Grain Engulfment Rescue First Year Impact Report
Introduction

Over the past 2 ½ years, the Kansas Fire & Rescue Training Institute, Kansas Grain and Feed Association, Kansas Farmers Service Association and Kansas Cooperative Council have been engaged in a project to improve safety in grain handling facilities. These efforts have focused on Grain handling safety and Grain Engulfment Rescue training.

This unique project was conceived to improve safety and responses to grain emergencies. Many people and organizations deserve recognition and credit for the success of this program. Credit begins with the 107 member companies from the grain handling industry that made contributions totaling $90,000 toward this program. Credit extends to include our grain industry associations’ executive officers and 2,000 students and instructors of the Grain Engulfment Rescue Training course. Without the support given by these people this program would not have been possible.

This report summarizes the impacts and accomplishments of the first year of the Grain Engulfment Rescue Training program activities.

Background

After a series of meetings to explore training needs, capabilities and resources, the Kansas Grain and Feed Association (KGFA), Kansas Farmers Service Association (KFSA) and Kansas Cooperative Council agreed to join the Kansas Fire & Rescue Training Institute (KF&RTI) in creating a program that included the purchase of a semi-trailer specifically designed for the purpose of conducting grain engulfment rescue training. This plan also included the KGFA, KFSA, and KCC soliciting donations from their member organizations in support of the program.

At the February 17, 2011 Fire Service Training Commission meeting, the members approved the plan for this program. On August 18, 2011, just 6 short months later, the KGFA, KFSA, and KCC presented the Institute with a $90,000 donation to fund the purchase of the trailer that remains a key element of this program.
On June 4, 2012 the Grain Engulfment Rescue trainer (trailer) was delivered. This delivery marked the final steps of implementing the course conceived in the winter of 2010/11. Bringing Grain Engulfment Rescue Training to firefighters and grain industry workers was the collaborative goal of the KGFA, KFSA, KCC and the University of Kansas Continuing Education’s Kansas Fire & Rescue Training Institute. In an excellent example of public/private sector partnerships, we identified a training need, then collaborated to create the elements needed to fill that need.

[Image of Grain Engulfment Rescue Trainer delivered in June 2012. Since delivery, this unit has traveled over 26,000 miles delivering training to Kansas communities.]

**Implementation and Delivery**

This report covers activities from June 4, 2012 through September 30, 2013. While covering a span of 16 months, actual delivery of end user training courses didn’t get underway until mid-August, 2012.

Three facts were critical in this process.

- The first critical element was the partner donation of $90,000 for construction of a Grain Engulfment Rescue Trainer.
- The second critical element was development of the objectives and curriculum for the course. A group of industry experts from KFGA, KFSA, and KCC teamed with Institute trainers came together to develop this curriculum.
- Finally, the third critical element was defining the program delivery parameters and implementing the course. All three of these elements were done simultaneously in order to bring this course into reality as quickly as possible.
Within two days of the trailer being delivered, the Institute conducted the pilot delivery of Grain Engulfment Rescue training at the Topeka Fire Department. Participants included firefighters from Topeka, grain industry employees and representatives of KFGA, KFSA and KCC. In quick succession five Train-the-Trainer courses were taught. June and July of 2012 were occupied with work configuring the trailer for use and conducting initial Train-the-Trainer courses. These courses train instructors how to teach the course and how to utilize the trailer. In the following year three additional Train-the-Trainer courses were taught increasing the instructor cadre for this course.
Impact in Numbers

On August 11, 2012 the Kansas Fire & Rescue Training Institute delivered the first “end user” Grain Engulfment Training course in Goodland, Kansas. The first year of training delivery for this course has been impressively successful. Statistics from the first year are listed below and illustrate that success.

- 103 Total courses taught (all courses)
  - 95 End user courses
  - 8 Train-the-Trainer courses
- 68 Host cities/communities (Kansas class locations)
- 1 Out of state Host City/delivery (Colorado)
- 57 Kansas counties hosting a class
- 1,948 Total number of participants
  - 596 Grain facility employees trained
  - 1,352 Firefighters trained

A Shining Example

The program’s success had an exclamation point added to it in February 2013 with a successful rescue in Bern, Kansas. A worker was totally engulfed inside a grain bin and was successfully rescued. Rescuers included facility employees and firefighters from the surrounding area. Many of the rescuers attended Grain Engulfment Rescue training a few short weeks prior to the incident. Responders attributed the training provided through this program as a significant contribution to the success of this rescue.

It is unknown how many other workers have prevented accidents armed with the information from the courses they have attended; however, just one successful rescue proves the value of this program.
Course Locations (in blue) by Kansas County

Grain Engulfment Course Locations by City/Community

Abilene
Anthony
Arkansas City
Atchison
Beattie
Beloit
Burlingame
Burlington
Chase
Cimarron
Coldwater
Courland
Cunningham
Dodge City
El Dorado
Elkhart
Enterprise
Fowler City
Frankfort
Galena
Garden City
Garnett
Gaylord
Goodland
Halstead
Hays
Hiawatha
Hillsboro
Holton
Hope
Hutchinson
Inman
Iuka
Johnson
Kansas City, KS
La Crosse
Lawrence
Leavenworth
Liberal
Lindsborg
Manhattan
Marysville
Neodesha
New Century
Nickerson
Oberlin
Paola
Park City
Parsons
Phillipsburg
Pittsburg
Pratt
Reading
Rossville
Russell
Sawyer
Scott City
Seneca
Springfield, CO
St. Francis
Stafford
Syracuse
Topeka
Troy
Ulysses
Wakeeney
Wellington
Wichita
Winfield
**Accolades**

With no intent or design, this unique program has been featured in multiple publications, television reports and local newspapers throughout Kansas and the United States. State Fire Service Training agencies from Nebraska, Oklahoma and Missouri have sent representatives to attend courses. Additionally, these states have requested information on the trailer and the course with the intent of using them as models for similar programs in their home states.


- In the March 2013 issue of *Journal of Emergency Medical Services* an article featuring the Grain Rescue Training program titled “Applauding an Innovative Approach to Grain Engulfment Rescue Training” was published. The article is currently available on line at: [http://www.jems.com/article/training/applauding-innovative-approach-grain-eng](http://www.jems.com/article/training/applauding-innovative-approach-grain-eng).


- As the program has traveled Kansas numerous local newspapers and television stations have featured the program and participants in articles and segments.

- The University of Kansas has featured the program in a recent *KU Works for Kansas* publication that is distributed throughout Kansas and the U.S.

- KU’s media relations department produced a short video on the program in the summer of 2012. That video can be found on the Institute’s web page or by going directly to the video at: [http://kufire.ku.edu/node/23](http://kufire.ku.edu/node/23)

No awards or prizes have been received for our efforts; however, we have received the best reward possible with the successful rescue attributed to attendance at this course. Additionally, the knowledge and satisfaction that we have all made a very real impact with this course is reward enough. At the same time we have demonstrated how public/private sector collaboration can work to benefit the people of Kansas and beyond. We have experienced acceptance and success far beyond our expectations and look forward to continued success with future deliveries of this course.
Acknowledgements

The success that this program has enjoyed in its first year of operation is directly attributed to the cooperation and dedication of our partners. Our primary partners provided critical resources that made this program possible. They also provided technical advice as the curriculum was developed and pointed us in the right direction countless times. From the inception of this project the Institute worked with five key leaders from industry associations. We want to recognize these leaders and extend our special thanks for their collaboration, trust and assistance throughout this process. They are:

Tom Tunnell  
President & CEO,  
Kansas Grain and Feed Association

Leslie Kaufman  
Executive Director  
Kansas Cooperative Council

Scott Anderson  
Vice President Risk Management Services  
Kansas Farmers Service Association

Sara Bowser  
Director of Member Services  
Kansas Grain and Feed Association

John Ricker  
Risk Control Manager  
Ag Services LLC

Unruh Fire, Inc. was the manufacturer of the Grain Engulfment Rescue Trainer (trailer) used in this course. While the trailer was built under contract, Unruh Fire went well beyond the normal expectations of a builder. From initial design through delivery and operation of the trailer, Unruh Fire has remained engaged in the performance of the trailer to insure our satisfaction with the unit. Their attention to detail and customer service has been exemplary. Sixteen months after the trailer’s delivery, Unruh Fire is continuing to prove that they are much more than a builder; they too are a partner in this project.

Many other members of these organizations assisted with this project by serving on the program development team, assisting with the fundraising and actively supporting the project. We want to acknowledge and thank all of the unnamed people who have given their support and encouragement throughout this process. They too were critical to the success of Grain Engulfment Rescue training in Kansas.
A photo of the trailer with the plaque mounted on the side (one on each side) appears below recognizing the companies whose combined donations totaled $90,000. Those donations were critical in making this program a reality. Our appreciation for the assistance received in the development of this effort begins with these companies.

List of Contributors

ADM Grain Co., Kansas City  
Ag Valley Coop, Norton  
Alida Pearl Coop Assn., Chapman  
Andale Farmers Coop, Andale  
Bartlett Coop Assn., Bartlett  
Beaver Grain Corp., Beaver  
Cairo Coop Equity Exchange, Cairo  
Co-Mark Inc., Cheney  
Coop Grain & Supply, Bazine  
D.E. Bondurant Grain Co., Ness City  
DeBruce Grain Inc., Kansas City  
Ellsworth Coop, Ellsworth  
Farmers Coop Assn., Manhattan  
Elevator Co., Garden Plain  
Farmway Coop Inc., Beloit  
Fredonia Coop Assn., Fredonia  
Frielings Grain Co. Inc., Gaylord  
Garden City Coop Inc., Garden City  
Golden Valley Inc., Rozel  
KAMO Grain Inc., Pittsburg  
Kanza Coop Assn., Juka  
Lortscher Agri Service Inc., Bern  
Midland Marketing, Hays  
Midwest Ag Service, LLC, Seneca  
Minneola Coop Inc., Minneola  
Nemaha County Coop Assn., Seneca  
Palmer Grain Inc., Palmer  
ADM Milling, Dodge City  
Agco Inc., Russell  
Alma Coop Assn., Alma  
Anthony Farmers Coop, Anthony  
Beachner Grain Inc., Parsons  
Bunge North America, Emporia  
CCGP, Inc., Wichita  
Cereal Food Processors, Kansas City  
Coop Grain & Supply, Hillsboro  
Danville Coop Assn., Danville  
Delphos Coop Assn., Delphos  
Farmers Coop Assn., Columbus  
Farmers Coop Co., Haviland  
Farmers Coop Grain Co., Abbyville  
Fowler Equity Exch., Fowler  
Frisbie Construction, Gypsum  
Golden Belt Coop Assn. Inc., Ellis  
Jackson Farmers Inc., Holton  
Hartter Feed & Seed Inc., Sabetha  
Kanorado Coop Assn.Kanorado  
Kirk Grain Co., Scott City  
MGM Marketing, Inc., Kansas City  
Midway Coop Assn., Osborne  
Miller Elevator Inc., Miller  
Morrill Elevator Inc., Morrill  
OK Coop Grain Co., Kiowa  
Piqua Farmers Coop Assn., Piqua  
Ag Partners Coop Inc., Hiawatha  
AgMark LLC, Beloit  
Almena Agri Services, Almena  
Ashland Feed & Seed Co., Ashland  
Bartlett Grain Company, L.P., Kansas City  
Beattie Farmers Union Coop Assn., Beattie  
Central Plains Coop, Smith Center  
Cloud Co. Coop Elev. Assn., Concordia  
Cornerstone Ag LLC, Colby  
Dayhoff Elevator Inc., Osage City  
Elkhart Coop Equity Exch., Elkhart  
Emch Feed & Elevator Co. Inc., Madison  
Farmers Coop Elevator Assn., Morganville  
Farmers Coop Elevator Co., Nickerson  
Farmers Coop Grain Co., Caldwell  
Farmers Coop Equity, Isabel Farmers Coop  
Farmers Coop Grain Assn., Conway Springs  
Farmers Union Coop Business Assn., St. Marys  
Farmers Union Merc. & Shpg. Assn., Stockton  
Hooker Equity Exchange, Hooker OK  
LeRoy Coop Assn., LeRoy  
McCune Farmers Union Coop Assn., McCune  
McDougal-Sager & Snodgrass Grain Inc., Atwood  
Meade Coop Elevator & Supply Co., Meade  
Mid-Kansas Coop Assn., Moundridge  
North Central Kansas Coop Assn., Hope  
Offerle Coop Grain & Supply Co., Offerle

(continued on following page)
Special Recognition

The Kansas Fire & Rescue Training Institute appreciates the administration of the University of Kansas for the support they have given to this project. We also extend a special thanks and recognition to Frederick Pawlicki, Executive Director of KU Continuing Education. His leadership and support have enabled our success.

A special “tip of the hat” is given to Ed Morrison, Technical Rescue Program Manager and Mike Cook, Transportation and Training Coordinator. They worked together presenting the majority of the 103 courses and spent the better part of the last year traveling Kansas with this course. They were joined by many of the Institutes Associate Instructors. The instructor cadre deserves the primary thanks and credit for this program’s success.

The Fire & Rescue Training Institute staff provided support and assistance with this project. From A to Z, the staff worked hard to ensure the success of this program.

Resources

Throughout the development of this project, the Kansas Fire & Rescue Training Institute encountered many generous people and companies wanting to help bring this training to reality. The Institute staff and industry partners received multiple offers of donated equipment and reduced costs. This assistance reduced the substantial investment required to bring the program into operation and it is important to recognize those companies for their generous support. Companies donating equipment and materials for this program are listed below. Thank you for your generosity and assistance.


- **KC Supply** donated a Grain Rescue Cofferdam and provided discounts for other equipment used in this course.

- **Brock Grain Systems** donated grain bin metal siding for use in cutting station. Brock continues to donate siding for the course. Brock also granted permission for the classroom use of one of their videos.

- **Rex Beemer**, **Rural Fire Coordinator**, **Cimarron Fire Chief** built and donated a metal cutting bracket to hold grain bin sheet metal in the “cutting station” portion of the class.
**Financial Investments Review**

The Grain Engulfment Rescue Training course has represented a major investment of people, resources and finances. As mentioned earlier in this report the $90,000 donated by the grain industry partners provided the catalyst to bring this course into existence; however, the University of Kansas Continuing Education’s Kansas Fire & Rescue Training Institute has also invested a considerable amount in this effort. A brief summary of the costs for bringing the project through design, construction and implementation of the first year of training is listed below.

*Investment required creating Grain Rescue training course and building trailer*

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$90,000</td>
<td>Grain Industry Donation used for building the trailer.</td>
</tr>
<tr>
<td>$30,340</td>
<td>KF&amp;RTI share of trailer costs (total price for trailer was $120,340).</td>
</tr>
<tr>
<td>$19,660</td>
<td>KF&amp;RTI investment for tool &amp; equipment used in Grain Rescue training.</td>
</tr>
<tr>
<td>$140,000</td>
<td>Initial investment to put Grain Engulfment Training course in place</td>
</tr>
</tbody>
</table>

*Operating costs for 1st year of training deliveries*

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$43,310</td>
<td>Instructor wages</td>
</tr>
<tr>
<td>$36,180</td>
<td>Instructor travel/expenses</td>
</tr>
<tr>
<td>$18,000</td>
<td>Diesel Fuel (grain rescue course only)</td>
</tr>
<tr>
<td>$8,930</td>
<td>Trailer modifications &amp; repair</td>
</tr>
<tr>
<td>$1,677</td>
<td>Trailer tire replacement</td>
</tr>
<tr>
<td>$4,500</td>
<td>State Fair booth rental and expenses (2 Staff for 10 days)</td>
</tr>
<tr>
<td><strong>$112,597</strong></td>
<td>Total 1st year operating expenses</td>
</tr>
</tbody>
</table>

*$252,597  Total startup and 1st year expenses*

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$90,000</td>
<td>Donation from Grain Industry</td>
</tr>
<tr>
<td>$162,597</td>
<td>KU KF&amp;RTI budget expenditures</td>
</tr>
</tbody>
</table>

*Does not include full-time Manager wages.*
Where We Go From Here

The Institute made a commitment to give this project an “all out” effort in the first year. Our commitment to this program will remain intact in the years to come; however, budgetary constraints and time commitments will restrict our ability to continue the present level of effort. Given current funding, we must limit Grain Engulfment Rescue training to a maximum of 50 courses during the current fiscal year (July 2013 through June 2014). We have dedicated one full-time manager and most of a part-time coordinator’s time to this program over the last year. We simply cannot sustain the current level of activity for this course. We remain committed to the program and its continued success. We need to adjust the pace of delivery to match the available funds for this program. This adjustment will also allow the Program Manager and other staff time to dedicate to other element of the Technical Rescue Program.

To illustrate our successes, efforts and expenses, I have listed some facts from the last year below.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>842</td>
<td>Hours of instruction delivered</td>
</tr>
<tr>
<td>26,000</td>
<td>Miles traveled</td>
</tr>
<tr>
<td>4,500</td>
<td>Gallons of diesel fuel purchased</td>
</tr>
<tr>
<td>251</td>
<td>Cumulative number of instructors used</td>
</tr>
<tr>
<td>51</td>
<td>Instructors trained and qualified to teach course</td>
</tr>
</tbody>
</table>

18 courses are currently scheduled for FY 2014 and beyond. Requests continue to be accepted and honored. The Kansas Fire & Rescue Training Institute’s commitment to this course will continue well into the future.