

BEFORE THE  
STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

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In the Matter of  
Central Hudson Gas and Electric Corporation  
Cases 08-E-0887 & 08-G-0888  
November 2008

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Prepared Exhibits of:

FORECASTING PANEL

Mary Ann Sorrentino  
Utility Engineer III  
Office of Electric, Gas and Water

Gregory P. Stella  
Associate Economist  
Office of Regulatory Economics

State of New York  
Department of Public Service  
Three Empire State Plaza  
Albany, New York 12223-1350

Central Hudson Gas and Electric  
Interrogatory Responses Used in Direct Testimony

<u>DPS Request Number</u>	<u>Request Set</u>	<u>Request Date</u>	<u>Subject</u>
8	DPS1	August 13, 2008	Gas Forecasting Panel degree-day information
37i	DPS2	August 15, 2008	Electric Forecasting Panel degree-day information

Central Hudson Gas & Electric Corporation  
Case Nos. 08-E-0887 & 08-G-0888  
Response to Staff Information Request No. 8

From: Sorrentino  
Requested of: Gas Forecasting Panel  
Date of Request: 8/13/2008

**Sorrentino: For Central Hudson's Gas Forecasting Panel (Bunt and Patel):**

8) On page 9 of your direct testimony, lines 12 -14, it reads 'sales forecasts are based on normal weather conditions, where the normal weather is determined from a linear trend of monthly HDDs for the period 1975 through 2007.' Please provide all data underlying this projection and all supporting econometric results.

a) Also, please provide corresponding forecasts of HDDs by billing cycle based on last-ten-years and last-thirty-years definitions of normal weather.

**Response:** The accompanying Excel file titled "PSC IR 8.xls" provides the following data:

- 1) Actual monthly calendar degree days for January 1975 – December 2007
- 2) Equations utilized to develop normal monthly degree days
- 3) Forecast of normal monthly degree days

a) Central Hudson does not compile HDDs by billing cycle, however, monthly calendar degree days are converted to billed monthly degree days to align more closely with sales. For instance, an example of monthly calendar degree days converted to billed monthly degree days utilizing the percentages in Table 1 below for residential heating is shown in Table 2 below for the month of January 2007. The result of this conversion for the forecast period is provided in the aforementioned file.

**Table 1**

Month	Current Month	1 Month Prior	2 Months Prior
Percentage	.19	.53	.28

**Table 2**

Month	Actual DD	Percentage	DD Applied to Jan 2007 Billed DD
Nov 2006	562	.28	157
Dec 2006	833	.53	441
Jan 2007	1,027	.19	195
		<b>1.00</b>	<b>793</b>

Date of Response: 8/26/2008

Response by: Gas Forecasting Panel (Bunt and Patel)

**Central Hudson Gas & Electric Corporation**  
**Case Nos. 08-E-0887 & 08-G-0888**  
**Response to Staff Information Request No. 8**

**Gas HDD Regression Results**

**January**

<i>Regression Statistics</i>	
Multiple R	0.3247177
R Square	0.105441584
Adjusted R Square	0.076584861
Standard Error	156.6094839
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	89619.19285	89619.19285	3.653969447	0.065218632
Residual	31	760322.4435	24526.53044		
Total	32	849941.6364			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	12119.23563	5700.507091	2.125992554	0.041572836	492.9682806	23745.50298
X Variable 1	-5.472927807	2.863104923	-1.911535887	0.065218632	-11.31227205	0.366416437

**February**

<i>Regression Statistics</i>	
Multiple R	0.188082
R Square	0.035374839
Adjusted R Square	0.004257898
Standard Error	129.1630779
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	18965.93884	18965.93884	1.136835363	0.294555976
Residual	31	517176.1218	16683.1007		
Total	32	536142.0606			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	6051.192625	4701.471606	1.287084796	0.207592459	-3537.527282	15639.91253
X Variable 1	-2.517713904	2.361334928	-1.066224818	0.294555976	-7.333690926	2.298263119

**March**

<i>Regression Statistics</i>	
Multiple R	0.050580384
R Square	0.002558375
Adjusted R Square	-0.029617161
Standard Error	95.75919323
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	729.1206551	729.1206551	0.079513056	0.779832389
Residual	31	284264.5157	9169.823087		
Total	32	284993.6364			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1847.220254	3485.586866	0.529959609	0.599915527	-5261.684992	8956.1255
X Variable 1	-0.493649733	1.750651434	-0.281980595	0.779832389	-4.064128864	3.076829398

**Central Hudson Gas & Electric Corporation  
Case Nos. 08-E-0887 & 08-G-0888  
Response to Staff Information Request No. 8**

**Gas HDD Regression Results**

**April**

<i>Regression Statistics</i>	
Multiple R	0.207709451
R Square	0.043143216
Adjusted R Square	0.012276868
Standard Error	58.85377904
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	4841.455882	4841.455882	1.397742819	0.246091122
Residual	31	107376.7865	3463.767308		
Total	32	112218.2424			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	3032.153966	2142.248199	1.415407406	0.166917419	-1336.992478	7401.300411
X Variable 1	-1.272058824	1.075953642	-1.182261739	0.246091122	-3.466481967	0.92236432

**May**

<i>Regression Statistics</i>	
Multiple R	0.264698712
R Square	0.070065408
Adjusted R Square	0.040067518
Standard Error	53.29180619
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6633.363971	6633.363971	2.335677881	0.136580465
Residual	31	88040.51482	2840.016607		
Total	32	94673.87879			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-2770.146502	1939.795162	-1.428061352	0.163272048	-6726.387024	1186.09402
X Variable 1	1.488970588	0.974270707	1.528292472	0.136580465	-0.498068728	3.476009905

**June**

<i>Regression Statistics</i>	
Multiple R	0.079422697
R Square	0.006307965
Adjusted R Square	-0.025746617
Standard Error	19.08097772
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	71.64739305	71.64739305	0.196788241	0.660406749
Residual	31	11286.59503	364.0837107		
Total	32	11358.24242			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	345.6144162	694.5380708	0.49761767	0.622265124	-1070.906108	1762.134941
X Variable 1	-0.154745989	0.348834821	-0.443608207	0.660406749	-0.866199694	0.556707715

**Central Hudson Gas & Electric Corporation**  
**Case Nos. 08-E-0887 & 08-G-0888**  
**Response to Staff Information Request No. 8**

**Gas HDD Regression Results**

**July**

<i>Regression Statistics</i>	
Multiple R	0.389551371
R Square	0.151750271
Adjusted R Square	0.124387376
Standard Error	1.801040467
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	17.98930481	17.98930481	5.54584131	0.025034509
Residual	31	100.5561497	3.243746766		
Total	32	118.5454545			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-153.6550802	65.5569746	-2.343840318	0.025674145	-287.359486	-19.95067444
X Variable 1	0.077540107	0.032926281	2.354961	0.025034509	0.010386477	0.144693737

**August**

<i>Regression Statistics</i>	
Multiple R	0.535966902
R Square	0.28726052
Adjusted R Square	0.264268923
Standard Error	5.016924092
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	314.4719251	314.4719251	12.49415298	0.001305556
Residual	31	780.2553476	25.16952734		
Total	32	1094.727273			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-643.3870321	182.6135343	-3.523216581	0.001346497	-1015.829999	-270.9440656
X Variable 1	0.324197861	0.091718456	3.534706916	0.001305556	0.137136732	0.51125899

**September**

<i>Regression Statistics</i>	
Multiple R	0.373699135
R Square	0.139651044
Adjusted R Square	0.111897852
Standard Error	27.27779719
Observations	33

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3744.120655	3744.120655	5.031891215	0.032172473
Residual	31	23066.4248	744.0782193		
Total	32	26810.54545			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	2338.95889	992.8982106	2.355688494	0.024993174	313.9285096	4363.989271
X Variable 1	-1.118649733	0.498687522	-2.243187735	0.032172473	-2.135730206	-0.101569259

**Central Hudson Gas & Electric Corporation**  
**Case Nos. 08-E-0887 & 08-G-0888**  
**Response to Staff Information Request No. 8**

**Gas HDD Regression Results**

**October**

<i>Regression Statistics</i>	
Multiple R	0.263446405
R Square	0.069404008
Adjusted R Square	0.039384783
Standard Error	81.91530648
Observations	33

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	15513.69285	15513.69285	2.311985297	0.13851525
Residual	31	208013.6405	6710.117435		
Total	32	223527.3333			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	4961.984069	2981.676294	1.664159211	0.106158385	-1119.188217	11043.15635
X Variable 1	-2.277072193	1.497560118	-1.52052139	0.13851525	-5.331367894	0.777223509

**November**

<i>Regression Statistics</i>	
Multiple R	0.178236911
R Square	0.031768396
Adjusted R Square	0.000535119
Standard Error	93.20997929
Observations	33

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	8836.953209	8836.953209	1.017132971	0.32100768
Residual	31	269331.1074	8688.100239		
Total	32	278168.0606			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	4131.274287	3392.79675	1.217660412	0.232540781	-2788.384165	11050.93274
X Variable 1	-1.718582888	1.704047188	-1.008530104	0.32100768	-5.194011979	1.756846203

**December**

<i>Regression Statistics</i>	
Multiple R	0.264339823
R Square	0.069875542
Adjusted R Square	0.039871527
Standard Error	132.4356913
Observations	33

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	40846.59926	40846.59926	2.328873069	0.137132902
Residual	31	543715.5826	17539.21234		
Total	32	584562.1818			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	8421.906751	4820.593102	1.747068581	0.090527269	-1409.763183	18253.57669
X Variable 1	-3.694852941	2.421164226	-1.526064569	0.137132902	-8.63285269	1.243146808

Central Hudson Gas & Electric Corporation  
Case Nos. 08-E-0887 & 08-G-0888  
Response to Staff Information Request No. 8

Gas HDD Regression Results

Annual

<i>Regression Statistics</i>	
Multiple R	0.43174751
R Square	0.186405912
Adjusted R Square	0.160160942
Standard Error	345.4191289
Observations	33

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	847434.9318	847434.9318	7.102538436	0.012110813
Residual	31	3698745.614	119314.3746		
Total	32	4546180.545			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	39682.35227	12573.08399	3.156135146	0.003545957	14039.36412	65325.34043
X Variable 1	-16.82954545	6.314887094	-2.665058805	0.012110813	-29.70884978	-3.950241131

From: Stella

Requested of: Electric Forecasting Panel

Date of Request: 8/15/2008

**Stella: For Central Hudson's Electric Forecasting Panel (Bunt and Powers):**

37. Please provide the following in electronic format:

i) Supporting econometric results for all CDD and HDD projections referenced on page 17, lines 2-4 of the Electric Forecasting Panel's direct testimony.

j) Corresponding forecasts of CDD and HDD by billing cycle based on last ten-years and last thirty-years definitions of normal weather.

**Response:** The accompanying Excel file titled "PSC IR 37i-j.xls" provides the following data:

- 1) Actual monthly calendar degree days for January 1975 – December 2007
- 2) Equations utilized to develop normal monthly degree days
- 3) Forecast of normal monthly degree days

i) Supporting econometric results are provided in the accompanying PDF file titled "PSC IR 37i".

j) Central Hudson does not compile CDDs and HDDs by billing cycle, however, monthly calendar degree days are converted to billed monthly degree days to align more closely with sales. For instance, an example of monthly calendar degree days converted to billed monthly degree days utilizing the percentages in Table 1 below for residential non-heating is shown in Table 2 below for the month of January 2007. The result of this conversion for the forecast period is provided in the aforementioned file.

**Table 1**

Month	Current Month	1 Month Prior	2 Months Prior
Percentage	.25	.50	.25

Response to Staff Information Request No. 37i-j

**Table 2**

Month	Actual DD	Percentage	DD Applied to Jan 2007 Billed DD
Nov 2006	567	.25	142
Dec 2006	842	.50	421
Jan 2007	1,039	.25	260
		<b>1.00</b>	<b>823</b>

Date of Response: 8/26/2008

Response by: Electric Forecasting Panel (Bunt and Powers)

EGREEDAYSELEC- Fit Least Squares

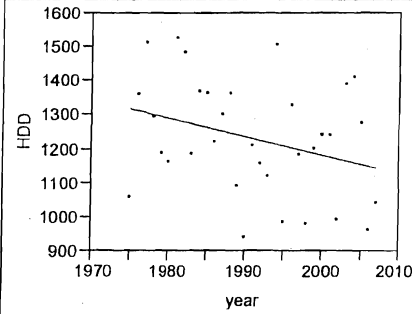
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**Response HDD month=1**

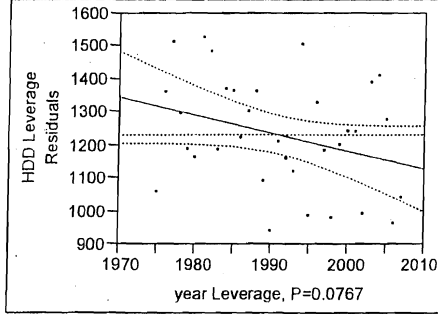
**Whole Model**

year

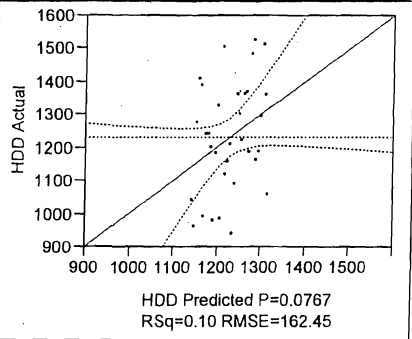
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.09763
RSquare Adj	0.068521
Root Mean Square Error	162.4456
Mean of Response	1229.212
Observations (or Sum Wgts)	33

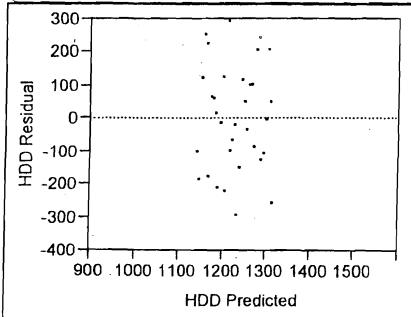
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	88506.19	88506.2	3.3540
Error	31	818045.32	26388.6	Prob > F
C. Total	32	906551.52		0.0767

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	12057.936	5912.937	2.04	0.0500
year	-5.438837	2.969799	-1.83	0.0767

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

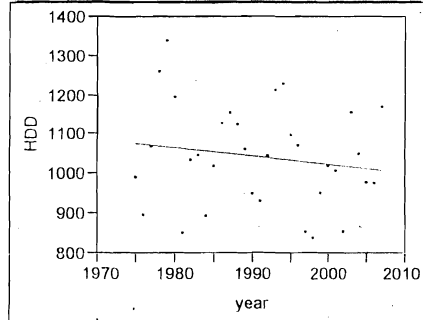
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**Response HDD month=2**

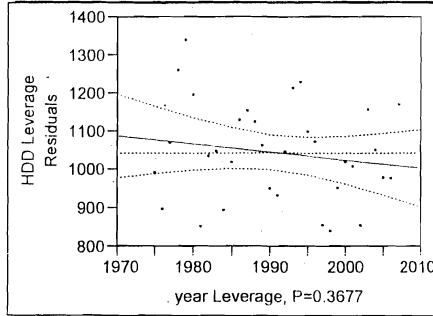
**Whole Model**

year

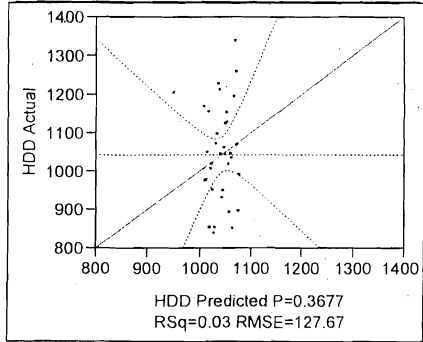
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.026249
RSquare Adj	-0.00516
Root Mean Square Error	127.6727
Mean of Response	1042.03
Observations (or Sum Wgts)	33

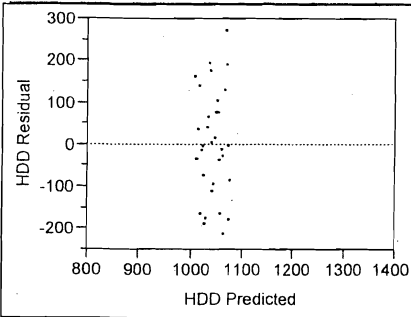
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	13621.48	13621.5	0.8357
Error	31	505309.49	16300.3	Prob > F
C. Total	32	518930.97		0.3677

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	5290.2068	4647.221	1.14	0.2637
year	-2.13369	2.334087	-0.91	0.3677

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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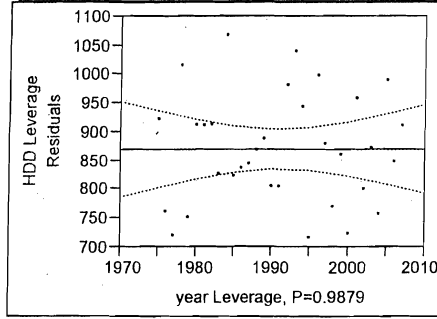
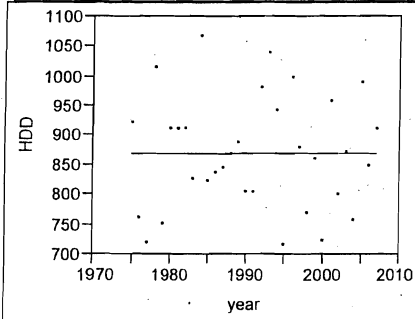
Response HDD month=3

Whole Model

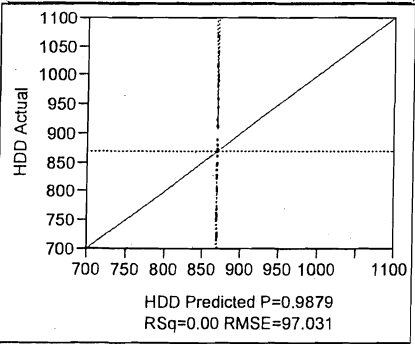
year

Regression Plot

Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	7.513e-6
RSquare Adj	-0.03225
Root Mean Square Error	97.03066
Mean of Response	868.8636
Observations (or Sum Wgts)	33

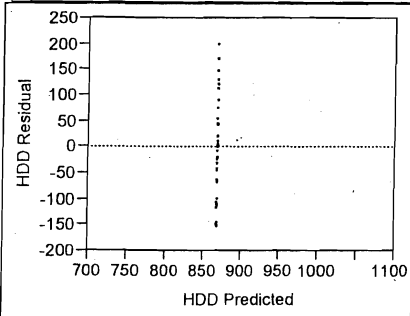
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.19	2.19	0.0002
Error	31	291863.44	9414.95	Prob > F
C. Total	32	291865.64		0.9879

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	814.9629	3531.868	0.23	0.8190
year	0.0270722	1.773896	0.02	0.9879

Residual by Predicted Plot



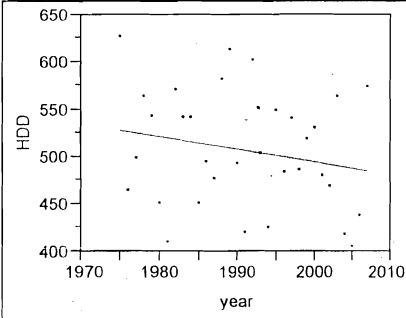
DEGREEDAYSELEC- Fit Least Squares

**Response HDD month=4**

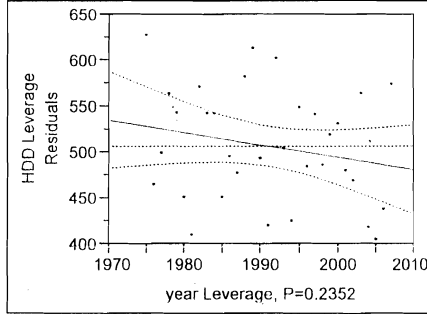
**Whole Model**

year

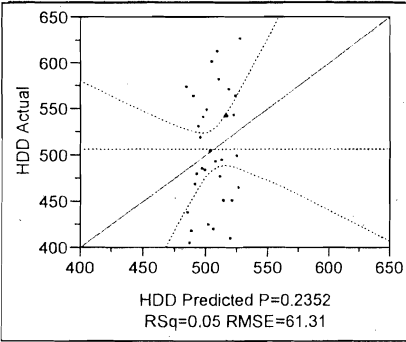
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.045145
RSquare Adj	0.014343
Root Mean Square Error	61.30976
Mean of Response	506.0909
Observations (or Sum Wgts)	33

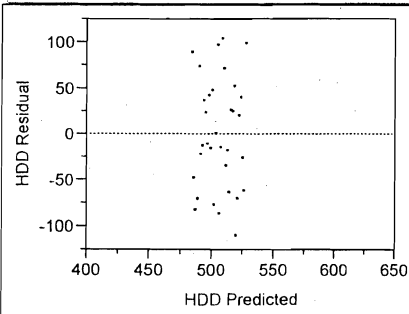
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	5509.22	5509.22	1.4657
Error	31	116525.50	3758.89	Prob > F
C. Total	32	122034.73		0.2352

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	3207.7821	2231.645	1.44	0.1606
year	-1.356952	1.120853	-1.21	0.2352

**Residual by Predicted Plot**



DEGREEDAYSELEC - Fit Least Squares

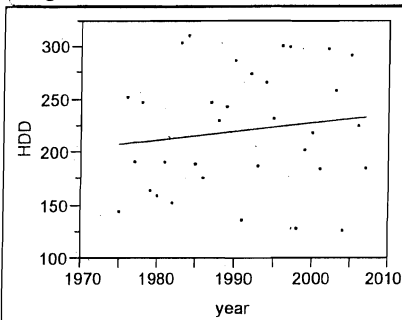
Page 5 of 12

**Response HDD month=5**

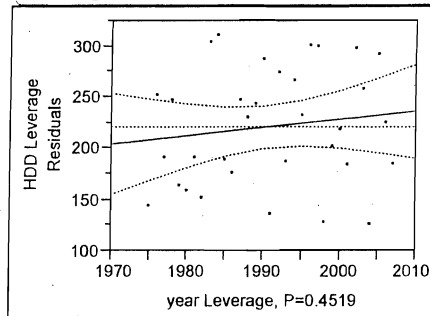
**Whole Model**

year

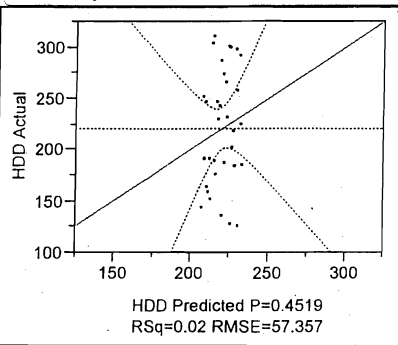
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.018376
RSquare Adj	-0.01329
Root Mean Square Error	57.35734
Mean of Response	220.1818
Observations (or Sum Wgts)	33

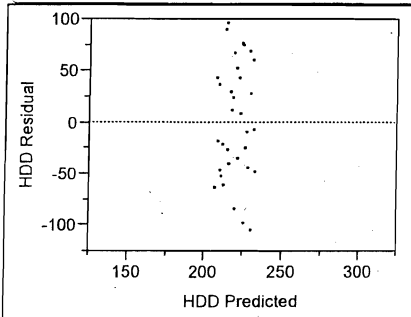
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1909.12	1909.12	0.5803
Error	31	101985.78	3289.86	Prob > F
C. Total	32	103894.91		0.4519

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-1370.223	2087.778	-0.66	0.5165
year	0.7987968	1.048596	0.76	0.4519

**Residual by Predicted Plot**



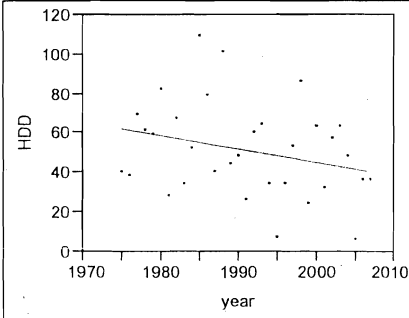
REGREDDAYSELEC - Fit Least Squares

**Response HDD month=6**

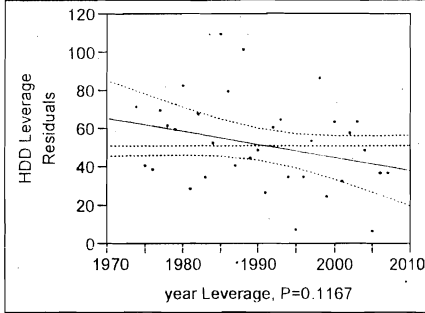
**Whole Model**

year

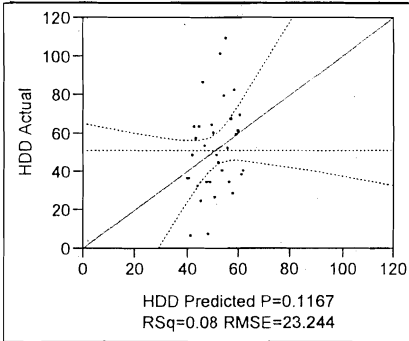
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.07751
RSquare Adj	0.047752
Root Mean Square Error	23.24443
Mean of Response	50.90909
Observations (or Sum Wgts)	33

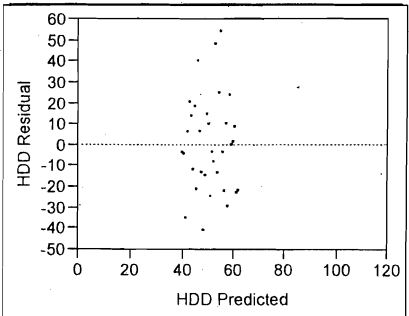
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1407.321	1407.32	2.6047
Error	31	16749.406	540.30	Prob > F
C. Total	32	18156.727		0.1167

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	1416.3944	846.0856	1.67	0.1042
year	-0.685829	0.42495	-1.61	0.1167

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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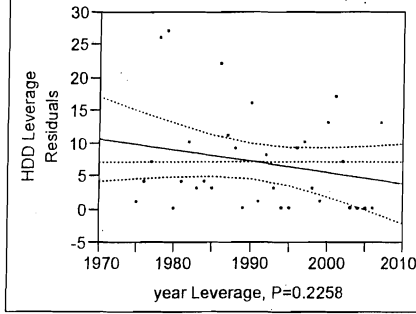
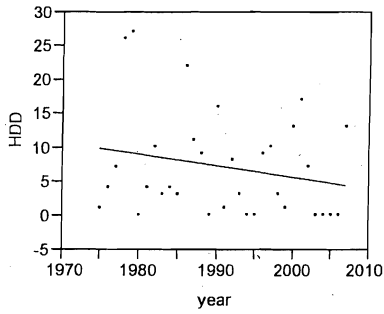
**Response HDD month=7**

**Whole Model**

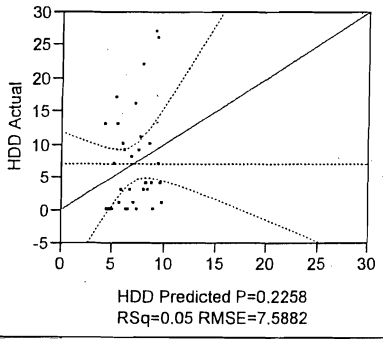
year

**Regression Plot**

**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.046962
RSquare Adj	0.016218
Root Mean Square Error	7.588217
Mean of Response	7.030303
Observations (or Sum Wgts)	33

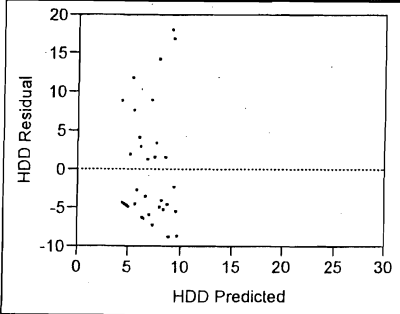
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	87.9576	87.9576	1.5275
Error	31	1785.0121	57.5810	Prob > F
C. Total	32	1872.9697		0.2258

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	348.40163	276.2073	1.26	0.2166
year	-0.171457	0.138726	-1.24	0.2258

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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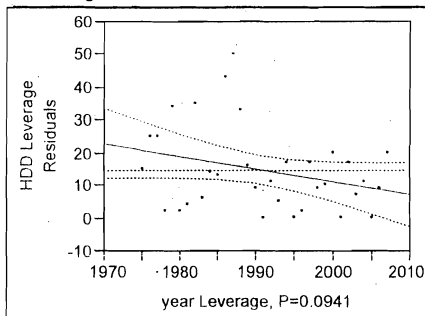
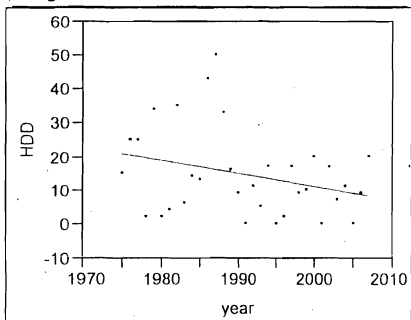
**Response HDD month=8**

**Whole Model**

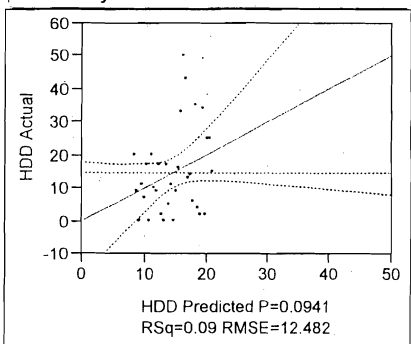
year

**Regression Plot**

**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.087756
RSquare Adj	0.058329
Root Mean Square Error	12.48157
Mean of Response	14.57576
Observations (or Sum Wgts)	33

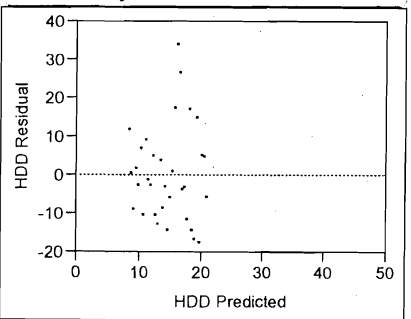
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	464.5859	464.586	2.9821	
Error	31	4829.4747	155.790		0.0941
C. Total	32	5294.0606			

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	799.1309	454.3228	1.76	0.0885
year	-0.394051	0.228186	-1.73	0.0941

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

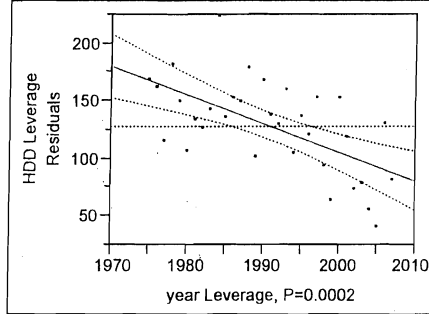
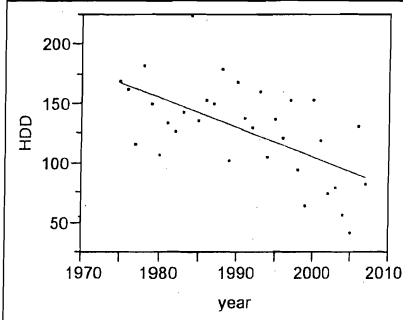
**Response HDD month=9**

**Whole Model**

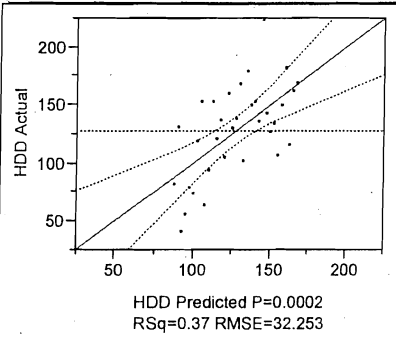
**year**

**Regression Plot**

**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.366543
RSquare Adj	0.346109
Root Mean Square Error	32.25311
Mean of Response	127.4545
Observations (or Sum Wgts)	33

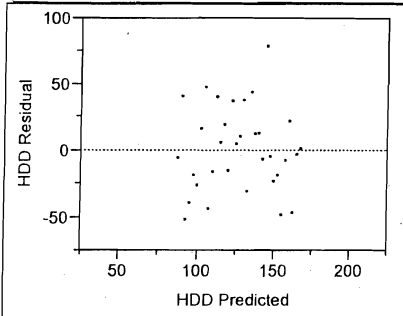
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	18660.021	18660.0	17.9378
Error	31	32248.160	1040.3	Prob > F
C. Total	32	50908.182		0.0002*

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	5099.631	1173.997	4.34	0.0001*
year	-2.497326	0.589645	-4.24	0.0002*

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

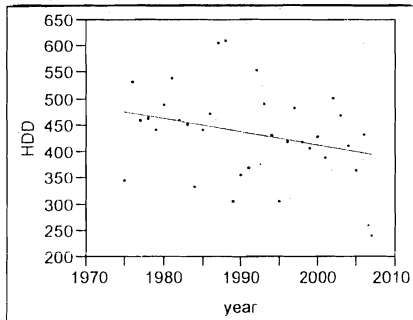
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Response HDD month=10

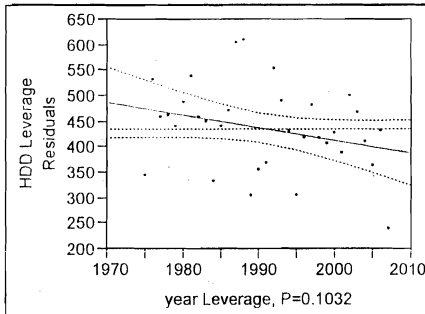
Whole Model

year

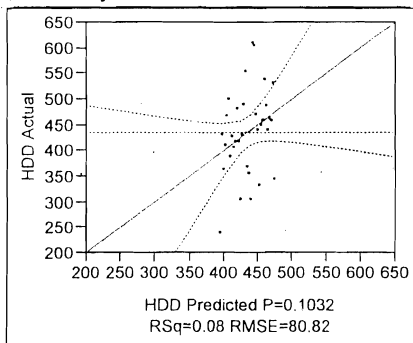
Regression Plot



Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.083347
RSquare Adj	0.053777
Root Mean Square Error	80.8198
Mean of Response	434.4545
Observations (or Sum Wgts)	33

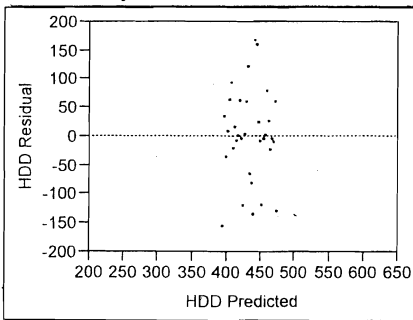
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	18411.12	18411.1	2.8187
Error	31	202487.06	6531.8	Prob > F
C. Total	32	220898.18		0.1032

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	5373.359	2941.801	1.83	0.0774
year	-2.480615	1.477532	-1.68	0.1032

Residual by Predicted Plot



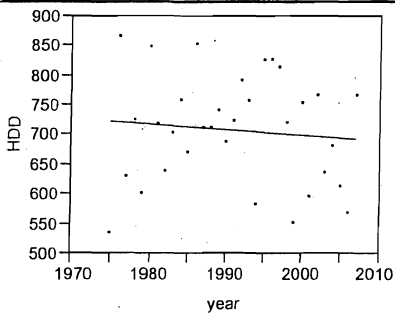
DEGREEDAYSELEC- Fit Least Squares

**Response HDD month=11**

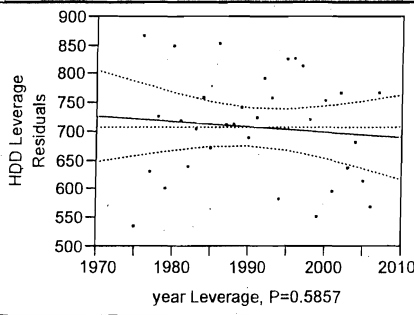
**Whole Model**

year

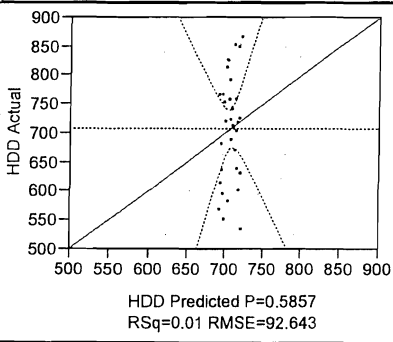
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.00969
RSquare Adj	-0.02226
Root Mean Square Error	92.64301
Mean of Response	706.9242
Observations (or Sum Wgts)	33

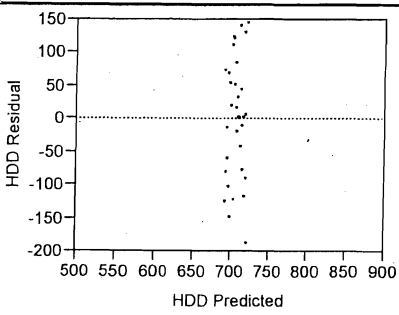
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2603.50	2603.50	0.3033
Error	31	266064.56	8582.73	Prob > F
C. Total	32	268668.06		0.5857

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	2564.1706	3372.159	0.76	0.4528
year	-0.932821	1.693682	-0.55	0.5857

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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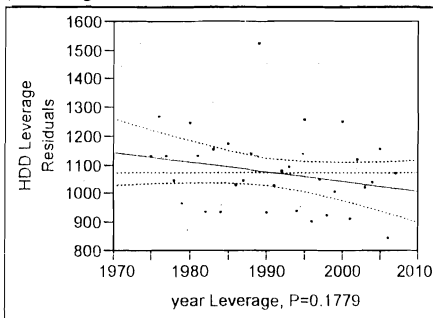
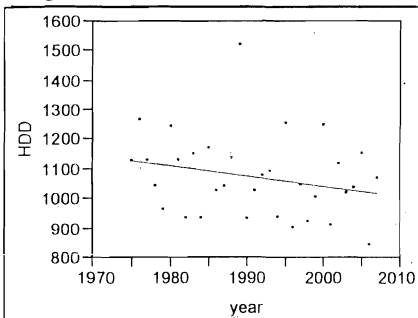
**Response HDD month=12**

**Whole Model**

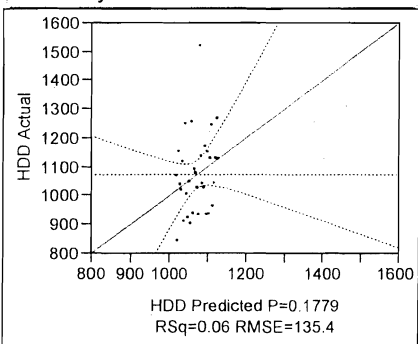
year

**Regression Plot**

**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.057755
RSquare Adj	0.02736
Root Mean Square Error	135.3966
Mean of Response	1072.409
Observations (or Sum Wgts)	33

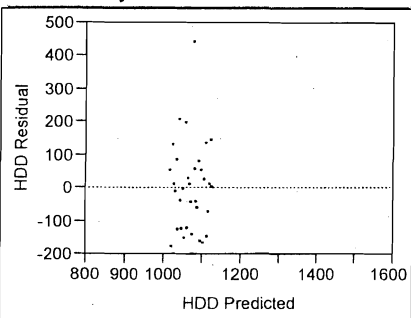
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	34834.12	34834.1	1.9002	
Error	31	568299.61	18332.2		
C. Total	32	603133.73			0.1779

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	7865.8981	4928.37	1.60	0.1206
year	-3.412099	2.475295	-1.38	0.1779

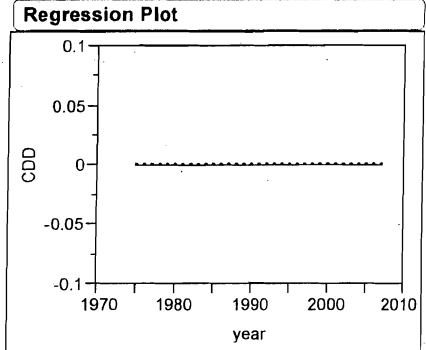
**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

**Response CDD month=1**

**Whole Model** **year**



**Summary of Fit**

RSquare  
 RSquare Adj  
 Root Mean Square Error 0  
 Mean of Response 0  
 Observations (or Sum Wgts) 33

**Analysis of Variance**

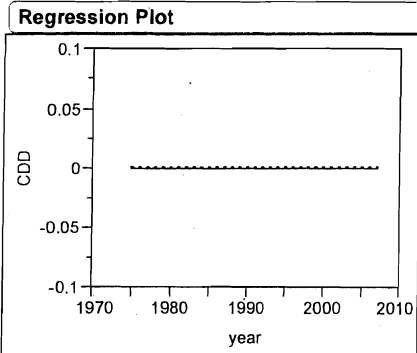
Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0	0	
Error	31	0	0	Prob > F
C. Total	32	0		

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	0	0		
year	0	0		

**Response CDD month=2**

**Whole Model** **year**



**Summary of Fit**

RSquare  
 RSquare Adj  
 Root Mean Square Error 0  
 Mean of Response 0  
 Observations (or Sum Wgts) 33

**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0	0	
Error	31	0	0	Prob > F
C. Total	32	0		

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	0	0		
year	0	0		

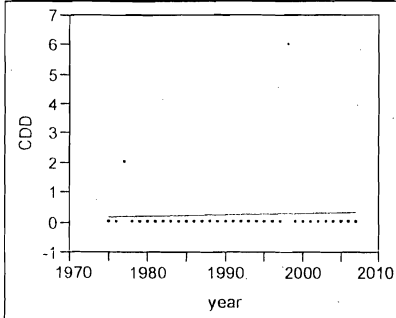
EGREEDAYSELEC- Fit Least Squares

**Response CDD month=3**

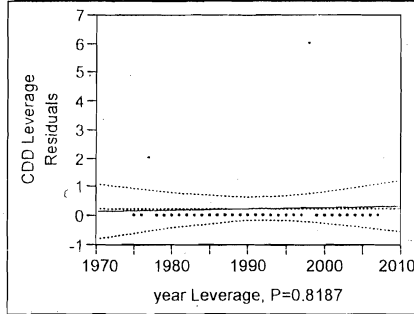
**Whole Model**

year

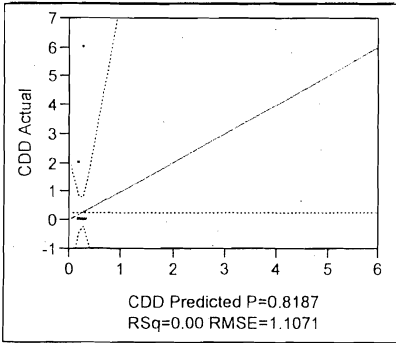
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.001721
RSquare Adj	-0.03048
Root Mean Square Error	1.10709
Mean of Response	0.242424
Observations (or Sum Wgts)	33

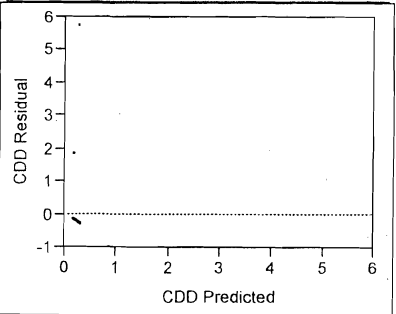
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.065508	0.06551	0.0534
Error	31	37.995098	1.22565	Prob > F
C. Total	32	38.060606		0.8187

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-9.073752	40.29752	-0.23	0.8233
year	0.0046791	0.02024	0.23	0.8187

**Residual by Predicted Plot**



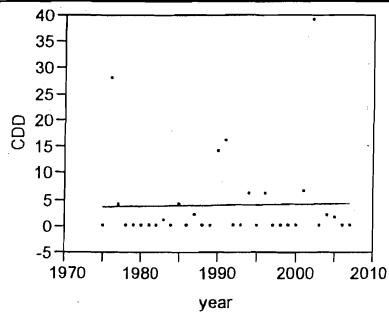
DEGREEDAYSELEC- Fit Least Squares

Response CDD month=4

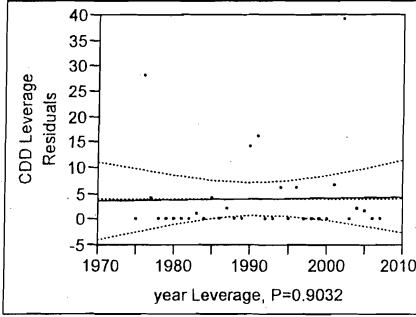
Whole Model

year

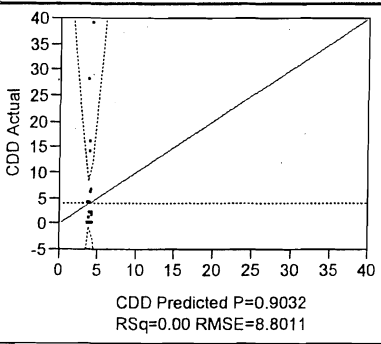
Regression Plot



Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.000484
RSquare Adj	-0.03176
Root Mean Square Error	8.801054
Mean of Response	3.939394
Observations (or Sum Wgts)	33

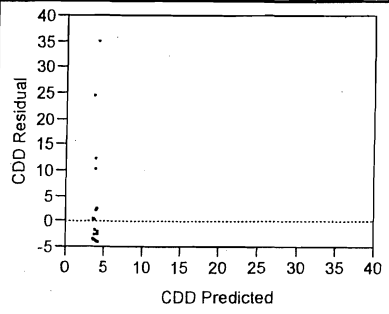
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.1634	1.1634	0.0150
Error	31	2401.2154	77.4586	Prob > F
C. Total	32	2402.3788		0.9032

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-35.32164	320.354	-0.11	0.9129
year	0.0197193	0.160899	0.12	0.9032

Residual by Predicted Plot



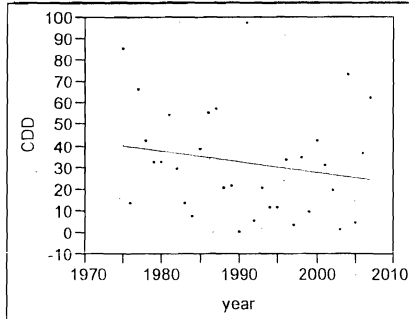
DEGREEDAYSELEC- Fit Least Squares

Response CDD month=5

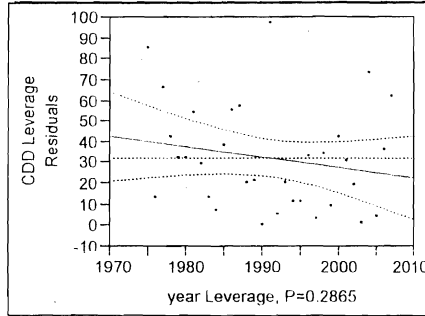
Whole Model

year

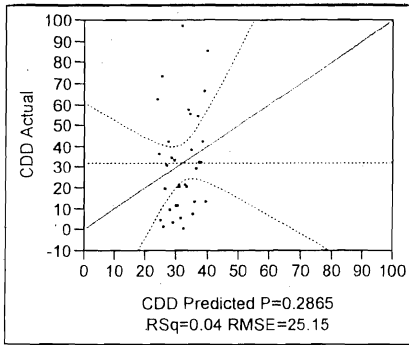
Regression Plot



Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.036557
RSquare Adj	0.005478
Root Mean Square Error	25.14999
Mean of Response	31.95455
Observations (or Sum Wgts)	33

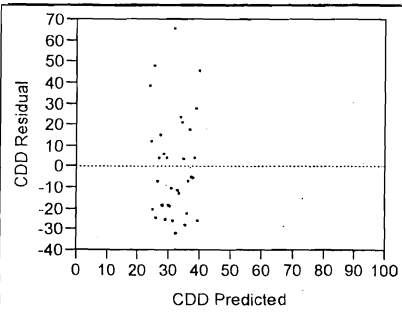
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	744.005	744.005	1.1763
Error	31	19608.176	632.522	Prob > F
C. Total	32	20352.182		0.2865

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	1024.7928	915.447	1.12	0.2715
year	-0.498663	0.459787	-1.08	0.2865

Residual by Predicted Plot



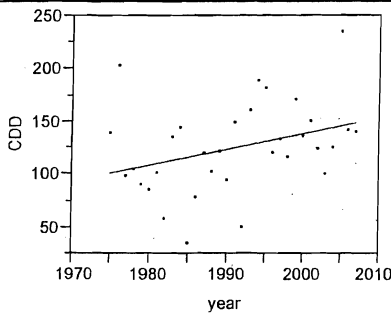
DEGREEDAYSELEC- Fit Least Squares

**Response CDD month=6**

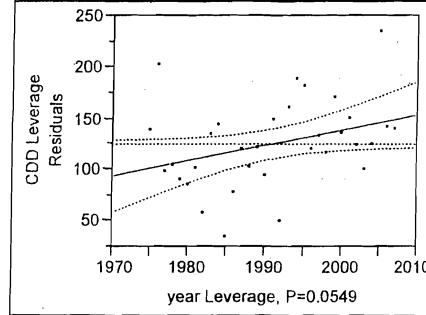
**Whole Model**

**year**

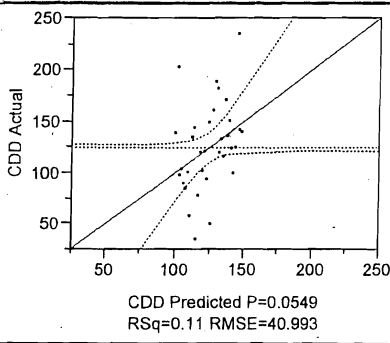
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.113766
RSquare Adj	0.085178
Root Mean Square Error	40.99263
Mean of Response	124.1667
Observations (or Sum Wgts)	33

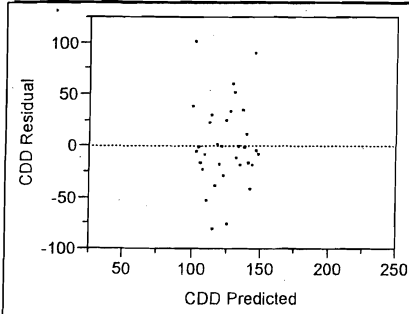
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	6687.075	6687.08	3.9795
Error	31	52092.258	1680.40	Prob > F
C. Total	32	58779.333		0.0549

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-2852.352	1492.111	-1.91	0.0652
year	1.4949866	0.749419	1.99	0.0549

**Residual by Predicted Plot**



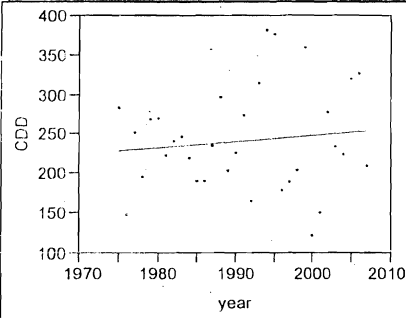
EGREEDAYSELEC- Fit Least Squares

**Response CDD month=7**

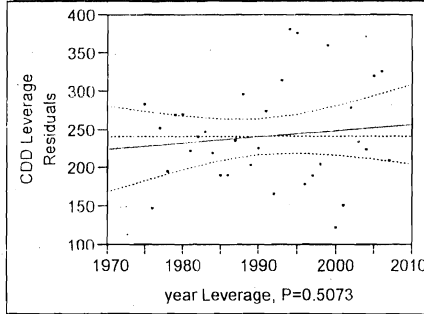
**Whole Model**

year

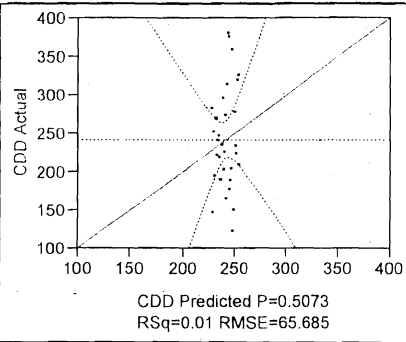
**Regression Plot**



**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.014306
RSquare Adj	-0.01749
Root Mean Square Error	65.68526
Mean of Response	241.0606
Observations (or Sum Wgts)	33

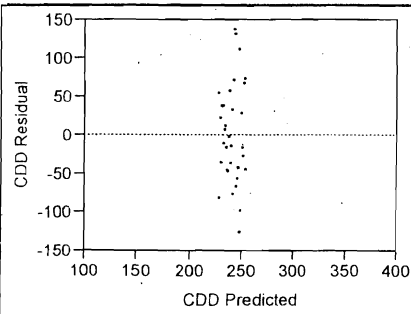
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1941.21	1941.21	0.4499
Error	31	133751.17	4314.55	Prob > F
C Total	32	135692.38		0.5073

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-1362.653	2390.911	-0.57	0.5728
year	0.8054813	1.200846	0.67	0.5073

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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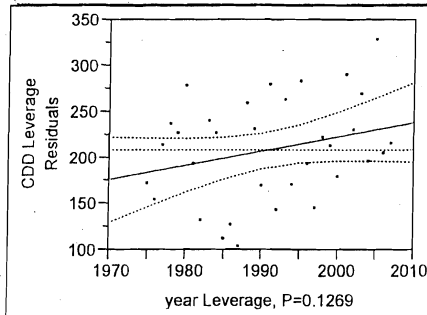
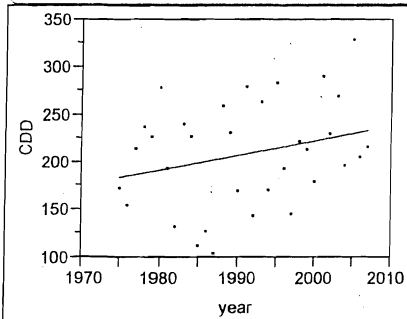
Response CDD month=8

Whole Model

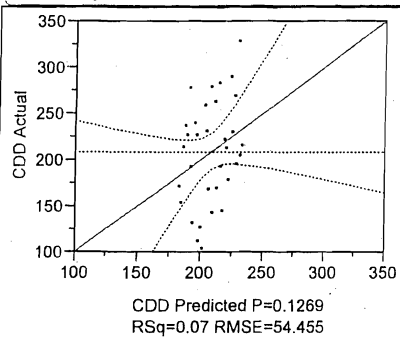
year

Regression Plot

Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.073525
RSquare Adj	0.043639
Root Mean Square Error	54.45524
Mean of Response	208.1061
Observations (or Sum Wgts)	33

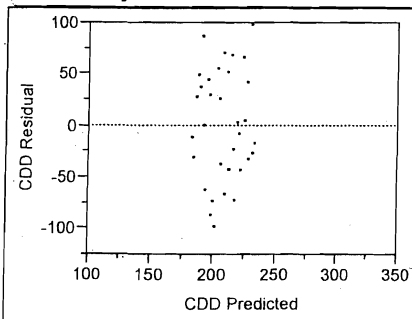
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	7295.316	7295.32	2.4602	
Error	31	91926.563	2965.37		0.1269
C. Total	32	99221.879			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-2900.835	1982.144	-1.46	0.1534
year	1.5614973	0.99554	1.57	0.1269

Residual by Predicted Plot



EGREEDAYSELEC- Fit Least Squares

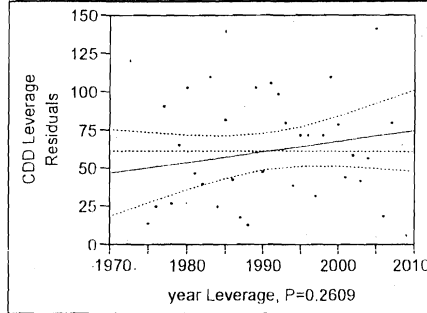
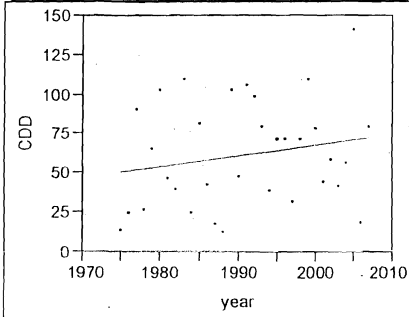
**Response CDD month=9**

**Whole Model**

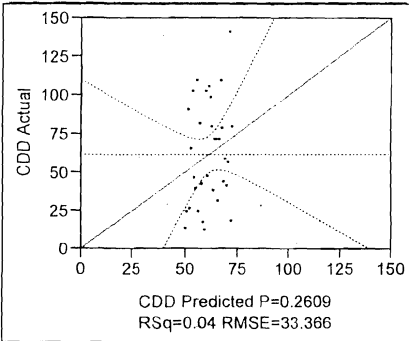
**year**

**Regression Plot**

**Leverage Plot**



**Actual by Predicted Plot**



**Summary of Fit**

RSquare	0.040585
RSquare Adj	0.009636
Root Mean Square Error	33.36622
Mean of Response	61.39394
Observations (or Sum Wgts)	33

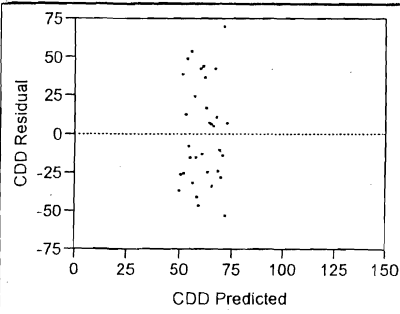
**Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1459.926	1459.93	1.3113
Error	31	34512.452	1113.30	<b>Prob &gt; F</b>
C. Total	32	35972.379		0.2609

**Parameter Estimates**

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-1329.378	1214.514	-1.09	0.2821
year	0.6985294	0.609995	1.15	0.2609

**Residual by Predicted Plot**



DEGREEDAYSELEC- Fit Least Squares

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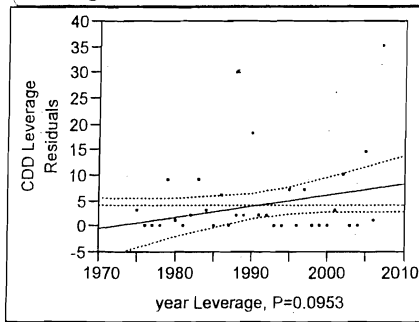
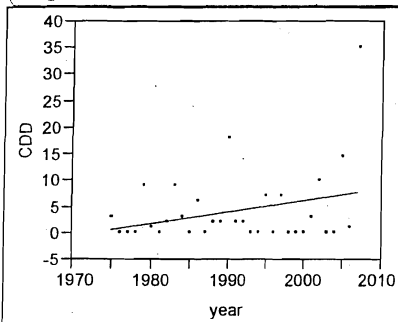
Response CDD month=10

Whole Model

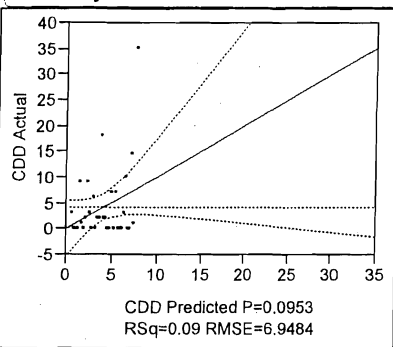
year

Regression Plot

Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.087186
RSquare Adj	0.05774
Root Mean Square Error	6.948388
Mean of Response	4.136364
Observations (or Sum Wgts)	33

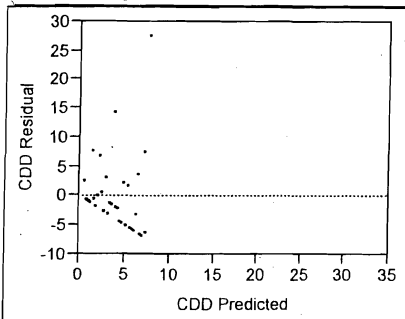
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	142.9532	142.953	2.9609
Error	31	1496.6832	48.280	Prob > F
C. Total	32	1639.6364		0.0953

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-431.0622	252.9179	-1.70	0.0983
year	0.2185829	0.127029	1.72	0.0953

Residual by Predicted Plot



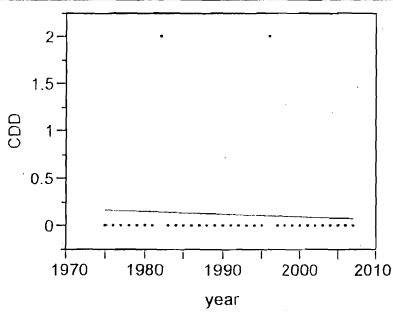
EGREEDAYSELEC- Fit Least Squares

Response CDD month=11

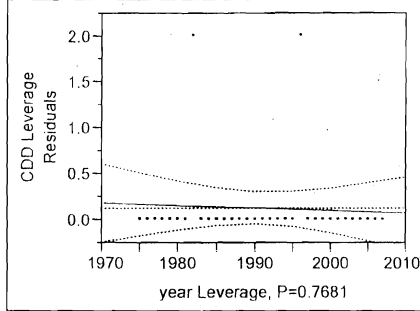
Whole Model

year

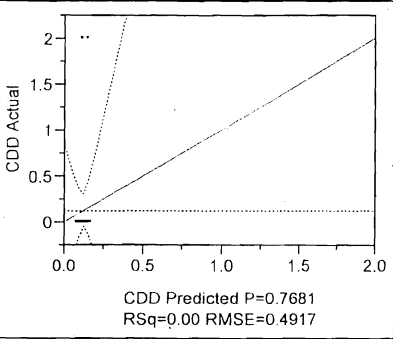
Regression Plot



Leverage Plot



Actual by Predicted Plot



Summary of Fit

RSquare	0.002846
RSquare Adj	-0.02932
Root Mean Square Error	0.491665
Mean of Response	0.121212
Observations (or Sum Wgts)	33

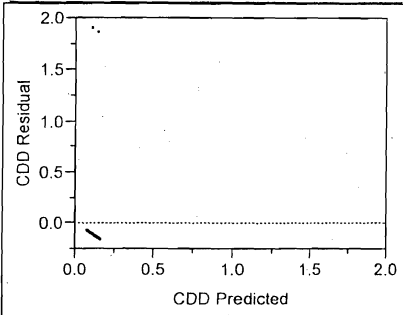
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0213904	0.021390	0.0885
Error	31	7.4937611	0.241734	Prob > F
C. Total	32	7.5151515		0.7681

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	5.4447415	17.89635	0.30	0.7630
year	-0.002674	0.008989	-0.30	0.7681

Residual by Predicted Plot



DEGREEDAYSELEC- Fit Least Squares

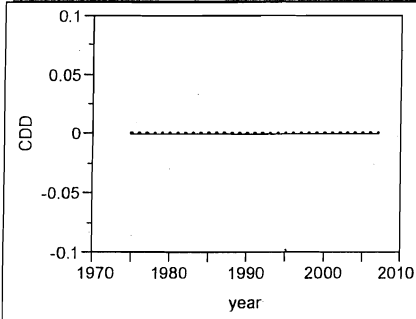
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Response CDD month=12

Whole Model

year

Regression Plot



Summary of Fit

RSquare .  
RSquare Adj .  
Root Mean Square Error 0  
Mean of Response 0  
Observations (or Sum Wgts) 33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	0	0		
Error	31	0	0		
C. Total	32	0			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	0	0		
year	0	0		