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MAR 29 2019

PUBLIC SERVICE
COMMISSION

March 29, 2019

Ms. Gwen Pinson
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
P. O. Box 615
Frankfort, KY 40602

Dear Ms. Pinson,

Pursuant to the Commission's Order of February 26, 2001 in Case No. 2000-429, Columbia Gas of Kentucky, Inc. hereby files its annual report for the Statistical Meter Testing Plan. An original and three copies are enclosed.

If you have any questions, please contact me at (859) 288-0242 or jmcoop@nisource.com. Thank you.

Sincerely,



Judy M. Cooper
Director, Regulatory Policy

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MAR 29 2019

PUBLIC SERVICE
COMMISSION



Columbia Gas of Kentucky, Inc.

2019

Meter Sampling Annual Report, for program year 2018

Columbia Gas of Kentucky, Inc.
A NiSource Company
P.O. Box 14241
2001 Mercer Road
Lexington, KY 40512-4241

March 2019

COLUMBIA GAS OF KENTUCKY INC.

2018 METER SAMPLING ANNUAL REPORT

Columbia Gas of Kentucky completed the twenty-second year of their Meter Sampling program in December 2018.

A total of 4849 meters making up 35 homogenous groups were sampled in 2018. Details are listed in the Evaluation of Data and Corrective Actions below.

In 2018 Columbia Gas of Kentucky service personnel made 41,589 visits to our customers' premises working orders that involved inspecting house lines and / or appliances. Columbia inspected 45,731 meter set assemblies in conjunction with the Customer Service Line Survey program.

No regulator failure in 2018 resulted in overpressure being delivered to the customer's piping.

Columbia continues to promote safety through:

News Media Outreach

- 8/10/18 -- Call Before You Dig news release to all media in CKY service area

Bills & Bill Inserts

- Monthly -- "For Your Safety & Comfort" insert and "Scratch-n-Sniff" insert are sent to new customers and includes information about maintenance of customer-owned buried gas lines and Kentucky 811.
- 1/18 -- Notice of Buried Gas Lines insert sent to all customers. (Also sent to new customers throughout the year.)
- 1/18 -- "For Your Safety & Comfort" insert sent to all residential and small commercial customers. Includes information about carbon monoxide poisoning prevention and heating equipment maintenance.
- 2/18 -- "Your Service" customer newsletter included article about winter preparation and keeping meters clear of snow and ice.

- 5/18 -- "Your Service" customer newsletter included article about Call 811 Before You Dig and upgrades to pipeline infrastructure.*
- 7/18 – Important Notice insert regarding 811/Call Before You Dig enforcement sent to all customers.
- 8/18 -- "Your Service" customer newsletter included articles about Call Before You Dig enforcement and keeping clear access to meters.*
- 11/18 -- "Your Service" customer newsletter included articles about odor recognition & response, carbon monoxide, smoke alarms, and keeping flammable materials away from natural gas appliances.*
- Left column of monthly bill for residential and small commercial customers includes bill messages regarding odor recognition/response, call before you dig and employee identification.
- Billing envelope (back flap) has Call 811 Before You Dig message.

*Email version of newsletter sent to customers for whom we have email addresses.

Website

- Safety tips (English & Spanish)
- Kentucky 811 information and link
- Contact Us form where customers can email safety-related and other questions to CKY staff
- News releases/featured safety items on home page

Electronic Communications/Social Media/Printed Material

- Extensive use of company Facebook and Twitter pages to communicate a variety of safety messages, including 811, odor recognition/response, winter safety, appliance safety, carbon monoxide poisoning prevention, etc.
- 11/18 – “What’s That Smell” letter (English/Spanish) with scratch-n-sniff insert mailed to all e-Bill customers.

Community Outreach

- 3/22/18 – Booth at Home Depot in Lexington during Contractor Appreciation Day to promote 811 among excavators
- 4/26/18 – Booth at Thursday Night Live in Lexington to promote 811
- 8/11/18 – Booth at KET Super Saturday to promote 811
- 8/22/18 and 8/25/18 – Booth at Walk to End Alzheimer’s in Lexington and Ashland to promote 811
- 9/8/18 – Booth at Lexington Roots & Heritage Festival to promote diverse recruiting and 811
- 9/15/18 – Booth at Latino Festival to promote diverse recruiting and 811
- 9/23/18 – Participated in Touch A Truck to promote 811
- 11/4/18 -- VA5K event held in Lexington raised money for veterans programs while promoting 811.
- Flyers provided to employees to use when discussing 811 with friends, neighbors.

- **Customer letters and door hangers associated with large pipeline replacement projects include information about odor recognition/response.**
- **Job site media interviews usually include messaging about Call Before You Dig; odor recognition/response.**
- **English/Spanish pipeline safety brochure distributed at public events.**
- **Natural gas safety education materials provided to teachers upon request through the National Energy Foundation.**
- **811 logo added to Prichard Committee for Academic Excellence newsletter and LFUCG Councilwoman Bledsoe's constituent newsletter.**

Advertising

- **TV campaign/weather sponsorship on WLEX (6am and 6pm broadcasts) from January through March 2018.**
- **Commercial and public radio 811 message placement throughout 2018 in Lexington and Ashland media markets.**
- **811 and odor recognition and response messages placed in UK football and basketball post-game radio shows.**
- **Call 811 Before You Dig billboards located at Lexington Legends baseball park and on I-75N near the Madison-Fayette County line. Billboard in Lexington April-June; billboard in Ashland April-May.**
- **Search Engine Marketing (SEM) campaign regarding cross bores January-June 2018.**
- **Print ads in La Voz Hispanic newspaper April & May.**

Excavator/Emergency Responder Training/Outreach

- **Sponsored natural gas safety training sessions for excavators and emergency responders January 23-March 8 in Mt. Sterling, Hazard, Grayson, Prestonsburg, Pikeville, Berea, Ashland, and Lexington.**
- **Conducted natural gas fire training (presentation & hands on) for Fire Commission at Ashland Fire Department on 4/11/18, 4/13/18, and 4/18/18 and for Maysville Fire Department 8/22-24/18.**
- **Conducted emergency exercise in Ashland on 9/25/18.**
- **12/18 -- Letter from Field Operations Leaders to public officials regarding 811 and railroad derailment procedures.**

Evaluation of Data

- **A total of 4620 domestic meters making up 31 homogenous Control Groups were sampled in 2018.**
- **Of the 4620 meters sampled 357 tested outside the required accuracy of +/- 2% and were classified a failed meter.**
- **7.4% of the domestic meters pulled for meter sampling failed.**
- **26 of the 31 homogenous Control Groups passed the requirements of American National Standards Institute / American Society for Quality Control Z 1.4.**
- **A total of 226 Large Volume meters making up 4 homogenous Control Groups were sampled in 2018.**
- **Of the 226 Large Volume meters sampled, 13 tested outside the required accuracy of +/- 2% and were classified a failed meter.**
- **5.7% of Columbia Gas of Kentucky's Large Volume meters failed.**
- **All 4 Large Volume homogenous Control Groups passed the requirements of American National Standards Institute / American Society for Quality Control Z 1.4.**

Failed Family

- **Columbia Gas was able to identify specific shipments of meters in the Rockwell family NRO01, NR02, RR02, RR04, American families NAM03, NAM08, and NAM09 that tested extremely poor causing the Failed Families. Columbia has created sub-families consisting of the remaining 3377 meters for 2019 and will remove these poor performing meter by the end of 2019.**

Corrective Action

- Columbia Gas of Kentucky will continue to in-test and retire, when pulled from service, meters that have established a poor performance record even though their group has not failed. In previous filings we have listed individual meters that are retired due to poor performance. We are now in-testing and retiring all meters that are not temperature compensated. This eliminates poor performing meters from being re-installed.

Regulator Failures

- Columbia Gas of Kentucky had 36 regulator failures in 2018. Due to full internal relief of the regulator, none resulted in an overpressure situation for the customer.
- 24 regulators had gas leakage from the vent.
- 6 regulators would not adjust or lock up correctly.
- 6 regulators were leaking from fittings

Should you have any questions, contact Timothy McKune at (859) 288-0241.



Timothy McKune
Compliance Manager
Columbia Gas of Kentucky

EXHIBIT A

IDENTIFICATION OF EACH CONTROL GROUP
OR METER FAMILIES

A five-character number identifies each Control Group or Family. 1-2-3-4-5

1 Identifies if Control Group or Family is new or repaired meters

N = New

R = Repaired

2-3 Identifies Meter Manufacturer

AM = American

RO = Rockwell

LA = Lancaster

SP = Sprague

4-5 Identifies the age of the Group or Family

Example – Identifier RAM01 indicates a Repaired American Meter. The 01 represents the oldest group of repaired American meters. A detail of the age of each group is found in Exhibit D & E.

Large Volume meters 500 – 1500 CFH follow the same format with a “B” in front of the identifier.

EXHIBIT B

**2018 COLUMBIA GAS OF KENTUCKY DOMESTIC
METER SAMPLING TEST RESULTS**

**Page 1 & 2 of Exhibit B gives a summary of each Domestic (0 – 500 CFH) Family.
Listed on page 1 & 2 of exhibit are:**

- 1. Name of the Family Codes**
- 2. Total number of meters in that family on the customer's premises**
- 3. Total number of meters in that family required to be sampled**
- 4. Total number of meters sampled**
- 5. Total number of meters in-testing outside the required +/- 2%**
- 6. Total number of meters allowed to fail**
- 7. Passed/Failed Status of Meter Family**
- 8. Percentage of meters failed per Family**
- 9. Number of meters failed fast**
- 10. Number of meters failed slow**

**Page 3 of Exhibit B identifies in graph form the percentages of meters within
tolerance over several years. This is a combined listing of all domestic meter groups.**

2018 COLUMBIA GAS OF KENTUCKY METER SAMPLING RESULTS

Samples taken between 2018-01-01 and 2018-12-31

"A" Class Meters 0-500 CFH

FAMILY CODES	TOTAL MTRS. IN FAMILY (a)	TOTAL MTRS REQ'D IN PROGRAM (b)	TOTAL SAMPLED (c)	TOTAL FAILED METERS (d)	TOTAL REJECTS ALLOWABLE (e)	2018 FAMILY STATUS (f)	RATIO FAILED (d/c=g)	NUMBER FAILED FAST (h)	NUMBER FAILED SLOW (i)
NAM01	794	80	87	3	10	PASSED	3.4%	2	1
NAM02	2726	125	125	2	14	PASSED	1.6%	0	2
NAM03	2033	125	131	26	14	FAILED	19.8%	2	24
NAM04	1354	125	126	14	14	PASSED	11.1%	1	13
NAM05	166	32	32	5	5	PASSED	15.6%	0	5
NAM06	3781	200	201	5	21	PASSED	2.5%	4	1
NAM06A	3923	200	200	8	21	PASSED	4.0%	8	0
NAM07	2071	125	126	12	14	PASSED	9.5%	11	1
NAM08	4692	200	203	32	21	FAILED	15.8%	31	1
NAM09	2343	125	128	17	14	FAILED	13.3%	16	1
NAM10	6921	200	202	4	21	PASSED	2.0%	4	0
NAM11	8919	200	206	11	21	PASSED	5.3%	10	1
NAM12	6483	200	200	3	21	PASSED	1.5%	1	2
NAM13	7187	200	205	1	21	PASSED	0.5%	1	0
KYNIT01	1100	80	80	0	10	PASSED	0.0%	0	0

NLA01	413	50	50	3	7	PASSED	6.0%	1	2
NLA02	3179	125	132	3	14	PASSED	2.3%	2	1
NRO01	2763	125	132	19	14	FAILED	14.4%	6	13
NRO02	5098	200	205	24	21	FAILED	11.7%	24	0
NSP01	32	8	8	0	1	PASSED	0.0%	0	0

Samples taken between 2018-01-01 and 2018-12-31
"A" Class Meters 0-500 CFH

<u>FAMILY CODES</u>	<u>TOTAL MTRS. IN FAMILY</u> (a)	<u>TOTAL MTRS REQ'D IN PROGRAM</u> (b)	<u>TOTAL SAMPLED</u> (c)	<u>TOTAL FAILED METERS</u> (d)	<u>TOTAL REJECTS ALLOWABLE</u> (e)	<u>2017 FAMILY STATUS</u> (f)	<u>RATIO FAILED</u> (d/c=g)	<u>NUMBER FAILED FAST</u> (h)	<u>NUMBER FAILED SLOW</u> (i)
RAM03	587	80	81	5	10	PASSED	6.2%	1	4
RAM04	5777	200	202	21	21	PASSED	10.4%	7	14
RAM05	9415	200	203	11	21	PASSED	5.4%	2	9
RAM06	7287	200	201	14	21	PASSED	7.0%	4	10
RAM07	3949	200	209	15	21	PASSED	7.2%	1	14
RLA03	2037	125	131	3	14	PASSED	2.3%	1	2
RRO01	2116	125	126	14	14	PASSED	11.1%	5	9
RRO02	2242	125	129	15	14	PASSED	11.6%	7	8
RRO03	4353	200	213	21	21	PASSED	9.9%	12	9

RRO04	3405	200	207	22	21	PASSED	10.6%	3	19
RSP01	3093	125	127	7	14	PASSED	5.5%	1	6
TOTAL	110239	4505	4608	340			7.4%	168	172

Columbia Gas of Kentucky Inc. "A" Meter Program Overall Results

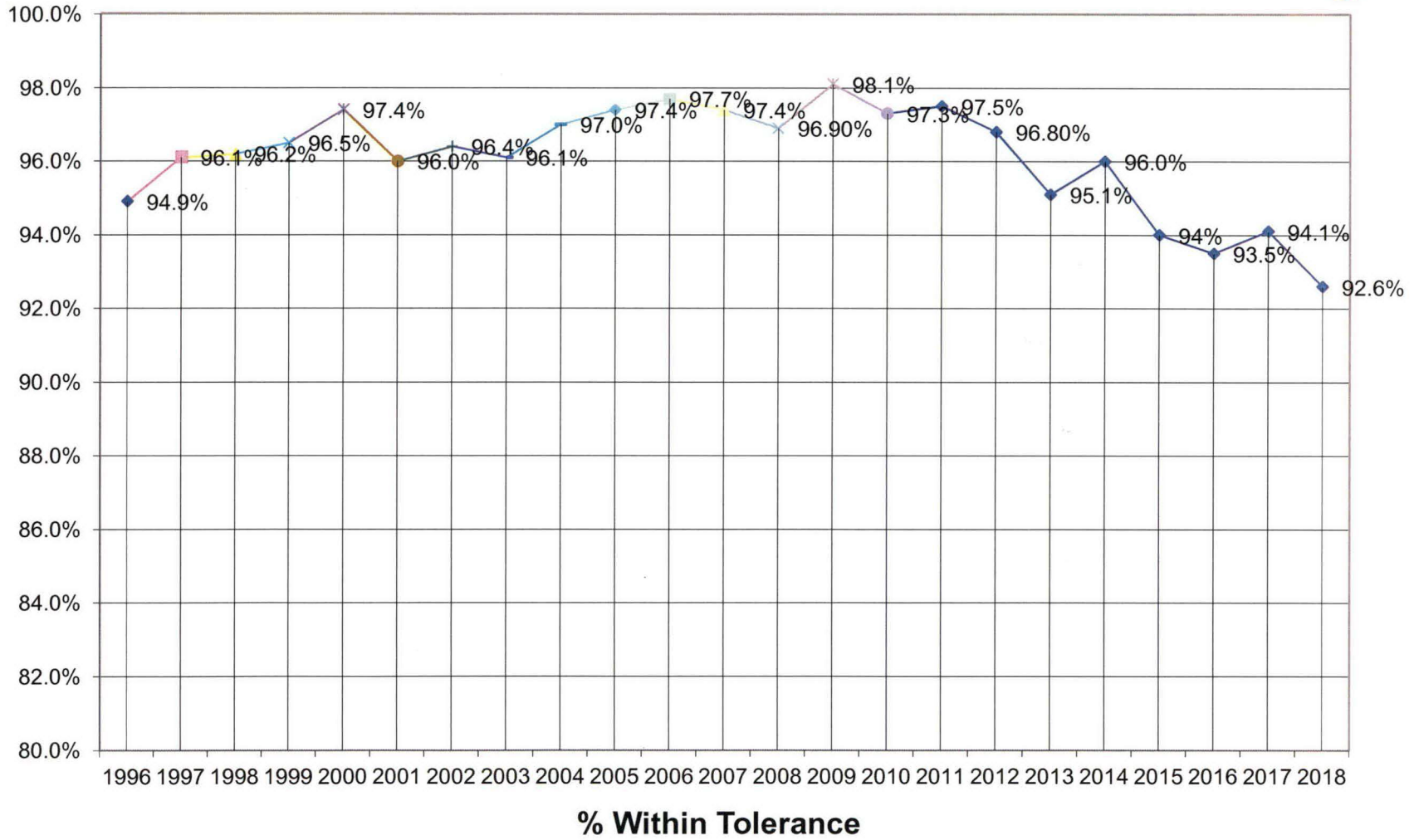


EXHIBIT C

**2018 COLUMBIA GAS OF KENTUCKY LARGE VOLUME
METER SAMPLING TEST RESULTS**

Page 1 of Exhibit C gives a summary of each Large Volume (500 - 1500 CFH) Family. Listed on page 1 of exhibit are:

- 1. Name of the Family Codes**
- 2. Total number of meters in that family on the customer's premises**
- 3. Total number of meters in that family required to be sampled**
- 4. Total number of meters sampled**
- 5. Total number of meters in-testing outside the required +/- 2%**
- 6. Total number of meters allowed to fail**
- 7. Passed/Failed Status of Meter Family**
- 8. Percentage of meters failed per Family**
- 9. Number of meters failed fast**
- 10. Number of meters failed slow**

Page 2 of Exhibit C identifies in graph form the percentages of meters within tolerance over several years. This is a combined listing of all large volume groups.

2018 COLUMBIA GAS OF KENTUCKY METER SAMPLING RESULTS

Samples taken between 2018-01-01 and 2018-12-31

"B" Class Meters 500 - 1500 CFH

FAMILY CODES	TOTAL MTRS. IN FAMILY (a)	TOTAL MTRS REQ'D IN PROGRAM (b)	TOTAL SAMPLED (c)	TOTAL FAILED METERS (d)	TOTAL REJECTS ALLOWABLE (e)	2018 FAMILY STATUS (f)	RATIO FAILED (d/c=g)	NUMBER FAILED FAST (h)	NUMBER FAILED SLOW (i)
BNAM01	517	80	81	9	10	PASSED	11.1%	9	0
BRAM01	1448	125	126	4	14	PASSED	3.2%	3	1
BRRO01	69	13	14	0	2	PASSED	0.0%	0	0
BRSP01	37	8	8	0	1	PASSED	0.0%	0	0
TOTAL	2071	226	229	13			5.7%	12	1

Columbia Gas of Kentucky Inc. "B" Meter Program Overall Results

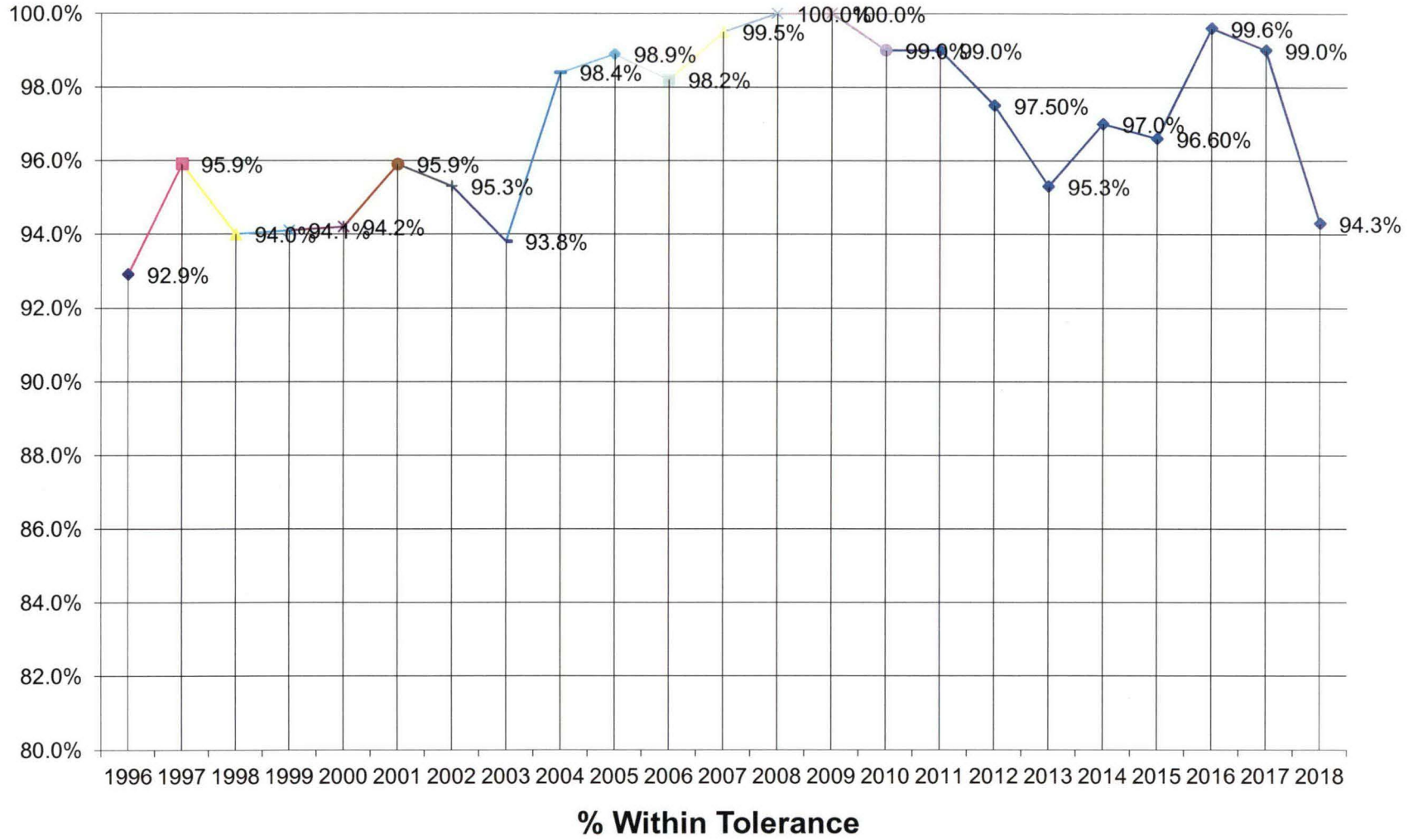


EXHIBIT D

PERCENTAGE OF DOMESTIC METER ACCURACY
BY FAMILY

Exhibit D - represents the percentage of meters sampled in 2018 that were within the +/- 2% rate, identified by homogenous group. We also show previous results of meter families sampled in the past ten years.

NAM01 = New American meters purchased between 1982 & 1990

NAM02 = New American meters purchased between 1991 & 1993

NAM03 = New American meters purchased in 1994

NAM04 = New American meters purchased in 1995

NAM05 = New American meters purchased in 1996

NAM06 = New American meters purchased in 1997 & 2000

NAM06A= New American meters purchased in 2001 & 2002

NAM07 = New American meters purchased in 2003

NAM08 = New American meters purchased in 2004

NAM09 = New American meters purchased in 2005

NAM10 = New American meters purchased in 2006 & 2007

NAM11= New American meters purchased in 2008 & 2009

NAM12= New American meters purchased in 2010 & 2012

NAM13=New American meters purchased in 2014 & 2016

NIT-01= New Itron meters purchased in 2016

NLA01 = New Lancaster meters purchased in 1987

NLA02 = New Lancaster meters purchased between 1989, 1990, & 1992

NRO01 = New Rockwell meters purchased between 1983 & 1996

NRO02 = New Rockwell meters purchased between 1997 & 1999

NSP01 = New Sprague meters purchased between 1982 & 1996

RAM03 = Repaired American meters installed in 1987 & 1991

RAM04 = Repaired American meters installed between 1992 & 1998

RAM05 = Repaired American meters installed between 1999 & 2007

RAM06 = Repaired American meters installed in 2008, 2009, 2010, 2012, & 2014

RAM07= Repaired American meters installed in 2016

RLA03 = Repaired Lancaster meters installed between 1987 & 2006

RRO01 = Repaired Rockwell meters installed between 1982 & 1989

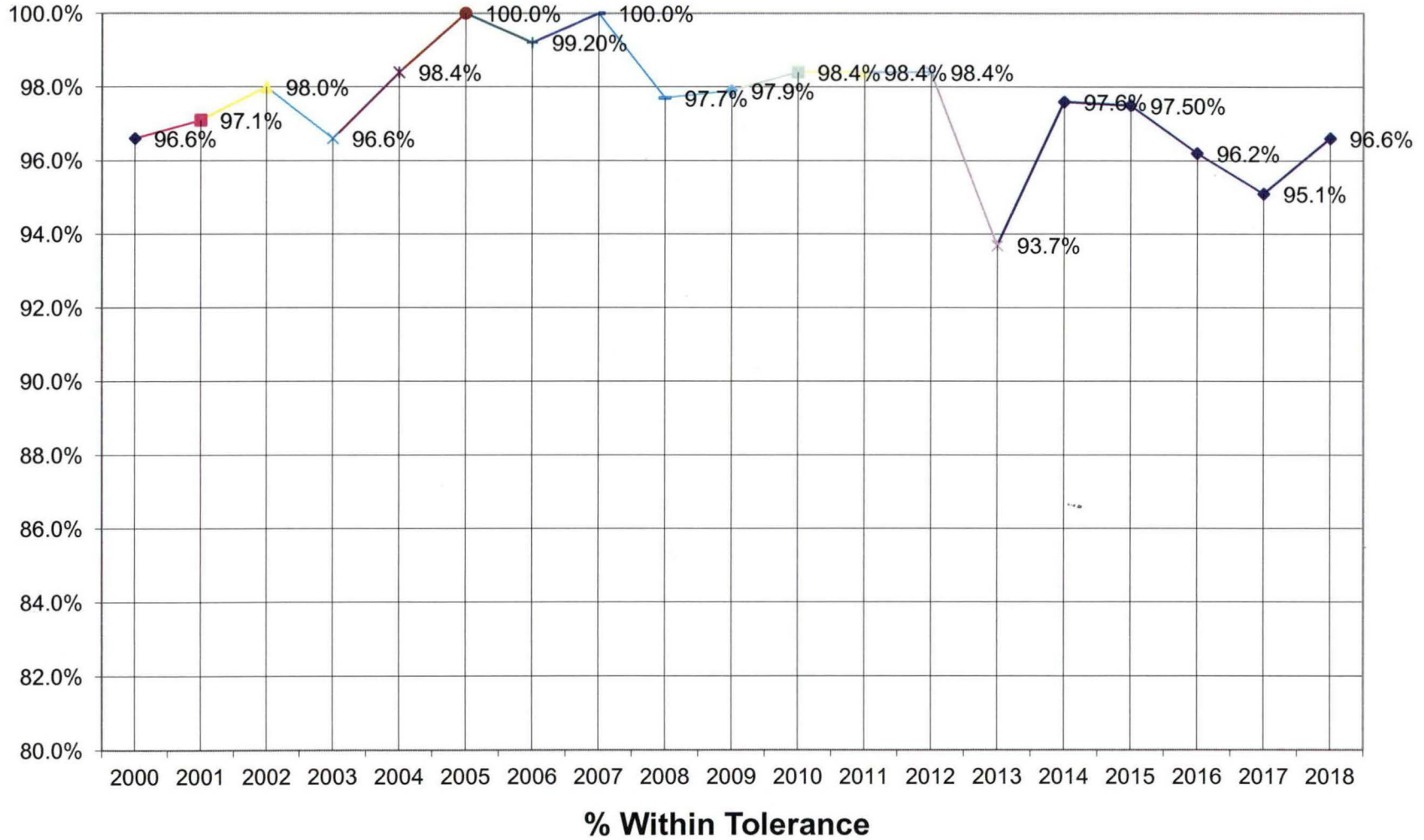
RRO02 = Repaired Rockwell meters installed between 1990 & 1993

RRO03 = Repaired Rockwell meters installed between 1994 & 2003

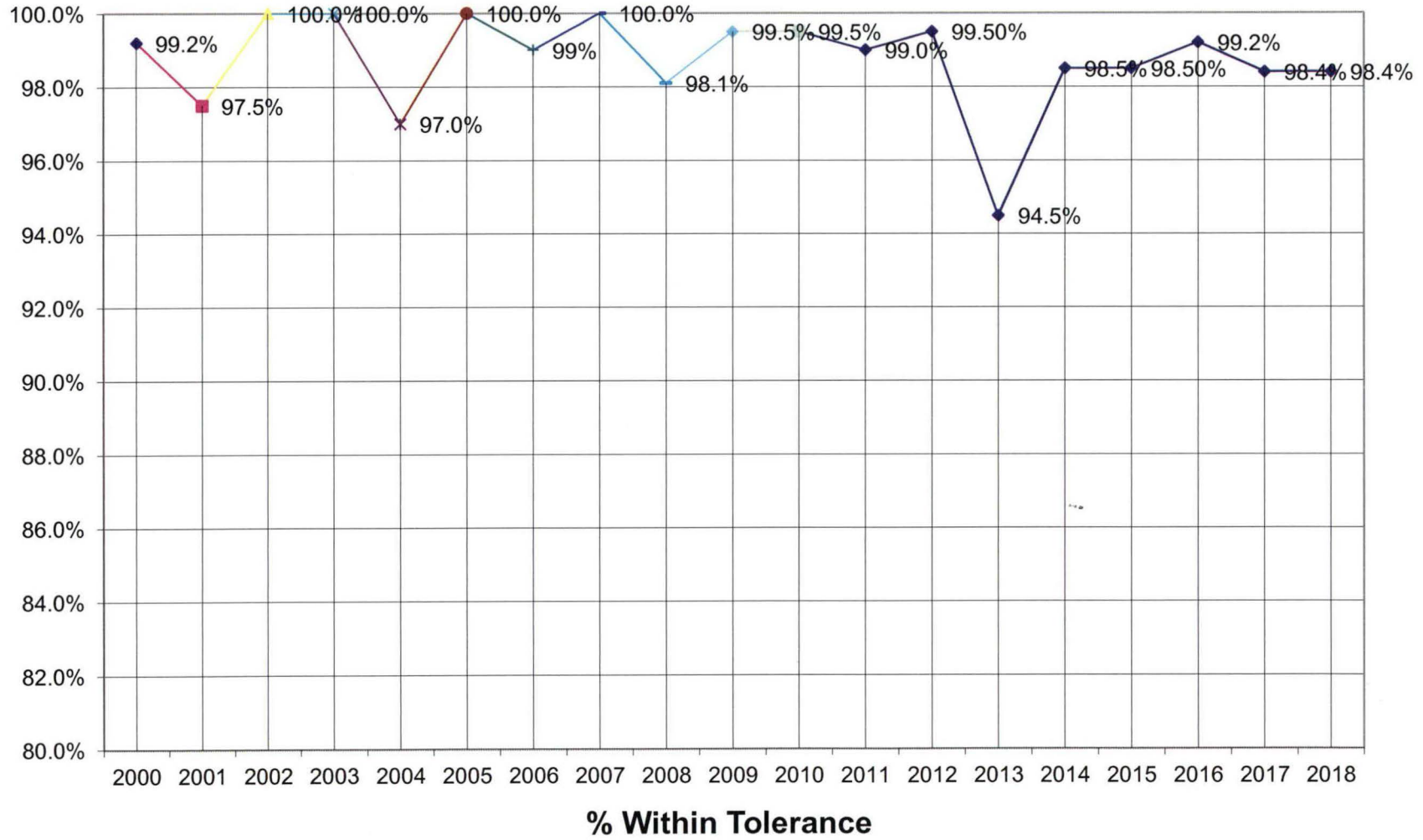
RRO04 = Repaired Rockwell meters installed between 2004, & 2016

RSP01 = Repaired Sprague meters installed between 1983 & 2007

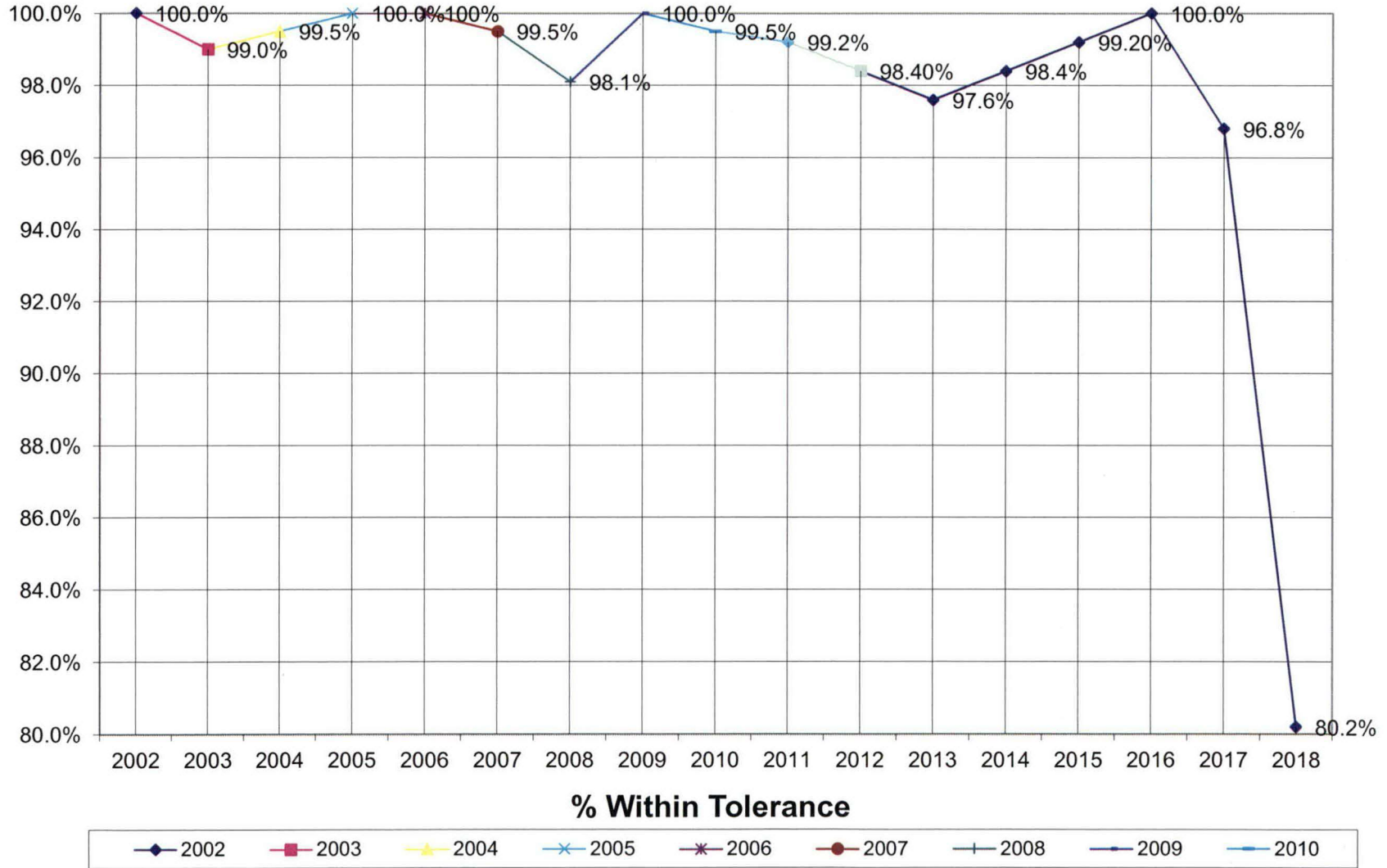
NAM01



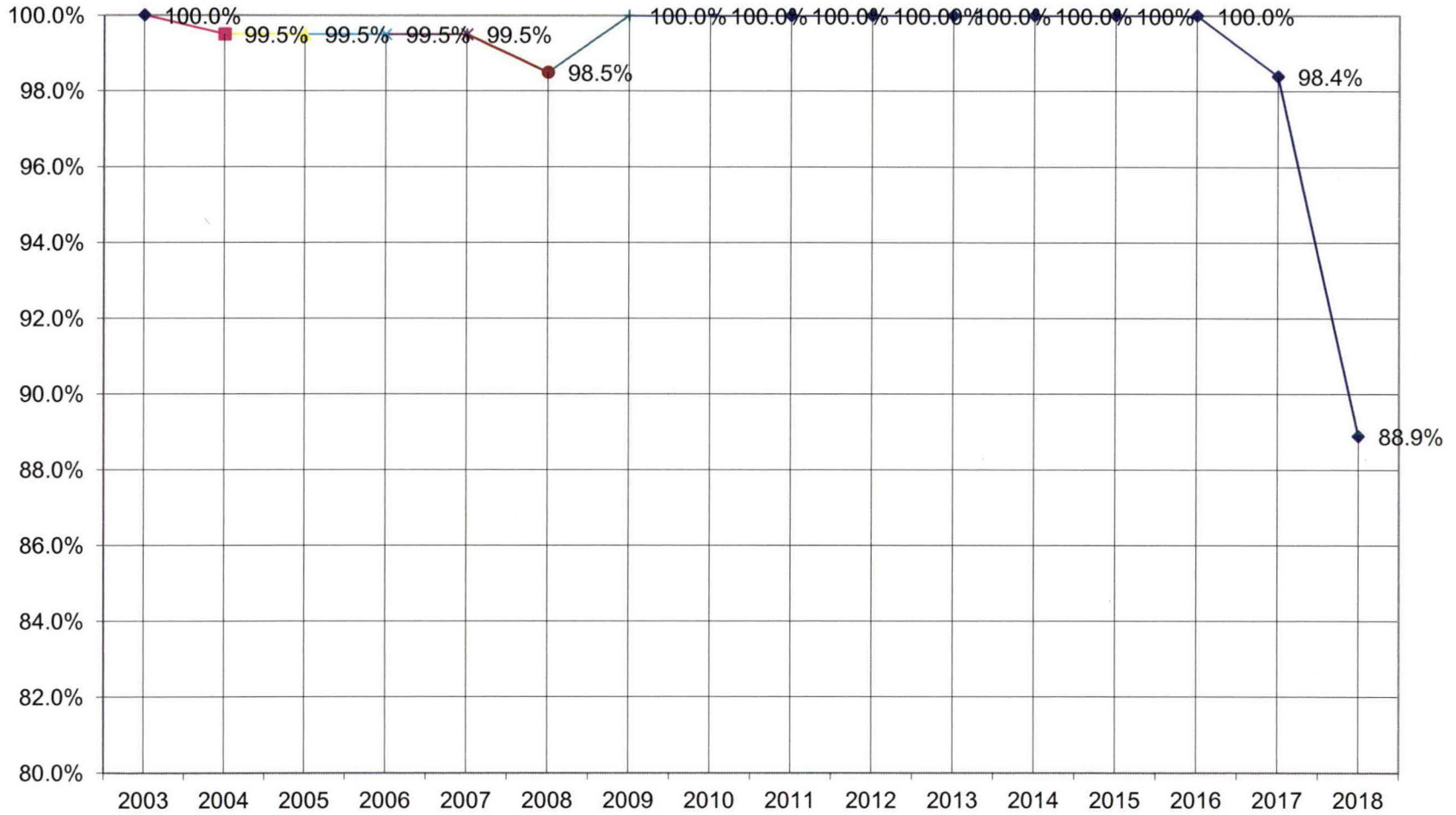
NAM02



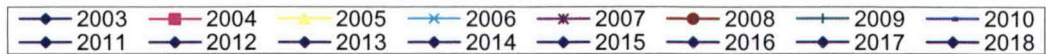
NAM03



NAM04



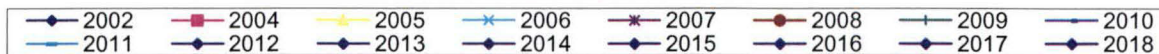
% Within Tolerance



NAM05



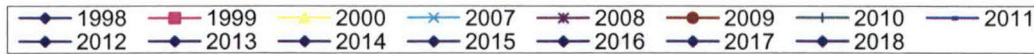
% Within Tolerance



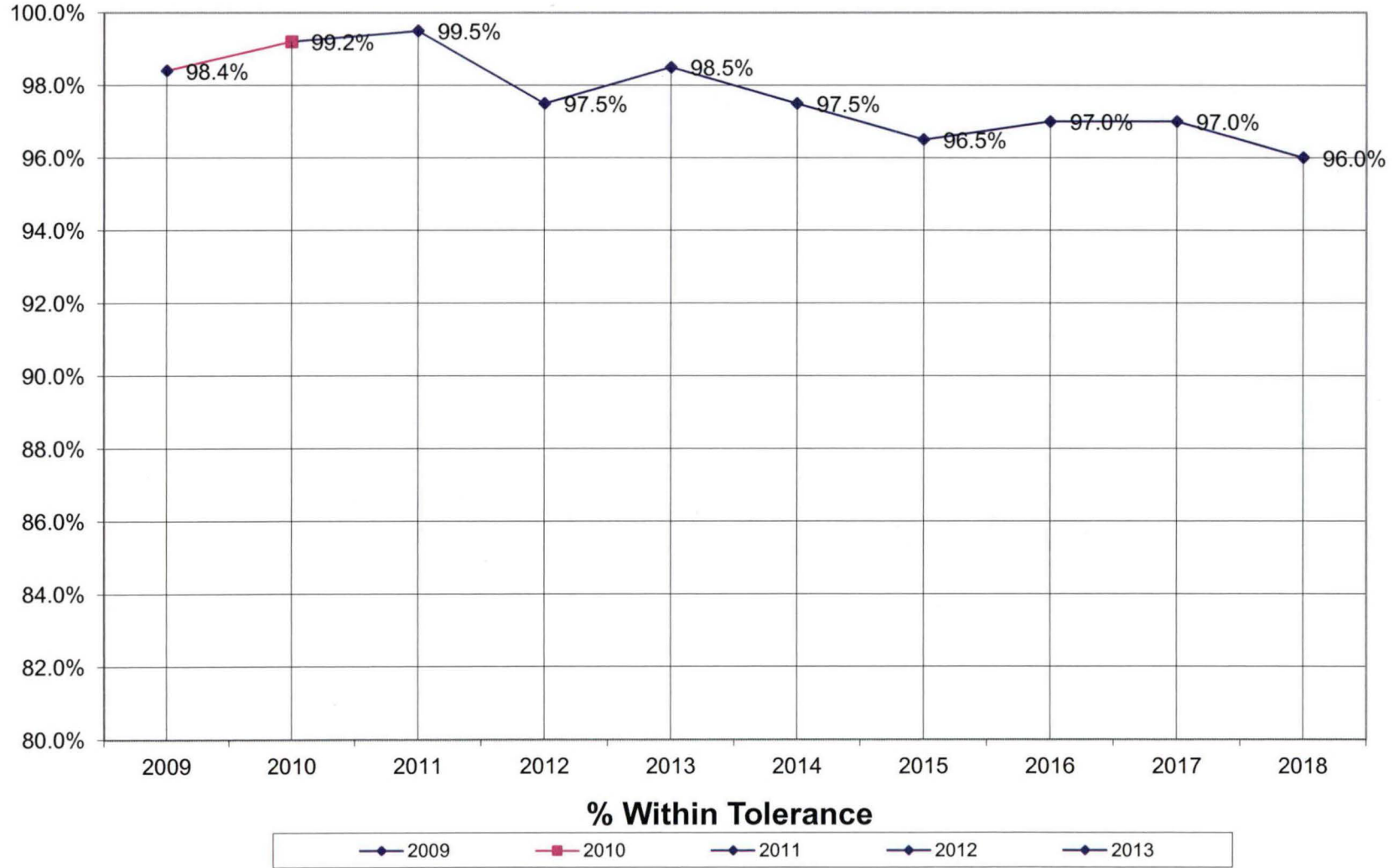
NAM06



% Within Tolerance



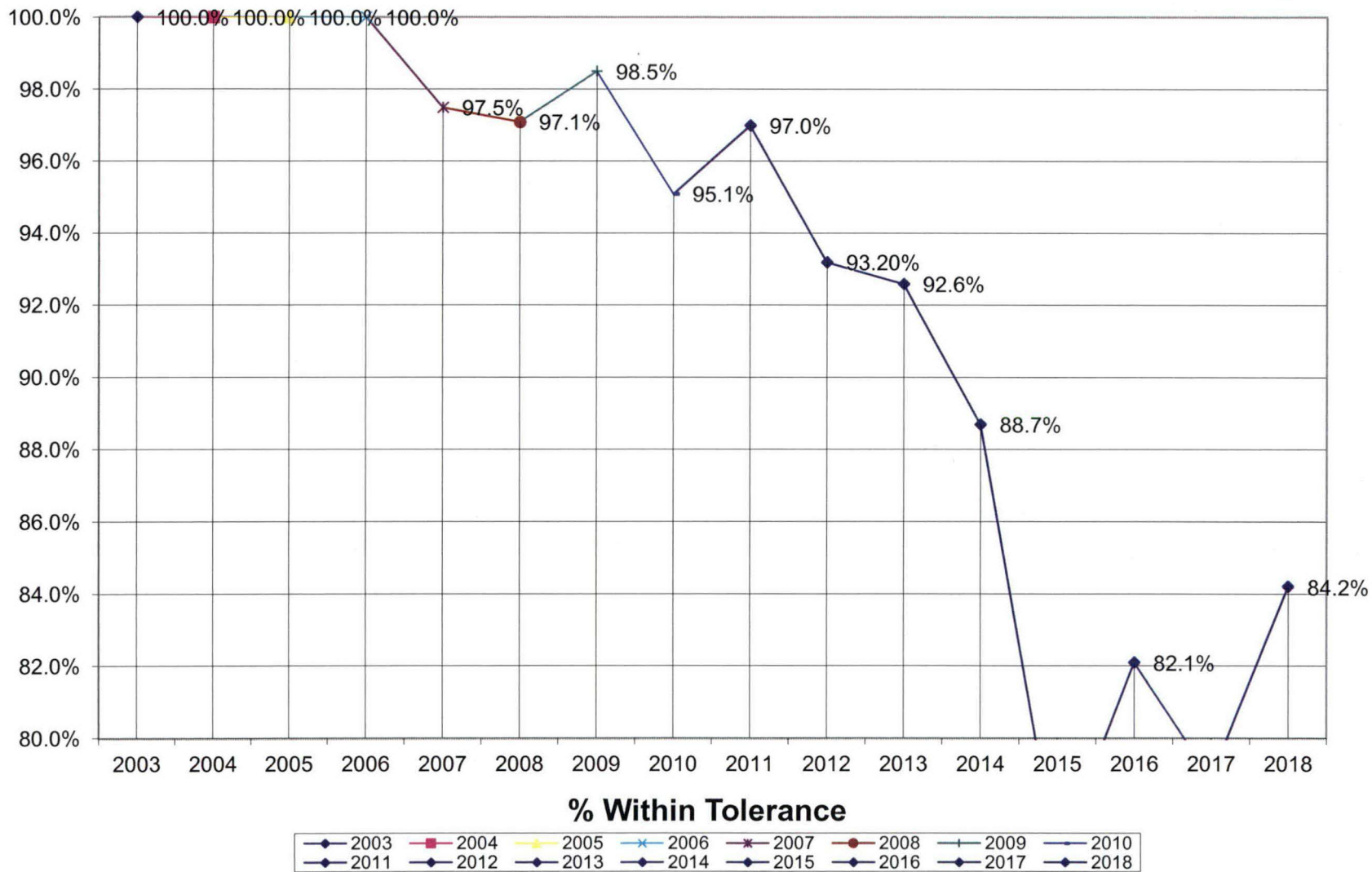
NAM06A



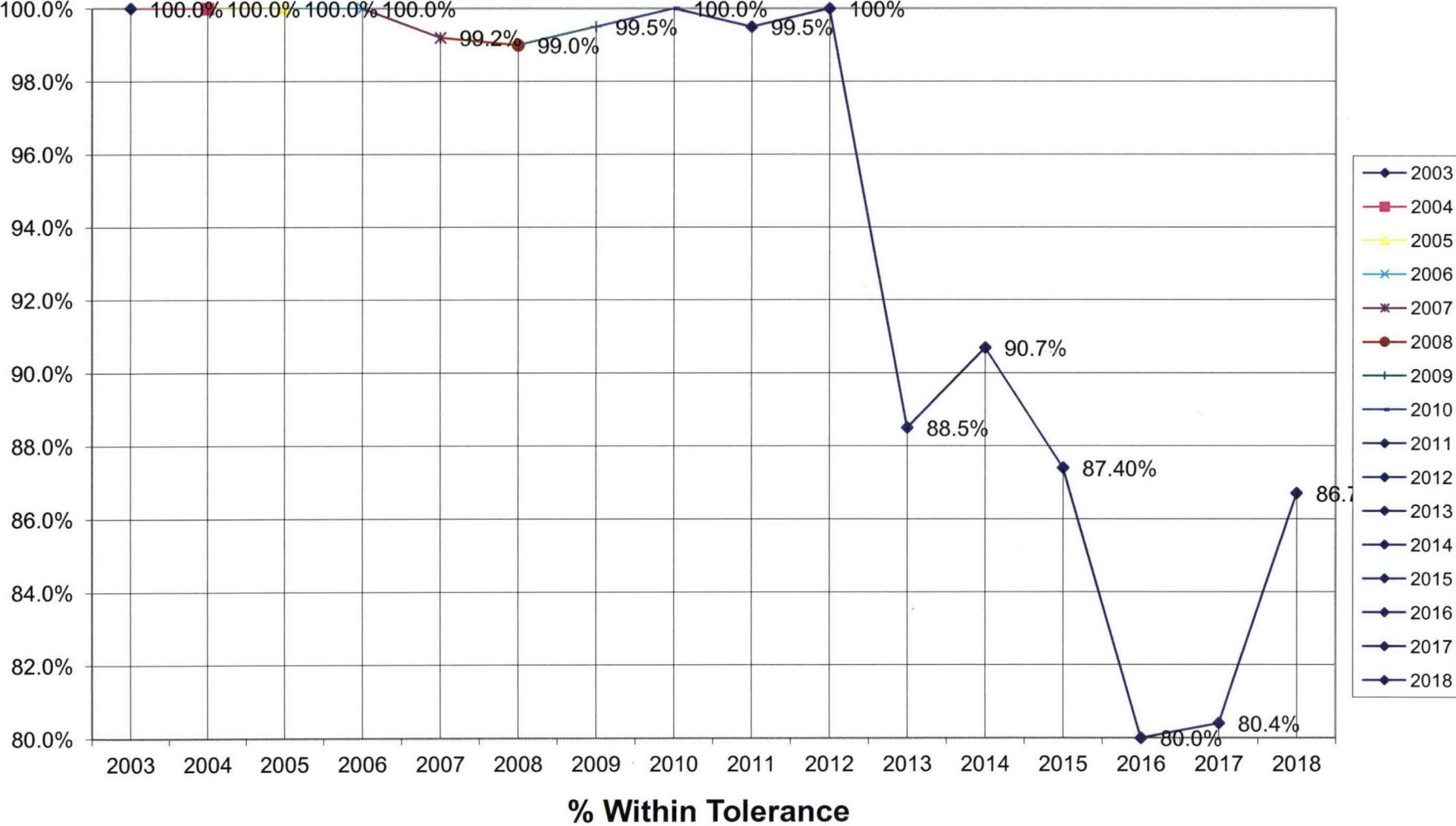
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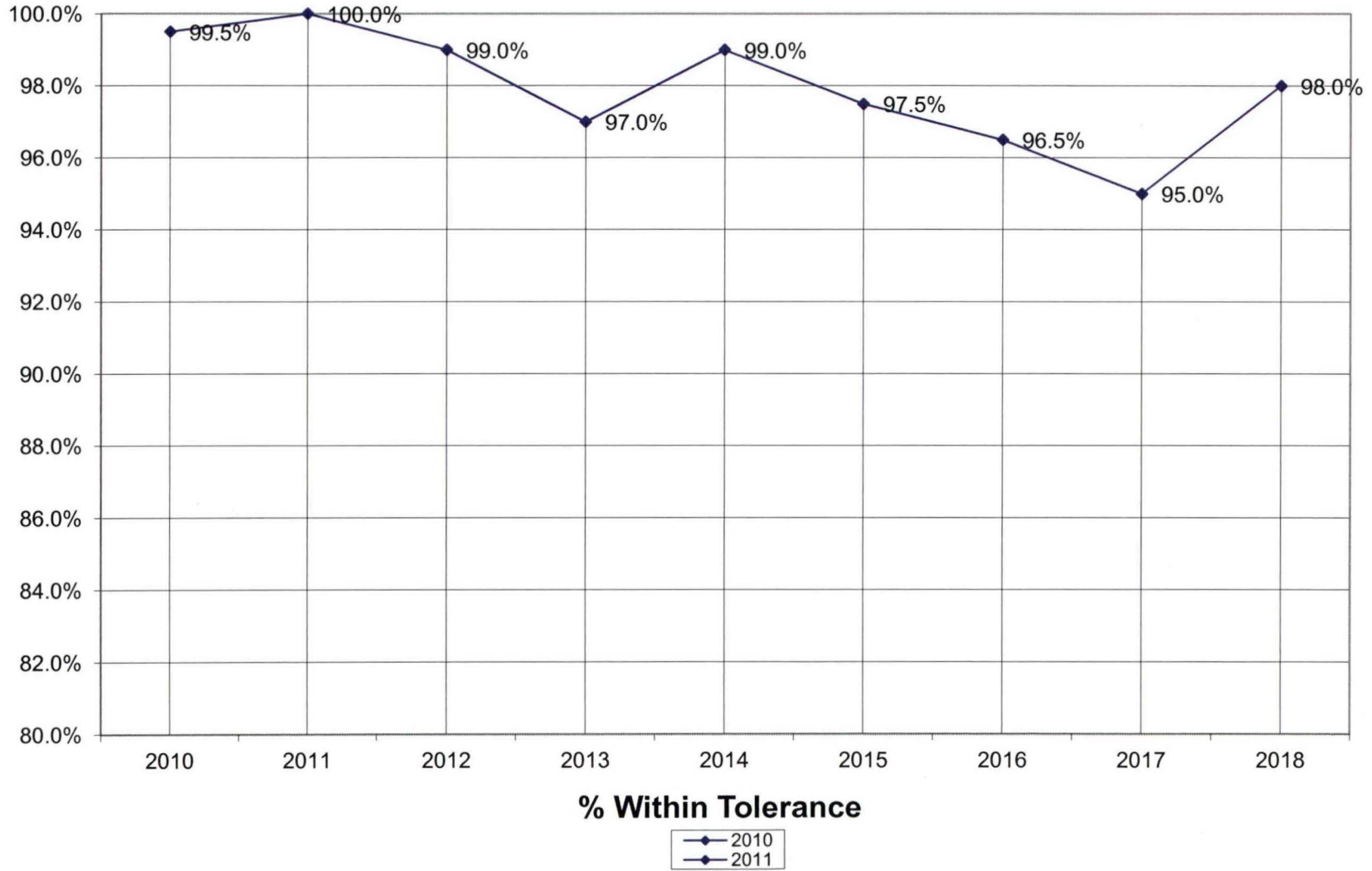
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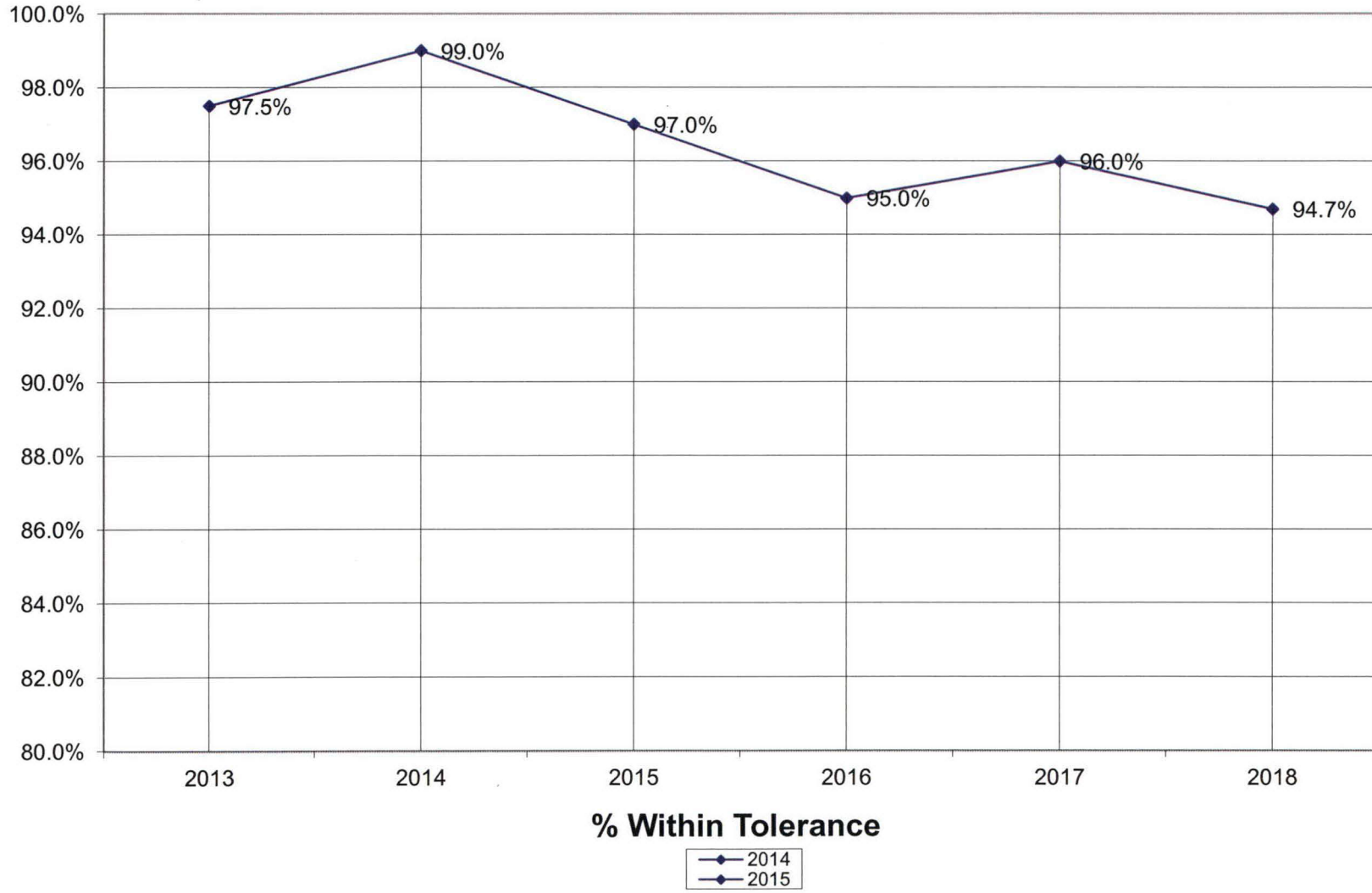
NAM09



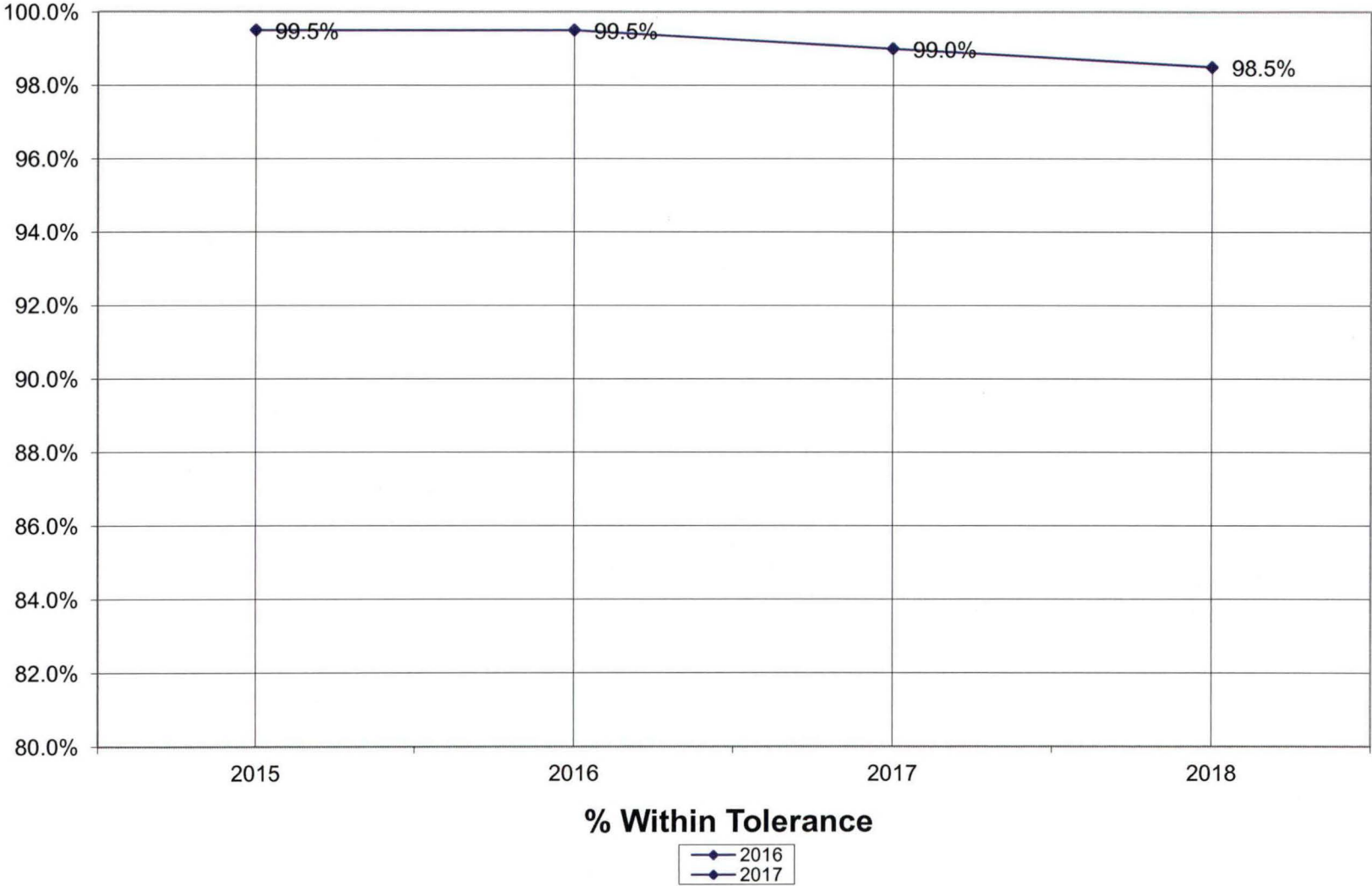
NAM10



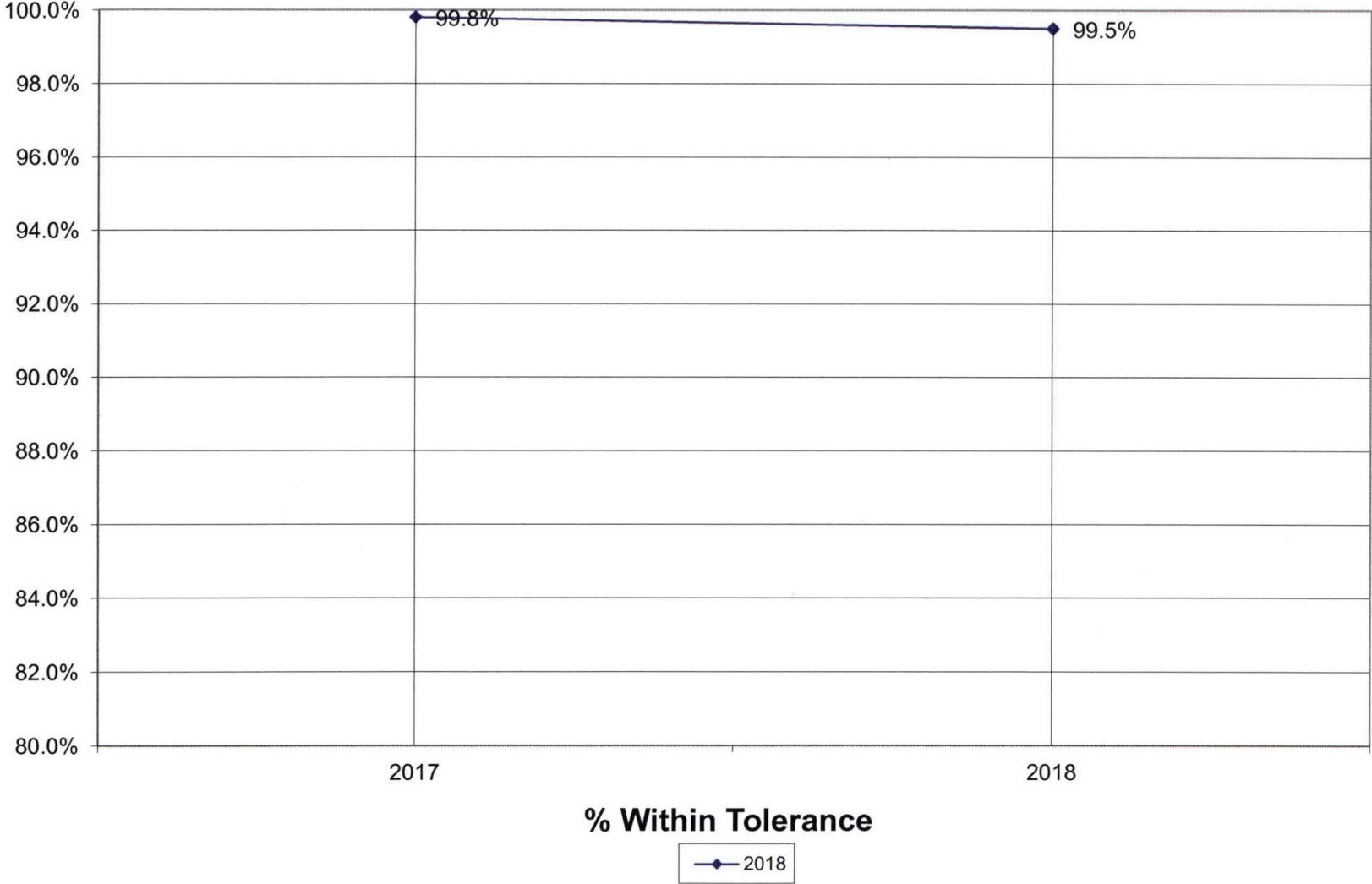
NAM11



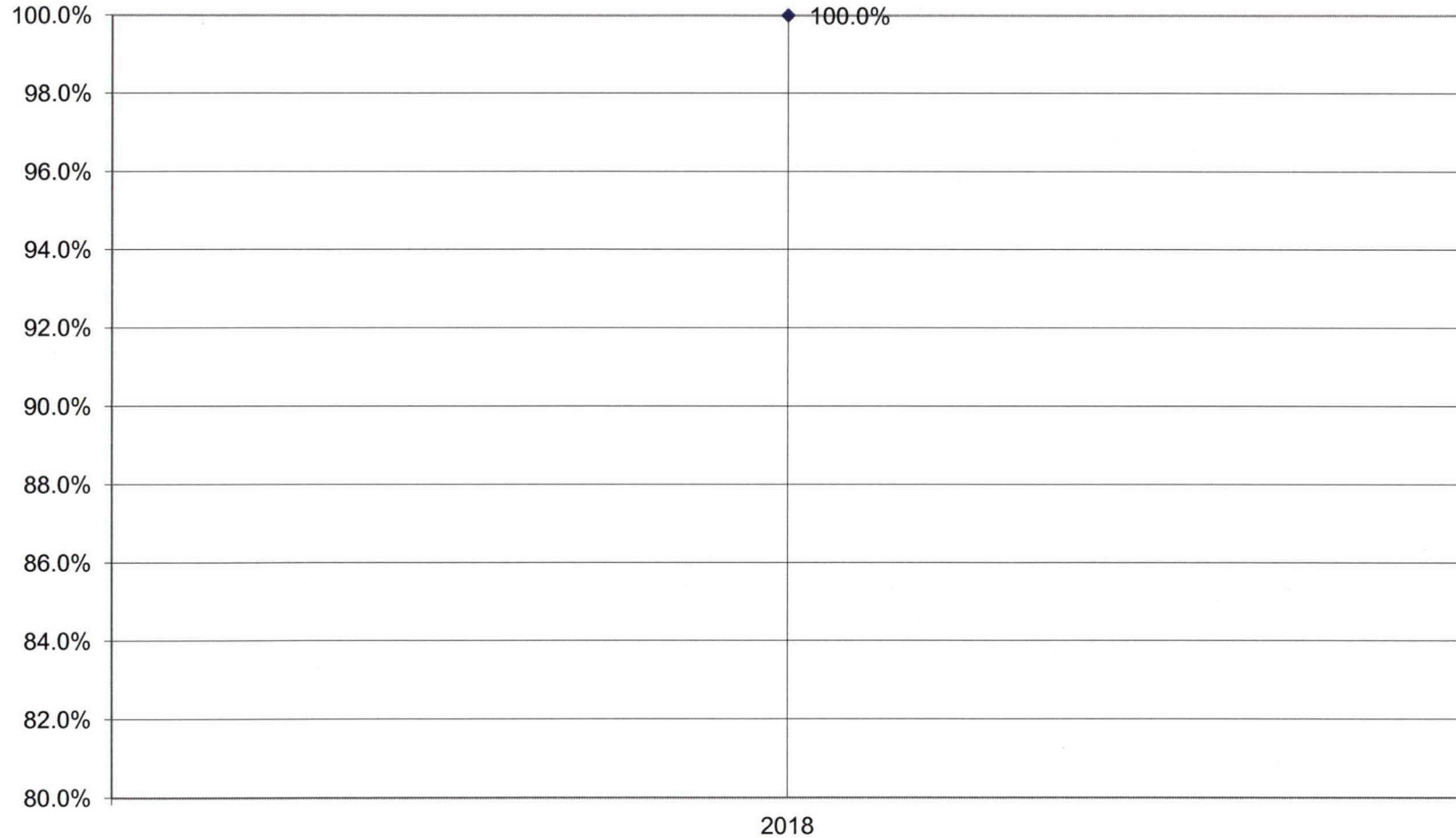
NAM12



NAM13

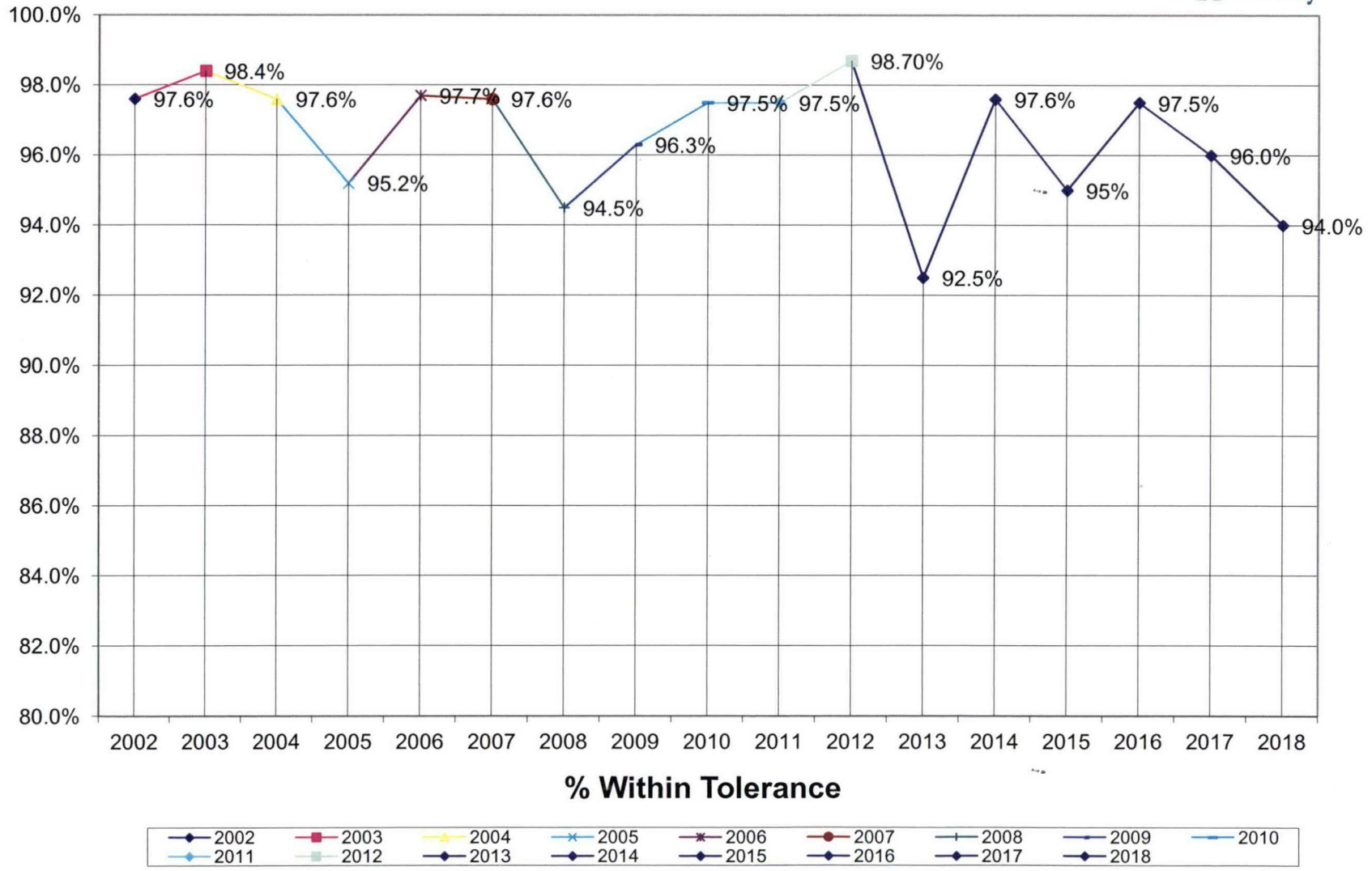


NIT01

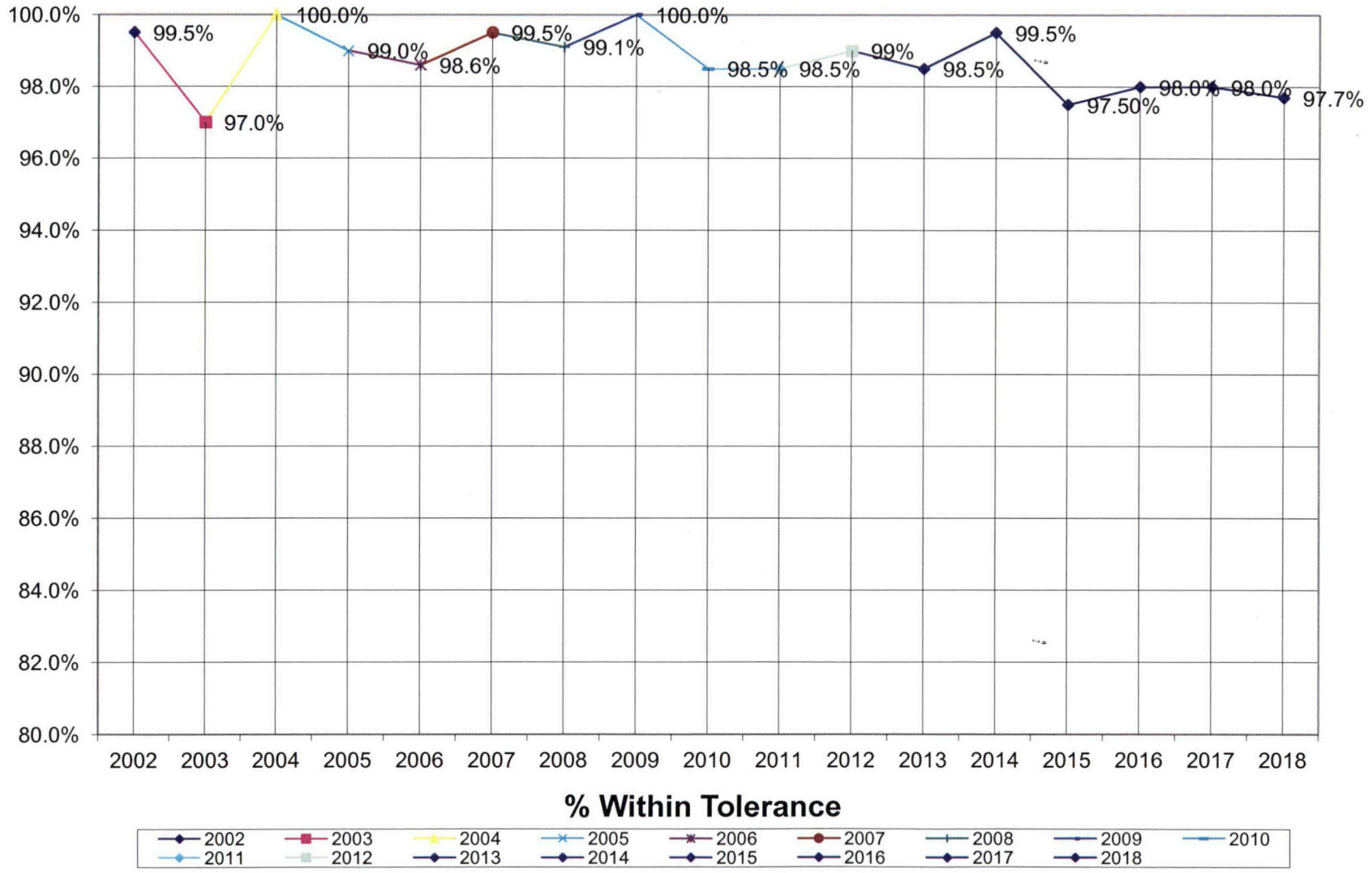


% Within Tolerance

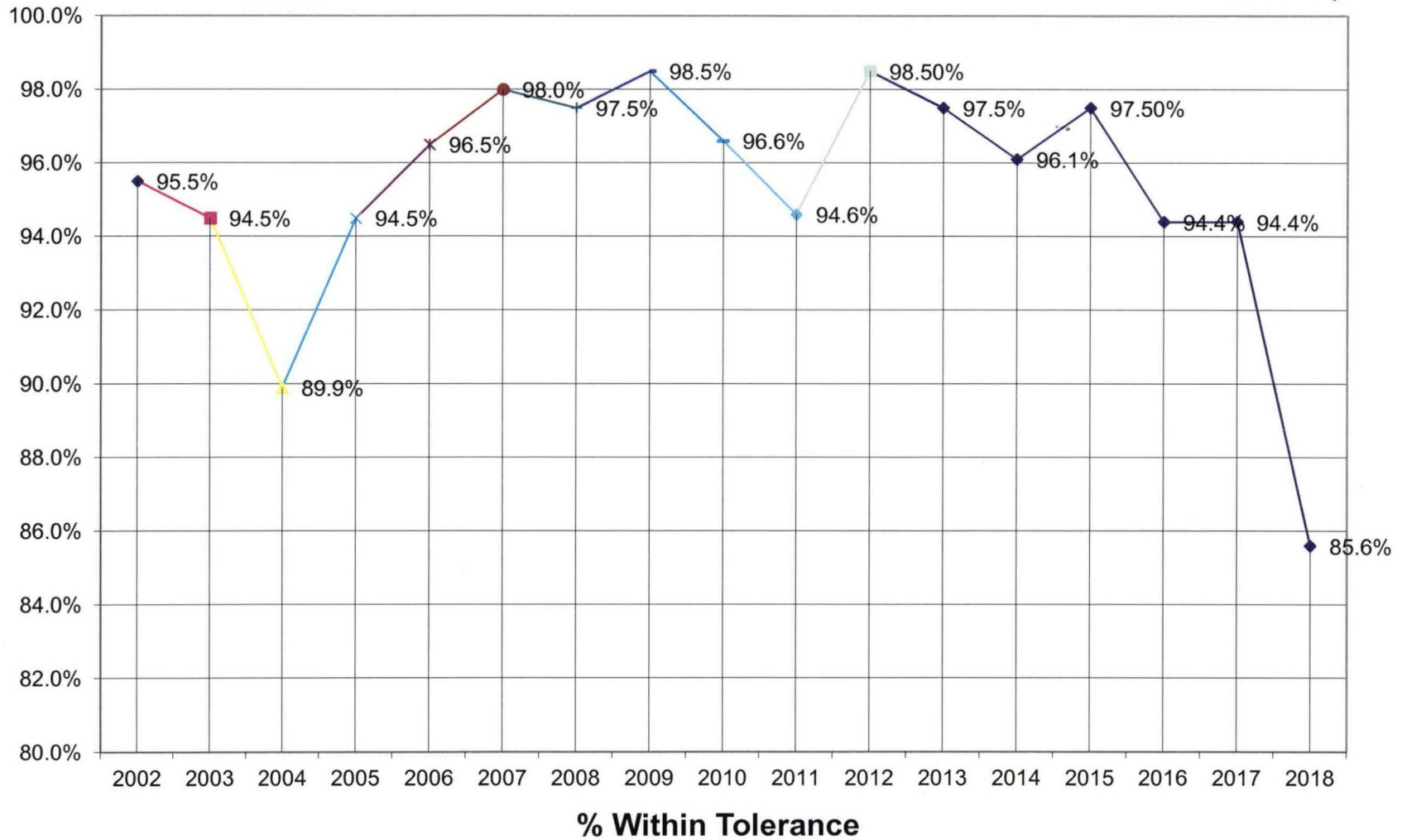
NLA01



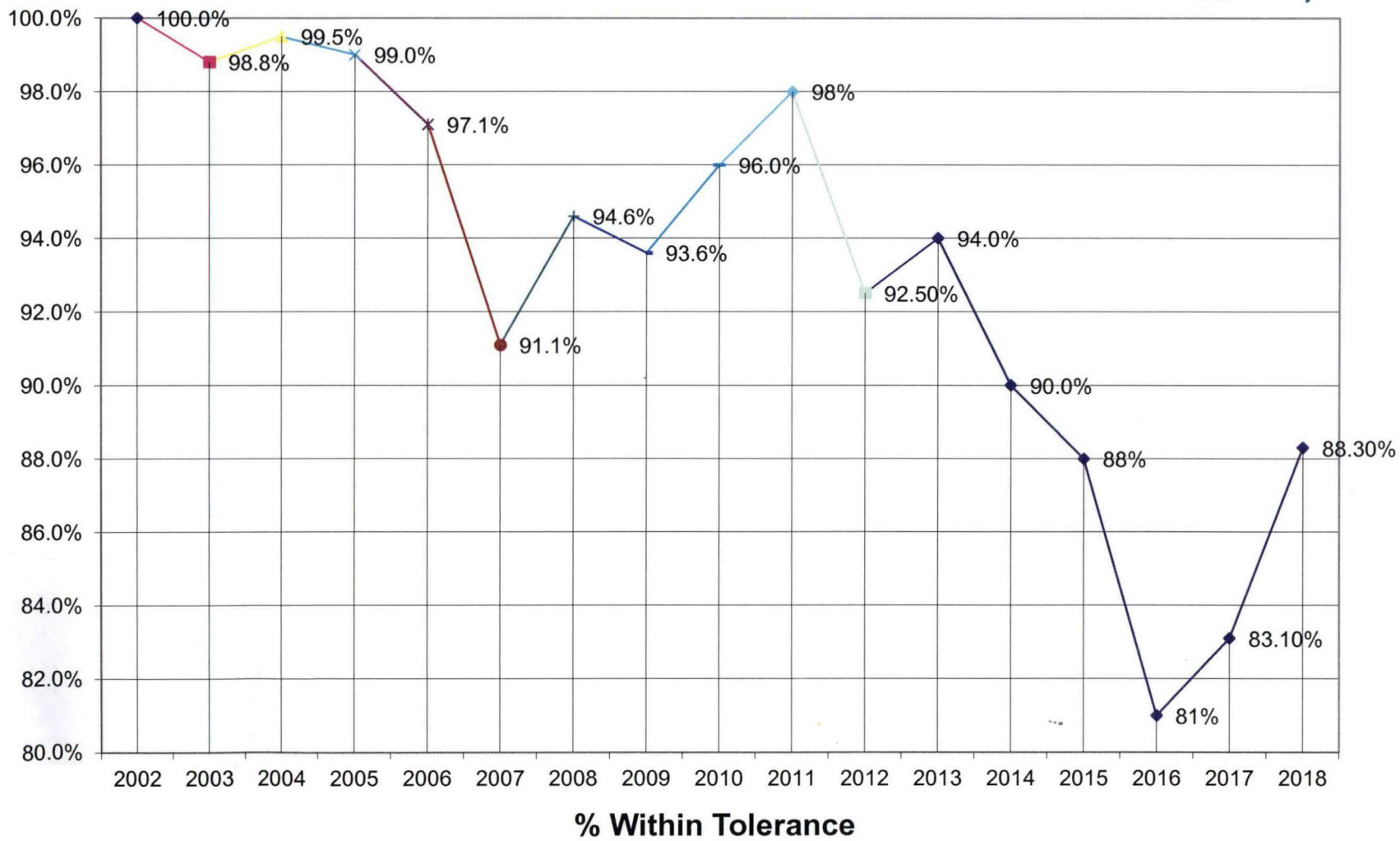
NLA02



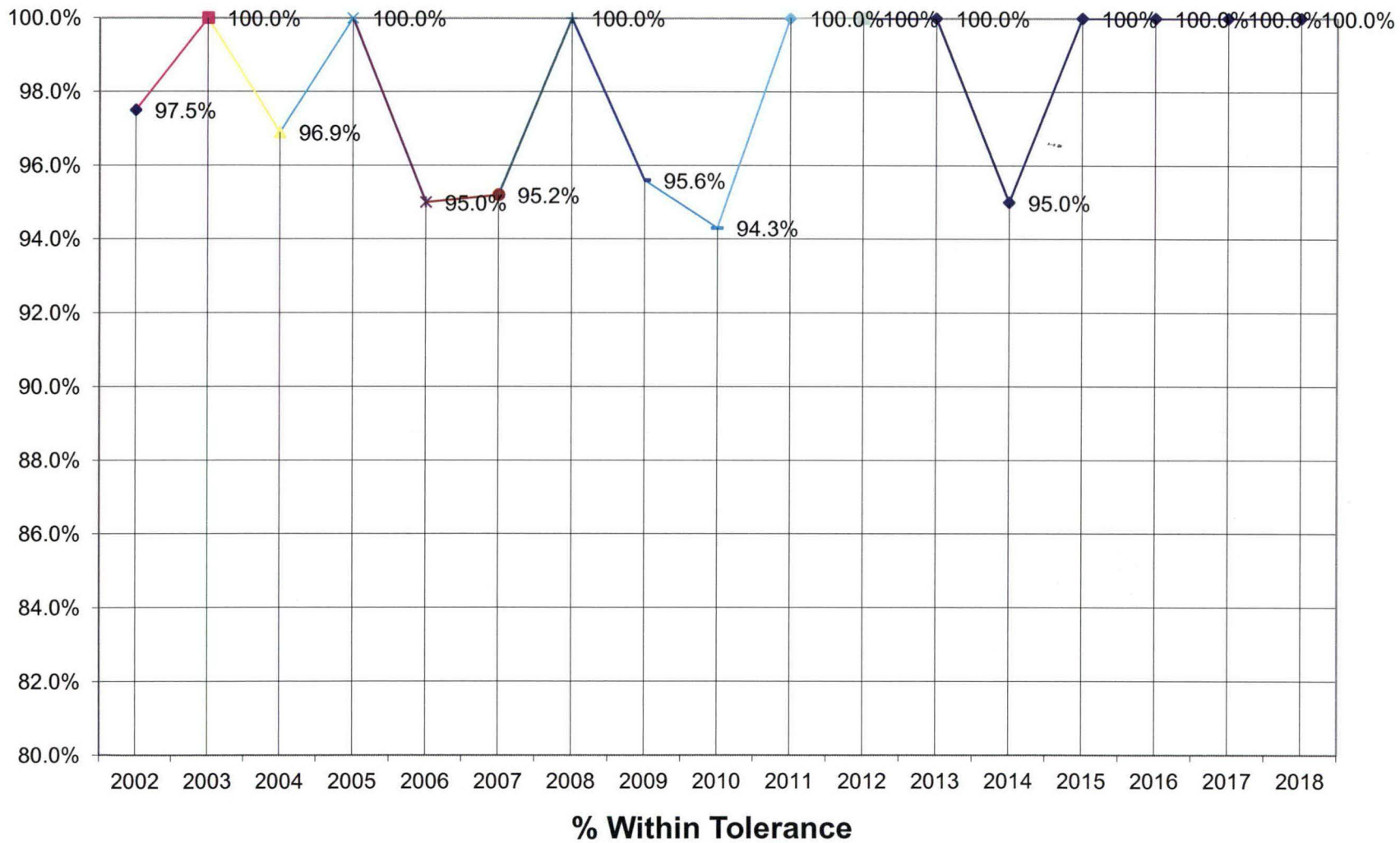
NRO01



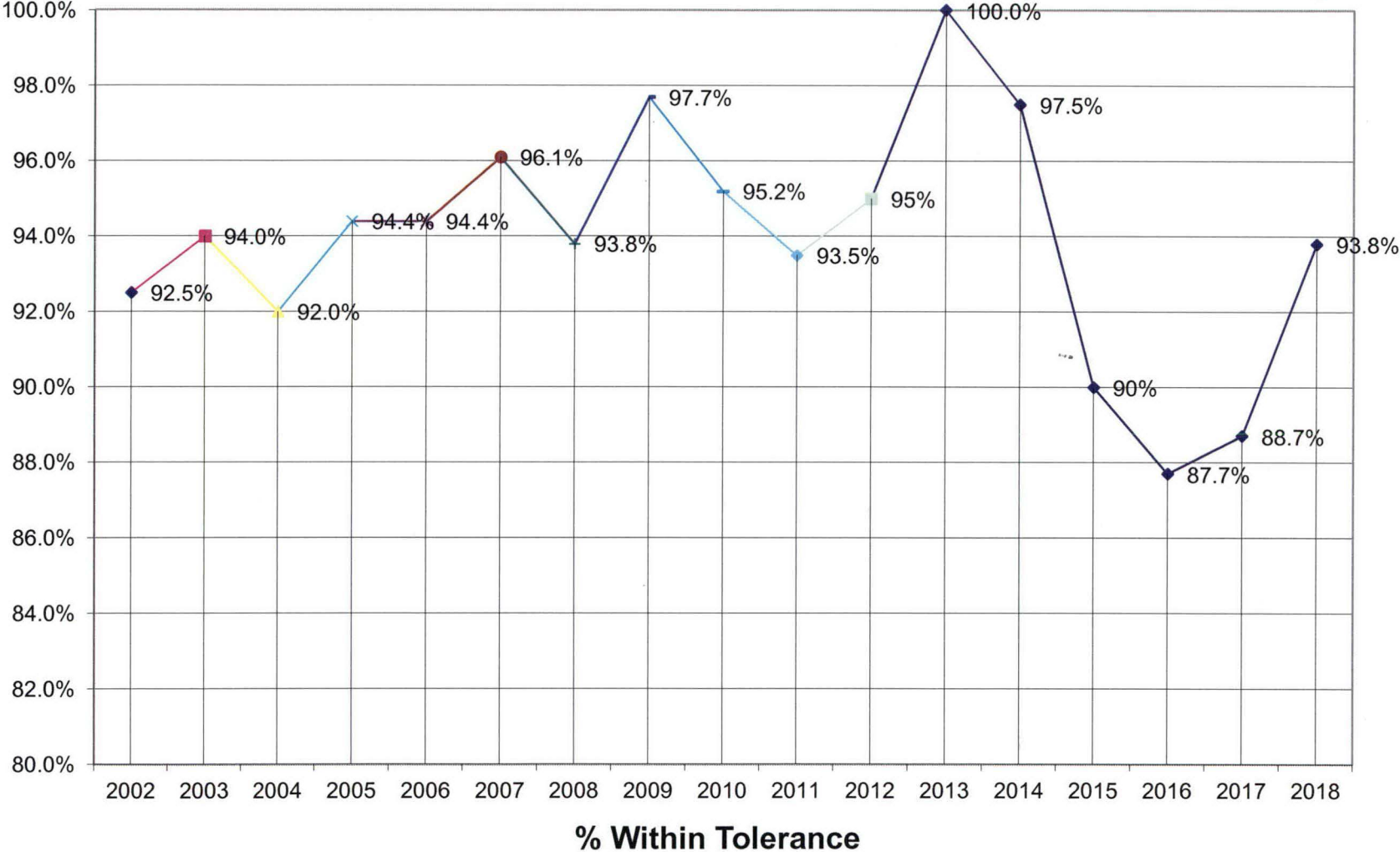
NRO02



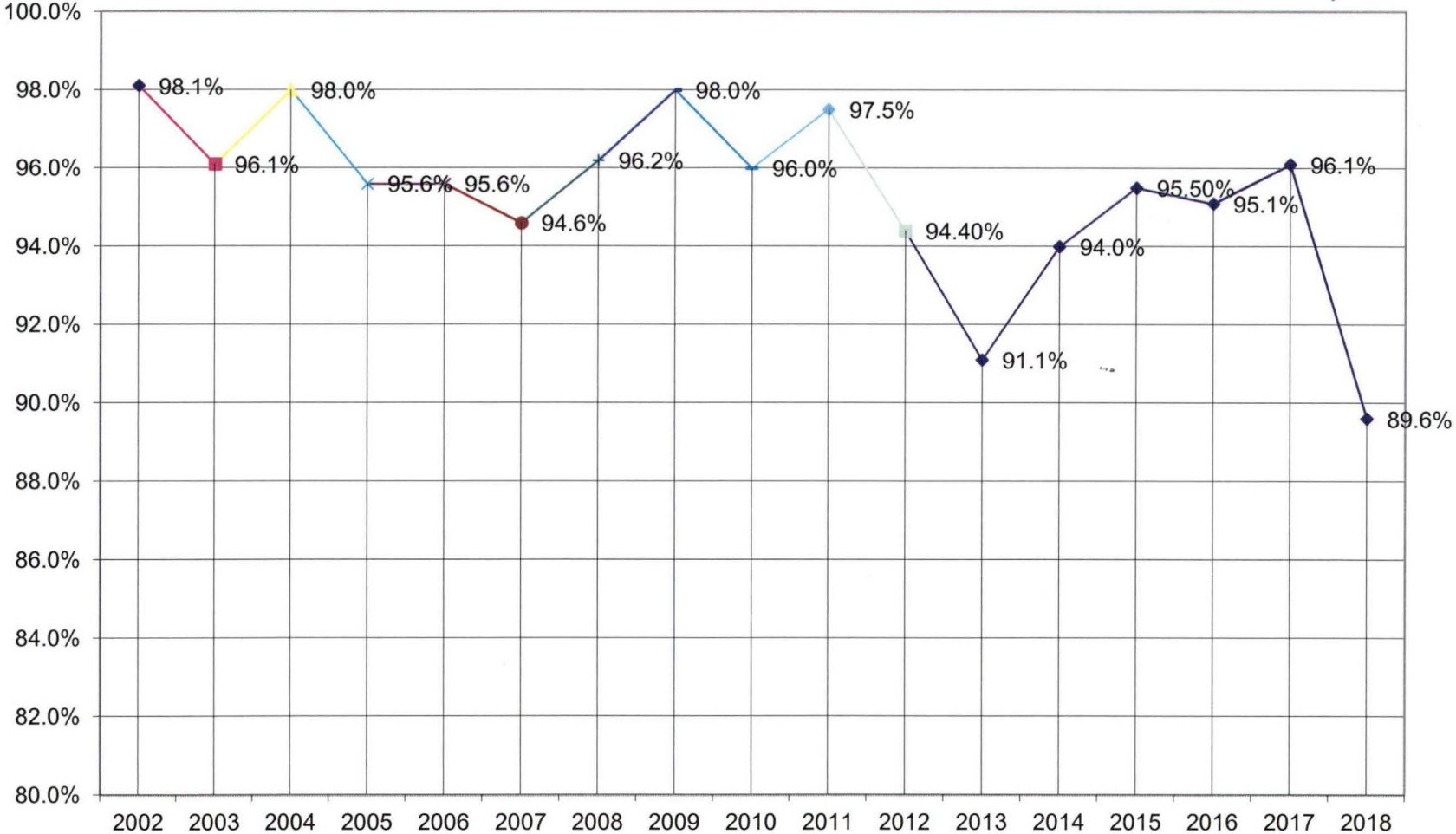
NSP01



RAM03



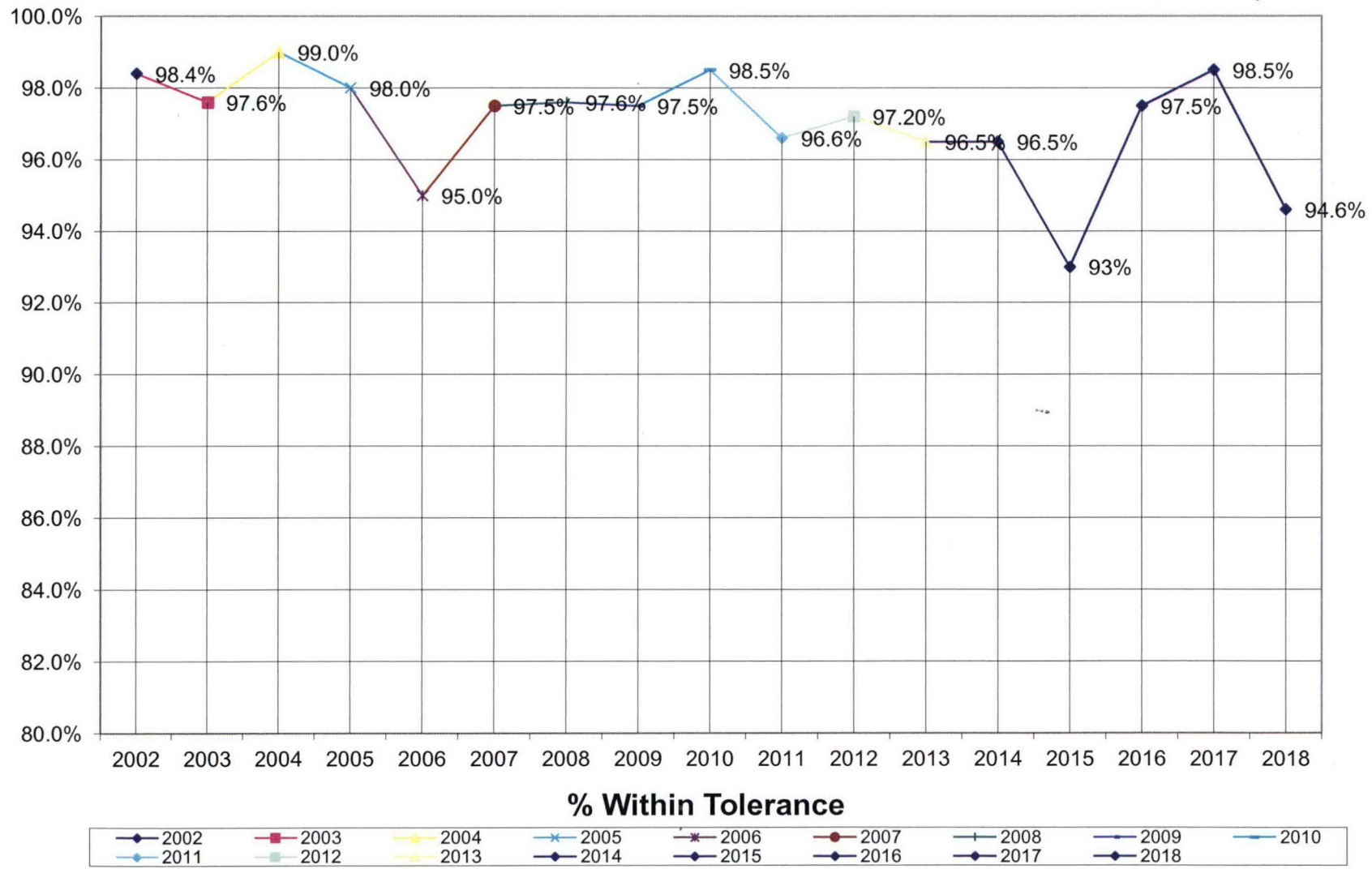
RAM04



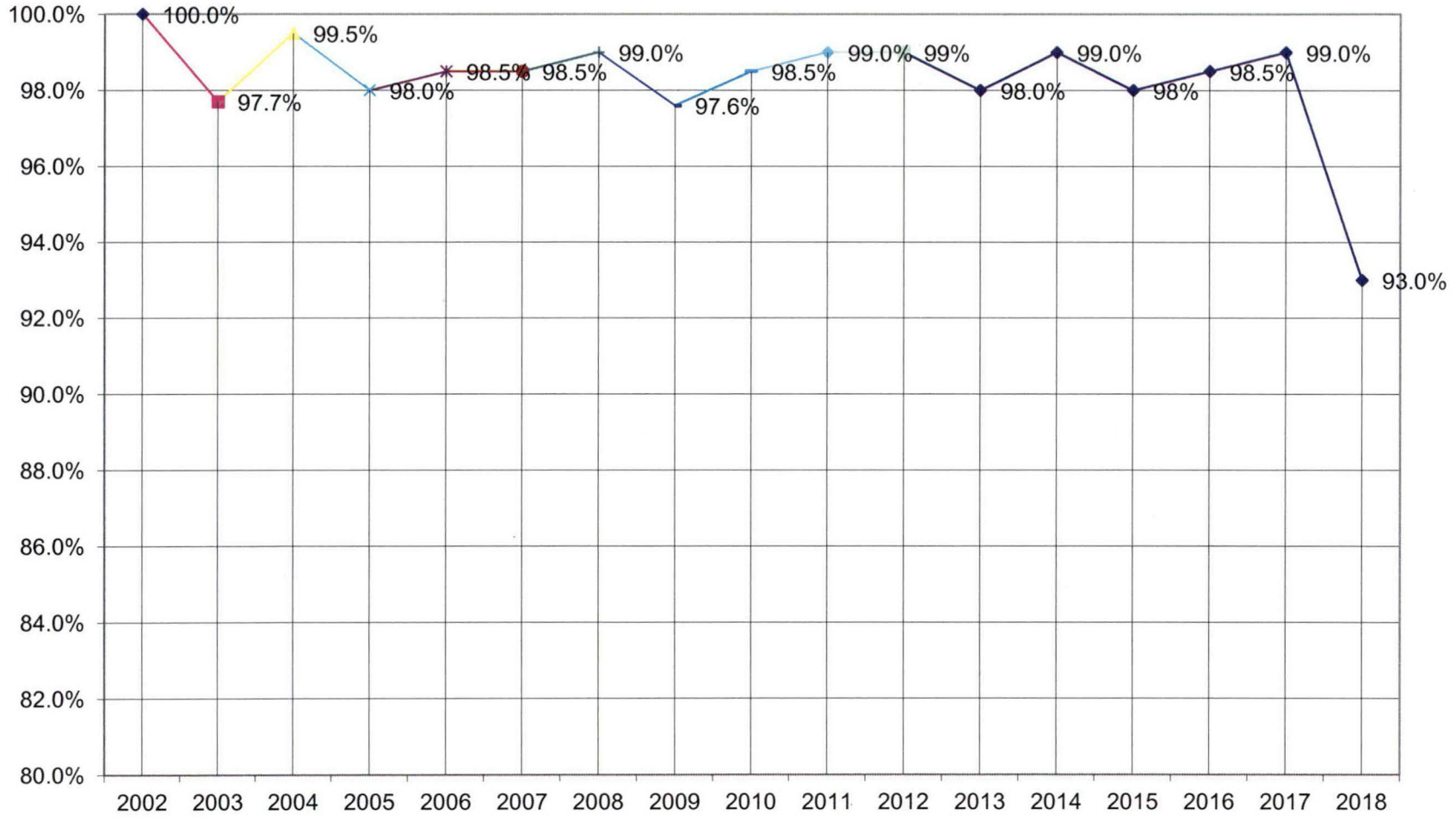
% Within Tolerance

2002	2003	2004	2005	2006	2007	2008	2009	2010
2011	2012	2013	2014	2015	2016	2017	2018	

RAM05



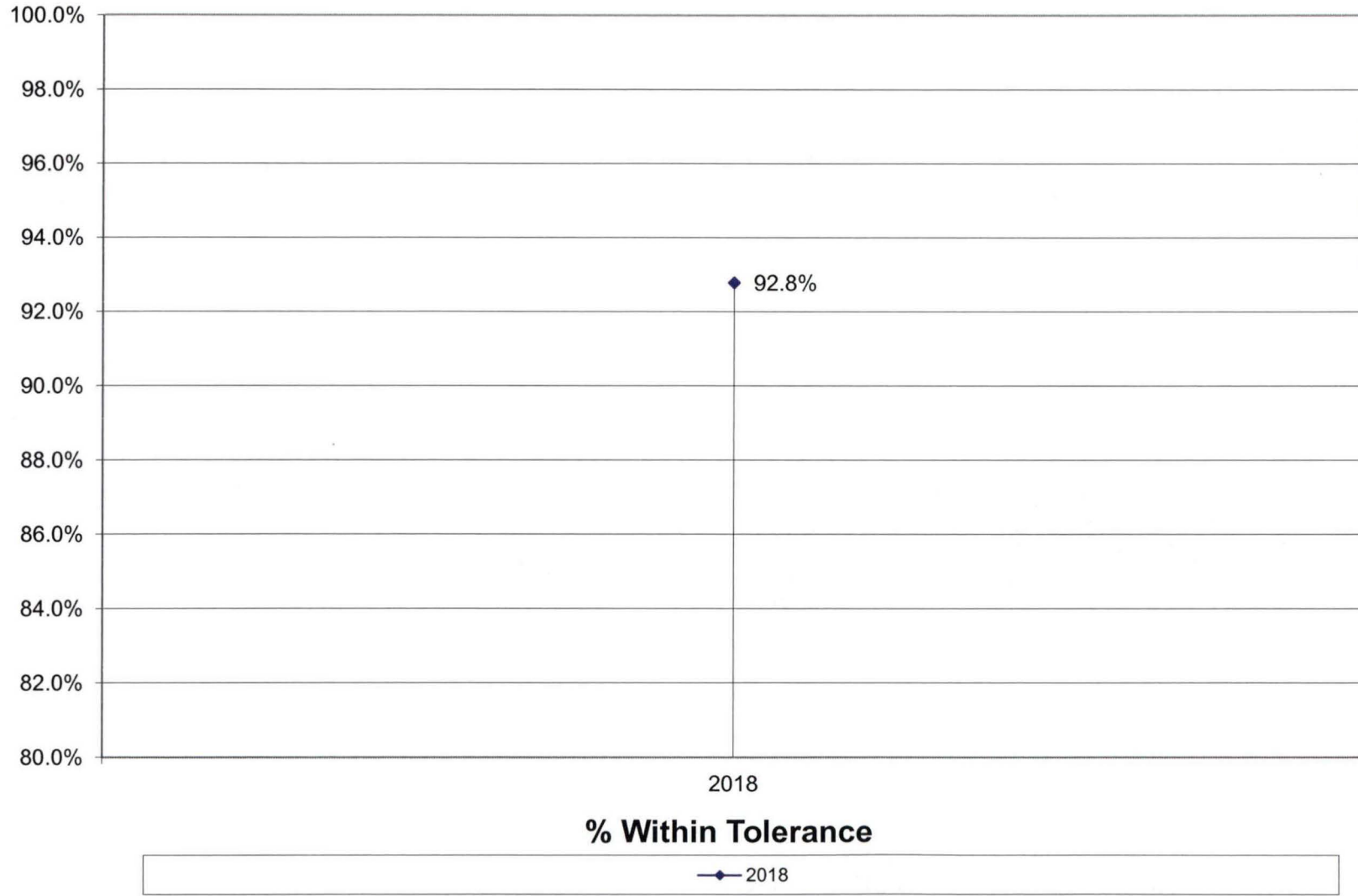
RAM06



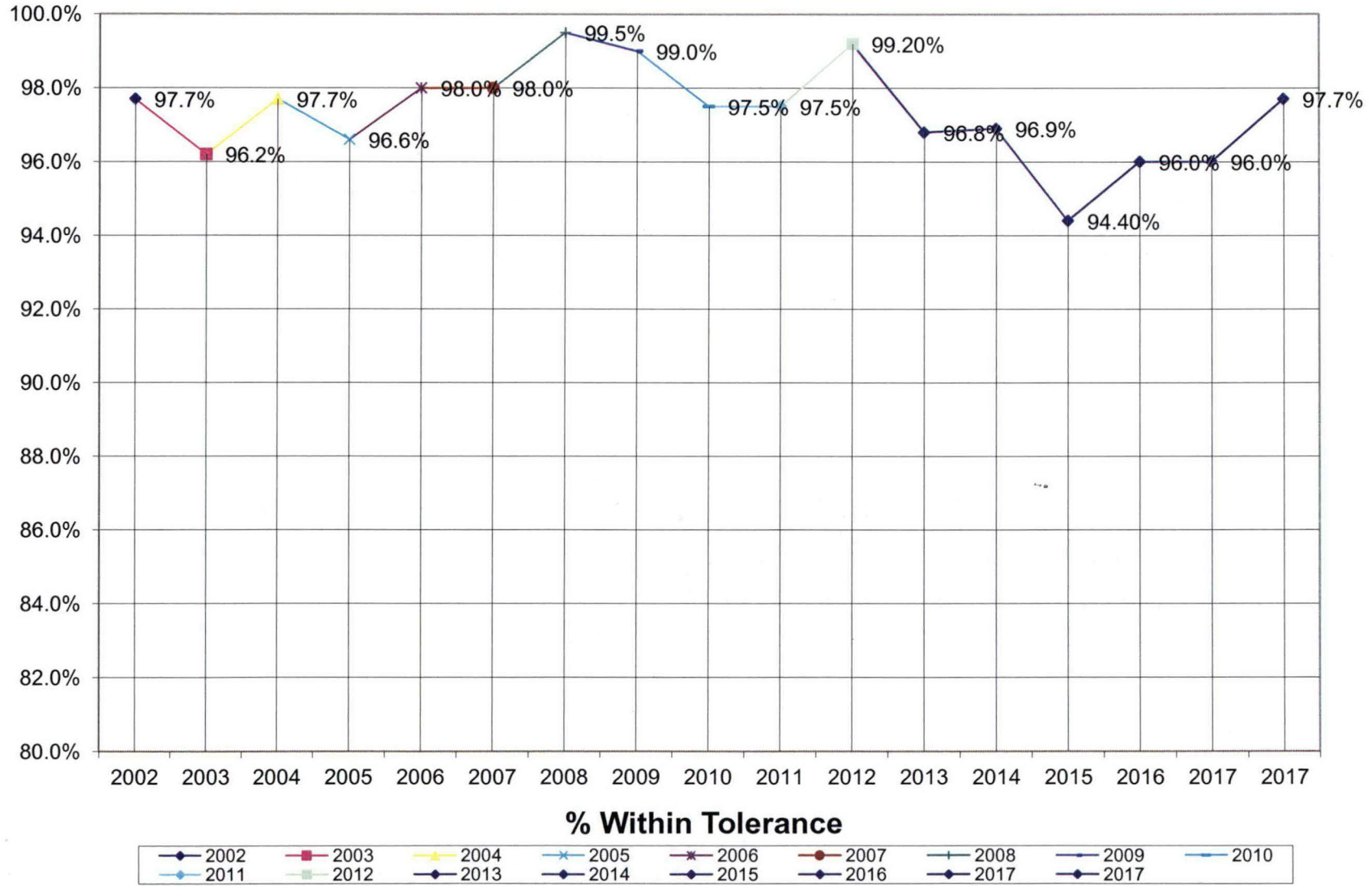
% Within Tolerance

2002	2003	2004	2005	2006	2007	2008	2009	2010
2011	2012	2013	2014	2015	2016	2017	2018	

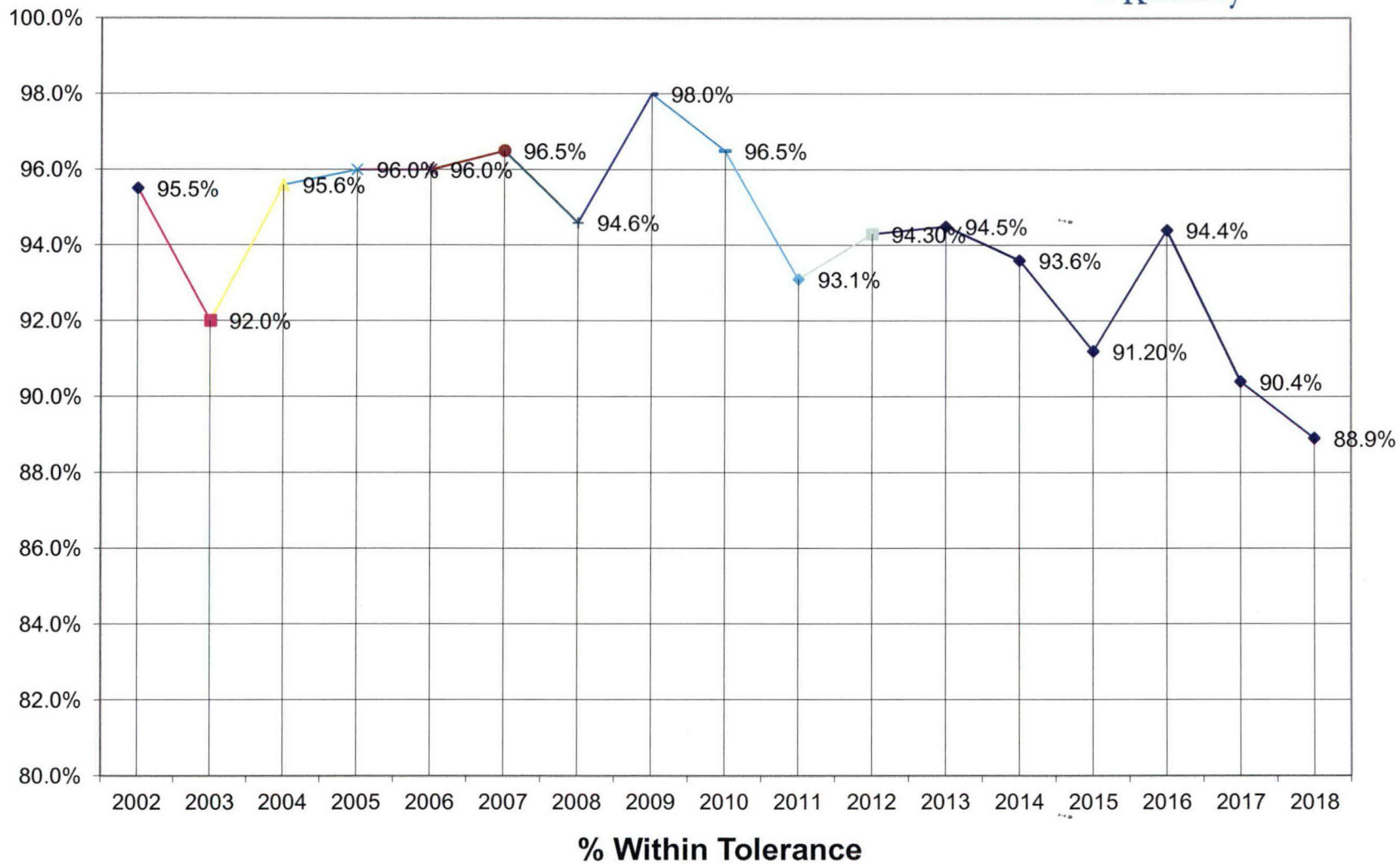
RAM07



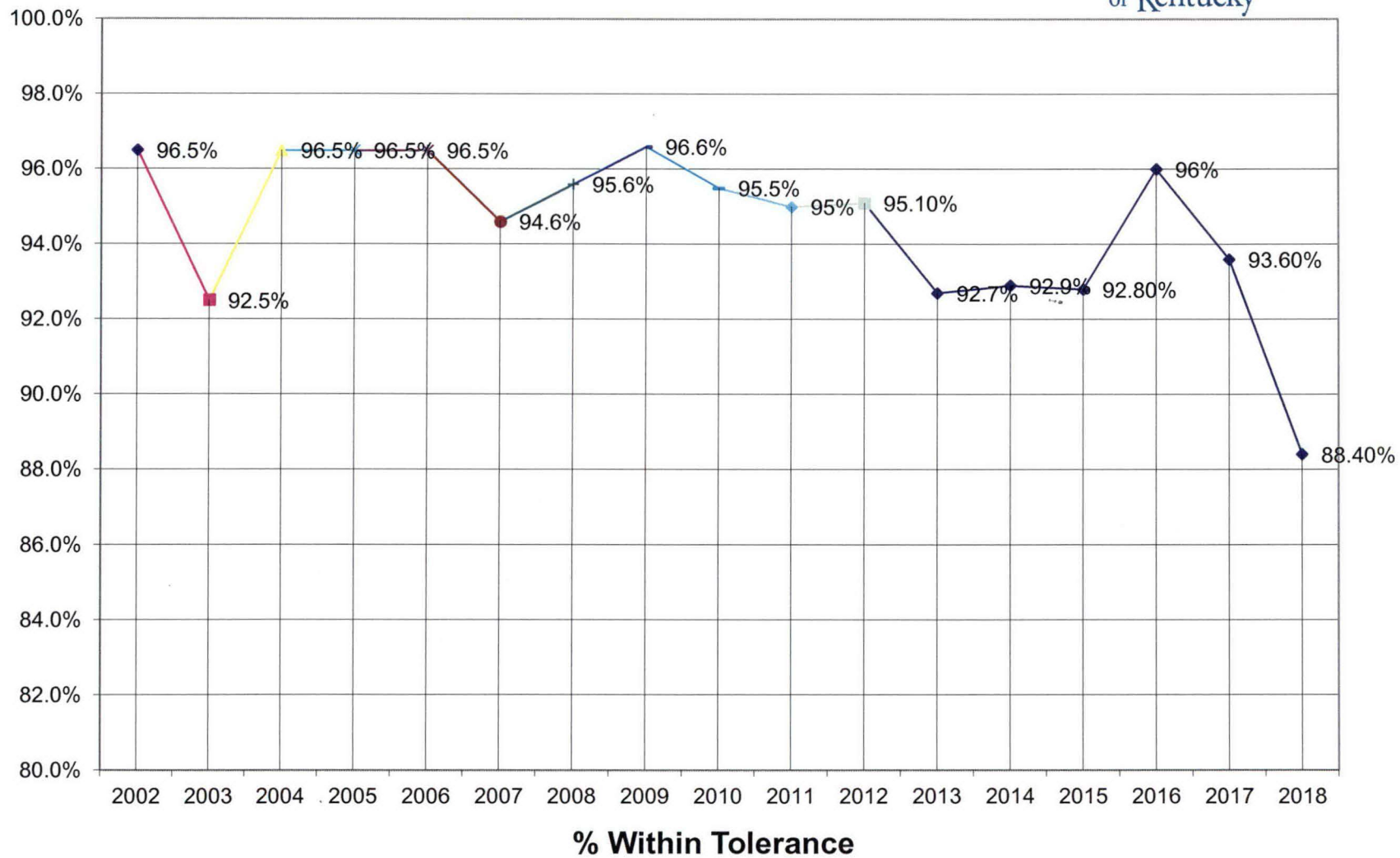
RLA03



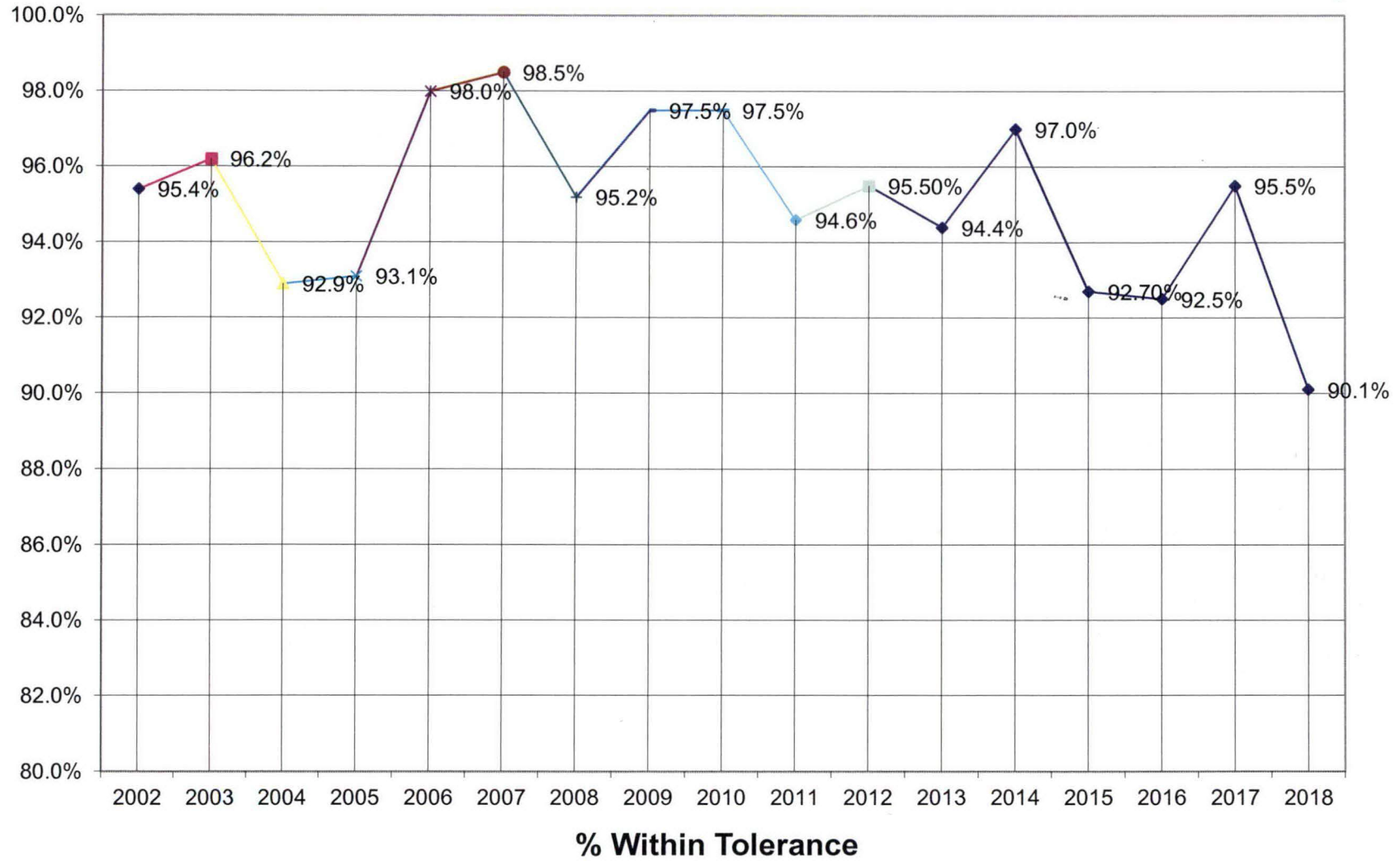
RRO01



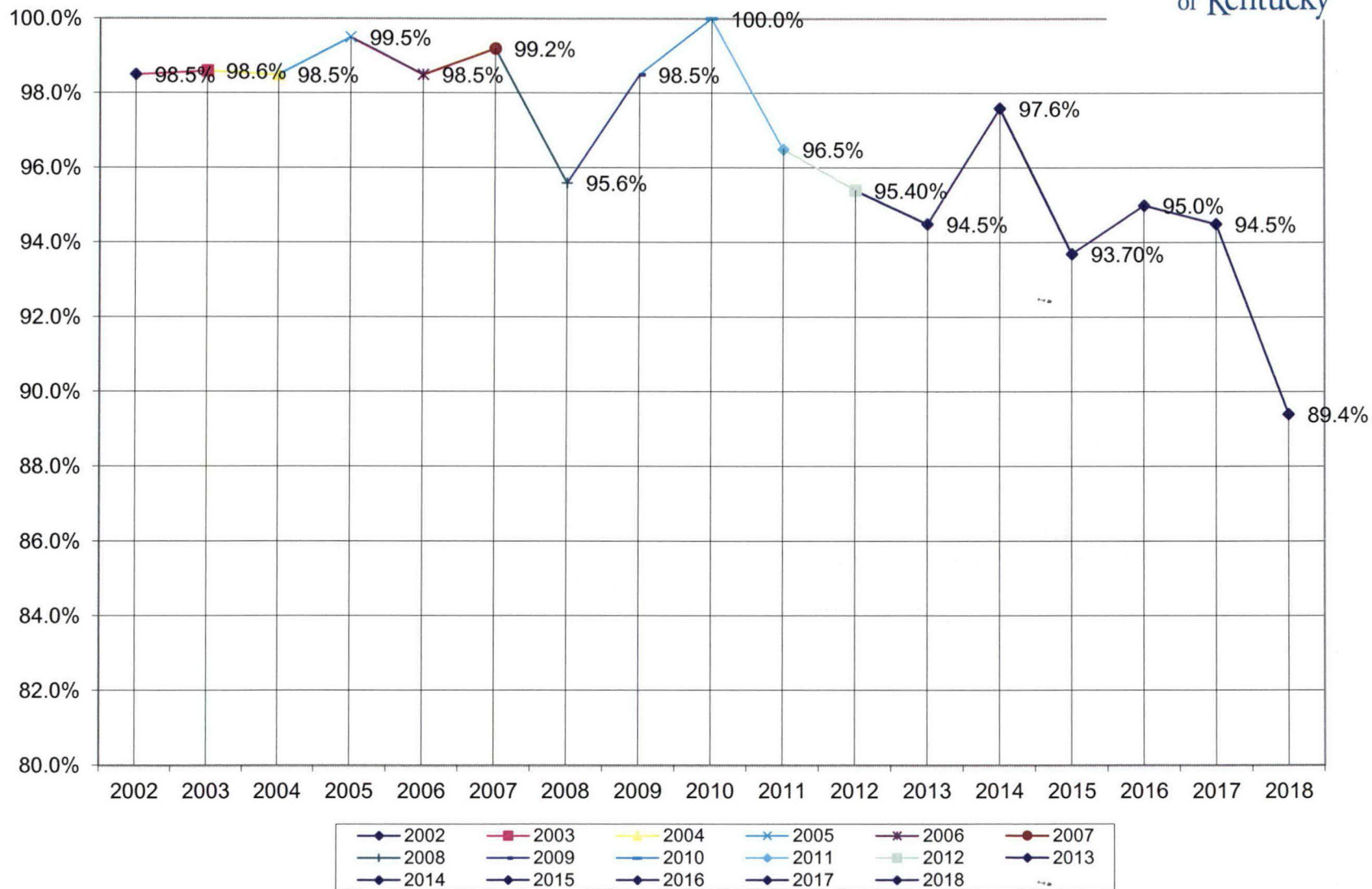
RRO02



RRO03



RRO04



RSP01

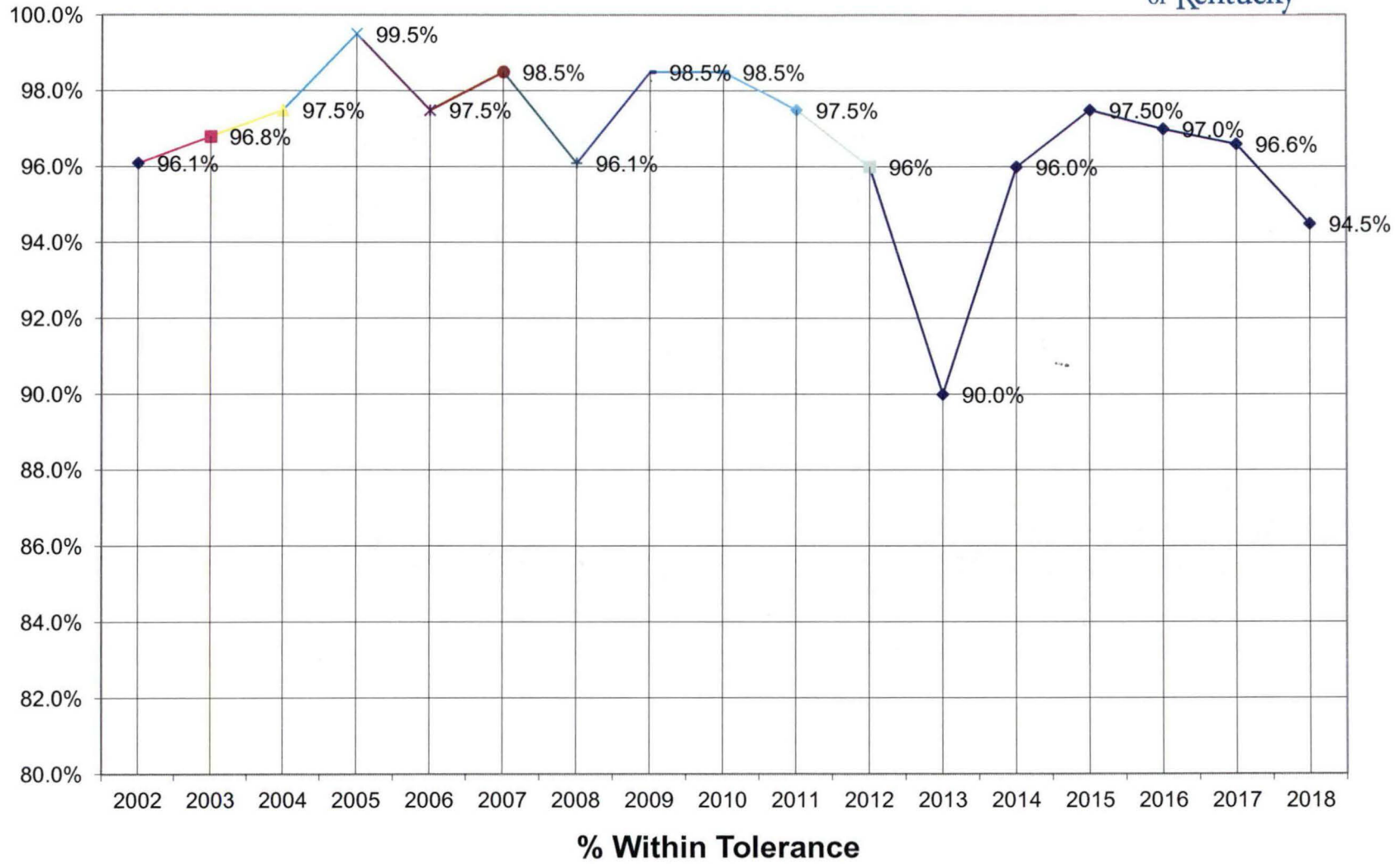


EXHIBIT E

**PERCENTAGE OF LARGE VOLUME METER
ACCURACY BY FAMILY**

Exhibit E - represents the percentage of Large Volume meters sampled in 2017 that were within the +/- 2% rate, identified by homogenous group. We also show previous results of meter families sampled in prior years.

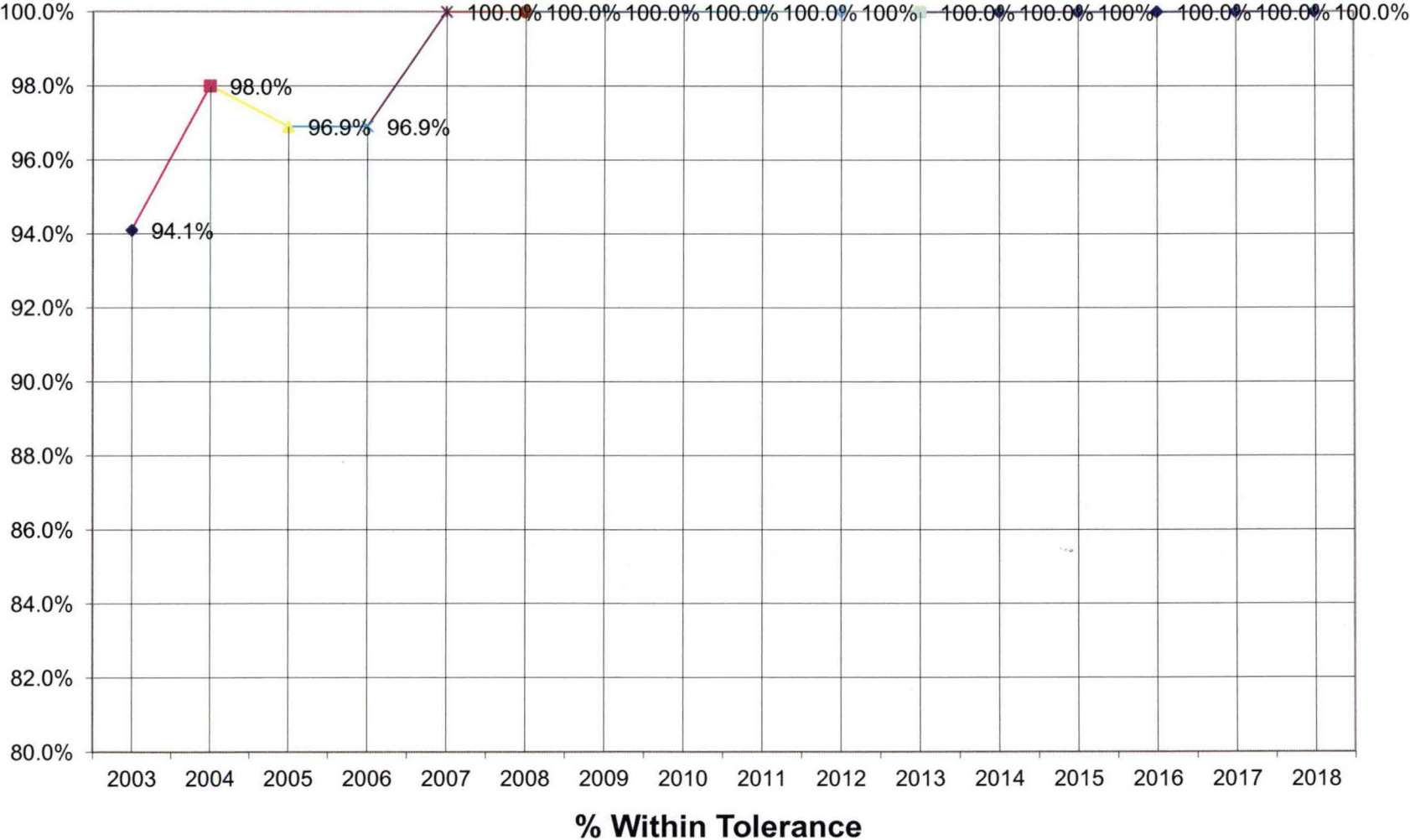
BRAM01 = Repaired American meters installed between 2008 & 2016

BRRO01 = Repaired Rockwell meters installed between 2008 & 2016

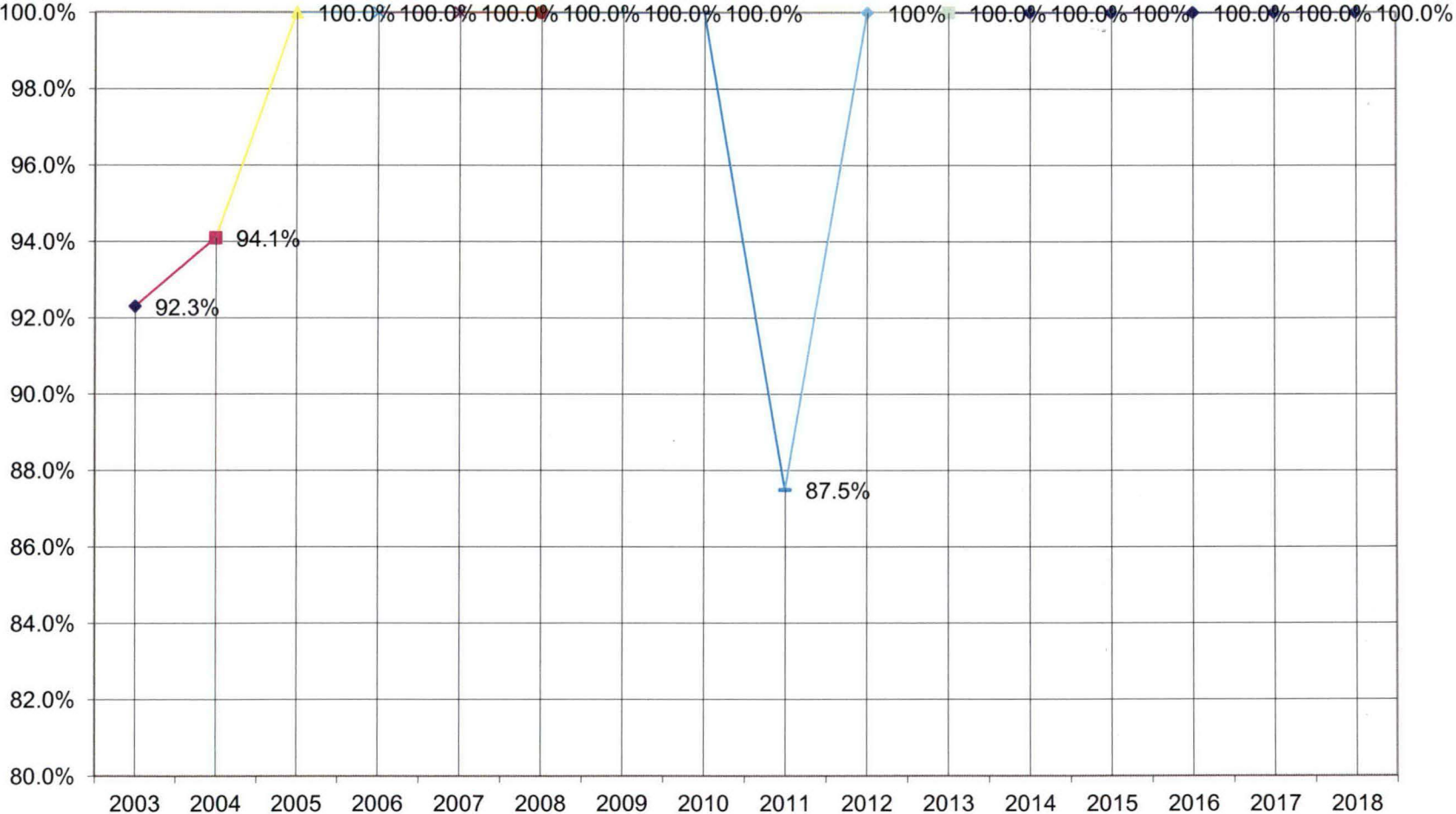
BRSP01 = Repaired Sprague meters installed between 2008 & 2016

BNAM01 = New American meters purchased between 2008 & 2016

BRRO01

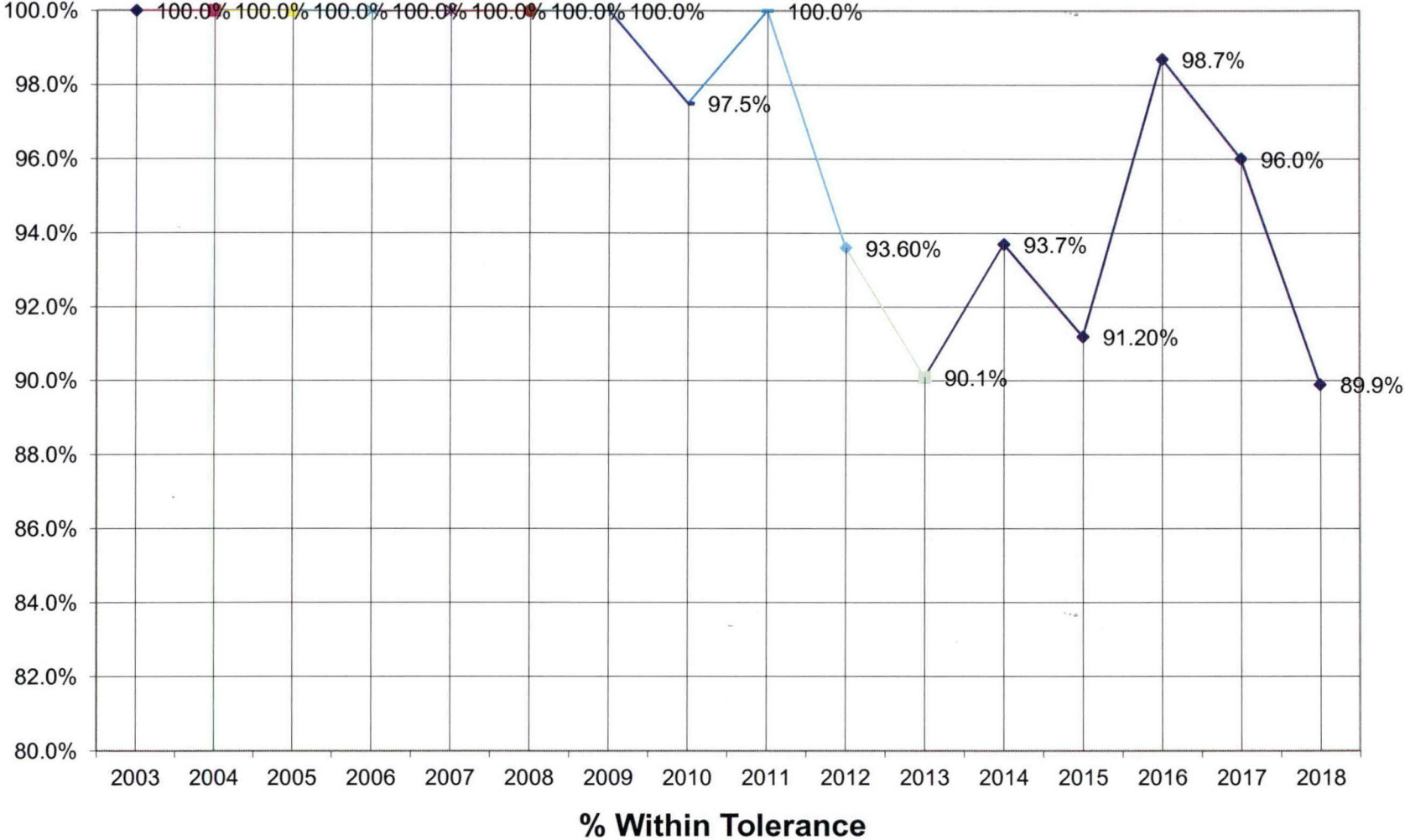


BRSP01



% Within Tolerance

BNAM01



BRAM01

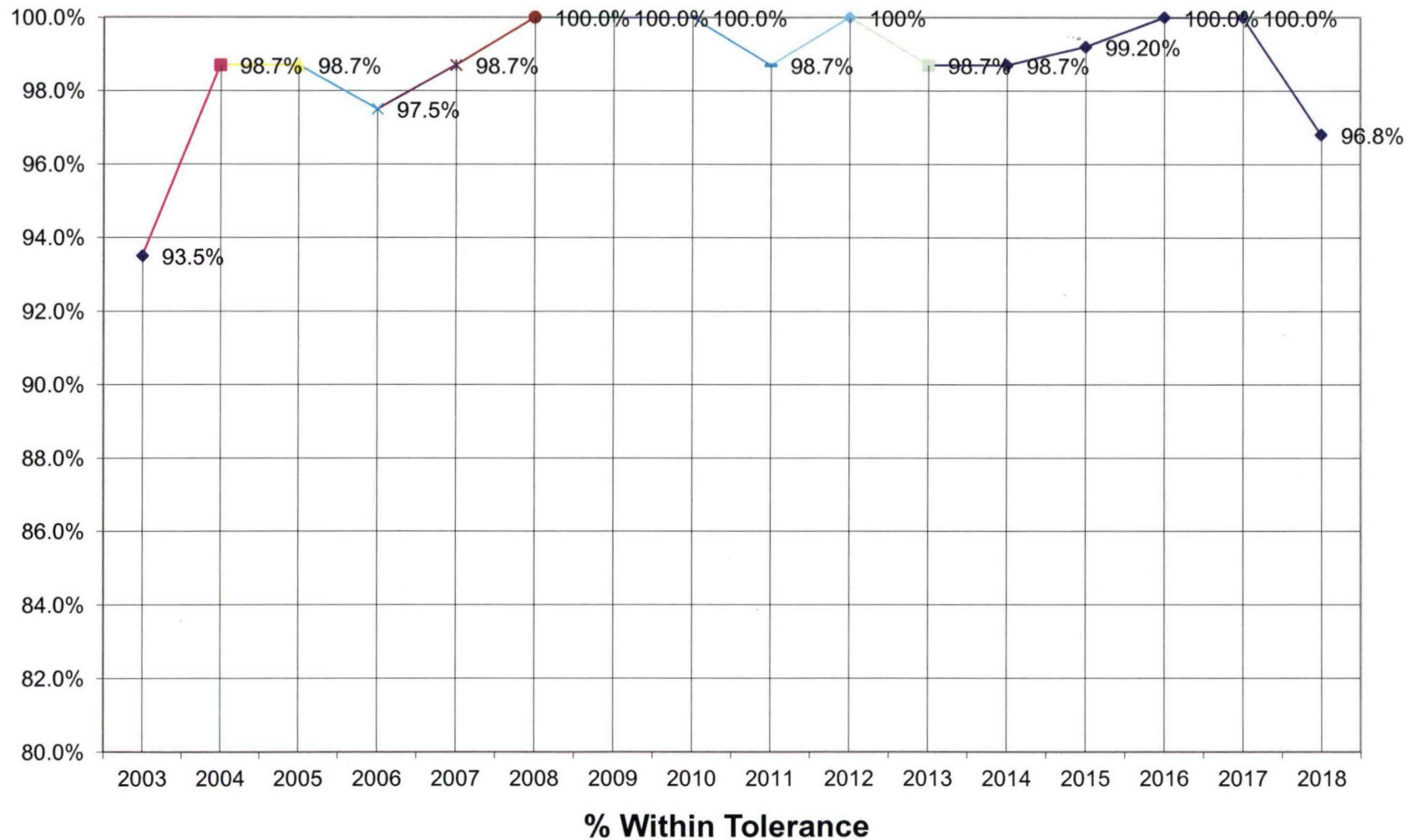


EXHIBIT F

COST SAVINGS

The 2018 sampling program resulted in changing 5282 fewer meters than would have been changed under the 14-year plan Columbia Gas of Kentucky was following prior to meter sampling and changing 9420 fewer meters than would have been required under a 10-year change-out program.

This represents yearly savings of \$1,940,520 compared to a 10-year plan

This represents yearly savings of \$1,088,092 compared to a 14-year plan

EXHIBIT G

TEST RESULTS OF NEW METERS

Columbia Gas of Kentucky purchased 4980 new meters in 2018. The factory test sheets for the new meters purchased in 2018 are on file in the Lexington office.

No problems were found in the new 2018 purchases.