

July 20, 1982

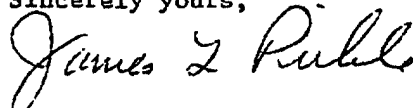
ESJ

~~J.M. Pierrard~~, Ph.D.
E.I. DuPont
Petroleum Laboratory
Wilmington, Delaware 19898

Dear Dr. Pierrard:

Dr. Charles Pfeifer requested the enclosed HANES II quality control data by phone today. Would you please forward this information to Dr. Pfeifer and if I can be of further help, please let me know.

Sincerely yours,



James L. Pirkle, M.D., Ph.D.
Clinical Chemistry Division
Center for Environmental Health

Enclosure

N33895

TEH 0533263

FIGURE 1

HANES II LEAD QUALITY CONTROL REGRESSION

DISTRIBUTION OF LOW QC POOL

(Blind QC Pool #1)

Mean = 13.52 ug/dL

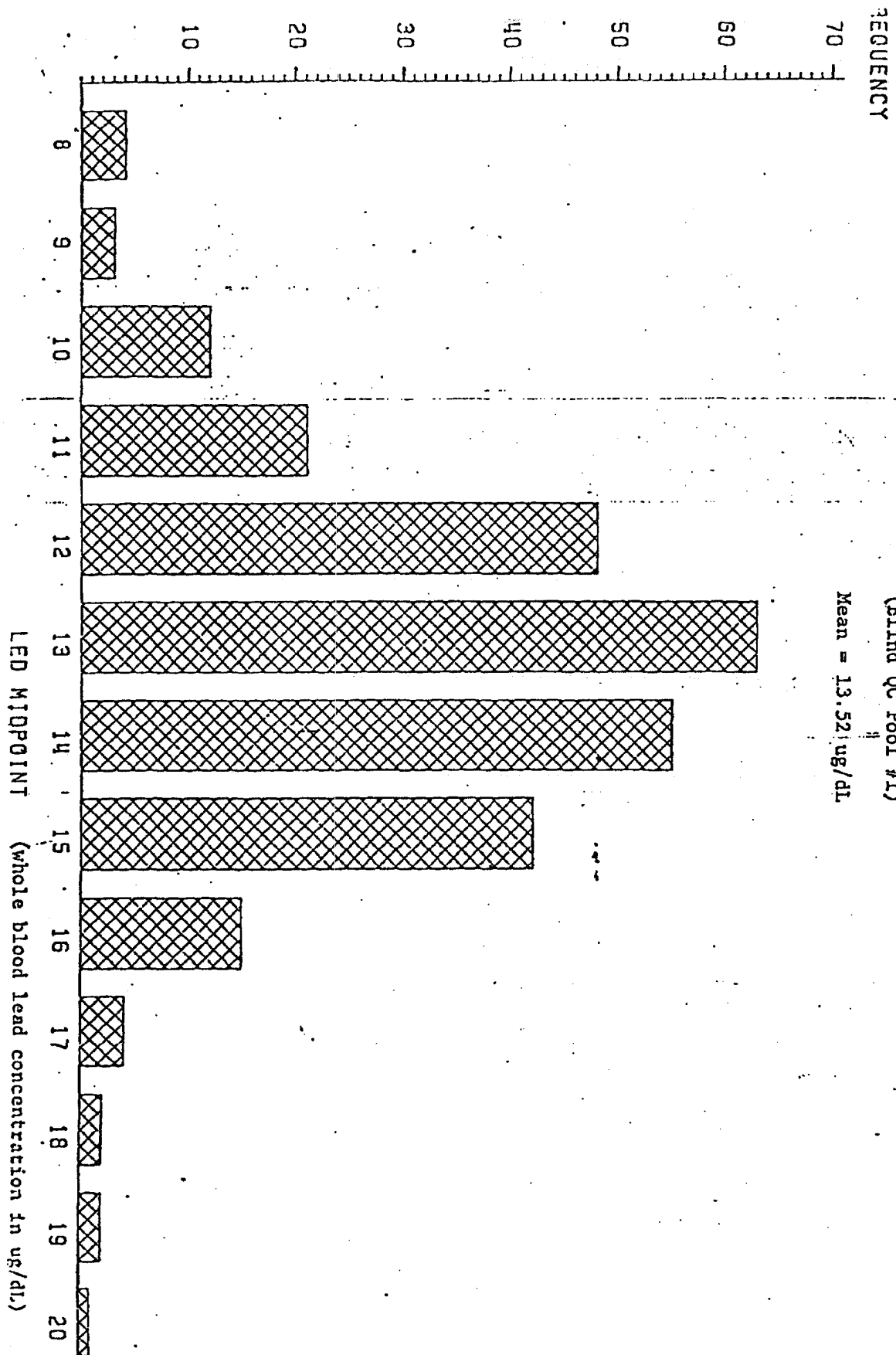
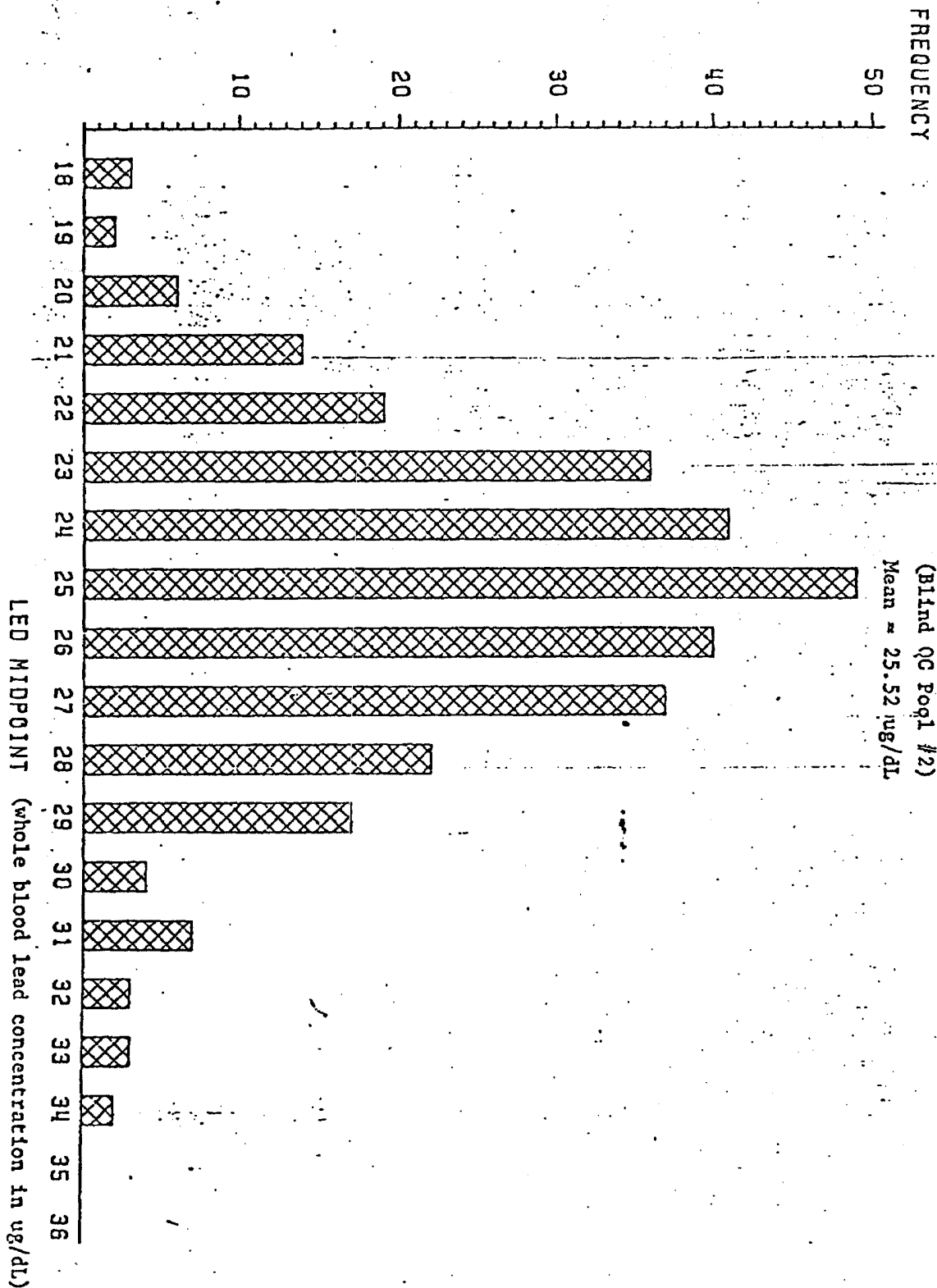


FIGURE 2

HANES II LEAD QUALITY CONTROL REGRESSION

DISTRIBUTION OF HIGH QC POOL



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SLIDE 2. Regression Analysis

LEAD QUALITY CONTROL DATA FOR WAINES II: (Blind QC Pools #1 and #2 combined)

VARIABLE: Z		SUM OF SQUARES	MEAN SQUARE	F-VALUE	PROB>F
CE	DF				
L	1	8.382728	8.382728	8.303	8.7387
R	574	573.531	8.999182		
TAL	575	573.833			
RCOT MSE		8.999591	R-SQUARE	8.8805	
DEP MEAN		8.821873858	ADJ R-SQ	-8.8812	
C.V.		53344			
ABLE DF		PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
RCEP	1	8.839544	8.888114	8.494	8.6218
R	1	-8.888912767	8.8881658272	-8.550	8.5822

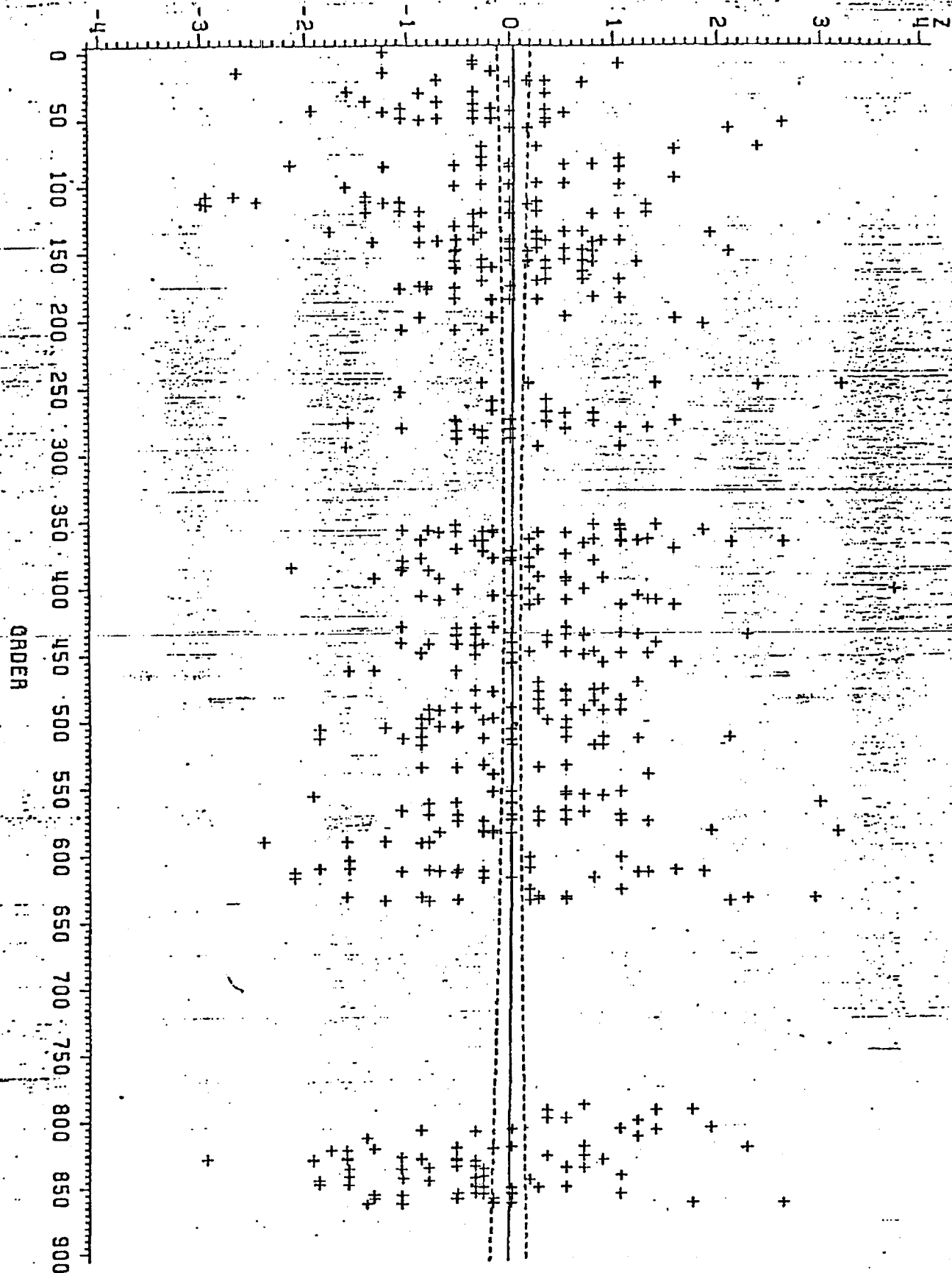
NOTES: 1. In order to combine these two pools, the data in each pool was converted to a mean of zero and a standard deviation of 1 by using the Z transformation, where

$$Z = (\text{lead measured} - \text{pool mean}) / \text{pool standard deviation}$$

2. The slope of the regression line deviated insignificantly from zero, as is evident from the T value testing the hypothesis that the slope equals zero.

FIGURE 3. Best Fit Linear Regression Line and 95% Confidence Limits About the Mean (Blind QC Pools #1 and #2 combined)

HANES II LEAD QUALITY CONTROL REGRESSION



KTY: 3 = (lead measured - pool mean)/pool standard deviation; ORDER = number of days since the beginning of blind

ORDER

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HANES II LEAD QUALITY CONTROL REGRESSION

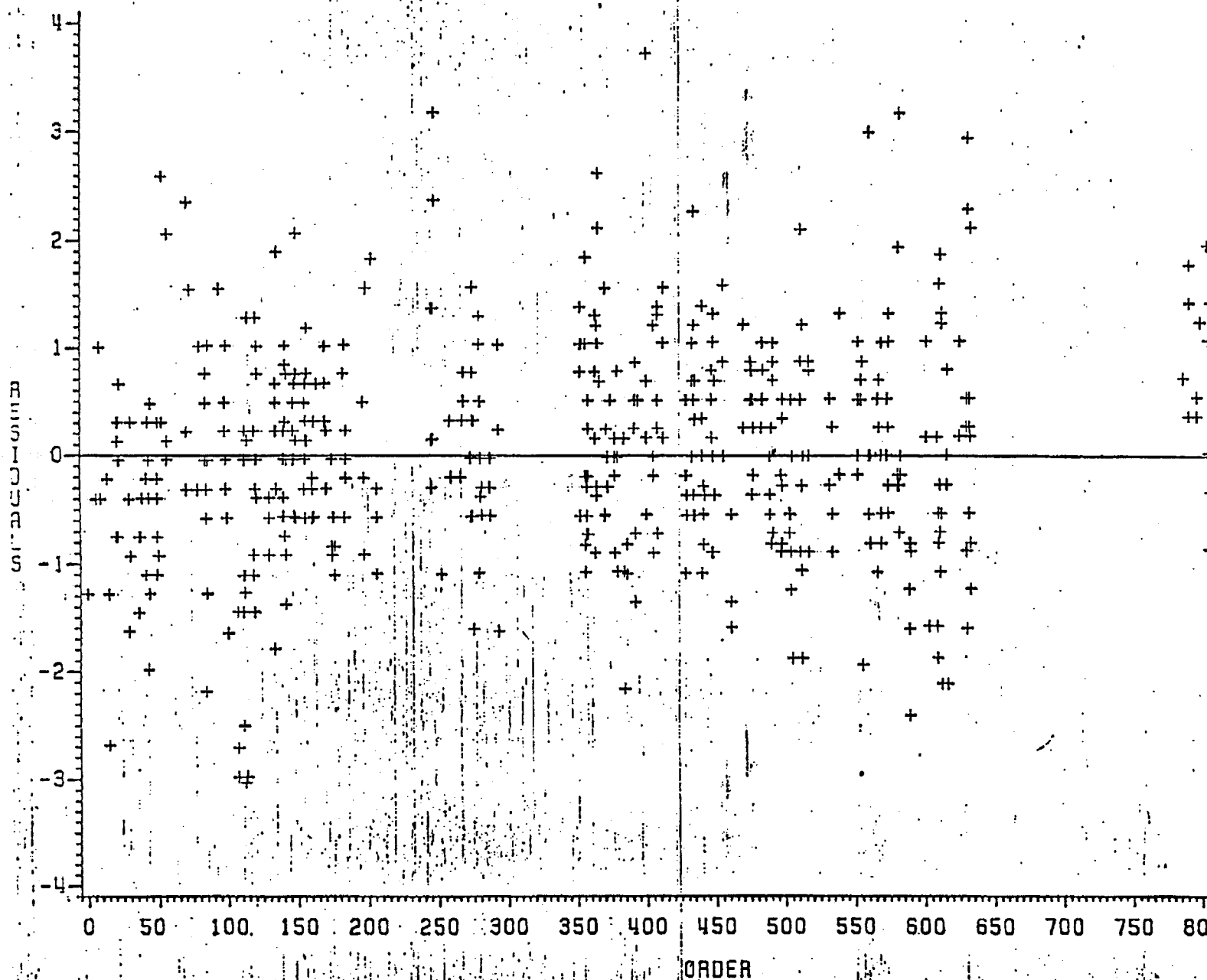
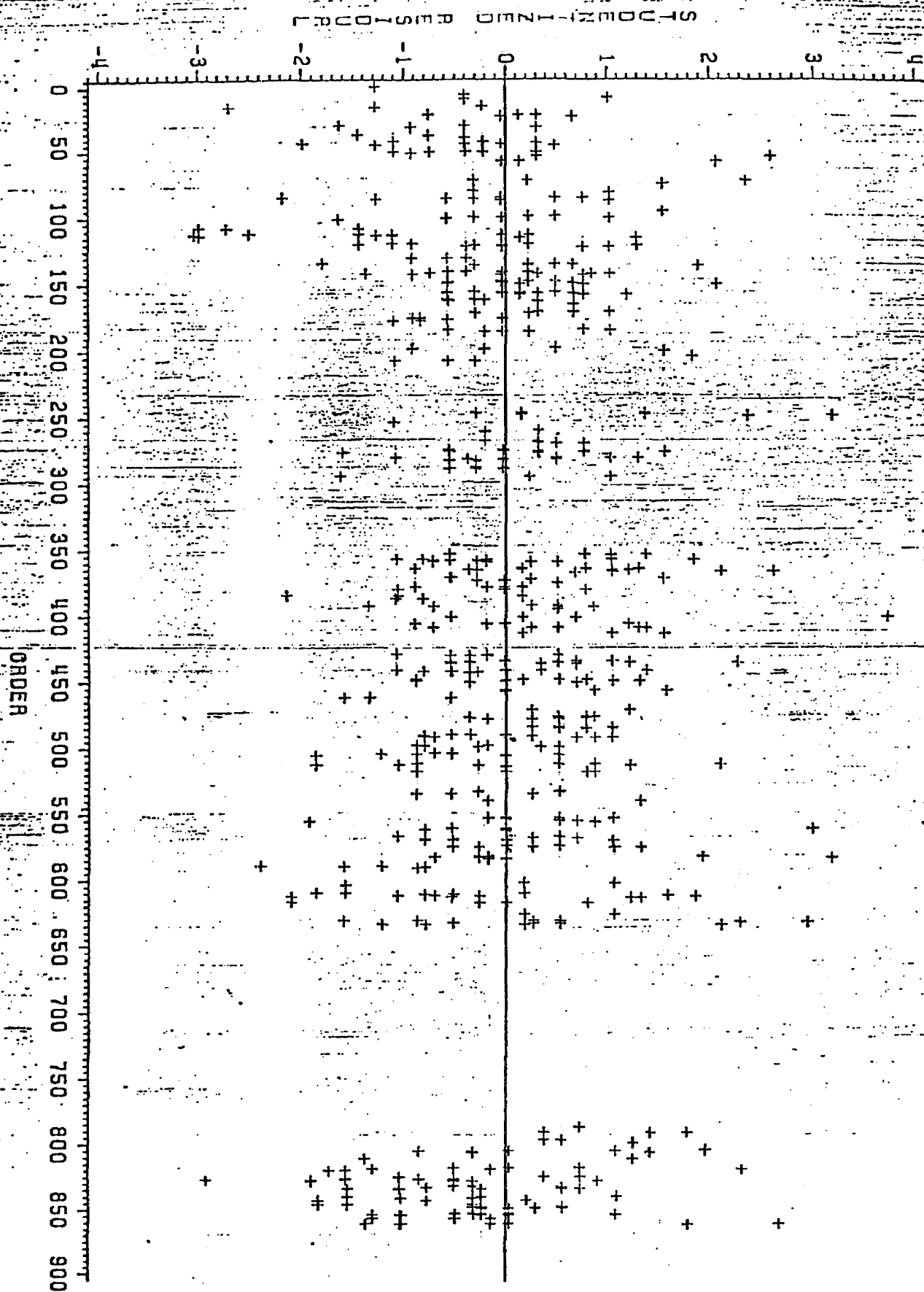


FIGURE 5. Studentized Residual Plot (Residual divided by its standard error) from Regression Analysis

HANES II LEAD QUALITY CONTROL REGRESSION

(Blind QC Pools #1 and #2 combined)



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STATISTICAL ANALYSIS SYSTEM

KEY:

OBS = observation number

GROUP = Blind QC Pool #

ORDER = number of days
since the beginning
of blind measurements

LED = blood lead concentration
(units = ug/dL; result
shown is the average of
duplicate determinations)

OBS	GROUP	ORDER	LED
1	1	70	18.0
2	1	70	14.0
3	1	70	14.0
4	1	70	13.0
5	1	72	16.5
6	1	79	15.5
7	1	83	14.5
8	1	83	15.0
9	1	83	13.5
10	1	78	13.0
11	1	84	9.5
12	1	84	13.0
13	1	84	12.5
14	1	85	15.5
15	1	85	13.5
16	1	93	16.5
17	1	57	14.0
18	1	97	14.5
19	1	98	13.0
20	1	98	13.0
21	1	98	15.5
22	1	98	13.5
23	1	99	12.5
24	1	105	8.5
25	1	107	8.0
26	1	107	14.0
27	1	111	11.5
28	1	111	11.5
29	1	112	8.0
30	1	113	16.0
31	1	113	14.0
32	1	118	11.5
33	1	118	13.0
34	1	119	16.0
35	1	119	13.5
36	1	120	15.0
37	1	120	12.5
38	1	129	14.0
39	1	133	13.0
40	1	134	14.0
41	1	134	14.0
42	1	139	15.5
43	1	140	13.5
44	1	141	15.0
45	1	141	14.5
46	1	146	14.5
47	1	146	14.5
48	1	148	15.0
49	1	148	12.5
50	1	154	13.0
51	1	154	12.5
52	1	155	15.0
53	1	155	13.0
54	1	156	15.0
55	1	160	13.0
56	1	160	13.0

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OBS	GROUP	ORDER	LED
57	1	160	12.5
58	1	170	14.0
59	1	170	13.0
60	1	174	12.0
61	1	175	12.5
62	1	176	11.5
63	1	176	12.0
64	1	182	15.0
65	1	183	12.5
66	1	183	15.5
67	1	184	14.0
68	1	184	13.5
69	1	196	14.5
70	1	198	16.5
71	1	202	17.0
72	1	202	12.5
73	1	206	13.0
74	1	245	13.0
75	1	247	19.5
76	1	247	18.0
77	1	252	11.5
78	1	268	15.0
79	1	268	15.0
80	1	268	14.5
81	1	268	15.0
82	1	273	12.5
83	1	273	13.5
84	1	273	13.5
85	1	274	16.5
86	1	274	15.0
87	1	279	15.5
88	1	279	14.5
89	1	279	16.0
90	1	280	13.5
91	1	280	14.5
92	1	281	13.0
93	1	286	13.0
94	1	286	13.0
95	1	287	13.0
96	1	287	13.5
97	1	293	15.5
98	1	293	14.0
99	1	293	14.5
100	1	352	12.5
101	1	352	15.0
102	1	356	15.5
103	1	356	12.0
104	1	356	17.0
105	1	357	13.0
106	1	357	12.5
107	1	358	14.0
108	1	358	14.5
109	1	363	15.0
110	1	364	16.0
111	1	364	15.5
112	1	364	13.0

OBS GROUP ORDER LED

113	1	365	15.5
114	1	365	17.5
115	1	370	12.5
116	1	371	14.0
117	1	371	14.0
118	1	372	13.5
119	1	372	13.0
120	1	377	13.5
121	1	379	13.5
122	1	379	15.0
123	1	379	15.0
124	1	379	13.5
125	1	384	9.5
126	1	386	11.5
127	1	386	12.0
128	1	391	14.0
129	1	392	14.5
130	1	392	11.0
131	1	400	20.5
132	1	408	14.0
133	1	408	14.0
134	1	408	16.0
135	1	412	15.5
136	1	412	15.5
137	1	428	11.5
138	1	429	14.5
139	1	429	12.5
140	1	433	15.5
141	1	433	13.5
142	1	434	14.5
143	1	434	12.5
144	1	435	12.5
145	1	440	11.5
146	1	441	13.0
147	1	441	12.0
148	1	441	12.5
149	1	447	12.5
150	1	447	15.0
151	1	448	14.5
152	1	448	16.0
153	1	448	15.5
154	1	455	16.5
155	1	456	13.5
156	1	461	12.5
157	1	461	11.0
158	1	475	14.0
159	1	475	14.5
160	1	475	15.0
161	1	476	15.0
162	1	476	14.5
163	1	477	14.0
164	1	483	14.0
165	1	483	15.5
166	1	484	15.0
167	1	484	14.5
168	1	489	12.5

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OBS	GROUP	ORDER	LED
169	1	499	13.5
170	1	499	12.0
171	1	498	14.0
172	1	498	14.0
173	1	497	12.0
174	1	498	12.0
175	1	498	14.5
176	1	498	13.0
177	1	503	12.5
178	1	503	12.5
179	1	504	12.5
180	1	504	14.5
181	1	505	13.5
182	1	505	10.0
183	1	511	14.5
184	1	512	13.0
185	1	512	10.0
186	1	513	13.5
187	1	517	15.0
188	1	532	14.5
189	1	532	13.0
190	1	534	14.0
191	1	539	12.5
192	1	539	16.0
193	1	552	13.5
194	1	552	15.5
195	1	560	12.5
196	1	561	12.0
197	1	561	13.5
198	1	565	11.5
199	1	567	14.0
200	1	569	12.0
201	1	573	14.5
202	1	574	15.5
203	1	574	16.0
204	1	574	14.0
205	1	581	13.0
206	1	582	13.0
207	1	583	13.5
208	1	589	10.5
209	1	589	12.0
210	1	589	9.0
211	1	590	12.0
212	1	601	15.5
213	1	609	10.0
214	1	610	16.5
215	1	610	12.0
216	1	611	11.5
217	1	611	13.0
218	1	611	17.0
219	1	612	12.5
220	1	616	13.0
221	1	616	15.0
222	1	616	13.5
223	1	612	16.0
224	1	612	16.0

OBS	GROUP	ORDER	LED
225	1	625	15.5
226	1	625	15.5
227	1	630	14.0
228	1	630	14.0
229	1	630	14.5
230	1	631	19.0
231	1	632	14.0
232	1	632	14.5
233	1	632	14.5
234	1	633	12.0
235	1	618	13.5
236	1	619	11.0
237	1	620	10.5
238	1	625	11.5
239	1	625	10.5
240	1	625	12.5
241	1	627	10.5
242	1	627	8.0
243	1	627	12.5
244	1	632	12.5
245	1	632	12.5
246	1	633	14.5
247	1	634	13.0
248	1	634	13.0
249	1	634	13.0
250	1	634	13.0
251	1	640	13.0
252	1	640	13.0
253	1	640	13.0
254	1	640	13.0
255	1	640	13.0
256	1	640	13.0
257	1	640	13.0
258	1	640	13.0
259	1	640	13.0
260	1	654	13.0
261	1	654	13.0
262	1	657	11.5
263	1	657	11.5
264	1	651	13.5
265	1	654	11.5
266	1	648	13.0
267	1	648	13.0
268	1	649	13.0
269	1	649	13.0
270	1	648	11.5
271	1	651	11.5
272	1	6	22.0
273	1	6	24.5
274	1	8	28.5
275	1	9	24.5
276	1	14	25.0
277	1	15	18.0
278	1	15	23.5
279	1	20	23.5
280	1	21	26.0

OS	GROUP	AL	ORDER	LED
281	N	21	26.5	26.5
282	N	22	23.5	23.5
283	N	22	26.5	26.5
284	N	22	27.5	27.5
285	N	29	21.0	21.0
286	N	29	24.5	24.5
287	N	30	26.5	26.5
288	N	30	23.0	23.0
289	N	36	23.5	23.5
290	N	36	21.5	21.5
291	N	37	23.5	23.5
292	N	38	24.5	24.5
293	N	41	22.5	22.5
294	N	41	25.0	25.0
295	N	42	26.5	26.5
296	N	43	24.5	24.5
297	N	43	25.5	25.5
298	N	43	25.5	25.5
299	N	43	26.0	26.0
300	N	44	27.0	27.0
301	N	44	22.0	22.0
302	N	49	26.5	26.5
303	N	50	23.0	23.0
304	N	52	33.0	33.0
305	N	55	31.5	31.5
306	N	55	26.0	26.0
307	N	55	25.5	25.5
308	N	56	25.5	25.5
309	N	49	23.5	23.5
310	N	49	24.5	24.5
311	N	49	22.5	22.5
312	N	49	25.0	25.0
313	N	52	26.5	26.5
314	N	85	22.0	22.0
315	N	107	21.5	21.5
316	N	111	18.5	18.5
317	N	111	21.5	21.5
318	N	111	25.5	25.5
319	N	112	17.0	17.0
320	N	112	22.0	22.0
321	N	113	26.0	26.0
322	N	118	23.0	23.0
323	N	119	21.5	21.5
324	N	119	25.5	25.5
325	N	120	24.5	24.5
326	N	120	25.5	25.5
327	N	120	28.5	28.5
328	N	129	24.5	24.5
329	N	129	23.0	23.0
330	N	133	24.5	24.5
331	N	133	27.5	27.5
332	N	133	31.0	31.0
333	N	134	25.5	25.5
334	N	139	24.5	24.5
335	N	139	24.5	24.5
336	N	139	24.0	24.0

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STATISTICAL ANALYSIS SYSTEM

OBS.	GROUP	ORDER	LED
337	2	140	26.5
338	2	140	23.5
339	2	140	28.0
340	2	141	23.0
341	2	148	26.0
342	2	147	25.5
343	2	147	27.5
344	2	148	31.5
345	2	154	27.0
346	2	155	26.0
347	2	155	25.5
348	2	155	26.5
349	2	155	27.5
350	2	156	26.0
351	2	156	29.0
352	2	156	29.0
353	2	147	24.0
354	2	160	25.0
355	2	161	26.5
356	2	161	24.0
357	2	161	26.5
358	2	163	27.5
359	2	169	26.5
360	2	169	28.5
361	2	169	27.5
362	2	174	23.0
363	2	174	25.5
364	2	184	25.0
365	2	197	25.0
366	2	197	23.0
367	2	206	22.5
368	2	245	29.5
369	2	245	26.0
370	2	246	26.0
371	2	246	29.5
372	2	258	26.5
373	2	259	25.0
374	2	266	25.0
375	2	267	26.5
376	2	273	26.5
377	2	274	26.5
378	2	274	24.0
379	2	275	21.0
380	2	275	26.5
381	2	279	22.5
382	2	280	24.5
383	2	281	24.0
384	2	287	28.0
385	2	293	28.5
386	2	352	28.5
387	2	352	28.5
388	2	353	28.5
389	2	356	25.0
390	2	356	23.5
391	2	357	23.5
392	2	350	25.0

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STATISTICAL ANALYSIS SYSTEM

OBS	GROUP	ORDER	LED
393	2	358	23.5
394	2	363	26.0
395	2	363	23.0
396	2	364	29.0
397	2	364	24.5
398	2	365	33.0
399	2	366	27.5
400	2	370	30.0
401	2	370	24.0
402	2	372	25.5
403	2	374	27.0
404	2	377	26.0
405	2	377	23.0
406	2	377	25.0
407	2	379	22.5
408	2	384	26.0
409	2	384	22.5
410	2	394	27.0
411	2	391	27.0
412	2	391	27.0
413	2	392	28.0
414	2	392	23.5
415	2	400	24.0
416	2	400	26.0
417	2	400	27.5
418	2	405	29.0
419	2	405	25.5
420	2	405	29.0
421	2	408	23.0
422	2	408	27.0
423	2	408	29.5
424	2	408	23.5
425	2	412	30.0
426	2	412	26.0
427	2	428	25.0
428	2	435	27.5
429	2	428	27.0
430	2	429	25.0
431	2	429	27.5
432	2	433	27.5
433	2	433	28.5
434	2	434	24.5
435	2	434	29.0
436	2	434	32.0
437	2	434	24.5
438	2	435	26.5
439	2	440	26.5
440	2	440	29.5
441	2	440	25.5
442	2	441	24.0
443	2	442	24.5
444	2	447	23.0
445	2	447	26.0
446	2	448	25.5
447	2	448	23.0
448	2	449	24.5

OBS	GROUP	ORDER	LED
449	2	449	27.5
450	2	455	28.0
451	2	455	25.5
452	2	461	21.0
453	2	470	29.0
454	2	475	27.0
455	2	475	28.0
456	2	475	24.5
457	2	477	25.0
458	2	477	27.0
459	2	483	28.5
460	2	483	27.5
461	2	491	27.5
462	2	484	28.5
463	2	489	23.5
464	2	491	23.5
465	2	491	28.5
466	2	491	28.0
467	2	497	23.0
468	2	497	25.0
469	2	498	26.5
470	2	503	24.0
471	2	503	23.5
472	2	504	22.0
473	2	504	23.0
474	2	511	28.0
475	2	511	31.5
476	2	511	23.0
477	2	512	29.0
478	2	512	22.5
479	2	517	25.5
480	2	517	28.0
481	2	517	23.0
482	2	534	23.0
483	2	535	25.0
484	2	552	27.0
485	2	552	25.0
486	2	554	27.5
487	2	555	26.0
488	2	554	27.5
489	2	555	28.0
490	2	555	34.0
491	2	560	25.5
492	2	561	25.5
493	2	565	27.0
494	2	567	27.5
495	2	569	24.0
496	2	569	28.5
497	2	569	25.5
498	2	573	25.5
499	2	574	24.0
500	2	581	31.0
501	2	581	25.0
502	2	583	25.0
503	2	582	34.5
504	2	582	23.5

TABLE 1, cont.

STATISTICAL ANALYSIS SYSTEM

OBS	GROUP	ORDER	LED
505	2	509	22.0
506	2	590	23.0
507	2	601	26.0
508	2	603	21.0
509	2	609	21.0
510	2	609	26.0
511	2	610	24.0
512	2	611	23.5
513	2	612	29.0
514	2	612	19.5
515	2	616	19.5
516	2	625	26.0
517	2	630	23.0
518	2	633	31.5
519	2	633	26.0
520	2	631	32.0
521	2	633	22.0
522	2	632	27.0
523	2	787	27.5
524	2	791	26.5
525	2	791	38.5
526	2	791	29.5
527	2	797	26.5
528	2	797	27.0
529	2	799	29.0
530	2	804	31.0
531	2	805	28.5
532	2	806	24.5
533	2	806	25.5
534	2	811	21.5
535	2	811	29.0
536	2	805	29.0
537	2	806	29.5
538	2	818	27.5
539	2	819	32.0
540	2	819	25.0
541	2	820	27.5
542	2	825	27.5
543	2	825	26.5
544	2	825	27.5
545	2	825	26.5
546	2	826	23.0
547	2	827	23.0
548	2	827	25.0
549	2	828	24.5
550	2	828	28.0
551	2	828	28.0
552	2	832	24.5
553	2	833	27.0
554	2	834	21.0
555	2	840	27.5
556	2	840	21.0
557	2	841	22.5
558	2	843	26.0
559	2	846	24.5
560	2	841	24.5

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OBS	GROUP	ORDER	LED
561	2	846	21.0
562	2	848	24.5
563	2	854	22.5
564	2	849	27.0
565	2	853	24.0
566	2	853	24.5
567	2	854	25.5
568	2	854	25.5
569	2	854	28.5
570	2	857	25.0
571	2	857	24.0
572	2	861	25.0
573	2	861	21.5
574	2	861	22.5
575	2	861	33.0
576	2	861	30.5

Age group 1 ≤ 6 yrs of age

mt.	PbB. vs COMB		
	R	P(RHC=0)	N
1	-0.078	0.3758	130
2	+0.2177	0.0453	85
3	+0.2170	0.0159	123
4	-0.04945	0.6323	96
5	-0.1585	0.4491	25
6	+0.00332	0.9844	37
7	+0.18251	0.1628	60
8	+0.06188	0.2870	298

UrL	PbB vs FEP			<u>BAB</u>
	R	D	N	
1	0.489	0.0001	356	19.9
2	0.209	0.0014	230	16.5
3	0.255	0.0001	334	18.5
4	0.215	0.0003	284	16.9
5	0.272	0.0042	109	17.9
6	0.100	0.3080	105	15.9
7	0.110	0.1397	180	15.0
8	0.273	0.0001	953	14.2

TEH 0533281

DUP050034548

BLOOD Pb

22

20

18

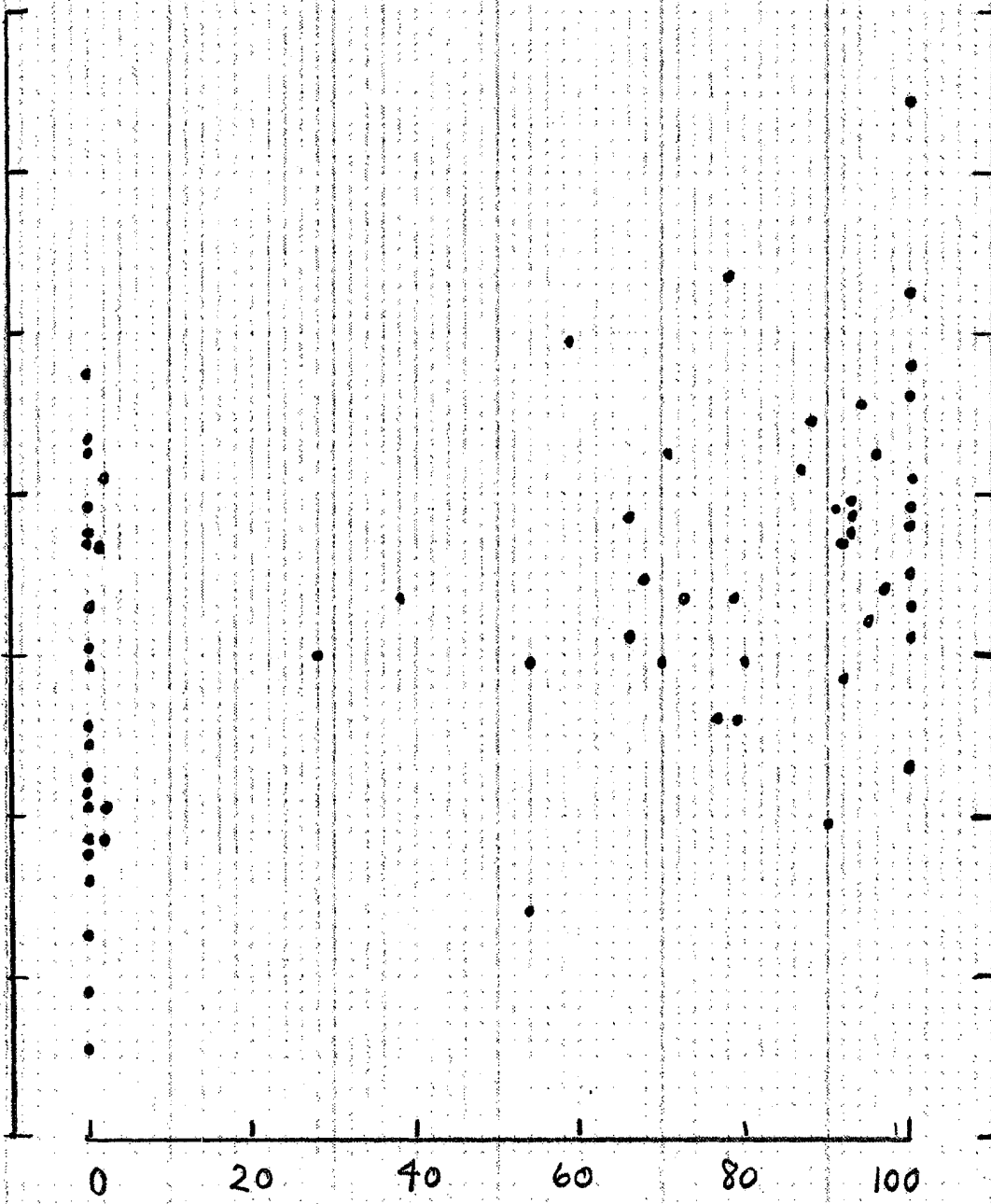
16

14

12

10

8



% URBAN (UA4)

TEH 0533282

DUP050034549