

# **YELLOW JUG OLD DRUGS PROGRAM**®

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**Great Lakes Clean Water Organization  
Yellow Jug Old Drugs Program  
DEQ Grant Work Plan/Deliverables 7.12.12-12.30.13  
Final Grant Report Submitted 1.29.14  
By Chris Angel, Project Director**

## **Final Report/Case Study Drug Collection Disposal Program State-Wide Michigan/Great Lakes Region**

Although this report is the end of our DEQ grant in many ways this is just the beginning. The DEQ grant enabled Great Lakes Clean Water Organization to produce educational and outreach materials that have already had a positive impact and will continue to educate more citizens about the importance of proper disposal of unused unwanted drugs.

The DEQ grant that was awarded to the Yellow Jug Old Drugs program was unique in comparison to other grantees. In 2012 the Yellow Jug Old Drugs Program was already well established providing service to most of the 83 counties in Michigan. The program works with local pharmacies that provide support of \$300 per year to participate. This funding mechanism provides long term sustainability so that the program can utilize grant funding but does not rely fully on grant funding. With this in mind the DEQ funding was used on components that in the long term, would educate more people about the issue of proper disposal of unused/unwanted drugs.

Since the start of the Yellow Jug Old Drugs Program in 2009 we have seen an increase in awareness regarding proper disposal of unused/unwanted drugs. While this is encouraging, we still have a long way to go. Our goal is to demonstrate that a large scale State-wide and multi-state program is not only viable but is the most efficient model for a successful drug collection and disposal program.

The components funded by the DEQ grant have already had an impact and we expect to see even greater impact in coming years. The Yellow Jug Old Drugs Program is available throughout Michigan and in 2013 extended the program to Illinois and Wisconsin. We will be adding the states of Ohio and Indiana in early 2014 and plan to have the program available in Minnesota, Pennsylvania and New York in 2015 so that we can demonstrate the effectiveness of a collection and disposal program providing service to all the Great Lakes states.

## Significant Accomplishments of the Yellow Jug Old Drugs Program during the DEQ Grant

- 45.75 Tons of unused/unwanted drugs have collected and properly disposed as of 1.22.14. 35.75 Tons collected during grant period.
- 37 new pharmacies participating since the beginning of the grant.
- The Documentary, The Yellow Jug Old Drugs Program, *A solution to the emerging issue of pharmaceutical compounds in ground, surface and municipal water* has been produced and broadcast on all Michigan PBS stations-More to come in 2014. The film can also be viewed on YouTube. <http://www.youtube.com/user/GreatLakesCleanWater>
- 10 TV Public Service Announcements have been produced and are being broadcast by TV stations free of charge as a community service. <http://www.youtube.com/user/GreatLakesCleanWater>
- 21 Radio Public Service Announcements have been produced and will be broadcast on radio stations in Michigan. <https://soundcloud.com/greatlakescleanwater-org>
- GLCW website was improved and made accessible for all persons with disabilities.
- New Posters and hand-out materials were translated into Spanish and Arabic in addition to English and distributed to all participating pharmacies throughout Michigan.

## DEQ Grant Work Plan

DEQ grant funds were used in conjunction with operational program funding from participating pharmacies to expand the reach, size and scope of Yellow Jug Old Drugs program to properly collect and dispose of unused/unwanted drugs in Michigan. Expanding the exposure for this state-wide program also greatly increased the interest in the overall issue of how to properly dispose of unused/unwanted drugs. The Yellow Jug Old Drugs program is the only program in Michigan serving the entire state. Funding this grant project has proven to be a very cost effective method of providing a state-wide approach to proper collection and disposal of unused/unwanted drugs while also educating thousands of citizens about the importance of proper disposal.

## Project Goals

- Target 1. Collect 25,000 pounds of drug waste during the 18 months of the grant. This will be calculated from observed weights of collections during each of the three collection events. **71,500 pounds were collected during the grant, far exceeding the goal. This total does not include product packaging, drug waste only. Quantity of Drug Waste collected and properly disposed of is the major factor to measure effectiveness of drug collection programs. Because the Yellow Jug Old Drugs Program was already well-established in Michigan, weight collected compared to other grant-funded programs is considerably greater. DEQ grant funding of \$77,060 divided by 71,500 pounds = \$1.07 per pound**
- Target 2. Increase the number of participating pharmacies in Michigan from 210 to 250. This will be calculated from the participating pharmacy list maintained by the Great Lakes Clean Water Organization.  
**We added a total of 37 new pharmacies during the grant period. A complete list is attached. During the 18 months of the grant some pharmacies closed, and some switched to other grant-funded programs. Many pharmacies expressed some reluctance to sign on until pending DEA regulations re controlled substances are finalized. Some expressed concern regarding Michigan solid waste regulations as a reason for not participating. Pharmacies that are involved recognize the benefits of providing this service to their customers. It is the right thing to do and also good for business as it increases customer traffic. Most pharmacies participating are independent pharmacies. Getting chain pharmacies to get involved with collection programs may be a longer process but it is something that should be pursued We believe that in 10-15 years all pharmacies will across the country will be “The Place” to go for proper and safe collection and disposal for unused/unwanted drugs.**
- Target 3. Increase in the level of awareness of the importance of disposing of unused/unwanted drugs in a safe and approved manner by 20 Percent from the baseline as measured in the first survey. This will be calculated based on survey results.  
**Based on tabulations from the 92 Pre and Post Resident and 210 Pharmacy surveys there has been a 32% increase in awareness about the importance of disposing of unused/unwanted drugs in a safe and approved manner.**
- Target 4. Educate at least 8000 people about the legal and technical issues surrounding pharmaceutical disposal and source reduction. This will be calculated from the pharmacy mailing contact list, the resident surveys the sign in sheets gathered at the pharmacy school visits.  
**One of the most effective outreach components of the grant is most assuredly the Documentary we produced. The Documentary has aired on all the PBS stations in Michigan. The stations will continue to broadcast the film which is also available for viewing on YouTube. Based on the number of times the film was broadcast. It is estimated by the Michigan PBS stations that 58,000 people saw the program. The Video PSA’s we produced are being broadcast on many commercial TV stations in Michigan. The letter was sent to 3100 licensed pharmacies in Michigan. School visits totaled only 37 participants but resulted in some partnerships that will have positive results in the future. With total watching the documentary 58,000 and TV PSA’s 25,000, pharmacy mailing 3100, 92 resident surveys, pharmacy school participants we estimate a total of 86,229 were educated about pharmaceutical disposal. This equates to less than 88 cents per person of DEQ grant funding**

## **Additional goals:**

- Establishing a minimum of one collection point for controlled and non-controlled pharmaceuticals in every county in Michigan.  
**At the end of the grant period we have participating pharmacies in 77 of the 83 counties. Counties that do not have a Yellow Jug Old Drugs participating location as of 12.31.13 are Marquette, Baraga, Houghton, Keweenaw, Ontonagon and Gogebic. We have extended an offer to work with current DEQ grantees to encourage and increase participation in these underserved counties.**
- Increase website traffic at GLCWO website by 20% from the baseline recorded upon execution of the grant agreement.  
**From 7.12.12 to 12.31.13 we had 5220 visits to website. 4154 were new visitors. Average time on website 3.28 minutes. Visits for previous 18 months were 1012.  
An increase of 516 %  
The Google map of participating locations went from 6165 views on 7.17.12 to 11182 views on 12.31.13. Increase of 5017 views**
- Increase GLCWO YouTube Channel view count by 20% from the baseline recorded upon execution of the grant agreement.  
**On 7.12.12 we had 56 views on YouTube, on 12.31.13 there were a total of 2732 views. Increase of 2676 views, an increase of 4879%**

## Project Deliverables

T1: Media Outreach Activates

- T1.1: Produce Video Public Service Announcements
  - T1.1:D1: One copy each of three video PSAs  
**Ten Video PSA's were produced. They can be viewed at <http://www.youtube.com/user/GreatLakesCleanWater>  
PSA files supplied on thumb drive.**

- T1.2: Broadcast Video Public Service Announcements
  - T1.2:D1: List of stations that agree to broadcast the PSA  
**The following stations are broadcasting them as of November 2013.**

**Alpena Northeast MI WBKB-TV/WBKB-DT2/WBKB-DT3/WBKB-DT4/WBKP-DT2/WBKP-DT3/WBKP-DT4/WBKP-TV\*\*\*/WBUP-DT2/WBUP-DT3/WBUP-DT4/WBUP-TV**

**Negaunee UP WLUC-TV/WBSF-DT2/WBSF-DT3/WBSF-DT4/WBSF-TV/WEYI-DT2/WEYI-DT3/WEYI-DT4/WEYI-TV/WLUC-DT2/WLUC-DT3/WLUC-DT4/WPBN-DT2/WPBN-DT3/WPBN-DT4/WPBN-TV\*\*\*/WTOM-DT2/WTOM-DT3/WTOM-DT4/WTOM-TV\*\*\***

**Lansing Mid-Michigan WXMI-TV/W42CB/W52DB/WXMI-DT2/WXMI-DT3/WXMI-DT4  
WLNS-TV/WLAJ-DT2/WLAJ-DT3/WLAJ-DT4/WLAJ-TV/WLNS-DT2/WLNS-DT3/WLNS-DT4**

**Flint/Cheboygan/ Traverse City WEYI-TV/WBSF-DT2/WBSF-DT3/WBSF-DT4/WBSF-TV/WEYI-DT2/WEYI-DT3/WEYI-DT4/WLUC-DT2/WLUC-DT3/WLUC-DT4/WLUC-TV/WPBN-DT2/WPBN-DT3/WPBN-DT4/WPBN-TV\*\*\*/WTOM-DT2/WTOM-DT3/WTOM-DT4/WTOM-TV\*\*\***

**Comments: It takes a great deal of time to follow up with stations to ask them to air PSA's free of charge though compared to the cost of a comparable paid commercial this is an very effective method even considering the cost of PSA production**

- T1.2:D2: List of times PSA is broadcast  
**Stations play the PSA's free as a community service on a space available basis. Broadcast dates/times are only available for paid commercials.**
- T1.3: Produce 12 Radio Spots
  - T1.3:D1: One copy of each 12 Radio Spots  
**A total of 21 radio PSA's were produced They can be downloaded at <https://soundcloud.com/greatlakescleanwater-org>  
PSA files also being sent on thumb drive**

- T1.4: Broadcast Radio Spots
  - T1.4:D1: List of stations that agree to broadcast on a space available basis
 

**Radio Spots were produced in November 2013. Michigan Association of Broadcasters has them available for download on their website. MBA will be sending a letter to all radio stations in MI making them aware of the PSA's. Stations are being asked to broadcast spots on a space available free basis.**

**Comments: It takes a great deal of time to follow up with stations to ask them to air PSA's free of charge though compared to the cost of a comparable paid commercial this is an very effective method even considering the cost of PSA production**

- T1.5: Produce Documentary
  - T1.5:D1: One copy of the 30 minute documentary
 

**The Documentary is available for viewing at <http://www.youtube.com/user/GreatLakesCleanWater>**

**A copy is supplied on DVD**
- T1.6: Broadcast Documentary
  - T1.6:D1: List of times documentary is broadcast and stations it is broadcast on
    - **WNMU Marquette on January 2, 2014 at 3 pm and January 5, 2014 at 11 pm**
    - **WKAR World Lansing on February 2, 2014 at 2 pm and February 8, 2014 at 9:30 pm**
    - **WQTV Saginaw on November 3, 2013 at 7:30 pm**
    - **WGVU Grand Rapids on November 24, 2013 at 4pm**
    - **WCMU Mt Pleasant December 19, 2013 at 7:30pm and on December 21, 2013 at 5:00 pm**
    - **WTVS Detroit on December 30, 2013 at 11:30 pm, January 2, 2014 at 4 pm**

**Comments; The Documentary cost production of \$10,000 is about a third of the cost of industry average of \$1000 per minute. The number of people that will see this film and be educated about the importance or proper disposal of unused drugs this is an effective method of educating people on a large-scale. Having WCMU on board was important. Having a Producer like Stonebridge Productions was critical to the process.**

- T1.7: Post documentary to GLWCO Youtube Channel Education/Outreach
  - T1.7:D1: provide link in report
 

**The Documentary is available for viewing at <http://www.youtube.com/user/GreatLakesCleanWater>**

**Documentary supplied on DVD**

## T2: Education Outreach Activities

- T2.1: Translate Printed Materials into Spanish and Arabic
  - T2.1:D1: One copy each of translated posters, bags inserts, fact sheets and accepted/not accepted lists

**Copy of Posters and bag inserts in English, Spanish and Arabic attached. It was decided that fact sheets and accepted/lists would not be translated that the pharmacist could provide that info.**

- T2.2: Distribute translated materials
  - T2.2:D1: Copy of translated materials  
**Copies Attached-All Pharmacies were provided new posters as well as translated materials**
  - T2.2:D2: List of outlets/networks used for distribution  
**Yellow Jug Old Drugs Participating pharmacy list attached.**
- T2.3: Assistive technology improvements
  - T2.3:D1: Copies of modified web site (link), PSAs and print materials  
**Assistive Technology report prepared by MSU Usability Research Center attached. Modifications outlined in report have been made to website. Printed pages from revised website attached.**  
[www.greatlakescleanwater.org](http://www.greatlakescleanwater.org)
- T2.5: Close captioning and reproduction of Video PSA
  - T2.5:D1: One copy of each of the closed captioned three video PSAs and Documentary  
**The Documentary, Video PSA's and Documentary Previews were all close captioned. Documentary supplied on DVD. Video PSA's on thumb drive.**
- T2.6: Letter to Michigan Pharmacies
  - T2.6:D1: Distribution List and copy of letter  
**Copy of letter, and flier attached**  
**List of Michigan Pharmacies that received letter attached**
- T2.7: Presentations to Pharmacy Schools
  - T2.7:D1: List of attendees  
**Wayne State University and University of Michigan were open to presentations. Ferris was not. WSU resulted in having pharmacy student volunteers at Michigan Pharmacist Convention. U of M will be working with GLCW to co-sponsor a drug collection event for students and staff in Spring 2014.**  
**Copy of PowerPoint Presentation supplied on thumb drive.**
- T2.8: Exhibit at MPA convention
  - T2.8:D1: Program from conference indicating that grantee exhibited  
**Program attached. DEQ staff also participated in convention in cooperation with GLCW**

#### T5: Pharmaceutical Collections

- T5.1: Collect pharmaceuticals from participating pharmacies
  - T5.1:D1: Weight of drugs collected during collection run  
**A total of 35.75 Tons was collected during the grant period. This total is for drug waste only not packaging This exceeds grant goal of 12.5 tons by 20.25 tons**

#### T6: Data Collection and Reporting

- T6.1: Survey 200 pharmacies

- T6.1:D1: Summary of survey results  
**Pre and post survey results attached**
- T6.2: Survey 250 residents
- T6.2:D1: Summary of survey results  
**Pre and post survey results attached**

**Comments: Conducting Surveys is very time consuming. Even though we utilized volunteers we would recommend contracting with a third party to conduct and evaluate survey results. We found it extremely difficult to get the survey info from residents and participating pharmacies. Many pharmacists and citizens cited being “surveyed by everyone” and “not having the time” as reasons for not wanting to participate in surveys.**

- T6.3: Case Study
- T6.3:D1: Case Study

**This Final Report and case study provide comments and suggestions based on our experience during the period of the DEQ grant.**

## **Improvements/Suggestions to improve the effectiveness of Drug Collection programs in Michigan.**

Some pharmacies have cited a reluctance to participate in collection programs due to current solid waste regulations in Michigan. The Yellow Jug Old Drugs program has been concerned and actively involved in trying to get this regulation changed. As a temporary solution we received a memo from DEQ Director Dan Wyant that provides guidance for the Yellow Jug Old Drugs program to operate in cooperation with local pharmacies to collect unused/unwanted drugs for proper disposal.

The Michigan Pharmacist Association has not been able to fully endorse collection programs at pharmacies until the current regulations are changed.

As of January 2014 HB 5005 has passed the House and is in the Senate. Passage of this legislation would remove a potential barrier to pharmacies in Michigan collection drug waste for disposal.

We strongly believe that Pharmacies will be “The Place” to take unused/unwanted drugs for proper disposal. Most of the pharmacies involved are independent, locally owned locations. While this is a great start, many communities do not have any local independent locations. These communities are served strictly by chain pharmacies. The chain pharmacies have shown great reluctance to participate in drug waste collection and disposal programs. It is hoped that the pending DEA regulations to allow pharmacies to collect controlled substances will encourage participation. It is our hope that some large chain, maybe one based in Michigan, will pioneer this at their locations. To this end GLCW sent letters in Feb 2013 to the Presidents, Marketing Directors, Directors of Pharmacies and Public Relations Directors of all the chain pharmacies operating in MI encouraging them to get involved. We will be sending a repeat letter in February 2014. A joint letter perhaps signed by DEQ Director might get more attention from the primary decision makers at these corporations.

## **Improvements/Suggestions to improve the effectiveness of Drug Collection programs across the US.**

Since starting the Yellow Jug Old Drugs program in 2009 Great Lakes Clean Water has planned for the eventuality of pharmacies being able to collect controlled substances. In Dec 2012 the DEA published recommended changes to the Controlled Substance Act that would allow pharmacies to collect controlled substances for disposal. This change will be one of the most important changes in regards to disposal of drug waste. Final rules are expected to be enacted in 2014.

Controlled Substances Collection. Although not a component of the DEQ grant significant steps have been made that will enable GLCW to accept controlled substances when proposed DEA regulations are made final. We have been scanning and tracking all jugs/drug waste containers. Each jug has an individual serialized bar code scan to keep track of jugs delivered, collected and destroyed. We have secured a warehouse, which is a DEA requirement. We have received our State of MI License to manage controlled substances. Lockable outside containers to hold the jugs another DEA requirement have been designed and are being produced. We are applying for a DEA Reverse Distributor License in 2014 which is another step in the process.

Once DEA regulations are finalized pharmacies and we receive approval participating Yellow Jug Old Drugs pharmacies may choose to collect controlled substances and non-controlled drug waste or just to collect non-controlled drug waste.

We expect to be one of the first programs in the country collecting controlled substances.

**Improvements/Suggestions to improve the effectiveness of DEQ Grant funded programs.**

Grant funding for such programs provides opportunities for expansion. To utilize funding available most efficiently, grantees should be encouraged to collaborate more to eliminate duplication of services. Grantees should be encouraged or required to only provide programs/services to locations that are not already being served by another program. Some pharmacies that had participated in the Yellow Jug Old Drugs Program switched to a grant-funded program that was free due to the DEQ grant. While we understand pharmacies might do this to save the cost it should be understood that these programs are not free as they are funded by DEQ grant funds or are in part funded by local municipalities. There is also the concern of what happens when the grant program ends. Reviewing the potential for sustainability of programs after DEQ grant funding should be a major component of the award process. The Yellow Jug Old Drugs Program is fully sustainable beyond grant funding because the participating pharmacies provide support of \$300 per pharmacy per year.

## **Yellow Jug Old Drugs Program History**

In 2008 the Associated Press reported that the US Geological Survey (USGS) found trace amounts of pharmaceutical compounds in waterways throughout the US. This finding was critical to making more people aware of the issue of proper disposal or unused/unwanted drugs. Prior to the AP reporting, studies had indicated trace amounts of pharmaceutical compounds in water systems near major metropolitan areas in the US. The USGS studies revealed these same compounds were now appearing in lakes, rivers and streams in very rural areas throughout the US.

In 2008 a group of concerned citizens in Northeast Michigan began researching this issue and looking at potential solutions. For many years consumers had been told that flushing unused medication down the drain was the preferred method of disposal. Several members of this first work group had worked in healthcare and observed first-hand this disposal policy

This group felt that something should be done about encouraging people to dispose of unused/unwanted drugs in a more environmentally responsible way. The group felt that this should be their focus. To design a program that would provide an alternative to flushing drugs down the drain, a program that would encourage proper and safe disposal of unused/unwanted drugs.

The group further researched this issue and conducted a survey of Michigan pharmacists. It became clear that the best location for collection would be retail pharmacies. The program would focus on the importance of clean water in the Great Lakes area and provide a simple, easy method for consumers to properly dispose of unused/unwanted drugs. It was also important that while grant funding would be pursued for the program that the program should be fully sustainable beyond grant funding.

The group believed that to provide the greatest impact the program should provide a solution to the entire region of the Great Lakes rather than a local focus. In February 2009 Great Lakes Clean Water Organization (GLCW) was formed. The mission of GLCW is to promote the collection and disposal of unused/unwanted drugs in a safe and approved manner. This will keep harmful effects of drugs out of ground water, surface water and municipal water systems in Michigan and the Great Lakes region.

Soon thereafter the organization was granted tax exempt 501(c) 3 status. The Protocol and Procedures were finalized and the Yellow jug Old Drugs program began in 2009 at 12 pharmacies in Northeast Michigan. The program was planned to strategically expand throughout all of Michigan. The Yellow Jug Old Drugs program now has participating pharmacies in Illinois and Wisconsin as well and will soon be available in Ohio and Indiana. GLCW has set a goal of extending the Yellow Jug Old Drugs program throughout the Great Lakes states by 2015. Currently there are pharmacies participating in Michigan, Illinois and Wisconsin and as of January 2014 the Yellow Jug Old Drugs program has collected 42.75 tons of unused/unwanted drugs. The program is one of the largest drug collection programs in the country and the largest being operated by a Non-Profit organization.

## Conclusions

The components funded by the DEQ grant have already had an impact and we expect to see even greater impact in coming years. So in many ways this is truly the beginning. The Yellow Jug Old Drugs Program is available all across Michigan. In 2013 we began providing the program in Illinois and Wisconsin. We will be adding the states of Ohio and Indiana in early 2014 and plan to have the program available in Minnesota, Pennsylvania and New York in 2015 so that we can demonstrate the effectiveness of a collection and disposal program providing service to all the Great Lakes states.

- Large Scale-state wide and regional drug collection programs provide the most cost effective method of collection and disposal of unused/unwanted drugs. Having many locations under one umbrella program with a low administrative overhead is preferable to local programs providing service to a smaller number of locations yet incurring similar administrative costs.
- Pharmacies are the most logical, convenient, safe and most effective locations for proper collection and disposal of unused/unwanted drugs
- Having a single location such as pharmacies collect non-controlled and controlled substances will provide even better access for citizens wanting to dispose of unused/unwanted drugs.
- Independent pharmacies are willing to provide financial support to provide program to their communities. Chain pharmacies which make up a majority of pharmacies in the country should be strongly encouraged to participate to provide even greater access to citizens wanting to properly dispose of unused/unwanted drugs.
- Long –term sustainable funding is critical to a successful program. The Yellow Jug Old Drugs program is currently funded primarily by support from participating pharmacies. It is the goal of GLCW to have funding sustained by 1/3 pharmacies, 1/3 individuals and grant funding and 1/3 pharmaceutical companies.
- There are several reasons that citizens should be educated and encouraged to properly dispose of unused/unwanted drugs. These include; Environmental, Water Quality, Public Health and Safety and Substance Abuse Prevention. Individuals deciding to take action are motivated by sometimes more than one concern. We feel that a primary focus on Great Lakes Water Quality is one of the major factors in the success of the Yellow Jug Old Drugs Program. The issue of water quality, whether it's drinking water or lakes, rivers or streams for recreation, has been a unifying message while also addressing the other concerns cited.