Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

June 23, 2004

CERTIFIED MAIL - Return Receipt Requested

Mr. Michael R. Olive
Plant Manager and Primary Responsible Official
Progress Energy Florida, Inc.
Crystal River Fossil Plant
15760 West Powerline Street
Crystal River, Florida 34428

Dear Mr. Olive:

RE: Designated Representative

The Department received your package containing the identity of additional Responsible Officials and a Designated Representative for the Crystal River Fossil Plant. For Mr. J. Michael Kennedy, who was listed as the Designated Representative, please provide us with a copy of the Certificate of Representation submitted to EPA pursuant to 40 CFR 72, Subpart B, for him.

If there are any questions, please give Bruce Mitchell a call at 850/413-9198 or write to me at the above letterhead address.

Sincerely,

Trina L. Vielhauer
Chief
Bureau of Air Regulation

TLV/rbm

cc: Bruce Mitchell, BAR

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Michael R. Olive
Plant Manager and Primary
Responsible Official
Progress Energy Florida, Inc.
Crystal River Fossil Plant
15760 West Powerline Street
Crystal River, Florida 34428

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Mary Bennett ☒ Agent ☐ Addressee

B. Received by (Printed Name) MARY BENNETT
C. Date of Delivery 6-25-09

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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☐ Registered ☐ Return Receipt for Merchandise
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2. Article Number
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PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

U.S. Postal Service
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OFFICIAL USE

Mr. Michael R. Olive, Plant Manager and R.O.

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Return Receipt Fee (Endorsement Required)	
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Total Postage & Fees	$

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Sent To Mr. Michael R. Olive, Plant Manager and R.O.
Street, Apt. No.; or PO Box No. 15760 West Powerline Street
City, State, ZIP+4 Crystal River, Florida 34428

PS Form 3800, January 2001 See Reverse for Instructions

Progress Energy

Michael Olive
Plant Manager
Crystal River Fossil Plant

September 22, 2004

Mr. Al Linero, P.E.
Program Administrator
Permitting South Section
Florida Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

RE: DRAFT Title V Permit Renewal No. **0170004-009-AV**
Crystal River Energy Center

Dear Mr. Linero:

Progress Energy Florida (PEF) is in receipt of you letter dated July 22, 2004. The letter indicates that the Department has begun review of our recent application for renewal of the Title V Permit for the above-referenced facility. The Department has deemed the application incomplete due to the need for additional information relative to the compliance assurance monitoring (CAM) plan, as well as several other requests for clarification. The Department's comments are addressed below in the order in which they were received.

DEP Comment

EPA generally accepts Part 75 CEMS as Part 60 CEMS provided the requirements of both parts are met. Although the language Progress is proposing appears to be acceptable, the Department requests that Progress define the NO_X and SO_2 spans, to be certain that the requirements of both parts are indeed met. This is what Progress has proposed:

B.14 Pursuant to 40 CFR 60.45 Emission Monitoring

CMS for Opacity, SO_2, NO_X and CO_2 are required:
(a) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and carbon dioxide except as provided in 40 CFR 60.45(b).
(c) For performance evaluations under 40 CFR 60.13 (c) and calibration checks under 40 CFR 60.13 (d), the following procedures shall be used:

(1) Methods 6, 7, and 3B, as applicable, shall be used for the performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Acceptable alternative methods for Methods 6, 7 and 3B are given in 40 CFR 60.46(d).
(2) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B to 40 CFR 60.
(3) For affected facilities burning fossil fuel(s), the span value for a continuous monitoring system measuring the opacity of emissions shall be 80, 90 or 100 percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the

Progress Energy Florida, Inc.
Crystal River Steam Plant
15760 W. Powerline Street
Crystal River, FL 34428

span value shall be determined ~~as follows~~: per the applicable requirements in 40 CFR Parts 60 and 75.

~~*[In parts per million]*~~

~~*Fossil Fuel*~~	~~*Span Value for sulfur dioxide*~~	~~*Span value for nitrogen oxides*~~
~~*Gas*~~	~~*(1)*~~	~~*500*~~
~~*Liquid*~~	~~*1,000*~~	~~*500*~~
~~*Solid*~~	~~*1,500*~~	~~*1000*~~
~~*Combinations*~~	~~*1,000y + 1,500z*~~	~~*600 (x+y) + 1,000z*~~

~~*(1) Not applicable*~~

~~*where:*~~

~~*x = the fraction of total heat input derived from gaseous fossil fuel, and*~~
~~*y = the fraction of total heat input derived from liquid fossil fuel, and*~~
~~*z = the fraction of total heat derived from solid fossil fuel.*~~

Response

The Department's understanding of PEF's requested language, reiterated above for clarity, is correct. In addition, the Department's statement that, the EPA generally accepts Part 75 CEMS as Part 60 CEMS, provided the requirements of both parts (when not in conflict) are met, is consistent with PEF's understanding of the applicable requirements. Regarding the CEM span issue, it's clear that Part 60 and Part 75 have different span requirements and it's difficult, if not impossible, to meet both standards simultaneously. PEF is required to use the lower, more conservative and more accurate span to meet the Part 75 requirements. Part 75 also requires an evaluation of each span once per year, which would result in a required upward adjustment if there was an exceedance of the span. In other words, it's not a fixed span range. The current span for NOx is 600 ppm and the span for SO_2 is 700 ppm.

The request to remove the above language originated from a Department audit. In an e-mail message, Errin Pichard (DEP Administrator, Monitoring) stated that he "agree(s) that the span requirements for Units 4 and 5 should be removed since it only adds to the confusion. Just to clarify things, EPA's opinion is that if a unit is in compliance with Part 75 requirements, then it is assumed that the unit is also complying with Part 60. I am only speaking of QA requirements such as span levels, RATAs, etc. There may be different reporting requirements for the two parts that the facility must continue to meet." These comments from Mr. Pichard would seem to indicate concurrence with PEF's request.

DEP Comment

Regarding Emissions Unit 016 (Material handling activities for coal-fired steam units), Progress has proposed to conduct VE's "as needed". The permit (subsection H.) currently incorporates emission limiting standards (see Specific Conditions H.1., H.2, and H.3), thus annual compliance is required as per 62-297.310(7)(a).

Response

Material handling activities onsite are covered by several subsections of the current TV permit (i.e., Subsections C, D and H). In the case of the emissions units covered by Subsections C and D, there are permit conditions (C.5 and D.4, respectively) specifically stating that testing is required annually. The additional requirement is included to conduct weekly Method 22 testing and to follow-up with Method 9 testing if warranted. Conversely, Subsection H (Emission Unit 016) does not have a condition that specifically requires annual VE testing. The Method 22 language is included in Subsection H, just as it is for Subsections C and D, and provides the basis for determining the Method 9 testing frequency. Therefore, Progress requests Department concurrence that, indeed, Method 9 testing is to be conducted for this unit on an "as-needed" basis, as determined by the Method 22 requirement.

DEP Comment

Regarding Emissions Unit 015 (Cooling towers for the FFSG Units 4 and 5 used to reduce plant discharge water temperature), the Progress proposal is show for clarity only:

> *G.5 Inspection. The drift eliminators of both towers shall be inspected from the concrete walkways not less than every three months by ~~Florida Power Corporation~~ Progress Energy Florida staff or representatives to assure that the drift eliminators are clean and in good working order. Not less than annually, a complete inspection of the towers shall be conducted by a ~~manufacturer or drift eliminators or by a consultant~~ qualified inspector with recognized expertise in the field.*
> *Certification that the drift eliminators are properly installed and in good working order shall be ~~made at the time of submission of the reports~~ provided in the record keeping and reporting requirements noted below. [Rule 62-213.440, F.A.C.; and, Modified PSD permit, PSD-FL-007, issued by EPA 11/30/88].*
>
> *G.8 Reporting. Reports on tower testing and inspection shall be ~~submitted~~ handled as follows:*
> *a. Maintained within onsite files within 30 days after all visual inspections of the drift eliminators.*
> *b. Agency submittal within 45 days after the compliance testing of either tower.*
> *[Rule 62-213.440, F.A.C.; and Modified PSD permit, PSD-FL-007, issued by EPA 11/30/88]*

Response

The Department's understanding of PEF's requested language, reiterated above for clarity, is correct.

DEP Comment

Regarding the "List of Unregulated Emissions Units and/or Activities" as well as the "List of Insignificant Emissions Units and/or Activities", the Department has attached the Progress proposal. Please confirm its correctness and provide the rationale for each change requested.

Response

PEF's requested list of insignificant emissions units/activities is accurate, as depicted in the Department's comment letter. However, the Department's revised unregulated list is slightly different than what was requested. The requested list is attached with the items shaded that were in our original version, but not in the Department's version. The rationale for each change requested is that these activities are either no longer taking place at the site (request for deletion), or include recently initiated activities (request for addition) that are accurately characterized as unregulated or insignificant.

DEP Comment

Acid Rain Program—NOx Averaging Plan. Based upon the Department's review of the proposed NO_X Averaging Plan, Progress has requested an increase in potential NO_X emissions totaling over 6,000 TPY, from the four Crystal River Plant coal-burning units. The request appears to be arithmetically justified based upon an offsetting reduction of over 6,000 TPY of NO_X at four plants located in North Carolina. In order to better understand the impacts of this increase, as well as to ensure that the NAAQS are not violated for any of the criteria pollutants, the Department requests that Progress Energy provide modeled impacts to the Class I and Class II areas. Additionally, please discuss the Class I visibility/haze impacts, based upon the requested PTE increase of NO_X emissions.

Response

The Crystal River coal units (1, 2, 4 and 5) are included in the Progress Energy system-wide averaging plan for purposes of Acid Rain compliance. Progress' expectations are that emissions will remain constant and the CR units are only being incorporated into the system-wide average for purposes of ensuring compliance with Title IV. We were not able to reproduce the Department's estimated emissions increase, but wish to make some clarifying points:

- Using system-wide averaging ensures compliance with Acid Rain NOx limitations.
- Acid Rain program provisions allow averaging to achieve compliance, and it is widely used.
- Progress does not anticipate an increase in NOx emissions from these units, and fully expects to install SCR or similar NOx reduction technology as a result of CAIR, BART, or other regulatory mechanisms that may be implemented as early as 2010.
- DEP permitting staff has requested a modeling analysis for the "emission increase" of 6,000 tons/year.
    - Emissions are not expected to increase.

- There is no physical change or change in the method of operation associated with this averaging plan – current operation will continue.

Mike Kennedy, Paul Lewis and Ann Quillian of Progress met with Trina Vielhauer and Mike Halpin of DEP on August 27 to discuss this issue. At the meeting, Ms. Vielhauer and Mr. Halpin requested that Progress consider accepting a state-only annual average NOx limit of 0.50 lb/mmBtu for Units 4 and 5 in order to ensure that emissions do not increase. This proposal is acceptable to Progress. Therefore, a unit-specific, state-only limit of 0.50 lb/mmBtu would apply to Units 4 and 5, but Progress would continue to rely on the emissions averaging plan for purposes of Acid Rain program compliance. This ensures that NOx emissions from Crystal River will not increase while maintaining the flexibility provided for in the federal Acid Rain program. Also, because this will ensure that emissions will not increase, a modeling analysis is not necessary.

DEP Comment

Based upon the Department's review of the proposed CAM plan, Progress proposes to utilize opacity as the indicator of ESP performance, and specifically establishes CAM Plan trigger levels at opacity of 10% below the steady state limit on each unit. The use of the COMS for recording opacity is proposed by Progress, even though page 5 of the submittal states "As shown, there is almost no correlation between opacity and PM (lb/MMBtu)." Although somewhat scattered with no linear relationship clearly apparent, there does appear to be some increasing trends between PM emissions and opacity. The proposed indicator ranges of 18% and 36% opacity are not acceptable because the test data (as shown in the graphs provided) does not imply that compliance with the PM limits can be met at these opacity levels. Further, in the case of unit 1, a 36% VE appears to be a violation of the standard. In order to satisfy CAM with opacity as the only indicator, the maximum acceptable opacity for defining an excursion would be 11%, which represents the highest opacity level documented by the COMS while affirmatively meeting the PM emission limit. Because the COMS is required by the permit, pursuant to 40 CFR 64.3, it is required to be used as part of the approvable CAM plan. However, given the poor correlation between PM and opacity, the Department encourages Progress to consider alternative indicators.

EPA intends for affected sources to develop a CAM plan based on current process and control device operating requirements and practices. The plan should use indicator ranges for one or more key operating parameters (for example, mass flow, temperature, pressure) and one or more key control device parameters (for example, voltage, current, power, sections in service) to establish reasonable assurance that emissions are within compliance limits. Possible ESP operating indicators are the operating voltage, operating current, corona, total power, spark rate, number of fields in service, or rapping intensity, rate and frequency. Key parameters should be identified and indicator ranges selected, using design information, historical data and/or actual test data. The CAM plan must be developed such that data collected for each parameter is representative and meets any applicable installation specification.

Please provide either, a statement that Progress would like to use the COMS as the indicator with an excursion level of 11% opacity, or a new CAM plan that utilizes the COMS as one indicator and one of the above parameters as a second indicator. In this case, the COMS would be used to measure and record any sudden and sustained increase in opacity as a possible excursion as one of the indicators. A second indicator would also need to be established from the examples given

above. The chosen indicator range must be clearly and adequately justified for the application to be deemed complete.

Response

Based on the Department's comments, PEF has conducted additional, more rigorous statistical analyses on the five years of most recent data available for each of the four units. The revised CAM Plan is presented in Attachment 2 to this letter; the accompanying statistical analysis is presented in Appendix A to the revised CAM Plan. In Appendix A, the printout named "Preliminary Stats Report.RTF" contains a preliminary statistical analysis using the opacity and particulate matter (PM) data sets. The four Multiple Regression Reports, which are included in this printout (one report for each unit; 4 pages per report; total of 16 pages), show the results for simple linear regressions between Particulate Matter (PM), the dependent variable, and opacity (OP), which is the independent variable. Also shown in this printout are box plots for the four units, for both PM and OP data. The box plots suggest that the lack of statistical significance in the Unit 5 regression could be due to the limited range of the data for both PM and OP. Unit 5 has the smallest range of values for both variables. The box plots also suggest that Unit 1 is significantly different from Units 2, 4 and 5. To test this hypothesis, ANOVA tests were conducted on the PM and the OP data. The results of the ANOVA tests, which are included in the above referenced printout, show that there is a statistical difference. Furthermore, the Duncan's Multiple-Comparison Test of the means and the Kruskal-Wallis Multiple-Comparison Test of the medians show that Unit 1 is significantly different from Units 2, 4 and 5. The analysis also shows that the data for Units 2, 4 and 5 are not statistically different from each other. Consequently, it is reasonable to combine the data from Units 2, 4 and 5 to develop a more powerful relationship between PM and OP. The analyses previously submitted were conducted separately for each unit and didn't demonstrate, in all cases, a statistically significant correlation.

Several relationships were investigated to determine the strongest regression; these included linear, log-linear and log-log relationships between the OP and PM variables. The results are provided in printouts "CR Unit 1 Report.RTF" and "CR Units 245 Report.RTF." The physics of the relationship suggests that as OP goes to zero, PM should also approach zero. Consequently, the following log transformations were used in the regressions:

$LOG_{10}(OP+1.0)$

$LOG_{10}(PM+1.0)$

For both data sets (Unit 1 and Units 2, 4, and 5 combined) the strongest relationship (i.e., the largest R^2) was found with the Log-Log regression. This regression relationship also gave some of the best regression results, as measured by the normality of the residuals. When the intercept of the regression was not statistically significant, the regression was also calculated with the intercept set to zero. The strongest regression model for each data set is shown below:

$LOG_{10}(PM+1.0) = 0.0180*(LOG_{10}(OP+1.0))$ ($R^2 = 0.8595$ for CR Unit 1),
which can be rewritten as,

$PM = (OP+1.0)^{0.0180} - 1.0$ (for CR Unit 1), and

$LOG_{10}(PM+1.0) = 0.00780*(LOG_{10}(OP+1.0))$ ($R^2 = .9285$ for CR Units 2, 4, and 5),

which can be rewritten as,

$$PM = (OP+1.0)^{0.00780} - 1.0 \quad \text{(for CR Units 2, 4, and 5).}$$

The regression results and plots are provided in the printout titled "CR Results Log Log.xls", and in Figures 1 and 2 (Unit 1 and Units 2, 4 and 5, respectively). These plots show the mean regression, the upper and lower 90 percent confidence limits for the mean, and the upper and lower 90 percent confidence limits for the individual values. These results show for Unit 1 that an opacity reading of 29 percent will correspond, 90 percent of the time, with PM values less than the 0.1 Lb/MMBtu standard. The results for Units 2, 4 and 5 show that an opacity reading of 15 percent (the furthest that you can reasonably extrapolate the opacity values) will correspond, 90 percent of the time, with a PM value less than 0.03 Lb/MMBtu, which is significantly below the 0.1 standard.

The Department's recommendation to use 11% opacity as the excursion trigger level is based on the fact that opacity has not been greater than this level during the last five years of testing events for Units 2, 4 and 5. While this is true, the corresponding PM values at the 11% opacity levels were no higher than 0.03 lb/MMBtu for all three units (i.e., less than one-third of the standard). The purpose of the statistical analysis is to enable an extrapolation of the data set to opacity values that theoretically correspond to PM levels close to the standard, with some margin. PEF has concluded that excursion levels of 15% (3-hour average) for Units 2, 4 and 5, as well as 29% (3-hour average) for Unit 1, represent values that can provide reasonable assurance that the PM standard is being met for each of these units. As previously indicated, the revised CAM Plan is provided in Attachment 2 to this letter and the accompanying statistical analysis is provided in Appendix A to the revised CAM Plan.

The Department has also commented that the CAM plan should be based on current process and/or control device operating parameters. ESP operating indicators that could affect unit efficiency are the operating voltage, operating current, corona, total power, spark rate, number of fields in service, or rapping intensity, rate and frequency. Based on the significance of these parameters and the availability of design information, historical data and/or actual test data, it was decided to assess ESP power levels. PM emissions for Unit 1 were compared with total ESP power (kW) to determine if a correlation could be made. As shown in Figure 3 (Appendix A of the revised CAM Plan), no correlation exists. In fact, the trend indicates increased PM emissions with increased power. Historic ESP power values are not normally maintained by the site, so data available to develop a representative trigger level at Unit 1, as well as to develop correlations at the other units, is very limited. Collection efficiency is affected by several factors, including particle resistivity, gas temperature, chemical composition (of the dust and gas) and particle size distribution. In this limited assessment, the affect of the variability in power levels on resultant PM levels may be outweighed by these factors.

<u>DEP Comment</u>

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-213.420(1)(b), F.A.C., requires applicants to respond to

requests for information within 90 days, unless the applicant has requested in writing, and has been granted, additional time within 90 days.

Response

This response, submitted within the 90 day timeframe and signed and certified by a Florida PE, addresses the above comment. The PE certification is included in Attachment 2 with the revised CAM Plan.

Progress Energy appreciates your consideration of the above responses. If you should have any questions, please don't hesitate to contact Dave Meyer at (727) 826-4187 or Scott Osbourn at (813) 287-1717.

Sincerely,

Mike Olive
Responsible Official

Attachments

xc: Tom Casio, DEP BAR

ATTACHMENT 1

Revised Unregulated Emissions Unit List

List of Unregulated Emissions Units and/or Activities.

Progress Energy Florida
Crystal River Plant

E.U. ID No.	Brief Description of Emissions Units and/or Activity
017	Fuel and lube oil tanks and vents[1]
018	Sewage treatment, water treatment, lime storage[2]
019	Three 3500 kW diesel generators associated with Unit 3

Notes:

1 This unregulated emissions unit consists of the following facilities:

Associated with Units 1 and 2:
Number 2 fuel oil, 210,000 gal capacity, tank # 10
Lube oil vents, one each at Unit 1 and 2.
Rotoclone with air filter at Unit 1.
Oil vent at Unit 1.

Associated with Unit 3:
Equipment diesel tanks, tanks 2 through 8, 15, 16, 22 and 23, capacities from 30 gallons to 30,118 gallons.
Lube oil tank, 25,000 gallon capacity, tank #9.
Two small cooling towers west of Main Building.
Two lube oil vents.

Associated with Units 4 and 5:
Number 2 fuel oil, 256,200 gal capacity, tank # 1, and 255,318 gal capacity, tank # 2.
Equipment diesel tanks, tanks 3 and 4, capacity of 250 gallons, each.
Lube oil tank, 30,000 gallon capacity, tank #16.
Lube oil vents.

Associated with the Crystal River Site:
Equipment diesel tanks, E.O.F. #01, capacity of 2,000 gallons and E.O.F. # 02, capacity of 25 gallons.
Waste oil tank, Garage # 01, 150 gallon capacity.
Mineral spirits tanks, O.C. # 01, 80 gallon capacity, N. Sub. # 04, 1,100 gallon capacity.
Transmission oil tanks, N. Sub. # 01 through 03, capacity of 1,100 gallons each.

UST for diesel - 2 @ 10,000 gal each

UST for gasoline - one @ 10,000 gal each

2 This unregulated emissions unit consists of the following facilities:

Associated with Units 1, 2, 4 and 5:
Water treatment systems for all EUSGUs

Sewage treatment plant.

Lime storage

ATTACHMENT 2

Revised CAM Plan
and
CAM Plan Statistical Analysis

Professional Engineer Certification

2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.**
   Street Address: **5100 West Lemon St., Suite 114**
   City: **Tampa** State: **FL** Zip Code: **33609**

1. Professional Engineer Name: **Scott Osbourn**
   Registration Number: **57557**

3. Professional Engineer Telephone Numbers...
   Telephone: **(813) 287-1717** ext. **211** Fax: **(813) 287-1716**

4. Professional Engineer Email Address: **sosbourn@golder.com**

5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☐, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☒, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature Date 9/17/04

(seal)

SCOTT H. OSBOURN CERTIFICATE NO. 57557 STATE OF FLORIDA PROFESSIONAL ENGINEER

* Attach any exception to certification statement.

COMPLIANCE ASSURANCE MONITORING PLAN
(CAM PLAN)

FOR

Crystal River Plant

Progress Energy Florida
Citrus County, Florida

September, 2004

I. EMISSION UNITS REQUIRING CAM PLANS

A. CAM Rule Applicability Definition

Progress Energy Florida (Progress) was issued a Title V Air Operation Permit (Permit No. 0170004-004-AV) that was effective January 1, 2000 for their Crystal River Plant. The current permit, unless renewed through submittal of an application to the Florida Department of Environmental Protection (FDEP), expires on December 31, 2004. To be considered timely and sufficient, as defined in Rule 62-4.090 of the Florida Administrative Code, a renewal application must be submitted no later than 180 days prior to the expiration date of the permit.

As part of these Title V renewal applications, EPA, through regulations adopted in Title 40, Part 64 of the Code of Federal Regulations (40 CFR 64), is requiring submittal of Compliance Assurance Monitoring (CAM) Plans. This regulation has been incorporated by reference by FDEP in Rule 62-204.800 and implemented in Rule 62-213.440.

CAM plans are required for all Title V permitted emission units using control devices to meet federally enforceable emission limits or standards with pre-control emissions greater than "major" source thresholds. The term "major" is defined as in the Title V Regulations (40 CFR 70), but applied on a source-by-source basis. However, there are some specific exemptions to the applicability of the CAM Rule.

Specifically exempted from the CAM Rule are emissions units subject to requirements under Stratospheric Ozone Regulations (40 CFR 82), the Acid Rain Program (40 CFR 72), or that are part of an emission cap included in the Title V Permit. Also exempt are emission units subject to New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 63) promulgated after 11/15/1990, as these sources have equivalent monitoring requirements included as part of the standard.

B. Emissions Units Requiring CAM Plans

A review of emission units at Crystal River was conducted to determine the applicability of the CAM Rule. This evaluation was conducted for each emission unit and pollutant. First, the

existence of a "control device" as defined by the CAM Rule was determined on a source-by-source basis for each pollutant. Those emission units without control devices were eliminated from further consideration. The remaining emission units were then evaluated on a pollutant-by-pollutant basis to determine if a control device was used to meet a federally enforceable emission limit or standard. Each pollutant without a federally enforceable emission limit or standard, emitted from a given emission unit, was eliminated from further consideration. Uncontrolled annual emissions were then calculated for each remaining source-pollutant combination. If uncontrolled emissions for a pollutant emitted from a given emission unit source were below major source thresholds as defined by the CAM Rule, that pollutant was not further considered. This evaluation process resulted in a determination that Units 1, 2, 4 and 5 (DEP Permit Nos. 001, 002, 004 and 003, respectively) are subject to the CAM requirements. Specific exemptions to the applicability of the CAM Rule were also considered in this evaluation.

Crystal River Unit 1 (E.U. ID No. 001)

Fossil Fuel Steam Generator Unit 1 is a tangentially fired pulverized coal dry bottom unit. The unit is rated at 440.5 MW and 3,750 MMBtu/hr while burning bituminous coal or a bituminous coal and bituminous coal briquette mixture. Distillate fuel oil may be burned as a startup fuel. This unit may also burn oily flyash. Emissions are controlled from each unit with a high efficiency electrostatic precipitator, manufactured by Buell Manufacturing Company, Inc. Emissions are exhausted through a 499 ft. stack.

This emission unit is regulated under Acid Rain, Phase I and II and Rule 62-296.405, F.A.C. and Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input, conditions. Fossil fuel fired steam generator Unit 1 began commercial operation in 1966.

Crystal River Unit 2 (E.U. ID No. 002)

Fossil Fuel Steam Generator, Unit 2 is a tangentially fired pulverized coal dry bottom unit. The unit is rated at 523.8 MW and 4,795 MMBtu/hr while burning bituminous coal or a bituminous coal and bituminous coal briquette mixture. Distillate fuel oil may be burned as a startup fuel. .

This unit may also burn oily flyash and used oil. Emissions are controlled from each unit with a high efficiency electrostatic precipitator, manufactured by Buell Manufacturing Company, Inc. Emissions are exhausted through a 502 ft. stack

This emission unit is regulated under Acid Rain, Phase I and II and Rule 62-296.405, F.A.C. and Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input conditions. Fossil fuel fired steam generator Unit 2 began commercial operation in 1969.

Crystal River Unit 4 (E.U. ID No. 004)

Fossil Fuel Steam Generator, Unit 4 is a pulverized coal dry bottom wall-fired unit. The unit is rated at 760 MW and 6,665 MMBtu/hr while burning bituminous coal, a bituminous coal and bituminous coal briquette mixture, with distillate fuel oil as a startup and low-load flame stabilization fuel, and natural gas as a startup and low-load flame stabilization fuel. Emissions are controlled with a high efficiency electrostatic precipitator, manufactured by Combustion Engineering. Emissions are exhausted through a 600 ft. stack

This emission unit is regulated under Acid Rain, Phase I and II and Rule 62-210.300, F.A.C., 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971; and, Power Plant Siting Certification PA 77-09 conditions. Fossil fuel fired steam generator Unit 4 began commercial operation in 1982.

Crystal River Unit 5 (E.U. ID No. 003)

Fossil Fuel Steam Generator, Unit 5 is a pulverized coal dry bottom wall-fired unit. The unit is rated at 760 MW and 6,665 MMBtu/hr while burning bituminous coal, a bituminous coal and bituminous coal briquette mixture, with distillate fuel oil as a startup and low-load flame stabilization fuel, and natural gas as a startup and low-load flame stabilization fuel. Emissions are controlled with a high efficiency electrostatic precipitator, manufactured by Combustion Engineering. Emissions are exhausted through a 600 ft. stack

This emission unit is regulated under Acid Rain, Phase I and II and Rule 62-210.300, F.A.C., 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971; and, Power Plant Siting Certification PA 77-09 conditions. Fossil fuel fired steam generator Unit 5 began commercial operation in 1984.

II. CAM PLAN FOR PARTICULATE EMISSIONS

A. Emissions Units Background

Compliance testing is required annually for particulates and for visible emissions (VE) for these four units. In addition, a continuous opacity monitoring system (COMS) is required to be used to record the opacity of the stack flue gas. The COMS must be properly calibrated, operated, and maintained in accordance with Rule 62-297.520, F.A.C. In addition, the current TV permit contains language (Condition A.19) that correlates opacity with periodic monitoring requirements as follows:

COMS for Periodic Monitoring:

a. Periodic monitoring for opacity shall be COMS, which are maintained and operated in conformance with 40 CFR Part 75.

b. Periodic monitoring for particulate matter shall be COMS. For any calendar quarter in which more than five percent of the COMS readings show 20% or greater opacity for Units 2, 4, and 5 and 30% or greater opacity for Unit 1 (excluding startup, shutdown, and malfunction periods), a steady-state particulate matter stack test shall be performed within the following calendar quarter. Due to the allowed opacity level of 60% for sootblowing and load changing periods for Units 1 and 2, periods of sootblowing and load changing shall also be excluded for those units. The stack test shall comply with all of the testing and reporting requirements contained in the preceding specific conditions and, where practicable, shall be performed while operating at conditions representative of those showing greater than 20% opacity (30% for Unit 1). Units are not required to be brought on-line solely for the purpose of performing this special test. If the unit does not operate in the following quarter, the special test may be postponed until the unit is brought back on-line. In such cases, the special test shall be performed within 30 days.

B. Emissions Units Correlations

To develop the indicator ranges, opacity readings were compared with stack test results of particulate matter (PM) emissions for each unit over the last 5 years. PM emissions (lb/MMBtu)

were plotted versus the average of the opacity readings for each of the three 1-hour runs that comprise each annual stack test.

A rigorous statistical analysis was conducted on the five years of most recent data available for each of the four units. The statistical analysis supporting this CAM Plan is provided in Appendix A to this plan. The attached printout named "Preliminary Stats Report.RTF" contains a preliminary statistical analysis using the opacity and particulate matter (PM) data sets. The four Multiple Regression Reports, which are included in this file (one report for each unit; 4 pages per report; total of 16 pages), show the results for simple linear regressions between Particulate Matter (PM), the dependent variable, and opacity (OP), which is the independent variable. Also shown in this printout are box plots for the four units, for both PM and OP data. The box plots suggest that the lack of statistical significance in the Unit 5 regression could be due to the limited range of the data for both PM and OP. Unit 5 has the smallest range of values for both variables. The box plots also suggest that Unit 1 is significantly different from Units 2, 4 and 5. To test this hypothesis, ANOVA tests were conducted on the PM and the OP data. The results of the ANOVA tests, which are included in the above referenced printout, show that there is a statistical difference. Furthermore, the Duncan's Multiple-Comparison Test of the means and the Kruskal-Wallis Multiple-Comparison Test of the medians show that Unit 1 is significantly different from Units 2, 4 and 5. The analysis also shows that the data for Units 2, 4 and 5 are not statistically different from each other. Consequently, it is reasonable to combine the data from Units 2, 4 and 5 to develop a more powerful relationship between PM and OP. The analyses previously submitted were conducted separately for each unit and didn't demonstrate, in all cases, a statistically significant correlation.

Several relationships were investigated to determine the strongest regression; these included linear, log-linear and log-log relationships between the OP and PM variables. The results are provided in printouts titled "CR Unit 1 Report.RTF" and "CR Units 245 Report.RTF." The physics of the relationship suggests that as OP goes to zero, PM should also approach zero. Consequently, the following log transformations were used in the regressions:

$LOG_{10}(OP+1.0)$

$LOG_{10}(PM+1.0)$

For both data sets (Unit 1 and Units 2, 4, and 5 combined) the strongest relationship (i.e., the largest R^2) was found with the Log-Log regression. This regression relationship also gave some of the best regression results, as measured by the normality of the residuals. When the intercept of the regression was not statistically significant, the regression was also calculated with the intercept set to zero. The strongest regression model for each data set is shown below:

$LOG_{10}(PM+1.0) = 0.0180*(LOG_{10}(OP+1.0))$ ($R^2 = 0.8595$ for CR Unit 1),
which can be rewritten as,

$PM = (OP+1.0)^{0.0180} - 1.0$ (for CR Unit 1), and

$LOG_{10}(PM+1.0) = 0.00780*(LOG_{10}(OP+1.0))$ ($R^2 = .9285$ for CR Units 2, 4, and 5),
which can be rewritten as,

$PM = (OP+1.0)^{0.00780} - 1.0$ (for CR Units 2, 4, and 5).

The regression results and plots are provided in the printout titled "CR Results Log Log.xls" and in Figures 1 and 2 (Units 1 and Units 2, 4, and 5, respectively) within Appendix A. These plots show the mean regression, the upper and lower 90 percent confidence limits for the mean, and the upper and lower 90 percent confidence limits for the individual values. These results show for Unit 1 that an opacity reading of 29 percent will correspond, 90 percent of the time, with PM values less than the 0.1 Lb/MMBtu standard. The results for Units 2, 4 and 5 show that an opacity reading of 15 percent (the furthest that you can reasonably extrapolate the opacity values) will correspond, 90 percent of the time, with a PM value less than 0.03 Lb/MMBtu, which is significantly below the 0.1 standard.

C. Monitoring Approach- Tables 1A through 1D (Units 1, 2, 4 and 5, respectively)

Table 1A	**Indicator Unit No. 1**
Indicator	Opacity via a COMS.
Measurement Approach	40 CFR 60, Appendix B, Performance Specification 1
Indicator Range	An excursion is defined as a VE (3-hour block averaging time) greater than 29%. Excluding periods of startup, shutdown, malfunction and soot blowing pursuant to Rule 62-210.700. Periods of load change shall also be excluded. A load change occurs when the operational capacity of the unit is in the 10% to 100% capacity range, other than startup or shutdown, which exceeds 10% of the unit's rated capacity and which occurs at a rate of 0.5% per minute or more. An excursion will trigger an evaluation of operation of the power boiler and ESP. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	VE measurements are made in the stack.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The COMS is automatically calibrated every 24 hours. Calibration information is recorded through a data acquisition system (DAS). A neutral density filter test is performed quarterly as well as preventative maintenance items; replace filters, clean optics, etc., as prescribed by the manufacturer.
Monitoring Frequency	Opacity is monitored continuously.
Data Collection Procedures	Six-minute averages are recorded through the DAS. Daily reports with all six-minute averages are generated.
Averaging Period	The averaging period for opacity excursions is a 3-hour block average.

Table 1B	Indicator Unit No. 2
Indicator	Opacity via a COMS.
Measurement Approach	40 CFR 60, Appendix B, Performance Specification 1
Indicator Range	An excursion is defined as a VE (3-hour block averaging time) greater than 15%. Excluding periods of startup, shutdown, malfunction and soot blowing pursuant to Rule 62-210.700. Periods of load change shall also be excluded. A load change occurs when the operational capacity of the unit is in the 10% to 100% capacity range, other than startup or shutdown, which exceeds 10% of the unit's rated capacity and which occurs at a rate of 0.5% per minute or more. An excursion will trigger an evaluation of operation of the power boiler and ESP. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	VE measurements are made in the stack.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The COMS is automatically calibrated every 24 hours. Calibration information is recorded through a data acquisition system (DAS). A neutral density filter test is performed quarterly as well as preventative maintenance items; replace filters, clean optics, etc., as prescribed by the manufacturer.
Monitoring Frequency	Opacity is monitored continuously.
Data Collection Procedures	Six-minute averages are recorded through the DAS. Daily reports with all six-minute averages are generated.
Averaging Period	The averaging period for opacity excursions is a 3-hour block average.

Table 1C	Indicator Unit No. 4
Indicator	Opacity via a COMS.
Measurement Approach	40 CFR 60, Appendix B, Performance Specification 1
Indicator Range	An excursion is defined as a VE (3-hour block averaging time) greater than 15%. Excluding periods of startup, shutdown and malfunction. pursuant to Rule 62-210.700. Periods of load change shall also be excluded. A load change occurs when the operational capacity of the unit is in the 10% to 100% capacity range, other than startup or shutdown, which exceeds 10% of the unit's rated capacity and which occurs at a rate of 0.5% per minute or more. An excursion will trigger an evaluation of operation of the power boiler and ESP. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	VE measurements are made in the stack.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The COMS is automatically calibrated every 24 hours. Calibration information is recorded through a data acquisition system (DAS). A neutral density filter test is performed quarterly as well as preventative maintenance items; replace filters, clean optics, etc., as prescribed by the manufacturer.
Monitoring Frequency	Opacity is monitored continuously.
Data Collection Procedures	Six-minute averages are recorded through the DAS. Daily reports with all six-minute averages are generated.
Averaging Period	The averaging period for opacity excursions is a 3-hour block average.

Table 1D	Indicator Unit No. 5
Indicator	Opacity via a COMS.
Measurement Approach	40 CFR 60, Appendix B, Performance Specification 1
Indicator Range	An excursion is defined as a VE (3-hour block averaging time) greater than 15%. Excluding periods of startup, shutdown and malfunction, pursuant to Rule 62-210.700. Periods of load change shall also be excluded. A load change occurs when the operational capacity of the unit is in the 10% to 100% capacity range, other than startup or shutdown, which exceeds 10% of the unit's rated capacity and which occurs at a rate of 0.5% per minute or more. An excursion will trigger an evaluation of operation of the power boiler and ESP. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	VE measurements are made in the stack.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The COMS is automatically calibrated every 24 hours. Calibration information is recorded through a data acquisition system (DAS). A neutral density filter test is performed quarterly as well as preventative maintenance items; replace filters, clean optics, etc., as prescribed by the manufacturer.
Monitoring Frequency	Opacity is monitored continuously.
Data Collection Procedures	Six-minute averages are recorded through the DAS. Daily reports with all six-minute averages are generated.
Averaging Period	The averaging period for opacity observations is a 3-hour block average.

D. Corrective Action Procedures Summary – Table 2 (Units 1, 2, 4 and 5)

		Description
I.	Initiation of Corrective Action Procedures	Corrective action shall be initiated with the discovery of a three-hour block average of opacity greater than the levels that define an excursion (as defined in Tables 1A through 1D). The plant staff that made the discovery shall immediately notify the responsible official. This action describes a corrective action trigger.
II.	Time of Completion of Corrective Action Procedures	As soon as practically possible.
III.	Corrective Action	The Shift Supervisor or responsible official will implement the following as a corrective action. • Perform operational diagnostics to identify cause of the excursion; • If operational diagnostics indicate a malfunction of the ESP, the reason for failure will be identified; and • ESP operation will be restored to minimize opacity.

E. Justification

1. Background

The pollutant specific emission units are Crystal River Units 1, 2, 4 and 5 which are primarily fired on coal. Particulate emissions are controlled by high efficiency ESPs.

2. Rationale for Selection of Performance Indicators

Opacity was selected as the performance indicator because it is indicative of good operation and maintenance of the ESP. When the ESPs are operating properly, there will be very little opacity or visible emissions (VE) from the ESP exhaust. Opacity as a performance indicator was referenced earlier as already contained in Condition A.19 of the current TV permit. Condition A.19 was for purposes of periodic monitoring and related to the number of times the indicator level was exceeded (5 percent) in a quarter. As the CAM Plan trigger levels are based on a different averaging time and frequency of occurrence, the respective opacity values recommended below are slightly different.

For purposes of this CAM plan, process and control device operating parameters were also investigated. ESP operating indicators that could affect unit efficiency are the operating voltage, operating current, corona, total power, spark rate, number of fields in service, or rapping intensity, rate and frequency. Based on the significance of these parameters and the availability of design information, historical data and/or actual test data, it was decided to assess ESP power levels. PM emissions for Unit 1 were compared with total ESP power (kW) to determine if a correlation could be made. As shown in Figure 3 (Appendix A), no correlation exists. In fact, the trend indicates increased PM emissions with increased power. Historic ESP power values are not normally maintained by the site, so data available to develop a representative trigger level at Unit 1, as well as to develop correlations at the other units, is very limited. Collection efficiency is affected by several factors, including particle resistivitiy, gas temperature, chemical composition (of the dust and gas) and particle size distribution. In this limited assessment, the affect of the variability in power levels on resultant PM levels may be outweighed by these other factors.

3. Rationale for Selection of Indicator Ranges

The purpose of the statistical analysis is to enable an extrapolation of the data set to opacity values that theoretically correspond to PM levels of interest (i.e., close to the standard), with some margin. PEF has concluded that excursion levels of 15% (3-hour average) for Units 2, 4 and 5, as well as 29% (3-hour average) for Unit 1, represent values that can provide reasonable assurance that the PM standard is being met for each of these units.

The selected indicator ranges are as follows (all are in 3-hour block averages):

- 29 % for Unit 1
- 15 % for Unit 2
- 15 % for Unit 4
- 15 % for Unit 5

These indicator ranges were selected because they provide a margin on those opacity values that could be reflective of impaired ESP performance and an associated increase in particulate emissions from the ESP outlet

Current experience suggests that, if these trigger levels are not exceeded, reasonable assurance will be provided that the corresponding PM emissions standards will be met. When an excursion occurs, corrective action will be initiated as described in Table 2, beginning with an evaluation of the occurrence, to determine the action required (if any) to correct the situation. All excursions will be documented.

APPENDIX A

CAM Plan Statistical Analysis

And

Figures 1 through 3

Figure 1
Crystal River Unit 1

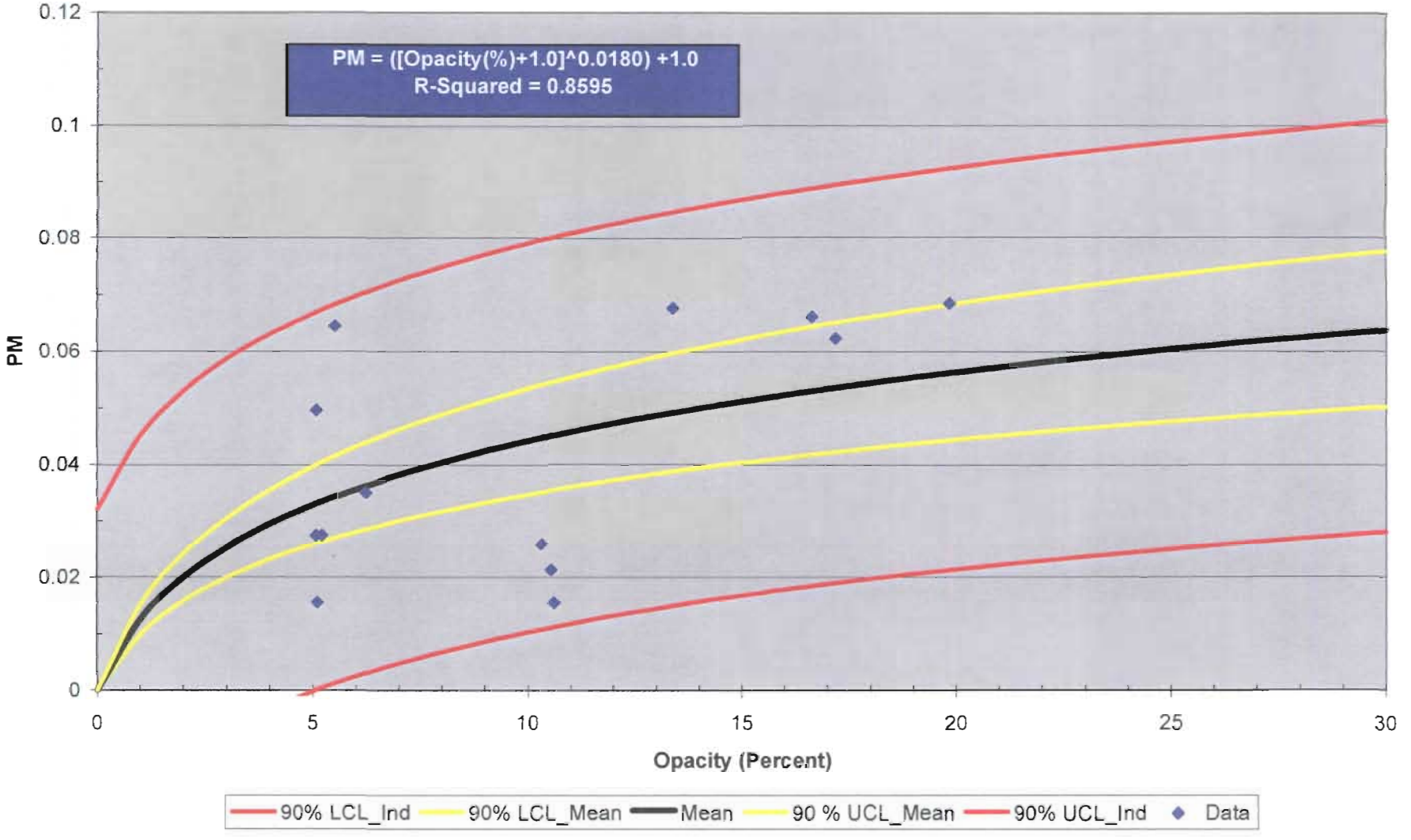


Figure 2
Crystal River Units 2, 4 & 5

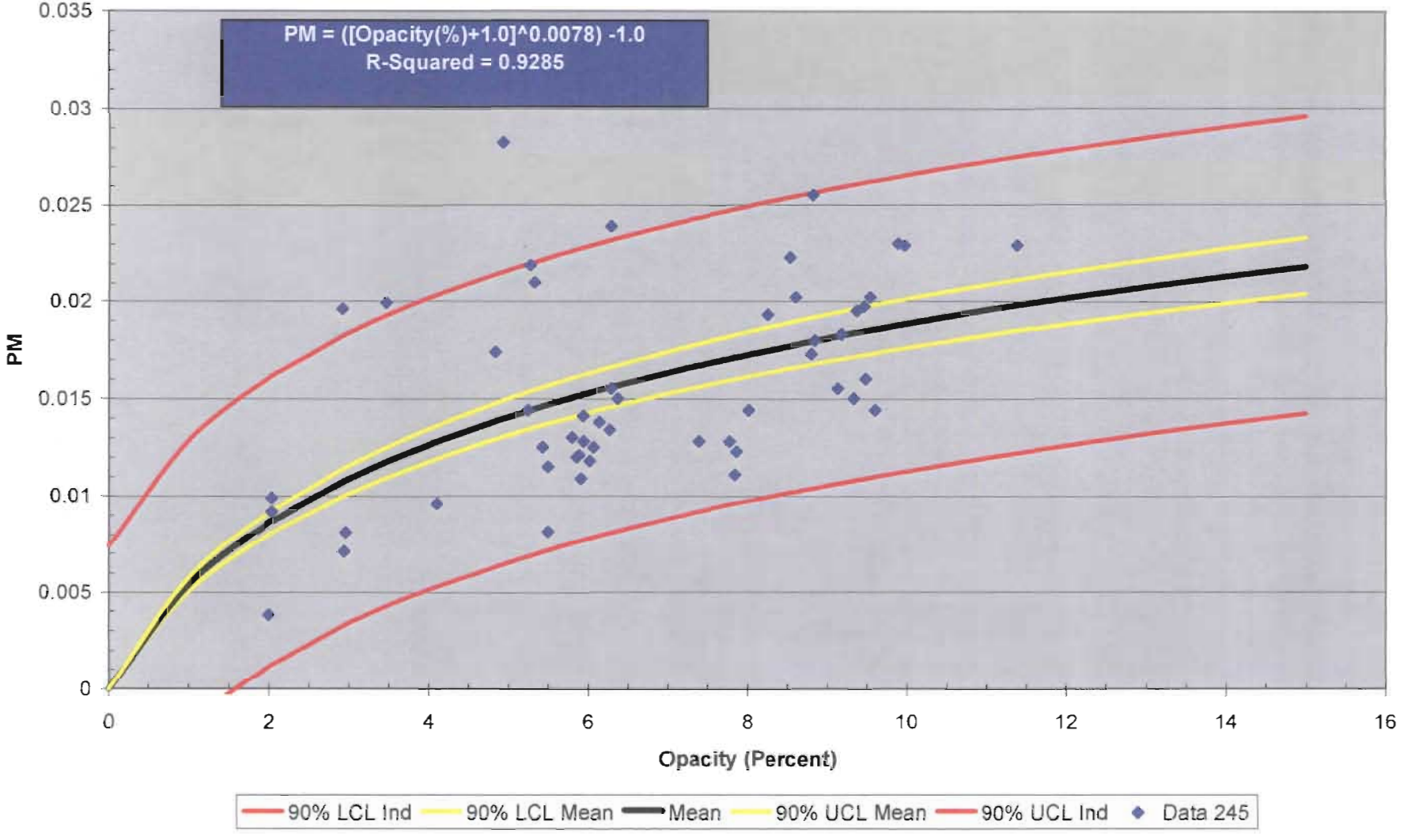
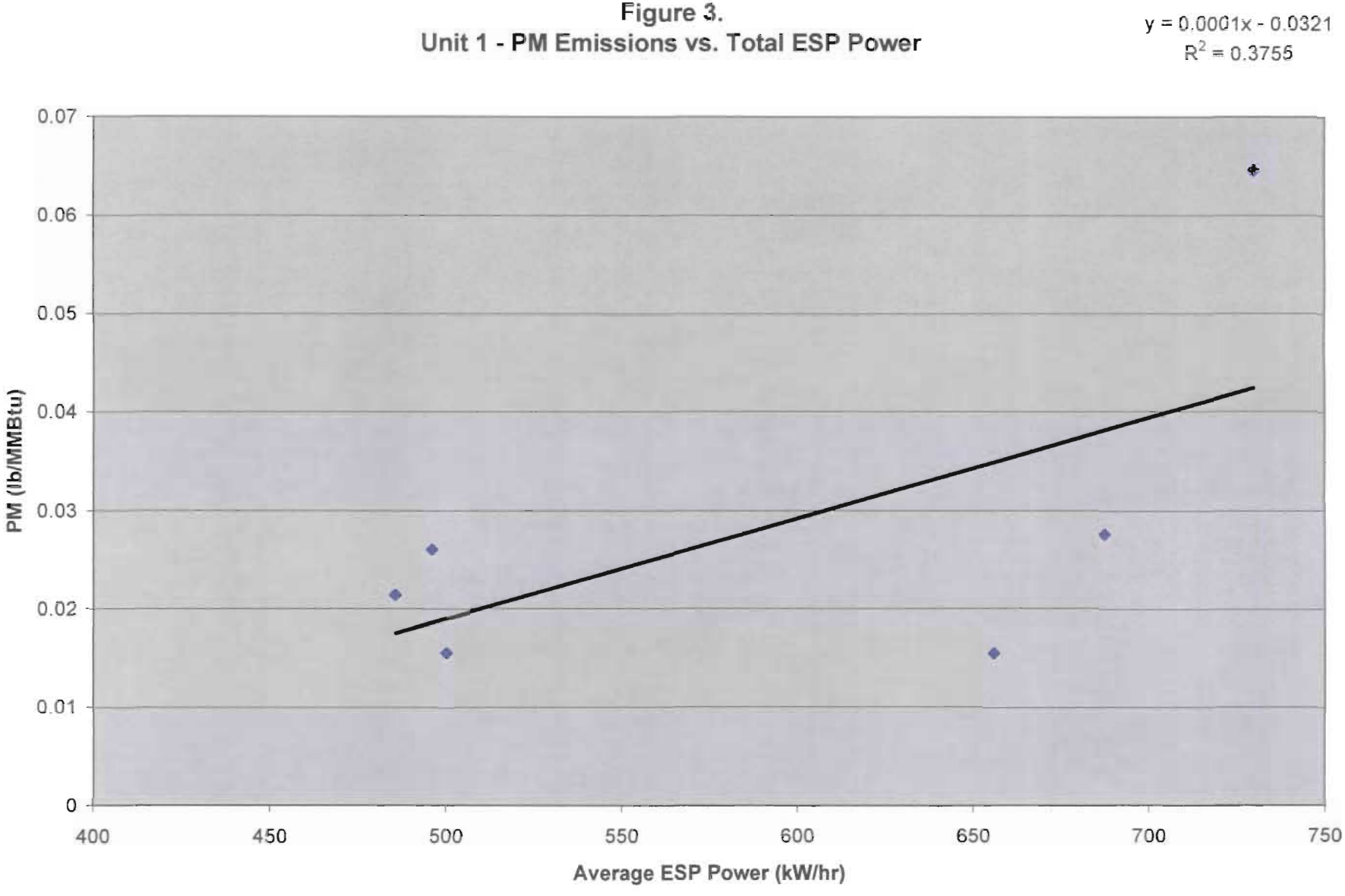


Figure 3.
Unit 1 - PM Emissions vs. Total ESP Power



CR 1	Normal Operation Avg. PM (lb/MMBtu)	Method 9 Visible Emissions	PM Test Run #	Test Date	PM Test Run Time	Normal Operation PM (lb/MMBtu)	Average COMS Data % Opacity	ESP Power KW
1999	0.066	8.8	2.0	5/24/1999	12:00-13:05	0.0678	13.37	
			4.0	5/24/1999	14:44-15:50	0.0624	17.19	
			6.0	5/24/1999	10:52-11:58	0.0662	16.64	
2000	0.049	13.5	1.0	5/17/00	13:55-15:03	0.0686	19.84	
			2.0	5/18/00	13:15-14:19	0.0245		
			3.0	5/18/00	14:30-15:33	0.0525		
2001	0.037	5.0	1.0	5/8/01	07:47-08:52	0.0497	5.07	
			2.0	5/8/01	09:10-10:15	0.0275	5.06	
			6.0	5/9/01	10:06-11:10	0.0351	6.22	
2002	0.021	5.0	1.0	8/27/02	07:40-08:47	0.0214	10.54	485.8
			3.0	8/27/02	10:26-11:34	0.026	10.31	496.35
			6.0	8/27/02	14:30-15:37	0.0155	10.61	500.2
2003	0.036	5.0	1.0	8/5/03	07:00-08:03	0.0276	5.2	687.7
			2.0	8/5/03	08:19-09:25	0.0155	5.1	656
			6.0	8/6/03	07:26-08:29	0.0646	5.5	729.75
CR 2								
1999	0.022	5.0	2.0	5/25/99	14:27-15:31	0.0202	9.54	
			3.0	5/26/99	09:00-10:03	0.0229	9.97	
			5.0	5/26/99	11:39-12:44	0.023	9.89	
2000	0.016	0.0	2.0	5/16/00	10:50-11:59	0.0196	2.91	
			4.0	5/16/00	13:40-14:43	0.0199	3.46	
			6.0	5/17/00	10:10-11:13	0.0081	2.95	
2001	0.008	0.0	3.0	4/3/2001	11:51-13:04	0.0099	2.03	
			4.0	4/3/2001	13:19-14:27	0.0038	1.99	
			6.0	4/3/2001	16:14-17:18	0.0092	2.03	
2002	0.013	1.0	1.0	8/28/02	11:19-12:25	0.0111	7.84	
			4.0	8/29/02	08:31-09:37	0.0123	7.86	
			6.0	8/29/02	11:03-12:09	0.0144	8.01	
2003	0.011	0.0	2.0	8/6/03	13:02-14:06	0.0081	5.49	
			4.0	8/7/03	08:30-09:34	0.013	5.79	
			6.0	8/7/03	11:04-12:09	0.0125	6.06	
2004	0.027	1.7						
			1.0			0.021		
			4.0			0.033		
			6.0			0.026		
CR 4								
1999	0.021	0.0	2.0	9/23/99	14:00-15:05	0.0223	8.53	
			5.0	9/24/99	11:26-12:32	0.0202	8.6	
			6.0	9/24/99	12:40-13:45	0.0197	9.46	
1999								
	0.023	0	1	9/23/99	12:28-13:40	0.0195	9.37	
			3	9/24/99	08:46-09:52	0.0229	11.38	
			4	9/24/99	10:08-11:13	0.0255	8.82	
2000	0.020	4.8	1	8/39/00	10:02-11:06	0.0155	6.28	
			2	8/30/00	11:30-12:34	0.0239	6.28	
			3	8/30/00	12:58-14:02	0.021	5.32	
2001	0.013	0	1	8/16/2001	10:20-11:38	0.0128	5.935	
			2	8/16/2001	11:53-13:01	0.0118	6.01	
			3	8/16/2001	13:10-14:17	0.0134	6.26	
2002	0.013	7.5	1	9/3/2002	09:34-1041	0.0121	5.875	
			2	9/3/2002	10:52-11:59	0.0141	5.93	
			3	9/3/2002	12:09-13:16	0.012	5.85	
2003	0.010	5	1	8/13/2003	09:40-10:46	0.0071	2.93	
			2	8/13/2003	11:05-12:08	0.0096	4.09	
			3	8/13/2003	12:20-13:25	0.0144	5.24	
CR 5								
1999	0.014	0.0	2.0	9/22/99	09:56-11:01	0.0155	9.13	
			3.0	9/22/99	11:15-12:21	0.015	9.33	
			6.0	9/23/99	09:58-11:03	0.0128	7.38	

	0.016	0	1	9/22/99	08:35-09:40	0.016	9.48
			4	9/22/99	12:34-13:39	0.0144	9.6
			5	9/23/99	08:42-0947	0.0173	8.8
2000	0.019	0	1	8/29/00	10:30-11:34	0.018	8.84
			2	8/29/00	12:00-13:03	0.0183	9.18
			3	8/29/00	13:20-14:24	0.0193	8.25
2001	0.013	0	1	8/17/2001	10:00-11:07	0.015	6.36
			2	8/17/2001	11:20-12:27	0.0115	5.49
			3	8/17/2001	12:40-13:46	0.0125	5.42
2002	0.013	5	1	9/4/2002	09:35-10:42	0.0109	5.9
			2	9/4/2002	10:50-11:57	0.0138	6.13
			3	9/4/2002	12:05-13:12	0.0128	7.77
2003	0.023	0	1	8/12/2003	10:45-11:51	0.0219	5.27
			2	8/12/2003	12:11-13:15	0.0283	4.93
			3	8/12/2003	13:25-14:29	0.0174	4.83

Preliminary Stats Report.RTF

Multiple Regression Report

Page/Date/Time 1 8/8/2004 9:45:05 AM
Database
Dependent PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Opacity_CR1	13	10.05	5.283563	5.06	19.84
PM_CR1	13	4.214615E-02	0.0213987	0.0155	0.0686

Correlation Matrix Section

	Opacity_CR1	PM_CR1
Opacity_CR1	1.000000	0.575448
PM_CR1	0.575448	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (5%)	Power (5%)
Intercept	1.872369E-02	1.124455E-02	1.6651	0.124079	Accept Ho	0.330547
Opacity_CR1	2.330593E-03	9.986924E-04	2.3336	0.039614	Reject Ho	0.566682
R-Squared	0.331140					

Model
1.872369E-02+ 2.330593E-03*Opacity_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 95% C.L.	Upper 95% C.L.	Standardized Coefficient
Intercept	1.872369E-02	1.124455E-02	-6.025388E-03	4.347277E-02	0.0000
Opacity_CR1	2.330593E-03	9.986924E-04	1.32486E-04	0.0045287	0.5754
T-Critical	2.200985				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (5%)
Intercept	1	2.309188E-02	2.309188E-02			
Model	1	1.819566E-03	1.819566E-03	5.4459	0.039614	0.566682
Error	11	3.675286E-03	3.341169E-04			
Total(Adjusted)	12	5.494852E-03	4.579044E-04			

Root Mean Square Error	1.827887E-02	R-Squared	0.3311
Mean of Dependent	4.214615E-02	Adj R-Squared	0.2703
Coefficient of Variation	0.4337018	Press Value	4.72136E-03
Sum |Press Residuals|	0.2018986	Press R-Squared	0.1408

Multiple Regression Report

Page/Date/Time 2 8/8/2004 9:45:05 AM
Database
Dependent PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(5%)
Skewness	0.2862	0.774696	Accepted
Kurtosis	-0.1589	0.873764	Accepted
Omnibus	0.1072	0.947823	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.135560	9	-0.192509	17	
2	0.332149	10	-0.131770	18	
3	-0.241193	11		19	
4	-0.084400	12		20	
5	-0.334100	13		21	
6	0.085628	14		22	
7	-0.187123	15		23	
8	0.092689	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700
Durbin-Watson Value 1.3063

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Opacity_CR1	0.331140	0.331140	0.331140	0.331140	0.331140

Regression Diagnostics Section

Row	Studentized Residual	Rstudent	Hat Diagonal	Cook's D	Dffits	Covratio
1	1.038870	1.043011	0.109827	0.066577	0.366358	1.105641
2	0.225149	0.215168	0.229104	0.007533	0.117299	1.555170
3	0.534042	0.515922	0.206562	0.037124	0.263240	1.446955
4	0.249331	0.238402	0.363031	0.017715	0.179979	1.878212
5						
6						
7	1.137590	1.154697	0.150956	0.115043	0.486887	1.109533
8	-0.179128	-0.171042	0.151253	0.002859	-0.072205	1.417327
9	0.109685	0.104638	0.120712	0.000826	0.038770	1.373105
10	-1.246836	-1.282919	0.077640	0.065429	-0.372213	0.967253
11	-0.954001	-0.949742	0.077125	0.038029	-0.274556	1.103137
12	-1.592407	-1.730852	0.077859	0.107051	-0.502940	0.776925
13	-0.192101	-0.183469	0.147141	0.003183	-0.076206	1.409254
14	-0.896633	-0.887971	0.150067	0.070974	-0.373120	1.223148
15	1.948752	2.296249	0.138723	0.305836	0.921556	0.602293

Multiple Regression Report

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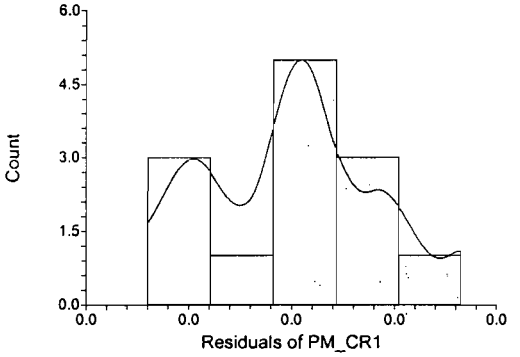
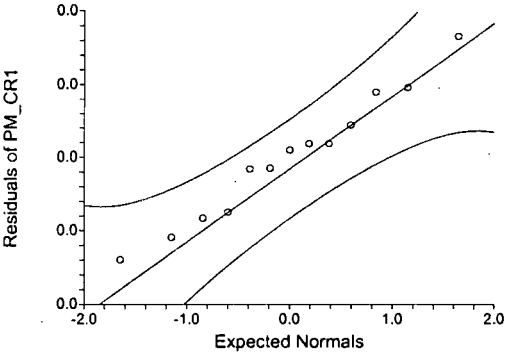
Database
Dependent PM_CR1

Plots Section

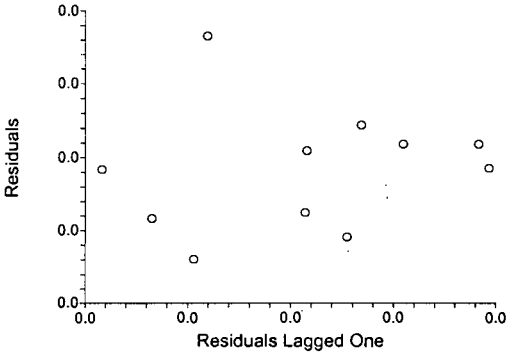
Histogram of Residuals of PM_CR1



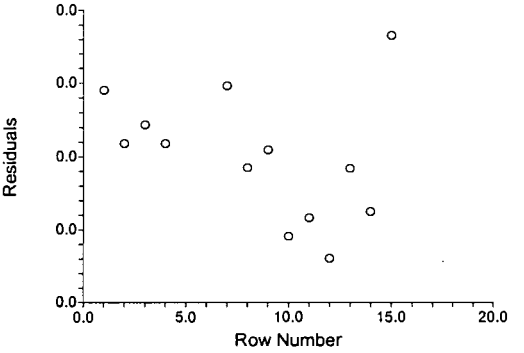
Normal Probability Plot of Residuals of PM_CR1



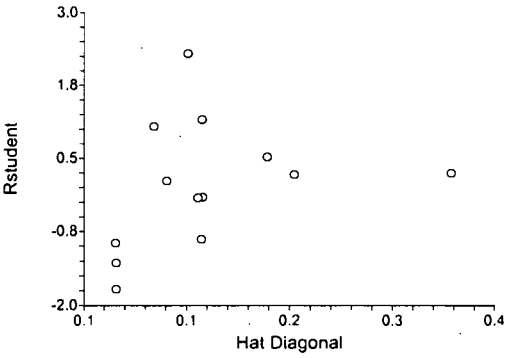
Serial Correlation of Residuals



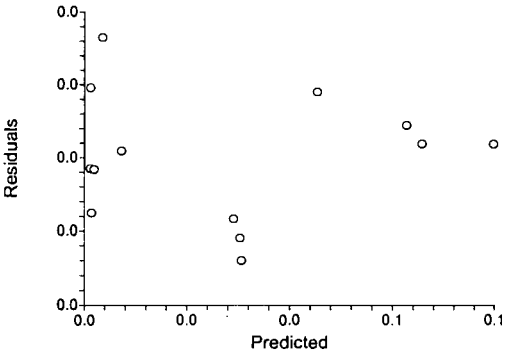
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



Multiple Regression Report

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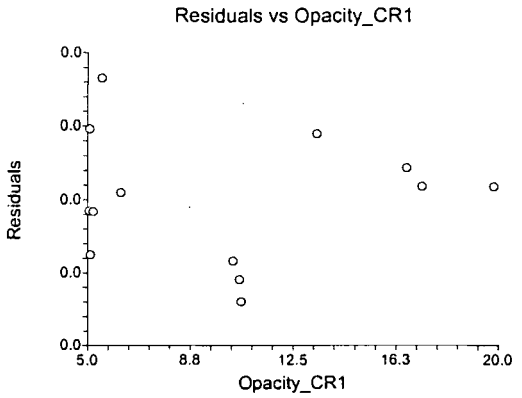
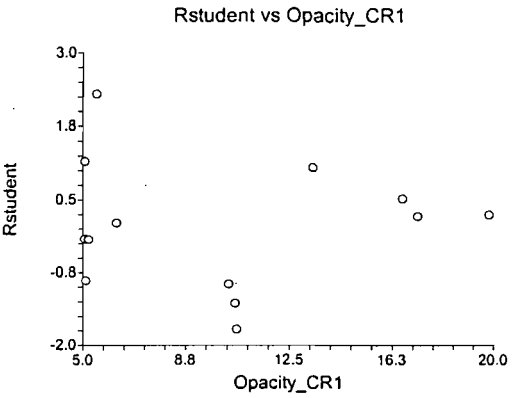
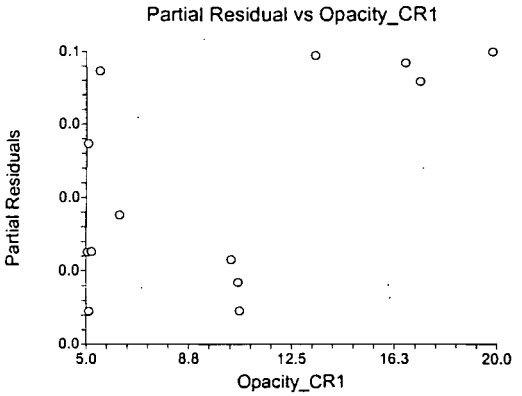
Database
Dependent PM_CR1







Multiple Regression Report

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Database
Dependent PM_CR2

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Opacity_CR2	15	5.721334	3.004247	1.99	9.97
PM_CR2	15	1.386667E-02	5.932798E-03	0.0038	0.023

Correlation Matrix Section

	Opacity_CR2	PM_CR2
Opacity_CR2	1.000000	0.597557
PM_CR2	0.597557	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (5%)	Power (5%)
Intercept	7.115156E-03	2.817453E-03	2.5254	0.025345	Reject Ho	0.646631
Opacity_CR2	1.180059E-03	4.391698E-04	2.6870	0.018650	Reject Ho	0.700215
R-Squared	0.357075					

Model
7.115156E-03+ 1.180059E-03*Opacity_CR2

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 95% C.L.	Upper 95% C.L.	Standardized Coefficient
Intercept	7.115156E-03	2.817453E-03	1.028419E-03	1.320189E-02	0.0000
Opacity_CR2	1.180059E-03	4.391698E-04	2.312901E-04	2.128828E-03	0.5976
T-Critical	2.160369				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (5%)
Intercept	1	2.884267E-03	2.884267E-03			
Model	1	1.75957E-04	1.75957E-04	7.2201	0.018650	0.700215
Error	13	3.168163E-04	2.437049E-05			
Total(Adjusted)	14	4.927733E-04	3.51981E-05			

Root Mean Square Error	4.936647E-03	R-Squared	0.3571
Mean of Dependent	1.386667E-02	Adj R-Squared	0.3076
Coefficient of Variation	0.3560082	Press Value	4.181992E-04
Sum |Press Residuals|	6.499781E-02	Press R-Squared	0.1513

Multiple Regression Report

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Database
Dependent PM_CR2

Normality Tests Section

Assumption	Value	Probability	Decision(5%)
Skewness	1.2894	0.197245	Accepted
Kurtosis	-0.1017	0.919015	Accepted
Omnibus	1.6730	0.433225	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.533042	9	-0.280158	17	
2	0.480738	10	-0.199750	18	
3	0.171834	11		19	
4	-0.027474	12		20	
5	-0.080259	13		21	
6	-0.307556	14		22	
7	-0.209349	15		23	
8	-0.330538	16		24	

Above serial correlations significant if their absolute values are greater than 0.516398
Durbin-Watson Value 0.9135

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Opacity_CR2	0.357075	0.357075	0.357075	0.357075	0.357075

Regression Diagnostics Section

Row	Studentized Residual	Rstudent	Hat Diagonal	Cook's D	Dffits	Covratio
1	0.409231	0.395733	0.182072	0.018639	0.186709	1.398128
2	0.915826	0.909733	0.209525	0.111159	0.468369	1.299292
3	0.956898	0.953553	0.204196	0.117474	0.483020	1.274318
4	1.964731	2.251255	0.129216	0.286407	0.867218	0.666198
5	1.865462	2.094389	0.107136	0.208783	0.725493	0.704906
6	-0.541346	-0.526071	0.127449	0.021403	-0.201056	1.285077
7	0.086800	0.083419	0.174504	0.000796	0.038354	1.420056
8	-1.264481	-1.297268	0.176853	0.171763	-0.601309	1.096612
9	-0.069266	-0.066561	0.174504	0.000507	-0.030603	1.420654
10	-1.125963	-1.138741	0.102191	0.072152	-0.384184	1.064665
11	-0.874796	-0.866364	0.102865	0.043873	-0.293363	1.158693
12	-0.464900	-0.450421	0.108121	0.013101	-0.156827	1.272495
13	-1.152156	-1.168206	0.067090	0.047732	-0.313277	1.014211
14	-0.198714	-0.191209	0.066704	0.001411	-0.051118	1.249863
15	-0.370534	-0.357893	0.067574	0.004975	-0.096347	1.232219

Multiple Regression Report

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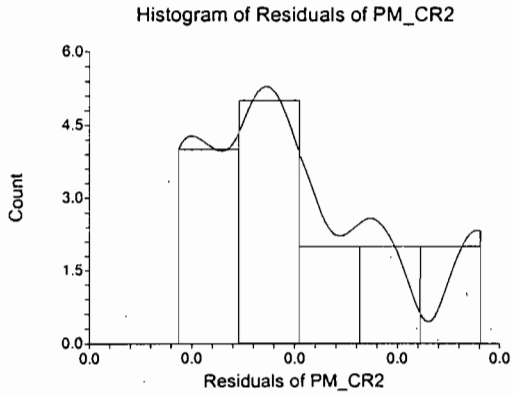
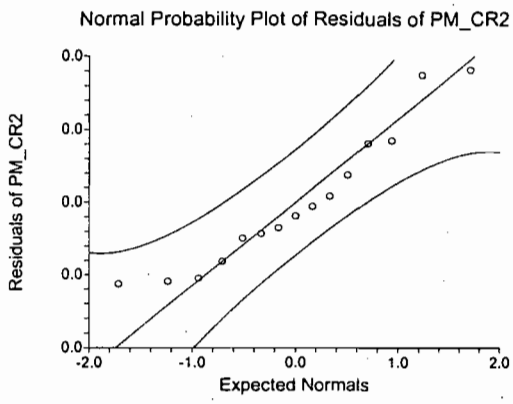
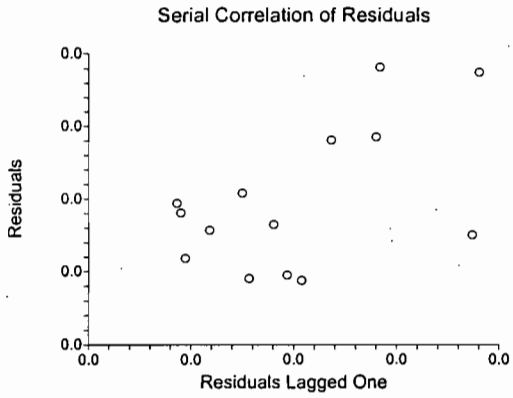
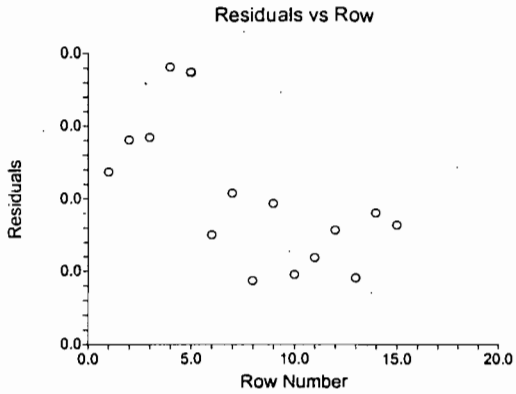
Database
Dependent PM_CR2

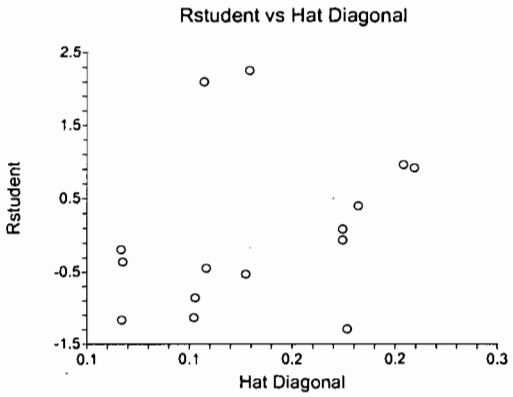
Plots Section

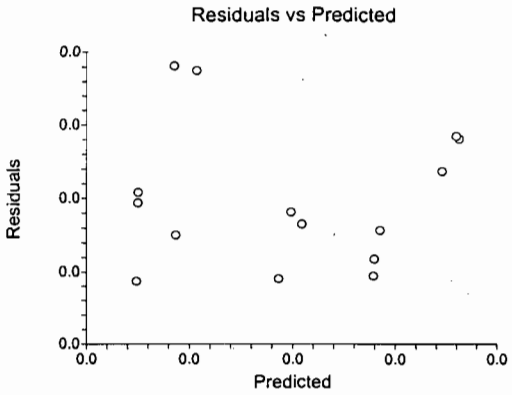












Multiple Regression Report

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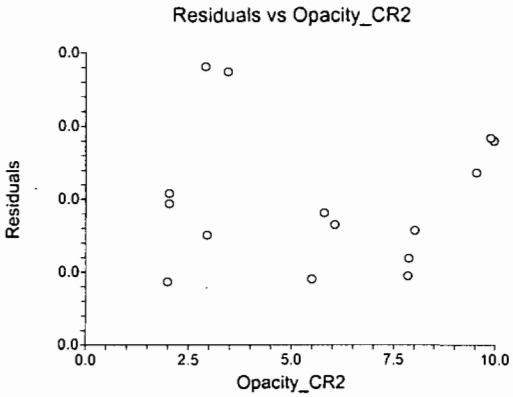
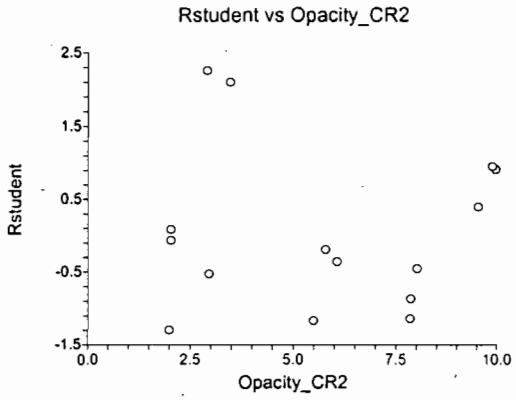
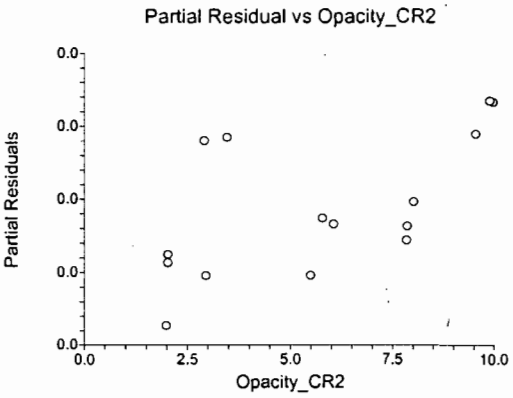
Database
Dependent PM_CR2







Multiple Regression Report

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Database
Dependent PM_CR4

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Opacity_CR4	18	6.786667	2.123146	2.93	11.38
PM_CR4	18	1.654444E-02	5.399588E-03	0.0071	0.0255

Correlation Matrix Section

	Opacity_CR4	PM_CR4
Opacity_CR4	1.000000	0.758398
PM_CR4	0.758398	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (5%)	Power (5%)
Intercept	3.454601E-03	2.939567E-03	1.1752	0.257105	Accept Ho	0.197527
Opacity_CR4	1.928759E-03	4.144094E-04	4.6542	0.000265	Reject Ho	0.991806
R-Squared	0.575168					

Model
3.454601E-03+ 1.928759E-03*Opacity_CR4

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 95% C.L.	Upper 95% C.L.	Standardized Coefficient
Intercept	3.454601E-03	2.939567E-03	-2.777003E-03	9.686205E-03	0.0000
Opacity_CR4	1.928759E-03	4.144094E-04	1.05025E-03	2.807267E-03	0.7584
T-Critical	2.119905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (5%)
Intercept	1	4.926936E-03	4.926936E-03			
Model	1	2.850786E-04	2.850786E-04	21.6619	0.000265	0.991806
Error	16	2.105658E-04	1.316037E-05			
Total(Adjusted)	17	4.956445E-04	2.915556E-05			

Root Mean Square Error	3.627722E-03	R-Squared	0.5752
Mean of Dependent	1.654444E-02	Adj R-Squared	0.5486
Coefficient of Variation	0.2192713	Press Value	2.576861E-04
Sum |Press Residuals|	5.408402E-02	Press R-Squared	0.4801

Multiple Regression Report

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Database
Dependent PM_CR4

Normality Tests Section

Assumption	Value	Probability	Decision(5%)
Skewness	2.5654	0.010304	Rejected
Kurtosis	1.1677	0.242933	Accepted
Omnibus	7.9450	0.018826	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.343618	9	-0.075602	17	
2	0.081080	10	0.013004	18	
3	-0.110544	11	-0.010414	19	
4	-0.327768	12	0.054980	20	
5	-0.212599	13	0.014809	21	
6	-0.142554	14		22	
7	-0.060522	15		23	
8	-0.001632	16		24	

Above serial correlations significant if their absolute values are greater than 0.471405
Durbin-Watson Value 1.2822

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Opacity_CR4	0.575168	0.575168	0.575168	0.575168	0.575168

Regression Diagnostics Section

Row	Studentized Residual	Rstudent	Hat Diagonal	Cook's D	Dffits	Covratio
1	0.693508	0.681812	0.095216	0.025307	0.221180	1.183048
2	0.045891	0.044437	0.098464	0.000115	0.014686	1.261712
3	-0.597761	-0.585353	0.148816	0.031236	-0.244754	1.277663
4	-0.603468	-0.591070	0.142642	0.030295	-0.241092	1.267352
5	-0.843777	-0.835790	0.330882	0.176033	-0.587736	1.552452
6	1.470423	1.530923	0.109508	0.132944	0.536859	0.955707
7	-0.019097	-0.018491	0.058905	0.000011	-0.004626	1.208939
8	2.367773	2.844471	0.058905	0.175458	0.711644	0.510177
9	2.097605	2.385279	0.083626	0.200765	0.720567	0.652627
10	-0.599174	-0.586769	0.065021	0.012483	-0.154736	1.162904
11	-0.924704	-0.920269	0.063427	0.028954	-0.239487	1.088454
12	-0.604940	-0.592546	0.059175	0.011509	-0.148606	1.154653
13	-0.766305	-0.755974	0.066401	0.020883	-0.201611	1.130887
14	-0.225836	-0.219014	0.065132	0.001777	-0.057809	1.209300
15	-0.781330	-0.771378	0.067004	0.021921	-0.206718	1.128206
16	-0.638316	-0.626070	0.249651	0.067782	-0.361125	1.440087
17	-0.521345	-0.509133	0.150451	0.024067	-0.214257	1.294157
18	0.241927	0.234674	0.086772	0.002781	0.072338	1.236788

Multiple Regression Report

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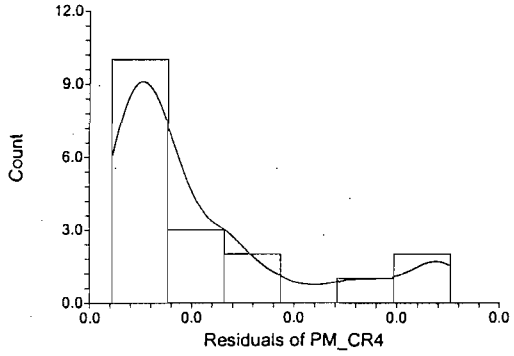
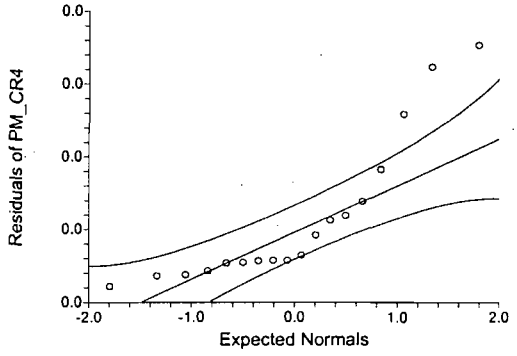
Database
Dependent PM_CR4

Plots Section

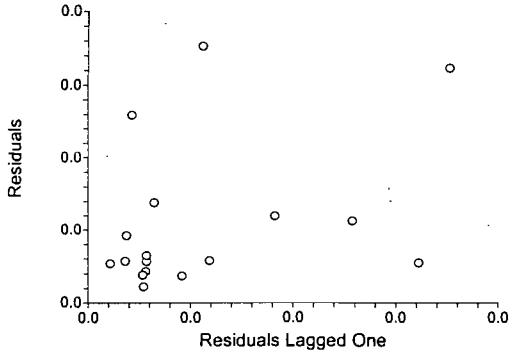
Histogram of Residuals of PM_CR4



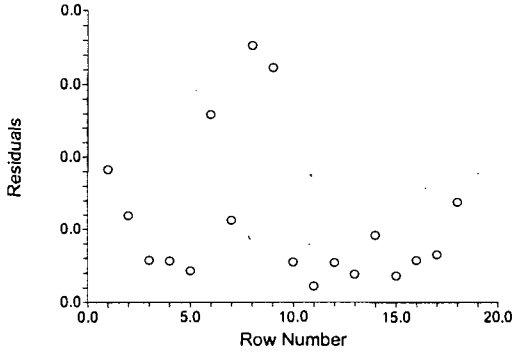
Normal Probability Plot of Residuals of PM_CR4



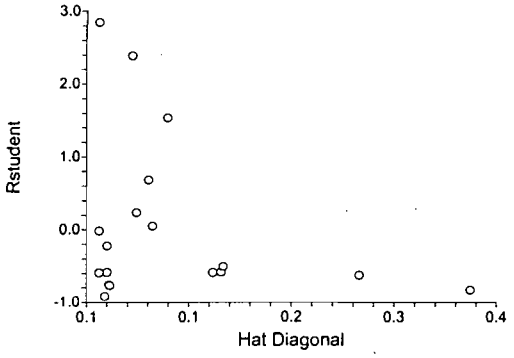
Serial Correlation of Residuals



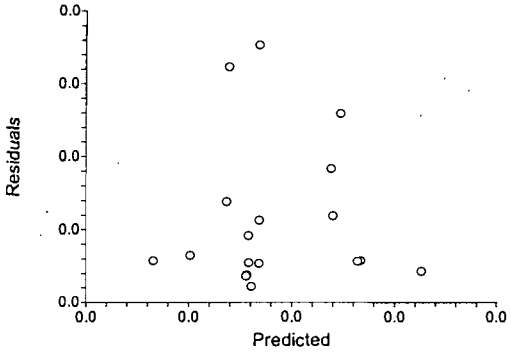
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



Multiple Regression Report

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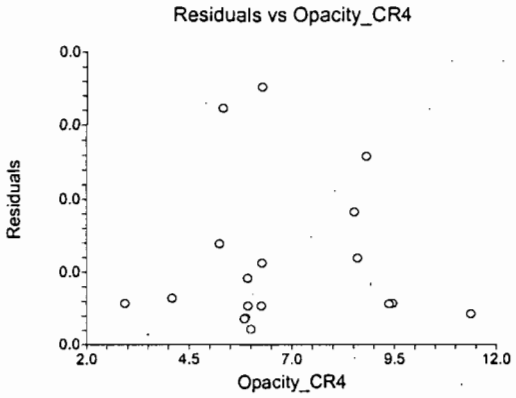
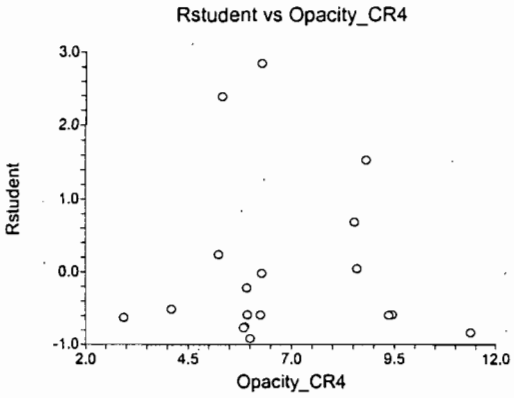
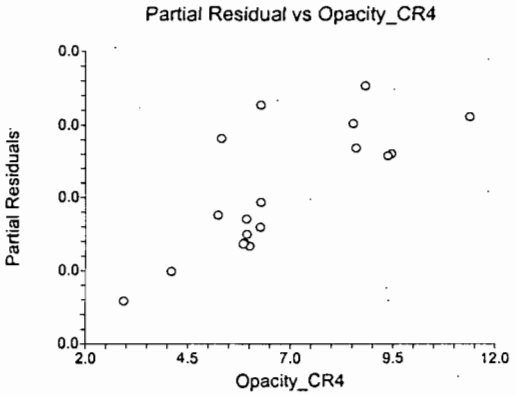
Database
Dependent PM_CR4







Multiple Regression Report

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Database
Dependent PM_CR5

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Opacity_CR5	18	7.338333	1.776203	4.83	9.6
PM_CR5	18	0.01615	4.187973E-03	0.0109	0.0283

Correlation Matrix Section

	Opacity_CR5	PM_CR5
Opacity_CR5	1.000000	-0.120250
PM_CR5	-0.120250	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (5%)	Power (5%)
Intercept	1.823062E-02	4.411438E-03	4.1326	0.000781	Reject Ho	0.972183
Opacity_CR5	-2.835275E-04	5.851786E-04	-0.4845	0.634587	Accept Ho	0.074152
R-Squared	0.014460					

Model
1.823062E-02-2.835275E-04*Opacity_CR5

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 95% C.L.	Upper 95% C.L.	Standardized Coefficient
Intercept	1.823062E-02	4.411438E-03	8.878789E-03	2.758245E-02	0.0000
Opacity_CR5	-2.835275E-04	5.851786E-04	-1.524051E-03	9.569957E-04	-0.1202
T-Critical	2.119905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (5%)
Intercept	1	4.694805E-03	4.694805E-03			
Model	1	4.311461E-06	4.311461E-06	0.2348	0.634587	0.074152
Error	16	2.938535E-04	1.836585E-05			
Total(Adjusted)	17	2.98165E-04	1.753912E-05			

Root Mean Square Error	4.285539E-03	R-Squared	0.0145
Mean of Dependent	0.01615	Adj R-Squared	0.0000
Coefficient of Variation	0.2653585	Press Value	3.902731E-04
Sum |Press Residuals|	6.230846E-02	Press R-Squared	-0.3089

Multiple Regression Report

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Database
Dependent PM_CR5

Normality Tests Section

Assumption	Value	Probability	Decision(5%)
Skewness	2.0681	0.038627	Rejected
Kurtosis	1.7563	0.079038	Accepted
Omnibus	7.3618	0.025201	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.468314	9	0.193328	17	
2	0.031540	10	0.204313	18	
3	-0.200384	11	0.084601	19	
4	-0.418079	12	0.012399	20	
5	-0.416937	13	-0.035119	21	
6	-0.390590	14		22	
7	-0.069711	15		23	
8	0.212813	16		24	

Above serial correlations significant if their absolute values are greater than 0.471405
Durbin-Watson Value 1.0623

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Opacity_CR5	0.014460	0.014460	0.014460	0.014460	0.014460

Regression Diagnostics Section

Row	Studentized Residual	Rstudent	Hat Diagonal	Cook's D	Dffits	Covratio
1	-0.035233	-0.034116	0.115408	0.000081	-0.012323	1.286018
2	-0.146386	-0.141832	0.129516	0.001594	-0.054709	1.303565
3	-0.801538	-0.792153	0.055588	0.018908	-0.192185	1.109939
4	0.115118	0.111509	0.141076	0.001088	0.045192	1.322461
5	-0.280775	-0.272531	0.150928	0.007007	-0.114902	1.326853
6	0.383812	0.373347	0.095390	0.007767	0.121237	1.234702
7	0.559013	0.546627	0.097600	0.016899	0.179770	1.212066
8	0.664231	0.652194	0.118795	0.029739	0.239462	1.220935
9	0.825201	0.816563	0.071052	0.026042	0.225831	1.122766
10	-0.346011	-0.336284	0.073402	0.004742	-0.094648	1.209601
11	-1.286471	-1.315514	0.119254	0.112045	-0.484067	1.038406
12	-1.045689	-1.048962	0.124170	0.077512	-0.394964	1.127589
13	-1.387105	-1.431912	0.094129	0.099964	-0.461577	0.972088
14	-0.656037	-0.643925	0.082779	0.019421	-0.193445	1.174625
15	-0.776404	-0.766324	0.059030	0.018908	-0.191938	1.119760
16	1.295737	1.326095	0.135320	0.131374	0.524599	1.054175
17	2.925967	4.154953	0.163699	0.837899	1.838262	0.294070
18	0.138245	0.133935	0.172866	0.001997	0.061230	1.372282

Multiple Regression Report

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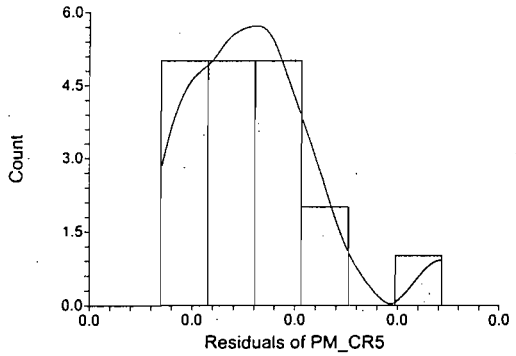
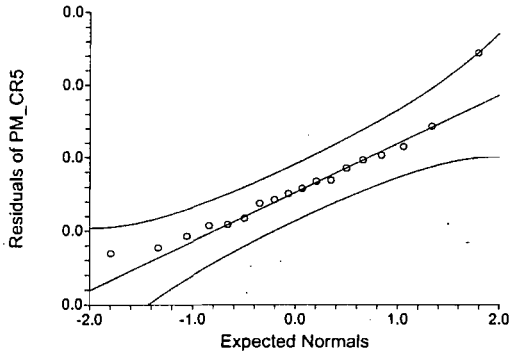
Database
Dependent PM_CR5

Plots Section

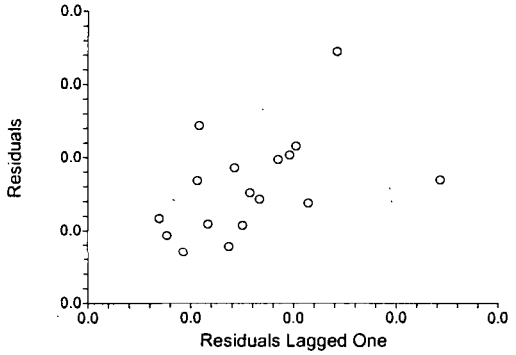
Histogram of Residuals of PM_CR5



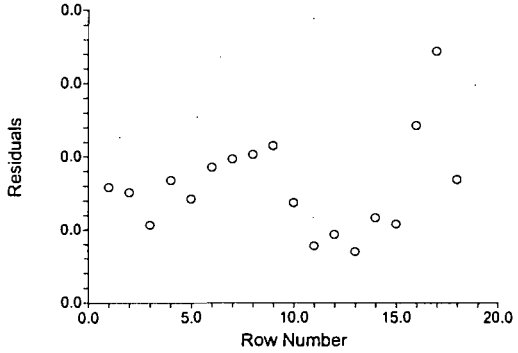
Normal Probability Plot of Residuals of PM_CR5



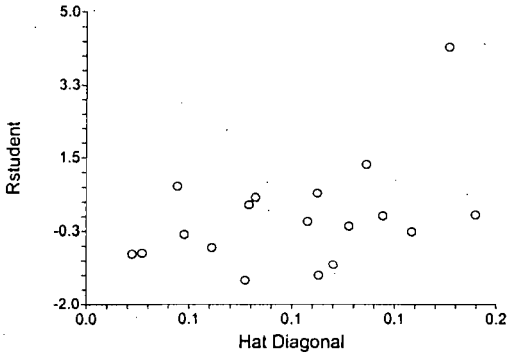
Serial Correlation of Residuals



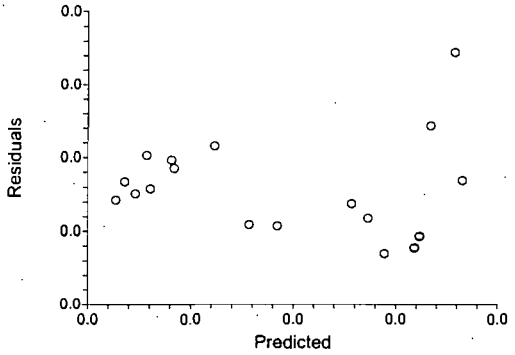
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



Multiple Regression Report

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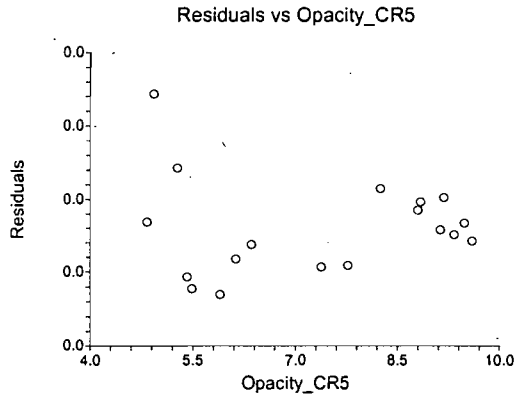
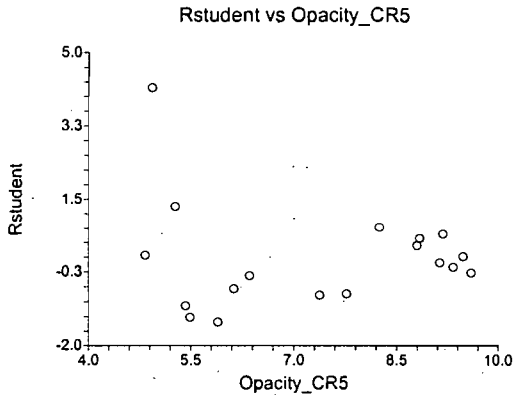
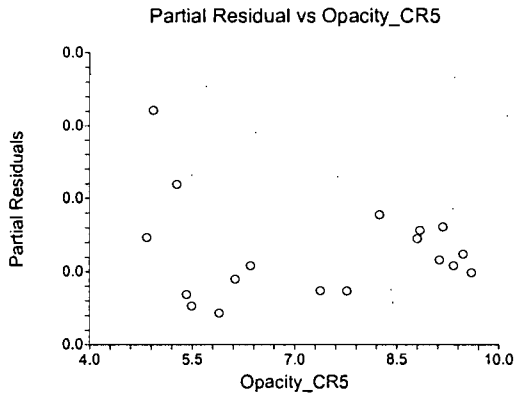
Database
Dependent PM_CR5







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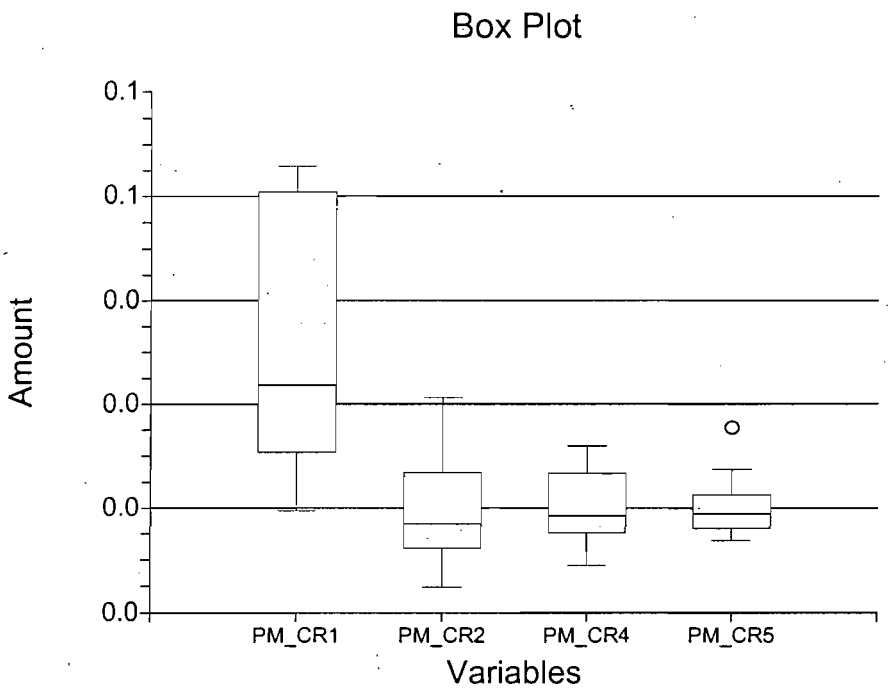
Database

Box Plot Section



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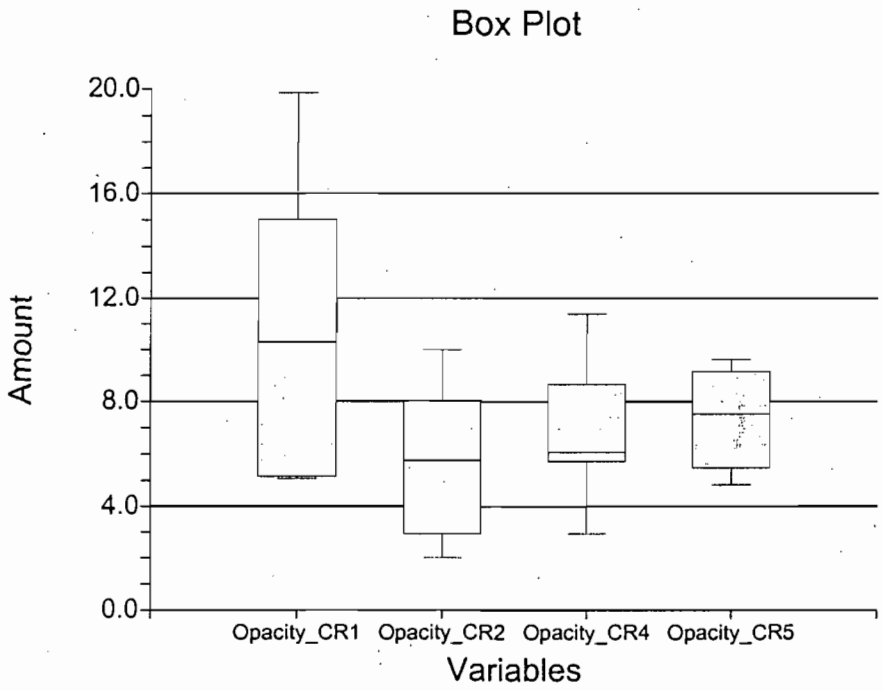
Database

Box Plot Section



Analysis of Variance Report

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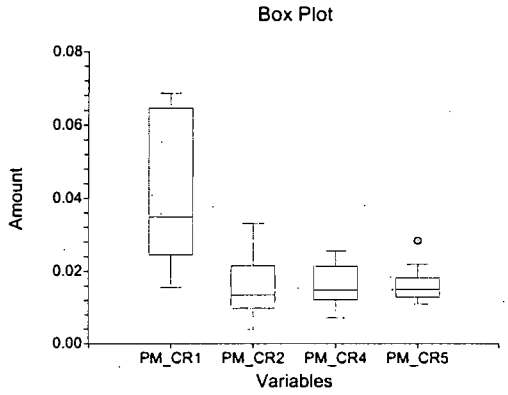
Database
Response PM_CR1,PM_CR2,PM_CR4,PM_CR5

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	0.9538	0.340188	Accept
Kurtosis Normality of Residuals	1.6688	0.095160	Accept
Omnibus Normality of Residuals	3.6946	0.157665	Accept
Modified-Levene Equal-Variance Test	22.0599	0.000000	Reject

Box Plot Section



Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A (...)	3	Yes	S(A)	S+sA
S(A)	65	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A (...)	3	7.593481E-03	2.53116E-03	21.43	0.000000*	1.000000
S(A)	65	7.678745E-03	1.181345E-04			
Total (Adjusted)	68	1.527223E-02				
Total	69					

* Term significant at alpha = 0.05

Analysis of Variance Report

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Database
Response PM_CR1,PM_CR2,PM_CR4,PM_CR5

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
Ho: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	3	23.81526	0.000027	Reject Ho
Corrected for Ties	3	23.82614	0.000027	Reject Ho

Number Sets of Ties	10
Multiplicity Factor	150

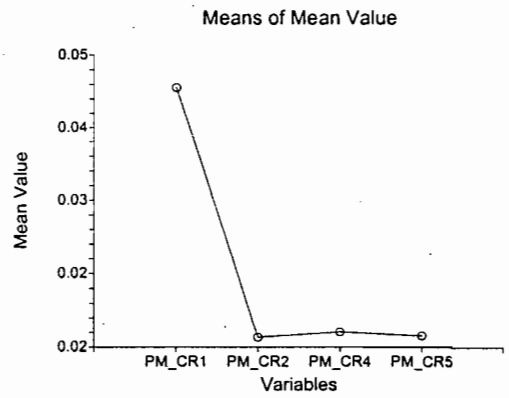
Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
PM_CR1	15	859.50	57.30	4.8663	0.0351
PM_CR2	18	494.50	27.47	-1.8517	0.0137
PM_CR4	18	538.00	29.89	-1.2572	0.01495
PM_CR5	18	523.00	29.06	-1.4622	0.01525

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	69	2.175942E-02		2.258861E-02
A:				
PM_CR1	15	0.04166	2.806356E-03	1.907139E-02
PM_CR2	18	0.016	2.561841E-03	-6.588611E-03
PM_CR4	18	1.654444E-02	2.561841E-03	-6.044167E-03
PM_CR5	18	0.01615	2.561841E-03	-6.438611E-03

Plots of Means Section



Duncan's Multiple-Comparison Test

Response: PM_CR1,PM_CR2,PM_CR4,PM_CR5
Term A:

Alpha=0.050 Error Term=S(A) DF=65 MSE=1.181345E-04

Group	Count	Mean	Different From Groups
PM_CR2	18	0.016	PM_CR1
PM_CR5	18	0.01615	PM_CR1
PM_CR4	18	1.654444E-02	PM_CR1
PM_CR1	15	0.04166	PM_CR2, PM_CR5, PM_CR4

Kruskal-Wallis Multiple-Comparison Z-Value Test

Variable	PM_CR1	PM_CR2	PM_CR4	PM_CR5
PM_CR1	0.0000	4.2537	3.9090	4.0279
PM_CR2	4.2537	0.0000	0.3615	0.2368
PM_CR4	3.9090	0.3615	0.0000	0.1246
PM_CR5	4.0279	0.2368	0.1246	0.0000

Regular Test: Medians significantly different if z-value > 1.9600
Bonferroni Test: Medians significantly different if z-value > 2.6383

Analysis of Variance Report

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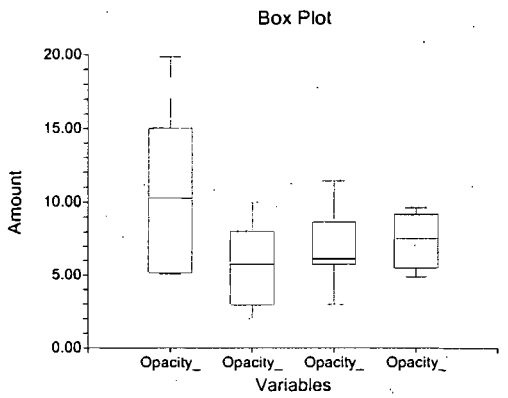
Database
Response Opacity_CR1,Opacity_CR2,Opacity_CR4,Opacity_CR5

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	2.0196	0.043426	Reject
Kurtosis Normality of Residuals	1.2437	0.213604	Accept
Omnibus Normality of Residuals	5.6256	0.060038	Accept
Modified-Levene Equal-Variance Test	8.3839	0.000097	Reject

Box Plot Section



Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A (...)	3	Yes	S(A)	S+sA
S(A)	60	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A (...)	3	140.2714	46.75713	4.74	0.004926*	0.879510
S(A)	60	591.6144	9.86024			
Total (Adjusted)	63	731.8857				
Total	64					

* Term significant at alpha = 0.05

Analysis of Variance Report

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Database
Response Opacity_CR1,Opacity_CR2,Opacity_CR4,Opacity_CR5

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
Ho: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	3	5.069134	0.166804	Accept Ho
Corrected for Ties	3	5.069482	0.166779	Accept Ho

Number Sets of Ties	3
Multiplicity Factor	18

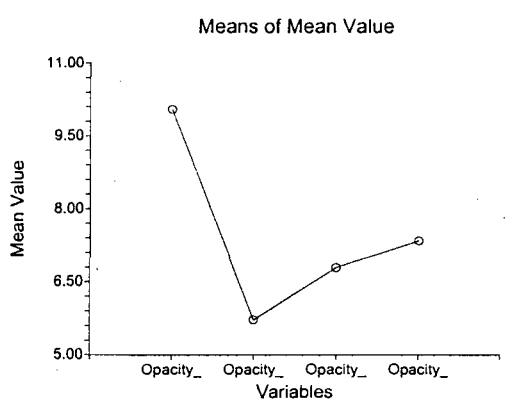
Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Opacity_CR1	13	526.00	40.46	1.7271	10.31
Opacity_CR2	15	374.50	24.97	-1.7909	5.79
Opacity_CR4	18	563.00	31.28	-0.3285	6.135
Opacity_CR5	18	616.50	34.25	0.4704	7.575

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	64	7.355		7.474083
A:				
Opacity_CR1	13	10.05	0.8709075	2.575917
Opacity_CR2	15	5.721334	0.8107708	-1.75275
Opacity_CR4	18	6.786667	0.7401291	-0.6874167
Opacity_CR5	18	7.338333	0.7401291	-0.13575

Plots of Means Section



Database
Response Opacity_CR1,Opacity_CR2,Opacity_CR4,Opacity_CR5

Duncan's Multiple-Comparison Test

Response: Opacity_CR1,Opacity_CR2,Opacity_CR4,Opacity_CR5
Term A:

Alpha=0.050 Error Term=S(A) DF=60 MSE=9.86024

Group	Count	Mean	Different From Groups
Opacity_CR2	15	5.721334	Opacity_CR1
Opacity_CR4	18	6.786667	Opacity_CR1
Opacity_CR5	18	7.338333	Opacity_CR1
Opacity_CR1	13	10.05	Opacity_CR2, Opacity_CR4, Opacity_CR5

Kruskal-Wallis Multiple-Comparison Z-Value Test

Variable	Opacity_CR1	Opacity_CR2	Opacity_CR4	Opacity_CR5
Opacity_CR1	0.0000	2.1963	1.3552	0.9166
Opacity_CR2	2.1963	0.0000	0.9696	1.4262
Opacity_CR4	1.3552	0.9696	0.0000	0.4789
Opacity_CR5	0.9166	1.4262	0.4789	0.0000

Regular Test: Medians significantly different if z-value > 1.9600
Bonferroni Test: Medians significantly different if z-value > 2.6383

CR Unit 1 Report.RTF

Multiple Regression Report

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Database C:\Documents and Settings\gp ... s Air Stats\Progress Air2.S0
Dependent PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_CR1	13	10.05	5.283563	5.06	19.84
PM_CR1	13	4.214615E-02	0.0213987	0.0155	0.0686

Correlation Matrix Section

	OP_CR1	PM_CR1
OP_CR1	1.000000	0.575448
PM_CR1	0.575448	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	1.872369E-02	1.124455E-02	1.6651	0.124079	Accept Ho	0.467602
OP_CR1	2.330593E-03	9.986924E-04	2.3336	0.039614	Reject Ho	0.706095
R-Squared	0.331140					

Model
1.872369E-02+ 2.330593E-03*OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	1.872369E-02	1.124455E-02	-1.470218E-03	0.0389176	0.0000
OP_CR1	2.330593E-03	9.986924E-04	5.370567E-04	4.12413E-03	0.5754
T-Critical	1.795885				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	2.309188E-02	2.309188E-02			
Model	1	1.819566E-03	1.819566E-03	5.4459	0.039614	0.706095
Error	11	3.675286E-03	3.341169E-04			
Total(Adjusted)	12	5.494852E-03	4.579044E-04			

Root Mean Square Error	1.827887E-02	R-Squared	0.3311
Mean of Dependent	4.214615E-02	Adj R-Squared	0.2703
Coefficient of Variation	0.4337018	Press Value	4.72136E-03
Sum |Press Residuals|	0.2018986	Press R-Squared	0.1408

Multiple Regression Report

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Database C:\Documents and Settings\gp ... s Air Stats\Progress Air2.S0
Dependent PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	0.2862	0.774696	Accepted
Kurtosis	-0.1589	0.873764	Accepted
Omnibus	0.1072	0.947823	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.135560	9	-0.192509	17	
2	0.332149	10	-0.131770	18	
3	-0.241193	11	-0.142476	19	
4	-0.084400	12	0.047548	20	
5	-0.334100	13	-0.041155	21	
6	0.085628	14	0.161151	22	
7	-0.187123	15		23	
8	0.092689	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700
Durbin-Watson Value 1.3063

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_CR1	0.331140	0.331140	0.331140	0.331140	0.331140

Multiple Regression Report

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Database C:\Documents and Settings\gp ... s Air Stats\Progress Air2.S0
Dependent PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0678	4.988372E-02	6.057631E-03	3.900491E-02	6.076253E-02
2	0.0624	5.878659E-02	8.749153E-03	4.307412E-02	7.449906E-02
3	0.0662	5.750476E-02	8.307581E-03	4.258531E-02	7.242422E-02
4	0.0686	6.496266E-02	0.0110134	4.518387E-02	8.474145E-02
5	0.0245				
6	0.0525				
7	0.0497	0.0305398	7.101893E-03	1.778562E-02	4.329398E-02
8	0.0275	3.051649E-02	7.10889E-03	1.774975E-02	4.328324E-02
9	0.0351	3.321998E-02	6.350737E-03	2.181479E-02	4.462517E-02
10	0.0214	4.328815E-02	5.093209E-03	3.414133E-02	5.243496E-02
11	0.026	4.275211E-02	5.076291E-03	3.363568E-02	5.186854E-02
12	0.0155	4.345129E-02	0.0051004	3.429155E-02	5.261102E-02
13	0.0276	3.084278E-02	7.011585E-03	1.825078E-02	4.343478E-02
14	0.0155	3.060972E-02	7.080944E-03	1.789316E-02	4.332628E-02
15	0.0646	3.154195E-02	6.808061E-03	1.931546E-02	4.376845E-02
16		2.105429E-02	0.0103629	2.443706E-03	3.966486E-02
17		2.338488E-02	9.504443E-03	6.315994E-03	4.045377E-02
18		2.571547E-02	8.676054E-03	1.013428E-02	4.129666E-02
19		2.804607E-02	7.887213E-03	1.388154E-02	4.221059E-02
20		3.503785E-02	5.914346E-03	2.441636E-02	4.565933E-02
21		3.736844E-02	5.467433E-03	2.754956E-02	4.718732E-02
22		3.969903E-02	5.17696E-03	3.040181E-02	4.899625E-02
23		4.202962E-02	5.069891E-03	3.292469E-02	5.113456E-02
24		4.436022E-02	5.157658E-03	3.509765E-02	5.362278E-02
25		4.669081E-02	5.430825E-03	3.693767E-02	5.644395E-02
26		0.0490214	5.863536E-03	3.849117E-02	5.955164E-02
27		0.051352	6.42363E-03	0.0398159	6.288809E-02
28		5.368259E-02	7.080944E-03	4.096603E-02	6.639915E-02
29		5.601318E-02	7.810972E-03	4.198558E-02	7.004078E-02
30		5.834378E-02	8.595206E-03	4.290778E-02	7.377978E-02
31		6.067437E-02	9.420118E-03	4.375692E-02	7.759181E-02
32		6.300496E-02	1.027592E-02	0.0445506	8.145932E-02
33		6.533556E-02	1.115549E-02	4.530157E-02	8.536954E-02
34		6.766615E-02	1.205365E-02	4.601919E-02	8.931311E-02
35		6.999674E-02	1.296652E-02	4.671037E-02	9.328312E-02
36		7.698852E-02	1.576768E-02	4.867159E-02	0.1053055
37		1.872369E-02	1.124455E-02	-1.470218E-03	0.0389176
38		7.232734E-02	0.0138912	4.738034E-02	9.727433E-02
39		7.465793E-02	1.482549E-02	4.803305E-02	0.1012828
40		7.931911E-02	1.671643E-02	4.929834E-02	0.1093399
41		8.164971E-02	1.767068E-02	0.0499152	0.1133842
42		0.0839803	1.862959E-02	0.0505237	0.1174369
43		8.631089E-02	1.959248E-02	5.112506E-02	0.1214967
44		8.864149E-02	2.055879E-02	5.172028E-02	0.1255627

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Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0678	4.988372E-02	1.925647E-02	1.530131E-02	8.446613E-02
2	0.0624	5.878659E-02	2.026486E-02	2.239323E-02	9.517995E-02
3	0.0662	5.750476E-02	2.007817E-02	2.144669E-02	9.356284E-02
4	0.0686	6.496266E-02	2.134038E-02	0.0266378	0.1032875
5	0.0245				
6	0.0525				
7	0.0497	0.0305398	1.961004E-02	-4.677579E-03	6.575718E-02
8	0.0275	3.051649E-02	1.961258E-02	-4.705438E-03	6.573842E-02
9	0.0351	3.321998E-02	1.935068E-02	-1.531608E-03	6.797157E-02
10	0.0214	4.328815E-02	1.897519E-02	9.210897E-03	7.736539E-02
11	0.026	4.275211E-02	1.897065E-02	8.683003E-03	7.682122E-02
12	0.0155	4.345129E-02	1.897712E-02	9.370569E-03	0.077532
13	0.0276	3.084278E-02	1.957752E-02	-4.316191E-03	6.600174E-02
14	0.0155	3.060972E-02	1.960247E-02	-4.594053E-03	6.581349E-02
15	0.0646	3.154195E-02	1.950555E-02	-3.487772E-03	6.657168E-02
16		2.105429E-02	2.101206E-02	-1.668095E-02	5.878953E-02
17		2.338488E-02	2.060222E-02	-1.361433E-02	6.038409E-02
18		2.571547E-02	2.023341E-02	-0.0106214	6.205234E-02
19		2.804607E-02	1.990791E-02	-7.706256E-03	6.379838E-02
20		3.503785E-02	1.921188E-02	5.355182E-04	6.954017E-02
21		3.736844E-02	1.907904E-02	3.104682E-03	7.163219E-02
22		3.969903E-02	1.899784E-02	5.581103E-03	7.381696E-02
23		4.202962E-02	1.896894E-02	7.963592E-03	7.609566E-02
24		4.436022E-02	1.899259E-02	1.025172E-02	7.846872E-02
25		4.669081E-02	1.906858E-02	1.244584E-02	8.093578E-02
26		0.0490214	0.0191963	1.454706E-02	8.349575E-02
27		0.051352	1.937472E-02	1.655722E-02	8.614677E-02
28		5.368259E-02	1.960247E-02	1.847882E-02	8.888636E-02
29		5.601318E-02	1.987783E-02	2.031489E-02	9.171148E-02
30		5.834378E-02	2.019887E-02	2.206893E-02	9.461863E-02
31		6.067437E-02	2.056345E-02	2.374478E-02	9.760396E-02
32		6.300496E-02	0.0209693	2.534652E-02	0.1006634
33		6.533556E-02	2.141406E-02	2.687837E-02	0.1037927
34		6.766615E-02	2.189537E-02	2.834458E-02	0.1069877
35		6.999674E-02	2.241088E-02	2.974938E-02	0.1102441
36		7.698852E-02	2.413994E-02	3.363597E-02	0.1203411
37		1.872369E-02	2.146059E-02	-1.981705E-02	5.726443E-02
38		7.232734E-02	2.295827E-02	3.109692E-02	0.1135578
39		7.465793E-02	2.353534E-02	3.239117E-02	0.1169247
40		7.931911E-02	2.477006E-02	3.483494E-02	0.1238033
41		8.164971E-02	0.0254238	3.599148E-02	0.1273079
42		0.0839803	0.0260994	3.710879E-02	0.1308518
43		8.631089E-02	2.679519E-02	3.818982E-02	0.134432
44		8.864149E-02	2.750964E-02	3.923734E-02	0.1380456

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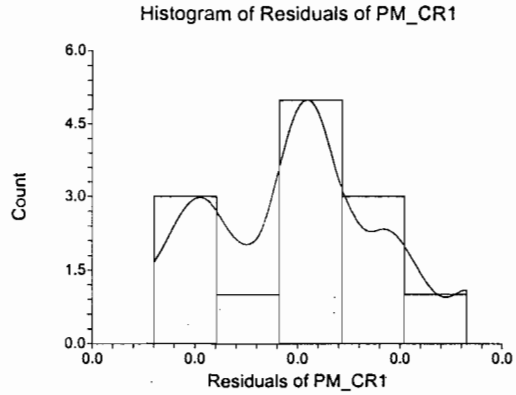
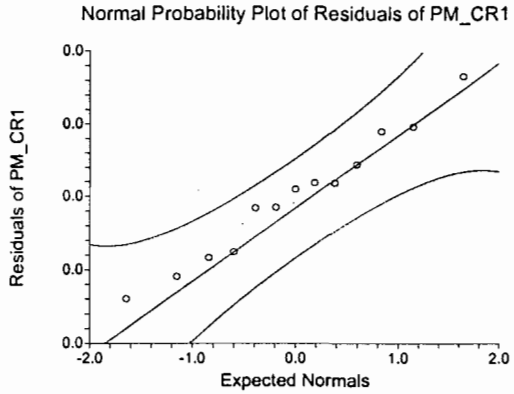
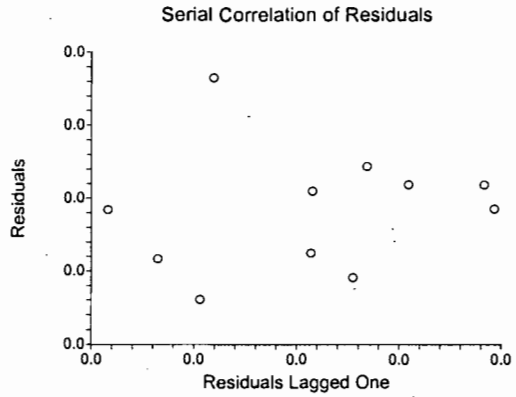
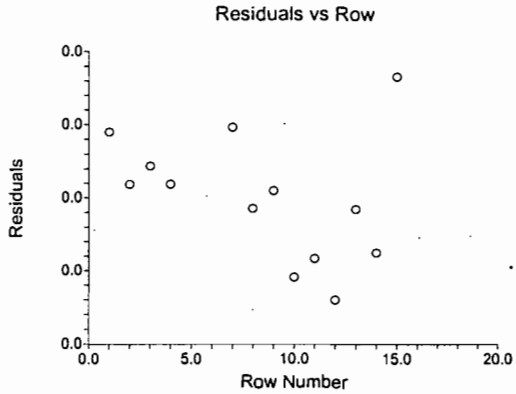
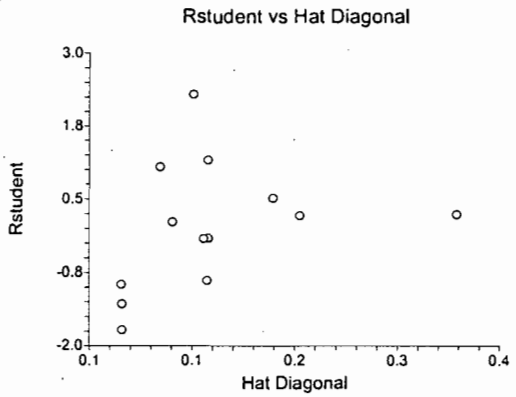
Plots Section

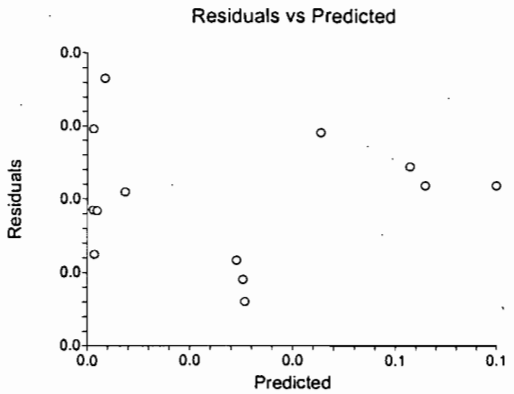












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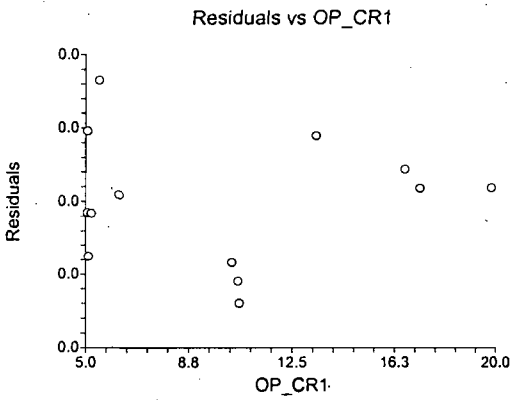

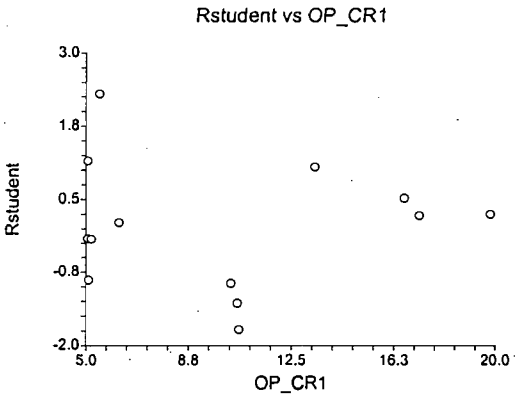

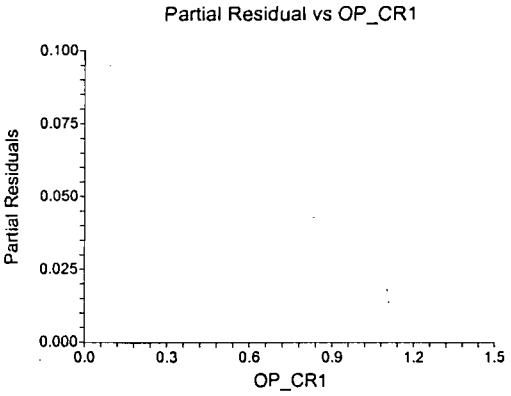

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_CR1	13	10.05	5.283563	5.06	19.84
PM_CR1	13	4.214615E-02	0.0213987	0.0155	0.0686

Correlation Matrix Section

	OP_CR1	PM_CR1
OP_CR1	1.000000	0.575448
PM_CR1	0.575448	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
OP_CR1	3.814946E-03	4.823762E-04	7.9087	0.000004	Reject Ho	1.000000
R-Squared	0.839027					

Model
3.814946E-03*OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
OP_CR1	3.814946E-03	4.823762E-04	2.955213E-03	4.674679E-03	0.9160
T-Critical	1.782288				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	2.398505E-02	2.398505E-02	62.5468	0.000004	1.000000
Error	12	4.601684E-03	3.834736E-04			
Total(Adjusted)	13	2.858673E-02	2.198979E-03			

Root Mean Square Error	1.958248E-02	R-Squared	0.8390
Mean of Dependent	4.214615E-02	Adj R-Squared	0.8390
Coefficient of Variation	0.4646327	Press Value	5.004543E-03
Sum |Press Residuals|	0.2036745	Press R-Squared	0.0892

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	1.9579	0.050245	Rejected
Kurtosis	0.8983	0.369034	Accepted
Omnibus	4.6402	0.098265	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.050732	9	-0.086153	17	
2	0.198044	10	-0.020721	18	
3	-0.539201	11	-0.166044	19	
4	-0.218146	12	0.056837	20	
5	-0.372659	13	-0.044570	21	
6	0.292771	14	0.159186	22	
7	0.083070	15		23	
8	0.372845	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.5173

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_CR1	0.839027	0.839027	0.839027	0.839027	0.839027

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0678	5.100583E-02	6.44937E-03	0.0395112	6.250046E-02
2	0.0624	6.557892E-02	8.292047E-03	5.080011E-02	8.035773E-02
3	0.0662	6.348071E-02	8.026741E-03	4.917474E-02	7.778666E-02
4	0.0686	7.568853E-02	9.570344E-03	5.863142E-02	9.274563E-02
5	0.0245				
6	0.0525				
7	0.0497	1.934178E-02	2.445647E-03	1.498293E-02	2.370062E-02
8	0.0275	1.930363E-02	2.440824E-03	1.495338E-02	2.365388E-02
9	0.0351	2.372896E-02	3.00038E-03	1.838142E-02	0.0290765
10	0.0214	4.020953E-02	5.084245E-03	3.114794E-02	4.927112E-02
11	0.026	3.933209E-02	4.973299E-03	3.046824E-02	4.819594E-02
12	0.0155	4.047658E-02	5.118011E-03	3.135481E-02	4.959834E-02
13	0.0276	1.983772E-02	2.508356E-03	1.536711E-02	2.430833E-02
14	0.0155	1.945622E-02	2.460119E-03	1.507159E-02	2.384086E-02
15	0.0646	0.0209822	2.653069E-03	1.625367E-02	2.571074E-02
16		3.814946E-03	4.823762E-04	2.955213E-03	4.674679E-03
17		7.629892E-03	9.647524E-04	5.910426E-03	9.349358E-03
18		1.144484E-02	1.447129E-03	8.865639E-03	1.402404E-02
19		1.525978E-02	1.929505E-03	1.182085E-02	1.869872E-02
20		2.670462E-02	3.376633E-03	2.068649E-02	3.272275E-02
21		3.051957E-02	3.85901E-03	0.0236417	3.739743E-02
22		3.433451E-02	4.341386E-03	2.659692E-02	4.207211E-02
23		3.814946E-02	4.823762E-03	2.955213E-02	4.674679E-02
24		0.0419644	5.306138E-03	3.250734E-02	5.142147E-02
25		4.577935E-02	5.788514E-03	3.546255E-02	5.609615E-02
26		0.0495943	6.270891E-03	3.841777E-02	6.077083E-02
27		5.340924E-02	6.753267E-03	4.137298E-02	6.544551E-02
28		5.722419E-02	7.235643E-03	4.432819E-02	7.012019E-02
29		6.103913E-02	7.718019E-03	4.728341E-02	7.479487E-02
30		6.485409E-02	8.200396E-03	5.023862E-02	7.946955E-02
31		6.866903E-02	8.682772E-03	5.319383E-02	8.414423E-02
32		7.248397E-02	9.165148E-03	5.614904E-02	0.0888189
33		7.629892E-02	9.647524E-03	5.910426E-02	9.349358E-02
34		8.011387E-02	0.0101299	6.205947E-02	9.816826E-02
35		8.392881E-02	1.061228E-02	6.501468E-02	0.1028429
36		9.537365E-02	1.205941E-02	7.388032E-02	0.116867
37		0	0	0	0
38		8.774376E-02	1.109465E-02	0.0679699	0.1075176
39		0.0915587	1.157703E-02	7.092511E-02	0.1121923
40		0.0991886	1.254178E-02	7.683554E-02	0.1215417
41		0.1030035	1.302416E-02	7.979075E-02	0.1262163
42		0.1068185	1.350653E-02	8.274596E-02	0.130891
43		0.1106334	1.398891E-02	8.570118E-02	0.1355657
44		0.1144484	1.447129E-02	8.865639E-02	0.1402404

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Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0678	5.100583E-02	2.061718E-02	1.426009E-02	8.775157E-02
2	0.0624	6.557892E-02	2.126574E-02	2.767726E-02	0.1034806
3	0.0662	6.348071E-02	0.0211637	0.0257609	0.1012005
4	0.0686	7.568853E-02	2.179599E-02	3.684181E-02	0.1145352
5	0.0245				
6	0.0525				
7	0.0497	1.934178E-02	1.973461E-02	-1.583097E-02	5.451453E-02
8	0.0275	1.930363E-02	1.973401E-02	-1.586806E-02	5.447531E-02
9	0.0351	2.372896E-02	0.019811	-1.157994E-02	5.903787E-02
10	0.0214	4.020953E-02	2.023174E-02	4.150757E-03	7.626831E-02
11	0.026	3.933209E-02	2.020414E-02	3.322503E-03	7.534169E-02
12	0.0155	4.047658E-02	2.024025E-02	4.402632E-03	7.655052E-02
13	0.0276	1.983772E-02	1.974248E-02	-1.534906E-02	5.502449E-02
14	0.0155	1.945622E-02	1.973641E-02	-1.571973E-02	5.463218E-02
15	0.0646	0.0209822	1.976139E-02	-1.423827E-02	5.620268E-02
16		3.814946E-03	1.958842E-02	-3.109726E-02	3.872715E-02
17		7.629892E-03	1.960623E-02	-2.731405E-02	4.257384E-02
18		1.144484E-02	1.963588E-02	-2.355195E-02	4.644163E-02
19		1.525978E-02	1.967731E-02	-1.981085E-02	5.033042E-02
20		2.670462E-02	1.987147E-02	-8.712051E-03	6.212129E-02
21		3.051957E-02	0.0199591	-5.053285E-03	6.609242E-02
22		3.433451E-02	2.005795E-02	-1.414517E-03	7.008354E-02
23		3.814946E-02	2.016785E-02	2.204545E-03	7.409438E-02
24		0.0419644	2.028864E-02	5.804223E-03	7.812459E-02
25		4.577935E-02	0.0204201	9.384859E-03	8.217385E-02
26		0.0495943	2.056205E-02	1.294682E-02	8.624177E-02
27		5.340924E-02	2.071425E-02	1.649049E-02	0.090328
28		5.722419E-02	0.0208765	2.001627E-02	9.443212E-02
29		6.103913E-02	2.104855E-02	2.352457E-02	0.0985537
30		6.485409E-02	2.123017E-02	2.701581E-02	0.1026924
31		6.866903E-02	2.142112E-02	3.049044E-02	0.1068476
32		7.248397E-02	2.162114E-02	3.394889E-02	0.1110191
33		7.629892E-02	2.182999E-02	0.0373916	0.1152062
34		8.011387E-02	2.204742E-02	4.081903E-02	0.1194087
35		8.392881E-02	2.227317E-02	4.423162E-02	0.123626
36		9.537365E-02	2.299789E-02	0.0543848	0.1363625
37		0	1.958248E-02	-3.490162E-02	3.490162E-02
38		8.774376E-02	0.022507	4.762981E-02	0.1278577
39		0.0915587	2.274865E-02	5.101406E-02	0.1321034
40		0.0991886	2.325446E-02	5.774246E-02	0.1406347
41		0.1030035	2.351813E-02	6.108747E-02	0.1449196
42		0.1068185	2.378866E-02	6.442026E-02	0.1492167
43		0.1106334	2.406581E-02	6.774124E-02	0.1535256
44		0.1144484	2.434937E-02	0.0710508	0.157846

Multiple Regression Report

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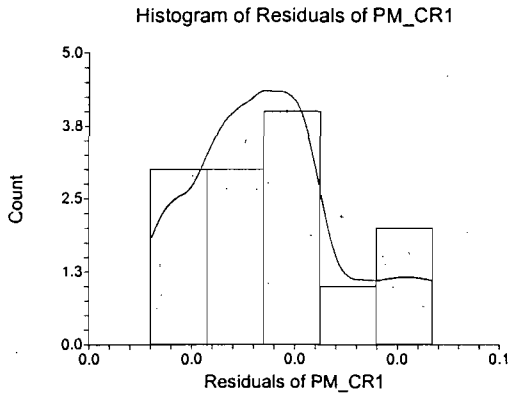
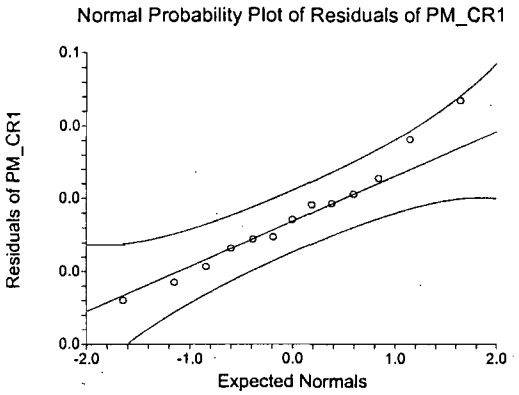
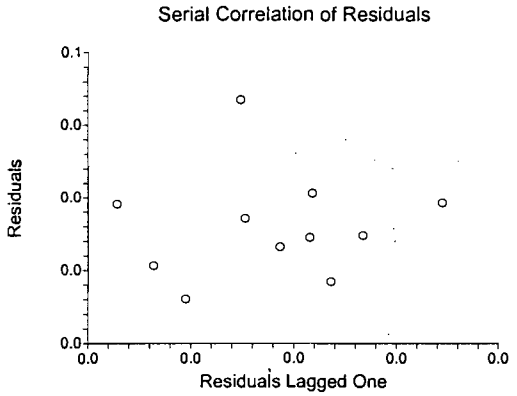
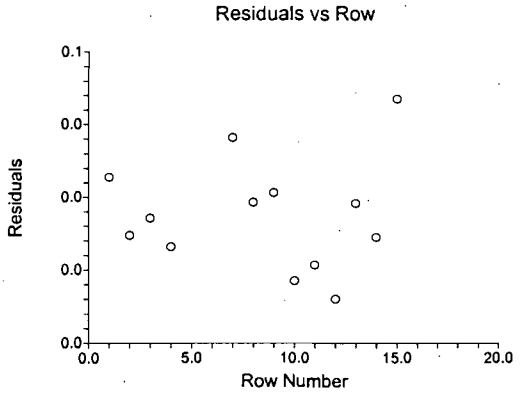
Dependent PM_CR1

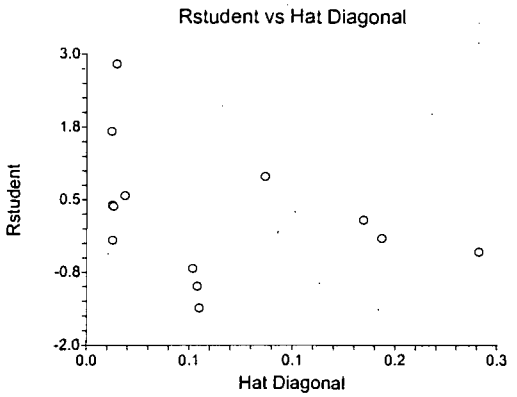
Plots Section

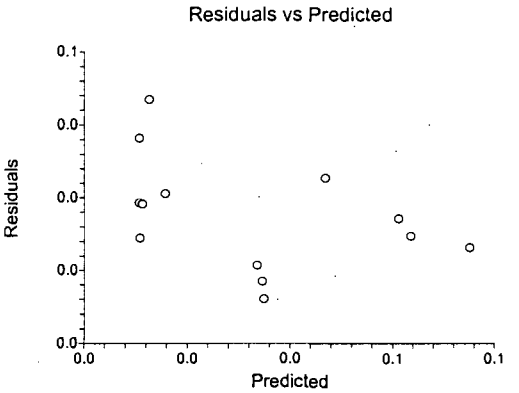












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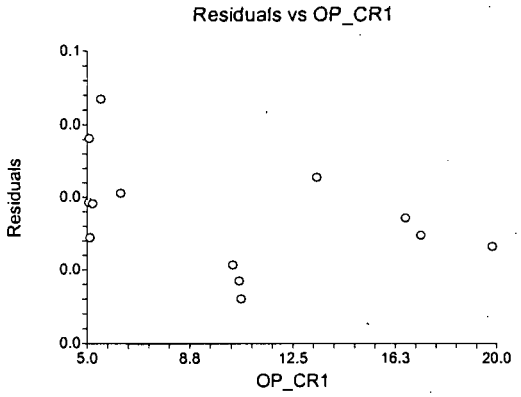
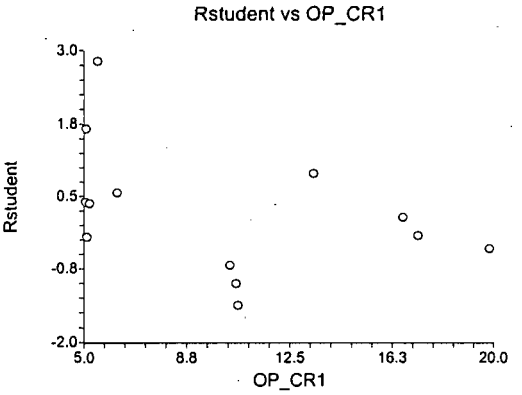
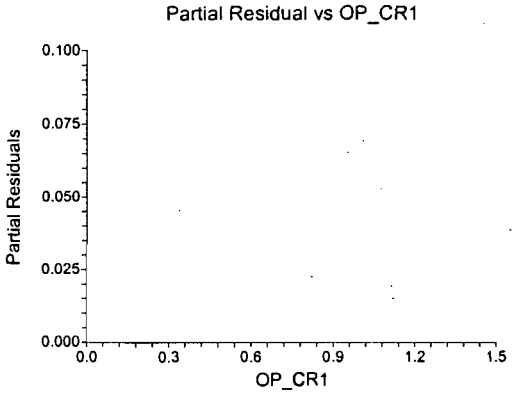
Dependent PM_CR1







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Dependent Log_PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_CR1	13	10.05	5.283563	5.06	19.84
Log_PM_CR1	13	1.784422E-02	8.909931E-03	6.679928E-03	2.881517E-02

Correlation Matrix Section

	OP_CR1	Log_PM_CR1
OP_CR1	1.000000	0.573178
Log_PM_CR1	0.573178	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	8.130098E-03	4.691088E-03	1.7331	0.110982	Accept Ho	0.492794
OP_CR1	9.665788E-04	4.166423E-04	2.3199	0.040583	Reject Ho	0.701671
R-Squared	0.328533					

Model
8.130098E-03+ 9.665788E-04*OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	8.130098E-03	4.691088E-03	-2.945557E-04	1.655475E-02	0.0000
OP_CR1	9.665788E-04	4.166423E-04	2.183373E-04	1.71482E-03	0.5732
T-Critical	1.795885				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	4.139408E-03	4.139408E-03			
Model	1	3.129749E-04	3.129749E-04	5.3821	0.040583	0.701671
Error	11	6.396676E-04	5.81516E-05			
Total(Adjusted)	12	9.526425E-04	7.938687E-05			

Root Mean Square Error	7.625719E-03	R-Squared	0.3285
Mean of Dependent	1.784422E-02	Adj R-Squared	0.2675
Coefficient of Variation	0.4273497	Press Value	8.217813E-04
Sum |Press Residuals|	8.430359E-02	Press R-Squared	0.1374

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Dependent	Log_PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	0.2663	0.790003	Accepted
Kurtosis	-0.1710	0.864238	Accepted
Omnibus	0.1002	0.951156	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.132907	9	-0.192276	17	
2	0.334402	10	-0.131595	18	
3	-0.243156	11	-0.143055	19	
4	-0.082009	12	0.046988	20	
5	-0.334435	13	-0.041037	21	
6	0.087344	14	0.159741	22	
7	-0.187202	15		23	
8	0.093383	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.3147

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_CR1	0.328533	0.328533	0.328533	0.328533	0.328533

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	2.848992E-02	2.105326E-02	2.52717E-03	1.651475E-02	2.559176E-02
2	2.628806E-02	2.474559E-02	3.650039E-03	1.819054E-02	3.130064E-02
3	2.783868E-02	2.421397E-02	3.465821E-03	1.798975E-02	3.043818E-02
4	2.881517E-02	2.730702E-02	4.594655E-03	1.905555E-02	3.555849E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.303065E-02	2.962823E-03	7.709763E-03	1.835154E-02
8	1.178183E-02	1.302099E-02	2.965742E-03	7.694854E-03	1.834712E-02
9	1.498231E-02	1.414222E-02	2.64945E-03	9.384111E-03	1.890033E-02
10	9.195854E-03	1.831784E-02	2.124824E-03	0.0145019	2.213378E-02
11	1.114736E-02	1.809552E-02	2.117766E-03	1.429226E-02	2.189879E-02
12	6.679928E-03	0.0183855	2.127825E-03	1.456417E-02	2.220683E-02
13	0.0118241	1.315631E-02	2.925148E-03	7.903079E-03	1.840954E-02
14	6.679928E-03	1.305965E-02	2.954083E-03	7.754456E-03	1.836484E-02
15	2.718646E-02	1.344628E-02	2.84024E-03	8.345537E-03	1.854702E-02
16		9.096676E-03	4.323276E-03	1.33257E-03	1.686078E-02
17		1.006326E-02	3.965138E-03	2.942324E-03	1.718418E-02
18		1.102983E-02	3.619544E-03	4.529551E-03	1.753012E-02
19		1.199641E-02	3.290449E-03	6.087145E-03	1.790568E-02
20		1.489615E-02	2.467393E-03	0.010465	0.0193273
21		1.586273E-02	2.280946E-03	1.176641E-02	1.995904E-02
22		1.682931E-02	2.159765E-03	1.295062E-02	2.070799E-02
23		1.779588E-02	2.115097E-03	1.399742E-02	2.159435E-02
24		1.876246E-02	2.151712E-03	1.489824E-02	2.262669E-02
25		1.972904E-02	2.265674E-03	1.566015E-02	2.379793E-02
26		2.069562E-02	2.446196E-03	1.630254E-02	2.508871E-02
27		0.0216622	2.67986E-03	1.684948E-02	2.647492E-02
28		2.262878E-02	2.954083E-03	1.732359E-02	2.793397E-02
29		2.359536E-02	3.258642E-03	1.774321E-02	0.0294475
30		2.456194E-02	3.585815E-03	1.812223E-02	3.100165E-02
31		2.552852E-02	3.929958E-03	1.847076E-02	3.258627E-02
32		0.0264951	4.286987E-03	1.879616E-02	3.419403E-02
33		2.746167E-02	4.653936E-03	1.910374E-02	3.581961E-02
34		2.842825E-02	5.028635E-03	0.0193974	0.0374591
35		2.939483E-02	5.409473E-03	1.968004E-02	3.910962E-02
36		3.229457E-02	6.578083E-03	2.048109E-02	4.410805E-02
37		8.130098E-03	4.691088E-03	-2.945557E-04	1.655475E-02
38		3.036141E-02	5.79524E-03	1.995383E-02	0.040769
39		3.132799E-02	6.185014E-03	2.022042E-02	4.243556E-02
40		3.326115E-02	6.973889E-03	2.073685E-02	4.578545E-02
41		3.422773E-02	7.371992E-03	2.098848E-02	4.746697E-02
42		0.0351943	7.772039E-03	2.123662E-02	4.915199E-02
43		3.616088E-02	8.173743E-03	2.148178E-02	5.083999E-02
44		3.712746E-02	8.576874E-03	2.172438E-02	5.253054E-02

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	2.848992E-02	2.105326E-02	8.033566E-03	6.625897E-03	3.548061E-02
2	2.628806E-02	2.474559E-02	8.454252E-03	9.562724E-03	3.992845E-02
3	2.783868E-02	2.421397E-02	8.376366E-03	9.17098E-03	3.925696E-02
4	2.881517E-02	2.730702E-02	8.902946E-03	1.131836E-02	4.329569E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.303065E-02	8.181071E-03	-1.661608E-03	2.772291E-02
8	1.178183E-02	1.302099E-02	8.182128E-03	-1.673174E-03	2.771515E-02
9	1.498231E-02	1.414222E-02	8.072867E-03	-3.557214E-04	2.864016E-02
10	9.195854E-03	1.831784E-02	7.916216E-03	4.101227E-03	3.253445E-02
11	1.114736E-02	1.809552E-02	7.914324E-03	3.88231E-03	3.230874E-02
12	6.679928E-03	0.0183855	7.917021E-03	4.16744E-03	3.260356E-02
13	0.0118241	1.315631E-02	8.167502E-03	-1.511585E-03	0.0278242
14	6.679928E-03	1.305965E-02	8.177909E-03	-1.626934E-03	2.774623E-02
15	2.718646E-02	1.344628E-02	8.137478E-03	-1.167693E-03	2.806026E-02
16		9.096676E-03	8.765975E-03	-6.646005E-03	2.483936E-02
17		1.006326E-02	8.594994E-03	-5.372363E-03	2.549887E-02
18		1.102983E-02	8.441131E-03	-4.129465E-03	2.618913E-02
19		1.199641E-02	8.305339E-03	-2.919019E-03	2.691184E-02
20		1.489615E-02	8.014962E-03	5.021999E-04	0.0292901
21		1.586273E-02	7.959542E-03	1.568307E-03	3.015715E-02
22		1.682931E-02	7.925666E-03	2.595724E-03	3.106289E-02
23		1.779588E-02	7.91361E-03	3.583953E-03	3.200782E-02
24		1.876246E-02	7.923475E-03	4.532815E-03	3.299211E-02
25		1.972904E-02	7.955179E-03	5.442458E-03	3.401563E-02
26		2.069562E-02	8.008462E-03	6.313346E-03	0.0350779
27		0.0216622	8.082898E-03	7.146247E-03	3.617816E-02
28		2.262878E-02	8.177909E-03	7.942197E-03	3.731536E-02
29		2.359536E-02	8.292789E-03	8.702465E-03	3.848825E-02
30		2.456194E-02	8.426723E-03	9.428513E-03	3.969536E-02
31		2.552852E-02	8.578821E-03	1.012194E-02	4.093509E-02
32		0.0264951	8.748134E-03	1.078445E-02	4.220574E-02
33		2.746167E-02	8.933685E-03	1.141781E-02	4.350554E-02
34		2.842825E-02	9.134482E-03	1.202377E-02	4.483273E-02
35		2.939483E-02	9.349545E-03	1.260413E-02	4.618554E-02
36		3.229457E-02	1.007089E-02	1.420841E-02	5.038072E-02
37		8.130098E-03	8.953094E-03	-7.948629E-03	2.420882E-02
38		3.036141E-02	9.577912E-03	1.316058E-02	4.756224E-02
39		3.132799E-02	9.818655E-03	1.369482E-02	4.896116E-02
40		3.326115E-02	1.033377E-02	1.470289E-02	0.0518194
41		3.422773E-02	0.0106065	1.517967E-02	5.327578E-02
42		0.0351943	1.088835E-02	1.564008E-02	5.474853E-02
43		3.616088E-02	1.117863E-02	1.608536E-02	5.623641E-02
44		3.712746E-02	1.147669E-02	1.651665E-02	5.773827E-02

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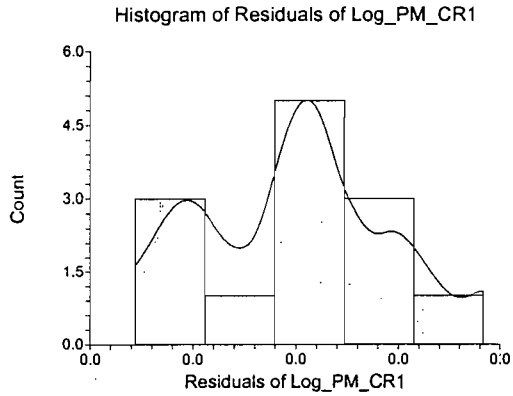
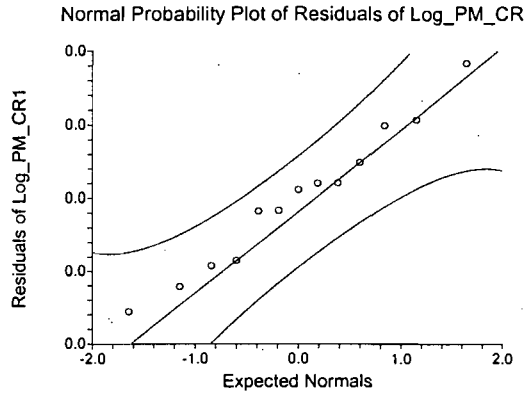
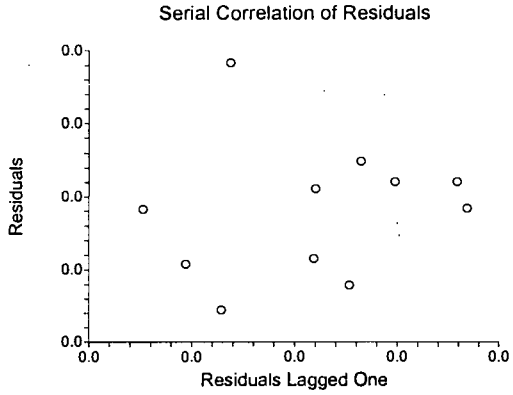
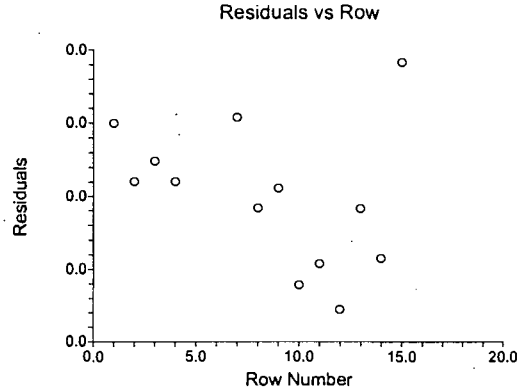
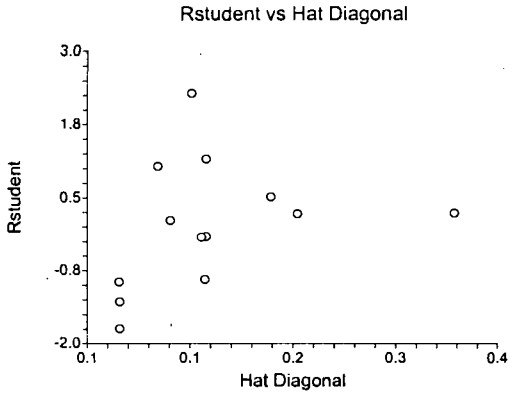
Plots Section

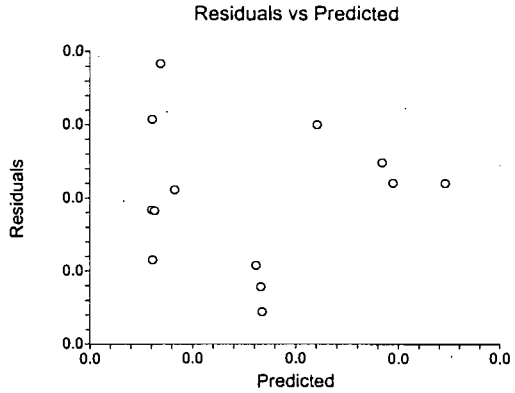












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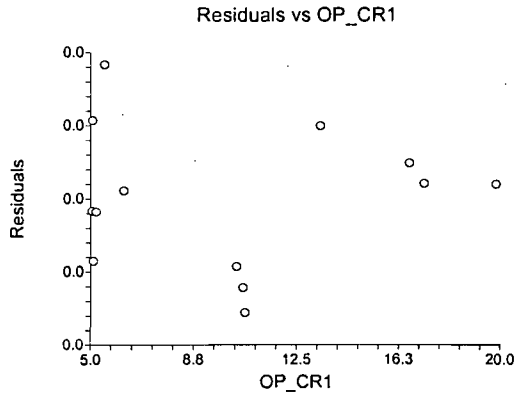
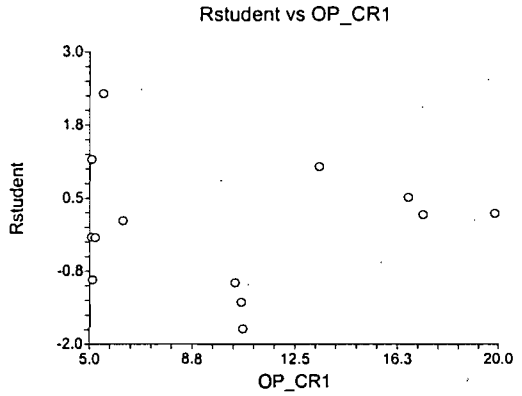
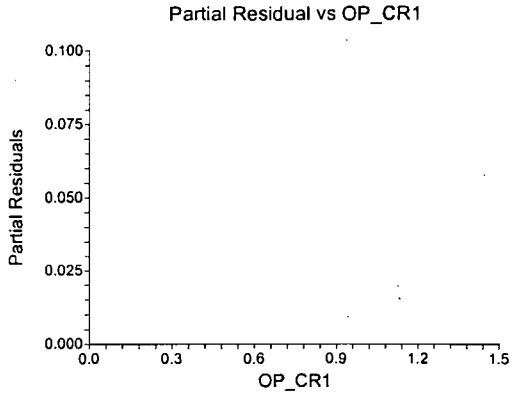
Dependent Log_PM_CR1







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Dependent Log_PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_CR1	13	10.05	5.283563	5.06	19.84
Log_PM_CR1	13	1.784422E-02	8.909931E-03	6.679928E-03	2.881517E-02

Correlation Matrix Section

	OP_CR1	Log_PM_CR1
OP_CR1	1.000000	0.573178
Log_PM_CR1	0.573178	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
OP_CR1	1.611106E-03	2.029217E-04	7.9395	0.000004	Reject Ho	1.000000
R-Squared	0.840078					

Model
1.611106E-03*OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
OP_CR1	1.611106E-03	2.029217E-04	1.249442E-03	1.972771E-03	0.9166
T-Critical	1.782288				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	4.277718E-03	4.277718E-03	63.0364	0.000004	1.000000
Error	12	8.143326E-04	6.786105E-05			
Total(Adjusted)	13	5.09205E-03	3.916962E-04			

Root Mean Square Error	8.237782E-03	R-Squared	0.8401
Mean of Dependent	1.784422E-02	Adj R-Squared	0.8401
Coefficient of Variation	0.46165	Press Value	8.853325E-04
Sum |Press Residuals|	8.585137E-02	Press R-Squared	0.0707

Multiple Regression Report

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Dependent	Log_PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	1.9855	0.047093	Rejected
Kurtosis	0.8927	0.372036	Accepted
Omnibus	4.7389	0.093532	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.051334	9	-0.083498	17	
2	0.198464	10	-0.018329	18	
3	-0.544831	11	-0.167636	19	
4	-0.217917	12	0.055241	20	
5	-0.371002	13	-0.044773	21	
6	0.299548	14	0.156387	22	
7	0.091027	15		23	
8	0.379378	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.5254

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_CR1	0.840078	0.840078	0.840078	0.840078	0.840078

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	2.848992E-02	2.154049E-02	2.713063E-03	1.670503E-02	2.637595E-02
2	2.628806E-02	2.769492E-02	3.488223E-03	0.0214779	3.391193E-02
3	2.783868E-02	2.680881E-02	3.376616E-03	2.079071E-02	3.282691E-02
4	2.881517E-02	3.196435E-02	4.025965E-03	2.478892E-02	3.913978E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	8.168309E-03	1.028813E-03	6.334668E-03	1.000195E-02
8	1.178183E-02	8.152198E-03	1.026784E-03	6.322174E-03	9.982221E-03
9	1.498231E-02	1.002108E-02	1.262173E-03	7.771526E-03	1.227064E-02
10	9.195854E-03	1.698106E-02	2.138794E-03	1.316911E-02	2.079301E-02
11	1.114736E-02	1.661051E-02	2.092122E-03	1.288174E-02	2.033927E-02
12	6.679928E-03	1.709384E-02	2.152999E-03	1.325657E-02	0.0209311
13	0.0118241	8.377752E-03	1.055193E-03	6.497096E-03	1.025841E-02
14	6.679928E-03	8.216642E-03	0.0010349	6.372151E-03	1.006113E-02
15	2.718646E-02	8.861084E-03	1.116069E-03	6.871928E-03	1.085024E-02
16		1.611106E-03	2.029217E-04	1.249442E-03	1.972771E-03
17		3.222212E-03	4.058433E-04	2.498883E-03	3.945542E-03
18		4.833319E-03	6.08765E-04	3.748324E-03	5.918313E-03
19		6.444425E-03	8.116866E-04	4.997766E-03	7.891084E-03
20		1.127774E-02	1.420452E-03	8.74609E-03	0.0138094
21		1.288885E-02	1.623373E-03	9.995532E-03	1.578217E-02
22		1.449996E-02	1.826295E-03	1.124497E-02	1.775494E-02
23		1.611106E-02	2.029217E-03	1.249442E-02	1.972771E-02
24		1.772217E-02	2.232138E-03	1.374386E-02	2.170048E-02
25		1.933328E-02	2.43506E-03	0.0149933	2.367325E-02
26		2.094438E-02	2.637981E-03	1.624274E-02	2.564602E-02
27		2.255549E-02	2.840903E-03	1.749218E-02	2.761879E-02
28		2.416659E-02	3.043825E-03	1.874162E-02	2.959156E-02
29		0.0257777	3.246746E-03	1.999106E-02	3.156434E-02
30		2.738881E-02	3.449668E-03	2.124051E-02	3.353711E-02
31		2.899991E-02	3.65259E-03	2.248995E-02	3.550988E-02
32		3.061102E-02	3.855512E-03	2.373939E-02	3.748265E-02
33		3.222213E-02	4.058433E-03	2.498883E-02	3.945542E-02
34		3.383323E-02	4.261355E-03	2.623827E-02	4.142819E-02
35		3.544434E-02	4.464277E-03	2.748771E-02	4.340096E-02
36		4.027766E-02	5.073042E-03	3.123604E-02	4.931927E-02
37		0	0	0	0
38		3.705544E-02	4.667198E-03	2.873715E-02	4.537373E-02
39		3.866655E-02	4.87012E-03	0.0299866	0.0473465
40		4.188876E-02	5.275963E-03	3.248548E-02	5.129205E-02
41		4.349987E-02	5.478885E-03	3.373492E-02	5.326482E-02
42		4.511097E-02	5.681806E-03	3.498436E-02	5.523759E-02
43		4.672208E-02	5.884728E-03	3.623381E-02	5.721036E-02
44		4.833319E-02	6.08765E-03	3.748325E-02	5.918313E-02

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	2.848992E-02	2.154049E-02	8.673048E-03	6.082625E-03	3.699835E-02
2	2.628806E-02	2.769492E-02	8.945879E-03	1.175079E-02	4.363905E-02
3	2.783868E-02	2.680881E-02	8.902954E-03	1.094118E-02	4.267643E-02
4	2.881517E-02	3.196435E-02	9.16894E-03	1.562266E-02	4.830603E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	8.168309E-03	8.301777E-03	-6.627846E-03	2.296446E-02
8	1.178183E-02	8.152198E-03	8.301526E-03	-6.643509E-03	0.0229479
9	1.498231E-02	1.002108E-02	8.333914E-03	-4.832351E-03	2.487451E-02
10	9.195854E-03	1.698106E-02	8.510904E-03	1.812181E-03	3.214994E-02
11	1.114736E-02	1.661051E-02	8.499295E-03	1.462317E-03	0.0317587
12	6.679928E-03	1.709384E-02	8.514485E-03	1.918577E-03	0.0322691
13	0.0118241	8.377752E-03	8.305088E-03	-6.424302E-03	2.317981E-02
14	6.679928E-03	8.216642E-03	8.302534E-03	-6.580861E-03	2.301414E-02
15	2.718646E-02	8.861084E-03	8.313041E-03	-5.955146E-03	2.367732E-02
16		1.611106E-03	8.240281E-03	-1.307544E-02	1.629766E-02
17		3.222212E-03	8.247773E-03	-1.147769E-02	1.792212E-02
18		4.833319E-03	8.260245E-03	-9.888813E-03	1.955545E-02
19		6.444425E-03	8.277674E-03	-8.30877E-03	2.119762E-02
20		1.127774E-02	8.35935E-03	-3.621022E-03	2.617651E-02
21		1.288885E-02	8.396213E-03	-2.075616E-03	2.785332E-02
22		1.449996E-02	8.437796E-03	-5.386228E-04	2.953853E-02
23		1.611106E-02	8.48403E-03	9.900809E-04	3.123204E-02
24		1.772217E-02	8.534839E-03	2.51063E-03	3.293371E-02
25		1.933328E-02	8.590143E-03	4.023169E-03	3.464338E-02
26		2.094438E-02	8.649855E-03	5.527852E-03	3.636091E-02
27		2.255549E-02	8.713884E-03	7.02484E-03	3.808613E-02
28		2.416659E-02	8.782136E-03	8.514301E-03	3.981889E-02
29		0.0257777	8.854514E-03	9.99641E-03	4.155899E-02
30		2.738881E-02	8.930916E-03	1.147135E-02	4.330627E-02
31		2.899991E-02	9.011241E-03	1.293929E-02	4.506053E-02
32		3.061102E-02	9.095385E-03	1.440043E-02	4.682161E-02
33		3.222213E-02	9.183242E-03	1.585495E-02	0.0485893
34		3.383323E-02	9.274707E-03	1.730304E-02	5.036343E-02
35		3.544434E-02	9.369675E-03	1.874488E-02	5.214379E-02
36		4.027766E-02	9.674544E-03	2.303484E-02	5.752048E-02
37		0	8.237782E-03	-0.0146821	0.0146821
38		3.705544E-02	9.46804E-03	2.018067E-02	5.393022E-02
39		3.866655E-02	9.569698E-03	0.0216106	0.0557225
40		4.188876E-02	9.782476E-03	2.445358E-02	5.932395E-02
41		4.349987E-02	9.893393E-03	0.025867	6.113274E-02
42		4.511097E-02	0.0100072	2.727527E-02	6.294668E-02
43		4.672208E-02	1.012379E-02	2.867858E-02	6.476558E-02
44		4.833319E-02	1.024307E-02	3.007709E-02	6.658929E-02

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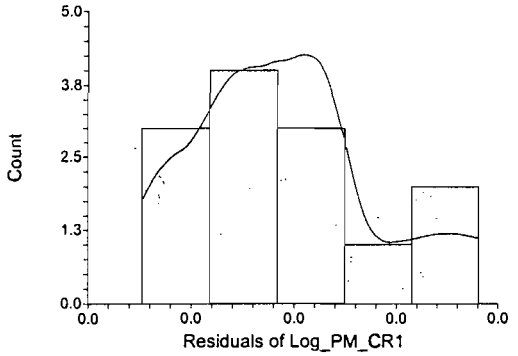
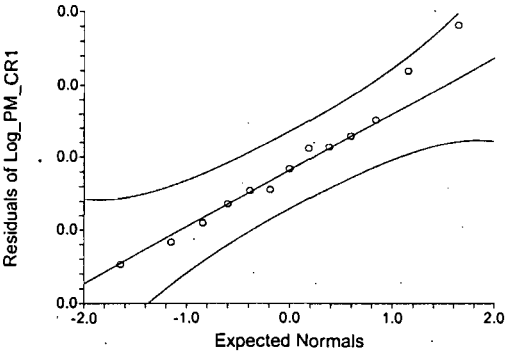
Plots Section

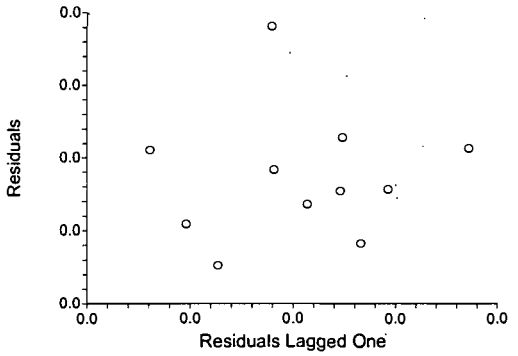
Histogram of Residuals of Log_PM_CR1



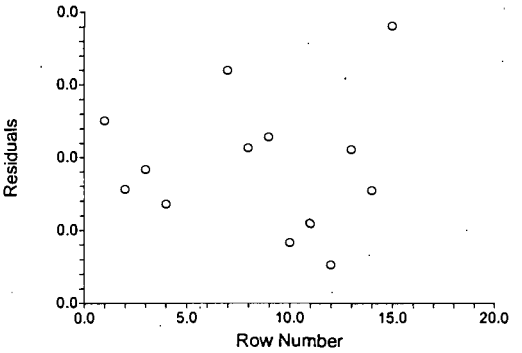
Normal Probability Plot of Residuals of Log_PM_CR



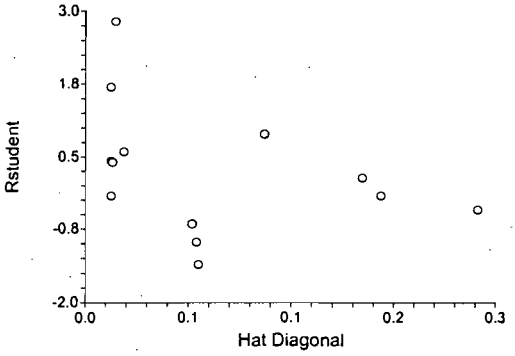
Serial Correlation of Residuals



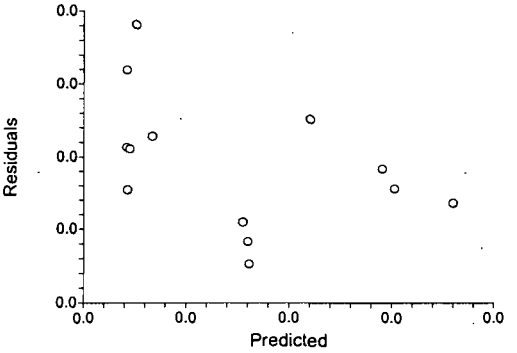
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



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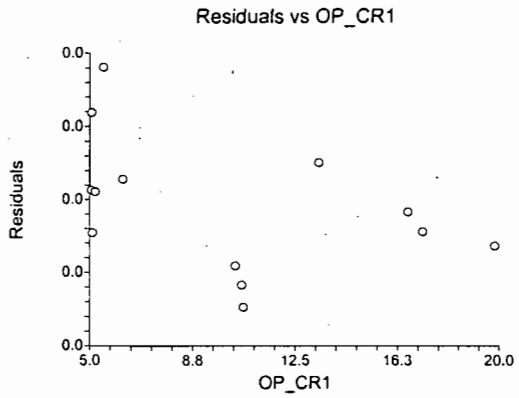
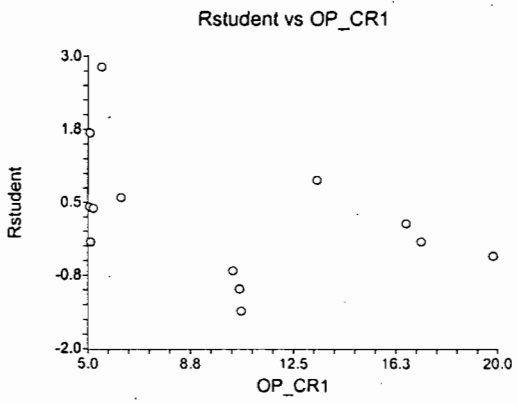
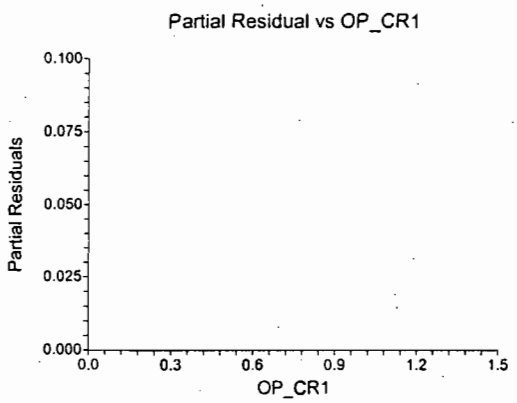
Dependent Log_PM_CR1







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Dependent Log_PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Log_OP_CR1	13	0.9983092	0.2049756	0.7824726	1.318898
Log_PM_CR1	13	1.784422E-02	8.909931E-03	6.679928E-03	2.881517E-02

Correlation Matrix Section

	Log_OP_CR1	Log_PM_CR1
Log_OP_CR1	1.000000	0.508151
Log_PM_CR1	0.508151	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	-4.206875E-03	1.148601E-02	-0.3663	0.721117	Accept Ho	0.120021
Log_OP_CR1	2.208844E-02	1.128793E-02	1.9568	0.076227	Reject Ho	0.575517
R-Squared	0.258217					

Model
-4.206875E-03+ 2.208844E-02*Log_OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	-4.206875E-03	1.148601E-02	-2.483443E-02	1.642068E-02	0.0000
Log_OP_CR1	2.208844E-02	1.128793E-02	1.816617E-03	4.236026E-02	0.5082
T-Critical	1.795885				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	4.139408E-03	4.139408E-03			
Model	1	2.459888E-04	2.459888E-04	3.8291	0.076227	0.575517
Error	11	7.066536E-04	6.424124E-05			
Total(Adjusted)	12	9.526425E-04	7.938687E-05			

Root Mean Square Error	8.015064E-03	R-Squared	0.2582
Mean of Dependent	1.784422E-02	Adj R-Squared	0.1908
Coefficient of Variation	0.4491687	Press Value	9.302405E-04
Sum |Press Residuals|	0.0926727	Press R-Squared	0.0235

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Dependent	Log_PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	-0.1265	0.899330	Accepted
Kurtosis	-0.5102	0.609901	Accepted
Omnibus	0.2763	0.870958	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.221663	9	-0.220155	17	
2	0.362504	10	-0.172506	18	
3	-0.166819	11	-0.100319	19	
4	-0.081386	12	0.046572	20	
5	-0.310127	13	-0.014465	21	
6	0.021147	14	0.135588	22	
7	-0.217524	15		23	
8	-0.004173	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.1414

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Log_OP_CR1	0.258217	0.258217	0.258217	0.258217	0.258217

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	2.848992E-02	2.135953E-02	2.85812E-03	1.622668E-02	2.649239E-02
2	2.628806E-02	2.362086E-02	3.695441E-03	1.698427E-02	3.025744E-02
3	2.783868E-02	2.332633E-02	3.57635E-03	1.690362E-02	2.974904E-02
4	2.881517E-02	2.492551E-02	4.247023E-03	1.729835E-02	3.255268E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.309254E-02	3.292128E-03	7.180256E-03	1.900482E-02
8	1.178183E-02	1.307672E-02	3.298094E-03	7.153724E-03	1.899972E-02
9	1.498231E-02	1.475687E-02	2.725965E-03	9.86135E-03	1.965239E-02
10	9.195854E-03	1.925559E-02	2.33706E-03	0.0150585	2.345268E-02
11	1.114736E-02	1.906247E-02	2.308511E-03	1.491665E-02	2.320829E-02
12	6.679928E-03	0.0193136	2.346379E-03	1.509978E-02	2.352743E-02
13	0.0118241	1.329582E-02	3.216269E-03	7.519769E-03	1.907187E-02
14	6.679928E-03	1.313983E-02	3.274341E-03	7.259493E-03	1.902017E-02
15	2.718646E-02	1.374911E-02	3.05306E-03	8.266166E-03	1.923205E-02
16		2.442407E-03	8.178736E-03	-1.224566E-02	1.713048E-02
17		6.331987E-03	6.289108E-03	-4.962526E-03	0.0176265
18		9.091689E-03	4.994784E-03	1.216319E-04	1.806175E-02
19		1.123228E-02	4.044593E-03	3.968657E-03	0.0184959
20		1.574097E-02	2.469188E-03	1.130659E-02	2.017535E-02
21		1.687085E-02	2.277951E-03	1.277991E-02	2.096179E-02
22		1.788156E-02	2.22306E-03	0.0138892	2.187392E-02
23		1.879586E-02	2.275554E-03	1.470923E-02	2.288249E-02
24		1.963055E-02	2.403119E-03	1.531483E-02	2.394628E-02
25		2.039839E-02	2.57786E-03	1.576885E-02	2.502793E-02
26		0.0211093	2.779524E-03	0.0161176	2.610101E-02
27		2.177114E-02	2.994803E-03	1.639282E-02	2.714946E-02
28		2.239025E-02	3.215398E-03	1.661577E-02	2.816474E-02
29		2.297182E-02	3.436278E-03	1.680066E-02	2.914298E-02
30		2.352013E-02	3.654452E-03	1.695716E-02	3.008311E-02
31		2.403879E-02	3.868189E-03	1.709197E-02	3.098561E-02
32		2.453084E-02	4.076535E-03	1.720986E-02	3.185183E-02
33		2.499888E-02	4.279015E-03	1.731426E-02	0.0326835
34		2.544514E-02	4.475448E-03	1.740775E-02	3.348253E-02
35		2.587156E-02	4.665837E-03	1.749226E-02	3.425087E-02
36		2.704767E-02	5.202156E-03	0.0177052	3.639015E-02
37		-4.206875E-03	1.148601E-02	-2.483443E-02	1.642068E-02
38		2.627983E-02	4.850293E-03	1.756927E-02	0.0349904
39		2.667143E-02	5.028995E-03	1.763994E-02	3.570293E-02
40		2.740971E-02	5.370009E-03	1.776579E-02	3.705363E-02
41		2.775858E-02	5.532793E-03	1.782232E-02	3.769484E-02
42		2.809521E-02	5.690745E-03	1.787529E-02	3.831513E-02
43		2.842042E-02	5.844096E-03	0.0179251	3.891575E-02
44		2.873497E-02	5.99307E-03	1.797211E-02	3.949783E-02

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Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	2.848992E-02	2.135953E-02	8.509411E-03	6.077611E-03	3.664146E-02
2	2.628806E-02	2.362086E-02	8.825957E-03	7.770457E-03	3.947126E-02
3	2.783868E-02	2.332633E-02	8.776761E-03	7.564279E-03	3.908838E-02
4	2.881517E-02	2.492551E-02	9.070747E-03	8.635498E-03	4.121553E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.309254E-02	8.664833E-03	-2.468505E-03	2.865358E-02
8	1.178183E-02	1.307672E-02	8.667102E-03	-2.488396E-03	2.864184E-02
9	1.498231E-02	1.475687E-02	8.465939E-03	-4.469822E-04	2.996072E-02
10	9.195854E-03	1.925559E-02	8.348837E-03	4.26204E-03	3.424914E-02
11	1.114736E-02	1.906247E-02	8.340891E-03	4.083187E-03	3.404175E-02
12	6.679928E-03	0.0193136	8.351451E-03	4.31536E-03	3.431185E-02
13	0.0118241	1.329582E-02	8.636297E-03	-2.213976E-03	2.880561E-02
14	6.679928E-03	1.313983E-02	8.658092E-03	-2.409102E-03	2.868877E-02
15	2.718646E-02	1.374911E-02	8.576853E-03	-1.653931E-03	2.915215E-02
16		2.442407E-03	1.145133E-02	-1.812286E-02	2.300768E-02
17		6.331987E-03	1.018794E-02	-1.196438E-02	2.462835E-02
18		9.091689E-03	9.443998E-03	-7.868645E-03	2.605202E-02
19		1.123228E-02	8.977748E-03	-4.890723E-03	2.735528E-02
20		1.574097E-02	8.386783E-03	6.792747E-04	3.080267E-02
21		1.687085E-02	8.332484E-03	1.906667E-03	3.183503E-02
22		1.788156E-02	8.317647E-03	2.944027E-03	0.0328191
23		1.879586E-02	8.33183E-03	3.832855E-03	3.375887E-02
24		1.963055E-02	8.367569E-03	4.60336E-03	3.465774E-02
25		2.039839E-02	8.419418E-03	5.278087E-03	0.0355187
26		0.0211093	8.483336E-03	5.874207E-03	3.634439E-02
27		2.177114E-02	8.556289E-03	6.405032E-03	3.713725E-02
28		2.239025E-02	8.635973E-03	6.881041E-03	3.789946E-02
29		2.297182E-02	8.720621E-03	7.310586E-03	3.863305E-02
30		2.352013E-02	8.808874E-03	7.700409E-03	3.933986E-02
31		2.403879E-02	8.89967E-03	8.05601E-03	4.002158E-02
32		2.453084E-02	8.992184E-03	8.381916E-03	4.067977E-02
33		2.499888E-02	9.08577E-03	8.681886E-03	4.131588E-02
34		2.544514E-02	9.179917E-03	8.959069E-03	4.193122E-02
35		2.587156E-02	9.274227E-03	9.216121E-03	4.252701E-02
36		2.704767E-02	9.555295E-03	9.887464E-03	4.420788E-02
37		-4.206875E-03	1.400606E-02	-2.936014E-02	2.094639E-02
38		2.627983E-02	9.368382E-03	9.455298E-03	4.310437E-02
39		2.667143E-02	9.462137E-03	9.678527E-03	4.366434E-02
40		2.740971E-02	9.647707E-03	1.008354E-02	4.473588E-02
41		2.775858E-02	9.739253E-03	1.026801E-02	4.524916E-02
42		2.809521E-02	9.829843E-03	1.044194E-02	4.574848E-02
43		2.842042E-02	9.91941E-03	1.060631E-02	4.623454E-02
44		2.873497E-02	0.0100079	1.076193E-02	4.670801E-02

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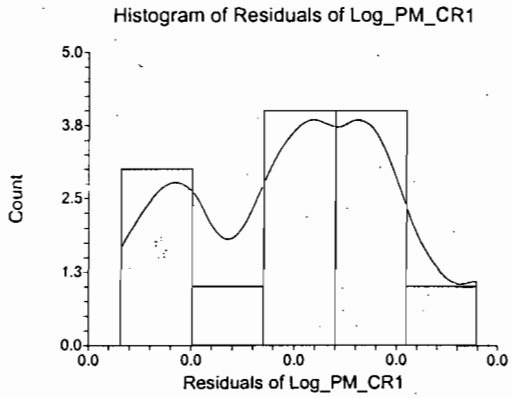
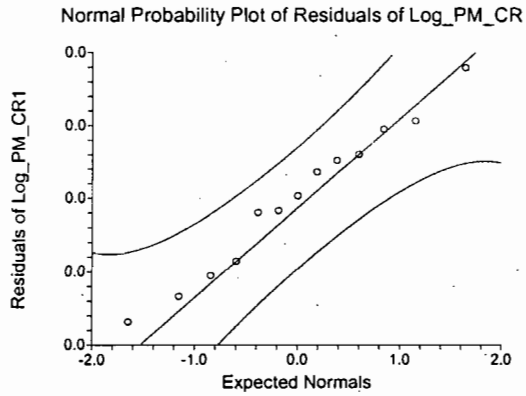
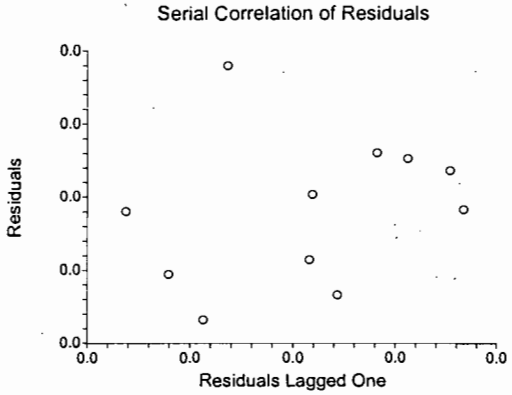
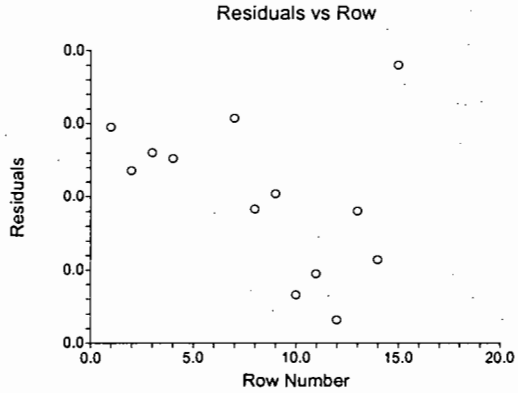
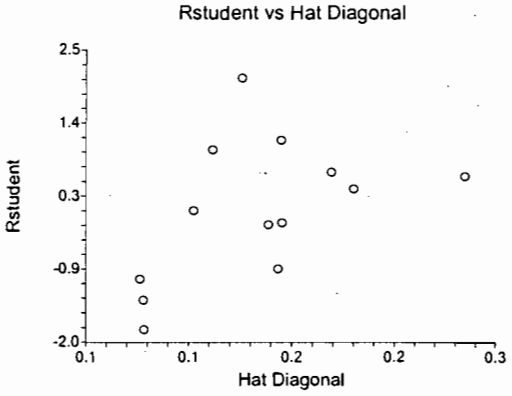
Plots Section

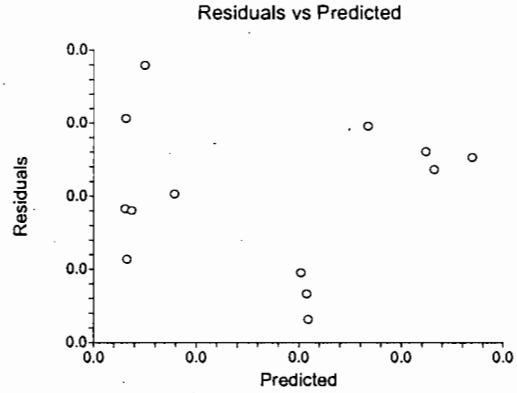












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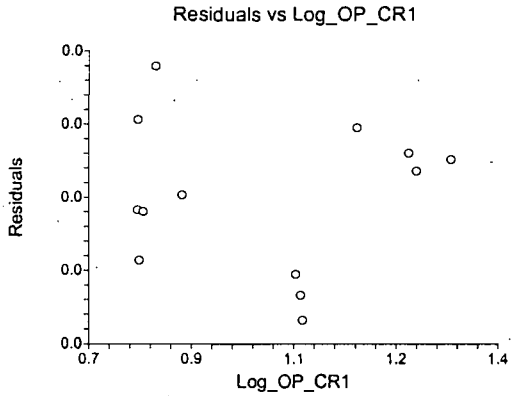

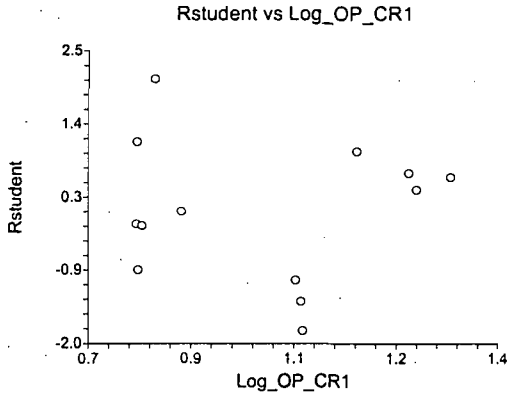

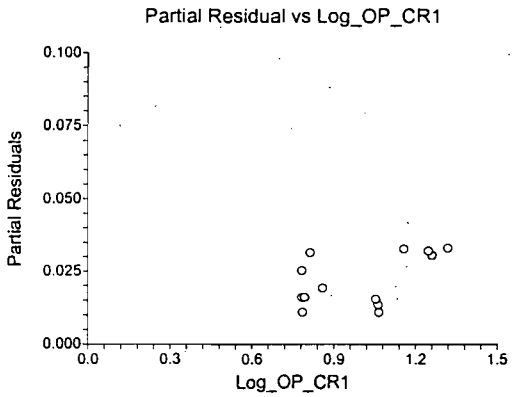

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Log_OP_CR1	13	0.9983092	0.2049756	0.7824726	1.318898
PM_CR1	13	4.214615E-02	0.0213987	0.0155	0.0686

Correlation Matrix Section

	Log_OP_CR1	PM_CR1
Log_OP_CR1	1.000000	0.510505
PM_CR1	0.510505	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	-1.105859E-02	2.754097E-02	-0.4015	0.695719	Accept Ho	0.124046
Log_OP_CR1	5.329486E-02	2.706601E-02	1.9691	0.074650	Reject Ho	0.579988
R-Squared	0.260615					

Model
-1.105859E-02+ 5.329486E-02*Log_OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	-1.105859E-02	2.754097E-02	-6.051899E-02	3.840181E-02	0.0000
Log_OP_CR1	5.329486E-02	2.706601E-02	4.687426E-03	0.1019023	0.5105
T-Critical	1.795885				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	2.309188E-02	2.309188E-02			
Model	1	1.432043E-03	1.432043E-03	3.8772	0.074650	0.579988
Error	11	4.06281E-03	3.693463E-04			
Total(Adjusted)	12	5.494852E-03	4.579044E-04			

Root Mean Square Error	1.921839E-02	R-Squared	0.2606
Mean of Dependent	4.214615E-02	Adj R-Squared	0.1934
Coefficient of Variation	0.4559938	Press Value	5.347759E-03
Sum |Press Residuals|	0.2220246	Press R-Squared	0.0268

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	-0.1113	0.911404	Accepted
Kurtosis	-0.5030	0.614991	Accepted
Omnibus	0.2654	0.875749	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.224611	9	-0.220441	17	
2	0.360492	10	-0.172390	18	
3	-0.165035	11	-0.099364	19	
4	-0.083877	12	0.047290	20	
5	-0.310179	13	-0.014382	21	
6	0.019204	14	0.136667	22	
7	-0.217642	15		23	
8	-0.004955	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.1332

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Log_OP_CR1	0.260615	0.260615	0.260615	0.260615	0.260615

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0678	0.0506279	6.853153E-03	3.832043E-02	6.293537E-02
2	0.0624	5.608401E-02	8.860867E-03	4.017092E-02	7.199711E-02
3	0.0662	5.537337E-02	8.575313E-03	0.0399731	7.077365E-02
4	0.0686	5.923187E-02	1.018344E-02	4.094359E-02	7.752015E-02
5	0.0245				
6	0.0525				
7	0.0497	3.068134E-02	7.893809E-03	1.650497E-02	4.485771E-02
8	0.0275	3.064317E-02	7.908115E-03	1.644111E-02	4.484524E-02
9	0.0351	3.469703E-02	6.536274E-03	2.295863E-02	4.643542E-02
10	0.0214	4.555151E-02	5.603764E-03	0.0354878	5.561523E-02
11	0.026	4.508555E-02	5.53531E-03	3.514477E-02	5.502633E-02
12	0.0155	4.569149E-02	5.626108E-03	3.558765E-02	5.579533E-02
13	0.0276	3.117181E-02	7.711916E-03	0.0173221	4.502152E-02
14	0.0155	3.079545E-02	7.851161E-03	1.669567E-02	4.489523E-02
15	0.0646	3.226551E-02	7.320576E-03	0.0191186	4.541242E-02
16		4.984758E-03	1.961084E-02	-3.023405E-02	4.020356E-02
17		1.436952E-02	1.507992E-02	-1.271228E-02	4.145131E-02
18		2.102811E-02	1.197641E-02	-4.801442E-04	4.253636E-02
19		2.619291E-02	9.698058E-03	8.77632E-03	4.360951E-02
20		3.707146E-02	5.920577E-03	2.643878E-02	4.770413E-02
21		3.979763E-02	5.462034E-03	2.998844E-02	4.960681E-02
22		4.223626E-02	5.330417E-03	3.266345E-02	5.180908E-02
23		4.444228E-02	5.456284E-03	3.464342E-02	5.424114E-02
24		4.645622E-02	5.762158E-03	3.610805E-02	5.680439E-02
25		4.830886E-02	6.18115E-03	3.720823E-02	5.940949E-02
26		5.002414E-02	6.664696E-03	3.805511E-02	6.199316E-02
27		5.162102E-02	7.180888E-03	3.872497E-02	6.451707E-02
28		5.311481E-02	7.709828E-03	3.926884E-02	6.696077E-02
29		5.451801E-02	8.23945E-03	0.0397209	6.931511E-02
30		5.584098E-02	8.762583E-03	4.010439E-02	7.157756E-02
31		0.0570924	9.275079E-03	4.043542E-02	7.374937E-02
32		5.827961E-02	9.774649E-03	4.072547E-02	7.583376E-02
33		0.0594089	1.026015E-02	4.098285E-02	7.783495E-02
34		6.048563E-02	1.073116E-02	4.121371E-02	7.975755E-02
35		0.0615145	1.118767E-02	4.142274E-02	8.160625E-02
36		6.435221E-02	1.247364E-02	4.195098E-02	8.675344E-02
37		-1.105859E-02	2.754097E-02	-6.051899E-02	3.840181E-02
38		6.249957E-02	1.162995E-02	4.161351E-02	8.338562E-02
39		6.344442E-02	1.205844E-02	4.178885E-02	8.509999E-02
40		6.522574E-02	1.287612E-02	4.210171E-02	8.834976E-02
41		6.606749E-02	1.326644E-02	4.224249E-02	8.989248E-02
42		0.0668797	1.364517E-02	4.237454E-02	9.138486E-02
43		6.766437E-02	1.401288E-02	4.249886E-02	9.282988E-02
44		6.842332E-02	1.437008E-02	0.0426163	9.423032E-02

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Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0678	0.0506279	2.040373E-02	1.398516E-02	8.727064E-02
2	0.0624	5.608401E-02	2.116273E-02	1.807818E-02	9.408984E-02
3	0.0662	5.537337E-02	2.104477E-02	1.757939E-02	9.316735E-02
4	0.0686	5.923187E-02	2.174968E-02	2.017194E-02	0.0982918
5	0.0245				
6	0.0525				
7	0.0497	3.068134E-02	2.077639E-02	-6.630674E-03	6.799335E-02
8	0.0275	3.064317E-02	2.078183E-02	-6.678605E-03	6.796496E-02
9	0.0351	3.469703E-02	2.029949E-02	-1.758517E-03	7.115257E-02
10	0.0214	4.555151E-02	0.0200187	9.600228E-03	0.0815028
11	0.026	4.508555E-02	1.999965E-02	9.16848E-03	8.100262E-02
12	0.0155	4.569149E-02	2.002497E-02	9.728949E-03	8.165403E-02
13	0.0276	3.117181E-02	2.070797E-02	-6.017318E-03	6.836093E-02
14	0.0155	3.079545E-02	2.076023E-02	-6.487529E-03	6.807843E-02
15	0.0646	3.226551E-02	2.056544E-02	-4.667646E-03	6.919866E-02
16		4.984758E-03	2.745781E-02	-0.0443263	5.429582E-02
17		1.436952E-02	2.442847E-02	-2.950121E-02	5.824024E-02
18		2.102811E-02	2.264466E-02	-0.0196391	6.169531E-02
19		2.619291E-02	0.0215267	-1.246655E-02	6.485238E-02
20		3.707146E-02	2.010969E-02	9.567752E-04	7.318614E-02
21		3.979763E-02	1.997949E-02	3.916758E-03	7.567849E-02
22		4.223626E-02	1.994391E-02	6.419293E-03	7.805324E-02
23		4.444228E-02	1.997792E-02	8.564235E-03	8.032033E-02
24		4.645622E-02	2.006362E-02	1.042427E-02	8.248816E-02
25		4.830886E-02	2.018794E-02	1.205364E-02	8.456407E-02
26		5.002414E-02	0.0203412	1.349368E-02	8.655459E-02
27		5.162102E-02	2.051613E-02	1.477642E-02	8.846562E-02
28		5.311481E-02	2.070719E-02	1.592708E-02	9.030254E-02
29		5.451801E-02	2.091016E-02	1.696576E-02	9.207024E-02
30		5.584098E-02	2.112177E-02	1.790871E-02	9.377325E-02
31		0.0570924	2.133948E-02	1.876915E-02	9.541564E-02
32		5.827961E-02	2.156131E-02	1.955799E-02	9.700124E-02
33		0.0594089	2.178571E-02	2.028427E-02	9.853352E-02
34		6.048563E-02	2.201145E-02	0.0209556	0.1000157
35		0.0615145	2.223759E-02	2.157835E-02	0.1014506
36		6.435221E-02	2.291153E-02	2.320574E-02	0.1054987
37		-1.105859E-02	0.0335835	-7.137068E-02	0.0492535
38		6.249957E-02	2.246335E-02	2.215798E-02	0.1028412
39		6.344442E-02	2.268815E-02	2.269911E-02	0.1041897
40		6.522574E-02	2.313311E-02	2.368133E-02	0.1067701
41		6.606749E-02	2.335262E-02	2.412888E-02	0.1080061
42		0.0668797	2.356983E-02	2.455099E-02	0.1092084
43		6.766437E-02	0.0237846	2.494998E-02	0.1103788
44		6.842332E-02	2.399678E-02	2.532786E-02	0.1115188

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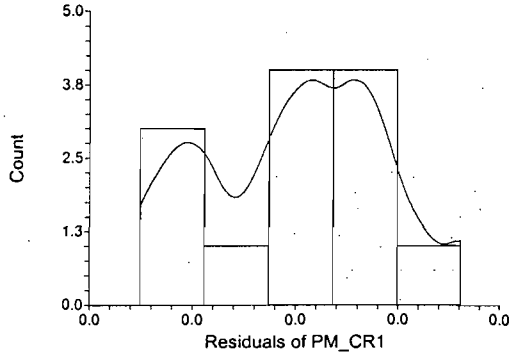
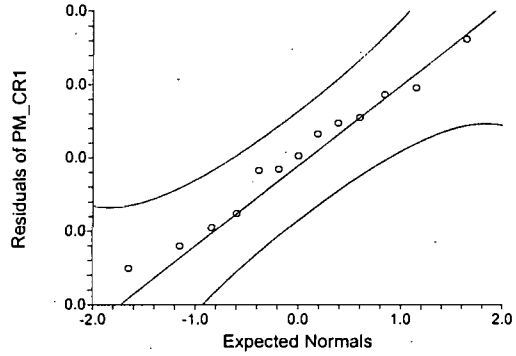
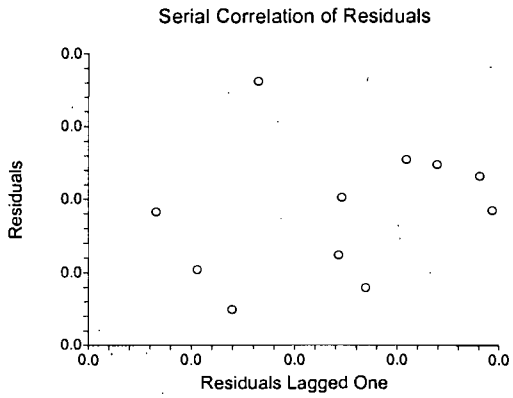
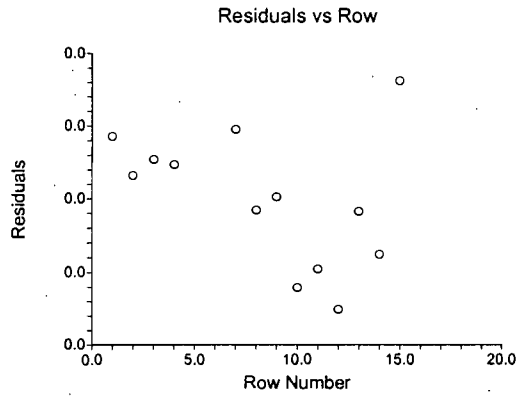
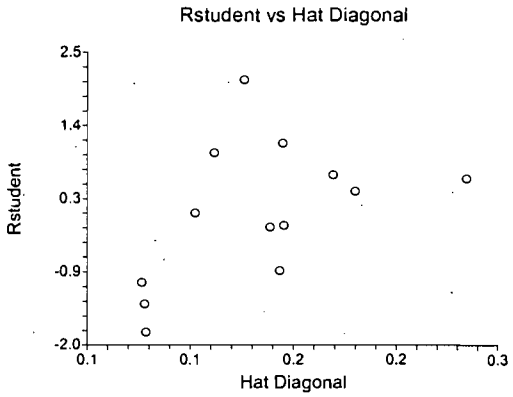
Plots Section

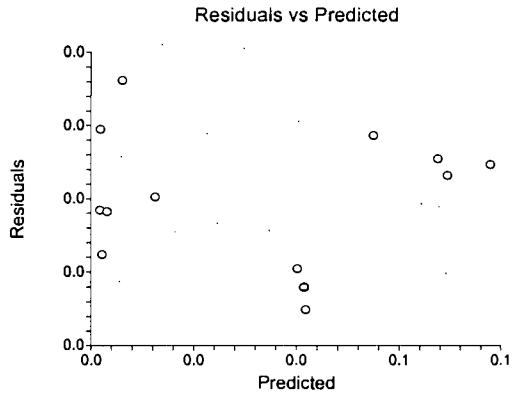












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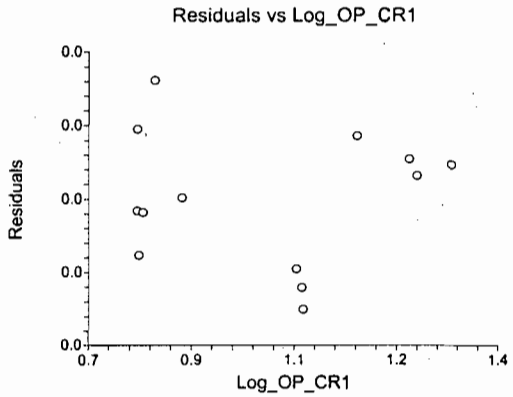
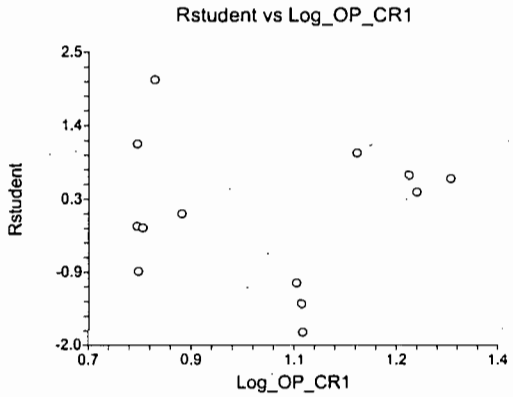
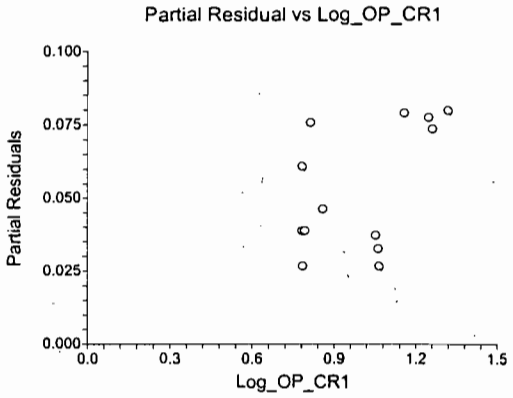
Dependent PM_CR1







Multiple Regression Report

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Dependent	PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Log_OP_CR1	13	0.9983092	0.2049756	0.7824726	1.318898
PM_CR1	13	4.214615E-02	0.0213987	0.0155	0.0686

Correlation Matrix Section

	Log_OP_CR1	PM_CR1
Log_OP_CR1	1.000000	0.510505
PM_CR1	0.510505	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Log_OP_CR1	4.263246E-02	5.05191E-03	8.4389	0.000002	Reject Ho	1.000000
R-Squared	0.855795					

Model
4.263246E-02*Log_OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Log_OP_CR1	4.263246E-02	5.05191E-03	0.0336285	5.163641E-02	0.9251
T-Critical	1.782288				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	2.446437E-02	2.446437E-02	71.2147	0.000002	1.000000
Error	12	4.122359E-03	3.435299E-04			
Total(Adjusted)	13	2.858673E-02	2.198979E-03			

Root Mean Square Error	1.853456E-02	R-Squared	0.8558
Mean of Dependent	4.214615E-02	Adj R-Squared	0.8558
Coefficient of Variation	0.4397687	Press Value	4.828119E-03
Sum |Press Residuals|	0.2202784	Press R-Squared	0.1213

Multiple Regression Report

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Dependent	PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	-0.2932	0.769396	Accepted
Kurtosis	-1.0840	0.278355	Accepted
Omnibus	1.2611	0.532312	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.281190	9	-0.260049	17	
2	0.406507	10	-0.221233	18	
3	-0.051251	11	-0.113961	19	
4	-0.029193	12	0.029276	20	
5	-0.265125	13	-0.017371	21	
6	-0.025582	14	0.134050	22	
7	-0.275511	15		23	
8	-0.088230	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700

Durbin-Watson Value 1.0396

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Log_OP_CR1	0.855795	0.855795	0.855795	0.855795	0.855795

Multiple Regression Report

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Dependent PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0678	4.934523E-02	5.847367E-03	3.892354E-02	5.976691E-02
2	0.0624	5.370976E-02	6.364561E-03	4.236628E-02	6.505324E-02
3	0.0662	0.0531413	6.297199E-03	4.191788E-02	6.436472E-02
4	0.0686	5.622785E-02	6.662952E-03	4.435255E-02	6.810315E-02
5	0.0245				
6	0.0525				
7	0.0497	3.338926E-02	3.956599E-03	2.633746E-02	4.044105E-02
8	0.0275	3.335873E-02	3.952981E-03	2.631338E-02	4.040408E-02
9	0.0351	3.660155E-02	4.337253E-03	2.887132E-02	4.433178E-02
10	0.0214	4.528444E-02	5.366168E-03	3.572039E-02	0.0548485
11	0.026	0.0449117	5.321998E-03	3.542637E-02	5.439703E-02
12	0.0155	4.539641E-02	5.379437E-03	3.580871E-02	5.498412E-02
13	0.0276	0.0337816	4.003091E-03	2.664694E-02	4.091626E-02
14	0.0155	3.348054E-02	3.967416E-03	2.640947E-02	4.055161E-02
15	0.0646	3.465649E-02	4.106765E-03	2.733706E-02	4.197593E-02
16		1.283365E-02	1.520776E-03	1.012319E-02	1.554411E-02
17		2.034085E-02	2.410374E-03	1.604487E-02	2.463683E-02
18		0.0256673	3.041553E-03	2.024638E-02	3.108822E-02
19		2.979881E-02	3.531134E-03	2.350531E-02	0.0360923
20		3.850095E-02	4.562329E-03	3.036956E-02	4.663233E-02
21		0.0406817	4.820747E-03	3.208974E-02	4.927366E-02
22		4.263246E-02	5.05191E-03	0.0336285	5.163641E-02
23		4.439713E-02	5.261022E-03	3.502047E-02	5.377378E-02
24		4.600815E-02	5.451926E-03	3.629125E-02	5.572505E-02
25		4.749014E-02	5.627541E-03	3.746025E-02	5.752004E-02
26		4.886225E-02	5.790135E-03	3.854257E-02	5.918194E-02
27		5.013966E-02	5.941507E-03	3.955019E-02	6.072913E-02
28		5.133459E-02	6.083106E-03	4.049275E-02	6.217644E-02
29		5.245706E-02	6.216117E-03	4.137815E-02	6.353597E-02
30		5.351535E-02	6.341523E-03	4.221293E-02	6.481777E-02
31		5.451641E-02	6.460148E-03	4.300257E-02	6.603025E-02
32		0.0554661	6.572686E-03	4.375169E-02	6.718052E-02
33		5.636946E-02	6.679733E-03	4.446425E-02	6.827466E-02
34		5.723078E-02	6.781798E-03	4.514366E-02	6.931789E-02
35		0.0580538	6.879326E-03	4.579287E-02	7.031474E-02
36		6.032379E-02	7.148318E-03	4.758343E-02	7.306415E-02
37		0	0	0	0
38		5.884179E-02	6.972703E-03	4.641443E-02	7.126915E-02
39		5.959762E-02	7.062267E-03	4.701063E-02	7.218461E-02
40		6.102255E-02	7.23112E-03	4.813462E-02	7.391049E-02
41		0.0616959	7.310912E-03	4.866575E-02	7.472605E-02
42		6.234562E-02	7.387903E-03	4.917825E-02	7.551299E-02
43		6.297331E-02	7.462284E-03	4.967337E-02	7.627324E-02
44		6.358042E-02	7.534225E-03	5.015226E-02	7.700857E-02

Multiple Regression Report

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Dependent PM_CR1

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0678	4.934523E-02	1.943506E-02	1.470636E-02	8.398409E-02
2	0.0624	5.370976E-02	1.959687E-02	0.0187825	8.863703E-02
3	0.0662	0.0531413	0.0195751	1.825284E-02	8.802976E-02
4	0.0686	5.622785E-02	1.969581E-02	2.112426E-02	9.133144E-02
5	0.0245				
6	0.0525				
7	0.0497	3.338926E-02	1.895216E-02	-3.889495E-04	6.716747E-02
8	0.0275	3.335873E-02	1.895141E-02	-4.181318E-04	6.713559E-02
9	0.0351	3.660155E-02	1.903527E-02	2.675219E-03	7.052788E-02
10	0.0214	4.528444E-02	1.929574E-02	1.089388E-02	0.079675
11	0.026	0.0449117	1.928351E-02	1.054295E-02	7.928045E-02
12	0.0155	4.539641E-02	1.929944E-02	1.099927E-02	7.979356E-02
13	0.0276	0.0337816	1.896193E-02	-1.399944E-05	6.757721E-02
14	0.0155	3.348054E-02	1.895443E-02	-3.016973E-04	6.726278E-02
15	0.0646	3.465649E-02	1.898408E-02	8.213991E-04	6.849159E-02
16		1.283365E-02	1.859684E-02	-2.031128E-02	4.597857E-02
17		2.034085E-02	1.869063E-02	-1.297123E-02	5.365293E-02
18		0.0256673	1.878246E-02	-7.808454E-03	5.914305E-02
19		2.979881E-02	1.886793E-02	-3.829268E-03	6.342688E-02
20		3.850095E-02	1.908782E-02	4.480968E-03	7.252092E-02
21		0.0406817	1.915123E-02	6.54871E-03	7.481469E-02
22		4.263246E-02	1.921072E-02	8.393434E-03	7.687148E-02
23		4.439713E-02	1.926677E-02	1.005821E-02	7.873604E-02
24		4.600815E-02	1.931977E-02	1.157477E-02	8.044153E-02
25		4.749014E-02	1.937006E-02	1.296713E-02	8.201315E-02
26		4.886225E-02	1.941792E-02	1.425394E-02	8.347057E-02
27		5.013966E-02	1.946359E-02	1.544994E-02	8.482938E-02
28		5.133459E-02	1.950728E-02	1.656701E-02	8.610218E-02
29		5.245706E-02	1.954917E-02	1.761482E-02	0.0872993
30		5.351535E-02	1.958941E-02	0.0186014	0.0884293
31		5.451641E-02	1.962813E-02	1.953344E-02	8.949938E-02
32		0.0554661	1.966545E-02	2.041661E-02	0.0905156
33		5.636946E-02	1.970149E-02	2.125574E-02	9.148318E-02
34		5.723078E-02	1.973633E-02	2.205496E-02	9.240659E-02
35		0.0580538	1.977005E-02	2.281788E-02	9.328973E-02
36		6.032379E-02	1.986525E-02	2.491819E-02	9.572939E-02
37		0	1.853456E-02	-3.303391E-02	3.303391E-02
38		5.884179E-02	1.980274E-02	2.354762E-02	9.413597E-02
39		5.959762E-02	1.983445E-02	2.424692E-02	9.494831E-02
40		6.102255E-02	0.0198952	2.556359E-02	9.648152E-02
41		0.0616959	1.992434E-02	0.026185	9.720681E-02
42		6.234562E-02	1.995272E-02	2.678414E-02	0.0979071
43		6.297331E-02	1.998038E-02	2.736253E-02	9.858409E-02
44		6.358042E-02	2.000736E-02	2.792155E-02	9.923928E-02

Multiple Regression Report

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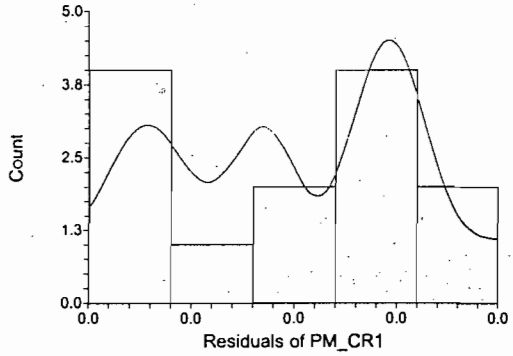
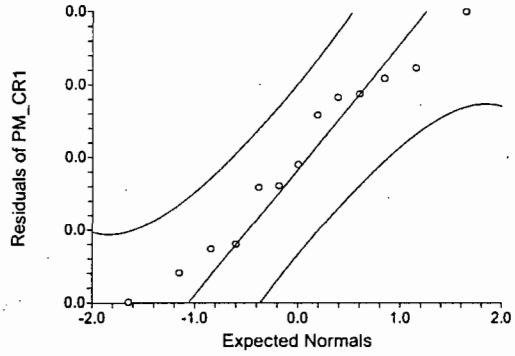
Dependent PM_CR1

Plots Section

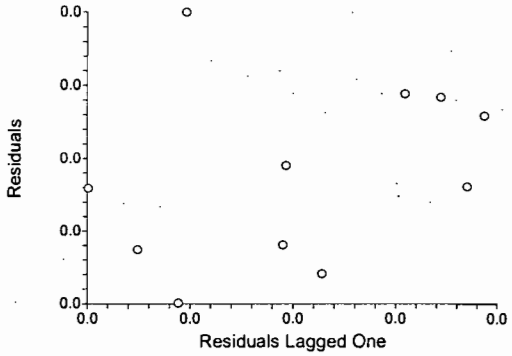
Histogram of Residuals of PM_CR1



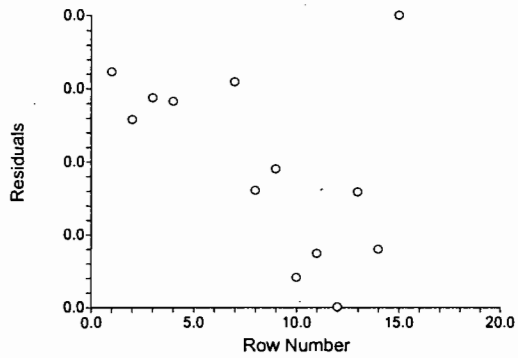
Normal Probability Plot of Residuals of PM_CR1



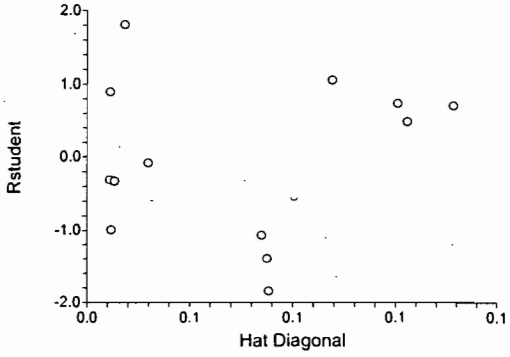
Serial Correlation of Residuals



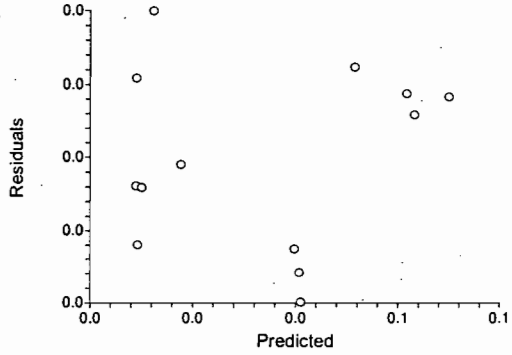
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



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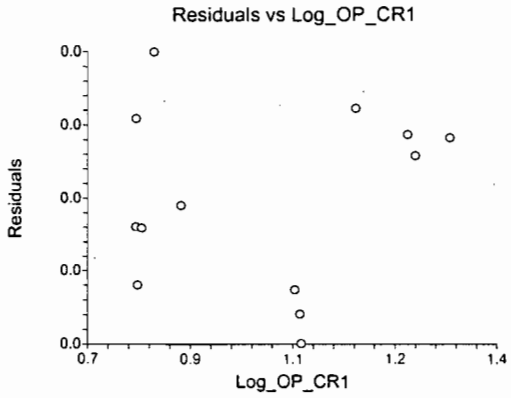
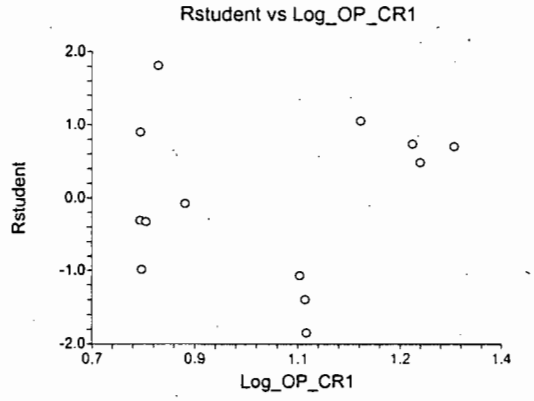
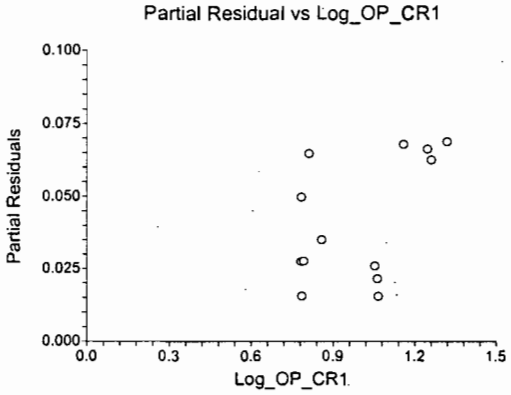
Dependent PM_CR1







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Dependent	Log_PM_CR1

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
Log_OP_CR1	13	0.9983092	0.2049756	0.7824726	1.318898
Log_PM_CR1	13	1.784422E-02	8.909931E-03	6.679928E-03	2.881517E-02

Correlation Matrix Section

	Log_OP_CR1	Log_PM_CR1
Log_OP_CR1	1.000000	0.508151
Log_PM_CR1	0.508151	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Log_OP_CR1	1.803228E-02	2.104351E-03	8.5690	0.000002	Reject Ho	1.000000
R-Squared	0.859532					

Model
1.803228E-02*Log_OP_CR1

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Log_OP_CR1	1.803228E-02	2.104351E-03	1.428172E-02	2.178284E-02	0.9271
T-Critical	1.782288				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	4.376779E-03	4.376779E-03	73.4286	0.000002	1.000000
Error	12	7.152714E-04	5.960595E-05			
Total(Adjusted)	13	5.09205E-03	3.916962E-04			

Root Mean Square Error	7.720489E-03	R-Squared	0.8595
Mean of Dependent	1.784422E-02	Adj R-Squared	0.8595
Coefficient of Variation	0.4326606	Press Value	8.372383E-04
Sum |Press Residuals|	9.128642E-02	Press R-Squared	0.1211

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Dependent Log_PM_CR1

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	-0.2958	0.767362	Accepted
Kurtosis	-1.0334	0.301425	Accepted
Omnibus	1.1554	0.561190	Accepted

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.273055	9	-0.256440	17	
2	0.404439	10	-0.217212	18	
3	-0.062829	11	-0.113604	19	
4	-0.031366	12	0.030310	20	
5	-0.269014	13	-0.017149	21	
6	-0.019792	14	0.133433	22	
7	-0.270541	15		23	
8	-0.080358	16		24	

Above serial correlations significant if their absolute values are greater than 0.554700
Durbin-Watson Value 1.0556

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
Log_OP_CR1	0.859532	0.859532	0.859532	0.859532	0.859532

Multiple Regression Report

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	2.848992E-02	2.087159E-02	2.435695E-03	1.653047E-02	2.521269E-02
2	2.628806E-02	2.271766E-02	2.65113E-03	1.799258E-02	2.744273E-02
3	2.783868E-02	2.247721E-02	2.62307E-03	1.780215E-02	2.715228E-02
4	2.881517E-02	2.378273E-02	2.775423E-03	1.883613E-02	2.872934E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.412268E-02	1.648104E-03	1.118528E-02	1.706007E-02
8	1.178183E-02	1.410977E-02	1.646597E-03	1.117506E-02	1.704448E-02
9	1.498231E-02	1.548138E-02	1.806663E-03	1.226139E-02	1.870138E-02
10	9.195854E-03	1.915399E-02	2.235254E-03	1.517013E-02	2.313786E-02
11	1.114736E-02	1.899633E-02	2.216855E-03	1.504526E-02	0.0229474
12	6.679928E-03	1.920135E-02	2.240781E-03	1.520764E-02	2.319507E-02
13	0.0118241	1.428863E-02	1.66747E-03	1.131672E-02	1.726054E-02
14	6.679928E-03	1.416129E-02	1.652609E-03	1.121586E-02	1.710671E-02
15	2.718646E-02	1.465868E-02	1.710655E-03	0.0116098	1.770756E-02
16		5.428257E-03	6.334727E-04	4.299227E-03	6.557288E-03
17		8.603584E-03	1.00403E-03	6.814113E-03	1.039306E-02
18		1.085651E-02	1.266945E-03	8.598453E-03	1.311458E-02
19		1.260402E-02	1.470878E-03	9.982495E-03	1.522555E-02
20		1.628477E-02	1.900418E-03	1.289768E-02	1.967186E-02
21		1.720717E-02	2.008061E-03	1.362823E-02	2.078611E-02
22		1.803228E-02	2.104351E-03	1.428172E-02	2.178284E-02
23		1.877868E-02	2.191456E-03	1.487288E-02	2.268449E-02
24		0.0194601	2.270976E-03	1.541257E-02	2.350763E-02
25		2.008694E-02	2.344128E-03	1.590903E-02	2.426485E-02
26		0.0206673	2.411855E-03	1.636868E-02	2.496592E-02
27		2.120761E-02	2.474908E-03	1.679661E-02	2.561861E-02
28		2.171303E-02	2.533891E-03	1.719691E-02	2.622915E-02
29		0.0221878	2.589296E-03	1.757293E-02	2.680267E-02
30		2.263542E-02	2.641534E-03	1.792745E-02	0.0273434
31		2.305884E-02	2.690946E-03	0.0182628	2.785488E-02
32		2.346054E-02	2.737823E-03	1.858095E-02	2.834013E-02
33		2.384263E-02	2.782413E-03	1.888357E-02	2.880169E-02
34		2.420694E-02	2.824928E-03	1.917211E-02	2.924178E-02
35		2.455506E-02	2.865553E-03	1.944782E-02	0.0296623
36		2.551519E-02	0.0029776	2.020826E-02	3.082214E-02
37		0	0	0	0
38		2.488836E-02	2.904449E-03	1.971179E-02	3.006492E-02
39		2.520804E-02	2.941756E-03	1.996499E-02	0.0304511
40		2.581075E-02	3.012091E-03	2.044234E-02	3.117917E-02
41		2.609556E-02	3.045328E-03	2.066791E-02	3.152321E-02
42		2.637037E-02	3.077398E-03	2.088556E-02	3.185518E-02
43		2.663586E-02	3.108381E-03	2.109583E-02	3.217589E-02
44		2.689265E-02	3.138348E-03	2.129921E-02	3.248609E-02

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Dependent Log_PM_CR1

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	2.848992E-02	2.087159E-02	8.095589E-03	6.442917E-03	3.530025E-02
2	2.628806E-02	2.271766E-02	8.162992E-03	8.168857E-03	3.726646E-02
3	2.783868E-02	2.247721E-02	8.153922E-03	7.944577E-03	3.700985E-02
4	2.881517E-02	2.378273E-02	8.204201E-03	9.160486E-03	3.840498E-02
5	1.051196E-02				
6	2.222211E-02				
7	0.0210652	1.412268E-02	7.894441E-03	5.251415E-05	2.819284E-02
8	1.178183E-02	1.410977E-02	7.894127E-03	4.016226E-05	2.817937E-02
9	1.498231E-02	1.548138E-02	7.92906E-03	1.349519E-03	2.961325E-02
10	9.195854E-03	1.915399E-02	8.037556E-03	4.828756E-03	3.347923E-02
11	1.114736E-02	1.899633E-02	8.032459E-03	4.680181E-03	3.331248E-02
12	6.679928E-03	1.920135E-02	8.039095E-03	4.873374E-03	3.352933E-02
13	0.0118241	1.428863E-02	7.898507E-03	2.112188E-04	2.836604E-02
14	6.679928E-03	1.416129E-02	7.895383E-03	8.944516E-05	2.823313E-02
15	2.718646E-02	1.465868E-02	7.907736E-03	5.648216E-04	2.875254E-02
16		5.428257E-03	7.746434E-03	-8.378115E-03	1.923463E-02
17		8.603584E-03	7.785501E-03	-5.272418E-03	2.247959E-02
18		1.085651E-02	7.823752E-03	-3.087662E-03	2.480069E-02
19		1.260402E-02	7.859353E-03	-1.403605E-03	2.661165E-02
20		1.628477E-02	7.950946E-03	0.0021139	3.045564E-02
21		1.720717E-02	7.977359E-03	2.98922E-03	3.142511E-02
22		1.803228E-02	8.00214E-03	3.770166E-03	3.229439E-02
23		1.877868E-02	8.025486E-03	4.47496E-03	3.308241E-02
24		0.0194601	8.047564E-03	5.117026E-03	3.380317E-02
25		2.008694E-02	8.068512E-03	5.70653E-03	3.446735E-02
26		0.0206673	8.088448E-03	6.251361E-03	3.508324E-02
27		2.120761E-02	8.107473E-03	6.757758E-03	3.565745E-02
28		2.171303E-02	8.125672E-03	7.230744E-03	3.619531E-02
29		0.0221878	8.14312E-03	7.674418E-03	3.670118E-02
30		2.263542E-02	8.159881E-03	8.092172E-03	3.717868E-02
31		2.305884E-02	8.17601E-03	8.486842E-03	3.763084E-02
32		2.346054E-02	8.191559E-03	8.860825E-03	3.806025E-02
33		2.384263E-02	8.206569E-03	9.216163E-03	3.846909E-02
34		2.420694E-02	8.221081E-03	9.554612E-03	3.885927E-02
35		2.455506E-02	8.235129E-03	9.87769E-03	3.923243E-02
36		2.551519E-02	8.274784E-03	1.076715E-02	4.026324E-02
37		0	7.720489E-03	-1.376013E-02	1.376013E-02
38		2.488836E-02	8.248744E-03	1.018672E-02	3.958999E-02
39		2.520804E-02	8.261953E-03	1.048287E-02	3.993322E-02
40		2.581075E-02	8.287258E-03	1.104048E-02	4.058103E-02
41		2.609556E-02	8.299396E-03	1.130365E-02	4.088747E-02
42		2.637037E-02	8.311217E-03	1.155739E-02	4.118335E-02
43		2.663586E-02	8.322739E-03	1.180235E-02	4.146938E-02
44		2.689265E-02	8.333977E-03	1.203911E-02	0.0417462

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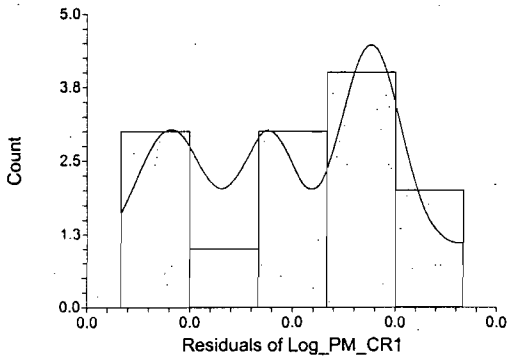
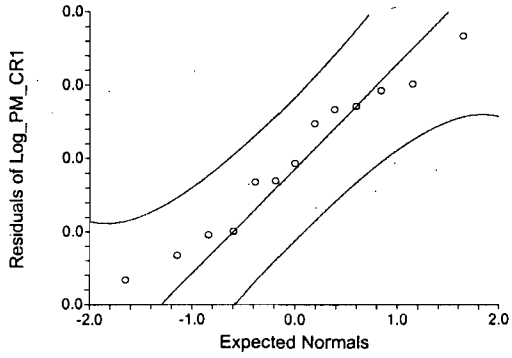
Plots Section

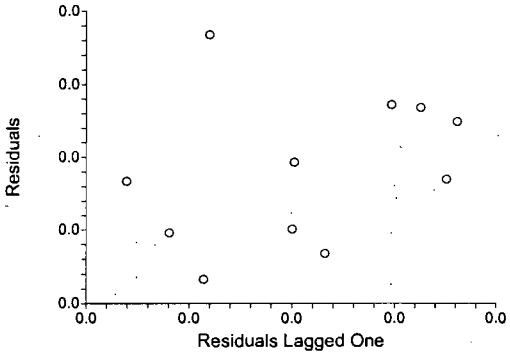
Histogram of Residuals of Log_PM_CR1



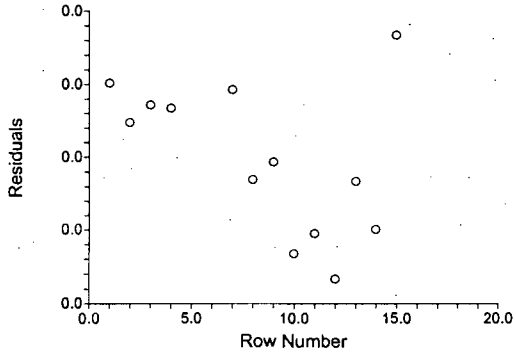
Normal Probability Plot of Residuals of Log_PM_CR



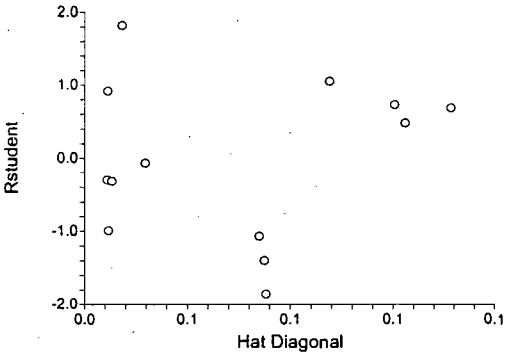
Serial Correlation of Residuals



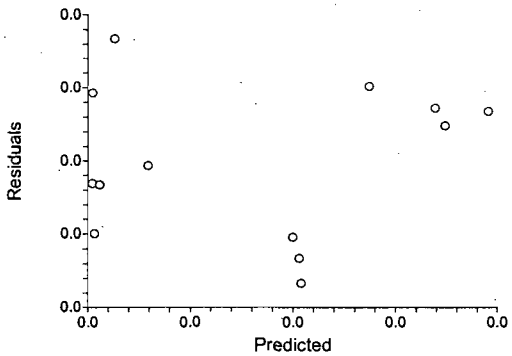
Residuals vs Row



Rstudent vs Hat Diagonal



Residuals vs Predicted



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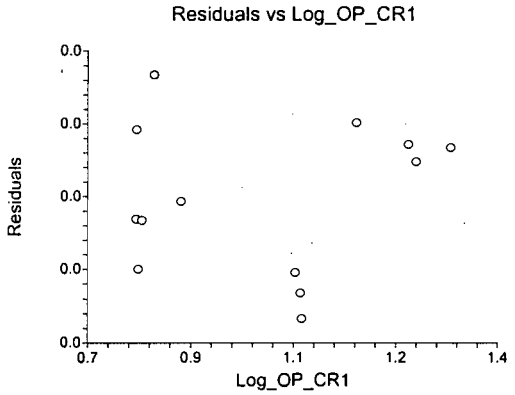
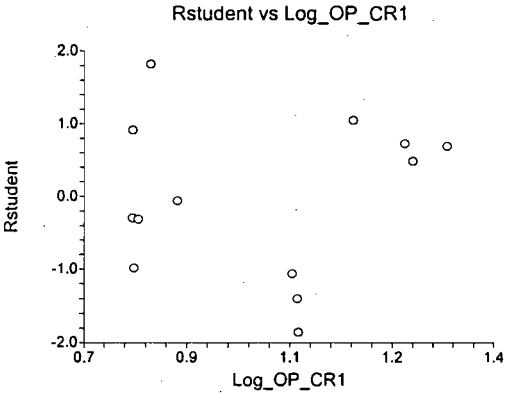
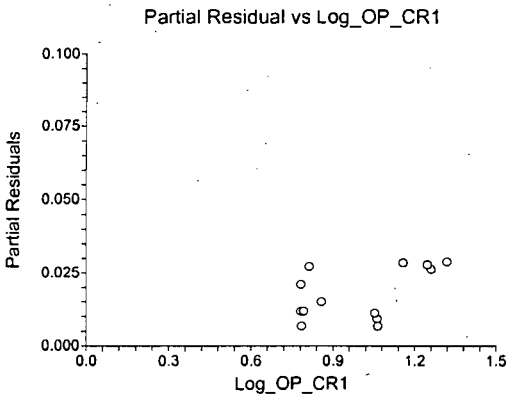
Dependent Log_PM_CR1







CR Units 245 Report.RTF

Multiple Regression Report

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Dependent	PM_245

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_245	51	6.668039	2.359688	1.99	11.38
PM_245	51	1.561765E-02	5.202181E-03	0.0038	0.0283

Correlation Matrix Section

	OP_245	PM_245
OP_245	1.000000	0.513173
PM_245	0.513173	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	8.073803E-03	1.909893E-03	4.2274	0.000103	Reject Ho	0.994185
OP_245	1.131344E-03	2.703115E-04	4.1853	0.000118	Reject Ho	0.993463
R-Squared	0.263346					

Model
8.073803E-03+ 1.131344E-03*OP_245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	8.073803E-03	1.909893E-03	4.87177E-03	1.127584E-02	0.0000
OP_245	1.131344E-03	2.703115E-04	6.781527E-04	1.584535E-03	0.5132
T-Critical	1.676551				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	1.243946E-02	1.243946E-02			
Model	1	3.56343E-04	3.56343E-04	17.5170	0.000118	0.993463
Error	49	9.967911E-04	2.034268E-05			
Total(Adjusted)	50	1.353134E-03	2.706268E-05			

Root Mean Square Error	4.510285E-03	R-Squared	0.2633
Mean of Dependent	1.561765E-02	Adj R-Squared	0.2483
Coefficient of Variation	0.2887942	Press Value	1.080272E-03
Sum |Press Residuals|	0.1822516	Press R-Squared	0.2017

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Dependent PM_245

Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	3.1061	0.001896	Rejected
Kurtosis	1.6492	0.099110	Rejected
Omnibus	12.3676	0.002063	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.513904	9	-0.146972	17	-0.041719
2	0.268450	10	-0.125805	18	-0.069055
3	0.124960	11	-0.260608	19	-0.002528
4	-0.014056	12	-0.226147	20	0.031610
5	-0.036991	13	-0.273139	21	0.095155
6	-0.125133	14	-0.256707	22	0.130219
7	-0.047763	15	-0.184238	23	0.051408
8	-0.096178	16	-0.135439	24	-0.022463

Above serial correlations significant if their absolute values are greater than 0.280056
Durbin-Watson Value 0.9778

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_245	0.263346	0.263346	0.263346	0.263346	0.263346

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Dependent PM_245

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0202	1.886682E-02	1.000777E-03	1.718897E-02	2.054468E-02
2	0.0229	0.0193533	1.093405E-03	1.752015E-02	2.118645E-02
3	0.023	1.926279E-02	1.075825E-03	1.745912E-02	2.106647E-02
4	0.0196	1.136601E-02	1.196164E-03	9.360583E-03	1.337144E-02
5	0.0199	1.198825E-02	1.072781E-03	1.018968E-02	1.378682E-02
6	0.0081	1.141127E-02	1.186996E-03	9.421209E-03	1.340133E-02
7	0.0099	1.037043E-02	1.403808E-03	8.016875E-03	1.272399E-02
8	0.0038	1.032518E-02	1.413473E-03	7.955417E-03	1.269494E-02
9	0.0092	1.037043E-02	1.403808E-03	8.016875E-03	1.272399E-02
10	0.0111	1.694354E-02	7.065654E-04	1.575894E-02	1.812813E-02
11	0.0123	1.696616E-02	7.090058E-04	1.577748E-02	1.815485E-02
12	0.0144	1.713587E-02	7.28328E-04	1.591479E-02	1.835695E-02
13	0.0081	1.428488E-02	7.073036E-04	1.309905E-02	1.547071E-02
14	0.013	1.462428E-02	6.746912E-04	1.349313E-02	1.575544E-02
15	0.0125	1.492975E-02	6.526026E-04	1.383562E-02	1.602387E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.772416E-02	8.075867E-04	1.637021E-02	1.907812E-02
20	0.0202	1.780336E-02	8.195129E-04	0.0164294	1.917731E-02
21	0.0197	1.877631E-02	9.840968E-04	1.712643E-02	0.0204262
22	0.0195	1.867449E-02	9.65566E-04	1.705567E-02	2.029331E-02
23	0.0229	2.094849E-02	1.421682E-03	1.856497E-02	2.333202E-02
24	0.0255	1.805225E-02	8.586329E-04	1.661271E-02	0.0194918
25	0.0155	1.517864E-02	6.402173E-04	1.410528E-02	0.016252
26	0.0239	1.517864E-02	6.402173E-04	1.410528E-02	0.016252
27	0.021	1.409255E-02	7.291477E-04	0.0128701	0.015315
28	0.0128	1.478833E-02	6.619207E-04	1.367858E-02	1.589807E-02
29	0.0118	1.487318E-02	6.56137E-04	1.377313E-02	1.597323E-02
30	0.0134	1.515601E-02	6.411253E-04	1.408114E-02	1.623089E-02
31	0.0121	1.472045E-02	6.669554E-04	1.360226E-02	1.583863E-02
32	0.0141	1.478267E-02	6.623265E-04	1.367225E-02	0.0158931
33	0.012	1.469216E-02	6.69158E-04	1.357029E-02	1.581404E-02
34	0.0071	1.138864E-02	1.191576E-03	9.390902E-03	1.338638E-02
35	0.0096	0.012701	9.404832E-04	1.112423E-02	1.427777E-02
36	0.0144	1.400204E-02	7.401918E-04	1.276108E-02	1.524301E-02
37	0.0155	1.840297E-02	9.174754E-04	1.686478E-02	1.994116E-02
38	0.015	1.862924E-02	9.574134E-04	1.702409E-02	2.023439E-02
39	0.0128	1.642312E-02	6.602374E-04	0.0153162	1.753004E-02
40	0.016	1.879894E-02	9.88249E-04	1.714209E-02	2.045579E-02
41	0.0144	0.0189347	1.01341E-03	1.723567E-02	2.063374E-02
42	0.0173	1.802963E-02	8.549796E-04	1.659621E-02	1.946304E-02
43	0.018	1.807488E-02	8.623046E-04	1.662918E-02	1.952058E-02
44	0.0183	1.845954E-02	9.273257E-04	1.690483E-02	2.001425E-02
45	0.0193	1.740739E-02	7.627166E-04	1.612866E-02	1.868612E-02
46	0.015	1.526915E-02	6.370316E-04	1.420113E-02	1.633717E-02
47	0.0115	1.428488E-02	7.073036E-04	1.309905E-02	1.547071E-02
48	0.0125	1.420569E-02	7.160219E-04	1.300524E-02	1.540613E-02
49	0.0109	1.474873E-02	6.648141E-04	1.363414E-02	1.586333E-02

50	0.0138	1.500894E-02	6.480959E-04	1.392237E-02	1.609551E-02
51	0.0128	1.686434E-02	6.982866E-04	1.569363E-02	1.803506E-02
52	0.0219	1.403598E-02	7.359952E-04	1.280205E-02	1.526992E-02
53	0.0283	1.365133E-02	7.871463E-04	1.233164E-02	1.497102E-02

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	0.0174	1.353819E-02	8.035726E-04	1.219096E-02	1.488542E-02
55		8.073803E-03	1.909893E-03	4.87177E-03	1.127584E-02
56		9.205147E-03	1.657201E-03	6.426764E-03	1.198353E-02
57		1.146783E-02	1.175574E-03	9.496924E-03	1.343874E-02
58		1.259918E-02	9.586489E-04	1.099195E-02	0.0142064
59		1.373052E-02	7.760013E-04	1.242952E-02	1.503153E-02
60		1.486186E-02	6.568749E-04	1.376058E-02	1.596315E-02
61		1.599321E-02	6.37909E-04	1.492372E-02	0.0170627
62		1.712455E-02	7.269855E-04	1.590572E-02	1.834338E-02
63		0.0182559	8.923141E-04	1.675989E-02	1.975191E-02
64		1.938724E-02	1.100035E-03	1.754298E-02	0.0212315
65		2.051858E-02	1.330439E-03	1.828803E-02	2.274913E-02
66		2.164993E-02	1.573592E-03	1.901172E-02	2.428813E-02
67		2.278127E-02	1.824406E-03	1.972256E-02	2.583998E-02
68		2.391261E-02	2.080109E-03	0.0204252	2.740002E-02
69		2.504396E-02	0.0023391	2.112234E-02	2.896558E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0202	1.886682E-02	4.619982E-03	1.112119E-02	2.661246E-02
2	0.0229	0.0193533	4.640928E-03	1.157255E-02	2.713405E-02
3	0.023	1.926279E-02	4.636818E-03	1.148893E-02	2.703665E-02
4	0.0196	1.136601E-02	4.666207E-03	3.54288E-03	1.918915E-02
5	0.0199	1.198825E-02	4.636112E-03	4.215574E-03	1.976093E-02
6	0.0081	1.141127E-02	4.663865E-03	3.59206E-03	1.923047E-02
7	0.0099	1.037043E-02	4.723701E-03	2.450905E-03	1.828996E-02
8	0.0038	1.032518E-02	4.726583E-03	2.400821E-03	1.824953E-02
9	0.0092	1.037043E-02	4.723701E-03	2.450905E-03	1.828996E-02
10	0.0111	1.694354E-02	4.565294E-03	9.28959E-03	2.459748E-02
11	0.0123	1.696616E-02	4.565672E-03	9.311582E-03	2.462075E-02
12	0.0144	1.713587E-02	4.568713E-03	9.476186E-03	2.479555E-02
13	0.0081	1.428488E-02	4.565408E-03	6.63074E-03	2.193902E-02
14	0.013	1.462428E-02	4.56047E-03	6.978423E-03	2.227014E-02
15	0.0125	1.492975E-02	4.557254E-03	7.289277E-03	2.257022E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.772416E-02	4.582016E-03	1.004218E-02	2.540615E-02
20	0.0202	1.780336E-02	4.584133E-03	1.011783E-02	2.548889E-02
21	0.0197	1.877631E-02	4.616397E-03	1.103669E-02	2.651594E-02
22	0.0195	1.867449E-02	4.612482E-03	1.094143E-02	2.640755E-02
23	0.0229	2.094849E-02	4.729044E-03	1.302001E-02	2.887698E-02
24	0.0255	1.805225E-02	4.591288E-03	1.035473E-02	2.574978E-02
25	0.0155	1.517864E-02	4.555497E-03	7.541119E-03	2.281616E-02
26	0.0239	1.517864E-02	4.555497E-03	7.541119E-03	2.281616E-02
27	0.021	1.409255E-02	4.568844E-03	6.432652E-03	2.175245E-02
28	0.0128	1.478833E-02	4.558598E-03	7.145606E-03	2.243105E-02
29	0.0118	1.487318E-02	4.557762E-03	7.231859E-03	0.0225145

30	0.0134	1.515601E-02	4.555625E-03	7.518278E-03	2.279375E-02
31	0.0121	1.472045E-02	4.559332E-03	7.076496E-03	0.0223644
32	0.0141	1.478267E-02	4.558657E-03	7.139851E-03	2.242549E-02
33	0.012	1.469216E-02	4.559654E-03	7.047671E-03	2.233666E-02
34	0.0071	1.138864E-02	4.665032E-03	3.567475E-03	0.0192098
35	0.0096	0.012701	4.607297E-03	4.976631E-03	2.042537E-02
36	0.0144	1.400204E-02	4.570619E-03	6.339168E-03	2.166492E-02
37	0.0155	1.840297E-02	4.602655E-03	1.068638E-02	2.611956E-02
38	0.015	1.862924E-02	4.610782E-03	1.089903E-02	2.635945E-02
39	0.0128	1.642312E-02	4.558354E-03	8.780807E-03	2.406543E-02
40	0.016	1.879894E-02	4.617284E-03	1.105783E-02	2.654005E-02
41	0.0144	0.0189347	4.622735E-03	1.118445E-02	2.668495E-02
42	0.0173	1.802963E-02	4.590606E-03	1.033324E-02	2.572601E-02
43	0.018	1.807488E-02	4.591976E-03	0.0103762	2.577356E-02
44	0.0183	1.845954E-02	4.604629E-03	1.073964E-02	2.617943E-02
45	0.0193	1.740739E-02	4.574321E-03	9.738307E-03	2.507647E-02
46	0.015	1.526915E-02	4.55505E-03	7.632375E-03	2.290592E-02
47	0.0115	1.428488E-02	4.565408E-03	6.63074E-03	2.193902E-02
48	0.0125	1.420569E-02	4.566767E-03	6.549268E-03	0.0218621
49	0.0109	1.474873E-02	4.559019E-03	7.105303E-03	2.239216E-02
50	0.0138	1.500894E-02	4.556611E-03	7.369549E-03	2.264833E-02
51	0.0128	1.686434E-02	4.56402E-03	9.212531E-03	2.451616E-02
52	0.0219	1.403598E-02	4.569941E-03	6.374245E-03	2.169772E-02
53	0.0283	1.365133E-02	4.578458E-03	5.97531E-03	2.132734E-02

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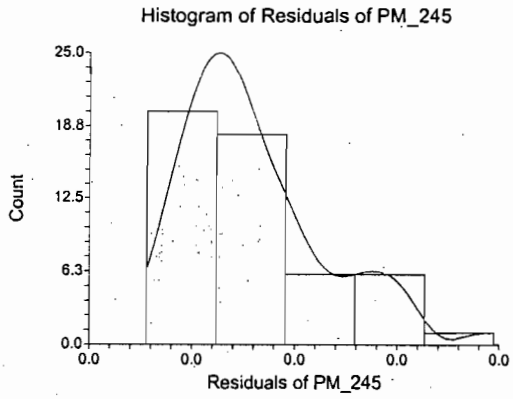
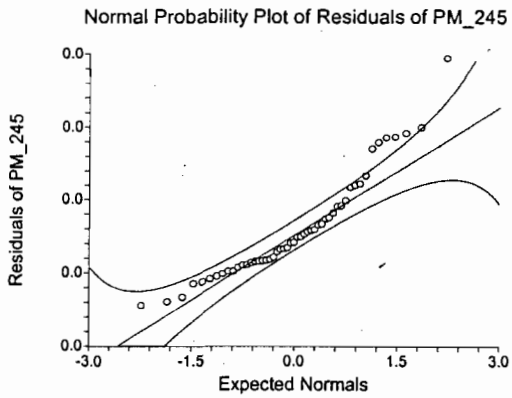
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	0.0174	1.353819E-02	4.58131E-03	5.857393E-03	2.121899E-02
55		8.073803E-03	4.897996E-03	-1.379371E-04	1.628554E-02
56		9.205147E-03	4.805101E-03	1.149151E-03	1.726114E-02
57		1.146783E-02	4.660971E-03	3.653479E-03	1.928219E-02
58		1.259918E-02	4.61104E-03	4.868536E-03	2.032982E-02
59		1.373052E-02	4.576555E-03	6.057695E-03	2.140335E-02
60		1.486186E-02	4.557868E-03	7.220367E-03	2.250336E-02
61		1.599321E-02	4.555173E-03	8.356229E-03	2.363019E-02
62		1.712455E-02	4.568499E-03	9.465232E-03	2.478387E-02
63		0.0182559	4.597706E-03	1.054761E-02	2.596418E-02
64		1.938724E-02	4.642494E-03	1.160386E-02	2.717062E-02
65		2.051858E-02	4.702419E-03	1.263474E-02	2.840243E-02
66		2.164993E-02	4.77691E-03	1.364119E-02	2.965866E-02
67		2.278127E-02	4.865299E-03	1.462435E-02	3.093819E-02
68		2.391261E-02	4.966843E-03	1.558545E-02	3.223978E-02
69		2.504396E-02	5.080754E-03	1.652581E-02	0.0335621

Plots Section





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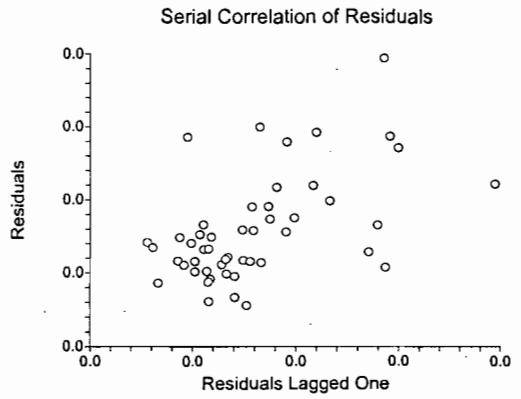

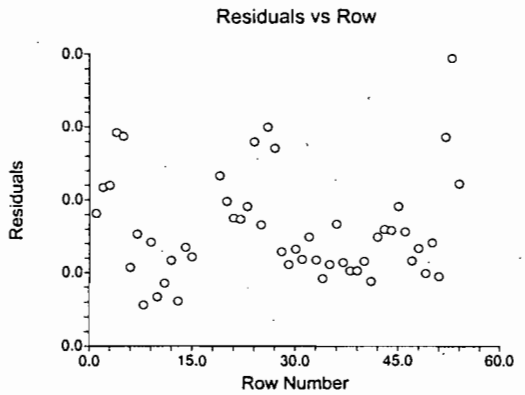

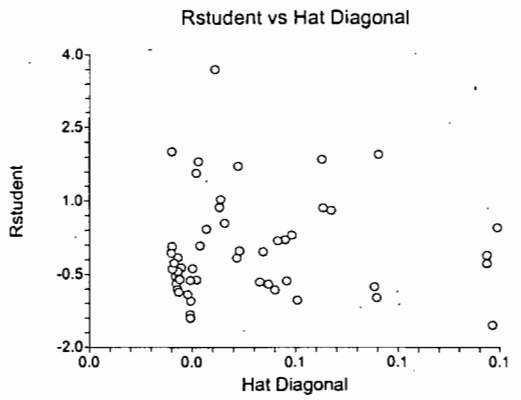

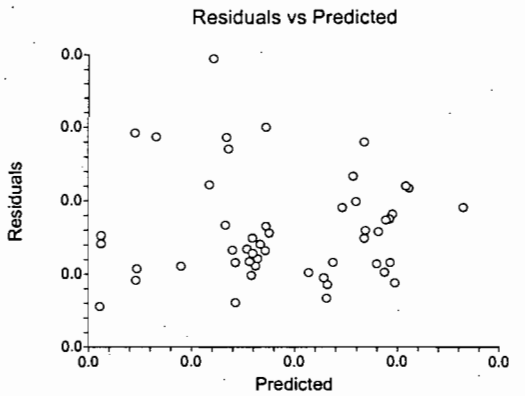

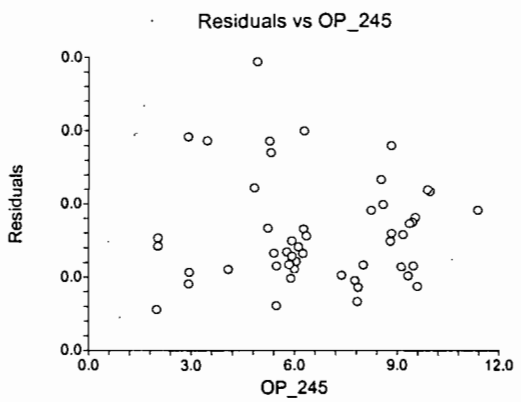

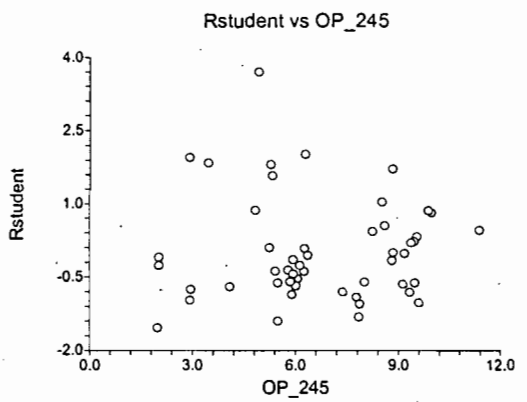

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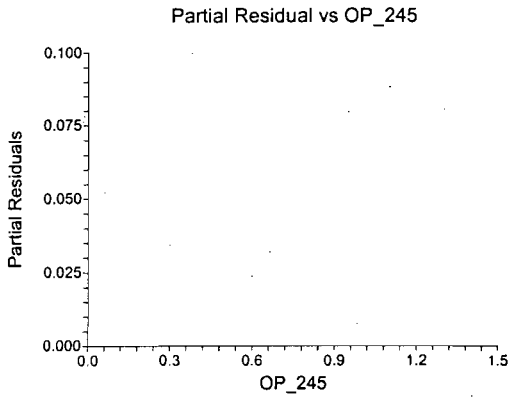

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_245	51	6.668039	2.359688	1.99	11.38
PM_245	51	1.561765E-02	5.202181E-03	0.0038	0.0283

Correlation Matrix Section

	OP_245	PM_245
OP_245	1.000000	0.513173
PM_245	0.513173	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
OP_245	2.209761E-03	1.033729E-04	21.3766	0.000000	Reject Ho	1.000000
R-Squared	0.901373					

Model
2.209761E-03*OP_245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
OP_245	2.209761E-03	1.033729E-04	2.036518E-03	2.383004E-03	0.9494
T-Critical	1.675905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	1.243226E-02	1.243226E-02	456.9590	0.000000	1.000000
Error	50	1.360326E-03	2.720652E-05			
Total(Adjusted)	51	1.379259E-02	2.704429E-04			

Root Mean Square Error	5.215987E-03	R-Squared	0.9014
Mean of Dependent	1.561765E-02	Adj R-Squared	0.9014
Coefficient of Variation	0.3339803	Press Value	1.397588E-03
Sum |Press Residuals|	0.184333	Press R-Squared	-0.0329

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	4.1703	0.000030	Rejected
Kurtosis	2.4735	0.013381	Rejected
Omnibus	23.5091	0.000008	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.507764	9	-0.052440	17	-0.027124
2	0.210133	10	-0.005177	18	0.032045
3	0.050044	11	-0.139253	19	0.075956
4	-0.037741	12	-0.167595	20	0.115793
5	-0.045500	13	-0.235524	21	0.113872
6	-0.132649	14	-0.265744	22	0.147043
7	-0.043176	15	-0.213245	23	0.044008
8	-0.041171	16	-0.182553	24	-0.065316

Above serial correlations significant if their absolute values are greater than 0.280056

Durbin-Watson Value 0.9552

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_245	0.901373	0.901373	0.901373	0.901373	0.901373

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0202	2.108112E-02	9.861776E-04	1.942838E-02	2.273386E-02
2	0.0229	2.203132E-02	1.030628E-03	2.030409E-02	2.375855E-02
3	0.023	2.185454E-02	1.022358E-03	2.014116E-02	2.356791E-02
4	0.0196	6.430405E-03	3.008152E-04	5.926268E-03	6.934543E-03
5	0.0199	7.645774E-03	3.576703E-04	7.046353E-03	8.245195E-03
6	0.0081	6.518796E-03	3.049501E-04	6.007729E-03	7.029863E-03
7	0.0099	4.485815E-03	2.09847E-04	4.134132E-03	4.837499E-03
8	0.0038	4.397425E-03	2.057121E-04	4.052671E-03	4.742179E-03
9	0.0092	4.485815E-03	2.09847E-04	4.134132E-03	4.837499E-03
10	0.0111	1.732453E-02	8.104437E-04	0.0159663	1.868276E-02
11	0.0123	1.736872E-02	8.125111E-04	1.600703E-02	1.873042E-02
12	0.0144	1.770019E-02	8.28017E-04	1.631251E-02	1.908787E-02
13	0.0081	1.213159E-02	5.675173E-04	1.118048E-02	1.308269E-02
14	0.013	1.279452E-02	5.985292E-04	1.179144E-02	0.0137976
15	0.0125	1.339115E-02	6.264399E-04	0.0123413	1.444101E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.884926E-02	8.817709E-04	0.0173715	2.032703E-02
20	0.0202	1.900395E-02	8.890071E-04	1.751406E-02	2.049384E-02
21	0.0197	2.090434E-02	9.779078E-04	1.926546E-02	2.254322E-02
22	0.0195	2.070546E-02	9.686042E-04	1.908218E-02	2.232875E-02
23	0.0229	2.514708E-02	1.176384E-03	2.317558E-02	2.711859E-02
24	0.0255	1.949009E-02	9.117491E-04	1.796209E-02	0.0210181
25	0.0155	0.0138773	6.491819E-04	1.278933E-02	1.496527E-02
26	0.0239	0.0138773	6.491819E-04	1.278933E-02	1.496527E-02
27	0.021	1.175593E-02	5.499439E-04	1.083428E-02	1.267758E-02
28	0.0128	1.311493E-02	6.135182E-04	1.208674E-02	1.414313E-02
29	0.0118	1.328067E-02	6.212712E-04	1.223947E-02	1.432186E-02
30	0.0134	1.383311E-02	6.471144E-04	0.0127486	1.491761E-02
31	0.0121	1.298235E-02	6.073159E-04	1.196454E-02	1.400015E-02
32	0.0141	1.310388E-02	6.130013E-04	1.207655E-02	1.413122E-02
33	0.012	0.0129271	6.047316E-04	1.191363E-02	1.394058E-02
34	0.0071	6.474601E-03	3.028826E-04	5.966998E-03	6.982203E-03
35	0.0096	9.037924E-03	4.227952E-04	8.329359E-03	9.746488E-03
36	0.0144	1.157915E-02	5.416741E-04	1.067135E-02	1.248694E-02
37	0.0155	2.017512E-02	9.437947E-04	1.859341E-02	2.175683E-02
38	0.015	2.061707E-02	9.644693E-04	1.900071E-02	2.223343E-02
39	0.0128	1.630804E-02	7.628921E-04	0.0150295	1.758657E-02
40	0.016	2.094854E-02	9.799752E-04	1.930619E-02	2.259088E-02
41	0.0144	2.121371E-02	9.9238E-04	1.955057E-02	2.287684E-02
42	0.0173	0.0194459	9.096816E-04	1.792136E-02	2.097044E-02
43	0.018	1.953429E-02	9.138166E-04	1.800282E-02	2.106576E-02
44	0.0183	2.028561E-02	9.489633E-04	1.869524E-02	2.187598E-02
45	0.0193	1.823053E-02	8.528265E-04	1.680128E-02	1.965979E-02
46	0.015	1.405408E-02	6.574517E-04	1.295226E-02	1.515591E-02
47	0.0115	1.213159E-02	5.675173E-04	1.118048E-02	1.308269E-02
48	0.0125	1.197691E-02	5.602812E-04	1.103793E-02	1.291588E-02
49	0.0109	1.303759E-02	6.099002E-04	1.201546E-02	1.405973E-02

50	0.0138	1.354584E-02	6.33676E-04	1.248386E-02	1.460782E-02
51	0.0128	1.716984E-02	8.032075E-04	1.582375E-02	1.851594E-02
52	0.0219	1.164544E-02	5.447752E-04	1.073245E-02	1.255843E-02
53	0.0283	1.089412E-02	5.096284E-04	1.004003E-02	1.174821E-02

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	0.0174	1.067315E-02	4.992912E-04	9.836382E-03	1.150991E-02
55		0	0	0	0
56		2.209761E-03	1.033729E-04	2.036518E-03	2.383004E-03
57		6.629284E-03	3.101187E-04	6.109554E-03	7.149013E-03
58		8.839045E-03	4.134917E-04	8.146073E-03	9.532018E-03
59		1.104881E-02	5.168646E-04	1.018259E-02	1.191502E-02
60		1.325857E-02	6.202375E-04	1.221911E-02	1.429803E-02
61		1.546833E-02	7.236104E-04	1.425563E-02	1.668103E-02
62		1.767809E-02	8.269833E-04	1.629215E-02	1.906404E-02
63		1.988785E-02	9.303562E-04	1.832866E-02	2.144704E-02
64		2.209761E-02	1.033729E-03	2.036518E-02	2.383005E-02
65		2.430737E-02	1.137102E-03	0.0224017	2.621305E-02
66		2.651714E-02	1.240475E-03	2.443822E-02	2.859605E-02
67		0.0287269	1.343848E-03	2.647473E-02	3.097906E-02
68		3.093666E-02	1.447221E-03	2.851125E-02	3.336206E-02
69		3.314642E-02	1.550594E-03	3.054777E-02	3.574507E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0202	2.108112E-02	5.308396E-03	1.218475E-02	2.997749E-02
2	0.0229	2.203132E-02	5.316833E-03	1.312081E-02	3.094183E-02
3	0.023	2.185454E-02	5.315236E-03	1.294671E-02	3.076237E-02
4	0.0196	6.430405E-03	5.224654E-03	-2.325619E-03	1.518643E-02
5	0.0199	7.645774E-03	5.228236E-03	-1.116252E-03	0.0164078
6	0.0081	6.518796E-03	5.224894E-03	-2.23763E-03	1.527522E-02
7	0.0099	4.485815E-03	5.220206E-03	-4.262755E-03	1.323439E-02
8	0.0038	4.397425E-03	5.220042E-03	-4.350869E-03	1.314572E-02
9	0.0092	4.485815E-03	5.220206E-03	-4.262755E-03	1.323439E-02
10	0.0111	1.732453E-02	5.278574E-03	8.47814E-03	2.617092E-02
11	0.0123	1.736872E-02	5.278891E-03	8.521803E-03	2.621564E-02
12	0.0144	1.770019E-02	0.0052813	8.849231E-03	2.655115E-02
13	0.0081	1.213159E-02	5.24677E-03	3.338501E-03	2.092468E-02
14	0.013	1.279452E-02	5.250215E-03	3.995656E-03	2.159338E-02
15	0.0125	1.339115E-02	5.25347E-03	4.586837E-03	2.219547E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.884926E-02	5.289994E-03	9.983736E-03	2.771479E-02
20	0.0202	1.900395E-02	5.291205E-03	1.013639E-02	0.0278715
21	0.0197	2.090434E-02	5.306866E-03	1.201054E-02	2.979814E-02
22	0.0195	2.070546E-02	5.305159E-03	1.181452E-02	2.959641E-02
23	0.0229	2.514708E-02	5.346999E-03	1.618602E-02	3.410815E-02
24	0.0255	1.949009E-02	5.295074E-03	1.061605E-02	2.836413E-02
25	0.0155	0.0138773	5.25623E-03	5.068358E-03	2.268624E-02
26	0.0239	0.0138773	5.25623E-03	5.068358E-03	2.268624E-02
27	0.021	1.175593E-02	5.244898E-03	2.965979E-03	2.054588E-02
28	0.0128	1.311493E-02	5.251945E-03	4.313172E-03	2.191669E-02
29	0.0118	1.328067E-02	5.252856E-03	4.477377E-03	2.208395E-02

30	0.0134	1.383311E-02	5.255975E-03	5.02459E-03	2.264162E-02
31	0.0121	1.298235E-02	5.251224E-03	4.181795E-03	0.0217829
32	0.0141	1.310388E-02	5.251884E-03	4.302225E-03	2.190554E-02
33	0.012	0.0129271	5.250926E-03	4.127051E-03	2.172716E-02
34	0.0071	6.474601E-03	5.224774E-03	-2.281624E-03	1.523083E-02
35	0.0096	9.037924E-03	5.233095E-03	2.677546E-04	1.780809E-02
36	0.0144	1.157915E-02	5.244038E-03	2.79064E-03	2.036766E-02
37	0.0155	2.017512E-02	5.300686E-03	1.129167E-02	2.905857E-02
38	0.015	2.061707E-02	5.304406E-03	1.172739E-02	2.950675E-02
39	0.0128	1.630804E-02	5.271482E-03	7.473535E-03	2.514254E-02
40	0.016	2.094854E-02	5.307247E-03	0.0120541	2.984298E-02
41	0.0144	2.121371E-02	5.309551E-03	0.0123154	3.011201E-02
42	0.0173	0.0194459	5.294718E-03	1.057245E-02	2.831934E-02
43	0.018	1.953429E-02	5.29543E-03	1.065965E-02	2.840893E-02
44	0.0183	2.028561E-02	5.301608E-03	1.140062E-02	0.0291706
45	0.0193	1.823053E-02	5.285247E-03	9.372959E-03	0.0270881
46	0.015	1.405408E-02	5.257258E-03	5.243416E-03	2.286475E-02
47	0.0115	1.213159E-02	5.24677E-03	3.338501E-03	2.092468E-02
48	0.0125	1.197691E-02	5.245992E-03	3.185121E-03	2.076869E-02
49	0.0109	1.303759E-02	5.251524E-03	4.236537E-03	2.183865E-02
50	0.0138	1.354584E-02	5.254338E-03	4.740065E-03	2.235161E-02
51	0.0128	1.716984E-02	5.277467E-03	8.325311E-03	2.601438E-02
52	0.0219	1.164544E-02	5.244359E-03	2.856395E-03	2.043449E-02
53	0.0283	1.089412E-02	5.240825E-03	2.110999E-03	1.967725E-02

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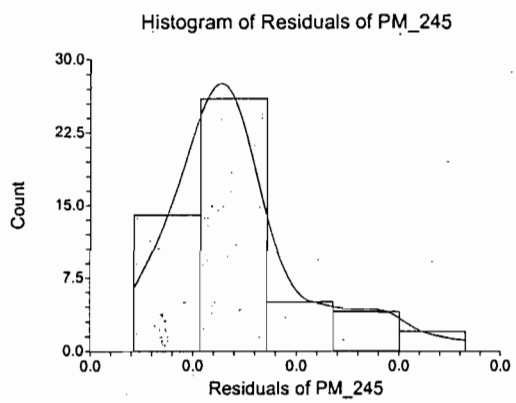
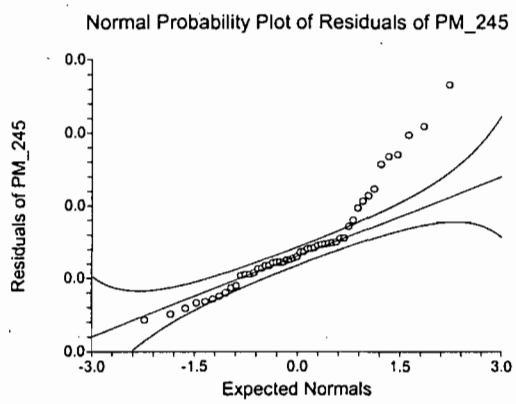
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	0.0174	1.067315E-02	5.239829E-03	1.891691E-03	0.0194546
55		0	5.215987E-03	-8.741499E-03	8.741499E-03
56		2.209761E-03	5.217011E-03	-6.533454E-03	1.095298E-02
57		6.629284E-03	5.225198E-03	-2.127652E-03	1.538622E-02
58		8.839045E-03	5.232351E-03	7.012201E-05	1.760797E-02
59		1.104881E-02	5.241533E-03	2.264495E-03	1.983312E-02
60		1.325857E-02	5.252734E-03	4.455484E-03	2.206165E-02
61		1.546833E-02	5.265941E-03	6.643112E-03	2.429355E-02
62		1.767809E-02	5.281138E-03	8.827404E-03	2.652878E-02
63		1.988785E-02	5.298309E-03	1.100839E-02	2.876732E-02
64		2.209761E-02	5.317435E-03	0.0131861	3.100913E-02
65		2.430737E-02	5.338494E-03	1.536056E-02	3.325418E-02
66		2.651714E-02	5.361464E-03	1.753183E-02	3.550244E-02
67		0.0287269	5.38632E-03	1.969993E-02	3.775386E-02
68		3.093666E-02	5.413037E-03	2.186492E-02	4.000839E-02
69		3.314642E-02	5.441586E-03	2.402684E-02	0.042266

Plots Section





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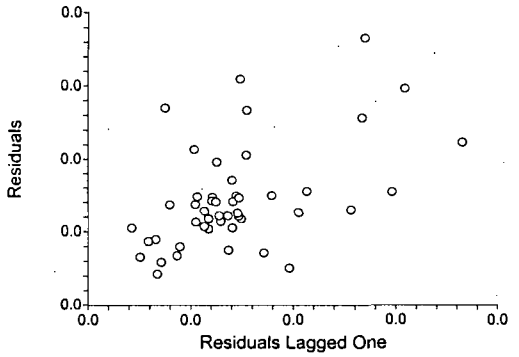
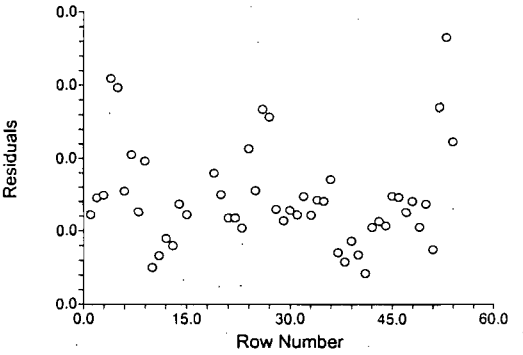
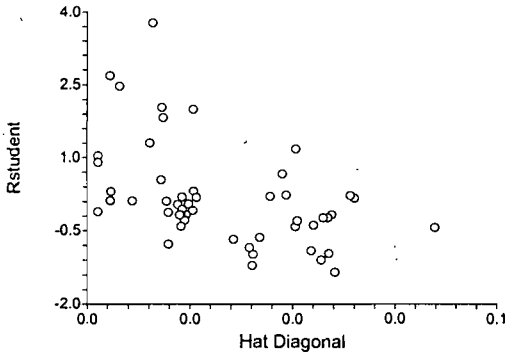
Serial Correlation of Residuals



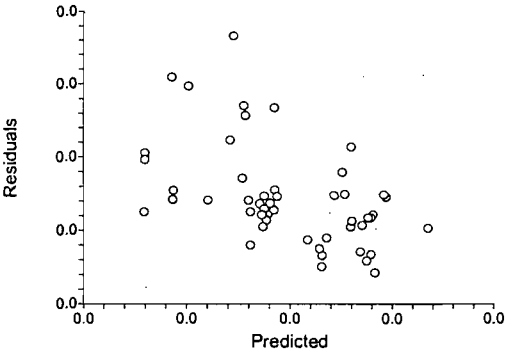
Residuals vs Row



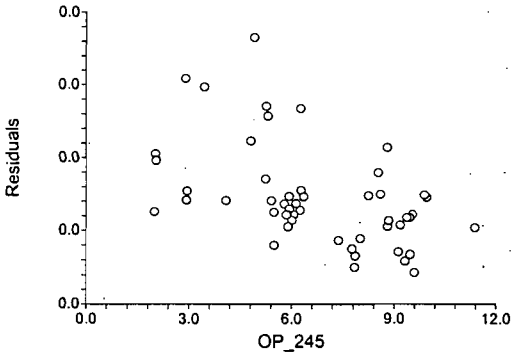
Rstudent vs Hat Diagonal



Residuals vs Predicted



Residuals vs OP_245



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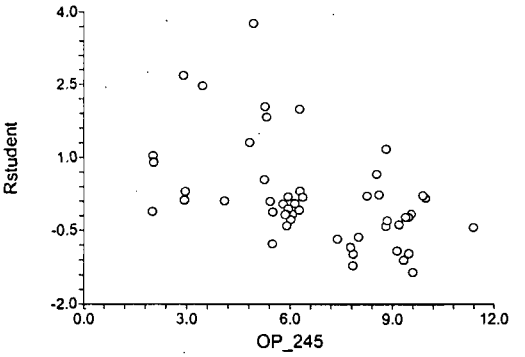

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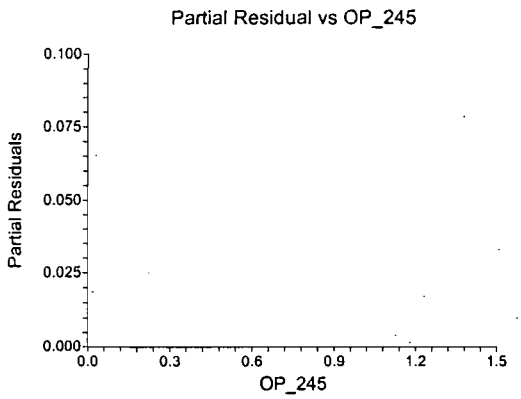

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Dependent	LOG_PM245

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_245	51	6.668039	2.359688	1.99	11.38
LOG_PM245	51	6.724657E-03	2.223306E-03	1.647191E-03	1.211984E-02

Correlation Matrix Section

	OP_245	LOG_PM245
OP_245	1.000000	0.514323
LOG_PM245	0.514323	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	3.493345E-03	8.155943E-04	4.2832	0.000086	Reject Ho	0.995034
OP_245	4.845971E-04	1.154329E-04	4.1981	0.000113	Reject Ho	0.993690
R-Squared	0.264528					

Model
3.493345E-03+ 4.845971E-04*OP_245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	3.493345E-03	8.155943E-04	2.125959E-03	4.86073E-03	0.0000
OP_245	4.845971E-04	1.154329E-04	2.910679E-04	6.781262E-04	0.5143
T-Critical	1.676551				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	2.306272E-03	2.306272E-03			
Model	1	6.537936E-05	6.537936E-05	17.6239	0.000113	0.993690
Error	49	1.817751E-04	3.709695E-06			
Total(Adjusted)	50	2.471544E-04	4.943089E-06			

Root Mean Square Error	1.926057E-03	R-Squared	0.2645
Mean of Dependent	6.724657E-03	Adj R-Squared	0.2495
Coefficient of Variation	0.2864171	Press Value	1.970299E-04
Sum |Press Residuals|	7.781995E-02	Press R-Squared	0.2028

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	3.0896	0.002004	Rejected
Kurtosis	1.6306	0.102968	Accepted
Omnibus	12.2044	0.002238	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.513523	9	-0.146951	17	-0.041691
2	0.268770	10	-0.125521	18	-0.069644
3	0.124175	11	-0.260670	19	-0.003484
4	-0.014593	12	-0.225786	20	0.031724
5	-0.036784	13	-0.273016	21	0.095385
6	-0.125157	14	-0.256681	22	0.130762
7	-0.047769	15	-0.183998	23	0.051953
8	-0.096633	16	-0.135396	24	-0.022187

Above serial correlations significant if their absolute values are greater than 0.280056

Durbin-Watson Value 0.9783

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_245	0.264528	0.264528	0.264528	0.264528	0.264528

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	8.685319E-03	8.116401E-03	4.273684E-04	7.399896E-03	8.832905E-03
2	9.833178E-03	8.324778E-03	4.669241E-04	7.541955E-03	0.0091076
3	9.875634E-03	8.28601E-03	4.594168E-04	7.515774E-03	9.056245E-03
4	8.429827E-03	4.903522E-03	5.108059E-04	4.04713E-03	5.759914E-03
5	8.557592E-03	5.170051E-03	4.581168E-04	4.401994E-03	5.938107E-03
6	3.503615E-03	4.922906E-03	5.068905E-04	4.073078E-03	5.772734E-03
7	4.278372E-03	4.477077E-03	5.994775E-04	3.472022E-03	5.482132E-03
8	1.647191E-03	4.457693E-03	6.036047E-04	3.445719E-03	5.469667E-03
9	3.977242E-03	4.477077E-03	5.994775E-04	3.472022E-03	5.482132E-03
10	4.794111E-03	7.292586E-03	3.017293E-04	6.786721E-03	7.79845E-03
11	5.309237E-03	7.302278E-03	3.027714E-04	6.794666E-03	7.80989E-03
12	6.209241E-03	7.374967E-03	3.110227E-04	6.853522E-03	7.896413E-03
13	3.503615E-03	6.153783E-03	3.020445E-04	5.64739E-03	6.660176E-03
14	5.609445E-03	6.299162E-03	2.881178E-04	5.816118E-03	6.782206E-03
15	5.395032E-03	6.430003E-03	2.786852E-04	5.962773E-03	6.897233E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.626958E-03	3.448691E-04	7.048767E-03	8.205148E-03
20	8.685319E-03	7.66088E-03	3.49962E-04	7.07415E-03	8.247608E-03
21	8.472419E-03	8.077633E-03	4.202453E-04	7.37307E-03	8.782196E-03
22	8.38723E-03	8.03402E-03	4.12332E-04	7.342724E-03	8.725315E-03
23	9.833178E-03	9.008059E-03	6.071103E-04	7.990208E-03	1.002591E-02
24	1.093567E-02	7.767491E-03	3.666677E-04	7.152754E-03	8.382228E-03
25	6.679928E-03	6.536614E-03	2.733962E-04	6.078252E-03	6.994977E-03
26	1.025754E-02	6.536614E-03	2.733962E-04	6.078252E-03	6.994977E-03
27	9.025742E-03	6.071401E-03	3.113727E-04	5.549369E-03	6.593434E-03
28	5.523693E-03	6.369428E-03	2.826643E-04	5.895527E-03	6.843329E-03
29	5.094675E-03	6.405773E-03	2.801945E-04	5.936013E-03	6.875534E-03
30	0.0057809	6.526922E-03	2.737839E-04	6.06791E-03	6.985935E-03
31	5.223425E-03	6.340352E-03	2.848143E-04	5.862847E-03	6.817858E-03
32	6.080783E-03	6.367005E-03	2.828377E-04	5.892814E-03	6.841197E-03
33	5.180513E-03	6.328238E-03	2.857549E-04	5.849155E-03	6.80732E-03
34	3.072596E-03	4.913214E-03	5.088468E-04	4.060107E-03	5.766322E-03
35	4.149342E-03	5.475347E-03	4.016208E-04	4.802009E-03	6.148684E-03
36	6.209241E-03	6.032634E-03	3.16089E-04	5.502694E-03	6.562573E-03
37	6.679928E-03	7.917716E-03	3.917956E-04	7.260851E-03	8.574581E-03
38	6.466042E-03	8.014635E-03	4.088506E-04	7.329177E-03	8.700094E-03
39	5.523693E-03	7.069671E-03	2.819455E-04	6.596975E-03	7.542367E-03
40	6.893708E-03	8.087325E-03	4.220185E-04	7.379789E-03	8.79486E-03
41	6.209241E-03	8.145477E-03	4.327631E-04	7.419927E-03	8.871026E-03
42	7.449044E-03	7.757799E-03	3.651076E-04	7.145678E-03	8.369921E-03
43	7.747778E-03	7.777183E-03	3.682356E-04	7.159817E-03	8.394549E-03
44	7.875743E-03	7.941945E-03	3.96002E-04	7.278028E-03	8.605863E-03
45	8.302025E-03	7.491271E-03	3.257079E-04	6.945204E-03	8.037336E-03
46	6.466042E-03	6.575382E-03	2.720358E-04	0.0061193	7.031464E-03
47	4.965887E-03	6.153783E-03	3.020445E-04	5.64739E-03	6.660176E-03
48	5.395032E-03	6.119861E-03	3.057675E-04	5.607226E-03	6.632496E-03
49	4.708197E-03	6.352467E-03	2.838999E-04	5.876495E-03	6.82844E-03

50	5.952287E-03	6.463925E-03	2.767606E-04	5.999921E-03	6.927928E-03
51	5.523693E-03	7.258664E-03	2.981939E-04	6.758727E-03	7.758601E-03
52	9.408399E-03	6.047172E-03	3.142969E-04	5.520237E-03	6.574106E-03
53	1.211984E-02	5.882408E-03	3.361402E-04	5.318852E-03	6.445965E-03

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	7.491733E-03	5.833948E-03	3.431549E-04	5.258632E-03	6.409266E-03
55		3.493345E-03	8.155943E-04	2.125959E-03	4.86073E-03
56		3.977942E-03	7.076857E-04	2.791471E-03	5.164413E-03
57		4.947136E-03	5.020131E-04	4.105486E-03	5.788786E-03
58		5.431733E-03	4.093781E-04	4.74539E-03	6.118076E-03
59		5.91633E-03	3.313809E-04	5.360753E-03	6.471907E-03
60		6.400927E-03	2.805096E-04	5.930638E-03	6.871216E-03
61		6.885524E-03	2.724105E-04	6.428814E-03	7.342234E-03
62		7.370121E-03	3.104494E-04	6.849637E-03	7.890605E-03
63		7.854719E-03	3.810507E-04	7.215867E-03	8.49357E-03
64		8.339316E-03	4.697553E-04	7.551747E-03	9.126884E-03
65		8.823913E-03	5.68146E-04	7.871387E-03	9.776438E-03
66		9.30851E-03	6.719815E-04	8.181898E-03	1.043512E-02
67		9.793106E-03	7.790879E-04	8.486926E-03	1.109929E-02
68		0.0102777	8.882828E-04	8.788452E-03	1.176696E-02
69		0.0107623	9.988815E-04	9.087625E-03	1.243698E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	8.685319E-03	8.116401E-03	1.972901E-03	4.808731E-03	1.142407E-02
2	9.833178E-03	8.324778E-03	1.981846E-03	5.002112E-03	1.164744E-02
3	9.875634E-03	8.28601E-03	1.980091E-03	4.966287E-03	1.160573E-02
4	8.429827E-03	4.903522E-03	1.992641E-03	1.562758E-03	8.244286E-03
5	8.557592E-03	5.170051E-03	1.979789E-03	1.850833E-03	8.489269E-03
6	3.503615E-03	4.922906E-03	1.991641E-03	1.583819E-03	8.261994E-03
7	4.278372E-03	4.477077E-03	2.017193E-03	1.09515E-03	7.859004E-03
8	1.647191E-03	4.457693E-03	2.018424E-03	1.073703E-03	7.841683E-03
9	3.977242E-03	4.477077E-03	2.017193E-03	1.09515E-03	7.859004E-03
10	4.794111E-03	7.292586E-03	1.949548E-03	4.02407E-03	0.0105611
11	5.309237E-03	7.302278E-03	1.949709E-03	4.033491E-03	1.057106E-02
12	6.209241E-03	7.374967E-03	1.951008E-03	4.104004E-03	1.064593E-02
13	3.503615E-03	6.153783E-03	1.949596E-03	2.885185E-03	9.42238E-03
14	5.609445E-03	6.299162E-03	1.947487E-03	0.0030341	9.564224E-03
15	5.395032E-03	6.430003E-03	1.946114E-03	3.167243E-03	9.692763E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.626958E-03	1.956688E-03	4.34647E-03	1.090745E-02
20	8.685319E-03	7.66088E-03	1.957593E-03	4.378876E-03	1.094288E-02
21	8.472419E-03	8.077633E-03	1.971371E-03	4.77253E-03	1.138274E-02
22	8.38723E-03	8.03402E-03	1.969699E-03	4.731719E-03	1.133632E-02
23	9.833178E-03	9.008059E-03	2.019475E-03	5.622307E-03	1.239381E-02
24	1.093567E-02	7.767491E-03	1.960648E-03	4.480365E-03	1.105462E-02
25	6.679928E-03	6.536614E-03	1.945364E-03	3.275113E-03	9.798116E-03
26	1.025754E-02	6.536614E-03	1.945364E-03	3.275113E-03	9.798116E-03
27	9.025742E-03	6.071401E-03	1.951063E-03	2.800344E-03	9.342458E-03
28	5.523693E-03	6.369428E-03	1.946688E-03	3.105707E-03	9.63315E-03
29	5.094675E-03	6.405773E-03	1.946331E-03	3.14265E-03	9.668896E-03

30	0.0057809	6.526922E-03	1.945418E-03	3.265329E-03	9.788515E-03
31	5.223425E-03	6.340352E-03	1.947001E-03	3.076106E-03	9.604599E-03
32	6.080783E-03	6.367005E-03	1.946713E-03	3.103242E-03	9.630769E-03
33	5.180513E-03	6.328238E-03	1.947139E-03	3.06376E-03	9.592716E-03
34	3.072596E-03	4.913214E-03	1.99214E-03	1.573291E-03	8.253138E-03
35	4.149342E-03	5.475347E-03	1.967484E-03	2.176759E-03	8.773934E-03
36	6.209241E-03	6.032634E-03	1.951822E-03	2.760305E-03	9.304962E-03
37	6.679928E-03	7.917716E-03	1.965502E-03	4.622451E-03	1.121298E-02
38	6.466042E-03	8.014635E-03	1.968973E-03	4.713552E-03	1.131572E-02
39	5.523693E-03	7.069671E-03	1.946584E-03	3.806124E-03	1.033322E-02
40	6.893708E-03	8.087325E-03	1.971749E-03	4.781587E-03	1.139306E-02
41	6.209241E-03	8.145477E-03	1.974077E-03	4.835837E-03	1.145512E-02
42	7.449044E-03	7.757799E-03	1.960357E-03	4.471161E-03	1.104444E-02
43	7.747778E-03	7.777183E-03	1.960942E-03	4.489564E-03	0.0110648
44	7.875743E-03	7.941945E-03	1.966345E-03	4.645268E-03	1.123862E-02
45	8.302025E-03	7.491271E-03	1.953402E-03	4.216292E-03	1.076625E-02
46	6.466042E-03	6.575382E-03	1.945173E-03	0.0033142	9.836564E-03
47	4.965887E-03	6.153783E-03	1.949596E-03	2.885185E-03	9.42238E-03
48	5.395032E-03	6.119861E-03	1.950177E-03	2.85029E-03	9.389431E-03
49	4.708197E-03	6.352467E-03	1.946868E-03	3.088444E-03	9.61649E-03
50	5.952287E-03	6.463925E-03	1.94584E-03	3.201626E-03	9.726224E-03
51	5.523693E-03	7.258664E-03	1.949004E-03	3.99106E-03	1.052627E-02
52	9.408399E-03	6.047172E-03	1.951532E-03	2.775328E-03	9.319014E-03
53	1.211984E-02	5.882408E-03	1.955169E-03	2.604468E-03	9.160348E-03

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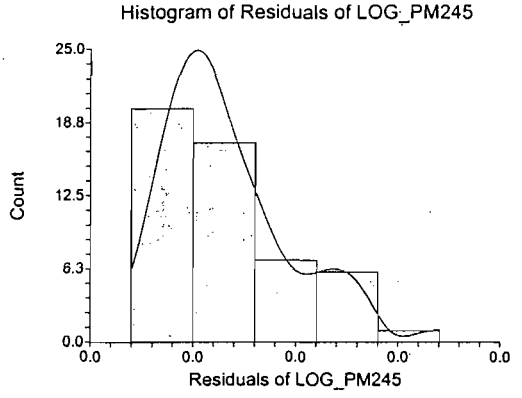
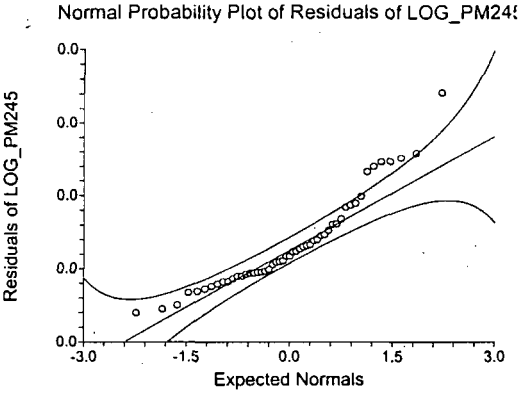
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	7.491733E-03	5.833948E-03	1.956387E-03	2.553966E-03	9.113931E-03
55		3.493345E-03	2.091624E-03	-1.336856E-05	7.000058E-03
56		3.977942E-03	2.051954E-03	5.37737E-04	7.418147E-03
57		4.947136E-03	1.990405E-03	1.610121E-03	8.284152E-03
58		5.431733E-03	1.969083E-03	2.130466E-03	0.008733
59		5.91633E-03	1.954356E-03	2.639752E-03	9.192908E-03
60		6.400927E-03	1.946376E-03	3.137728E-03	9.664127E-03
61		6.885524E-03	1.945226E-03	3.624255E-03	1.014679E-02
62		7.370121E-03	1.950916E-03	4.099311E-03	1.064093E-02
63		7.854719E-03	1.963389E-03	4.562997E-03	1.114644E-02
64		8.339316E-03	1.982515E-03	5.015528E-03	0.0116631
65		8.823913E-03	2.008105E-03	5.457222E-03	0.0121906
66		9.30851E-03	2.039915E-03	5.888488E-03	1.272853E-02
67		9.793106E-03	2.077661E-03	6.309803E-03	1.327641E-02
68		0.0102777	2.121024E-03	0.0067217	1.383371E-02
69		0.0107623	2.169668E-03	7.124742E-03	1.439986E-02

Plots Section





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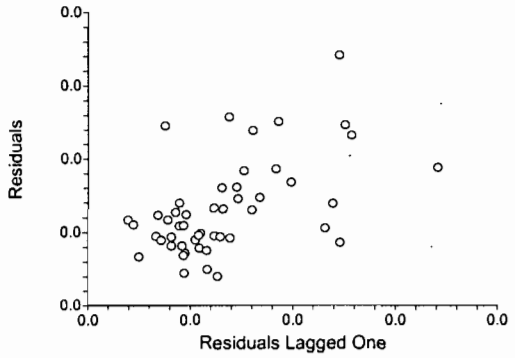
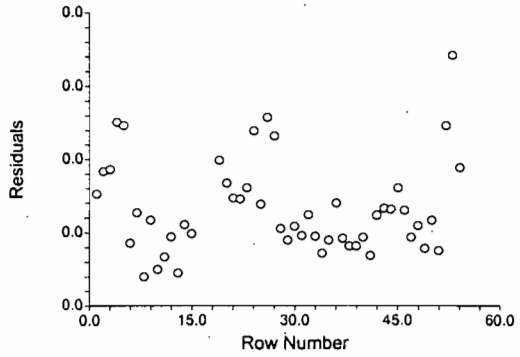
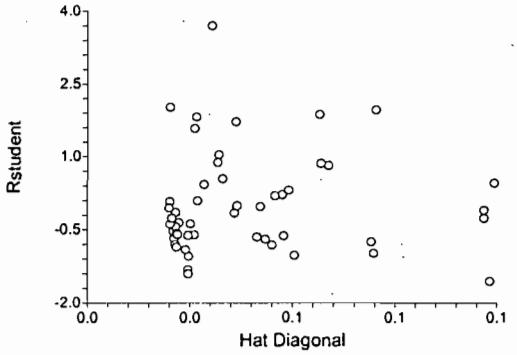
Serial Correlation of Residuals



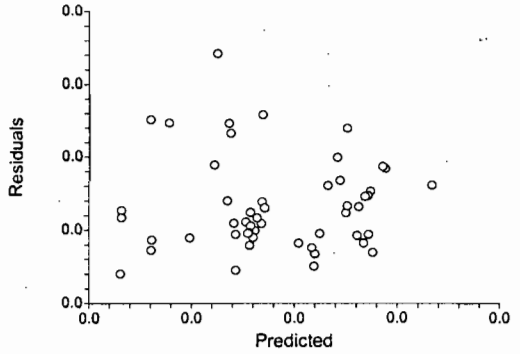
Residuals vs Row



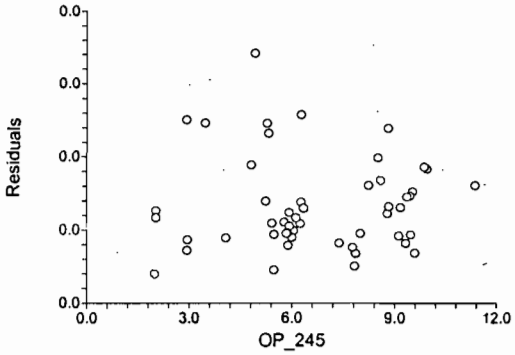
Rstudent vs Hat Diagonal



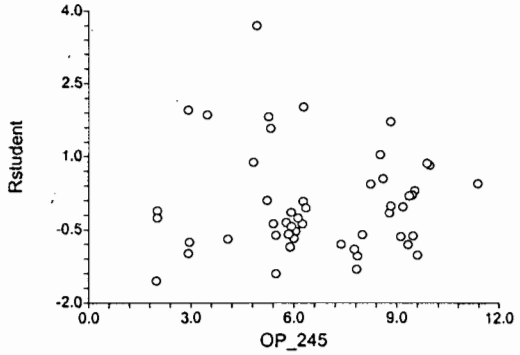
Residuals vs Predicted



Residuals vs OP_245



Rstudent vs OP_245



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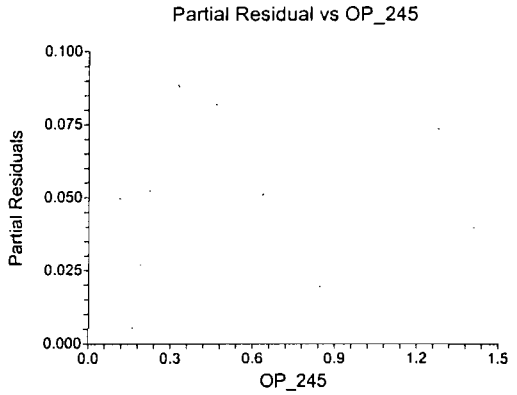

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
OP_245	51	6.668039	2.359688	1.99	11.38
LOG_PM245	51	6.724657E-03	2.223306E-03	1.647191E-03	1.211984E-02

Correlation Matrix Section

	OP_245	LOG_PM245
OP_245	1.000000	0.514323
LOG_PM245	0.514323	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
OP_245	9.51203E-04	4.430057E-05	21.4716	0.000000	Reject Ho	1.000000
R-Squared	0.902158					

Model
9.51203E-04*OP_245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
OP_245	9.51203E-04	4.430057E-05	8.769595E-04	1.025447E-03	0.9498
T-Critical	1.675905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	2.303594E-03	2.303594E-03	461.0285	0.000000	1.000000
Error	50	2.498321E-04	4.996641E-06			
Total(Adjusted)	51	2.553426E-03	5.006718E-05			

Root Mean Square Error	2.235317E-03	R-Squared	0.9022
Mean of Dependent	6.724657E-03	Adj R-Squared	0.9022
Coefficient of Variation	0.3324061	Press Value	2.56661E-04
Sum |Press Residuals|	7.903654E-02	Press R-Squared	-0.0385

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	4.1658	0.000031	Rejected
Kurtosis	2.4601	0.013889	Rejected
Omnibus	23.4063	0.000008	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.507864	9	-0.051748	17	-0.026903
2	0.210614	10	-0.004398	18	0.033042
3	0.049298	11	-0.138305	19	0.076420
4	-0.037996	12	-0.166964	20	0.117661
5	-0.045391	13	-0.234844	21	0.115448
6	-0.132834	14	-0.265397	22	0.148274
7	-0.043355	15	-0.213176	23	0.044937
8	-0.041244	16	-0.182628	24	-0.064966

Above serial correlations significant if their absolute values are greater than 0.280056

Durbin-Watson Value 0.9544

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
OP_245	0.902158	0.902158	0.902158	0.902158	0.902158

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	8.685319E-03	9.074477E-03	4.226275E-04	8.366194E-03	9.78276E-03
2	9.833178E-03	9.483494E-03	4.416767E-04	8.743286E-03	0.0102237
3	9.875634E-03	9.407398E-03	4.381326E-04	8.673129E-03	1.014167E-02
4	8.429827E-03	2.768001E-03	1.289147E-04	2.551952E-03	2.984049E-03
5	8.557592E-03	3.291162E-03	1.5328E-04	3.03428E-03	3.548045E-03
6	3.503615E-03	2.806049E-03	1.306867E-04	2.58703E-03	3.025067E-03
7	4.278372E-03	1.930942E-03	8.993016E-05	1.780228E-03	2.081657E-03
8	1.647191E-03	1.892894E-03	8.815814E-05	1.745149E-03	2.040639E-03
9	3.977242E-03	1.930942E-03	8.993016E-05	1.780228E-03	2.081657E-03
10	4.794111E-03	7.457432E-03	3.473165E-04	6.875362E-03	8.039501E-03
11	5.309237E-03	7.476456E-03	3.482025E-04	6.892901E-03	8.06001E-03
12	6.209241E-03	7.619136E-03	3.548476E-04	7.024445E-03	8.213827E-03
13	3.503615E-03	5.222104E-03	2.432101E-04	4.814507E-03	5.629702E-03
14	5.609445E-03	5.507465E-03	2.565003E-04	5.077595E-03	5.937336E-03
15	5.395032E-03	5.76429E-03	2.684615E-04	5.314374E-03	6.214206E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	8.113761E-03	3.778839E-04	7.480464E-03	8.747059E-03
20	8.685319E-03	8.180346E-03	3.809849E-04	7.541852E-03	8.818841E-03
21	8.472419E-03	8.998381E-03	4.190834E-04	8.296036E-03	9.700725E-03
22	8.38723E-03	8.912772E-03	4.150964E-04	8.21711E-03	9.608435E-03
23	9.833178E-03	1.082469E-02	5.041405E-04	9.979798E-03	1.166958E-02
24	1.093567E-02	8.389611E-03	3.90731E-04	7.734783E-03	9.044439E-03
25	6.679928E-03	5.973555E-03	2.782076E-04	5.507305E-03	6.439805E-03
26	1.025754E-02	5.973555E-03	2.782076E-04	5.507305E-03	6.439805E-03
27	9.025742E-03	0.0050604	2.35679E-04	4.665425E-03	5.455376E-03
28	5.523693E-03	5.64539E-03	2.629239E-04	5.204754E-03	6.086025E-03
29	5.094675E-03	5.71673E-03	2.662464E-04	5.270526E-03	6.162934E-03
30	0.0057809	5.954531E-03	2.773216E-04	5.489766E-03	6.419295E-03
31	5.223425E-03	5.588318E-03	2.602659E-04	5.152137E-03	6.024498E-03
32	6.080783E-03	5.640634E-03	2.627024E-04	5.20037E-03	6.080898E-03
33	5.180513E-03	5.564538E-03	2.591583E-04	5.130213E-03	5.998862E-03
34	3.072596E-03	2.787025E-03	1.298007E-04	2.569491E-03	3.004558E-03
35	4.149342E-03	3.89042E-03	1.811893E-04	3.586764E-03	4.194077E-03
36	6.209241E-03	4.984304E-03	2.32135E-04	4.595268E-03	5.37334E-03
37	6.679928E-03	8.684483E-03	4.044642E-04	8.00664E-03	9.362327E-03
38	6.466042E-03	8.874724E-03	4.133243E-04	8.182032E-03	9.567416E-03
39	5.523693E-03	7.019878E-03	3.269382E-04	6.471961E-03	7.567795E-03
40	6.893708E-03	9.017404E-03	4.199694E-04	8.313576E-03	9.721234E-03
41	6.209241E-03	9.131549E-03	4.252855E-04	8.418811E-03	9.844287E-03
42	7.449044E-03	8.370587E-03	3.89845E-04	7.717243E-03	9.02393E-03
43	7.747778E-03	8.408635E-03	3.916171E-04	7.752322E-03	9.064947E-03
44	7.875743E-03	8.732044E-03	4.066793E-04	8.050488E-03	9.413599E-03
45	8.302025E-03	7.847425E-03	3.654797E-04	7.234916E-03	8.459934E-03
46	6.466042E-03	6.049651E-03	2.817517E-04	5.577462E-03	6.52184E-03
47	4.965887E-03	5.222104E-03	2.432101E-04	4.814507E-03	5.629702E-03
48	5.395032E-03	5.155521E-03	2.401091E-04	4.75312E-03	5.55792E-03
49	4.708197E-03	5.612098E-03	2.613734E-04	5.174061E-03	6.050135E-03

50	5.952287E-03	5.830875E-03	2.715625E-04	5.375762E-03	6.285987E-03
51	5.523693E-03	7.390847E-03	3.442155E-04	6.813975E-03	7.96772E-03
52	9.408399E-03	5.01284E-03	2.33464E-04	4.621577E-03	5.404104E-03
53	1.211984E-02	4.689431E-03	2.184018E-04	4.32341E-03	5.055452E-03

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	7.491733E-03	4.594311E-03	2.139718E-04	4.235714E-03	4.952907E-03
55		0	0	0	0
56		9.51203E-04	4.430057E-05	8.769595E-04	1.025447E-03
57		2.853609E-03	1.329017E-04	2.630878E-03	3.07634E-03
58		3.804812E-03	1.772023E-04	3.507838E-03	4.101786E-03
59		4.756015E-03	2.215029E-04	4.384798E-03	5.127233E-03
60		5.707218E-03	2.658034E-04	5.261757E-03	6.152679E-03
61		6.658421E-03	3.10104E-04	6.138716E-03	7.178126E-03
62		7.609624E-03	3.544046E-04	7.015676E-03	8.203573E-03
63		8.560827E-03	3.987052E-04	7.892636E-03	9.229019E-03
64		9.512031E-03	4.430057E-04	8.769595E-03	1.025447E-02
65		1.046323E-02	4.873063E-04	9.646554E-03	1.127991E-02
66		1.141444E-02	5.316068E-04	1.052351E-02	1.230536E-02
67		1.236564E-02	5.759074E-04	1.140047E-02	1.333081E-02
68		1.331684E-02	6.20208E-04	1.227743E-02	1.435625E-02
69		1.426805E-02	6.645086E-04	1.315439E-02	0.0153817

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	8.685319E-03	9.074477E-03	2.274919E-03	5.261929E-03	1.288702E-02
2	9.833178E-03	9.483494E-03	2.278534E-03	5.664886E-03	0.0133021
3	9.875634E-03	9.407398E-03	2.27785E-03	5.589937E-03	1.322486E-02
4	8.429827E-03	2.768001E-03	2.239031E-03	-9.844027E-04	6.520404E-03
5	8.557592E-03	3.291162E-03	2.240566E-03	-4.638134E-04	7.046138E-03
6	3.503615E-03	2.806049E-03	2.239134E-03	-9.465267E-04	6.558625E-03
7	4.278372E-03	1.930942E-03	2.237125E-03	-1.818267E-03	5.680151E-03
8	1.647191E-03	1.892894E-03	2.237055E-03	-1.856197E-03	5.641985E-03
9	3.977242E-03	1.930942E-03	2.237125E-03	-1.818267E-03	5.680151E-03
10	4.794111E-03	7.457432E-03	2.262138E-03	3.666303E-03	1.124856E-02
11	5.309237E-03	7.476456E-03	2.262275E-03	3.685098E-03	1.126781E-02
12	6.209241E-03	7.619136E-03	2.263307E-03	3.826049E-03	1.141222E-02
13	3.503615E-03	5.222104E-03	2.248509E-03	1.453817E-03	8.990392E-03
14	5.609445E-03	5.507465E-03	2.249985E-03	1.736704E-03	9.278227E-03
15	5.395032E-03	5.76429E-03	2.25138E-03	1.991191E-03	9.53739E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	8.113761E-03	2.267033E-03	4.31443E-03	1.191309E-02
20	8.685319E-03	8.180346E-03	2.267552E-03	4.380145E-03	1.198055E-02
21	8.472419E-03	8.998381E-03	2.274263E-03	5.186932E-03	1.280983E-02
22	8.38723E-03	8.912772E-03	2.273532E-03	5.102549E-03	0.012723
23	9.833178E-03	1.082469E-02	2.291462E-03	6.984417E-03	1.466496E-02
24	1.093567E-02	8.389611E-03	2.26921E-03	4.586631E-03	1.219259E-02
25	6.679928E-03	5.973555E-03	2.252563E-03	2.198473E-03	9.748637E-03
26	1.025754E-02	5.973555E-03	2.252563E-03	2.198473E-03	9.748637E-03
27	9.025742E-03	0.0050604	2.247707E-03	1.293457E-03	8.827344E-03
28	5.523693E-03	5.64539E-03	2.250727E-03	1.873386E-03	9.417394E-03
29	5.094675E-03	5.71673E-03	2.251117E-03	1.944072E-03	9.489388E-03

30	0.0057809	5.954531E-03	2.252454E-03	2.179632E-03	9.72943E-03
31	5.223425E-03	5.588318E-03	2.250418E-03	1.816832E-03	9.359804E-03
32	6.080783E-03	5.640634E-03	2.250701E-03	1.868673E-03	9.412594E-03
33	5.180513E-03	5.564538E-03	2.25029E-03	1.793266E-03	9.335809E-03
34	3.072596E-03	2.787025E-03	2.239082E-03	-9.654644E-04	6.539514E-03
35	4.149342E-03	3.89042E-03	2.242648E-03	1.31955E-04	7.648886E-03
36	6.209241E-03	4.984304E-03	2.247338E-03	1.217979E-03	8.750629E-03
37	6.679928E-03	8.684483E-03	2.271615E-03	4.877473E-03	1.249149E-02
38	6.466042E-03	8.874724E-03	2.273209E-03	5.065042E-03	1.268441E-02
39	5.523693E-03	7.019878E-03	2.259099E-03	3.233842E-03	1.080591E-02
40	6.893708E-03	9.017404E-03	2.274426E-03	5.205682E-03	1.282913E-02
41	6.209241E-03	9.131549E-03	2.275414E-03	5.318171E-03	1.294493E-02
42	7.449044E-03	8.370587E-03	2.269057E-03	4.567862E-03	1.217331E-02
43	7.747778E-03	8.408635E-03	2.269362E-03	4.605399E-03	1.221187E-02
44	7.875743E-03	8.732044E-03	2.27201E-03	4.924371E-03	1.253972E-02
45	8.302025E-03	7.847425E-03	2.264998E-03	4.051503E-03	1.164335E-02
46	6.466042E-03	6.049651E-03	2.253004E-03	2.273831E-03	9.825471E-03
47	4.965887E-03	5.222104E-03	2.248509E-03	1.453817E-03	8.990392E-03
48	5.395032E-03	5.155521E-03	2.248176E-03	1.387792E-03	8.923249E-03
49	4.708197E-03	5.612098E-03	2.250546E-03	1.840396E-03	0.0093838
50	5.952287E-03	5.830875E-03	2.251752E-03	2.057152E-03	9.604597E-03
51	5.523693E-03	7.390847E-03	2.261664E-03	3.600513E-03	1.118118E-02
52	9.408399E-03	5.01284E-03	2.247476E-03	1.246284E-03	8.779395E-03
53	1.211984E-02	4.689431E-03	2.245961E-03	9.254136E-04	8.453448E-03

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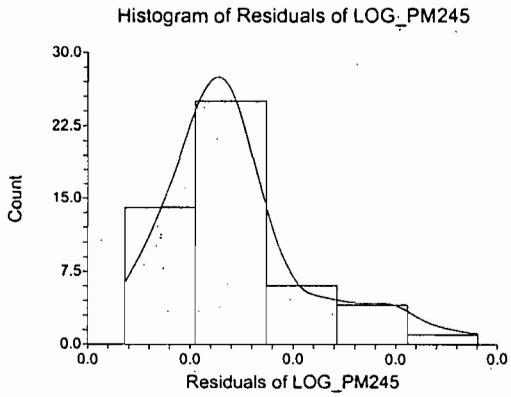
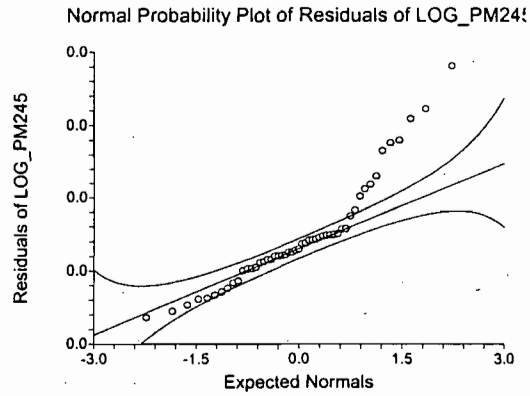
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	7.491733E-03	4.594311E-03	2.245534E-03	8.310081E-04	8.357613E-03
55		0	2.235317E-03	-3.746179E-03	3.746179E-03
56		9.51203E-04	2.235756E-03	-2.795711E-03	4.698117E-03
57		2.853609E-03	2.239264E-03	-8.99185E-04	6.606403E-03
58		3.804812E-03	2.24233E-03	4.688069E-05	7.562743E-03
59		4.756015E-03	2.246265E-03	9.914889E-04	8.520541E-03
60		5.707218E-03	2.251065E-03	1.934647E-03	9.479789E-03
61		6.658421E-03	2.256725E-03	2.876365E-03	1.044048E-02
62		7.609624E-03	2.263237E-03	3.816653E-03	1.140259E-02
63		8.560827E-03	2.270596E-03	4.755524E-03	1.236613E-02
64		9.512031E-03	2.278792E-03	5.69299E-03	1.333107E-02
65		1.046323E-02	2.287817E-03	6.629068E-03	0.0142974
66		1.141444E-02	2.297661E-03	7.563774E-03	0.0152651
67		1.236564E-02	2.308313E-03	8.497125E-03	1.623415E-02
68		1.331684E-02	2.319763E-03	9.42914E-03	1.720454E-02
69		1.426805E-02	2.331998E-03	1.035984E-02	1.817625E-02

Plots Section





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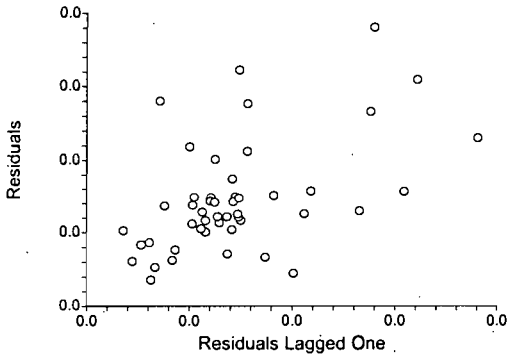
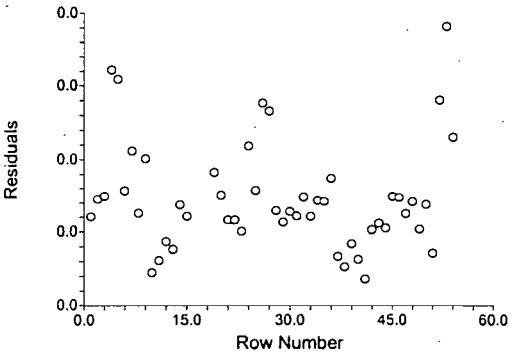
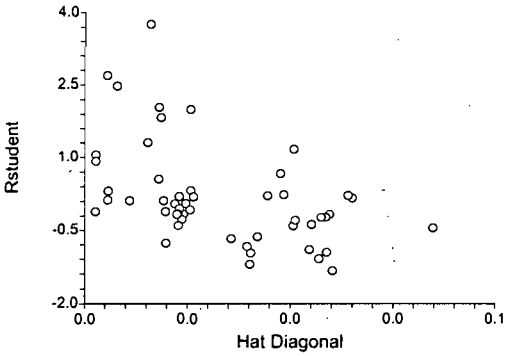
Serial Correlation of Residuals



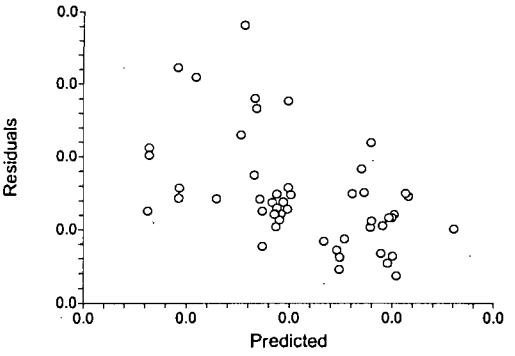
Residuals vs Row



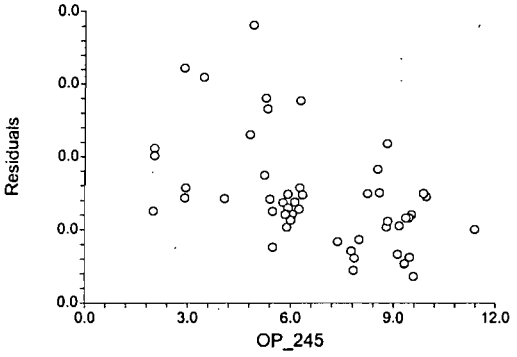
Rstudent vs Hat Diagonal



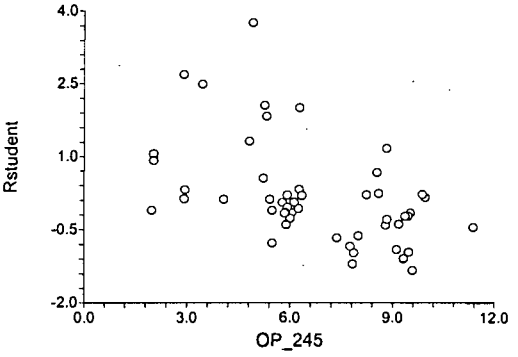
Residuals vs Predicted



Residuals vs OP_245



Rstudent vs OP_245



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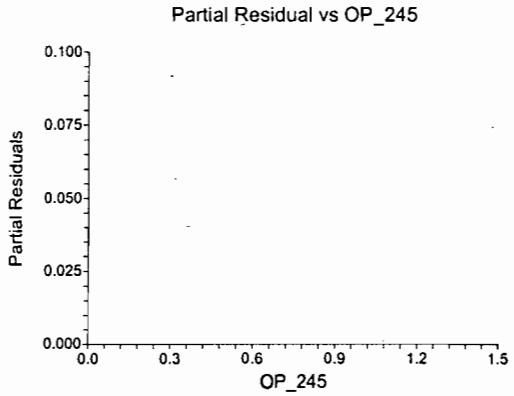

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
LOG_OP245	51	0.8605248	0.1545665	0.4756712	1.092721
LOG_PM245	51	6.724657E-03	2.223306E-03	1.647191E-03	1.211984E-02

Correlation Matrix Section

	LOG_OP245	LOG_PM245
LOG_OP245	1.000000	0.511875
LOG_PM245	0.511875	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	3.887213E-04	1.54289E-03	0.2519	0.802138	Accept Ho	0.110457
LOG_OP245	7.362874E-03	1.765263E-03	4.1710	0.000123	Reject Ho	0.993199
R-Squared	0.262016					

Model
3.887213E-04+ 7.362874E-03*LOG_OP245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	3.887213E-04	1.54289E-03	-2.198012E-03	2.975454E-03	0.0000
LOG_OP245	7.362874E-03	1.765263E-03	4.403321E-03	1.032243E-02	0.5119
T-Critical	1.676551				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	2.306272E-03	2.306272E-03			
Model	1	6.47583E-05	6.47583E-05	17.3971	0.000123	0.993199
Error	49	1.823961E-04	3.72237E-06			
Total(Adjusted)	50	2.471544E-04	4.943089E-06			

Root Mean Square Error	1.929344E-03	R-Squared	0.2620
Mean of Dependent	6.724657E-03	Adj R-Squared	0.2470
Coefficient of Variation	0.286906	Press Value	1.973962E-04
Sum |Press Residuals|	8.005299E-02	Press R-Squared	0.2013

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	2.8924	0.003823	Rejected
Kurtosis	1.2467	0.212501	Accepted
Omnibus	9.9205	0.007011	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.515689	9	-0.183519	17	0.009500
2	0.294622	10	-0.153199	18	0.004057
3	0.155361	11	-0.271435	19	0.065477
4	0.005947	12	-0.226303	20	0.065265
5	-0.041775	13	-0.267649	21	0.105335
6	-0.159426	14	-0.230505	22	0.128989
7	-0.075975	15	-0.140369	23	0.041623
8	-0.121901	16	-0.088112	24	-0.043210

Above serial correlations significant if their absolute values are greater than 0.280056
Durbin-Watson Value 0.9806

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
LOG_OP245	0.262016	0.262016	0.262016	0.262016	0.262016

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	8.685319E-03	7.919768E-03	3.93811E-04	7.259523E-03	8.580011E-03
2	9.833178E-03	8.047631E-03	4.166465E-04	7.349102E-03	8.74616E-03
3	9.875634E-03	8.024227E-03	4.123908E-04	7.332833E-03	8.71562E-03
4	8.429827E-03	4.748844E-03	5.453292E-04	3.834572E-03	5.663116E-03
5	8.557592E-03	5.169692E-03	4.60404E-04	4.397801E-03	5.941582E-03
6	3.503615E-03	4.781391E-03	5.385649E-04	3.878459E-03	5.684322E-03
7	4.278372E-03	3.933522E-03	7.216573E-04	2.723627E-03	5.143418E-03
8	1.647191E-03	3.891028E-03	7.311145E-04	2.665278E-03	5.116779E-03
9	3.977242E-03	3.933522E-03	7.216573E-04	2.723627E-03	5.143418E-03
10	4.794111E-03	7.35733E-03	3.098319E-04	6.837881E-03	7.876779E-03
11	5.309237E-03	7.364556E-03	3.106838E-04	6.843679E-03	7.885433E-03
12	6.209241E-03	7.418239E-03	3.172369E-04	6.886376E-03	7.950103E-03
13	3.503615E-03	6.369176E-03	2.832866E-04	5.894232E-03	6.844121E-03
14	5.609445E-03	6.513673E-03	2.74857E-04	6.052861E-03	6.974485E-03
15	5.395032E-03	6.638363E-03	2.709533E-04	6.184096E-03	7.09263E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.597659E-03	3.417539E-04	7.024691E-03	8.170626E-03
20	8.685319E-03	7.62106E-03	3.452185E-04	7.042284E-03	8.199837E-03
21	8.472419E-03	7.895404E-03	3.895817E-04	7.242251E-03	8.548558E-03
22	8.38723E-03	7.867772E-03	3.848359E-04	7.222575E-03	8.512969E-03
23	9.833178E-03	8.434285E-03	4.909121E-04	7.611246E-03	9.257324E-03
24	1.093567E-02	7.693513E-03	3.56292E-04	7.096171E-03	8.290854E-03
25	6.679928E-03	6.736486E-03	2.701771E-04	6.28352E-03	7.189451E-03
26	1.025754E-02	6.736486E-03	2.701771E-04	6.28352E-03	7.189451E-03
27	9.025742E-03	0.0062843	2.900587E-04	5.798002E-03	6.770598E-03
28	5.523693E-03	6.58124E-03	2.723416E-04	6.124645E-03	7.037835E-03
29	5.094675E-03	6.615636E-03	2.714237E-04	6.160581E-03	7.070692E-03
30	0.0057809	6.727689E-03	2.701632E-04	6.274746E-03	7.180631E-03
31	5.223425E-03	6.553454E-03	2.732626E-04	6.095316E-03	7.011593E-03
32	6.080783E-03	6.578934E-03	2.724119E-04	6.122221E-03	7.035646E-03
33	5.180513E-03	6.541805E-03	2.73696E-04	6.08294E-03	7.000671E-03
34	3.072596E-03	4.765159E-03	5.41935E-04	3.856577E-03	5.67374E-03
35	4.149342E-03	5.592195E-03	3.830213E-04	4.95004E-03	6.23435E-03
36	6.209241E-03	6.243565E-03	2.937543E-04	5.751071E-03	6.736059E-03
37	6.679928E-03	7.792897E-03	3.72265E-04	7.168775E-03	8.417018E-03
38	6.466042E-03	7.855413E-03	3.827316E-04	7.213745E-03	8.497083E-03
39	5.523693E-03	7.186451E-03	2.919686E-04	6.69695E-03	7.67595E-03
40	6.893708E-03	7.901512E-03	3.906381E-04	7.246588E-03	8.556437E-03
41	6.209241E-03	7.937918E-03	3.969885E-04	7.272347E-03	8.60349E-03
42	7.449044E-03	7.686994E-03	3.55275E-04	7.091357E-03	8.28263E-03
43	7.747778E-03	7.700019E-03	3.573108E-04	7.100969E-03	8.299069E-03
44	7.875743E-03	7.808641E-03	3.748719E-04	7.180149E-03	8.437132E-03
45	8.302025E-03	7.502301E-03	3.282501E-04	6.951973E-03	8.052628E-03
46	6.466042E-03	6.771433E-03	2.703949E-04	6.318102E-03	7.224764E-03
47	4.965887E-03	6.369176E-03	2.832866E-04	5.894232E-03	6.844121E-03
48	5.395032E-03	6.334499E-03	2.858978E-04	5.855178E-03	6.813822E-03
49	4.708197E-03	6.565061E-03	2.728585E-04	0.0061076	7.022522E-03

50	5.952287E-03	6.669912E-03	2.704809E-04	6.216437E-03	7.123386E-03
51	5.523693E-03	7.331908E-03	3.068941E-04	6.817385E-03	7.846432E-03
52	9.408399E-03	6.258902E-03	2.923301E-04	5.768795E-03	6.749008E-03
53	1.211984E-02	6.080625E-03	3.111743E-04	5.558926E-03	6.602325E-03

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	7.491733E-03	6.026242E-03	3.178457E-04	5.493358E-03	6.559127E-03
55		3.887213E-04	1.54289E-03	-2.198012E-03	2.975454E-03
56		2.605167E-03	1.023939E-03	8.884813E-04	4.321853E-03
57		4.821613E-03	5.302447E-04	3.932631E-03	5.710595E-03
58		5.535149E-03	3.928347E-04	4.876541E-03	6.193757E-03
59		6.11815E-03	3.068094E-04	5.603769E-03	6.632532E-03
60		6.611072E-03	2.715313E-04	6.155835E-03	7.066308E-03
61		7.038059E-03	2.804166E-04	6.567926E-03	7.508191E-03
62		7.414688E-03	3.167914E-04	6.883571E-03	7.945805E-03
63		7.751595E-03	3.655231E-04	7.138777E-03	8.364413E-03
64		8.056364E-03	4.182426E-04	7.355159E-03	8.757569E-03
65		8.334597E-03	4.711399E-04	7.544706E-03	9.124487E-03
66		8.590546E-03	5.225992E-04	7.714381E-03	9.46671E-03
67		8.827517E-03	5.719875E-04	7.868551E-03	9.786483E-03
68		9.048132E-03	6.19113E-04	8.010158E-03	1.008611E-02
69		9.254505E-03	6.639829E-04	8.141303E-03	1.036771E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	8.685319E-03	7.919768E-03	1.969126E-03	4.618428E-03	1.122111E-02
2	9.833178E-03	8.047631E-03	1.97382E-03	4.738422E-03	1.135684E-02
3	9.875634E-03	8.024227E-03	1.972926E-03	4.716516E-03	1.133194E-02
4	8.429827E-03	4.748844E-03	2.004932E-03	1.387473E-03	8.110215E-03
5	8.557592E-03	5.169692E-03	1.983518E-03	1.844224E-03	8.495159E-03
6	3.503615E-03	4.781391E-03	2.003103E-03	1.423086E-03	8.139695E-03
7	4.278372E-03	3.933522E-03	2.059893E-03	4.800071E-04	7.387038E-03
8	1.647191E-03	3.891028E-03	2.063225E-03	4.31926E-04	7.35013E-03
9	3.977242E-03	3.933522E-03	2.059893E-03	4.800071E-04	7.387038E-03
10	4.794111E-03	7.35733E-03	1.954064E-03	4.081242E-03	1.063342E-02
11	5.309237E-03	7.364556E-03	1.954199E-03	4.088242E-03	1.064087E-02
12	6.209241E-03	7.418239E-03	1.955252E-03	4.140161E-03	1.069632E-02
13	3.503615E-03	6.369176E-03	1.950031E-03	3.09985E-03	9.638503E-03
14	5.609445E-03	6.513673E-03	1.948824E-03	3.24637E-03	9.780977E-03
15	5.395032E-03	6.638363E-03	1.948278E-03	3.371977E-03	9.90475E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.597659E-03	1.959379E-03	4.31266E-03	1.088266E-02
20	8.685319E-03	7.62106E-03	1.959986E-03	4.335043E-03	1.090708E-02
21	8.472419E-03	7.895404E-03	1.968285E-03	4.595475E-03	1.119533E-02
22	8.38723E-03	7.867772E-03	1.967351E-03	4.569408E-03	1.116614E-02
23	9.833178E-03	8.434285E-03	1.99082E-03	5.096574E-03	0.011772
24	1.093567E-02	7.693513E-03	1.961967E-03	4.404176E-03	1.098285E-02
25	6.679928E-03	6.736486E-03	1.94817E-03	3.47028E-03	1.000269E-02
26	1.025754E-02	6.736486E-03	1.94817E-03	3.47028E-03	1.000269E-02
27	9.025742E-03	0.0062843	1.951026E-03	3.013305E-03	9.555295E-03
28	5.523693E-03	6.58124E-03	1.948471E-03	3.314529E-03	9.847951E-03
29	5.094675E-03	6.615636E-03	1.948343E-03	3.34914E-03	9.882133E-03

30	0.0057809	6.727689E-03	1.948168E-03	3.461486E-03	9.993891E-03
31	5.223425E-03	6.553454E-03	0.0019486	3.286527E-03	9.820382E-03
32	6.080783E-03	6.578934E-03	1.948481E-03	3.312206E-03	9.845661E-03
33	5.180513E-03	6.541805E-03	1.948661E-03	3.274776E-03	9.808835E-03
34	3.072596E-03	4.765159E-03	2.004012E-03	1.405331E-03	8.124987E-03
35	4.149342E-03	5.592195E-03	1.966997E-03	2.294425E-03	8.889965E-03
36	6.209241E-03	6.243565E-03	1.951579E-03	2.971643E-03	9.515487E-03
37	6.679928E-03	7.792897E-03	1.96493E-03	4.498591E-03	0.0110872
38	6.466042E-03	7.855413E-03	1.96694E-03	4.557739E-03	1.115309E-02
39	5.523693E-03	7.186451E-03	1.951311E-03	3.914978E-03	1.045792E-02
40	6.893708E-03	7.901512E-03	1.968494E-03	4.601232E-03	1.120179E-02
41	6.209241E-03	7.937918E-03	1.969764E-03	4.63551E-03	1.124033E-02
42	7.449044E-03	7.686994E-03	1.961782E-03	4.397966E-03	1.097602E-02
43	7.747778E-03	7.700019E-03	1.962152E-03	4.410371E-03	1.098967E-02
44	7.875743E-03	7.808641E-03	1.965426E-03	4.513504E-03	1.110378E-02
45	8.302025E-03	7.502301E-03	1.957069E-03	4.221175E-03	1.078343E-02
46	6.466042E-03	6.771433E-03	0.0019482	3.505177E-03	1.003769E-02
47	4.965887E-03	6.369176E-03	1.950031E-03	3.09985E-03	9.638503E-03
48	5.395032E-03	6.334499E-03	1.950412E-03	3.064534E-03	9.604465E-03
49	4.708197E-03	6.565061E-03	1.948543E-03	3.298229E-03	9.831893E-03
50	5.952287E-03	6.669912E-03	1.948212E-03	3.403635E-03	9.936188E-03
51	5.523693E-03	7.331908E-03	0.0019536	4.056598E-03	1.060722E-02
52	9.408399E-03	6.258902E-03	1.951365E-03	2.987338E-03	9.530465E-03
53	1.211984E-02	6.080625E-03	1.954277E-03	2.80418E-03	9.357071E-03

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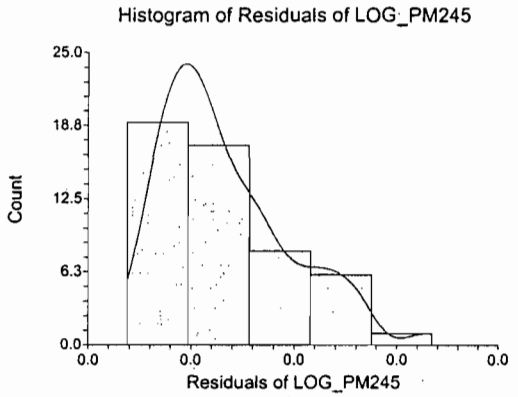
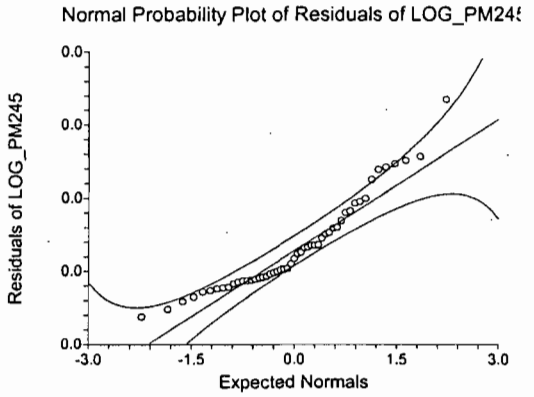
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	7.491733E-03	6.026242E-03	1.955351E-03	2.747997E-03	9.304487E-03
55		3.887213E-04	0.0024704	-3.753031E-03	4.530473E-03
56		2.605167E-03	2.184221E-03	-1.05679E-03	6.267125E-03
57		4.821613E-03	2.000882E-03	1.467032E-03	8.176194E-03
58		5.535149E-03	1.968931E-03	2.234136E-03	8.836162E-03
59		6.11815E-03	1.953587E-03	2.842863E-03	9.393439E-03
60		6.611072E-03	1.948358E-03	3.34455E-03	9.877593E-03
61		7.038059E-03	1.949616E-03	3.769428E-03	1.030669E-02
62		7.414688E-03	1.955179E-03	4.13673E-03	1.069265E-02
63		7.751595E-03	1.963664E-03	4.459412E-03	1.104378E-02
64		8.056364E-03	1.974157E-03	4.746589E-03	1.136614E-02
65		8.334597E-03	1.986037E-03	5.004904E-03	1.166429E-02
66		8.590546E-03	1.99887E-03	5.239339E-03	1.194175E-02
67		8.827517E-03	2.012347E-03	5.453716E-03	1.220132E-02
68		9.048132E-03	2.026245E-03	5.651029E-03	1.244524E-02
69		9.254505E-03	2.040403E-03	5.833665E-03	1.267534E-02

Plots Section





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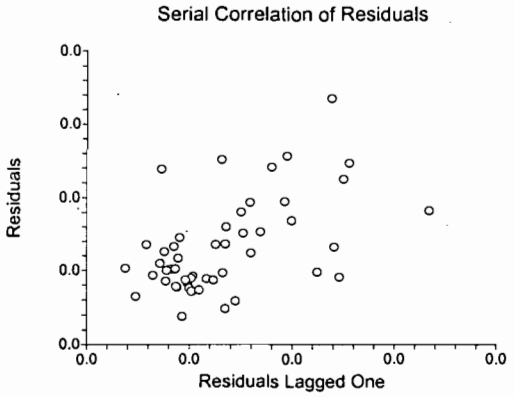

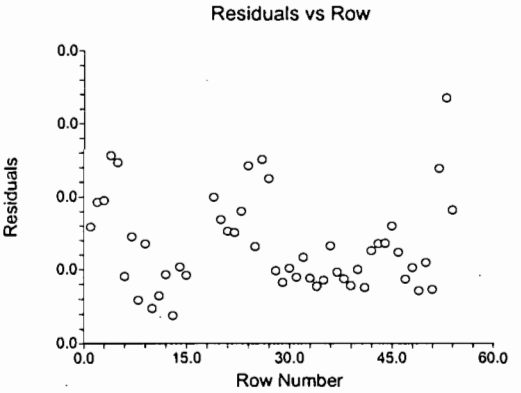

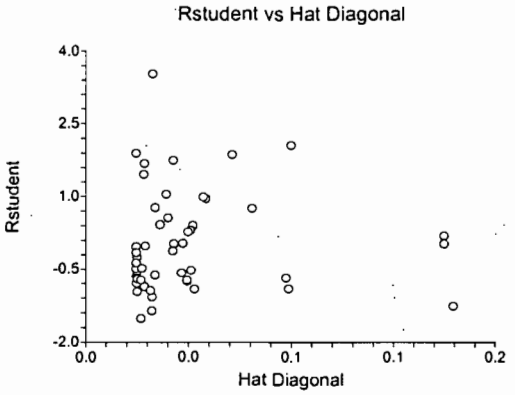

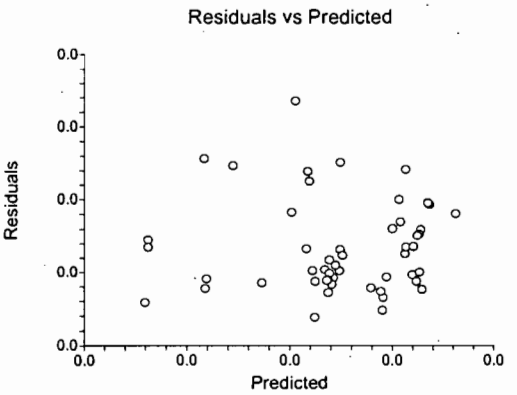

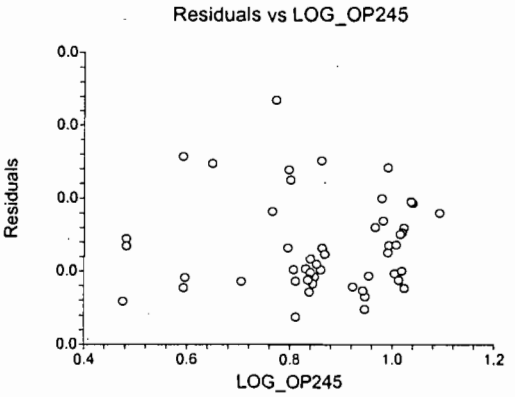

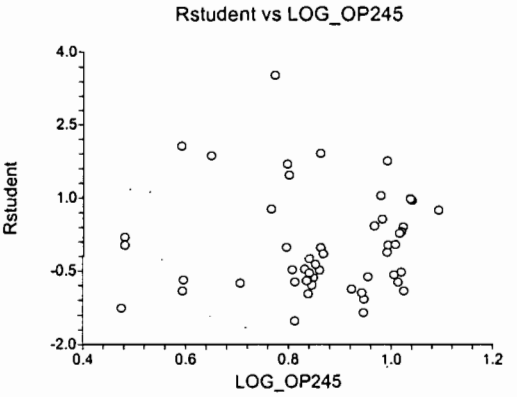

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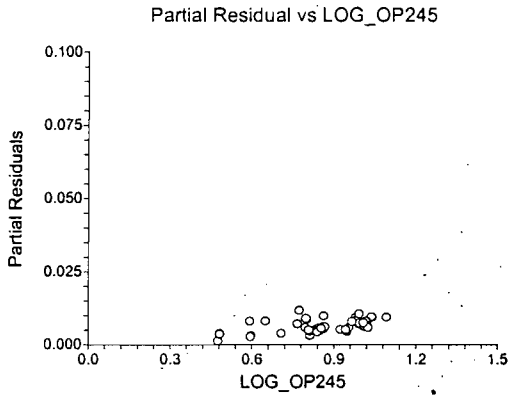

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
LOG_OP245	51	0.8605248	0.1545665	0.4756712	1.092721
LOG_PM245	51	6.724657E-03	2.223306E-03	1.647191E-03	1.211984E-02

Correlation Matrix Section

	LOG_OP245	LOG_PM245
LOG_OP245	1.000000	0.511875
LOG_PM245	0.511875	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
LOG_OP245	7.80075E-03	3.061917E-04	25.4767	0.000000	Reject Ho	1.000000
R-Squared	0.928476					

Model
7.80075E-03*LOG_OP245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
LOG_OP245	7.80075E-03	3.061917E-04	7.287601E-03	8.313897E-03	0.9636
T-Critical	1.675905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	2.370794E-03	2.370794E-03	649.0616	0.000000	1.000000
Error	50	1.826324E-04	3.652648E-06			
Total(Adjusted)	51	2.553426E-03	5.006718E-05			

Root Mean Square Error	1.91119E-03	R-Squared	0.9285
Mean of Dependent	6.724657E-03	Adj R-Squared	0.9285
Coefficient of Variation	0.2842064	Press Value	1.892196E-04
Sum |Press Residuals|	7.806922E-02	Press R-Squared	0.2344

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	3.0014	0.002687	Rejected
Kurtosis	1.3686	0.171136	Accepted
Omnibus	10.8816	0.004336	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.511151	9	-0.175971	17	0.010766
2	0.288417	10	-0.140985	18	0.009331
3	0.150224	11	-0.260766	19	0.068271
4	0.003774	12	-0.219163	20	0.064309
5	-0.042121	13	-0.264351	21	0.098032
6	-0.161039	14	-0.230993	22	0.124143
7	-0.074753	15	-0.140515	23	0.035910
8	-0.116316	16	-0.090619	24	-0.051372

Above serial correlations significant if their absolute values are greater than 0.280056
Durbin-Watson Value 0.9884

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
LOG_OP245	0.928476	0.928476	0.928476	0.928476	0.928476

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	8.685319E-03	7.978924E-03	3.131853E-04	7.454054E-03	8.503792E-03
2	9.833178E-03	8.114391E-03	3.185026E-04	7.580611E-03	8.648171E-03
3	9.875634E-03	8.089595E-03	3.175293E-04	7.557446E-03	8.621744E-03
4	8.429827E-03	4.619422E-03	1.813196E-04	4.315548E-03	4.923297E-03
5	8.557592E-03	5.065299E-03	1.988209E-04	4.732093E-03	5.398504E-03
6	3.503615E-03	4.653905E-03	1.826731E-04	4.347762E-03	4.960047E-03
7	4.278372E-03	3.755613E-03	1.474137E-04	3.508562E-03	4.002665E-03
8	1.647191E-03	3.710592E-03	1.456466E-04	3.466502E-03	3.954682E-03
9	3.977242E-03	3.755613E-03	1.474137E-04	3.508562E-03	4.002665E-03
10	4.794111E-03	7.383037E-03	2.897958E-04	6.897367E-03	7.868707E-03
11	5.309237E-03	7.390693E-03	2.900963E-04	6.904519E-03	7.876866E-03
12	6.209241E-03	7.447569E-03	2.923288E-04	6.957653E-03	7.937484E-03
13	3.503615E-03	6.336117E-03	2.487026E-04	5.919315E-03	6.752919E-03
14	5.609445E-03	6.489208E-03	2.547116E-04	6.062335E-03	6.91608E-03
15	5.395032E-03	6.621313E-03	2.598969E-04	6.18575E-03	7.056875E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.637658E-03	2.997901E-04	7.135238E-03	8.140078E-03
20	8.685319E-03	7.662452E-03	3.007633E-04	7.158401E-03	8.166502E-03
21	8.472419E-03	7.953111E-03	3.121721E-04	7.42994E-03	8.476282E-03
22	8.38723E-03	7.923835E-03	3.11023E-04	7.40259E-03	8.44508E-03
23	9.833178E-03	8.52404E-03	3.345819E-04	7.963312E-03	9.084768E-03
24	1.093567E-02	7.739213E-03	3.037763E-04	7.230113E-03	8.248313E-03
25	6.679928E-03	6.725271E-03	2.639774E-04	6.28287E-03	7.167672E-03
26	1.025754E-02	6.725271E-03	2.639774E-04	6.28287E-03	7.167672E-03
27	9.025742E-03	6.246193E-03	2.451729E-04	5.835307E-03	6.65708E-03
28	5.523693E-03	6.560793E-03	2.575214E-04	6.129211E-03	6.992374E-03
29	5.094675E-03	6.597234E-03	2.589518E-04	6.163256E-03	7.031213E-03
30	0.0057809	6.715951E-03	2.636116E-04	6.274163E-03	7.157739E-03
31	5.223425E-03	6.531355E-03	2.563659E-04	6.101709E-03	6.960999E-03
32	6.080783E-03	6.558349E-03	2.574255E-04	6.126929E-03	6.98977E-03
33	5.180513E-03	6.519013E-03	2.558815E-04	6.09018E-03	6.947846E-03
34	3.072596E-03	4.636707E-03	1.81998E-04	4.331696E-03	4.941719E-03
35	4.149342E-03	5.512928E-03	2.163911E-04	5.150277E-03	5.875579E-03
36	6.209241E-03	6.203036E-03	2.434789E-04	5.794988E-03	6.611083E-03
37	6.679928E-03	7.844507E-03	3.079092E-04	7.32848E-03	8.360534E-03
38	6.466042E-03	7.910742E-03	3.105091E-04	7.390358E-03	8.431126E-03
39	5.523693E-03	7.201995E-03	2.826896E-04	6.728234E-03	7.675756E-03
40	6.893708E-03	7.959583E-03	3.124261E-04	7.435986E-03	8.483179E-03
41	6.209241E-03	7.998154E-03	3.139401E-04	7.47202E-03	8.524287E-03
42	7.449044E-03	7.732306E-03	3.035052E-04	7.22366E-03	8.240952E-03
43	7.747778E-03	7.746106E-03	3.040468E-04	7.236552E-03	8.25566E-03
44	7.875743E-03	7.861188E-03	3.08564E-04	7.344064E-03	8.378312E-03
45	8.302025E-03	7.536629E-03	2.958245E-04	7.040855E-03	8.032403E-03
46	6.466042E-03	6.762296E-03	2.654307E-04	6.31746E-03	7.207133E-03
47	4.965887E-03	6.336117E-03	2.487026E-04	5.919315E-03	6.752919E-03
48	5.395032E-03	6.299378E-03	2.472605E-04	5.884993E-03	6.713763E-03
49	4.708197E-03	6.543651E-03	2.568486E-04	6.113198E-03	6.974105E-03

50	5.952287E-03	6.654738E-03	2.612089E-04	6.216976E-03	7.092499E-03
51	5.523693E-03	7.356104E-03	2.887386E-04	6.872205E-03	7.840002E-03
52	9.408399E-03	6.219284E-03	2.441167E-04	5.810168E-03	6.628401E-03
53	1.211984E-02	6.030406E-03	2.367029E-04	5.633714E-03	6.427098E-03

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	7.491733E-03	5.972789E-03	2.344413E-04	5.579887E-03	6.36569E-03
55		0	0	0	0
56		2.34826E-03	9.217288E-05	2.193786E-03	2.502732E-03
57		4.696519E-03	1.843458E-04	4.387573E-03	5.005465E-03
58		5.45249E-03	2.140188E-04	5.093815E-03	5.811165E-03
59		6.070163E-03	2.382634E-04	5.670856E-03	6.46947E-03
60		6.592398E-03	2.58762E-04	6.158737E-03	7.026059E-03
61		7.044779E-03	2.765186E-04	6.58136E-03	7.508197E-03
62		7.443807E-03	2.921811E-04	6.954139E-03	7.933474E-03
63		7.80075E-03	3.061917E-04	7.287601E-03	8.313897E-03
64		8.123644E-03	3.188658E-04	7.589255E-03	8.658032E-03
65		8.418422E-03	3.304363E-04	7.864643E-03	8.972202E-03
66		8.689593E-03	3.410802E-04	8.117975E-03	9.26121E-03
67		8.940658E-03	3.509349E-04	8.352524E-03	9.528791E-03
68		9.174393E-03	3.601093E-04	8.570884E-03	9.777902E-03
69		9.393038E-03	3.686915E-04	8.775146E-03	1.001093E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	8.685319E-03	7.978924E-03	1.936681E-03	4.73323E-03	1.122462E-02
2	9.833178E-03	8.114391E-03	1.937548E-03	4.867245E-03	1.136154E-02
3	9.875634E-03	8.089595E-03	1.937388E-03	4.842716E-03	1.133647E-02
4	8.429827E-03	4.619422E-03	1.919772E-03	1.402067E-03	7.836778E-03
5	8.557592E-03	5.065299E-03	1.921504E-03	1.84504E-03	8.285557E-03
6	3.503615E-03	4.653905E-03	0.0019199	1.436334E-03	7.871475E-03
7	4.278372E-03	3.755613E-03	1.916867E-03	5.431263E-04	0.0069681
8	1.647191E-03	3.710592E-03	1.916732E-03	4.983311E-04	6.922852E-03
9	3.977242E-03	3.755613E-03	1.916867E-03	5.431263E-04	0.0069681
10	4.794111E-03	7.383037E-03	1.933036E-03	4.143451E-03	1.062262E-02
11	5.309237E-03	7.390693E-03	1.933082E-03	4.151032E-03	1.063035E-02
12	6.209241E-03	7.447569E-03	1.933418E-03	4.207344E-03	1.068779E-02
13	3.503615E-03	6.336117E-03	1.927304E-03	3.106139E-03	9.566096E-03
14	5.609445E-03	6.489208E-03	1.928089E-03	3.257914E-03	9.720501E-03
15	5.395032E-03	6.621313E-03	1.928781E-03	3.38886E-03	9.853765E-03
16	9.025742E-03				
17	1.410032E-02				
18	1.114736E-02				
19	9.578361E-03	7.637658E-03	1.93456E-03	4.395519E-03	0.0108798
20	8.685319E-03	7.662452E-03	1.934711E-03	4.42006E-03	1.090484E-02
21	8.472419E-03	7.953111E-03	1.936517E-03	4.707692E-03	1.119853E-02
22	8.38723E-03	7.923835E-03	1.936332E-03	4.678726E-03	1.116894E-02
23	9.833178E-03	8.52404E-03	1.940256E-03	5.272355E-03	1.177572E-02
24	1.093567E-02	7.739213E-03	1.935182E-03	4.496032E-03	1.098239E-02
25	6.679928E-03	6.725271E-03	1.929335E-03	3.491889E-03	9.958653E-03
26	1.025754E-02	6.725271E-03	1.929335E-03	3.491889E-03	9.958653E-03
27	9.025742E-03	6.246193E-03	1.926852E-03	3.016972E-03	9.475414E-03
28	5.523693E-03	6.560793E-03	1.928462E-03	3.328874E-03	9.792712E-03
29	5.094675E-03	6.597234E-03	1.928653E-03	3.364994E-03	9.829475E-03

30	0.0057809	6.715951E-03	1.929285E-03	3.482653E-03	9.949248E-03
31	5.223425E-03	6.531355E-03	1.928308E-03	3.299693E-03	9.763015E-03
32	6.080783E-03	6.558349E-03	1.928449E-03	3.326452E-03	9.790246E-03
33	5.180513E-03	6.519013E-03	1.928244E-03	3.287459E-03	9.750566E-03
34	3.072596E-03	4.636707E-03	1.919836E-03	1.419244E-03	7.85417E-03
35	4.149342E-03	5.512928E-03	1.923401E-03	2.28949E-03	8.736366E-03
36	6.209241E-03	6.203036E-03	1.926637E-03	2.974175E-03	9.431896E-03
37	6.679928E-03	7.844507E-03	1.935835E-03	4.600232E-03	1.108878E-02
38	6.466042E-03	7.910742E-03	1.93625E-03	4.665771E-03	1.115571E-02
39	5.523693E-03	7.201995E-03	1.931984E-03	3.964174E-03	1.043982E-02
40	6.893708E-03	7.959583E-03	1.936558E-03	4.714095E-03	1.120507E-02
41	6.209241E-03	7.998154E-03	1.936803E-03	4.752256E-03	1.124405E-02
42	7.449044E-03	7.732306E-03	1.935139E-03	4.489196E-03	1.097542E-02
43	7.747778E-03	7.746106E-03	1.935224E-03	4.502854E-03	1.098936E-02
44	7.875743E-03	7.861188E-03	1.935939E-03	4.616738E-03	1.110564E-02
45	8.302025E-03	7.536629E-03	1.933949E-03	4.295514E-03	1.077775E-02
46	6.466042E-03	6.762296E-03	1.929534E-03	3.528581E-03	9.996012E-03
47	4.965887E-03	6.336117E-03	1.927304E-03	3.106139E-03	9.566096E-03
48	5.395032E-03	6.299378E-03	1.927119E-03	3.069711E-03	9.529046E-03
49	4.708197E-03	6.543651E-03	1.928372E-03	3.311883E-03	9.77542E-03
50	5.952287E-03	6.654738E-03	1.928958E-03	3.421987E-03	9.887488E-03
51	5.523693E-03	7.356104E-03	1.932878E-03	4.116783E-03	1.059542E-02
52	9.408399E-03	6.219284E-03	1.926718E-03	2.990288E-03	9.44828E-03
53	1.211984E-02	6.030406E-03	1.925792E-03	2.802961E-03	9.257851E-03

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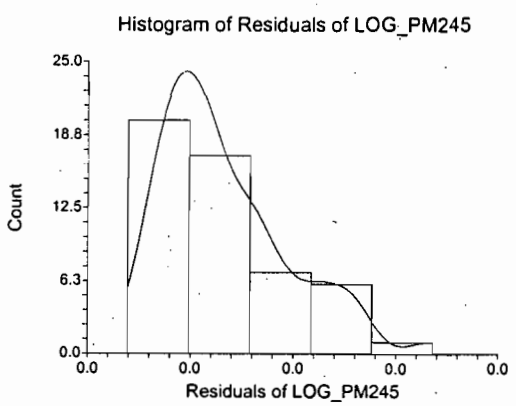
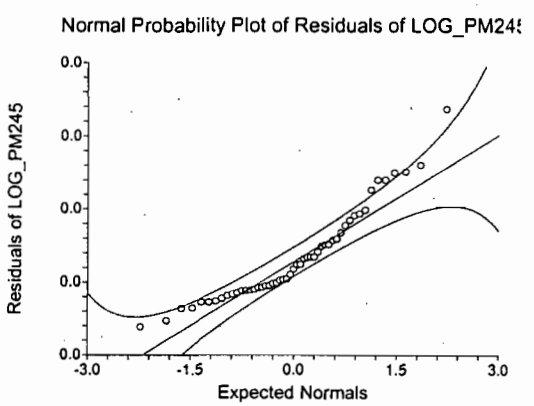
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	7.491733E-03	5.972789E-03	1.925516E-03	2.745807E-03	9.19977E-03
55		0	1.91119E-03	-3.202973E-03	3.202973E-03
56		2.34826E-03	1.913412E-03	-8.584366E-04	5.554955E-03
57		4.696519E-03	1.92006E-03	1.47868E-03	7.914358E-03
58		5.45249E-03	1.923136E-03	2.229496E-03	8.675483E-03
59		6.070163E-03	1.925985E-03	2.842395E-03	9.297931E-03
60		6.592398E-03	1.928628E-03	3.360201E-03	9.824595E-03
61		7.044779E-03	1.93109E-03	3.808454E-03	0.0102811
62		7.443807E-03	1.933395E-03	4.203619E-03	1.068399E-02
63		7.80075E-03	1.935562E-03	4.556931E-03	1.104457E-02
64		8.123644E-03	1.937608E-03	4.876397E-03	1.137089E-02
65		8.418422E-03	1.939545E-03	5.167929E-03	1.166892E-02
66		8.689593E-03	1.941387E-03	5.436013E-03	1.194317E-02
67		8.940658E-03	1.943143E-03	5.684135E-03	1.219718E-02
68		9.174393E-03	1.944821E-03	5.915059E-03	1.243373E-02
69		9.393038E-03	1.946428E-03	6.13101E-03	1.265507E-02

Plots Section





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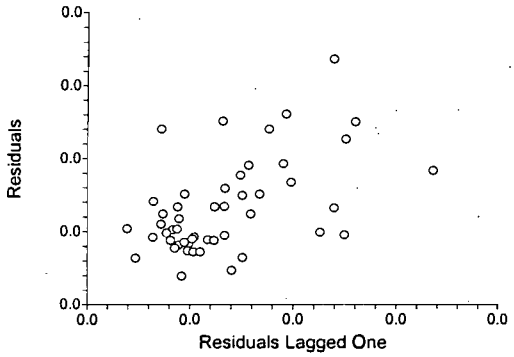
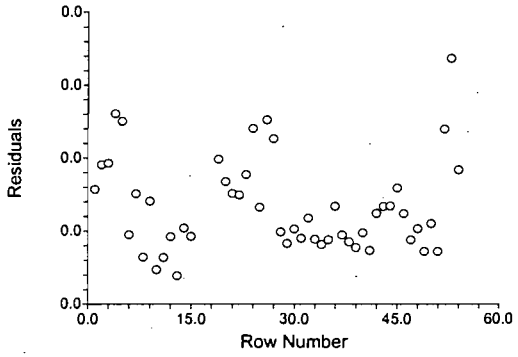
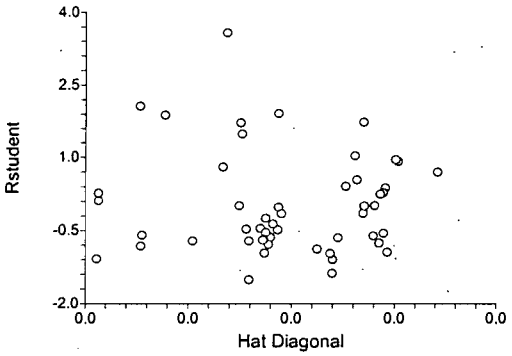
Serial Correlation of Residuals



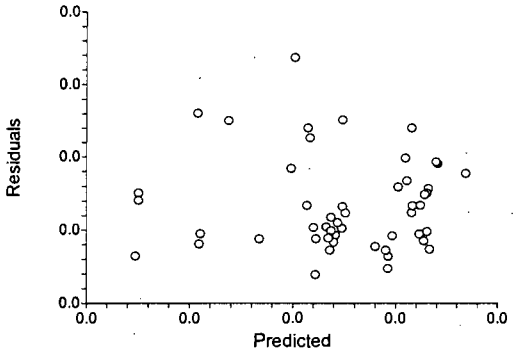
Residuals vs Row



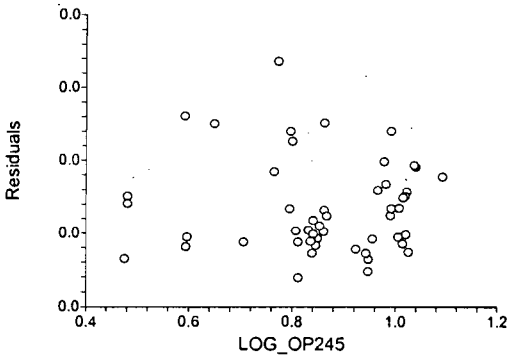
Rstudent vs Hat Diagonal



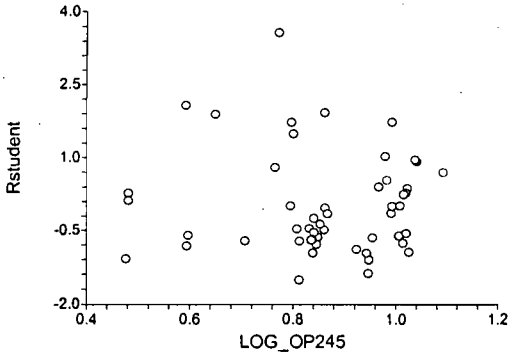
Residuals vs Predicted



Residuals vs LOG_OP245



Rstudent vs LOG_OP245



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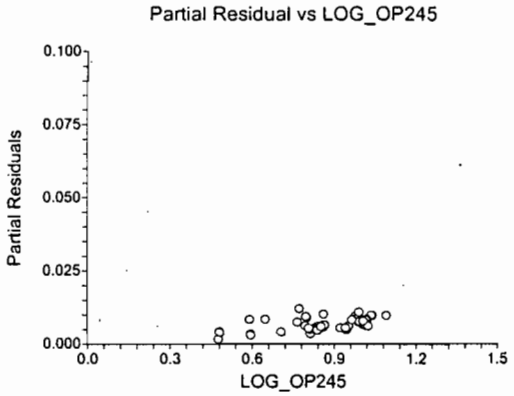

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
LOG_OP245	51	0.8605248	0.1545665	0.4756712	1.092721
PM_245	51	1.561765E-02	5.202181E-03	0.0038	0.0283

Correlation Matrix Section

	LOG_OP245	PM_245
LOG_OP245	1.000000	0.510532
PM_245	0.510532	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
Intercept	8.314641E-04	3.613472E-03	0.2301	0.818971	Accept Ho	0.108725
LOG_OP245	1.718275E-02	4.134274E-03	4.1562	0.000129	Reject Ho	0.992916
R-Squared	0.260643					

Model
8.314641E-04+ 1.718275E-02*LOG_OP245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
Intercept	8.314641E-04	3.613472E-03	-5.226706E-03	6.889634E-03	0.0000
LOG_OP245	1.718275E-02	4.134274E-03	1.025143E-02	2.411407E-02	0.5105
T-Critical	1.676551				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	1	1.243946E-02	1.243946E-02			
Model	1	3.526843E-04	3.526843E-04	17.2738	0.000129	0.992916
Error	49	1.00045E-03	2.041734E-05			
Total(Adjusted)	50	1.353134E-03	2.706268E-05			

Root Mean Square Error	4.518555E-03	R-Squared	0.2606
Mean of Dependent	1.561765E-02	Adj R-Squared	0.2456
Coefficient of Variation	0.2893237	Press Value	1.082473E-03
Sum |Press Residuals|	0.1874737	Press R-Squared	0.2000

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	2.9071	0.003648	Rejected
Kurtosis	1.2664	0.205376	Accepted
Omnibus	10.0549	0.006556	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.516138	9	-0.183461	17	0.009352
2	0.294162	10	-0.153375	18	0.004374
3	0.156009	11	-0.271275	19	0.066155
4	0.006425	12	-0.226637	20	0.065015
5	-0.041960	13	-0.267729	21	0.105140
6	-0.159205	14	-0.230502	22	0.128440
7	-0.075884	15	-0.140530	23	0.041061
8	-0.121396	16	-0.088185	24	-0.043424

Above serial correlations significant if their absolute values are greater than 0.280056

Durbin-Watson Value 0.9800

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
LOG_OP245	0.260643	0.260643	0.260643	0.260643	0.260643

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0202	1.840668E-02	9.223116E-04	1.686038E-02	1.995298E-02
2	0.0229	1.870507E-02	9.757928E-04	1.706911E-02	2.034104E-02
3	0.023	1.865045E-02	9.658258E-04	0.0170312	2.026971E-02
4	0.0196	1.100669E-02	1.27717E-03	8.865449E-03	1.314793E-02
5	0.0199	1.198882E-02	1.078274E-03	1.018104E-02	0.0137966
6	0.0081	1.108264E-02	1.261328E-03	8.967962E-03	1.319732E-02
7	0.0099	9.103972E-03	1.690133E-03	6.270378E-03	1.193757E-02
8	0.0038	9.004803E-03	1.712282E-03	6.134076E-03	1.187553E-02
9	0.0092	9.103972E-03	1.690133E-03	6.270378E-03	1.193757E-02
10	0.0111	1.709412E-02	7.256313E-04	1.587756E-02	1.831067E-02
11	0.0123	1.711098E-02	7.276264E-04	1.589108E-02	1.833088E-02
12	0.0144	1.723626E-02	7.429738E-04	1.599063E-02	0.0184819
13	0.0081	1.478806E-02	6.634618E-04	1.367573E-02	1.590039E-02
14	0.013	1.512527E-02	6.437195E-04	1.404605E-02	0.0162045
15	0.0125	1.541626E-02	6.34577E-04	1.435236E-02	1.648016E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.765497E-02	8.003931E-04	1.631307E-02	1.899687E-02
20	0.0202	1.770958E-02	8.085073E-04	1.635408E-02	1.906509E-02
21	0.0197	1.834982E-02	9.124065E-04	1.682013E-02	1.987952E-02
22	0.0195	1.828534E-02	9.012919E-04	1.677427E-02	0.0197964
23	0.0229	1.960741E-02	1.149724E-03	1.767984E-02	2.153498E-02
24	0.0255	1.787867E-02	8.344415E-04	1.647968E-02	1.927765E-02
25	0.0155	1.564525E-02	6.327592E-04	0.0145844	1.670611E-02
26	0.0239	1.564525E-02	6.327592E-04	0.0145844	1.670611E-02
27	0.021	1.458998E-02	6.793221E-04	1.345107E-02	0.0157289
28	0.0128	1.528296E-02	6.378284E-04	0.0142136	1.635231E-02
29	0.0118	1.536322E-02	6.356787E-04	1.429748E-02	1.642897E-02
30	0.0134	1.562472E-02	6.327266E-04	1.456392E-02	1.668552E-02
31	0.0121	1.521811E-02	6.399853E-04	1.414514E-02	1.629108E-02
32	0.0141	1.527757E-02	6.379932E-04	1.420794E-02	0.0163472
33	0.012	1.519093E-02	6.410005E-04	1.411626E-02	0.0162656
34	0.0071	1.104476E-02	1.26922E-03	8.916849E-03	1.317267E-02
35	0.0096	1.297482E-02	8.970419E-04	1.147088E-02	1.447876E-02
36	0.0144	1.449492E-02	6.879773E-04	1.334149E-02	1.564835E-02
37	0.0155	0.0181106	8.718506E-04	0.0166489	0.0195723
38	0.015	0.0182565	8.963634E-04	0.0167537	0.0197593
39	0.0128	1.669534E-02	6.83795E-04	1.554892E-02	1.784175E-02
40	0.016	1.836408E-02	9.148807E-04	1.683023E-02	1.989792E-02
41	0.0144	1.844904E-02	9.297534E-04	1.689026E-02	2.000782E-02
42	0.0173	1.786345E-02	8.320597E-04	1.646846E-02	1.925844E-02
43	0.018	1.789385E-02	8.368277E-04	1.649087E-02	1.929683E-02
44	0.0183	1.814734E-02	8.779561E-04	0.0166754	1.961928E-02
45	0.0193	1.743244E-02	7.687669E-04	1.614356E-02	1.872131E-02
46	0.015	1.572681E-02	6.332693E-04	0.0146651	1.678852E-02
47	0.0115	1.478806E-02	6.634618E-04	1.367573E-02	1.590039E-02
48	0.0125	1.470714E-02	6.695773E-04	1.358456E-02	1.582972E-02
49	0.0109	0.0152452	6.390389E-04	1.417382E-02	1.631658E-02

50	0.0138	1.548989E-02	6.334706E-04	1.442784E-02	1.655193E-02
51	0.0128	1.703479E-02	7.187509E-04	1.582977E-02	1.823981E-02
52	0.0219	1.453071E-02	6.846418E-04	1.338288E-02	1.567855E-02
53	0.0283	1.411467E-02	7.287751E-04	1.289284E-02	0.0153365

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Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	0.0174	1.398776E-02	7.443998E-04	1.273973E-02	1.523578E-02
55		8.314641E-04	3.613472E-03	-5.226706E-03	6.889634E-03
56		6.003987E-03	2.398081E-03	1.983481E-03	1.002449E-02
57		1.117651E-02	1.241841E-03	0.0090945	1.325852E-02
58		1.284169E-02	9.200253E-04	1.129922E-02	1.438416E-02
59		1.420224E-02	7.185526E-04	1.299755E-02	1.540693E-02
60		1.535257E-02	6.359306E-04	0.0142864	1.641874E-02
61		1.634903E-02	6.567402E-04	1.524797E-02	1.745009E-02
62		1.722797E-02	7.419306E-04	1.598409E-02	1.847186E-02
63		1.801421E-02	8.56061E-04	1.657898E-02	1.944944E-02
64		1.872545E-02	9.79531E-04	1.708322E-02	2.036769E-02
65		1.937477E-02	1.103417E-03	1.752483E-02	0.0212247
66		1.997207E-02	1.223936E-03	1.792008E-02	2.202406E-02
67		2.052509E-02	1.339604E-03	1.827918E-02	2.277101E-02
68		2.103995E-02	1.449973E-03	1.860899E-02	0.0234709
69		2.152156E-02	1.555059E-03	1.891442E-02	2.412869E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0202	1.840668E-02	4.611725E-03	1.067489E-02	2.613847E-02
2	0.0229	1.870507E-02	4.622717E-03	1.095485E-02	2.645529E-02
3	0.023	1.865045E-02	4.620624E-03	1.090374E-02	2.639716E-02
4	0.0196	1.100669E-02	4.695584E-03	3.134304E-03	1.887907E-02
5	0.0199	1.198882E-02	4.64543E-03	4.200523E-03	1.977712E-02
6	0.0081	1.108264E-02	0.0046913	3.21744E-03	1.894785E-02
7	0.0099	9.103972E-03	4.824302E-03	1.015784E-03	1.719216E-02
8	0.0038	9.004803E-03	4.832107E-03	9.035305E-04	1.710607E-02
9	0.0092	9.103972E-03	4.824302E-03	1.015784E-03	1.719216E-02
10	0.0111	1.709412E-02	4.576449E-03	9.421467E-03	2.476677E-02
11	0.0123	1.711098E-02	4.576765E-03	9.437799E-03	2.478416E-02
12	0.0144	1.723626E-02	4.579231E-03	9.558948E-03	2.491357E-02
13	0.0081	1.478806E-02	4.567004E-03	7.131246E-03	2.244488E-02
14	0.013	1.512527E-02	4.564178E-03	7.473198E-03	2.277735E-02
15	0.0125	1.541626E-02	4.562897E-03	7.766333E-03	2.306619E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.765497E-02	4.588897E-03	9.961453E-03	2.534849E-02
20	0.0202	1.770958E-02	4.590319E-03	1.001368E-02	2.540549E-02
21	0.0197	1.834982E-02	4.609754E-03	1.062133E-02	2.607831E-02
22	0.0195	1.828534E-02	4.607567E-03	1.056052E-02	2.601016E-02
23	0.0229	1.960741E-02	4.662532E-03	1.179044E-02	2.742438E-02
24	0.0255	1.787867E-02	4.594958E-03	1.017499E-02	2.558235E-02
25	0.0155	1.564525E-02	4.562645E-03	7.995745E-03	2.329476E-02
26	0.0239	1.564525E-02	4.562645E-03	7.995745E-03	2.329476E-02
27	0.021	1.458998E-02	4.569335E-03	6.929263E-03	2.225071E-02
28	0.0128	1.528296E-02	4.563351E-03	7.632265E-03	2.293365E-02
29	0.0118	1.536322E-02	4.563051E-03	7.713038E-03	2.301341E-02

30	0.0134	1.562472E-02	4.562641E-03	7.975223E-03	2.327422E-02
31	0.0121	1.521811E-02	4.563652E-03	7.566915E-03	2.286931E-02
32	0.0141	1.527757E-02	4.563374E-03	7.626845E-03	0.0229283
33	0.012	1.519093E-02	4.563795E-03	7.539491E-03	2.284236E-02
34	0.0071	1.104476E-02	4.693428E-03	3.175992E-03	1.891353E-02
35	0.0096	1.297482E-02	4.606737E-03	5.251389E-03	2.069825E-02
36	0.0144	1.449492E-02	4.57063E-03	6.832028E-03	2.215781E-02
37	0.0155	0.0181106	4.601898E-03	1.039528E-02	2.582592E-02
38	0.015	0.0182565	4.606605E-03	1.053329E-02	0.0259797
39	0.0128	1.669534E-02	4.570002E-03	9.033494E-03	2.435718E-02
40	0.016	1.836408E-02	4.610244E-03	1.063477E-02	2.609339E-02
41	0.0144	1.844904E-02	4.613218E-03	1.071474E-02	2.618333E-02
42	0.0173	1.786345E-02	4.594526E-03	0.0101605	2.556641E-02
43	0.018	1.789385E-02	4.595391E-03	1.018944E-02	2.559826E-02
44	0.0183	1.814734E-02	4.603059E-03	1.043008E-02	0.0258646
45	0.0193	1.743244E-02	4.583486E-03	9.747988E-03	2.511688E-02
46	0.015	1.572681E-02	4.562716E-03	8.077184E-03	2.337643E-02
47	0.0115	1.478806E-02	4.567004E-03	7.131246E-03	2.244488E-02
48	0.0125	1.470714E-02	4.567896E-03	7.048825E-03	2.236545E-02
49	0.0109	0.0152452	4.56352E-03	7.594225E-03	2.289617E-02
50	0.0138	1.548989E-02	4.562743E-03	7.840216E-03	2.313956E-02
51	0.0128	1.703479E-02	4.575363E-03	9.36396E-03	2.470562E-02
52	0.0219	1.453071E-02	4.570129E-03	6.868659E-03	2.219277E-02
53	0.0283	1.411467E-02	4.576948E-03	6.441182E-03	2.178816E-02

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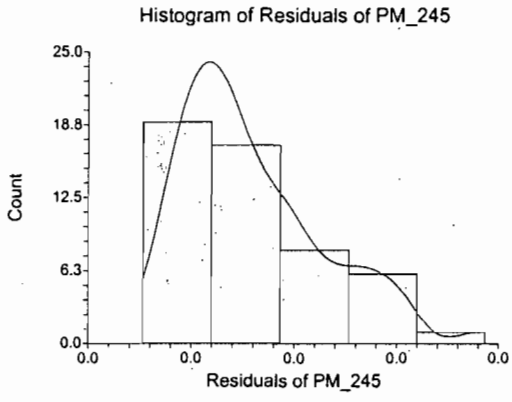
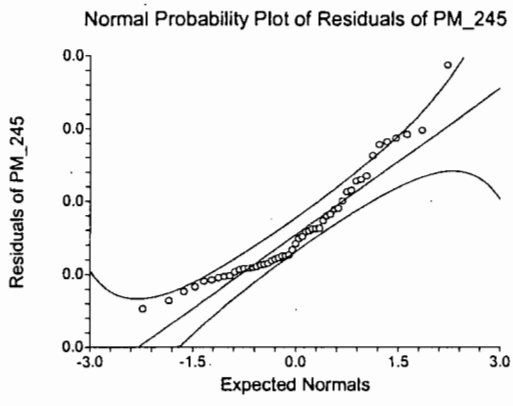
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	0.0174	1.398776E-02	4.579462E-03	6.310054E-03	2.166546E-02
55		8.314641E-04	5.785717E-03	-8.868585E-03	1.053151E-02
56		6.003987E-03	5.11548E-03	-2.572376E-03	1.458035E-02
57		1.117651E-02	4.686098E-03	3.320028E-03	1.903299E-02
58		1.284169E-02	4.611268E-03	5.110666E-03	2.057272E-02
59		1.420224E-02	4.575332E-03	6.531465E-03	2.187302E-02
60		1.535257E-02	4.563086E-03	7.702326E-03	2.300282E-02
61		1.634903E-02	4.566032E-03	8.693848E-03	2.400422E-02
62		1.722797E-02	4.579062E-03	9.550944E-03	0.024905
63		1.801421E-02	4.598933E-03	1.030387E-02	2.572456E-02
64		1.872545E-02	4.623508E-03	1.097391E-02	0.026477
65		1.937477E-02	4.65133E-03	1.157657E-02	2.717296E-02
66		1.997207E-02	4.681385E-03	1.212349E-02	2.782065E-02
67		2.052509E-02	4.712949E-03	0.0126236	2.842659E-02
68		2.103995E-02	4.745499E-03	1.308387E-02	2.899602E-02
69		2.152156E-02	4.778656E-03	0.0135099	2.953321E-02

Plots Section





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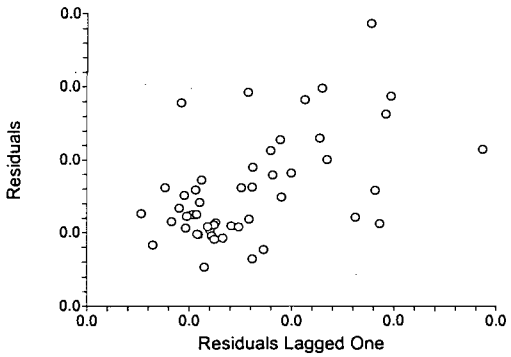
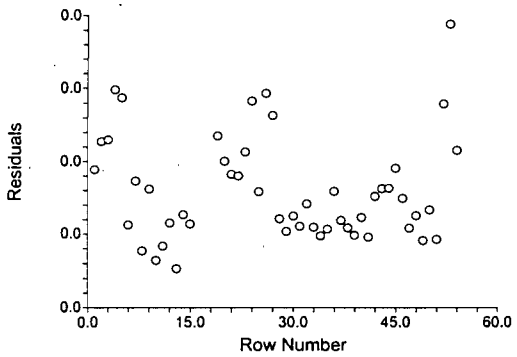
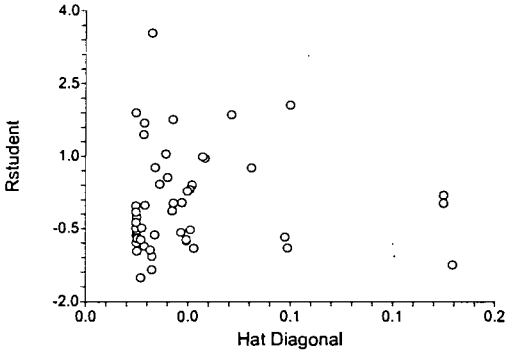
Serial Correlation of Residuals



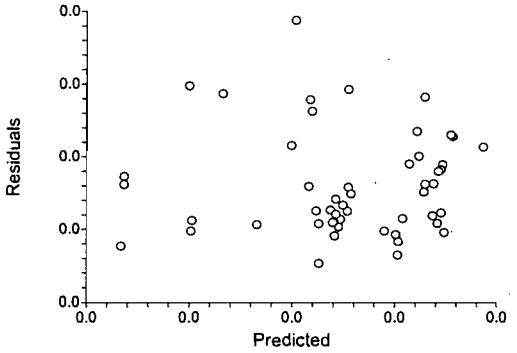
Residuals vs Row



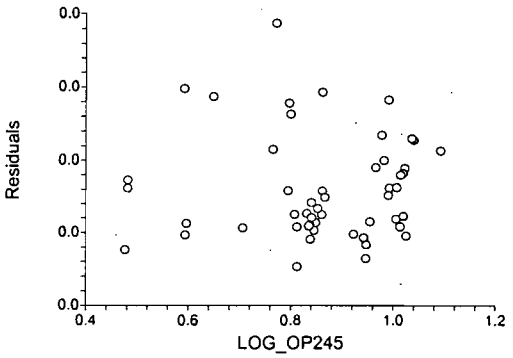
Rstudent vs Hat Diagonal



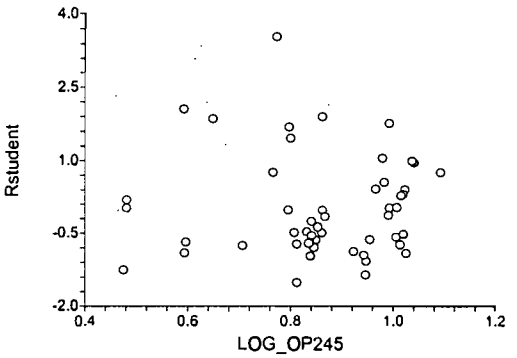
Residuals vs Predicted



Residuals vs LOG_OP245



Rstudent vs LOG_OP245



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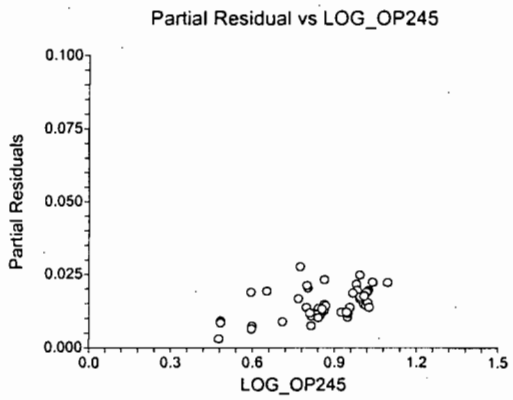

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
LOG_OP245	51	0.8605248	0.1545665	0.4756712	1.092721
PM_245	51	1.561765E-02	5.202181E-03	0.0038	0.0283

Correlation Matrix Section

	LOG_OP245	PM_245
LOG_OP245	1.000000	0.510532
PM_245	0.510532	1.000000

Regression Equation Section

Independent Variable	Regression Coefficient	Standard Error	T-Value (Ho: B=0)	Prob Level	Decision (10%)	Power (10%)
LOG_OP245	1.811935E-02	7.170288E-04	25.2700	0.000000	Reject Ho	1.000000
R-Squared	0.927386					

Model
1.811935E-02*LOG_OP245

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 90% C.L.	Upper 90% C.L.	Standardized Coefficient
LOG_OP245	1.811935E-02	7.170288E-04	1.691768E-02	1.932103E-02	0.9630
T-Critical	1.675905				

Analysis of Variance Section

Source	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (10%)
Intercept	0	0	0			
Model	1	1.279106E-02	1.279106E-02	638.5754	0.000000	1.000000
Error	50	1.001531E-03	2.003062E-05			
Total(Adjusted)	51	1.379259E-02	2.704429E-04			

Root Mean Square Error	4.475558E-03	R-Squared	0.9274
Mean of Dependent	1.561765E-02	Adj R-Squared	0.9274
Coefficient of Variation	0.2865705	Press Value	1.037705E-03
Sum |Press Residuals|	0.182887	Press R-Squared	0.2331

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Normality Tests Section

Assumption	Value	Probability	Decision(10%)
Skewness	3.0060	0.002647	Rejected
Kurtosis	1.3772	0.168442	Accepted
Omnibus	10.9327	0.004227	Rejected

Serial-Correlation Section

Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.511997	9	-0.176580	17	0.010531
2	0.288478	10	-0.142220	18	0.009191
3	0.151314	11	-0.261542	19	0.068716
4	0.004446	12	-0.220120	20	0.064119
5	-0.042265	13	-0.264729	21	0.098440
6	-0.160657	14	-0.230950	22	0.123999
7	-0.074758	15	-0.140642	23	0.035826
8	-0.116295	16	-0.090464	24	-0.050889

Above serial correlations significant if their absolute values are greater than 0.280056

Durbin-Watson Value 0.9870

R-Squared Section

Independent Variable	Cumulative Sequential	Incremental Sequential	Incremental Last	Simple	Partial (Adj. for Rest)
LOG_OP245	0.927386	0.927386	0.927386	0.927386	0.927386

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Dependent PM_245

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
1	0.0202	1.853321E-02	7.334062E-04	1.730409E-02	1.976233E-02
2	0.0229	1.884787E-02	7.458581E-04	1.759788E-02	2.009786E-02
3	0.023	1.879027E-02	7.435789E-04	1.754411E-02	2.003644E-02
4	0.0196	1.072986E-02	4.246078E-04	1.001826E-02	1.144146E-02
5	0.0199	1.176553E-02	4.655918E-04	1.098524E-02	1.254582E-02
6	0.0081	1.080995E-02	4.277773E-04	1.009304E-02	1.152687E-02
7	0.0099	8.723429E-03	3.452082E-04	8.144893E-03	9.301965E-03
8	0.0038	8.618854E-03	3.410699E-04	8.047254E-03	9.190455E-03
9	0.0092	8.723429E-03	3.452082E-04	8.144893E-03	9.301965E-03
10	0.0111	0.0171491	6.786336E-04	1.601178E-02	1.828643E-02
11	0.0123	1.716689E-02	6.793373E-04	1.602838E-02	1.830539E-02
12	0.0144	0.017299	6.845652E-04	1.615173E-02	1.844626E-02
13	0.0081	1.471735E-02	5.824029E-04	0.0137413	0.0156934
14	0.013	1.507294E-02	5.964746E-04	1.407331E-02	1.607258E-02
15	0.0125	1.537979E-02	6.086174E-04	1.435981E-02	1.639978E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.774053E-02	7.020378E-04	1.656398E-02	1.891708E-02
20	0.0202	1.779812E-02	7.043168E-04	1.661775E-02	1.897849E-02
21	0.0197	1.847325E-02	7.310336E-04	1.724811E-02	0.0196984
22	0.0195	1.840525E-02	7.283426E-04	1.718462E-02	1.962589E-02
23	0.0229	1.979939E-02	7.835122E-04	0.0184863	2.111248E-02
24	0.0255	1.797642E-02	7.113725E-04	1.678423E-02	1.916861E-02
25	0.0155	1.562126E-02	6.18173E-04	1.458526E-02	1.665726E-02
26	0.0239	1.562126E-02	6.18173E-04	1.458526E-02	1.665726E-02
27	0.021	1.450848E-02	5.741372E-04	1.354628E-02	1.547068E-02
28	0.0128	1.523922E-02	6.030545E-04	1.422856E-02	1.624988E-02
29	0.0118	1.532386E-02	6.064042E-04	1.430759E-02	1.634014E-02
30	0.0134	1.559961E-02	6.173164E-04	1.456505E-02	1.663418E-02
31	0.0121	1.517084E-02	6.003486E-04	1.416471E-02	1.617697E-02
32	0.0141	1.523354E-02	6.0283E-04	1.422326E-02	1.624383E-02
33	0.012	1.514217E-02	5.992142E-04	1.413795E-02	0.0161464
34	0.0071	1.077001E-02	4.261966E-04	1.005574E-02	1.148427E-02
35	0.0096	1.280527E-02	5.06737E-04	1.195603E-02	1.365451E-02
36	0.0144	1.440823E-02	5.701703E-04	1.345268E-02	1.536378E-02
37	0.0155	1.822099E-02	7.21051E-04	1.701258E-02	1.942941E-02
38	0.015	1.837484E-02	7.271392E-04	1.715623E-02	1.959346E-02
39	0.0128	1.672859E-02	6.619926E-04	1.561915E-02	1.783802E-02
40	0.016	1.848829E-02	7.316284E-04	1.726215E-02	1.971443E-02
41	0.0144	1.857788E-02	7.351739E-04	0.0173458	1.980996E-02
42	0.0173	1.796038E-02	7.107377E-04	1.676925E-02	1.915151E-02
43	0.018	1.799243E-02	7.120061E-04	1.679917E-02	1.918568E-02
44	0.0183	1.825974E-02	7.225842E-04	1.704876E-02	1.947072E-02
45	0.0193	1.750586E-02	6.927515E-04	1.634488E-02	1.866685E-02
46	0.015	1.570727E-02	6.215764E-04	1.466556E-02	1.674897E-02
47	0.0115	1.471735E-02	5.824029E-04	0.0137413	0.0156934
48	0.0125	1.463201E-02	5.790259E-04	1.366162E-02	1.560241E-02
49	0.0109	0.0151994	6.01479E-04	1.419138E-02	1.620742E-02

50	0.0138	1.545743E-02	6.116898E-04	0.0144323	1.648257E-02
51	0.0128	1.708654E-02	6.761579E-04	1.595337E-02	1.821972E-02
52	0.0219	1.444597E-02	5.716638E-04	1.348792E-02	1.540403E-02
53	0.0283	1.400725E-02	5.543025E-04	1.307829E-02	1.493621E-02

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Dependent PM_245

Predicted Values with Confidence Limits of Means

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Mean	90% UCL of Mean
54	0.0174	1.387342E-02	5.490065E-04	1.295334E-02	0.0147935
55		0	0	0	0
56		5.454469E-03	2.158472E-04	5.092729E-03	5.816208E-03
57		1.090894E-02	4.316944E-04	1.018546E-02	1.163242E-02
58		1.266488E-02	5.011816E-04	1.182495E-02	1.350482E-02
59		0.0140996	5.579569E-04	1.316451E-02	1.503468E-02
60		1.531263E-02	6.059597E-04	0.0142971	1.632816E-02
61		1.636341E-02	6.475415E-04	1.527819E-02	1.744862E-02
62		1.729026E-02	6.842194E-04	1.614357E-02	1.843694E-02
63		1.811935E-02	7.170288E-04	1.691768E-02	1.932103E-02
64		1.886936E-02	7.467086E-04	1.761795E-02	2.012078E-02
65		1.955407E-02	7.738041E-04	1.825724E-02	2.085089E-02
66		2.018393E-02	7.987295E-04	1.884534E-02	2.152253E-02
67		0.0207671	8.218068E-04	1.938983E-02	2.214437E-02
68		2.131001E-02	8.432913E-04	1.989674E-02	2.272329E-02
69		2.181788E-02	8.633888E-04	2.037092E-02	2.326483E-02

Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
1	0.0202	1.853321E-02	4.535251E-03	1.093256E-02	2.613386E-02
2	0.0229	1.884787E-02	4.537282E-03	1.124382E-02	2.645192E-02
3	0.023	1.879027E-02	4.536907E-03	1.118685E-02	0.0263937
4	0.0196	1.072986E-02	4.495655E-03	3.19557E-03	1.826415E-02
5	0.0199	1.176553E-02	4.49971E-03	4.224441E-03	1.930661E-02
6	0.0081	1.080995E-02	4.495955E-03	3.27516E-03	1.834475E-02
7	0.0099	8.723429E-03	4.488851E-03	1.200541E-03	1.624632E-02
8	0.0038	8.618854E-03	4.488535E-03	1.096496E-03	1.614121E-02
9	0.0092	8.723429E-03	4.488851E-03	1.200541E-03	1.624632E-02
10	0.0111	0.0171491	4.526716E-03	9.562756E-03	2.473545E-02
11	0.0123	1.716689E-02	4.526822E-03	9.580363E-03	2.475341E-02
12	0.0144	0.017299	4.527609E-03	9.711153E-03	2.488684E-02
13	0.0081	1.471735E-02	4.513293E-03	7.153499E-03	0.0222812
14	0.013	1.507294E-02	4.51513E-03	7.506013E-03	2.263987E-02
15	0.0125	1.537979E-02	4.51675E-03	7.810148E-03	2.294944E-02
16	0.021				
17	0.033				
18	0.026				
19	0.0223	1.774053E-02	4.530284E-03	0.0101482	2.533286E-02
20	0.0202	1.779812E-02	4.530638E-03	0.0102052	2.539104E-02
21	0.0197	1.847325E-02	4.534868E-03	1.087325E-02	2.607326E-02
22	0.0195	1.840525E-02	4.534435E-03	1.080597E-02	2.600454E-02
23	0.0229	1.979939E-02	4.543623E-03	1.218471E-02	2.741407E-02
24	0.0255	1.797642E-02	4.53174E-03	1.038165E-02	2.557118E-02
25	0.0155	1.562126E-02	4.518048E-03	8.049444E-03	2.319308E-02
26	0.0239	1.562126E-02	4.518048E-03	8.049444E-03	2.319308E-02
27	0.021	1.450848E-02	4.512234E-03	6.946401E-03	2.207055E-02
28	0.0128	1.523922E-02	4.516004E-03	7.670824E-03	2.280761E-02
29	0.0118	1.532386E-02	4.516453E-03	7.754718E-03	2.289301E-02

30	0.0134	1.559961E-02	4.517931E-03	8.027992E-03	2.317124E-02
31	0.0121	1.517084E-02	4.515644E-03	7.60305E-03	2.273863E-02
32	0.0141	1.523354E-02	4.515974E-03	7.665199E-03	2.280189E-02
33	0.012	1.514217E-02	4.515493E-03	7.574636E-03	2.270971E-02
34	0.0071	1.077001E-02	4.495805E-03	3.235467E-03	1.830455E-02
35	0.0096	1.280527E-02	4.504154E-03	5.256736E-03	0.0203538
36	0.0144	1.440823E-02	4.51173E-03	6.846999E-03	2.196946E-02
37	0.0155	1.822099E-02	4.533269E-03	1.062366E-02	2.581832E-02
38	0.015	1.837484E-02	4.534242E-03	1.077588E-02	0.0259738
39	0.0128	1.672859E-02	4.524251E-03	9.146369E-03	0.0243108
40	0.016	1.848829E-02	4.534964E-03	1.088812E-02	2.608846E-02
41	0.0144	1.857788E-02	4.535537E-03	1.097675E-02	2.617901E-02
42	0.0173	1.796038E-02	4.531641E-03	1.036578E-02	2.555498E-02
43	0.018	1.799243E-02	4.531839E-03	0.0103975	2.558736E-02
44	0.0183	1.825974E-02	4.533513E-03	0.010662	2.585748E-02
45	0.0193	1.750586E-02	4.528855E-03	9.915934E-03	2.509579E-02
46	0.015	1.570727E-02	4.518514E-03	8.134664E-03	2.327987E-02
47	0.0115	1.471735E-02	4.513293E-03	7.153499E-03	0.0222812
48	0.0125	1.463201E-02	4.512858E-03	7.068891E-03	2.219513E-02
49	0.0109	0.0151994	4.515794E-03	7.631361E-03	2.276745E-02
50	0.0138	1.545743E-02	4.517165E-03	7.887091E-03	2.302777E-02
51	0.0128	1.708654E-02	4.526346E-03	9.500817E-03	2.467227E-02
52	0.0219	1.444597E-02	4.511919E-03	6.884424E-03	2.200752E-02
53	0.0283	1.400725E-02	4.509753E-03	6.449334E-03	2.156517E-02

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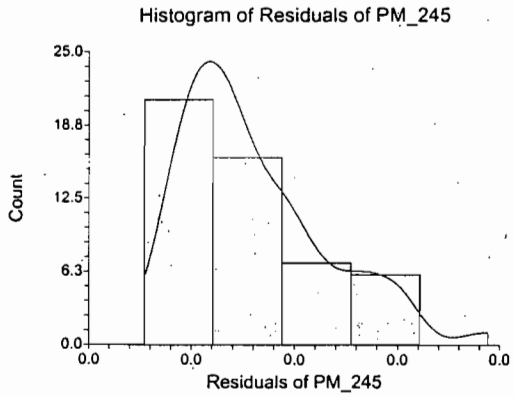
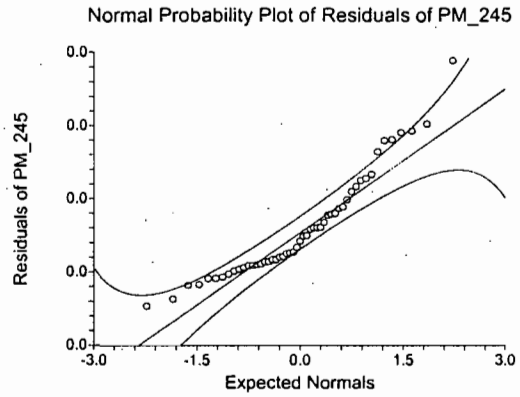
Predicted Values with Confidence Limits of Individuals

Row	Actual	Predicted	Std Error of Predicted	90% LCL of Individual	90% UCL of Individual
54	0.0174	1.387342E-02	4.509105E-03	6.316588E-03	2.143025E-02
55		0	4.475558E-03	-7.50061E-03	7.50061E-03
56		5.454469E-03	4.48076E-03	-2.054859E-03	0.0129638
57		1.090894E-02	4.496329E-03	3.373517E-03	1.844436E-02
58		1.266488E-02	4.503532E-03	5.117393E-03	2.021238E-02
59		0.0140996	4.510203E-03	6.540925E-03	2.165827E-02
60		1.531263E-02	4.516393E-03	7.743584E-03	2.288168E-02
61		1.636341E-02	4.52216E-03	8.784696E-03	2.394212E-02
62		1.729026E-02	4.527557E-03	9.702502E-03	2.487801E-02
63		1.811935E-02	4.532631E-03	1.052309E-02	2.571561E-02
64		1.886936E-02	4.537421E-03	1.126507E-02	2.647365E-02
65		1.955407E-02	4.541959E-03	1.194217E-02	2.716596E-02
66		2.018393E-02	4.546272E-03	1.256481E-02	2.780305E-02
67		0.0207671	4.550383E-03	1.314109E-02	2.839311E-02
68		2.131001E-02	4.554312E-03	1.367742E-02	2.894261E-02
69		2.181788E-02	4.558076E-03	1.417897E-02	2.945678E-02

Plots Section





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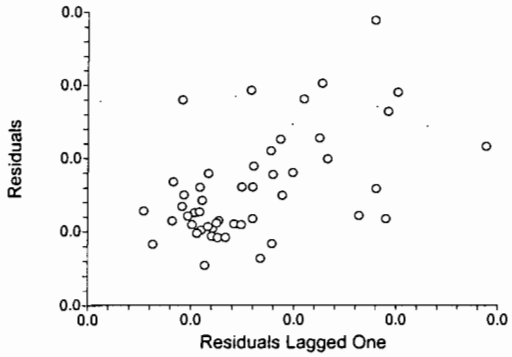
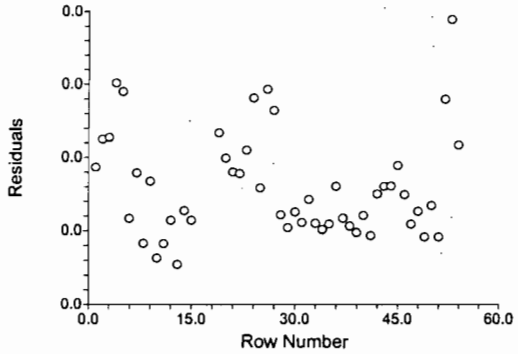
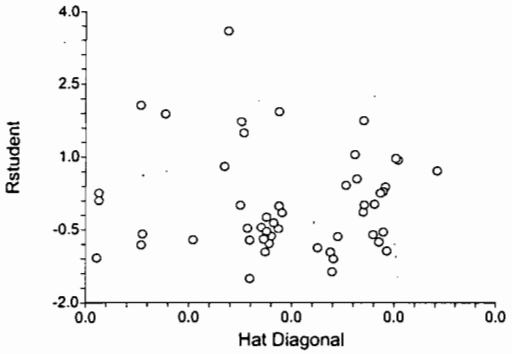
Serial Correlation of Residuals



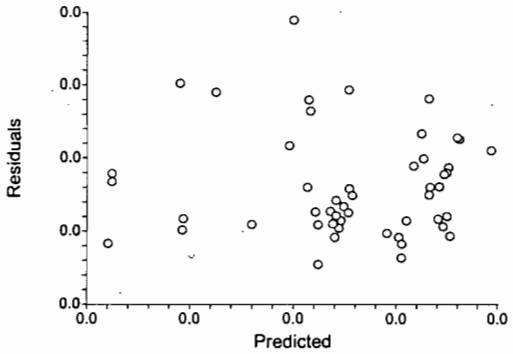
Residuals vs Row



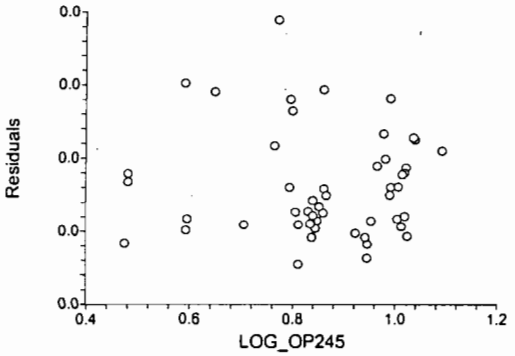
Rstudent vs Hat Diagonal



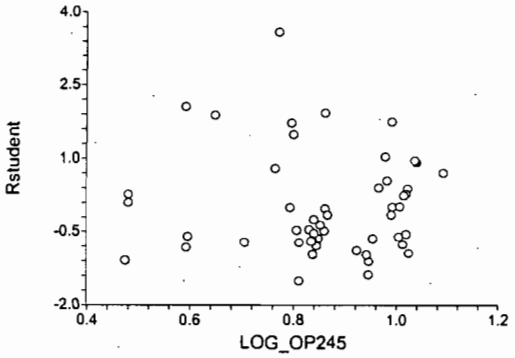
Residuals vs Predicted



Residuals vs LOG_OP245



Rstudent vs LOG_OP245



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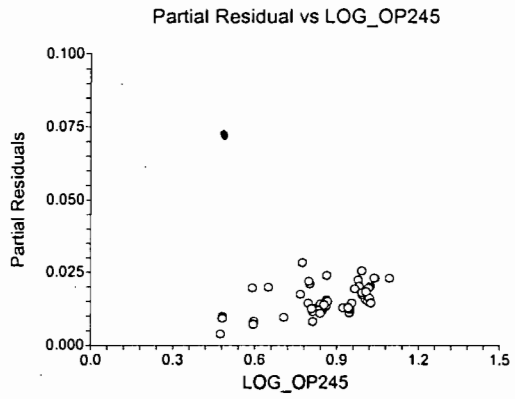

Progress Energy

February 2, 2006
CR06-0003

RECEIVED
FEB 06 2006
BUREAU OF AIR REGULATION

Mr. Jeff Koerner
DEP/DARM
North Permitting Section
Division of Air Resource Management
2600 Blair Stone Road MS 5500
Tallahassee, Florida 32399-2400

Re: Crystal River Facility – Title V Permit 0170004-009-AV – NESHAP Source Start-up Notification

Dear Mr. Koerner:

We have installed and initially started an "Emergency Stationery RICE" generator for 15 minutes on January 25, 2006 during an initial cleaning process and again on February 01, 2006 after the final cleaning process at our Crystal River Facility. On October 06, 2004 Mr. Mike Olive (then plant manager at Crystal River) sent in the Initial Notification as required by 40 CFR part 63.6665. 40 CFR 63.9 (b)(5)(ii) requires a notification of the initial startup postmarked within fifteen calendar days after the startup. This letter is being sent to meet that requirement.

As indicated an our initial notification, we plan to operate the emergency generator as an "Emergency Stationery RICE".

If you have any questions, please contact Dave Meyer at (727) 820 5295. Thank you very much processing this information.

I, the undersigned, am the responsible official as defined in Chapter 62-210.200, F.A.C., of the Title V source for which this document is being submitted. I hereby certify, based on the information and belief formed after reasonable inquiry, that the statements made and data contained in this document are true, accurate, and complete.

Sincerely,

Mr. Bernie M. Cumbie
Plant Manager

XC: Mr. Bob Soich (Southwest District)

Bxc: Carolyn Johnson
Ron Johnson
Cyndy Wilkinson
Dave Meyer CX1B

P.O. Box 14042, CN77 • St. Petersburg • Florida 33733-4042 • (727) 820-5151
A Progress Energy Company

Memorandum

Florida Department of Environmental Protection

TO: Trina Vielhauer, Bureau of Air Regulation

FROM: Jeff Koerner, Air Permitting North

DATE: September 26, 2005

SUBJECT: Exemption from Requirement to Obtain an Air Construction Permit
Pressure Test for Nuclear Reactor Containment Building
Progress Energy – Crystal River Plant
Current Title V Permit No. 0170004-009-AV

On September 23rd, we received a request from Progress Energy for an exemption from the requirement to obtain an air construction permit to pressure test the nuclear reactor containment building at the Crystal River Plant. The test is required by the Nuclear Regulatory Commission and is scheduled for mid-October. It will involve pressurizing the containment structure for a period of time to maintain 55 psi of air pressure. Approximately 20 rental air compressors driven by diesel engines will be used to conduct the test. It is estimated that approximately 39,000 gallons of diesel fuel could be fired during one such test. More than one test may be necessary if problems are found and corrected.

Assuming a heating value of 135,000 Btu per gallon, the firing of 39,000 gallons of diesel would be approximately 5265 MMBtu. Based on this information, I estimate the emissions from firing 39,000 gallons of diesel for the test to be:

Pollutant	Emission Factor lb/MMBtu	Reference	Fuel Consumption MMBtu/Test	Emissions Tons/Test
CO	0.95	AP-42, Table 3.3-1	5265	2.5
NOx	4.41	AP-42, Table 3.3-1	5265	11.6
PM	0.31	AP-42, Table 3.3-1	5265	0.8
SO_2	0.29	AP-42, Table 3.3-1	5265	0.8
VOC	0.36	AP-42, Table 3.3-1	5265	0.9

The emissions factors are for diesel industrial engines between approximately 250 and 600 hp. The emissions factors for industrial engines greater than 600 hp are actually less than the above rates. I believe the above estimates are very conservative.

Attached for your approval and signature is a letter exempting Progress Energy from the requirement to obtain an air construction permit to conduct pressure testing on the nuclear reactor containment building. The test is a temporary event to satisfy safety regulations. I recommend your approval and signature.

Attachments

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

September 26, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Bernie M. Cumbie, Plant Manager
Progress Energy – Crystal River Plant
P.O. Box 14042, CN77
St. Petersburg, Florida 33733-4042

Re: Exemption from the Requirement to Obtain an Air Construction Permit
Pressure Test for Nuclear Reactor Containment Building
Progress Energy – Crystal River Plant
Current Title V Permit No. 0170004-009-AV

Dear Mr. Cumbie:

On September 23, 2005, the Department received your email request for an exemption from the requirement to obtain an air construction permit to pressure test the nuclear reactor containment building at the Crystal River Plant, which is located on Power Line Road, West of U.S. Highway 19, in Crystal River, Citrus County, Florida. The test is required by the Nuclear Regulatory Commission and is scheduled for mid-October. It will involve pressurizing the containment structure for a period of time to maintain 55 psi of air pressure. Approximately 20 rental air compressors driven by diesel engines will be used to conduct the test. It is estimated that approximately 39,000 gallons of diesel fuel could be fired during one such test. More than one test may be necessary.

Determination: The test is a temporary event required to satisfy safety regulations. The Department conservatively estimates the emissions from firing 39,000 gallons of diesel fuel to be: 2.5 tons of carbon monoxide, 11.6 tons of nitrogen oxides, and less than 1 ton each of particulate matter, sulfur dioxide, and volatile organic compounds. Based on the specific details provided, the Department exempts this project from the requirement to obtain an air construction permit pursuant to Rule 62.4.040(1)(b), F.A.C., which states, "Any existing or proposed installation which the Department shall determine does not or will not cause the issuance of air or water contaminants in sufficient quantity, with respect to its character, quality or content, and the circumstances surrounding its location, use and operation, as to contribute significantly to the pollution problems within the State, so that the regulation thereof is not reasonably justified. Such a determination is agency action and is subject to Chapter 120, F.S. Such determination shall be made in writing and filed by the Department as a public record. Such determination may be revoked if the installation is substantially modified or the basis for the exemption is determined to be materially incorrect." Only diesel fuel with a maximum sulfur content of 0.05% sulfur by weight shall be fired. The owner or operator shall record the quantity of fuel fired during each test. This fuel consumption shall also be reported in the Annual Operating Report. A copy of this letter shall be maintained at the site of the proposed activity. This permitting decision is made pursuant to Chapter 403, Florida Statutes.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The Department of Environmental Protection's Bureau of Air Regulation is the Permitting Authority is responsible for making a determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida 32301. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within twenty-one (21) days of receipt

of this Written Notice of Exemption. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within twenty-one (21) days of publication of a Public Notice or within twenty-one (21) days of receipt of this Written Notice of Exemption, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within twenty-one (21) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when each petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Exemption. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Effective Date: This permitting decision is final and effective on the date filed with the clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C. Upon timely filing of a petition or a request for extension of time, this action will not be effective until further order of the Department.

Appeal: Any party to this permitting decision (order) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Trina L Vielhauer

Trina Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this order was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 9/29/05 to the persons listed:

Mr. Bernie M. Cumbie, Progress Energy*
Mr. Dave Meyer, Progress Energy
Mr. Jason Waters, SWD
Mr. Bob Soich, SWD

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Barbara J. Friday 9/29/05
(Clerk) (Date)

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1. Article Addressed to:

Mr. Bernie M. Cumbie, Plant Manager
Progress Energy - Crystal River Plant
P.O. Box 14042, CN77
St. Petersburg, Florida 33733-4042

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X ☐ Agent ☐ Addressee

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Mr. Bernie M. Cumbie, Plant Manager OFFICIAL USE

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Mr. Bernie M. Cumbie, Plant Manager
Street, Apt. No.; or PO Box No. P.O. Box 14042, CN77
City, State, ZIP+4
St. Petersburg, Florida 33733-4042

PS Form 3800, June 2002 See Reverse for Instructions

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

July 22, 2004

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Michael Olive, Plant Manager
Progress Energy Florida
100 Central Avenue
St. Petersburg, FL 33701

Re: Request for Additional Information
Title V Renewal Application
File No. 0170004-009-AV
Crystal River Plant

Dear Mr. Olive:

The Department is in receipt of your Title V Renewal application, however in order to continue processing the application, we will need the additional information below. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

Request for permit revisions

The Department has read the application to understand that Progress Energy is making four requests for permit revision. Please comment and or clarify as appropriate (deletions are shown as ~~struck-through~~ and additions are shown as underlined):

1) EPA generally accepts Part 75 CEMS as Part 60 CEMS provided the requirements of both parts are met. Although the language Progress is proposing appears to be acceptable, the Department requests that Progress define the NO_X and SO_2 spans, to be certain that the requirements of both parts are indeed met. This is what Progress has proposed:

> **B.14.** Pursuant to 40 CFR 60.45 Emission Monitoring.
>
> CMS for Opacity, SO2, NOx, and CO2 are required.
> (a) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and carbon dioxide except as provided in 40 CFR 60.45(b).
> (c) For performance evaluations under 40 CFR 60.13(c) and calibration checks under 40 CFR 60.13(d), the following procedures shall be used:
> (1) Methods 6, 7, and 3B, as applicable, shall be used for the performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Acceptable alternative methods for Methods 6, 7, and 3B are given in 40 CFR 60.46(d).
> (2) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B to 40 CFR 60.
> (3) For affected facilities burning fossil fuel(s), the span value for a continuous monitoring system measuring the opacity of emissions shall be 80, 90, or 100 percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined ~~as follows:~~ per the applicable requirements in 40 CFR Parts 60 and 75.

~~[In parts per million]~~

~~Fossil fuel~~	~~Span value for sulfur dioxide~~	~~Span value for nitrogen oxides~~
~~Gas.....~~	~~(1)~~	~~500~~
~~Liquid.....~~	~~1,000~~	~~500~~
~~Solid.....~~	~~1,500~~	~~1000~~
~~Combinations.....~~	~~1,000y+1,500z~~	~~500(x+y)+1,000z~~

~~(1)Not applicable.~~

~~where:~~
~~x = the fraction of total heat input derived from gaseous fossil fuel, and~~
~~y = the fraction of total heat input derived from liquid fossil fuel, and~~
~~z = the fraction of total heat input derived from solid fossil fuel.~~

2) Regarding Emissions Unit 016 (Material handling activities for coal-fired steam units), Progress has proposed to conduct VE's "as needed". The permit (subsection H.) currently incorporates emission limiting standards (see Specific Conditions H.1., H.2. and H.3), thus annual compliance is required as per 62-297.310(7)(a).

3) Regarding Emissions Unit 015 (Cooling towers for FFSG Units 4 and 5 used to reduce plant discharge water temperature), the Progress proposal is shown for clarity only:

G.5. Inspection. The drift eliminators of both towers shall be inspected from the concrete walkways not less than every three months by ~~Florida Power Corporation~~ Progress Energy Florida staff or representatives to assure that the drift eliminators are clean and in good working order. Not less than annually, a complete inspection of the towers shall be conducted by a ~~manufacturer of drift eliminators or by a consultant~~ qualified inspector with recognized expertise in the field.
Certification that the drift eliminators are properly installed and in good working order shall be ~~made at the time of submission of the reports~~ provided in the record keeping and reporting requirements noted below.
[Rule 62-213.440, F.A.C.; and, Modified PSD permit, PSD-FL-007, issued by EPA 11/30/88]

G.6. Reporting. Reports on tower testing and inspection shall be ~~submitted~~ handled as follows:
a. Maintained within onsite files within 30 days after all visual inspections of the drift eliminators.
b. Agency submittal within 45 days after the compliance testing of either tower.
[Rule 62-213.440, F.A.C.; and, Modified PSD permit, PSD-FL-007, issued by EPA 11/30/88]

4) Regarding the "List of Unregulated Emissions Units and/or Activities" as well as the "List of Insignificant Emissions Units and/or Activities", the Department has attached the Progress proposal. Please confirm its correctness and provide the rationale for each change requested.

Acid Rain Program - NO_X Averaging Plan

Based upon the Department's review of the proposed NO_X Averaging Plan, Progress has requested an increase in potential NO_X emissions totaling over 6000 TPY, from the four Crystal River Plant coal-burning units. The request appears to be arithmetically justified based upon an offsetting reduction of over 6000 TPY of NO_X at four plants located in North Carolina. In order to better understand the impacts of this increase, as well as to ensure that the NAAQS are not violated for any of the criteria pollutants, the Department requests that Progress Energy provide modeled impacts to the Class I and Class II areas. Additionally, please discuss the Class I visibility/haze impacts, based upon the requested PTE increase of NO_X emissions.

Compliance Assurance Monitoring Plan

Based upon the Department's review of the proposed CAM plan, Progress proposes to utilize opacity as the indicator of ESP performance, and specifically establishes CAM Plan trigger levels at opacity of 10% below the steady state

limit on each unit. The use of the COMS for recording opacity is proposed by Progress, even though page 5 of the submittal states "As shown, there is almost no correlation between opacity and PM (lb/MMBtu)." Although somewhat scattered with no linear relationship clearly apparent, there does appear to be some increasing trends between PM emissions and opacity. The proposed indicator ranges of 18% and 36% opacity are not acceptable because the test data (as shown in the graphs provided) does not imply that compliance with the PM limits can be met at these opacity levels. Further, in the case of unit 1, a 36% VE appears to be a violation of the standard. In order to satisfy CAM with opacity as the only indicator, the maximum acceptable opacity for defining an excursion would be 11%, which represents the highest opacity level documented by the COMS while affirmatively meeting the PM emission limit. Because the COMS is required by the permit, pursuant to 40 CFR 64.3, it is required to be used as part of the approvable CAM plan. However; given the poor correlation between PM and opacity, the Department encourages Progress to consider alternative indicators.

EPA intends for affected sources to develop a CAM plan based on current process and control device operating requirements and practices. The plan should use indicator ranges for one or more key operating process parameters (for example, mass flow, temperature, pressure) and one or more key control device parameters (for example, voltage, current, power, sections in service) to establish reasonable assurance that emissions are within compliance limits. Possible ESP operating indicators are the operating voltage, operating current, corona, total power, spark rate, number of fields in service, or rapping intensity, rate and frequency. Key parameters should be identified and indicator ranges selected, using design information, historical data, and/or actual test data. The CAM plan must be developed such that data collected for each parameter is representative and meets any applicable installation specification.

Please provide either, a statement that Progress would like to use the COMS as the indicator with an excursion level of 11% opacity, or a new CAM plan that utilizes the COMS as one indicator and one of the above parameters as a second indicator. In this case, the COMS would be used to measure and record any sudden and sustained increase in opacity as a possible excursion as one of the indicators. A second indicator would also need to be established from the examples given above. The chosen indicator range must be clearly and adequately justified for the application to be deemed complete.

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Please note that per Rule 62-4.055(1): *"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department..... Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."*

If you have any questions, please call Michael P. Halpin, P.E. at 850/921-9519.

Sincerely,

Michael P. Halpin, P.E.

Michael P. Halpin, P.E.
DARM/BAR
North Permitting Section

Dave Meyer, Progress
Scott Osbourn, Golder
Gracy Danois, EPA Region IV
Jerry Kissel, DEP-SWD

Appendix U-1, List of Unregulated Emissions Units and/or Activities.

Florida Power Corporation	**Draft Permit No.:** 0170004-009-AV
Crystal River Plant	**Facility ID No.:** 0170004

Unregulated Emissions Units and/or Activities. An emissions unit which emits no "emissions-limited pollutant" and which is subject to no unit-specific work practice standard, though it may be subject to regulations applied on a facility-wide basis (e.g., unconfined emissions, odor, general opacity) or to regulations that require only that it be able to prove exemption from unit-specific emissions or work practice standards.

E.U. ID No.	Brief Description of Emissions Units and/or Activity
017	Fuel and lube oil tanks and vents[1]
018	Sewage treatment, water treatment, lime storage[2]
019	~~Two~~ Three 3500 kW diesel generators associated with Unit 3

Notes:

1 This unregulated emissions unit consists of the following facilities:

Associated with Units 1 and 2:
Number 2 fuel oil, 210,000 gal capacity, tank # 10~~, and 20,200 gal capacity, tank # 11~~.
Lube oil vents, one each at Unit 1 and 2.
Rotoclone with air filter at Unit 1.
Oil vent at Unit 1.

Associated with Unit 3:
Equipment diesel tanks, tanks 2 through 8, 15, 16, 22 and 23, capacities from 30 gallons to 30,118 gallons.
Lube oil tank, 25,000 gallon capacity, tank #9.
Two small cooling towers west of Main Building.
Two lube oil vents.

Associated with Units 4 and 5:
Number 2 fuel oil, 256,200 gal capacity, tank # 1, and 255,318 gal capacity, tank # 2.
Equipment diesel tanks, tanks 3 and 4, capacity of 250 gallons, each.
Lube oil tank, 30,000 gallon capacity, tank #16.
Lube oil vents.

Associated with the Crystal River Site:
Equipment diesel tanks, E.O.F. #01, capacity of 2,000 gallons and E.O.F. # 02, capacity of 25 gallons.
Waste oil tank, Garage # 01, 150 gallon capacity.
Mineral spirits tanks, O.C. # 01, 80 gallon capacity, N. Sub. # 04, 1,100 gallon capacity.
Transmission oil tanks, N. Sub. # 01 through 03, capacity of 1,100 gallons each.

2 This unregulated emissions unit consists of the following facilities:

Associated with Units 4 and 5:
Water treatment systems for ~~Units 4 and 5~~ all EUSGUs.

~~Associated with the Crystal River Site:~~
Sewage treatment plant.
Lime storage.

Appendix I-1, List of Insignificant Emissions Units and/or Activities.

Florida Power Corporation	**Draft Permit No.:** 1070004-009-AV
Crystal River Plant	**Facility ID No.:** 1070004

The facilities, emissions units, or pollutant-emitting activities listed in Rule 62-210.300(3)(a), F.A.C., Categorical Exemptions, are exempt from the permitting requirements of Chapters 62-210 and 62-4, F.A.C.; provided, however, that exempt emissions units shall be subject to any applicable emission limiting standards and the emissions from exempt emissions units or activities shall be considered in determining the potential emissions of the facility containing such emissions units. Emissions units and pollutant-emitting activities exempt from permitting under Rule 62-210.300(3)(a), F.A.C., shall not be exempt from the permitting requirements of Chapter 62-213, F.A.C., if they are contained within a Title V source; however, such emissions units and activities shall be considered insignificant for Title V purposes provided they also meet the criteria of Rule 62-213.430(6)(b), F.A.C. No emissions unit shall be entitled to an exemption from permitting under Rule 62.210.300(3)(a), F.A.C., if its emissions, in combination with the emissions of other units and activities at the facility, would cause the facility to emit or have the potential to emit any pollutant in such amount as to make the facility a Title V source.

The below listed emissions units and/or activities are considered insignificant pursuant to Rule 62-213.430(6), F.A.C.

Brief Description of Emissions Units and/or Activities

1. Vehicle diesel and gasoline tanks.
2. Diesel fire pump and tank at Unit 1.
3. Diesel fire pump and tank at Unit 3 (FWP-7)
4. Diesel pump driver for emergency feedwater (1,670 BHP)
5. Diesel generator for security bldg and system (backup)
6. 260 kW emergency diesel generator at Unit 3 technical support center.
7. Unit 3 diesel generator air compressor.
8. Unit 3 halon fire protection system.
~~6. Two fire protection tanks at Unit 3.~~
9. Fire pump house emergency diesel generator units and electric generator units.
10. Laboratory facilities.
11. CEM equipment and calibration gas storage and venting.
12. Surface coating of less than 6.0 gallons per day.
13. Brazing, soldering and welding.
14. Grounds maintenance.
15. Miscellaneous gas and diesel engines.
16. Miscellaneous material handling facilities.
17. Parts washers.
18. Miscellaneous material cleaning equipment (e.g., self contained and sand blasting).

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1. Article Addressed to:

Mr. Michael Olive, Plant Manager
Progress Energy Florida
100 Central Avenue
St. Petersburg, Florida 33701

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* Dana Clark

B. Date of Delivery 7/27/04

C. Signature
x Dana Clark
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