

## **Report on Implementation Progress of the Minnesota Auto Mercury Switch Recovery Program**

Minnesota Office of Environmental Assistance  
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### **Background**

As a result of legislative proposals and discussions in 2004, automobile manufacturers negotiated, through their trade association the Alliance of Automobile Manufacturers (AAM), an agreement with Minnesota Waste Wise (MWW), a non-profit technical assistance arm of the Minnesota Chamber of Commerce, to operate a two year switch outreach, collection, transportation, and recycling program. The program's intended users are salvage yards, scrap processors, vehicle crushers, and other businesses that may generate automotive mercury switches in the course of their business. The agreement was effective June 1, 2004.

Several legislators requested that the Office of Environmental Assistance (OEA) monitor the program and report on implementation progress and switch recovery progress for the program. This document reports on implementation progress through May 4, 2005.

### **Program Responsibilities**

The Alliance of Automobile Manufacturers (AAM) is responsible for funding the program for two years under an agreement with Minnesota Waste Wise (MWW). MWW is responsible for operation of the entire auto mercury switch outreach, collection, transportation, and recycling program. MWW is responsible for making regular program reports to AAM and OEA. OEA is responsible for compiling a list of salvage yards for MWW at the beginning of the program. OEA is responsible for providing technical assistance and the Minnesota Pollution Control Agency is responsible for providing regulatory compliance assistance to MWW, as needed. OEA is also responsible for providing program progress reports to legislators as requested.

### **Tasks and Implementation**

#### *Selection of a Qualified Recycling Contractor*

Minnesota Waste Wise (MWW) was responsible for selecting a qualified recycling contractor that could provide a high level of program support. The recycling contractor operates the actual shipping, tracking, and recycling program and maintains all necessary records for each participating yard. The recycling contractor specifies and provides the appropriate shipping containers and disassembles the switch assemblies and extracts pellets for recycling.

Between June and September 2004, MWW held discussions with candidate mercury recyclers and negotiated a contract with Green Lights Recycling that met the financial, logistical, and legal needs of MWW and the switch collection program.

#### *Development of Contact Lists*

The OEA agreed to develop and provide to MWW a list of salvage yards, scrap processors, crushers, and others who may generate automotive mercury switches. This process began with three lists that had been developed by the Minnesota Pollution Control Agency (MPCA), including one list from the MPCA salvage yard program, which was discontinued June 30, 2001.

The OEA cross-checked these lists with current telephone business listings, updated names and addresses, and sent the information to county solid waste officers and OEA regional staff for review and revision. In mid-July, OEA transmitted a list of 566 businesses to MWW.

MWW also worked with North Star Steel (now part of Gerdau Ameristeel) and obtained a list of all of North Star's Minnesota suppliers to inform them of the program. Additional yards were also identified on a membership list from the Automotive Recyclers of Minnesota (ARM), a salvage yard industry trade group. These lists included 13 Minnesota suppliers that were not on the list compiled by OEA. MWW and NSS discussed operation of a joint program but North Star is continuing to operate its own program (described below) at this time.

#### *Contacts and Outreach*

In August, MWW made phone calls and/or sent mailings to the 579 yards identified by OEA, North Star Steel, ARM, and other minor sources. Based on these calls and mailings, MWW eliminated some businesses from the list as duplicates, out of business, or not generating switches.

In early September, OEA sent a mailing to the remaining yards on the MWW list and further corrections were made. The OEA letter informed yards that the program was available, encouraged them to participate, and asked them to contact MWW or OEA if they had questions or wanted to enroll. Based on the response to this outreach effort, OEA and MWW believed that there could be as many as 366 establishments handling end of life vehicles and generating switches. By mid-January 2005, 280 of the 366 businesses had responded to letters or telephone calls from MWW. As of May 2005, MWW had identified an additional 48 yards that needed to be contacted, had reduced the list of facilities that were potentially in the business of generating mercury switches to 346, and 320 of these had been contacted.

MWW began making site visits to yards in August 2004. As of mid-January, MWW had visited 89 yards throughout the state. By early May, MWW had visited 121 yards. MWW delivers buckets during most visits, but all pickups are handled by Spee-Dee Delivery as described below.

#### *How the program works*

When MWW contacts a yard and they sign up for the program, they receive one or more three and a half gallon plastic recycling buckets with locking lids. These buckets are either delivered in person by MWW staff or are shipped from Green Lights Recycling to the yard by Spee-Dee Delivery. When the yard receives the bucket, they simply start filling it with switch assemblies. Each bucket holds approximately 140-150 switch assemblies. When the bucket is full, the yard locks the cover and contacts Green Lights to arrange for pickup. When a pickup call comes into Green Lights, they prepare a new container or containers and Spee-Dee picks them up for delivery to the yard. Spee-Dee then drops off the new containers and picks up the full containers. Spee-Dee and Green Lights track the dropoff and pickup dates for each container and this information is transmitted to MWW for project tracking and recordkeeping.

Green Lights Recycling has built a specialized workbench and has one staff person trained to remove the pellets from the assemblies. Pellets are shipped to a mercury retorting facility. Assembly material that is contaminated with mercury from leaking pellets is also shipped to the

retorter. A few non-switch items have been found in buckets. Green Lights is fully permitted to handle batteries, lead waste, and other items that might be accidentally placed in the bucket by a yard. Green Lights communicates with yards that have contaminants or other wastes in the bucket. The small size of the buckets and the free program prevent most inadvertent or deliberate contamination with other wastes.

Yards have been asked to track, at a minimum, the number of vehicles processed for each full bucket of switch assemblies. This will allow calculation of a simple recovery rate measure of number of switches per number of vehicles processed. MWW is working with several yards to track additional information on processed vehicles. How much data the yards actually track remains to be seen.

### **Results and Progress**

The table below summarizes the Program results as of January 1, April 15, and May 4, 2005, showing progress in contacting yards, determining their status with respect to switch removal and recycling, enrolling them in the MWW program, and verifying their use of another switch recycling program, if applicable.

#### *Explanatory notes for table:*

- Row 1: When yards were initially contacted, 56 were recycling switches through North Star or other end markets. Five of those yards switched to the MWW program by January and are now counted in Row 4 for January.
- Row 5: Some small yards have not yet removed switches or crushed/shipped cars since being contacted, but they have made a commitment to remove switches prior to crushing and manage them through the MWW program. These yards are listed in Row 5 and counted in Rows 7 and 8 since they have all made a commitment to remove and recycle switches and some have received MWW buckets. However, no switches have been received from these yards as of May 4, 2005. Of the 35 yards listed for May, 29 have MWW buckets, 3 have committed to working with a neighboring yard, and 3 have stated that they will remove and recycle switches when they crush vehicles.
- Row 9: The number in this row changes as more yards are contacted and MWW verifies what is done with switches at the receiving yards. The number in this row should drop to zero when all yards and receiving yards have been contacted and the fate of the switches has been determined.

## Yard Status and Switch Recovery Program Results for January, April, and May 2005

Yard Status for switch removal/recycling	January	April	May
	Number/Percent of total yards contacted		
1. Recycle through North Star/ Canadian/other end markets	51 18.1%	49 16.5%	56 17.5%
2. Sending unprocessed vehicles to others that remove and recycle switches, not handled via MWW program	23 8.2%	28 9.4%	29 9.1%
<b>3. Subtotal yards whose vehicle switches are removed/recycled, not via MWW</b>	<b>74 26.3%</b>	<b>77 25.9%</b>	<b>85 26.6%</b>
4. Removing switches, interested and/or participating in MWW Program (some do not have MWW buckets, they may work with another yard with MWW buckets)	155 55.2%	161 54.2%	166 51.9%
5. Yards state "Not removing switches" but interested in or committed to MWW program, some have buckets	24 8.5%	28 9.4%	35 10.9%
6. Sending unprocessed vehicles to others that remove and recycle switches, handled via MWW program	7 2.5%	7 2.4%	8 2.5%
<b>7. Subtotal yards expressing interest/ commitment, or whose vehicle switches are removed and recycled via MWW</b>	<b>186 66.2%</b>	<b>196 66%</b>	<b>209 65.3%</b>
<b>8. Total yards expressing interest/ commitment, or whose vehicle switches are removed and recycled via MWW or other recycling outlets</b>	<b>260 92.5%</b>	<b>273 91.9%</b>	<b>294 91.9%</b>
9. Sending unprocessed vehicles to others/ unsure if switches removed	7 2.5%	10 3.4%	9 2.8%
10. Not interested/refuse	14 5%	14 4.7%	17 5.3%
<b>11. Total Number of yards contacted</b>	<b>281</b>	<b>297</b>	<b>320</b>
12. Number of yards identified as potentially in business/Percent of those contacted	366 76.8%	380 78.2%	349 91.7%
13. Number of yard listings determined to be duplicates, out of business, or not in the business of generating mercury switches	213	247	278

### *Key points from information presented in table*

1. The data show steady progress in contacting yards, ensuring that switches are removed and managed, and enrolling the yards in the MWW program if they do not already have a satisfactory switch recycling arrangement (all rows).
2. About 25 percent of yards are recycling switches through other programs (Row 3).
3. About two-thirds of yards contacted are removing and recycling switches through the MWW program or have made a commitment to remove and recycle switches through the

MWW program (Row 7). Included in Row 7 is Row 5, about 10 percent of the total yards contacted had not removed switches prior to the MWW program or have not processed any vehicles.

4. About 5 percent refuse to participate or are uninterested (Row 10).
5. The remaining few percent do not currently remove switches, ship their vehicles elsewhere for processing, and are not sure whether switches are removed (Row 9).
6. The data also show steady progress in determining how many yards are really in business and generating switches, out of the total universe of yard listings that were compiled from many sources (Rows 12 and 13).

The May data show that 259 yards were pulling switches from end of life vehicles when first contacted about the MWW Program. There are several reasons that yards were already removing switches, including the North Star or Canadian end market programs, MPCA Salvage Yard program training, and/or general awareness of the issue, through, for example, outreach from state trade associations like ARM and ISRI. This is over 80% of the 320 yards that have been contacted, or about 75% of the 349 yards identified to be potentially in business as of May.

As of May 2005, 85 yards are recycling switches through North Star, Canadian, or other outlets, 206 yards are recycling their switches directly or indirectly through the MWW program, and at least 3 yards have expressed their intent to use the MWW program when they start crushing. Together, these 294 yards represent over 91% of the 320 yards that have been contacted, or 84% of the 349 yards potentially in business. MWW has attempted to contact the remaining 29 potential facilities, and these efforts will continue. As of May 4, 2005, a total of 278 yards have been eliminated from the list as closed, duplicate, or facilities that do not work with vehicle salvage.

Note that all of these figures are *yard participation rates in the MWW recycling program and other recycling programs* and should not be construed as any measure of *statewide switch recovery rates*. The MWW program is collecting information from yards that will allow us to estimate switch recovery rates in the future, at least for those yards participating in the MWW program.

#### **Switch Recovery Numbers:**

As of January 19, 2005, approximately 12,300 switches had been received at Green Lights. Between January 19 and May 4, Green Lights Recycling received approximately 8,300 additional switches, for a total of approximately 20,600 switches recovered by the program as of May 4, 2005. At this time, OEA and MWW do not have a reliable estimate of the total number of “backlog” and “current program” switches received to date. However, this data is being tracked and we will be able to provide a reliable estimate in the future.

#### **Program Observations and Lessons**

Both OEA and MWW were surprised and pleased to find that 259 yards were already removing and storing mercury switches when they were first contacted about the current switch recovery program. Mercury switch awareness and removal efforts were ‘mature’ but actual recycling was ‘dormant.’ Why was this? Minnesota had a number of statutory, outreach, and incentive programs in place for 7 to 8 years prior to the start of the current MWW-operated program.

The primary statewide outreach, technical assistance, and recycling program was the MPCA Salvage Yard Program. This program established BMP's and provided informational/ educational materials and pre-paid recycling containers to salvage yards from 1995 until it was discontinued June 30, 2001. The Salvage Yard Program's efforts contributed to awareness, removal, and recycling. But ongoing technical and recycling assistance was discontinued and there was no longer any statewide point of contact for the yards, who continued to remove switches.

In addition, the Legislature passed an auto mercury switch removal law requiring "a good faith effort" to remove mercury switches before a vehicle is crushed [§116.92, subd. 4(c)], effective since August 1995.

The state's sole electric arc furnace (EAF) North Star Steel has accepted switch pellets for recycling since 1997, first at no charge, then paying \$10 per pound (1999) and then \$40 per pound of pellets (2000-present). North Star Steel has recently started accepting whole switch assemblies but does not pay or charge for them. This is an ongoing regional program for North Star suppliers and they continued to remove and recycle switches after the MPCA Salvage Yard Program ended.

No other state has had a law on the books so long, or initiated a statewide outreach effort as early as 1995, or had a steel end market provide removal/recovery incentives to suppliers.

As a result, MWW's focus has been informing the yards about the new program, enrolling them, and clearing out their old inventory of removed switches. MWW's future efforts will include education/outreach on removal and recycling to new participants, education/outreach to existing participants to ensure high removal/recovery rates, and continuing efforts to contact yards that may be in business but have not yet responded to phone calls and letters. Based on the conversations between MWW staff and the salvage yards, an ongoing and visible program is also important to ensure that new owners of yards are aware of the switch issue and to ensure broad ongoing awareness of the availability of training materials and recycling programs.

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