North Carolina Department of Environment and Natural Resources
Division of Air Quality

Beverly Eaves Purdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

October 26, 2012

Deanne Grant
U.S. Environmental Protection Agency Region 4
Air, Pesticide & Toxics Management Division
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Dear Ms. Grant:

Per the 105 Grant Commitments, please accept the following North Carolina Chemical Accident Prevention Program end of year report for Federal Fiscal Year (FFY) 2012 (October 1, 2011 to September 30, 2012). The intent of this report is to highlight program implementation efforts and to establish a work plan for FFY 2013. If you have any questions, please feel free to contact me at mike.reid@ncdenr.gov or 919-707-8443.

Sincerely,

Michael W. Reid
112(r) Program Coordinator

Enclosure: End of Year Report for FFY 2012

cc: Sheila Holman
Lee Daniel
Lori Cherry
Sushma Masemore

Technical Services Section
1641 Mail Service Center, Raleigh, North Carolina 27699-1641
217 West Jones Street, Raleigh, NC 27603
Phone: 919-707-8407 / FAX 919-715-0718 / Internet: www.ncair.org

North Carolina
Department of Environment and Natural Resources
Division of Air Quality
Chemical Accident Prevention Program

End of Year Report for US EPA Federal Fiscal Year 2012

Introduction:

This annual report is a summary of activities of the North Carolina Chemical Accident Prevention Program for the United States Environmental Protection Agency's ("EPA") Federal Fiscal Year ("FFY") 2012 (October 1, 2011- September 30, 2012) and work plan for FFY 2013.

Background:

40 CFR Part 68 Chemical Accident Prevention Provisions is a federal regulation that has been incorporated into the North Carolina Division of Air Quality ("DAQ") regulation under 15A NCAC 2D. 2100, "Risk Management Program" to meet the requirements of the Clean Air Act ("CAA") Section 112(r). DAQ has been delegated implementation and enforcement authority for this regulation by the EPA.

Program Implementation:

The primary mission of the North Carolina Chemical Accident Prevention Program is to promote accidental chemical release prevention measures and reduce the impact of releases on the environment and public health through safety programs, emergency preparedness, and public access to information. In order to achieve this goal, the following objectives have been established:

1) **Program Coordination:** To coordinate chemical accident prevention activities with existing health and safety programs.
   a) Memorandum of Agreements ("MOA"): Agreements continue with partner agencies including the Division of Water Quality ("DWQ"), Environmental Heath ("DEH"), NC Occupational Safety and Health ("OSHNC"), Emergency Management ("DEM"), and Department of Agriculture ("NCDA&CS").
   b) 112(r) Task Force: In order to promote consistency among DAQ and its partner agencies, an internal work group continues to meet quarterly.
2) **Compliance Assistance:** To offer technical assistance to the regulated community, emergency response community, and interested members of the public.
   a) Technical Assistance: Continue to offer technical assistance through telephonic communication, email correspondence, and through a web portal.
   b) Emergency Response Coordination: Promoted awareness of the program along with SARA Title III to interested partners including local emergency planning committees ("LEPCs") and other emergency response conferences, associations, etc. For this reporting cycle, presentations was offered to twenty four (24) LEPCs and related conferences.

3) **Regulatory Review and Enforcement:** To promote effective chemical safety management programs through technical review of Risk Management Programs and summarized Risk Management Plans ("RMPs").

   a) Air Permitted Facility Inspections: As part of a comprehensive compliance inspection, DAQ inspectors assure that Title V facilities appropriately address Risk Management Program requirements as part of an air permit as required by §68.215(a). In addition, Risk Management Program requirements are also check for Synthetic Minor permitted facilities on an annual basis and Small permitted facilities on a biannual basis. For this reporting cycle:

      i) Three hundred one (301) Major (Title V) facilities were inspected

      ii) Six hundred thirty seven (637) Synthetic Minor facilities were inspected

      iii) One Thousand three hundred twenty eight (1328) Minor (Small) facilities were inspected

   b) Screening: By utilizing either EPA's Central Data Exchange or EPA provided compact discs, the RMP database is screened on a monthly basis for reporting inconsistencies including but not limited to failure to update accident histories, failure to update plans at least once every five years, and other updates and corrections as required by §68.190 and §68.195. For this reporting cycle:

      i) *§68.190 Updates*: The owner/operators for fifteen (15) RMPs failed to submit updates at least once every five years. The owner/operators for fourteen (14) RMP was contacted and informed of the update requirements. Forsyth County Office of Environmental Assistance and Protection was notified of the 15th facility under their jurisdiction.

      ii) *§68.195: Required Corrections*: Two chemical accidents were significant enough to require corrections to accident history information. The owner/operators for both facilities were notified of the required correction requirements to their RMPs within six months of the release.

         (1) Pilgrim's Pride facility (1000-0003-5669), updated appropriately

         (2) Smithfield Packing (1000-0002-2619), still within 6 months of the release

   c) Inspections: In order to evaluate compliance with 40 CFR Part 68, subject facilities are scheduled for routine inspection of their Risk Management Programs. Inspections consist of a documentation review of all program elements, employee interviews, and on-site inspection of regulated processes.

      EPA has established a national compliance monitoring goal, to inspect at least 5% of the total number of regulated facilities of which 25% of those inspections to take place at "high risk" facilities. In order to meet or exceed this goal, DAQ planned to inspect at least 20% of the total number of regulated facilities. Also, to either ensure that 20% of those inspections occur at "high risk" facilities or ensure that all "high risk" facilities are inspected at least once every five years. For this reporting cycle:

i) Of the two hundred forty (240) facilities under the jurisdiction of the program, forty eight (48) facilities were scheduled for inspection. Of those scheduled, thirty nine (39) facilities were inspected for a 16.2% inspection rate (see Figure 1).

ii) Of the thirty nine (39) facilities inspected, six (6) inspections occurred at EPA designated "high risk" facilities for a 15.3% inspection rate (see Figure 1).

RMP Inspections for FFY 2012

	RMP Facilities	20% Insp. Goal	Facilities Inspected	Inspections Left	% Complete
DAQ	180	36	39	-3	108.3%
DEH	37	7.4	0	7.4	0.0%
DWQ	21	4.2	0	4.2	0.0%
NCDA	2	0.4	0	0.4	0.0%
Total	240	48	39	9	81.3%

"High Risk" Facility Inspections

	High Risk	20% Insp Goal	Facilities Inspected
DAQ	22	4.4	6
DEH	0	0	0
DWQ	0	0	0
NCDA	0	0	0
Total	22	4.4	6

Figure 1: Inspection goals and completion rates for FFY 2012.

d) Incident Investigations: Investigations are initiated by DAQ whenever initial reports appear to involve or have the potential to involve a catastrophic release of a regulated substance. Depending on the scope of the event, investigations typically involve a determination of the cause of the incident as well as compliance with 40 CFR Part 68. For this reporting cycle, twenty eight (28) separate reported accidental chemical releases involved regulated substances were identified.

i) Six (6) accidental releases were determined to have occurred at facilities with less the threshold quantities of the regulated substance and therefore subject to the general duty clause. Since none of the reported releases appeared to meet the definition of a "catastrophic release", these releases were not investigated further.

ii) The remaining twenty two (22) accidental releases initially appeared to meet the definition of "accidental release" from a "stationary source". Of those accidental releases identified:

(1) Two (2) were forwarded to local programs for follow-up actions;

(2) Two (2) were later determined to not involve a "regulates substance";

(3) Sixteen (16) resulted in formal requests for a copy of the company representative's analysis of the reported incident as required by §68.60 or §68.81. Specifically, what actions were taken to prevent re-occurrence; and

(4) Two (2) appeared to be catastrophic releases and therefore resulted in incident investigations.

(a) On May 31st, 2012: Smithfield Packing, (EPA Facility ID: 1000-0002-2619) reported a release of 68 lbs of ammonia (anhydrous) that resulted in the evacuation of 350 employees, 8 of which were sent to area hospitals.

(b) On September 17th, 2012: Carolina Cold Storage (EPA Facility ID: 1000-0005-1935) reported its 5th ammonia (anhydrous) release in 2 years and second within one month.

e) Enforcement Actions: By utilizing the compliance tools mentioned above, regulated facilities may be assessed civil penalties when violations of 15A NCAC 2D.2100 occur. For this reporting cycle:

i) Thirteen (13) Notices of Deficiency ("NODs") were issued. NODs represent minor violations resulting in little or no harm to the environment or public health.

ii) Seven (7) Notices of Violations ("NOVs") were issued. NOVs represent more serious violations where there is documented moderate to severe potential for harm to the environment or public health.

iii) One (1) NOV resulted in the assessed of civil penalties. On September 26th, 2012: Smithfield Packing Company (EPA Facility ID: 1000-0002-2619) paid a civil penalty of $6,327.00 as a result of the accident investigation referenced above.

2) **Emergency Planning and Prevention:** To integrate program goals and objectives, key performance measures, and key benefits into a statewide chemical hazards mitigation strategy:

a) Regional Hazmat Studies: The purpose of these studies is to provide a cyclical process of analyzing community vulnerabilities to chemical hazards both on a local level and state-wide level. The results are used to support LEPCs and the North Carolina Emergency Response Commission ("NC SERC") to be better positioned to make informed decisions to address or reassess identified vulnerabilities. In order to focus resources, the study areas were separated into North Carolina Division of Emergency Management's regions known as Domestic Preparedness Regions ("DPRs").

For this reporting cycle, the assessment focused on DPRs 8 and 9 which consist of twenty five (25) counties across the western section of the state. Objectives of the study included the following:

i) To identify, map, and classify facilities that store large quantities of hazardous materials based on RMP, Tier II, and Toxic Release Inventory data;

ii) To anticipate areas of potential impact including those populations possibly affected by accidental chemical releases into the atmosphere;

iii) To identify major hazardous material transportation routes and corridors into and out of identified facilities;

iv) To review and recommend consistency in LEPC's emergency operation plans including updating contact information, identifying local response capabilities, establishing notification procedures, and prioritizing training and exercise needs; and

v) To support the State of North Carolina Technological Hazard Mitigation Plan by identify tangible mitigation options resulting in cost effective decisions that reduce or eliminate chemical hazards were possible.

b) Technical Hazards Mitigation Plan: Supported chemical accident mitigation strategies through planning, training, exercises, etc. For this reporting cycle participated in

meetings with LEPCs, NC SERC, regional response teams, Technical Hazards Meetings, and the State Bureau of Investigation's NC Information Sharing and Analysis Center.

c) NC Threat and Hazards Identification and Risk Assessment ("THIRA"): Utilized the information collected through the Regional Hazmat Studies to incorporate the chemical hazard mitigation plan into a comprehensive community based threat and risk assessment strategy.

3) **Trends Analysis for 2011:** In order to assess effectiveness, a set of performance indicators is used to evaluate success. These indicators include measuring reductions in community vulnerabilities, reductions in the number of facilities, and impacts from associated chemical accidents. For this reporting cycle:

a) Modeling: Using offsite consequence analysis (OCA) data, an assessment of possible offsite impacts for 2011 revealed a one year decrease in the total population within these hazard zones by approximately sixty thousand (61,491) residents or 2.08%. Over the last ten years, the overall trend is down by approximately one million two hundred thousand (1,225,998) residents or 28.01%. Using population estimates from the U.S. Census Bureau, the population within North Carolina over the same ten year time frame increased by approximately one million three hundred forty five thousand (1,345,138) or 15.13% (**See Figure 1**).

Change in NC Population within OCA(s)						
Year	NC Census	% Change in NC Population	Res. Population within OCA	% Change in Res. Population within OCA	Res. Pop. within Toxic OCA	Re. Pop. Within Flam. OCA
2002	8,311,263	-----	4,124,371	-----	4,121,092	3,279
2003	8,409,660	1.18%	3,936,082	-4.57%	3,930,303	5,779
2004	8,523,199	1.35%	4,869,952	23.73%	4,865,225	4,727
2005	8,661,061	1.62%	4,819,301	-1.04%	4,814,306	4,995
2006	8,845,343	2.13%	4,865,795	0.96%	4,860,262	5,533
2007	9,041,594	2.22%	3,980,524	-18.19%	3,975,014	5,510
2008	9,222,414	2.00%	3,769,569	-5.30%	3,763,943	5,626
2009	9,380,884	1.72%	2,966,424	-21.31%	2,961,232	5,192
2010	9,535,483	1.65%	2,959,864	-0.22%	2,954,307	5,557
2011	9,656,401	1.27%	2,898,373	-2.08%	2,891,747	6,626
* Total Change:	1,345,138	15.13%	-1,225,998	-28.01%	-1,229,345	3,347

* Note: 2002 was used as reference year.

Figure 1: At risk population change within OCAs. Note: in order to limit results to one decade, 2002 used as the reference year.

b) Facilities: An assessment in the total number of regulated facilities reported to have current RMPs in North Carolina for 2011 revealed a one year decrease of four (4) facilities and five (5) regulated processes. Over the last ten years, the overall trend is down by fifty one (51) facilities or 17.6% and by seventy four (74) regulated processes or 20.7%. During the same ten year time period, the total quantity of regulated substances reported in RMPs continues to show an increased trend in total quantities by approximately ninety million seven hundred thousand pounds (90,736,051 lbs) or an increase of 151.2%. It's important to note that the total quantity of regulated substances on the "Toxics" list appear to be relatively unchanged over the course of the last ten years

while the regulated substances on the "Flammable" list has increased by almost 7 fold (**See Figure 2**). This increase in flammable substances is mostly due to an increase in the bulk storage of flammable fuels such as propane and butane.

RMP Regulated Facility Data								
Year	Facilities	% change in facilities	Processes	% change in processes	Total Quantity of EHS (lbs)	% change in Regulated Substances	Toxic EHS (lbs)	Flammable EHS (lbs)
2002	309	-----	388	-----	51,342,011	-----	34,780,317	16,561,694
2003	301	-2.6%	380	-2.1%	53,043,496	3.3%	36,082,728	16,960,768
2004	286	-5.0%	357	-6.1%	60,999,021	15.0%	44,462,210	16,536,811
2005	275	-3.8%	347	-2.8%	61,106,906	0.2%	44,072,935	17,033,971
2006	282	2.5%	348	0.3%	55,765,984	-8.7%	43,903,288	11,862,696
2007	280	-0.7%	343	-1.4%	128,626,426	130.7%	41,883,026	86,743,400
2008	279	-0.4%	342	-0.3%	131,537,988	2.3%	41,966,608	89,571,380
2009	263	-5.7%	322	-5.8%	126,013,917	-4.2%	37,885,155	88,128,762
2010	262	-0.4%	319	-0.9%	125,688,294	-0.3%	37,698,623	87,989,671
2011	258	-1.5%	314	-1.6%	142,078,062	13.0%	38,499,105	103,578,957
Total Change	-51	-17.6%	-74	-20.7%	90,736,051	151.2%	3,718,788	87,017,263

* Note: 2002 was used as reference year.

Figure 2: Change in total regulated facilities by year for last ten years. Note: in order to limit results to one decade, 2002 used as the reference year.

c) Accidental Releases: An assessment of chemical accident history data reported in the RMP*eSubmit program revealed that there were 6 reported significant releases in 2011. These releases resulted in 1 employee injury, an estimated evacuation of three hundred five (305) residents, and over five million dollars ($5,100,000) in on-site property damage (**See Figure 3**). Of the six releases, all involved anhydrous ammonia. With the exception of one, all involve ammonia refrigeration systems. Also, equipment failure was the most common reported cause followed by human error.

Year	Accidents	Fatalities	Injuries	Evacuations/SIP	Property Damage
2002	11	0	7	26	$251,500
2003	1	0	0	0	$0
2004	6	0	24	100	$203,000
2005	7	0	4	2	$3,201
2006	9	0	5	0	$6,000
2007	5	0	2	0	$500
2008	3	0	1	0	$0
2009	7	5	91	0	$50,000,000
2010	0	0	0	0	$0
2011	6	0	1	305	$5,100,000
Totals	138	5	201	739	$50,984,579

Figure 3: Total reports by year of "catastrophic releases" resulting in or with the potential to result in injuries, fatalities, evacuations/ shelter in place, or significant property damage.

4) **Work Plan for FFY 2013:** In order to focus on key priorities, it is important to identify techniques that are effective in the prevention of accidental chemical releases of regulated substances and the reduction in the severity of those releases that do occur. For FFY 2013 priorities include:

   a) Program Coordination: To continue building partnerships with existing health and safety programs by:

      i) Providing technical support to DEH and DWQ to assist with the inspection of water and wastewater treatment plants;

      ii) Continuing to collaborate with DEM with chemical hazard mitigation planning;

      iii) Continuing to collaborate with OSHNC with accident investigations;

      iv) Continuing to collaborate with NCDA&CS, with safety inspections of LP-Gas installations and anhydrous ammonia installations (agricultural applications).

   b) Compliance Assistance: To promote the mission of the program by:

      i) Continuing to offer technical assistance through telephonic and email communication and through the web portal.

      ii) Working with at least one LEPCs, NC SERC, or other related association per month;

      iii) Fostering collaboration with industry representatives through on site consultation and the development of a training forum.

   c) Regulatory Review and Enforcement: To continue to promote effective chemical safety management programs through technical review of Risk Management Programs and RMPs by:

      i) Continuing to assure that air permitted facility representatives address RMP implementation as part of their air permit;

      ii) Identifying and conducting technical assistance to owners/operators of facilities that are at risk of failing to update their RMPs at least once every five years as well as other updates required by §68.190 and §68.195;

      iii) Inspecting all regulated facilities at least once every five years with emphases focused on EPA designated "high risk" facilities; and

      iv) Investigating reports of chemical accidents involving regulated substances.

   d) Emergency Response Planning: To continue to integrate program goals and objectives, key performance measures, and key benefits into a statewide chemical hazards mitigation strategy by:

      i) Partnering with at least one interested industry or public entity per quarter to reduce or eliminate chemical hazards where possible.

      ii) Completing the first round of regional hazardous materials studies by 2014. For 2013, complete the 5th study (DPR 5 & 7) by September 2013.

   e) Trends Analysis: To continue to measure effectiveness of the program through identified performance indicators such as reductions in community vulnerabilities to releases of regulated substances, number of subject facilities, and impacts from associated chemical accidents.