vial #	date	Sample code	wet/dry
PR1		PNR2010-F1F1	WET
PR2		PNR2010-F1F2 + PNR2010-F1F3	WET
PR3		PNR2010-F1F4	WET
PR4		PNR2010-F1F5 + PNR2010-F1F6 +PNR2010-F	WET
PR5		PNR2010-F1F8 + PNR2010-F1F9	WET
PR6		PNR2010-F1F10	WET
PR7		PNR2010-CRF1	DRY
PR8		PNR2010-CRF2	DRY
PR9		PNR2010-CRF3	DRY
PR10		PNR2010-CRF4	DRY
PR11		PNR2010-CRF5	DRY
PR12		PNR2010-CRF6	DRY
PR13		PNR2009-1A	DRY
PR14		PNR2009-1B	DRY
PR15		PNR2010-F2I1	DRY
PR16		PNR2010-F2I2	DRY
PR17		PNR2010-F2I3	DRY
PR18		PNR2010-F1I4	DRY
PR20	10/2/2010	PNR2010-FZW5	
PR21	10/1/2010	PNR2010-F1W5	
PR22	10/1/2010	PNR2010-F3W5	
PR23	10/2/2010	PNR2010-F5W5	
PR25	10/19/2010	PNR-CR-2010-1 (SAMPLE 1)	
PR26	10/28/2010	PNR-CR-2010-2 (SAMPLE 2)	
PR27	10/29/2010	PNR-CR-2010-3	
PR28	10/29/2010	PNR-CR-2010-4	
PR30	4/23/2010	PNR2010-36	
PR31	10/1/2010	PNR2010-F1S2	
PR32	10/1/2010	PNR2010-F1S2	
PR33	4/28/2010	PNR2010-2S	
PR34	10/1/2010	PNR2010-F3S1	
PR35	4/24/2010	PNR2010-8S2	
PR36	10/2/2010	PNR2010-F5S2	
PR40		PNR2010-F1W1X	

weight g	material	comments	
0.27958	FISH LIVER	ARAVAIPA	PR1
0.2035	FISH LIVER	ARAVAIPA (COMBINED 2 SAMPLES	PR2
0.43648	FISH LIVER	ARAVAIPA	PR3
0.26213	FISH LIVER	ARAVAIPA (COMBINED 3 SAMPLES	PR4
0.56482	FISH LIVER	ARAVAIPA (COMBINED 2 SAMPLES	PR5
0.37607	FISH LIVER	ARAVAIPA	
0.39091	FISH LIVER	COLORADO (1/2 LIVER)	PR8
0.38897	FISH LIVER	COLORADO	
0.21045	FISH LIVER	COLORADO	
0.14168	FISH LIVER	COLORADO	
0.61366	FISH LIVER	COLORADO (1/2 LIVER)	PR11
0.08289	FISH LIVER	COLORADO	
0.79462	TWO HELGIRMITES	ARAVAIPA INVERTS	PR13
0.68799	2 BELOSTOMATIDS	ARAVAIPA INVERTS	PR14
0.66758	2 BELOSTOMATIDS	ARAVAIPA INVERTS	PR15
0.12627	4 ODONATES	ARAVAIPA INVERTS	PR16
0.15319	4 NOCORIDS	ARAVAIPA INVERTS	PR17
0.2661	CRANE FLIES (LOTS)	ARAVAIPA INVERTS	PR18
	WATER (CIRCLE Z)	ARAVAIPA	PR20
	WATER (TNC)	ARAVAIPA	
	WATER (TURKEY CREEK)	ARAVAIPA	
	WATER (HORSE CAMP)	ARAVAIPA	PR23
	WATER (60 MILE)	COLORADO RIVER	
	WATER (PHANTOM RANCH)	COLORADO RIVER	PR26
	WATER (94 MILE)	COLORADO RIVER	
	WATER (144 MILE)	COLORADO RIVER	
	SEDIMENT (TNC)	ARAVAIPA	PR30
	SEDIMENT (TNC- #2)	ARAVAIPA	PR31
	SEDIMENT (REPEAT 31)	ARAVAIPA (REPEAT 31)	PR32
	SEDIMENT (TURKEY CREEK	ARAVAIPA	PR33
	SEDIMENT (TURKEY CREEK	ARAVAIPA	PR34
	SEDIMENT (HORSE CAMP)	ARAVAIPA	PR35
	SEDIMENT (HORSE CAMP)	ARAVAIPA	PR36
	GW (COBRA RANCH #1)	ARAVAIPA	

Table Ready	208/206	207/206	206/204
981 2 s External Error	0.00042887	0.00011974	0.00845797
Sample Name			
Yellow color = low voltage use data for comparisons only6/4 7/4 and 8/4 numbers will be e			
Red color = colorado River Samples for Sanchez			
Z125 11-16-10 JTC-PR 1 aravaipa-546646	2.06894409	0.83411466	18.7137867
Z126 11-16-10 JTC-PR 2 aravaipa-546647	2.06994215	0.83540797	18.6860966
Z127 11-16-10 JTC-PR 3 aravaipa-546648	2.06922246	0.83384183	18.7144765
Z128 11-16-10 JTC-PR 4 aravaipa-546649	2.06928257	0.83396211	18.7100125
Z135 11-16-10 JTC-PR 5 aravaipa-546653	2.07693054	0.84098262	18.5753576
DNR	DNR		
Z136 11-16-10 JTC-PR 8 aravaipa-546654	2.04223456	0.82264787	19.0660529
DNR	DNR		
DNR	DNR		
DNR	DNR		
Z137 11-16-10 JTC-PR 11 aravaipa-546655	2.04321545	0.8228506	19.0441641
DNR			
Z138 11-16-10 JTC-PR 13 aravaipa-546656	2.06857701	0.83392643	18.7238989
Z139 11-16-10 JTC-PR 14 aravaipa-546657	2.06963723	0.83501564	18.7041437
Z140 11-16-10 JTC-PR 15 aravaipa-546658	2.06699806	0.83292723	18.7377418
Z141 11-16-10 JTC-PR 16 aravaipa-546659	2.0676619	0.8328661	18.7322832
Z142 11-16-10 JTC-PR 17 aravaipa-546660	2.06756512	0.83320197	18.7327751
Z143 11-16-10 JTC-PR 18 aravaipa-546661	2.05779272	0.8306769	18.8203847
Z150 11-16-10 JTC-PR 20 aravaipa-546664	2.06579274	0.84145465	18.5756328
DNR	DNR		
DNR	DNR		
Z160 11-17-10 JTC-PR 23 aravaipa-546668	2.05998074	0.83010467	18.8909663
DNR	DNR		
Z165 11-17-10 JTC-PR 26 aravaipa-546671	2.04003168	0.82035085	19.1469638
DNR	DNR		
DNR	DNR		
Z116 11-16-10 JTC-PR 30 aravaipa-546639	2.07291381	0.83554827	18.6722581
Z117 11-16-10 JTC-PR 31 aravaipa-546640	2.07124421	0.83487142	18.6882033
Z120 11-16-10 JTC-PR 32RESPKE aravaipa-5466	2.07080996	0.83480109	18.6911584
Z119 11-16-10 JTC-PR 33 aravaipa-546643	2.07376692	0.83615592	18.6468507
Z121 11-16-10 JTC-PR 34 aravaipa-546645	2.07060765	0.8344687	18.6989481
Z167 11-17-10 JTC-PR 35 aravaipa-546673	2.07395638	0.83604594	18.6664902
Z166 11-17-10 JTC-PR 36 aravaipa-546672	2.0693593	0.83333901	18.7497904
DNR	DNR		

207/204	208/204	
0.00753949	0.02166274	
		208 v

elevated from real value due to HG correction.

15.6097182	38.7177477	1.19695073
15.6104861	38.6790758	0.53485933
15.60562	38.723798	2.35491855
15.6041749	38.7172764	2.88523381
15.6218276	38.5796973	0.91439656
15.6856794	38.9358943	1.03769882
15.6709315	38.9092707	0.35668617
15.6144109	38.7316932	4.65935956
15.6185693	38.7109208	2.15478001
15.6071727	38.7300812	2.87929108
15.6009892	38.7314023	1.39978081
15.608096	38.7317541	3.68748137
15.633923	38.7280064	1.25072827
15.6322458	38.3749214	0.64440273
15.6804545	38.9135941	0.72936769
15.7073128	39.0597057	0.90483195
15.601927	38.7073522	2.44265794
15.6023878	38.7077389	4.3889145
15.603351	38.7060224	3.67276069
15.5919317	38.6692551	1.84681694
15.6039848	38.7184162	3.73709377
15.6058644	38.7136697	4.05954735
15.6248628	38.7993811	4.38893966

Sample ID					Reduced numbers 208/206	207/206	206/204
A1	2007	4/20/2007 PNR2007 2B	Odonates	Chimney Rock	DNR		
A2	2007	4/20/2007 PNR2007 2B	Helgramites	Chimney Rock	2.067	0.8334	18.732
A3	2007	4/20/2007 PNR2007 2C	Belostomatids	Chimney Rock	2.067	0.8327	18.741
A3-R					2.067	0.8328	18.741
A4	2007	4/21/2007 PNR2007 3A	Odonates	Above Barrier	2.063	0.8312	18.785
A5	2008	4/18/2008 PNR2008-2	Belostomatids	Chimney Rock	2.064	0.8318	18.768
A6	2008	10/24/2008 PNR2008-3	Belostomatids	Chimney Rock	2.063	0.8303	18.805
A7	2008	10/25/2008 PNR2008-4	Helgramites	TNC House	2.072	0.8359	18.669
A8	2008	4/18/2008 PNR2008-5	tipoldae	TNC House	DNR		
A9	2008	4/18/2008 PNR2008-8	Odonates	Turkey Creek	2.070	0.8348	18.695
A10	2008	4/18/2008 PNR2008-10	Helgramites	Turkey Creek	2.071	0.8355	18.678
A11	2008	4/19/2008 PNR2008-13	Belostomatids	Deer Creek	2.072	0.8353	18.676
A12	2007	10/6/2007 PNR2007-4	Belostomatids	Below Barrier	2.068	0.8338	18.717
A13	2007	10/6/2007 PNR2007-5	Helgramites	Woods Ranch	2.070	0.8351	18.688

L1		PNR 2010 2FL	Fish Liver			2.067	0.8329	18.743
L2		PNR 2010 4FL	Fish Liver			2.070	0.8343	18.715
L3		PNR 2010 5FL	Fish Liver			2.070	0.8347	18.693
L4		PNR 2010 6FL	Fish Liver			2.069	0.8337	18.727
L5		PNR 2010 9FL	Fish Liver			2.072	0.8353	18.728
L6		PNR 2010 12FL	Fish Liver			2.070	0.8341	18.741
L7		PNR 2010 13FL	Fish Liver			2.071	0.8342	18.721
L8		PNR 2010 14FL	Fish Liver			2.071	0.8351	18.722
L9		PNR 2010 15FL	Fish Liver			2.070	0.8341	18.717
L10		PNR 2010 16FL	Fish Liver			2.072	0.8353	18.719
Z1	4/24/2010	PNR 2010 1IA	1 HELGRAMITE	DEER CREEK		2.072	0.8355	18.667
Z2	4/24/2010	PNR 2010 1IB	1 ODONATE	DEER CREEK		2.071	0.8353	18.683
Z4	4/25/2010	PNR 2010 7I	1 HELGRAMITE	BARRIER		2.072	0.8352	18.679
A (respiked	4/23/2010	PNR 2010 1&2W	1000 ML WATER	TURKEY CREEK		2.073	0.8354	18.675
B	4/23/2010	PNR 2010 3&4W	1000 ML WATER	TNC HOUSE		2.073	0.8356	18.667
C (respiked	4/24/2010	PNR 2010 7A AND 7BW	1000 ML WATER	DEER CREEK		2.075	0.8367	18.645
D	4/24/2010	PNR 2010 8&9W	1000 ML WATER	HORSE CAMP		2.074	0.8359	18.663
E	4/24/2010	PNR 2010 10&11W	1000 ML WATER	PAINTED CAVE		2.075	0.8362	18.665
F	4/25/2010	PNR 2010 12&13W	1000 ML WATER	WOODS RANCH		2.075	0.8364	18.654
G	4/25/2010	PNR 2010 14&15W	1000 ML WATER	BARRIER		2.074	0.8362	18.660
AS1	4/23/2010	PNR 2010 SED	SED	TURKEY CREEK		2.075	0.8405	18.566
BS2	4/23/2010	PNR 2010 SED	SED	TNC HOUSE	DNR			
CS3						2.073	0.8358	18.681
DS4	4/24/2010	PNR 2010 SED	SED	HORSE CAMP		2.070	0.8350	18.713
GS7	4/25/2010	PNR 2010 SED	SED	BARRIER		2.074	0.8368	18.644
		2004 GRAND REEF SEDIMENT				2.069546767	0.834855	
		2004 GRAND REEF SEDIMENT				2.069948674	0.833841	
		2004 GRAND REEF SEDIMENT				2.067607747	0.833298	

207/204	208/204	Voltage	2sigma external error 208/206	207/206	206/204	207/204	208/204		87Sr/86Sr
								A1	0.7110723
15.611	38.724	3.95	0.00028	0.00008	0.004	0.004	0.011	A2	0.711088
15.606	38.740	3.51	0.00020	0.00012	0.0040	0.0030	0.0071	A3	0.710983
15.607	38.743	3.49	0.00020	0.00012	0.0040	0.0030	0.0071	A3-R	
15.614	38.745	4.59	0.00020	0.00012	0.0040	0.0030	0.0071	A4	0.711099
15.611	38.737	4.49	0.00020	0.00012	0.0040	0.0030	0.0071	A5	0.711015
15.613	38.791	3.89	0.00020	0.00012	0.0040	0.0030	0.0071	A6	0.7108641
15.605	38.683	3.85	0.00020	0.00012	0.0040	0.0030	0.0071	A7	0.710903
								A8	0.7115415
15.611	38.703		0.00048	0.00010	0.0088	0.0092		A9	0.71097
15.605	38.691	3.93	0.00020	0.00012	0.0040	0.0030	0.0071	A10	0.7111839
15.600	38.699	1.69	0.00020	0.00012	0.0040	0.0030	0.0071	A11	0.71136
15.605	38.711	3.92	0.00020	0.00012	0.0040	0.0030	0.0071	A12	0.710865
15.607	38.688	4.87	0.00020	0.00012	0.0040	0.0030	0.0071	A13	0.7106972

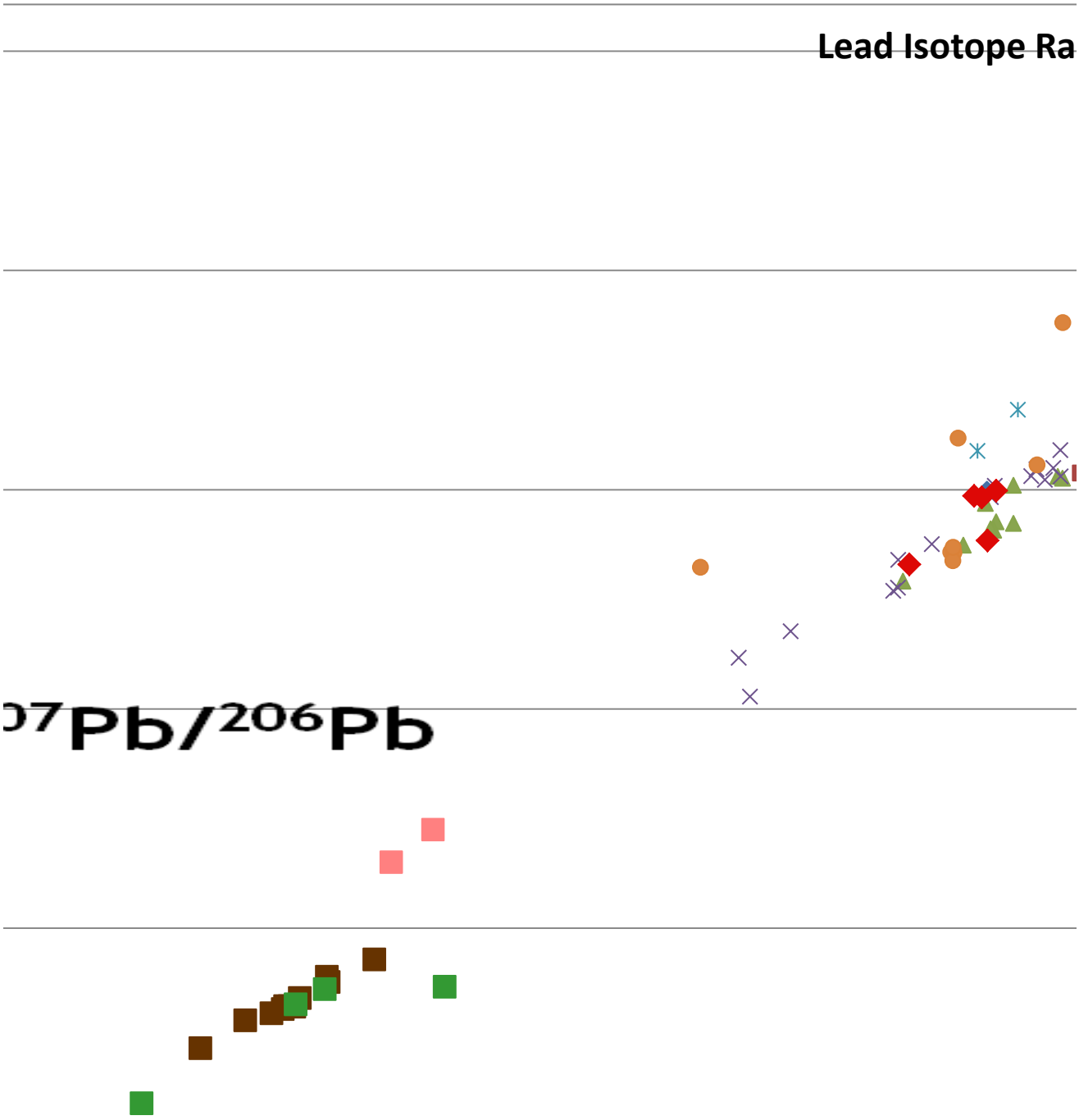
15.612	38.751	1.58	0.00048	0.00012	0.0051	0.0043	0.0100	L1	0.710982
15.613	38.744	2.85	0.00048	0.00012	0.0051	0.0043	0.0100	L2	0.7106981
15.606	38.687		0.00048	0.00010	0.0088	0.0092		L3	0.7110233
15.613	38.751	2.74	0.00048	0.00012	0.0051	0.0043	0.0100	L4	0.710984
15.645	38.807	0.43	0.00088	0.00021	0.0143	0.0139	0.0429	L5	no run
15.629	38.790	0.51	0.00088	0.00021	0.0143	0.0139	0.0429	L6	0.710837
15.618	38.765	3.16	0.00048	0.00012	0.0051	0.0043	0.0100	L7	0.710817
15.635	38.770		0.0004	0.00011	0.0196	0.0172	0.0385	L8	0.71084
15.610	38.743	1.21	0.00048	0.00012	0.0051	0.0043	0.0100	L9	no run
15.642	38.803	0.47	0.00088	0.00021	0.0143	0.0139	0.0429	L10	0.7109496
15.596	38.677	2.40	0.00048	0.00012	0.0051	0.0043	0.0100	Z1	0.710844
15.607	38.698	2.85	0.00048	0.00012	0.0051	0.0043	0.0100	Z2	0.711068
15.601	38.696	2.65	0.00048	0.00012	0.0051	0.0043	0.0100	Z4	DNR
15.601	38.707	3.75	0.00048	0.00012	0.0051	0.0043	0.0100	A	0.711097
15.599	38.701	3.20	0.00020	0.00012	0.0040	0.0030	0.0071	B	0.7108593
15.601	38.691	2.89	0.00048	0.00012	0.0051	0.0043	0.0100	C	0.7110245
15.601	38.700	4.60	0.00028	0.00008	0.0040	0.0042	0.0106	D	0.7108719
15.608	38.725	4.85	0.00028	0.00008	0.0040	0.0042	0.0106	E	0.7108269
15.602	38.703	3.63	0.00048	0.00012	0.0051	0.0043	0.0100	F	0.7107829
15.609	38.705		0.00048	0.00010	0.0088	0.0092	0.0106	G	0.710905
15.609	38.515		0.00048	0.00010	0.0088	0.0092	0.0236	AS1	0.7109243
								BS2	0.7107864
15.608	38.711	0.41	0.00088	0.00021	0.0143	0.0139	0.0429	CS3	0.710955
15.628	38.738	0.41	0.00088	0.00021	0.0143	0.0139	0.0429	DS4	0.7107983
15.601	38.665	3.02	0.00048	0.00012	0.0051	0.0043	0.0100	GS7	0.71095

			208/206	207/206
INVERTS 2011	Odonates	Chimney Rock		
	Helgramites	Chimney Rock	2.067	0.8334
	Belostomatids	Chimney Rock	2.067	0.8327
			2.067	0.8328
	Odonates	Above Barrier	2.063	0.8312
	Belostomatids	Chimney Rock	2.064	0.8318
	Belostomatids	Chimney Rock	2.063	0.8303
	Helgramites	TNC House	2.072	0.8359
	tipoldae	TNC House		
	Odonates	Turkey Creek	2.070	0.8348
	Helgramites	Turkey Creek	2.071	0.8355
	Belostomatids	Deer Creek	2.072	0.8353
	Belostomatids	Below Barrier	2.068	0.8338
	Helgramites	Woods Ranch	2.070	0.8351
	1 HELGRAMITE	DEER CREEK	2.072	0.8355
	1 ODONATE	DEER CREEK	2.071	0.8353
	1 HELGRAMITE	BARRIER	2.072	0.8352
FISH 2011	Fish Liver		2.067	0.8329
	Fish Liver		2.070	0.8343
	Fish Liver		2.070	0.8347
	Fish Liver		2.069	0.8337
	Fish Liver		2.072	0.8353
	Fish Liver		2.070	0.8341
	Fish Liver		2.071	0.8342
	Fish Liver		2.071	0.8351
	Fish Liver		2.070	0.8341
	Fish Liver		2.072	0.8353
WATER 2011	1000 ML WATER	TURKEY CREEK	2.073	0.8354
	1000 ML WATER	TNC HOUSE	2.073	0.8356
	1000 ML WATER	DEER CREEK	2.075	0.8367
	1000 ML WATER	HORSE CAMP	2.074	0.8359

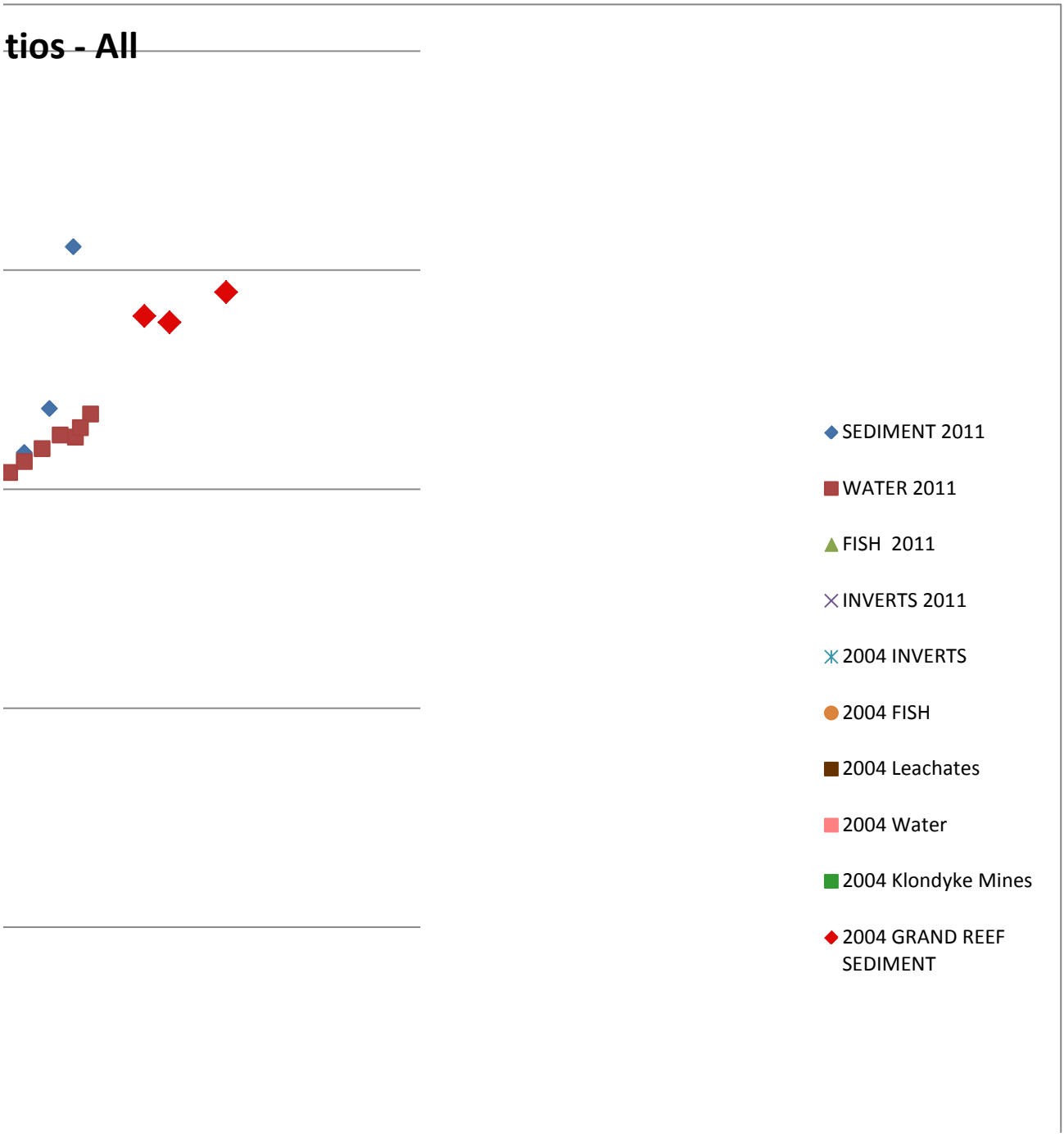
0.8200
2.040

	1000 ML WATER	PAINTED CAVE	2.075	0.8362
	1000 ML WATER	WOODS RANCH	2.075	0.8364
	1000 ML WATER	BARRIER	2.074	0.8362
SEDIMENT 2011	SED	TURKEY CREEK	2.075	0.8405
	SED	TNC HOUSE		
			2.073	0.8358
	SED	HORSE CAMP	2.070	0.8350
	SED	BARRIER	2.074	0.8368
2004 INVERTS	Odonites(2)		2.0696	0.8359
	Helgramite		2.0709	0.8368
	Grubs		2.0642	0.8404
2004 FISH	Yellow Bullhead		2.0691	0.8362
	Yellow Bullhead		2.0722	0.8388
	Yellow Bullhead		2.0714	0.8356
	Giro Liver		2.0614	0.8332
	GIRO1		2.06884658	0.83357496
	GRIO1		2.06894547	0.83355933
	CAIN3		2.0689101	0.83337784
	CAIN1		2.06892267	0.83368338
2004 Leachates	176 JTC (2-18) Aravaipa 101-		2.0464	0.8223
	177 JTC (2-18) Aravaipa 103-		2.0478	0.8229
	178 JTC (2-18) Aravaipa 107-		2.0503	0.8238
	179 JTC (2-18) Aravaipa 113-		2.0502	0.8239
	180 JTC (2-18) Aravaipa 114-		2.0491	0.8232
	181 JTC (2-18) Aravaipa 115-		2.0490	0.8232
	182 JTC (2-18) Aravaipa 116-		2.0494	0.8234
	183 JTC (2-18) Aravaipa 117-		2.0516	0.8243
	184 JTC (2-18) Aravaipa 118-		2.0486	0.8231
	185 JTC (2-18) Aravaipa 119-		2.0489	0.8232
	186 JTC (2-18) Aravaipa 120-		2.0492	0.8232
2004 Water			2.0521	0.8265
			2.0534	0.8272
2004 Klondyke Mines			2.0537	0.8237
			2.0501	0.8236
			2.0493	0.8233
			2.0447	0.8210
2004 GRAND REEF SEDIMENT			2.06954677	0.83485452
2004 GRAND REEF SEDIMENT			2.06994867	0.8338406
2004 GRAND REEF SEDIMENT			2.06760775	0.83329776
2004 GRAND REEF SEDIMENT			2.06977052	0.83482124
2004 GRAND REEF SEDIMENT			2.07020104	0.8349744
2004 GRAND REEF SEDIMENT			2.07750212	0.83880909

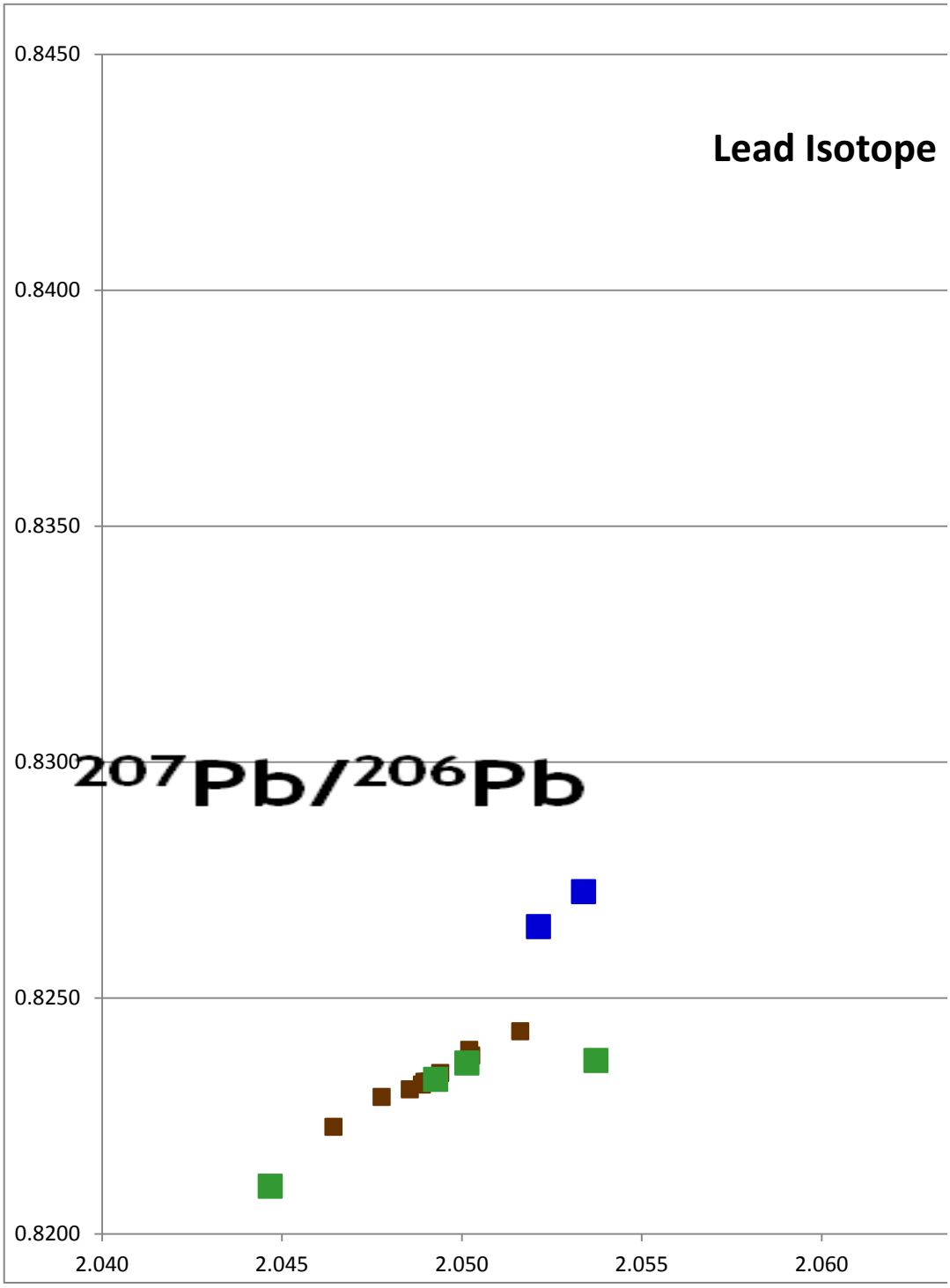
2004 GRAND REEF SEDIMENT	2.07674883	0.83894842
2004 GRAND REEF SEDIMENT	2.07918999	0.83949482

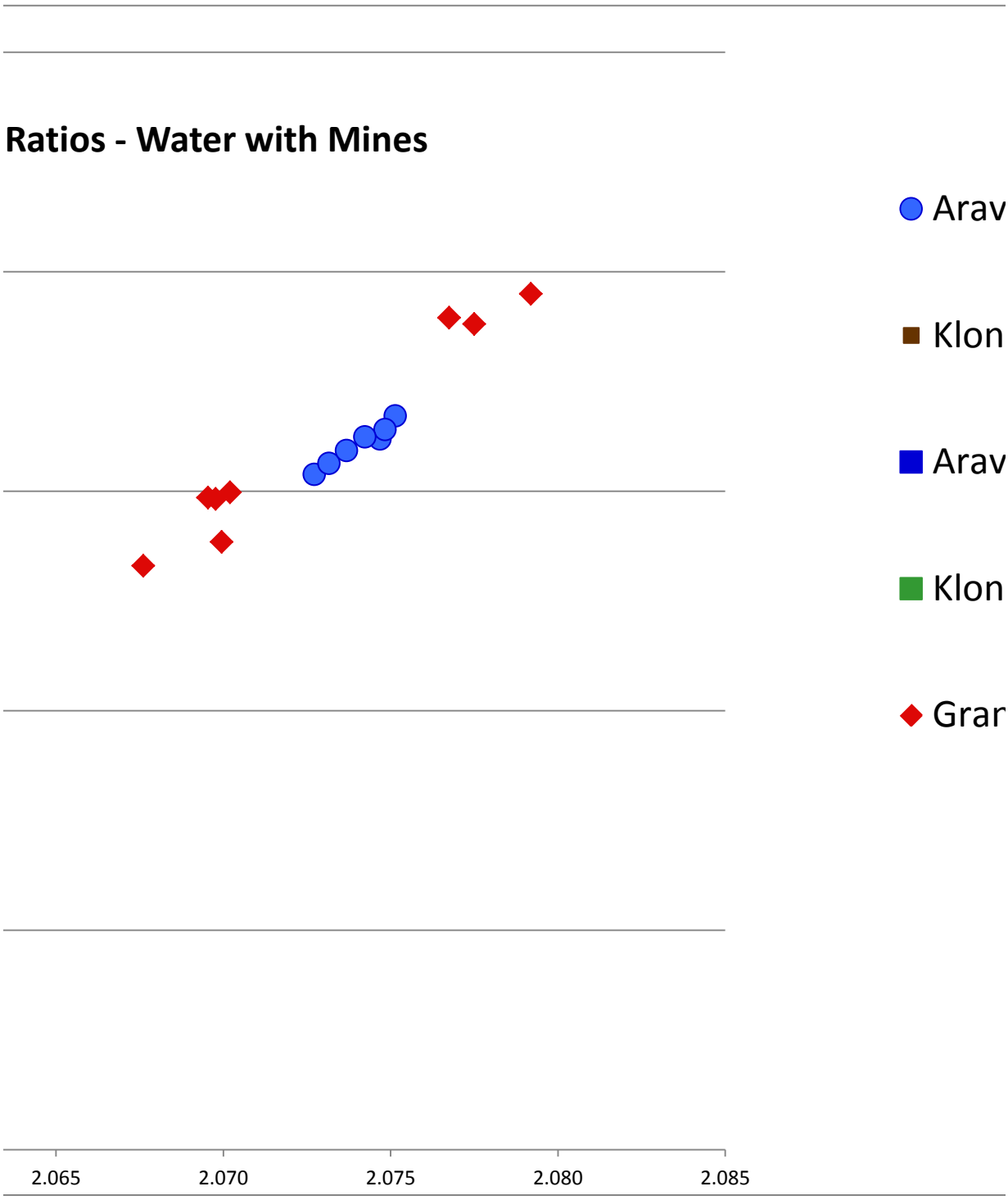

Lead Isotope Ra
$^{207}Pb/^{206}Pb$

2.045
2.050
2.055
2.060
2.065
2.070


tios - All
SEDIMENT 2011
WATER 2011
FISH 2011
INVERTS 2011
2004 INVERTS
2004 FISH
2004 Leachates
2004 Water
2004 Klondyke Mines
2004 GRAND REEF SEDIMENT

2.075
2.080
2.085


Lead Isotope
$^{207}Pb/^{206}Pb$
0.8450
0.8400
0.8350
0.8300
0.8250
0.8200
2.040
2.045
2.050
2.055
2.060


Ratios - Water with Mines
Arav
Klon
Arav
Klon
Grar
2.065
2.070
2.075
2.080
2.085

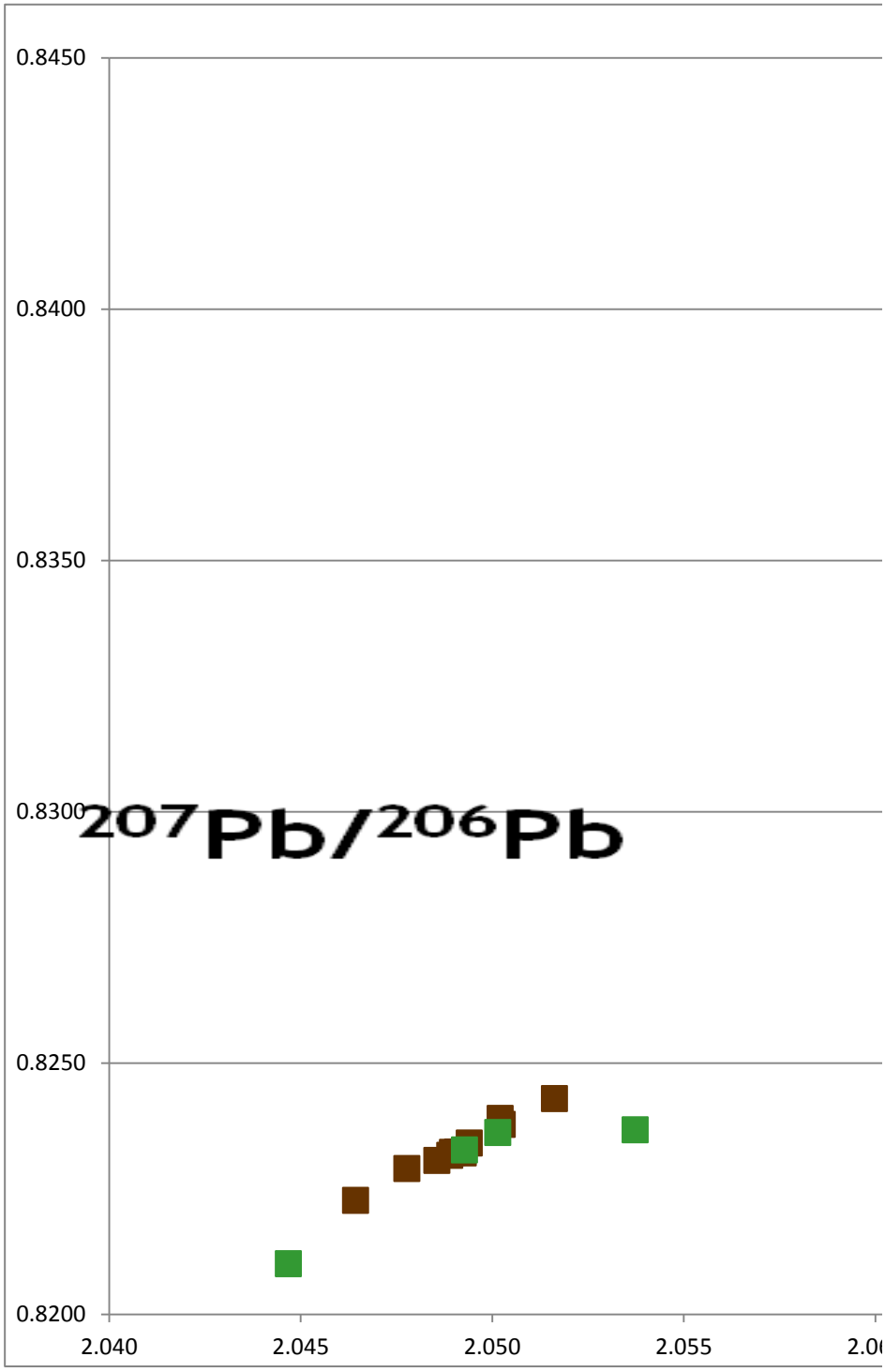
'aipa Water 2011

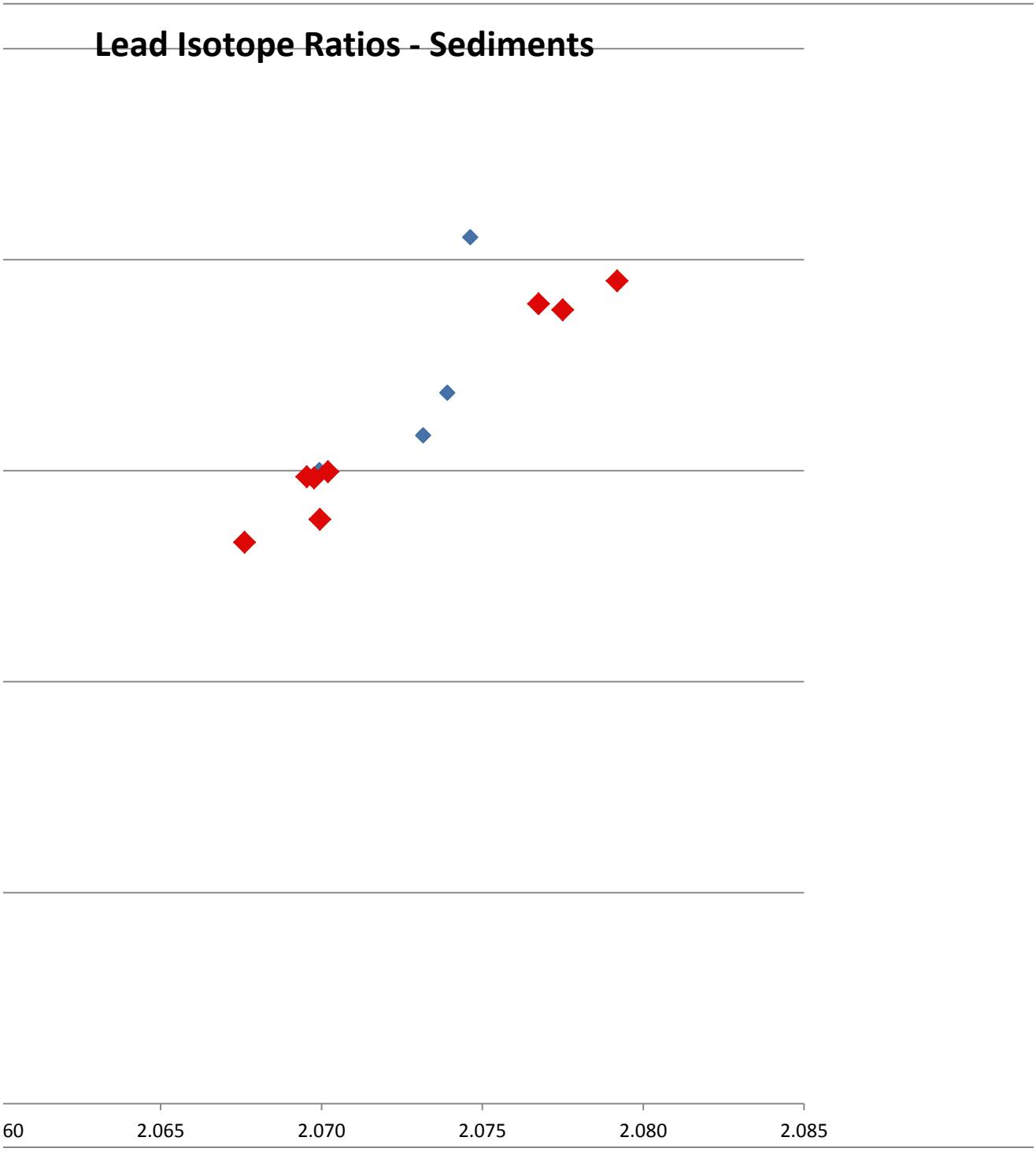
dyke Leach 2004

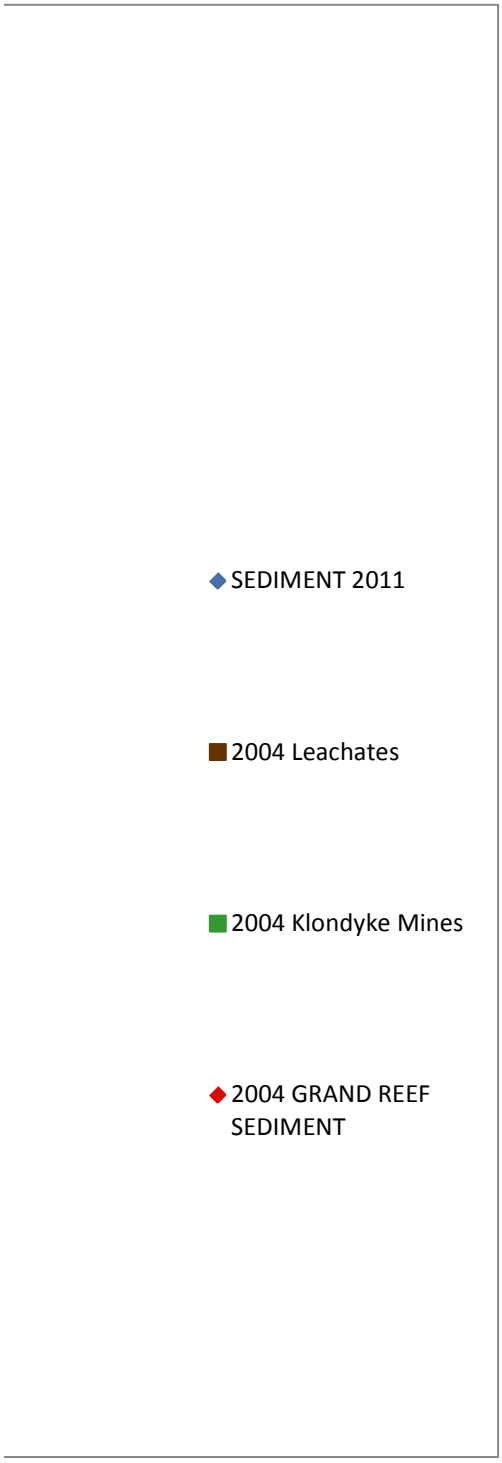
'aipa Water 2004

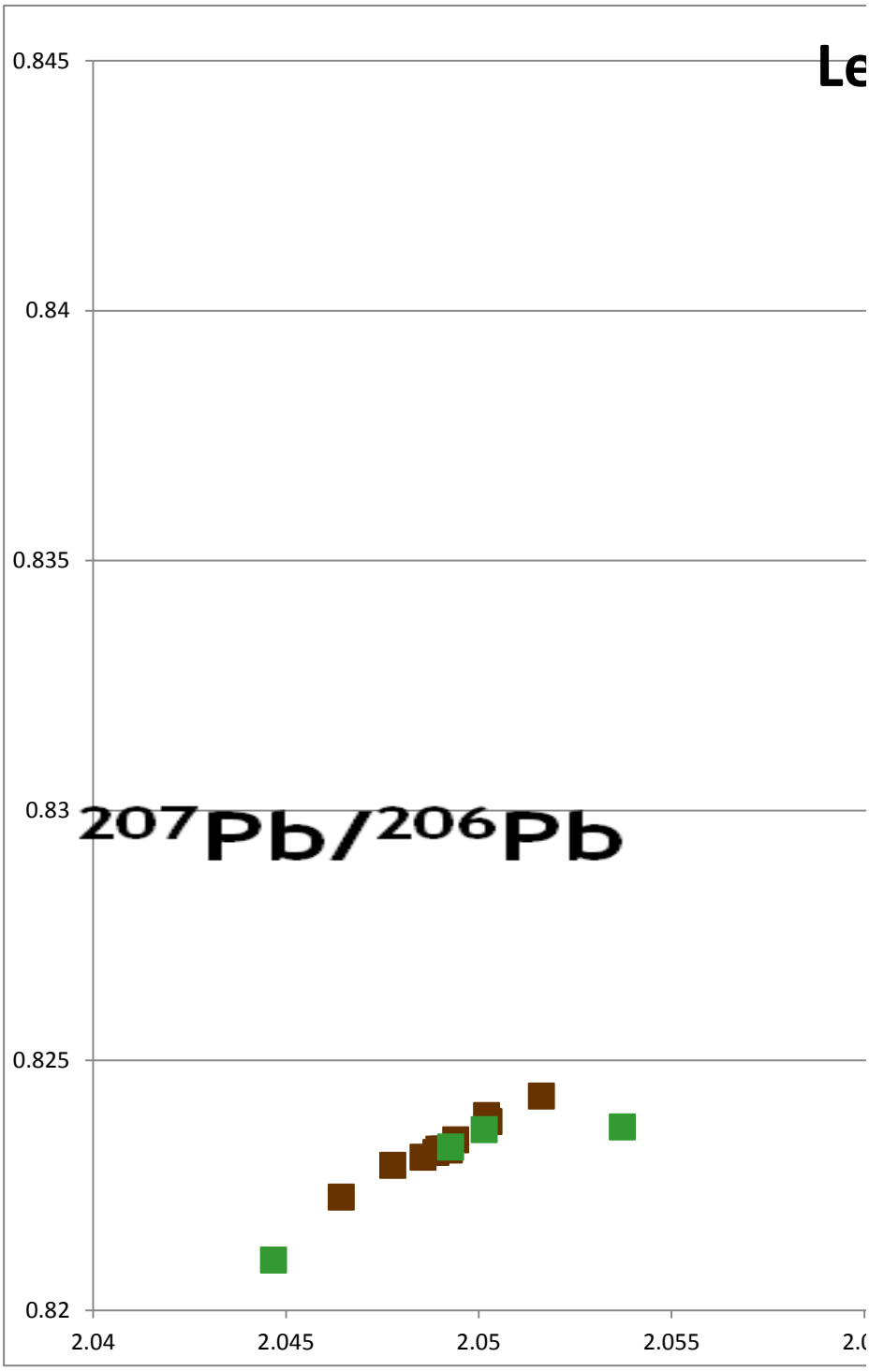
dyke Mine 2004

ıd Reef Mine 2004

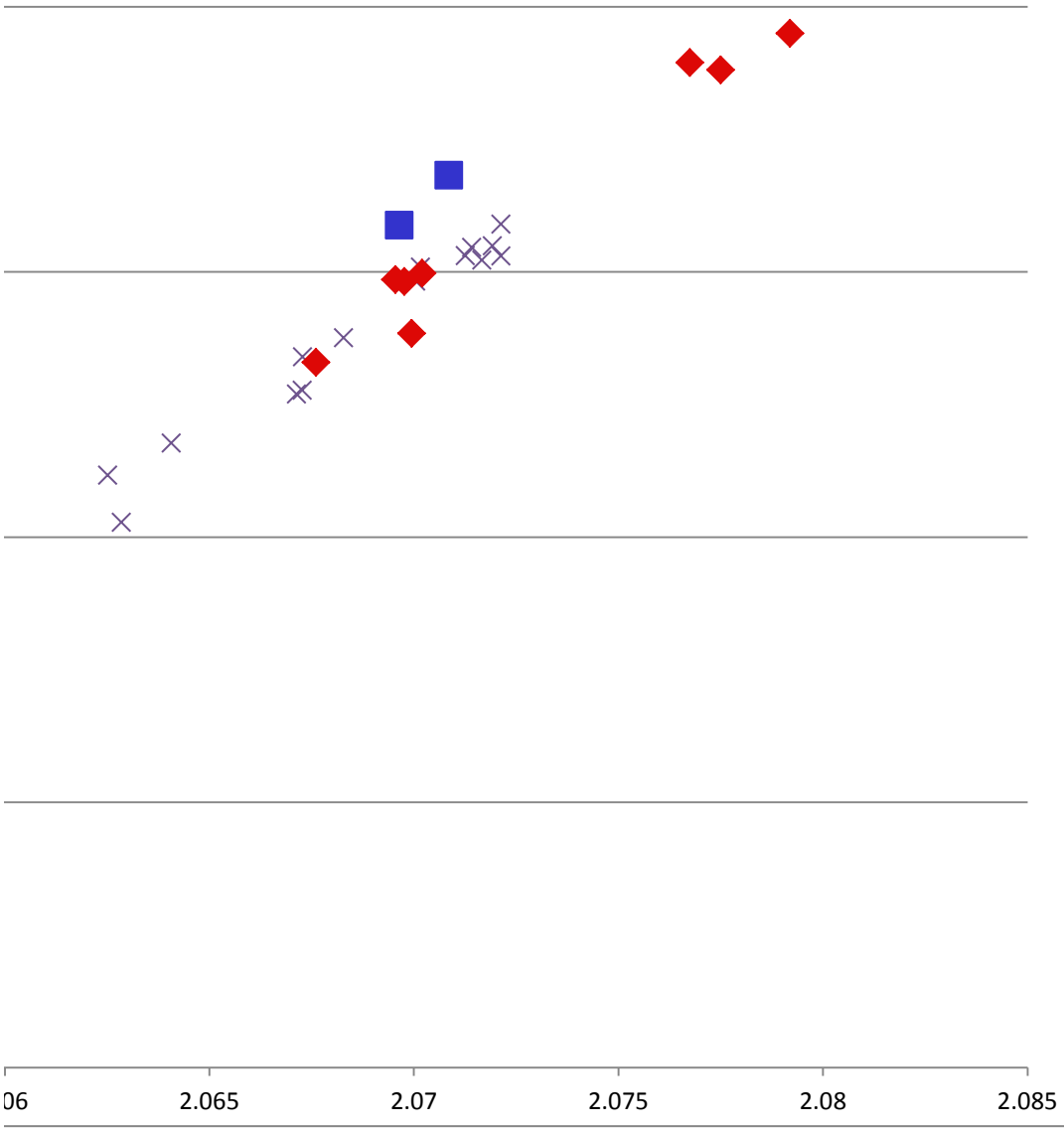

0.8450
0.8400
0.8350
0.8300
0.8250
0.8200
207Pb/206Pb
2.040
2.045
2.050
2.055


Lead Isotope Ratios - Sediments
60
2.065
2.070
2.075
2.080
2.085


SEDIMENT 2011
2004 Leachates
2004 Klondyke Mines
2004 GRAND REEF SEDIMENT


Le
0.845
0.84
0.835
0.83
0.825
0.82
$^{207}Pb/^{206}Pb$
2.04
2.045
2.05
2.055

ead Isotope Ratios - Invertebrates



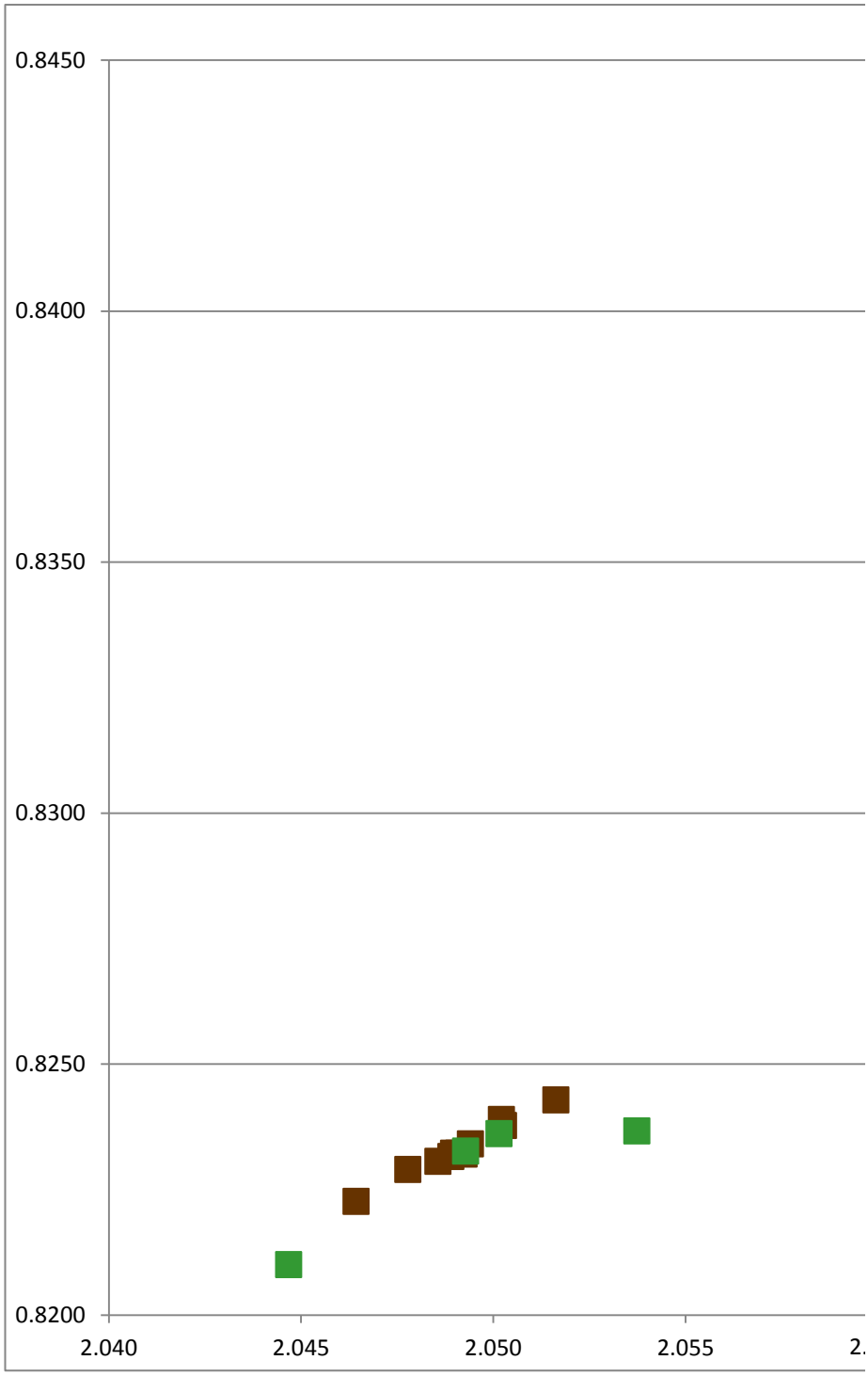
× Aravaipa Invertebrates 2011

■ Aravaipa Invertebrates 2004

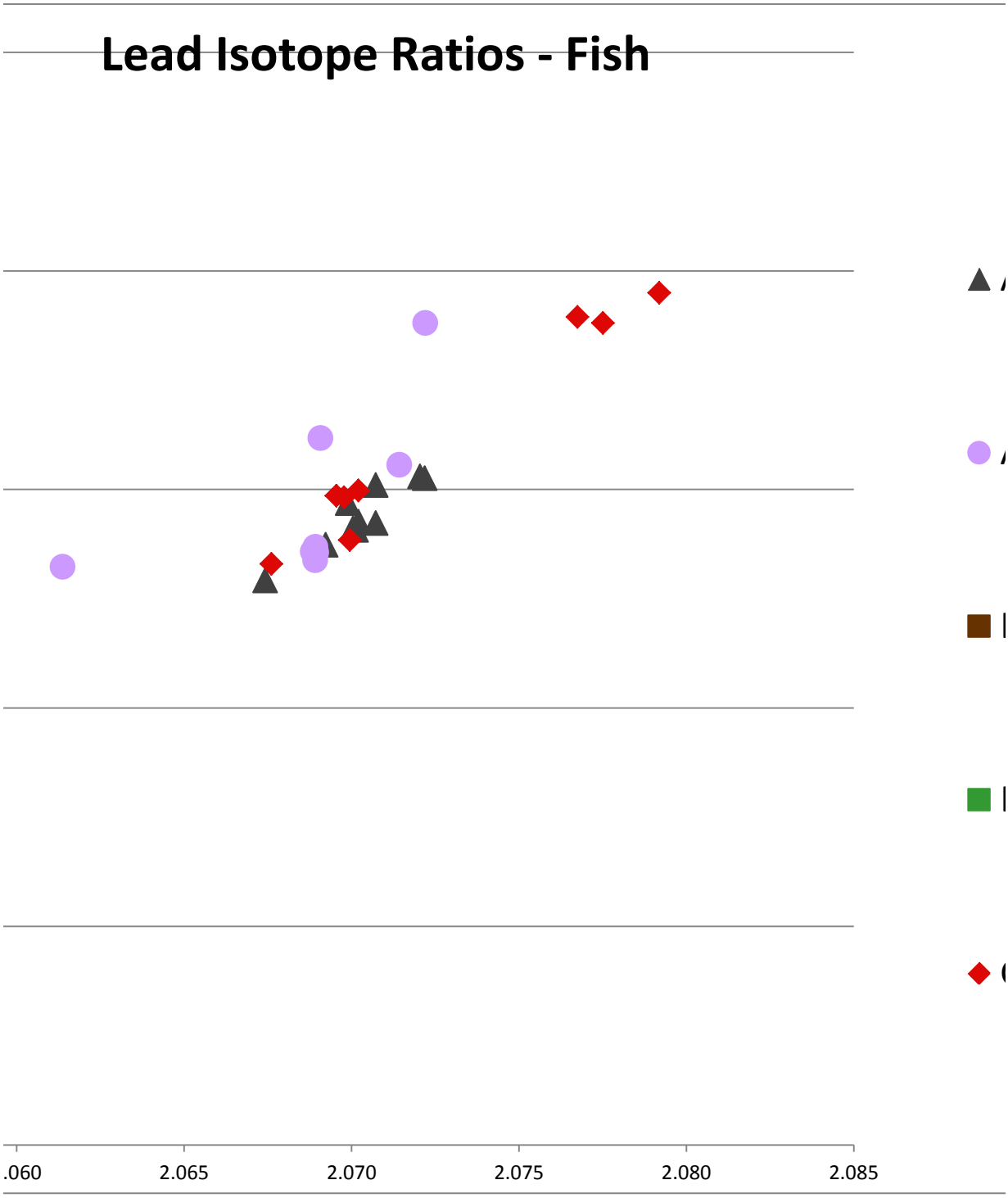
■ Klondyke Leach 2004

■ Klondyke Sediment 2004

◆ Grand Reef Sediment 2004


0.8450
0.8400
0.8350
0.8300
0.8250
0.8200
2.040
2.045
2.050
2.055

Lead Isotope Ratios - Fish



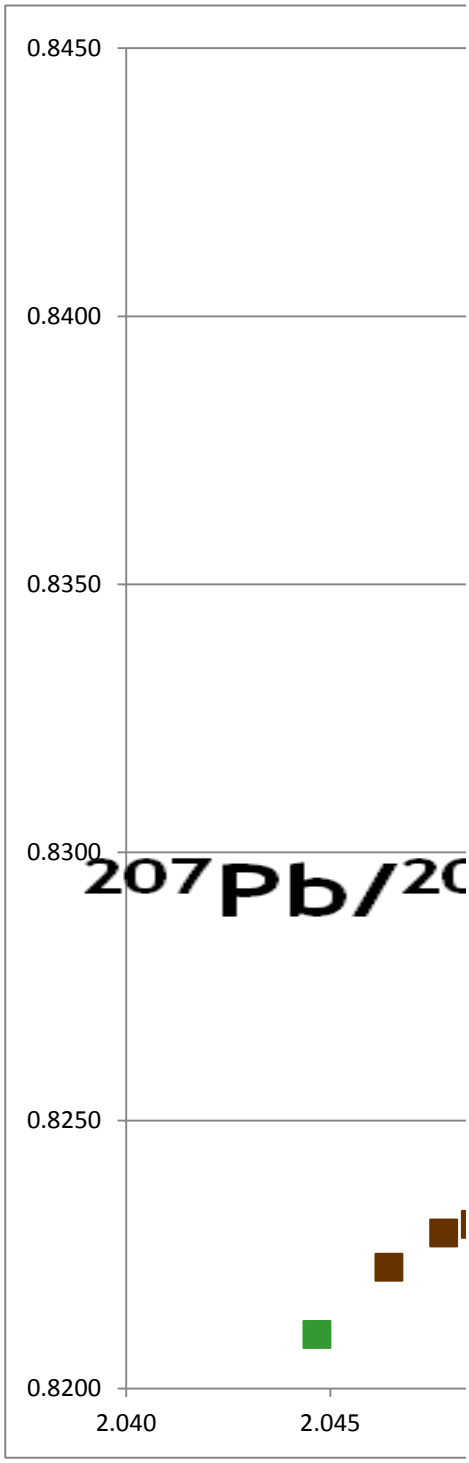
Aravaipa Fish 2011

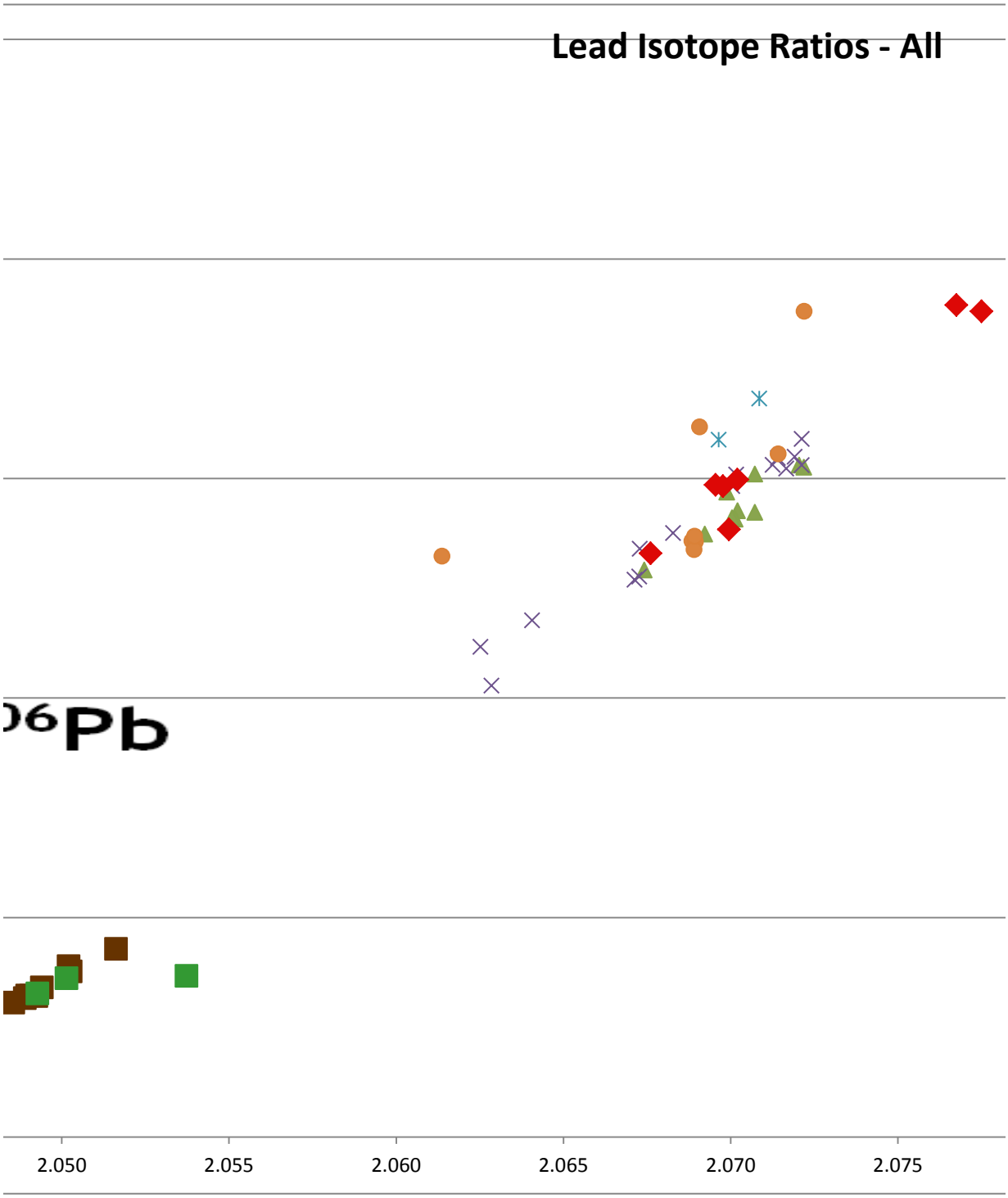
Aravaipa Fish 2004

Klondyke Leach 2004

Klondyke Sediment 2004

Grand Reef Sediment 2004


0.8450
0.8400
0.8350
0.8300
0.8250
0.8200
2.040
2.045
207Pb/20


Lead Isotope Ratios - All
06Pb
2.050
2.055
2.060
2.065
2.070
2.075

FISH 2011
INVERTS 2011
2004 INVERTS
2004 FISH
2004 Leachates
2004 Klondyke Mines
2004 GRAND REEF SEDIMENT
2.080
2.085