

DISTRICT	Rosebud
DIST_NO	4010
COUNTY	Pershing
If different from written on document	
TITLE	Rosebud Resource Estimate 1995 - Frequency Distribution
If not obvious	
AUTHOR	Muerhoff, C; Ristorcelli, S
DATE OF DOC(S)	1994
MULTI_DIST <input checked="" type="checkbox"/> <input type="checkbox"/>	
Additional Dist Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co. Mine Development Associates
COMMODITY	gold, silver
If not obvious	
NOTES	Correspondence; Frequency Distribution Diagrams; statistics  53 p.

Keep docs at about 250 pages if no oversized maps attached  
 (for every 1 oversized page (>11x17) with text reduce  
 the amount of pages by ~25)

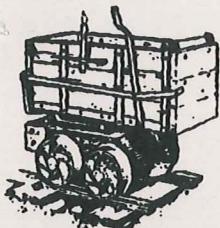
Revised: 1/22/08

SS: DP Initials 8/1/08 Date  
 DB: Initials Date  
 SCANNED: Initials Date

FREQUENCY DISTRIBUTION

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## MINE DEVELOPMENT ASSOCIATES

MINE ENGINEERING SERVICES  
SURPAC MINING SYSTEMS

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June 23, 1994

Charles Muerhoff, Sr. Mine Geologist  
Hecla Mining Company  
P.O. Box 1861  
Lovelock, Nevada 89419

Dear Charlie,

Mine Development Associates (MDA) is pleased to be involved with Hecla Mining Company and the Rosebud Project. The requested proposal was prepared and sent under separate cover. This letter is to outline some of the technical topics we discussed in our meeting last week.

**Sample Integrity** Some potential downhole contamination has been recorded in the Rosebud area and some coring was completed to identify the problem. A study of potential downhole contamination including core and reverse circulation comparisons should be made because the question will continually crop up unless put to rest definitively.

Essentially all of the petrography done at Rosebud shows fine gold generally less than  $130\mu\text{m}$  in size though petrographic studies are not statistically significant. Large sample comparisons, like calculated metallurgical head grades and composited assays from drill samples will give a more definitive assessment of the variance in assaying. One such comparison differed by over 20% and this may suggest a nugget problem. Significant variances in pulp assays were found by LAC Minerals and this should be addressed. In any case, a methodical check assay program should be done on the coarse rejects by independent laboratories.

702-856-5700

230 South Rock  
Suite 29  
Reno, Nevada 89502  
FAX: 702-856-6053



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**Database** One database should be made that includes all the available pertinent sample data. This could be managed in either a spreadsheet, a database program or SURPAC II. SURPAC data format is easy to work with in either text editors, or spreadsheet programs. A spreadsheet program may be the best approach. I believe the database should be all encompassing and include at least: Accepted Au and Au check assays, Au metallic assays, Au cyanide leach analyses, pertinent trace elements, lithologies, clay, density, recovery, RQD, Q or other geotechnical data. This database should be proofed in its entirety, both existing and new data. All of these values will not be used for modeling but it would be beneficial to have them if only for plotting on sections. Presently, I feel that you will only need the average of fire Au assays (or metallic assays, if available), Au cyanide analyses, lithologies, geotechnical content, and possibly clay content.

**Cross Sections** I feel strongly that you should maintain an extra set of cross sections on which will be plotted all density, geochemical, and metallurgical data. These will be used in conjunction with your geology, alteration, and mine planning sections to help define zones or domains that need to be treated differently. This is in addition to the mineral zones that will be used for grade estimation.

**Specific** Specific gravity of the ore is always a concern. At Rosebud, preliminary evidence suggests that a tonnage factor of 14 ft<sup>3</sup>/ton may be pertinent though there is a variance in measurements of 20% (12.7 ft<sup>3</sup>/ton to 15.7 ft<sup>3</sup>/ton). It is not known if this is an internal, unpredictable variance in density or a systematic change. Making numerous density measurements of the core before crushing for assaying will be invaluable. Craig Wineteer can then make projections as to the density variance and apply it to certain domains or lithologies.

**Geochemistry** There are some highly variable results in geochem in the area implying potential changes in metallurgy or extractive characteristics of the various deposits. Spot checking by multi-element geochemistry should be an ongoing procedure. Initially, I suggest, run a whole suite of elements until you are convinced of the existing elements. Then pare down the analyses to those few. LAC performed a small (167 samples) geochemical study which indicates the following averages of trace elements in several holes. The mean concentrations in strongly mineralized rock of significant trace elements are: 149 ppm Ag; 93 ppm As; 3.205 ppm Au; 29 ppm Cu; 87 ppb Hg; 23 ppm Mo; 16 ppm Pb; 189 ppm



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Sb; 150 ppm Zn; and 29 ppm Se. The mean concentrations were calculated for unmineralized rock also: 3 ppm Ag; 44 ppm As; 0.100 ppm Au; 8 ppm Cu; 2 ppb Hg; 4 ppm Mo; 18 ppm Pb; 14 ppm Sb; 80 ppm Zn; and 7 ppm Se. There is a relative enrichment of Ag, As, Cu, Hg, Sb and Se in the strongly mineralized areas with a corresponding depletion in Zn. This is only a rough assessment of the geochemical profile because they apparently used negative numbers for non-detected values thereby biasing the means downward. None of these values raise any flags but it was noticed that early St. Joe drill holes (I do not know where these are located) had significantly higher trace element signatures. Understanding the distribution, if economically significant, will be beneficial. FirstMiss Gold has found they can use trace element ratios from XRF data on cuttings and tell if a sample is ore or waste. Approaching them on this subject would informative.

**Statistics and Geostatistics** Detailed classical statistics should be run on the database as soon as possible in order to begin to understand the different mineral domains that might exist at Rosebud. This will be particularly helpful while you are drifting in the deposit and logging the core. The correlation between statistical population and geologic or mineral domain is crucial for a sound resource assessment. There is evidence already that several populations and styles of mineralization exist but more importantly, we must understand the relevance and distribution of the high-grade material. Concerning this, the silver and gold mineralization should be modelled separately as there is mounting evidence that, at least in part, they are two different events. Finally, even though the economics will not support extraction of the low-grade material underground, if this behaves as a separate domain, it should not be disregarded. The reason for this is two fold: one is that no one has yet modelled it and it may have some sort of effect on the economics, if nothing else, it may effect, the dilution. Second, the understanding of the low-grade will increase the understanding of the high-grade. The object of the resource exercise is to define all the gold in the ground, its grade and distribution. And only then should the economic parameters be incorporated.

Pre-existing variographic studies showed ranges of 30 to 350 ft. Unfortunately, the documentation is poor and the significance of each of the many variograms is unknown. However, overall the variograms are good, and I believe that your drill spacing of 75 ft is sufficient for confident reserve delineation.



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**Metallurgy** Generally the metallurgical response to cyanide leaching is good but some variation in cyanide consumption, preg-robbing character, and recovery has been found. There is certainly a difference between the North and Main deposits, both metallurgically and mineralogically, with the North area having worse recoveries and being more silver-rich. One sample in RL-100C had recoveries as low as 28% in a bottle roll test though this was later improved to 86% in a CIL circuit.

It may be beneficial to perform some cyanide analyses on the drill sample data throughout the deposits. This will give a qualitative assessment on the potential recovery by cyanide leaching and more importantly the spatial variability of recovery. This could be incorporated into the geologic model and different economic parameters and recoveries could be applied to them, if necessary.

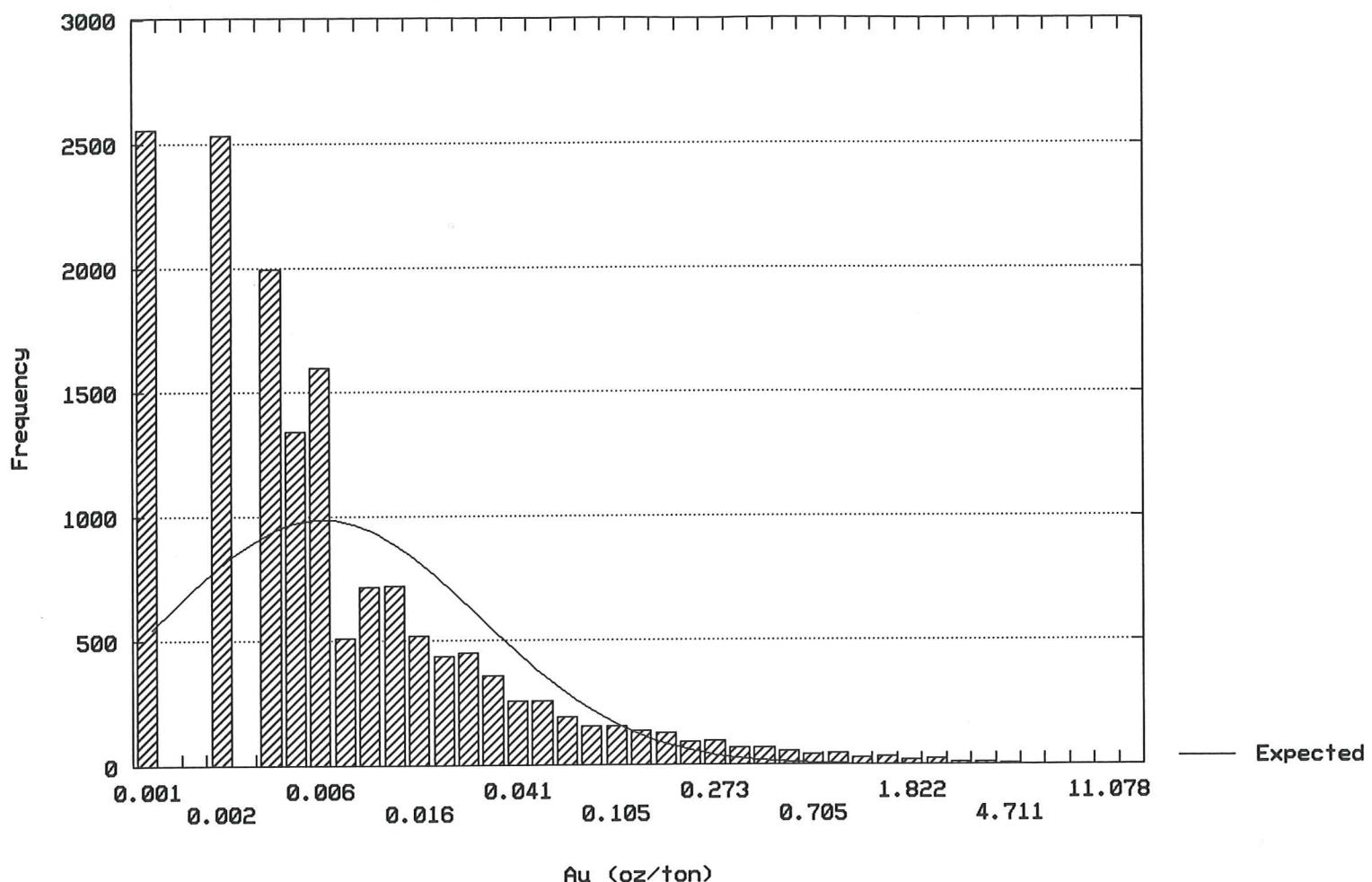
I hope this is of some use to you. It is an outside view based on one day in your office discussing geology with you and Craig. You are, I know, familiar with most of this but writing it down will add to the exchange that is so necessary for resource modelling. Talk to you soon.

Sincerely,

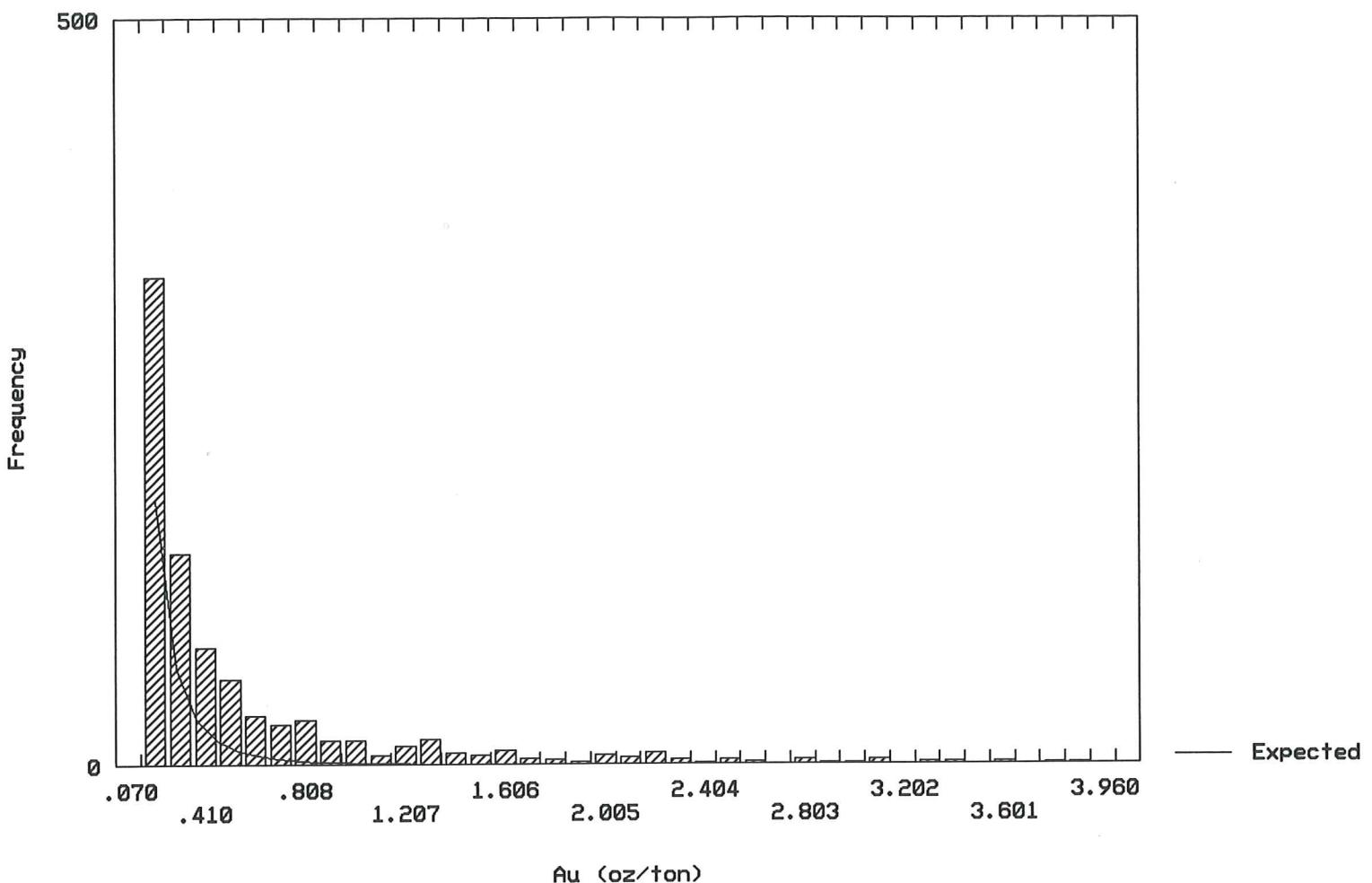
A handwritten signature in blue ink, appearing to read "Steven Ristorcelli".

Steven Ristorcelli, R.P.G

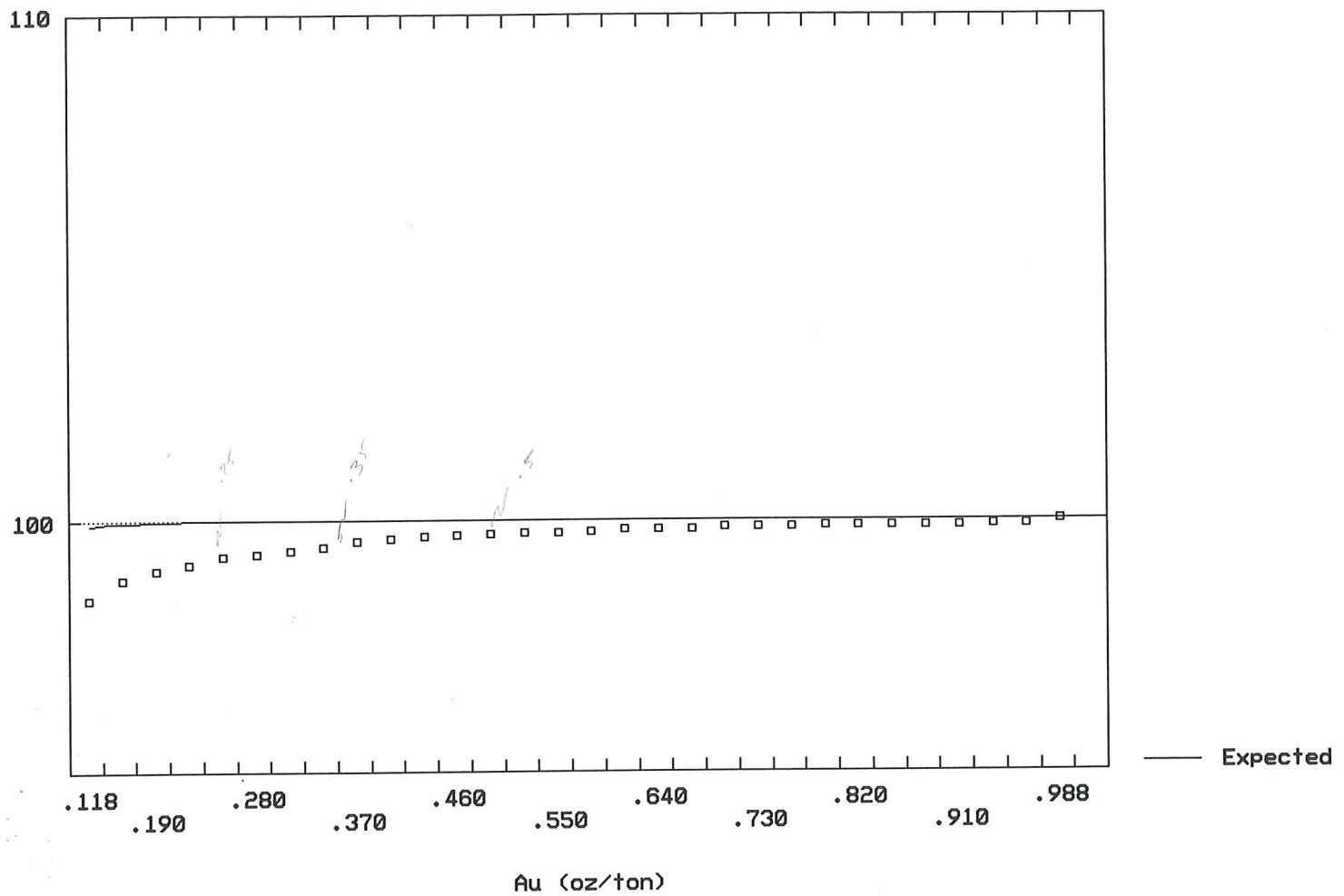
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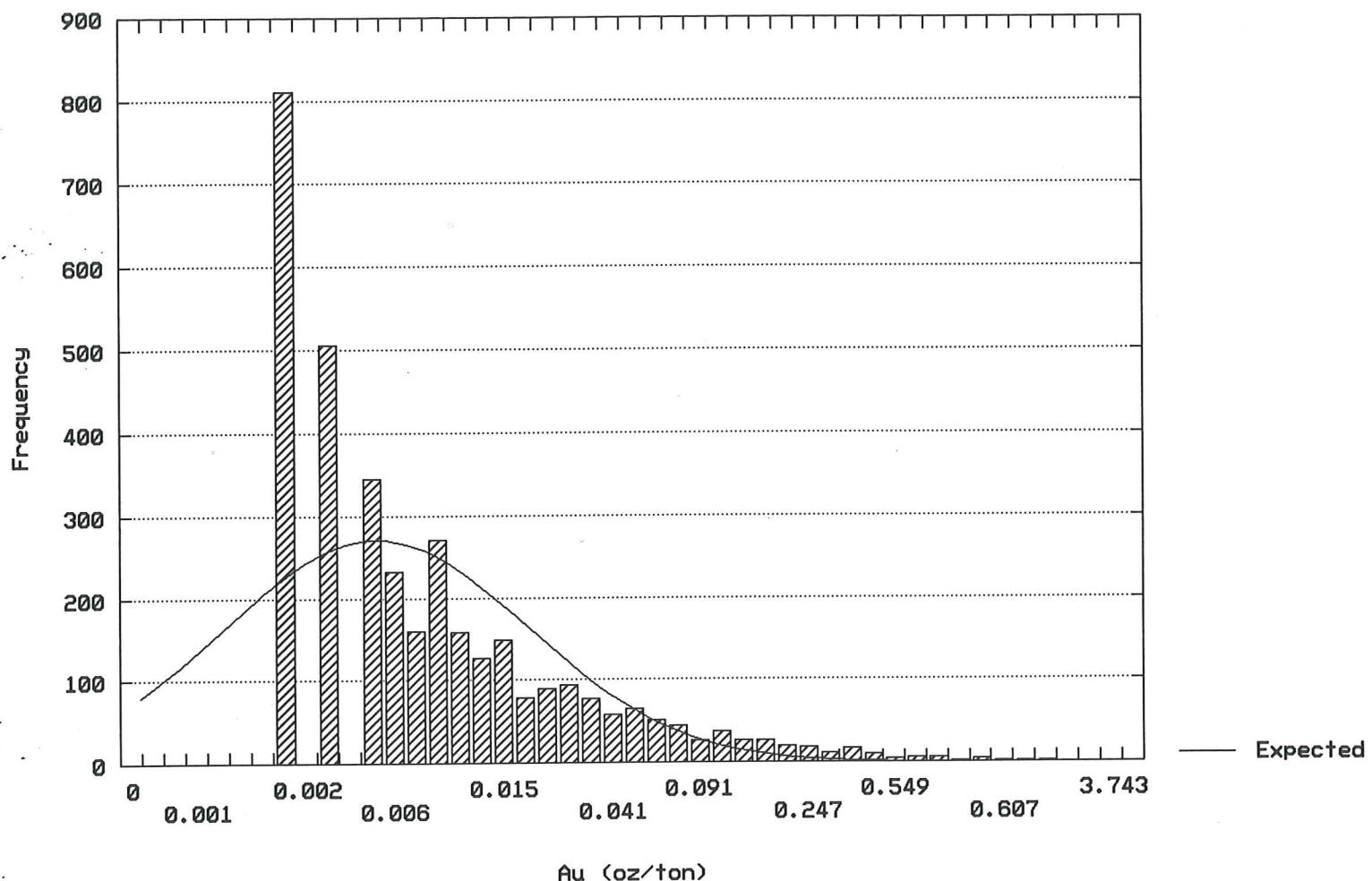
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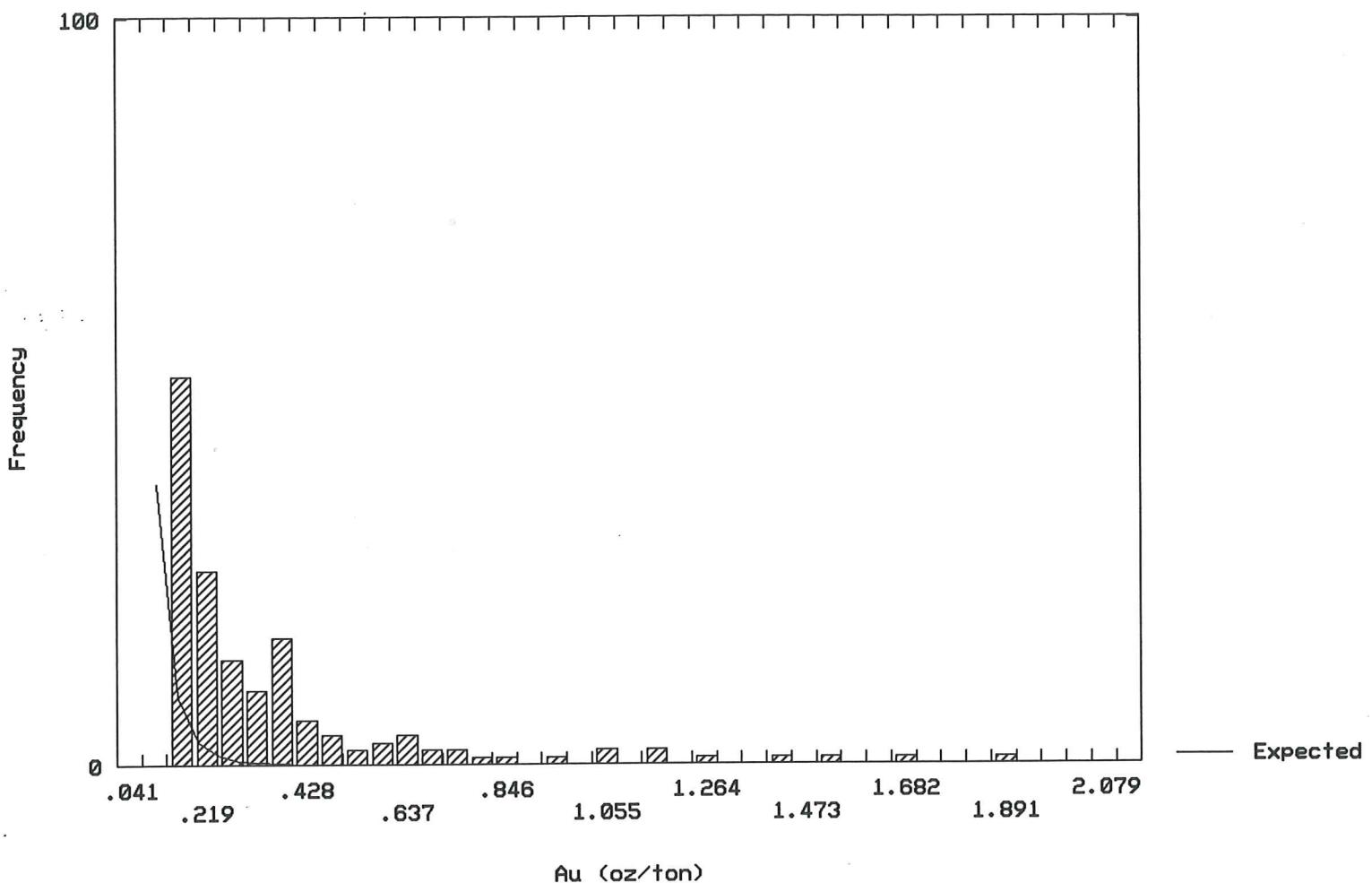
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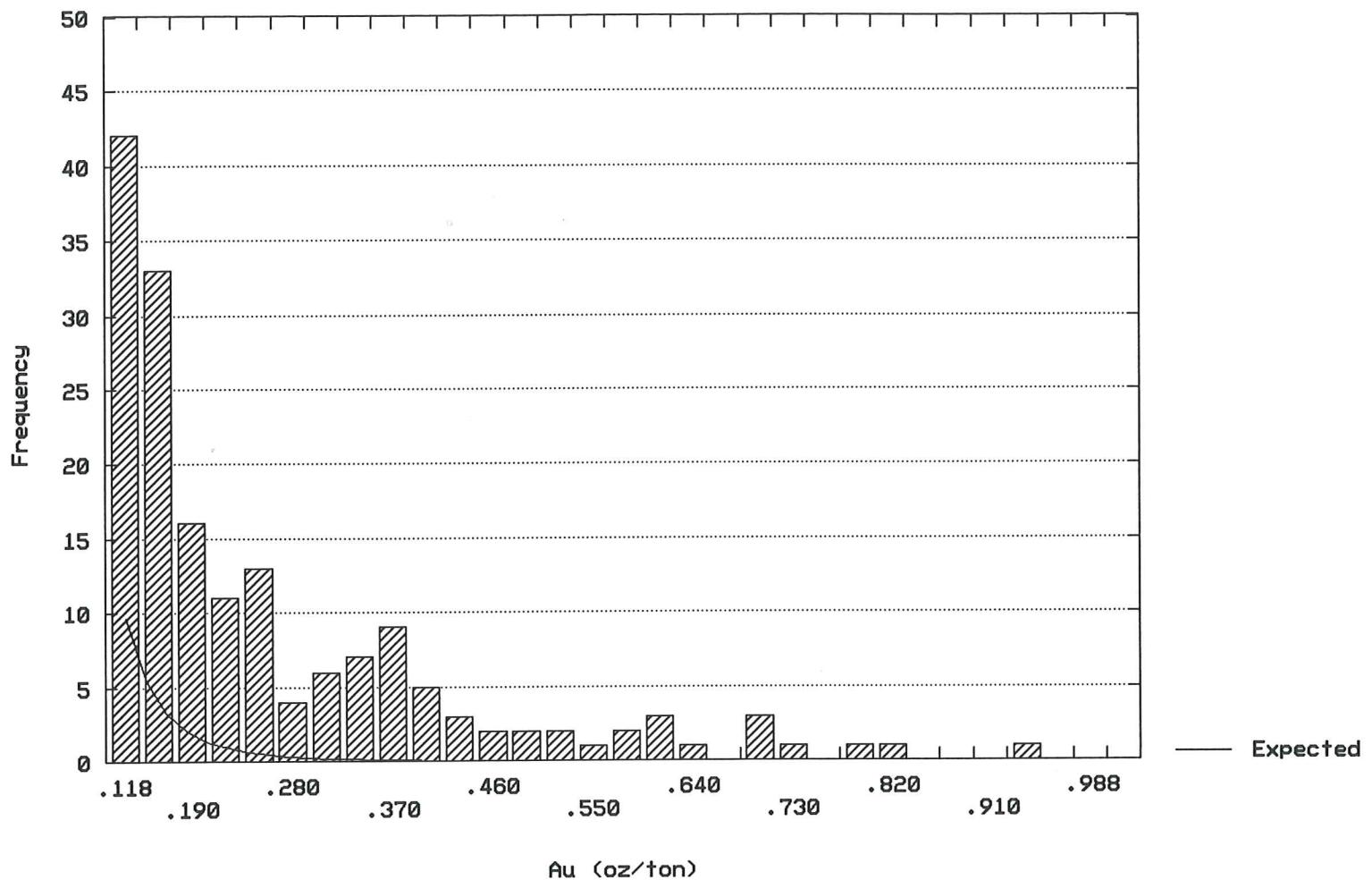
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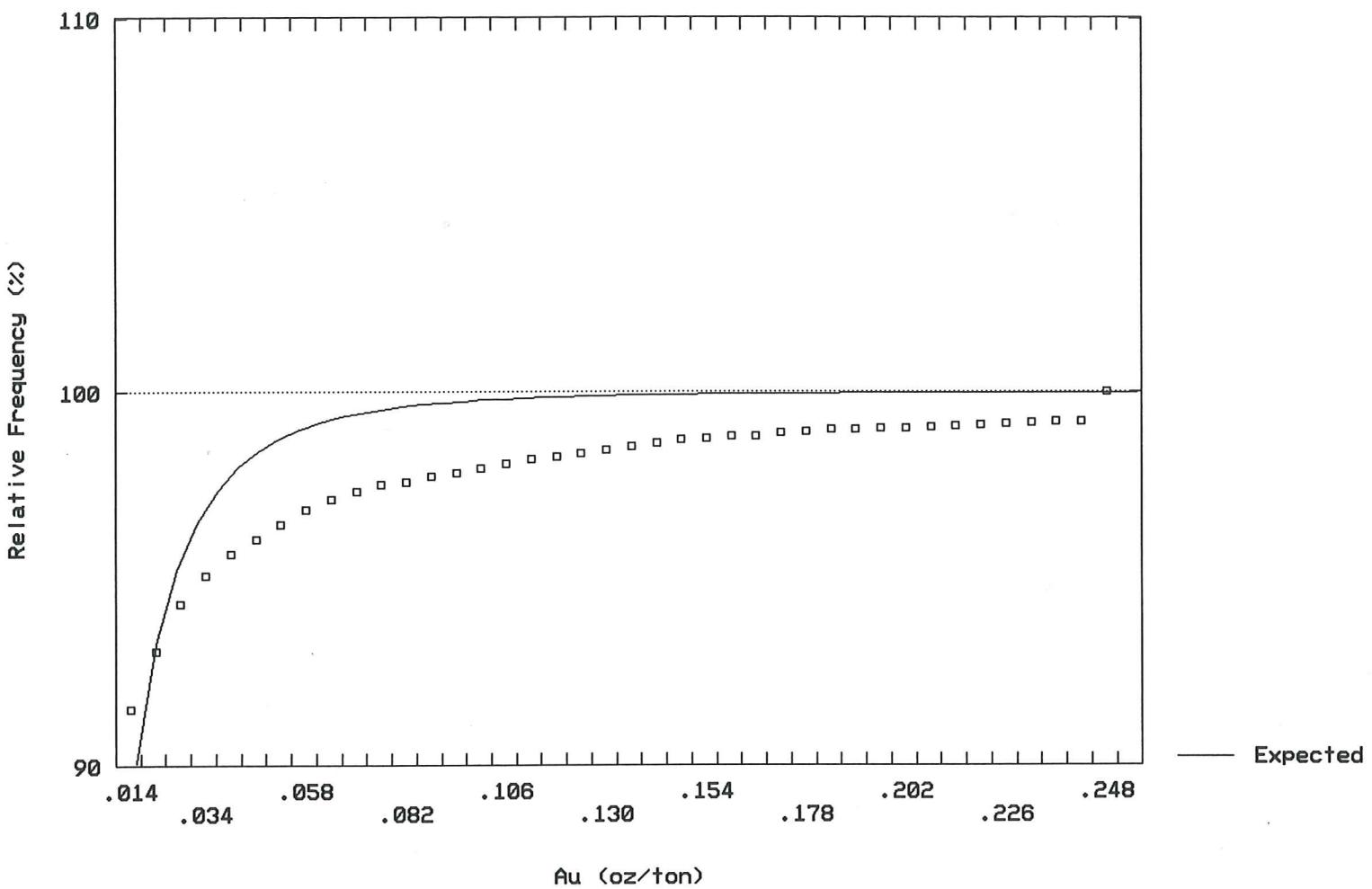
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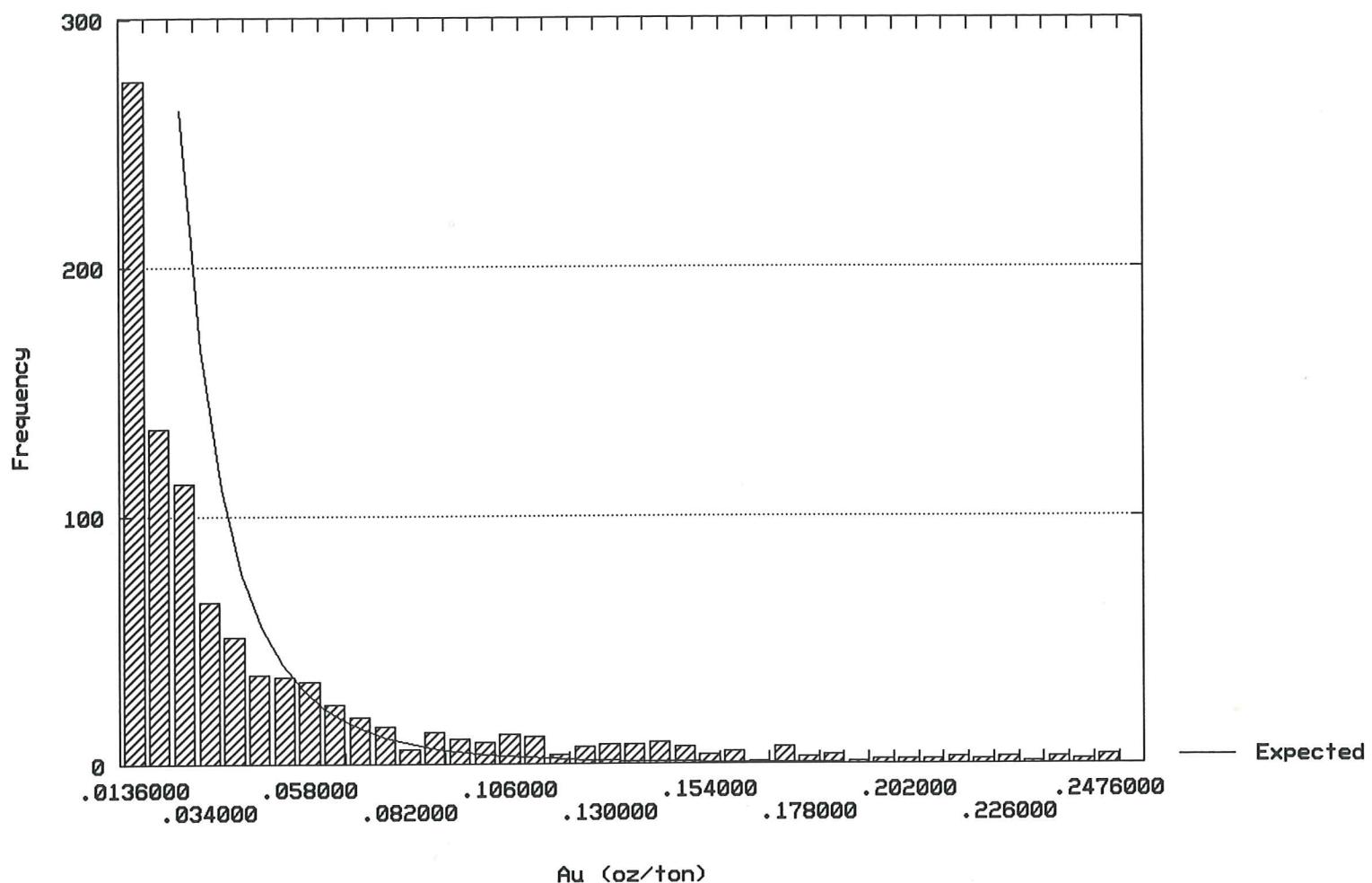
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Rosebud - North Zone



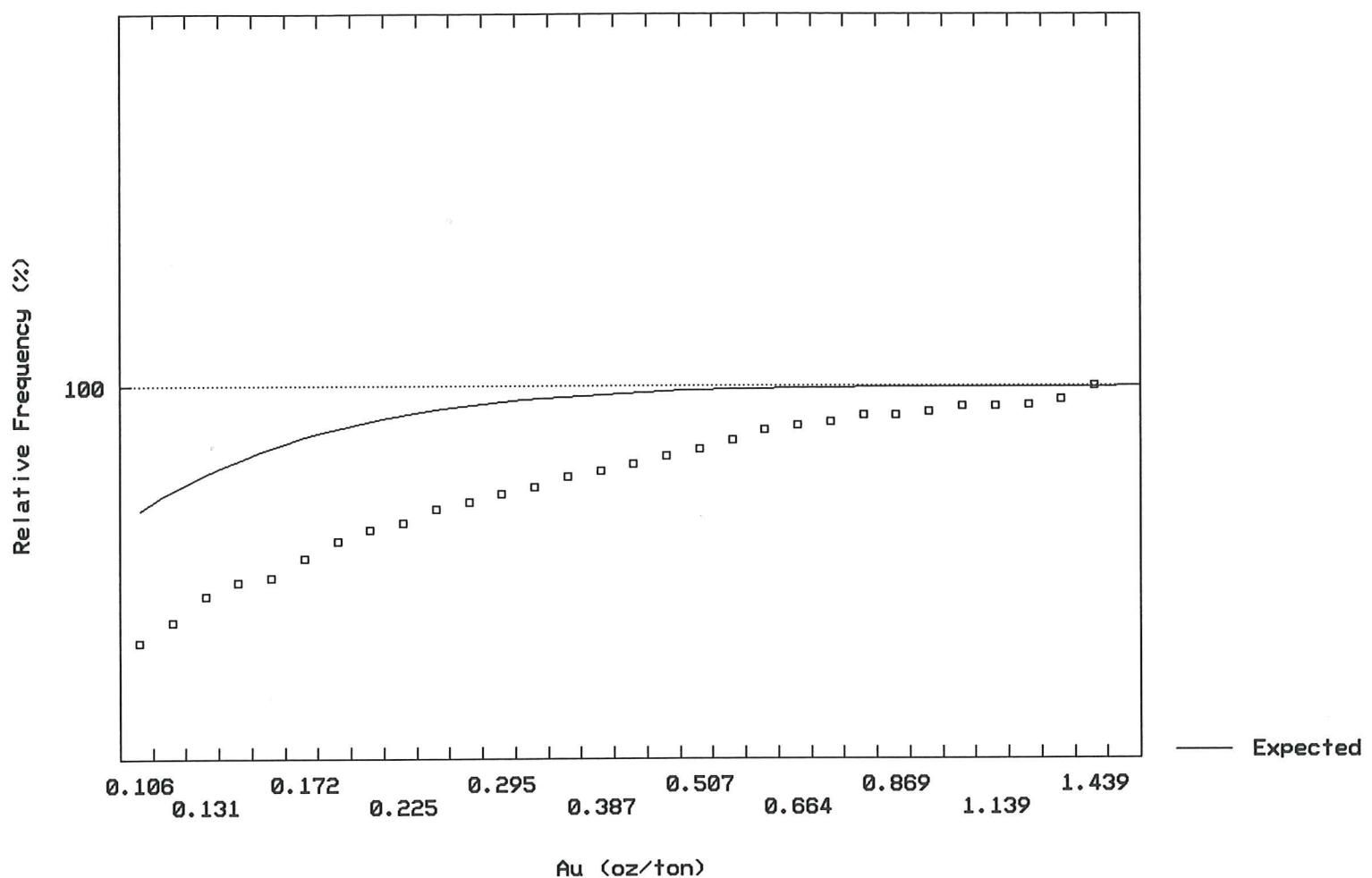
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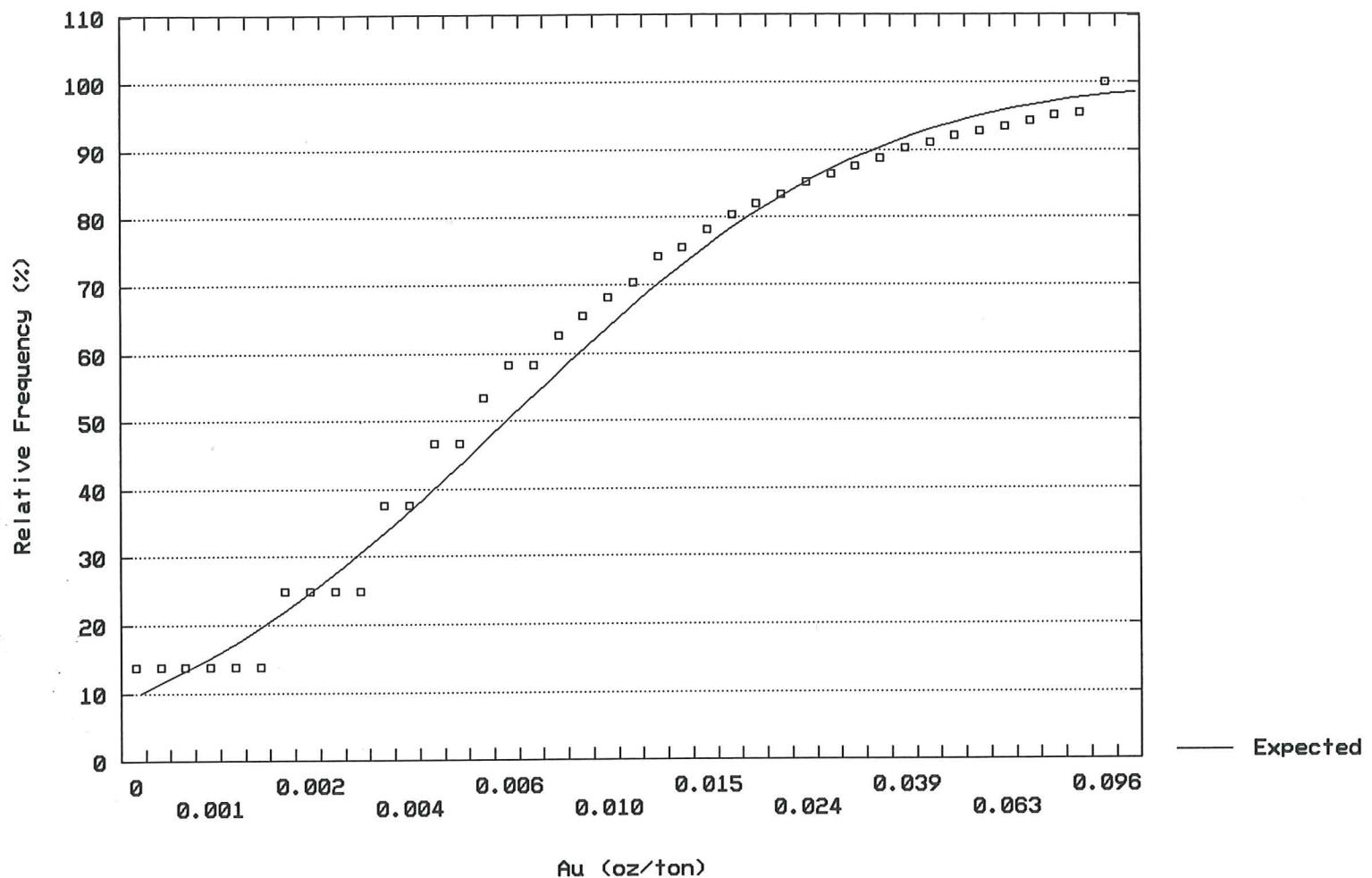
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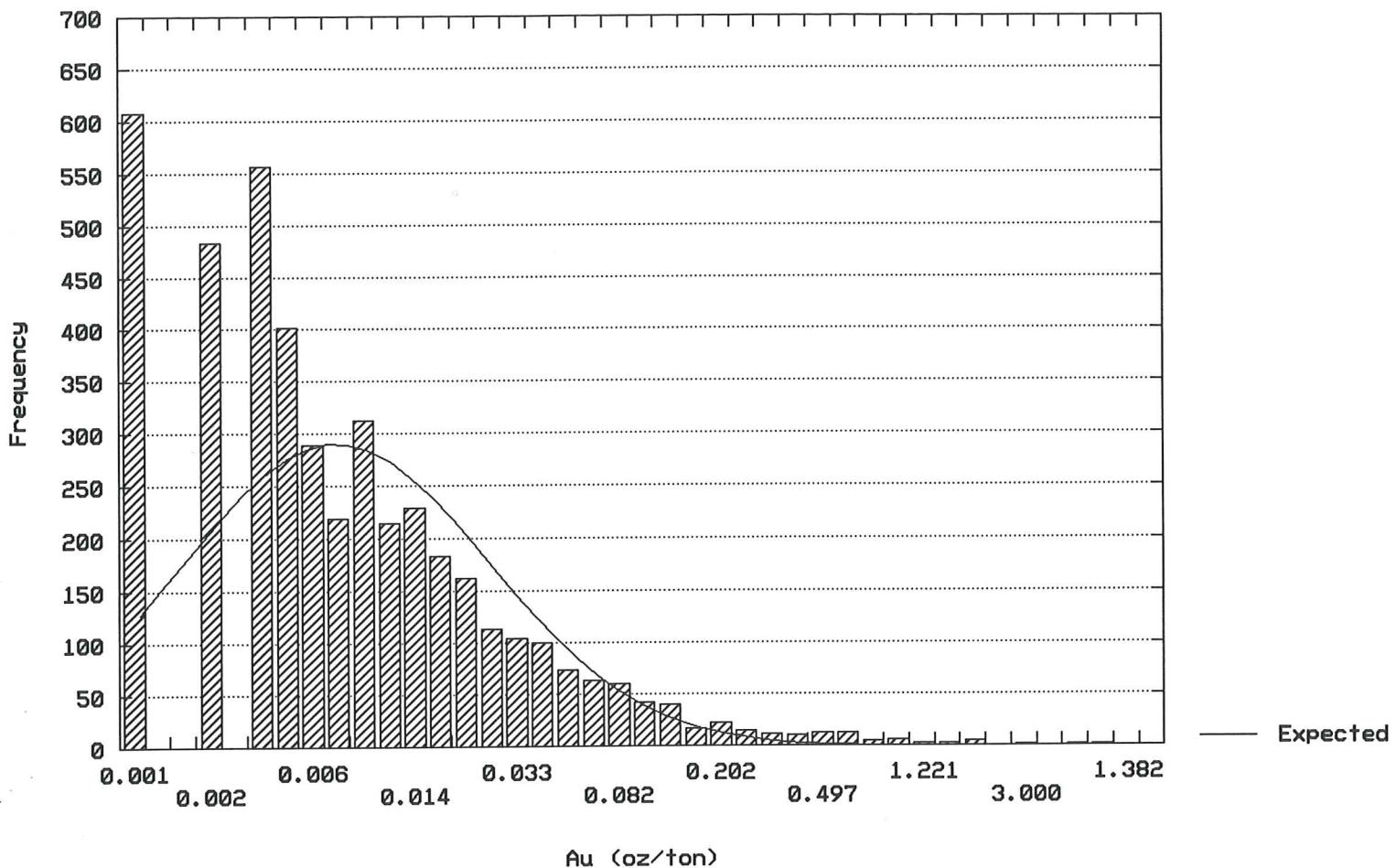
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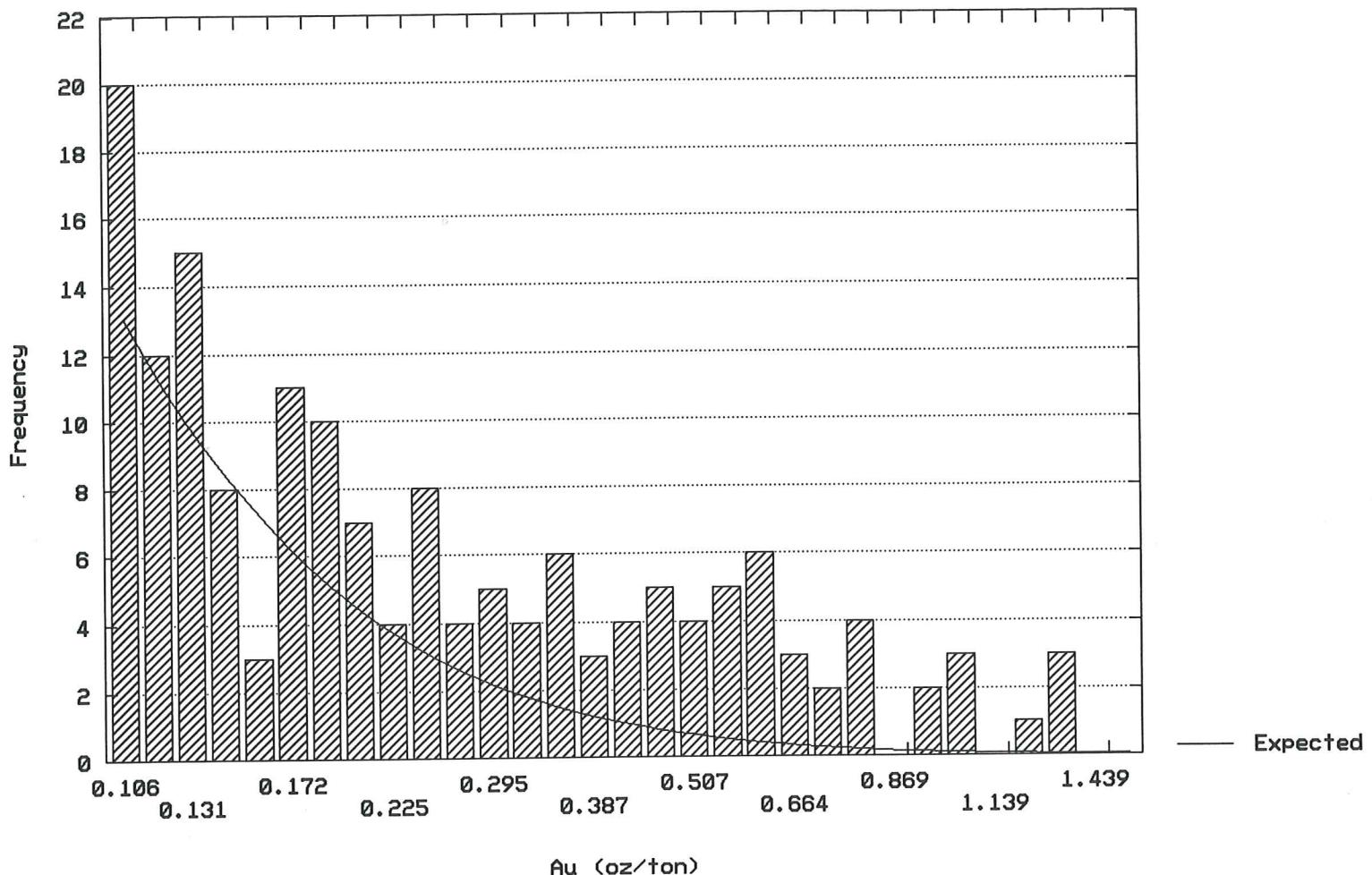
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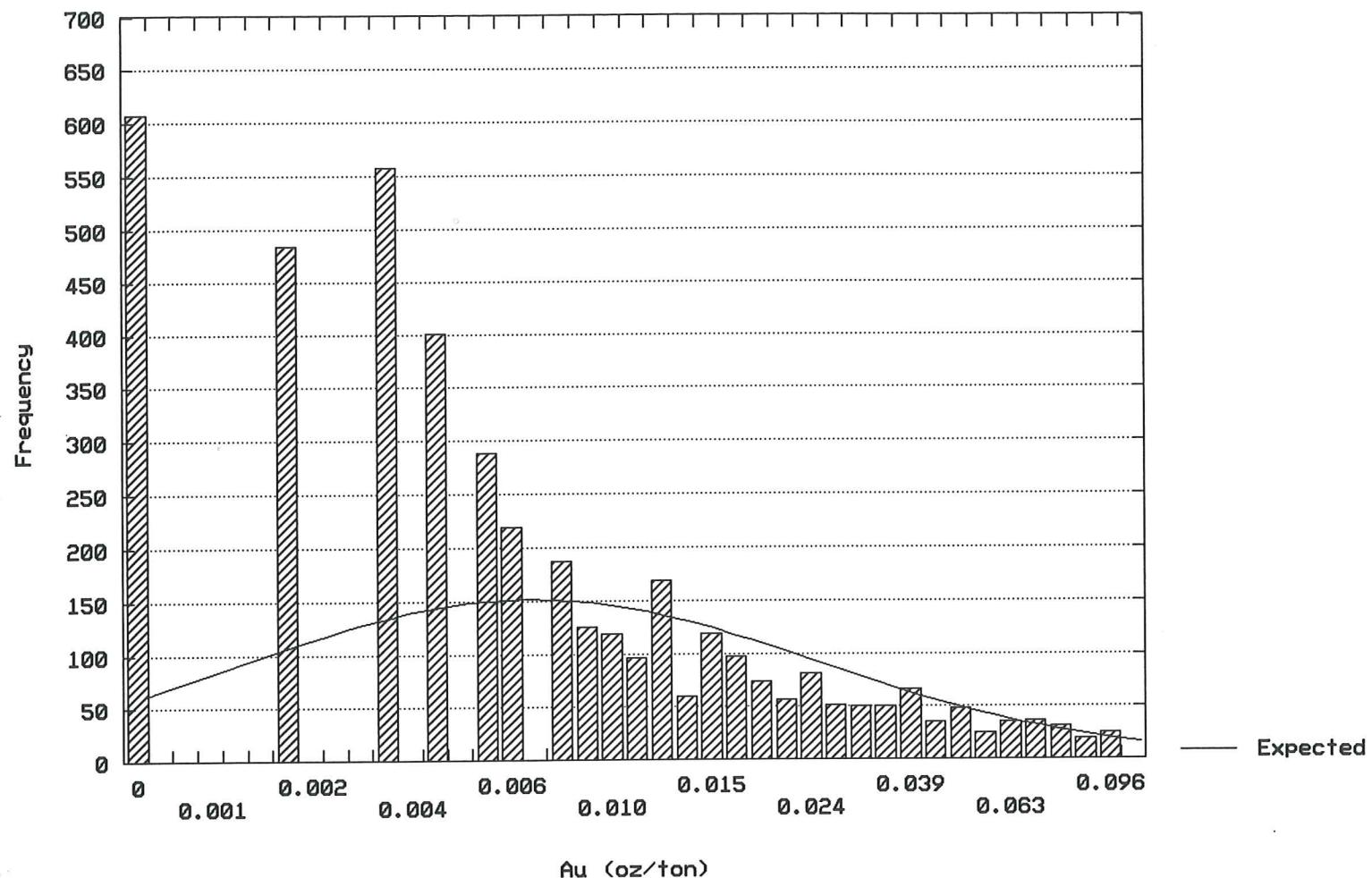
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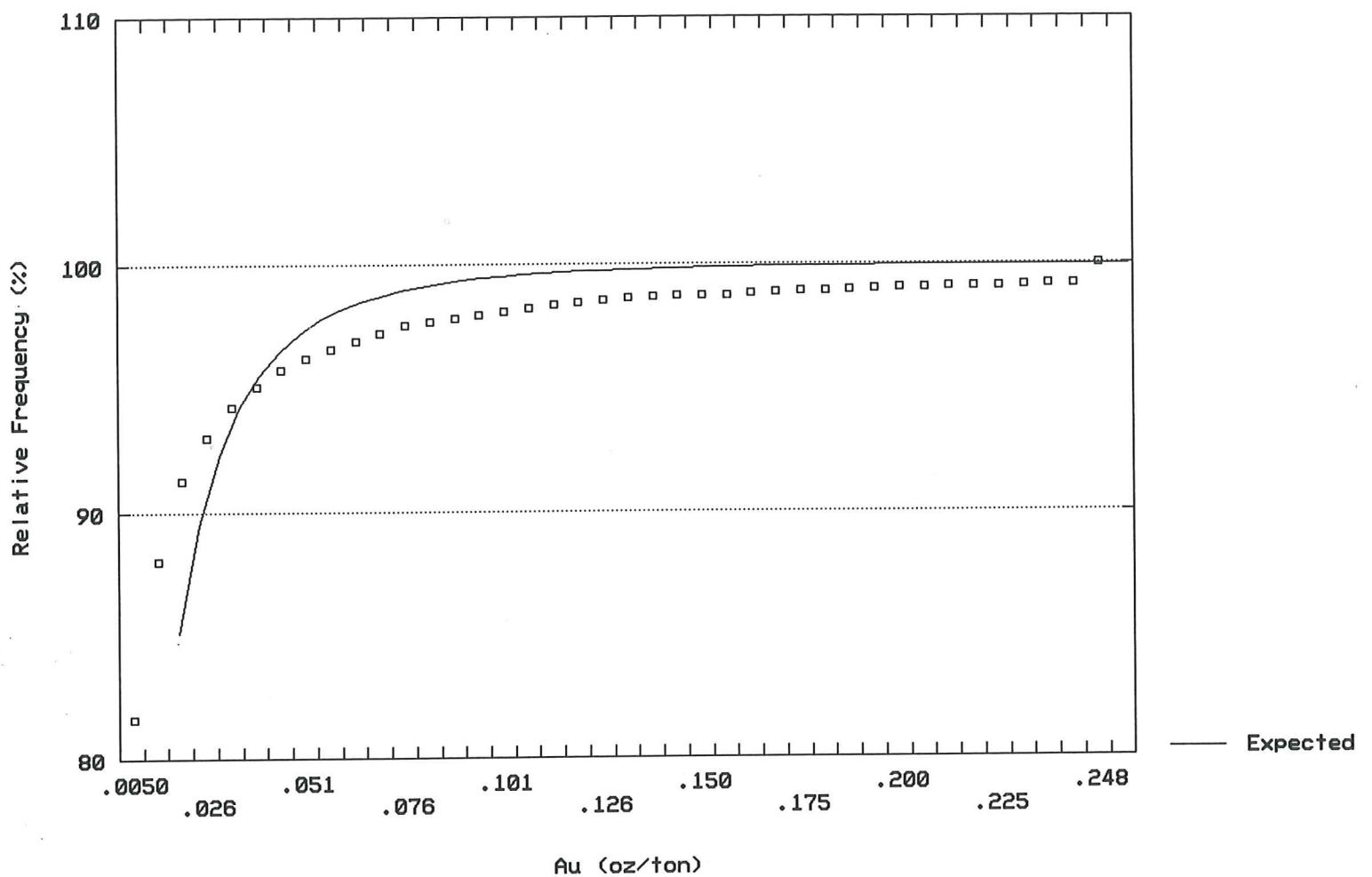
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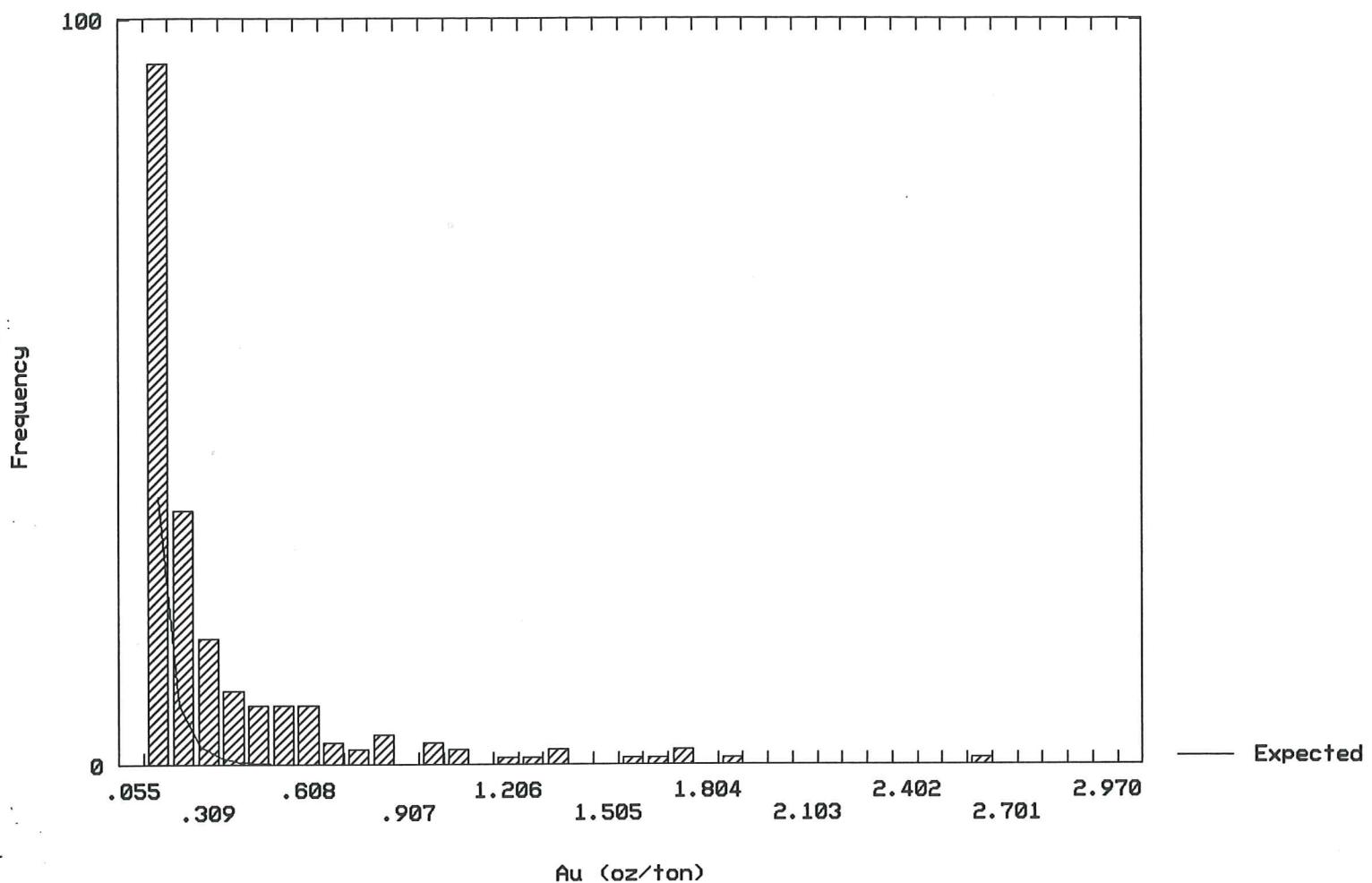
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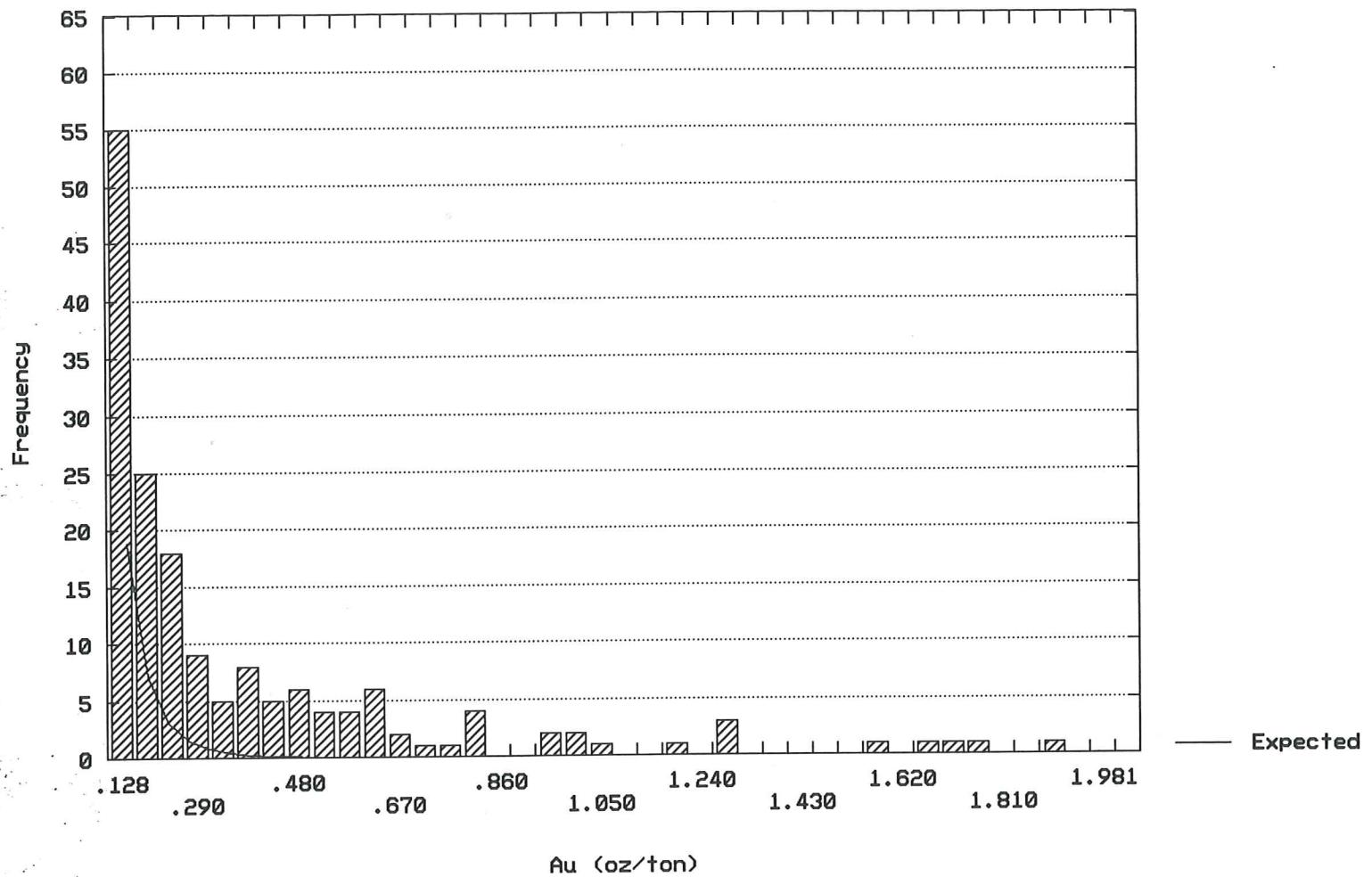
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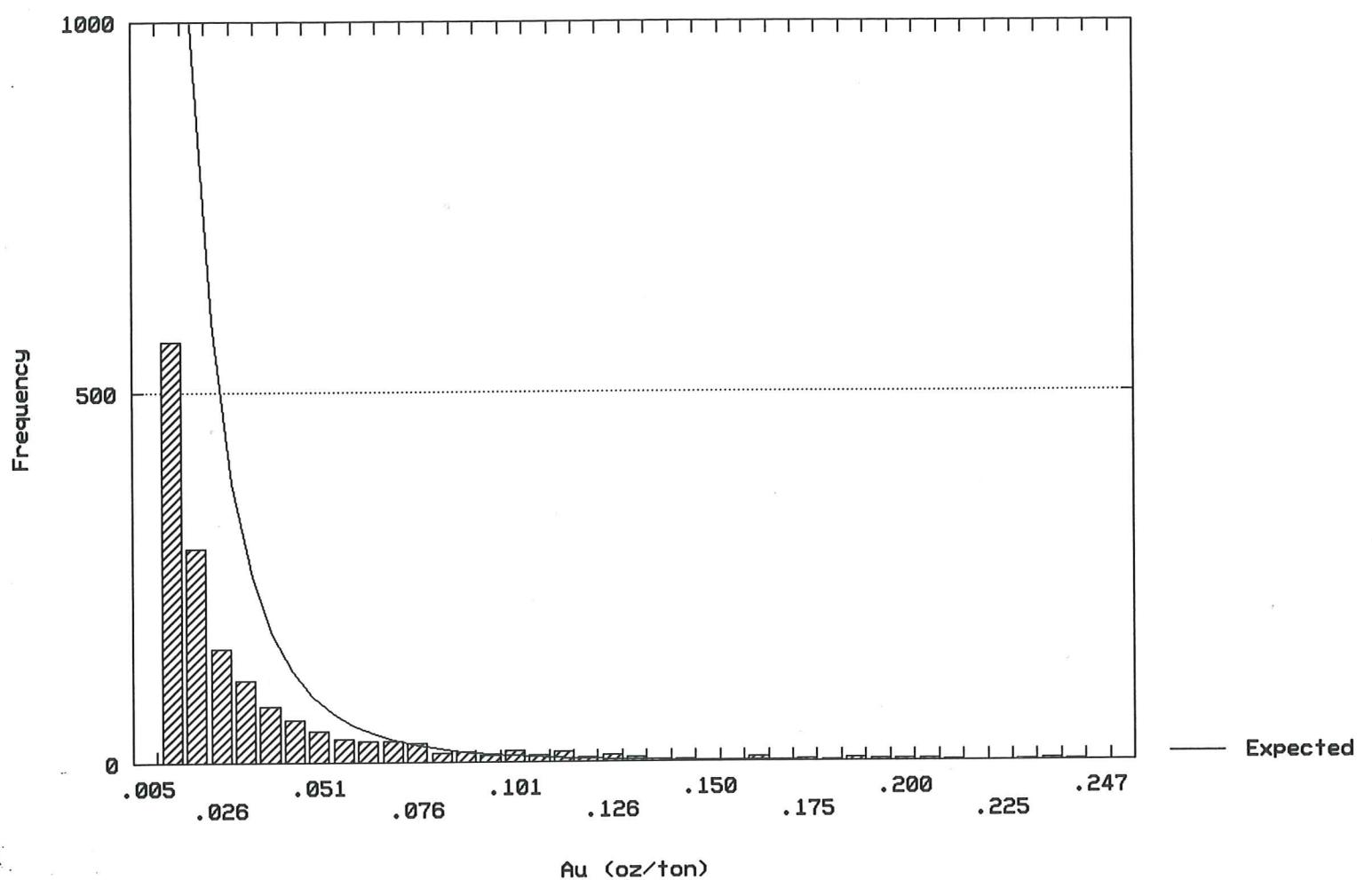
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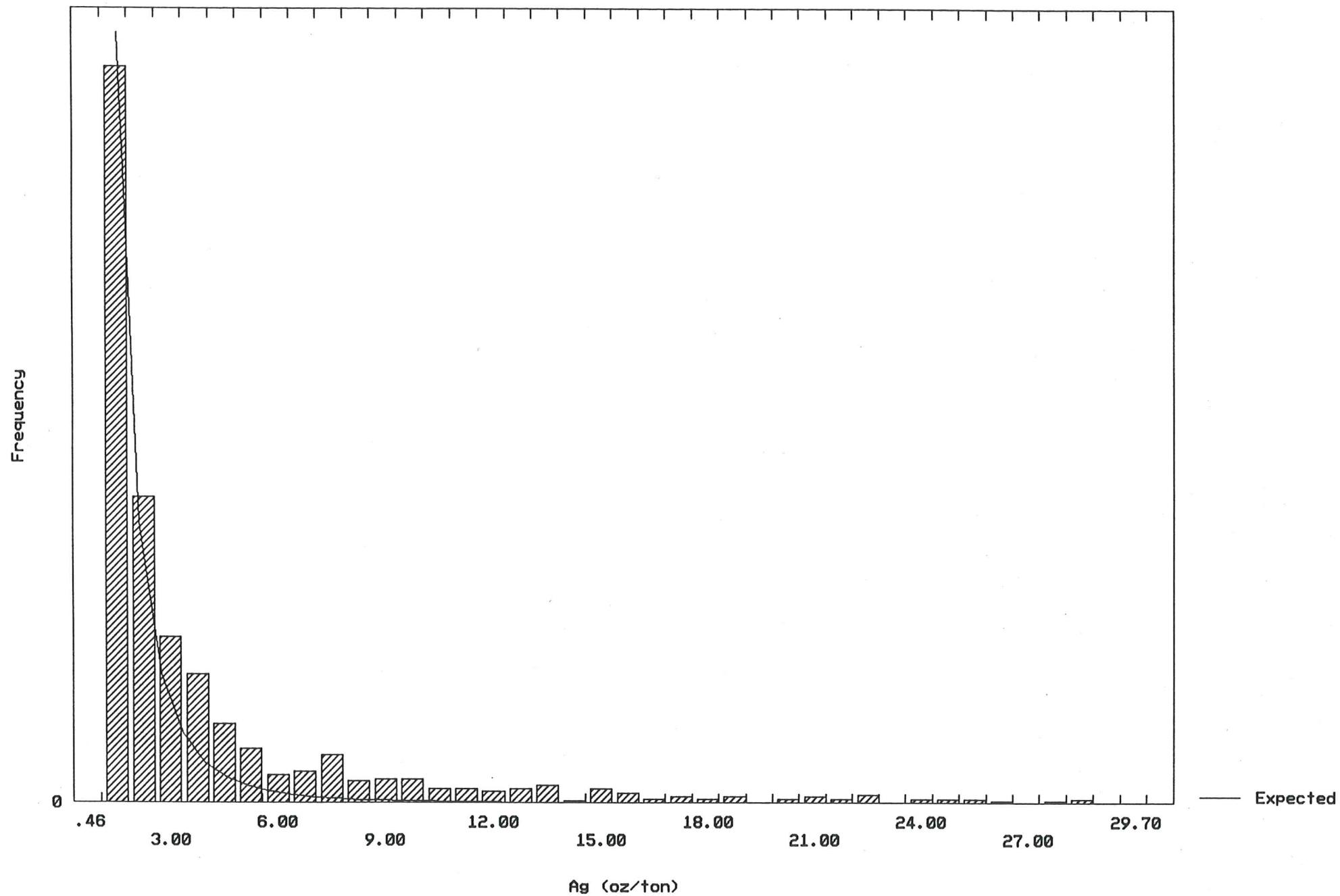
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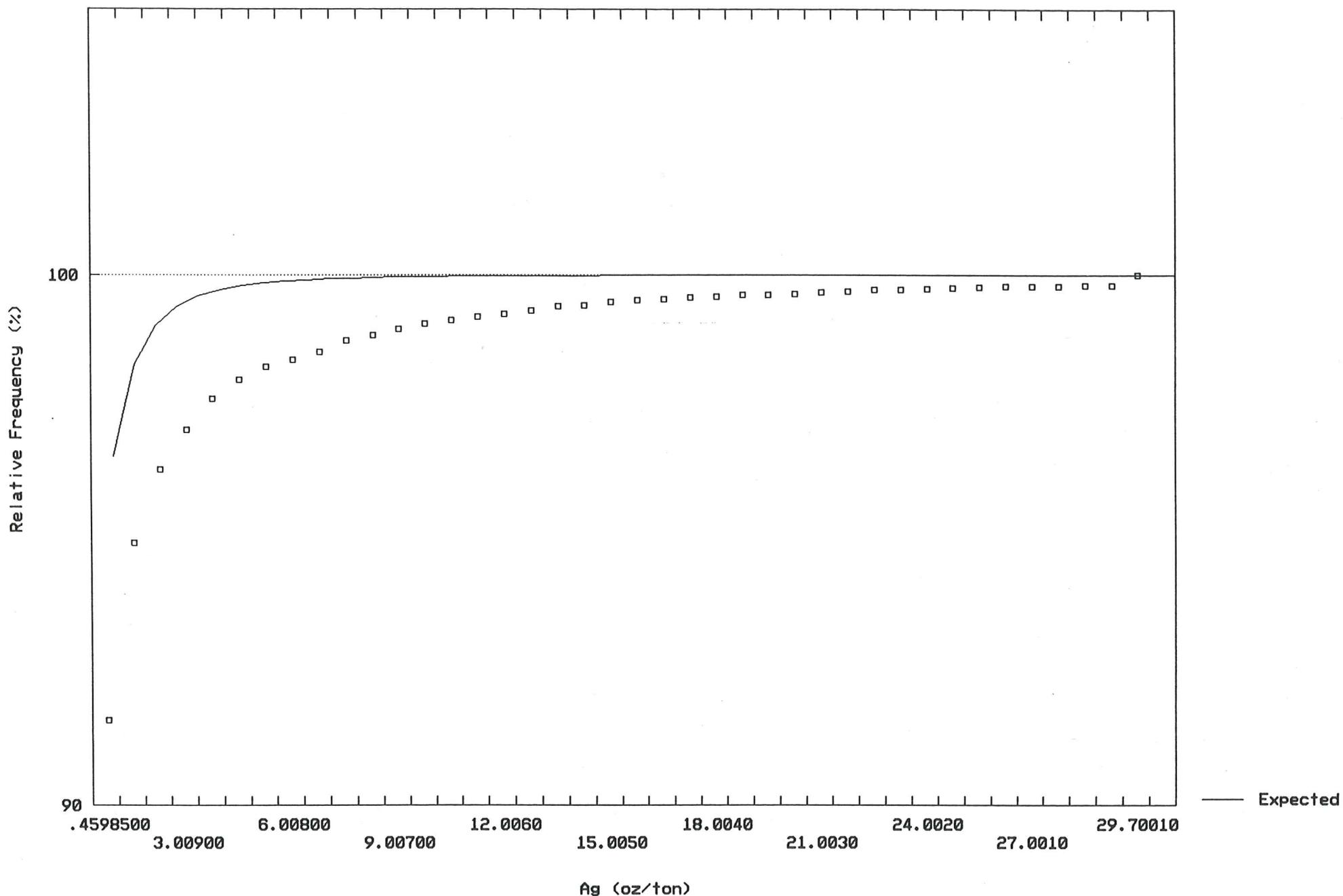
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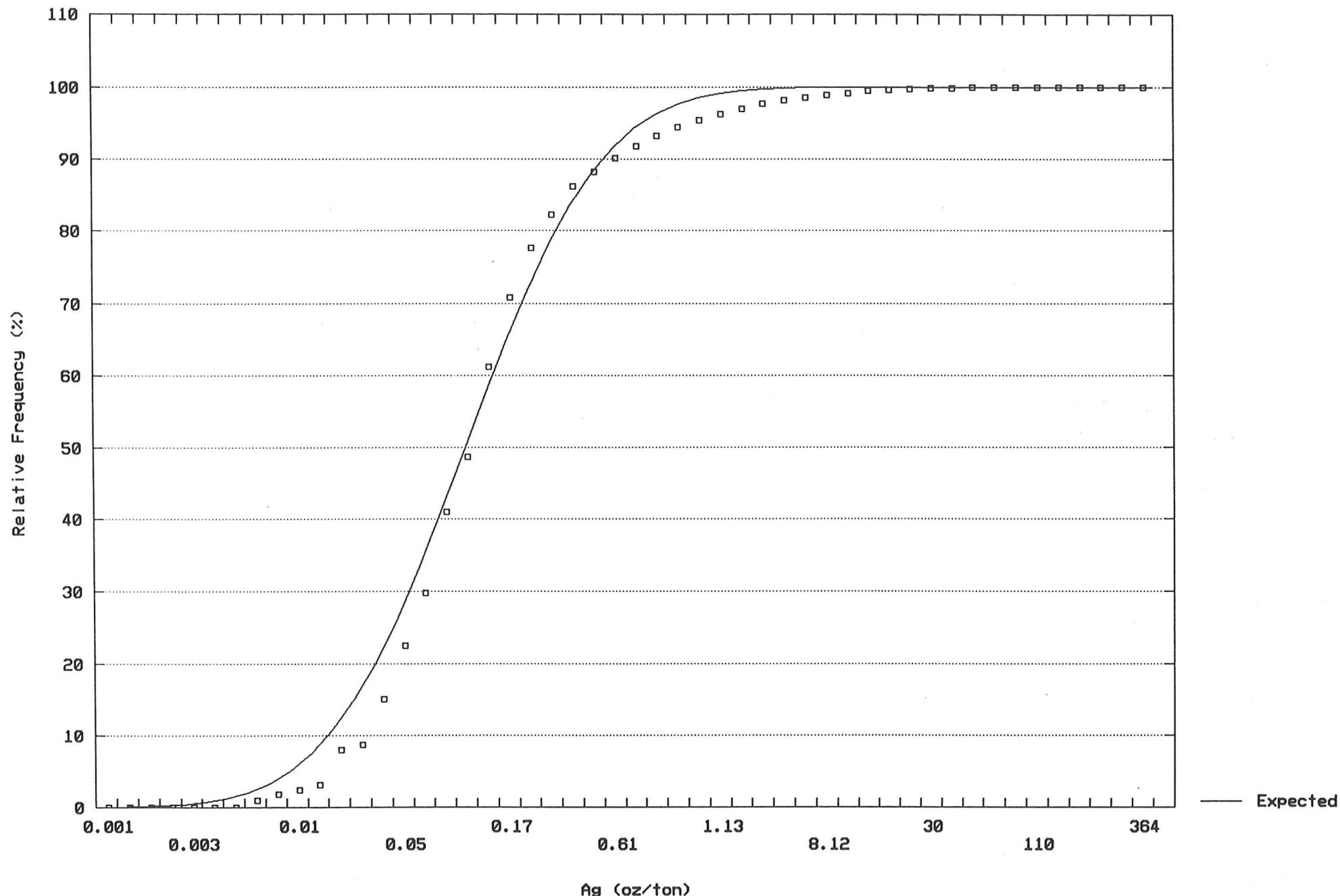
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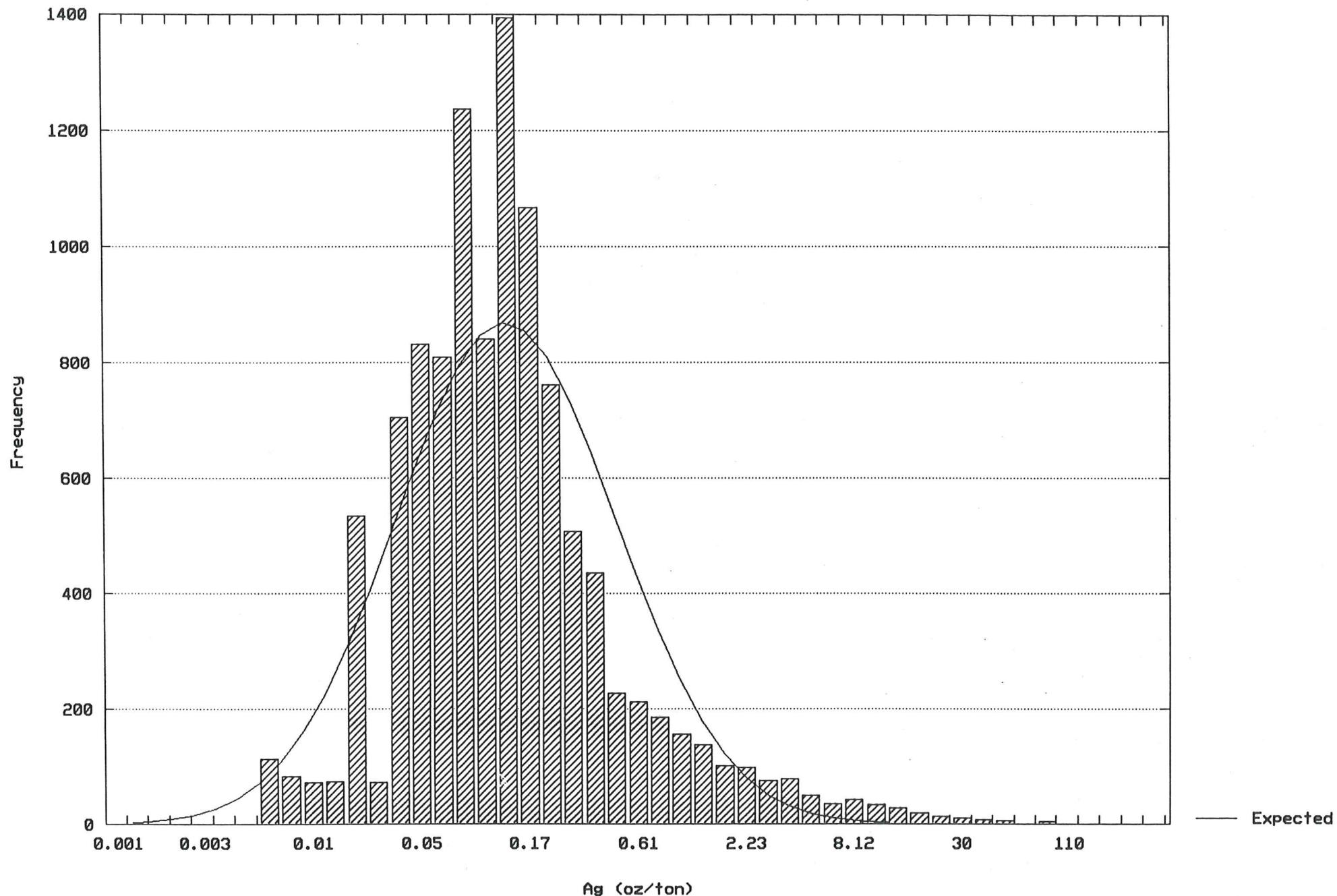
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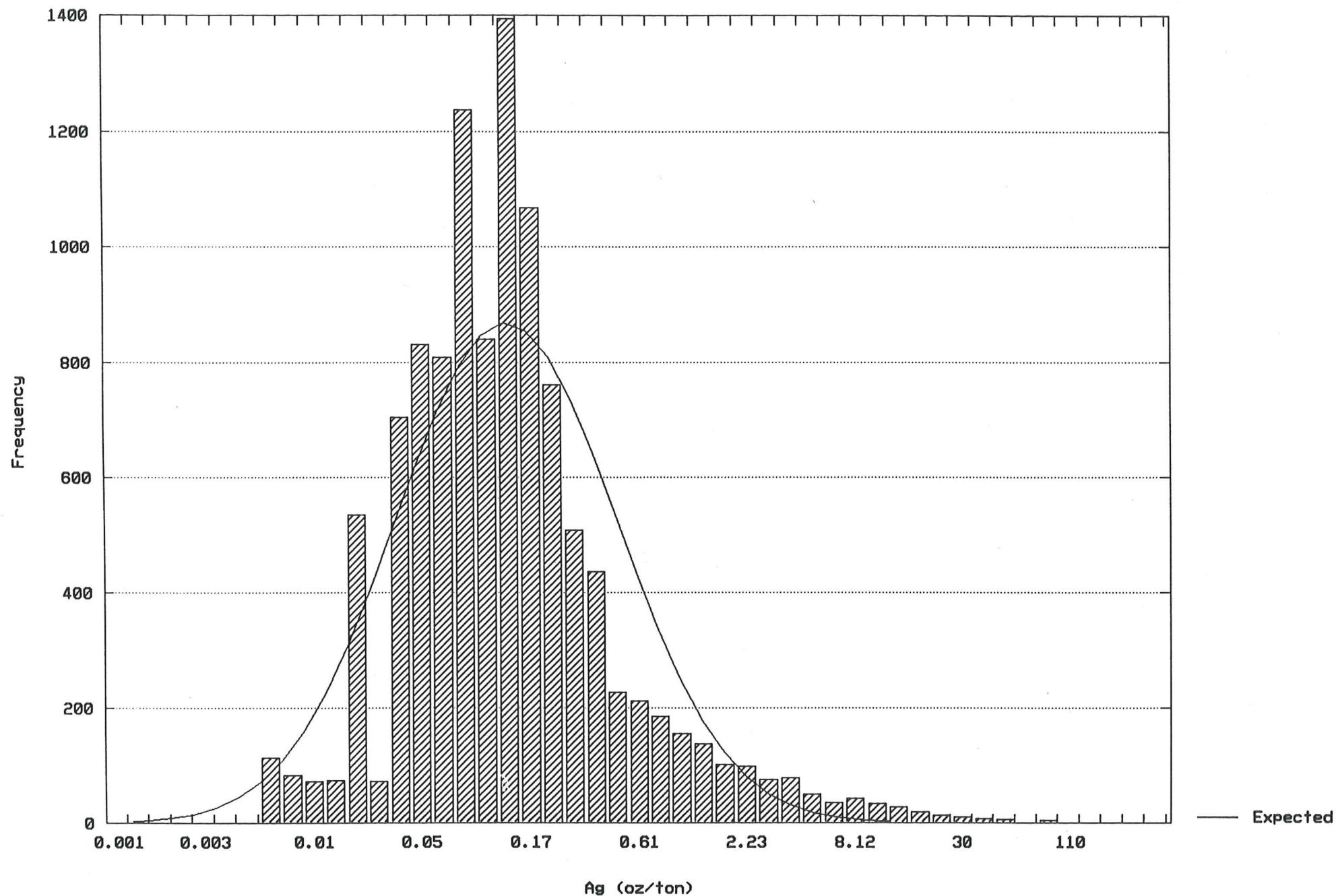
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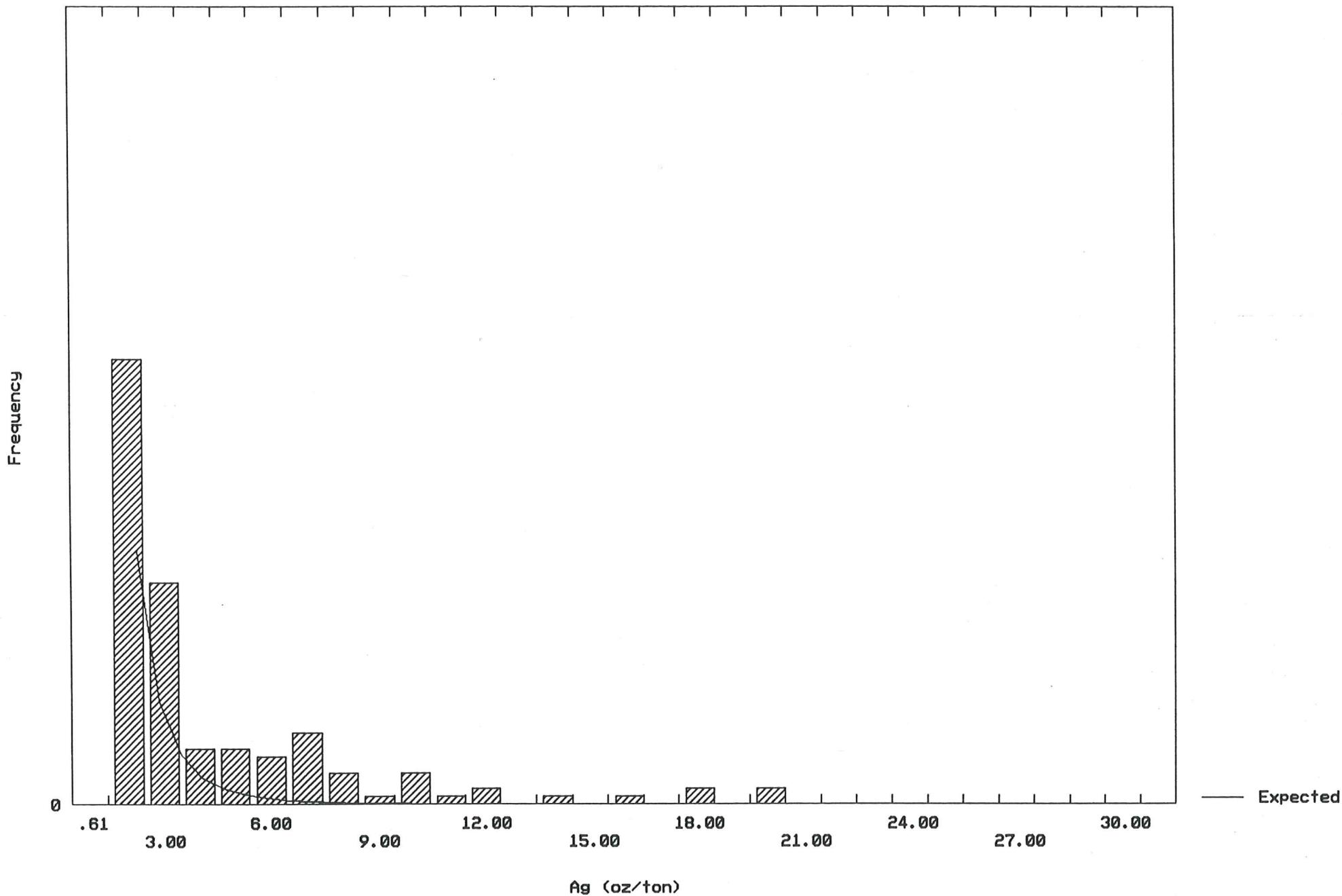
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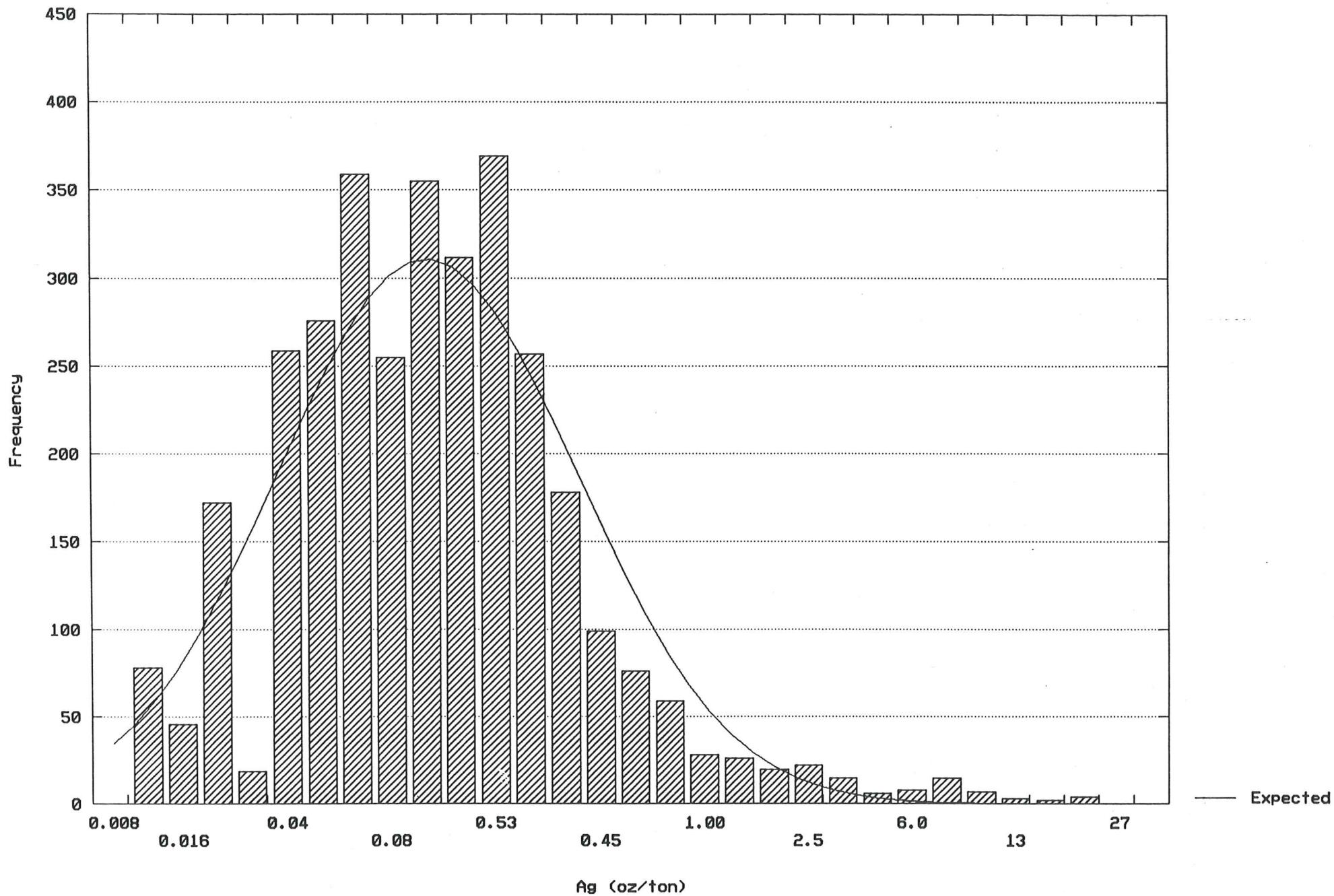
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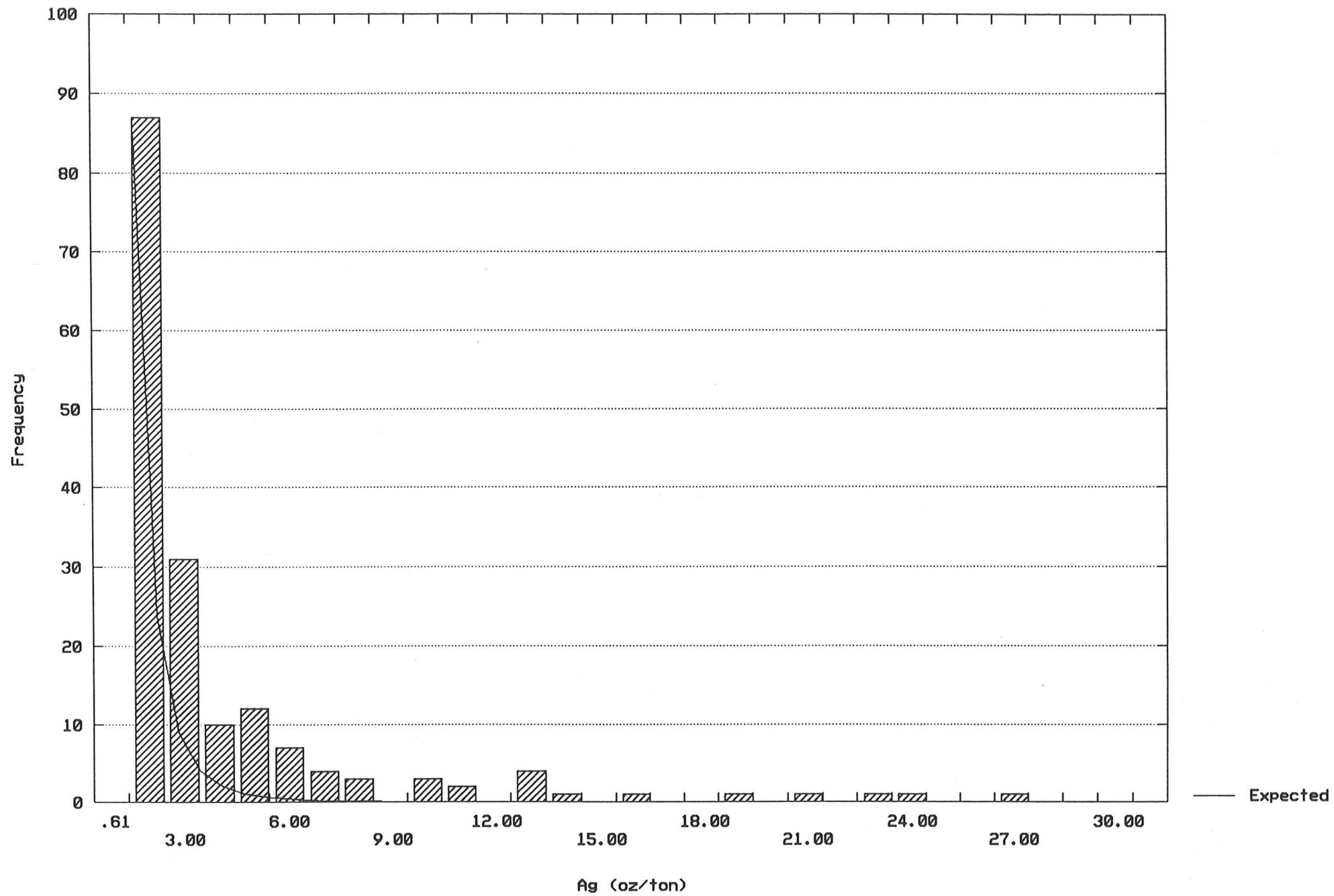
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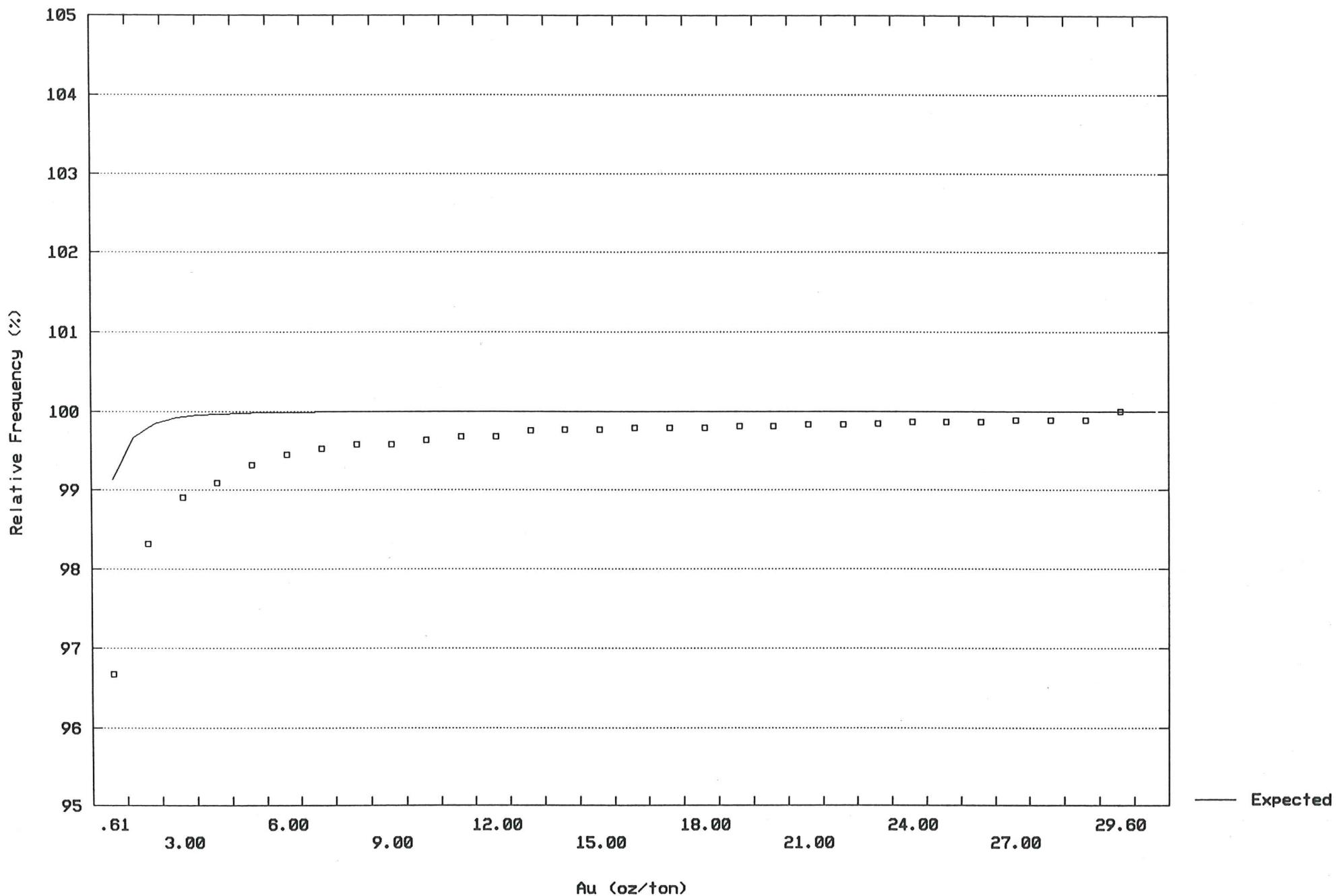
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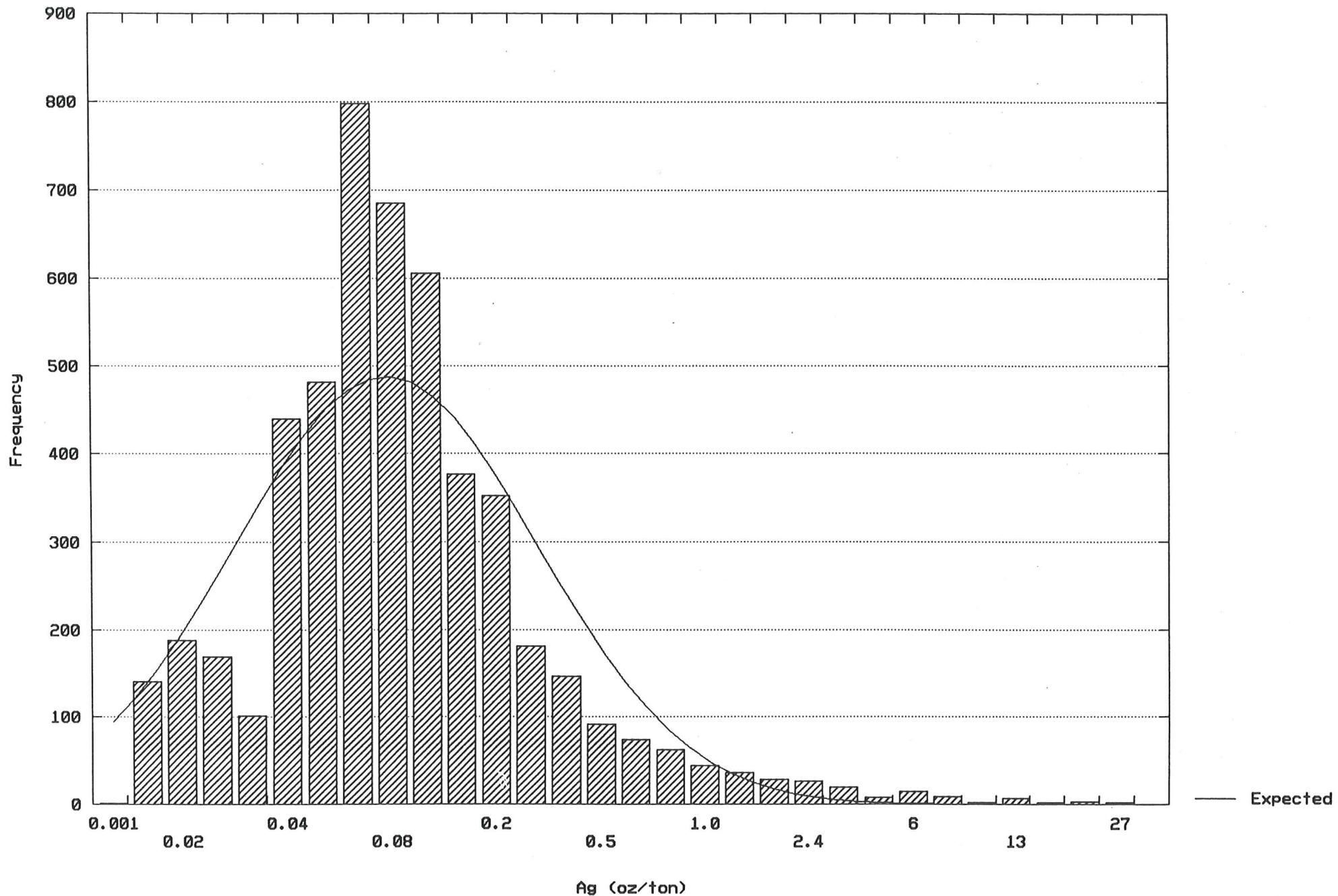
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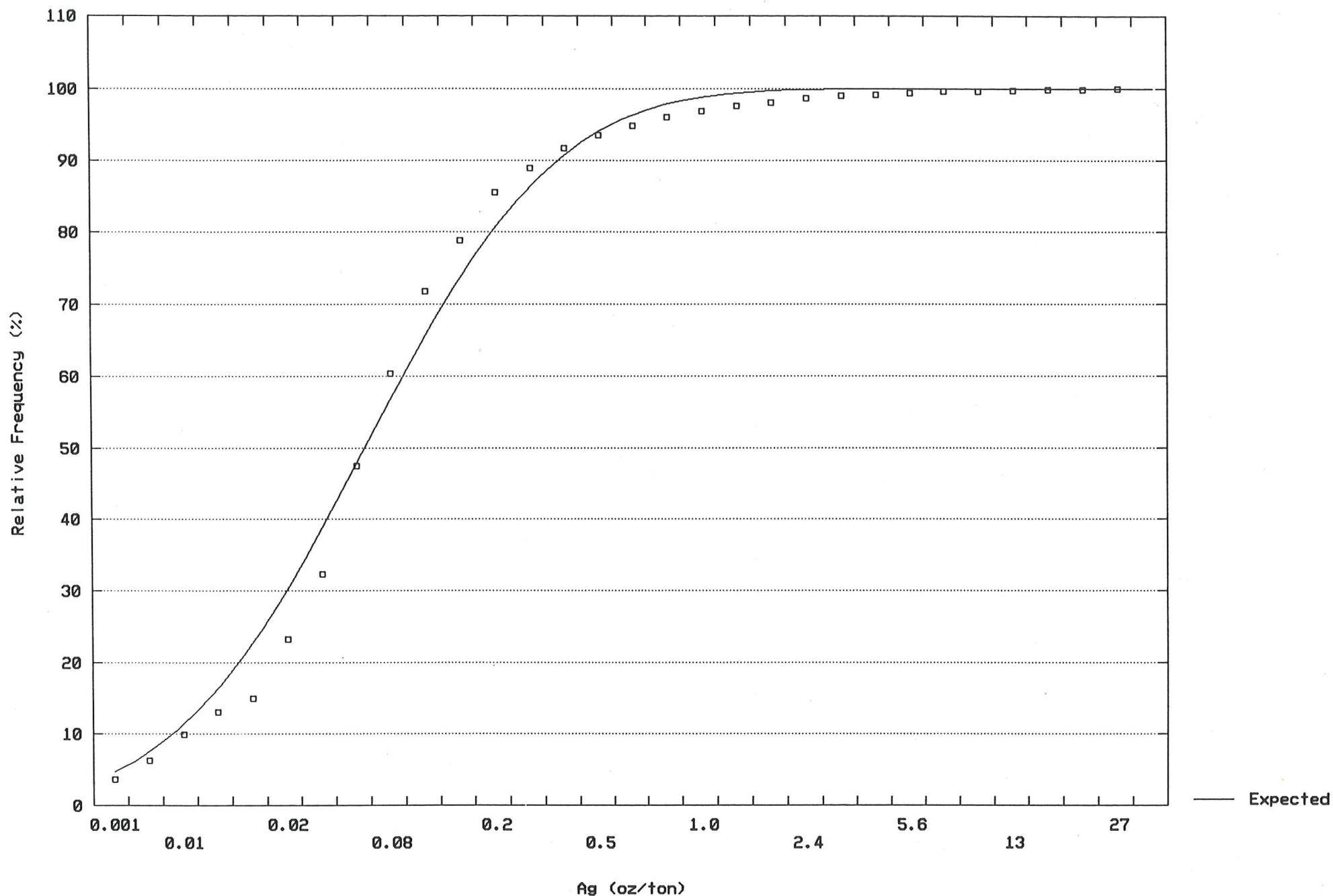
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Rosebud - East Zone



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Rosebud - East Zone

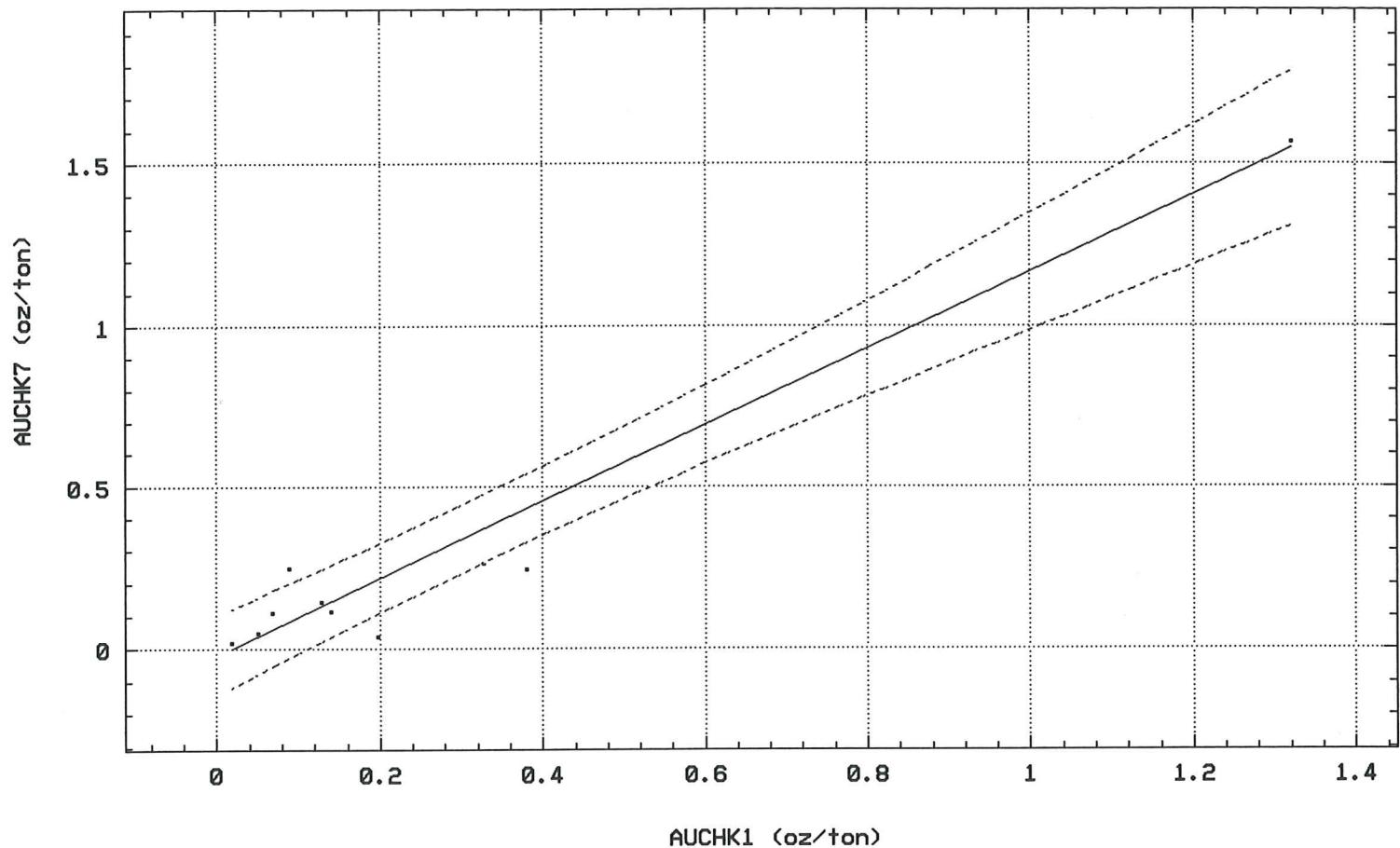


Variable LNAG ; distribution: Normal  
Rosebud - East Zone



SCATTERGRAM

6 cases (MD pairwise deleted); r=.984; p=.000  
AUCHK7 = -.019 + 1.187 \* AUCHK1  
Rosebud - All Data

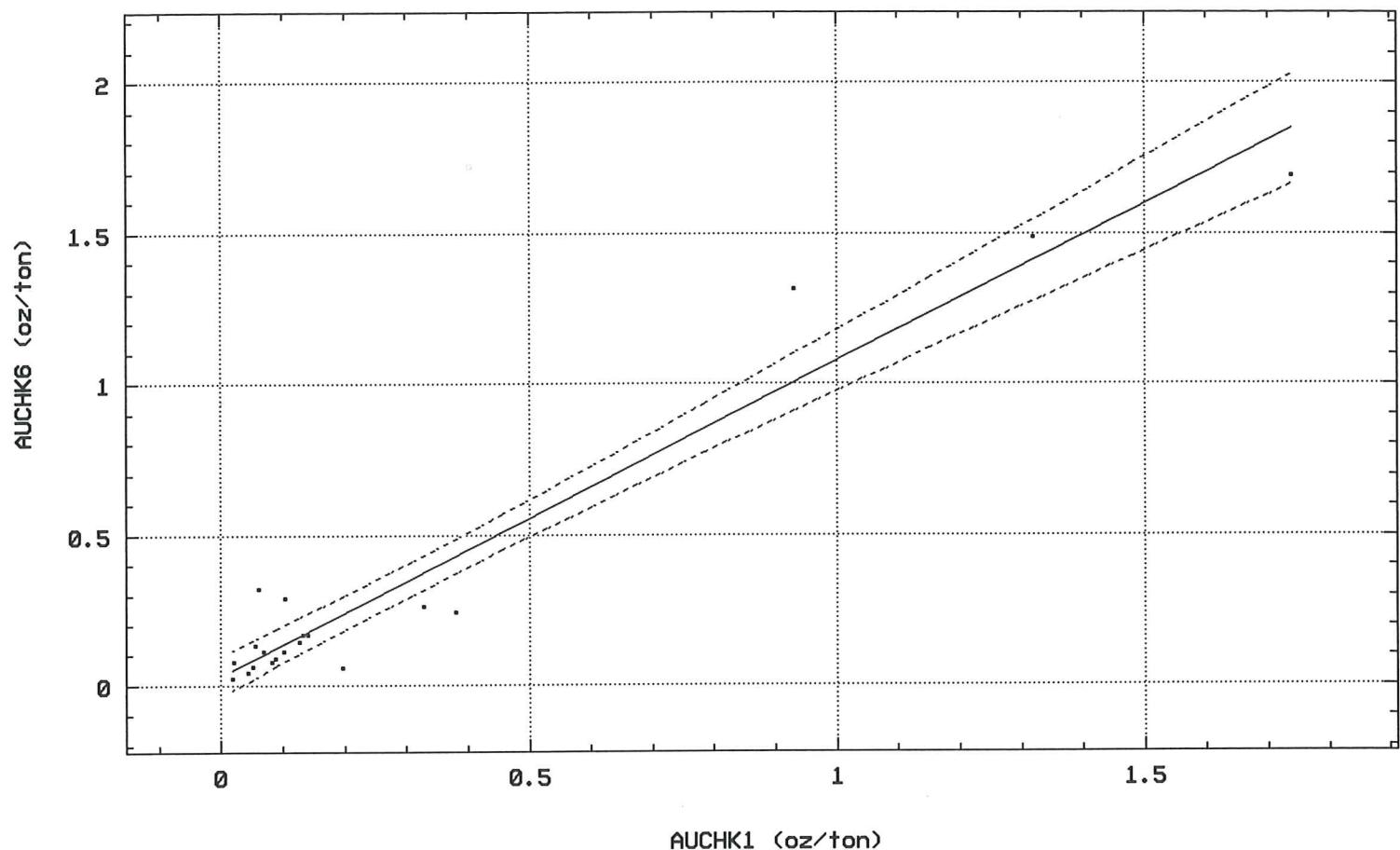


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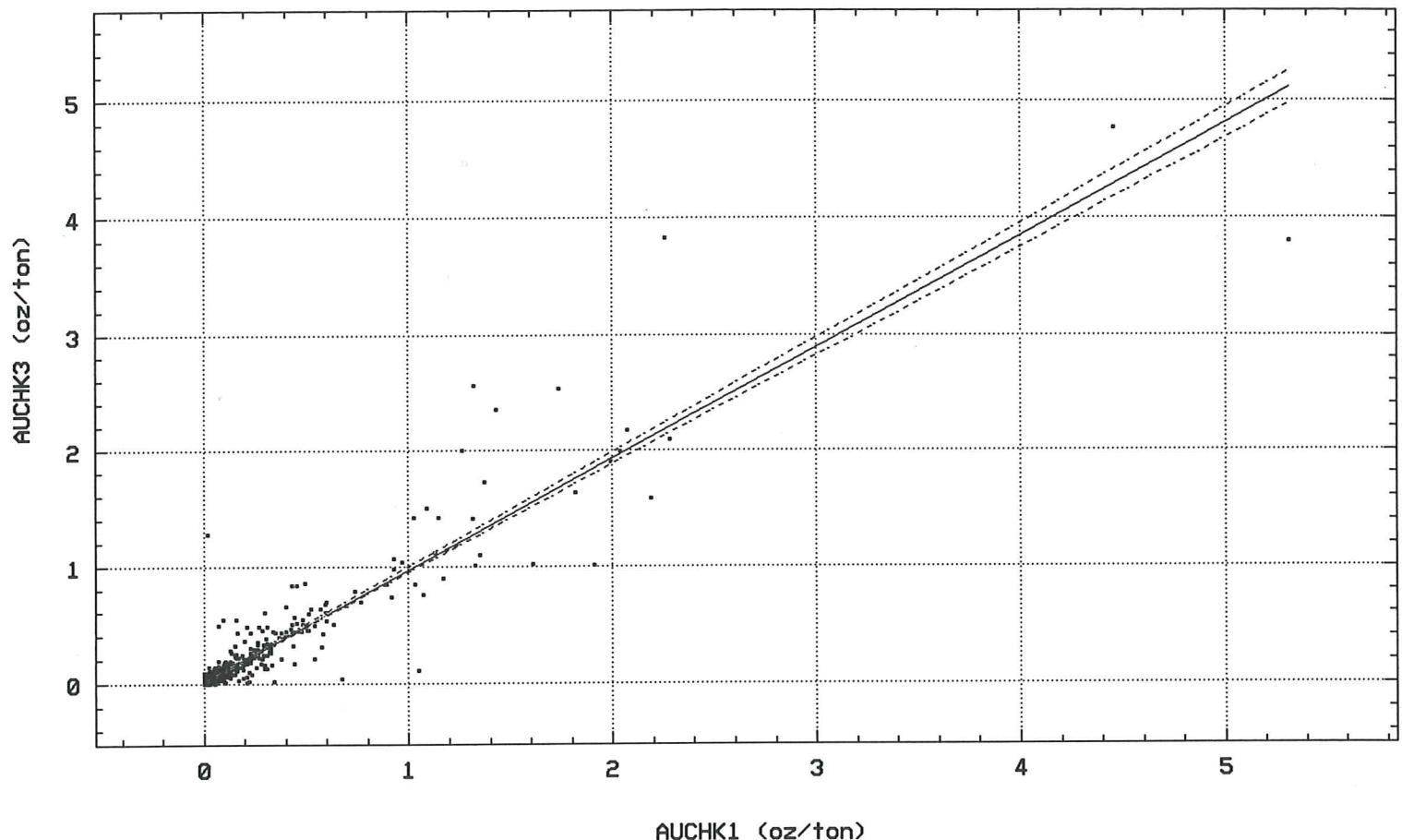
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$$\text{AUCHK6} = .032 + 1.044 * \text{AUCHK1}$$

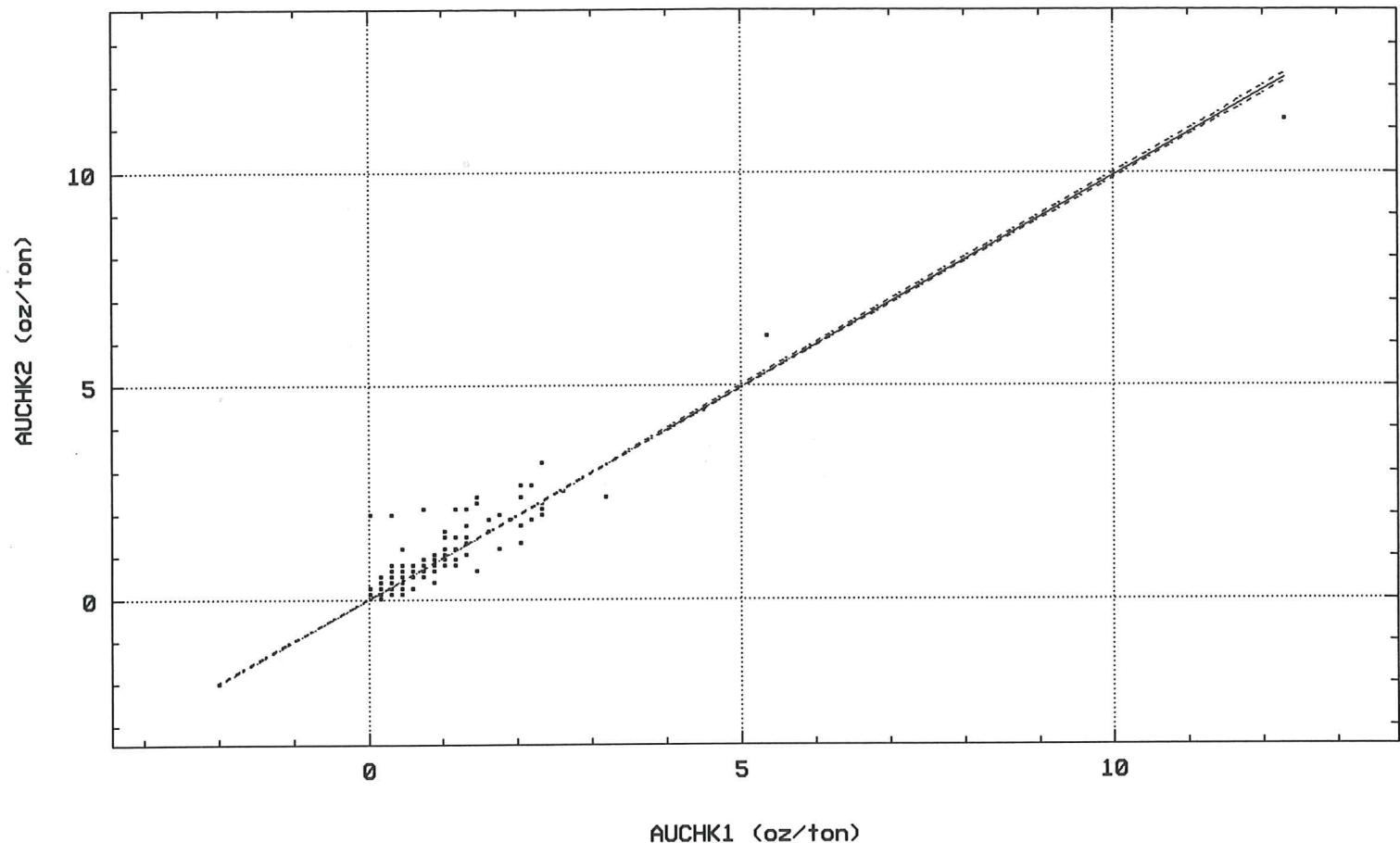
Rosebud - All Data



SCATTERGRAM  
736 cases (MD pairwise deleted); r=.931; p=0.000  
AUCHK3 = .012 + .961 \* AUCHK1  
Rosebud - All Data



SCATTERGRAM  
4924 cases (MD pairwise deleted); r=.968; p=0.000  
AUCHK2 = .004 + .994 \* AUCHK1  
Rosebud - All data



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 2 3 HD\_76\_94 1 43.0 2.0 LB .799 2.14  
 3 3 HD\_60\_94 1 66.0 5.0 LB .788 2.43 2.50  
 4 3 HD\_54\_94 1 30.0 5.0 LB .732 .743 .77 1.46 .050 2. 2.31 2.  
 5 3 HD\_52\_94 1 140.0 5.0 LB .726 .800 1.30 1.24 .200 2 2.40 7.  
 6 3 HD\_84\_94 1 14.0 2.8 LB .664 .85 2.36  
 7 3 HD\_76\_94 1 110.0 5.0 LB .661 2.40  
 8 3 HD\_54\_94 1 168.0 6.0 LB .611 .698 4.22 3.38 .500 2. 2.39 17.  
 9 3 HD\_62\_94 1 128.0 5.0 LB .473 .87 2.40  
 10 3 HD\_54\_94 1 152.0 5.0 LB .453 .423 14.29 9.43 .450 2. 2.42 15.  
 11 3 HD\_50A\_9 1 49.0 4.0 LB .416 .54 2.33  
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 13 3 HD\_84\_94 1 28.0 4.0 LB .369 .14 2.41  
 14 3 HD\_54\_94 1 70.0 5.0 LB .258 .266 1.32 1.37 .040 1. 2.46 1.  
 15 3 H94\_329C 3 785.0 5.0 DO .255 .11 2.52  
 16 3 HD\_74\_94 1 109.0 5.0 LB .240 .24 2.36  
 17 3 HD\_62\_94 1 21.0 5.0 LB .233 .46 2.49  
 18 3 HD\_35\_94 1 143.0 2.0 LB .227 .200 12.30 9.02 .350 2. 2.34 12.  
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>.05 w/ sp. gr.

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 21 3 H94\_328C 3 824.0 5.0 LB .222 .35 2.50  
 22 3 H94\_317C 2 1026. 5.0 LB .213 .35 2.47  
 23 3 HD\_62\_94 1 121.0 3.0 LB .207 1.93 2.45  
 24 3 HD\_54\_94 1 80.0 5.0 LB .205 .210 .48 .56 .150 1. 2.46 5.  
 25 3 HD\_76\_94 1 50.0 5.0 LB .197 2.32  
 26 3 HD\_48\_94 1 40.0 2.0 LB .187 .33 2.35  
 27 3 HD\_85\_94 1 180.0 5.0 LB .164 .11 2.42  
 28 3 HD\_25\_94 1 185.0 5.0 LB .153 .157 20.56 11.50 .450 1. 2.42 15.  
 29 3 HD\_35\_94 1 160.0 5.0 LB .152 .154 2.14 1.28 .090 2. 2.30 3.  
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40	3	H94_317C	2	978.0	5.0 LB	.127		.07				2.41	
41	3	HD_35_94	1	150.5	5.5 LB	.126	.109	4.52	3.02	.070	2.	2.44	2.
42	3	HD_54_94	1	140.0	7.0 LB	.125	.124	4.21	2.67	.180	1.	2.32	6.
43	3	H94_315C	3	705.0	5.0 DO	.124		.07				2.37	
44	3	HD_43_94	1	50.0	5.0 LB	.123	.120	3.01	1.28	.060	2.	2.37	2.
45	3	HD_74_94	1	231.0	4.5 LB	.120		.15				2.42	
46	3	HD_30_94	1	220.0	5.0 LB	.116	.126	11.93	9.19	.270	2.	2.25	9.
47	3	H94_309C	3	655.0	5.0 DO	.114		.12				2.53	
48	3	HD_52_94	1	160.0	6.0 LB	.114	.060	.16	.10	.050	3.	2.10	2.
49	3	HD_54_94	1	10.0	5.0 LB	.108	.110	1.68	1.15	.060	1.	2.41	2.
50	3	HD_30_94	1	210.0	5.0 LB	.105	.108	7.38	9.09	.130	2	2.25	4.
51	3	H94_317C	2	1036.	5.0 LB	.104		.19				2.46	
52	3	H94_315C	3	525.0	5.0 CT	.104		.32				2.52	
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54	3	H94_328C	3	784.0	5.0 LB	.102		.06				2.47	

File: ALLZN.CSS 15v \* 959c /E <cr> or <esc>-exit F9-Help

[BROWSE](#)

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58	3	HD_76_94	1	100.0	5.0	LB	.101						2.35		
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61	3	HD_74_94	1	42.0	5.0	LB	.099			.15			2.37		
62	3	H94_328C	3	814.0	5.0	LB	.095			.21			2.49		
63	3	H94_329C	3	734.0	5.0	LB	.094			.11			2.41		
64	3	H94_328C	3	794.0	5.0	LB	.094			.56			2.53		
65	3	HD_47_94	1	100.0	4.0	LB	.094	.085	4.10	1.27	.070	2.	2.36	2.	
66	3	HD_60_94	1	89.0	4.0	LB	.093			.65			2.53		
67	3	HD_74_94	1	99.0	5.0	LB	.092			.10			2.36		
68	3	HD_54_94	1	20.0	5.0	LB	.090	.080		.36	.29	.060	2.	2.34	2.
69	3	HD_35_94	1	54.0	5.0	LB	.090			4.60			2.48		
70	3	H94_329C	3	667.0	1.5	LB	.089			9.60			2.54		
71	3	HD_25_94	1	205.0	5.0	LB	.089	.090	2.34	3.40	.140	2.	2.70	5.	
72	3	HD_64_94	1	20.5	4.5	LB	.089			.39			2.27		

File: ALLZN.CSS 15v \* 959c /E <cr> or <esc>-exit F9-Help

[BROWSE](#)

			1	2	3	4	5	6	7	8	9	10	11	12	13
			NAME	LO	FROM	LENG	FM	AU	AUCN	AG	AGCN	CUCN	CNC	SPGR	CUCNP
2	73	3	HD_62_94	1	31.0	6.0	LB	.089		.15				2.50	
2	74	3	HD_35_94	1	72.0	5.0	LB	.085	.082	2.82	1.34	.070	2.	2.39	2.
2	75	3	H94_329C	3	719.0	5.0	LB	.084		.19				2.45	
2	76	3	HD_54_94	1	182.0	5.0	LB	.082	.059	4.69	2.30	.110	2.	2.40	4.
2	77	3	HD_43_94	1	23.0	5.0	LB	.082		.63				2.49	
2	78	3	H94_335C	2	674.0	5.0	LB	.080		.08				2.40	
2	79	3	HD_24_94	1	55.0	5.0	LB	.078		6.35				2.62	
2	80	3	HD_60_94	1	98.0	5.0	LB	.078		.37				2.51	
2	81	3	HD_84_94	1	3.5	4.5	LB	.078		.15				2.46	

82	3	H94_336C	3	689.0	5.0	LB	.077	.09		2.49			
83	3	H94_335C	2	876.0	2.5	LB	.076	.14		2.60			
84	3	H94_309C	3	705.0	5.0	DO	.074	.05		2.49			
85	3	HD_45_94	1	142.5	5.5	LB	.074	.087	.21	.050	2.	2.22	2.
86	3	HD_62_94	1	0.0	5.0	LB	.070	.32			2.48		
87	3	HD_74_94	1	80.0	5.0	LB	.069	.06			2.38		
88	3	HD_45_94	1	133.0	5.0	LB	.069	.070	.41	.060	2.	2.31	2.
89	3	HD_24_94	1	45.0	5.0	LB	.068	.32			2.47		
90	3	H94_317C	2	1109.	5.0	TS	.067	.19			2.66		

File: ALLZN.CSS      15v \* 959c /E      <cr> or <esc>-exit    F9-Help

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		NAME	LO	FROM	LENG	FM	AU	AUCN	AG	AGCN	CUCN	CNC	SPGR	CUCNP	
91	3	HD_47_94	1	110.0	5.0	LB	.064	.065	1.52	1.28	.070	2.	2.36	2.	
92	3	HD_52_94	1	60.0	5.0	LB	.063	.040	.75	.60	.040	1.	2.50	1.	
93	3	H94_336C	3	744.0	6.0	LB	.062		87.82					2.43	
94	3	HD_24_94	1	245.0	5.0	LB	.060	.037	.57	.33	.100	2.	1.98	3.	
95	3	HD_74_94	1	119.0	5.0	LB	.060		.08					2.46	
96	3	HD_74_94	1	90.0	5.0	LB	.059		.09					2.37	
97	3	HD_62_94	1	137.5	5.5	LB	.059		.13					2.42	
98	3	HD_62_94	1	89.0	5.0	LB	.058		.07					2.37	
99	3	H94_328C	3	774.3	4.7	LB	.058		.33					2.38	
100	3	HD_60_94	1	76.0	8.0	LB	.058		.66					2.51	
101	3	H94_329C	3	779.0	4.5	LB	.057		.06					2.43	
102	3	HD_25_94	1	60.0	4.0	LB	.056		.42					2.22	
103	3	H94_329C	3	724.0	5.0	LB	.056		2.94					2.42	
104	3	HD_38_94	1	88.0	5.0	LB	.056	.048	1.14	.96	.080	2.	2.38	3.	
105	3	H94_309C	3	715.0	5.0	DO	.055		.04					2.44	
106	3	H94_317C	2	1095.	5.0	TS	.051		.38					2.40	
107	3	HD_38_94	1	135.5	4.5	LB	.050		.76					2.40	
108	3	H94_315C	3	635.0	5.0	DO	.049		.02					2.51	

File: ALLZN.CSS      15v \* 959c /E      <cr> or <esc>-exit    F9-Help



907	3	HD_16_94	1	250.0	5.0	LB	.014		.16		2.26
908	3	HD_32_94	1	115.0	5.0	LB	0.000		.02		2.26
909	3	H94_335C	2	574.0	10.0	BU	.001				2.26
910	3	H94_320C	3	505.0	5.0	BU	0.000		.02		2.25
911	3	H94_320C	3	400.0	5.0	CT	0.000		.04		2.25
912	3	HD_43_94	1	190.0	5.0	LB	0.000		.03		2.25
913	3	HD_47_94	1	279.4	7.6	DO	0.000		0.00		2.25
914	3	HD_30_94	1	210.0	5.0	LB	.105	.108	7.38	9.09	.130
915	3	HD_43_94	1	183.5	2.5	LB	.004		.07		2.25
916	3	HD_30_94	1	220.0	5.0	LB	.116	.126	11.93	9.19	.270
917	3	HD_81_94	1	275.0	5.0	LB	.003		.03		2.24
918	3	H94_328C	3	515.0	5.0	BU	0.000		0.00		2.24
919	3	H94_337C	3	475.0	10.0	CT	0.000				2.24
920	3	HD_32_94	1	85.0	5.0	LB	0.000		0.00		2.24
921	3	HD_30_94	1	235.0	5.0	LB	.001		.09		2.23
922	3	HD_45_94	1	80.0	5.0	LB	0.000				2.23
923	3	HD_32_94	1	95.0	5.0	LB	0.000		0.00		2.23

File: ALLZN.CSS 15v \* 9043c /E <cr>-OK <esc>-abandon F9-Help

File: ALLZN.CSS 15v \* 9043c /E <cr>-OK <esc>-abandon F9-Help

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|
| 3      1 2   3   4 5    6    7    8    9    10   11   12   13
| 3      NAME LO  FROM LENG FM     AU AUCN     AG AGCN CUCN CNC SPGR CUCNP
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
| 870 3 HD_32_94 1 150.0 5.0 LB .004     .04          2.30
| 871 3 H94_335C 2 834.5 4.5 LB .009     .22          2.30
| 872 3 HD_52_94 1 240.0 5.0 LB .004     .07          2.30
| 873 3 HD_35_94 1 160.0 5.0 LB .152 .154 2.14 1.28 .090 2. 2.30 3.
| 874 3 H94_309C 3 575.0 5.0 CT .001     .05          2.30
| 875 3 H94_309C 3 545.0 5.0 CT .001     .08          2.30
| 876 3 H94_308C 3 604.0 5.0 CT .002     .06          2.30
| 877 3 H94_335C 2 654.0 10.0 LB 0.000     .07          2.30
| 878 3 H94_339C 2 861.0 5.0 LB 0.000     .07          2.30

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2 879 3 H94_335C 2 624.0 14.5 BU 0.000      2.30
2 880 3 H94_320C 3 370.0 10.0 CT .002      2.30
2 881 3 H94_320C 3 510.0 5.0 BU .001       .04      2.30
2 882 3 HD_32_94 1 120.0 5.0 LB 0.000       .03      2.30
2 883 3 H94_335C 2 714.0 5.0 LB 0.000      0.00      2.30
2 884 3 H94_339C 2 614.0 5.0 BU 0.000       .03      2.30
2 885 3 HD_35_94 1 110.0 5.0 LB 0.000      0.00      2.30
2 886 3 H94_333C 3 590.0 5.0 CT 0.000       .02      2.30
2 887 3 H94_335C 2 638.5 5.5 BU 0.000      2.30

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File: ALLZN.CSS 15v \* 9043c /E <cr>-OK <esc>-abandon F9-Help

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2   3   1 2 3 4 5 6 7 8 9 10 11 12 13
2   3   NAME LO FROM LENG FM   AU AUCN   AG AGCN CUCN CNC SPGR CUCNP
Coooooooooooooo
2 852 3 H94_328C 3 595.0 5.0 BU .002       .03      2.31
2 853 3 H94_328C 3 676.0 5.0 BU .003       .05      2.31
2 854 3 HD_35_94 1 170.0 5.0 LB .016       .30      2.31
2 855 3 HD_30_94 1 145.0 5.0 LB .007       .05      2.31
2 856 3 HD_85_94 1 22.0 5.0 LB .009       .12      2.31
2 857 3 HD_30_94 1 250.0 5.0 LB .028       .18      2.31
2 858 3 H94_328C 3 666.0 5.0 BU .024       2.47      2.31
2 859 3 HD_54_94 1 30.0 5.0 LB .732  .743  .77  1.46  .050  2. 2.31  2.
2 860 3 HD_45_94 1 133.0 5.0 LB .069  .070  .41  .060  2. 2.31  2.
2 861 3 HD_25_94 1 165.0 5.0 LB .003       .06      2.31
2 862 3 H94_337C 3 683.0 5.0 DO .003       .09      2.30
2 863 3 HD_52_94 1 190.0 5.0 LB .005       .07      2.30
2 864 3 HD_52_94 1 175.0 5.0 LB .034       .23      2.30
2 865 3 HD_74_94 1 129.0 5.0 LB .031       .10      2.30
2 866 3 HD_76_94 1 120.0 5.0 LB .007       .07      2.30
2 867 3 HD_52_94 1 110.0 5.0 LB .014       .27      2.30
2 868 3 HD_35_94 1 191.0 5.0 LB .003       .07      2.30
2 869 3 HD_25_94 1 122.0 4.0 LB .004       .13      2.30

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File: ALLZN.CSS 15v \* 9043c /E <cr>-OK <esc>-abandon F9-Help

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2   3   1 2 3 4 5 6 7 8 9 10 11 12 13
2   3   NAME LO FROM LENG FM   AU AUCN   AG AGCN CUCN CNC SPGR CUCNP
Coooooooooooooo
2 834 3 H94_337C 3 673.0 5.0 DO .005       .06      2.33
2 835 3 HD_35_94 1 180.0 5.0 LB .033       .43      2.33
2 836 3 HD_24_94 1 225.0 5.0 LB .012       .26      2.33
2 837 3 HD_47_94 1 182.0 5.0 LB .005       .13      2.33
2 838 3 HD_50A_9 1 49.0 4.0 LB .416       .54      2.33
2 839 3 HD_81_94 1 196.0 6.0 LB .021       .09      2.33
2 840 3 HD_81_94 1 187.5 2.5 LB .011       .07      2.33
2 841 3 HD_35_94 1 63.0 4.0 LB .020       .09      2.33
2 842 3 HD_54_94 1 140.0 7.0 LB .125  .124  4.21  2.67  .180  1. 2.32  6.
2 843 3 HD_76_94 1 50.0 5.0 LB .197       .23      2.32
2 844 3 HD_81_94 1 280.0 5.0 LB .003       .04      2.32
2 845 3 HD_54_94 1 218.0 5.0 LB .003       .06      2.32
2 846 3 HD_35_94 1 101.0 4.0 LB 0.000      0.00      2.32
2 847 3 H94_320C 3 575.0 5.0 BU .002       .04      2.32
2 848 3 H94_335C 2 564.0 10.0 BU .002       .00      2.32
2 849 3 HD_64_94 1 57.3 5.7 LB 0.000      0.00      2.32
2 850 3 H94_339C 2 559.0 15.0 BU 0.000      2.32

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2 851 3 HD\_54\_94 1 110.0 5.0 LB .001 .03 2.32  
File: ALLZN.CSS 15v \* 9043c /E <cr>-OK <esc>-abandon F9-Help

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3=E

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2 3 1 2 3 4 5 6 7 8 9 10 11 12 13  
2 3 NAME LO FROM LENG FM AU AUCN AG AGCN CUCN CNC SPGR CUCNP  
CXX  
2 1 3 H94\_335C 2 1034. 5.0 JT .001 .16 2.90  
2 2 3 H94\_339C 2 890.5 3.5 LB .006 3.13 2.80  
2 3 3 H94\_335C 2 1044. 6.0 JT .004 .38 2.80  
2 4 3 H94\_320C 3 705.0 5.0 LB .099 1.83 2.78  
2 5 3 H94\_329C 3 629.5 5.5 BU .013 .09 2.75  
2 6 3 H94\_339C 2 914.0 5.0 LB .029 .71 2.70  
2 7 3 HD\_25\_94 1 205.0 5.0 LB .089 .090 2.34 3.40 .140 2. 2.70 5.  
2 8 3 H94\_335C 2 796.0 5.0 LB .013 .41 2.70  
2 9 3 H94\_335C 2 869.0 5.5 LB .010 .04 2.70  
2 10 3 H94\_335C 2 1004. 5.0 JT .002 .14 2.70  
2 11 3 H94\_333C 3 625.0 5.0 CT .002 .02 2.70  
2 12 3 H94\_320C 3 697.5 2.5 LB .027 .94 2.68  
2 13 3 HD\_45\_94 1 110.0 5.0 LB .028 .08 2.68  
2 14 3 HD\_24\_94 1 30.0 5.0 LB .012 .08 2.67  
2 15 3 H94\_317C 2 1109. 5.0 TS .067 .19 2.66  
2 16 3 HD\_47\_94 1 20.0 5.0 LB 0.000 0.00 2.65  
2 17 3 H94\_320C 3 465.0 5.0 CT .006 .05 2.64  
2 18 3 H94\_320C 3 440.0 5.0 CT .004 .05 2.63

highest sp. gr.

File: allz.CSS 15v \* 9045c /E <cr>-OK <esc>-abandon F9-Help

==== EDIT

2 3 1 2 3 4 5 6 7 8 9 10 11 12 13  
2 3 NAME LO FROM LENG FM AU AUCN AG AGCN CUCN CNC SPGR CUCNP  
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
2 19 3 H94\_320C 3 450.0 5.0 CT .010 .05 2.63  
2 20 3 H94\_317C 2 1129. 4.0 JT .001 .03 2.63  
2 21 3 H94\_317C 2 1146. 4.0 JT .001 .05 2.62  
2 22 3 HD\_45\_94 1 45.0 5.0 LB .008 .08 2.62  
2 23 3 HD\_24\_94 1 55.0 5.0 LB .078 6.35 2.62  
2 24 3 H94\_309C 3 675.0 5.0 DO .013 .17 2.61  
2 25 3 H94\_335C 2 848.0 5.0 LB .003 .04 2.60  
2 26 3 H94\_335C 2 684.0 5.0 LB .005 .04 2.60  
2 27 3 H94\_335C 2 1014. 5.0 JT .006 .16 2.60  
2 28 3 H94\_309C 3 535.0 5.0 CT .003 .08 2.60  
2 29 3 H94\_308C 3 564.0 5.0 CT .003 .19 2.60  
2 30 3 HD\_52\_94 1 50.0 5.0 LB .006 .12 2.60  
2 31 3 H94\_335C 2 994.0 5.0 JT .003 .17 2.60  
2 32 3 H94\_335C 2 964.0 5.0 TS .003 .28 2.60  
2 33 3 H94\_333C 3 708.5 4.5 LB .016 .71 2.60  
2 34 3 H94\_319C 2 808.0 5.0 LB .005 .20 2.60  
2 35 3 H94\_335C 2 979.0 5.0 JT .005 .43 2.60  
2 36 3 H94\_335C 2 959.0 5.0 TS .007 6.00 2.60

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2 3 1 2 3 4 5 6 7 8 9 10 11 12 13  
2 3 NAME LO FROM LENG FM AU AUCN AG AGCN CUCN CNC SPGR CUCNP  
CXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
2 37 3 H94\_333C 3 666.0 4.0 CT .023 .21 2.60

2	38	3	H94_319C	2	828.5	2.5	LB	.020	.02	2.60			
2	39	3	H94_339C	2	904.0	5.0	LB	.012	4.29	2.60			
2	40	3	H94_335C	2	805.0	5.0	LB	.004	3.17	2.60			
2	41	3	H94_320C	3	645.5	2.5	LB	.009	6.42	2.60			
2	42	3	H94_335C	2	876.0	2.5	LB	.076	.14	2.60			
2	43	3	H94_308C	3	594.0	5.0	CT	.011	.05	2.60			
2	44	3	H94_319C	2	798.0	4.5	LB	.004	.07	2.60			
2	45	3	H94_308C	3	514.0	5.0	CT	.003	.08	2.60			
2	46	3	H94_335C	2	786.5	5.0	LB	.008	.60	2.60			
2	47	3	H94_339C	2	881.0	5.0	LB	.037	.57	2.60			
2	48	3	H94_339C	2	944.0	5.0	TS	.003	.21	2.60			
2	49	3	H94_308C	3	554.0	5.0	CT	.003	.25	2.60			
2	50	3	H94_335C	2	824.0	5.0	LB	.018	.53	2.60			
2	51	3	H94_308C	3	697.5	4.5	DO	.008	.40	2.60			
2	52	3	H94_335C	2	704.0	5.0	LB	0.000	0.00	2.60			
2	53	3	H94_335C	2	1024.	5.0	JT	.002	.13	2.60			
2	54	3	H94_308C	3	504.0	5.0	CT	.002	.03	2.60			

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2	55	3	H94_320C	3	653.0	5.0	LB	.002	.09	2.60			

2	56	3	H94_308C	3	734.0	5.0	DO	.001	0.00	2.60			
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2	57	3	H94_310C	3	620.0	5.0	DO	.002	.02	2.59			
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2	58	3	H94_339C	2	537.0	4.0	BU	.001	.03	2.59			
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2	59	3	HD_50A_9	1	115.0	5.0	DO	.004	.19	2.59			
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2	60	3	H94_320C	3	683.0	5.0	LB	.003	.19	2.59			
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2	61	3	H94_329C	3	672.5	3.5	LB	.029	.69	2.58			
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2	62	3	H94_314C	3	764.0	5.0	DO	.005	.10	2.58			
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2	63	3	H94_329C	3	645.0	5.0	BU	.005	.71	2.58			
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2	64	3	HD_58_94	1	62.0	6.0	LB	0.000	0.00	2.58			
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2	65	3	HD_58_94	1	48.0	4.0	LB	0.000	0.00	2.57			
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2	66	3	H94_320C	3	728.0	5.0	DO	.022	.05	2.57			
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2	67	3	HD_25_94	1	73.0	5.0	LB	.022	.12	2.57			
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2	68	3	HD_30_94	1	195.0	5.0	LB	.037	.49	2.57			
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2	69	3	H94_328C	3	746.0	5.0	LB	.036	.21	2.57			
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2	70	3	H94_310C	3	545.0	5.0	CT	.003	.06	2.57			
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2	71	3	H94_328C	3	756.0	5.0	LB	.033	.18	2.57			
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2	72	3	H94_329C	3	655.0	5.0	BU	.019	.50	2.57			
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File: allz.CSS      15v \* 9045c /E      <cr>-OK <esc>-abandon F9-Help

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2	73	3	H94_310C	3	645.0	5.0	DO	.003	.05	2.56			
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2	74	3	HD_60_94	1	56.0	5.0	LB	.048	.26	2.56			
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2	75	3	H94_314C	3	734.0	5.0	DO	.005	.09	2.56			
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2	76	3	H94_320C	3	330.0	10.0	CT	.007		2.56			
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2	77	3	H94_309C	3	646.0	4.0	CT	.003	.27	2.56			
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2	78	3	H94_328C	3	716.0	5.0	LB	.145	.33	2.56			
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2	79	3	H94_320C	3	718.0	5.0	DO	.027	.19	2.56			
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2	80	3	H94_329C	3	665.0	2.0	LB	.019	13.24	2.56			
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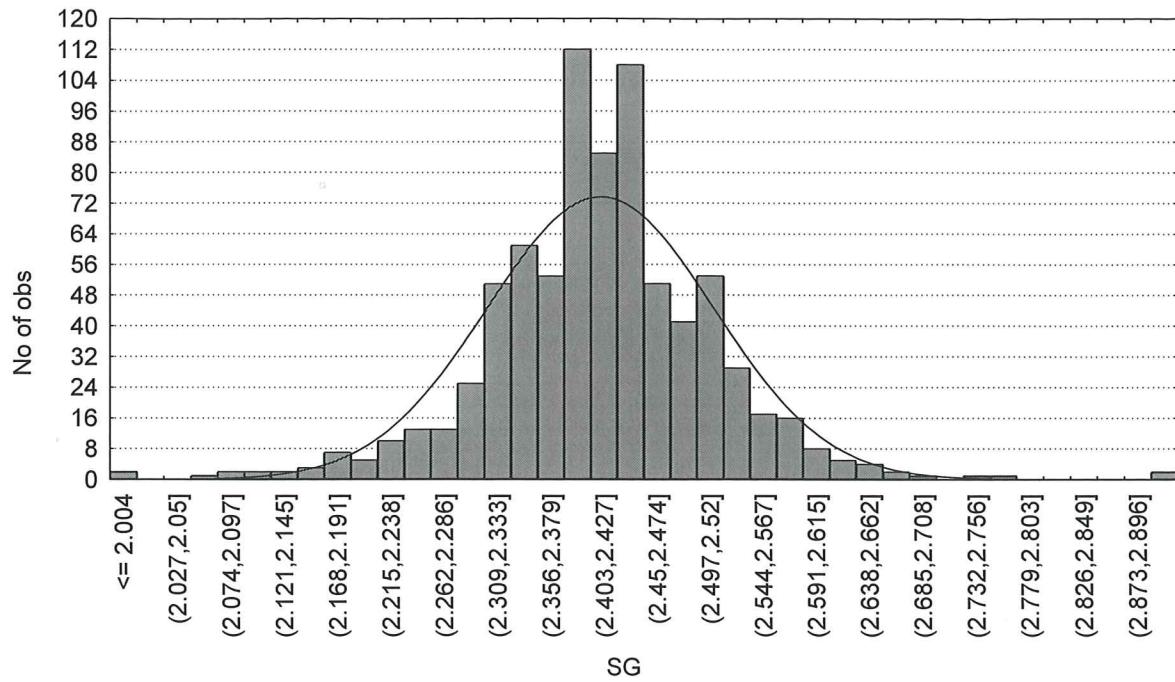
2	81	3	HD_43_94	1	163.0	5.0	LB	.002	.06	2.56			
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File: allz.CSS      15v \* 9045c /E      <cr>-OK <esc>-abandon F9-Help

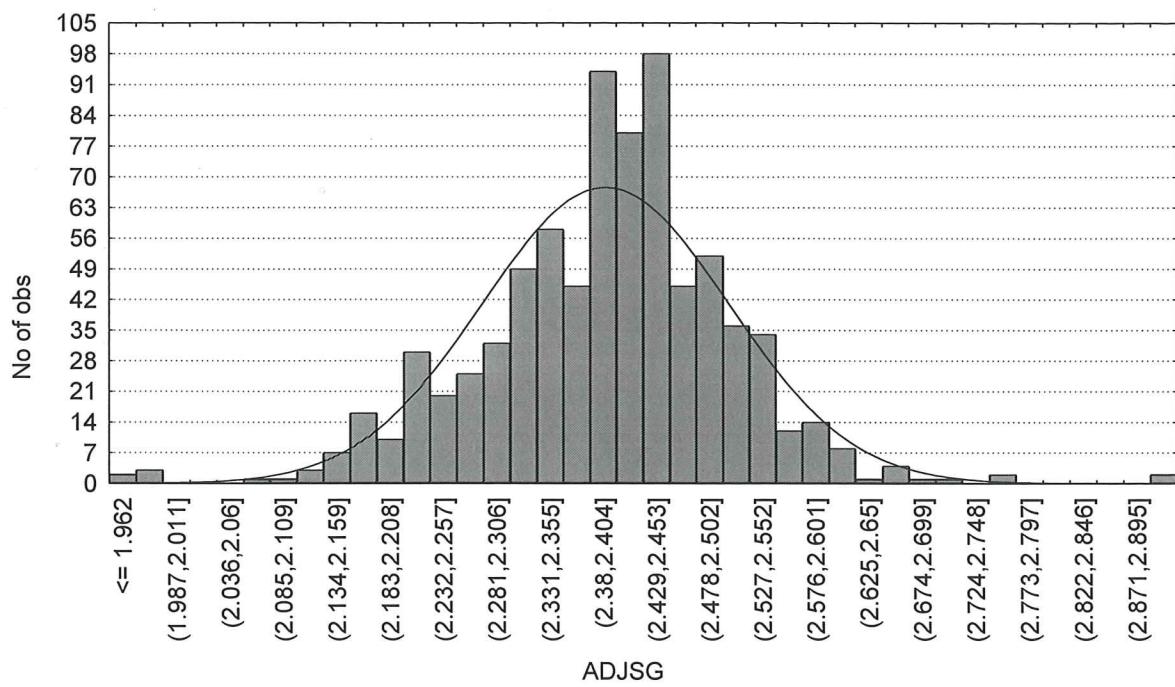
82	3	HD_43_94	1	148.0	5.0	LB	0.000	0.00	2.56
83	3	HD_30_94	1	55.0	5.0	LB	.002	.18	2.56
84	3	H94_314C	3	728.0	2.5	CT	.001	.02	2.56
85	3	H94_315C	3	575.0	5.0	CT	.002	.06	2.55
86	3	HD_47_94	1	293.0	9.0	DO	0.000	0.00	2.55
87	3	HD_58_94	1	57.0	5.0	LB	0.000	0.00	2.55
88	3	H94_314C	3	624.0	5.0	CT	.002	.09	2.55
89	3	H94_329C	3	676.0	4.0	LB	.037	.87	2.55
90	3	HD_85_94	1	160.0	5.0	LB	.003	.06	2.55

File: allz.CSS      15v \* 9045c /E      <cr>-OK <esc>-abandon F9-Help

Histogram (SG.STA 10v\*786c)  
 $y = 786 * 0.0235 * \text{normal}(x, 2.4117264, 0.1000046)$

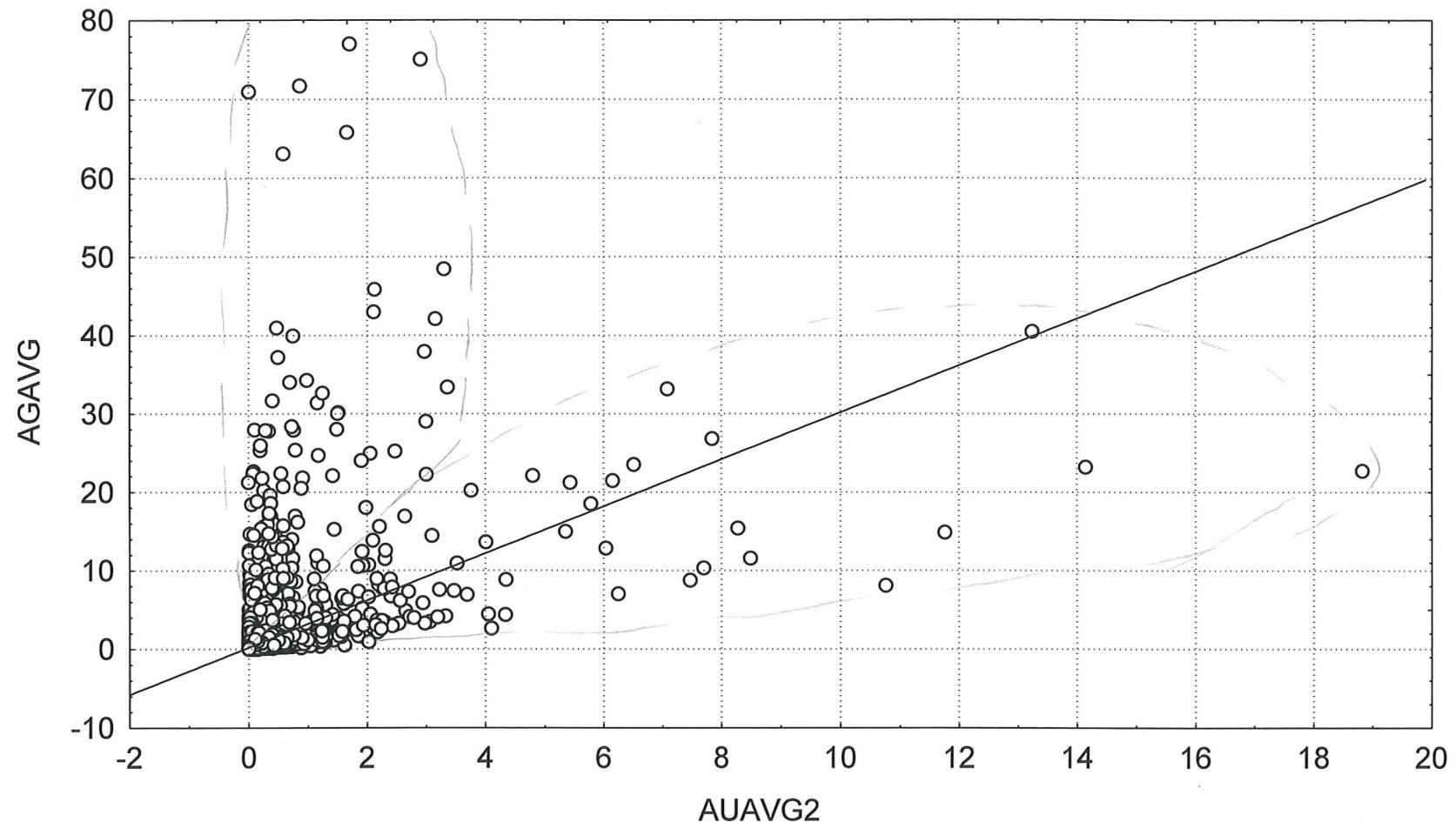


Histogram (SG.STA 10v\*786c)  
 $y = 786 * 0.024562 * \text{normal}(x, 2.394084, 0.1138977)$



Scatterplot (ROSES.STA 22v\*21081c)

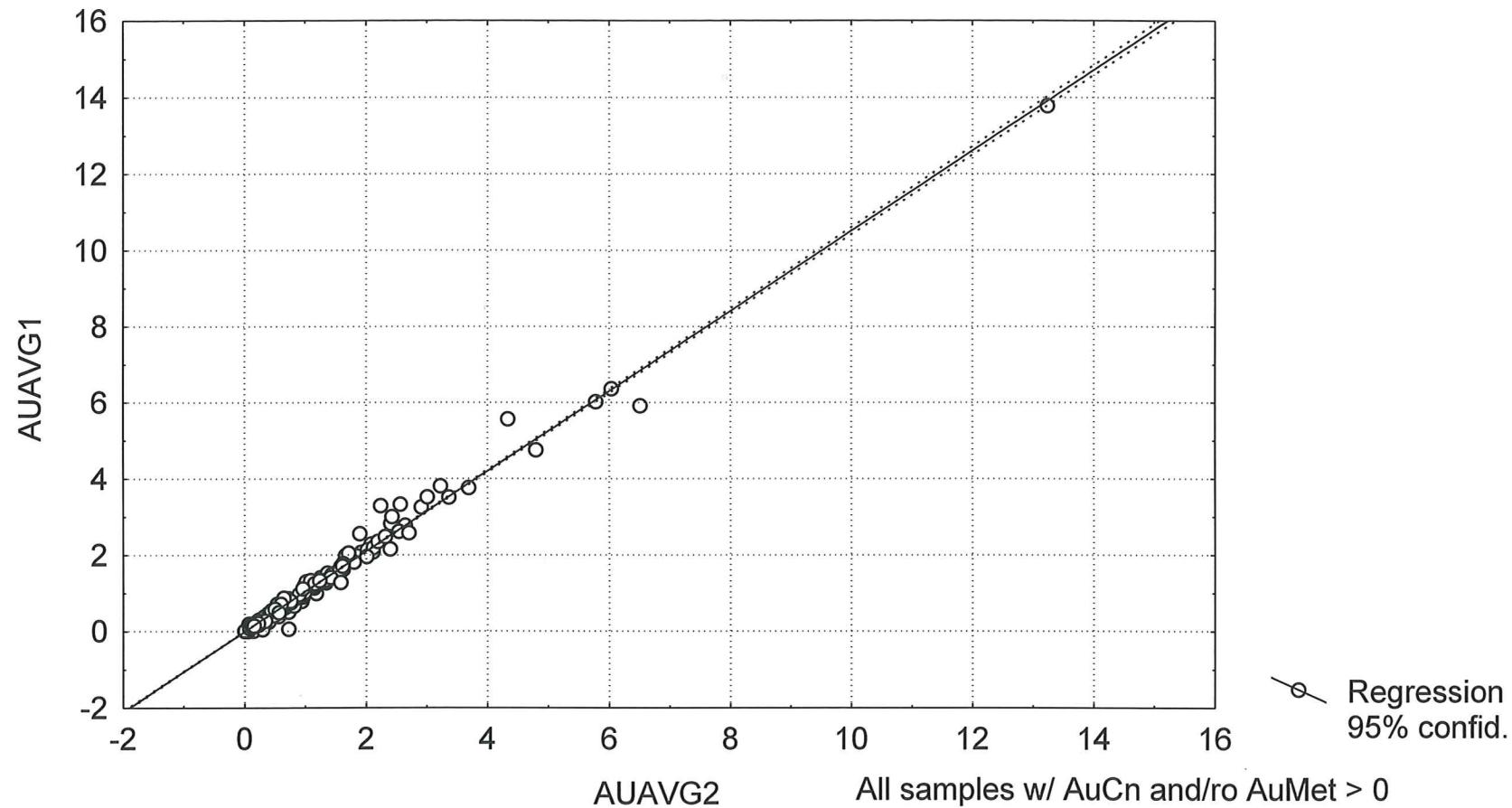
$$y=0.202+2.996*x+\text{eps}$$



### AUAVG2 vs. AUAVG1

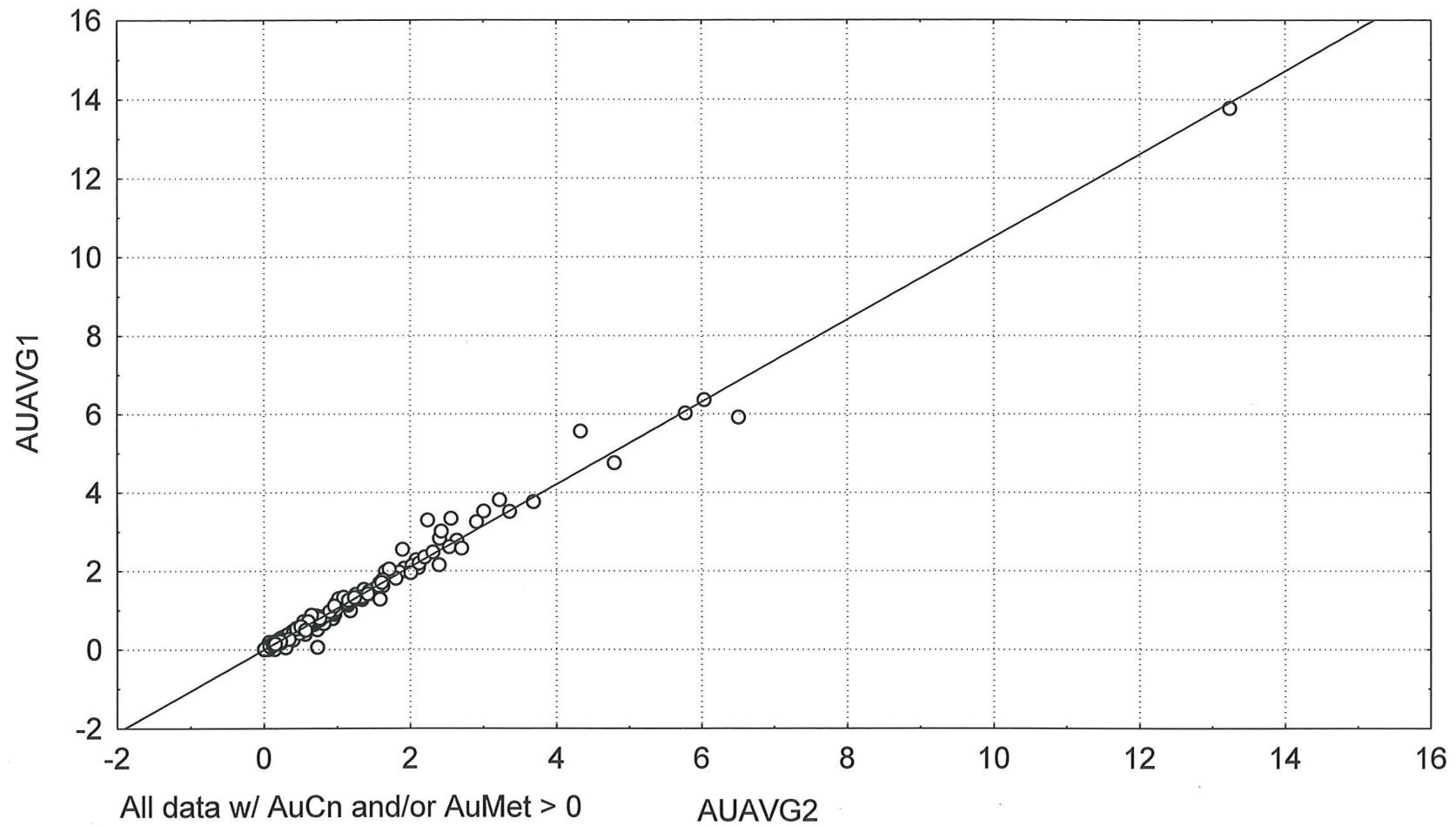
$$\text{AUAVG1} = -.0048 + 1.0514 * \text{AUAVG2}$$

Correlation:  $r = .99410$



Scatterplot (ROSES.STA 22v\*21081c)

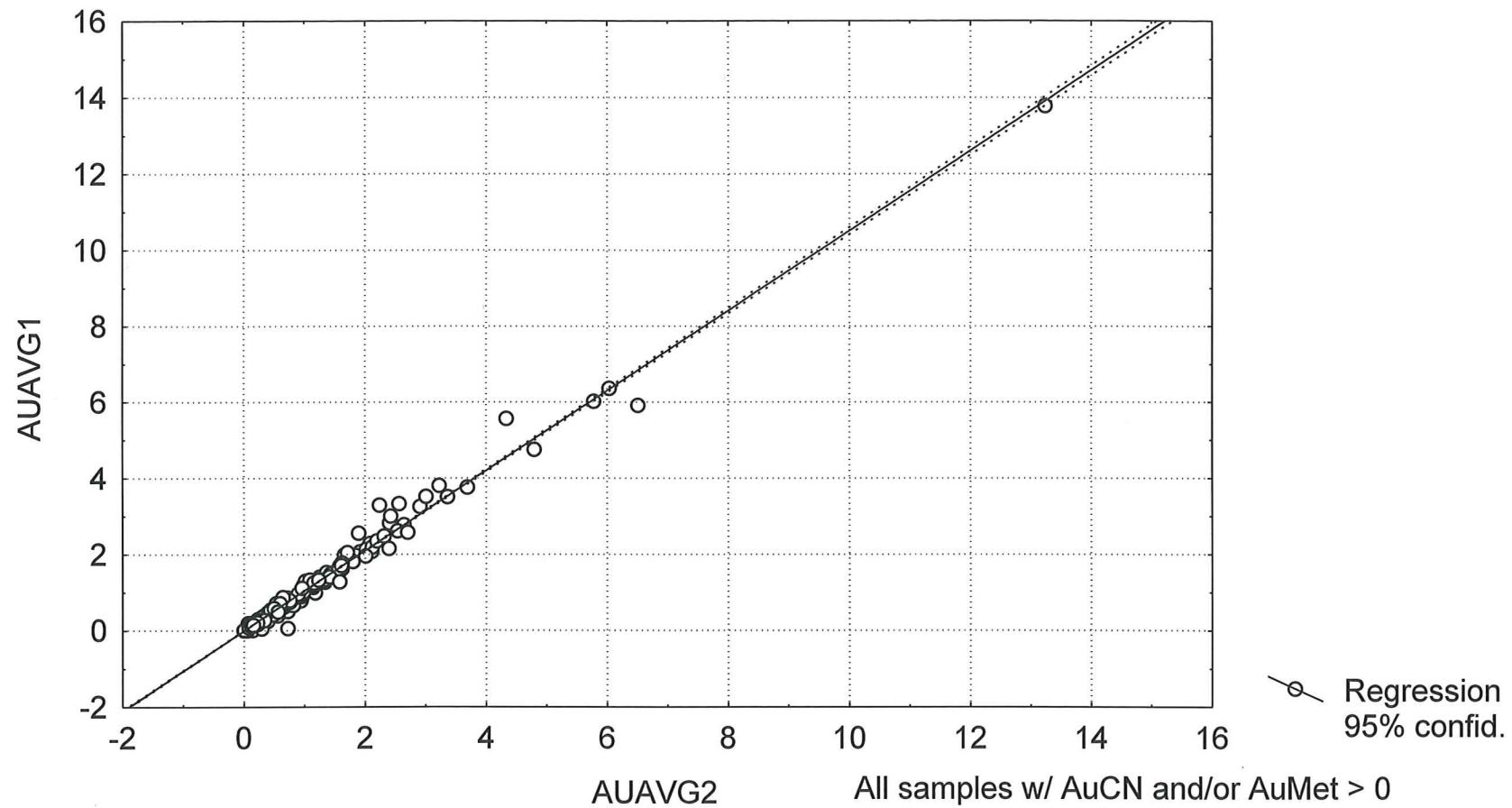
$$y = -0.005 + 1.051 \cdot x + \text{eps}$$



### AUAVG2 vs. AUAVG1

$$\text{AUAVG1} = -.0048 + 1.0514 * \text{AUAVG2}$$

Correlation:  $r = .99410$



### AUAVG1 vs. AUMET

$$\text{AUMET} = .03832 + .92736 * \text{AUAVG1}$$

Correlation:  $r = .97311$

