

**Green Glass Task Force
Final Report to the Legislature**

February 22, 2005

Purpose:

On March 26, 2004, Governor Jennifer M. Granholm signed into law 2004 PA 34 (Act 34). Act 34 amended Section 11514 of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (Part 115) to prohibit disposal of used beverage containers in landfills.

Section 11514(2) of Act 34 states, in part, that:

A person shall not knowingly deliver to a landfill for disposal, or, if the person is an owner or operator of a landfill, knowingly permit disposal in the landfill of, any of the following:...

(b) Subject to subsection (4), more than a de minimis amount of open, empty, or otherwise used beverage containers.

“Beverage container” is defined in Section 11502(3) of Part 115 as:

...an airtight metal, glass, paper, or plastic container, or a container composed of a combination of these materials, which, at the time of sale, contains 1 gallon or less of any of the following:

(a) A soft drink, soda water, carbonated natural or mineral water, or other nonalcoholic carbonated drink.

(b) A beer, ale, or other malt drink of whatever alcoholic content.

(c) A mixed wine drink or a mixed spirit drink.

The Initiated Law of 1976 (Bottle Deposit Law) uses the same definition of a “beverage container” as Act 34. Therefore, the only items that are banned from landfill disposal under Act 34 are those that meet this definition and are subject to a deposit or would be subject to a deposit if sold in Michigan. The disposal prohibition does not apply to wine bottles or other containers that do not meet the definition of “beverage container” as defined in Act 34 or the Bottle Deposit Law. Per the Bottle Deposit Law, beverage containers that were purchased out of state cannot be returned for a deposit redemption at a Michigan retailer. These containers are also prohibited from disposal in Michigan landfills per Act 34.

Section 11514(4) of Act 34 states, in part, that:

Subsection (2)(b) does not apply to green glass beverage containers before June 1, 2007. The department shall convene a task force to make recommendations to the legislature on the special recycling problems posed by green glass beverage containers, including, but not limited to,

whether the June 1, 2007 date for applicability of subsection (2)(b) to green glass beverage containers should be changed....

Therefore, the disposal prohibition does not apply to beverage containers made of green glass until June 1, 2007.

Task Force Members:

Act 34 requires that the task force include, but not be limited to:

- (a) A representative of the landfill industry;
- (b) A representative of a company that manufactures or uses green glass beverage containers;
- (c) A representative of a recycling company; and
- (d) A representative of an environmental organization.

The members of the task force who were chosen because of their technical expertise in collecting, processing, marketing, and managing green glass in Michigan include:

- Tom Horton, Michigan Waste Industries Association; a representative of the landfill industry
- Daniel Schrum, Owens-Brockway Glass Containers; a representative of a company that manufactures or uses green glass beverage containers
- Jay Sherwood, Schupan & Sons; a representative of a recycling company
- Melinda Uerling, Ecology Center; a representative of an environmental organization
- Doug Rahaim, Glass Recyclers Limited; a green glass broker
- Department of Environmental Quality (DEQ) staff:
 - Lonnie C. Lee, Chief, Storage Tank and Solid Waste Section (STSWS), Waste and Hazardous Materials Division (WHMD)
 - Rhonda Oyer Zimmerman, Chief, Solid Waste Management Unit (SWMU), STSWS, WHMD
 - Matt Flechter, Recycling and Composting Coordinator, SWMU, STSWS, WHMD

Issues Addressed:

The task force members met on June 8, 2004, to address the following questions:

- What is the current flow of green glass through the deposit container and nondeposit container recycling/disposal system?
- What are the current markets for green glass?
- What are the problems/difficulties with recycling green glass?
- What are ways to expand green glass recycling?
- Is the June 1, 2007, date for applying the green glass beverage container disposal prohibition appropriate?

Conclusions:

- The current flow of green glass through the deposit container and nondeposit container recycling/disposal system are markedly different. While the vast majority of nondeposit container green glass generated in Michigan is currently disposed of rather than recycled, all green glass beverage containers, as defined in the Bottle Deposit Law, that are returned for deposit are recycled into new products and not disposed of in a landfill or incinerator.
- Markets for green glass, other than for “beverage containers” are poor and undeveloped in Michigan and surrounding states. Because of high transportation costs and low material value, getting nondeposit green glass to a viable market is a challenge. Green glass returned through the deposit system is less contaminated with foreign material, more uniform in color, and collected in greater volumes, making it easier to market.
- The current problems with recycling green glass are similar to those sometimes encountered with other recycled commodities and include high transportation costs, lack of local markets, and contamination.
- Methods for expanding green glass recycling include: market development through loans and grants, tax incentives for purchase of recycled green glass products and use of green glass in manufacturing processes, and expanded deposits that include additional green glass containers not currently covered under the Michigan deposit system.
- Residents who cannot return their beverage containers normally returned through the deposit system because they were purchased out of state can recycle their imported deposit containers at a recycling facility that accepts green glass.
- Residential recycling options are limited in Michigan. Only about half of all residents have easy access to curbside or drop-off recycling. Michigan’s lack of recycling options for all materials, including nondeposit containers and beverage containers from out of state that cannot be returned for a deposit, limits the opportunity to recycle all beverage containers, including green glass.
- Because all green glass that is collected through the deposit system is currently being sent to market and not being disposed of, green glass “beverage containers” appear to be recycled at the same rate as other types of “beverage containers” and only a *de minimis*¹ number of green glass beverage containers are disposed of in Michigan. It is concluded that the June 1, 2007, date for applying the green

¹ Residents in areas of the state without curbside or drop-off recycling may dispose of their glass, metal, or plastic beverage containers in their household trash as long as the disposal amount is in accordance with the *de minimis* standard defined in Act 34. Section 11514(7) defines *de minimis* as “incidental disposal of small amounts of these materials that are commingled with other solid waste.” Further guidance is described in WHMD’s Operational Memo 115-27, Revision 1, “Enforcement of Prohibited Waste Restrictions,” dated October 19, 2004.

glass beverage container disposal prohibition is not appropriate and should be eliminated.

More extensive task force responses to the above questions are included in the Attachment to this report.

Recommendation:

The task force recommends that the June 1, 2007, date for applying the green glass beverage container disposal prohibition be eliminated. This would lead to the immediate prohibition of green glass beverage containers from disposal in Michigan landfills. This would not appreciably impact the current management of green glass deposit beverage containers.

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Attachment

February 22, 2005

What is the flow of green glass through the bottle deposit system?

Green glass deposit containers flow through the recycling system differently than nondeposit containers collected through curbside or drop-off recycling programs. While the vast majority of nonbeverage container green glass generated in Michigan is currently landfilled or incinerated rather than recycled, all green glass beverage containers returned for deposit are recycled into new products.

Beverage containers are manufactured, sold to a beverage company where they are filled with product, and then distributed to a retailer. There are no green glass manufacturers in Michigan, and it is estimated that about 1 percent of all deposit beverage containers are green glass. The retailer that sells the product must accept the empty container brought back by a consumer and must also return the consumer's deposit.

The Initiated Law of 1976 (Bottle Deposit Law) requires retailers to charge a 10-cent deposit on each beverage container they sell. A beverage container is defined in the Bottle Deposit Law and in Section 11502(3) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, as:

- ...an airtight metal, glass, paper, or plastic container, or a container composed of a combination of these materials, which, at the time of sale, contains 1 gallon or less of any of the following:
- (a) A soft drink, soda water, carbonated natural or mineral water, or other nonalcoholic carbonated drink.
- (b) A beer, ale, or other malt drink of whatever alcoholic content.
- (c) A mixed wine drink or a mixed spirit drink.

Slightly more than 50 percent of the deposit containers are collected from about 550 large retail stores located throughout the lower peninsula of Michigan. The containers are picked up by a separate company that provides service for all distributors. The containers are transported to one of two materials processing facilities where they are processed for sale to companies that turn the materials into recycled feedstock. The material is then ready to be used for manufacture into a new container or other end product. The remaining containers are collected at the thousands of smaller stores, bars, and restaurants located in Michigan by the individual beverage distributors. These distributors either prepare the materials for sale at their own warehouses or send them

to a recycling processor to prepare the materials for market. All of the collected green glass beverage containers are sent to various markets.

About 90 to 95 percent of the beverage containers sold in Michigan are returned for deposit. It is estimated within the “Michigan Bottle Bill, A Final Report to: Michigan Great Lakes Protection Fund” by John Stutz and Carrie Gilbert, July 10, 2000, that approximately 100 million containers, about 2 percent, are fraudulently redeemed each year in Michigan. Therefore, if 95 percent of beverage containers are returned for a deposit redemption and 2 percent are fraudulently redeemed, then 97 percent of the deposits paid would be returned to consumers.

If 95 percent of beverage containers are returned, then 5 percent of containers are disposed of or recycled in a manner other than the Bottle Deposit Law. The overall number of green glass containers disposed of is small since approximately 1 percent of all beverage containers are made with green glass. This means that of the 4.343 billion beverage containers that were sold in 2003, approximately 2.172 million were green glass containers disposed of in local landfills and incinerators that year. This is the equivalent of about one container disposed of in a landfill or other manner per Michigan resident every five years.

What is the flow of green glass through the nondeposit container recycling/disposal system?

Nondeposit green glass predominantly comes from wine bottles. It is difficult to gauge the volume or quantity of nondeposit green glass because Michigan does not have a system in place or legislation to support the measurement of material volumes or recycling rates or to identify collection programs available to residents. Individuals from the public and private sectors involved in recycling activities have confirmed that many curbside and drop-off collections have discontinued collecting green glass because of contamination issues and, more importantly, a lack of adequate and economically viable markets.

In Michigan, 91 communities have access to green glass collections through curbside and drop-off programs (see Appendix A). Most of this collected glass is sent to landfills where it is used for roads and daily cover. A small amount is sent to brokers who, for a fee, will accept the material for remarketing. The demand for green glass is low and markets are scattered, causing it to be shipped to where there is a demand, such as Italy. Using the estimated number of Michigan residents with access to green glass curbside or drop-off collections and accounting for participation rates, well over 95 percent of the nondeposit container green glass generated in Michigan is disposed of, rather than recycled.

Nondeposit container green glass that is disposed is not prohibited from landfill disposal under the beverage container disposal ban. Only deposit beverage containers, as defined in the Bottle Deposit Law, are prohibited. As described above, limited markets and high contamination for green glass collected curbside or from drop-offs has led

many collection programs to discontinue collecting green glass. This has resulted in the erroneous assumption that markets are nonexistent for all green glass collected for recycling in Michigan. Markets exist and are used for green glass collected through the deposit system.

What are the current markets for green glass?

There are no longer any green glass container manufacturers in Michigan. The majority of green glass collected curbside or at drop-offs is used as landfill cover or landfill road material. Because of high transportation costs, marketing green glass is a challenge. However, deposit system green glass is more consistent and of higher quality than other container green glass collected in recycling programs, making it easier to market. Deposit container green glass is recycled back into new container glass. In addition to containers, markets for green glass include glass tiles and other decorative products, matchbook strike pads, sandblasting, and fiberglass insulation.

What are the problems/difficulties with recycling green glass?

Green glass recycling challenges are similar to other post-consumer materials recycling challenges. Post-consumer recyclables are collected in relatively small, usually mixed quantities from hundreds of thousands of households across the state. Each household has its own standards for cleanliness and quality when recycling. Many consumers do not understand the importance of keeping different materials separate and limiting what they recycle to what is accepted for recycling. Glass recyclables have the added disadvantage of being fragile and breakable, causing contamination of otherwise valuable recyclables such as paper in a mixed collection program. Besides inconsistent quality, the costs of sorting and processing increase as the quality of materials decreases. Limited local markets also increase transportation costs. If the commodity value of the collected, processed, and transported material does not cover these costs, recycling costs increase and may not be sustainable by collection programs.

What are ways to expand green glass recycling?

Methods identified for expanding green glass recycling include: market development through loans and grants, tax incentives for purchase of recycled green glass products, tax incentives for use of green glass in manufacturing processes, and expanded deposits that include additional green glass containers not currently covered under the Michigan deposit system.

Additionally, providing an incentive for a manufacturer to use green glass in its manufacturing process will lead to an increased local demand for collected green glass. If a manufacturer is paying for green glass or offsetting the transportation costs, then collection programs may begin collecting green glass through their curbside or drop-off collections.

Is the June 1, 2007, date for applying the green glass beverage container disposal prohibition appropriate?

Statistics are not available regarding beverage container return rates and the portion of green glass containers returned for deposit compared to other containers. It is likely that all types of deposit containers (green glass, clear glass, brown glass, plastic, and aluminum) are returned for deposit at the same rate. Information is collected by the Michigan Department of Treasury regarding the amount of deposits collected and returned (see below). These numbers would not account for beverage containers purchased in another state or country and returned illegally for a deposit here in Michigan.

Bottle Deposit Information (in Millions)			
Year	Total Deposits Collected	Total Refunds	Percent Redeemed*
1990	294.4	289.0	98.17%
1991	364.1	354.6	97.39%
1992	361.7	363.2	100.41%
1993	369.2	362.1	98.08%
1994	383.0	380.0	99.22%
1995	391.9	387.1	98.78%
1996	403.6	394.2	97.67%
1997	412.9	401.5	97.24%
1998	457.8	443.2	96.81%
1999	429.0	407.0	94.87%
2000	418.9	395.4	94.39%
2001	441.9	424.4	96.04%
2002	443.9	425.8	95.92%
2003	434.3	422.7	97.33%
Total	\$5,606.6	\$5,450.2	97.31%

*Percentage includes a portion of containers that are fraudulently redeemed.

- Beverage containers that cannot be returned for a deposit because they were purchased out of state can be recycled at a recycling facility that accepts green glass. Residents in areas of the state without green glass curbside or drop-off recycling may dispose of their beverage containers in their household trash as long as the disposal amount is in accordance with the *de minimis* standard defined in Act 34. Section 11514(7) defines *de minimis* as “incidental disposal of small amounts of these materials that are commingled with other solid waste” and further guidance is described in the DEQ, Waste and Hazardous Materials Division’s Operational Memo 115-27, Revision 1, “Enforcement of Prohibited Waste Restrictions,” dated October 19, 2004.

Operational Memo 115-27 states:

Section 11514(2) of Part 115 prohibits the disposal of more than *de minimis* quantities of...beverage containers.

In order to meet the criteria of being "*de minimis*," any prohibited waste must be (1) commingled with other solid waste, (2) small in amount, and (3) incidental. For purposes of administering Section 11514 of Part 115, whole motor vehicle tires, yard clippings, and beverage containers will be considered *de minimis* if they are all of the following:

- *Commingled with other waste.* Prohibited waste in dedicated bags or containers is not "commingled." Similarly, they are not "commingled" if they are present in bulk quantities readily separable from other refuse.
- *Small in quantity.* To be "small," the amount of prohibited waste present in a load or portion of a load (such as in bags or containers) should, regardless of source, be in an amount typical of what a single household would generate with other household refuse.
- *Present in a load or loads in a manner that is "incidental."* To be "incidental," the occurrence should be "as an unpredictable or minor accompaniment," or "of a minor, casual, or subordinate nature," as defined in *The American Heritage College Dictionary*, Third Edition.

Because all green glass subject to a deposit in Michigan that is collected through the deposit system is currently being sent to market and not being disposed of in Michigan, it appears that green glass deposit beverage containers are recycled at the same volume as other types of beverage containers, and only a *de minimis* number of green glass beverage containers are disposed of in Michigan. The task force concludes that the June 1, 2007, date for applying the green glass beverage container disposal prohibition is not necessary. Immediate prohibition of green glass deposit beverage containers from disposal in Michigan would not appreciably impact the current management of green glass deposit beverage containers.

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Michigan Recycling Programs That Collect Green Glass (by County)
February 22, 2005**

Facility Name	County	City	Telephone
Lee Township Transfer Station Drop-Off Site	ALLEGAN	PULLMAN	269-236-0458
Reliable Disposal Recycling Center	ALLEGAN	OTSEGO	269-381-9571
BFI Recycling Center	ALLEGAN	OTSEGO	269-384-8110
Watson Township Hall Drop-Off Site	ALLEGAN	ALLEGAN	269-672-7254
Watson Township Hall Drop-Off Site	ALLEGAN	OTSEGO	269-672-7254
Trowbridge Township Drop-Off Site	ALLEGAN	ALLEGAN	269-673-1635
Trowbridge Township Drop-Off Site	ALLEGAN	OTSEGO	269-673-1635
Allegan Township Drop-Off Site	ALLEGAN	ALLEGAN	269-673-2928
Otsego City Transfer Station Drop-Off Site	ALLEGAN	OTSEGO	269-673-5411
Otsego Township Curbside Program	ALLEGAN	PLAINWELL	269-673-5411
Otsego Township Curbside Program	ALLEGAN	OTSEGO	269-673-5411
N.E.M.R.A.A. (Resource Recovery Facility) Drop-Off Site	ALPENA	ALPENA	989-354-2607
Berrien County Landfill	BERRIEN	BUCHANAN	269-695-2500
Waste Management Recycling Center	CALHOUN	SPRINGFIELD	269-382-1081
Charleston Township Curbside Program	CALHOUN	BATTLE CREEK	269-384-8110
Clinton County Waste Management/Ovid Curbside Program	CLINTON	OVID	989-834-5560
Clinton County Waste Management Drop-Off Site	CLINTON	LAINGSBURG	517-641-6211
Dimondale Recycling Center	EATON	DIMONDALE	517-646-6183
Emmet County Readmond Township Drop-Off Bin	EMMET	HARBOR SPRINGS	231-348-0640
Emmet County Harbor Springs Drop-Off Bin	EMMET	HARBOR SPRINGS	231-348-0640
Emmet County Transfer Station Recycling Center Drop-Off Site	EMMET	HARBOR SPRINGS	231-348-0640
Emmet County Bear Creek Drop-Off Bin	EMMET	PETOSKEY	231-348-0640
Emmet County Petoskey Drop-Off Bin	EMMET	PETOSKEY	231-348-0640
Emmet County Robinson Drop-Off Bin	EMMET	HARBOR SPRINGS	231-348-0640
Emmet County Bay View Drop-Off Bin	EMMET	PETOSKEY	231-348-0640
Emmet County Bliss Drop-Off Bin	EMMET	LEVERING	231-348-0640
Emmet County Alanson Drop-Off Bin	EMMET	ALANSON	231-348-0640
Emmet County Springvale Drop-Off Bin	EMMET	PETOSKEY	231-348-0640
Citizens Disposal	GENESEE	GRAND BLANC	810-655-4207
Flint Township Drop-Off Site	GENESEE	FLINT	810-732-1350

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Facility Name	County	City	Telephone
Venice Park Recycling Center	GENESEE	LENNON	810-621-9080
Waste Management Incorporated Curbside Program	INGHAM	LANSING	517-543-7500
City of Portage Curbside Recycling	KALAMAZOO	PORTAGE	269-329-4416
City of Parchment Curbside Program	KALAMAZOO	PARCHMENT	269-349-3785
Kalamazoo Township Curbside Recycling Program	KALAMAZOO	KALAMAZOO	269-381-8083
Reliable Disposal Recycling Center	KALAMAZOO	KALAMAZOO	269-381-9571
Cooper Township Drop-Off Site	KALAMAZOO	KALAMAZOO	269-382-0223
Alamo Township Drop-Off Site	KALAMAZOO	KALAMAZOO	269-382-3366
Climax/Charleston Curbside Program	KALAMAZOO	CLIMAX	269-384-8110
Augusta/Charleston Curbside Program	KALAMAZOO	AUGUSTA	269-384-8110
Galesburg Curbside Program	KALAMAZOO	GALESBURG	269-384-8110
Oshtemo & Texas Townships Curbside Program	KALAMAZOO	KALAMAZOO	269-384-8110
Prairie Ronde/Schoolcraft Townships Curbside Program	KALAMAZOO	SCHOOLCRAFT	269-384-8110
Pavilion/Climax Townships Curbside Program	KALAMAZOO	SCOTTS	269-384-8110
Richland Curbside Program	KALAMAZOO	RICHLAND	269-384-8110
Schoolcraft/Vicksburg Curbside Program	KALAMAZOO	VICKSBURG	269-384-8110
Schoolcraft's Clay Street Drop-Off Site	KALAMAZOO	SCHOOLCRAFT	269-679-4304
Wakeshma Township Hall Drop-Off Site	KALAMAZOO	FULTON	269-778-3728
City of Kalamazoo Curbside Recycling Program	KALAMAZOO	KALAMAZOO	269-337-8215
Recycle America	KENT	GRAND RAPIDS	616-243-7191
St. Clair Shores Curbside Recycling Program	MACOMB	ST. CLAIR SHORES	586-445-5363
City of Midland Curbside Program	MIDLAND	MIDLAND	989-835-2531
Erie-Luna Pier Collection Event	MONROE	ERIE	734-240-7909
Food Town Supermarket Drop-Off Event	MONROE	MONROE	734-240-7909
Food Town Supermarket Drop-Off Event	MONROE	LAMBERTVILLE	734-240-7909
Ida Collection Event	MONROE	IDA	734-240-7909
Monroe County Collection Event	MONROE	MONROE	734-240-7909
Dalton Township Transfer Station	MUSKEGON	MUSKEGON	231-766-3043
RRRASOC Waste Management	OAKLAND	SOUTHFIELD	248-208-2270
City of Southfield Curbside Program	OAKLAND	SOUTHFIELD	248-208-2270

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Facility Name	County	City	Telephone
City of Wixom Curbside Program	OAKLAND	WIXOM	248-208-2270
City of Farmington Curbside Program	OAKLAND	FARMINGTON	248-208-2270
City of Farmington Hills Curbside Program	OAKLAND	FARMINGTON HILLS	248-208-2270
City of Walled Lake Curbside Program	OAKLAND	WALLED LAKE	248-208-2270
City of South Lyon Curbside Program	OAKLAND	SOUTH LYON	248-208-2270
RRRASOC 24-Hour Drop-Off Site	OAKLAND	SOUTHFIELD	248-208-2270
RRRASOC Novi Regional Drop-Off Site	OAKLAND	NOVI	248-208-2270
West Branch Recycling Center	OGEMAW	WEST BRANCH	989-345-0500
Laketown Township Hall Drop-Off Site	OTTAWA	HOLLAND	616-494-0561
Centreville Sheriff's Department	ST. JOSEPH	CENTREVILLE	269-467-5540
Colon Village Market	ST. JOSEPH	CENTREVILLE	269-467-5540
Three Rivers Department of Public Works	ST. JOSEPH	CENTREVILLE	269-467-5540
Sanilac County MRF	SANILAC	SANDUSKY	810-648-3590
Lee Township Transfer Station Drop-Off Site	VAN BUREN	GRAND JUNCTION	269-236-0458
City of Ann Arbor Drop-Off Site	WASHTENAW	ANN ARBOR	734-971-7400
Ann Arbor Commercial Curbside Recycling Program	WASHTENAW	ANN ARBOR	734-994-2807
City of Ann Arbor Residential Curbside Recycling Program	WASHTENAW	ANN ARBOR	734-994-2807
Taylor Recycling Inc.	WAYNE	TAYLOR	313-291-7410
Dinverno Recycling Inc.	WAYNE	DETROIT	313-892-3535
City of Dearborn Curbside Program	WAYNE	DEARBORN	313-943-2433