, Ch. 42, L. 1997.

75-10-807. Requirement to prepare and implement state solid waste management plan. (1) As a basis for developing an integrated waste management program and ensuring adequate disposal capacity, the department shall prepare and implement a state solid waste management plan in accordance with this part.

(2) The plan must be comprehensive and integrated and must include at least the following elements:

(a) a capacity assurance element that identifies existing disposal capacity, estimates waste generation rates, and determines the disposal capacity needed for the future and that assesses the potential effect of interstate disposal on capacity;

(b) an element that incorporates federal regulations 40 CFR, parts 257 and 258;

(c) an element that identifies the role of each of the components of the integrated waste management priorities contained in 75-10-804 in meeting the solid waste

reduction target in 75-10-803;

(d) a technology assessment element that assesses the availability and practicality of alternative technologies for solid waste management;

(e) an education and public information element that identifies existing education and information programs and describes how the state will increase the awareness and cooperation of the public in environmentally safe solid waste management;

(f) a special waste and household hazardous waste element that identifies types and quantities of wastes that create special disposal problems and recommends methods for reducing, handling, collecting, transporting, and disposing of those wastes and that identifies existing and future strategies for managing those wastes;

(g) an element that identifies the needs of rural communities and management strategies to address those needs;

(h) an element that identifies mechanisms to ensure proper training of landfill operators; and

(i) a timeline and implementation strategy for each of the plan elements.

(3) The plan must be developed with the involvement of local officials, citizens, solid waste and recycling industries, environmental organizations, and others involved in the management of solid waste.

(4) The department shall conduct hearings as provided in 75-10-111.

(5) The plan must be evaluated every 5 years and updated as necessary.

History: En. Sec. 7, Ch. 222, L. 1991.

75-10-111. State solid waste management plan -- hearings and action. (1) A proposed solid waste management plan shall be prepared by the department in conjunction with local governments in the state and any other interested person. After a draft of a proposed solid waste management plan has been prepared, the department shall circulate a copy of the proposed plan to the board of county commissioners in each county in the state, the governing body of every incorporated city or town in the state, any person responsible for the operation of a solid waste management system under the provisions of parts 1 and 2, chapter 10 of this title, the governor, the environmental quality council, and any other interested person for at least 90 days prior to submission of a final proposed solid waste management plan to the board. During the 90-day period for receipt of comments on the draft plan, the department shall hold at least three public hearings around the state on the draft plan.

(2) A final proposed plan shall be prepared based on the comments and objections received at the public hearings and from the persons who have submitted comments on the draft solid waste management plan. The final plan submitted to the board shall include a discussion of all comments and objections received and the reasons why recommendations for changes or amendments to the proposed plan were accepted or rejected. The board shall consider the final proposed solid waste management plan after giving notice and holding at least one public hearing pursuant to the rulemaking procedures outlined in the Montana Administrative Procedure Act.

History: En. 69-4016 by Sec. 6, Ch. 575, L. 1977; R.C.M. 1947, 69-4016.

APPENDIX B: ACCOMPLISHMENTS SINCE 1994

The following information is a list of the recommendations made in the 1994 Integrated Solid Waste Management Plan, and a short summary of the progress made in addressing those recommendations in the past 10 years. It is not intended to be a complete record of all that was done. It is simply an indicator of work that has been accomplished. The recommendations made in the original 1994 plan are in regular type. The progress made is in italics.

Chapter 3 Responding to 40 CFR, Part 258
RESPONDING TO 40 CFR, PART 258 RECOMMENDATIONS AND ACTIONS TAKEN
1994 IWM PLAN

1. Offer technical support to landfill managers in implementing ARM Title 16, Chapter 14, Subchapters 5 and 7.

The SWM Program should strengthen enforcement procedures, examine its level of technical expertise, and provide appropriate training for program personnel. The SWM Program should require all program personnel who license and inspect landfills to take a landfill operator training course.

All landfills must come into compliance with new state regulations, which incorporate the requirements of Subtitle D. The SWM Program will give renewed attention to closing unlicensed, poorly sited, and poorly operated landfills and old dumps.

What was done:

All landfills received the assistance needed to come into compliance with Subtitle D regulations. All Montana landfills are currently in compliance.

2. Provide resources for local decision-makers.

Local waste managers and decision-makers need more information and guidance as they try to make good decisions for their communities in light of the state regulation under ARM Title 16, Chapter 14, Subchapters 5 and 7. The SWM Program should produce a decision-maker's guide and technical guidance documents test to aid local waste managers.

What was done:

Local decision makers were provided information and guidance in light of the new regulations.

Chapter 4 Landfill Capacity and Regionalization

LANDFILL CAPACITY AND REGIONALIZATION RECOMMENDATIONS AND ACTIONS TAKEN
1994 IWM PLAN

1. Require all solid waste facilities (landfills, incinerators, recycling centers, and composting facilities) to record and report accurate data on existing landfill capacity, disposal rates, recycling rates, and waste reduction rates.

Records of the amounts and types of waste accepted at landfills and incinerators are crucial in determining future capacity and regional planning in the state. The amounts of materials recycled and composted will have an effect on landfill capacity and are needed to help measure waste reduction goals. All solid waste facilities should have scales or other accurate means of estimating the volume of waste or materials they process, and in the case of landfills, their remaining capacity.

The SWM Program should develop and manage a data collection system that will effectively monitor the state's solid waste stream. Each solid waste license holder should be required to make annual reports to the SWM Program that contain data on capacity, disposal rates, and recycling rates. The SWM Program should research measurement methods that other states have implemented and work closely with landfill operators and recyclers to evaluate whether measurement is needed and if so, to establish mechanisms which are consistent, fair, reliable, and confidential.

What was done:

DEQ has developed a data collection system that includes collecting data from all landfills on an annual basis. This is done as a survey that includes the amount of materials placed in landfills by weight and the amount of material set aside for recycling. This effort has been helped by improvements at landfills so that all landfills now have scales.

2. Plan for regional systems.

The planning of solid waste management systems is the role of local governments. After considering the economics of regionalization and compliance with 40 CFR Part 248, they should develop the necessary inter-local agreements with other local or tribal governments or contract with private disposal companies to ensure adequate disposal capacity for the future. The SWM Program should encourage regionalization and serve in an advisory capacity for local governments.

What was done:

Regional landfills are in place in Montana with local agreements between affected parties in place.

3. Subject waste that is imported into Montana to an additional, but reasonable, per-ton management fee.

The 1993 Montana Legislature directed the Montana Department of Health and Environmental Sciences to review the $5/ton fee for importation of out-of-state waste and to set justifiable, legally defensible fees based on direct or indirect cost of accepting imported waste. The SWM Program adopted by rule--in addition to the volume-based, per ton fee that is required--a fee of 27 cents per ton for the incineration and disposal of out-of-state wastes.

What was done:

An additional fee has been imposed for the importation of out-of-state wastes. The tonnage fee charged to Montana landfills for the importation and burial of out- of-state wastes is 27 cents per ton. Although the legislature had authorized by statute a $5.00 dollar per ton fee for the importation of out-of –state wastes, the DEQ never implemented that charge. In lieu of the $5.00 per ton for out-of-state wastes, the DEQ established by rules 27 cents per ton. That fee is currently been charged for out-of-state wastes. The $5.00 per ton fee was repealed by the 2001 legislature.

Chapter 5 Integrated Waste Management
INTERGRATED WASTE MANAGEMENT RECOMMENDATIONS AND ACTION TAKEN
1994 IWM PLAN

1. Increase the number of public education, recognition, and voluntary programs promoting integrated waste management.

A key to achieving integrated waste management is changing people's attitudes and behaviors. One way to do so is through public education. Currently in Montana, most public education on integrated waste management occurs through the efforts of the MSU Extension Service and the activities of diverse groups such as local citizens' groups, local government task forces, recycling centers and industry groups, and state-wide environmental groups. Waste decision-makers must expand these efforts.

Waste managers should promote source reduction, reuse, recycling, and composting through media and public outreach campaigns, school curricula, consumer workshops and seminars, office waste reduction programs, printed materials, shelf-labeling programs, voluntary goals and standards for integrated waste management, awards programs for waste reduction, waste audits, and letter-writing campaigns. Public education by these methods can also help provide information on landfilling and incineration, which are also part of the integrated waste management system. With accurate information, citizens can make more informed decisions about waste management and facility siting.

Educational programs should be implemented at the local level with support from the SWM Program. Local and state officials must work together to devise funding mechanisms. The SWM Program should implement its mandate to be a clearing house for integrated waste management by funding a state-wide media campaign on integrated waste management, increasing the materials and technical assistance available through the SWM Program, and implementing model education programs in several communities. The SWM Program should offer a "green seal" of approval for businesses, which implement integrated waste management measures.

What was done:

Mechanisms to change people's attitudes have occurred on various levels. Many local governments provide information and individual recyclers provide information. In addition several agencies or groups have been instrumental in educating the public.

The Montana State University Extension Service conducted statewide consumer education programs dealing with composting, precycling, hazardous household product management, special wastes and proper landfill disposal practices. Those programs included:

- ***"What's In the Can?"***
- ***"Enviroshopping - Precycle is the First Choice"***
- ***"The Five R's - Reduce, ReUse, Recycle, Reject, Respond"***
- ***"Turning Your Spoils to Soil - Backyard Composting"***
- ***"The Hazard Free Home - Hazardous Household Products"***
- ***Series of 12 solid waste management fact sheets***

The Recycle Montana organization provides an annual handout on recycling for children in April of each year. DEQ has participated in efforts to educate consumers in particular areas. For example, DEQ has developed materials on back yard composting that are available throughout the state in conjunction with the sale of compost bins.

There has not been a funding mechanism for educational efforts developed. Occasionally, federal grant funds are used for education when these funds are

available, but there is no annual funding available for this purpose. No "green seal" of approval has been established.

2. Develop local integrated waste management plans and achieve stable funding for their implementation.

The Montana Integrated Solid Waste Management Plan will not be effective unless its recommendations are implemented at the local level. Each community should implement a process for local planning which emphasizes the integrated waste management hierarchy. Guidelines are given in Chapter 14. The SWM Program should support legislation to fund a grant program to implement local plans that promote source reduction, reuse, recycling, and composting. The SWM Program should meet with local government officials to find acceptable methods for funding integrated waste management projects, which are recommended in state and local plans.

What was done:

MSU Extension Service facilitated many local government workshops and listening sessions throughout the state to inform the public of solid waste issues and choices. Citizens had an opportunity to give input on solid waste issues.

Legislation allowed DEQ to offer a grants program for local governments. Initially some small grants were awarded. However, funding has not been appropriated for grants since the 1980's. This provision for grant funding was removed from the solid waste statutes in 2003 (SB146) in response to a legislative audit directing DEQ to clean up provisions of law that were not being used.

3. Increase public participation in solid waste decision-making.

Government should involve the public to a greater degree in solid waste decision-making and planning. Local governments should encourage and assist in the development of local advisory boards and volunteer groups. Citizens are encouraged to take every opportunity to attend meetings and public hearings to learn about, help develop, and participate in integrated waste management programs in the community. They may contact local and state officials and urge waste reduction activities in their community.

The SWM Program should increase efforts to include the public by sponsoring more community forums and educational programs, and by continuing to meet the requirements of the Montana Environmental Policy Act for public participation in licensing decisions. The SWM Program should facilitate two advisory committees of representatives of a broad range of interests--one focusing on source reduction and reuse and a second focusing on recycling and composting. The committees would continue to explore integrated waste management issues and help the SWM Program implement and revise this plan.

What was done:

The public was involved in solid waste decision making often at the local level. This occurred primarily when landfills were closed and sited. A public process was used to evaluate the best alternatives for new transfer stations and landfills and to determine the final sites.

4. Implement mechanisms to measure the 25% waste reduction goal.

If Montana is to assess progress toward the 25% reduction goal, the state must establish and implement more comprehensive mechanisms for measuring waste generation, materials recovery, and other waste reduction methods. In light of current measurement difficulties, the SWM Program will estimate progress toward the 25% waste reduction goal in the following ways until more accurate reporting mechanisms are in place:

1. SWM Program officials will use the 1991 waste disposal total of 743,631 tons as a baseline figure. They will compare this number with disposal data reported each year by landfills and incinerators. The SWM Program will adjust the figures based on estimated population changes, changes in reporting requirements, and any large new industrial waste streams which are added to waste reporting figures. The SWM Program will look for a measurable decline in disposal amounts each year. By 1996, the disposal amount should be 25% less than the adjusted 1991 baseline.

2. The January 1991 report by the Environmental Quality Council to the 52nd Legislature listed 12 integrated waste management projects in Montana and nine additional communities with active citizens groups involved in solid waste issues. The Appendix D of this document contains an additional list. SWM Program will conduct a survey of such projects and groups again in 1994 and 1996, as a measure of movement toward the 25% reduction goal. Waste reduction resulting from activities of such programs should be reflected in those communities' waste disposal figures.

What was done:

Waste disposal numbers continued to be problematic and not a good indicator of progress in reducing wastes. These numbers were particularly difficult to rely on because the number and type of landfills changed rapidly in the 1990's. The method of measuring waste also changed. Landfills changed from estimating wastes on a cubic yard basis to weighing wastes on scales. In many cases the amount of solid waste reported nearly doubled in the year that scales were installed. However, these issues have been resolved.

DEQ currently surveys landfills and transfer stations annually as part of the permit renewal process. Questions have been added to these surveys about the wastes being diverted from the landfills. In addition DEQ has begun to survey recycling organizations and businesses to determine the amount of recycled materials collected and where they are being processed.

Scales are now in place at all landfills. Data from 2002 forward is expected to be consistent and accurate.

5. Provide tax incentives for businesses that conduct certain waste reduction activities and for the development of end-use facilities for recyclable materials in Montana.

Tax credits and deductions can stimulate such activities as the purchase of new equipment for increased source reduction, recycling, or composting; purchase of recycled products for use or resale; product redesign, product line modifications, standardization of products and parts; and research and development into integrated waste management activities. Until 1996, Montana law provides for a 25% tax credit on the purchase of equipment used for recycling. The SWM Program should help publicize the law and support legislation, which expands, or otherwise increases the effectiveness of the law.

What was done:

The tax credit on the purchase of equipment was extended in 1997, 2001, and 2005 and is in effect until 2011 (§ 15-32-603, MCA). A tax deduction was added for consumers and businesses that purchase goods with recycled content (§ 15-32-610, MCA). That provision is also in effect until 2011. An additional incentive for businesses that use glass was passed in the 2001 Legislative Session. These businesses may obtain a credit against their air permit fees based on the amount of glass that they use. This credit expires on December 31, 2009 (§ 75-2-226, MCA).

6. Provide increased technical assistance to institutional and commercial establishments.

Implementing recycling and composting programs for the commercial sector can be more cost-effective because businesses and institutions have larger and more segregated waste streams. They offer considerable opportunity for waste reduction. Waste managers should encourage businesses to implement reduction measures by setting up model programs and sharing information on the cost savings realized; increasing information flow between commercial establishments and institutions; organizing waste exchanges; and encouraging worker education and purchasing guidelines focused on waste reduction.

What was done:

The industrial waste exchange was moved from the Montana Chamber of Commerce to the MSU Extension Service and made available to Montanan's through the Internet. Both MSU and DEQ have housed recycling programs together with pollution prevention programs to reach larger audiences of small businesses, schools, local governments, and citizens. MSU developed an ECO Star rating system to recognize businesses that reduced pollution including waste reduction.

7. Increase government participation in integrated waste management activities.

Government should serve as a role model for implementing waste reduction activities. The Integrated Waste Management Act requires state government agencies and universities to implement waste reduction measures. Other government entities including schools, agencies, courts, and the legislature should implement waste reduction plans and lead the way with purchasing and operational practices which increase source reduction, reuse, recycling, and composting. The SWM Program and many other state agencies have established in-house waste reduction and recycling committees to recommend changes in office waste disposal and product procurement standards. The SWM Program should expand its assistance to other state agencies in this regard.

What was done:

State government instituted waste reduction and recycling programs initially known as "State Employees Leading the Way" and later as "3 R's in State Government (reduce, reuse, recycle). Information was shared between state agencies through a government wide recycling group and information was shared with universities through state purchasing groups.

MSU Extension Service worked with the Montana University System to initiate a phone book recycling as well as encourage recycling of other common campus recycling. Students at MSU, University of Montana, Carroll College, and other institutions developed recycling programs.

Chapter 6 Source Reduction
SOURCE REDUCTION RECOMMENDATIONS AND ACTIONS TAKEN
1994 IWM PLAN

1. Implement education, recognition, and voluntary programs.
Education, recognition, and voluntary programs may be the most cost-effective source reduction strategies for Montana. These programs are discussed in Chapter 6, in the recommendations on page 46. In addition they may include in-store shopper awareness programs, labeling of environmentally preferred products, product and

packaging audits, and letter writing campaigns to influence manufacturers or governing bodies. Local policy-makers should implement educational programs through media campaigns, printed materials, workshops, and other technical assistance.

The Solid Waste Management (SWM) Program should research source reduction programs and evaluate their potential effectiveness for Montana communities and the state as a whole. The SWM Program should set up pilot projects and case studies in several small communities. A listing of resources and programs, and an assessment of each, should be made available to communities and used to update this plan.

What was done:

DEQ encourages Pay-as-You-Throw programs. DEQ sought and received a grant from EPA to do Pay-as-You-Throw education. Staff visited with local government governing bodies and educated interested persons. Several communities instituted PAYT programs independently or as a result of DEQ's efforts. The community of Lincoln was the first community in Montana to use PAYT. Granite and Phillips counties adopted PAYT and several large (i.e. Bozeman and Helena) communities now have modified PAYT programs where citizens pay for what they throw away over a certain amount.

To promote source reduction the MSU Extension Service developed two outreach programs:

- ***"Enviroshopping - Precycle is the First Choice"***
- ***"The Five R's - Reduce, ReUse, Recycle, Reject, Respond"***

2. Provide economic incentives for source reduction.

Economic incentives for source reduction, such as variable rate disposal fees for consumers and tax credits for businesses, will increase the impact of voluntary educational programs. The SWM Program should use the annual renewal application process to encourage local solid waste officials to implement source reduction programs by giving discounts on disposal fees to communities which implement approved source reduction programs. State government should fund a grants program for local source reduction programs.

What was done:

PAYT programs provide their own incentive through cost of disposal. No grant programs were established.

3. Join with major western markets to demand high quality products and packaging standards.

Changes in packaging and product durability and design are major source reduction issues that are difficult for Montana to influence because of its small market share. It is important for SWM Program officials to participate in regional efforts to exert such influence, and to monitor other western states' legislation to determine whether Montana can "piggy-back" on their efforts.

What was done:

There were several changes nationally that resulted in lighter weight packaging, most notably these were reductions in the amount of aluminum and plastic used in containers. On the other hand, packaging for many consumer products seemed to increase. DEQ is unaware of any regional efforts in this area to "piggy-back" on.

Chapter 7 Reuse
REUSE RECOMMENDATIONS AND ACTION TAKEN
1994 IWM PLAN

1. Implement education, recognition and voluntary programs.

Reuse programs provide a good way to get a community involved in solid waste issues. Reuse and repair are common sense solutions to waste reduction and can capture community spirit and use many types of volunteers.

People will need to be educated to change biases against old/used items. They need to learn about the opportunities for reuse. Local officials and residents will need to accept and plan for diversion of usable items from the waste stream. Some people will need training in basic maintenance and repair services.

Local reuse measures will encompass a range of activities from swap programs for durable goods, such as home furnishings and clothes, to collection events for paint, and bulletin board lists of wastes wanted to buy and to sell. Local governments will not acquire the regulatory status of hazardous waste generator from wastes taken in through household hazardous waste (HHW) collection programs, regardless of the amount accumulated, if, the materials are from 1) household sources and 2) businesses that are conditionally exempt, providing the waste is disposed legally. This waste is often the same as wastes from industrial and commercial sources, but is exempt because its origin is from households and small producers that generate under certain quantities. (See, Chapter 12.) However, communities or groups sponsoring or organizing the HHW event are responsible for proper documentation of incoming wastes and proper storage, treatment, and disposal of the collected material. As a precautionary measure, community officials should establish procedures for reviewing and registering community reuse activities. The SWM program has prepared a guidebook on HHW conducting collection events.

Within its mandate to serve as an informational clearinghouse for integrated waste management, the SWM Program should collect and evaluate materials on reuse programs. It should work with local waste managers and groups interested in solid waste issues to provide education and information to communities.

What was done:

Reuse programs are in existence at the community level throughout Montana. The MSU Extension Service promoted "reuse" through the "Enviroshopping-Precycle Education program, reuse of grass-clippings through backyard composting, reuse of household products through swap program and bulletin board programs, and reuse of materials by using the Montana Materials Exchange on-line service.

2. Establish community reuse areas and repair centers.

Many reusable and repairable products and materials, such as home furnishings, appliances, clothing, and construction wastes are thrown away. Communities can divert these items from the waste stream and store them in designated reuse areas to be sold or given away to the public or to thrift storeowners. Communities can offer call-in, pick-up service for reusable items. Waste managers can ask consumers to place reusable items in the designated area and allow them to pick up other items they may need. The solid waste facility may use its own employees for sorting, or contract with someone either for money or a share of the salvaged goods. Goods from this area could be available for distribution in emergencies, such as floods or fires.

A repair center associated with the reuse area would allow items to be fixed and sold. Such a center could create jobs, provide meaningful volunteer work for senior citizens or other special populations, or be a project for a non-profit group.

Reuse opportunities at unattended sites, such as container sites, will present special challenges. Waste managers could encourage consumers to set reusable items in a designated area. Local officials may be able to enter into a non-monetary "contract" with someone to keep the area neat in exchange for the salvage, or use public offenders sentenced to community service. Reuse and repair centers can be shielded from view in a manner similar to junk vehicle yards. Using existing facilities and working with existing businesses will help cut down on costs for these programs.

The SWM Program should encourage solid waste facilities to consider reuse programs that are operated in a safe and proper manner. Program officials can discuss the possibilities with waste managers, make the approval process simple, and emphasize that diverting waste saves landfill space and lowers fees.

What was done:

Reuse opportunities exist in the state. This has not been a focus of state efforts, but local communities have added opportunities to set useable materials aside for others to collect.

3. Expand swap programs, yard sales, and thrift stores.

Community swap programs allow consumers to bring unwanted products to a central place and pick up products that they need. Such exchanges require community organization and are often limited to single categories such as paint, but could be expanded to include other materials.

Local waste managers should actively promote yard sales, which happen informally in many communities. At yard sales, consumers invite the public to buy unwanted items they have placed in their yard, often for a low price. Communities could organize a centralized yard sale or flea market. Communities could also help promote collections for thrift stores or non-profit groups who provide goods to low-income people. The SWM Program should promote reuse program ideas through the informational programming mentioned in Recommendation #1. SWM Program staffs have prepared a handbook that includes guidelines on organizing and operating a household hazardous waste collection program and guidelines for registering the event with the state.

What was done:

Paint exchanges continue in some locations. Yard sales continue. There has not been a coordinated effort to increase these on a statewide basis.

4. Promote waste exchanges.

Waste exchanges do not need to involve a central location; they can occur through newspapers, publications of civic organizations, community bulletin boards, and computer networks. Information about people who have useable products they do not want, and people who need products they do not have, should be listed and made available to the public. The two parties negotiate the exchange on their own.

The Montana Chamber of Commerce operates an industrial waste exchange with a grant from the Montana Department of Health and Environmental Sciences (MDHES). While many of the listed wastes may be on going waste streams from businesses, many such programs are open to one-time listings from the general public. Communities could start a local waste exchange for all kinds of unwanted items. MDHES should continue its support of the industrial waste exchange, review its operation, and recommend changes to increase its effectiveness.

What was done:

The industrial waste exchange has moved to the MSU Extension Service and is now available on line to anyone in the state or nation to search.

5. Provide economic incentives for reuse.

Policy-makers should consider the economic incentives and disincentives recommended in Chapters 5 and 6 for their impact on reuse as well as source reduction. In addition, tax credits should be given to businesses specializing in repair, restoration, or remanufacture of products; or to businesses participating in efforts to standardize products to facilitate reparability and interchangeability of parts. Policy-makers should provide tax rebates or subsidies to consumers or manufacturers of reusable or repairable products. Greater tax incentives could also be given for donating used goods to charitable organizations. The SWM Program should support legislation in this regard.

What was done:

No economic incentives have been provided.

6. Evaluate laws and regulations that may impede reuse.

Department regulations state in ARM 16.14.520(6) that "Salvaging of materials at all sites is expressly prohibited unless the licensee demonstrates to the department's satisfaction that it can be done properly" (emphasis added). This is not a blanket prohibition, although it has often been interpreted as such. In light of the importance of reuse in the integrated waste management hierarchy, the SWM Program will carefully review any plans submitted for controlled salvaging operations at appropriate waste facilities.

What was done:

Organized salvaging at landfills rarely occurs. Facility operators view salvaging as potentially hazardous to their employees or any customers who may be inclined to salvage materials from their facilities. Therefore, in most instances, salvaging is expressly prohibited by the facilities.

Chapter 8 Recycling
RECYCLING RECOMMENDATIONS AND ACTIONS TAKEN
1994 IWM PLAN

1. Increase educational programs.

Recycling provides an excellent opportunity for public involvement in solid waste decisions. Many people want to recycle and will be a source of creative energy for communities who implement recycling programs. An aggressive public education program can change people's perception of used materials as waste, to used materials

as resources. It can promote source separation, which will assure better markets and a higher quality product.

An education campaign for recycling is extremely important to increase participation, to implement new services, and to provide individuals with more understanding of the market forces in Montana. Recycling education also needs to emphasize that recycling is not just the collection of products, but includes the commitment to purchase and use products made of post-consumer material, and products that can be recycled.

Local governments, community organizations, or commercial businesses should conduct public education campaigns to encourage consumers, offices, and institutions to buy recycled products. Informed consumers will ask retailers for recycled and recyclable products, who will in turn ask their suppliers, who will ask the remanufacturers. This will help drive recycling markets and close the recycling loop. Other education ideas are presented in Chapter 6, pages 46.

The Solid Waste Management (SWM) Program should increase its educational resources under its mandate to serve as a clearinghouse for integrated waste management issues. It should devote a minimum of one employee to be a resource for communities on recycling and other waste reduction issues.

What was done:

There has been an increase in recycling education by state and local government, and private groups. DEQ has published information on recycling on its website and has created and maintained a guide to purchasing recycled products in Montana. Several agencies and groups in Montana participate in America Recycles Day, a broad educational effort as well as promote recycling during Earth Day. The MSU Extension Service developed and distributed through all local libraries and county extension offices state-specific recycling fact sheets. Recycling education resources were provided to Montana schools through the MSU Extension Service Solid Waste Loan library system. Montana Recycles has information available to consumers and many schools have recycling units in elementary school and middle school classes.

2. Increase purchasing of recycled products and materials.

State government, as one of the largest buying units in the state, has set a goal of purchasing as many recycled products and materials as possible. The Montana Legislature should continually monitor and strengthen mechanisms for reaching these goals. State law should hold local governments and school districts to a similar goal.

The State should also offer incentives for Montana businesses to use recycled materials. There is currently a 5% tax deduction for the use of recycled material in businesses. This incentive, which is set to terminate at the end of 1995, could be strengthened or lengthened. All businesses, industries, and institutions should

voluntarily establish procurement guidelines that favor recycled materials. The state should also offer a publicity incentive such as a "green seal" of approval for businesses that purchase recycled materials.

Montana should join with other western states to set minimum content standards requiring or encouraging the use of a certain percentage of recycled content in products such as newspapers. Other incentives could be offered to retailers to encourage them to stock and advertise recycled products.

The SWM Program should continue the Market Development Task Force to monitor government procurement of recycled products. It should request funding for a "green seal" program and increase participation in regional recycling efforts.

What was done:

State government has used its purchasing power to increase the purchase of recycled goods. More information on efforts is included in the narrative in Chapter 8. DEQ has formed partnerships with the Department of Administration and trained D of A staff in green purchasing. DEQ serves as an information resource to a state-purchasing group that includes the university system.

The state tax incentive for use of recycled materials has been extended three times and a new incentive for businesses that can use glass has been implemented.

The MSU Extension Service promoted recycling and conducted many small business workshops dealing with the principles and guidelines of Environmentally Preferable Purchasing.

A local or regional green seal effort was not pursued because of cost, although DEQ did assist with the production of a green business directory with the Alternative Energy Resources Organization. National efforts are ongoing to increase recycled content in products and these efforts will be relied on at the state level.

3. Expand drop-off centers, community collection events, and commercial collection.

Drop-off boxes and community collection events in cooperation with the nearest buy-back center can be relatively low cost methods of collection, given the current barriers to recycling. They will not, however, have as high a participation rate as curbside collection, because they are not as convenient for consumers. The state parks program should offer drop-off centers for tourist traffic. Commercial collection programs can be effective at removing large quantities from the waste stream because the waste is more concentrated and homogenous. When markets are more developed, recyclers should expand collection efforts to include residential areas. Small communities can **ov**ercome

their lack of equipment, technology, and facilities, by working closely with the nearest buy-back center.

The SWM Program should increase its level of assistance to communities in setting up drop-off systems, community collection events, and commercial collection systems by providing information through its clearinghouse function, providing economic incentives (see, recommendation #5 below), and establishing a small grant program (see, recommendation # 6 below).

What was done:

Events have been held at various times in various locations. Coordination and idea sharing occurs between communities. Latex paint exchanges have been most effective.

4. Concentrate statewide recycling efforts on one or two products.

Concentrating our recycling efforts on a few products will afford more chance of success. Efforts for the widespread collection of recyclable commodities should focus on materials that have strong markets. At the same time, the SWM program will explore ways to foster local end uses and investigate solutions for strengthening the markets for commodities that constitute a large amount of the waste stream.

Currently, an in-state market exists for old corrugated cardboard. Also, telephone companies have sponsored collection programs for phone books in several Montana cities. State and local governments should work with the private sector to establish mechanisms to ensure that maximum recycling is accomplished for specific commodities statewide. With these mechanisms established, other commodities may be more easily added to the system when their markets strengthen.

The SWM Program should immediately identify one or two commodities for a recycling campaign and help coordinate a statewide collection effort. The program would help maintain citizen enthusiasm at a time when they are frustrated over lack of recycling opportunities created by market forces.

What was done:

There was a focus on establishing glass recycling in Montana over the past 7 years. It has involved convincing industries to accept glass as an alternate form of silica and demonstrating glass in road base and other fill materials and as landscaping. Yard wastes have and continue to be the target for recycling through composting.

5. Provide economic incentives for recycling.

Policy-makers should design disposal fee schedules to reward those who recycle. It may be possible to implement higher tipping fees for people who do not recycle, or a rebate for those who do. Garbage rates based on volume, accompanied by public education and collection or drop-off opportunities, can increase recycling. If consumers pay more to throw more away, they will have an incentive to recycle.

Currently, Montana has very few industries that use recovered post-consumer materials in manufacturing processes. The state should provide incentives to encourage the development of such businesses. These incentives can take the form of investment tax credits; research and development tax credits, or accelerated depreciation of recycling equipment and facilities.

Because of the low volume of recyclables and great distances to markets, policy-makers should emphasize development of local, small, low-technology businesses. Low-interest loans and technical assistance could be made available through local economic development corporations.

The SWM Program should provide information to communities on economic incentives for recycling. It should work with local groups to provide loans and technical assistance. It should support legislation to expand incentives.

What was done:

Pay- As- You-Throw pricing has been implemented in several communities in Montana. This is becoming more of an option, at least in a modified form, as more landfills add scales.

6. Provide grants or loan programs for local recycling efforts.

Communities often need financial and technical assistance to overcome barriers and implement recycling programs in their communities. A relatively small amount of money could help purchase a needed piece of equipment, or embark on an educational campaign. Local governments or school districts that receive the grants could be required, when possible, to work with private enterprise in their proposed project. Current law provides for a grants program for local government solid waste projects, but it has never been funded. The SWM Program should explore funding mechanisms for existing grants and loan programs, develop grant guidelines, and consider expanding the eligible applicants to include non-profit organizations.

What was done:

Funding has not been available for a grants program from state government. DEQ has received several federal grants that have been sub-contracted to local governments or private groups for special projects including glass recycling and construction waste reduction. Federal grant funding has been sporadic. The

section of law that allowed grants was repealed in the 2003 Legislature because it has not been used.

Chapter 9 Composting
COMPOSTING RECOMMENDATIONS AND ACTION TAKEN
1994 IWM PLAN

1. Increase education on composting methods and uses of compost.

Composting provides a good opportunity for increased public involvement in solid waste management. If waste managers want to encourage backyard composting, residents will need instructions on how to construct and operate a backyard system. If waste managers are implementing a municipal system, residents need to understand the benefits and be encouraged to participate.

A yard maintenance public education program can reduce the amount of yard waste at the source and encourage the use of compost in lawn care and gardening. It can promote not only backyard composting, but other yard management methods such as leaving grass clippings on the lawn, planting low-maintenance ground cover, and chipping yard waste for use as mulch. Other educational programs are suggested in Chapter 6, 44 and 45. The SWM Program should increase its educational resources for composting under its mandate to serve as a clearinghouse for integrated waste management issues.

What was done:

Educational information on composting is available from a variety of sources. MSU Extension service has included composting education into the "Master-Gardener" Volunteer Program, DEQ has written newspaper stories with a "Backyard Gold" theme, and nurseries and garden centers offer education and workshops on composting.

2. Increase backyard composting.

Backyard composting is an important method of composting and should be strongly encouraged throughout Montana because it reduces waste at its source. Backyard composting involves people as active participants in the waste management process. Residents maintain a small scale composting operation in their backyards to convert the yard and food wastes they generate into compost. Communities should promote composting by providing demonstration projects, workshops, and instructional materials; by subsidized composting bins; and by involving community organizations. The SWM Program should promote backyard composting by providing information to community decision-makers.

What was done:

Information on back yard composting is readily available through web sites and fact sheets. Both DEQ and MSU Extension Service have information available to the public. Backyard composting education and subsidized bins were available in Billings and approximately 450 residents took advantage of the program. Home compost bin sales sponsored by the DEQ, cities and counties took place in 2003-2004 and they were sold in many locations at truckload prices. As a result, over 1800 units were sold.

3. Implement windrow composting operations of yard waste.

Many Montana communities will decide to compost only green wastes because it can be done with the relatively simple windrow method, using existing equipment and labor. This can still result in a significant reduction in waste going to the landfill. Local officials may carry the misconception that composting is a highly regulated activity discouraged by the SWM Program. In reality, the SWM Program does not charge any additional fees to a simple windrow yard waste composting system at a licensed municipal solid waste landfills (MSWLF). The paperwork is minimal. The SWM Program should be more aggressive in its encouragement of composting as a method of waste management, by providing informational materials, inquiring about composting plans during inspections, and informing communities that they can realize a reduction in their annual license renewal fees by composting.

What was done:

Many landfills throughout Montana have implemented composting programs using windrows or other methods. The Cornell University Management Composting Management Certification course was held in Montana.

4. Develop a comprehensive marketing strategy.

Many people hold a common misconception that markets for compost do not exist. Compared to other recycled commodities, compost is a recycled product for which local markets are readily available. With the help of a task force, the SWM Program should develop marketing strategies aimed at expanding availability of compost to potential end-users. It should set up a public access database with the information. The SWM Program should also encourage a state policy to use compost for highway, construction, and reclamation projects. The state should include compost requirements in bid specifications on such projects.

What was done:

DEQ and MDT are working to develop markets by using compost in highway construction projects. MDT has initiated a three-year technical study to use

compost for projects where reseeding and re-vegetation of disturbed soils is necessary after construction. The MDT contracted with Montana State University to perform and report the results of the study. Results of the study are to evaluate the effectiveness of compost and to develop specifications for compost. If the results are successful, compost should have a greater level of acceptance of its use and the specifications can be adapted by other state agencies using compost. DEQ has also worked with reclamation and mining groups to develop the markets for compost.

5. Encourage private/industrial composting operations.

There are potential waste disposal savings and business opportunities in composting. The wood products industry has shown interest in composting some of their wastes. Some stockyards are examining composting as a means of controlling odors and other potential pollution problems. Private firms may wish to develop composting operations and contract with governmental entities to grind brush and turn piles on a regular basis. The SWM Program should encourage these efforts. It should clarify that existing tax incentives for recycling also apply to composting. The state should give additional financial incentives for composting operations or the purchase of compost by private business.

What was done:

EKO Compost, Missoula, was established in 1977 and they developed a composting program that includes municipal sewage sludge and wood wastes as well as green wastes. Gallatin County, in conjunction with Yellowstone National Park, Madison County, and counties in Idaho has completed a composting facility in west Yellowstone. This facility will take wastes from YNP and the region that are currently being landfilled in Montana. The city of Bozeman landfill accepts yard and wood waste and has developed a compost program that they sell to the community for gardening, landscaping, etc.

6. Provide grants or loans to communities to implement composting programs.

The machines needed to grind oversized materials, turn compost piles, and screen the final product are readily available. However, many small governmental entities may not be able to afford them. The state should make grants or loans available for several of these smaller entities to jointly purchase the mobile equipment needed for composting (see, Chapter 8, Recommendation 5, page 59).

What was done:

DEQ awarded loan funds to the composting facility at West Yellowstone through the State Revolving Fund account. There were no grant programs available for composting operations.

Chapter 10 Landfill

LANDFILL RECOMMENDATIONS AND ACTION TAKEN 1994 IWM PLAN

1. Increase public education about landfilling.

Public opposition to new landfills has been increasing in recent years. Increased educational opportunities will help the public understand the environmental hazards of landfilling and the attempts to control them. It will help the public understand the changes occurring in landfill practices and the necessity of landfills as a disposal option. Any source reduction, reuse, recycling, and composting public education program should include information on landfilling, as part of an integrated system. The Solid Waste Management (SWM) Program should increase its educational resources under its mandate to serve as a clearinghouse for integrated waste management issues.

2. Evaluate other priority waste management methods in the application process for new landfill licenses**.**

Waste managers should consider all waste management methods prior to siting a landfill. To facilitate this, the SWM Program should develop a mechanism for all landfill applicants to evaluate the potential for source reduction, reuse, recycling, and composting options during the application process. The evaluation would provide information to local waste managers**.**

3. Increase communication between state and local solid waste officials.

In order to make good decisions, local officials need adequate and accurate information about laws and regulations relating to both Class II and Class III landfills. The SWM Program should expand its efforts to increase communication and to provide needed information in a systematic, consistent manner.

In 2002 DEQ established a Solid Waste Advisory Council to enhance communication between state and local governments. This Council meets 3-4 times per year.

4. Examine current enforcement practices and pursue methods for increasing effectiveness.

Laws and rules protect the public health and the environment only if enforcement is effective. The SWM Program does not currently have rules governing the clean up of contaminated landfill sites. The program will adopt rules to implement and enforce corrective action and remediation measures at solid waste management facilities. In addition to establishing corrective action procedures and remediation standards, the program will examine its enforcement capabilities and procedures.

DEQ has adopted rules governing corrective action for ground water contamination at Title 17, chapter 50, subchapter 7. They address the same issues as the federal regulations in 40 CFR Part 258 in 40 CFR §§ 258.55-.58

5. Increase training opportunities for landfill operators and require certification.

The SWM Program will continue to provide regional training and certification courses similar to those provided under contract with MACO in 1992. The courses will help local waste managers learn good operational procedures, evaluate the potential for use of newly developed technologies, and implement state regulations upholding 40 CFR Part 258. In addition to offering the courses, the SWM Program should require certification of landfill operators. It will evaluate its authority to do so, and support legislative or regulatory changes as appropriate.

What was done:

Established in 1991 as a partnership between the MSU Extension Service, the Montana Association of Counties and the Montana DEQ, the Solid Waste Institute of Montana (SWIM) was established and coordinated by the MSU Extension Service. In 2006 SWIM is still active, providing training and certification landfill owners, mangers and operators. Throughout the year SWIM offers as many of 8 training opportunities to Montana licensed landfill professionals. Courses include: the professional certification of the Solid Waste Association of North America (SWANA) - Manager of Landfill Operations or MOLO, OSHA 24 and 8 hour hazardous waste screening, special waste handling, equipment safety and operations, landfill gas detection and control, ground water monitoring and treatment.

6. Evaluate new technologies for landfill design and other alternatives.

Technologies for improving landfill design have primarily focused on safe containment of wastes and restriction of water infiltration and leachate release. These include the development of design and construction techniques for compacted-soil, synthetic, geosynthetic, and composite liners; drainage layer materials such as geotextiles; leachate collection systems; capping materials; and landfill gas controls. The other prominent area of technological advance and regulation is environmental monitoring of landfill sites, particularly ground water and explosive gases.

In addition, new processes for treatment of waste to yield high value products are being explored around the country. Methane is being extracted for use as a fuel. Processes are being developed to increase methane production from MSW. Experiments on biogassification, acid hydrolysis, and alcohol fermentation to produce ethanol, energy, and enriched plant growth are being studied. Specific waste streams are being tested for treatment with bacteria and biologically engineered organisms in the rapidly growing

field of biotechnology. The SWM Program should establish a systematic program for evaluating new technologies and passing this information along to waste decision-makers.

Chapter 11 Incineration

INCINERATION RECOMMENDATIONS AND ACTION TAKEN 1994 IWM PLAN

1. Increase educational activities.

Public opposition to incineration has been strong and well organized around the country. An integrated waste management public education program can educate residents on incineration along with other waste management options. It should include information about the potential advantages and disadvantages of incineration, so that citizens are better able to make informed decisions when siting issues arise. The Solid Waste Management (SWM) Program should make information on incineration available to local decision-makers in its role as an informational clearinghouse for integrated waste management.

What was done:

New municipal solid waste incinerators were not pursued by communities between 1994 and 2003, so general educational materials have not been developed. Two cement kilns came into compliance with incinerator rules in order to use glass containers as a substitute for silica in their manufacturing processes. Public education occurred in these instances that included information on the need for a rule change for opacity of incinerators and replacing opacity limits with better emissions limits.

2. Consider the entire waste management hierarchy before choosing incineration.

Communities must strive for environmentally sound waste management methods, with primary emphasis on source reduction, reuse, recycling, and composting. The SWM Program should develop a mechanism, which requires communities to carefully examine the higher priority waste management methods before investing in incineration.

What was done:

The emphasis in the past 10 years was on the siting of new landfills, not on incinerators. The only municipal solid waste incinerator in the state, in Livingston, closed in 2005.

3. Review economic and technology research on incineration.

The possibility exists that the technology for environmental controls will improve and become more cost-effective. For this reason, incineration should remain on the hierarchy as a method to consider, although it remains the lowest priority. The SWM Program should continue to investigate the economics of incineration for Montana and assess new technological developments.

What was done:

DEQ staff keeps up with current technology as time and interest allow. There has not been a lot of interest in new municipal solid waste incinerators in the state because of the cost of incineration compared to the cost of landfills.

4. Develop standardized, coordinated licensing and regulatory activities between the appropriate bureaus within the Montana Department of Health and Environmental Sciences (MDHES).

Current licensing and regulatory requirements for new and existing incineration facilities are shared between the Air Quality Division and the SWM Program (within the Waste Management Division). Improving consistency and coordination will help ensure environmental protection, increase efficiency in the application process, and help the public have more confidence that MDHES is adequately regulating incineration.

What was done:

These requirements have been coordinated. New incinerators require air quality permits and these permits are coordinated with the Waste and Underground Tanks Management Bureau for solid waste concerns.

5. Divert toxic and recyclable materials prior to incineration.

Solid waste managers should consider the advantages of source separation prior to incineration. Montana may wish to pass laws or implement regulations, which require source separation. By removing those materials, which release toxic constituents when incinerated, environmental concerns will be lessened. The additional removal of any remaining reusable, recyclable, and compostable materials would encourage waste management methods in line with the state's priorities. The SWM Program should investigate legislative or regulatory channels for this requirement.

What was done:

No specific source separation efforts were made for incinerators.

6. Increase regulation of small incinerators operated by businesses and institutions.

The Montana Department of Health and Environmental Sciences have not regulated solid waste incinerators, which are designed to burn less than 200 lbs/hour. A law

passed in 1993 requires that new solid waste incinerators of any size obtain an air quality permit. Existing small incinerators are exempt from the new law. Hospitals, grocery stores, retail centers, or other commercial establishments usually operate these small incinerators. Environmental concerns of small incinerators, though lesser in magnitude, are similar to those created by large incinerators. In addition, use of these small incinerators hinders recycling goals. The SWM Program should support legislation to regulate all small incinerators.

What was done:

Incinerator rules have been developed and many small incinerators are now regulated.

Chapter 12 Special Wastes

SPECIAL WASTES RECOMMENDATIONS AND ACTION TAKEN
1994 IWM PLAN

1. Expand educational programs for CESQGs and consumers and retailers of HHW to encourage source reduction, use of non-hazardous alternatives, reuse, and recycling.

Company officials and waste managers should implement education programs on integrated waste management for all CESQGs, including the following types of businesses: building cleaning and maintenance, construction, educational shops and labs, equipment repair, funeral services, wood manufacturing, preserving and refinishing, laboratories, laundries and dry cleaning, transportation terminals, pesticide use and application, printing, vehicle maintenance, metal workers, and various types of manufacturing.

Collectively, consumers can have a significant impact on the types of products offered for sale by refusing to buy HHW products and by making their choices and objections known to retailers and manufacturers. Consumers should give away products for reuse rather than discarding them and learn how to treat wastes for safer disposal. Waste managers can also participate in this education.

The Solid Waste Management (SWM) Program should work with affected businesses and other groups doing waste education work to increase the materials and workshops available to consumers and small businesses and to promote educational programs and small business training programs. The SWM Program should serve as an information clearinghouse by having programs to transfer information and technologies as well as provide information. Specifically, it can build databases of safe disposal methods for specific waste streams, including waste reuse and reduction. The SWM Program can serve as an intermediary between the EPA's technology transfer program and other information programs and the generators themselves. The SWM Program can make regional waste exchanges more available. This information, as well as regulatory assistance, should be highly advertised and be available in print, hotline and electronic

formats. The program should fund statewide media efforts, materials production, and should assure that its program personnel are well informed on these issues.

What was done:

Information has become available nationally through internet resources. There has not been a consistent coordinated effort to provide media resources, a hotline, or materials production. The Small Business Ombudsman provides assistance to any business that requests it. The program has been responsive rather than proactive. The MSU Extension extended special waste management educational and outreach programs to consumers, businesses, local government and landfill operators through a variety of programs.

2. Encourage community collection events and waste exchanges.

To keep a portion of HHW and CESQG waste from the landfill, communities can set up collection days, asking residents and small businesses to bring their hazardous wastes to a collection point. Waste managers or public interest groups must plan these collection events carefully and limit their scope to specific identifiable products. The community will need to contract with a hauler to move the wastes to a TSDF designed and permitted to accept commercial hazardous wastes. Since there are no such facilities in Montana, transportation costs can be high. Such programs can be difficult to control and very expensive.

A recent interpretation of an existing federal rule by the EPA exempts any amount of hazardous waste collected from CESQG's and households together from extensive regulation. Its purpose is to encourage and protect HHW collection programs that often are overwhelmed by large quantities of hazardous wastes from CESQG's.

A significant portion of HHW is paint. Communities can organize an exchange where residents bring in paint they no longer want and pick-up what they need. Remaining paint should be given to worthy community projects, or mixed and resold as a base paint. Swaps may also work for unused cleaning products, pesticides, or other products, which the original owner cannot use.

Waste exchanges are a decentralized way to encourage reuse of materials. They are described in Chapter 7 on page 49.

The SWM Program should provide information on how to set up HHW collection events and waste exchanges by informing communities of other groups with information and experience, by helping communities coordinate such events to lower transportation costs, and/or by providing grants to help offset the costs.

What was done:

DEQ encourages communities to hold HHW collection events by providing information and contacts. Several communities have these events ranging from annual paint exchanges to a HHW facility that is open once a month. However, many communities do not have access to these events.

3. Establish model demonstration sites and a "green seal of approval" program for CESQGs.

Existing businesses that are employing integrated waste management practices can serve as model demonstration sites for businesses of their type. Such modeling will encourage other companies to implement similar practices. Businesses can exchange information on costs and benefits associated with integrated waste management practices. The SWM Program should work with other organizations to identify model businesses and foster communication between businesses.

The SWM Program should sponsor an award program for small quantity hazardous waste generators. By placing a "green seal" in the window, proper waste management is advertised to customers and encouraged in competitors. It is important for the award to be worth something to a business by not being awarded indiscriminately

What was done:

"What's In the Can" media campaign and "The Hazard Free Home" were initiatives to educate the public about need to identify and handle special wastes with individual care. These were sponsored by MSU Extension Service.

4. Establish a public/private partnership for statewide collection and transfer of hazardous wastes from CESQGs and households.

The Montana Department of Health and Environmental Sciences (MDHES) has the authority to build and operate a facility for the collection and disposal of hazardous wastes. The 1985 legislature appropriated $800,000 for such a project. A MDHES study recommended that a state-owned, privately-operated facility be built. The funds, however, were re-appropriated at the Governor's recommendation and the project was never initiated. The SWM Program could seek a legislative appropriation to update the study and implement the project.

A mobile hazardous waste collection van can lower transportation costs, which can be the largest cost of hazardous waste collection. Communities could be notified of the day the van would be in a neighborhood, and instructions for collection would be given. An alternative often used for small businesses, and sometimes for communities, is a milk run by a hazardous waste treatment company. A regular collection is scheduled for a string of generators in an area so collection can be done in one run. For more common hazardous wastes, many companies only require a one-time waste characterization, rather than one for each collection. The costs of these types of efforts would drop as more communities become involved.

What was done:

There has been no legislative request for this facility.

5. Implement an annual fee on retailers, distributors, or manufacturers who sell hazardous products.

Money from the annual fees paid by those who sell hazardous products would go towards the education and collection programs identified above. The SWM Program should support legislation addressing this issue.

What was done:

No action taken on this recommendation for annual fees.

6. Require that CESQG's notify landfill operators prior to hazardous waste disposal.

Federal regulations 40 CFR Part 258 require that landfill operators prevent any regulated amounts of hazardous wastes from entering a landfill and document all inspection, training, and notification procedures. They must also prevent disposal of bulk liquids. While these regulations do not prevent CESQG waste disposal, record-keeping requirements will necessitate disclosure.

What was done:

As a part of the Solid Waste Institute of Montana special wastes management training (for landfill operators) has been a consistent element of the program.

BATTERIES
RECOMMENDATION AND ACTIONS TAKEN

7. Implement consumer education programs about batteries.

An education program capitalizing on the many recent positive developments in battery technology could teach proper battery use (maximizing their life and reuse), potential substitutes (rechargeable, and matching the type with the use), recycling opportunities, and proper disposal.

What was done:

DEQ has not implemented an education program specific to batteries, however education on batteries is included with other materials. Some retail outlets have begun to collect batteries for recycling.

USED OIL
RECOMMENDATIONS AND ACTION TAKEN

8. Adopt and implement the new federal standards for the management of used oil.

The EPA adopted a new rule on used motor oil effective March 10, 1993. Among other requirements, the new rule encourages recycling by limiting the regulation of used oil intended for recycling and limiting the liability of service stations that collect used oil. The new rule also prohibits the use of oil as a dust suppressant. The Department of Health and Environmental Sciences will officially adopt the EPA regulation in 1994. The Solid Waste Management (SWM) Program will inform the public and commercial and industrial generators of the new rule and its effect on their operations.

What was done:

New regulations were adopted and businesses notified.

9. Implement additional educational programs for DIY's.

DIYs need to understand the consequences of improper management of used oil and be informed of the collection options available in their communities. The SWM Program should increase its educational efforts by working with other solid waste education groups to produce materials, public service announcements (PSA's), and provide information at other informational forums.

What was done:

Information is available on the Internet from various sources. No separate information has been developed.

10. Expand the collection system for DIY's used oil.

DIYs need to have access to convenient collection points to drop off their used oil. Some communities may want to consider curbside collection of used oil and ordinances requiring proper handling of used oil. An educational campaign is an important part of the collection system.

The 1991 legislature passed a law requiring all retailers of motor oil to post a sign indicating the location of the nearest used oil collector. The SWM Program has distributed signs to retailers of motor oil to help them comply with the law. The SWM Program should increase its efforts to establish used oil collection systems by explaining new rules, actively encouraging local officials and landfill operators to expand community services, and publishing used oil management brochures to be offered to consumers at the point of sale.

What was done:

Used motor oil collection sites are posted on the DEQ website for all statewide locations at www.deq.state.mt.us***.***

TIRES
RECOMMENDATIONS AND ACTION TAKEN

11. Implement a public education campaign to extend the useful life of tires.

With education, consumers may choose to buy longer-lasting tires and maintain their tires properly through regular rotation and pressure checks. Education can encourage consumers to buy retread tires by asking them to examine their misperceptions about the safety and durability of retread tires. The Solid Waste Management (SWM) Program should work with other groups to promote public education on extending the life of tires and use of retreads.

What was done:

DEQ promoted the use of retread tires and provided education to the public through various means in conjunction with other education.

12. Encourage government use of retread tires.

In 1988, the EPA issued guidelines for purchasing retread tires in an attempt to stimulate government procurement and increase the use of retreads by both the government and private sectors. The guidelines require all state and local government agencies and contractors that use federal funds to purchase retread tires and tire re-treading services to the maximum extent possible. The requirement has been largely ignored in Montana.

The SWM Program should publicize the federal requirement and ask local governments and the Montana Department of Transportation to implement it. The SWM Program should encourage the legislature to pass a similar state requirement.

What was done:

DEQ evaluated the use of retread tires for the state motor pool and met with MDT to explore the possibility of this in replacing motor pool tires. There was limited availability of retread tires for passenger vehicles, and issues were raised about the quality of retreads for passenger vehicles because of the many different sizes of these tires. The most effective use of retreads was truck tires.

13. Develop a program to process scrap tires by assessing a small fee on tires either at the time of sale or vehicle registration.

The revenue from a fee on tires could fund public education and a county-operated program to collect and process used tires. The program would be similar to the current junk-vehicle program. See description of program in Chapter 5, page 39). The state would secure contractors to process the tires. The SWM Program should examine the feasibility and potential funding of such a program for the purpose of cleaning up old tire piles.

In Ontario, Canada, a surcharge on tires intended to promote tire recycling resulted in a large amount of money. However, very little was spent on tire recycling projects because the markets were not well developed. State officials should examine this experience before implementing a program.

What was done:

No fee program has been implemented.

14. Support local micro-businesses that can use waste tires to manufacture products for local or regional markets.

The SWM Program should work with local economic development corporations to provide low-interest loans and technical assistance. The program should support legislation to increase tax credits for these businesses.

What was done:

DEQ has supported tax credits for businesses that recycle any product and has been successful in getting credits extended three times. DEQ also established a low interest loan program through the local economic development corporations for a short period of time, when funding was available. No businesses took advantage of the loans for recycling, although other businesses received assistance (1999-2001).

WHITE GOODS
RECOMMENDATIONS AND ACTION TAKEN

15. Provide information to landfill operators and the public on the removal of refrigerants containing CFCs.

The EPA has finalized new rules on the handling of refrigerants containing CFCs with regard to landfill operations. Landfill operators need to know the requirements, including the penalties that can be incurred, and become familiar with the equipment and services available. The Solid Waste Management (SWM) Program should work in coordination with other educational programs to provide the necessary information.

What was done:

Landfill operators are trained and familiar with the requirements for CFC removal.

16. Encourage repair and reuse of white goods.

Some discarded appliances are still in working condition and should be sold for reuse. Other appliances should be made useable through repair. Reuse and repair centers were discussed in Chapter 7 on page 47.

What was done:

All white goods coming into landfills and transfer stations must have the CFC's removed by a certified technician.

17. Fund a public education and collection program for white goods by assessing a tax on appliances at the time of sale.

A county-operated program to collect and process white goods would be similar to the current junk-vehicle program (see page 39). The SWM Program should support legislation to set up the program.

What was done:

No tax has been established. Local landfills have trained employees to remove CFC's.

INFECTIOUS WASTE
RECOMMENDATIONS AND ACTIONS TAKEN

18. Provide educational resources to infectious waste generators.

Educational resources are available which discuss integrated waste management for medical facilities and provide suggestions on identifying and minimizing their infectious waste. Each facility should appoint a waste management coordinator who should receive training and information on this topic. The Solid Waste Management (SWM) Program should work with licensing boards and industry associations to identify resources and coordinate training programs.

What was done:

DEQ is developing rules on infectious waste.

19. Assure compliance with the Montana Infectious Waste Management Act.

The Montana Department of Health and Environmental Sciences (MDHES) must adopt final rules providing more specific requirements for generators, haulers, and landfill operators, clarifying who will enforce the regulations and how they will monitor compliance. Facilities and companies handling infectious waste should appoint a waste coordinator and have a waste management plan. The SWM Program is working with the Licensing and Certification Bureau and the Air Quality Division, all within MDHES, to draft rules for treatment, storage, and disposal facilities, and hospitals.

What was done:

Same as above.

20. Set compliance standards and implement a permit system for hospital incinerators.

Small incinerators at medical facilities, which are designed to burn less than 200 pounds per day, have not been regulated or inspected by state officials. They are often sited in densely populated areas. Environmental concerns over air emissions and ash disposal warrant closer scrutiny. Beginning in 1993, any new incinerator, regardless of size, is required to obtain an Air Quality permit. The SWM Program should work with the Air Quality Division and the Licensing and Certification Bureau to set policies or regulations for the operation of existing small incinerators.

What was done:

The DEQ's SWP did not set policies or regulation for small incinerators. Federal Clean Air Act regulations in the mid-90s mandating stricter emission controls at incinerators nationwide lead to the closure of most of the small medical waste incinerators in Montana. The only medical waste incinerator in operation in Montana is the National Institute of Health Rocky Mountain Labs facility in Hamilton.

CONSTRUCTION AND DEMOILTION DEBRIS
RECOMMENDATIONS AND ACTION TAKEN

21. Provide education for architects, contractors, and builders on waste reduction and use of recycled materials.

Source reduction will happen only when the builders and the designers make the commitment to examine their practices and make changes. This will require information and training opportunities. The SWM Program should work with professionals in the field to set up training opportunities.

What was done:

DEQ received a grant from EPA to educate builders on resource efficient construction and worked with the Montana Building Industries Association and

MSU Extension Service to train builders. Written materials were produced and are being used in builder training conducted by the various partners in this project. At DEQ, the information is included in energy efficiency training provided for builders.

22. Encourage separation of reusable C/D wastes and encourage private salvage businesses.

Tax incentives to recyclers were recommended in Chapter 8, page 55. These should be expanded to include builders who separate C/D wastes and salvage operations that keep C/D debris out of landfills. Communities should consider other kinds of incentives for these operations. The SWM Program should support legislation needed to give economic incentives to salvage operations.

What was done:

No legislation has been introduced particularly for builders, but they may qualify for tax credits for recycling.

LANDFARM
RECOMMENDATION AND ACTION TAKEN

23. Adopt policies or rules for proper siting and operation of landfarms and establish clean-up standards.

Although the Montana Department of Health and Environmental Sciences (MDHES) has rules for disposal of contaminated soils, which test hazardous, they do not apply to non-hazardous contaminated soils. MDHES has guidelines for landfarming of non-hazardous contaminated soils, but no final rule has been adopted. The rules need to establish clean-up standards so that waste mangers know when remediation is complete and the soil can safely be used for another purpose such as landfill cover. The Solid Waste Management (SWM) Program should set up a task force with appropriate program personnel within MDHES and other knowledgeable persons to evaluate landfarming issues and recommend a plan of action. The task force should assist with rulemaking, discuss new technologies for treatment of contaminated soils, and recommend ways to further protect the public health from potential releases from contaminated soils. The SWM Program will proceed with rulemaking before the end of 1993.

What was done:

The SWP regulated contaminated soils as Group II wastes and operated under a guidance document from 1996 to present. Rules have been drafted and should be published in 2005 or 2006.

ASBESTOS
RECOMMENDATIONS AND ACTIONS TAKEN

24. Increase communication between MDHES regulatory programs that deal with asbestos management.

The Waste Management Division and the Occupational Health Bureau each regulate various aspects of asbestos management. However, very little communication occurs between the regulatory personnel of these programs. The bureaus should standardize landfill inspection forms and coordinate inspections.

What was done:

DEQ has combined the resources of the Small Business Assistance Program and the Air Quality permitting group to offer education on proper removal and disposal of asbestos.

25. Improve landfill operator safety in asbestos disposal.

Landfill operators must be informed of proper disposal procedures in order to protect themselves and their workers from exposure to asbestos. The Solid Waste Management (SWM) Program should offer more training to inspection personnel to prepare them to answer questions in the field. Asbestos management should be included in landfill operator training courses.

What was done:

There have been several training sessions for landfill operators on asbestos.

26. Segregate asbestos into specified areas in the landfill.

Segregation of asbestos waste is the best way to ensure that the disposal area is properly controlled, that adequate records are kept, and that asbestos does not escape into the environment. The SWM Program should continue to recommend the segregation of asbestos waste and should consider rulemaking requiring the practice.

What was done:

This was done and there are specific operational rules at landfills to do so.

Chapter 13 Industrial Wastes
INDUSTRIAL WASTES RECOMMENDATIONS AND ACTION TAKEN
1994 IWM PLAN

1. Develop an industrial solid waste management plan.

In order to develop a comprehensive plan for industrial solid waste management, a more thorough study is needed. The Solid Waste Management (SWM) Program should commit the necessary resources to do additional research and meet with industry representatives and other state regulatory programs. Together they can identify the waste streams of particular industries, the existing and potential integrated waste management processes available to Montana generators, and the resources and regulatory changes that may impact the implementation of integrated waste management programs. Only after such discussions and research can the SWM Program make industry-specific recommendations.

What was done:

This was not done as most industrial wastes are either exempt from solid waste licensing regulation or they were treated as Group II wastes and disposed of in Class II landfills.

2. Expand hazardous waste minimization and pollution prevention program to include solid waste.

The Hazardous Waste Program of the Montana Department of Health and Environmental Sciences (MDHES) operates a waste minimization program designed to encourage industries to engage in source reduction, reuse, and recycling. The emphasis of the program, which consists of the equivalent of only one half-time employee, is preventing pollution from hazardous waste, although solid wastes are also considered. Inspectors identify potential waste minimization activities and encourage generators to adopt these practices. The state should apply more resources to the program. The SWM Program should devote increased staff time to industrial waste management, to work with the waste minimization and pollution prevention program and to expand this industrial waste chapter.

What was done:

DEQ has increased emphasis on pollution prevention with the creation of the Pollution Prevention Bureau in 1997. DEQ's Small Business Ombudsman assists small businesses in waste reduction efforts. There is no effort directly for industry.

3. Expand the industrial waste exchange.

As one part of its hazardous waste minimization and pollution prevention program, the Hazardous Waste Program of MDHES contracts with the Montana Chamber of Commerce to operate an industrial waste exchange. A quarterly newsletter lists industrial wastes that businesses have available or would like to obtain. Other businesses, reading the newsletter, find materials they could use or sell. The program,

which provides the service free, puts the businesses in contact with each other. The SWM Program should work with the Hazardous Waste Program to promote and expand the industrial waste exchange as a way to encourage integrated waste management.

What was done:

The Montana Materials Exchange has continued in operation. It has moved from the Montana Chamber of Commerce to the Montana State University Extension Service and is available through the Internet to interested users.

4. Increase the use of integrated waste management measures in enforcement settlements.
When the Waste Management Division determines that there has been a violation of environmental laws or regulations, it may seek an enforcement settlement prior to taking formal administrative or judicial action. These enforcement settlements may require violators to stop using a particular material, restore an ecologically significant area, educate the public, or implement a pollution prevention project. The Waste Management Division should increase its use of source reduction, reuse, composting, and recycling as pollution prevention requirements in enforcement actions.

What was done:

In two cases, DEQ has allowed the use of funds for collection of household hazardous waste events in lieu of penalties paid to DEQ for enforcement actions.

5. Participate in regional and national efforts to examine the issues concerning industrial solid waste.

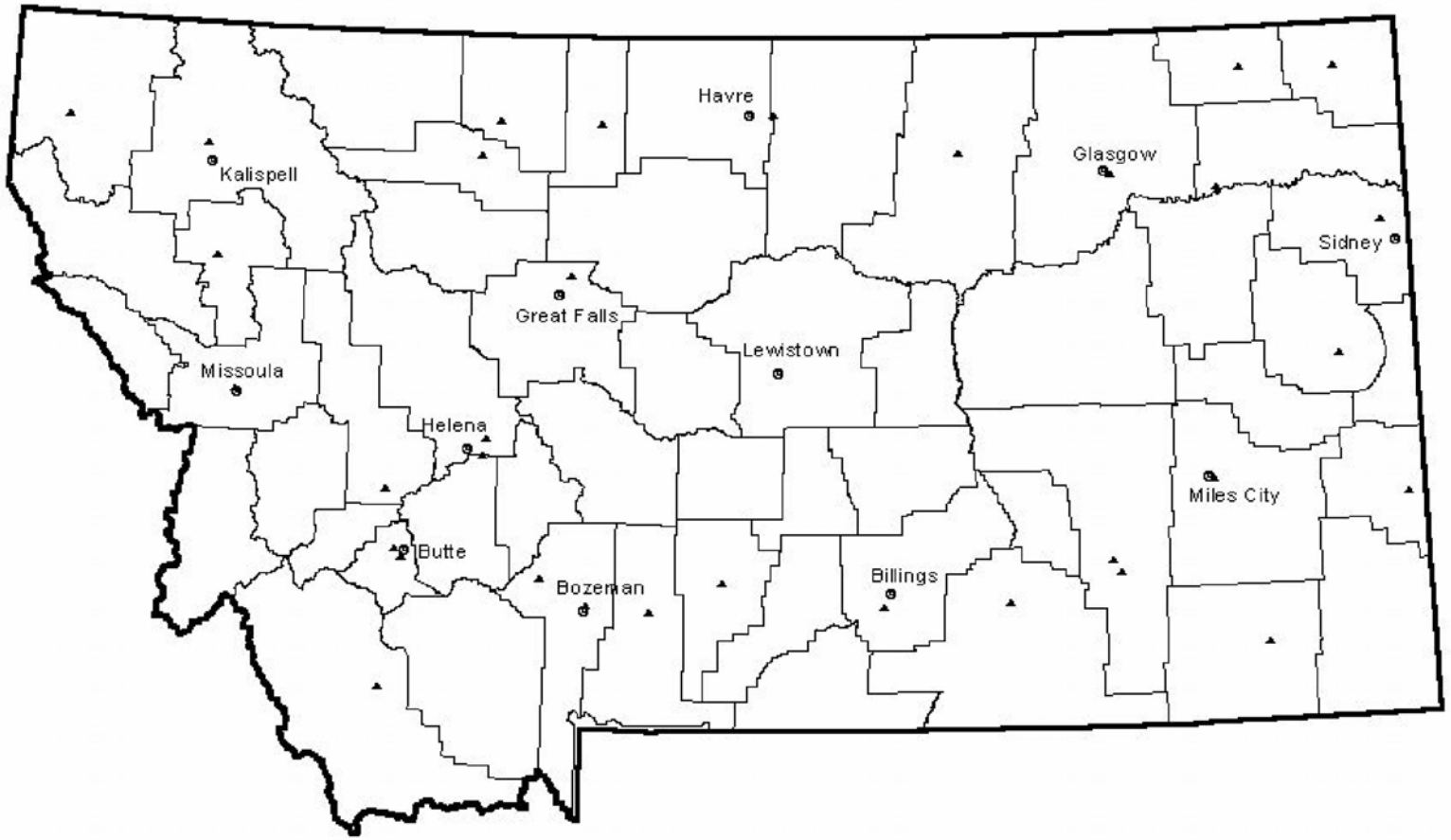
The SWM Program should continue as an active member of EPA's national committee on industrial solid waste.

What was done:

DEQ solid waste personnel participate on Association of State and Territorial Waste Management Officials task force and focus groups on RCRA Sub-title D Industrial Waste Rules. To date no substantive rules changes have been made at the federal or state levels on industrial wastes.

APPENDIX C: LANDFILLS

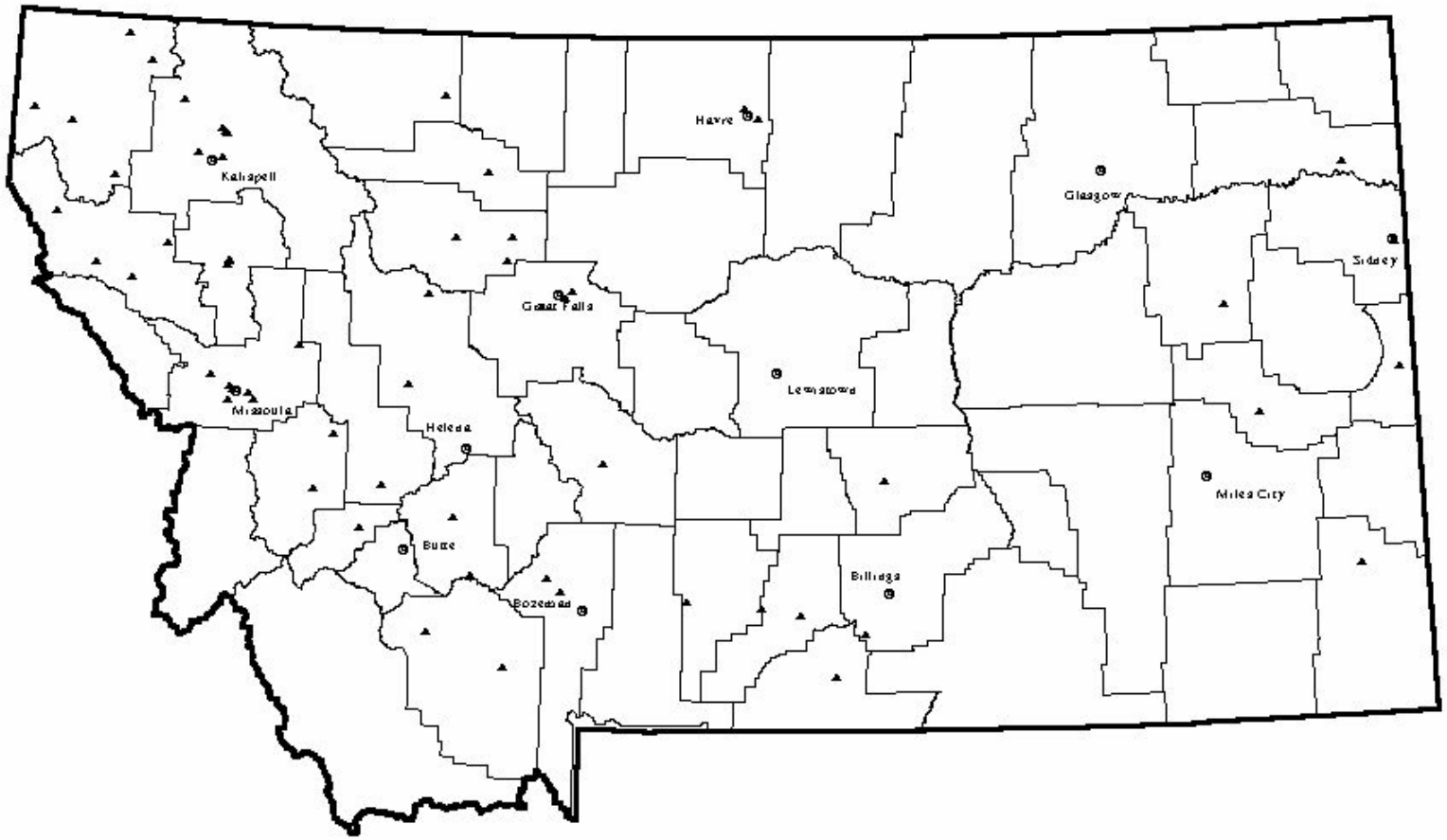
Class II Landfills



Legend

- ▲ Class II Landfill
- ⊙ Major Cities

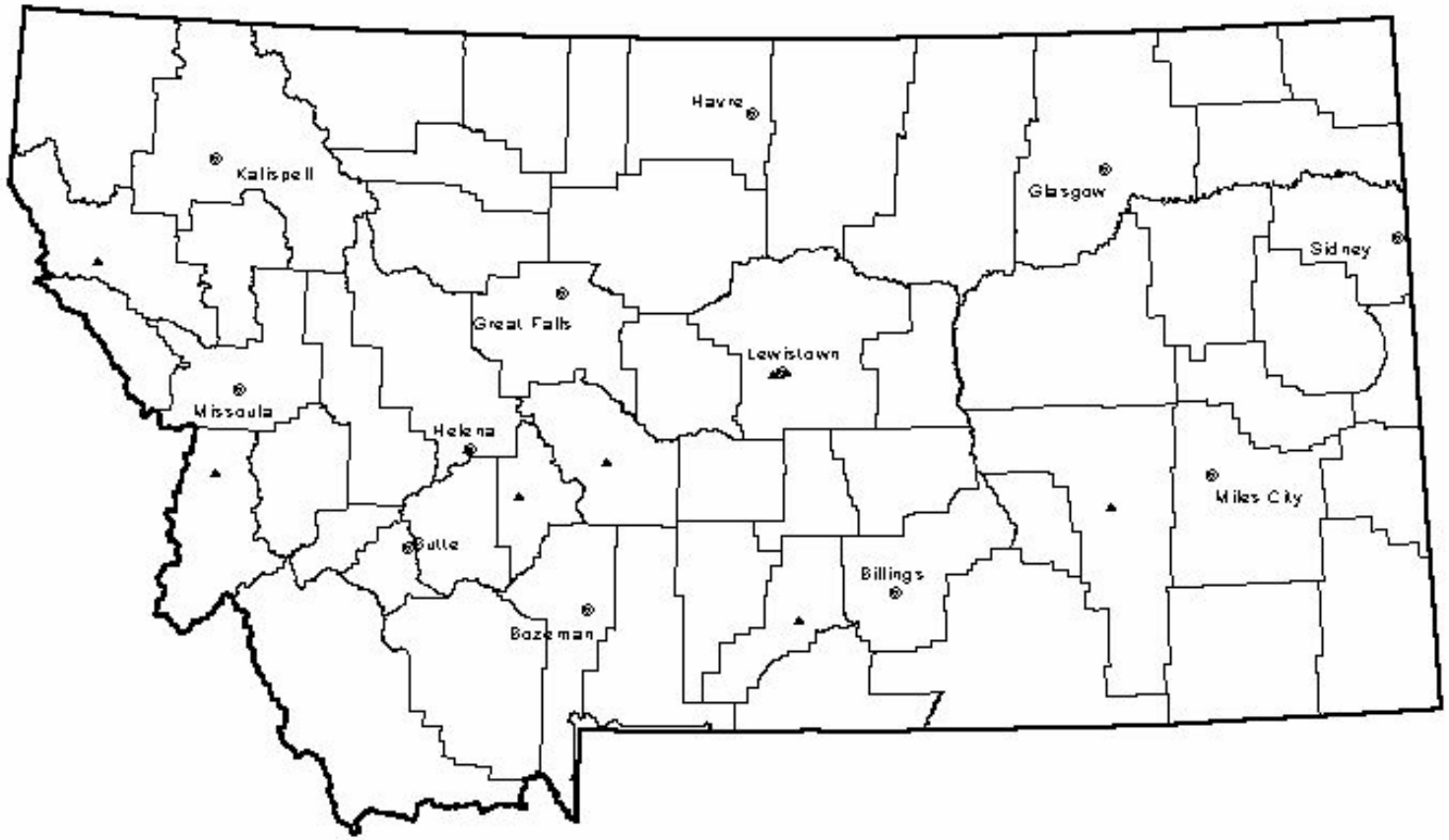
Class III Landfill



Legend

- ▲ Class III Landfill
- ⊙ Major Cities

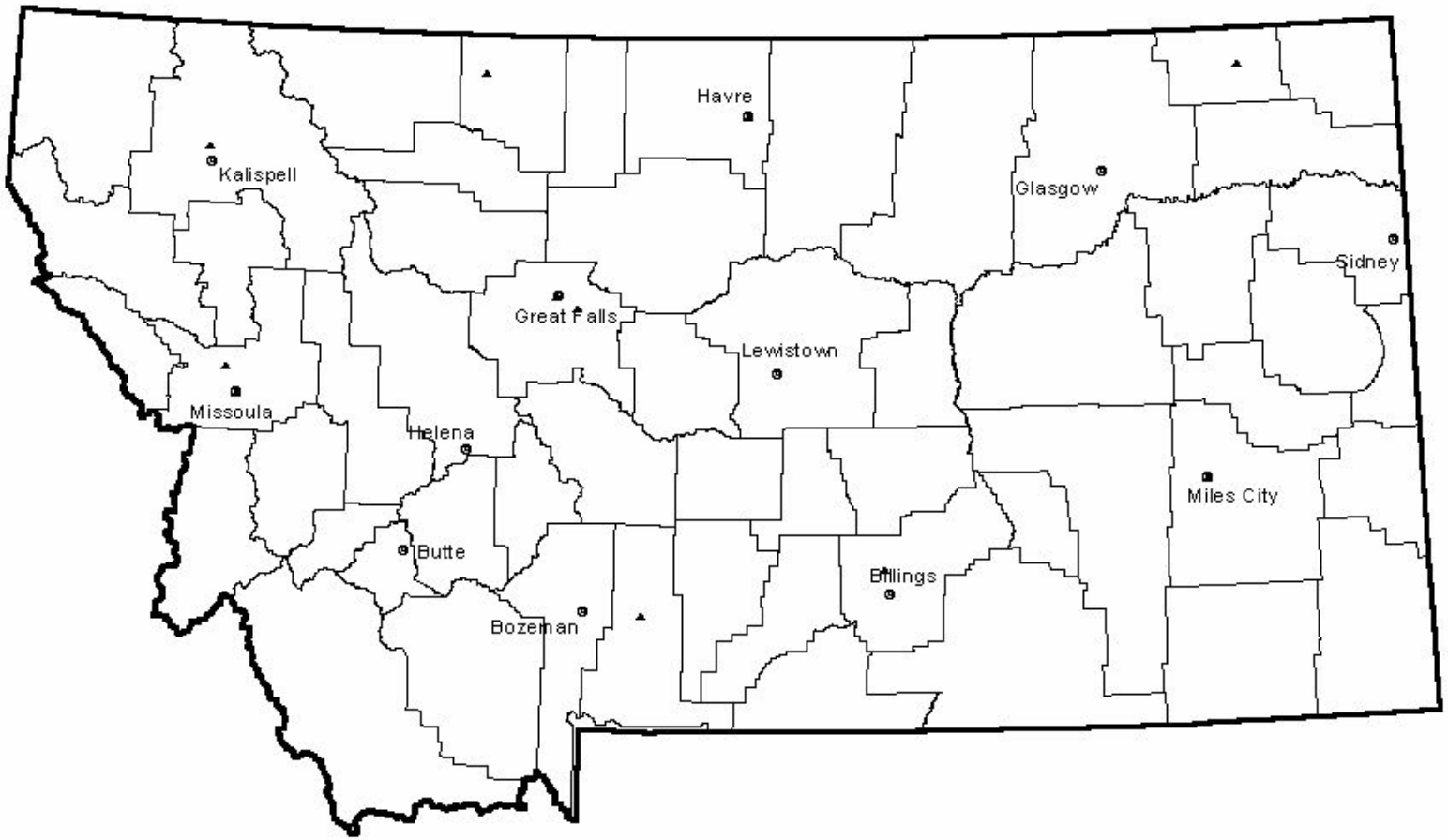
Transfer Stations



Legend

- ▲ Transfer Station
- ◉ Major Cities

Landfarm Sites

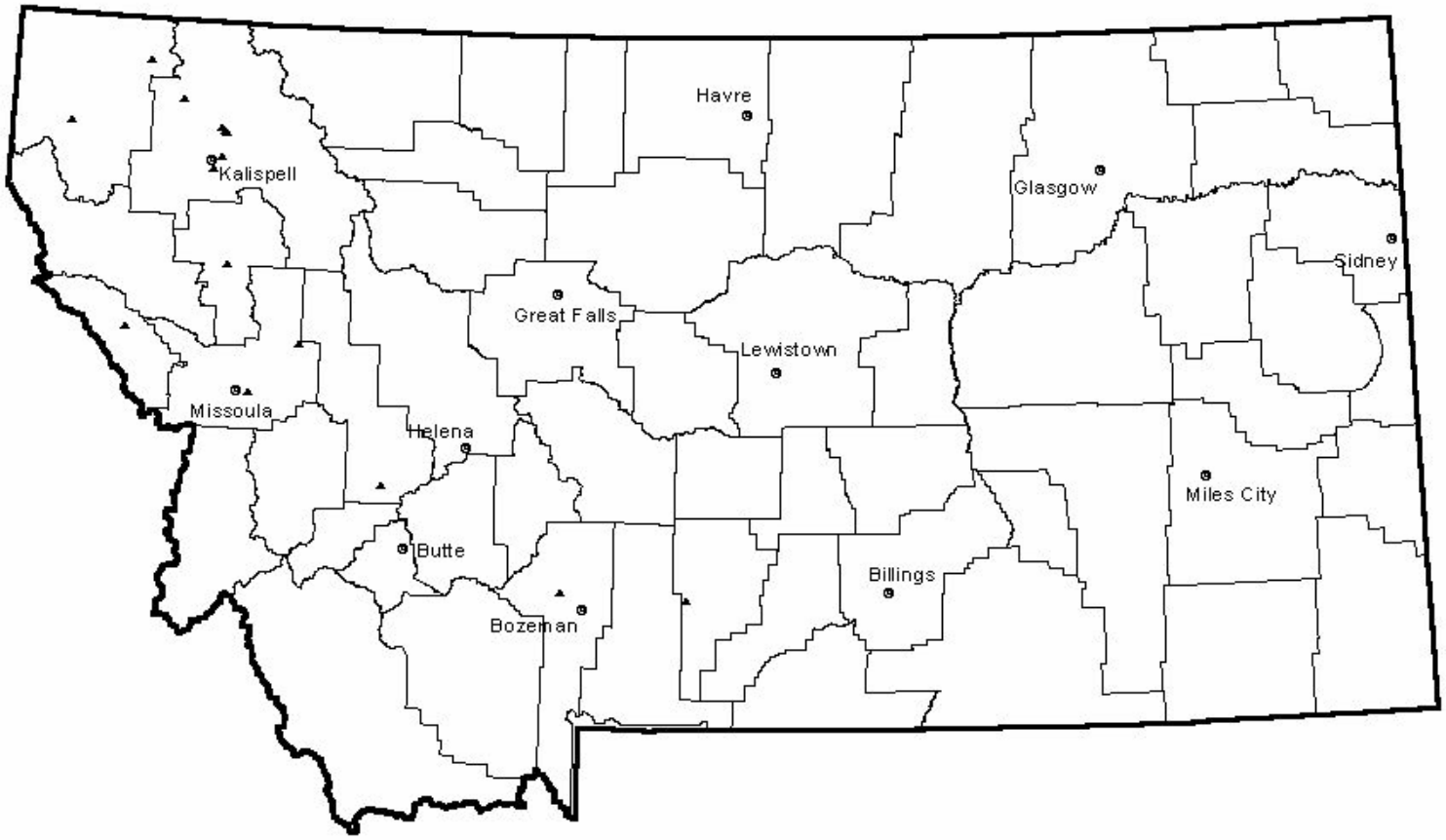


Legend

- ▲ Landfarm Site
- ⊙ Major Cities

Industrial Wood Waste Disposal Facilities

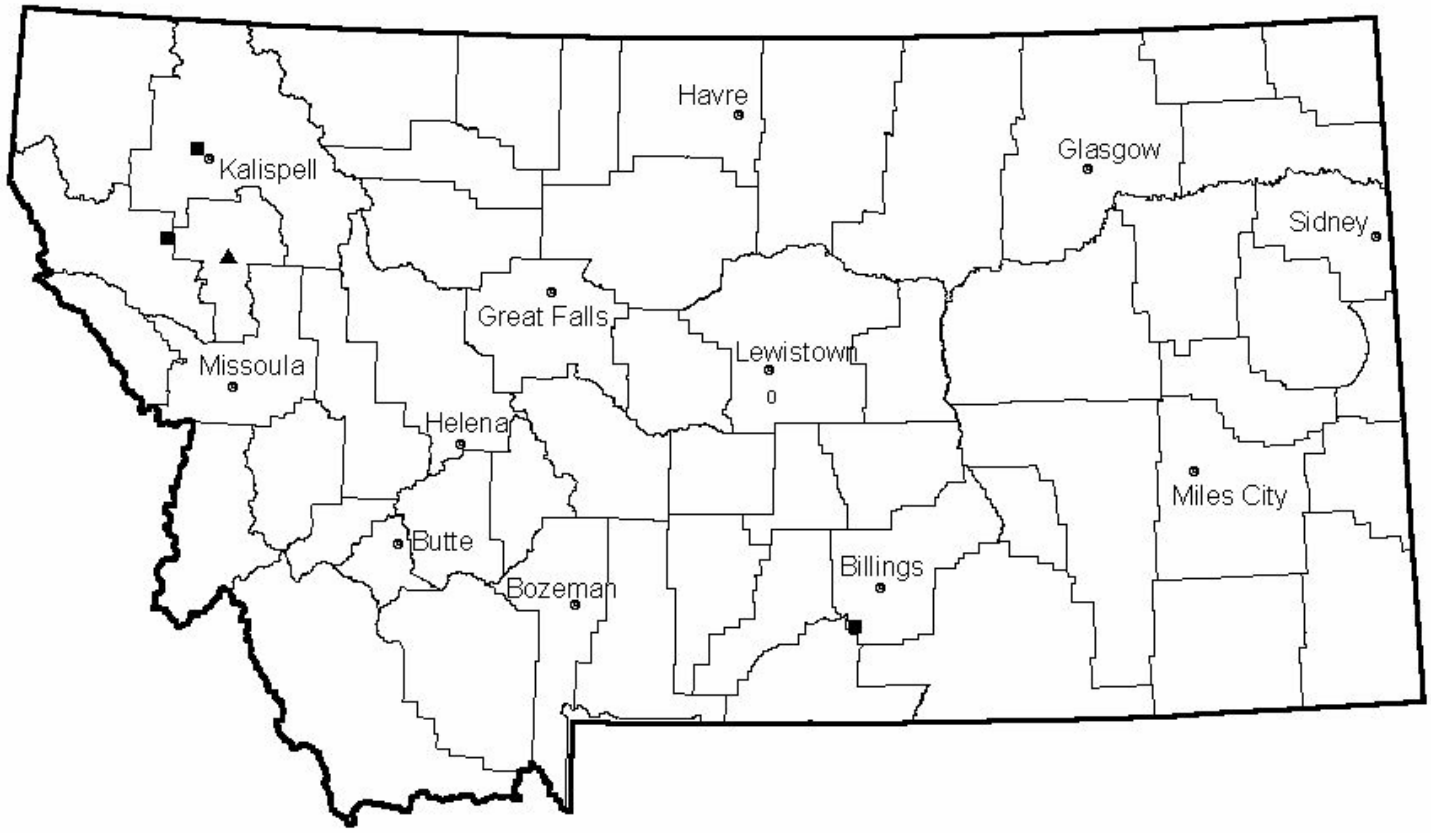
(Timber and Log Homes)



Legend

- ▲ Disposal Facilities
- ⊙ Major Cities

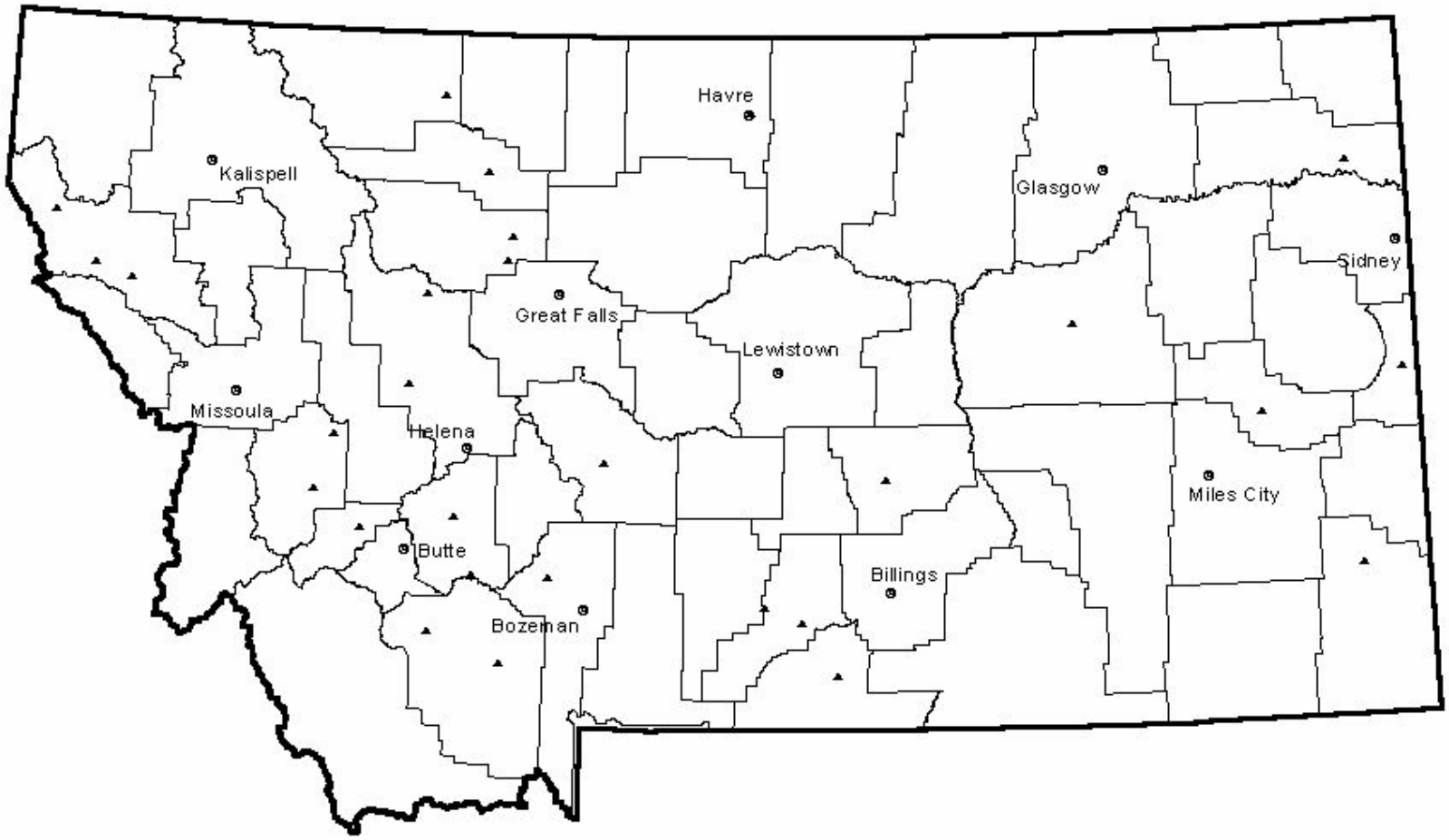
Tire Monofills and Resource Recover Facility



Legend

- ■ Monofills
- ▲ Monofill/Resource Recovery
- ◦ Major Cities

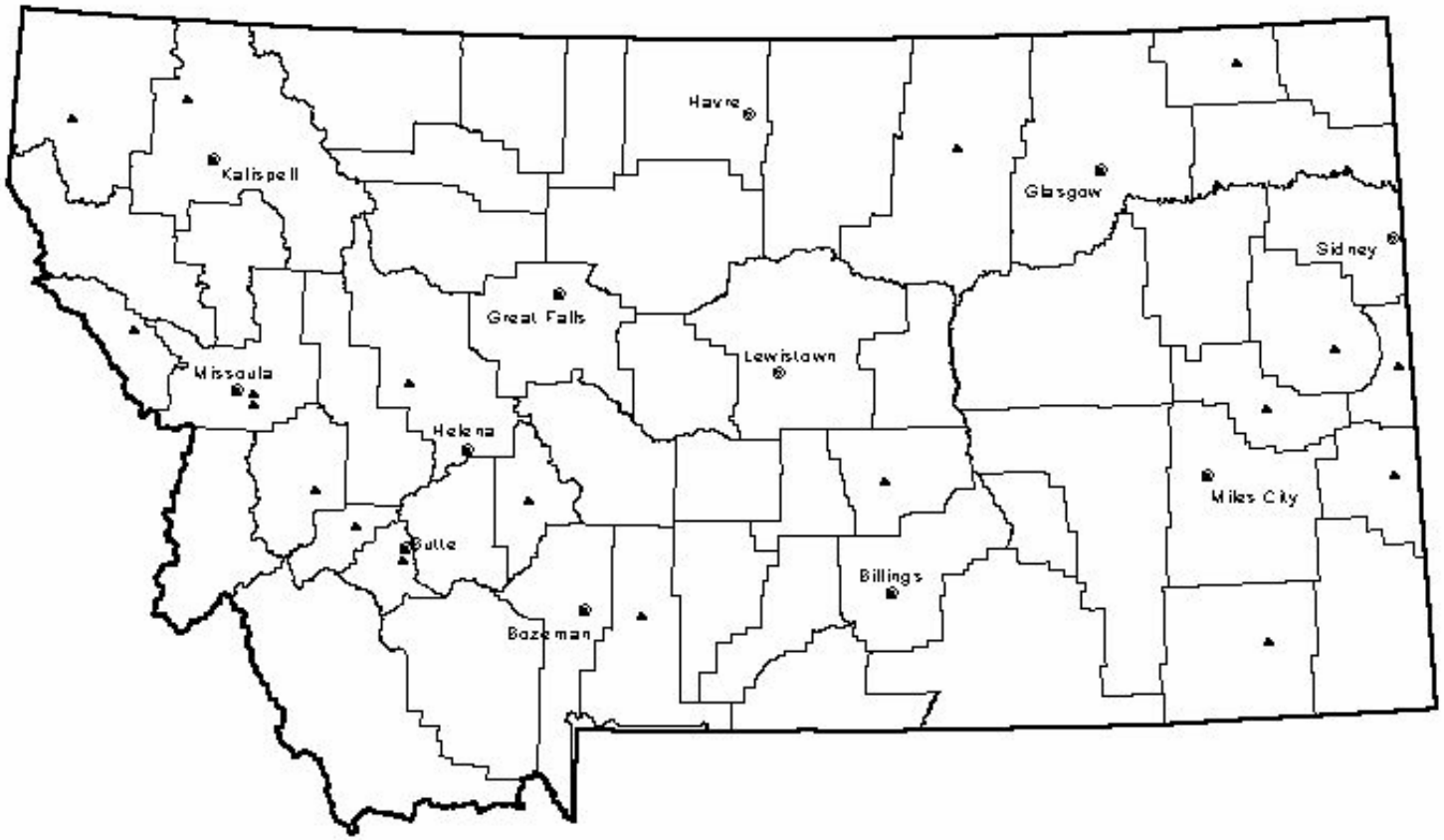
Clean Wood Waste Burnsites



Legend

- ▲ Burnsite
- ⊙ Major Cities

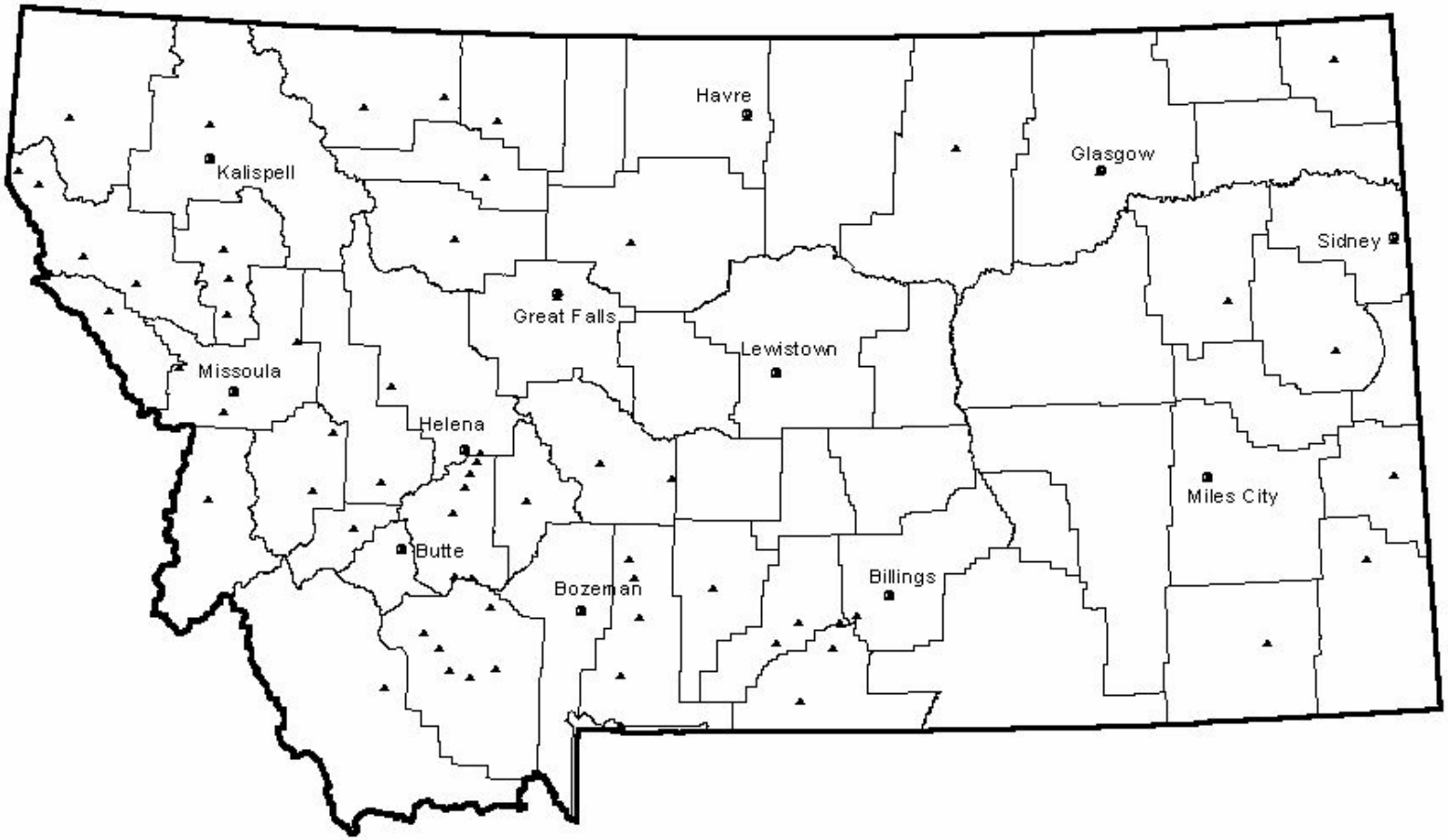
Compost Facilities



Legend

- ▲ Compost Facility
- ◉ Major Cities

Recycling in Montana



Legend

- ▲ Town with Recycling
- ⊙ Major Cities

2000 CENSUS OF POPULATION
URBANIZED AREAS AND URBAN CLUSTERS
MONTANA

	POPULATION		LAND AREA		POPULATION	
	NUMBER	PERCENT	SQ. MILES	PERCENT	DENSITY*	COUNTY
MONTANA TOTAL	**902,195**	**100.00%**	**145,552.45**	**100.000%**	**6.2**	
URBAN TOTAL	**487,878**	**54.08%**	**260.32**	**0.179%**	**1,874.2**	
URBANIZED AREAS	234,195	25.96%	110.85	0.076%	2,112.7	
Billings	100,317	11.12%	45.77	0.031%	2,191.8	Yellowstone
Great Falls	64,387	7.14%	28.70	0.020%	2,243.7	Cascade
Missoula	69,491	7.70%	36.38	0.025%	1,909.9	Missoula
URBAN CLUSTERS	253,683	28.12%	149.47	0.103%	1,697.2	
Anaconda-Deer Lodge County	6,223	0.69%	1.49	0.001%	4,180.9	Deer Lodge
Belgrade	6,893	0.76%	7.20	0.005%	957.7	Gallatin
Bozeman	31,591	3.50%	13.11	0.009%	2,410.0	Gallatin
Browning	4,517	0.50%	1.84	0.001%	2,455.4	Glacier
Butte-Silver Bow	30,615	3.39%	15.34	0.011%	1,995.7	Silver Bow
Columbia Falls	4,652	0.52%	2.76	0.002%	1,685.0	Flathead
Conrad	2,748	0.30%	1.00	0.001%	2,759.4	Pondera
Cut Bank	3,154	0.35%	2.86	0.002%	1,102.4	Glacier
Deer Lodge	5,045	0.56%	5.75	0.004%	877.7	Powell
Dillon	4,306	0.48%	1.89	0.001%	2,277.3	Beaverhead
Glasgow	3,272	0.36%	1.54	0.001%	2,130.6	Valley
Glendive	6,188	0.69%	3.42	0.002%	1,808.7	Dawson
Hamilton	6,070	0.67%	4.92	0.003%	1,233.3	Ravalli
Hardin	3,575	0.40%	1.98	0.001%	1,807.9	Big Horn
Havre	10,413	1.15%	4.73	0.003%	2,203.8	Hill
Helena	38,451	4.26%	23.17	0.016%	1,659.4	Lewis & Clark
Kalispell	25,336	2.81%	16.69	0.011%	1,518.5	Flathead
Laurel	7,684	0.85%	7.03	0.005%	1,093.4	Yellowstone
Lewistown	6,395	0.71%	2.45	0.002%	2,608.8	Fergus
Libby	4,248	0.47%	2.42	0.002%	1,754.5	Lincoln
Livingston	8,322	0.92%	3.85	0.003%	2,163.7	Park
Miles City	9,720	1.08%	7.39	0.005%	1,315.9	Custer
Polson	4,247	0.47%	2.33	0.002%	1,823.5	Lake
Poplar	2,828	0.31%	1.31	0.001%	2,156.7	Roosevelt
Shelby	3,025	0.34%	1.32	0.001%	2,286.8	Toole
Sidney	5,253	0.58%	7.46	0.005%	704.5	Richland
Whitefish	5,485	0.61%	3.37	0.002%	1,627.5	Flathead
Wolf Point	3,427	0.38%	0.88	0.001%	3,909.6	Roosevelt
RURAL TOTAL	**414,317**	**45.92%**	**145,292.13**	**99.82%**	**2.9**	

*Population Density = persons per square mile.

Sources:

U.S. Bureau of the Census. Census 2000 Urban and Rural Classification. June 2002.

Census and Economic Information Center, Montana Dept. of Commerce. August 2002.

Data subject to revision. l:\census 2000\Urban_Rural\UaUc2000.xls

MONTANA
Table P5. URBAN AND RURAL, FARM AND NONFARM - Universe: Total population
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data

				Inside	Inside				Percent		Percent
			Percent	Urbanized	Urban		Percent	Rural	Rural	Rural	Rural
County	Total	Urban	Urban	Area	Clusters	Rural	Rural	Farm	Farm	Nonfarm	Nonfarm
Montana	902,195	487,465	54.0	233,969	253,496	414,730	46.0	39,930	9.6	374,800	90.4
Beaverhead	9,202	4,301	46.7	0	4,301	4,901	53.3	864	17.6	4,037	82.4
Big Horn	12,671	3,511	27.7	0	3,511	9,160	72.3	571	6.2	8,589	93.8
Blaine	7,009	0	0.0	0	0	7,009	100.0	793	11.3	6,216	88.7
Broadwater	4,385	0	0.0	0	0	4,385	100.0	589	13.4	3,796	86.6
Carbon	9,552	0	0.0	0	0	9,552	100.0	1,182	12.4	8,370	87.6
Carter	1,360	0	0.0	0	0	1,360	100.0	518	38.1	842	61.9
Cascade	80,357	64,416	80.2	64,416	0	15,941	19.8	1,391	8.7	14,550	91.3
Chouteau	5,970	0	0.0	0	0	5,970	100.0	1,173	19.6	4,797	80.4
Custer	11,696	9,703	83.0	0	9,703	1,993	17.0	657	33.0	1,336	67.0
Daniels	2,017	0	0.0	0	0	2,017	100.0	485	24.0	1,532	76.0
Dawson	9,059	6,117	67.5	0	6,117	2,942	32.5	705	24.0	2,237	76.0
Deer Lodge	9,417	6,279	66.7	0	6,279	3,138	33.3	113	3.6	3,025	96.4
Fallon	2,837	0	0.0	0	0	2,837	100.0	391	13.8	2,446	86.2
Fergus	11,893	6,364	53.5	0	6,364	5,529	46.5	1,510	27.3	4,019	72.7
Flathead	74,471	35,294	47.4	0	35,294	39,177	52.6	1,463	3.7	37,714	96.3
Gallatin	67,831	38,460	56.7	0	38,460	29,371	43.3	1,580	5.4	27,791	94.6
Garfield	1,279	0	0.0	0	0	1,279	100.0	518	40.5	761	59.5
Glacier	13,247	7,681	58.0	0	7,681	5,566	42.0	777	14.0	4,789	86.0
Golden Valley	1,042	0	0.0	0	0	1,042	100.0	198	19.0	844	81.0
Granite	2,830	0	0.0	0	0	2,830	100.0	344	12.2	2,486	87.8
Hill	16,673	10,338	62.0	0	10,338	6,335	38.0	736	11.6	5,599	88.4
Jefferson	10,049	0	0.0	0	0	10,049	100.0	465	4.6	9,584	95.4
Judith Basin	2,329	0	0.0	0	0	2,329	100.0	813	34.9	1,516	65.1

MONTANA

Table P5. URBAN AND RURAL, FARM AND NONFARM - Universe: Total population

Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data

				Inside	Inside				Percent		Percent
			Percent	Urbanized	Urban		Percent	Rural	Rural	Rural	Rural
	Total	Urban	Urban	Area	Clusters	Rural	Rural	Farm	Farm	Nonfarm	Nonfarm
Lake	26,507	4,116	15.5	0	4,116	22,391	84.5	1,942	8.7	20,449	91.3
Lewis and Clark	55,716	38,544	69.2	0	38,544	17,172	30.8	803	4.7	16,369	95.3
Liberty	2,158	0	0.0	0	0	2,158	100.0	416	19.3	1,742	80.7
Lincoln	18,837	4,204	22.3	0	4,204	14,633	77.7	256	1.7	14,377	98.3
McCone	1,977	0	0.0	0	0	1,977	100.0	594	30.0	1,383	70.0
Madison	6,851	0	0.0	0	0	6,851	100.0	814	11.9	6,037	88.1
Meagher	1,932	0	0.0	0	0	1,932	100.0	209	10.8	1,723	89.2
Mineral	3,884	0	0.0	0	0	3,884	100.0	44	1.1	3,840	98.9
Missoula	95,802	69,502	72.5	69,502	0	26,300	27.5	821	3.1	25,479	96.9
Musselshell	4,497	0	0.0	0	0	4,497	100.0	370	8.2	4,127	91.8
Park	15,694	8,312	53.0	0	8,312	7,382	47.0	752	10.2	6,630	89.8
Petroleum	493	0	0.0	0	0	493	100.0	147	29.8	346	70.2
Phillips	4,601	0	0.0	0	0	4,601	100.0	633	13.8	3,968	86.2
Pondera	6,424	2,784	43.3	0	2,784	3,640	56.7	850	23.4	2,790	76.6
Powder River	1,858	0	0.0	0	0	1,858	100.0	454	24.4	1,404	75.6
Powell	7,180	5,016	69.9	0	5,016	2,164	30.1	539	24.9	1,625	75.1
Prairie	1,199	0	0.0	0	0	1,199	100.0	196	16.3	1,003	83.7
Ravalli	36,070	6,072	16.8	0	6,072	29,998	83.2	1,606	5.4	28,392	94.6
Richland	9,667	5,407	55.9	0	5,407	4,260	44.1	878	20.6	3,382	79.4
Roosevelt	10,620	6,381	60.1	0	6,381	4,239	39.9	747	17.6	3,492	82.4
Rosebud	9,383	0	0.0	0	0	9,383	100.0	569	6.1	8,814	93.9
Sanders	10,227	0	0.0	0	0	10,227	100.0	630	6.2	9,597	93.8
Sheridan	4,105	0	0.0	0	0	4,105	100.0	661	16.1	3,444	83.9
Silver Bow	34,606	30,509	88.2	0	30,509	4,097	11.8	244	6.0	3,853	94.0
Stillwater	8,195	0	0.0	0	0	8,195	100.0	882	10.8	7,313	89.2
Sweet Grass	3,609	0	0.0	0	0	3,609	100.0	685	19.0	2,924	81.0
Teton	6,445	0	0.0	0	0	6,445	100.0	1,157	18.0	5,288	82.0

MONTANA
Table P5. URBAN AND RURAL, FARM AND NONFARM - Universe: Total population
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data

				Inside	Inside				Percent		Percent
			Percent	Urbanized	Urban		Percent	Rural	Rural	Rural	Rural
	Total	Urban	Urban	Area	Clusters	Rural	Rural	Farm	Farm	Nonfarm	Nonfarm
Toole	5,267	3,026	57.5	0	3,026	2,241	42.5	505	22.5	1,736	77.5
Treasure	861	0	0.0	0	0	861	100.0	178	20.7	683	79.3
Valley	7,675	3,372	43.9	0	3,372	4,303	56.1	889	20.7	3,414	79.3
Wheatland	2,259	0	0.0	0	0	2,259	100.0	278	12.3	1,981	87.7
Wibaux	1,068	0	0.0	0	0	1,068	100.0	278	26.0	790	74.0
Yellowstone	129,352	107,756	83.3	100,051	7,705	21,596	16.7	2,067	9.6	19,529	90.4

Urban - All population and territory within the boundaries of Urbanized Areas and the urban portion of places outside of Urbanized Areas that have a decennial census population of 2,500 or more.

Urbanized Areas (UA)
Densely settled core created from block groups or census blocks, and the adjacent densely settled surrounding territory up to 5 miles from the continuously developed core (with a density of 500 people per square mile) that together have a minimum population of 50,000 people.

Urban Clusters (UC)
Densely settled core created from block groups or census blocks, and the adjacent densely settled surrounding territory (with a density of 500 people per square mile) that together have a minimum of 2,500 people but fewer than 50,000 people.

Rural - All territory, population, and housing units located outside of urbanized areas and urban clusters.

Farm Residence - Dwelling or household located in a rural farm area and concerned with growing crops or raising livestock.

Compiled by: Census & Economic Information Center, Montana Department of Commerce, 09/02
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Source: U.S. Census Bureau, Census 2000 I:\census 2000\sf3\excel web 2000 files\urban_rural_cty_sf3.xls

MONTANA
Table P5. URBAN AND RURAL, FARM AND NONFARM - Universe: Total population
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data

Reservation	Total	Urban	Percent Urban	Inside Urbanized Areas	Inside Urban Clusters	Rural	Percent Rural	Rural Farm	Percent Rural Farm	Rural Nonfarm	Percent Rural Nonfarm
Montana	902,195	487,465	54.0	233,969	253,496	414,730	46.0	39,930	9.6	374,800	90.4
Blackfeet Reservation and Off-Reservation Trust Land*	10,115	4,497	44.5	0	4,497	5,618	55.5	679	12.1	4,939	87.9
Crow Reservation and Off-Reservation Trust Land	6,878	0	0.0	0	0	6,878	100.0	417	6.1	6,461	93.9
Flathead Reservation	26,203	4,116	15.7	0	4,116	22,087	84.3	2,160	9.8	19,927	90.2
Fort Belknap Reservation and Off-Reservation Trust Land	2,956	0	0.0	0	0	2,956	100.0	109	3.7	2,847	96.3
Fort Peck Reservation and Off-Reservation Trust Land	10,320	6,381	61.8	0	6,381	3,939	38.2	819	20.8	3,120	79.2
Northern Cheyenne Reservation and Off-Reservation Trust Land	4,471	0	0.0	0	0	4,471	100.0	20	0.4	4,451	99.6
Rocky Boy's Reservation and Off-Reservation Trust Land	2,622	0	0.0	0	0	2,622	100.0	19	0.7	2,603	99.3
Turtle Mountain Reservation and Off-Reservation Trust Land, MT--ND--SD (part)**	24	0	0.0	0	0	24	100.0	24	100.0	0	0.0

* Off-reservation trust lands, along with reservation lands, constitute the territory over which American Indian tribes have primary governmental authority. Trust land is property associated with a specific American Indian reservation or tribe, held in trust by the federal government. Trust lands recognized in data tabulations are always "off-reservation"; that is, they comprise all tribal and individual trust lands located outside of a reservation boundary. For more detailed information see Appendix A in the Public Law 94-171 Technical Documentation.

** The Montana portion of the Turtle Mountain Reservation and Off-Reservation Trust Land is Trust Land spread over 13 counties. Only three counties have population in them: Roosevelt (12), Sheridan (10) and Daniels (2). The other counties are Blaine, Carter, Chouteau, Fergus, Hill, Liberty, McCone, Phillips, Richland, and Valley.

Urban - All population and territory within the boundaries of Urbanized Areas and the urban portion of places outside of Urbanized Areas that have a decennial census population of 2,500 or more.

Urbanized Areas (UA)
Densely settled core created from block groups or census blocks, and the adjacent densely settled surrounding territory up to 5 miles from the continuously developed core (with a density of 500 people

per square mile) that together have a minimum population of 50,000 people.

Urban Clusters (UC)
Densely settled core created from block groups or census blocks, and the adjacent densely settled surrounding territory (with a density of 500 people per square mile) that together have a minimum of 2,500 people but fewer than 50,000 people.

Rural - All territory, population, and housing units located outside of urbanized areas and urban clusters.

Farm Residence - Dwelling or household located in a rural farm area and concerned with growing crops or raising livestock.

Compiled by: Census and Economic Information Center, Montana Department of Commerce, 09/02
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Source: U.S. Census Bureau, Census 2000 l:\census 2000\sf3\excel web 2000 files\urban_rural_res_sf3.xls

APPENDIX D: COMMUNITY RECYCLING, BY LOCATION

If a recycling contact is not listed for your community, consult you local waste management facilities or local officials for options that may not be listed here. For Counties in Southwest Montana, consult Headwater Recycling listed in resources above. Contact your local waste management facility for resources as well.

ANACONDA

Aware, 1200 East Park, 406-563-5229

Smelter City Recycling, 18 Landfill Road, 406-563-5157

BAKER

Baker Hide and Recycling, Highway 7 North, 406-778-2710

Coral Creek Landfill, P.O. Box 1134, 406-778-7111

BILLINGS

Billings Recyclery, BFI, 458 Charles Street, Billings, 406-252-5721

Browning Ferris Industries, 406-248-5400

Golden Recycling & Salvage, 1100 6th Avenue North, 406-252-8080

Pacific Steel and Recycling, 777 4th Avenue, 406-245-3133

BOULDER

Montana Development Center, 310 4th Street, 406-255-4429

BOZEMAN

Pacific Steel and Recycling, 315 West Griffin Drive, 406-587-0662

Pack Tech, Inc., 200 South 23rd Avenue, D-7, 406-587-0558. Individuals are encouraged to drop-off loose-fill styrofoam (peanuts) for reuse at Pack Tech, Inc.

Recycle-It, 1205 South Willson, 406-586-2351

Reach, 2134 Industrial Drive, 406-587-1271

BROADUS

Powder River Recyclers, 300 S. Wilbur; 406-436-2361, 406-436-2424

BUTTE

A & S Metals, 2100 Meadowlark Lane, 406-494-1661

Butte Silver Bow Landfill, 125 W Granite St., 59701, 406-497-6521

Pacific Steel & Recycling, Short and Gaylord Street, 406-782-0402

Rosin Brothers, 609 Aluminum East, 406-782-2341

CHOTEAU

Choteau Recycling Center, 109 Maine Ave. North, 406-466-5311

COLUMBUS

Columbus Recycling Program, City Hall, 406-322-5313 (Drop Site by BFI)

CUT BANK

Cut Bank Hide & Fur, 405 East Railroad, 406-873-2051

DARBY

Bitterroot Disposal, 406-642-3375

DEER LODGE

Rennfield Metals, 120 South Frontage Road, 406-846-1726

DILLON

Dillon Landfill, 2S Pacific St., 59725, 406-683-3753

EKALAKA

Baker Hide & Recycling, drop point at City Office, 406-778-2710

Landfill, 59324, 406-775-8731

GLASGOW

Milk River, Inc., 219 Second Avenue South, 406-228-8412

Pacific Steel & Recycling, BN Right-of-Way, 406-228-8229

GLENDIVE

Border Steel and Recycling, West Glendive, 406-377-4398

Yellowstone Recycling Center, 423 W. Bell St, 406-377-2679

GREAT FALLS

B&L Towing & Salvage, Wire Mill Road, 406-761-2049

Citizens Convenience Center, 1100 15th Street N., 59401, 406-454-2279

Filipowicz Brothers Salvage, Wire Mill Road, 406-727-0535

Pacific Steel & Recycling, 1624 12th Avenue North, 800-332-9930,
1401 3rd North, 727-6222.

Steel, Etc, P.O. Box 1279, 59403, 406-761-4848

Montana Waste Systems, 3201 15th NE, 406-761-2545

HAMILTON

Ravalli Services Corporation, NE 111 Old Corvallis Road, 406-363-5400

HAVRE

Havre Day Activities & Recycling, 235 1st Street West, 406-265-5506

Pacific Steel & Recycling, Highway 2 East, 406-265-5824

HELENA

City of Helena Solid Waste Transfer Station, 1975 N Benton, 406-447-1584.

Pacific Steel & Recycling, 1530 National Avenue, 406-442-7851

The S.A.V.E. Foundation, P.O. Box 1481, www.savemobile.org

KALISPELL

Evergreen Waste Disposal, 1970 Whalebone Drive, 406-257-1739

Pacific Steel & Recycling, Flathead Lane, 406-755-7011

Valley Recycling, 1410 Hwy 2 West, 406-257-1739

LEWISTOWN

Pacific Steel & Recycling, 1101 4th Avenue North, 406-538-5245

LIBBY

S.J. Orr Services, 2049 Hwy 2 South, 293-3711, or 800-822-1069

LIVINGSTON

Counterpoint, 116 East Lewis, 406-222-2472

City of Livingston, Public Works, 406-222-1142

Park County Solid Waste District, P.O. Box 1212, 59047, 406-222-4186

MALTA

Malta Opportunities, 11 South 3 East, 59538, 406-654-2582

MILES CITY

Eastern Montana Industries, P.O. Box 759, 59301, 406-234-3740

Pacific Steel & Recycling, 803 Phillips, 406-232-3583

MISSOULA

Browning Ferris Industries, P.O. Box 8449, 406-543-3157

Norm's Parts & Recycling, Hwy 93, 406-251-2635

Pacific Steel & Recycling, 2828 Palmer, 406-542-0381

PLENTYWOOD

Glenwood Inc, 202 East First Avenue, 406-765-2040

Sheridan County Landfill, 59254, 406-765-7117

SHELBY

Northern Gateway Enterprises, Inc., 216 6th Avenue North, 406-278-3238

SIDNEY

Pacific Steel & Recycling, South of Sidney, 406-482-1301

Richland Opportunities, 1101 Silurian Lane, 406-482-3341

ST. REGIS

4-Mile Recycling, Denley M. Loge, 136 4-Mile Road, 406-649-2368

THOMPSON FALLS

Sanders County Solid Waste Board, Sanders County, 406-827-6900

VICTOR

Victor Transfer, 2000 Meridian Road, 406-642-3375

WHITEFISH

North Valley Refuse, 59937, 406-862-4381

WOLF POINT

Wolf Point City Landfill, 201 4th Ave S., 653-1852

WEST YELLOWSTONE

Two Seasons Recycling, 620 Madison Avenue, 406-646-9476

APPENDIX E: COMPOSTING

Municipal Composting Programs listed below were gathered from the "Survey to Determine Montana Municipal Solid Waste Management Characteristics and Training Needs" and the "DHES Licensing Survey".

Local Government Compost Facilities In Montana - 2003
Active Composting Sites:

COUNTY	CITY	FACILITY	CONTACT	MATERIALS
BROADWATER	TOWNSEND	BROADWATER TRANSFER STATION & CLASS III	Jim Hohn 266-3445	yard waste
CASCADE	GREAT FALLS	GREAT FALLS YARD WASTE RECYCLING FACILITY	Jon Thompson 771-1265	yard waste and wood chips
CUSTER	MILES CITY	MILES CITY AREA SOLID WASTE DISP DIST	Duane Mathison	yard waste
DANIELS	SCOBEY	DANIELS CO LANDFILL	Gordon Blomquist	yard waste
DAWSON	GLENDIVE	GLENDIVE LANDFILL	Gary Zuroff	yard waste
DEER LODGE	ANACONDA	ANACONDA DEER LODGE CO CLASS III LANDFIL	Linda Bock 563-4010	yard waste
FALLON	BAKER	CORAL CREEK LANDFILL	Roger Schmidt 778-7111	yard waste
FLATHEAD	KALISPELL	FLATHEAD CO SOLID WASTE	Dave Prunty 758-5910	yard waste
FLATHEAD	KALISPELL	BLACK GOLD TOP SOIL	Jack & Tara Van 257-7782	yard waste and sawdust
FLATHEAD ****	OLNEY	GLACIER GOLD COMPOSTING PLANT	David Larson 881-3033	biosolids and saw mill waste
GALLATIN	BOZEMAN	EARTH SYSTEMS	Ed Spotts 582-0660	
GALLATIN	BOZEMAN	BOZEMAN CITY LANDFILL	Marc Kottwitz 582-3258	yard waste
GRANITE	PHILIPSBURG	LOWER FLINT CREEK VALLEY SOLID WASTE SIT	Janice Bowen 859-3759	yard and barnyard waste
GRANITE	PHILIPSBURG	PHILIPSBURG CLASS III BURN SITE	Janice Bowen 859-3759	yard waste
LEWIS & CLARK	LINCOLN	LINCOLN REF DIST CLASS III BURN & COMPOST	Jay Parmer	yard waste
LEWIS & CLARK	HELENA	HERITAGE COMMERCIAL CONTRACTORS INC	Thomas Little	yard waste

LEWIS & CLARK ****	HELENA	L & C CO. CLASS II LANDFILL (Big Butte Bio-logic Compost)	Will Selser 447-1635 or Bill Bullock 782-0190, 782-5177	bio-solids, sawdust and yard waste
LINCOLN	LIBBY	LIBBY CLASS II LANDFILL	Ron Anderson 293-7781x228	yard waste
MISSOULA	MISSOULA	CLARK FORK COMPOST & RECLAMATION SITE	Greg Kennet	yard waste
MISSOULA	BONNER	STIMSON WEST RIVERSIDE CLASS III LANDFILL	Richard Shimer 258-2217	yard waste
MISSOULA	MISSOULA	CLARK FORK COMPOST & RECLAMATION INC	Greg Kennet 728-8438	sawdust and wood
MISSOULA ****	MISSOULA	EKO KOMPOST INC	Terry Munnerlyn 721-1423	bio-solids, wood and yard waste;
PARK	LIVINGSTON	CITY OF LIVINGSTON YARD WASTE	Tom Bergsing 222-1142	yard waste
PHILLIPS	MALTA	CITY OF MALTA CLASS II LANDFILL	Carolyn Schmoeckel 654-1251	yard waste
PRAIRIE	TERRY	TERRY CLASS III BURN SITE & COMPOST SITE	Marvin Varner	yard waste
ROOSEVELT	CULBERTSON	TOWN OF CULBERTSON CLASS III LANDFILL	Raedelle Aspenlieder 787-5271	yard waste
ROOSEVELT	WOLF POINT	WOLF POINT CITY LANDFILL	Rick Isle 653-1852	yard waste
SILVER BOW ****	BUTTE	BUTTE SILVER BOW GOVERNMENT (Big-Butte Bio-logic Compost)	Bill Bullock 782-0190, 782-5177	yard waste, bio-solids, sawdust
WIBAUX	WIBAUX	WIBAUX COUNTY CLASS III LANDFILL	Marlene Blome	yard waste
YELLOWSTONE	BILLINGS	CITY OF BILLINGS LANDFILL	Ken Behling 247-8620	yard waste

Private Compost Programs

Composting Facility, Anderson Compost, HC 48 Box 1041, Roberts, MT 59070, 445-2909

Black Gold Top Soil, Jack and Tara Van, 100 Ranch Lane Kalispell, 59901, 257-7782

The Compost Farm, Thomas Earl, 3000 Black Eagle Road, Black Eagle, 59414, 453-3000

Earth Systems Compost, 55o Cedar Hills Rd, Whitehall, 582-0660

EKO-Kompost, Inc., 3700 Compost Road, Missoula, 59801, 721-1423

Glacier Gold LLC, 255 Good Creek Road, Olney, 59927, 881-3033

Stene Compost, 1538 Lewis Ave., Billings, 59102, 256-3288

West Yellowstone West Yellowstone, 59758, 582-3192

APPENDIX F: INFORMATION RESOURCES

Many of the groups listed in appendixes D and E also may be contacted for educational material.

General

STATE CONTACTS:

Air, Energy and Pollution Prevention, Montana Department of Environmental Quality
The Air, Energy and Pollution Prevention Bureau is responsible for improving energy efficiency and increasing the use of renewable energy for power generation and transportation fuels; preventing pollution of air and water; reducing the amount of waste going into landfills; increasing recycling markets; planning for energy emergencies; and for collecting and interpreting data on air quality statewide. The bureau conducts or oversees air monitoring for fine and coarse particulate and continuous meteorological conditions statewide; provides technical assistance to small businesses and industry, state and local governments and individual consumer on energy technologies and pollution prevention; economic analysis and planning information to policy makers and businesses; market development assistance to businesses and local governments; and financial assistance to state government agencies for building improvements and private individuals and consumers. The Bureau also provides "Montana Guide for Buying Recycled Products" and other publications towards pollution prevention and environmental awareness. Guide and other resources available at www.deq.state.mt.us. The Small Business Assistance Program maintains a consumer hotline for public inquiries at 1-800-433-8773.

Alternative Energy Resource
Organization
432 North Last Chance Gulch
Helena, MT 59601
406-443-7272

Headwaters Co-op Recycling
PO Box 1020
Boulder, MT 59632
406-461-5601

Montana Audubon Council
P.O. Box 595
Helena, MT 59624-0595
406-443-3949
http://www.mtaudubon.org/

Montana Environmental Organizations

University of Montana provides a list of non-profit environmental groups at:
http://www2.umt.edu/asum/envirolaw/mtenvirolinks.htm

Montana State University
Precycle, Environmental Shopping Education Program
Mike Vogel, Ed. Ph.D., MSU Extension Service, Taylor Hall, Bozeman, 59717, 406-994-3451.
The Precycle Program is a community volunteer education program to provide public awareness of packaging that is excessive, locally recyclable, and has recycled content. Programs have been conducted with Buttrey Food and Drug.

Montana Pollution Prevention Program
This program is part of MSU extension services and provides information and assistance to small businesses and citizens throughout the state. 406-994-3451 / (888) MSU-MTP2
http://www.mtp2.org

Peaks to Prairies
A pollution prevention network in EPA Region 8I, which includes Montana.
http://www.peakstoprairies.org/

National Center for Appropriate Technology
Serves economically disadvantaged people by providing information and access to appropriate technologies that can help improve their lives. NCAT projects have ranged from low-tech to high-tech, addressing complex issues of housing, economics, and environmental quality. Weatherizing houses, training farmers, monitoring energy use, demonstrating renewable energy technology, testing new products and providing information on building construction are just a few of the many ways that NCAT has contributed to fostering healthy communities and a better quality of life for everyone.
3040 Continental Drive
Butte, MT 59701
406-494-4572
1-800-ASK-NCAT
http://www.ncat.org

Northern Plains Resource Council
2401 Montana Ave.
Suite 200
Billings, MT 59101
406-248-1154
http://www.northernplains.org/

Pacific Steel, Hide and Fur
P.O. Box 1549
Great Falls, MT 59403

406-727-6222
http://www.pacific-recycling.com/

Recycle Montana
2021 11tth Avenue
Helena, MT 59601
406-443-6242
http://www.recyclemontana.org/

Resource-Full Recycling
Educational presentations on reuse, recycling, consumer strategies, sustainability and exhibit of 100 things other people throw away.
Susan Duncan
1050 Thorpe Road
Belgrade, 59714
406-388-1809

Rocky Mountain Recycling
1909 Wyoming St.
Missoula, MT 59801
406-273-2013

NATIONAL CONTACTS:

Amazing Environmental Organization Web Directory
A large web directory that includes sections on recycling and pollution.
http://.webdirectory.com/

Earth 911
Sponsor by a diverse partnership, including the Environmental Protections Agency, this site provides a local recycling guide by zip code, public service announcement, and wide variety or information and links to protecting the environment and integrated waste management. www.earth911.org
1-800- CLEANUP

Earthday Network
An international collection of resources for Earth Day activities.
http://www.earthday.net

Envirolink
A large collection of online resources.
http://www.envirolink.org

Environmental Defense Fund
Environmental Defense is a leading national nonprofit organization representing more than 400,000 members. Since 1967, we have linked science, economics and law to create innovative, equitable and cost-effective solutions to society's most urgent environmental problems. http://www.environmentaldefense.org/

Environmental Protection Agency
The Wastewise Program is a free, voluntary, EPA program through which organizations eliminate costly municipal solid waste and select industrial wastes, benefiting their bottom line and the environment. WasteWise is a flexible program that allows partners to design their own waste reduction programs tailored to their needs.
www.epa.gov/wastewise

Recycle City by EPA
An interactive education program for children to compare Recycle City and its neighbor Dumptown.
http://www.epa.gov/recyclecity
Kim Bartels, Recycling Coordinator
303-312-6346
bartels.kim@epa.gov

Global Recycling Network
Global Recycling Network is an electronic information exchange that specializes in the trade of recyclables reclaimed in Municipal Solid Waste (MSW) streams, as well as the marketing of eco-friendly products.
http://www.grn.com/

Midwest Recycling Association
Midwest Recycling Association (MRA) was incorporated on June 5th, 1992, as a non-profit organization to promote the reduction, reuse and recycling of solid waste through jointly marketing recyclables in Wisconsin.
An Association Director, an Environmental Projects Coordinator and a seven member Board of Directors, which coordinates marketing, consulting and educational services, serve MRA. 228 Keller Avenue North, Amergy, WI 54001. 715-268-4374
http://www.midwestrecycling.com/

National Recycling Coalition
A national recycling organization that provides resources and promotes recycling issues across the country.
http://www.nrc-recycle.org

Natural Resources Defense Council
NRDC is the nation's most effective environmental action organization. We use law, science and the support of more than 1 million members and online activists to protect

the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. http://www.nrdc.org/

Professional Recyclers of Pennsylvania (PROP)
The Professional Recyclers of Pennsylvania (PROP) is a non-profit association of recycling professionals dedicated to promoting and enhancing the interests of recycling, recycling programs, composting, and composting programs in Pennsylvania through education, information exchange, technical support, applied research and coordination of recycling industry initiatives. PROP's goal is to establish and improve information networks among programs and between public and private sector recycling professionals. http://www.proprecycles.org/

Recycling Association of Minnesota
The Recycling Association of Minnesota is committed to promoting resource conservation through waste prevention, reuse, recycling, composting and purchasing practices using the most cost effective and environmentally sound methods available in Minnesota.
http://www.recycleminnesota.org/

Sustainable Products Corporation
An organization that includes work with many of the world leading manufacturers.
http://www.sustainableproducts.com/

Washington State Recycling Association
WSRA is a trade association that provides leadership in recycling education and advancements throughout the Northwest region. The WSRA serves a diverse membership of over 700 people with a unified focus on expanding commercial and residential recycling rates, promoting new recycling markets, and increasing the demand for and use of recycled materials in all aspects of modern day society. http://www.wsra.net/

Landfill Operations

STATE CONTACTS:

Montana Department of Environmental Quality Solid Waste Program
The Montana DEQ regulates solid waste facilities in Montana. This includes municipal landfills, construction and demolition waste landfills, and septic tank land application sites. These functions are achieved by technical reviews, licensing, certifications, compliance monitoring, training and technical assistance. Our goal is to assure that the environment is adequately protected from the hazards of waste disposal.
Rick Thompson, Program Manager
1520 East Sixth Avenue P.O. Box 200901
Helena, MT 59620-0901
406-444-534530 / http://www.deq.state.mt.us/

Montana State University
Extension Service Solid Waste Education Program
http://www.mtp2.org/
Solid Waste Institute of Montana (SWIM)
SWIM provides continuing education, training and certification for landfill operators. Is a formal cooperation between Montana Association of Counties (MACO), Montana Department of Environmental Quality, and MSU Extension Service Solid Waste Education Program, Taylor Hall, Bozeman, 59717 at 406-994-3451.

BFI Waste Systems, Inc.
Largest solid waste hauler in Montana. BFI is now part of Allied Waste.
P.O. Box 8449
Missoula, MT 59807-8449
406-543-3157

Midwest Assistance Program (MAP), P.O. Box 81, New Prague, MN 56071, (800) 822-2981.
Includes: Iowa, Minnesota, Missouri, Montana, Nebraska, The Dakotas, and Wyoming. Distributes Solid Waste Management Training Modules for Local Government. The four modules cover recycling, yard waste, composting, landfill management, waste reduction and water issues.

Western States Contracting Alliance (WSCA)
The primary purpose of WSCA is to establish the means by which participating states may join together in cooperative multi-State contracting in order to achieve cost-effective and efficient acquisition of quality products and services. Membership consists of the principal procurement official that heads the state central procurement organization, or designee for that state, from the states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Minnesota, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington and Wyoming. All governmental entities within WSCA states are welcome to use the approved agreements as well as authorized governmental entities in non-WSCA states. Everyone benefits from cumulative volume discounts. Department of General Administration, Office of State Procurement 216 General Administration Building, AX-22 / Olympia, WA 98504-0622, 206-753-0900. Montana Contact: Jeanne Wolf, Department of Administration 406-444-7210
http://www.purchasing.utah.gov/wsca/wscawelcome.html

NATIONAL CONTACTS:

Asset Waste Management and Recycling, Inc
Asset Waste Management and Recycling is a worldwide recycling company, which recycles computer, electronic parts and components, phones of all kinds including cell phones, paper and more.800-557-0726
http://www.assetwmr.com/

Environmental Protection Agency, Office of Solid Wastes (OSW)

Ben Bents, 303-312-6435, Denver, CO http://www.epa.gov/epaoswer/osw/
Stephanie Wallace, Solid Wastes and Brown Fields Coordinator
406-457-5018, Helena, MT Wallace.Stephanie@epa.gov

Solid & Hazardous Waste Education Center (SHWEC)
A cooperative extension of the University of Wisconsin. http://www.uwex.edu/shwec

LOCAL GOVERNMENT CONTACTS:

Montana Association of Counties
Gordon Morris
2715 Skyway Dr
Helena, MT 59601
406-442-5209
http://www.discoveringmontana.com/maco

Montana League of Cities and Towns
Alec Hansen
League of Cities and Towns
208 North Montana Avenue
Helena, MT 59601
406-442-8768
http://www.mlct.org/

TRIBAL CONTACTS:

Blackfeet Nation
Blackfeet Environmental Office
P.O. Box 2029
Browning MT 59417
PH: 406-338-7421
FAX: 406-338-7451
Gerald Wagner, Environmental Director, mailto:gwagner@blackfeetnation.com Cell phone: 406-450-8040
Robert DesRosier, Utility Director, rjdrosi@3rivers.net, Cell phone: 406-450-0646

Chippewa Cree Tribe of The Rocky Boy's Reservation
Water Resources Department
RR1 Box 800
Box Elder MT 59521
PH: 406-395-4147 or 4478 (switchboard) and 395-4225 (Water Resources)
FAX: 406-395-4195
George Henderson, Utility Director, 406-395-4344
Joan Mitchell, Environmental Coordinator, joan@cct.rockyboy.org 406-395-4225

Confederated Salish & Kootenai Tribes
of the Flathead Nation
Natural Resources Department
Environmental Protection Division
P.O. Box 278
Pablo MT 59855
PH: 406-883-2888
FAX: 406-883-2896
Richard Janssen, Env. Division Manager, ext. 7260, richj@cskt.org
Allen Sloan, Utility Director, asloan@skha.org, 406-675-4491, x 1532

Crow Tribal Council
P.O. Box 400
Crow Agency, MT 59022
PH: 406-638- 3715 FAX: 406-638-3885
Edward "Posey" Whiteman III, Environmental Coordinator; edwardw@crownations.net

Fort Belknap Indian Community Council
Environmental Protection Office
RR1 Box 66
Harlem MT 59526
PH: 406-353-2205
FAX: 406-353-4358
Ina Nez Perce, Environmental Protection Manager, ext.429, earth@ttc-cmc.net
Dial direct 406-353-8429
Kirby King Utilities 406-353-8383

Fort Peck Assiniboine and Sioux Tribes
Office of Environmental Protection
P.O. Box 1027
Poplar MT 59255
PH: 406-768.5155, x 564
FAX: 406-768-5606
Tina Magnan – Utilities, 406-653-2091
Deb Madison, Environmental Director, ext. 399, 2horses@nemontel.net
class=Section14>

Northern Cheyenne Tribe
Environmental Protection Department
P.O. Box 128
Lame Deer MT 59043
Main Switchboard: 406-477-6284
PH: 406-477-6503 or 6506
FAX: 406-477-8294
David Millegan, Director, environut2@hotmail.com

MAGAZINES

BioCycle: *Journal of Waste Recycling*
A magazine on composting and organics recycling.
http://www.jgpress.com/

MSW Management: *The Journal for Municipal Solid Waste Professionals*
A magazine written for professionals working in the solid waste management industry. Our readers are those who plan, site, build, engineer, maintain, monitor and operate private or public-sector solid waste landfills, solid waste and recycling collection and disposal systems, composting operations, yard waste processing operations, incinerators, and all other operations and facilities that are used to manage our solid wastes.
http://www.forester.net/mw_about.html

Recycling Today
Focused on the business of recycling, *Recycling Today* magazine provides the most comprehensive market coverage for scrap commodity markets, legislative and regulatory issues, as well as business and technical information necessary for effective management in complex markets. Our editorial coverage is combined with circulation reaching scrap dealers and processors, material recovery facilities (MRFs) and recycling centers, automobile recyclers and demolition contractors.
http://www.recyclingtoday.com/

Resource Recovery Report
Newsletter that covers news related to waste management, recycling, composting, and resource recovery.
No website

Resource Recycling: North America's Recycling Journal
Resource Recycling has published industry periodicals for more than 22 years. The company's namesake and flagship product, *Resource Recycling*, is the favored magazine of the recycling and composting industry. Two monthly newsletters, *E-Scrap News* and *Plastics Recycling Update* , offer authoritative, insightful market-oriented information, sent first-class for timely analyses. Currently, the company also offers three comprehensive resources of recycling information, the *Scrap Plastics Markets Directory* , *Directory of the North American Electronics Recycling Industry* and the *Directory of Key Recycling Contacts*. The company also hosts an annual electronics recycling conference, *E-Scrap, North American Electronics Recycling Conference*
P.O. Box 42270
Portland, OR 97242-0270
503- 233-1305
503-233-1356 (fax)
www.resource-recycling.com

Waste Age
This magazine serves private contracting firms, governmental entities, consulting engineers, industrial plants, retailing firms, and hospitals, as well as equipment dealers, distributors, manufacturers and other allied to the field. Every issue is devoted to bringing industry professionals the most comprehensive and up-to-date news and information.
http://www.wasteage.com/

Special Wastes
Hazardous Waste Transporter Service List

CANADA

Fandricks Transport
RR#1 LeDuc
Alberta
Canada T9E 2X1
Donna Fandrick - (403) 985-2197

Lyle Grover, Inc.
P.O. Box 1387
Lethbridge, Alberta
Canada TIJ 4K1
L. Grover - (403) 320-8810

Northern Industrial Carriers, Ltd.
7823 34 St.
Edmonton, Alberta
Canada T6B 2V5
Bob Picken - (403) 465-0341

Southview Trucking, Ltd.
4801 40th St.
Vermillion, Alberta
Canada T0B 4M0
Darlene Roberts/Darrin Farkash
(403) 853-2734 - (800) 661-7026

MONTANA

Big Sky Industrial Inc.
179 Cerise Rd.
Billings, MT 59101
John Nelson - (406) 256-4949

Bitterroot International Systems, Ltd.
PO Box 16475
Missoula, MT 59807
Beverly Herman - (406) 721-6320

Jim Phillips Contracting, Inc.
P.O. Box 16066
Missoula, MT 59808-6066
James W. Phillips - (406) 549-5828

Jordan Contracting, Inc.
PO Box 668
101 Browns' Quarry Rd.
Anaconda, MT 59711
Joe Jordon - (406) 563-8276 - (406) 691-1026

MFG, Inc.
323 West Pine
P.O. Box 7158
Missoula MT 59802
Bill Davis (406) 728-4600

McElroy & Wilken, Inc.
801 Whitefish Stage
Kalispell, MT 59901
Gary Wilken - (406) 755-5775

Montana Rail Link, Inc.
101 International Way
P.O. Box 16390
Missoula, MT 59807
Cathy Wilson – (406) 523-1421

Montana Ready Mix, Ltd.
209 E. Cedar
Bozeman, MT 59715
Greg Poncelet - (406) 586-1234

Montana Western Railway
700 1/2 Railroad St.
Butte, MT 59701
Mike Greene - (406) 782-1240

Onyx Environmental Services, LLC
121000 Browns Gulch Rd.
Butte, MT 59701
(406) 782-4201 - (800) 735-8964

Mountain States Environmental Service
P.O. Box 50445
Billings, MT 59105
Brad Fimrite - (406) 248-4777

Philips Plant Services
2539 Old Hardin Rd.
Billings, MT 59101
Bill Hanley - (406) 252-1999

MONTANA (Continued)

Prince Inc Forsyth
PO Box 440
Forsyth MT 59327
Bonnie Prince - (406) 356-2137

Rocky Mountain Environmental, Inc.
5635 Silver Saddle Dr.
Shepherd, MT 59079
Scott Jorgenson (406) 373-2220
Fax – (406) 373-6300

Shumaker Trucking & Excavating Contractor, Inc.
P.O. Box 1279
Great Falls, MT 59403
Joe Aline (406) 727-3537
Frank Luke (406) 727-3537

Sorlie Trucking, Inc.
P.O. Box 1118
Billings, MT 59103
Lynn Sorlie - (406) 245-4153

The Burlington Northern & Santa Fe RR Co.
235 Main St.
Havre MT 59501
Michael J. Perrodin – (406) 265-0483

Westran, Inc.
100 Western Way
P.O. Box 9259
Missoula, MT 59807
John Hettinger - (406) 523-1700 or
(800) 548-1410

Schumaker Trucking and Excavating Contractors, Inc.
P.O. Box 1279
Great Falls, MT 59403
Joe Aline (406) 727-3537 x20 or
Frank Luke (406) 727-3537 x15

NEBRASKA

United Pacific Railroad Co. Silverbow
1416 Dodge Street
Omaha, NE 68179
Sandra S. Covi – (402) 271-4981

NEVADA

Paul Thomas Envirotrans, Inc.
3885 Brant Street
Reno, NV 89506
Thomas Hammond – (775) 971-9999

NORTH DAKOTA

Environmental Transport Systems, Inc.
3021 39th St., SW, Ste D
Fargo, ND 58104
Tim Rinke - (701) 282-6009

Safety-Kleen Corp.
1537 First Ave. So.
Fargo, ND 58103
Scott Wenger
(701) - 237-9070 - (800) 669-6291

PENNSYLVANIA

McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
Bob Carter (724) 568-3623
Ted McCutcheon (724) 568-3623

UTAH

TW Company
505 North Main
P.O. Box 540820
North Salt Lake, UT 84054
Tom Arnold - (801) 299-1900

WASHINGTON

Safety-Kleen Corp.
E. 9516 Montgomery, Unit 19
Spokane, WA 99206
David Blackham
(509) 928-8353 - (800) 669-5902

Palmer Electric Technology Energy Services
This innovative company is qualified to recycle lamps, ballasts, computers, monitors and televisions and meeting all EPA standards. 2407 Harve Avenue, Missoula, MT 59803
PH 406-543-3086
FAX 406-543-3093
palmerelectric@montana.com

City HHW Program

Kalispell, Dave Prunty, Flathead County Landfill, Hwy 93 North, 406-758-5910

Used Oil • Local Recyclers

Baker	Farmers Union Oil Co, Box 1000, 406-778-2519 Coral Creek Landfill, 406-778-2883
Bigfork	Yellow Bay Store, 17998 Hwy 35, 406-982-3100
Big Timber	Jerry's Conoco, 1st St & Anderson, 406-932-5183
Billings	Master Lube, 1628 Grand Ave., 406-248-6226 Master Lube, 423 24 St W., 406-656-7484 Master Lube, 2650 4th Ave. N., 406-248-3110 Master Lube, 1331 Main, 406-248-2177 R Three Inc., 1046 Johnson Lane, 800-538-3615 Tri-state Recycling Services, 1822 Belvedere, 800-876-8645
Boulder	Boulder Container Site, 406-225-4128
Boyd	M & M Sales & Service, 406-932-3486
Bozeman	City of Bozeman Shops, 814 N Bozeman, 406-583-3200 Hoadley's, 5 E Mendenhall, 406-586-2569
Butte	Butte Silverbow Landfill, 121074 N. Browns Gulch Rd. 406-782-1463
Choteau	Container Site, .5 miles North of Town, 406-278-3095
Columbus	Stillwater County Transfer Station 406-322-5364
Conrad	Conrad Container Site, 2 miles Northeast of Town, 406-278-3095

Cut Bank	Container Site, .5 miles Northwest of Town, 406-278-3095
Dillon	Dillon Landfill, 406-683-4868
Ennis	Lick-A-Dee-Lube, 70 Hwy 287, 406-682-5823
Ekalaka	Town of Ekalaka, 406-775-8731
Eureka	Lincoln County Class III Landfill, 406-293-7781
Glasgow	Valley County Landfill, 406-228-4730
Glendive	Glendive Landfill, 406-365-3318
Great Falls	Pronto Auto Parts, 217 Vaughn Road, 406-453-6509 Oily Waste Processors, 172 North Manchester Road, 406-761-3512 Citizens Convenience Center, 1100 15th St. No., 406-454-2279
Hamilton	Lube Quick, 1000 North 1st, 406-363-4221
Hardin	Hardin Landfill, 406-655-1649
Havre	Heltne Oil Co., 140 1st Street, 406-265-4346
Helena	City of Helena Transfer Station, 406-447-1585 Lube & Oil Plus Center, 1514 North Montana Avenue, 406-443-7321 Lube & Oil Plus Center, 1031 Euclid Ave., 406-449-0146
Kalispell	Express Lube, 1402 Airport Rd., 406-756-8161 Flathead County Landfill, Hwy 93 North, 406-758-5910
Libby	Moore Oil, Hwy 2 South, 406-293-5947 S.J. Orr Services, 2049 Hwy 2 South, 406-293-3711 Lincoln County Landfill, 406-293-7718
Livingston	Park County Refuse Disposal, 328 N. M St., 406-222-4187
Missoula	Brooks Street Conoco, 510 Brooks, 406-549-3435 Express Lube, 601 E. Broadway, 406-549-6554 Express Lube, 2310 Brooks, 406-728-0021

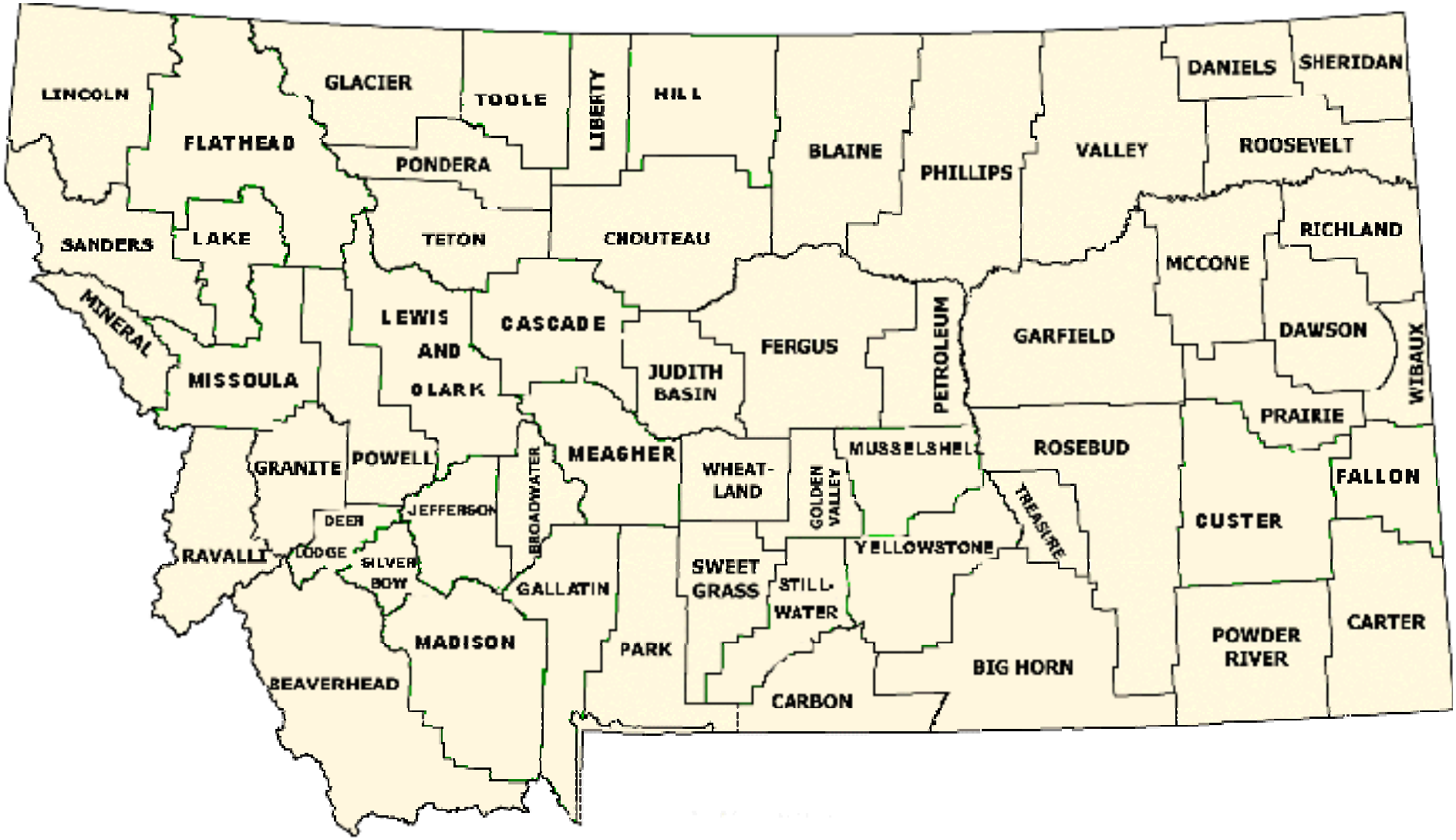
	Gary's Conoco, 2125 So. Higgins 406-542-0121 Hellgate Conoco, 711 E. Broadway, 406-728-9966 Ozzie's Oil & Coal, 900 Phillips, 406-543-7911 West Broadway Sinclair, 1340 W. Broadway, 406-721-3594
Montana City	Montana City Container Site, 406-225-4128
Nye	Nye Container Site, 406-322-5364
Park City	Park City Container Site, 406-322-5364
Polson	Mechanics Mall, 58116 Hwy 93, 406-883-5497 Lake County Landfill, 3500 Kerr Dam Rd, 406-883-5412
Ravalli	Good's Muffler Service, Hwy 93, 406-745-3491
Reed Point	Reed Point Container Site, 406-322-5364
Ronan	Don Aadsen Ford, 107 Hwy 93 N, 406-676-4420 Ronan Auto Body, 607 Hwy 93 North, 406-676-3850
Scobey	Daniels County Landfill, 406-783-5396
Sidney	Richland County Landfill, 406-798-3352
St Ignatius	Stuart's Service Center, 240 Mountian View, 406-745-2190
Superior	Felstet Disposal, 100 W Mullan Rd., 406-822-4784
Whitefish	DePratu Ford, 6331 Hwy 93 S, 406-863-2511
Whitehall	Whitehall Container Site, 406-225-4128
Wolf Point	Wolf Point Landfill, 406-683-1852

Other entities may collect in small quantities from the general public. Some will also take oil filter to be drained and in some cases recycled.

<u>Used Tire Collection Points</u>
Check with your local tire retailer and local transfer facility.

Enviro-Tire	Kalispell, 406-755-7716

MONTANA COUNTIES MAP



MONTANA COUNTY ENVIRONMENTAL HEALTH OFFICERS 2002-03
(Provided by MACO)

Anaconda-Deer Lodge
Karen Solberg and Chad Lane 406-563-4066 and 4067

Beaverhead
Lanie Jones 406-683-2770

Big Horn
Craig Taft 406-665-8724

Blaine
Martin Dirden 406-357-3310

Broadwater -
Melissa Tuemmler 406-266-9210

Butte-Silver Bow
four staff people 406-497-5020

Carbon
Gregory McGann 406-446-1694

Carter
Richard Menger 406-778-3329

Cascade
six staff people 406-454-6950

Chouteau
Bob Stevenson 406-622-3016

Custer
James C. Zabrocki 406-874-3490

Daniels
Ron Smith 406-765-3458 x 464

Dawson
Dennis Snow 406-377-5772

Fallon
Richard Meger 406-778-3329

Fergus
Deen Pomeroy 406-538-7466

Flathead
nine staff people 406-751-8130

Gallatin
eight staff people 406-582-3120

Garfield
Brian Schoof 406-356-2528

Glacier
Ron Andersen 406-873-4461

Golden Valley
Deen Pomeroy 406-538-7466

Granite
Chad Lane and Karen Solberg 406-563-4066 and 4067

Hill
Clay Vincent and Heidi Bischoff 406-265-5481 x 66

Jefferson
Megan Bullock 406-225-4126

Judith Basin
Deen Pomeroy 406-538-7466

Lake
four staff people 406-883-7236

Lewis and Clark
four staff people 406-447-8354

Liberty
Karen Salo 406-434-5032

Lincoln
three staff people 406-293-7781 x 228

Madison
Ralph Hamler 406-843-4275

McCone
Kelly Logan 406-433-6876

Meagher
Brian Clifton 406-761-5631

Mineral
Wayne Marchwick 406-822-3525

Missoula
twelve staff people 406-523-4755

Musselshell
Deen Pomeroy 406-538-7466

Park
Randy Taylor and Doris Morgan 406-222-4142 or 4143

Petroleum
Deen Pomeroy 406-538-7466

Phillips
Molly Carlson 406-654-2465

Pondera
Corrine Rose 406-271-4036

Powder River
Richard Menger 406-778-3329

Powell
Chad Lane and Karen Solberg 406-563-4066 or 4067

Prairie
Dennis Snow 406-377-5772

Ravalli
Morgan Farrell and Todd Klietz 406-375-6268

Richland
Kelly Logan 406-433-6876

Roosevelt
Ron Smith 406-765-3458 x 464

Rosebud
Brian Schoof 406-356-2528

Sanders

Sheridan
Karen Salo 406-765-3458 x 464

Stillwater
Travis West and Dana Stobel 406-322-8055 or 8007

Sweet Grass
Rod Fink 406-466-5395

Teton
Corrine Rose 406-466-2150

Toole
Karen Salo 406-434-5032

Treasure
Tom Lippert 406-665-1156

Valley
Cameron Shipp 406-228-6264

Wheatland
Deen Pomeroy 406-538-7466

Wibaux
Dennis Snow 406-377-5772

Yellowstone
four staff people 406-256-2772

Statutes and Rules Regarding Animal Burial in Montana:

Department of Environmental Quality Statutes:

75-10-212. Disposal in unauthorized area prohibited -- exception. (1) No person may dispose of solid waste except as permitted under this part.

(2) It shall be unlawful to dump or leave any garbage, dead animal, or other debris or refuse:

(a) in or upon any highway, road, street, or alley of this state;

(b) in or upon any public property, highway, street, or alley under the control of the state of Montana or any political subdivision thereof or any officer or agent or department thereof;

(c) within 200 yards of such public highway, road, street, or alley or public property;

(d) on privately owned property where hunting, fishing, or other recreation is permitted, provided this subsection shall not apply to the owner, his agents, or those disposing of debris or refuse with the owner's consent.

(3) Any person in violation of this section is absolutely liable, as provided in 45-2-104, and is subject to the civil penalties provided in 75-10-233.

75-10-213. Unlawful disposition of dead animals -- exception. It is unlawful to:

(1) place all or any part of a dead animal in any lake, river, creek, pond, reservoir, road, street, alley, lot, or field;

(2) place all or any part of a dead animal within 1 mile of the residence of any person unless the dead animal or part of a dead animal is burned or buried at least 2 feet underground; or

(3) being the owner, permit all or any part of a dead animal to remain in the places specified in subsections (1) and (2) of this section except as provided in subsection (2) of this section.

History: En. Sec. 95, Ch. 197, L. 1967; R.C.M. 1947, 69-4518; and. Sec. 11, Ch. 68, L. 1979.

75-10-214. Exclusions -- exceptions to exclusions. (1) (a) This part may not be construed to prohibit a person from disposing of his own solid waste that is generated in reasonable association with his household or agricultural operations upon land owned or leased by that person or covered by easement or permit as long as the disposal does not create a nuisance or public health hazard or violate the laws governing the disposal of hazardous or deleterious substances.

(b) This part does not apply to the operation of an electric generating facility, to the drilling, production, or refining of natural gas or petroleum, or to the operation of a mine, mill, smelter, or electrolytic reduction facility.

(2) The exclusions contained in subsection (1) of this section do not apply to a division of land of 5 acres or less made after July 1, 1977, that falls within the definition of subdivision in Title 76, chapter 4, part 1, or the Montana Subdivision and Platting Act in Title 76, chapter 3.

Montana Department of Livestock Statutes:

81-2-108. Diseased animals not to run at large -- burial of carcasses. It shall be unlawful for any owner, agent, or person in charge of any domestic animal or animals that are known to be suffering from or exposed to a dangerous, infectious, contagious, or communicable disease to permit such animal or

animals to run at large on the public range or public highway. It shall be the duty of the owner or agent or person in charge of animals which died or they have reason to suspect did die from an infectious, contagious, communicable, or dangerous disease to properly bury or burn the same.

Montana Department of Livestock Administrative Rules:

32.3.125 DISPOSAL OF CARCASSES (1) Carcasses of animals that have died from other causes than anthrax must be disposed of in a satisfactory manner so as not to become a public nuisance or a menace to livestock or poultry. Carcasses of dead animals may not be disposed of along public highways, streams, lakes, or rivers, or allowed to remain on the ground surface so as to become a public nuisance or a menace to livestock or poultry (History: Secs. 81-2-102, 81-20-101 MCA; IMP, Secs. 81-2-102, 81-20-101 MCA; Eff. 12/31/72, AMD, 1980 MAR p. 1083, Eff. 3/28/80.)

32.3.1002 HANDLING OF CARCASSES AND CARCASS PARTS OF ANTHRAX INFECTED ANIMALS (1) The carcasses of animals which have died of anthrax may not be skinned or opened, except when considered necessary by a deputy state veterinarian in order to make a definite diagnosis.

(2) Hides from carcasses of animals that have died of anthrax shall not be removed. Hides, which have been removed prior to diagnosis of anthrax, shall be burned or buried.

(3) Carcasses of animals that have died of anthrax must be completely burned, covered with quick lime and buried 6 feet deep from the tip of the carcass, or sterilized in a licensed rendering plant under the immediate supervision of a deputy state veterinarian.

(4) If it is necessary to move the carcass of an animal that has died of anthrax, the natural openings must be plugged with cotton or other suitable material.

(a) The carcass must be rolled onto a stone boat or skid and hauled to the nearest spot suitable for burning or burial.

(b) The stone boat or skid must be burned or thoroughly disinfected.

(c) Carcasses may be moved in an approved licensed rendering plant truck by written permission from and under the supervision of a deputy state veterinarian. (History: Sec. 81-2-102 MCA; IMP, Sec. 81-2-102 MCA; Eff. 12/31/72.)

32.3.1002 HANDLING OF DEAD ANIMALS OR FOWL

(3) Where bodies, or parts of bodies, of dead animals or fowl are to be converted into tallow and other inedible material, the processing or rendering and cooking must be done in a manner that insures that all material is sterile.

(4) Where bodies, or parts of bodies, of dead animals, or fowl (including viscera contents) are to be disposed of by burning, the burning must be complete. The place where burning is done must be located, constructed and arranged to not interfere with the comfortable enjoyment of life and property of residents of this state.

(5) Where bodies, or parts of bodies, of dead animals or fowl (including viscera contents) are to be disposed of by burying, they must be buried so that no part shall be nearer than 4 feet from the natural surface of the ground. Every part must be covered with quicklime and then 4 feet of earth. The burial pit may not be located near any river, stream, lake, pond, well, or any gulch or draw which is the source of any stream. The burial pit may not drain on any ground that may be flooded by the overflow water of any river, stream, lake or pond.

(6) If disposition of the viscera contents or parts of carcasses is to be made in any manner other than as provided in these rules, the disposition must be approved by the department after written application by the licensed renderer. (History: Sec. 81-9-302 MCA; IMP, Sec. 81-9-302 MCA; Eff. 12/31/72.)

APPENDIX G: LEGISLATIVE SUMMARY

1991 Legislative Summary
Integrated Waste Management – HB 160

Provides for a solid waste reduction target of 25% by 1996; establishes integrated waste management priorities; establishes a state government source reduction and recycling program; requires state government procurement of recycled supplies and materials; requires Montana Department Of Health And Environmental Sciences (Department of Environmental Quality) to prepare and implement a State Solid Waste Management Plan; requires the Montana Department Of Health And Environmental Sciences to serve as a clearinghouse for information on waste reduction and reuse, recycling technology and markets, composting, household hazardous waste, and chemical compatibility.

Amending section 75-10-104.

Fees for Solid Waste Management System Licenses – SB 209

Establishes solid waste management facility license application fees, annual renewal fees, and solid waste disposal tonnage fees.

Amending sections 7-13-231, 75-10-102, 75-10-104, 75-10-115, 75-10-204, and 75-10-221.

Revise Solid Waste Exemption – HB 660

Limits the exclusion for disposal of one's own waste on one's own land to personal households, agricultural activities, oil and gas activities, mines, mills, smelters, and electrolytic reduction facilities; provides for civil penalties for violations of the solid waste management laws; and provides that civil fines and penalties are deposited in a solid waste management account.

Amending sections 75-10-214 and 75-10-231.

Megalandfill Siting Act – HB 377

Provides a new and detailed siting process for landfills that accept over 200,000 tons of solid waste per year or an ash monofill that accepts over 35,000 tons of incinerator ash annually; requires detailed environmental impact analysis and establishes fees.

Megalandfill Financial Assurance – HB891

Establishes a megalandfill bonding requirement for reclamation work which covers closure, postclosure, and corrective action; allows bond money to be used

to reclaim damage to natural resources; establishes a Megalandfill Reclamation Account.

Out-of-State Waste Moratorium Extension – HB 139

Provides for a two-year extension of the ban on the importation of out-of-state solid waste for the purposes of disposal or incineration until October 1, 1993.

Amending section 75-10-209.

Infectious Waste Management Act – HB 239

Creates new law establishing standards for storage and disposal of infectious waste; requires state professional and occupational boards that license generators of infectious waste to require compliance with infectious waste law and rules as a condition of licensure; Montana Department Of Health And Environmental Sciences to establish rules and fees to implement program.

Multi-County Solid Waste Districts – SB 189

Establishes authority and procedures for creating multi-county solid waste management districts; revises local government laws and procedures.

Amending sections 7-5-2306, 7-5-4303, 7-5-4321, 7-7-2501, 7-7-4402, 7-13-202, 7-13-204, 7-13-209, 7-13-210, 7-13-212, 7-13-215, 7-13-232, 7-13-233, and 7-13-235; repealing others.

Differential Solid Waste Importation Fee – SB 346

Establishes a $5 fee per ton for solid waste imported to Montana for disposal or incineration after July 1, 1993.

Amending sections 75-10-104, 75-10-105, 75-10-116, and 75-10-117 and repealing 75-10-110.

Transportation of Recyclables – HB 263

Authorizes PSC regulated Class C and Class D haulers to collect and transport source separated recyclables.

Amending sections 69-12-101, 69-12-301, 69-12-302, and 69-12-406.

Household Hazardous Waste (HHW) Education Program – HB 858

Requires Montana Department Of Health And Environmental Sciences to establish a statewide HHW educational program aimed at source reduction and alternative product use; defines HHW.

Amending section 75-10-203.

Oil Recycling Sign – HB 145

Requires motor oil retailers to display an Montana Department Of Health And Environmental Sciences-designed sign directing the public to the nearest oil recycling center.

Absolute Liability for Solid Waste – SB 400

Imposes absolute liability on the owner or former owner of solid wastes disposed of in violation of state law; provides a maximum civil penalty of $5000 for persons found absolutely liable for improper disposal.

Amending sections 75-10-212 and 75-10-233.

Recycling Tax Credit for Business – SB 111

Provides for a 25% tax credit for investment in depreciable property used to collect or process reclaimable materials or to manufacture a product from reclaimed material; provides for an additional 5% tax deduction for the purchase and use of recycled materials if the materials are deductible for the taxpayer.

Montana Department Of Health And Environmental Sciences (Department of Environmental Quality) to Consult with Local Government in Solid Waste Licensing Decisions – SB-357

Requires state to consult with local governments having jurisdiction in the area when licensing a solid waste management system.

Amending section 75-10-102.

Secured Loads for Vehicles Hauling Solid Waste – HB 732

Requires persons operating vehicles hauling solid waste on public roads to cover, attach, or otherwise secure the load, except for commercial motor vehicles or vehicles hauling unprocessed agriculture products.

Solid and Hazardous Waste Incinerator Permitting – HB 607

Requires an air quality permit for a new or existing hazardous waste incinerator that burns more than 200 pounds of solid or hazardous waste an hour.

Amending section 75-2-215.

Solid Waste Definition – HB 918

Standardizes a common definition for the term “solid waste” throughout the solid waste statutes.

Amending section 75-10-103.

1992 Legislative Summary – Special Session

Moratorium on Issuance of Solid or Hazardous Waste Incinerator Permits – HB 58

The Montana Department Of Health And Environmental Sciences is prohibited from issuing a permit to a boiler or industrial furnace or for a solid or hazardous waste incinerator that is subject to section 75-2-215 until October 1, 1993.

1993 Legislative Summary

Justifiable fee on the Disposal of Out-of-State Waste – HB 64

Requires the Montana Department Of Health And Environmental Sciences to adopt a rule by August 1, 1993 to set a fee for the incineration and disposal of imported wastes; fee is based on actual direct and indirect cost to the state for administering the solid waste laws and rules relative to imported wastes; fee applies to imported waste between August 1,1993 and July 1, 1995; after July 1, 1995 applies only imported wastes taken to disposal facilities that accept less than 25,000 tons of waste annually; after July 1, 1995 all disposal facilities that accept more than 25,000 tons of waste annually and all incinerators shall be assessed a statutory fee of $5 per ton for each ton of imported solid waste accepted for incineration or disposal.

Amending sections 75-10-118, 75-10-204, and 75-10-206, and Section 9, Laws of 1991.

Air Quality Permits for Solid Waste Incinerators Regardless of Size – HB 380

Removes the exemption for solid waste incinerators designed to burn less than 200 pounds per hour (see HB 607, 1991); permits required for all new solid waste incinerators; requires air quality permits for new boilers and industrial furnaces burning hazardous wastes; does not apply to existing incinerators unless burning solid or hazardous wastes changes the air emissions.

Amending sections 75-2-103 and 75-2-215.

Solid Waste Districts may Collect Money Through Tax Notices and Property Liens – HB 414

Allows revenue from tax notices and property liens to be used to repay bonds or other indebtedness incurred by a solid waste district.

Amending sections 7-13-236 and 7-13-308.

Definition of Megalandfill – HB 454

Amends the definition of a megalandfill to exclude any facility that received 100,000 tons of solid waste or more annually as of December 31, 1991 (Billings

landfill) until the landfill receives 300,000 tons annually. All other facilities become a megalandfill if they accept 200,000 tons of solid waste annually.

Amending sections 75-10-903, 75-10-921, and 75-10-950.

Definition of "Postconsumer Material" and Increased Tax Deduction for Purchase – HB 519

Provides guidance to the Department of Revenue for implementing tax credit and tax deduction laws applicable to recyclables (see SB 111, 1991). Defines postconsumer material; increases the additional tax deduction for using recycled material from 5% to 10%.

Amending 15-32-601, 15-32-603, and 15-32-610.

Exception from the Waste Importation Moratorium for Intermediate and Minor Landfills – HB 532

Allows the importation of solid waste from Idaho, Wyoming, and North and South Dakota to small (25,000 tons of waste or less annually) Montana solid waste facilities (see HB 139, 1991).

Amending section 75-10-209.

Medical Waste Facility Siting – HB 567

Establishes additional requirements for an air quality permit for a commercial medical waste and commercial hazardous waste incinerator; authorizes rules; coordinates the permitting process between air and waste management programs; establishes criteria for permit alteration or denial; establishes procedure for notice and public participation.

Amending sections 75-2-103, 75-2-211, and 75-2-215.

Solid Waste Housekeeping – SB 67

Corrects minor errors and omissions in legislation from previous session.

Amending sections 75-10-104, 75-10-105, 75-10-112, 75-10-116, and 75-10-117, and repealing 75-10-218.

Remove Container Sites from Licensing Requirements – SB 319

Defines "container site" and removes it from the definition of "solid waste management system" needing licensing and subject to certain regulatory requirements; grants local governments authority to regulate siting and operation of container sites.

Amending sections 75-10-103, 75-10-112, and 75-10-203.

1995 Legislative Summary

Management of Used Oil – HB 75

Authorizes the Montana Department of Health and Environmental Sciences to establish and enforce standards for the management of used oil.

Amending sections 75-10-402, 75-10-403, 75-10-405, 75-10-410, 75-10-415, 75-10-416, 75-10-418, 75-10-422, and 75-10-424, MCA.

Require Disclosure Statement for Hazardous Waste Management Permit - HB 215

Amends the requirements for a hazardous waste management facility permit; requiring a disclosure statement; and establishing criteria for the denial or conditioning of a permit.

Amending section 75-10-403, MCA.

Revise Income and Corporate Tax Credit Policy for Recycling of Material - SB 358

An act relating to the income and corporate tax credit for recycling of material; extending the termination date for the credit; providing that certain depreciable property used for the treatment of hazardous wastes in soils qualifies for the credit; and providing an applicability date.

Amending sections 15-32-601, 15-32-602, and 15-32-603, MCA and section 9, chapter 712, Laws of 1991.

State Regulations No More Stringent than Federal Regulations or Guidelines – HB 471

Subject to a written finding of necessity and substantiated by peer-reviewed studies, the Department of Environmental Quality may not adopt a solid waste or hazardous waste regulation that is more stringent than comparable federal regulations or guidelines unless statutorily authorized; bill also amended several other regulatory statutes in like manner.

Amending 75-10-204, 75-10-405 and several others.

Air Emission Regulation at Commercial Hazardous Waste Incinerators and Medical Waste Incinerators – SB 349

Requires site-specific ambient air quality monitoring at commercial hazardous waste incinerators; requiring immediate notification to Department of Environmental Quality when emissions approach or exceed permitted limits; requiring hazardous waste and medical waste incinerators to achieve emission limits that do not exceed negligible risk standards and federal standards for hazardous air pollutants; establishing a presumption of continuing violation for certain violations of law.

Amending 75-2-231 and 75-10-413

Support Technology for Mine Waste in Butte - HJR 25

A joint resolution of the Senate and the House of Representatives of the state of Montana supporting the continued development and demonstration of innovative technologies for the treatment of mining, energy, defense-related, and other environmental wastes at the Western Environmental Technology Office and by other organizations in Butte.

1997 Legislative Summary
Junk Vehicle Administrative Orders - HB 160

An Act providing administrative enforcement for violations of the junk vehicle and motor vehicle wrecking facility laws; authorizing facility license suspension or denial for violation of an order; authorizing facility license revocation for violation of a suspension order.

Amending section 75-10-514, MCA.

Hazardous Waste Facility Permit Fee Disposition – HB 162

An Act requiring that fees collected for the registration of hazardous waste generators and fees for the reissuance or modification of permits for hazardous waste management facilities be placed in the Hazardous Waste Fee account within the State Special Revenue Fund.

Amending section 75-10-434, MCA.

Modify Definition of “Container Site” - SB 315

An Act modifying the definition of "container site” limiting it to sites in fifth-, sixth-, or seventh-class counties, sites that receive less than 3000 tons of waste annually, sites that control litter, spills, and leakage and sites that permit commercial waste haulers to dump only at times when the site is staffed.

Amending section 75-10-103, MCA.

Require Waste Tire Disposal Sites to Provide Financial Assurance of Proper Management - SB 332

An Act requiring solid waste management facilities licensed primarily as waste tire disposal sites to provide financial assurance to guarantee the proper management and disposal of waste tires; requiring a study of issues regarding waste tires.

Amending sections 75-10-203 and 75-10-204, MCA.

Extend Recycling Tax Credit Termination Date - SB 336

An Act extending the termination date for the income and corporate tax credit for recycling of material (see SB 358, 1995).

Amending section 5, chapter 542, Laws of 1995.

Separating the Montana Hazardous Waste Act and the Underground Storage Tank Act – HB 152

An act separating the Montana Hazardous Waste Act and Underground Storage Tank (UST) Act into two separate acts by transferring the UST provisions into a separate act.

Amending several sections and repealing section 75-10-210.

1999 Legislative Summary

Limit Solid Waste Fees for Home-Based Businesses in Single Family Residence – HB 17

Limits the rate that a solid waste management district may charge a family residential unit in which a home-based business is operated.

Amending section 7-13-232, MCA.

Revise Hazardous Waste Act – HB 113

Provides the Department of Environmental Quality with corrective action order authority under the Montana Hazardous Waste Act.

Extend Termination Date For Waste Pesticide Program – HB 130

Extends the termination date for the waste pesticide and pesticide container collection, disposal, and recycling program; eliminating the voluntary waste pesticide reporting system; providing for expenditure of revenue in the program account.

Amending section 14, chapter 465, Laws of 1993; repealing sections 80-8-111 and 80-8-112, MCA.

Septic Disposal and Licensure Requirements – SB 126

An act establishing requirements for the disposal of septage and requiring licensure of those engaged in that business; providing the Department of Environmental Quality with rulemaking authority; establishing a license and license renewal fee; providing for injunctive relief; providing the department with the authority to revoke or deny a license; providing the department with administrative enforcement authority; authorizing criminal fines and civil penalties; creating a septage special revenue account; transferring certain funds.

Repealing sections 37-41-101, 37-41-103, 37-41-104, 37-41-105, 37-41-201, 37-41-202, 37-41-205, 37-41-211, and 37-41-212, MCA.

Revise Responsibility for Handling Abandoned Vehicles--Vehicle Disposal Fees – SB 166

An act revising county sheriff and city police responsibilities for handling abandoned vehicles; providing for payment of certain abandoned vehicle removal charges from motor vehicle disposal fees, subject to the availability of funding; transferring responsibility for determining value of a junk vehicle from the state to counties. Amending sections 61-12-401, 61-12-402, 61-12-403, 61-12-404, 75-10-503, and 75-10-532, MCA.

Clarify Sharing of Information with Solid Waste Management District Boards – SB 239

An act requiring the Department of Revenue to aid Solid Waste Management District Boards by providing information to be used to determine rates for service charges. Amending section 7-13-231, MCA.

Revise Definition of Container Site – SB 321

An act revising the definition of "container site". Removing the criteria that container sites are only in fifth-, sixth, and seventh-class counties (see SB 315, 1997). Amending section 75-10-103, MCA.

Exempt Local Waste Hauler from Overweight Vehicle Fines on Route to Landfill – SB 374

An act allowing class D motor carriers to exceed total gross weight limitations by 10 percent when hauling garbage on the highway instead of previous overage allowance of 7 percent.

Amending section 61-10-144, MCA.

Generally Authorize Environmental Control Easements – SB 462

An act generally authorizing environmental control easements; allowing the acquisition of environmental control sites; limiting the conversion or diversion of environmental control sites from the purposes specified in the environmental control easement; restricting the conveyance or lease of environmental control sites; authorizing public body powers in connection with environmental control easements; providing for the creation and approval of environmental control easements; specifying the duration of environmental control easements; providing for permissible easements; designating grantees of environmental control easements; providing for reporting requirements by qualified private organizations; authorizing the assignability of easements; providing for coordination with local planning authorities; requiring the recording and description of environmental control easements; exempting certain interest held by a grantee from property taxes; and providing for easement enforcement and liability.

Revise Law on Type of Project Eligible for Water Pollution Control Funds – HB 334

An act revising the type of projects that are eligible for funding under the Water Pollution Control State Revolving Fund Act; including solid waste management systems as projects eligible for funding.

Amending section 75-5-1102, MCA.

Revise Laws Governing Solid Waste Management District Charges – HB 498

An act providing that solid waste management district service charges may be based on a combination of waste management factors including waste volume or weight and the cost, incentives, or penalties applicable to waste management practices; eliminating vehicle size as a factor on which service charges may be based.

Amending section 7-13-232, MCA.

Encourage Use of Recycled, Postconsumer Glass - Credit Against Fees – HB 499

An act allowing a $7 per ton credit against certain air quality permitting fees for certain uses of postconsumer glass; establishing eligibility criteria for use of the credit; requiring the Department of Environmental Quality to adopt rules to implement the credit; precluding the Department of Environmental Quality and the Board of Environmental Review from increasing fee assessments beyond legislative appropriation levels to offset the cost of the credit; and providing a termination date.

Amending section 75-2-220, MCA.

Ambient Air Quality Standards for Asbestos - HJ 29

A Joint Resolution of the Senate and the House of Representatives of the State of Montana requesting that the Department of Environmental Quality establish a task force to develop an assay method for the measurement of asbestos to assist in the establishment of an ambient air standard based on human health risks from chronic exposure to asbestos.

Extend Recycling Tax Credit - Revise Credit – SB 92

An act extending the termination date for the income and corporate tax credit for recycling of material and the income and corporate tax deduction for the purchase of recycled material; removing soil contaminated by hazardous wastes from the definition of "reclaimable material"; deleting the restriction on depreciable property that treats soil contaminated by hazardous wastes; repealing the restriction that a credit may not be claimed for an investment in

property used to produce energy from reclaimed material; and providing an applicability date.

Amending sections 15-32-601, 15-32-602 and 15-32-603 and section 9, chapter 712, Laws of 1991; sections 4 and 5 chapter 542, Laws of 1995; and section 1, chapter 411, Laws of 1997.

Revise Solid Waste Fees – SB 161

An act revising and clarifying the authority of the Department of Environmental Quality and the Board of Environmental Review to establish and assess fees related to solid waste including application fees, renewal fees, and tonnage or volume-based annual fees; authorizing the department to assess penalties for late or nonpayment of all solid waste management fees; repealing the quarterly solid waste management fee of $5 per ton on the in-state disposal or incineration of out-of-state waste; repealing the moratorium on certain interstate transport of solid waste.

Amending sections 7-13-231, 75-10-104, 75-10-105, 75-10-106, 75-10-115, 75-10-116, 75-10-117, 75-10-204, 75-10-206, and 75-10-221, MCA; repealing sections 75-10-118 and 75-10-209, MCA.

Increase Junk Vehicle Fees – SB 168

An act to increase the junk vehicle disposal fees on passenger cars and trucks under 8001 pounds; increasing the annual license fee for motor vehicle wrecking facilities; providing supplemental revenue to the state motor vehicle recycling and disposal program to offset revenue losses.

Amending sections 61-3-508, 75-10-511, and 75-10-532 MCA.

Eliminate Commerce Department's Duties on Asbestos Regulation – SB 211

An act eliminating duties of the Department of Commerce related to asbestos regulation in building construction and demolition.

Repealing sections 50-64-101, 50-64-102, 50-64-103, 50-64-104, 50-64-105, 50-64-106, and 50-64-107, MCA.

Create Special Court to Handle Asbestos Cases – SB 282

An act creating the asbestos claims court; providing for the appointment of the asbestos claims judge; providing for the procedures to be used for trying an asbestos-related claim.

Amending sections 3-5-113, 3-5-115, 3-15-104, 3-15-204, and 3-15-205, MCA.

Adding Provisions to the Littering Laws and Providing for Additional Penalty - HB 442

An act clarifying the prohibition against littering on highways; adding plastic to the list of substances that may not be thrown or deposited on a highway increasing the penalties for littering; adding the offense of throwing containers of urine or feces upon a highway and providing a penalty; and

Amending sections 61-8-365 and 61-8-372, MCA.

2003 Legislative Summary
Revise Asbestos Control Act – HB 43

An act eliminating the requirement that asbestos control permit fees for each annual permit reflect actual costs for that permit; providing that fees must be commensurate with costs of permit issuance and administration.

Amending sections 75-2-503 and 75-2-504, MCA.

Revise Pesticide Disposal Laws – HB 420

An act decreasing the fee paid by commercial applicators, pesticide dealers, and government agencies for the waste pesticide and pesticide container collection, disposal, and recycling program; repealing the termination of the waste pesticide and pesticide container collection, disposal, and recycling program, the assessment of fees for funding the program, and the deposit and use of fees by the department of agriculture.

Amending sections 80-8-203, 80-8-207, and 80-8-213, MCA; repealing section 14, chapter 465, Laws of 1993, and chapter 362, Laws of 1999.

Increase State Payment for County Vehicle Recycling and Disposal – SB 107

An act increasing the yearly payment to a county for its junk vehicle collection and graveyard budget from $1 to $1.25 for each motor vehicle under 8,001 pounds gross vehicle weight; increasing the total payment to counties with fewer than 5,000 motor vehicles under 8,001 pounds gross vehicle weight from $5,000 to $6,250.

Amending section 75-10-534, MCA.

Eliminate Junk Vehicle Disposal Fee – SB 211

An act eliminating the $2 junk vehicle disposal fee that private motor vehicle wrecking yards were statutorily required to pay for each vehicle they submit to a county junk vehicle program.

Amending sections 75-10-513 and 75-10-532, MCA.

Restrict Use of Baled Waste Tires – SB 375

An act restricting the use of baled waste tires, prohibiting use of baled tires below water and prohibiting use of baled tires above ground within 500 feet of roads,

homes, or businesses without permission unless the bales are encased in a restraining material.

Eliminating the Solid Waste Grant and Loan Program – SB 146

An act eliminating unused state grant and loan programs including the solid waste management grant and loan program.

Amending several sections including sections 75-10-103, 75-10-104,75-10-105, 75-10-106 and repealing several sections including sections 75-10-121, 75-10-122, 75-10-123, 75-10-124, and 75-10-125.