

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

112(r) End-of-Year Report for Federal Fiscal Year 2014

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**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) 2014 (October 1, 2013 - September 30, 2014) and work plan for FFY 2015. This report is required by FFY 2014 Section 105 Grant Commitment Item # 8 titled "Implement the CAA section 112(r) program for affected sources" for the Region 4 – [Air Planning Agreement's](#) Monitoring and Enforcement Section.

**Background:**

[40 CFR Part 68](#) "Chemical Accident Prevention Provisions" is a federal regulation designed to meet the chemical accident prevention requirements within Section 112(r) of the 1990 Clean Air Act Amendment ([CAAA](#)). In North Carolina, EPA delegated implementation and enforcement authority for 40 CFR Part 68 to the North Carolina Division of Air Quality (DAQ). DAQ incorporated 40 CFR Part 68 by reference into State rules under [15A NCAC 2D. 2100](#), "Risk Management Program."

**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 that do occur 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) **Strategic Planning:** To coordinate chemical accident prevention activities with existing health and safety programs.
  - a) **Memorandum of Agreements (MOA):** Agreements continue with partner agencies including the Divisions of Water Quality (DWQ), Environmental Health (DEH), and Division of Emergency Management (DEM) and the NC Occupational Safety and Health (OSHNC), and Department of Agriculture (NCDA).
  - b) **112(r) Task Force:** In order to promote consistency among DAQ's seven regional offices and its partner agencies, an internal work group meets quarterly. For this reporting cycle Task Force meetings were held on October-13, January-14, April-14, and July-14.
- 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 [112\(r\) web portal](#).

- b) **Risk Management Plan (RMP) Screening:** By utilizing industry submitted RMPs as mandated by [§68.190](#), EPA's [Central Data Exchange](#) was utilized to screen data on a regular basis for reporting inconsistencies including but not limited to failure to update plans, new stationary sources, deregistered stationary sources, errors in RMP submissions, and other required updates. For this reporting cycle:
- i) *Five year resubmission deadline:* One hundred thirty one (131) stationary sources (facilities) were due to update their RMPs within the FFY. Of those, all were telephonically contacted and reminded of their pending update requirements. With the exception of one (1), all identified owner/operators have updated their RMPs. At the time of this report, DAQ is working with the owner/operator of the remaining facility to get their RMP updated as required.
  - ii) *New stationary sources:* Three (3) new facilities submitted RMPs for the reporting period. Of those, one was inspected and the other two are on schedule for inspection in FFY 2015.
  - iii) *Deregistered stationary sources:* Eleven (11) owner/operators submitted deregistration requests to the [RMP Reporting Center](#). Of those, 4 reported reductions in inventories to below threshold quantity, 3 reported that they terminated operations, 2 reported that they no longer use the regulated substance, and the remaining 2 cited "other."
  - iv) *RMP submission errors:* A total of 50 reported errors in RMP submissions have been identified. It is anticipated that these reported errors will be a point of emphasis through the next FFY.
- 3) **Regulatory Review and Enforcement:** To inspect subject stationary sources to determine compliance with 40 CFR Part 68.
- a) **Air Permitted Facility Inspections:** In Title V of the CAAA, section [502\(b\)\(5\)\(A\)](#), Congress mandated that a permitting authority must have the authority to "assure compliance by all sources required to have a permit under this title with each applicable standard, regulation or requirement under this act." 40 CFR Part 68 is an "applicable requirement." In general, the permitting authority must ensure that permits include conditions relative to 40 CFR Part 68. In addition, DAQ has opted to include 112(r) compliance statements in all air permits to include Synthetic Minor and Minor facility permits. For this reporting cycle:
    - i) *Title V facilities:* 40 CFR Part 68 was addressed as an applicable requirement in Three hundred six (306) title V facility inspections;
    - ii) *Synthetic Minor facilities:* 40 CFR Part 68 was addressed as an applicable requirement in six hundred twelve (612) Synthetic Minor facility inspections; and
    - iii) *Minor facilities:* 40 CFR Part 68 was addressed as an applicable requirement in one thousand three hundred twenty eight (1328) Minor facility inspections.
  - b) **RMP Inspections:** In order to evaluate compliance with 40 CFR Part 68, subject stationary sources are scheduled for routine inspections of their risk management program. Inspections consist of a records review of all program elements, employee interviews, and on-site inspection of regulated processes.

For the reporting cycle, EPA established a national compliance monitoring goal to inspect at least 5% of the total number of stationary sources, of which 25% of those inspections to take place at “High Risk” stationary sources. In order to meet and exceed this goal, DAQ planned to inspect at least 20% of the total number of stationary sources per year; furthermore, to either ensure that 20% of those inspections occur at “High Risk” stationary sources or ensure that all “High Risk” stationary sources are inspected at least once every five years. For this reporting cycle:

- i) *Total inspections:* Of the two hundred twenty one (221) stationary sources under the jurisdiction of the program, forty four (44) stationary sources were scheduled for inspection. Of those scheduled, fifty five (55) stationary sources were inspected for a 124% inspection rate (see **Figure 1**).
- ii) *“High Risk” facility inspections:* For the reporting cycle, EPA identified twenty six (26) subject stationary sources as “High Risk.” In order to meet inspection commitments, five (5) “High Risk” stationary sources were scheduled for inspection. Of those scheduled all five (5) were inspected for a 100% inspection rate (see **Figure 1**).

RMP Inspections					"High Risk" Facility Inspections				
	RMP Facilities	20% Insp. Goal	Facilities Inspected	Percent Completed		High Risk	20% Insp. Goal	Facilities Inspected	Percent complete
DAQ	170	34	52	153%	DAQ	26	5	5	100%
DEH	34	7	3	44%	DEH	0	N/A	N/A	N/A
DWQ	15	3	0	0%	DWQ	0	N/A	N/A	N/A
NCDA	2	0	0	0%	NCDA	0	N/A	N/A	N/A
Total	221	44	55	124%	Total	26	5	5	100%

**Figure 1:** RMP Facility Inspection Goals

- c) Incident Investigations: Investigations into accidental chemical releases are initiated by DAQ whenever initial reports appear to involve or have the potential to involve a [catastrophic release](#) of a [regulated substance](#) at a fixed facility. Investigations typically involve a determination of the cause of the incident as well as compliance with 40 CFR Part 68. For this reporting cycle, ten (10) accidental chemical releases involving regulated substances at fixed stationary sources were identified (See **Figure 2**). Of the incidents:
  - i) *General duty:* Two (2) incidents were determined to have occurred at stationary sources with less than threshold quantities of the regulated substance and therefore only subject to the [general duty clause](#) as mandated by the Clean Air Act Section 112(r)(1). Since one (1) of the reported releases appeared to meet the definition of a catastrophic release, an on-site investigation was conducted.
  - ii) *RMP stationary sources:* Eight (8) incidents were determined to have occurred at stationary sources subject to 40 CFR Part 68. Of those incidents identified, all were registered RMP stationary sources. Since one (1) of the incidents appeared to meet the definition of a “catastrophic release,” an on-site investigation was conducted.

The remaining seven (7) investigations were limited to written requests for company investigation reports as mandated by [§68.60](#) or [§68.81](#).

Reported Chemical		Impacts?	
Anhydrous Ammonia	9	Catastrophic Releases (events)	2
Propane	1	On-Site Evacuations (employees)	2060
<b>Total</b>	<b>10</b>	On-Site Injuries (employees)	9
		On-Site Fatalities (employees)	0
Investigation Results		Off-Site Evacuations (events)	4
RMP Facility	8	Off-Site Injuries (residence)	0
General Duty	2	Off-Site Fatalities (residence)	0
<b>Total</b>	<b>10</b>		

**Figure 2:** Reported Chemical Accidents of Regulated Substances at Fixed Stationary Sources in NC for FFY 2014

- d) **Enforcement Actions:** By utilizing the compliance tools mentioned in sections 3a - 3c above, regulated stationary sources may be assessed civil penalties when violations of [15A NCAC 2D .2100](#) occur.
- i) *Recommendations for Improvement:* Of the fifty five (55) inspections, seven (7) inspections resulted in nineteen (19) separate recommendations for improvement.
  - ii) *Notice of Violation/ Notice of Recommendation for Enforcement (NOV/NRE):* Of the fifty five (55) inspections, one (1) inspection resulted in five (5) separate violations. NOV/NREs represent significant or high potential for environmental or public health harm. The NOV/NRE resulted in the assessment of a civil penalty totaling \$7,118.
- 4) **Emergency Response Planning:** Stationary sources subject to 40 CFR Part 68 must coordinate emergency response plans with emergency responders as mandated by [Subpart E – Emergency Response](#). In order to promote this collaborative effort, DAQ has partnered with the North Carolina Division of Emergency Management (DEM). For this reporting cycle, the DEM reported the following:
- a) *Outreach - Promote program awareness:*
    - i) Participated in 5 Local Emergency Planning Committee (LEPC) meetings (Guildford, New Hanover, Johnston, Cumberland, Burke, and Wake county LEPCs);
    - ii) Provided program updates to quarterly meetings of the North Carolina Emergency Response Commission (NCSERC); and
    - iii) Provided on-site emergency planning assistance to 3 owner/operators of RMP regulated stationary sources.
  - b) *Associations/conferences:*
    - i) Promote RMP awareness to the North Carolina Emergency Management Association Conference;
    - ii) Attend EPA RMP Program Level 2 and 3 webinar series; and

- iii) Attend the NASTTPO Conference in New Orleans.
  - c) *HazMat Vulnerability Assessment*: Utilizing information collected during the (2009-2013) statewide hazardous materials study, three counties (Cumberland, Johnston, and New Hanover) were identified to assess community level vulnerabilities and establish priorities for further chemical hazard mitigation activities.
- 5) **RMP Trends Analysis**: In order to assess effectiveness, a set of performance indicators was used to evaluate success of the program. Since it is not possible to prove how many accidents were prevented, performance indicators were limited to measuring reductions in potential impacts. These indicators include measuring reductions in community vulnerabilities, reductions in the number of subject stationary sources, and reductions in real impacts from associated chemical accidents. For this reporting cycle:
- a) **Modeling**: Using offsite consequence analysis ([OCA](#)) data, an assessment of possible offsite impacts for 2013 revealed an increase in the total population within these hazard zones by approximately thirty seven thousand five hundred (37,585) people or 1.31% increase. Over the last ten years, there is an overall downward trend in the population identified within these hazard zones by approximately one million nine hundred sixty three thousand (1,963,403) or a 46.88% decrease. Using population estimates from the U.S. Census Bureau, the population within North Carolina over the same ten year time frame is estimated to have increased by approximately one million three hundred twenty four thousand (1,324,861) or 14.57% increase (**See Figure 4**).

Change in NC Population within OCA(s)						
Calendar Year	NC Census	% Change in NC Population	Population within Hazard Zones	% Change in Population within OCA	Population within Toxic OCA	Population Within Flammable OCA
2004	8,523,199	----	4,869,952	----	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
2012	9,752,073	0.99%	2,868,964	-1.01%	2,862,422	6,542
2013	9,848,060	0.98%	2,906,549	1.31%	2,898,792	7,757
<b>* Total Change:</b>	1,324,861	14.57%	-1,963,403	-46.88%	-1,966,433	3,030

\* Note: 2004 was used as reference year.

**Figure 4:** Change in at Risk Population by Year

- b) **Stationary Sources**: An assessment of the number of regulated stationary sources reported to have current RMPs in North Carolina decreased by two (2) stationary sources and three (3) regulated processes from the previous year. Over the last ten years, the overall trend of stationary sources is down by forty two (42) stationary sources or a decrease of 15.5% and by fifty five (55) regulated processes or a decrease of 16.4%. 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 one hundred four thousand pounds (104,336,045 lbs.) or an increase of 149.1%. 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 approximately 5 fold (See Figure 5). This increase in flammable substances is mostly attributed to an increase in the bulk storage of flammable fuels such as propane and butane.

RMP Regulated Facility Data								
Calendar Year	Facilities	% Change in Facilities	Processes	% Change in Processes	Quantity of RS (lbs.)	% Change in RS	Toxic RS (lbs.)	Flammable RS (lbs.)
2004	286	-----	357	-----	60,999,021	-----	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
2012	246	-4.7%	305	-2.9%	143,683,275	1.1%	40,604,318	103,078,957
2013	244	-0.8%	302	-1.0%	165,335,066	15.1%	58,627,549	106,707,517
<b>Total Change</b>	<b>-42</b>	<b>-15.5%</b>	<b>-55</b>	<b>-16.4%</b>	<b>104,336,045</b>	<b>149.1%</b>	<b>14,165,339</b>	<b>90,170,706</b>

Note: 2004 was used as a reference year

**Figure 5:** Change in Total Regulated Stationary Sources by Year for Last Ten Years

- c) Accidental Releases: An assessment of chemical accident history data reported under section §68.195 revealed that there were 2 reported significant releases in 2013. These releases resulted in 1 employee injury and \$700 in property damage (See Figure 6). Of all 48 reported releases, equipment failure was identified as the most common cause of the accidental release (68%) followed by human error (29%).

Calendar Year	Accidents	Fatalities	Injuries	Evacuations /SIP	Property Damage
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
2012	3	0	9	0	\$0
2013	2	0	1	0	\$700
<b>Totals</b>	<b>48</b>	<b>5</b>	<b>138</b>	<b>407</b>	<b>\$55,313,401</b>

**Figure 6:** Yearly Summary of Reported Accidental Releases from Covered Processes as Required by §68.195.

- 6) **Work Plan for FFY 2015:** 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 2015 priorities include:
- a) **Strategic Planning:** To continue building partnerships with existing health and safety programs by:
    - i) *DEH:* To review and update existing MOA with DEH to assist with the inspections of water treatment plants;
    - ii) *DWR:* To review and update existing MOA with DWR to assist with the inspections of wastewater treatment plants;
    - iii) *DEM:* Continuing to promote chemical hazard mitigation planning;
    - iv) *OSHNC:* Continuing to collaborate with accident investigations; and
    - v) *NCDA:* Continuing to collaborate with the inspections of LP-Gas installations.
  - b) **Compliance Assistance:** To promote the mission of the program by:
    - i) *Technical Assistance:* Continue to offer technical assistance through telephonic and email communication and through the web portal;
    - ii) *RMP Screening:* Provide direct technical assistance to owners/operators of stationary sources that have data errors or are at risk of failing to update their RMPs at least once every five years as well as other updates required by §68.190;
  - c) **Regulatory Review and Enforcement:** To continue to promote effective chemical risk management programs through:
    - i) *Air Permitted facilities:* Continue to assure that air permitted facility representatives address RMP implementation as part of their air permit;
    - ii) *RMP Inspections:* To inspect at least 20% of all regulated facilities and at least 40% of EPA designated “High Risk” facilities annually. Also, ensure that all RMP regulated facilities are inspected at least once every five years.
    - iii) *Investigate Incidents:* Investigate reports of chemical accidents involving regulated substances; and
    - iv) *Enforcement Actions:* To utilize enforcement authority when violations occur.
  - d) **Emergency Response Planning:** To plan for handling accidental chemical releases.
    - i) *Emergency Planning:* Continue to work with LEPCs, SERC, or other related associations; and
    - ii) *Industry Outreach:* Collaborate with industry representatives through on-site consultation and emergency planning as mandated by Subpart E to 40 CFR Part 68.
    - iii) *North Carolina Chemical Hazard Mitigation Plan:* Continue to support efforts to assess the risk of chemical hazards in North Carolina as part of the Federal

Emergency Management Agency's (FEMA) Threat and Hazard Identification and Risk Assessment ([THIRA](#)) process.

- 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.