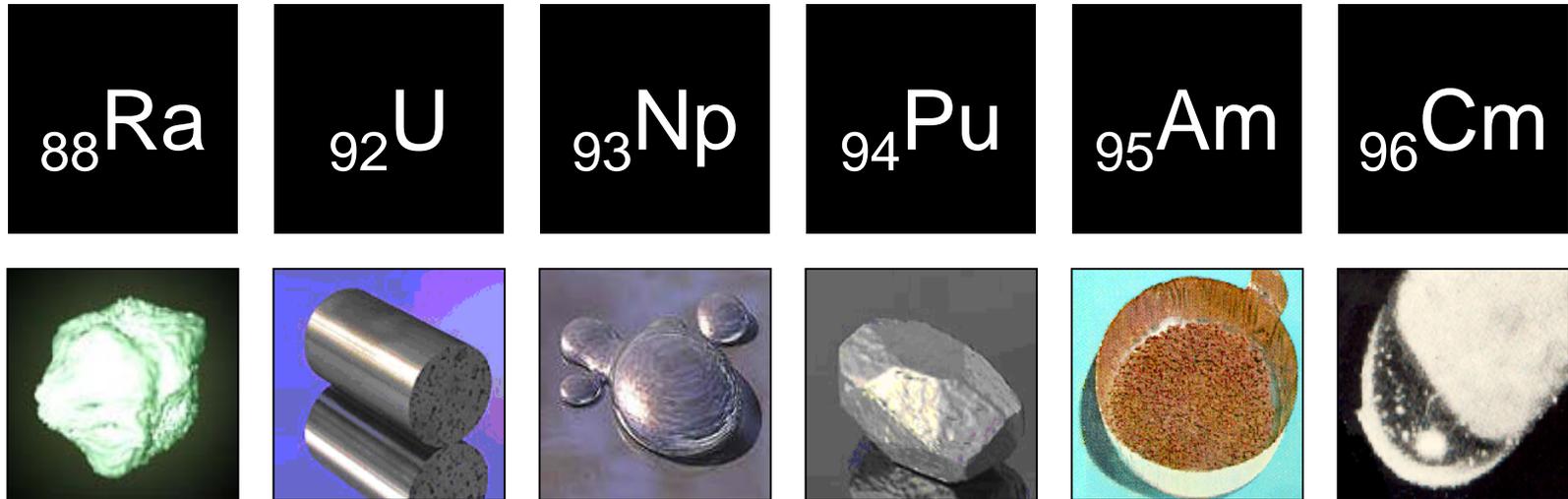


# AL and AH samples 2008



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27 January 2009

# Radionuclides in AL and AH

9 nuclides:

$^{226}\text{Ra}$ ,  $^{234}\text{U}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ,  $^{237}\text{Np}$ ,  $^{238}\text{Pu}$ ,  $^{239}\text{Pu}$ ,  $^{241}\text{Am}$ ,  $^{244}\text{Cm}$

Gross Alpha

Participants:

AL	25	(2007 AL:	23)
AH	16	(2007 AH:	17)

# AL composition (Bq kg<sup>-1</sup>)

	NPL	Labs	%	Zeta
<sup>226</sup> Ra	4.71(6)	4.52(17)	<b>-1.0</b>	1.08
<sup>234</sup> U	14.9(3)	14.23(20)	<b>-4.5</b>	0.28
<sup>235</sup> U	0.680(3)	0.579(19)	<b>-14</b>	<b>5.36</b>
<sup>238</sup> U	14.76(4)	14.68(25)	<b>-0.5</b>	0.31
<sup>237</sup> Np	9.38(10)	9.78(33)	<b>+4.2</b>	1.16
<sup>238</sup> Pu	11.86(4)	11.78(13)	<b>-0.6</b>	0.59
<sup>239</sup> Pu	10.13(5)	10.01(12)	<b>-1.7</b>	1.36
<sup>241</sup> Am	13.57(4)	13.26(14)	<b>-2.3</b>	2.23
<sup>244</sup> Cm	6.96(3)	6.67(10)	<b>-4.2</b>	2.95
Gross Alpha	92(8)	86.1(36)	<b>-7</b>	0.71

# AH composition (Bq g<sup>-1</sup>)

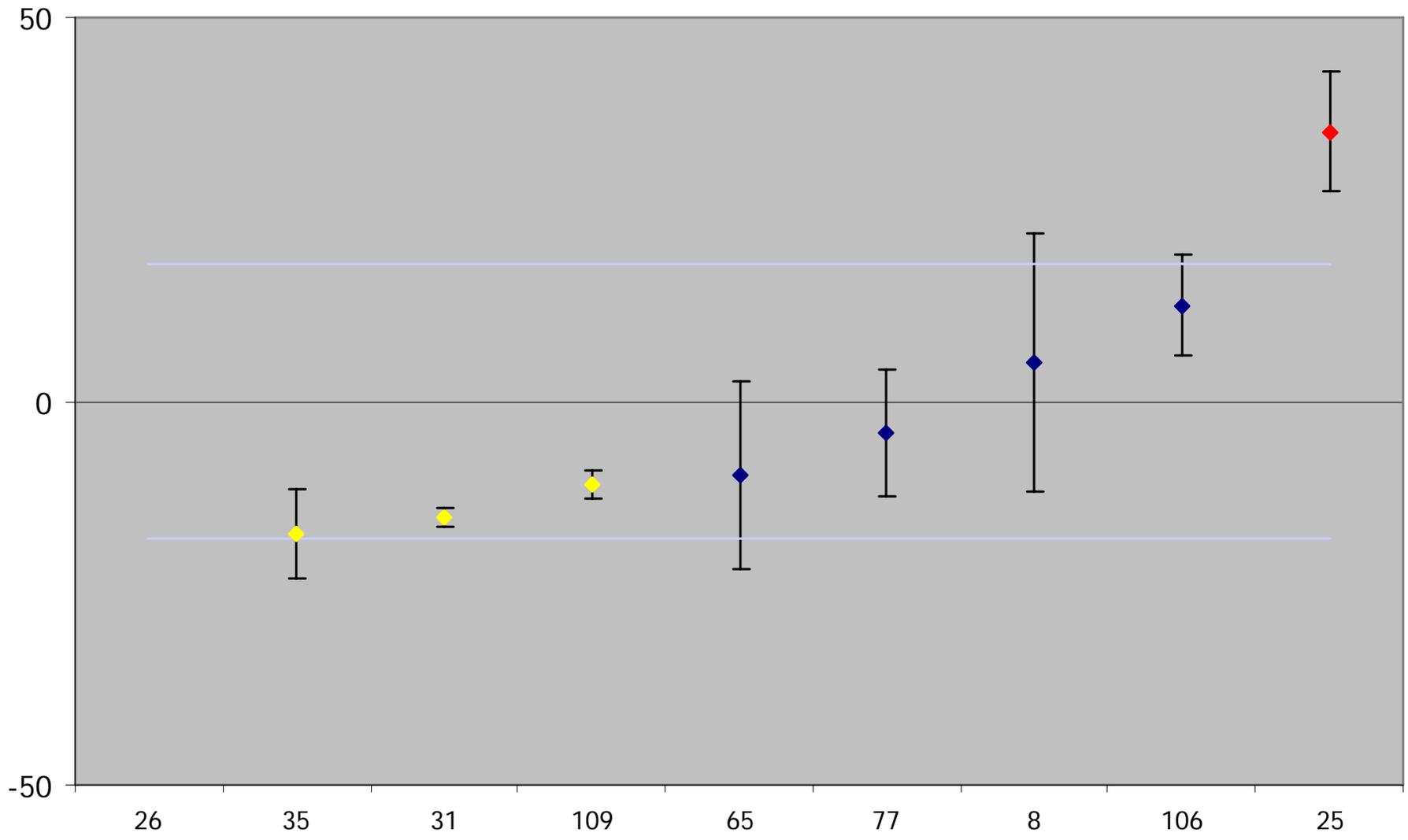
	NPL	Labs	%	Zeta
<sup>226</sup> Ra	4.77(6)	4.86(14)	<b>+1.9</b>	0.59
<sup>234</sup> U	11.40(23)	11.54(14)	<b>+1.2</b>	0.38
<sup>235</sup> U	0.5188(19)	0.464(12)	<b>-10</b>	<b>4.23</b>
<sup>238</sup> U	11.262(17)	11.33(12)	<b>+0.6</b>	0.60
<sup>237</sup> Np	3.20(4)	3.30(5)	<b>+3.1</b>	1.75
<sup>238</sup> Pu	5.807(18)	5.50(11)	<b>-5.3</b>	2.10
<sup>239</sup> Pu	15.34(7)	14.6(3)	<b>-4.8</b>	2.82
<sup>241</sup> Am	3.369(7)	3.27(4)	<b>+2.9</b>	2.55
<sup>244</sup> Cm	4.708(14)	4.44(7)	<b>-5.7</b>	<b>3.61</b>
Gross Alpha	65(8)	57.1(8)	<b>-12</b>	1.01

# AL and AH in agreement (%)

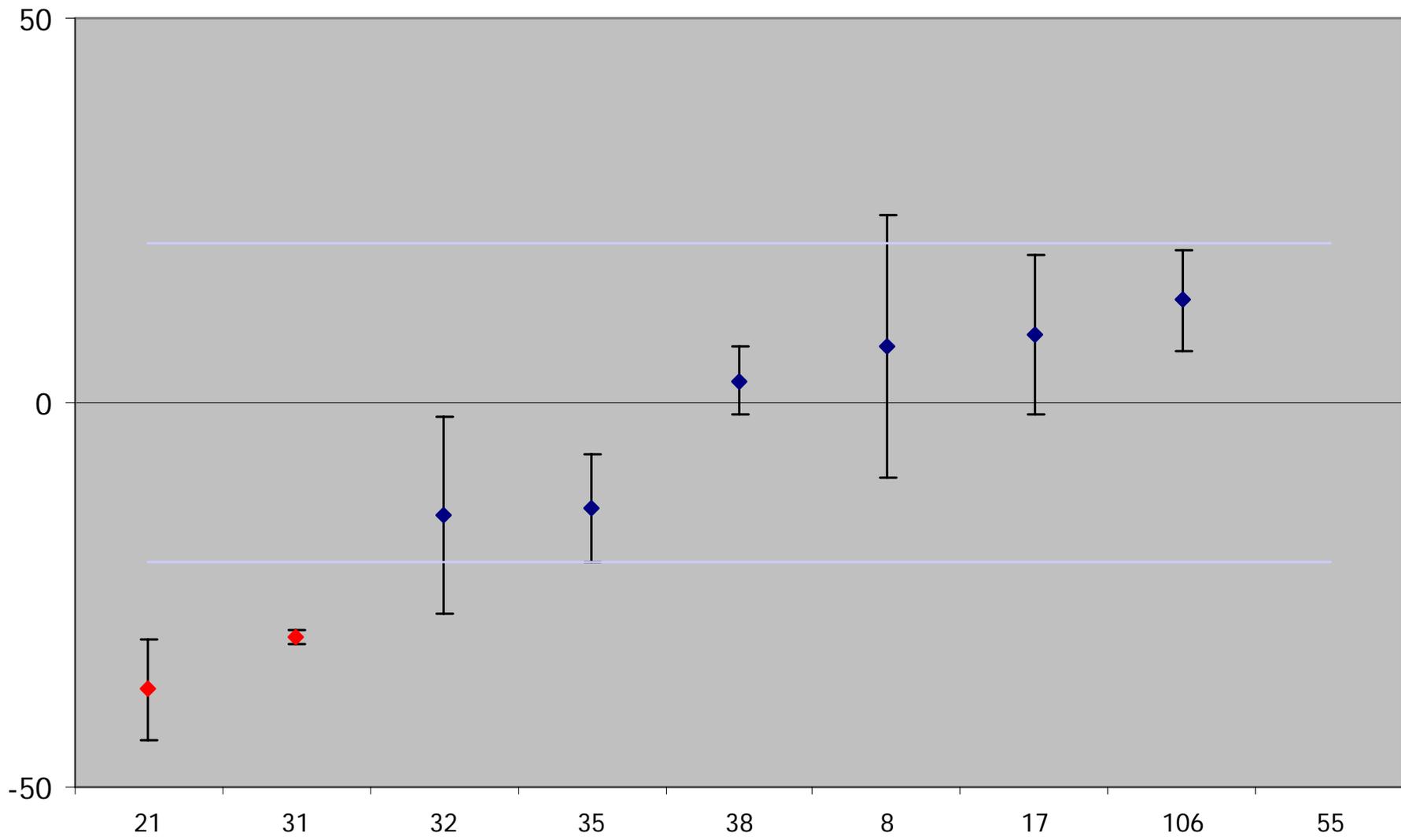
	AL %		AH %	
$^{226}\text{Ra}$	44	(67)	67	(57)
$^{234}\text{U}$	88		64	
$^{235}\text{U}$	71		62	
$^{238}\text{U}$	82	(71)	71	(81)
$^{237}\text{Np}$	75	(50)	57	(86)
$^{238}\text{Pu}$	78	(90)	80	(77)
$^{239}\text{Pu}$	78	(90)	70	(77)
$^{241}\text{Am}$	77	(86)	73	(76)
$^{244}\text{Cm}$	64	(50)	73	(38)
Gross Alpha	40	(20)	71	(100)

(x) refer to 2007 values

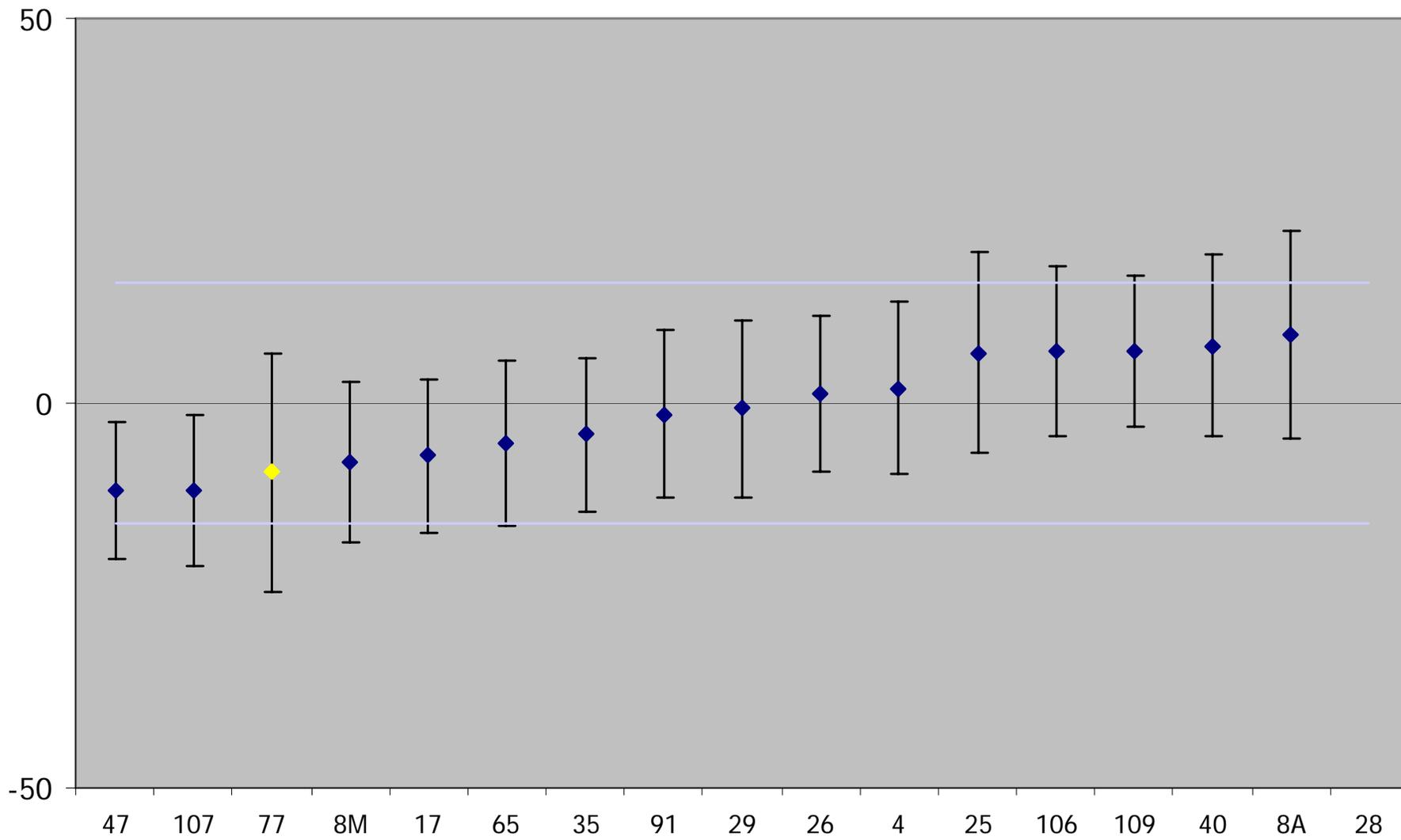
# Deviation (%) Ra-226 AL



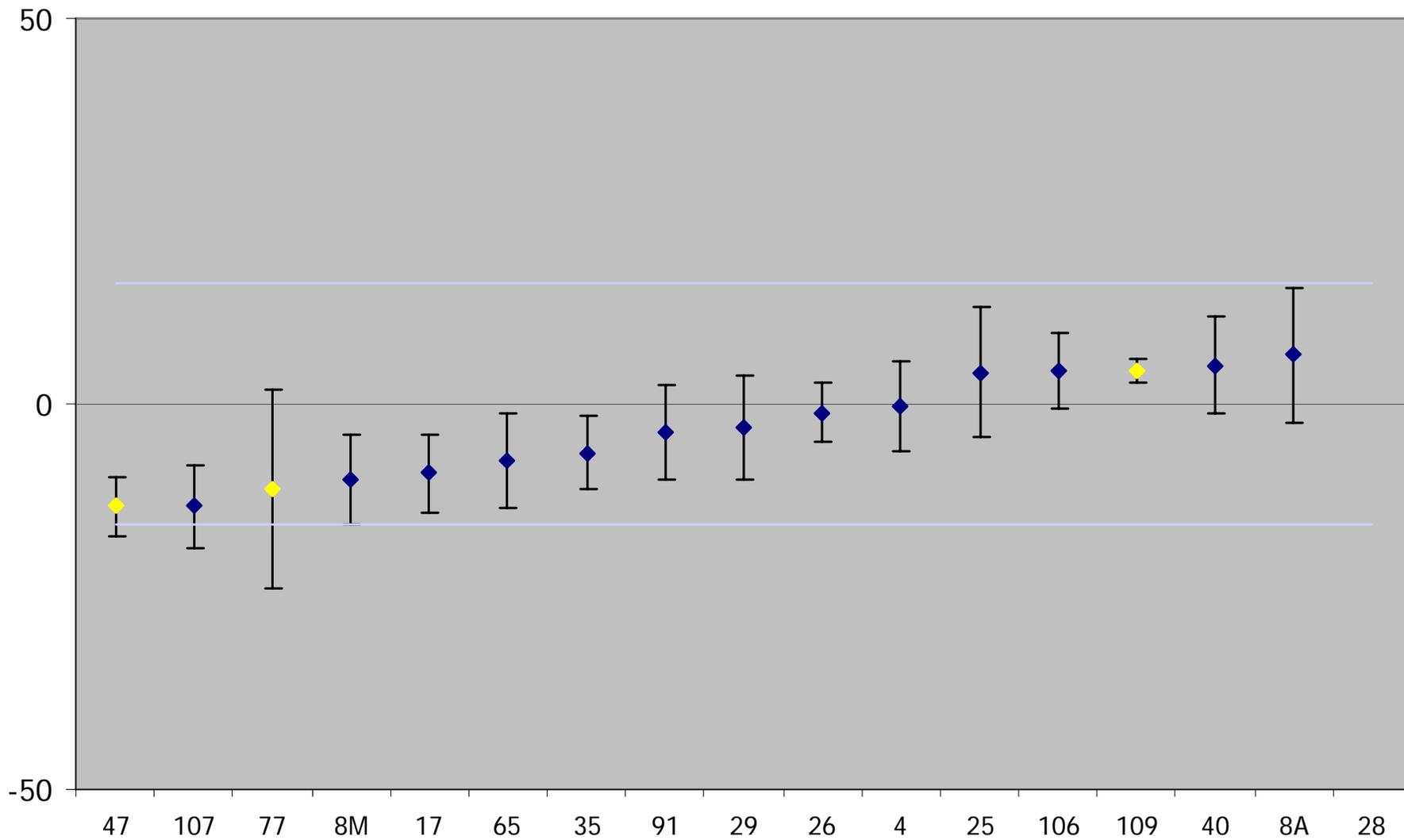
# Deviation (%) Ra-226 AH



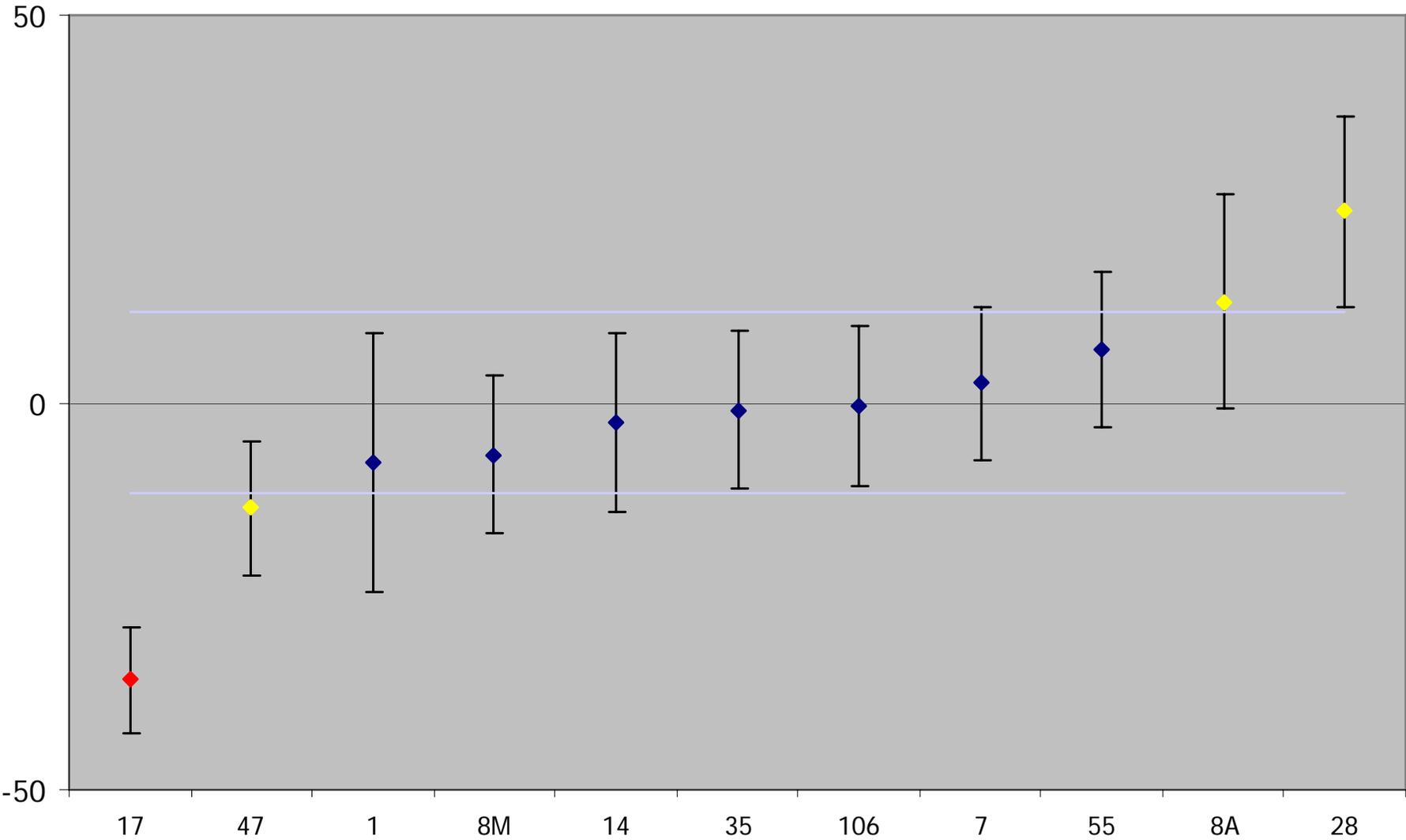
# Deviation (%) U-234 AL



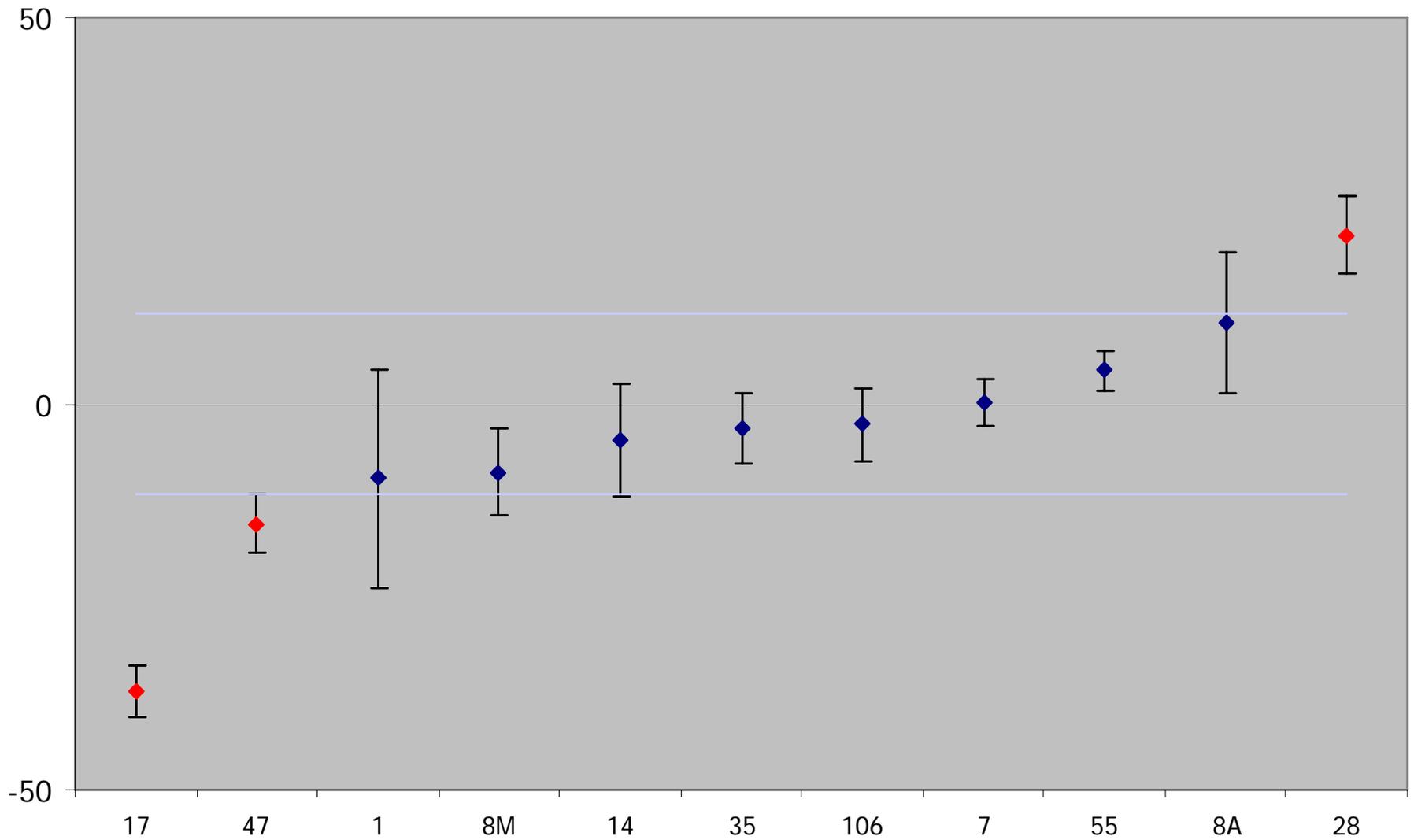
# Deviation (%) U-234 AL (alpha spec)



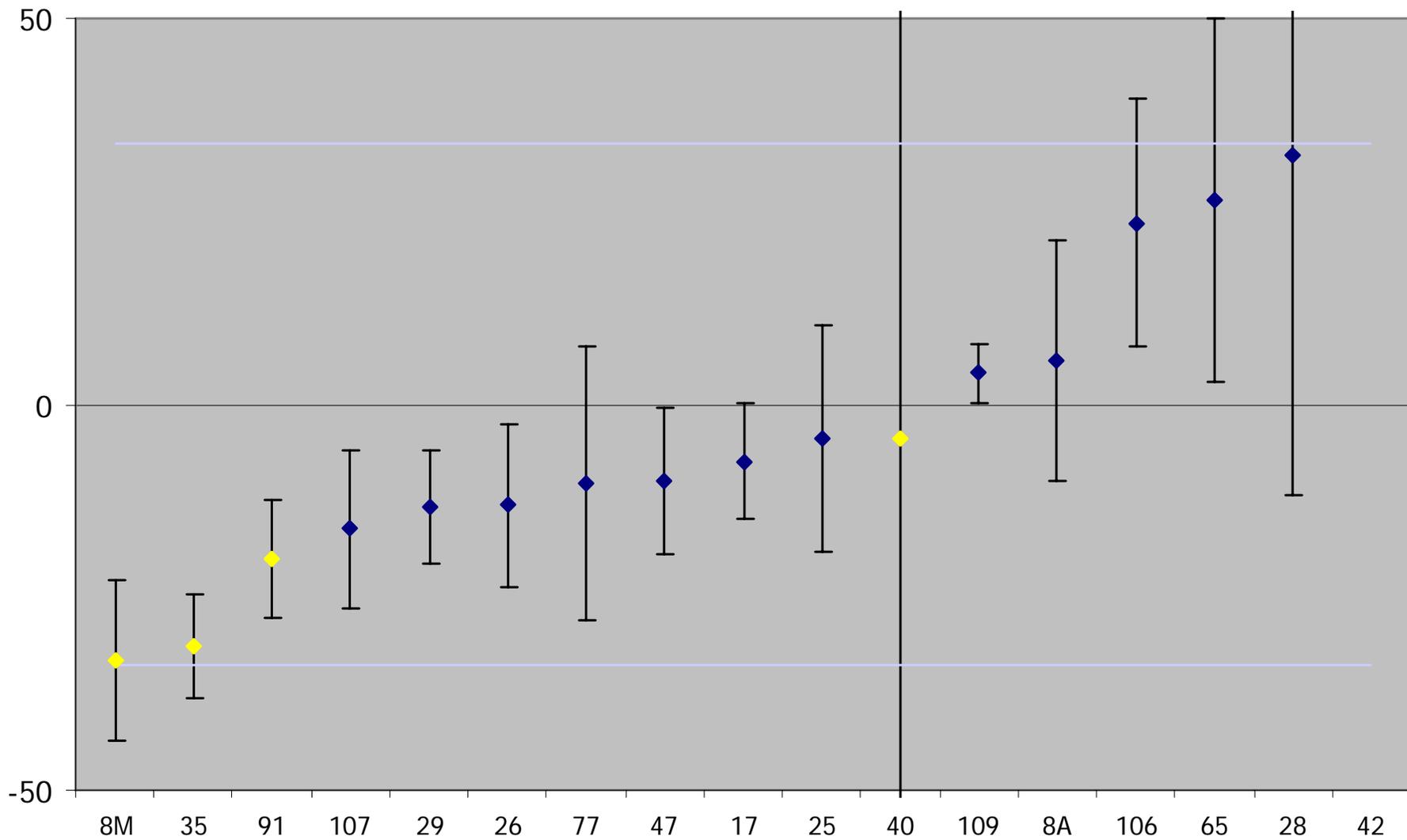
# Deviation (%) U-234 AH



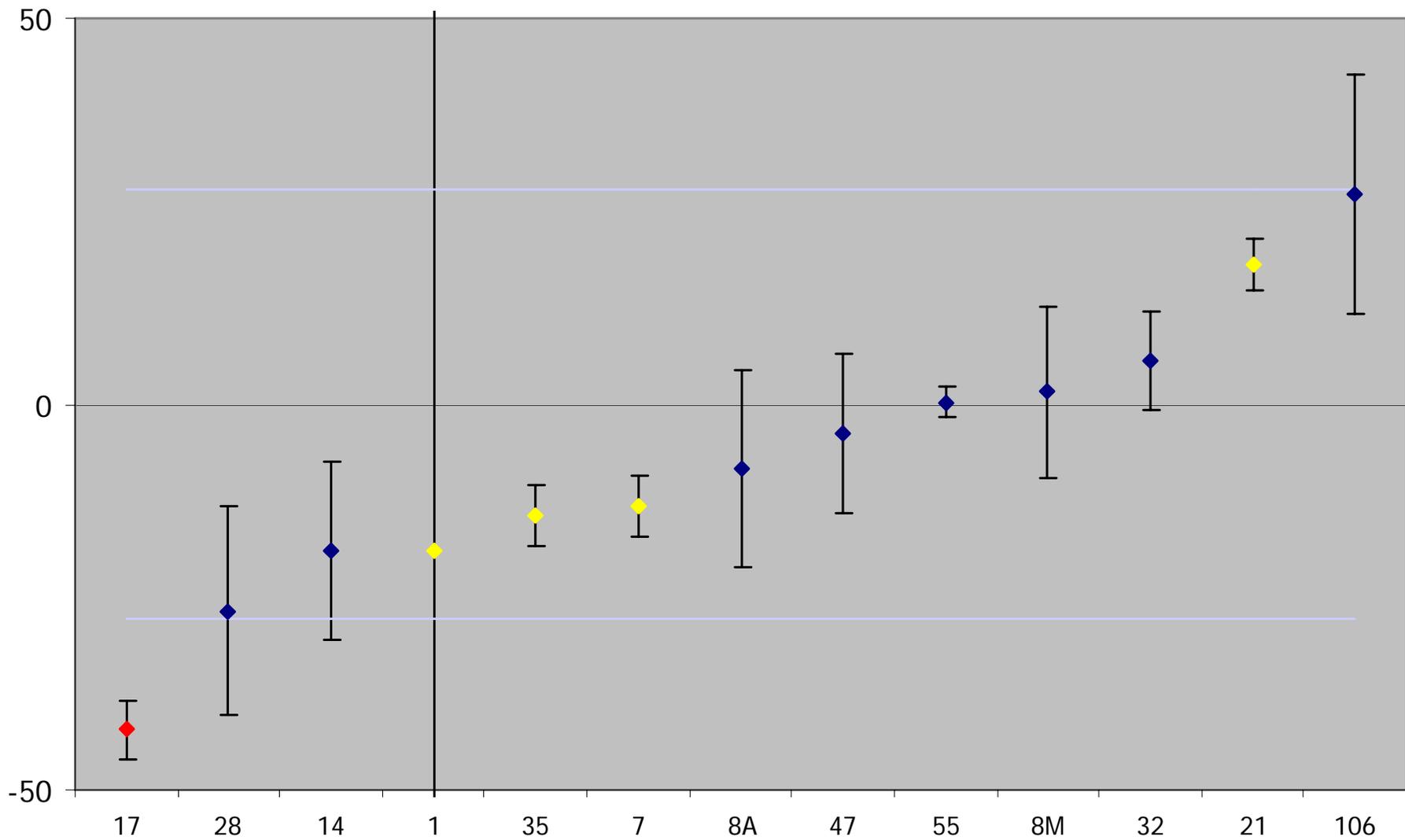
# Deviation (%) U-234 AH (alpha spec)



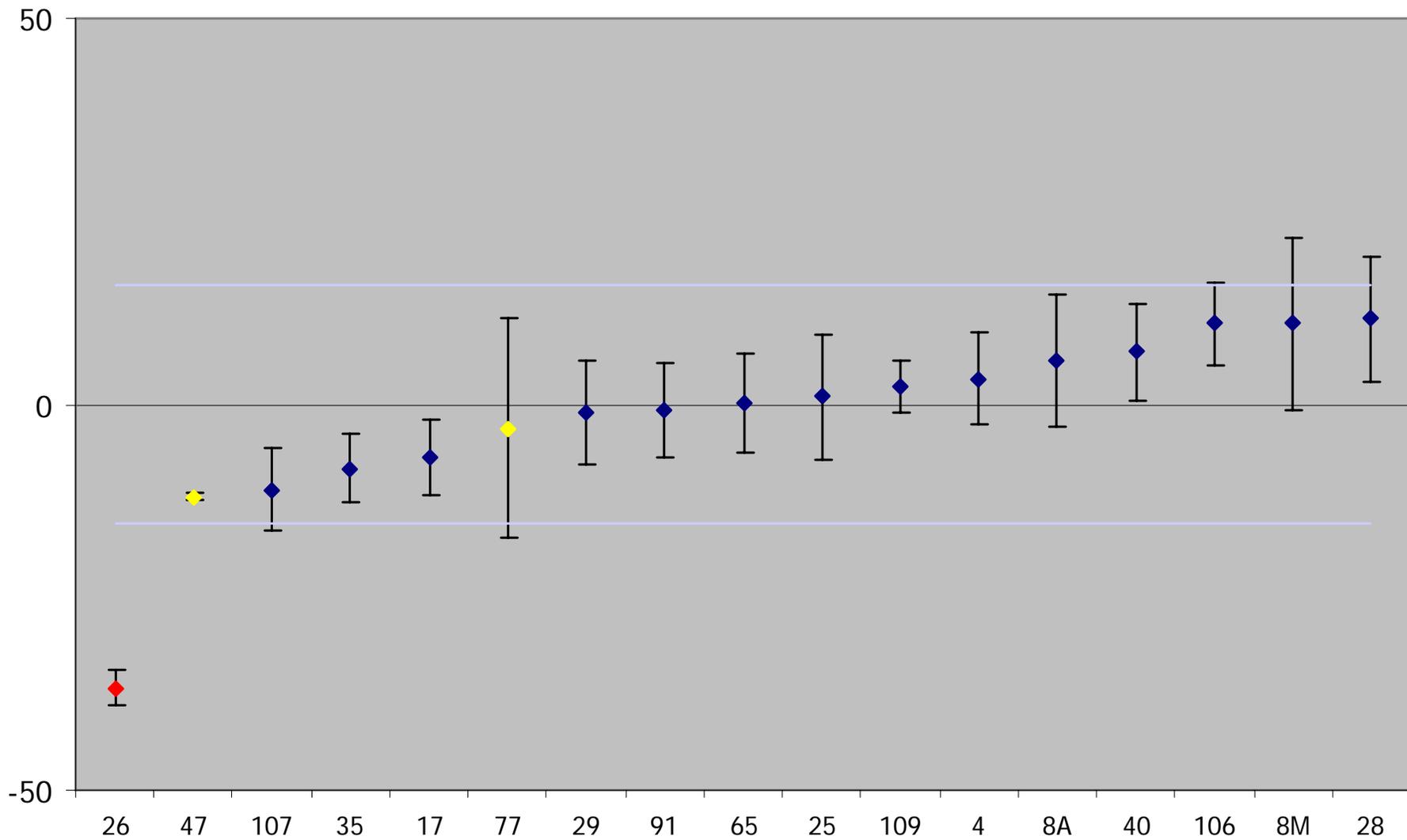
# Deviation (%) U-235 AL



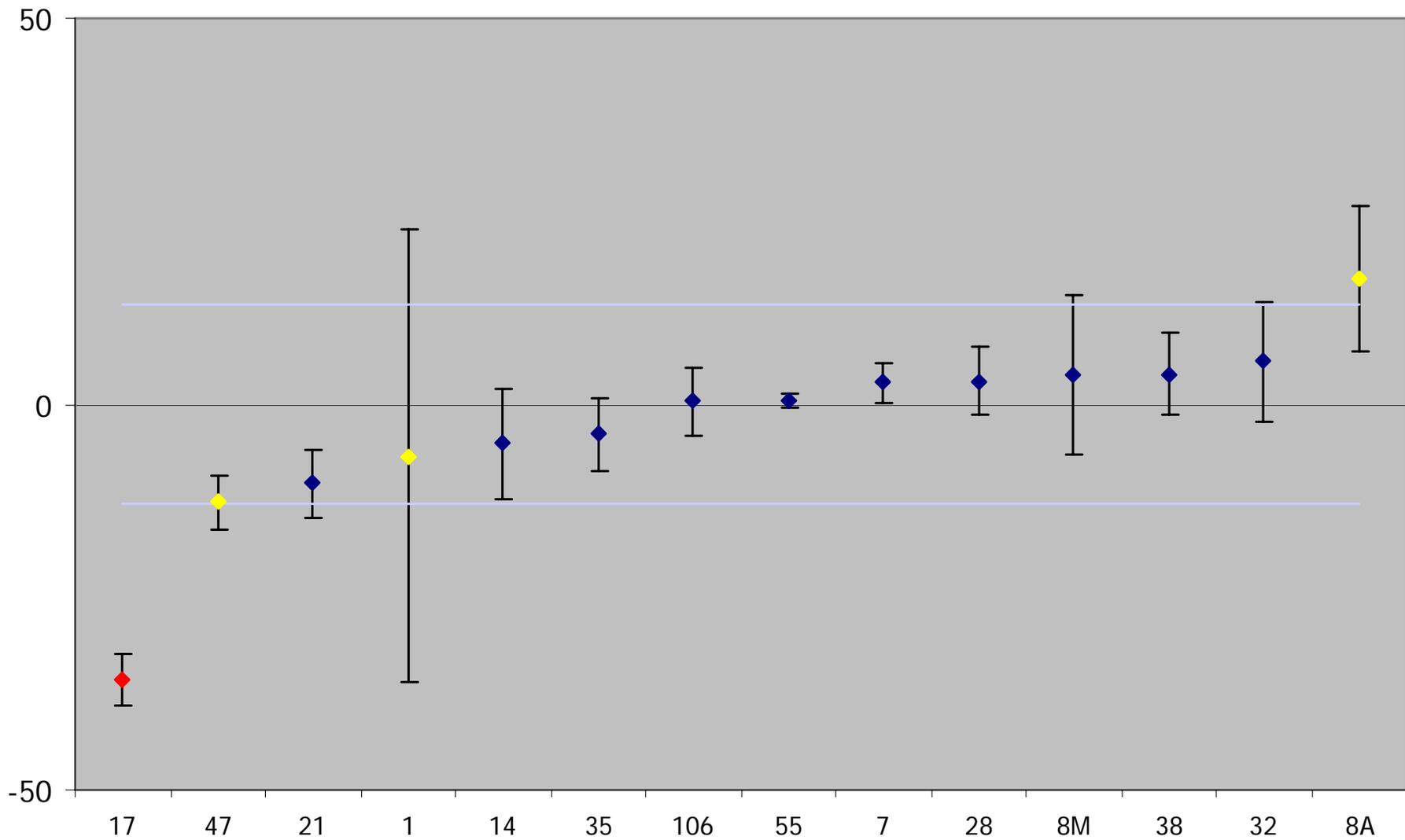
# Deviation (%) U-235 AH



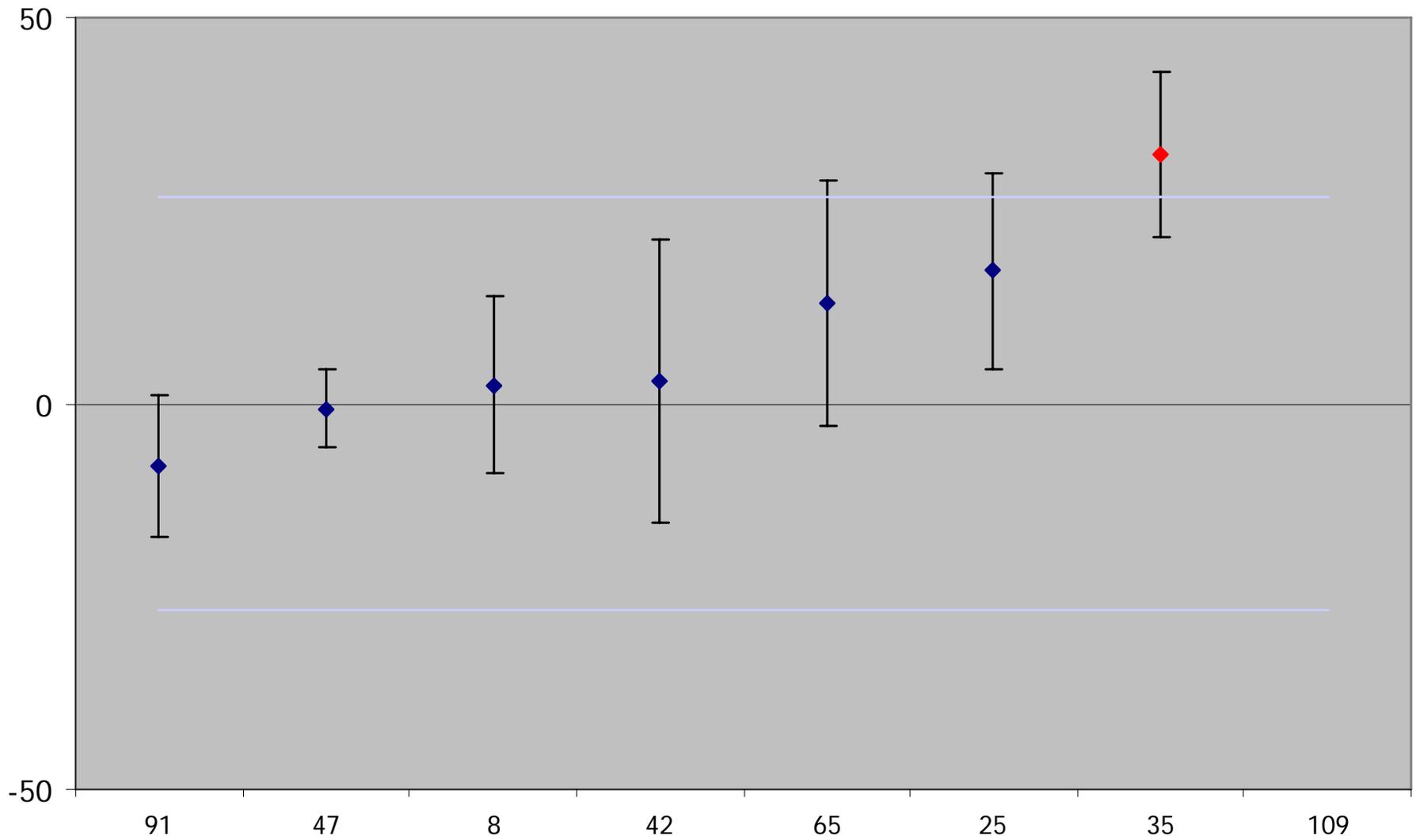
# Deviation (%) U-238 AL



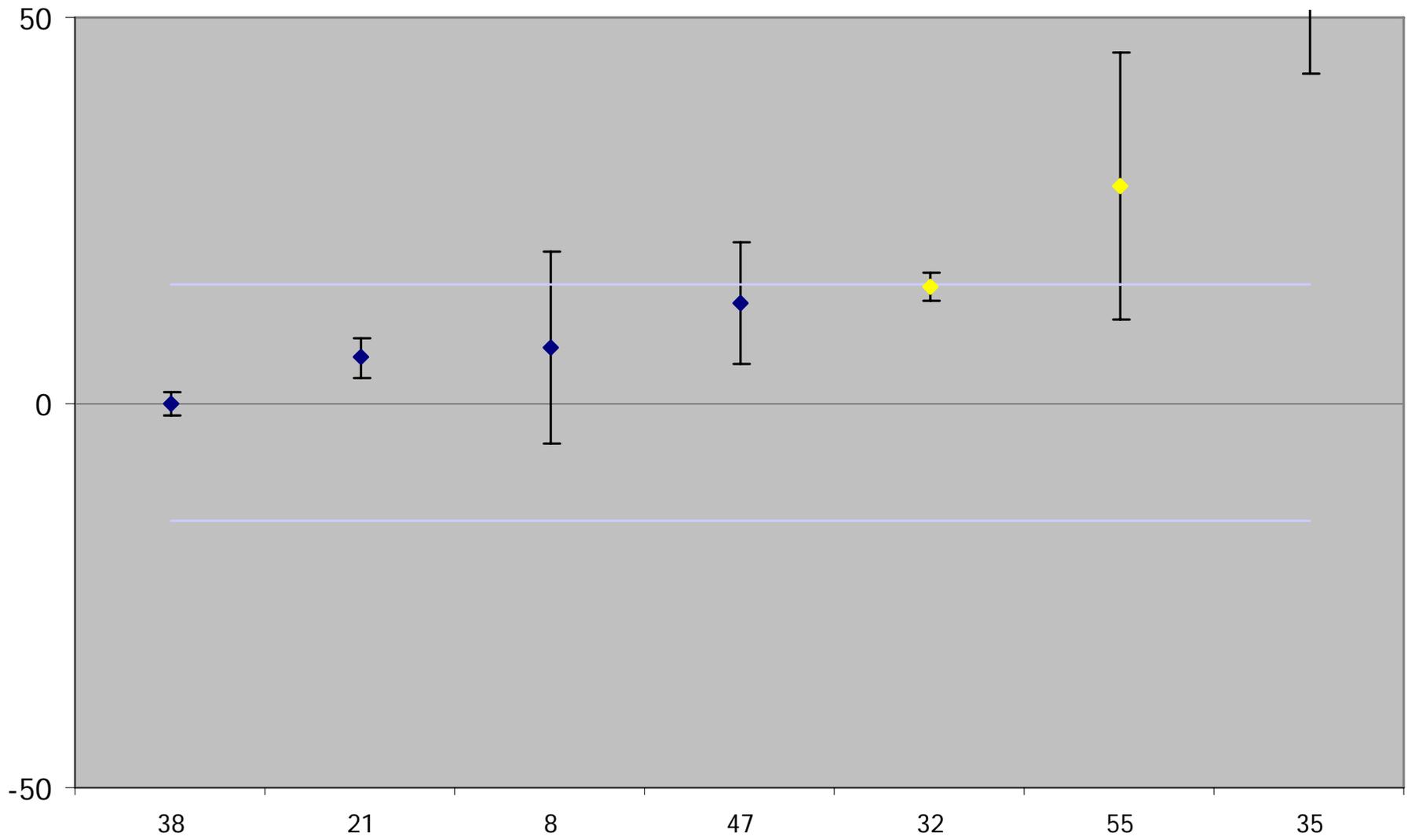
# Deviation (%) U-238 AH



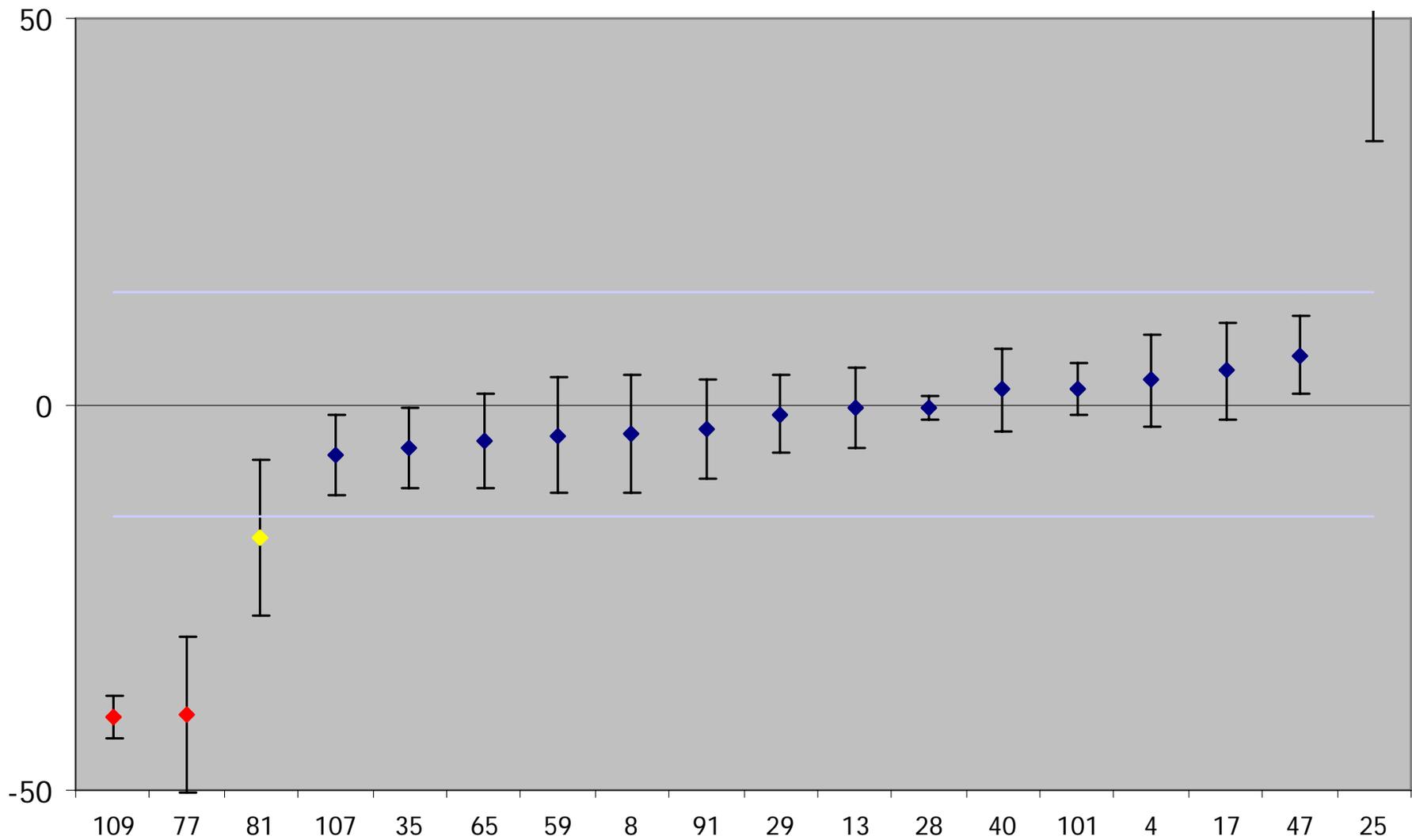
# Deviation (%) Np-237 AL



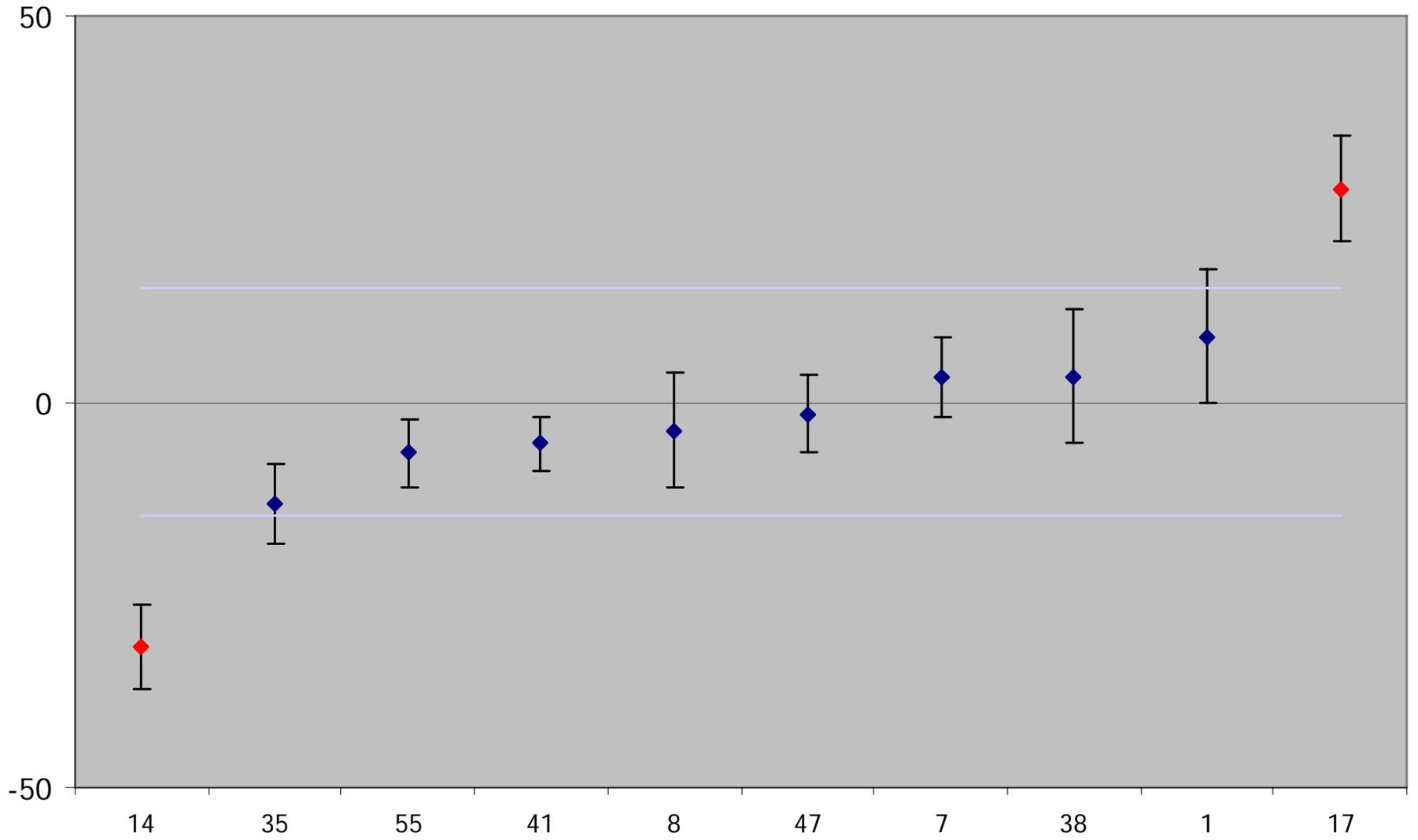
# Deviation (%) Np-237 AH



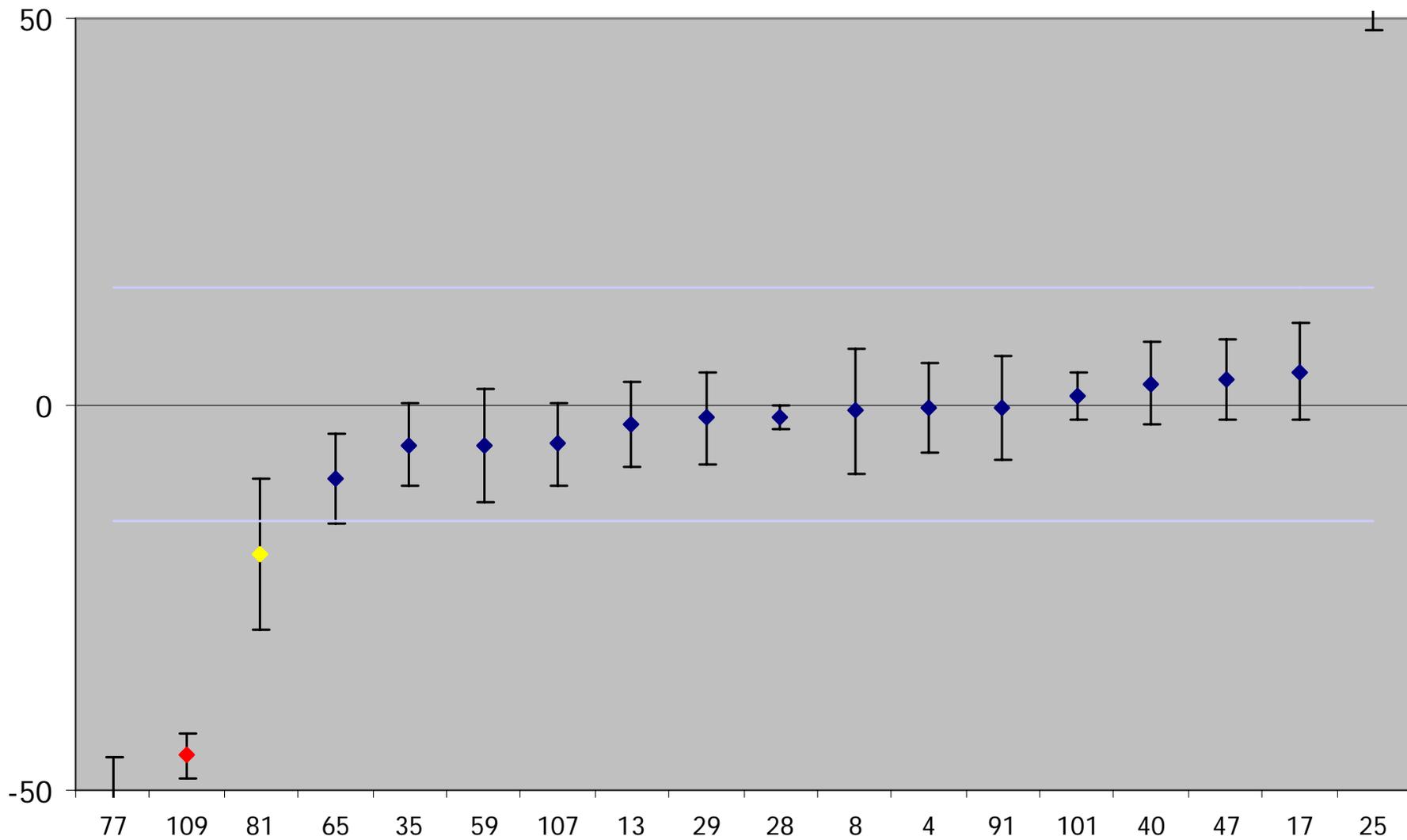
# Deviation (%) Pu-238 AL



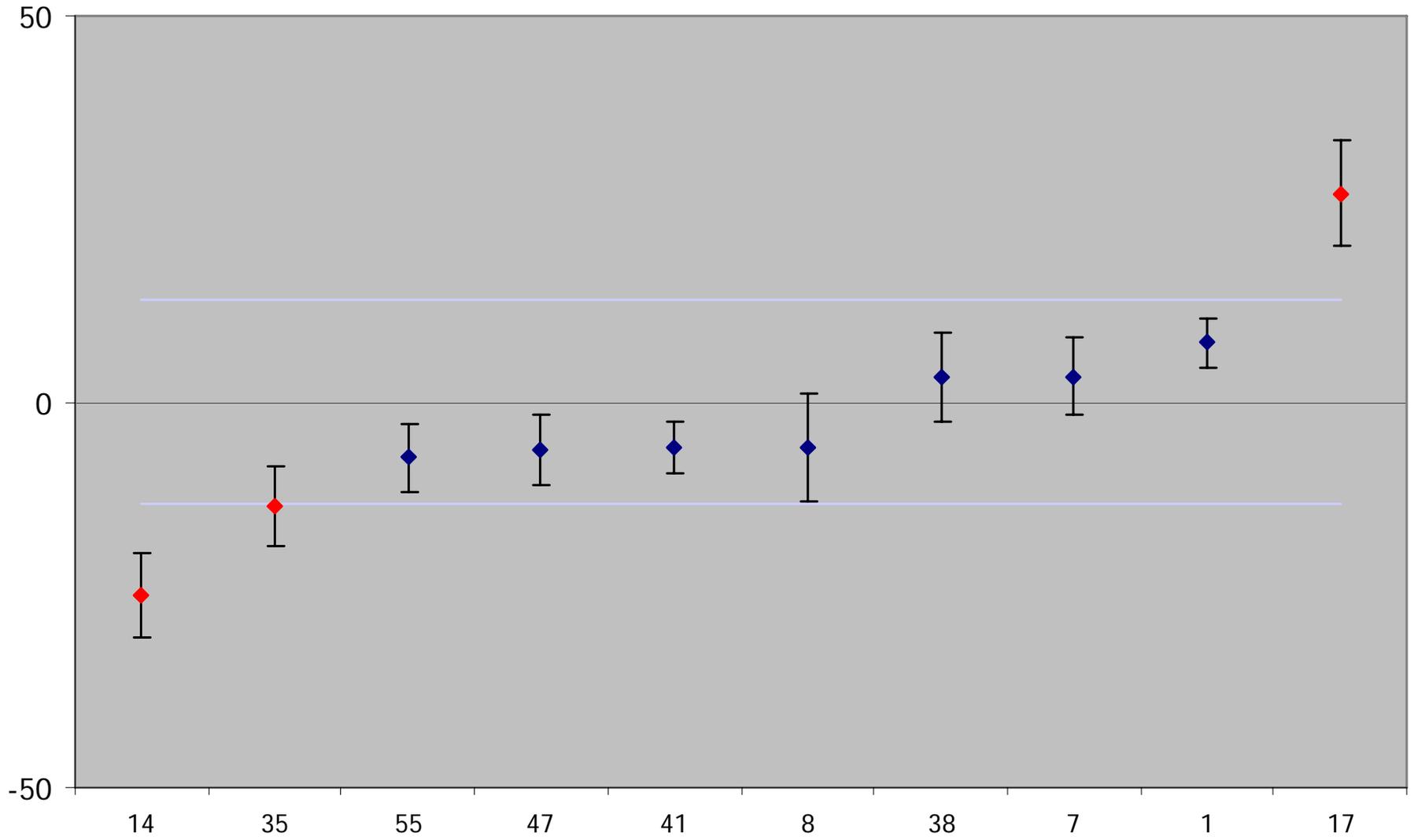
# Deviation (%) Pu-238 AH



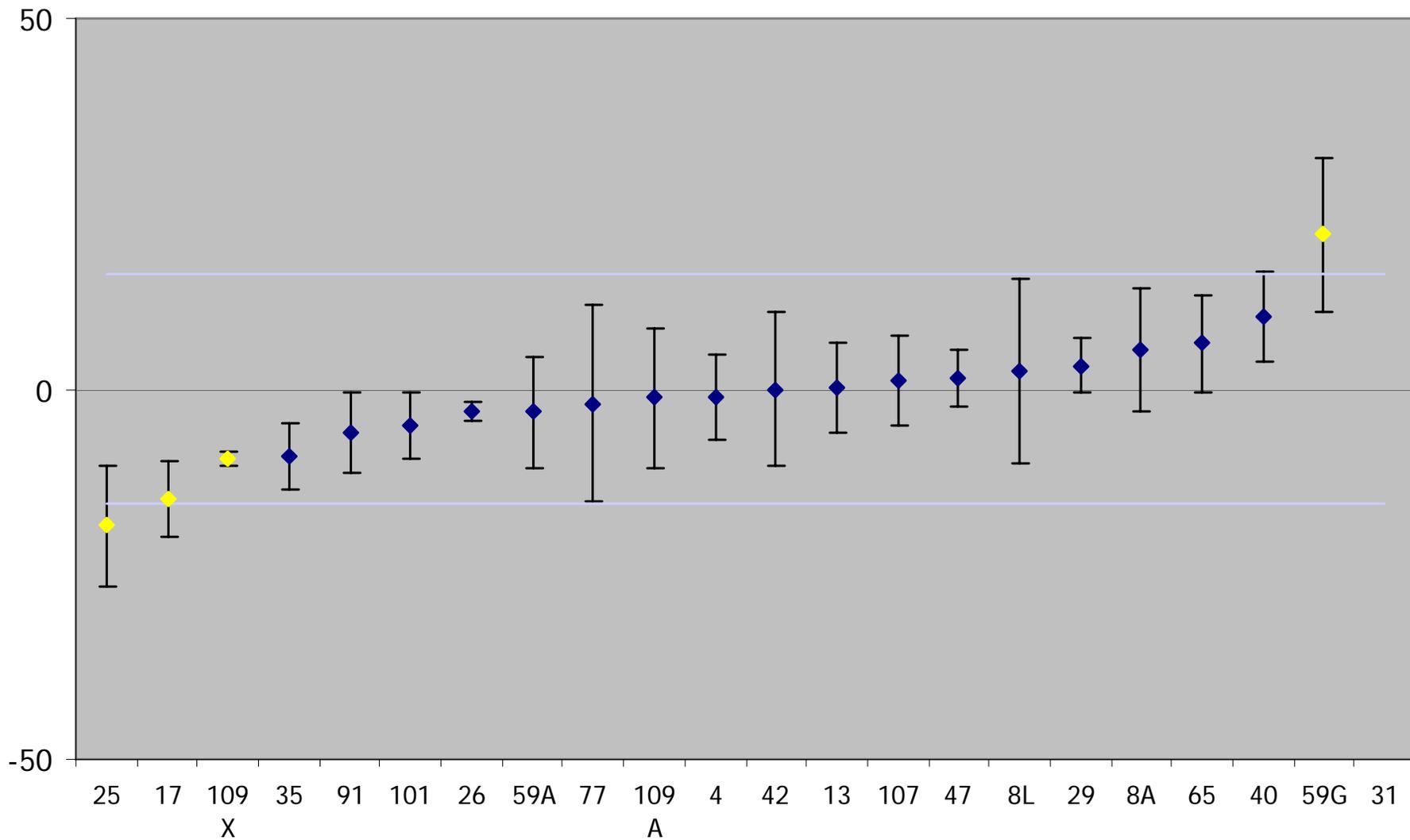
# Deviation (%) Pu-239 AL



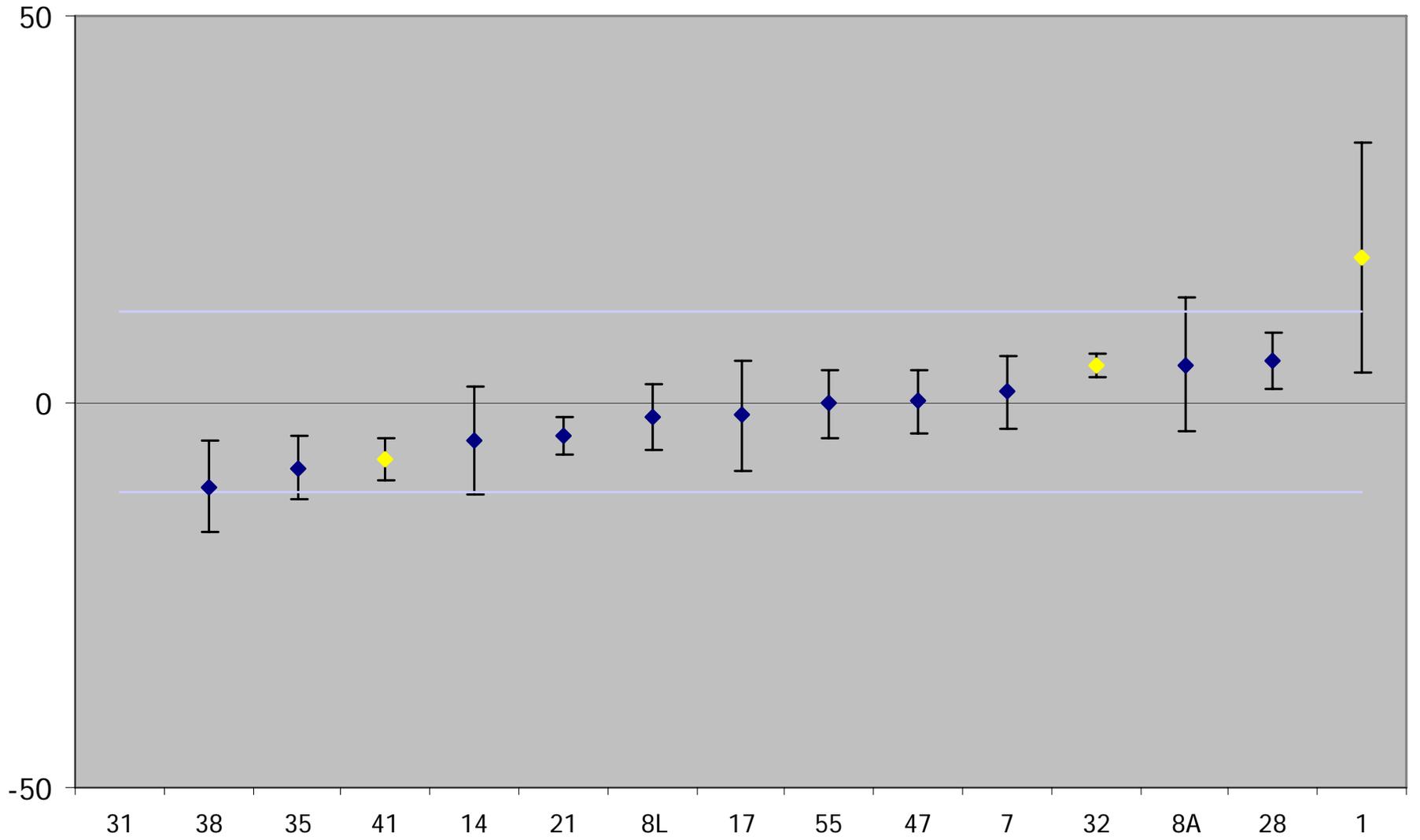
# Deviation (%) Pu-239 AH



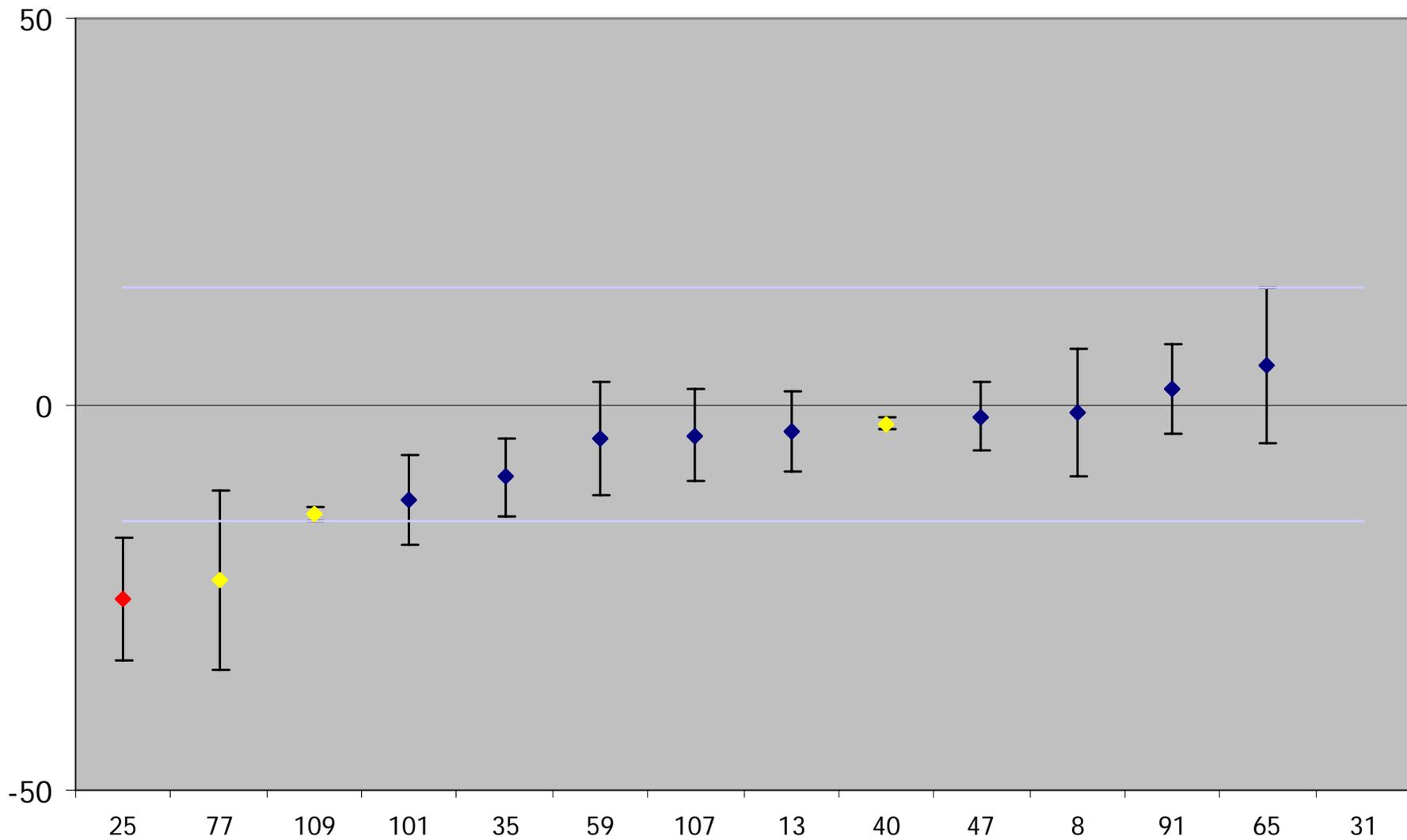
# Deviation (%) Am-241 AL



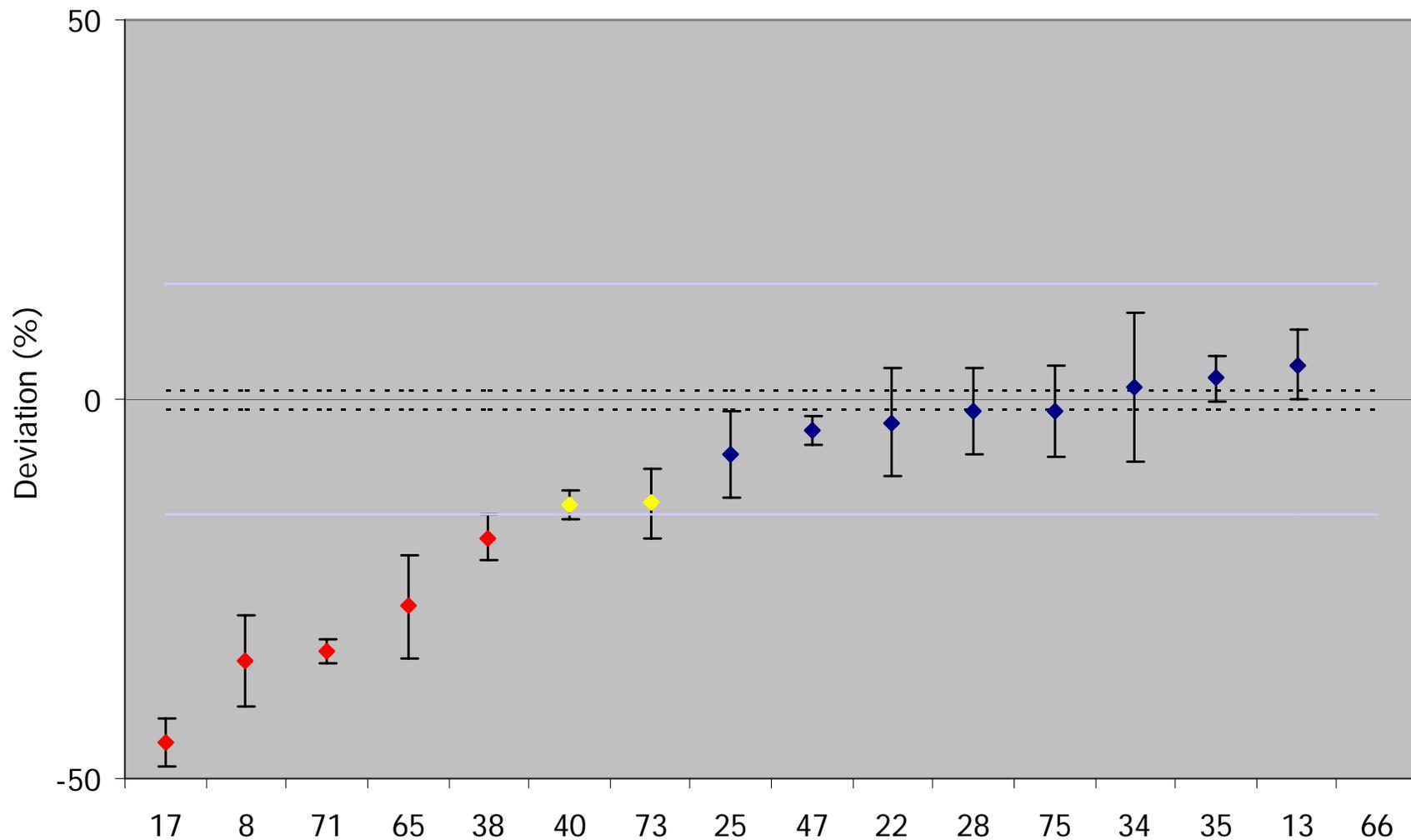
# Deviation (%) Am-241 AH



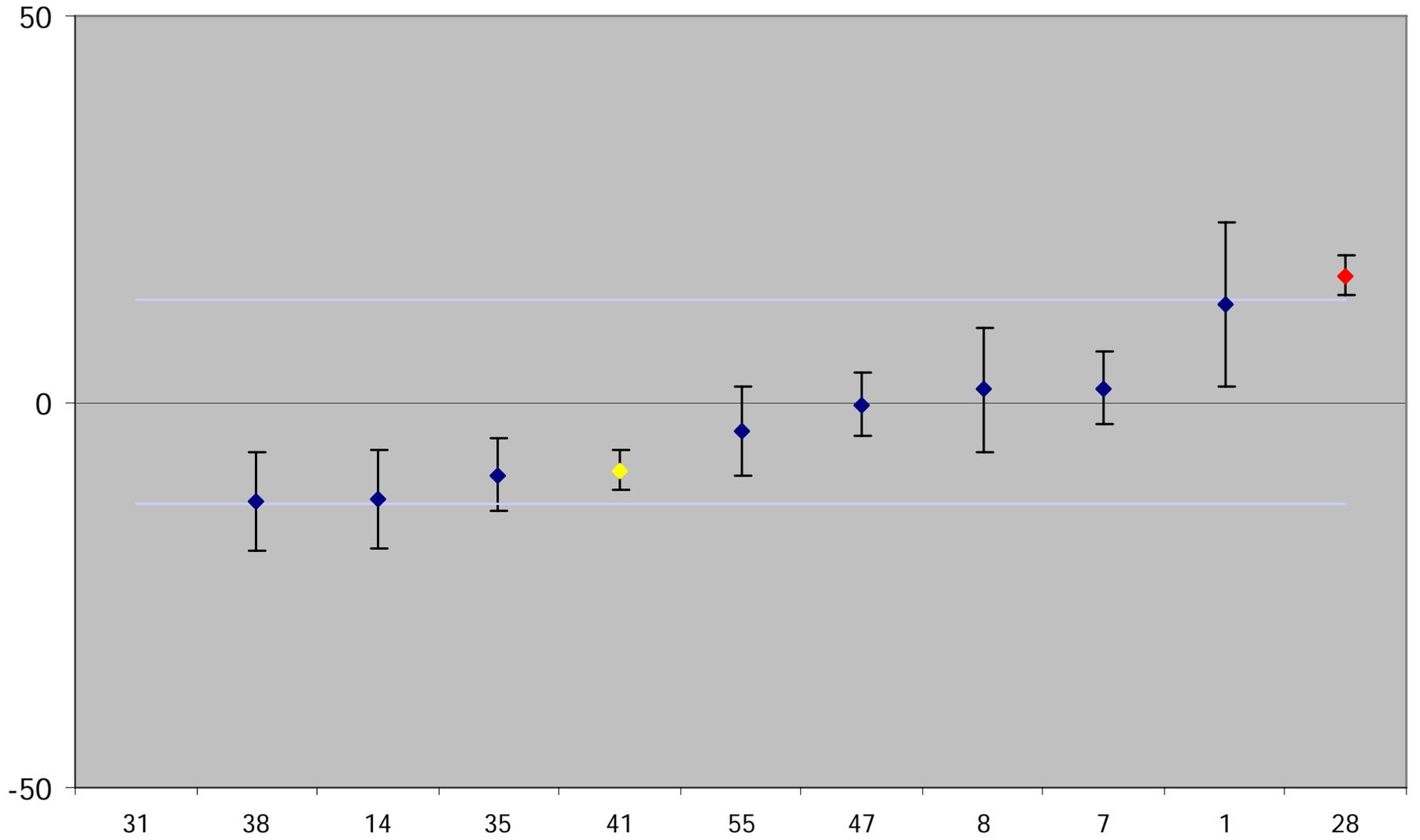
# Deviation (%) Cm-244 AL



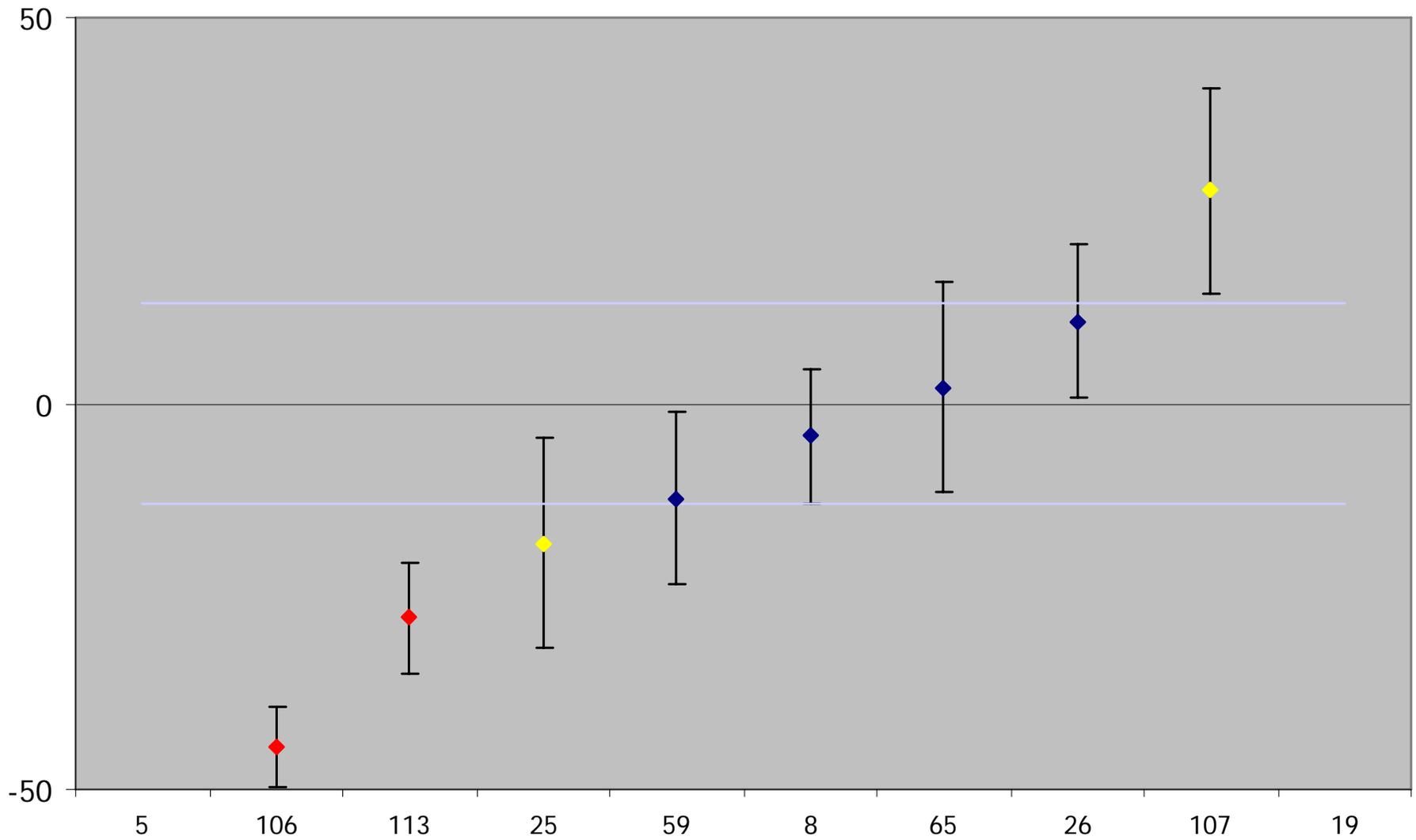
# Deviation Cm-244 AL (2007 PTE)



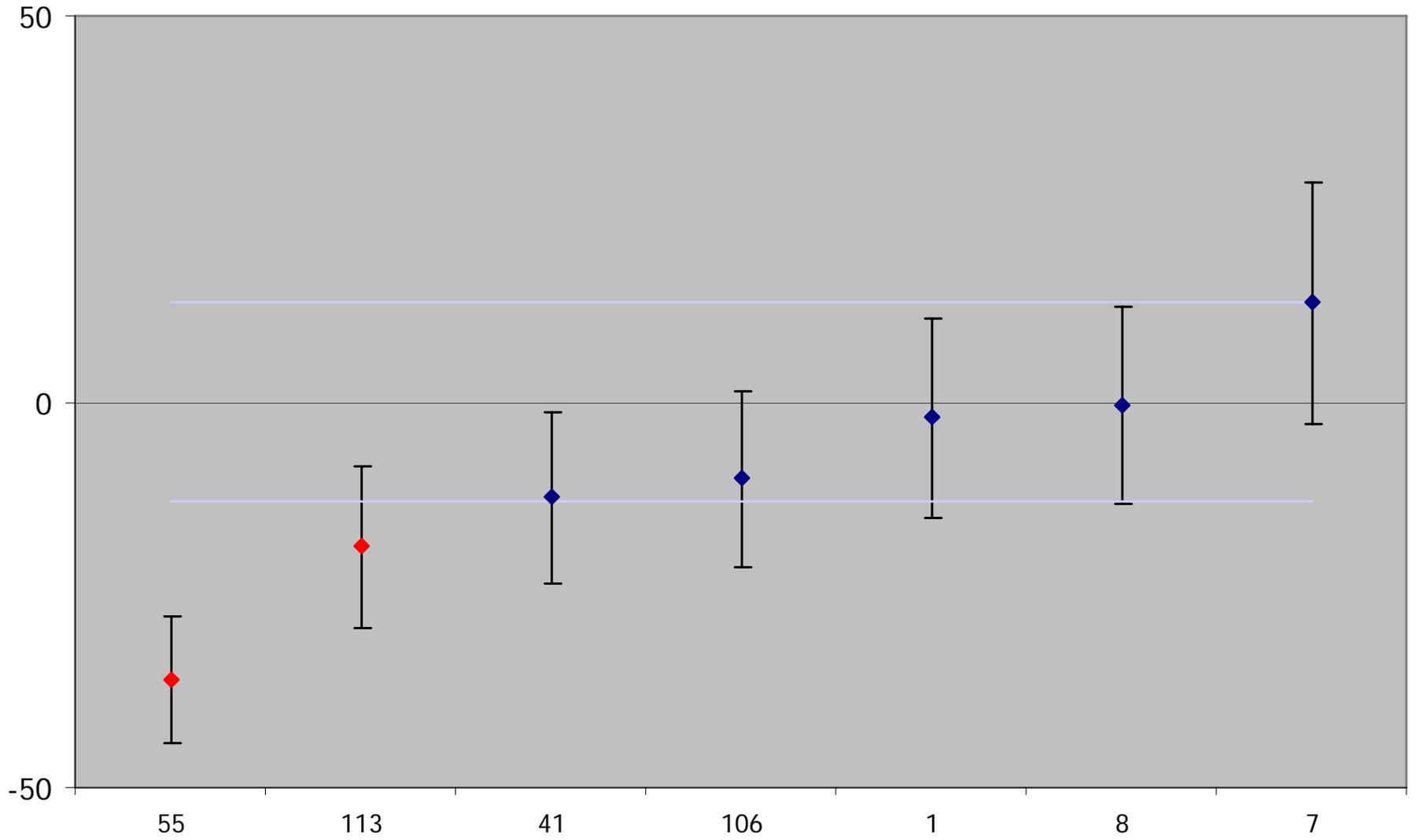
# Deviation (%) Cm-244 AH



# Deviation (%) gross alpha AL



# Deviation (%) Gross alpha AH



# Results

AL	(2008)		(2007)
	<b>73 %</b>	'in agreement'	77%
	<b>14%</b>	'questionable'	8%
	<b>13%</b>	'discrepant'	15%

AH			
	<b>69 %</b>	'in agreement'	74%
	<b>16 %</b>	'questionable'	17%
	<b>15%</b>	'discrepant'	9%

Thank you