

STATISTICAL EVALUATION OF ALLUVIAL GROUNDWATER QUALITY  
UPGRADIENT OF THE HOMESTAKE SITE NEAR GRANTS, NM

CHLORIDE  
NITRATE  
SULFATE  
TOTAL DISSOLVED SOLIDS

Prepared for:

Homestake Site  
Grants, NM

Prepared by:

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**CHLORIDE**

Table A-1. Chloride concentrations in alluvial ground water samples upgradient of the Homestake Site, Grants, New Mexico from April 1976 to May 1999.

Well ID	DD	ND	P	P1	P2	P3	P4	Q	R	All wells	914	916	920	921	922	950	All Wells
1st sampling date	27-Aug-76	12-Jan-83	09-Apr-76	21-Sep-92	21-Sep-92	23-Apr-98	24-Apr-98	09-Apr-76	09-Apr-76	09-Apr-76	10-Jan-83	21-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81
Most recent sampling date	20-Apr-99	05-Aug-98	10-May-99	21-Jan-99	11-May-99	23-Apr-98	24-Apr-98	02-Mar-99	20-May-99	20-May-99	19-May-99	20-May-99	19-May-99	19-May-99	19-May-99	25-Jan-96	20-May-99
Total number of measurements	54	13	106	33	32	1	1	75	84	399	7	6	19	6	7	3	48
Number of independent measurements	49	13	87	27	26	1	1	66	66	336	7	6	18	6	7	3	47
Percent nondetect of total number of measurements	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Minimum	43	35	35	48.4	45.3	48.0	42.0	28	21	21	95.4	21.9	50	67.8	58.1	106	21.9
Median	64	68	52.8	53.3	54.1	48.0	42.0	50	35	52.1	103	23.1	61.8	75	74	110	68.4
Mean	63.9	68.8	54.5	54.1	53.7	48.0	42.0	49.5	38.9	52.2	105.5	23.5	61.8	76.1	75.1	109.7	70.3
Maximum	78	106	78	63	58.8	48.0	42.0	76	116.63	116.63	116	26	71	85.8	92	113	116
Percent greater than or equal to the NM site standard (250 mg/L)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
DD	27-Aug-76	Chloride	Homestake	None	64
DD	24-Mar-82	Chloride	Homestake	None	57
DD	26-May-82	Chloride	Homestake	None	78
DD	18-Nov-82	Chloride	Homestake	None	71
DD	4-Mar-83	Chloride	Homestake	None	50
DD	28-Jun-83	Chloride	Homestake	None	60
DD	28-Jun-83	Chloride	NMEID	None	82.9
DD	14-Sep-83	Chloride	Homestake	None	64
DD	19-Dec-83	Chloride	Homestake	None	71
DD	7-Mar-84	Chloride	Homestake	None	78
DD	9-May-84	Chloride	Homestake	None	64
DD	9-May-84	Chloride	Controls for Env. Pollution	None	63
DD	12-Sep-84	Chloride	Homestake	None	50
DD	12-Dec-84	Chloride	Homestake	None	78
DD	13-Mar-85	Chloride	Homestake	None	64
DD	6-Jun-85	Chloride	Homestake	None	71
DD	4-Sep-85	Chloride	Homestake	None	71
DD	16-Dec-85	Chloride	Homestake	None	64
DD	20-Mar-86	Chloride	Homestake	None	64
DD	30-Jun-86	Chloride	Homestake	None	64
DD	15-Sep-86	Chloride	Homestake	None	57
DD	9-Dec-86	Chloride	Homestake	None	57
DD	19-Mar-87	Chloride	Homestake	None	43
DD	24-Jun-87	Chloride	Homestake	None	57
DD	15-Sep-87	Chloride	Homestake	None	50
DD	8-Dec-87	Chloride	Homestake	None	64
DD	24-Feb-88	Chloride	Homestake	None	43
DD	9-Jun-88	Chloride	Homestake	None	57
DD	11-Oct-88	Chloride	Homestake	None	57
DD	8-Dec-88	Chloride	Homestake	None	57
DD	13-Dec-88	Chloride	Homestake	None	64
DD	13-Dec-88	Chloride	Barringer	None	66.7
DD	11-Jan-89	Chloride	Homestake	None	60
DD	11-Jan-89	Chloride	Barringer	None	76.4
DD	15-Feb-89	Chloride	Homestake	None	64
DD	15-Feb-89	Chloride	Barringer	None	68.7
DD	29-Mar-89	Chloride	Homestake	None	67
DD	13-Jun-89	Chloride	Homestake	None	76
DD	15-Nov-89	Chloride	Homestake	None	57
DD	13-Mar-90	Chloride	Homestake	None	64
DD	12-Sep-90	Chloride	Homestake	None	64
DD	27-Feb-91	Chloride	Homestake	None	64
DD	16-Sep-91	Chloride	Homestake	None	57
DD	9-Mar-92	Chloride	Homestake	None	57
DD	22-Sep-92	Chloride	Homestake	None	64
DD	21-Oct-93	Chloride	Energy Labs	None	67.1
DD	9-Mar-94	Chloride	Energy Labs	None	73.6
DD	21-Oct-94	Chloride	Energy Labs	None	68.3
DD	10-Oct-95	Chloride	Energy Labs	None	65
DD	10-Oct-96	Chloride	Energy Labs	None	67.4



Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
DD	14-Apr-97	Chloride	Energy Labs	None	64
DD	9-Sep-97	Chloride	Energy Labs	None	71
DD	1-Apr-98	Chloride	Energy Labs	None	76
DD	20-Apr-99	Chloride	Energy Labs	None	72.1
ND	12-Jan-83	Chloride	Homestake	None	106
ND	6-Jan-84	Chloride	Homestake	None	35
ND	18-Dec-89	Chloride	Homestake	None	71
ND	17-Oct-90	Chloride	Homestake	None	71
ND	16-Sep-91	Chloride	Homestake	None	71
ND	18-Aug-92	Chloride	Homestake	None	57
ND	25-Aug-93	Chloride	Energy Labs	None	60.6
ND	14-Mar-94	Chloride	Energy Labs	None	90.3
ND	22-Aug-94	Chloride	Energy Labs	None	65.6
ND	22-Aug-95	Chloride	Energy Labs	None	68
ND	29-Jul-96	Chloride	Energy Labs	None	65.1
ND	11-Aug-97	Chloride	Energy Labs	None	70.1
ND	5-Aug-98	Chloride	Energy Labs	None	64
P	9-Apr-76	Chloride	Homestake	None	76
P	27-Aug-76	Chloride	Homestake	None	64
P	11-Jul-78	Chloride	NMEID	None	71
P	23-Oct-78	Chloride	NMEID	None	69
P	30-Jan-79	Chloride	NMEID	None	65.9
P	30-Apr-79	Chloride	NMEID	None	65
P	6-Nov-79	Chloride	Homestake	None	71
P	17-Apr-80	Chloride	NMEID	None	62
P	16-Jul-80	Chloride	NMEID	None	65
P	13-Oct-80	Chloride	NMEID	None	66
P	7-Jan-81	Chloride	NMEID	None	61
P	15-Apr-81	Chloride	NMEID	None	61
P	7-Oct-81	Chloride	Homestake	None	57
P	28-Dec-81	Chloride	NMEID	None	59
P	28-Dec-81	Chloride	Homestake	None	78
P	24-Mar-82	Chloride	Homestake	None	50
P	24-Mar-82	Chloride	NMEID	None	62
P	22-May-82	Chloride	Homestake	None	50
P	25-Aug-82	Chloride	Homestake	None	50
P	18-Nov-82	Chloride	Homestake	None	78
P	23-Feb-83	Chloride	Homestake	None	55
P	23-Feb-83	Chloride	NM Tech Inst	None	67
P	26-May-83	Chloride	Homestake	None	35
P	27-Jun-83	Chloride	Homestake	None	37
P	27-Jun-83	Chloride	NMEID	None	59.2
P	12-Sep-83	Chloride	Homestake	None	50
P	19-Dec-83	Chloride	Homestake	None	64
P	7-Mar-84	Chloride	Homestake	None	57
P	9-May-84	Chloride	Homestake	None	50

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	9-May-84	Chloride	Controls for Env Pollution	None	56
P	12-Sep-84	Chloride	Homestake	None	35
P	13-Dec-84	Chloride	Homestake	None	57
P	11-Mar-85	Chloride	Homestake	None	43
P	11-Mar-85	Chloride	Controls for Env Pollution	None	57
P	29-May-85	Chloride	Homestake	None	50
P	4-Sep-85	Chloride	Homestake	None	43
P	4-Sep-85	Chloride	Controls for Env Pollution	None	53
P	16-Dec-85	Chloride	Homestake	None	43
P	10-Mar-86	Chloride	Homestake	None	50
P	10-Mar-86	Chloride	Controls for Env Pollution	None	54
P	30-Jun-86	Chloride	Homestake	None	57
P	15-Sep-86	Chloride	Homestake	None	43
P	15-Sep-86	Chloride	Controls for Env Pollution	None	53
P	16-Dec-86	Chloride	Homestake	None	50
P	19-Mar-87	Chloride	Homestake	None	35
P	19-Mar-87	Chloride	Controls for Env Pollution	None	51
P	24-Jun-87	Chloride	Homestake	None	50
P	16-Sep-87	Chloride	Homestake	None	43
P	16-Sep-87	Chloride	Controls for Env Pollution	None	54
P	8-Dec-87	Chloride	Homestake	None	50
P	24-Feb-88	Chloride	Homestake	None	35
P	24-Feb-88	Chloride	Barringer	None	63
P	12-May-88	Chloride	Homestake	None	50
P	23-Aug-88	Chloride	Homestake	None	35
P	23-Aug-88	Chloride	Barringer	None	56
P	12-Oct-88	Chloride	Homestake	None	50
P	13-Dec-88	Chloride	Homestake	None	50
P	13-Dec-88	Chloride	Barringer	None	56.5
P	11-Jan-89	Chloride	Homestake	None	43
P	11-Jan-89	Chloride	Barringer	None	63.5
P	15-Feb-89	Chloride	Homestake	None	50
P	15-Feb-89	Chloride	Barringer	None	60.8
P	16-May-89	Chloride	Homestake	None	50
P	10-Aug-89	Chloride	Homestake	None	50
P	15-Nov-89	Chloride	Homestake	None	50
P	13-Mar-90	Chloride	Homestake	None	43
P	4-Jun-90	Chloride	Homestake	None	57
P	12-Sep-90	Chloride	Homestake	None	57
P	3-Dec-90	Chloride	Homestake	None	71

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	3-Dec-90	Chloride	Barringer	None	54
P	27-Feb-91	Chloride	Homestake	None	50
P	3-Jun-91	Chloride	Homestake	None	50
P	16-Sep-91	Chloride	Homestake	None	64
P	18-Nov-91	Chloride	Homestake	None	50
P	9-Mar-92	Chloride	Homestake	None	50
P	4-Jun-92	Chloride	Homestake	None	50
P	21-Sep-92	Chloride	Homestake	None	50
P	3-Dec-92	Chloride	Homestake	None	50
P	3-Mar-93	Chloride	Homestake	None	50
P	1-Jun-93	Chloride	Homestake	None	43
P	8-Sep-93	Chloride	Energy Labs	None	48.7
P	24-Nov-93	Chloride	Energy Labs	None	50.5
P	1-Mar-94	Chloride	Energy Labs	None	53.2
P	31-May-94	Chloride	Energy Labs	None	53.9
P	1-Sep-94	Chloride	Energy Labs	None	55
P	28-Nov-94	Chloride	Energy Labs	None	55.7
P	16-Mar-95	Chloride	Energy Labs	None	54
P	16-Mar-95	Chloride	Energy Labs	None	56
P	6-Jun-95	Chloride	Energy Labs	None	58
P	5-Sep-95	Chloride	Energy Labs	None	57
P	5-Dec-95	Chloride	Energy Labs	None	51.7
P	5-Dec-95	Chloride	Energy Labs	None	51.8
P	11-Mar-96	Chloride	Energy Labs	None	61.7
P	3-Jun-96	Chloride	Energy Labs	None	54.6
P	17-Sep-96	Chloride	Energy Labs	None	51.9
P	10-Oct-96	Chloride	Energy Labs	None	47.2
P	6-Mar-97	Chloride	Energy Labs	None	52.8
P	27-May-97	Chloride	Energy Labs	None	61.8
P	9-Sep-97	Chloride	Energy Labs	None	59.6
P	3-Nov-97	Chloride	Energy Labs	None	61
P	4-Mar-98	Chloride	Energy Labs	None	51.8
P	5-May-98	Chloride	Energy Labs	None	48.8
P	16-Sep-98	Chloride	Energy Labs	None	49.8
P	12-Nov-98	Chloride	Energy Labs	None	49.1
P	2-Mar-99	Chloride	Energy Labs	None	53.3
P	10-May-99	Chloride	Energy Labs	None	56.3
P1	21-Sep-92	Chloride	Homestake	None	50
P1	21-Jan-93	Chloride	Homestake	None	50
P1	21-Jan-93	Chloride	Energy Labs	None	52.5
P1	13-Apr-93	Chloride	Homestake	None	50
P1	13-Jul-93	Chloride	Homestake	None	50
P1	21-Oct-93	Chloride	Energy Labs	None	50.7
P1	4-Jan-94	Chloride	Energy Labs	None	56.8
P1	7-Mar-94	Chloride	Energy Labs	None	48.4
P1	12-Apr-94	Chloride	Energy Labs	None	53.9
P1	6-Jul-94	Chloride	Energy Labs	None	52.9

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P1	21-Oct-94	Chloride	Energy Labs	None	55.7
P1	4-Jan-95	Chloride	Energy Labs	None	54.6
P1	4-Jan-95	Chloride	Energy Labs	None	54.6
P1	12-Apr-95	Chloride	Energy Labs	None	52
P1	6-Jul-95	Chloride	Energy Labs	None	53
P1	3-Oct-95	Chloride	Energy Labs	None	51.5
P1	10-Jan-96	Chloride	Energy Labs	None	51.1
P1	10-Jan-96	Chloride	Energy Labs	None	55.3
P1	9-Apr-96	Chloride	Energy Labs	None	53.6
P1	9-Apr-96	Chloride	Energy Labs	None	55.7
P1	19-Jul-96	Chloride	Energy Labs	None	50.9
P1	19-Jul-96	Chloride	Energy Labs	None	54.8
P1	4-Nov-96	Chloride	Energy Labs	None	55
P1	4-Nov-96	Chloride	Energy Labs	None	57
P1	13-Jan-97	Chloride	Energy Labs	None	56.5
P1	14-Apr-97	Chloride	Energy Labs	None	54
P1	8-Jul-97	Chloride	Energy Labs	None	62.4
P1	3-Nov-97	Chloride	Energy Labs	None	62
P1	19-Jan-98	Chloride	Energy Labs	None	55.9
P1	1-Apr-98	Chloride	Energy Labs	None	63
P1	14-Jul-98	Chloride	Energy Labs	None	55.2
P1	28-Oct-98	Chloride	Energy Labs	None	53.3
P1	21-Jan-99	Chloride	Energy Labs	None	51.9
P2	21-Sep-92	Chloride	Homestake	None	50
P2	8-Feb-93	Chloride	Homestake	None	50
P2	8-Feb-93	Chloride	Energy Labs	None	52.9
P2	4-May-93	Chloride	Homestake	None	57
P2	4-May-93	Chloride	Energy Labs	None	56.2
P2	12-Aug-93	Chloride	Homestake	None	50
P2	1-Nov-93	Chloride	Energy Labs	None	51.5
P2	1-Nov-93	Chloride	Energy Labs	None	52.3
P2	2-Feb-94	Chloride	Energy Labs	None	55.7
P2	7-Mar-94	Chloride	Energy Labs	None	52.4
P2	29-Apr-94	Chloride	Energy Labs	None	57.3
P2	29-Apr-94	Chloride	Energy Labs	None	57.3
P2	1-Aug-94	Chloride	Energy Labs	None	45.3
P2	1-Nov-94	Chloride	Energy Labs	None	55
P2	3-Feb-95	Chloride	Energy Labs	None	55.7
P2	5-May-95	Chloride	Energy Labs	None	54
P2	2-Aug-95	Chloride	Energy Labs	None	50.2
P2	2-Aug-95	Chloride	Energy Labs	None	50
P2	6-Nov-95	Chloride	Energy Labs	None	53
P2	12-Feb-96	Chloride	Energy Labs	None	56.8
P2	14-May-96	Chloride	Energy Labs	None	56.3
P2	14-May-96	Chloride	Energy Labs	None	56
P2	29-Jul-96	Chloride	Energy Labs	None	54.1
P2	3-Feb-97	Chloride	Energy Labs	None	57.2

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P2	29-Apr-97	Chloride	Energy Labs	None	54
P2	13-Oct-97	Chloride	Energy Labs	None	52.1
P2	10-Feb-98	Chloride	Energy Labs	None	50
P2	5-May-98	Chloride	Energy Labs	None	54.6
P2	4-Aug-98	Chloride	Energy Labs	None	56
P2	28-Oct-98	Chloride	Energy Labs	None	51.8
P2	3-Feb-99	Chloride	Energy Labs	None	56
P2	11-May-99	Chloride	Energy Labs	None	58.8
P3	23-Apr-98	Chloride	Energy Labs	None	48
P4	24-Apr-98	Chloride	Energy Labs	None	42
Q	9-Apr-76	Chloride	Homestake	None	48
Q	27-Aug-76	Chloride	Homestake	None	50
Q	10-Jul-78	Chloride	NMEID	None	63
Q	23-Oct-78	Chloride	NMEID	None	56
Q	30-Jan-79	Chloride	NMEID	None	56.2
Q	30-Apr-79	Chloride	NMEID	None	55.5
Q	6-Nov-79	Chloride	Homestake	None	50
Q	17-Apr-80	Chloride	NMEID	None	55.4
Q	16-Jul-80	Chloride	NMEID	None	52.3
Q	13-Oct-80	Chloride	NMEID	None	58
Q	7-Jan-81	Chloride	NMEID	None	54
Q	15-Apr-81	Chloride	NMEID	None	57
Q	7-Oct-81	Chloride	Homestake	None	57
Q	28-Dec-81	Chloride	Homestake	None	99
Q	28-Dec-81	Chloride	NMEID	None	53
Q	24-Mar-82	Chloride	Homestake	None	43
Q	24-Mar-82	Chloride	NMEID	None	56
Q	22-May-82	Chloride	Homestake	None	43
Q	25-Aug-82	Chloride	Homestake	None	50
Q	18-Nov-82	Chloride	Homestake	None	50
Q	23-Feb-83	Chloride	Homestake	None	46
Q	23-Feb-83	Chloride	NM Tech Inst	None	55
Q	26-May-83	Chloride	Homestake	None	35
Q	28-Jun-83	Chloride	NMEID	None	58.3
Q	28-Jun-83	Chloride	Homestake	None	48
Q	21-Sep-83	Chloride	Homestake	None	35
Q	19-Dec-83	Chloride	Homestake	None	57
Q	7-Mar-84	Chloride	Homestake	None	50
Q	9-May-84	Chloride	Homestake	None	50
Q	9-May-84	Chloride	Controls for Env Pollution	None	52
Q	12-Sep-84	Chloride	Homestake	None	35
Q	12-Dec-84	Chloride	Homestake	None	50
Q	11-Mar-85	Chloride	Homestake	None	35
Q	29-May-85	Chloride	Homestake	None	28
Q	6-Sep-85	Chloride	Homestake	None	43
Q	16-Dec-85	Chloride	Homestake	None	43

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
Q	10-Mar-86	Chloride	Homestake	None	43
Q	30-Jun-86	Chloride	Homestake	None	50
Q	15-Sep-86	Chloride	Homestake	None	43
Q	15-Dec-86	Chloride	Homestake	None	50
Q	19-Mar-87	Chloride	Homestake	None	28
Q	19-Jun-87	Chloride	Homestake	None	35
Q	15-Sep-87	Chloride	Homestake	None	28
Q	8-Dec-87	Chloride	Homestake	None	43
Q	24-Feb-88	Chloride	Homestake	None	35
Q	12-May-88	Chloride	Homestake	None	43
Q	23-Aug-88	Chloride	Homestake	None	43
Q	3-Nov-88	Chloride	Homestake	None	50
Q	13-Dec-88	Chloride	Homestake	None	50
Q	13-Dec-88	Chloride	Barringer	None	65.4
Q	11-Jan-89	Chloride	Homestake	None	50
Q	11-Jan-89	Chloride	Barringer	None	58.3
Q	15-Feb-89	Chloride	Homestake	None	64
Q	15-Feb-89	Chloride	Barringer	None	58.2
Q	16-May-89	Chloride	Homestake	None	64
Q	15-Nov-89	Chloride	Homestake	None	50
Q	13-Mar-90	Chloride	Homestake	None	50
Q	12-Sep-90	Chloride	Homestake	None	50
Q	27-Feb-91	Chloride	Homestake	None	50
Q	16-Sep-91	Chloride	Homestake	None	50
Q	9-Mar-92	Chloride	Homestake	None	50
Q	16-Sep-92	Chloride	Homestake	None	50
Q	3-Mar-93	Chloride	Homestake	None	50
Q	8-Sep-93	Chloride	Energy Labs	None	46.3
Q	1-Mar-94	Chloride	Energy Labs	None	50
Q	1-Mar-94	Chloride	Energy Labs	None	48.4
Q	1-Sep-94	Chloride	Energy Labs	None	49.7
Q	16-Mar-95	Chloride	Energy Labs	None	53
Q	5-Sep-95	Chloride	Energy Labs	None	54
Q	11-Mar-96	Chloride	Energy Labs	None	61
Q	17-Sep-96	Chloride	Energy Labs	None	49
Q	6-Mar-97	Chloride	Energy Labs	None	52.5
Q	9-Sep-97	Chloride	Energy Labs	None	57.4
Q	4-Mar-98	Chloride	Energy Labs	None	54.4
Q	2-Mar-99	Chloride	Energy Labs	None	62.8
R	9-Apr-76	Chloride	Homestake	None	35
R	1-Sep-76	Chloride	Homestake	None	21
R	10-Jul-78	Chloride	NMEID	None	116.63
R	23-Oct-78	Chloride	NMEID	None	27.59
R	31-Jan-79	Chloride	NMEID	None	27.3
R	30-Apr-79	Chloride	NMEID	None	27.2
R	6-Nov-79	Chloride	Homestake	None	36
R	7-Jan-80	Chloride	NMEID	None	29

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	17-Apr-80	Chloride	NMEID	None	28.6
R	16-Jul-80	Chloride	NMEID	None	28.5
R	13-Oct-80	Chloride	NMEID	None	32.9
R	15-Apr-81	Chloride	NMEID	None	31
R	28-Dec-81	Chloride	Homestake	None	21
R	28-Dec-81	Chloride	NMEID	None	32
R	24-Mar-82	Chloride	Homestake	None	28
R	24-Mar-82	Chloride	NMEID	None	34
R	22-May-82	Chloride	Homestake	None	21
R	25-Aug-82	Chloride	Homestake	None	28
R	18-Nov-82	Chloride	Homestake	None	32
R	23-Feb-83	Chloride	Homestake	None	31
R	26-May-83	Chloride	Homestake	None	28
R	28-Jun-83	Chloride	Homestake	None	26
R	28-Jun-83	Chloride	NMEID	None	36.5
R	12-Sep-83	Chloride	Homestake	None	28
R	20-Dec-83	Chloride	Homestake	None	35
R	7-Mar-84	Chloride	Homestake	None	35
R	9-May-84	Chloride	Homestake	None	28
R	9-May-84	Chloride	Controls for Env Pollution	None	34
R	12-Sep-84	Chloride	Homestake	None	21
R	12-Dec-84	Chloride	Homestake	None	35
R	11-Mar-85	Chloride	Homestake	None	21
R	11-Mar-85	Chloride	Controls for Env Pollution	None	36
R	29-May-85	Chloride	Homestake	None	43
R	5-Sep-85	Chloride	Homestake	None	28
R	5-Sep-85	Chloride	Controls for Env Pollution	None	33
R	16-Dec-85	Chloride	Homestake	None	28
R	10-Mar-86	Chloride	Homestake	None	28
R	10-Mar-86	Chloride	Controls for Env Pollution	None	36
R	30-Jun-86	Chloride	Homestake	None	43
R	15-Sep-86	Chloride	Homestake	None	28
R	15-Sep-86	Chloride	Controls for Env Pollution	None	38
R	15-Dec-86	Chloride	Homestake	None	35
R	19-Mar-87	Chloride	Homestake	None	14
R	19-Mar-87	Chloride	Controls for Env Pollution	None	36
R	19-Jun-87	Chloride	Homestake	None	21
R	15-Sep-87	Chloride	Homestake	None	43
R	15-Sep-87	Chloride	Controls for Env Pollution	None	37
R	8-Dec-87	Chloride	Homestake	None	38

Table A-2. Chloride Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	24-Feb-88	Chloride	Homestake	None	14
R	24-Feb-88	Chloride	Barringer	None	48
R	12-May-88	Chloride	Homestake	None	28
R	22-Aug-88	Chloride	Homestake	None	35
R	22-Aug-88	Chloride	Barringer	None	44.3
R	3-Nov-88	Chloride	Homestake	None	35
R	13-Dec-88	Chloride	Homestake	None	35
R	13-Dec-88	Chloride	Barringer	None	50.1
R	11-Jan-89	Chloride	Homestake	None	43
R	11-Jan-89	Chloride	Barringer	None	46.6
R	15-Feb-89	Chloride	Homestake	None	43
R	15-Feb-89	Chloride	Barringer	None	45.1
R	16-May-89	Chloride	Homestake	None	50
R	15-Nov-89	Chloride	Homestake	None	35
R	13-Mar-90	Chloride	Homestake	None	35
R	12-Sep-90	Chloride	Homestake	None	50
R	27-Feb-91	Chloride	Homestake	None	43
R	16-Sep-91	Chloride	Homestake	None	43
R	9-Mar-92	Chloride	Homestake	None	50
R	16-Sep-92	Chloride	Homestake	None	43
R	16-Sep-92	Chloride	Energy Labs	None	48.4
R	1-Jun-93	Chloride	Homestake	None	43
R	8-Sep-93	Chloride	Energy Labs	None	51.1
R	7-Mar-94	Chloride	Energy Labs	None	49.2
R	31-May-94	Chloride	Energy Labs	None	50.9
R	1-Sep-94	Chloride	Energy Labs	None	54.4
R	6-Jun-95	Chloride	Energy Labs	None	56.2
R	6-Jun-95	Chloride	Energy Labs	None	57
R	5-Sep-95	Chloride	Energy Labs	None	54
R	5-Sep-95	Chloride	Energy Labs	None	52
R	3-Jun-96	Chloride	Energy Labs	None	55.1
R	17-Sep-96	Chloride	Energy Labs	None	52
R	10-Oct-96	Chloride	Energy Labs	None	48.9
R	27-May-97	Chloride	Energy Labs	None	65.5
R	6-May-98	Chloride	Energy Labs	None	55.4
R	20-May-99	Chloride	Energy Labs	None	61.3



Table A-3. Chloride Near Upgradient Background Data Set for Well DD  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
27-Aug-76	Chloride	64
24-Mar-82	Chloride	57
26-May-82	Chloride	78
18-Nov-82	Chloride	71
04-Mar-83	Chloride	50
28-Jun-83	Chloride	71.45
14-Sep-83	Chloride	64
19-Dec-83	Chloride	71
07-Mar-84	Chloride	78
09-May-84	Chloride	63.5
12-Sep-84	Chloride	50
12-Dec-84	Chloride	78
13-Mar-85	Chloride	64
06-Jun-85	Chloride	71
04-Sep-85	Chloride	71
16-Dec-85	Chloride	64
20-Mar-86	Chloride	64
30-Jun-86	Chloride	64
15-Sep-86	Chloride	57
09-Dec-86	Chloride	57
19-Mar-87	Chloride	43
24-Jun-87	Chloride	57
15-Sep-87	Chloride	50
08-Dec-87	Chloride	64
24-Feb-88	Chloride	43
09-Jun-88	Chloride	57
11-Oct-88	Chloride	57
08-Dec-88	Chloride	57
13-Dec-88	Chloride	65.35
11-Jan-89	Chloride	68.2
15-Feb-89	Chloride	66.35
29-Mar-89	Chloride	67
13-Jun-89	Chloride	76
15-Nov-89	Chloride	57
13-Mar-90	Chloride	64
12-Sep-90	Chloride	64
27-Feb-91	Chloride	64
16-Sep-91	Chloride	57
09-Mar-92	Chloride	57
22-Sep-92	Chloride	64
21-Oct-93	Chloride	67.1
09-Mar-94	Chloride	73.6
21-Oct-94	Chloride	68.3
10-Oct-95	Chloride	65
10-Oct-96	Chloride	67.4
14-Apr-97	Chloride	64
09-Sep-97	Chloride	71
01-Apr-98	Chloride	76
20-Apr-99	Chloride	72.1

Table A-4. Chloride Near Upgradient Background Data Set for Well ND  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Jan-83	Chloride	106
06-Jan-84	Chloride	35
18-Dec-89	Chloride	71
17-Oct-90	Chloride	71
16-Sep-91	Chloride	71
18-Aug-92	Chloride	57
25-Aug-93	Chloride	60.6
14-Mar-94	Chloride	90.3
22-Aug-94	Chloride	65.6
22-Aug-95	Chloride	68
29-Jul-96	Chloride	65.1
11-Aug-97	Chloride	70.1
05-Aug-98	Chloride	64

Table A-5. Chloride Near Upgradient Background Data Set for Well P  
(corrected for non-detects and duplicates)

Sample	Parameter	Final Data Set
09-Apr-76	Chloride	76
27-Aug-76	Chloride	64
11-Jul-78	Chloride	71
23-Oct-78	Chloride	69
30-Jan-79	Chloride	65.9
30-Apr-79	Chloride	65
06-Nov-79	Chloride	71
17-Apr-80	Chloride	62
16-Jul-80	Chloride	65
13-Oct-80	Chloride	66
07-Jan-81	Chloride	61
15-Apr-81	Chloride	61
07-Oct-81	Chloride	57
28-Dec-81	Chloride	68.5
24-Mar-82	Chloride	56
22-May-82	Chloride	50
25-Aug-82	Chloride	50
18-Nov-82	Chloride	78
23-Feb-83	Chloride	61
26-May-83	Chloride	35
27-Jun-83	Chloride	48.1
12-Sep-83	Chloride	50
19-Dec-83	Chloride	64
07-Mar-84	Chloride	57
09-May-84	Chloride	53
12-Sep-84	Chloride	35
13-Dec-84	Chloride	57
11-Mar-85	Chloride	50
29-May-85	Chloride	50
04-Sep-85	Chloride	48
16-Dec-85	Chloride	43
10-Mar-86	Chloride	52
30-Jun-86	Chloride	57
15-Sep-86	Chloride	48
16-Dec-86	Chloride	50
19-Mar-87	Chloride	43
24-Jun-87	Chloride	50
16-Sep-87	Chloride	48.5
08-Dec-87	Chloride	50
24-Feb-88	Chloride	49
12-May-88	Chloride	50
23-Aug-88	Chloride	45.5
12-Oct-88	Chloride	50
13-Dec-88	Chloride	53.25
11-Jan-89	Chloride	53.25
15-Feb-89	Chloride	55.4
16-May-89	Chloride	50

Table A-5. Chloride Near Upgradient Background Data Set for Well P  
(corrected for non-detects and duplicates) (continued)

Sample	Parameter	Final Data Set
10-Aug-89	Chloride	50
15-Nov-89	Chloride	50
13-Mar-90	Chloride	43
04-Jun-90	Chloride	57
12-Sep-90	Chloride	57
03-Dec-90	Chloride	62.5
27-Feb-91	Chloride	50
03-Jun-91	Chloride	50
16-Sep-91	Chloride	64
18-Nov-91	Chloride	50
09-Mar-92	Chloride	50
04-Jun-92	Chloride	50
21-Sep-92	Chloride	50
03-Dec-92	Chloride	50
03-Mar-93	Chloride	50
01-Jun-93	Chloride	43
08-Sep-93	Chloride	48.7
24-Nov-93	Chloride	50.5
01-Mar-94	Chloride	53.2
31-May-94	Chloride	53.9
01-Sep-94	Chloride	55
28-Nov-94	Chloride	55.7
16-Mar-95	Chloride	55
06-Jun-95	Chloride	58
05-Sep-95	Chloride	57
05-Dec-95	Chloride	51.75
11-Mar-96	Chloride	61.7
03-Jun-96	Chloride	54.6
17-Sep-96	Chloride	51.9
10-Oct-96	Chloride	47.2
06-Mar-97	Chloride	52.8
27-May-97	Chloride	61.8
09-Sep-97	Chloride	59.6
03-Nov-97	Chloride	61
04-Mar-98	Chloride	51.8
05-May-98	Chloride	48.8
16-Sep-98	Chloride	49.8
12-Nov-98	Chloride	49.1
02-Mar-99	Chloride	53.3
10-May-99	Chloride	56.3

Table A-6. Chloride Near Upgradient Background Data Set for Well P1  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Chloride	50
21-Jan-93	Chloride	51.25
13-Apr-93	Chloride	50
13-Jul-93	Chloride	50
21-Oct-93	Chloride	50.7
04-Jan-94	Chloride	56.8
07-Mar-94	Chloride	48.4
12-Apr-94	Chloride	53.9
06-Jul-94	Chloride	52.9
21-Oct-94	Chloride	55.7
04-Jan-95	Chloride	54.6
12-Apr-95	Chloride	52
06-Jul-95	Chloride	53
03-Oct-95	Chloride	51.5
10-Jan-96	Chloride	53.2
09-Apr-96	Chloride	54.65
19-Jul-96	Chloride	52.85
04-Nov-96	Chloride	56
13-Jan-97	Chloride	56.5
14-Apr-97	Chloride	54
08-Jul-97	Chloride	62.4
03-Nov-97	Chloride	62
19-Jan-98	Chloride	55.9
01-Apr-98	Chloride	63
14-Jul-98	Chloride	55.2
28-Oct-98	Chloride	53.3
21-Jan-99	Chloride	51.9

Table A-7. Chloride Near Upgradient Background Data Set for Well P2  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Chloride	50
08-Feb-93	Chloride	51.45
04-May-93	Chloride	56.6
12-Aug-93	Chloride	50
01-Nov-93	Chloride	51.9
02-Feb-94	Chloride	55.7
07-Mar-94	Chloride	52.4
29-Apr-94	Chloride	57.3
01-Aug-94	Chloride	45.3
01-Nov-94	Chloride	55
03-Feb-95	Chloride	55.7
05-May-95	Chloride	54
02-Aug-95	Chloride	50.1
06-Nov-95	Chloride	53
12-Feb-96	Chloride	56.8
14-May-96	Chloride	56.15
29-Jul-96	Chloride	54.1
03-Feb-97	Chloride	57.2
29-Apr-97	Chloride	54
13-Oct-97	Chloride	52.1
10-Feb-98	Chloride	50
05-May-98	Chloride	54.6
04-Aug-98	Chloride	56
28-Oct-98	Chloride	51.8
03-Feb-99	Chloride	56
11-May-99	Chloride	58.8

Table A-8. Chloride Near Upgradient Background Data Set for Wells P3 and P4  
(corrected for non-detects and duplicates)

Name	Date	Code	Set
P3	23-Apr-98	Chloride	48
P4	24-Apr-98	Chloride	42

Table A-9. Chloride Near Upgradient Background Data Set for Well Q  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
09-Apr-76	Chloride	48
27-Aug-76	Chloride	50
10-Jul-78	Chloride	63
23-Oct-78	Chloride	56
30-Jan-79	Chloride	56.2
30-Apr-79	Chloride	55.5
06-Nov-79	Chloride	50
17-Apr-80	Chloride	55.4
16-Jul-80	Chloride	52.3
13-Oct-80	Chloride	58
07-Jan-81	Chloride	54
15-Apr-81	Chloride	57
07-Oct-81	Chloride	57
28-Dec-81	Chloride	76
24-Mar-82	Chloride	49.5
22-May-82	Chloride	43
25-Aug-82	Chloride	50
18-Nov-82	Chloride	50
23-Feb-83	Chloride	50.5
26-May-83	Chloride	35
28-Jun-83	Chloride	53.15
21-Sep-83	Chloride	35
19-Dec-83	Chloride	57
07-Mar-84	Chloride	50
09-May-84	Chloride	51
12-Sep-84	Chloride	35
12-Dec-84	Chloride	50
11-Mar-85	Chloride	35
29-May-85	Chloride	28
06-Sep-85	Chloride	43
16-Dec-85	Chloride	43
10-Mar-86	Chloride	43
30-Jun-86	Chloride	50
15-Sep-86	Chloride	43
15-Dec-86	Chloride	50
19-Mar-87	Chloride	28
19-Jun-87	Chloride	35
15-Sep-87	Chloride	28
08-Dec-87	Chloride	43
24-Feb-88	Chloride	35
12-May-88	Chloride	43
23-Aug-88	Chloride	43
03-Nov-88	Chloride	50
13-Dec-88	Chloride	57.7
11-Jan-89	Chloride	54.15

Table A-9. Chloride Near Upgradient Background Data Set for Well Q  
(corrected for non-detects and duplicates) (continued)

Sample Date	Parameter Code	Final Data Set
15-Feb-89	Chloride	61.1
16-May-89	Chloride	64
15-Nov-89	Chloride	50
13-Mar-90	Chloride	50
12-Sep-90	Chloride	50
27-Feb-91	Chloride	50
16-Sep-91	Chloride	50
09-Mar-92	Chloride	50
16-Sep-92	Chloride	50
03-Mar-93	Chloride	50
08-Sep-93	Chloride	46.3
01-Mar-94	Chloride	49.2
01-Sep-94	Chloride	49.7
16-Mar-95	Chloride	53
05-Sep-95	Chloride	54
11-Mar-96	Chloride	61
17-Sep-96	Chloride	49
06-Mar-97	Chloride	52.5
09-Sep-97	Chloride	57.4
04-Mar-98	Chloride	54.4
02-Mar-99	Chloride	62.8



Table A-10. Chloride Near Upgradient Background Data Set for Well R  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
09-Apr-76	Chloride	35
01-Sep-76	Chloride	21
10-Jul-78	Chloride	116.63
23-Oct-78	Chloride	27.59
31-Jan-79	Chloride	27.3
30-Apr-79	Chloride	27.2
06-Nov-79	Chloride	36
07-Jan-80	Chloride	29
17-Apr-80	Chloride	28.6
16-Jul-80	Chloride	28.5
13-Oct-80	Chloride	32.9
15-Apr-81	Chloride	31
28-Dec-81	Chloride	26.5
24-Mar-82	Chloride	31
22-May-82	Chloride	21
25-Aug-82	Chloride	28
18-Nov-82	Chloride	32
23-Feb-83	Chloride	31
26-May-83	Chloride	28
28-Jun-83	Chloride	31.25
12-Sep-83	Chloride	28
20-Dec-83	Chloride	35
07-Mar-84	Chloride	35
09-May-84	Chloride	31
12-Sep-84	Chloride	21
12-Dec-84	Chloride	35
11-Mar-85	Chloride	28.5
29-May-85	Chloride	43
05-Sep-85	Chloride	30.5
16-Dec-85	Chloride	28
10-Mar-86	Chloride	32
30-Jun-86	Chloride	43
15-Sep-86	Chloride	33
15-Dec-86	Chloride	35
19-Mar-87	Chloride	25
19-Jun-87	Chloride	21
15-Sep-87	Chloride	40
08-Dec-87	Chloride	38
24-Feb-88	Chloride	31
12-May-88	Chloride	28
22-Aug-88	Chloride	39.65
03-Nov-88	Chloride	35
13-Dec-88	Chloride	42.55
11-Jan-89	Chloride	44.8
15-Feb-89	Chloride	44.05

Table A-10. Chloride Near Upgradient Background Data Set for Well R  
(corrected for non-detects and duplicates) (continued)

Sample Date	Parameter Code	Final Data Set
16-May-89	Chloride	50
15-Nov-89	Chloride	35
13-Mar-90	Chloride	35
12-Sep-90	Chloride	50
27-Feb-91	Chloride	43
16-Sep-91	Chloride	43
09-Mar-92	Chloride	50
16-Sep-92	Chloride	45.7
01-Jun-93	Chloride	43
08-Sep-93	Chloride	51.1
07-Mar-94	Chloride	49.2
31-May-94	Chloride	50.9
01-Sep-94	Chloride	54.4
06-Jun-95	Chloride	56.6
05-Sep-95	Chloride	53
03-Jun-96	Chloride	55.1
17-Sep-96	Chloride	52
10-Oct-96	Chloride	48.9
27-May-97	Chloride	65.5
06-May-98	Chloride	55.4
20-May-99	Chloride	61.3

Table A-11 Chloride Near Upgradient Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L)

Well ID								
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R
64	106	76	50	50	48	42	48	35
57	35	64	51.25	51.45			50	21
78	71	71	50	56.6			63	116.63
71	71	69	50	50			56	27.59
50	71	65.9	50.7	51.9			56.2	27.3
71.45	57	65	56.8	55.7			55.5	27.2
64	60.6	71	48.4	52.4			50	36
71	90.3	62	53.9	57.3			55.4	29
78	65.6	65	52.9	45.3			52.3	28.6
63.5	68	66	55.7	55			58	28.5
50	65.1	61	54.6	55.7			54	32.9
78	70.1	61	52	54			57	31
64	64	57	53	50.1			57	26.5
71		68.5	51.5	53			76	31
71		56	53.2	56.8			49.5	21
64		50	54.65	56.15			43	28
64		50	52.85	54.1			50	32
64		78	56	57.2			50	31
57		61	56.5	54			50.5	28
57		35	54	52.1			35	31.25
43		48.1	62.4	50			53.15	28
57		50	62	54.6			35	35
50		64	55.9	56			57	35
64		57	63	51.8			50	31
43		53	55.2	56			51	21
57		35	53.3	58.8			35	35
57		57	51.9				50	28.5
57		50					35	43
65.35		50					28	30.5
68.2		48					43	28
66.35		43					43	32
67		52					43	43
76		57					50	33
57		48					43	35
64		50					50	25
64		43					28	21
64		50					35	40
57		48.5					28	38
57		50					43	31
64		49					35	28
67.1		50					43	39.65
73.6		45.5					43	35
68.3		50					50	42.55
65		53.25					57.7	44.8
67.4		53.25					54.15	44.05
64		55.4					61.1	50
71		50					64	35
76		50					50	35
72.1		50					50	50
		43					50	43
		57					50	43
		57					50	50

Table A-11 Chloride Near Upgradient Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L) (concluded)

Well ID								
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R
		62.5					50	45.7
		50					50	43
		50					50	51.1
		64					46.3	49.2
		50					49.2	50.9
		50					49.7	54.4
		50					53	56.6
		50					54	53
		50					61	55.1
		50					49	52
		43					52.5	48.9
		48.7					57.4	65.5
		50.5					54.4	55.4
		53.2					62.8	61.3
		53.9						
		55						
		55.7						
		55						
		58						
		57						
		51.75						
		61.7						
		54.6						
		51.9						
		47.2						
		52.8						
		61.8						
		59.6						
		61						
		51.8						
		48.8						
		49.8						
		49.1						
		53.3						
		56.3						

Table A-12. Chloride Near Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Chloride	116.63	106	1.1	Pass

Table A-13. Chloride Near Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Chloride, normal	52.20	12.77	0.24	Pass
Chloride, lognormal	3.92	0.26	0.07	Pass

Table A-14. Chloride Near Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Chloride, normal	116.63	21	12.77	6.94	5.47	7.49	Fail

W = range of values

S = standard deviation

Table A-15. Near Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis

[illegible]

[illegible]

Table A-15. Near Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis (cont.)

[illegible]



Table A-15. Near Upgradient Background Chloride Data Set,  
Coefficient of Skewness Analysis (cont.)

Chloride	Normal (xi-avg)^3
51.5	-0.33981615
51.75	-0.0898115
51.8	-0.0629628
51.8	-0.0629628
51.9	-0.02641763
51.9	-0.02641763
51.9	-0.02641763
52	-0.00774211
52	-0.00774211
52	-0.00774211
52.1	-0.00093623
52.3	0.0010666
52.4	0.00826356
52.5	0.02759087
52.8	0.21835494
52.85	0.27738801
52.9	0.34620367
53	0.51618277
53	0.51618277
53	0.51618277
53	0.51618277
53	0.51618277
53.15	0.86327083
53.2	1.00653203
53.2	1.00653203
53.25	1.16482582
53.25	1.16482582
53.3	1.33890219
53.3	1.33890219
53.9	4.93186069
53.9	4.93186069
54	5.85314336
54	5.85314336
54	5.85314336
54	5.85314336
54	5.85314336
54.1	6.88255638
54.15	7.43968678
54.4	10.6795776
54.4	10.6795776
54.6	13.8615769
54.6	13.8615769
54.6	13.8615769
54.65	14.7452831
55	22.0031397
55	22.0031397
55	22.0031397
55.1	24.4438563
55.2	27.0587032
55.4	32.8347882
55.4	32.8347882
55.4	32.8347882
55.5	36.0080262

Table A-15. Near Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis (cont.)

Chloride	Normal (xi-avg)^3
55.7	42.9548933
55.7	42.9548933
55.7	42.9548933
55.7	42.9548933
55.9	50.7422819
56	54.9661717
56	54.9661717
56	54.9661717
56	54.9661717
56	54.9661717
56.15	61.7316258
56.2	64.1043424
56.3	69.0306232
56.5	79.6275761
56.6	85.310248
56.6	85.310248
56.8	97.473983
56.8	97.473983
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57	110.742239
57.2	125.163017
57.3	132.820602
57.4	140.784317
57.7	166.572243
58	195.331343
58	195.331343
58.8	287.780011
59.6	405.581023
60.6	593.164019
61	681.976867
61	681.976867
61	681.976867
61	681.976867
61	681.976867

Chloride	Normal (xi-avg)^3
61.1	705.485406
61.3	754.110873
61.7	857.963371
61.8	885.336822
62	941.818114
62	941.818114
62.4	1061.88626
62.5	1093.41863
62.8	1191.7485
63	1260.4724
63	1260.4724
63.5	1443.72943
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
64	1643.93971
65	2098.22007
65	2098.22007
65	2098.22007
65.1	2147.77382
65.35	2275.05815
65.5	2353.79013
65.6	2407.27454
65.9	2572.57653
66	2629.31346
66.35	2834.4536
67	3243.21988
67.1	3309.39624
67.4	3513.3141
68	3945.93934
68.2	4097.6688
68.3	4174.97072
68.5	4332.47896
69	4743.47184
70.1	5737.42764
71	6646.97594
71	6646.97594
71	6646.97594
71	6646.97594
71	6646.97594

Table A-15. Near Upgradient Background Chloride Data Set,  
Coefficient of Skewness Analysis (cont.)

Chloride	Normal (xi-avg)^3
71	6646.97594
71	6646.97594
71	6646.97594
71	6646.97594
71	6646.97594
71.45	7135.74367
72.1	7883.18042
73.6	9803.32922
76	13484.9643
76	13484.9643
76	13484.9643
76	13484.9643
78	17177.8509
78	17177.8509
78	17177.8509
78	17177.8509
90.3	55315.8029
106	155739.738
116.63	267490.478

Table A-15. Near Upgradient Background Chloride Data Set,  
Coefficient of Skewness Analysis (cont.)

Chloride	Lognormal (xi-avg)^3	
3.044522438	-0.67668561	<b>Lognormal</b> standard deviation = 0.264868 mean = 3.922 count = 336 sum of (xi-avg)^3 = -5.38435 1/n = 0.002976 standard deviation cubed = 0.018582 ((n-1)/n)^(3/2) = 0.995539
3.044522438	-0.67668561	
3.044522438	-0.67668561	
3.044522438	-0.67668561	
3.218875825	-0.34829181	
3.277144733	-0.26872647	
3.303216973	-0.23745306	
3.306886702	-0.23325646	
3.317453388	-0.22144946	
3.33220451	-0.20564314	
3.33220451	-0.20564314	coef. of skewness = -0.9  acceptable range -1 to 1 <b>Pass</b>
3.33220451	-0.20564314	
3.33220451	-0.20564314	
3.33220451	-0.20564314	
3.33220451	-0.20564314	
3.33220451	-0.20564314	
3.349904087	-0.18769282	
3.349904087	-0.18769282	
3.353406718	-0.18426918	
3.36729583	-0.17110316	
3.417726684	-0.12858167	
3.433987204	-0.11655047	
3.433987204	-0.11655047	
3.433987204	-0.11655047	
3.433987204	-0.11655047	
3.433987204	-0.11655047	
3.442019376	-0.110895	
3.465735903	-0.09526957	
3.465735903	-0.09526957	
3.493472658	-0.07894513	
3.496507561	-0.07728144	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.555348061	-0.04947503	
3.583518938	-0.03893699	
3.63758616	-0.02311775	
3.680090948	-0.01423696	

Table A-15. Near Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis (cont.)

[illegible]

[illegible]

Table A-15. Near Upgradient Background Chloride Data Set,  
Coefficient of Skewness Analysis (cont.)

Chloride	Lognormal (xi-avg)^3
3.94158181	6.9947E-06
3.94642443	1.3767E-05
3.94739015	1.5499E-05
3.94739015	1.5499E-05
3.94931879	1.9382E-05
3.94931879	1.9382E-05
3.94931879	1.9382E-05
3.95124372	2.3854E-05
3.95124372	2.3854E-05
3.95124372	2.3854E-05
3.95316495	2.8956E-05
3.95699637	4.1203E-05
3.95890659	4.8425E-05
3.96081317	5.6428E-05
3.96651119	8.5497E-05
3.96745771	9.1127E-05
3.96840334	9.6994E-05
3.97029191	0.00010945
3.97029191	0.00010945
3.97029191	0.00010945
3.97029191	0.00010945
3.97029191	0.00010945
3.9731181	0.00013002
3.9740584	0.0001374
3.9740584	0.0001374
3.9749978	0.00014504
3.9749978	0.00014504
3.97593633	0.00015295
3.97593633	0.00015295
3.98713048	0.0002705
3.98713048	0.0002705
3.98898405	0.00029443
3.98898405	0.00029443
3.98898405	0.00029443
3.98898405	0.00029443
3.98898405	0.00029443
3.99083419	0.00031969
3.99175797	0.00033282
3.99636415	0.0004037
3.99636415	0.0004037
4.00003388	0.00046686
4.00003388	0.00046686
4.00003388	0.00046686
4.00094921	0.00048359
4.00733319	0.00061144
4.00733319	0.00061144
4.00733319	0.00061144
4.00914972	0.00065154
4.01096295	0.00069329
4.01457959	0.0007818
4.01457959	0.0007818
4.01457959	0.0007818
4.01638302	0.00082862



[illegible]

Table A-15. Near Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis (cont.)

[illegible]

Table A-15. Near Upgradient Background Chloride Data Set,  
Coefficient of Skewness Analysis (cont.)

Chloride	Lognormal (xi-avg) <sup>3</sup>
4.26267988	0.03938123
4.26267988	0.03938123
4.26267988	0.03938123
4.26267988	0.03938123
4.26267988	0.03938123
4.2689979	0.04161618
4.27805404	0.04496485
4.29864503	0.05323702
4.33073334	0.06805524
4.33073334	0.06805524
4.33073334	0.06805524
4.33073334	0.06805524
4.35670883	0.08188869
4.35670883	0.08188869
4.35670883	0.08188869
4.35670883	0.08188869
4.50313746	0.19579919
4.66343909	0.40683897
4.75900653	0.5854293

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
21	1	0.002967	-2.751403	-57.77947081	7.570221
21	2	0.005935	-2.51599	-52.83578503	6.330204
21	3	0.008902	-2.36967	-49.76307537	5.615337
21	4	0.011869	-2.261331	-47.48795618	5.113619
25	5	0.014837	-2.17442	-54.36049832	4.728102
26.5	6	0.017804	-2.101369	-55.68628694	4.415753
27.2	7	0.020772	-2.038068	-55.43546285	4.153723
27.3	8	0.023739	-1.982007	-54.10879749	3.928353
27.59	9	0.026706	-1.931567	-53.29192409	3.73095
28	10	0.029674	-1.88561	-52.79707693	3.555525
28	11	0.032641	-1.843318	-51.61291483	3.397823
28	12	0.035608	-1.804092	-50.51457265	3.254748
28	13	0.038576	-1.767457	-49.48880814	3.123906
28	14	0.041543	-1.733051	-48.52543498	3.003467
28	15	0.04451	-1.700587	-47.6164314	2.891996
28	16	0.047478	-1.669819	-46.75492164	2.788294
28	17	0.050445	-1.640556	-45.93555786	2.691423
28.5	18	0.053412	-1.61263	-45.95994369	2.600574
28.5	19	0.05638	-1.585909	-45.19839649	2.515106
28.6	20	0.059347	-1.560279	-44.62398192	2.434471
29	21	0.062315	-1.535632	-44.53332167	2.358165
30.5	22	0.065282	-1.51188	-46.11234999	2.285782
31	23	0.068249	-1.488957	-46.15765192	2.216991
31	24	0.071217	-1.466792	-45.47055596	2.151479
31	25	0.074184	-1.445319	-44.80488769	2.088947
31	26	0.077151	-1.424496	-44.15937838	2.029189
31	27	0.080119	-1.404273	-43.53247732	1.971984
31.25	28	0.083086	-1.38461	-43.26906833	1.917145
32	29	0.086053	-1.365465	-43.69489034	1.864496
32	30	0.089021	-1.346812	-43.09797077	1.813901
32.9	31	0.091988	-1.328613	-43.71135446	1.765211
33	32	0.094955	-1.310843	-43.25783038	1.71831
35	33	0.097923	-1.293479	-45.27175861	1.673087
35	34	0.10089	-1.276496	-44.67736971	1.629443
35	35	0.103858	-1.259873	-44.09555459	1.58728
35	36	0.106825	-1.243593	-43.52575615	1.546524
35	37	0.109792	-1.227634	-42.96717862	1.507084
35	38	0.11276	-1.211984	-42.41942406	1.468904
35	39	0.115727	-1.196622	-41.88177627	1.431905
35	40	0.118694	-1.181538	-41.35383733	1.396033
35	41	0.121662	-1.16672	-40.83520935	1.361236
35	42	0.124629	-1.152152	-40.32533525	1.327455
35	43	0.127596	-1.137828	-39.82397629	1.294652
35	44	0.130564	-1.123731	-39.33057542	1.262771
35	45	0.133531	-1.109854	-38.84489388	1.231776
35	46	0.136499	-1.096187	-38.36653377	1.201625
35	47	0.139466	-1.082722	-37.89525636	1.172286
35	48	0.142433	-1.069452	-37.43082289	1.143728
35	49	0.145401	-1.056367	-36.97283546	1.115911
36	50	0.148368	-1.043459	-37.56451406	1.088806
38	51	0.151335	-1.030724	-39.16749392	1.062391
39.65	52	0.154303	-1.018152	-40.36972814	1.036634
40	53	0.15727	-1.005742	-40.22967914	1.011517
42	54	0.160237	-0.993482	-41.72624358	0.987006

Chloride - normal

$16868260 = (\text{sum of } M_i * X_i)^2$

$335 = \text{count} - 1$

$163.1658 = \text{standard deviation}^2$

$326.0622 = \text{sum of } M_i^2$

$0.95 = W \text{ statistic}$

$0.976$  is acceptable low value

**Fails Shapiro-Francia test**

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
42.55	55	0.163205	-0.98137	-41.7573815	0.963091
43	56	0.166172	-0.9694	-41.68433406	0.939742
43	57	0.169139	-0.95757	-41.17553544	0.916941
43	58	0.172107	-0.94587	-40.67250529	0.894674
43	59	0.175074	-0.9343	-40.1749503	0.872919
43	60	0.178042	-0.92286	-39.68277269	0.851662
43	61	0.181009	-0.91153	-39.19567916	0.830882
43	62	0.183976	-0.90032	-38.71357194	0.810568
43	63	0.186944	-0.88922	-38.23625548	0.790704
43	64	0.189911	-0.87822	-37.76363201	0.771277
43	65	0.192878	-0.86734	-37.29550599	0.752274
43	66	0.195846	-0.85655	-36.83177965	0.733683
43	67	0.198813	-0.84587	-36.37235523	0.715494
43	68	0.20178	-0.83528	-35.9169394	0.697689
43	69	0.204748	-0.82478	-35.46562994	0.680265
43	70	0.207715	-0.81438	-35.01813353	0.663207
43	71	0.210682	-0.80405	-34.57435241	0.646504
43	72	0.21365	-0.79382	-34.13428658	0.630151
43	73	0.216617	-0.78367	-33.69774049	0.614136
43	74	0.219585	-0.7736	-33.26466526	0.598452
44.05	75	0.222552	-0.7636	-33.63669703	0.583089
44.8	76	0.225519	-0.75368	-33.76507084	0.568041
45.3	77	0.228487	-0.74384	-33.69592196	0.553297
45.5	78	0.231454	-0.73407	-33.40004014	0.538854
45.7	79	0.234421	-0.72436	-33.1033666	0.524701
46.3	80	0.237389	-0.71473	-33.09183285	0.510834
47.2	81	0.240356	-0.70516	-33.28342882	0.497247
48	82	0.243323	-0.69565	-33.39129762	0.483932
48	83	0.246291	-0.68621	-32.93804184	0.470883
48	84	0.249258	-0.67683	-32.48762368	0.458093
48	85	0.252226	-0.6675	-32.04015229	0.44556
48.1	86	0.255193	-0.65824	-31.66123315	0.433277
48.4	87	0.25816	-0.64903	-31.41289653	0.421236
48.5	88	0.261128	-0.63987	-31.0338271	0.409437
48.7	89	0.264095	-0.63077	-30.71854553	0.397872
48.8	90	0.267062	-0.62172	-30.34000838	0.386538
48.9	91	0.27003	-0.61272	-29.96216301	0.37543
49	92	0.272997	-0.60377	-29.58491336	0.364543
49	93	0.275964	-0.59487	-29.14873107	0.353873
49.1	94	0.278932	-0.58602	-28.77343445	0.343416
49.2	95	0.281899	-0.57721	-28.39866011	0.33317
49.2	96	0.284866	-0.56845	-27.96752142	0.32313
49.5	97	0.287834	-0.55972	-27.7063134	0.31329
49.7	98	0.290801	-0.55105	-27.3869756	0.303651
49.8	99	0.293769	-0.54241	-27.01196809	0.294208
50	100	0.296736	-0.53381	-26.69059995	0.284955
50	101	0.299703	-0.52525	-26.2626827	0.275891
50	102	0.302671	-0.51674	-25.83675496	0.267015

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
50	103	0.305638	-0.50825	-25.41264621	0.258321
50	104	0.308605	-0.49981	-24.99035645	0.249807
50	105	0.311573	-0.4914	-24.56988568	0.241472
50	106	0.31454	-0.48302	-24.15106337	0.23331
50	107	0.317507	-0.47468	-23.73400321	0.225321
50	108	0.320475	-0.46637	-23.3185915	0.217503
50	109	0.323442	-0.45809	-22.90471457	0.20985
50	110	0.326409	-0.44985	-22.4924861	0.202365
50	111	0.329377	-0.44163	-22.08173555	0.195041
50	112	0.332344	-0.43345	-21.67246294	0.187878
50	113	0.335312	-0.42529	-21.26466825	0.180874
50	114	0.338279	-0.41716	-20.8582378	0.174026
50	115	0.341246	-0.40906	-20.45322844	0.167334
50	116	0.344214	-0.40099	-20.04952648	0.160793
50	117	0.347181	-0.39294	-19.64713192	0.154404
50	118	0.350148	-0.38492	-19.24598791	0.148163
50	119	0.353116	-0.37692	-18.84609446	0.14207
50	120	0.356083	-0.36895	-18.44739472	0.136123
50	121	0.35905	-0.361	-18.04994554	0.13032
50	122	0.362018	-0.35307	-17.65351954	0.124659
50	123	0.364985	-0.34516	-17.2582304	0.119139
50	124	0.367953	-0.33728	-16.86407813	0.113759
50	125	0.37092	-0.32942	-16.47089221	0.108516
50	126	0.373887	-0.32158	-16.0787863	0.103411
50	127	0.376855	-0.31375	-15.68764674	0.098441
50	128	0.379822	-0.30595	-15.29741667	0.093604
50	129	0.382789	-0.29816	-14.90815293	0.088901
50	130	0.385757	-0.2904	-14.5197987	0.08433
50	131	0.388724	-0.28265	-14.13229711	0.079889
50	132	0.391691	-0.27491	-13.74564818	0.075577
50	133	0.394659	-0.2672	-13.35985189	0.071394
50	134	0.397626	-0.2595	-12.97485142	0.067339
50	135	0.400593	-0.25181	-12.5905899	0.063409
50	136	0.403561	-0.24414	-12.20706736	0.059605
50	137	0.406528	-0.23648	-11.82422693	0.055925
50	138	0.409496	-0.22884	-11.44212547	0.052369
50	139	0.412463	-0.22121	-11.06070613	0.048936
50	140	0.41543	-0.2136	-10.67991207	0.045624
50	141	0.418398	-0.20599	-10.29974328	0.042434
50	142	0.421365	-0.1984	-9.920142929	0.039364
50	143	0.424332	-0.19082	-9.541111012	0.036413
50	144	0.4273	-0.18325	-9.16264753	0.033582
50	145	0.430267	-0.17569	-8.784695638	0.030868
50	146	0.433234	-0.16815	-8.407255336	0.028273
50	147	0.436202	-0.16061	-8.030326626	0.025794
50	148	0.439169	-0.15308	-7.653795819	0.023432
50	149	0.442136	-0.14555	-7.27771976	0.021186
50.1	150	0.445104	-0.13804	-6.915845688	0.019055

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
50.5	151	0.448071	-0.13054	-6.592028967	0.017039
50.5	152	0.451039	-0.12304	-6.213397796	0.015138
50.7	153	0.454006	-0.11555	-5.858220447	0.013351
50.9	154	0.456973	-0.10806	-5.500336101	0.011677
51	155	0.459941	-0.10058	-5.129747933	0.010117
51.1	156	0.462908	-0.09311	-4.757896477	0.008669
51.25	157	0.465875	-0.08564	-4.38918164	0.007335
51.45	158	0.468843	-0.07818	-4.022310975	0.006112
51.5	159	0.47181	-0.07072	-3.642081765	0.005001
51.75	160	0.474777	-0.06327	-3.273994196	0.004003
51.8	161	0.477745	-0.05581	-2.891193844	0.003115
51.8	162	0.480712	-0.04837	-2.505347993	0.002339
51.9	163	0.48368	-0.04092	-2.123770855	0.001674
51.9	164	0.486647	-0.03348	-1.737475145	0.001121
51.9	165	0.489614	-0.02604	-1.351297442	0.000678
52	166	0.492582	-0.0186	-0.967038432	0.000346
52	167	0.495549	-0.01116	-0.580175765	0.000124
52	168	0.498516	-0.00372	-0.193372216	1.38E-05
52.1	169	0.501484	0.003719	0.193744086	1.38E-05
52.3	170	0.504451	0.011157	0.583522933	0.000124
52.4	171	0.507418	0.018597	0.974477189	0.000346
52.5	172	0.510386	0.026037	1.366919378	0.000678
52.8	173	0.513353	0.033477	1.767604772	0.001121
52.85	174	0.51632	0.04092	2.162645274	0.001674
52.9	175	0.519288	0.048366	2.558550364	0.002339
53	176	0.522255	0.055815	2.958171308	0.003115
53	177	0.525223	0.063266	3.353076181	0.004003
53	178	0.52819	0.07072	3.748161816	0.005001
53	179	0.531157	0.078179	4.143488468	0.006112
53	180	0.534125	0.085643	4.539056135	0.007335
53.15	181	0.537092	0.09311	4.948770993	0.008669
53.2	182	0.540059	0.100583	5.351031177	0.010117
53.2	183	0.543027	0.108062	5.748877811	0.011677
53.25	184	0.545994	0.115547	6.152864671	0.013351
53.25	185	0.548961	0.123038	6.551751142	0.015138
53.3	186	0.551929	0.130535	6.957527603	0.017039
53.3	187	0.554896	0.138041	7.357576351	0.019055
53.9	188	0.557864	0.145554	7.845381901	0.021186
53.9	189	0.560831	0.153076	8.250791893	0.023432
54	190	0.563798	0.160607	8.672752756	0.025794
54	191	0.566766	0.168145	9.079835763	0.028273
54	192	0.569733	0.175694	9.487471289	0.030868
54	193	0.5727	0.183253	9.895659332	0.033582
54	194	0.575668	0.190822	10.30439989	0.036413
54.1	195	0.578635	0.198403	10.73359465	0.039364
54.15	196	0.581602	0.205995	11.15462197	0.042434
54.4	197	0.58457	0.213598	11.61974433	0.045624
54.4	198	0.587537	0.221214	12.03404827	0.048936

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
54.6	199	0.590504	0.228843	12.49480101	0.052369
54.6	200	0.593472	0.236485	12.91205581	0.055925
54.6	201	0.596439	0.244141	13.33011755	0.059605
54.65	202	0.599407	0.251812	13.76151477	0.063409
55	203	0.602374	0.259497	14.27233656	0.067339
55	204	0.605341	0.267197	14.69583708	0.071394
55	205	0.608309	0.274913	15.12021299	0.075577
55.1	206	0.611276	0.282646	15.57379142	0.079889
55.2	207	0.614243	0.290396	16.02985776	0.08433
55.4	208	0.617211	0.298163	16.51823345	0.088901
55.4	209	0.620178	0.305948	16.94953767	0.093604
55.4	210	0.623145	0.313753	17.38191258	0.098441
55.5	211	0.626113	0.321576	17.8474528	0.103411
55.7	212	0.62908	0.329418	18.34857392	0.108516
55.7	213	0.632047	0.337282	18.78658304	0.113759
55.7	214	0.635015	0.345165	19.22566867	0.119139
55.7	215	0.637982	0.35307	19.66602076	0.124659
55.9	216	0.64095	0.360999	20.17983911	0.13032
56	217	0.643917	0.368948	20.66108209	0.136123
56	218	0.646884	0.376922	21.1076258	0.14207
56	219	0.649852	0.38492	21.55550646	0.148163
56	220	0.652819	0.392943	22.00478775	0.154404
56	221	0.655786	0.400991	22.45546966	0.160793
56.15	222	0.658754	0.409065	22.96897554	0.167334
56.2	223	0.661721	0.417165	23.44465929	0.174026
56.3	224	0.664688	0.425293	23.94401645	0.180874
56.5	225	0.667656	0.433449	24.48988312	0.187878
56.6	226	0.670623	0.441635	24.99652464	0.195041
56.6	227	0.673591	0.44985	25.46149426	0.202365
56.8	228	0.676558	0.458094	26.01975575	0.20985
56.8	229	0.679525	0.466372	26.48991995	0.217503
57	230	0.682493	0.47468	27.05676366	0.225321
57	231	0.68546	0.483021	27.53221224	0.23331
57	232	0.688427	0.491398	28.00966968	0.241472
57	233	0.691395	0.499807	28.48900635	0.249807
57	234	0.694362	0.508253	28.97041668	0.258321
57	235	0.697329	0.516735	29.45390065	0.267015
57	236	0.700297	0.525254	29.93945827	0.275891
57	237	0.703264	0.533812	30.42728395	0.284955
57	238	0.706231	0.542409	30.91731287	0.294208
57	239	0.709199	0.551046	31.40960985	0.303651
57	240	0.712166	0.559724	31.90423968	0.31329
57	241	0.715134	0.568446	32.40139677	0.32313
57	242	0.718101	0.577209	32.90088671	0.33317
57	243	0.721068	0.586017	33.40296871	0.343416
57	244	0.724036	0.594872	33.90770758	0.353873
57	245	0.727003	0.603774	34.4151033	0.364543
57	246	0.72997	0.612723	34.92522069	0.37543



Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
57	247	0.732938	0.621721	35.43812454	0.386538
57	248	0.735905	0.630771	35.95394446	0.397872
57	249	0.738872	0.639873	36.47274525	0.409437
57	250	0.74184	0.649027	36.99452691	0.421236
57.2	251	0.744807	0.658238	37.65119618	0.433277
57.3	252	0.747774	0.667503	38.2479318	0.44556
57.4	253	0.750742	0.676825	38.84978332	0.458093
57.7	254	0.753709	0.686209	39.59427113	0.470883
58	255	0.756677	0.695652	40.34781796	0.483932
58	256	0.759644	0.705157	40.89912863	0.497247
58.8	257	0.762611	0.714726	42.02591299	0.510834
59.6	258	0.765579	0.724363	43.17200546	0.524701
60.6	259	0.768546	0.734067	44.48444906	0.538854
61	260	0.771513	0.743839	45.37419954	0.553297
61	261	0.774481	0.753685	45.97476163	0.568041
61	262	0.777448	0.763603	46.57976206	0.583089
61	263	0.780415	0.773597	47.18940886	0.598452
61	264	0.783383	0.783668	47.80377139	0.614136
61.1	265	0.78635	0.793821	48.50243977	0.630151
61.3	266	0.789318	0.804055	49.28855356	0.646504
61.7	267	0.792285	0.814375	50.24694974	0.663207
61.8	268	0.795252	0.824782	50.97153326	0.680265
62	269	0.79822	0.835278	51.78721494	0.697689
62	270	0.801187	0.845869	52.44386102	0.715494
62.4	271	0.804154	0.856553	53.44890815	0.733683
62.5	272	0.807122	0.867337	54.20858429	0.752274
62.8	273	0.810089	0.878224	55.15246721	0.771277
63	274	0.813056	0.889215	56.02056035	0.790704
63	275	0.816024	0.900316	56.71988447	0.810568
63.5	276	0.818991	0.911527	57.88199132	0.830882
64	277	0.821958	0.922855	59.06273145	0.851662
64	278	0.824926	0.934301	59.79527486	0.872919
64	279	0.827893	0.945872	60.53582183	0.894674
64	280	0.830861	0.957571	61.28451787	0.916941
64	281	0.833828	0.969403	62.04179954	0.939742
64	282	0.836795	0.981372	62.80781236	0.963091
64	283	0.839763	0.993482	63.58284736	0.987006
64	284	0.84273	1.005742	64.36748663	1.011517
64	285	0.845697	1.018152	65.16173016	1.036634
64	286	0.848665	1.030724	65.96630556	1.062391
64	287	0.851632	1.043459	66.78135833	1.088806
64	288	0.854599	1.056367	67.60747056	1.115911
64	289	0.857567	1.069452	68.44493328	1.143728
64	290	0.860534	1.082722	69.29418305	1.172286
64	291	0.863501	1.096187	70.15594747	1.201625
64	292	0.866469	1.109854	71.03066309	1.231776
64	293	0.869436	1.123731	71.91876648	1.262771
65	294	0.872404	1.137828	73.95881312	1.294652

Table A-16. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
65	295	0.875371	1.152152	74.88990832	1.327455
65	296	0.878338	1.16672	75.83681736	1.361236
65.1	297	0.881306	1.181538	76.91813744	1.396033
65.35	298	0.884273	1.196622	78.19925941	1.431905
65.5	299	0.88724	1.211984	79.38492217	1.468904
65.6	300	0.890208	1.227634	80.53276906	1.507084
65.9	301	0.893175	1.243593	81.95278087	1.546524
66	302	0.896142	1.259873	83.15161722	1.58728
66.35	303	0.89911	1.276496	84.69552802	1.629443
67	304	0.902077	1.293479	86.66308076	1.673087
67.1	305	0.905045	1.310843	87.95758845	1.71831
67.4	306	0.908012	1.328613	89.54848909	1.765211
68	307	0.910979	1.346812	91.5831879	1.813901
68.2	308	0.913947	1.365465	93.12473503	1.864496
68.3	309	0.916914	1.38461	94.56887574	1.917145
68.5	310	0.919881	1.404273	96.19273214	1.971984
69	311	0.922849	1.424496	98.29022929	2.029189
70.1	312	0.925816	1.445319	101.3168589	2.088947
71	313	0.928783	1.466792	104.1422411	2.151479
71	314	0.931751	1.488957	105.7159125	2.216991
71	315	0.934718	1.51188	107.3435033	2.285782
71	316	0.937685	1.535632	109.0298565	2.358165
71	317	0.940653	1.560279	110.7798153	2.434471
71	318	0.94362	1.585909	112.5995141	2.515106
71	319	0.946588	1.61263	114.4967018	2.600574
71	320	0.949555	1.640556	116.4794503	2.691423
71	321	0.952522	1.669819	118.5571227	2.788294
71	322	0.95549	1.700587	120.7416653	2.891996
71.45	323	0.958457	1.733051	123.8265118	3.003467
72.1	324	0.961424	1.767457	127.433681	3.123906
73.6	325	0.964392	1.804092	132.7811624	3.254748
76	326	0.967359	1.843318	140.0921974	3.397823
76	327	0.970326	1.88561	143.3063517	3.555525
76	328	0.973294	1.931567	146.799066	3.73095
76	329	0.976261	1.982007	150.6325498	3.928353
78	330	0.979228	2.038068	158.969342	4.153723
78	331	0.982196	2.101369	163.9068068	4.415753
78	332	0.985163	2.17442	169.6047548	4.728102
78	333	0.988131	2.261331	176.3838372	5.113619
90.3	334	0.991098	2.36967	213.9812241	5.615337
106	335	0.994065	2.51599	266.6949149	6.330204
116.63	336	0.997033	2.751403	320.8961753	7.570221

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i \cdot X_i$	$M_i^2$
3.0445224	1	0.002967	-2.751403	-8.376709301	7.570221
3.0445224	2	0.005935	-2.51599	-7.659987287	6.330204
3.0445224	3	0.008902	-2.36967	-7.214514263	5.615337
3.0445224	4	0.011869	-2.261331	-6.88467372	5.113619
3.2188758	5	0.014837	-2.17442	-6.999187755	4.728102
3.2771447	6	0.017804	-2.101369	-6.886491394	4.415753
3.303217	7	0.020772	-2.038068	-6.73218242	4.153723
3.3068867	8	0.023739	-1.982007	-6.554273365	3.928353
3.3174534	9	0.026706	-1.931567	-6.407882353	3.73095
3.3322045	10	0.029674	-1.88561	-6.283237781	3.555525
3.3322045	11	0.032641	-1.843318	-6.142313842	3.397823
3.3322045	12	0.035608	-1.804092	-6.0116031	3.254748
3.3322045	13	0.038576	-1.767457	-5.889529632	3.123906
3.3322045	14	0.041543	-1.733051	-5.774881189	3.003467
3.3322045	15	0.04451	-1.700587	-5.666703124	2.891996
3.3322045	16	0.047478	-1.669819	-5.56417717	2.788294
3.3322045	17	0.050445	-1.640556	-5.466666896	2.691423
3.3499041	18	0.053412	-1.61263	-5.402154499	2.600574
3.3499041	19	0.05638	-1.585909	-5.312641865	2.515106
3.3534067	20	0.059347	-1.560279	-5.232250376	2.434471
3.3672958	21	0.062315	-1.535632	-5.170926495	2.358165
3.4177267	22	0.065282	-1.51188	-5.167193738	2.285782
3.4339872	23	0.068249	-1.488957	-5.113057616	2.216991
3.4339872	24	0.071217	-1.466792	-5.036945398	2.151479
3.4339872	25	0.074184	-1.445319	-4.963206808	2.088947
3.4339872	26	0.077151	-1.424496	-4.8917013	2.029189
3.4339872	27	0.080119	-1.404273	-4.8222571	1.971984
3.4420194	28	0.083086	-1.38461	-4.76585509	1.917145
3.4657359	29	0.086053	-1.365465	-4.732342194	1.864496
3.4657359	30	0.089021	-1.346812	-4.66769327	1.813901
3.4934727	31	0.091988	-1.328613	-4.641471783	1.765211
3.4965076	32	0.094955	-1.310843	-4.583373668	1.71831
3.5553481	33	0.097923	-1.293479	-4.598767406	1.673087
3.5553481	34	0.10089	-1.276496	-4.538388566	1.629443
3.5553481	35	0.103858	-1.259873	-4.479286986	1.58728
3.5553481	36	0.106825	-1.243593	-4.421406079	1.546524
3.5553481	37	0.109792	-1.227634	-4.364665006	1.507084
3.5553481	38	0.11276	-1.211984	-4.309023346	1.468904
3.5553481	39	0.115727	-1.196622	-4.254408345	1.431905
3.5553481	40	0.118694	-1.181538	-4.200779583	1.396033
3.5553481	41	0.121662	-1.16672	-4.14809664	1.361236
3.5553481	42	0.124629	-1.152152	-4.096302929	1.327455
3.5553481	43	0.127596	-1.137828	-4.045374198	1.294652
3.5553481	44	0.130564	-1.123731	-3.995253859	1.262771
3.5553481	45	0.133531	-1.109854	-3.945917661	1.231776
3.5553481	46	0.136499	-1.096187	-3.897325185	1.201625
3.5553481	47	0.139466	-1.082722	-3.849452178	1.172286
3.5553481	48	0.142433	-1.069452	-3.802274388	1.143728
3.5553481	49	0.145401	-1.056367	-3.755751397	1.115911
3.5835189	50	0.148368	-1.043459	-3.739254098	1.088806
3.6375862	51	0.151335	-1.030724	-3.749345627	1.062391
3.6800909	52	0.154303	-1.018152	-3.746892083	1.036634
3.6888795	53	0.15727	-1.005742	-3.710060921	1.011517

Chloride - lognormal

$$7053.916 = (\text{sum of } M_i^2 X_i^2)$$

$$335 = \text{count} - 1$$

$$0.070155 = \text{standard deviation}^2$$

$$326.0622 = \text{sum of } M_i^2$$

$$0.92 = W \text{ statistic}$$

0.976 is acceptable low value

Fails Shapiro-Francia test

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
3.7376696	54	0.160237	-0.99348	-3.71330745	0.987006
3.7506799	55	0.163205	-0.98137	-3.680812446	0.963091
3.7612001	56	0.166172	-0.9694	-3.646119119	0.939742
3.7612001	57	0.169139	-0.95757	-3.60161462	0.916941
3.7612001	58	0.172107	-0.94587	-3.557614689	0.894674
3.7612001	59	0.175074	-0.9343	-3.514093668	0.872919
3.7612001	60	0.178042	-0.92286	-3.471043006	0.851662
3.7612001	61	0.181009	-0.91153	-3.428437047	0.830882
3.7612001	62	0.183976	-0.90032	-3.386267239	0.810568
3.7612001	63	0.186944	-0.88922	-3.344516477	0.790704
3.7612001	64	0.189911	-0.87822	-3.303176211	0.771277
3.7612001	65	0.192878	-0.86734	-3.262229336	0.752274
3.7612001	66	0.195846	-0.85655	-3.2216673	0.733683
3.7612001	67	0.198813	-0.84587	-3.181481551	0.715494
3.7612001	68	0.20178	-0.83528	-3.141646433	0.697689
3.7612001	69	0.204748	-0.82478	-3.102170498	0.680265
3.7612001	70	0.207715	-0.81438	-3.06302809	0.663207
3.7612001	71	0.210682	-0.80405	-3.024210658	0.646504
3.7612001	72	0.21365	-0.79382	-2.985718201	0.630151
3.7612001	73	0.216617	-0.78367	-2.947533615	0.614136
3.7612001	74	0.219585	-0.7736	-2.909652624	0.598452
3.7853254	75	0.222552	-0.7636	-2.890484495	0.583089
3.8022081	76	0.225519	-0.75368	-2.865665785	0.568041
3.813307	77	0.228487	-0.74384	-2.836487774	0.553297
3.8177123	78	0.231454	-0.73407	-2.802455932	0.538854
3.8220983	79	0.234421	-0.72436	-2.768584708	0.524701
3.835142	80	0.237389	-0.71473	-2.741077251	0.510834
3.8543939	81	0.240356	-0.70516	-2.717954338	0.497247
3.871201	82	0.243323	-0.69565	-2.693008856	0.483932
3.871201	83	0.246291	-0.68621	-2.656453768	0.470883
3.871201	84	0.249258	-0.67683	-2.620127534	0.458093
3.871201	85	0.252226	-0.6675	-2.584038957	0.44556
3.8732822	86	0.255193	-0.65824	-2.549540334	0.433277
3.8794998	87	0.25816	-0.64903	-2.517899303	0.421236
3.8815638	88	0.261128	-0.63987	-2.4837068	0.409437
3.885679	89	0.264095	-0.63077	-2.450973474	0.397872
3.8877303	90	0.267062	-0.62172	-2.417085456	0.386538
3.8897774	91	0.27003	-0.61272	-2.383356737	0.37543
3.8918203	92	0.272997	-0.60377	-2.349778905	0.364543
3.8918203	93	0.275964	-0.59487	-2.315135168	0.353873
3.893859	94	0.278932	-0.58602	-2.28186757	0.343416
3.8958936	95	0.281899	-0.57721	-2.248743066	0.33317
3.8958936	96	0.284866	-0.56845	-2.214603422	0.32313
3.9019727	97	0.287834	-0.55972	-2.184025812	0.31329
3.9060049	98	0.290801	-0.55105	-2.152387562	0.303651
3.908015	99	0.293769	-0.54241	-2.119742491	0.294208
3.912023	100	0.296736	-0.53381	-2.088284821	0.284955
3.912023	101	0.299703	-0.52525	-2.054804378	0.275891
3.912023	102	0.302671	-0.51674	-2.021479596	0.267015
3.912023	103	0.305638	-0.50825	-1.988297132	0.258321
3.912023	104	0.308605	-0.49981	-1.955256987	0.249807

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.912023	105	0.311573	-0.4914	-1.922359161	0.241472
3.912023	106	0.31454	-0.48302	-1.88959031	0.23331
3.912023	107	0.317507	-0.47468	-1.856959331	0.225321
3.912023	108	0.320475	-0.46637	-1.824457328	0.217503
3.912023	109	0.323442	-0.45809	-1.792075407	0.20985
3.912023	110	0.326409	-0.44985	-1.759822461	0.202365
3.912023	111	0.329377	-0.44163	-1.72768515	0.195041
3.912023	112	0.332344	-0.43345	-1.695663472	0.187878
3.912023	113	0.335312	-0.42529	-1.663757428	0.180874
3.912023	114	0.338279	-0.41716	-1.631958123	0.174026
3.912023	115	0.341246	-0.40906	-1.600270004	0.167334
3.912023	116	0.344214	-0.40099	-1.568684177	0.160793
3.912023	117	0.347181	-0.39294	-1.537200641	0.154404
3.912023	118	0.350148	-0.38492	-1.50581495	0.148163
3.912023	119	0.353116	-0.37692	-1.474527102	0.14207
3.912023	120	0.356083	-0.36895	-1.443332651	0.136123
3.912023	121	0.35905	-0.361	-1.412236044	0.13032
3.912023	122	0.362018	-0.35307	-1.381219491	0.124659
3.912023	123	0.364985	-0.34516	-1.350291887	0.119139
3.912023	124	0.367953	-0.33728	-1.319453233	0.113759
3.912023	125	0.37092	-0.32942	-1.288690185	0.108516
3.912023	126	0.373887	-0.32158	-1.258011638	0.103411
3.912023	127	0.376855	-0.31375	-1.227408699	0.098441
3.912023	128	0.379822	-0.30595	-1.196876918	0.093604
3.912023	129	0.382789	-0.29816	-1.166420745	0.088901
3.912023	130	0.385757	-0.2904	-1.136035731	0.08433
3.912023	131	0.388724	-0.28265	-1.105717428	0.079889
3.912023	132	0.391691	-0.27491	-1.075465838	0.075577
3.912023	133	0.394659	-0.2672	-1.045280959	0.071394
3.912023	134	0.397626	-0.2595	-1.015158345	0.067339
3.912023	135	0.400593	-0.25181	-0.985093547	0.063409
3.912023	136	0.403561	-0.24414	-0.955086567	0.059605
3.912023	137	0.406528	-0.23648	-0.925132956	0.055925
3.912023	138	0.409496	-0.22884	-0.895237161	0.052369
3.912023	139	0.412463	-0.22121	-0.865394737	0.048936
3.912023	140	0.41543	-0.2136	-0.835601234	0.045624
3.912023	141	0.418398	-0.20599	-0.805856653	0.042434
3.912023	142	0.421365	-0.1984	-0.776156547	0.039364
3.912023	143	0.424332	-0.19082	-0.746500916	0.036413
3.912023	144	0.4273	-0.18325	-0.716889759	0.033582
3.912023	145	0.430267	-0.17569	-0.687318629	0.030868
3.912023	146	0.433234	-0.16815	-0.657787526	0.028273
3.912023	147	0.436202	-0.16061	-0.62829645	0.025794
3.912023	148	0.439169	-0.15308	-0.598836506	0.023432
3.912023	149	0.442136	-0.14555	-0.569412143	0.021186
3.914021	150	0.445104	-0.13804	-0.540294717	0.019055
3.9219733	151	0.448071	-0.13054	-0.51195568	0.017039
3.9219733	152	0.451039	-0.12304	-0.482550109	0.015138
3.9259259	153	0.454006	-0.11555	-0.453627997	0.013351
3.9298629	154	0.456973	-0.10806	-0.424667326	0.011677
3.9318256	155	0.459941	-0.10058	-0.395475969	0.010117

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
3.9337845	156	0.462908	-0.09311	-0.366272787	0.008669
3.9367156	157	0.465875	-0.08564	-0.337150437	0.007335
3.9406105	158	0.468843	-0.07818	-0.308073094	0.006112
3.9415818	159	0.47181	-0.07072	-0.278748801	0.005001
3.9464244	160	0.474777	-0.06327	-0.249672863	0.004003
3.9473901	161	0.477745	-0.05581	-0.220321817	0.003115
3.9473901	162	0.480712	-0.04837	-0.190918648	0.002339
3.9493188	163	0.48368	-0.04092	-0.161607864	0.001674
3.9493188	164	0.486647	-0.03348	-0.132212779	0.001121
3.9493188	165	0.489614	-0.02604	-0.102826674	0.000678
3.9512437	166	0.492582	-0.0186	-0.073480856	0.000346
3.9512437	167	0.495549	-0.01116	-0.04408492	0.000124
3.9512437	168	0.498516	-0.00372	-0.014693476	1.38E-05
3.9531649	169	0.501484	0.003719	0.014700621	1.38E-05
3.9569964	170	0.504451	0.011157	0.044149104	0.000124
3.9589066	171	0.507418	0.018597	0.073623362	0.000346
3.9608132	172	0.510386	0.026037	0.103125948	0.000678
3.9665112	173	0.513353	0.033477	0.132788335	0.001121
3.9674577	174	0.51632	0.04092	0.162350117	0.001674
3.9684033	175	0.519288	0.048366	0.191934968	0.002339
3.9702919	176	0.522255	0.055815	0.221600068	0.003115
3.9702919	177	0.525223	0.063266	0.251182854	0.004003
3.9702919	178	0.52819	0.07072	0.28077918	0.005001
3.9702919	179	0.531157	0.078179	0.310393561	0.006112
3.9702919	180	0.534125	0.085643	0.340025998	0.007335
3.9731181	181	0.537092	0.09311	0.36993512	0.008669
3.9740584	182	0.540059	0.100583	0.399723879	0.010117
3.9740584	183	0.543027	0.108062	0.42944316	0.011677
3.9749978	184	0.545994	0.115547	0.459298095	0.013351
3.9749978	185	0.548961	0.123038	0.489074111	0.015138
3.9759363	186	0.551929	0.130535	0.518999752	0.017039
3.9759363	187	0.554896	0.138041	0.54884156	0.019055
3.9871305	188	0.557864	0.145554	0.580344365	0.021186
3.9871305	189	0.560831	0.153076	0.610333652	0.023432
3.988984	190	0.563798	0.160607	0.640656896	0.025794
3.988984	191	0.566766	0.168145	0.670728148	0.028273
3.988984	192	0.569733	0.175694	0.700840215	0.030868
3.988984	193	0.5727	0.183253	0.730993096	0.033582
3.988984	194	0.575668	0.190822	0.761186792	0.036413
3.9908342	195	0.578635	0.198403	0.791792911	0.039364
3.991758	196	0.581602	0.205995	0.822281647	0.042434
3.9963642	197	0.58457	0.213598	0.853616355	0.045624
3.9963642	198	0.587537	0.221214	0.88405219	0.048936
4.0000339	199	0.590504	0.228843	0.915377791	0.052369
4.0000339	200	0.593472	0.236485	0.945946167	0.055925
4.0000339	201	0.596439	0.244141	0.976573661	0.059605
4.0009492	202	0.599407	0.251812	1.007486216	0.063409
4.0073332	203	0.602374	0.259497	1.039891053	0.067339
4.0073332	204	0.605341	0.267197	1.070747557	0.071394
4.0073332	205	0.608309	0.274913	1.101667842	0.075577
4.0091497	206	0.611276	0.282646	1.133169899	0.079889

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.010963	207	0.614243	0.290396	1.164767493	0.08433
4.0145796	208	0.617211	0.298163	1.196999331	0.088901
4.0145796	209	0.620178	0.305948	1.228253936	0.093604
4.0145796	210	0.623145	0.313753	1.259586129	0.098441
4.016383	211	0.626113	0.321576	1.291571286	0.103411
4.0199801	212	0.62908	0.329418	1.324253193	0.108516
4.0199801	213	0.632047	0.337282	1.355865186	0.113759
4.0199801	214	0.635015	0.345165	1.387554872	0.119139
4.0199801	215	0.637982	0.35307	1.419335961	0.124659
4.0235644	216	0.64095	0.360999	1.452502359	0.13032
4.0253517	217	0.643917	0.368948	1.485145031	0.136123
4.0253517	218	0.646884	0.376922	1.517243164	0.14207
4.0253517	219	0.649852	0.38492	1.5494374	0.148163
4.0253517	220	0.652819	0.392943	1.581732314	0.154404
4.0253517	221	0.655786	0.400991	1.614127907	0.160793
4.0280267	222	0.658754	0.409065	1.647722998	0.167334
4.0289168	223	0.661721	0.417165	1.680722076	0.174026
4.0306945	224	0.664688	0.425293	1.714227642	0.180874
4.0342406	225	0.667656	0.433449	1.748638614	0.187878
4.036009	226	0.670623	0.441635	1.782441662	0.195041
4.036009	227	0.673591	0.44985	1.81559752	0.202365
4.0395363	228	0.676558	0.458094	1.850488531	0.20985
4.0395363	229	0.679525	0.466372	1.883925949	0.217503
4.0430513	230	0.682493	0.47468	1.919155835	0.225321
4.0430513	231	0.68546	0.483021	1.952879748	0.23331
4.0430513	232	0.688427	0.491398	1.986746149	0.241472
4.0430513	233	0.691395	0.499807	2.020745847	0.249807
4.0430513	234	0.694362	0.508253	2.05489263	0.258321
4.0430513	235	0.697329	0.516735	2.089186498	0.267015
4.0430513	236	0.700297	0.525254	2.123627451	0.275891
4.0430513	237	0.703264	0.533812	2.15822928	0.284955
4.0430513	238	0.706231	0.542409	2.192987386	0.294208
4.0430513	239	0.709199	0.551046	2.227906367	0.303651
4.0430513	240	0.712166	0.559724	2.262990819	0.31329
4.0430513	241	0.715134	0.568446	2.298254531	0.32313
4.0430513	242	0.718101	0.577209	2.333683714	0.33317
4.0430513	243	0.721068	0.586017	2.369296754	0.343416
4.0430513	244	0.724036	0.594872	2.405098247	0.353873
4.0430513	245	0.727003	0.603774	2.441088194	0.364543
4.0430513	246	0.72997	0.612723	2.477271189	0.37543
4.0430513	247	0.732938	0.621721	2.513651831	0.386538
4.0430513	248	0.735905	0.630771	2.550239311	0.397872
4.0430513	249	0.738872	0.639873	2.587038227	0.409437
4.0430513	250	0.74184	0.649027	2.624048578	0.421236
4.0465539	251	0.744807	0.658238	2.663594313	0.433277
4.0483006	252	0.747774	0.667503	2.702253511	0.44556
4.0500443	253	0.750742	0.676825	2.741173234	0.458093
4.0552572	254	0.753709	0.686209	2.782754801	0.470883
4.060443	255	0.756677	0.695652	2.824655438	0.483932
4.060443	256	0.759644	0.705157	2.863251397	0.497247
4.0741419	257	0.762611	0.714726	2.911896787	0.510834

Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.0876556	258	0.765579	0.724363	2.960944442	0.524701
4.1042949	259	0.768546	0.734067	3.012826685	0.538854
4.1108739	260	0.771513	0.743839	3.057829689	0.553297
4.1108739	261	0.774481	0.753685	3.098302394	0.568041
4.1108739	262	0.777448	0.763603	3.139074204	0.583089
4.1108739	263	0.780415	0.773597	3.18015914	0.598452
4.1108739	264	0.783383	0.783668	3.221561876	0.614136
4.1125119	265	0.78635	0.793821	3.264596712	0.630151
4.1157798	266	0.789318	0.804055	3.309312157	0.646504
4.1222839	267	0.792285	0.814375	3.357085794	0.663207
4.1239034	268	0.795252	0.824782	3.401321642	0.680265
4.1271344	269	0.79822	0.835278	3.447303153	0.697689
4.1271344	270	0.801187	0.845869	3.491013905	0.715494
4.1335653	271	0.804154	0.856553	3.5406178	0.733683
4.1351666	272	0.807122	0.867337	3.586584397	0.752274
4.1399551	273	0.810089	0.878224	3.635807905	0.771277
4.1431347	274	0.813056	0.889215	3.684138555	0.790704
4.1431347	275	0.816024	0.900316	3.730128937	0.810568
4.1510399	276	0.818991	0.911527	3.783786706	0.830882
4.1588831	277	0.821958	0.922855	3.838046792	0.851662
4.1588831	278	0.824926	0.934301	3.88564933	0.872919
4.1588831	279	0.827893	0.945872	3.933771959	0.894674
4.1588831	280	0.830861	0.957571	3.982424135	0.916941
4.1588831	281	0.833828	0.969403	4.031634227	0.939742
4.1588831	282	0.836795	0.981372	4.081411692	0.963091
4.1588831	283	0.839763	0.993482	4.131775442	0.987006
4.1588831	284	0.84273	1.005742	4.182763301	1.011517
4.1588831	285	0.845697	1.018152	4.23437527	1.036634
4.1588831	286	0.848665	1.030724	4.286658629	1.062391
4.1588831	287	0.851632	1.043459	4.339622835	1.088806
4.1588831	288	0.854599	1.056367	4.393305713	1.115911
4.1588831	289	0.857567	1.069452	4.447726174	1.143728
4.1588831	290	0.860534	1.082722	4.502912588	1.172286
4.1588831	291	0.863501	1.096187	4.558912236	1.201625
4.1588831	292	0.866469	1.109854	4.615753487	1.231776
4.1588831	293	0.869436	1.123731	4.673464708	1.262771
4.1743873	294	0.872404	1.137828	4.749734277	1.294652
4.1743873	295	0.875371	1.152152	4.80953046	1.327455
4.1743873	296	0.878338	1.16672	4.87034223	1.361236
4.1759245	297	0.881306	1.181538	4.934014415	1.396033
4.1797574	298	0.884273	1.196622	5.001590456	1.431905
4.1820501	299	0.88724	1.211984	5.068575956	1.468904
4.1835757	300	0.890208	1.227634	5.135898405	1.507084
4.1881384	301	0.893175	1.243593	5.208339787	1.546524
4.1896547	302	0.896142	1.259873	5.278432839	1.58728
4.1949438	303	0.89911	1.276496	5.354830095	1.629443
4.2046926	304	0.902077	1.293479	5.438680837	1.673087
4.206184	305	0.905045	1.310843	5.513648362	1.71831
4.210645	306	0.908012	1.328613	5.594316015	1.765211
4.2195077	307	0.910979	1.346812	5.682881868	1.813901
4.2224446	308	0.913947	1.365465	5.765601632	1.864496



Table A-16. Chloride Near Upgradient Background Data Set,  
st of Normality Analysis (cont.)

Chloride (lognormal)	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
4.2239098	309	0.916914	1.38461	5.84846849	1.917145
4.2268337	310	0.919881	1.404273	5.935630457	1.971984
4.2341065	311	0.922849	1.424496	6.031468104	2.029189
4.2499228	312	0.925816	1.445319	6.142493984	2.088947
4.2626799	313	0.928783	1.466792	6.252465287	2.151479
4.2626799	314	0.931751	1.488957	6.346944968	2.216991
4.2626799	315	0.934718	1.51188	6.444661849	2.285782
4.2626799	316	0.937685	1.535632	6.545906695	2.358165
4.2626799	317	0.940653	1.560279	6.650970272	2.434471
4.2626799	318	0.94362	1.585909	6.760220884	2.515106
4.2626799	319	0.946588	1.61263	6.874123759	2.600574
4.2626799	320	0.949555	1.640556	6.993163505	2.691423
4.2626799	321	0.952522	1.669819	7.117902273	2.788294
4.2626799	322	0.95549	1.700587	7.249057284	2.891996
4.2689979	323	0.958457	1.733051	7.398392151	3.003467
4.278054	324	0.961424	1.767457	7.561278423	3.123906
4.298645	325	0.964392	1.804092	7.755150587	3.254748
4.3307333	326	0.967359	1.843318	7.982920395	3.397823
4.3307333	327	0.970326	1.88561	8.166073619	3.555525
4.3307333	328	0.973294	1.931567	8.365100124	3.73095
4.3307333	329	0.976261	1.982007	8.583544809	3.928353
4.3567088	330	0.979228	2.038068	8.879270968	4.153723
4.3567088	331	0.982196	2.101369	9.155054258	4.415753
4.3567088	332	0.985163	2.17442	9.473314515	4.728102
4.3567088	333	0.988131	2.261331	9.851961803	5.113619
4.5031375	334	0.991098	2.36967	10.6709509	5.615337
4.6634391	335	0.994065	2.51599	11.73316502	6.330204
4.7590065	336	0.997033	2.751403	13.09394662	7.570221

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
21	3.044522438	1	0.00206	-2.8687	-60.2425	8.229393	-8.733796578
21	3.044522438	2	0.00500	-2.5757	-54.0895	6.634174	-7.841742939
21	3.044522438	3	0.00797	-2.4101	-50.6111	5.80835	-7.337456843
21	3.044522438	4	0.01095	-2.2922	-48.1354	5.254012	-6.978542041
25	3.218875825	5	0.01392	-2.1995	-54.9876	4.837817	-7.079929598
26.5	3.277144733	6	0.01689	-2.1226	-56.2488	4.505418	-6.956057333
27.2	3.303216973	7	0.01987	-2.0565	-55.9369	4.229208	-6.793078737
27.3	3.306886702	8	0.02284	-1.9983	-54.5547	3.99337	-6.608289788
27.59	3.317453388	9	0.02581	-1.9462	-53.6969	3.787873	-6.456580063
28	3.33220451	10	0.02879	-1.8989	-53.1704	3.605985	-6.327666705
28	3.33220451	11	0.03176	-1.8556	-51.9554	3.44307	-6.183075713
28	3.33220451	12	0.03473	-1.8154	-50.8311	3.295666	-6.049273736
28	3.33220451	13	0.03770	-1.7780	-49.7831	3.161165	-5.924548473
28	3.33220451	14	0.04068	-1.7429	-48.8005	3.037609	-5.80761191
28	3.33220451	15	0.04365	-1.7098	-47.8747	2.923447	-5.697433635
28	3.33220451	16	0.04662	-1.6785	-46.9984	2.817407	-5.59314992
28	3.33220451	17	0.04960	-1.6488	-46.1658	2.718467	-5.494063722
28.5	3.349904087	18	0.05257	-1.6204	-46.1825	2.625818	-5.42831059
28.5	3.349904087	19	0.05554	-1.5933	-45.41	2.538715	-5.337518334
28.6	3.353406718	20	0.05852	-1.5674	-44.8265	2.456616	-5.255993891
29	3.36729583	21	0.06149	-1.5424	-44.7296	2.378993	-5.193711776
30.5	3.417726684	22	0.06446	-1.5184	-46.3101	2.305432	-5.189356661
31	3.433987204	23	0.06743	-1.4952	-46.3505	2.235556	-5.134420257
31	3.433987204	24	0.07041	-1.4728	-45.6558	2.169044	-5.057464777
31	3.433987204	25	0.07338	-1.4511	-44.9832	2.105609	-4.982961004
31	3.433987204	26	0.07635	-1.4300	-44.3312	2.045013	-4.910737162
31	3.433987204	27	0.07933	-1.4096	-43.6983	1.987032	-4.840621476
31.25	3.442019376	28	0.08230	-1.3898	-43.4304	1.931465	-4.783620669
32	3.465735903	29	0.08527	-1.3705	-43.8547	1.878156	-4.74964705
32	3.465735903	30	0.08824	-1.3516	-43.2525	1.826933	-4.684430754
32.9	3.493472658	31	0.09122	-1.3333	-43.8653	1.777667	-4.657818965
33	3.496507561	32	0.09419	-1.3154	-43.4076	1.730229	-4.599242143
35	3.555348061	33	0.09716	-1.2979	-45.4259	1.6845	-4.61442597
35	3.555348061	34	0.10014	-1.2808	-44.8271	1.64038	-4.55359443
35	3.555348061	35	0.10311	-1.2640	-44.241	1.59777	-4.494064402

**Normal**

4143.660 =sum X(i)\*M(i)  
 331.203 =sum M(i)^2  
 12.77 = standard deviation  
 18.1990 = square root of sum Mi<sup>2</sup>  
  
 0.974 = Filliben's Statistic

**Lognormal**

84.712 =sum X(i)\*M(i)  
 331.203 =sum M(i)^2  
 0.26 = standard deviation  
 18.1990 = square root of sum Mi<sup>2</sup>  
  
 0.960 = Filliben's Statistic

.987+ is acceptable value

**Normal - Fail****Lognormal - Fail**

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
35	3.555348061	36	0.10608	-1.2476	-43.6672	1.556589	-4.435771215
35	3.555348061	37	0.10906	-1.2316	-43.1048	1.516752	-4.378642113
35	3.555348061	38	0.11203	-1.2158	-42.5534	1.478195	-4.322628593
35	3.555348061	39	0.11500	-1.2004	-42.0123	1.440843	-4.267665983
35	3.555348061	40	0.11797	-1.1852	-41.4811	1.404637	-4.21370578
35	3.555348061	41	0.12095	-1.1703	-40.9593	1.36952	-4.16069948
35	3.555348061	42	0.12392	-1.1556	-40.4463	1.335431	-4.108590496
35	3.555348061	43	0.12689	-1.1412	-39.942	1.302337	-4.057362659
35	3.555348061	44	0.12987	-1.1270	-39.4458	1.270181	-4.006959383
35	3.555348061	45	0.13284	-1.1131	-38.9574	1.238923	-3.957348332
35	3.555348061	46	0.13581	-1.0993	-38.4765	1.208524	-3.90849717
35	3.555348061	47	0.13879	-1.0858	-38.0028	1.178947	-3.860373561
35	3.555348061	48	0.14176	-1.0725	-37.5359	1.150156	-3.81294517
35	3.555348061	49	0.14473	-1.0593	-37.0756	1.122121	-3.766187744
36	3.583518938	50	0.14770	-1.0463	-37.6679	1.094807	-3.749544996
38	3.63758616	51	0.15068	-1.0335	-39.2743	1.068192	-3.759568475
39.65	3.680090948	52	0.15365	-1.0209	-40.4788	1.042243	-3.757016829
40	3.688879454	53	0.15662	-1.0084	-40.3374	1.016939	-3.719991769
42	3.737669618	54	0.15960	-0.9961	-41.837	0.992254	-3.723165683
42.55	3.750679855	55	0.16257	-0.9840	-41.8673	0.968168	-3.690500321
43	3.761200116	56	0.16554	-0.9719	-41.7932	0.944655	-3.655637471
43	3.761200116	57	0.16851	-0.9601	-41.2822	0.921698	-3.610944829
43	3.761200116	58	0.17149	-0.9483	-40.777	0.899278	-3.566756754
43	3.761200116	59	0.17446	-0.9367	-40.2774	0.877377	-3.523056142
43	3.761200116	60	0.17743	-0.9252	-39.7831	0.855973	-3.479817336
43	3.761200116	61	0.18041	-0.9138	-39.2941	0.835062	-3.43704889
43	3.761200116	62	0.18338	-0.9026	-38.8101	0.814614	-3.394708042
43	3.761200116	63	0.18635	-0.8914	-38.3309	0.794623	-3.352794793
43	3.761200116	64	0.18933	-0.8804	-37.8565	0.775076	-3.311300591
43	3.761200116	65	0.19230	-0.8695	-37.3866	0.755955	-3.27019978
43	3.761200116	66	0.19527	-0.8586	-36.9212	0.737251	-3.229492361
43	3.761200116	67	0.19824	-0.8479	-36.4601	0.718948	-3.189152676
43	3.761200116	68	0.20122	-0.8373	-36.0031	0.701039	-3.149180726
43	3.761200116	69	0.20419	-0.8267	-35.5501	0.68351	-3.109559408
43	3.761200116	70	0.20716	-0.8163	-35.101	0.666351	-3.070280169
43	3.761200116	71	0.21014	-0.8059	-34.6558	0.649553	-3.031334456
43	3.761200116	72	0.21311	-0.7957	-34.2142	0.633104	-2.992705168
43	3.761200116	73	0.21608	-0.7855	-33.7762	0.616999	-2.954396578
43	3.761200116	74	0.21906	-0.7754	-33.3417	0.601226	-2.916387307
44.05	3.785325352	75	0.22203	-0.7654	-33.7142	0.585778	-2.897141881
44.8	3.802208139	76	0.22500	-0.7554	-33.8424	0.570645	-2.872227507
45.3	3.813307032	77	0.22797	-0.7455	-33.7728	0.555823	-2.842955934
45.5	3.817712326	78	0.23095	-0.7357	-33.4758	0.5413	-2.808810038
45.7	3.822098298	79	0.23392	-0.7260	-33.1781	0.527072	-2.774833138
46.3	3.835141961	80	0.23689	-0.7163	-33.1662	0.513131	-2.747233644

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
47.2	3.854393893	81	0.23987	-0.7067	-33.3579	0.499473	-2.724032087
48	3.871201011	82	0.24284	-0.6972	-33.4656	0.486088	-2.699003081
48	3.871201011	83	0.24581	-0.6877	-33.0109	0.47297	-2.662333566
48	3.871201011	84	0.24878	-0.6783	-32.5593	0.460117	-2.625910509
48	3.871201011	85	0.25176	-0.6690	-32.1104	0.447517	-2.589707504
48.1	3.873282177	86	0.25473	-0.6597	-31.7305	0.435174	-2.555115054
48.4	3.879499814	87	0.25770	-0.6504	-31.4813	0.423074	-2.523385941
48.5	3.881563798	88	0.26068	-0.6413	-31.1011	0.411214	-2.489090449
48.7	3.88567903	89	0.26365	-0.6321	-30.7849	0.399593	-2.456270064
48.8	3.887730313	90	0.26662	-0.6231	-30.4053	0.388203	-2.422287605
48.9	3.889777396	91	0.26960	-0.6140	-30.0264	0.377041	-2.388464337
49	3.891820298	92	0.27257	-0.6051	-29.6481	0.366101	-2.354796274
49	3.891820298	93	0.27554	-0.5961	-29.2107	0.35538	-2.320059623
49.1	3.893859035	94	0.27851	-0.5873	-28.8345	0.344875	-2.286710495
49.2	3.895893623	95	0.28149	-0.5784	-28.4587	0.334579	-2.253495509
49.2	3.895893623	96	0.28446	-0.5696	-28.0264	0.324491	-2.219262854
49.5	3.90197267	97	0.28743	-0.5609	-27.7645	0.314608	-2.188612666
49.7	3.906004933	98	0.29041	-0.5522	-27.4442	0.304922	-2.156885903
49.8	3.908014984	99	0.29338	-0.5435	-27.0682	0.295435	-2.124158732
50	3.912023005	100	0.29635	-0.5349	-26.7461	0.286141	-2.092625537
50	3.912023005	101	0.29933	-0.5263	-26.3171	0.277037	-2.05906504
50	3.912023005	102	0.30230	-0.5178	-25.8901	0.26812	-2.025655756
50	3.912023005	103	0.30527	-0.5093	-25.465	0.259386	-1.992393238
50	3.912023005	104	0.30824	-0.5008	-25.0417	0.250834	-1.959273039
50	3.912023005	105	0.31122	-0.4924	-24.6202	0.242462	-1.926295158
50	3.912023005	106	0.31419	-0.4840	-24.2004	0.234264	-1.893450701
50	3.912023005	107	0.31716	-0.4756	-23.7824	0.226241	-1.860744116
50	3.912023005	108	0.32014	-0.4673	-23.3659	0.218387	-1.828162058
50	3.912023005	109	0.32311	-0.4590	-22.9512	0.210702	-1.795708978
50	3.912023005	110	0.32608	-0.4508	-22.538	0.203184	-1.763380425
50	3.912023005	111	0.32905	-0.4425	-22.1262	0.195828	-1.731167507
50	3.912023005	112	0.33203	-0.4343	-21.7161	0.188635	-1.69907467
50	3.912023005	113	0.33500	-0.4261	-21.3073	0.1816	-1.667093019
50	3.912023005	114	0.33797	-0.4180	-20.9	0.174723	-1.635222555
50	3.912023005	115	0.34095	-0.4099	-20.4941	0.168003	-1.603467725
50	3.912023005	116	0.34392	-0.4018	-20.0895	0.161435	-1.571810738
50	3.912023005	117	0.34689	-0.3937	-19.6862	0.155018	-1.540256043
50	3.912023005	118	0.34987	-0.3857	-19.2842	0.148752	-1.50880364
50	3.912023005	119	0.35284	-0.3777	-18.8834	0.142634	-1.47744908
50	3.912023005	120	0.35581	-0.3697	-18.4839	0.136662	-1.446187917
50	3.912023005	121	0.35878	-0.3617	-18.0855	0.130835	-1.415020151
50	3.912023005	122	0.36176	-0.3538	-17.6883	0.12515	-1.383941334
50	3.912023005	123	0.36473	-0.3458	-17.2922	0.119608	-1.352947018
50	3.912023005	124	0.36770	-0.3379	-16.8972	0.114206	-1.322041651
50	3.912023005	125	0.37068	-0.3301	-16.5031	0.108941	-1.291211892

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
50	3.912023005	126	0.37365	-0.3222	-16.1102	0.103816	-1.260471081
50	3.912023005	127	0.37662	-0.3144	-15.7182	0.098825	-1.22980143
50	3.912023005	128	0.37960	-0.3065	-15.3273	0.09397	-1.199211832
50	3.912023005	129	0.38257	-0.2987	-14.9372	0.089248	-1.168693395
50	3.912023005	130	0.38554	-0.2910	-14.548	0.084658	-1.138241669
50	3.912023005	131	0.38851	-0.2832	-14.1597	0.080199	-1.107861102
50	3.912023005	132	0.39149	-0.2754	-13.7723	0.075871	-1.077551694
50	3.912023005	133	0.39446	-0.2677	-13.3857	0.071671	-1.047304551
50	3.912023005	134	0.39743	-0.2600	-12.9999	0.067599	-1.017115225
50	3.912023005	135	0.40041	-0.2523	-12.6149	0.063654	-0.986992611
50	3.912023005	136	0.40338	-0.2446	-12.2305	0.059834	-0.956923366
50	3.912023005	137	0.40635	-0.2369	-11.847	0.05614	-0.926911938
50	3.912023005	138	0.40932	-0.2293	-11.4641	0.05257	-0.896958327
50	3.912023005	139	0.41230	-0.2216	-11.082	0.049124	-0.867058085
50	3.912023005	140	0.41527	-0.2140	-10.7004	0.045799	-0.837202318
50	3.912023005	141	0.41824	-0.2064	-10.3195	0.042597	-0.80739992
50	3.912023005	142	0.42122	-0.1988	-9.93913	0.039515	-0.777641997
50	3.912023005	143	0.42419	-0.1912	-9.55936	0.036553	-0.747928549
50	3.912023005	144	0.42716	-0.1836	-9.18016	0.03371	-0.718259575
50	3.912023005	145	0.43014	-0.1760	-8.80146	0.030986	-0.688630628
50	3.912023005	146	0.43311	-0.1685	-8.42329	0.028381	-0.659041708
50	3.912023005	147	0.43608	-0.1609	-8.04562	0.025893	-0.629492815
50	3.912023005	148	0.43905	-0.1534	-7.66835	0.023521	-0.599975055
50	3.912023005	149	0.44203	-0.1458	-7.29153	0.021267	-0.570492874
50.1	3.914021008	150	0.44500	-0.1383	-6.929	0.019128	-0.541322604
50.5	3.921973336	151	0.44797	-0.1308	-6.60454	0.017104	-0.512927691
50.5	3.921973336	152	0.45095	-0.1233	-6.22517	0.015196	-0.483464156
50.7	3.925925911	153	0.45392	-0.1158	-5.86929	0.013402	-0.454484943
50.9	3.929862924	154	0.45689	-0.1083	-5.51075	0.011722	-0.425471519
51	3.931825633	155	0.45987	-0.1008	-5.13949	0.010155	-0.396226924
51.1	3.933784497	156	0.46284	-0.0933	-4.76696	0.008702	-0.366970449
51.25	3.936715618	157	0.46581	-0.0858	-4.39746	0.007362	-0.337785962
51.45	3.940610462	158	0.46878	-0.0783	-4.02991	0.006135	-0.308655489
51.5	3.941581808	159	0.47176	-0.0709	-3.64899	0.00502	-0.279277566
51.75	3.946424432	160	0.47473	-0.0634	-3.28017	0.004018	-0.250143953
51.8	3.947390149	161	0.47770	-0.0559	-2.89667	0.003127	-0.220739169
51.8	3.947390149	162	0.48068	-0.0485	-2.51012	0.002348	-0.191282149
51.9	3.94931879	163	0.48365	-0.0410	-2.12778	0.001681	-0.161913174
51.9	3.94931879	164	0.48662	-0.0335	-1.74072	0.001125	-0.132459721
51.9	3.94931879	165	0.48959	-0.0261	-1.35383	0.00068	-0.103019738
52	3.951243719	166	0.49257	-0.0186	-0.96881	0.000347	-0.073615618
52	3.951243719	167	0.49554	-0.0112	-0.58124	0.000125	-0.044165777
52	3.951243719	168	0.49851	-0.0037	-0.19379	1.39E-05	-0.01472492
52.1	3.953164949	169	0.50149	0.0037	0.194159	1.39E-05	0.01473208
52.3	3.956996371	170	0.50446	0.0112	0.584593	0.000125	0.044230078

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
52.4	3.958906591	171	0.50743	0.0186	0.976264	0.000347	0.073758385
52.5	3.96081317	172	0.51041	0.0261	1.369486	0.00068	0.103319574
52.8	3.966511191	173	0.51338	0.0335	1.770906	0.001125	0.133036352
52.85	3.967457712	174	0.51635	0.0410	2.166731	0.001681	0.162656829
52.9	3.968403339	175	0.51932	0.0485	2.563422	0.002348	0.192300404
53	3.970291914	176	0.52230	0.0559	2.963775	0.003127	0.222019842
53	3.970291914	177	0.52527	0.0634	3.359403	0.004018	0.251656792
53	3.970291914	178	0.52824	0.0709	3.755272	0.00502	0.281311797
53	3.970291914	179	0.53122	0.0783	4.151321	0.006135	0.310980342
53	3.970291914	180	0.53419	0.0858	4.547612	0.007362	0.340666943
53.15	3.973118105	181	0.53716	0.0933	4.958197	0.008702	0.370639758
53.2	3.974058396	182	0.54013	0.1008	5.361192	0.010155	0.4004829
53.2	3.974058396	183	0.54311	0.1083	5.759764	0.011722	0.430256397
53.25	3.974997805	184	0.54608	0.1158	6.164488	0.013402	0.460165752
53.25	3.974997805	185	0.54905	0.1233	6.564161	0.015196	0.490000516
53.3	3.975936331	186	0.55203	0.1308	6.970737	0.017104	0.519985137
53.3	3.975936331	187	0.55500	0.1383	7.371574	0.019128	0.549885706
53.9	3.987130478	188	0.55797	0.1458	7.860272	0.021267	0.581445846
53.9	3.987130478	189	0.56095	0.1534	8.266479	0.023521	0.611494059
54	3.988984047	190	0.56392	0.1609	8.689267	0.025893	0.641876797
54	3.988984047	191	0.56689	0.1685	9.097148	0.028381	0.672007004
54	3.988984047	192	0.56986	0.1760	9.505582	0.030986	0.702178025
54	3.988984047	193	0.57284	0.1836	9.914568	0.03371	0.732389861
54	3.988984047	194	0.57581	0.1912	10.32411	0.036553	0.762642511
54.1	3.990834186	195	0.57878	0.1988	10.75414	0.039515	0.793308286
54.15	3.991757973	196	0.58176	0.2064	11.17598	0.042597	0.823856369
54.4	3.996364154	197	0.58473	0.2140	11.64201	0.045799	0.855251957
54.4	3.996364154	198	0.58770	0.2216	12.05718	0.049124	0.885751399
54.6	4.000033883	199	0.59068	0.2293	12.51882	0.05257	0.917137679
54.6	4.000033883	200	0.59365	0.2369	12.93689	0.05614	0.947765172
54.6	4.000033883	201	0.59662	0.2446	13.35575	0.059834	0.978451783
54.65	4.000949215	202	0.59959	0.2523	13.78804	0.063654	1.009428448
55	4.007333185	203	0.60257	0.2600	14.29985	0.067599	1.04189561
55	4.007333185	204	0.60554	0.2677	14.72429	0.071671	1.07282045
55	4.007333185	205	0.60851	0.2754	15.14954	0.075871	1.103804517
55.1	4.009149716	206	0.61149	0.2832	15.60398	0.080199	1.135366795
55.2	4.010962953	207	0.61446	0.2910	16.06098	0.084658	1.167029222
55.4	4.014579594	208	0.61743	0.2987	16.55042	0.089248	1.19933156
55.4	4.014579594	209	0.62040	0.3065	16.9826	0.09397	1.230650061
55.4	4.014579594	210	0.62338	0.3144	17.4158	0.098825	1.262041587
55.5	4.016383021	211	0.62635	0.3222	17.88234	0.103816	1.294096339
55.7	4.019980147	212	0.62932	0.3301	18.38448	0.108941	1.32684449
55.7	4.019980147	213	0.63230	0.3379	18.82344	0.114206	1.358525035
55.7	4.019980147	214	0.63527	0.3458	19.26347	0.119608	1.390283274
55.7	4.019980147	215	0.63824	0.3538	19.70477	0.12515	1.422132916

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
55.9	4.02356438	216	0.64122	0.3617	20.21962	0.130835	1.455365847
56	4.025351691	217	0.64419	0.3697	20.70195	0.136662	1.488083012
56	4.025351691	218	0.64716	0.3777	21.14945	0.142634	1.52024979
56	4.025351691	219	0.65013	0.3857	21.59829	0.148752	1.55251267
56	4.025351691	220	0.65311	0.3937	22.04853	0.155018	1.584876229
56	4.025351691	221	0.65608	0.4018	22.50023	0.161435	1.617345042
56.15	4.028026681	222	0.65905	0.4099	23.01487	0.168003	1.65101554
56.2	4.028916757	223	0.66203	0.4180	23.49156	0.174723	1.684084052
56.3	4.030694535	224	0.66500	0.4261	23.99202	0.1816	1.717664419
56.5	4.034240638	225	0.66797	0.4343	24.53915	0.188635	1.752156383
56.6	4.036008985	226	0.67095	0.4425	25.04691	0.195828	1.786034388
56.6	4.036008985	227	0.67392	0.4508	25.51297	0.203184	1.819268248
56.8	4.039536326	228	0.67689	0.4590	26.07251	0.210702	1.854240539
56.8	4.039536326	229	0.67986	0.4673	26.54371	0.218387	1.887751436
57	4.043051268	230	0.68284	0.4756	27.11191	0.226241	1.923067386
57	4.043051268	231	0.68581	0.4840	27.58846	0.234264	1.956869438
57	4.043051268	232	0.68878	0.4924	28.06702	0.242462	1.990813978
57	4.043051268	233	0.69176	0.5008	28.54752	0.250834	2.024896411
57	4.043051268	234	0.69473	0.5093	29.0301	0.259386	2.05912593
57	4.043051268	235	0.69770	0.5178	29.51475	0.26812	2.093502533
57	4.043051268	236	0.70067	0.5263	30.00154	0.277037	2.128030819
57	4.043051268	237	0.70365	0.5349	30.49053	0.286141	2.162715383
57	4.043051268	238	0.70662	0.5435	30.98173	0.295435	2.197556225
57	4.043051268	239	0.70959	0.5522	31.47525	0.304922	2.232562537
57	4.043051268	240	0.71257	0.5609	31.97124	0.314608	2.267743514
57	4.043051268	241	0.71554	0.5696	32.46957	0.324491	2.303089962
57	4.043051268	242	0.71851	0.5784	32.97042	0.334579	2.33861567
57	4.043051268	243	0.72149	0.5873	33.47386	0.344875	2.374325235
57	4.043051268	244	0.72446	0.5961	33.97983	0.35538	2.41021406
57	4.043051268	245	0.72743	0.6051	34.48859	0.366101	2.446300531
57	4.043051268	246	0.73040	0.6140	35.00007	0.377041	2.482580051
57	4.043051268	247	0.73338	0.6231	35.5144	0.388203	2.519061814
57	4.043051268	248	0.73635	0.6321	36.03164	0.399593	2.555750415
57	4.043051268	249	0.73932	0.6413	36.5518	0.411214	2.592645856
57	4.043051268	250	0.74230	0.6504	37.07514	0.423074	2.62976652
57.2	4.046553898	251	0.74527	0.6597	37.73352	0.435174	2.669418418
57.3	4.048300624	252	0.74824	0.6690	38.33184	0.447517	2.708181382
57.4	4.050044303	253	0.75122	0.6783	38.93553	0.460117	2.747223373
57.7	4.055257174	254	0.75419	0.6877	39.68191	0.47297	2.788914153
58	4.060443011	255	0.75716	0.6972	40.43763	0.486088	2.830942688
58	4.060443011	256	0.76013	0.7067	40.99059	0.499473	2.869654051
58.8	4.074141855	257	0.76311	0.7163	42.1203	0.513131	2.918436837
59.6	4.087655574	258	0.76608	0.7260	43.26944	0.527072	2.96762701
60.6	4.104294893	259	0.76905	0.7357	44.58531	0.5413	3.019657772
61	4.110873864	260	0.77203	0.7455	45.47767	0.555823	3.064802584

Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
61	4.110873864	261	0.77500	0.7554	46.08003	0.570645	3.105396801
61	4.110873864	262	0.77797	0.7654	46.68704	0.585778	3.146304143
61	4.110873864	263	0.78094	0.7754	47.29863	0.601226	3.187519938
61	4.110873864	264	0.78392	0.7855	47.91508	0.616999	3.22906288
61.1	4.112511866	265	0.78689	0.7957	48.61594	0.633104	3.27223629
61.3	4.115779843	266	0.78986	0.8059	49.40466	0.649553	3.317107537
61.7	4.122283931	267	0.79284	0.8163	50.36592	0.666351	3.365034088
61.8	4.123903364	268	0.79581	0.8267	51.09294	0.68351	3.409423086
62	4.127134385	269	0.79878	0.8373	51.91141	0.701039	3.455570472
62	4.127134385	270	0.80176	0.8479	52.57031	0.718948	3.499431368
62.4	4.133565275	271	0.80473	0.8586	53.57873	0.737251	3.549217555
62.5	4.135166557	272	0.80770	0.8695	54.34103	0.755955	3.595347323
62.8	4.139955073	273	0.81067	0.8804	55.28812	0.775076	3.644750415
63	4.143134726	274	0.81365	0.8914	56.15922	0.794623	3.6932575
63	4.143134726	275	0.81662	0.9026	56.86127	0.814614	3.739426869
63.5	4.151039906	276	0.81959	0.9138	58.02738	0.835062	3.793291146
64	4.158883083	277	0.82257	0.9252	59.21203	0.855973	3.847748859
64	4.158883083	278	0.82554	0.9367	59.94778	0.877377	3.895559433
64	4.158883083	279	0.82851	0.9483	60.69138	0.899278	3.943880642
64	4.158883083	280	0.83149	0.9601	61.44328	0.921698	3.992740855
64	4.158883083	281	0.83446	0.9719	62.20376	0.944655	4.042158984
64	4.158883083	282	0.83743	0.9840	62.97312	0.968168	4.092153942
64	4.158883083	283	0.84040	0.9961	63.75165	0.992254	4.14274464
64	4.158883083	284	0.84338	1.0084	64.53978	1.016939	4.193959448
64	4.158883083	285	0.84635	1.0209	65.33781	1.042243	4.245817278
64	4.158883083	286	0.84932	1.0335	66.14617	1.068192	4.298346499
64	4.158883083	287	0.85230	1.0463	66.96515	1.094807	4.351566022
64	4.158883083	288	0.85527	1.0593	67.79534	1.122121	4.405513674
64	4.158883083	289	0.85824	1.0725	68.63702	1.150156	4.460208365
64	4.158883083	290	0.86121	1.0858	69.49078	1.178947	4.515687922
64	4.158883083	291	0.86419	1.0993	70.35705	1.208524	4.571980712
64	4.158883083	292	0.86716	1.1131	71.23643	1.238923	4.629124561
64	4.158883083	293	0.87013	1.1270	72.12948	1.270181	4.687157293
65	4.17438727	294	0.87311	1.1412	74.17799	1.302337	4.763810108
65	4.17438727	295	0.87608	1.1556	75.11455	1.335431	4.823957476
65	4.17438727	296	0.87905	1.1703	76.06723	1.36952	4.885139413
65.1	4.175924549	297	0.88203	1.1852	77.15482	1.404637	4.949196845
65.35	4.17975744	298	0.88500	1.2004	78.44294	1.440843	5.017176472
65.5	4.182050143	299	0.88797	1.2158	79.63557	1.478195	5.084579403
65.6	4.183575696	300	0.89094	1.2316	80.79066	1.516752	5.152345258
65.9	4.188138442	301	0.89392	1.2476	82.21905	1.556589	5.225261668
66	4.189654742	302	0.89689	1.2640	83.42594	1.59777	5.295846682
66.35	4.194943761	303	0.89986	1.2808	84.9793	1.64038	5.372771445
67	4.204692619	304	0.90284	1.2979	86.95816	1.6845	5.457199262
67.1	4.206184044	305	0.90581	1.3154	88.26211	1.730229	5.532737617



Table A-17. Chloride Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
67.4	4.210645018	306	0.90878	1.3333	89.86388	1.777667	5.614019098
68	4.219507705	307	0.91176	1.3516	91.91159	1.826933	5.703259629
68.2	4.222444565	308	0.91473	1.3705	93.46527	1.878156	5.786684829
68.3	4.223909767	309	0.91770	1.3898	94.9214	1.931465	5.870269703
68.5	4.226833745	310	0.92067	1.4096	96.55906	1.987032	5.95823484
69	4.234106505	311	0.92365	1.4300	98.67272	2.045013	6.054939324
70.1	4.249922794	312	0.92662	1.4511	101.7201	2.105609	6.166941894
71	4.262679877	313	0.92959	1.4728	104.5665	2.169044	6.27793642
71	4.262679877	314	0.93257	1.4952	106.1576	2.235556	6.37346286
71	4.262679877	315	0.93554	1.5184	107.8039	2.305432	6.472304037
71	4.262679877	316	0.93851	1.5424	109.5103	2.378993	6.574750717
71	4.262679877	317	0.94148	1.5674	111.2825	2.456616	6.68115182
71	4.262679877	318	0.94446	1.5933	113.1268	2.538715	6.791875648
71	4.262679877	319	0.94743	1.6204	115.0511	2.625818	6.907406814
71	4.262679877	320	0.95040	1.6488	117.0632	2.718467	7.028210544
71	4.262679877	321	0.95338	1.6785	119.1745	2.817407	7.154965291
71	4.262679877	322	0.95635	1.7098	121.3964	2.923447	7.288368896
71.45	4.268997904	323	0.95932	1.7429	124.5283	3.037609	7.440324565
72.1	4.278054044	324	0.96230	1.7780	128.1914	3.161165	7.606237396
73.6	4.298645026	325	0.96527	1.8154	133.6132	3.295666	7.803746852
76	4.33073334	326	0.96824	1.8556	141.0219	3.44307	8.035896972
76	4.33073334	327	0.97121	1.8989	144.3197	3.605985	8.22381612
76	4.33073334	328	0.97419	1.9462	147.9147	3.787873	8.428672017
76	4.33073334	329	0.97716	1.9983	151.874	3.99337	8.65428528
78	4.356708827	330	0.98013	2.0565	160.4073	4.229208	8.959588889
78	4.356708827	331	0.98311	2.1226	165.5626	4.505418	9.247536758
78	4.356708827	332	0.98608	2.1995	171.5613	4.837817	9.582597606
78	4.356708827	333	0.98905	2.2922	178.7887	5.254012	9.986287284
90.3	4.50313746	334	0.99203	2.4101	217.6277	5.80835	10.85279463
106	4.663439094	335	0.99500	2.5757	273.023	6.634174	12.01156876
116.63	4.759006531	336	0.99794	2.8687	334.5755	8.229393	13.65212305

Table A-18. Chloride Near Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Coefficient of Skewness (-1 to 1)	Shapiro-Francia Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Chloride	Normal	Pass	Fail	Pass	Fail	Fail	X	X	336	Nonparametric
Chloride	Lognormal	Pass	NA	Pass	Fail	Fail			336	

NA - not applicable

Table A-19.  $T_n$  Statistic Analysis for Chloride Near Upgradient Background Data Set

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	$T_n$ Statistic	N	Upper 5% Critical Value	Pass or Fail $T_n$ Statistic
Chloride	Normal	116.63	52.20	12.77	5.044	336	3.34+	Fail
Chloride	Normal	106	52.01	12.30	4.391	335	3.34+	Fail
Chloride	Normal	90.3	51.84	11.95	3.217	334	3.34+	Pass

N - number of samples

Table A-21. 95th Percentile for Near Upgradient Chloride Background Data Set

Parameter	Distribution	Censored?	95th Percentile (mg/L)	Sample #
Chloride	Nonparametric	No	71.00	336

SD = standard deviation

Table A-22. Summary Table for Near Upgradient Chloride Background Data Set

Parameter	Distribution	Mean	SD	95th Percentile (mg/L)	Range (normal)	Sample #
Chloride	Nonparametric	52.20	12.77	71.00	116.63 to 21	336

SD = standard deviation

ND = non-detect, concentration reported as the minimum detectable activity (MDA)

Table A-20. Chloride Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis (censored data set)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
21	1	0.002985	-2.74944	-57.73821613	7.559414
21	2	0.00597	-2.51392	-52.79223842	6.319774
21	3	0.008955	-2.36747	-49.71685485	5.604911
21	4	0.01194	-2.25904	-47.43982572	5.103259
25	5	0.014925	-2.17206	-54.30160854	4.717864
26.5	6	0.01791	-2.09895	-55.62217666	4.405591
27.2	7	0.020896	-2.03559	-55.3681748	4.143646
27.3	8	0.023881	-1.97949	-54.04002059	3.918372
27.59	9	0.026866	-1.92899	-53.22091101	3.721013
28	10	0.029851	-1.88299	-52.72373528	3.545653
28	11	0.032836	-1.84065	-51.53829989	3.388006
28	12	0.035821	-1.80139	-50.43893907	3.245008
28	13	0.038806	-1.76471	-49.41190127	3.114204
28	14	0.041791	-1.73027	-48.44750947	2.993828
28	15	0.044776	-1.69776	-47.53735993	2.882399
28	16	0.047761	-1.66696	-46.67483154	2.77875
28	17	0.050746	-1.63766	-45.85444913	2.681927
28.5	18	0.053731	-1.60971	-45.87660897	2.591152
28.5	19	0.056716	-1.58295	-45.11402494	2.505725
28.6	20	0.059701	-1.55728	-44.53827387	2.425128
29	21	0.062687	-1.53261	-44.44562364	2.348886
30.5	22	0.065672	-1.50882	-46.01914497	2.276551
31	23	0.068657	-1.48587	-46.06193215	2.207806
31	24	0.071642	-1.46367	-45.37384939	2.142337
31	25	0.074627	-1.44217	-44.70733529	2.07986
31	26	0.077612	-1.42132	-44.06098014	2.020156
31	27	0.080597	-1.40107	-43.43309229	1.96299
31.25	28	0.083582	-1.38137	-43.16788704	1.90819
32	29	0.086567	-1.3622	-43.59040759	1.855589
32	30	0.089552	-1.34352	-42.99261491	1.805044
32.9	31	0.092537	-1.32529	-43.60213779	1.756401
33	32	0.095522	-1.30749	-43.14730631	1.709541
35	33	0.098507	-1.2901	-45.15366072	1.66437
35	34	0.101493	-1.27309	-44.55823728	1.620764
35	35	0.104478	-1.25644	-43.97554676	1.578652
35	36	0.107463	-1.24014	-43.40479336	1.53794
35	37	0.110448	-1.22415	-42.84526085	1.498544
35	38	0.113433	-1.20847	-42.29655133	1.460407
35	39	0.116418	-1.19309	-41.75802815	1.423455
35	40	0.119403	-1.17798	-41.22921382	1.387631
35	41	0.122388	-1.16313	-40.70963087	1.352877
35	42	0.125373	-1.14854	-40.19888138	1.319143
35	43	0.128358	-1.13419	-39.69648787	1.286376
35	44	0.131343	-1.12006	-39.20221161	1.254542
35	45	0.134328	-1.10616	-38.71565468	1.223593
35	46	0.137313	-1.09247	-38.23641919	1.193489
35	47	0.140299	-1.07898	-37.76426638	1.164196
35	48	0.143284	-1.06568	-37.29887794	1.135679
35	49	0.146269	-1.05257	-36.84001513	1.107908
36	50	0.149254	-1.03964	-37.42699846	1.080849
38	51	0.152239	-1.02688	-39.02138815	1.05448
39.65	52	0.155224	-1.01428	-40.21628661	1.028768
40	53	0.158209	-1.00185	-40.0738827	1.003698
42	54	0.161194	-0.98956	-41.56160685	0.979233
42.55	55	0.164179	-0.97743	-41.58952459	0.955364
43	56	0.167164	-0.96543	-41.51362646	0.932061
43	57	0.170149	-0.95358	-41.00375236	0.909306
43	58	0.173134	-0.94185	-40.49964673	0.887086
43	59	0.176119	-0.93026	-40.00101626	0.865377
43	60	0.179104	-0.91878	-39.50766541	0.844162

Chloride - normal

$14943537 = (\text{sum of } M_i * X_i)^2$

333 = count -1

$142.8604 = \text{standard deviation}^2$

$324.0733 = \text{sum of } M_i^2$

0.969 = W statistic

0.976 is acceptable low value

**Falls Shapiro-Francia test**

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
43	61	0.18209	-0.90743	-39.0194964	0.823429
43	62	0.185075	-0.89619	-38.5363137	0.803163
43	63	0.18806	-0.88507	-38.05792176	0.783345
43	64	0.191045	-0.87405	-37.58422281	0.763966
43	65	0.19403	-0.86314	-37.11511908	0.745015
43	66	0.197015	-0.85233	-36.65026838	0.72647
43	67	0.2	-0.84162	-36.18971959	0.708327
43	68	0.202985	-0.83101	-35.73322829	0.69057
43	69	0.20597	-0.82048	-35.28084335	0.673195
43	70	0.208955	-0.81005	-34.8321737	0.656182
43	71	0.21194	-0.79971	-34.38741487	0.639532
43	72	0.214925	-0.78945	-33.94617579	0.623225
43	73	0.21791	-0.77927	-33.50855422	0.60726
43	74	0.220896	-0.76917	-33.07435463	0.591624
44.05	75	0.223881	-0.75915	-33.44068762	0.576313
44.8	76	0.226866	-0.74921	-33.56450179	0.561312
45.3	77	0.229851	-0.73934	-33.49198141	0.54662
45.5	78	0.232836	-0.72954	-33.19406119	0.532228
45.7	79	0.235821	-0.71981	-32.89533925	0.518127
46.3	80	0.238806	-0.71015	-32.87991626	0.504312
47.2	81	0.241791	-0.70055	-33.0660514	0.490773
48	82	0.244776	-0.69102	-33.16898074	0.477509
48	83	0.247761	-0.68155	-32.71446985	0.464512
48	84	0.250746	-0.67214	-32.26290573	0.451777
48	85	0.253731	-0.66279	-31.81412467	0.439296
48.1	86	0.256716	-0.6535	-31.43342224	0.427064
48.4	87	0.259701	-0.64427	-31.18245422	0.415078
48.5	88	0.262687	-0.63508	-30.80158535	0.403332
48.7	89	0.265672	-0.62596	-30.48412805	0.391823
48.8	90	0.268657	-0.61688	-30.10377804	0.380542
48.9	91	0.271642	-0.60786	-29.72411437	0.369488
49	92	0.274627	-0.59888	-29.34504096	0.358655
49	93	0.277612	-0.58995	-28.90757742	0.348042
49.1	94	0.280597	-0.58107	-28.53050478	0.337642
49.2	95	0.283582	-0.57223	-28.15389325	0.327451
49.2	96	0.286567	-0.56344	-27.72130028	0.317466
49.5	97	0.289552	-0.55469	-27.45735287	0.307685
49.7	98	0.292537	-0.54599	-27.13559661	0.298103
49.8	99	0.295522	-0.53732	-26.7586679	0.288716
50	100	0.298507	-0.5287	-26.43491825	0.279522
50	101	0.301493	-0.52011	-26.00563676	0.270517
50	102	0.304478	-0.51157	-25.57828793	0.2617
50	103	0.307463	-0.50306	-25.1527581	0.253064
50	104	0.310448	-0.49458	-24.72904725	0.24461
50	105	0.313433	-0.48614	-24.3071554	0.236335
50	106	0.316418	-0.47774	-23.88696885	0.228235
50	107	0.319403	-0.46937	-23.4684876	0.220308

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
50	108	0.322388	-0.46103	-23.05159796	0.21255
50	109	0.325373	-0.45273	-22.63629995	0.204961
50	110	0.328358	-0.44445	-22.22259354	0.197537
50	111	0.331343	-0.43621	-21.81036507	0.190277
50	112	0.334328	-0.42799	-21.39961452	0.183177
50	113	0.337313	-0.41981	-20.99034191	0.176238
50	114	0.340299	-0.41165	-20.58243354	0.169455
50	115	0.343284	-0.40352	-20.1758894	0.162827
50	116	0.346269	-0.39541	-19.77070951	0.156352
50	117	0.349254	-0.38734	-19.36678018	0.150029
50	118	0.352239	-0.37928	-18.96415824	0.143856
50	119	0.355224	-0.37126	-18.56278686	0.137831
50	120	0.358209	-0.36325	-18.16249551	0.13195
50	121	0.361194	-0.35527	-17.76345471	0.126216
50	122	0.364179	-0.34731	-17.36555078	0.120625
50	123	0.367164	-0.33937	-16.96867002	0.115174
50	124	0.370149	-0.33146	-16.57292614	0.109865
50	125	0.373134	-0.32356	-16.17820544	0.104694
50	126	0.376119	-0.31569	-15.78445108	0.09966
50	127	0.379104	-0.30783	-15.3917199	0.094762
50	128	0.38209	-0.3	-14.99989821	0.089999
50	129	0.385075	-0.29218	-14.60898602	0.085369
50	130	0.38806	-0.28438	-14.21898332	0.080872
50	131	0.391045	-0.2766	-13.82989012	0.076506
50	132	0.39403	-0.26883	-13.44153588	0.07227
50	133	0.397015	-0.26108	-13.05409114	0.068164
50	134	0.4	-0.25335	-12.66732852	0.064184
50	135	0.402985	-0.24563	-12.28141855	0.060333
50	136	0.40597	-0.23792	-11.8961907	0.056608
50	137	0.408955	-0.23023	-11.51170181	0.053008
50	138	0.41194	-0.22256	-11.12783821	0.049532
50	139	0.414925	-0.21489	-10.74465672	0.046179
50	140	0.41791	-0.20724	-10.36210051	0.042949
50	141	0.420896	-0.1996	-9.98016958	0.039842
50	142	0.423881	-0.19198	-9.598807083	0.036855
50	143	0.426866	-0.18436	-9.217956176	0.033988
50	144	0.429851	-0.17675	-8.837673704	0.031242
50	145	0.432836	-0.16916	-8.457959666	0.028615
50	146	0.435821	-0.16157	-8.078700375	0.026106
50	147	0.438806	-0.154	-7.699895832	0.023715
50	148	0.441791	-0.14643	-7.321489193	0.021442
50	149	0.444776	-0.13887	-6.943537301	0.019285
50.1	150	0.447761	-0.13132	-6.579115279	0.017245
50.5	151	0.450746	-0.12378	-6.250658089	0.01532
50.5	152	0.453731	-0.11624	-5.870074915	0.013512
50.7	153	0.456716	-0.10871	-5.511578138	0.011818
50.9	154	0.459701	-0.10119	-5.150358902	0.010239

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
51	155	0.462687	-0.09367	-4.777053846	0.008774
51.1	156	0.465672	-0.08615	-4.402477543	0.007423
51.25	157	0.468657	-0.07865	-4.030621881	0.006185
51.45	158	0.471642	-0.07114	-3.660304742	0.005061
51.5	159	0.474627	-0.06364	-3.277674523	0.004051
51.75	160	0.477612	-0.05615	-2.905641168	0.003153
51.8	161	0.480597	-0.04866	-2.520364887	0.002367
51.8	162	0.483582	-0.04116	-2.132340114	0.001695
51.9	163	0.486567	-0.03368	-1.747859756	0.001134
51.9	164	0.489552	-0.02619	-1.359321914	0.000686
51.9	165	0.492537	-0.01871	-0.970902079	0.00035
52	166	0.495522	-0.01122	-0.58360456	0.000126
52	167	0.498507	-0.00374	-0.194554559	1.4E-05
52	168	0.501493	0.003741	0.194554559	1.4E-05
52.1	169	0.504478	0.011223	0.584726877	0.000126
52.3	170	0.507463	0.018707	0.978384946	0.00035
52.4	171	0.510448	0.026191	1.372417501	0.000686
52.5	172	0.513433	0.033677	1.768066227	0.001134
52.8	173	0.516418	0.041165	2.173504981	0.001695
52.85	174	0.519403	0.048656	2.571453365	0.002367
52.9	175	0.522388	0.056148	2.970210971	0.003153
53	176	0.525373	0.063644	3.373140771	0.004051
53	177	0.528358	0.071143	3.770576313	0.005061
53	178	0.531343	0.078646	4.168252872	0.006185
53	179	0.534328	0.086154	4.566170446	0.007423
53	180	0.537313	0.093668	4.964389291	0.008774
53.15	181	0.540299	0.101186	5.378027026	0.010239
53.2	182	0.543284	0.10871	5.783352208	0.011818
53.2	183	0.546269	0.116239	6.183920505	0.013512
53.25	184	0.549254	0.123775	6.59104046	0.01532
53.25	185	0.552239	0.13132	6.992772228	0.017245
53.3	186	0.555224	0.138871	7.401810763	0.019285
53.3	187	0.558209	0.14643	7.804707479	0.021442
53.9	188	0.561194	0.153998	8.300487707	0.023715
53.9	189	0.564179	0.161574	8.708839005	0.026106
54	190	0.567164	0.169159	9.134596439	0.028615
54	191	0.570149	0.176753	9.5446876	0.031242
54	192	0.573134	0.184359	9.95539267	0.033988
54	193	0.576119	0.191976	10.36671165	0.036855
54	194	0.579104	0.199603	10.77858315	0.039842
54.1	195	0.58209	0.207242	11.21179275	0.042949
54.15	196	0.585075	0.214893	11.63646323	0.046179
54.4	197	0.58806	0.222557	12.10708797	0.049532
54.4	198	0.591045	0.230234	12.52473157	0.053008
54.6	199	0.59403	0.237924	12.99064024	0.056608
54.6	200	0.597015	0.245628	13.41130906	0.060333
54.6	201	0.6	0.253347	13.83272274	0.064184

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
54.65	202	0.602985	0.261082	14.26812162	0.068164
55	203	0.60597	0.268831	14.78568947	0.07227
55	204	0.608955	0.276598	15.21287913	0.076506
55	205	0.61194	0.28438	15.64088166	0.080872
55.1	206	0.614925	0.29218	16.0991026	0.085369
55.2	207	0.61791	0.299998	16.55988763	0.089999
55.4	208	0.620896	0.307834	17.05402565	0.094762
55.4	209	0.623881	0.315689	17.4891718	0.09966
55.4	210	0.626866	0.323564	17.92545163	0.104694
55.5	211	0.629851	0.331459	18.39594802	0.109865
55.7	212	0.632836	0.339373	18.90309841	0.115174
55.7	213	0.635821	0.347311	19.34522356	0.120625
55.7	214	0.638806	0.355269	19.78848854	0.126216
55.7	215	0.641791	0.36325	20.23302	0.13195
55.9	216	0.644776	0.371256	20.75319571	0.137831
56	217	0.647761	0.379283	21.23985723	0.143856
56	218	0.650746	0.387336	21.6907938	0.150029
56	219	0.653731	0.395414	22.14319466	0.156352
56	220	0.656716	0.403518	22.59699613	0.162827
56	221	0.659701	0.411649	23.05232556	0.169455
56.15	222	0.662687	0.419807	23.57215396	0.176238
56.2	223	0.665672	0.427992	24.05316673	0.183177
56.3	224	0.668657	0.436207	24.55847107	0.190277
56.5	225	0.671642	0.444452	25.1115307	0.197537
56.6	226	0.674627	0.452726	25.62429154	0.204961
56.6	227	0.677612	0.461032	26.0944089	0.21255
56.8	228	0.680597	0.46937	26.66020191	0.220308
56.8	229	0.683582	0.477739	27.13559661	0.228235
57	230	0.686567	0.486143	27.71015716	0.236335
57	231	0.689552	0.494581	28.19111387	0.24461
57	232	0.692537	0.503055	28.67414423	0.253064
57	233	0.695522	0.511566	29.15924824	0.2617
57	234	0.698507	0.520113	29.6464259	0.270517
57	235	0.701493	0.528698	30.13580681	0.279522
57	236	0.704478	0.537323	30.62739097	0.288716
57	237	0.707463	0.545988	31.12130798	0.298103
57	238	0.710448	0.554694	31.61755785	0.307685
57	239	0.713433	0.563441	32.11614057	0.317466
57	240	0.716418	0.572234	32.61731536	0.327451
57	241	0.719403	0.581069	33.12095259	0.337642
57	242	0.722388	0.589951	33.62718189	0.348042
57	243	0.725373	0.598878	34.13606805	0.358655
57	244	0.728358	0.607855	34.64774068	0.369488
57	245	0.731343	0.616881	35.16219977	0.380542
57	246	0.734328	0.625957	35.67957492	0.391823
57	247	0.737313	0.635084	36.19980134	0.403332
57	248	0.740299	0.644266	36.72313824	0.415078

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
57	249	0.743284	0.653502	37.2495856	0.427064
57	250	0.746269	0.662794	37.77927304	0.439296
57.2	251	0.749254	0.672144	38.44662933	0.451777
57.3	252	0.752239	0.681551	39.05289839	0.464512
57.4	253	0.755224	0.69102	39.6645728	0.477509
57.7	254	0.758209	0.700552	40.42184673	0.490773
58	255	0.761194	0.710149	41.188664	0.504312
58	256	0.764179	0.71981	41.74900823	0.518127
58.8	257	0.767164	0.72954	42.89694061	0.532228
59.6	258	0.770149	0.739337	44.06450535	0.54662
60.6	259	0.773134	0.749208	45.40198233	0.561312
61	260	0.776119	0.759153	46.30833018	0.576313
61	261	0.779104	0.769171	46.91943332	0.591624
61	262	0.78209	0.779269	47.53539088	0.60726
61	263	0.785075	0.789446	48.15620287	0.623225
61	264	0.78806	0.799707	48.78214668	0.639532
61.1	265	0.791045	0.810051	49.49408867	0.656182
61.3	266	0.79403	0.820485	50.29571389	0.673195
61.7	267	0.797015	0.831005	51.27302757	0.69057
61.8	268	0.8	0.841621	52.01220165	0.708327
62	269	0.802985	0.852332	52.84457302	0.72647
62	270	0.80597	0.863142	53.51482287	0.745015
62.4	271	0.808955	0.874052	54.54082566	0.763966
62.5	272	0.81194	0.885068	55.31674674	0.783345
62.8	273	0.814925	0.896193	56.28094186	0.803163
63	274	0.81791	0.90743	57.16809937	0.823429
63	275	0.820896	0.918783	57.88332373	0.844162
63.5	276	0.823881	0.930256	59.0712682	0.865377
64	277	0.826866	0.941852	60.27854397	0.887086
64	278	0.829851	0.953576	61.02884072	0.909306
64	279	0.832836	0.965433	61.7877231	0.932061
64	280	0.835821	0.977427	62.55533663	0.955364
64	281	0.838806	0.989562	63.33197234	0.979233
64	282	0.841791	1.001847	64.11821232	1.003698
64	283	0.844776	1.014282	64.91405657	1.028768
64	284	0.847761	1.026879	65.72023267	1.05448
64	285	0.850746	1.039639	66.53688615	1.080849
64	286	0.853731	1.052572	67.36459909	1.107908
64	287	0.856716	1.065682	68.20366252	1.135679
64	288	0.859701	1.078979	69.05465852	1.164196
64	289	0.862687	1.092469	69.91802366	1.193489
64	290	0.865672	1.106162	70.79433999	1.223593
64	291	0.868657	1.120063	71.68404409	1.254542
64	292	0.871642	1.134185	72.58786354	1.286376
64	293	0.874627	1.148539	73.50652595	1.319143
65	294	0.877612	1.163132	75.60360018	1.352877
65	295	0.880597	1.177978	76.56853995	1.387631



Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
65	296	0.883582	1.193087	77.5506237	1.423455
65.1	297	0.886567	1.208473	78.67158547	1.460407
65.35	298	0.889552	1.22415	79.99822276	1.498544
65.5	299	0.892537	1.240137	81.22897043	1.53794
65.6	300	0.895522	1.256444	82.42273907	1.578652
65.9	301	0.898507	1.273092	83.89679533	1.620764
66	302	0.901493	1.290105	85.14690307	1.66437
66.35	303	0.904478	1.307494	86.75223557	1.709541
67	304	0.907463	1.325293	88.79462712	1.756401
67.1	305	0.910448	1.343519	90.15013939	1.805044
67.4	306	0.913433	1.3622	91.81229598	1.855589
68	307	0.916418	1.381372	93.9333222	1.90819
68.2	308	0.919403	1.401067	95.55280303	1.96299
68.3	309	0.922388	1.421322	97.07628851	2.020156
68.5	310	0.925373	1.442172	98.78878927	2.07986
69	311	0.928358	1.463673	100.9934067	2.142337
70.1	312	0.931343	1.485869	104.1594014	2.207806
71	313	0.934328	1.508824	107.1265342	2.276551
71	314	0.937313	1.532608	108.8151475	2.348886
71	315	0.940299	1.557282	110.5670435	2.425128
71	316	0.943284	1.582948	112.3893253	2.505725
71	317	0.946269	1.609706	114.289096	2.591152
71	318	0.949254	1.637659	116.2737817	2.681927
71	319	0.952239	1.666958	118.3540371	2.77875
71	320	0.955224	1.697763	120.5411627	2.882399
71	321	0.958209	1.730268	122.8490419	2.993828
71	322	0.961194	1.764711	125.2944639	3.114204
71.45	323	0.964179	1.801391	128.7093642	3.245008
72.1	324	0.967164	1.840654	132.7111222	3.388006
73.6	325	0.970149	1.882991	138.5881042	3.545653
76	326	0.973134	1.928993	146.6034519	3.721013
76	327	0.976119	1.979488	150.441083	3.918372
76	328	0.979104	2.035595	154.7051943	4.143646
76	329	0.98209	2.09895	159.5202048	4.405591
78	330	0.985075	2.172064	169.4210187	4.717864
78	331	0.98806	2.259039	176.205067	5.103259
78	332	0.991045	2.367469	184.6626037	5.604911
78	333	0.99403	2.513916	196.085457	6.319774
90.3	334	0.997015	2.749439	248.2743294	7.559414

Table A-20. Chloride Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.0445224	1	0.002985	-2.74944	-8.37072831	7.559414
3.0445224	2	0.00597	-2.51392	-7.65367402	6.319774
3.0445224	3	0.008955	-2.36747	-7.207813339	5.604911
3.0445224	4	0.01194	-2.25904	-6.877695898	5.103259
3.2188758	5	0.014925	-2.17206	-6.9916054	4.717864
3.2771447	6	0.01791	-2.09895	-6.878563143	4.405591
3.303217	7	0.020896	-2.03559	-6.724010837	4.143646
3.3068867	8	0.023881	-1.97949	-6.545942325	3.918372
3.3174534	9	0.026866	-1.92899	-6.39934366	3.721013
3.3322045	10	0.029851	-1.88299	-6.274509589	3.545653
3.3322045	11	0.032836	-1.84065	-6.133434119	3.388006
3.3322045	12	0.035821	-1.80139	-6.002602152	3.245008
3.3322045	13	0.038806	-1.76471	-5.880377153	3.114204
3.3322045	14	0.041791	-1.73027	-5.765607484	2.993828
3.3322045	15	0.044776	-1.69776	-5.657293042	2.882399
3.3322045	16	0.047761	-1.66696	-5.554645863	2.77875
3.3322045	17	0.050746	-1.63766	-5.457014364	2.681927
3.3499041	18	0.053731	-1.60971	-5.392359294	2.591152
3.3499041	19	0.056716	-1.58295	-5.302724791	2.505725
3.3534067	20	0.059701	-1.55728	-5.222200937	2.425128
3.3672958	21	0.062687	-1.53261	-5.160743557	2.348886
3.4177267	22	0.065672	-1.50882	-5.1567495	2.276551
3.4339872	23	0.068657	-1.48587	-5.102454375	2.207806
3.4339872	24	0.071642	-1.46367	-5.026232846	2.142337
3.4339872	25	0.074627	-1.44217	-4.952400559	2.07986
3.4339872	26	0.077612	-1.42132	-4.880801356	2.020156
3.4339872	27	0.080597	-1.40107	-4.811247844	1.96299
3.4420194	28	0.083582	-1.38137	-4.754710516	1.90819
3.4657359	29	0.086567	-1.3622	-4.721026268	1.855589
3.4657359	30	0.089552	-1.34352	-4.656282783	1.805044
3.4934727	31	0.092537	-1.32529	-4.629874657	1.756401
3.4965076	32	0.095522	-1.30749	-4.571663115	1.709541
3.5553481	33	0.098507	-1.2901	-4.58677086	1.66437
3.5553481	34	0.101493	-1.27309	-4.526286929	1.620764
3.5553481	35	0.104478	-1.25644	-4.467096426	1.578652
3.5553481	36	0.107463	-1.24014	-4.409118512	1.53794
3.5553481	37	0.110448	-1.22415	-4.352280432	1.498544
3.5553481	38	0.113433	-1.20847	-4.296541765	1.460407
3.5553481	39	0.116418	-1.19309	-4.241837841	1.423455
3.5553481	40	0.119403	-1.17798	-4.188120155	1.387631
3.5553481	41	0.122388	-1.16313	-4.135340205	1.352877
3.5553481	42	0.125373	-1.14854	-4.083457571	1.319143
3.5553481	43	0.128358	-1.13419	-4.032423749	1.286376
3.5553481	44	0.131343	-1.12006	-3.982214487	1.254542
3.5553481	45	0.134328	-1.10616	-3.932789366	1.223593
3.5553481	46	0.137313	-1.09247	-3.884107967	1.193489
3.5553481	47	0.140299	-1.07898	-3.836146036	1.164196
3.5553481	48	0.143284	-1.06568	-3.78887124	1.135679
3.5553481	49	0.146269	-1.05257	-3.742259325	1.107908
3.5835189	50	0.149254	-1.03964	-3.725565494	1.080849
3.6375862	51	0.152239	-1.02688	-3.735359512	1.05448
3.6800909	52	0.155224	-1.01428	-3.7326505	1.028768
3.6888795	53	0.158209	-1.00185	-3.695693064	1.003698

Chloride - lognormal  
 $6575.715 = (\text{sum of } M_i * X_i)^2$   
 $333 = \text{count} - 1$   
 $0.066804 = \text{standard deviation}^2$   
 $324.0733 = \text{sum of } M_i^2$

$0.91 = W \text{ statistic}$

$0.976$  is acceptable low value  
**Falls Shapiro-Francia test**

Table A-20. Chloride Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.7376696	54	0.161194	-0.98956	-3.698656076	0.979233
3.7506799	55	0.164179	-0.97743	-3.666016264	0.955364
3.7612001	56	0.167164	-0.96543	-3.631187364	0.932061
3.7612001	57	0.170149	-0.95358	-3.586588793	0.909306
3.7612001	58	0.173134	-0.94185	-3.54249479	0.887086
3.7612001	59	0.176119	-0.93026	-3.498879697	0.865377
3.7612001	60	0.179104	-0.91878	-3.455726412	0.844162
3.7612001	61	0.18209	-0.90743	-3.413026381	0.823429
3.7612001	62	0.185075	-0.89619	-3.370762501	0.803163
3.7612001	63	0.18806	-0.88507	-3.328917668	0.783345
3.7612001	64	0.191045	-0.87405	-3.28748333	0.763966
3.7612001	65	0.19403	-0.86314	-3.246450935	0.745015
3.7612001	66	0.197015	-0.85233	-3.205790551	0.72647
3.7612001	67	0.2	-0.84162	-3.165506454	0.708327
3.7612001	68	0.202985	-0.83101	-3.125577264	0.69057
3.7612001	69	0.20597	-0.82048	-3.086007258	0.673195
3.7612001	70	0.208955	-0.81005	-3.046762226	0.656182
3.7612001	71	0.21194	-0.79971	-3.007859274	0.639532
3.7612001	72	0.214925	-0.78945	-2.969264193	0.623225
3.7612001	73	0.21791	-0.77927	-2.930985536	0.60726
3.7612001	74	0.220896	-0.76917	-2.893006197	0.591624
3.7853254	75	0.223881	-0.75915	-2.873640922	0.576313
3.8022081	76	0.226866	-0.74921	-2.848643346	0.561312
3.813307	77	0.229851	-0.73934	-2.81932027	0.54662
3.8177123	78	0.232836	-0.72954	-2.785173111	0.532228
3.8220983	79	0.235821	-0.71981	-2.751186436	0.518127
3.835142	80	0.238806	-0.71015	-2.723523683	0.504312
3.8543939	81	0.241791	-0.70055	-2.700203105	0.490773
3.871201	82	0.244776	-0.69102	-2.675078995	0.477509
3.871201	83	0.247761	-0.68155	-2.638422683	0.464512
3.871201	84	0.250746	-0.67214	-2.602004027	0.451777
3.871201	85	0.253731	-0.66279	-2.565809824	0.439296
3.8732822	86	0.256716	-0.6535	-2.53119572	0.427064
3.8794998	87	0.259701	-0.64427	-2.49942821	0.415078
3.8815638	88	0.262687	-0.63508	-2.465119972	0.403332
3.885679	89	0.265672	-0.62596	-2.432269756	0.391823
3.8877303	90	0.268657	-0.61688	-2.398265788	0.380542
3.8897774	91	0.271642	-0.60786	-2.364421027	0.369488
3.8918203	92	0.274627	-0.59888	-2.330727062	0.358655
3.8918203	93	0.277612	-0.58995	-2.295981562	0.348042
3.893859	94	0.280597	-0.58107	-2.262602114	0.337642
3.8958936	95	0.283582	-0.57223	-2.229361244	0.327451
3.8958936	96	0.286567	-0.56344	-2.195106443	0.317466
3.9019727	97	0.289552	-0.55469	-2.164400818	0.307685
3.9060049	98	0.292537	-0.54599	-2.132631272	0.298103
3.908015	99	0.295522	-0.53732	-2.099864962	0.288716

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.912023	100	0.298507	-0.5287	-2.068280167	0.279522
3.912023	101	0.301493	-0.52011	-2.034692985	0.270517
3.912023	102	0.304478	-0.51157	-2.001257017	0.2617
3.912023	103	0.307463	-0.50306	-1.967963367	0.253064
3.912023	104	0.310448	-0.49458	-1.934812035	0.24461
3.912023	105	0.313433	-0.48614	-1.901803022	0.236335
3.912023	106	0.316418	-0.47774	-1.868927433	0.228235
3.912023	107	0.319403	-0.46937	-1.836185268	0.220308
3.912023	108	0.322388	-0.46103	-1.803567631	0.21255
3.912023	109	0.325373	-0.45273	-1.771074523	0.204961
3.912023	110	0.328358	-0.44445	-1.738705944	0.197537
3.912023	111	0.331343	-0.43621	-1.706452998	0.190277
3.912023	112	0.334328	-0.42799	-1.674315687	0.183177
3.912023	113	0.337313	-0.41981	-1.642294009	0.176238
3.912023	114	0.340299	-0.41165	-1.61037907	0.169455
3.912023	115	0.343284	-0.40352	-1.57857087	0.162827
3.912023	116	0.346269	-0.39541	-1.546869409	0.156352
3.912023	117	0.349254	-0.38734	-1.515265792	0.150029
3.912023	118	0.352239	-0.37928	-1.483764467	0.143856
3.912023	119	0.355224	-0.37126	-1.452360985	0.137831
3.912023	120	0.358209	-0.36325	-1.421042005	0.13195
3.912023	121	0.361194	-0.35527	-1.389820869	0.126216
3.912023	122	0.364179	-0.34731	-1.358688683	0.120625
3.912023	123	0.367164	-0.33937	-1.32763655	0.115174
3.912023	124	0.370149	-0.33146	-1.296673367	0.109865
3.912023	125	0.373134	-0.32356	-1.265790238	0.104694
3.912023	126	0.376119	-0.31569	-1.234982715	0.09966
3.912023	127	0.379104	-0.30783	-1.204255247	0.094762
3.912023	128	0.38209	-0.3	-1.173598938	0.089999
3.912023	129	0.385075	-0.29218	-1.143013788	0.085369
3.912023	130	0.38806	-0.28438	-1.112499798	0.080872
3.912023	131	0.391045	-0.2766	-1.082056966	0.076506
3.912023	132	0.39403	-0.26883	-1.051671952	0.07227
3.912023	133	0.397015	-0.26108	-1.021358097	0.068164
3.912023	134	0.4	-0.25335	-0.991097612	0.064184
3.912023	135	0.402985	-0.24563	-0.960903838	0.060333
3.912023	136	0.40597	-0.23792	-0.930763434	0.056608
3.912023	137	0.408955	-0.23023	-0.900680847	0.053008
3.912023	138	0.41194	-0.22256	-0.870647181	0.049532
3.912023	139	0.414925	-0.21489	-0.840666885	0.046179
3.912023	140	0.41791	-0.20724	-0.810735512	0.042949
3.912023	141	0.420896	-0.1996	-0.78085306	0.039842
3.912023	142	0.423881	-0.19198	-0.751015083	0.036855
3.912023	143	0.426866	-0.18436	-0.721217132	0.033988
3.912023	144	0.429851	-0.17675	-0.691463657	0.031242
3.912023	145	0.432836	-0.16916	-0.661754656	0.028615

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.912023	146	0.435821	-0.16157	-0.632081234	0.026106
3.912023	147	0.438806	-0.154	-0.602443393	0.023715
3.912023	148	0.441791	-0.14643	-0.572836683	0.021442
3.912023	149	0.444776	-0.13887	-0.543265553	0.019285
3.914021	150	0.447761	-0.13132	-0.513987932	0.017245
3.9219733	151	0.450746	-0.12378	-0.485443849	0.01532
3.9219733	152	0.453731	-0.11624	-0.455886679	0.013512
3.9259259	153	0.456716	-0.10871	-0.426785945	0.011818
3.9298629	154	0.459701	-0.10119	-0.397646454	0.010239
3.9318256	155	0.462687	-0.09367	-0.368285152	0.008774
3.9337845	156	0.465672	-0.08615	-0.338911896	0.007423
3.9367156	157	0.468657	-0.07865	-0.309608041	0.006185
3.9406105	158	0.471642	-0.07114	-0.28034665	0.005061
3.9415818	159	0.474627	-0.06364	-0.250858685	0.004051
3.9464244	160	0.477612	-0.05615	-0.221582479	0.003153
3.9473901	161	0.480597	-0.04866	-0.192063002	0.002367
3.9473901	162	0.483582	-0.04116	-0.162493791	0.001695
3.9493188	163	0.486567	-0.03368	-0.133002994	0.001134
3.9493188	164	0.489552	-0.02619	-0.103437294	0.000686
3.9493188	165	0.492537	-0.01871	-0.073880575	0.00035
3.9512437	166	0.495522	-0.01122	-0.044345459	0.000126
3.9512437	167	0.498507	-0.00374	-0.014783317	1.4E-05
3.9512437	168	0.501493	0.003741	0.014783317	1.4E-05
3.9531649	169	0.504478	0.011223	0.044367021	0.000126
3.9569964	170	0.507463	0.018707	0.0740242	0.00035
3.9589066	171	0.510448	0.026191	0.10368841	0.000686
3.9608132	172	0.513433	0.033677	0.133390095	0.001134
3.9665112	173	0.516418	0.041165	0.163280906	0.001695
3.9674577	174	0.519403	0.048656	0.193039404	0.002367
3.9684033	175	0.522388	0.056148	0.222816543	0.003153
3.9702919	176	0.525373	0.063644	0.252685916	0.004051
3.9702919	177	0.528358	0.071143	0.282458276	0.005061
3.9702919	178	0.531343	0.078646	0.312248692	0.006185
3.9702919	179	0.534328	0.086154	0.342057162	0.007423
3.9702919	180	0.537313	0.093668	0.371888201	0.008774
3.9731181	181	0.540299	0.101186	0.402023265	0.010239
3.9740584	182	0.543284	0.10871	0.43201841	0.011818
3.9740584	183	0.546269	0.116239	0.461941	0.013512
3.9749978	184	0.549254	0.123775	0.492006974	0.01532
3.9749978	185	0.552239	0.13132	0.521995385	0.017245
3.9759363	186	0.555224	0.138871	0.552141244	0.019285
3.9759363	187	0.558209	0.14643	0.582195498	0.021442
3.9871305	188	0.561194	0.153998	0.614009787	0.023715
3.9871305	189	0.564179	0.161574	0.64421665	0.026106
3.988984	190	0.567164	0.169159	0.674773323	0.028615
3.988984	191	0.570149	0.176753	0.705066788	0.031242

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
3.988984	192	0.573134	0.184359	0.735405603	0.033988
3.988984	193	0.576119	0.191976	0.765789766	0.036855
3.988984	194	0.579104	0.199603	0.796214745	0.039842
3.9908342	195	0.58209	0.207242	0.827068499	0.042949
3.991758	196	0.585075	0.214893	0.857801383	0.046179
3.9963642	197	0.58806	0.222557	0.889417874	0.049532
3.9963642	198	0.591045	0.230234	0.92009905	0.053008
4.0000339	199	0.59403	0.237924	0.951703317	0.056608
4.0000339	200	0.597015	0.245628	0.982521806	0.060333
4.0000339	201	0.6	0.253347	1.013394866	0.064184
4.0009492	202	0.602985	0.261082	1.044575114	0.068164
4.0073332	203	0.60597	0.268831	1.077294256	0.07227
4.0073332	204	0.608955	0.276598	1.108419553	0.076506
4.0073332	205	0.61194	0.28438	1.139604075	0.080872
4.0091497	206	0.614925	0.29218	1.171392243	0.085369
4.010963	207	0.61791	0.299998	1.203280721	0.089999
4.0145796	208	0.620896	0.307834	1.235825692	0.094762
4.0145796	209	0.623881	0.315689	1.267358704	0.09966
4.0145796	210	0.626866	0.323564	1.298973869	0.104694
4.016383	211	0.629851	0.331459	1.331264383	0.109865
4.0199801	212	0.632836	0.339373	1.364274332	0.115174
4.0199801	213	0.635821	0.347311	1.396183387	0.120625
4.0199801	214	0.638806	0.355269	1.428174705	0.126216
4.0199801	215	0.641791	0.36325	1.460257427	0.13195
4.0235644	216	0.644776	0.371256	1.49377136	0.137831
4.0253517	217	0.647761	0.379283	1.526748129	0.143856
4.0253517	218	0.650746	0.387336	1.559162027	0.150029
4.0253517	219	0.653731	0.395414	1.591681179	0.156352
4.0253517	220	0.656716	0.403518	1.62430101	0.162827
4.0253517	221	0.659701	0.411649	1.657030673	0.169455
4.0280267	222	0.662687	0.419807	1.690993145	0.176238
4.0289168	223	0.665672	0.427992	1.724345311	0.183177
4.0306945	224	0.668657	0.436207	1.758218386	0.190277
4.0342406	225	0.671642	0.444452	1.793025799	0.197537
4.036009	226	0.674627	0.452726	1.827206199	0.204961
4.036009	227	0.677612	0.461032	1.86072913	0.21255
4.0395363	228	0.680597	0.46937	1.896036163	0.220308
4.0395363	229	0.683582	0.477739	1.929845567	0.228235
4.0430513	230	0.686567	0.486143	1.965501509	0.236335
4.0430513	231	0.689552	0.494581	1.999616117	0.24461
4.0430513	232	0.692537	0.503055	2.03387781	0.253064
4.0430513	233	0.695522	0.511566	2.068286589	0.2617
4.0430513	234	0.698507	0.520113	2.102842453	0.270517
4.0430513	235	0.701493	0.528698	2.137554595	0.279522
4.0430513	236	0.704478	0.537323	2.172423016	0.288716
4.0430513	237	0.707463	0.545988	2.207456907	0.298103

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.0430513	238	0.710448	0.554694	2.242656269	0.307685
4.0430513	239	0.713433	0.563441	2.278021103	0.317466
4.0430513	240	0.716418	0.572234	2.313569793	0.327451
4.0430513	241	0.719403	0.581069	2.349293147	0.337642
4.0430513	242	0.722388	0.589951	2.385200358	0.348042
4.0430513	243	0.725373	0.598878	2.421296021	0.358655
4.0430513	244	0.728358	0.607855	2.457589331	0.369488
4.0430513	245	0.731343	0.616881	2.494080287	0.380542
4.0430513	246	0.734328	0.625957	2.530778081	0.391823
4.0430513	247	0.737313	0.635084	2.567678118	0.403332
4.0430513	248	0.740299	0.644266	2.604798783	0.415078
4.0430513	249	0.743284	0.653502	2.642140075	0.427064
4.0430513	250	0.746269	0.662794	2.679711189	0.439296
4.0465539	251	0.749254	0.672144	2.719866395	0.451777
4.0483006	252	0.752239	0.681551	2.759125181	0.464512
4.0500443	253	0.755224	0.69102	2.798663364	0.477509
4.0552572	254	0.758209	0.700552	2.840918266	0.490773
4.060443	255	0.761194	0.710149	2.883521084	0.504312
4.060443	256	0.764179	0.71981	2.92274946	0.518127
4.0741419	257	0.767164	0.72954	2.97224866	0.532228
4.0876556	258	0.770149	0.739337	3.022156391	0.54662
4.1042949	259	0.773134	0.749208	3.074969047	0.561312
4.1108739	260	0.776119	0.759153	3.120782037	0.576313
4.1108739	261	0.779104	0.769171	3.161965117	0.591624
4.1108739	262	0.78209	0.779269	3.203475344	0.60726
4.1108739	263	0.785075	0.789446	3.245312717	0.623225
4.1108739	264	0.78806	0.799707	3.287495931	0.639532
4.1125119	265	0.791045	0.810051	3.331342504	0.656182
4.1157798	266	0.79403	0.820485	3.376934509	0.673195
4.1222839	267	0.797015	0.831005	3.425639832	0.69057
4.1239034	268	0.8	0.841621	3.470765265	0.708327
4.1271344	269	0.802985	0.852332	3.517687974	0.72647
4.1271344	270	0.80597	0.863142	3.562304283	0.745015
4.1335653	271	0.808955	0.874052	3.612949728	0.763966
4.1351666	272	0.81194	0.885068	3.659903378	0.783345
4.1399551	273	0.814925	0.896193	3.710200172	0.803163
4.1431347	274	0.81791	0.90743	3.759605361	0.823429
4.1431347	275	0.820896	0.918783	3.806641407	0.844162
4.1510399	276	0.823881	0.930256	3.861530576	0.865377
4.1588831	277	0.826866	0.941852	3.917053388	0.887086
4.1588831	278	0.829851	0.953576	3.965809582	0.909306
4.1588831	279	0.832836	0.965433	4.015123693	0.932061
4.1588831	280	0.835821	0.977427	4.065005176	0.955364
4.1588831	281	0.838806	0.989562	4.115472944	0.979233
4.1588831	282	0.841791	1.001847	4.166564821	1.003698
4.1588831	283	0.844776	1.014282	4.218280808	1.028768

Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.1588831	284	0.847761	1.026879	4.270668186	1.05448
4.1588831	285	0.850746	1.039639	4.32373641	1.080849
4.1588831	286	0.853731	1.052572	4.377523306	1.107908
4.1588831	287	0.856716	1.065682	4.432047786	1.135679
4.1588831	288	0.859701	1.078979	4.487347674	1.164196
4.1588831	289	0.862687	1.092469	4.543451341	1.193489
4.1588831	290	0.865672	1.106162	4.600396609	1.223593
4.1588831	291	0.868657	1.120063	4.658211848	1.254542
4.1588831	292	0.871642	1.134185	4.71694434	1.286376
4.1588831	293	0.874627	1.148539	4.776641364	1.319143
4.1743873	294	0.877612	1.163132	4.85536471	1.352877
4.1743873	295	0.880597	1.177978	4.917334438	1.387631
4.1743873	296	0.883582	1.193087	4.980405175	1.423455
4.1759245	297	0.886567	1.208473	5.04649163	1.460407
4.1797574	298	0.889552	1.22415	5.116651366	1.498544
4.1820501	299	0.892537	1.240137	5.186314922	1.53794
4.1835757	300	0.895522	1.256444	5.25642939	1.578652
4.1881384	301	0.898507	1.273092	5.331887612	1.620764
4.1896547	302	0.901493	1.290105	5.405092822	1.66437
4.1949438	303	0.904478	1.307494	5.484864346	1.709541
4.2046926	304	0.907463	1.325293	5.572449452	1.756401
4.206184	305	0.910448	1.343519	5.651089089	1.805044
4.210645	306	0.913433	1.3622	5.735741642	1.855589
4.2195077	307	0.916418	1.381372	5.828711424	1.90819
4.2224446	308	0.919403	1.401067	5.915929821	1.96299
4.2239098	309	0.922388	1.421322	6.003535624	2.020156
4.2268337	310	0.925373	1.442172	6.095821725	2.07986
4.2341065	311	0.928358	1.463673	6.197345511	2.142337
4.2499228	312	0.931343	1.485869	6.314827593	2.207806
4.2626799	313	0.934328	1.508824	6.431635516	2.276551
4.2626799	314	0.937313	1.532608	6.533016053	2.348886
4.2626799	315	0.940299	1.557282	6.638195936	2.425128
4.2626799	316	0.943284	1.582948	6.747601624	2.505725
4.2626799	317	0.946269	1.609706	6.861659574	2.591152
4.2626799	318	0.949254	1.637659	6.980815627	2.681927
4.2626799	319	0.952239	1.666958	7.10570947	2.77875
4.2626799	320	0.955224	1.697763	7.237019557	2.882399
4.2626799	321	0.958209	1.730268	7.375579418	2.993828
4.2626799	322	0.961194	1.764711	7.522397044	3.114204
4.2689979	323	0.964179	1.801391	7.690133042	3.245008
4.278054	324	0.967164	1.840654	7.874415438	3.388006
4.298645	325	0.970149	1.882991	8.094307943	3.545653
4.3307333	326	0.973134	1.928993	8.353953379	3.721013
4.3307333	327	0.976119	1.979488	8.572634391	3.918372
4.3307333	328	0.979104	2.035595	8.815617669	4.143646
4.3307333	329	0.98209	2.09895	9.089993016	4.405591



Table A-20. Chloride Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Chloride (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.3567088	330	0.985075	2.172064	9.46305189	4.717864
4.3567088	331	0.98806	2.259039	9.841976546	5.103259
4.3567088	332	0.991045	2.367469	10.3143743	5.604911
4.3567088	333	0.99403	2.513916	10.95240053	6.319774
4.5031375	334	0.997015	2.749439	12.38110114	7.559414

Table A-23. Chloride Far Upgradient Background Data Set  
(data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
0914	10-Jan-83	Chloride	Homestake	None	113
0914	14-Mar-94	Chloride	Energy Labs	None	103
0914	12-May-94	Chloride	Energy Labs	None	103
0914	24-Jan-96	Chloride	Energy Labs	None	105
0914	22-May-97	Chloride	Energy Labs	None	116
0914	12-May-98	Chloride	Energy Labs	None	95.4
0914	19-May-99	Chloride	Energy Labs	None	103
0916	21-Feb-94	Chloride	Energy Labs	None	21.9
0916	26-Apr-94	Chloride	Energy Labs	None	21.9
0916	29-Jan-96	Chloride	Energy Labs	None	23.8
0916	28-May-97	Chloride	Energy Labs	None	25
0916	12-May-98	Chloride	Energy Labs	None	22.4
0916	20-May-99	Chloride	Energy Labs	None	26
0920	03-Nov-81	Chloride	Homestake	None	71
0920	30-Aug-82	Chloride	Homestake	None	64
0920	05-Jan-83	Chloride	Homestake	None	64
0920	31-Aug-83	Chloride	Homestake	None	71
0920	14-Dec-89	Chloride	Homestake	None	61
0920	09-May-90	Chloride	Homestake	None	57
0920	21-May-91	Chloride	Homestake	None	57
0920	06-May-92	Chloride	Homestake	None	57
0920	06-May-93	Chloride	Homestake	None	50
0920	28-Feb-94	Chloride	Energy Labs	None	56.3
0920	29-Apr-94	Chloride	Energy Labs	None	64
0920	29-Apr-94	Chloride	Energy Labs	None	61.1
0920	11-May-94	Chloride	Energy Labs	None	58.3
0920	10-May-95	Chloride	Energy Labs	None	59
0920	24-Jan-96	Chloride	Energy Labs	None	64
0920	20-May-96	Chloride	Energy Labs	None	64.5
0920	23-May-97	Chloride	Energy Labs	None	70.2
0920	12-May-98	Chloride	Energy Labs	None	56.9
0920	19-May-99	Chloride	Energy Labs	None	68.4
0921	28-Feb-94	Chloride	Energy Labs	None	72.6
0921	16-May-94	Chloride	Energy Labs	None	69
0921	24-Jan-96	Chloride	Energy Labs	None	77.4
0921	23-May-97	Chloride	Energy Labs	None	83.8
0921	12-May-98	Chloride	Energy Labs	None	67.8
0921	19-May-99	Chloride	Energy Labs	None	85.8
0922	03-Nov-81	Chloride	Homestake	None	92
0922	04-Mar-94	Chloride	Energy Labs	None	67.1
0922	16-May-94	Chloride	Energy Labs	None	58.1
0922	24-Jan-96	Chloride	Energy Labs	None	74
0922	23-May-97	Chloride	Energy Labs	None	83.9
0922	12-May-98	Chloride	Energy Labs	None	73.2
0922	19-May-99	Chloride	Energy Labs	None	77.6
0950	28-Feb-94	Chloride	Energy Labs	None	110
0950	11-May-94	Chloride	Energy Labs	None	106
0950	25-Jan-96	Chloride	Energy Labs	None	113

**Table A-24. Chloride Far Upgradient Background Data Set for Well 0914  
(corrected for non-detects and duplicates)**

Sample Date	Parameter Code	Final Data Set
10-Jan-83	Chloride	113
14-Mar-94	Chloride	103
12-May-94	Chloride	103
24-Jan-96	Chloride	105
22-May-97	Chloride	116
12-May-98	Chloride	95.4
19-May-99	Chloride	103

**Table A-25. Chloride Far Upgradient Background Data Set for Well 0916  
(corrected for non-detects and duplicates)**

Sample Date	Parameter Code	Final Data Set
21-Feb-94	Chloride	21.9
26-Apr-94	Chloride	21.9
29-Jan-96	Chloride	23.8
28-May-97	Chloride	25
12-May-98	Chloride	22.4
20-May-99	Chloride	26

**Table A-26. Chloride Far Upgradient Background Data Set for Well 0920  
(corrected for non-detects and duplicates)**

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Chloride	71
30-Aug-82	Chloride	64
05-Jan-83	Chloride	64
31-Aug-83	Chloride	71
14-Dec-89	Chloride	61
09-May-90	Chloride	57
21-May-91	Chloride	57
06-May-92	Chloride	57
06-May-93	Chloride	50
28-Feb-94	Chloride	56.3
29-Apr-94	Chloride	62.55
11-May-94	Chloride	58.3
10-May-95	Chloride	59
24-Jan-96	Chloride	64
20-May-96	Chloride	64.5
23-May-97	Chloride	70.2
12-May-98	Chloride	56.9
19-May-99	Chloride	68.4

Table A-27. Chloride Far Upgradient Background Data Set for Well 0921  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Chloride	72.6
16-May-94	Chloride	69
24-Jan-96	Chloride	77.4
23-May-97	Chloride	83.8
12-May-98	Chloride	67.8
19-May-99	Chloride	85.8

Table A-28. Chloride Far Upgradient Background Data Set for Well 0922  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Chloride	92
04-Mar-94	Chloride	67.1
16-May-94	Chloride	58.1
24-Jan-96	Chloride	74
23-May-97	Chloride	83.9
12-May-98	Chloride	73.2
19-May-99	Chloride	77.6

Table A-29. Chloride Far Upgradient Background Data Set for Well 0950  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Chloride	110
11-May-94	Chloride	106
25-Jan-96	Chloride	113

Table A-30. Chloride Far Upgradient Background Data Set Used in Statistical Analysis  
(all concentrations in mg/L)

Well ID					
Well 914	Well 916	Well 920	Well 921	Well 922	Well 950
113	21.9	71	72.6	92	110
103	21.9	64	69	67.1	106
103	23.8	64	77.4	58.1	113
105	25	71	83.8	74	
116	22.4	61	67.8	83.9	
95.4	26	57	85.8	73.2	
103		57		77.6	
		57			
		50			
		56.3			
		62.55			
		58.3			
		59			
		64			
		64.5			
		70.2			
		56.9			
		68.4			

Table A-31. Chloride Far Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Chloride	116	113	1.0	<b>Pass</b>

Table A-32. Chloride Far Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Chloride, normal	70.2734	25.56079	0.36	<b>Pass</b>
Chloride, lognormal	4.168073	0.452051	0.11	<b>Pass</b>

Table A-33. Chloride Far Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Chloride, normal	116	21.9	25.56	5.35	3.83	3.68	<b>Fail</b>

W = range of values

S = standard deviation

Table A-34. Far Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis

Chloride	Normal (xi-avg)^3	
116	95610.7248	<b>Normal</b> standard deviation = 25.56079 mean = 70.273 count = 47 sum of (xi-avg)^3 = -101071 1/n = 0.021277 standard deviation cubed = 16700.24 ((n-1)/n)^(3/2) = 0.968255
113	78000.0489	
113	78000.0489	
110	62696.6091	
106	45601.0568	
105	41878.0677	
103	35051.1681	
103	35051.1681	
103	35051.1681	
95.4	15863.571	
92	10255.9301	coef. of skewness = -0.1  acceptable range -1 to 1 <b>Pass</b>
85.8	3743.07679	
83.9	2530.24232	
83.8	2474.94489	
77.6	393.284371	
77.4	361.948159	
74	51.7531574	
73.2	25.0661833	
72.6	12.5939739	
71	0.38359996	
71	0.38359996	
70.2	-0.00039552	
69	-2.06489936	
68.4	-6.57498107	
67.8	-15.131616	
67.1	-31.9577503	
64.5	-192.440246	
64	-246.893594	
64	-246.893594	
64	-246.893594	
62.55	-460.708581	
61	-797.475918	
59	-1432.73293	
58.3	-1716.53608	
58.1	-1803.99834	
57	-2338.55164	
57	-2338.55164	
57	-2338.55164	
56.9	-2391.80582	
56.3	-2728.39139	
50	-8332.59054	
26	-86781.8193	
25	-92796.0425	
23.8	-100372.204	
22.4	-109719.276	
21.9	-113193.1	
21.9	-113193.1	

Table A-34. Far Upgradient Background Chloride Data Set, Coefficient of Skewness Analysis (continued)

Chloride	Lognormal (xi-avg)^3	
4.75359019	0.20073356	<b>Lognormal</b> standard deviation = 0.452051 mean = 4.168 count = 47 sum of (xi-avg)^3 = -4.92679 1/n = 0.021277 standard deviation cubed = 0.092377 ((n-1)/n)^(3/2) = 0.968255  coef. of skewness = -1.2  acceptable range -1 to 1 <b>Fail</b>
4.72738782	0.1749726	
4.72738782	0.1749726	
4.70048037	0.15091531	
4.66343909	0.12155702	
4.65396035	0.11471178	
4.63472899	0.10162295	
4.63472899	0.10162295	
4.63472899	0.10162295	
4.55807858	0.05932176	
4.52178858	0.04425519	
4.45201901	0.02289335	
4.42962561	0.01789285	
4.42843301	0.0176492	
4.35156743	0.00617834	
4.34898678	0.00592132	
4.30406509	0.00251504	
4.29319542	0.00195889	
4.28496492	0.0015972	
4.26267988	0.00084679	
4.26267988	0.00084679	
4.25134831	0.00057751	
4.2341065	0.00028794	
4.22537282	0.00018814	
4.21656219	0.00011401	
4.20618404	5.5356E-05	
4.16666522	-2.7872E-09	
4.15888308	-7.7601E-07	
4.15888308	-7.7601E-07	
4.15888308	-7.7601E-07	
4.13596624	-3.3096E-05	
4.11087386	-0.00018714	
4.07753744	-0.00074208	
4.06560209	-0.00107596	
4.06216566	-0.00118788	
4.04305127	-0.00195412	
4.04305127	-0.00195412	
4.04305127	-0.00195412	
4.04129534	-0.00203762	
4.03069454	-0.0025927	
3.91202301	-0.01678696	
3.25809654	-0.75351138	
3.21887582	-0.85520194	
3.16968558	-0.99516867	
3.10906096	-1.18768734	
3.08648664	-1.26526954	
3.08648664	-1.26526954	



Table A-35. Chloride Far Upgradient Background Data Set, Shapiro-Wilk Test of Normality Analysis

Chloride - raw data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
21.9	116	94.1	0.3808	35.83328
21.9	113	91.1	0.262	23.8682
22.4	113	90.6	0.2291	20.75646
23.8	110	86.2	0.2052	17.68824
25	106	81	0.1859	15.0579
26	105	79	0.1695	13.3905
50	103	53	0.155	8.215
56.3	103	46.7	0.142	6.6314
56.9	103	46.1	0.13	5.993
57	95.4	38.4	0.1189	4.56576
57	92	35	0.1085	3.7975
57	85.8	28.8	0.0986	2.83968
58.1	83.9	25.8	0.0892	2.30136
58.3	83.8	25.5	0.0801	2.04255
59	77.6	18.6	0.0713	1.32618
61	77.4	16.4	0.0628	1.02992
62.55	74	11.45	0.0546	0.62517
64	73.2	9.2	0.0465	0.4278
64	72.6	8.6	0.0385	0.3311
64	71	7	0.0307	0.2149
64.5	71	6.5	0.0229	0.14885
67.1	70.2	3.1	0.0153	0.04743
67.8	69	1.2	0.0076	0.00912
68.4	68.4	0	0	0
69	67.8	-1.2		
70.2	67.1	-3.1		
71	64.5	-6.5		
71	64	-7		
72.6	64	-8.6		
73.2	64	-9.2		
74	62.55	-11.45		
77.4	61	-16.4		
77.6	59	-18.6		
83.8	58.3	-25.5		
83.9	58.1	-25.8		
85.8	57	-28.8		
92	57	-35		
95.4	57	-38.4		
103	56.9	-46.1		
103	56.3	-46.7		
103	50	-53		
105	26	-79		
106	25	-81		
110	23.8	-86.2		
113	22.4	-90.6		
113	21.9	-91.1		
116	21.9	-94.1		

167.1413 = sum of B  
25.56079 = standard deviation  
46 = count - 1

0.929525 = W statistic  
0.946 is acceptable low value  
Fails Shapiro-Wilk test

Table A-35. Chloride Far Upgradient Background Data Set, Shapiro-Wilk Test of Normality Analysis (concluded)

Chloride - log data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
3.086487	4.75359	1.667103554	0.3808	0.634833
3.086487	4.727388	1.640901182	0.262	0.429916
3.109061	4.727388	1.61832686	0.2291	0.370759
3.169686	4.70048	1.530794785	0.2052	0.314119
3.218876	4.663439	1.444563269	0.1859	0.268544
3.258097	4.65396	1.395863812	0.1695	0.236599
3.912023	4.634729	0.722705983	0.155	0.112019
4.030695	4.634729	0.604034453	0.142	0.085773
4.041295	4.634729	0.593433647	0.13	0.077146
4.043051	4.558079	0.515027311	0.1189	0.061237
4.043051	4.521789	0.478737309	0.1085	0.051943
4.043051	4.452019	0.408967739	0.0986	0.040324
4.062166	4.429626	0.36745995	0.0892	0.032777
4.065602	4.428433	0.362830914	0.0801	0.029063
4.077537	4.351567	0.274029983	0.0713	0.019538
4.110874	4.348987	0.238112916	0.0628	0.014953
4.135966	4.304065	0.168098856	0.0546	0.009178
4.158883	4.293195	0.134312338	0.0465	0.006246
4.158883	4.284965	0.126081838	0.0385	0.004854
4.158883	4.26268	0.103796794	0.0307	0.003187
4.166665	4.26268	0.096014653	0.0229	0.002199
4.206184	4.251348	0.045164267	0.0153	0.000691
4.216562	4.234107	0.01754431	0.0076	0.000133
4.225373	4.225373	0	0	0
4.234107	4.216562	-0.01754431		
4.251348	4.206184	-0.045164267		
4.26268	4.166665	-0.096014653		
4.26268	4.158883	-0.103796794		
4.284965	4.158883	-0.126081838		
4.293195	4.158883	-0.134312338		
4.304065	4.135966	-0.168098856		
4.348987	4.110874	-0.238112916		
4.351567	4.077537	-0.274029983		
4.428433	4.065602	-0.362830914		
4.429626	4.062166	-0.36745995		
4.452019	4.043051	-0.408967739		
4.521789	4.043051	-0.478737309		
4.558079	4.043051	-0.515027311		
4.634729	4.041295	-0.593433647		
4.634729	4.030695	-0.604034453		
4.634729	3.912023	-0.722705983		
4.65396	3.258097	-1.395863812		
4.663439	3.218876	-1.444563269		
4.70048	3.169686	-1.530794785		
4.727388	3.109061	-1.61832686		
4.727388	3.086487	-1.640901182		
4.75359	3.086487	-1.667103554		

2.806032 = sum of B

0.452051 = standard deviation

46 = count - 1

0.83763 = W statistic

0.946 is acceptable low value

**Fails Shapiro-Wilk test**

Table A-36. Chloride Far Upgradient Background Data Set, Filliben's Statistic Analysis

Chloride	Ln(Chloride)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
21.9	3.09	1	0.01464	-2.1797	-47.7357	4.75115	-6.7276556
21.9	3.09	2	0.03552	-1.8052	-39.5337	3.258719	-5.5717021
22.4	3.11	3	0.05663	-1.5837	-35.4741	2.508	-4.9237164
23.8	3.17	4	0.07775	-1.4204	-33.8053	2.017507	-4.5021888
25	3.22	5	0.09886	-1.2881	-32.2019	1.659141	-4.146158
26	3.26	6	0.11997	-1.1751	-30.5532	1.380916	-3.8286674
50	3.91	7	0.14109	-1.0755	-53.7729	1.156608	-4.2072126
56.3	4.03	8	0.16220	-0.9855	-55.4817	0.971141	-3.9721076
56.9	4.04	9	0.18331	-0.9028	-51.3705	0.815086	-3.6485675
57	4.04	10	0.20442	-0.8259	-47.0778	0.682153	-3.3392603
57	4.04	11	0.22554	-0.7536	-42.9569	0.567958	-3.0469649
57	4.04	12	0.24665	-0.6851	-39.0493	0.469327	-2.7697918
58.1	4.06	13	0.26776	-0.6196	-35.9986	0.383901	-2.516909
58.3	4.07	14	0.28887	-0.5567	-32.4544	0.309891	-2.2632352
59	4.08	15	0.30999	-0.4959	-29.2575	0.245906	-2.0220079
61	4.11	16	0.33110	-0.4369	-26.6497	0.190864	-1.7959599
62.55	4.14	17	0.35221	-0.3794	-23.7288	0.143912	-1.569008
64	4.16	18	0.37332	-0.3231	-20.6759	0.104369	-1.3435755
64	4.16	19	0.39444	-0.2678	-17.1375	0.071703	-1.1136384
64	4.16	20	0.41555	-0.2133	-13.6507	0.045494	-0.8870583
64.5	4.17	21	0.43666	-0.1594	-10.2837	0.02542	-0.6643241
67.1	4.21	22	0.45777	-0.1060	-7.11538	0.011245	-0.4460296
67.8	4.22	23	0.47889	-0.0529	-3.58975	0.002803	-0.2232511
68.4	4.23	24	0.50000	0.0000	0	0	0
69	4.23	25	0.52111	0.0529	3.65329	0.002803	0.22417999
70.2	4.25	26	0.54223	0.1060	7.444106	0.011245	0.45081892
71	4.26	27	0.56334	0.1594	11.32009	0.02542	0.67963244
71	4.26	28	0.58445	0.2133	15.14376	0.045494	0.90919732
72.6	4.28	29	0.60556	0.2678	19.44035	0.071703	1.14739975
73.2	4.29	30	0.62668	0.3231	23.64811	0.104369	1.38696664
74	4.30	31	0.64779	0.3794	28.07242	0.143912	1.63277749
77.4	4.35	32	0.66890	0.4369	33.81454	0.190864	1.89998677
77.6	4.35	33	0.69001	0.4959	38.48102	0.245906	2.15789651
83.8	4.43	34	0.71113	0.5567	46.6497	0.309891	2.46521552
83.9	4.43	35	0.73224	0.6196	51.98426	0.383901	2.74458634
85.8	4.45	36	0.75335	0.6851	58.7794	0.469327	3.04996519
92	4.52	37	0.77446	0.7536	69.33396	0.567958	3.40775574
95.4	4.56	38	0.79558	0.8259	78.79332	0.682153	3.76463461
103	4.63	39	0.81669	0.9028	92.99059	0.815086	4.18433198
103	4.63	40	0.83780	0.9855	101.5029	0.971141	4.56736225
103	4.63	41	0.85891	1.0755	110.7721	1.156608	4.98445183
105	4.65	42	0.88003	1.1751	123.388	1.380916	5.46898049
106	4.66	43	0.90114	1.2881	136.5361	1.659141	6.00686593
110	4.70	44	0.92225	1.4204	156.2429	2.017507	6.67651393
113	4.73	45	0.94337	1.5837	178.9543	2.508	7.48660688
113	4.73	46	0.96448	1.8052	203.9867	3.258719	8.53384442
116	4.75	47	0.98536	2.1797	252.8467	4.75115	10.3614632

**Normal**

1114.224 =sum X(i)\*M(i)

43.546 =sum M(i)^2

25.56 = standard deviation

6.5990 = square root of sum Mi<sup>2</sup>

0.974 = Filliben's Statistic

**Lognormal**

18.662 =sum X(i)\*M(i)

43.546 =sum M(i)^2

0.45 = standard deviation

6.5990 = square root of sum Mi<sup>2</sup>

0.922 = Filliben's Statistic

.975 is acceptable value

**Normal - Fail****Lognormal - Fail**

Table A-37. Chloride Far Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Coefficient of Skewness (-1 to 1)	Shapiro-Wilk Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Chloride	Normal	Pass	Fail	Pass	Fail	Fail	X	X	47	Nonparametric
Chloride	Lognormal	Pass	NA	Fail	Fail	Fail			47	

NA - not applicable

Table A-38.  $T_n$  Statistic Analysis for Chloride Far Upgradient Background Data Set

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	$T_n$ Statistic	N	Upper 5% Critical Value	Pass or Fail $T_n$ Statistic
Chloride	Normal	116	70.27	25.56	1.789	47	2.931	Pass

N - number of samples

Table A-39. 95th Percentile for Far Upgradient Chloride Background Data Set

Parameter	Distribution	Censored?	95th Percentile (mg/L)	Sample #
Chloride	Nonparametric	No	112.10	47

Table A-40. Summary Table for Far Upgradient Chloride Background Data Set

Parameter	Distribution	Mean	SD	95th Percentile (mg/L)	Range (normal)	Sample #
Chloride	Nonparametric	70.27	25.56	112.10	116 to 21.9	47

SD = standard deviation

Table A-41. Chloride Upgradient Background Data, Comparison Statistics Results

Comparison of Medians

Median of Sample 1: 68.4

Median of Sample 2: 52.05

Mann-Whitney (Wilcoxon) W test to compare medians

Null hypothesis: median1 = median2

Alt. Hypothesis: median1 NE median2

Average rank of sample 1: 284.723

Average rank of sample 2: 179.03

w = 3538.0

P-value = 8.3348E-10

The StatAdvisor

This option runs the Mann-Whitney W test to compare the medians of the two samples. This test is constructed by combining the two samples, sorting the data from the smallest to the largest, and comparing the average ranks of the two samples in the combined data. Since the P-value is less than 0.05, there is a statistically significant difference between the medians at the 95.0% confidence level.

Table B-1. Nitrate concentrations in alluvial ground water samples upgradient of the Homestake Site, Grants, New Mexico from June 1977 to May 1999

Well ID	DD	ND	P	P1	P2	P3	P4	Q	R	All wells	914	916	920	921	922	950	All Wells
1st sampling date	15-Sep-81	12-Jan-83	13-Jun-77	21-Sep-92	21-Sep-92	23-Apr-98	24-Apr-98	12-Jun-77	13-Jun-77	12-Jun-77	10-Jan-83	21-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81
Most recent sampling date	20-Apr-99	05-Aug-98	10-May-99	21-Jan-99	11-May-99	23-Apr-98	24-Apr-98	02-Mar-99	20-May-99	20-May-99	19-May-99	20-May-99	19-May-99	19-May-99	19-May-99	25-Jan-96	20-May-99
Total number of measurements	52	13	121	32	32	1	1	89	96	437	7	6	19	6	7	3	48
Number of independent measurements	48	13	92	27	26	1	1	71	72	351	7	6	18	6	7	3	47
Percent nondetect of total number of measurements	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.04%	0.23%	57.14%	0.00%	0.00%	0.00%	42.86%	0.00%	14.58%
Minimum	3.74	0.44	0.35	4.54	10	7.28	3.13	7.71	4.6	0.35	<0.1	3.95	10.2	12	<0.1	7.56	<0.1
Median	11.1	1.3	7.4	13.1	13.4	7.28	3.13	14.8	7.8	9.7	<0.1	4.1	20.3	15.1	0.2	10.7	11.7
Mean	12.5	2.2	7.5	14.2	14.1	7.28	3.13	15.6	8.5	10.8	1.6	4.1	19.4	15.0	1.7	10	11.0
Maximum	33.2	6.2	22	31	26.9	7.28	3.13	33.2	23.8	33.2	6.92	4.39	26	16.9	9.9	11.7	26
Percent greater than or equal to the NM site standard (12.3 mg/L)	43.75%	0.00%	7.61%	66.67%	73.08%	0.00%	0.00%	60.56%	11.11%	33.05%	0.00%	0.00%	94.44%	83.33%	0.00%	0.00%	46.81%

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
DD	15-Sep-81	Nitrate	Homestake	None	25.5
DD	24-Mar-82	Nitrate	Homestake	None	8.2
DD	26-May-82	Nitrate	Homestake	None	14.5
DD	18-Nov-82	Nitrate	Homestake	None	15
DD	04-Mar-83	Nitrate	Homestake	None	10.3
DD	28-Jun-83	Nitrate	NMEID	None	6.62
DD	28-Jun-83	Nitrate	Homestake	None	14
DD	14-Sep-83	Nitrate	Homestake	None	15
DD	19-Dec-83	Nitrate	Homestake	None	15.2
DD	07-Mar-84	Nitrate	Homestake	None	16.8
DD	09-May-84	Nitrate	Homestake	None	23.8
DD	12-Sep-84	Nitrate	Homestake	None	24.3
DD	12-Dec-84	Nitrate	Homestake	None	33.2
DD	13-Mar-85	Nitrate	Homestake	None	15.1
DD	06-Jun-85	Nitrate	Homestake	None	16.8
DD	04-Sep-85	Nitrate	Homestake	None	18.4
DD	16-Dec-85	Nitrate	Homestake	None	10.4
DD	20-Mar-86	Nitrate	Homestake	None	9.1
DD	30-Jun-86	Nitrate	Homestake	None	15.1
DD	15-Sep-86	Nitrate	Homestake	None	9.5
DD	09-Dec-86	Nitrate	Homestake	None	9.4
DD	19-Mar-87	Nitrate	Homestake	None	11.2
DD	24-Jun-87	Nitrate	Homestake	None	9.3
DD	15-Sep-87	Nitrate	Homestake	None	7.2
DD	08-Dec-87	Nitrate	Homestake	None	12.6
DD	24-Feb-88	Nitrate	Homestake	None	12.3
DD	09-Jun-88	Nitrate	Homestake	None	10.8
DD	11-Oct-88	Nitrate	Homestake	None	13.2
DD	08-Dec-88	Nitrate	Homestake	None	9.6
DD	13-Dec-88	Nitrate	Homestake	None	9.5
DD	13-Dec-88	Nitrate	Barringer	None	13.2
DD	11-Jan-89	Nitrate	Barringer	None	12.1
DD	11-Jan-89	Nitrate	Homestake	None	10.4
DD	15-Feb-89	Nitrate	Homestake	None	7.5
DD	15-Feb-89	Nitrate	Barringer	None	10.4
DD	29-Mar-89	Nitrate	Homestake	None	6.2
DD	15-Nov-89	Nitrate	Homestake	None	9.6
DD	13-Mar-90	Nitrate	Homestake	None	9.8
DD	12-Sep-90	Nitrate	Homestake	None	13.5
DD	27-Feb-91	Nitrate	Homestake	None	18
DD	16-Sep-91	Nitrate	Homestake	None	19
DD	09-Mar-92	Nitrate	Homestake	None	14
DD	22-Sep-92	Nitrate	Homestake	None	13
DD	21-Oct-93	Nitrate	Energy Labs	None	9.6
DD	09-Mar-94	Nitrate	Energy Labs	None	10.9
DD	21-Oct-94	Nitrate	Energy Labs	None	3.74
DD	10-Oct-95	Nitrate	Energy Labs	None	8.37
DD	10-Oct-96	Nitrate	Energy Labs	None	7.28
DD	14-Apr-97	Nitrate	Energy Labs	None	6.95
DD	09-Sep-97	Nitrate	Energy Labs	None	5.1
DD	01-Apr-98	Nitrate	Energy Labs	None	5.14
DD	20-Apr-99	Nitrate	Energy Labs	None	4.26
ND	12-Jan-83	Nitrate	Homestake	None	1.9

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
ND	06-Jan-84	Nitrate	Homestake	None	4.1
ND	18-Dec-89	Nitrate	Homestake	None	1.4
ND	17-Oct-90	Nitrate	Homestake	None	4.4
ND	16-Sep-91	Nitrate	Homestake	None	4.8
ND	18-Aug-92	Nitrate	Homestake	None	6.2
ND	25-Aug-93	Nitrate	Energy Labs	None	1.29
ND	14-Mar-94	Nitrate	Energy Labs	None	0.48
ND	22-Aug-94	Nitrate	Energy Labs	None	1.32
ND	22-Aug-95	Nitrate	Energy Labs	None	1.23
ND	29-Jul-96	Nitrate	Energy Labs	None	0.81
ND	11-Aug-97	Nitrate	Energy Labs	None	0.44
ND	05-Aug-98	Nitrate	Energy Labs	None	0.59
P	13-Jun-77	Nitrate	Homestake	None	8.01
P	13-Jun-77	Nitrate	NMEID	None	8.01
P	13-Jun-77	Nitrate	Eberline	None	8.01
P	24-Aug-77	Nitrate	Homestake	None	8.91
P	24-Aug-77	Nitrate	NMEID	None	8.91
P	24-Aug-77	Nitrate	Eberline	None	8.91
P	11-Oct-77	Nitrate	NMEID	None	7.47
P	11-Oct-77	Nitrate	Homestake	None	8
P	01-Feb-78	Nitrate	NMEID	None	7.52
P	01-Feb-78	Nitrate	Homestake	None	8.7
P	17-Apr-78	Nitrate	Homestake	None	8.4
P	11-Jul-78	Nitrate	NMEID	None	6.77
P	11-Jul-78	Nitrate	Homestake	None	13.3
P	23-Oct-78	Nitrate	Homestake	None	9.4
P	23-Oct-78	Nitrate	NMEID	None	7.88
P	30-Jan-79	Nitrate	Homestake	None	11.5
P	30-Jan-79	Nitrate	NMEID	None	8.14
P	30-Apr-79	Nitrate	Homestake	None	8.4
P	30-Apr-79	Nitrate	NMEID	None	8.03
P	12-Jul-79	Nitrate	Homestake	None	9.4
P	10-Sep-79	Nitrate	Homestake	None	9.2
P	16-Apr-80	Nitrate	Homestake	None	15
P	17-Apr-80	Nitrate	NMEID	None	8.9
P	16-Jul-80	Nitrate	NMEID	None	7.35
P	13-Oct-80	Nitrate	NMEID	None	7.97
P	13-Oct-80	Nitrate	Homestake	None	8.1
P	07-Jan-81	Nitrate	Homestake	None	10.1
P	07-Jan-81	Nitrate	NMEID	None	8.3
P	15-Apr-81	Nitrate	Homestake	None	9.2
P	07-Jul-81	Nitrate	Homestake	None	8.8
P	07-Oct-81	Nitrate	Homestake	None	8.9
P	28-Dec-81	Nitrate	NMEID	None	6.7
P	28-Dec-81	Nitrate	Homestake	None	7.8
P	24-Mar-82	Nitrate	Homestake	None	8.1
P	24-Mar-82	Nitrate	NMEID	None	6.4
P	22-May-82	Nitrate	Homestake	None	7.2
P	25-Aug-82	Nitrate	Homestake	None	9
P	18-Nov-82	Nitrate	Homestake	None	7.4
P	23-Feb-83	Nitrate	Homestake	None	9
P	26-May-83	Nitrate	Homestake	None	6.8
P	27-Jun-83	Nitrate	Homestake	None	8.8
P	27-Jun-83	Nitrate	NMEID	None	5.5



Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	12-Sep-83	Nitrate	Homestake	None	9.8
P	19-Dec-83	Nitrate	Homestake	None	13.7
P	07-Mar-84	Nitrate	Homestake	None	11.5
P	09-May-84	Nitrate	Homestake	None	17.3
P	12-Sep-84	Nitrate	Homestake	None	22
P	13-Dec-84	Nitrate	Homestake	None	19.6
P	11-Mar-85	Nitrate	Homestake	None	13.1
P	11-Mar-85	Nitrate	Controls for Env Pollution	None	7
P	29-May-85	Nitrate	Homestake	None	14.3
P	04-Sep-85	Nitrate	Homestake	None	14.1
P	16-Dec-85	Nitrate	Homestake	None	8.4
P	10-Mar-86	Nitrate	Homestake	None	8.7
P	10-Mar-86	Nitrate	Controls for Env Pollution	None	6.4
P	30-Jun-86	Nitrate	Homestake	None	12.2
P	15-Sep-86	Nitrate	Homestake	None	10.7
P	15-Sep-86	Nitrate	Controls for Env Pollution	None	6.2
P	16-Dec-86	Nitrate	Homestake	None	12.9
P	19-Mar-87	Nitrate	Homestake	None	8.8
P	19-Mar-87	Nitrate	Controls for Env Pollution	None	11
P	24-Jun-87	Nitrate	Homestake	None	7.4
P	16-Sep-87	Nitrate	Homestake	None	5.9
P	16-Sep-87	Nitrate	Controls for Env Pollution	None	6
P	08-Dec-87	Nitrate	Homestake	None	7.2
P	24-Feb-88	Nitrate	Homestake	None	5.8
P	24-Feb-88	Nitrate	Barringer	None	6
P	12-May-88	Nitrate	Homestake	None	4.9
P	23-Aug-88	Nitrate	Homestake	None	4.8
P	23-Aug-88	Nitrate	Barringer	None	5.4
P	12-Oct-88	Nitrate	Homestake	None	3.2
P	13-Dec-88	Nitrate	Homestake	None	4.1
P	13-Dec-88	Nitrate	Barringer	None	6.3
P	11-Jan-89	Nitrate	Homestake	None	4.9
P	11-Jan-89	Nitrate	Barringer	None	6.3
P	15-Feb-89	Nitrate	Homestake	None	3.5
P	15-Feb-89	Nitrate	Barringer	None	5
P	16-May-89	Nitrate	Homestake	None	3.8
P	10-Aug-89	Nitrate	Homestake	None	3.6
P	15-Nov-89	Nitrate	Homestake	None	3.5
P	13-Mar-90	Nitrate	Homestake	None	4.2
P	04-Jun-90	Nitrate	Homestake	None	10.1
P	12-Sep-90	Nitrate	Homestake	None	6.6
P	03-Dec-90	Nitrate	Homestake	None	8.2
P	03-Dec-90	Nitrate	Barringer	None	2.8
P	27-Feb-91	Nitrate	Homestake	None	10
P	03-Jun-91	Nitrate	Homestake	None	6.2
P	16-Sep-91	Nitrate	Homestake	None	12
P	18-Nov-91	Nitrate	Homestake	None	7.4
P	09-Mar-92	Nitrate	Homestake	None	6.8
P	04-Jun-92	Nitrate	Homestake	None	6.6

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	21-Sep-92	Nitrate	Homestake	None	8
P	03-Dec-92	Nitrate	Homestake	None	10
P	03-Mar-93	Nitrate	Homestake	None	10.5
P	01-Jun-93	Nitrate	Homestake	None	6.6
P	08-Sep-93	Nitrate	Energy Labs	None	4.9
P	24-Nov-93	Nitrate	Energy Labs	None	3.8
P	01-Mar-94	Nitrate	Energy Labs	None	0.35
P	31-May-94	Nitrate	Energy Labs	None	4.13
P	01-Sep-94	Nitrate	Energy Labs	None	4.02
P	28-Nov-94	Nitrate	Energy Labs	None	5.4
P	16-Mar-95	Nitrate	Energy Labs	None	3.14
P	16-Mar-95	Nitrate	Energy Labs	None	3.16
P	06-Jun-95	Nitrate	Energy Labs	None	4.33
P	05-Sep-95	Nitrate	Energy Labs	None	2.05
P	05-Dec-95	Nitrate	Energy Labs	None	3.4
P	05-Dec-95	Nitrate	Energy Labs	None	3.21
P	11-Mar-96	Nitrate	Energy Labs	None	2.26
P	03-Jun-96	Nitrate	Energy Labs	None	2.98
P	17-Sep-96	Nitrate	Energy Labs	None	2.98
P	10-Oct-96	Nitrate	Energy Labs	None	3.22
P	06-Mar-97	Nitrate	Energy Labs	None	3.04
P	27-May-97	Nitrate	Energy Labs	None	2.85
P	09-Sep-97	Nitrate	Energy Labs	None	1.16
P	03-Nov-97	Nitrate	Energy Labs	None	3.26
P	04-Mar-98	Nitrate	Energy Labs	None	3.49
P	05-May-98	Nitrate	Energy Labs	None	9.23
P	16-Sep-98	Nitrate	Energy Labs	None	10.8
P	12-Nov-98	Nitrate	Energy Labs	None	8.8
P	02-Mar-99	Nitrate	Energy Labs	None	8.08
P	10-May-99	Nitrate	Energy Labs	None	7.45
P1	21-Sep-92	Nitrate	Homestake	None	18
P1	21-Jan-93	Nitrate	Homestake	None	23
P1	13-Apr-93	Nitrate	Homestake	None	31
P1	13-Jul-93	Nitrate	Homestake	None	14.5
P1	21-Oct-93	Nitrate	Energy Labs	None	11.1
P1	04-Jan-94	Nitrate	Energy Labs	None	15.9
P1	07-Mar-94	Nitrate	Energy Labs	None	16.4
P1	12-Apr-94	Nitrate	Energy Labs	None	16.9
P1	06-Jul-94	Nitrate	Energy Labs	None	13.4
P1	21-Oct-94	Nitrate	Energy Labs	None	15.4
P1	04-Jan-95	Nitrate	Energy Labs	None	14.1
P1	04-Jan-95	Nitrate	Energy Labs	None	16.2
P1	12-Apr-95	Nitrate	Energy Labs	None	15.2
P1	06-Jul-95	Nitrate	Energy Labs	None	4.54
P1	03-Oct-95	Nitrate	Energy Labs	None	11.9
P1	10-Jan-96	Nitrate	Energy Labs	None	13.7
P1	10-Jan-96	Nitrate	Energy Labs	None	14.7
P1	09-Apr-96	Nitrate	Energy Labs	None	13.6
P1	09-Apr-96	Nitrate	Energy Labs	None	13
P1	19-Jul-96	Nitrate	Energy Labs	None	12.4
P1	19-Jul-96	Nitrate	Energy Labs	None	12.4
P1	04-Nov-96	Nitrate	Energy Labs	None	12
P1	04-Nov-96	Nitrate	Energy Labs	None	12.9
P1	13-Jan-97	Nitrate	Energy Labs	None	12.8

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P1	14-Apr-97	Nitrate	Energy Labs	None	13.1
P1	08-Jul-97	Nitrate	Energy Labs	None	12.2
P1	03-Nov-97	Nitrate	Energy Labs	None	12.3
P1	19-Jan-98	Nitrate	Energy Labs	None	12.1
P1	01-Apr-98	Nitrate	Energy Labs	None	11.6
P1	14-Jul-98	Nitrate	Energy Labs	None	11
P1	28-Oct-98	Nitrate	Energy Labs	None	11.8
P1	21-Jan-99	Nitrate	Energy Labs	None	10.5
P2	21-Sep-92	Nitrate	Homestake	None	17
P2	08-Feb-93	Nitrate	Homestake	None	22.5
P2	08-Feb-93	Nitrate	Energy Labs	None	15.3
P2	04-May-93	Nitrate	Homestake	None	17
P2	04-May-93	Nitrate	Energy Labs	None	12.5
P2	12-Aug-93	Nitrate	Homestake	None	10
P2	01-Nov-93	Nitrate	Energy Labs	None	16.4
P2	01-Nov-93	Nitrate	Energy Labs	None	15.7
P2	02-Feb-94	Nitrate	Energy Labs	None	13.4
P2	07-Mar-94	Nitrate	Energy Labs	None	17.4
P2	29-Apr-94	Nitrate	Energy Labs	None	15.9
P2	29-Apr-94	Nitrate	Energy Labs	None	16.9
P2	01-Aug-94	Nitrate	Energy Labs	None	15.4
P2	01-Nov-94	Nitrate	Energy Labs	None	15.2
P2	03-Feb-95	Nitrate	Energy Labs	None	12.3
P2	05-May-95	Nitrate	Energy Labs	None	14.3
P2	02-Aug-95	Nitrate	Energy Labs	None	14.2
P2	02-Aug-95	Nitrate	Energy Labs	None	14.1
P2	06-Nov-95	Nitrate	Energy Labs	None	12.7
P2	12-Feb-96	Nitrate	Energy Labs	None	13.1
P2	14-May-96	Nitrate	Energy Labs	None	13.7
P2	14-May-96	Nitrate	Energy Labs	None	13.2
P2	29-Jul-96	Nitrate	Energy Labs	None	26.9
P2	03-Feb-97	Nitrate	Energy Labs	None	15.5
P2	29-Apr-97	Nitrate	Energy Labs	None	13.3
P2	13-Oct-97	Nitrate	Energy Labs	None	10.4
P2	10-Feb-98	Nitrate	Energy Labs	None	12.4
P2	05-May-98	Nitrate	Energy Labs	None	11.6
P2	04-Aug-98	Nitrate	Energy Labs	None	10.6
P2	28-Oct-98	Nitrate	Energy Labs	None	11.4
P2	03-Feb-99	Nitrate	Energy Labs	None	10.4
P2	11-May-99	Nitrate	Energy Labs	None	10.6
P3	23-Apr-98	Nitrate	Energy Labs	None	7.28
P4	24-Apr-98	Nitrate	Energy Labs	None	3.13
Q	12-Jun-77	Nitrate	Homestake	None	1.9
Q	13-Jun-77	Nitrate	Eberline	None	18.25
Q	24-Aug-77	Nitrate	Eberline	None	21.48
Q	11-Oct-77	Nitrate	Eberline	None	18.14
Q	11-Oct-77	Nitrate	Homestake	None	19.2
Q	01-Feb-78	Nitrate	Eberline	None	16.58
Q	01-Feb-78	Nitrate	Homestake	None	18.2
Q	17-Apr-78	Nitrate	Homestake	None	17.2
Q	10-Jul-78	Nitrate	NMEID	None	18.9
Q	10-Jul-78	Nitrate	Homestake	None	28.5
Q	23-Oct-78	Nitrate	Homestake	None	21.8
Q	23-Oct-78	Nitrate	NMEID	None	19.7

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
Q	30-Jan-79	Nitrate	Homestake	None	27.2
Q	30-Jan-79	Nitrate	NMEID	None	23.16
Q	30-Apr-79	Nitrate	Homestake	None	19.4
Q	30-Apr-79	Nitrate	NMEID	None	17.86
Q	12-Jul-79	Nitrate	Homestake	None	24.8
Q	10-Sep-79	Nitrate	Homestake	None	19.3
Q	16-Apr-80	Nitrate	Homestake	None	30
Q	17-Apr-80	Nitrate	NMEID	None	19.85
Q	16-Jul-80	Nitrate	NMEID	None	15.74
Q	13-Oct-80	Nitrate	Homestake	None	10.2
Q	13-Oct-80	Nitrate	NMEID	None	17.86
Q	07-Jan-81	Nitrate	Homestake	None	25
Q	07-Jan-81	Nitrate	NMEID	None	20.8
Q	15-Apr-81	Nitrate	Homestake	None	23
Q	15-Apr-81	Nitrate	NMEID	None	21.7
Q	07-Jul-81	Nitrate	Homestake	None	23
Q	07-Oct-81	Nitrate	Homestake	None	19.5
Q	28-Dec-81	Nitrate	Homestake	None	21
Q	28-Dec-81	Nitrate	NMEID	None	19.2
Q	24-Mar-82	Nitrate	Homestake	None	16
Q	24-Mar-82	Nitrate	NMEID	None	13.3
Q	22-May-82	Nitrate	Homestake	None	15.2
Q	25-Aug-82	Nitrate	Homestake	None	17
Q	18-Nov-82	Nitrate	Homestake	None	12
Q	23-Feb-83	Nitrate	Homestake	None	11.1
Q	26-May-83	Nitrate	Homestake	None	11
Q	28-Jun-83	Nitrate	NMEID	None	10.65
Q	28-Jun-83	Nitrate	Homestake	None	16.8
Q	21-Sep-83	Nitrate	Homestake	None	20
Q	19-Dec-83	Nitrate	Homestake	None	23.8
Q	07-Mar-84	Nitrate	Homestake	None	19.8
Q	09-May-84	Nitrate	Homestake	None	31.3
Q	12-Sep-84	Nitrate	Homestake	None	22.4
Q	12-Dec-84	Nitrate	Homestake	None	33.2
Q	11-Mar-85	Nitrate	Homestake	None	18.5
Q	29-May-85	Nitrate	Homestake	None	23.2
Q	06-Sep-85	Nitrate	Homestake	None	24.8
Q	16-Dec-85	Nitrate	Homestake	None	11.7
Q	10-Mar-86	Nitrate	Homestake	None	11.5
Q	30-Jun-86	Nitrate	Homestake	None	17.8
Q	15-Sep-86	Nitrate	Homestake	None	15.6
Q	15-Dec-86	Nitrate	Homestake	None	15.3
Q	19-Mar-87	Nitrate	Homestake	None	14.5
Q	19-Jun-87	Nitrate	Homestake	None	12
Q	15-Sep-87	Nitrate	Homestake	None	9.6
Q	08-Dec-87	Nitrate	Homestake	None	16.6
Q	24-Feb-88	Nitrate	Homestake	None	14.8
Q	12-May-88	Nitrate	Homestake	None	10.6
Q	23-Aug-88	Nitrate	Homestake	None	11.2
Q	03-Nov-88	Nitrate	Homestake	None	15.6
Q	13-Dec-88	Nitrate	Homestake	None	9.8
Q	13-Dec-88	Nitrate	Barringer	None	11.5
Q	11-Jan-89	Nitrate	Homestake	None	10.1
Q	11-Jan-89	Nitrate	Barringer	None	12.6

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
Q	15-Feb-89	Nitrate	Homestake	None	8.1
Q	15-Feb-89	Nitrate	Barringer	None	11.2
Q	16-May-89	Nitrate	Homestake	None	7.9
Q	15-Nov-89	Nitrate	Homestake	None	10.7
Q	13-Mar-90	Nitrate	Homestake	None	10.1
Q	12-Sep-90	Nitrate	Homestake	None	14
Q	27-Feb-91	Nitrate	Homestake	None	16
Q	16-Sep-91	Nitrate	Homestake	None	11.5
Q	09-Mar-92	Nitrate	Homestake	None	12
Q	16-Sep-92	Nitrate	Homestake	None	13
Q	03-Mar-93	Nitrate	Homestake	None	15
Q	08-Sep-93	Nitrate	Energy Labs	None	7.8
Q	01-Mar-94	Nitrate	Energy Labs	None	7.4
Q	01-Mar-94	Nitrate	Energy Labs	None	11.2
Q	01-Sep-94	Nitrate	Energy Labs	None	8.09
Q	16-Mar-95	Nitrate	Energy Labs	None	8.81
Q	05-Sep-95	Nitrate	Energy Labs	None	8.18
Q	11-Mar-96	Nitrate	Energy Labs	None	8.92
Q	17-Sep-96	Nitrate	Energy Labs	None	7.71
Q	06-Mar-97	Nitrate	Energy Labs	None	8.16
Q	09-Sep-97	Nitrate	Energy Labs	None	13.5
Q	04-Mar-98	Nitrate	Energy Labs	None	8.4
Q	02-Mar-99	Nitrate	Energy Labs	None	9.34
R	13-Jun-77	Nitrate	Eberline	None	6.39
R	24-Aug-77	Nitrate	Eberline	None	7
R	11-Oct-77	Nitrate	Eberline	None	6.7
R	11-Oct-77	Nitrate	Homestake	None	7.2
R	01-Feb-78	Nitrate	Eberline	None	6.59
R	01-Feb-78	Nitrate	Homestake	None	7.3
R	17-Apr-78	Nitrate	Homestake	None	7.8
R	10-Jul-78	Nitrate	Homestake	None	11.4
R	10-Jul-78	Nitrate	NMEID	None	5.74
R	23-Oct-78	Nitrate	Homestake	None	7.8
R	23-Oct-78	Nitrate	NMEID	None	6.65
R	31-Jan-79	Nitrate	Homestake	None	8.7
R	31-Jan-79	Nitrate	NMEID	None	6.73
R	30-Apr-79	Nitrate	Homestake	None	6.8
R	30-Apr-79	Nitrate	NMEID	None	6.58
R	12-Jul-79	Nitrate	Homestake	None	7.6
R	10-Sep-79	Nitrate	Homestake	None	9.7
R	07-Jan-80	Nitrate	NMEID	None	6.1
R	16-Apr-80	Nitrate	Homestake	None	6.5
R	17-Apr-80	Nitrate	NMEID	None	7.51
R	16-Jul-80	Nitrate	NMEID	None	6.83
R	13-Oct-80	Nitrate	NMEID	None	6.33
R	13-Oct-80	Nitrate	Homestake	None	7.4
R	07-Jan-81	Nitrate	Homestake	None	8.5
R	15-Apr-81	Nitrate	Homestake	None	11.2
R	15-Apr-81	Nitrate	NMEID	None	6.7
R	07-Jul-81	Nitrate	Homestake	None	7.2
R	28-Dec-81	Nitrate	Homestake	None	7.4
R	28-Dec-81	Nitrate	NMEID	None	6.4
R	24-Mar-82	Nitrate	Homestake	None	7.9
R	24-Mar-82	Nitrate	NMEID	None	6.4

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	22-May-82	Nitrate	Homestake	None	8.1
R	25-Aug-82	Nitrate	Homestake	None	8.8
R	18-Nov-82	Nitrate	Homestake	None	6.6
R	23-Feb-83	Nitrate	Homestake	None	8.6
R	26-May-83	Nitrate	Homestake	None	5.4
R	28-Jun-83	Nitrate	Homestake	None	6.8
R	28-Jun-83	Nitrate	NMEID	None	4.58
R	12-Sep-83	Nitrate	Homestake	None	8.1
R	20-Dec-83	Nitrate	Homestake	None	13.7
R	07-Mar-84	Nitrate	Homestake	None	9.4
R	09-May-84	Nitrate	Homestake	None	19.6
R	12-Sep-84	Nitrate	Homestake	None	17.3
R	12-Dec-84	Nitrate	Homestake	None	23.8
R	11-Mar-85	Nitrate	Homestake	None	11.4
R	11-Mar-85	Nitrate	Controls for Env Pollution	None	6.1
R	29-May-85	Nitrate	Homestake	None	11.4
R	05-Sep-85	Nitrate	Homestake	None	12.8
R	16-Dec-85	Nitrate	Homestake	None	7.5
R	10-Mar-86	Nitrate	Homestake	None	9.9
R	10-Mar-86	Nitrate	Controls for Env Pollution	None	5.8
R	30-Jun-86	Nitrate	Homestake	None	11.7
R	15-Sep-86	Nitrate	Homestake	None	7.1
R	15-Sep-86	Nitrate	Controls for Env Pollution	None	5.8
R	15-Dec-86	Nitrate	Homestake	None	12.7
R	19-Mar-87	Nitrate	Homestake	None	9
R	19-Jun-87	Nitrate	Homestake	None	9.7
R	15-Sep-87	Nitrate	Homestake	None	7.4
R	15-Sep-87	Nitrate	Controls for Env Pollution	None	6.3
R	08-Dec-87	Nitrate	Homestake	None	7.8
R	24-Feb-88	Nitrate	Homestake	None	6.7
R	24-Feb-88	Nitrate	Barringer	None	6.1
R	12-May-88	Nitrate	Homestake	None	4.6
R	22-Aug-88	Nitrate	Homestake	None	5.6
R	22-Aug-88	Nitrate	Barringer	None	6.3
R	03-Nov-88	Nitrate	Homestake	None	6.8
R	13-Dec-88	Nitrate	Homestake	None	4.5
R	13-Dec-88	Nitrate	Barringer	None	7.3
R	11-Jan-89	Nitrate	Homestake	None	5.8
R	11-Jan-89	Nitrate	Barringer	None	7.1
R	15-Feb-89	Nitrate	Homestake	None	3.9
R	15-Feb-89	Nitrate	Barringer	None	6.1
R	16-May-89	Nitrate	Homestake	None	4.6
R	15-Nov-89	Nitrate	Homestake	None	5.3
R	13-Mar-90	Nitrate	Homestake	None	5.6
R	12-Sep-90	Nitrate	Homestake	None	8.1
R	27-Feb-91	Nitrate	Homestake	None	11
R	16-Sep-91	Nitrate	Homestake	None	9
R	09-Mar-92	Nitrate	Homestake	None	8
R	16-Sep-92	Nitrate	Homestake	None	9.4
R	16-Sep-92	Nitrate	Energy Labs	Less Than	0.1

Table B-2. Nitrate Near Upgradient Background Data Set  
(data not corrected for non-detects or duplicates) (cont.)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	01-Jun-93	Nitrate	Homestake	None	9.6
R	08-Sep-93	Nitrate	Energy Labs	None	5.8
R	07-Mar-94	Nitrate	Energy Labs	None	7.5
R	31-May-94	Nitrate	Energy Labs	None	8.84
R	01-Sep-94	Nitrate	Energy Labs	None	7.09
R	06-Jun-95	Nitrate	Energy Labs	None	8.09
R	06-Jun-95	Nitrate	Energy Labs	None	8.15
R	05-Sep-95	Nitrate	Energy Labs	None	8.15
R	05-Sep-95	Nitrate	Energy Labs	None	8.19
R	03-Jun-96	Nitrate	Energy Labs	None	9.21
R	17-Sep-96	Nitrate	Energy Labs	None	8.51
R	10-Oct-96	Nitrate	Energy Labs	None	8.81
R	27-May-97	Nitrate	Energy Labs	None	10.5
R	06-May-98	Nitrate	Energy Labs	None	12.3
R	20-May-99	Nitrate	Energy Labs	None	12.8

Table B-3. Nitrate Near Upgradient Background Data Set for Well DD  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
15-Sep-81	Nitrate	25.5
24-Mar-82	Nitrate	8.2
26-May-82	Nitrate	14.5
18-Nov-82	Nitrate	15
04-Mar-83	Nitrate	10.3
28-Jun-83	Nitrate	10.31
14-Sep-83	Nitrate	15
19-Dec-83	Nitrate	15.2
07-Mar-84	Nitrate	16.8
09-May-84	Nitrate	23.8
12-Sep-84	Nitrate	24.3
12-Dec-84	Nitrate	33.2
13-Mar-85	Nitrate	15.1
06-Jun-85	Nitrate	16.8
04-Sep-85	Nitrate	18.4
16-Dec-85	Nitrate	10.4
20-Mar-86	Nitrate	9.1
30-Jun-86	Nitrate	15.1
15-Sep-86	Nitrate	9.5
09-Dec-86	Nitrate	9.4
19-Mar-87	Nitrate	11.2
24-Jun-87	Nitrate	9.3
15-Sep-87	Nitrate	7.2
08-Dec-87	Nitrate	12.6
24-Feb-88	Nitrate	12.3
09-Jun-88	Nitrate	10.8
11-Oct-88	Nitrate	13.2
08-Dec-88	Nitrate	9.6
13-Dec-88	Nitrate	11.35
11-Jan-89	Nitrate	11.25
15-Feb-89	Nitrate	8.95
29-Mar-89	Nitrate	6.2
15-Nov-89	Nitrate	9.6
13-Mar-90	Nitrate	9.8
12-Sep-90	Nitrate	13.5
27-Feb-91	Nitrate	18
16-Sep-91	Nitrate	19
09-Mar-92	Nitrate	14
22-Sep-92	Nitrate	13
21-Oct-93	Nitrate	9.6
09-Mar-94	Nitrate	10.9
21-Oct-94	Nitrate	3.74
10-Oct-95	Nitrate	8.37
10-Oct-96	Nitrate	7.28
14-Apr-97	Nitrate	6.95
09-Sep-97	Nitrate	5.1
01-Apr-98	Nitrate	5.14
20-Apr-99	Nitrate	4.26



**Table B-4. Nitrate Near Upgradient Background Data Set for Well ND  
(corrected for non-detects and duplicates)**

<b>Sample Date</b>	<b>Parameter Code</b>	<b>Final Data Set</b>
12-Jan-83	Nitrate	1.9
06-Jan-84	Nitrate	4.1
18-Dec-89	Nitrate	1.4
17-Oct-90	Nitrate	4.4
16-Sep-91	Nitrate	4.8
18-Aug-92	Nitrate	6.2
25-Aug-93	Nitrate	1.29
14-Mar-94	Nitrate	0.48
22-Aug-94	Nitrate	1.32
22-Aug-95	Nitrate	1.23
29-Jul-96	Nitrate	0.81
11-Aug-97	Nitrate	0.44
05-Aug-98	Nitrate	0.59

Table B-5. Nitrate Near Upgradient Background Data Set for Well P  
(corrected for non-detects and duplicates)

Sample	Parameter	Final Data Set
13-Jun-77	Nitrate	8.01
24-Aug-77	Nitrate	8.91
11-Oct-77	Nitrate	7.735
01-Feb-78	Nitrate	8.11
17-Apr-78	Nitrate	8.4
11-Jul-78	Nitrate	10.035
23-Oct-78	Nitrate	8.64
30-Jan-79	Nitrate	9.82
30-Apr-79	Nitrate	8.215
12-Jul-79	Nitrate	9.4
10-Sep-79	Nitrate	9.2
16-Apr-80	Nitrate	11.95
16-Jul-80	Nitrate	7.35
13-Oct-80	Nitrate	8.035
07-Jan-81	Nitrate	9.2
15-Apr-81	Nitrate	9.2
07-Jul-81	Nitrate	8.8
07-Oct-81	Nitrate	8.9
28-Dec-81	Nitrate	7.25
24-Mar-82	Nitrate	7.25
22-May-82	Nitrate	7.2
25-Aug-82	Nitrate	9
18-Nov-82	Nitrate	7.4
23-Feb-83	Nitrate	9
26-May-83	Nitrate	6.8
27-Jun-83	Nitrate	7.15
12-Sep-83	Nitrate	9.8
19-Dec-83	Nitrate	13.7
07-Mar-84	Nitrate	11.5
09-May-84	Nitrate	17.3
12-Sep-84	Nitrate	22
13-Dec-84	Nitrate	19.6
11-Mar-85	Nitrate	10.05
29-May-85	Nitrate	14.3
04-Sep-85	Nitrate	14.1
16-Dec-85	Nitrate	8.4
10-Mar-86	Nitrate	7.55
30-Jun-86	Nitrate	12.2
15-Sep-86	Nitrate	8.45
16-Dec-86	Nitrate	12.9
19-Mar-87	Nitrate	9.9
24-Jun-87	Nitrate	7.4
16-Sep-87	Nitrate	5.95
08-Dec-87	Nitrate	7.2
24-Feb-88	Nitrate	5.9
12-May-88	Nitrate	4.9
23-Aug-88	Nitrate	5.1

Table B-5. Nitrate Near Upgradient Background Data Set for Well P  
(corrected for non-detects and duplicates) (continued)

Sample	Parameter	Final Data Set
12-Oct-88	Nitrate	3.2
13-Dec-88	Nitrate	5.2
11-Jan-89	Nitrate	5.6
15-Feb-89	Nitrate	4.25
16-May-89	Nitrate	3.8
10-Aug-89	Nitrate	3.6
15-Nov-89	Nitrate	3.5
13-Mar-90	Nitrate	4.2
04-Jun-90	Nitrate	10.1
12-Sep-90	Nitrate	6.6
03-Dec-90	Nitrate	5.5
27-Feb-91	Nitrate	10
03-Jun-91	Nitrate	6.2
16-Sep-91	Nitrate	12
18-Nov-91	Nitrate	7.4
09-Mar-92	Nitrate	6.8
04-Jun-92	Nitrate	6.6
21-Sep-92	Nitrate	8
03-Dec-92	Nitrate	10
03-Mar-93	Nitrate	10.5
01-Jun-93	Nitrate	6.6
08-Sep-93	Nitrate	4.9
24-Nov-93	Nitrate	3.8
01-Mar-94	Nitrate	0.35
31-May-94	Nitrate	4.13
01-Sep-94	Nitrate	4.02
28-Nov-94	Nitrate	5.4
16-Mar-95	Nitrate	3.15
06-Jun-95	Nitrate	4.33
05-Sep-95	Nitrate	2.05
05-Dec-95	Nitrate	3.305
11-Mar-96	Nitrate	2.26
03-Jun-96	Nitrate	2.98
17-Sep-96	Nitrate	2.98
10-Oct-96	Nitrate	3.22
06-Mar-97	Nitrate	3.04
27-May-97	Nitrate	2.85
09-Sep-97	Nitrate	1.16
03-Nov-97	Nitrate	3.26
04-Mar-98	Nitrate	3.49
05-May-98	Nitrate	9.23
16-Sep-98	Nitrate	10.8
12-Nov-98	Nitrate	8.8
02-Mar-99	Nitrate	8.08
10-May-99	Nitrate	7.45

**Table B-6. Nitrate Near Upgradient Background Data Set for Well P1  
(corrected for non-detects and duplicates)**

<b>Sample Date</b>	<b>Parameter Code</b>	<b>Final Data Set</b>
21-Sep-92	Nitrate	18
21-Jan-93	Nitrate	23
13-Apr-93	Nitrate	31
13-Jul-93	Nitrate	14.5
21-Oct-93	Nitrate	11.1
04-Jan-94	Nitrate	15.9
07-Mar-94	Nitrate	16.4
12-Apr-94	Nitrate	16.9
06-Jul-94	Nitrate	13.4
21-Oct-94	Nitrate	15.4
04-Jan-95	Nitrate	15.15
12-Apr-95	Nitrate	15.2
06-Jul-95	Nitrate	4.54
03-Oct-95	Nitrate	11.9
10-Jan-96	Nitrate	14.2
09-Apr-96	Nitrate	13.3
19-Jul-96	Nitrate	12.4
04-Nov-96	Nitrate	12.45
13-Jan-97	Nitrate	12.8
14-Apr-97	Nitrate	13.1
08-Jul-97	Nitrate	12.2
03-Nov-97	Nitrate	12.3
19-Jan-98	Nitrate	12.1
01-Apr-98	Nitrate	11.6
14-Jul-98	Nitrate	11
28-Oct-98	Nitrate	11.8
21-Jan-99	Nitrate	10.5

Table B-7. Nitrate Near Upgradient Background Data Set for Well P2  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Nitrate	17
08-Feb-93	Nitrate	18.9
04-May-93	Nitrate	14.75
12-Aug-93	Nitrate	10
01-Nov-93	Nitrate	16.05
02-Feb-94	Nitrate	13.4
07-Mar-94	Nitrate	17.4
29-Apr-94	Nitrate	16.4
01-Aug-94	Nitrate	15.4
01-Nov-94	Nitrate	15.2
03-Feb-95	Nitrate	12.3
05-May-95	Nitrate	14.3
02-Aug-95	Nitrate	14.15
06-Nov-95	Nitrate	12.7
12-Feb-96	Nitrate	13.1
14-May-96	Nitrate	13.45
29-Jul-96	Nitrate	26.9
03-Feb-97	Nitrate	15.5
29-Apr-97	Nitrate	13.3
13-Oct-97	Nitrate	10.4
10-Feb-98	Nitrate	12.4
05-May-98	Nitrate	11.6
04-Aug-98	Nitrate	10.6
28-Oct-98	Nitrate	11.4
03-Feb-99	Nitrate	10.4
11-May-99	Nitrate	10.6

Table B-8. Nitrate Near Upgradient Background Data Set for Wells P3 and P4  
(corrected for non-detects and duplicates)

Name	Date	Code	Set
P3	23-Apr-98	Nitrate	7.28
P4	24-Apr-98	Nitrate	3.13

Table B-9. Nitrate Near Upgradient Background Data Set for Well Q  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Jun-77	Nitrate	10.075
24-Aug-77	Nitrate	21.48
11-Oct-77	Nitrate	18.67
01-Feb-78	Nitrate	17.39
17-Apr-78	Nitrate	17.2
10-Jul-78	Nitrate	23.7
23-Oct-78	Nitrate	20.75
30-Jan-79	Nitrate	25.18
30-Apr-79	Nitrate	18.63
12-Jul-79	Nitrate	24.8
10-Sep-79	Nitrate	19.3
16-Apr-80	Nitrate	24.925
16-Jul-80	Nitrate	15.74
13-Oct-80	Nitrate	14.03
07-Jan-81	Nitrate	22.9
15-Apr-81	Nitrate	22.35
07-Jul-81	Nitrate	23
07-Oct-81	Nitrate	19.5
28-Dec-81	Nitrate	20.1
24-Mar-82	Nitrate	14.65
22-May-82	Nitrate	15.2
25-Aug-82	Nitrate	17
18-Nov-82	Nitrate	12
23-Feb-83	Nitrate	11.1
26-May-83	Nitrate	11
28-Jun-83	Nitrate	13.725
21-Sep-83	Nitrate	20
19-Dec-83	Nitrate	23.8
07-Mar-84	Nitrate	19.8
09-May-84	Nitrate	31.3
12-Sep-84	Nitrate	22.4
12-Dec-84	Nitrate	33.2
11-Mar-85	Nitrate	18.5
29-May-85	Nitrate	23.2
06-Sep-85	Nitrate	24.8
16-Dec-85	Nitrate	11.7
10-Mar-86	Nitrate	11.5
30-Jun-86	Nitrate	17.8
15-Sep-86	Nitrate	15.6
15-Dec-86	Nitrate	15.3
19-Mar-87	Nitrate	14.5
19-Jun-87	Nitrate	12
15-Sep-87	Nitrate	9.6
08-Dec-87	Nitrate	16.6

Table B-9. Nitrate Near Upgradient Background Data Set for Well Q  
(corrected for non-detects and duplicates) (continued)

Sample Date	Parameter Code	Final Data Set
24-Feb-88	Nitrate	14.8
12-May-88	Nitrate	10.6
23-Aug-88	Nitrate	11.2
03-Nov-88	Nitrate	15.6
13-Dec-88	Nitrate	10.65
11-Jan-89	Nitrate	11.35
15-Feb-89	Nitrate	9.65
16-May-89	Nitrate	7.9
15-Nov-89	Nitrate	10.7
13-Mar-90	Nitrate	10.1
12-Sep-90	Nitrate	14
27-Feb-91	Nitrate	16
16-Sep-91	Nitrate	11.5
09-Mar-92	Nitrate	12
16-Sep-92	Nitrate	13
03-Mar-93	Nitrate	15
08-Sep-93	Nitrate	7.8
01-Mar-94	Nitrate	9.3
01-Sep-94	Nitrate	8.09
16-Mar-95	Nitrate	8.81
05-Sep-95	Nitrate	8.18
11-Mar-96	Nitrate	8.92
17-Sep-96	Nitrate	7.71
06-Mar-97	Nitrate	8.16
09-Sep-97	Nitrate	13.5
04-Mar-98	Nitrate	8.4
02-Mar-99	Nitrate	9.34

Table B-10. Nitrate Near Upgradient Background Data Set for Well R  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
13-Jun-77	Nitrate	6.39
24-Aug-77	Nitrate	7
11-Oct-77	Nitrate	6.95
01-Feb-78	Nitrate	6.945
17-Apr-78	Nitrate	7.8
10-Jul-78	Nitrate	8.57
23-Oct-78	Nitrate	7.225
31-Jan-79	Nitrate	7.715
30-Apr-79	Nitrate	6.69
12-Jul-79	Nitrate	7.6
10-Sep-79	Nitrate	9.7
07-Jan-80	Nitrate	6.1
16-Apr-80	Nitrate	7.005
16-Jul-80	Nitrate	6.83
13-Oct-80	Nitrate	6.865
07-Jan-81	Nitrate	8.5
15-Apr-81	Nitrate	8.95
07-Jul-81	Nitrate	7.2
28-Dec-81	Nitrate	6.9
24-Mar-82	Nitrate	7.15
22-May-82	Nitrate	8.1
25-Aug-82	Nitrate	8.8
18-Nov-82	Nitrate	6.6
23-Feb-83	Nitrate	8.6
26-May-83	Nitrate	5.4
28-Jun-83	Nitrate	5.69
12-Sep-83	Nitrate	8.1
20-Dec-83	Nitrate	13.7
07-Mar-84	Nitrate	9.4
09-May-84	Nitrate	19.6
12-Sep-84	Nitrate	17.3
12-Dec-84	Nitrate	23.8
11-Mar-85	Nitrate	8.75
29-May-85	Nitrate	11.4
05-Sep-85	Nitrate	12.8
16-Dec-85	Nitrate	7.5
10-Mar-86	Nitrate	7.85
30-Jun-86	Nitrate	11.7
15-Sep-86	Nitrate	6.45
15-Dec-86	Nitrate	12.7
19-Mar-87	Nitrate	9
19-Jun-87	Nitrate	9.7
15-Sep-87	Nitrate	6.85
08-Dec-87	Nitrate	7.8
24-Feb-88	Nitrate	6.4



Table B-10. Nitrate Near Upgradient Background Data Set for Well R  
(corrected for non-detects and duplicates) (continued)

Sample Date	Parameter Code	Final Data Set
12-May-88	Nitrate	4.6
22-Aug-88	Nitrate	5.95
03-Nov-88	Nitrate	6.8
13-Dec-88	Nitrate	5.9
11-Jan-89	Nitrate	6.45
15-Feb-89	Nitrate	5
16-May-89	Nitrate	4.6
15-Nov-89	Nitrate	5.3
13-Mar-90	Nitrate	5.6
12-Sep-90	Nitrate	8.1
27-Feb-91	Nitrate	11
16-Sep-91	Nitrate	9
09-Mar-92	Nitrate	8
16-Sep-92	Nitrate	4.725
01-Jun-93	Nitrate	9.6
08-Sep-93	Nitrate	5.8
07-Mar-94	Nitrate	7.5
31-May-94	Nitrate	8.84
01-Sep-94	Nitrate	7.09
06-Jun-95	Nitrate	8.12
05-Sep-95	Nitrate	8.17
03-Jun-96	Nitrate	9.21
17-Sep-96	Nitrate	8.51
10-Oct-96	Nitrate	8.81
27-May-97	Nitrate	10.5
06-May-98	Nitrate	12.3
20-May-99	Nitrate	12.8

Table B-11. Nitrate Near Upgradient Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L)

Well ID								
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R
33.2	1.9	22	31	26.9	7.28	3.13	33.2	23.8
25.5	4.1	19.6	23	18.9			31.3	19.6
24.3	1.4	17.3	18	17.4			25.18	17.3
23.8	4.4	14.3	16.9	17			24.925	13.7
19	4.8	14.1	16.4	16.4			24.8	12.8
18.4	6.2	13.7	15.9	16.05			24.8	12.8
18	1.29	12.9	15.4	15.5			23.8	12.7
16.8	0.48	12.2	15.2	15.4			23.7	12.3
16.8	1.32	12	15.15	15.2			23.2	11.7
15.2	1.23	11.95	14.5	14.75			23	11.4
15.1	0.81	11.5	14.2	14.3			22.9	11
15.1	0.44	10.8	13.4	14.15			22.4	10.5
15	0.59	10.5	13.3	13.45			22.35	9.7
15		10.1	13.1	13.4			21.48	9.7
14.5		10.05	12.8	13.3			20.75	9.6
14		10.035	12.45	13.1			20.1	9.4
13.5		10	12.4	12.7			20	9.21
13.2		10	12.3	12.4			19.8	9
13		9.9	12.2	12.3			19.5	9
12.6		9.82	12.1	11.6			19.3	8.95
12.3		9.8	11.9	11.4			18.67	8.84
11.35		9.4	11.8	10.6			18.63	8.81
11.25		9.23	11.6	10.6			18.5	8.8
11.2		9.2	11.1	10.4			17.8	8.75
10.9		9.2	11	10.4			17.39	8.6
10.8		9.2	10.5	10			17.2	8.57
10.4		9	4.54				17	8.51
10.31		9					16.6	8.5
10.3		8.91					16	8.17
9.8		8.9					15.74	8.12
9.6		8.8					15.6	8.1
9.6		8.8					15.6	8.1
9.6		8.64					15.3	8.1
9.5		8.45					15.2	8
9.4		8.4					15	7.85
9.3		8.4					14.8	7.8
9.1		8.215					14.65	7.8
8.95		8.11					14.5	7.715
8.37		8.08					14.03	7.6
8.2		8.035					14	7.5
7.28		8.01					13.725	7.5
7.2		8					13.5	7.225
6.95		7.735					13	7.2
6.2		7.55					12	7.15
5.14		7.45					12	7.09
5.1		7.4					12	7.005
4.26		7.4					11.7	7

Table B-11. Nitrate Near Upgradient Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L) (continued)

Well ID								
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R
3.74		7.4					11.5	6.95
		7.35					11.5	6.945
		7.25					11.35	6.9
		7.25					11.2	6.865
		7.2					11.1	6.85
		7.2					11	6.83
		7.15					10.7	6.8
		6.8					10.65	6.69
		6.8					10.6	6.6
		6.6					10.1	6.45
		6.6					10.075	6.45
		6.6					9.65	6.4
		6.2					9.6	6.39
		5.95					9.34	6.1
		5.9					9.3	5.95
		5.6					8.92	5.9
		5.5					8.81	5.8
		5.4					8.4	5.69
		5.2					8.18	5.6
		5.1					8.16	5.4
		4.9					8.09	5.3
		4.9					7.9	5
		4.33					7.8	4.725
		4.25					7.71	4.6
		4.2						4.6
		4.13						
		4.02						
		3.8						
		3.8						
		3.6						
		3.5						
		3.49						
		3.305						
		3.26						
		3.22						
		3.2						
		3.15						
		3.04						
		2.98						
		2.98						
		2.85						
		2.26						
		2.05						
		1.16						
		0.35						

Table B-12. Nitrate Near Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Nitrate	33.2	33.2	1.0	<b>Pass</b>

Table B-13. Nitrate Near Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Nitrate, normal	10.83	5.79	0.53	<b>Pass</b>
Nitrate, lognormal	2.21	0.66	0.30	<b>Pass</b>

Table B-14. Nitrate Near Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Nitrate, normal	33.2	0.35	5.79	6.94	5.47	5.67	<b>Pass</b>

W = range of values

S = standard deviation

Table B-15. Near Upgradient Background Nitrate Data Set, Coefficient of Skewness Analysis

Nitrate	Normal (xi-avg)^3	
0.35	-1149.45564	<b>Normal</b> standard deviation = 5.790451 mean = 10.825 count = 351 sum of (xi-avg)^3 = 68862.5 1/n = 0.002849 standard deviation cubed = 194.1499 ((n-1)/n)^(3/2) = 0.99573  coef. of skewness = 1.0  acceptable range -1 to 1 <b>Pass</b>
0.44	-1120.08217	
0.48	-1107.18956	
0.59	-1072.24583	
0.81	-1004.57962	
1.16	-902.89702	
1.23	-883.421206	
1.29	-866.952257	
1.32	-858.7951	
1.4	-837.293177	
1.9	-710.984324	
2.05	-675.736427	
2.26	-628.375059	
2.85	-507.261191	
2.98	-482.857589	
2.98	-482.857589	
3.04	-471.863493	
3.13	-455.687247	
3.15	-452.143468	
3.2	-443.364506	
3.22	-439.884989	
3.26	-432.980665	
3.305	-425.300093	
3.49	-394.678409	
3.5	-393.066435	
3.6	-377.18744	
3.74	-355.683808	
3.8	-346.723995	
3.8	-346.723995	
4.02	-315.159754	
4.1	-304.175186	
4.13	-300.122717	
4.2	-290.807278	
4.25	-284.272767	
4.26	-282.977725	
4.33	-274.022386	
4.4	-265.258007	
4.54	-248.293898	
4.6	-241.250794	
4.6	-241.250794	
4.725	-227.008034	
4.8	-218.737639	
4.9	-208.026333	
4.9	-208.026333	
5	-197.670542	
5.1	-187.664265	
5.1	-187.664265	
5.14	-183.758275	
5.2	-178.001503	
5.3	-168.676256	
5.4	-159.682523	
5.4	-159.682523	

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg)^3
5.5	-151.014304
5.6	-142.6656
5.6	-142.6656
5.69	-135.419993
5.8	-126.902736
5.9	-119.476576
5.9	-119.476576
5.95	-115.874688
5.95	-115.874688
6.1	-105.504798
6.2	-98.9471816
6.2	-98.9471816
6.2	-98.9471816
6.39	-87.2473033
6.4	-86.6584916
6.45	-83.7541407
6.45	-83.7541407
6.6	-75.4318598
6.6	-75.4318598
6.6	-75.4318598
6.6	-75.4318598
6.69	-70.7135829
6.8	-65.219286
6.8	-65.219286
6.8	-65.219286
6.83	-63.7718955
6.85	-62.8189642
6.865	-62.1105293
6.9	-60.4782709
6.945	-58.4220096
6.95	-58.1964563
6.95	-58.1964563
7	-55.9727704
7.005	-55.75357
7.09	-52.1142258
7.15	-49.6429843
7.15	-49.6429843
7.2	-47.6443129
7.2	-47.6443129
7.2	-47.6443129
7.2	-47.6443129
7.225	-46.665416
7.25	-45.7000201
7.25	-45.7000201
7.28	-44.5592341
7.28	-44.5592341
7.35	-41.9715704
7.4	-40.1859135
7.4	-40.1859135
7.4	-40.1859135
7.45	-38.4516352
7.5	-36.7679856

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg)^3
7.5	-36.7679856
7.55	-35.1342146
7.6	-33.5495722
7.71	-30.2325958
7.715	-30.0872583
7.735	-29.5105662
7.8	-27.687289
7.8	-27.687289
7.8	-27.687289
7.85	-26.3370398
7.9	-25.0314193
8	-22.551064
8	-22.551064
8.01	-22.3124508
8.035	-21.7232946
8.08	-20.6891183
8.09	-20.4638502
8.1	-20.2402233
8.1	-20.2402233
8.1	-20.2402233
8.11	-20.0182315
8.12	-19.7978689
8.16	-18.9325898
8.17	-18.7202829
8.18	-18.5095692
8.2	-18.0928971
8.215	-17.7845304
8.37	-14.8007254
8.4	-14.2647883
8.4	-14.2647883
8.4	-14.2647883
8.45	-13.4005827
8.5	-12.5720057
8.51	-12.4104997
8.57	-11.470426
8.6	-11.0187376
8.64	-10.4351505
8.75	-8.93730026
8.8	-8.30674507
8.8	-8.30674507
8.8	-8.30674507
8.81	-8.18430347
8.81	-8.18430347
8.84	-7.82420953
8.9	-7.13602058
8.91	-7.02540044
8.92	-6.91592943
8.95	-6.59435129
8.95	-6.59435129
9	-6.08081063
9	-6.08081063
9	-6.08081063

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg)^3
9	-6.08081063
9.1	-5.13511521
9.2	-4.29293431
9.2	-4.29293431
9.2	-4.29293431
9.21	-4.21417852
9.23	-4.05956838
9.3	-3.54826795
9.3	-3.54826795
9.34	-3.27636147
9.4	-2.89511612
9.4	-2.89511612
9.4	-2.89511612
9.5	-2.32747881
9.6	-1.83935604
9.6	-1.83935604
9.6	-1.83935604
9.6	-1.83935604
9.6	-1.83935604
9.65	-1.6232376
9.7	-1.42474779
9.7	-1.42474779
9.8	-1.07765408
9.8	-1.07765408
9.82	-1.01580908
9.9	-0.7920749
10	-0.56201024
10	-0.56201024
10	-0.56201024
10.035	-0.49349254
10.05	-0.46592086
10.075	-0.42228379
10.1	-0.38146012
10.1	-0.38146012
10.3	-0.14490346
10.31	-0.13678365
10.4	-0.07689692
10.4	-0.07689692
10.4	-0.07689692
10.5	-0.03440492
10.5	-0.03440492
10.5	-0.03440492
10.6	-0.01142744
10.6	-0.01142744
10.6	-0.01142744
10.65	-0.00538165
10.7	-0.0019645
10.8	-1.6083E-05
10.8	-1.6083E-05
10.9	0.0004178
11	0.00533716
11	0.00533716



Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg) <sup>3</sup>
11	0.00533716
11.1	0.02074198
11.1	0.02074198
11.2	0.05263228
11.2	0.05263228
11.25	0.07663448
11.35	0.14450298
11.35	0.14450298
11.4	0.18986928
11.4	0.18986928
11.5	0.30721598
11.5	0.30721598
11.5	0.30721598
11.6	0.46504816
11.6	0.46504816
11.7	0.66936581
11.7	0.66936581
11.8	0.92616892
11.9	1.24145751
11.95	1.42290885
12	1.62123156
12	1.62123156
12	1.62123156
12	1.62123156
12.1	2.07149109
12.2	2.59823609
12.2	2.59823609
12.3	3.20746655
12.3	3.20746655
12.3	3.20746655
12.3	3.20746655
12.4	3.90518249
12.4	3.90518249
12.45	4.28909751
12.6	5.59007077
12.7	6.58924312
12.7	6.58924312
12.8	7.70090094
12.8	7.70090094
12.8	7.70090094
12.9	8.93104422
13	10.285673
13	10.285673
13.1	11.7707872
13.1	11.7707872
13.2	13.3923869
13.3	15.1564721
13.3	15.1564721
13.4	17.0690427
13.4	17.0690427
13.45	18.0828851
13.5	19.1360988

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg)^3
13.5	19.1360988
13.7	23.7576674
13.7	23.7576674
13.725	24.3828907
14	31.9986614
14	31.9986614
14.03	32.9143781
14.1	35.1186303
14.15	36.7519218
14.2	38.4350847
14.3	41.9540246
14.3	41.9540246
14.5	49.6233607
14.5	49.6233607
14.5	49.6233607
14.65	55.9515122
14.75	60.4558867
14.8	62.796006
15	72.7601968
15	72.7601968
15	72.7601968
15.1	78.1150205
15.1	78.1150205
15.15	80.8882393
15.2	83.7263296
15.2	83.7263296
15.2	83.7263296
15.2	83.7263296
15.3	89.6001241
15.4	95.7424042
15.4	95.7424042
15.5	102.15917
15.6	108.856421
15.6	108.856421
15.74	118.715212
15.9	130.691086
16	138.570279
16.05	142.625933
16.4	173.251905
16.4	173.251905
16.6	192.575631
16.8	213.285299
16.8	213.285299
16.9	224.174861
17	235.428909
17	235.428909
17.2	259.05446
17.3	271.437964
17.3	271.437964
17.39	282.915102
17.4	284.209954
17.8	339.302766

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Normal (xi-avg)^3
18	369.336085
18	369.336085
18.4	434.616549
18.5	452.057879
18.63	475.42093
18.67	482.768166
18.9	526.488052
19	546.291809
19.3	608.669992
19.5	652.787876
19.6	675.624545
19.6	675.624545
19.8	722.883341
20	772.296079
20.1	797.825176
20.75	977.596766
21.48	1209.56928
22	1395.45026
22.35	1530.71883
22.4	1550.7284
22.9	1760.497
23	1804.60017
23	1804.60017
23.2	1895.00398
23.7	2134.112
23.8	2184.22706
23.8	2184.22706
23.8	2184.22706
24.3	2446.59964
24.8	2729.18435
24.8	2729.18435
24.925	2803.07657
25.18	2957.92809
25.5	3160.18734
26.9	4153.68269
31	8211.54716
31.3	8583.34011
33.2	11201.4703
33.2	11201.4703

Table B-15. Near Upgradient Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg) <sup>3</sup>	
-1.04982	-34.7094631	<b>Lognormal</b> standard deviation = 0.661166 mean = 2.212 count = 351 sum of (xi-avg) <sup>3</sup> = -157.06 1/n = 0.002849 standard deviation cubed = 0.289023 ((n-1)/n) <sup>(3/2)</sup> = 0.99573  coef. of skewness = -1.6  acceptable range -1 to 1 <b>Fail</b>
-0.82098	-27.9049347	
-0.73397	-25.5716563	
-0.52763	-20.5663348	
-0.21072	-14.2233053	
0.14842	-8.78961687	
0.207014	-8.06200456	
0.254642	-7.50105624	
0.277632	-7.23986677	
0.336472	-6.59913693	
0.641854	-3.87221568	
0.71784	-3.33685947	
0.815365	-2.72524518	
1.047319	-1.5805521	
1.091923	-1.40584877	
1.091923	-1.40584877	
1.111858	-1.3321271	
1.141033	-1.22894525	
1.147402	-1.20715178	
1.163151	-1.15437715	
1.169381	-1.13393009	
1.181727	-1.09413031	
1.195436	-1.05103886	
1.249902	-0.89101636	
1.252763	-0.88309184	
1.280934	-0.80756332	
1.319086	-0.7123189	
1.335001	-0.67491121	
1.335001	-0.67491121	
1.391282	-0.55315721	
1.410987	-0.51427077	
1.418277	-0.50035915	
1.435085	-0.4692485	
1.446919	-0.44813433	
1.449269	-0.44401816	
1.465568	-0.41616411	
1.481605	-0.38991838	
1.512927	-0.34188535	
1.526056	-0.32298647	
1.526056	-0.32298647	
1.552868	-0.28658268	
1.568616	-0.26653297	
1.589235	-0.24172603	
1.589235	-0.24172603	
1.609438	-0.21896185	
1.629241	-0.19808125	
1.629241	-0.19808125	
1.637053	-0.19022331	
1.648659	-0.17893828	
1.667707	-0.1613989	
1.686399	-0.1453399	

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg)^3
1.686399	-0.1453399
1.704748	-0.13064786
1.722767	-0.1172183
1.722767	-0.1172183
1.73871	-0.1061313
1.757858	-0.09376849
1.774952	-0.08357702
1.774952	-0.08357702
1.783391	-0.07883037
1.783391	-0.07883037
1.808289	-0.06588011
1.824549	-0.058239
1.824549	-0.058239
1.824549	-0.058239
1.854734	-0.0456653
1.856298	-0.04506858
1.86408	-0.0421761
1.86408	-0.0421761
1.88707	-0.03435928
1.88707	-0.03435928
1.88707	-0.03435928
1.88707	-0.03435928
1.900614	-0.03024128
1.916923	-0.02573647
1.916923	-0.02573647
1.916923	-0.02573647
1.921325	-0.02460237
1.924249	-0.02386779
1.926436	-0.02332793
1.931521	-0.02210441
1.938022	-0.02060371
1.938742	-0.02044187
1.938742	-0.02044187
1.94591	-0.01887587
1.946624	-0.01872441
1.958685	-0.01628712
1.967112	-0.01471613
1.967112	-0.01471613
1.974081	-0.01349604
1.974081	-0.01349604
1.974081	-0.01349604
1.974081	-0.01349604
1.977547	-0.01291513
1.981001	-0.01235306
1.981001	-0.01235306
1.985131	-0.01170281
1.985131	-0.01170281
1.9947	-0.01028451
2.00148	-0.00935231
2.00148	-0.00935231
2.00148	-0.00935231
2.008214	-0.00848391

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg)^3
2.014903	-0.00767626
2.014903	-0.00767626
2.021548	-0.0069264
2.028148	-0.0062315
2.042518	-0.00488269
2.043166	-0.00482693
2.045755	-0.00460848
2.054124	-0.00394762
2.054124	-0.00394762
2.054124	-0.00394762
2.060514	-0.00348791
2.066863	-0.00306791
2.079442	-0.00233815
2.079442	-0.00233815
2.080691	-0.00227275
2.083807	-0.00211494
2.089392	-0.00185072
2.090629	-0.00179535
2.091864	-0.00174116
2.091864	-0.00174116
2.091864	-0.00174116
2.093098	-0.00168814
2.09433	-0.00163626
2.099244	-0.00143998
2.100469	-0.00139363
2.101692	-0.00134835
2.104134	-0.00126089
2.105962	-0.00119798
2.124654	-0.00067024
2.128232	-0.00059135
2.128232	-0.00059135
2.128232	-0.00059135
2.134166	-0.00047458
2.140066	-0.00037483
2.141242	-0.00035679
2.148268	-0.00026092
2.151762	-0.00022041
2.156403	-0.00017342
2.169054	-8.0142E-05
2.174752	-5.2382E-05
2.174752	-5.2382E-05
2.174752	-5.2382E-05
2.175887	-4.7755E-05
2.175887	-4.7755E-05
2.179287	-3.555E-05
2.186051	-1.7814E-05
2.187174	-1.5613E-05
2.188296	-1.3604E-05
2.191654	-8.6333E-06
2.191654	-8.6333E-06
2.197225	-3.3369E-06
2.197225	-3.3369E-06

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg)^3
2.197225	-3.3369E-06
2.197225	-3.3369E-06
2.208274	-5.9023E-08
2.219203	3.4825E-07
2.219203	3.4825E-07
2.219203	3.4825E-07
2.22029	5.3577E-07
2.222459	1.0899E-06
2.230014	5.684E-06
2.230014	5.684E-06
2.234306	1.085E-05
2.24071	2.3251E-05
2.24071	2.3251E-05
2.24071	2.3251E-05
2.251292	5.9886E-05
2.261763	0.00012199
2.261763	0.00012199
2.261763	0.00012199
2.261763	0.00012199
2.261763	0.00012199
2.266958	0.00016448
2.272126	0.00021555
2.272126	0.00021555
2.282382	0.00034616
2.282382	0.00034616
2.284421	0.0003772
2.292535	0.00051908
2.302585	0.00073918
2.302585	0.00073918
2.302585	0.00073918
2.306079	0.00082823
2.307573	0.00086838
2.310057	0.000938
2.312535	0.00101107
2.312535	0.00101107
2.332144	0.00172696
2.333114	0.00176921
2.341806	0.00217869
2.341806	0.00217869
2.341806	0.00217869
2.351375	0.00269765
2.351375	0.00269765
2.351375	0.00269765
2.360854	0.00328708
2.360854	0.00328708
2.360854	0.00328708
2.36556	0.00360917
2.370244	0.00394999
2.379546	0.00468918
2.379546	0.00468918
2.388763	0.00550724
2.397895	0.0064066

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg)^3
2.397895	0.0064066
2.397895	0.0064066
2.406945	0.00738949
2.406945	0.00738949
2.415914	0.00845797
2.415914	0.00845797
2.420368	0.00902492
2.429218	0.01022535
2.429218	0.01022535
2.433613	0.01085926
2.433613	0.01085926
2.442347	0.01219545
2.442347	0.01219545
2.442347	0.01219545
2.451005	0.01362404
2.451005	0.01362404
2.459589	0.01514639
2.459589	0.01514639
2.4681	0.01676377
2.476538	0.01847731
2.480731	0.01937047
2.484907	0.02028806
2.484907	0.02028806
2.484907	0.02028806
2.484907	0.02028806
2.493205	0.02219693
2.501436	0.02420479
2.501436	0.02420479
2.509599	0.02631238
2.509599	0.02631238
2.509599	0.02631238
2.509599	0.02631238
2.517696	0.02852039
2.517696	0.02852039
2.521721	0.02966223
2.533697	0.03323992
2.541602	0.03575243
2.541602	0.03575243
2.549445	0.03836729
2.549445	0.03836729
2.549445	0.03836729
2.557227	0.04108483
2.564949	0.04390532
2.564949	0.04390532
2.572612	0.04682896
2.572612	0.04682896
2.580217	0.0498559
2.587764	0.05298626
2.587764	0.05298626
2.595255	0.05622009
2.595255	0.05622009
2.598979	0.05787581



Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg) <sup>3</sup>
2.60269	0.0595574
2.60269	0.0595574
2.617396	0.06654234
2.617396	0.06654234
2.619219	0.06744452
2.639057	0.0777794
2.639057	0.0777794
2.641198	0.07897014
2.646175	0.08175039
2.649715	0.08376705
2.653242	0.08580933
2.66026	0.08997056
2.66026	0.08997056
2.674149	0.09859879
2.674149	0.09859879
2.674149	0.09859879
2.68444	0.10533622
2.691243	0.10995398
2.694627	0.11230056
2.70805	0.12193707
2.70805	0.12193707
2.70805	0.12193707
2.714695	0.12690471
2.714695	0.12690471
2.718001	0.12942568
2.721295	0.13197136
2.721295	0.13197136
2.721295	0.13197136
2.721295	0.13197136
2.727853	0.13713656
2.734368	0.14239986
2.734368	0.14239986
2.74084	0.14776078
2.747271	0.15321883
2.747271	0.15321883
2.756205	0.16102232
2.766319	0.17017071
2.772589	0.17601218
2.775709	0.17896841
2.797281	0.20031808
2.797281	0.20031808
2.809403	0.2130273
2.821379	0.22610134
2.821379	0.22610134
2.827314	0.23277373
2.833213	0.23953561
2.833213	0.23953561
2.844909	0.25332548
2.850707	0.2603523
2.850707	0.2603523
2.855895	0.26675096
2.85647	0.26746626

Table B-15. Near Upgradient Background Nitrate Data Set,  
Coefficient of Skewness Analysis (cont.)

Nitrate	Lognormal (xi-avg)^3
2.879198	0.29678172
2.890372	0.31194693
2.890372	0.31194693
2.912351	0.3432687
2.917771	0.35130223
2.924773	0.36186541
2.926918	0.36514264
2.939162	0.38423107
2.944439	0.39265904
2.960105	0.41840354
2.970414	0.43594461
2.97553	0.44482686
2.97553	0.44482686
2.985682	0.46281194
2.995732	0.48108742
3.00072	0.49033267
3.032546	0.5521315
3.067122	0.62492626
3.091042	0.67886065
3.106826	0.71609679
3.109061	0.72147611
3.131137	0.77607298
3.135494	0.78716469
3.135494	0.78716469
3.144152	0.8095168
3.165475	0.86636024
3.169686	0.87789055
3.169686	0.87789055
3.169686	0.87789055
3.190476	0.93632664
3.210844	0.99603245
3.210844	0.99603245
3.215871	1.01115137
3.22605	1.04222713
3.238678	1.08165864
3.292126	1.25956631
3.433987	1.82398357
3.443618	1.86745666
3.50255	2.14859638
3.50255	2.14859638

Table B-16. Nitrate Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
0.35	1	0.002841	-2.76559	-0.967957021	7.648496
0.44	2	0.005682	-2.53131	-1.113774488	6.407508
0.48	3	0.008523	-2.38571	-1.145142596	5.69163
0.59	4	0.011364	-2.27799	-1.344015982	5.189253
0.81	5	0.014205	-2.19159	-1.775188866	4.803072
1.16	6	0.017045	-2.119	-2.458034578	4.490141
1.23	7	0.019886	-2.05609	-2.528996447	4.227525
1.29	8	0.022727	-2.00042	-2.580547607	4.001698
1.32	9	0.025568	-1.95033	-2.574434984	3.803785
1.4	10	0.028409	-1.90471	-2.666592991	3.627917
1.9	11	0.03125	-1.86273	-3.539181307	3.469752
2.05	12	0.034091	-1.8238	-3.738791293	3.326249
2.26	13	0.036932	-1.78746	-4.039653322	3.195003
2.85	14	0.039773	-1.75333	-4.996986036	3.074161
2.98	15	0.042614	-1.72113	-5.128960765	2.962281
2.98	16	0.045455	-1.69062	-5.038057498	2.858207
3.04	17	0.048295	-1.66161	-5.051295739	2.760949
3.13	18	0.051136	-1.63393	-5.114215037	2.669742
3.15	19	0.053977	-1.60745	-5.063481922	2.58391
3.2	20	0.056818	-1.58206	-5.062582204	2.502904
3.22	21	0.059659	-1.55764	-5.015605802	2.426247
3.26	22	0.0625	-1.53412	-5.001237787	2.35353
3.305	23	0.065341	-1.51142	-4.995246513	2.284394
3.49	24	0.068182	-1.48947	-5.19825162	2.218522
3.5	25	0.071023	-1.46822	-5.138754204	2.155657
3.6	26	0.073864	-1.44761	-5.211382813	2.095564
3.74	27	0.076705	-1.42759	-5.339197469	2.038022
3.8	28	0.079545	-1.40813	-5.350910214	1.982842
3.8	29	0.082386	-1.3892	-5.278954632	1.929873
4.02	30	0.085227	-1.37074	-5.510394658	1.878942
4.1	31	0.088068	-1.35275	-5.546258762	1.829922
4.13	32	0.090909	-1.33518	-5.514289887	1.782703
4.2	33	0.09375	-1.31801	-5.535652235	1.737157
4.25	34	0.096591	-1.30122	-5.53019845	1.693182
4.26	35	0.099432	-1.2848	-5.473238161	1.650705
4.33	36	0.102273	-1.26871	-5.493508797	1.609622
4.4	37	0.105114	-1.25294	-5.51294761	1.569865
4.54	38	0.107955	-1.23748	-5.618164778	1.53136
4.6	39	0.110795	-1.22231	-5.622619483	1.494038
4.6	40	0.113636	-1.20741	-5.554101335	1.457847
4.725	41	0.116477	-1.19278	-5.635904927	1.422734
4.8	42	0.119318	-1.1784	-5.656333087	1.388633
4.9	43	0.122159	-1.16426	-5.704885552	1.355507
4.9	44	0.125	-1.15035	-5.636711876	1.323304
5	45	0.127841	-1.13666	-5.683284598	1.291989
5.1	46	0.130682	-1.12317	-5.72818567	1.261519
5.1	47	0.133523	-1.10989	-5.660453098	1.231862
5.14	48	0.136364	-1.0968	-5.63756671	1.202977
5.2	49	0.139205	-1.0839	-5.63627691	1.174838
5.3	50	0.142045	-1.07118	-5.677230547	1.147417
5.4	51	0.144886	-1.05862	-5.716548003	1.120676
5.4	52	0.147727	-1.04623	-5.649644208	1.094598
5.5	53	0.150568	-1.034	-5.686999884	1.069156
5.6	54	0.153409	-1.02192	-5.72276258	1.044324
5.6	55	0.15625	-1.00999	-5.655940186	1.020078

Nitrate - normal

$$3769662 = (\text{sum of } M_i * X_i)^2$$

$$350 = \text{count} - 1$$

$$33.52932 = \text{standard deviation}^2$$

$$340.9811 = \text{sum of } M_i^2$$

$$0.94 = W \text{ statistic}$$

0.976 is acceptable low value

Falls Shapiro-Francia test

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
5.69	56	0.159091	-0.9982	-5.679770902	0.996408
5.8	57	0.161932	-0.98655	-5.721986327	0.97328
5.9	58	0.164773	-0.97503	-5.752680636	0.950685
5.9	59	0.167614	-0.96364	-5.685471251	0.9286
5.95	60	0.170455	-0.95237	-5.666604807	0.90701
5.95	61	0.173295	-0.94122	-5.600273425	0.8859
6.1	62	0.176136	-0.93019	-5.674160548	0.865254
6.2	63	0.178977	-0.91927	-5.699470876	0.845056
6.2	64	0.181818	-0.90846	-5.632438842	0.825296
6.2	65	0.184659	-0.89775	-5.566055279	0.805957
6.39	66	0.1875	-0.88715	-5.668863855	0.787028
6.4	67	0.190341	-0.87664	-5.610505468	0.7685
6.45	68	0.193182	-0.86623	-5.58718375	0.750354
6.45	69	0.196023	-0.85591	-5.520645914	0.732589
6.6	70	0.198864	-0.84569	-5.58153306	0.715186
6.6	71	0.201705	-0.83555	-5.514618351	0.698141
6.6	72	0.204545	-0.82549	-5.448258889	0.68144
6.6	73	0.207386	-0.81552	-5.382454674	0.665078
6.69	74	0.210227	-0.80563	-5.389682633	0.649044
6.8	75	0.213068	-0.79582	-5.411578513	0.63333
6.8	76	0.215909	-0.78608	-5.345365025	0.617927
6.8	77	0.21875	-0.77642	-5.279669494	0.602831
6.83	78	0.221591	-0.76683	-5.237458208	0.58803
6.85	79	0.224432	-0.75731	-5.187581905	0.57352
6.865	80	0.227273	-0.74786	-5.134054118	0.559294
6.9	81	0.230114	-0.73847	-5.095465895	0.545343
6.945	82	0.232955	-0.72915	-5.063953677	0.531661
6.95	83	0.235795	-0.71989	-5.003251772	0.518245
6.95	84	0.238636	-0.7107	-4.939330779	0.505087
7	85	0.241477	-0.70156	-4.910914413	0.492185
7.005	86	0.244318	-0.69248	-4.850815634	0.479527
7.09	87	0.247159	-0.68346	-4.845709043	0.467113
7.15	88	0.25	-0.67449	-4.822606115	0.454937
7.15	89	0.252841	-0.66558	-4.758869693	0.442992
7.2	90	0.255682	-0.65672	-4.728359272	0.431277
7.2	91	0.258523	-0.64791	-4.664922017	0.419782
7.2	92	0.261364	-0.63915	-4.601861292	0.408509
7.2	93	0.264205	-0.63044	-4.539144356	0.39745
7.225	94	0.267045	-0.62177	-4.492315554	0.386603
7.25	95	0.269886	-0.61316	-4.445383297	0.375961
7.25	96	0.272727	-0.60458	-4.383236387	0.365522
7.28	97	0.275568	-0.59606	-4.339300904	0.355285
7.28	98	0.278409	-0.58757	-4.277542394	0.345244
7.35	99	0.28125	-0.57913	-4.256621082	0.335394
7.4	100	0.284091	-0.57073	-4.223406904	0.325733
7.4	101	0.286932	-0.56237	-4.161538982	0.31626
7.4	102	0.289773	-0.55405	-4.099957096	0.306969
7.45	103	0.292614	-0.54577	-4.065949497	0.297859

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
7.5	104	0.295455	-0.53752	-4.031386425	0.288926
7.5	105	0.298295	-0.52931	-3.969825002	0.280169
7.55	106	0.301136	-0.52113	-3.934567587	0.271581
7.6	107	0.303977	-0.513	-3.898769137	0.263165
7.71	108	0.306818	-0.50489	-3.892702421	0.254914
7.715	109	0.309659	-0.49682	-3.832944429	0.246827
7.735	110	0.3125	-0.48878	-3.780683096	0.238902
7.8	111	0.315341	-0.48077	-3.749990356	0.231138
7.8	112	0.318182	-0.47279	-3.687757726	0.22353
7.8	113	0.321023	-0.46484	-3.625755653	0.216077
7.85	114	0.323864	-0.45692	-3.586830189	0.208777
7.9	115	0.326705	-0.44903	-3.547346296	0.201629
8	116	0.329545	-0.44117	-3.52934876	0.19463
8	117	0.332386	-0.43333	-3.466666385	0.187778
8.01	118	0.335227	-0.42552	-3.408448435	0.181071
8.035	119	0.338068	-0.41774	-3.356550127	0.174508
8.08	120	0.340909	-0.40998	-3.312663921	0.168086
8.09	121	0.34375	-0.40225	-3.254203955	0.161805
8.1	122	0.346591	-0.39454	-3.19578271	0.155663
8.1	123	0.349432	-0.38685	-3.133523137	0.149657
8.1	124	0.352273	-0.37919	-3.071456945	0.143787
8.11	125	0.355114	-0.37155	-3.01328123	0.13805
8.12	126	0.357955	-0.36393	-2.955128093	0.132447
8.16	127	0.360795	-0.35633	-2.907678936	0.126973
8.17	128	0.363636	-0.34876	-2.849336317	0.121631
8.18	129	0.366477	-0.3412	-2.791000247	0.116416
8.2	130	0.369318	-0.33366	-2.7360079	0.111329
8.215	131	0.372159	-0.32614	-2.679242175	0.106367
8.37	132	0.375	-0.31864	-2.667010062	0.101531
8.4	133	0.377841	-0.31116	-2.61371315	0.096818
8.4	134	0.380682	-0.30369	-2.551000307	0.092228
8.4	135	0.383523	-0.29624	-2.488430709	0.087759
8.45	136	0.386364	-0.28881	-2.44044486	0.083411
8.5	137	0.389205	-0.28139	-2.391841463	0.079182
8.51	138	0.392045	-0.27399	-2.331672772	0.075072
8.57	139	0.394886	-0.26661	-2.284812274	0.071079
8.6	140	0.397727	-0.25923	-2.229415941	0.067202
8.64	141	0.400568	-0.25188	-2.17621382	0.063442
8.75	142	0.403409	-0.24453	-2.139668709	0.059797
8.8	143	0.40625	-0.2372	-2.087376743	0.056265
8.8	144	0.409091	-0.22988	-2.022978151	0.052847
8.8	145	0.411932	-0.22258	-1.958689609	0.049541
8.81	146	0.414773	-0.21528	-1.896653953	0.046347
8.81	147	0.417614	-0.208	-1.832502687	0.043265
8.84	148	0.420455	-0.20073	-1.774463499	0.040293
8.9	149	0.423295	-0.19347	-1.721882882	0.037431
8.91	150	0.426136	-0.18622	-1.659211648	0.034678
8.92	151	0.428977	-0.17898	-1.596486663	0.032033

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
8.95	152	0.431818	-0.17175	-1.537133016	0.029497
8.95	153	0.434659	-0.16453	-1.472501594	0.027069
9	154	0.4375	-0.15731	-1.41579676	0.024747
9	155	0.440341	-0.15011	-1.350947514	0.022532
9	156	0.443182	-0.14291	-1.286159659	0.020422
9	157	0.446023	-0.13572	-1.221453658	0.018419
9.1	158	0.448864	-0.12853	-1.169641791	0.01652
9.2	159	0.451705	-0.12136	-1.116476597	0.014727
9.2	160	0.454545	-0.11418	-1.050500032	0.013038
9.2	161	0.457386	-0.10702	-0.984586222	0.011453
9.21	162	0.460227	-0.09986	-0.919723323	0.009972
9.23	163	0.463068	-0.09271	-0.855686244	0.008595
9.3	164	0.465909	-0.08556	-0.795682922	0.00732
9.3	165	0.46875	-0.07841	-0.729232397	0.006148
9.34	166	0.471591	-0.07127	-0.66567502	0.00508
9.4	167	0.474432	-0.06413	-0.602850378	0.004113
9.4	168	0.477273	-0.057	-0.535792196	0.003249
9.4	169	0.480114	-0.04987	-0.468755388	0.002487
9.5	170	0.482955	-0.04274	-0.406024583	0.001827
9.6	171	0.485795	-0.03561	-0.341889972	0.001268
9.6	172	0.488636	-0.02849	-0.273481419	0.000812
9.6	173	0.491477	-0.02137	-0.205105607	0.000456
9.6	174	0.494318	-0.01424	-0.136729795	0.000203
9.6	175	0.497159	-0.00712	-0.068364898	5.07E-05
9.65	176	0.5	0	0	0
9.7	177	0.502841	0.007121	0.069077032	5.07E-05
9.7	178	0.505682	0.014243	0.138154064	0.000203
9.8	179	0.508523	0.021365	0.209378641	0.000456
9.8	180	0.511364	0.028488	0.279178948	0.000812
9.82	181	0.514205	0.035614	0.349724951	0.001268
9.9	182	0.517045	0.042739	0.423120355	0.001827
10	183	0.519886	0.049868	0.498675945	0.002487
10	184	0.522727	0.056999	0.569991698	0.003249
10	185	0.525568	0.064133	0.641330189	0.004113
10.035	186	0.528409	0.071271	0.715208654	0.00508
10.05	187	0.53125	0.078412	0.788041461	0.006148
10.075	188	0.534091	0.085557	0.861989832	0.00732
10.1	189	0.536932	0.092707	0.936341394	0.008595
10.1	190	0.539773	0.099861	1.008599952	0.009972
10.3	191	0.542614	0.10702	1.102308488	0.011453
10.31	192	0.545455	0.114185	1.177245144	0.013038
10.4	193	0.548295	0.121356	1.262103979	0.014727
10.4	194	0.551136	0.128532	1.336733476	0.01652
10.4	195	0.553977	0.135717	1.411457561	0.018419
10.5	196	0.556818	0.142907	1.500519602	0.020422
10.5	197	0.559659	0.150105	1.576105433	0.022532
10.5	198	0.5625	0.157311	1.651762886	0.024747
10.6	199	0.565341	0.164525	1.743968369	0.027069

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
10.6	200	0.568182	0.171747	1.820515081	0.029497
10.6	201	0.571023	0.178978	1.89717025	0.032033
10.65	202	0.573864	0.186219	1.983232778	0.034678
10.7	203	0.576705	0.19347	2.070128858	0.037431
10.8	204	0.579545	0.200731	2.167896582	0.040293
10.8	205	0.582386	0.208003	2.246427812	0.043265
10.9	206	0.585227	0.215284	2.346597967	0.046347
11	207	0.588068	0.222578	2.448362011	0.049541
11	208	0.590909	0.229884	2.528722689	0.052847
11	209	0.59375	0.237202	2.609220928	0.056265
11.1	210	0.596591	0.244534	2.714322591	0.059797
11.1	211	0.599432	0.251877	2.795830255	0.063442
11.2	212	0.602273	0.259234	2.903425411	0.067202
11.2	213	0.605114	0.266606	2.985985702	0.071079
11.25	214	0.607955	0.273992	3.082411126	0.075072
11.35	215	0.610795	0.281393	3.193811835	0.079182
11.35	216	0.613636	0.28881	3.277993983	0.083411
11.4	217	0.616477	0.296242	3.377155963	0.087759
11.4	218	0.619318	0.303691	3.462071845	0.092228
11.5	219	0.622159	0.311156	3.578297765	0.096818
11.5	220	0.625	0.318639	3.664350743	0.101531
11.5	221	0.627841	0.32614	3.750612905	0.106367
11.6	222	0.630682	0.33366	3.8704502	0.111329
11.6	223	0.633523	0.341198	3.957897661	0.116416
11.7	224	0.636364	0.348756	4.08044491	0.121631
11.7	225	0.639205	0.356333	4.169098474	0.126973
11.8	226	0.642045	0.363932	4.294397968	0.132447
11.9	227	0.644886	0.371551	4.421460744	0.13805
11.95	228	0.647727	0.379192	4.531346974	0.143787
12	229	0.650568	0.386855	4.642256499	0.149657
12	230	0.653409	0.394541	4.734492904	0.155663
12	231	0.65625	0.40225	4.827002158	0.161805
12	232	0.659091	0.409983	4.919797902	0.168086
12.1	233	0.661932	0.417741	5.054667895	0.174508
12.2	234	0.664773	0.425524	5.191394621	0.181071
12.2	235	0.667614	0.433333	5.286666237	0.187778
12.3	236	0.670455	0.441169	5.426373718	0.19463
12.3	237	0.673295	0.449031	5.523083473	0.201629
12.3	238	0.676136	0.456921	5.620128832	0.208777
12.3	239	0.678977	0.46484	5.717537761	0.216077
12.4	240	0.681818	0.472789	5.862589205	0.22353
12.4	241	0.684659	0.480768	5.961523129	0.231138
12.45	242	0.6875	0.488776	6.085262385	0.238902
12.6	243	0.690341	0.496817	6.259896281	0.246827
12.7	244	0.693182	0.50489	6.412103858	0.254914
12.7	245	0.696023	0.512996	6.515048426	0.263165
12.8	246	0.698864	0.521135	6.670525181	0.271581
12.8	247	0.701705	0.52931	6.775168004	0.280169

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
12.8	248	0.704545	0.537518	6.880232831	0.288926
12.9	249	0.707386	0.545765	7.040368928	0.297859
13	250	0.710227	0.554048	7.20262733	0.306969
13	251	0.713068	0.56237	7.310811725	0.31626
13.1	252	0.715909	0.570731	7.476571682	0.325733
13.1	253	0.71875	0.579132	7.586630772	0.335394
13.2	254	0.721591	0.587575	7.755983461	0.345244
13.3	255	0.724432	0.596058	7.927568959	0.355285
13.3	256	0.727273	0.604584	8.040971579	0.365522
13.4	257	0.730114	0.613156	8.216294646	0.375961
13.4	258	0.732955	0.621774	8.33176864	0.386603
13.45	259	0.735795	0.630437	8.479373832	0.39745
13.5	260	0.738636	0.639147	8.628489923	0.408509
13.5	261	0.741477	0.647906	8.746728781	0.419782
13.7	262	0.744318	0.656717	8.997016948	0.431277
13.7	263	0.747159	0.665576	9.118393677	0.442992
13.725	264	0.75	0.67449	9.25738027	0.454937
14	265	0.752841	0.683457	9.568395853	0.467113
14	266	0.755682	0.692479	9.694706478	0.479527
14.03	267	0.758523	0.701559	9.842875602	0.492185
14.1	268	0.761364	0.710695	10.02080057	0.505087
14.15	269	0.764205	0.719892	10.18647663	0.518245
14.2	270	0.767045	0.729151	10.35394416	0.531661
14.3	271	0.769886	0.738473	10.56016845	0.545343
14.3	272	0.772727	0.747859	10.69438804	0.559294
14.5	273	0.775568	0.757311	10.98101279	0.57352
14.5	274	0.778409	0.766831	11.11905476	0.58803
14.5	275	0.78125	0.776422	11.25811878	0.602831
14.65	276	0.784091	0.786083	11.5161173	0.617927
14.75	277	0.786932	0.79582	11.73835045	0.63333
14.8	278	0.789773	0.805633	11.92336367	0.649044
15	279	0.792614	0.815523	12.23285153	0.665078
15	280	0.795455	0.825494	12.38240657	0.68144
15	281	0.798295	0.835548	12.53322353	0.698141
15.1	282	0.801136	0.845687	12.76987109	0.715186
15.1	283	0.803977	0.855914	12.92430284	0.732589
15.15	284	0.806818	0.86623	13.12338509	0.750354
15.2	285	0.809659	0.876641	13.32495049	0.7685
15.2	286	0.8125	0.887146	13.48462138	0.787028
15.2	287	0.815341	0.897751	13.64581294	0.805957
15.2	288	0.818182	0.908458	13.80855974	0.825296
15.3	289	0.821023	0.919269	14.06482329	0.845056
15.4	290	0.823864	0.93019	14.32492991	0.865254
15.4	291	0.826705	0.941222	14.49482534	0.8859
15.5	292	0.829545	0.952371	14.76174361	0.90701
15.6	293	0.832386	0.963639	15.03277144	0.9286
15.6	294	0.835227	0.975031	15.21047761	0.950685
15.74	295	0.838068	0.986549	15.52828703	0.97328



Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
15.9	296	0.840909	0.998202	15.87141605	0.996408
16	297	0.84375	1.009989	16.1598291	1.020078
16.05	298	0.846591	1.021922	16.40184632	1.044324
16.4	299	0.849432	1.034	16.95759966	1.069156
16.4	300	0.852273	1.04623	17.15817871	1.094598
16.6	301	0.855114	1.05862	17.57309201	1.120676
16.8	302	0.857955	1.071176	17.99574966	1.147417
16.8	303	0.860795	1.083899	18.20951002	1.174838
16.9	304	0.863636	1.096803	18.53596837	1.202977
17	305	0.866477	1.109893	18.86817699	1.231862
17	306	0.869318	1.123174	19.09395223	1.261519
17.2	307	0.872159	1.136657	19.55049902	1.291989
17.3	308	0.875	1.150349	19.90104397	1.323304
17.3	309	0.877841	1.164262	20.14173879	1.355507
17.39	310	0.880682	1.178403	20.49242341	1.388633
17.4	311	0.883523	1.192784	20.75444354	1.422734
17.8	312	0.886364	1.207413	21.49195734	1.457847
18	313	0.889205	1.222309	22.0015545	1.494038
18	314	0.892045	1.237481	22.27466211	1.53136
18.4	315	0.894886	1.252943	23.05414455	1.569865
18.5	316	0.897727	1.268709	23.47111149	1.609622
18.63	317	0.900568	1.284798	23.93578097	1.650705
18.67	318	0.903409	1.301223	24.29383649	1.693182
18.9	319	0.90625	1.318012	24.91043506	1.737157
19	320	0.909091	1.335179	25.36840384	1.782703
19.3	321	0.911932	1.352746	26.10799856	1.829922
19.5	322	0.914773	1.370745	26.72952633	1.878942
19.6	323	0.917614	1.389199	27.22829231	1.929873
19.6	324	0.920455	1.408134	27.59943163	1.982842
19.8	325	0.923295	1.427593	28.26633954	2.038022
20	326	0.926136	1.447606	28.95212674	2.095564
20.1	327	0.928977	1.468215	29.51113129	2.155657
20.75	328	0.931818	1.48947	30.90651035	2.218522
21.48	329	0.934659	1.511421	32.46532378	2.284394
22	330	0.9375	1.534122	33.75068445	2.35353
22.35	331	0.940341	1.557642	34.81328872	2.426247
22.4	332	0.943182	1.582057	35.43807543	2.502904
22.9	333	0.946023	1.607455	36.81070984	2.58391
23	334	0.948864	1.633935	37.58049388	2.669742
23	335	0.951705	1.66161	38.21704013	2.760949
23.2	336	0.954545	1.690623	39.22246106	2.858207
23.7	337	0.957386	1.721128	40.79072824	2.962281
23.8	338	0.960227	1.753328	41.72921672	3.074161
23.8	339	0.963068	1.787457	42.54148189	3.195003
23.8	340	0.965909	1.823801	43.40645501	3.326249
24.3	341	0.96875	1.862727	45.26426619	3.469752
24.8	342	0.971591	1.904709	47.23679012	3.627917
24.8	343	0.974432	1.95033	48.36817243	3.803785

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
24.925	344	0.977273	2.000425	49.8605807	4.001698
25.18	345	0.980114	2.056095	51.77246385	4.227525
25.5	346	0.982955	2.118995	54.03438081	4.490141
26.9	347	0.985795	2.191591	58.95380309	4.803072
31	348	0.988636	2.277993	70.61778888	5.189253
31.3	349	0.991477	2.385714	74.67284013	5.69163
33.2	350	0.994318	2.531306	84.03934771	6.407508
33.2	351	0.997159	2.765591	91.81763744	7.648496

Table B-16. Nitrate Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
-1.0498221	1	0.002841	-2.765591	2.903379133	7.648496
-0.8209806	2	0.005682	-2.531306	2.078152713	6.407508
-0.7339692	3	0.008523	-2.385714	1.751040347	5.69183
-0.5276327	4	0.011364	-2.277993	1.201943793	5.189253
-0.210721	5	0.014205	-2.191591	0.461814356	4.803072
0.14842	6	0.017045	-2.118995	-0.314501297	4.490141
0.2070142	7	0.019886	-2.056095	-0.425640731	4.227525
0.2546422	8	0.022727	-2.000425	-0.509392533	4.001898
0.2776317	9	0.025568	-1.95033	-0.541473375	3.803785
0.3364722	10	0.028409	-1.904709	-0.640881791	3.627917
0.6418539	11	0.03125	-1.862727	-1.195598566	3.469752
0.7178398	12	0.034091	-1.823801	-1.309196667	3.326249
0.8153648	13	0.036932	-1.787457	-1.457429724	3.195003
1.047319	14	0.039773	-1.753328	-1.836294172	3.074161
1.0919233	15	0.042614	-1.721128	-1.879339519	2.962281
1.0919233	16	0.045455	-1.690623	-1.846030997	2.858207
1.1118575	17	0.048295	-1.66161	-1.847474056	2.760949
1.141033	18	0.051136	-1.633935	-1.864373211	2.669742
1.1474025	19	0.053977	-1.607455	-1.844397326	2.58391
1.1631508	20	0.056818	-1.582057	-1.84017081	2.502904
1.1693814	21	0.059659	-1.557642	-1.821476998	2.426247
1.1817272	22	0.0625	-1.534122	-1.812913713	2.35353
1.1954365	23	0.065341	-1.511421	-1.806807829	2.284394
1.2499017	24	0.068182	-1.48947	-1.861691612	2.218522
1.252763	25	0.071023	-1.468215	-1.839325992	2.155657
1.2809338	26	0.073864	-1.447606	-1.854287952	2.095564
1.3190856	27	0.076705	-1.427593	-1.883117261	2.038022
1.3350011	28	0.079545	-1.408134	-1.879860749	1.982842
1.3350011	29	0.082386	-1.389199	-1.854581596	1.929873
1.3912819	30	0.085227	-1.370745	-1.907092628	1.878942
1.410987	31	0.088068	-1.352746	-1.908707041	1.829922
1.4182774	32	0.090909	-1.335179	-1.893654422	1.782703
1.4350845	33	0.09375	-1.318012	-1.891459252	1.737157
1.446919	34	0.096591	-1.301223	-1.882764498	1.693182
1.4492692	35	0.099432	-1.284798	-1.86201767	1.650705
1.4655675	36	0.102273	-1.268709	-1.859378334	1.609622
1.4816045	37	0.105114	-1.252943	-1.856365503	1.569865
1.512927	38	0.107955	-1.237481	-1.872218778	1.53136
1.5260563	39	0.110795	-1.222309	-1.865311718	1.494038
1.5260563	40	0.113636	-1.207413	-1.842580729	1.457847
1.5528676	41	0.116477	-1.192784	-1.852235754	1.422734
1.5686159	42	0.119318	-1.178403	-1.848461275	1.388633
1.5892352	43	0.122159	-1.164262	-1.850286727	1.355507
1.5892352	44	0.125	-1.150349	-1.828175705	1.323304
1.6094379	45	0.127841	-1.136657	-1.82937874	1.291989
1.6292405	46	0.130682	-1.123174	-1.829920061	1.261519
1.6292405	47	0.133523	-1.109893	-1.808282286	1.231862
1.6370531	48	0.136364	-1.096803	-1.795524503	1.202977
1.6486586	49	0.139205	-1.083899	-1.786980105	1.174838
1.6677068	50	0.142045	-1.071176	-1.786406812	1.147417
1.686399	51	0.144886	-1.05862	-1.785255661	1.120676
1.686399	52	0.147727	-1.04623	-1.764361867	1.094598
1.7047481	53	0.150568	-1.034	-1.762709492	1.069156
1.7227666	54	0.153409	-1.021922	-1.760532896	1.044324

Nitrate - lognormal

$46639.69 = (\text{sum of } M_i * X_i)^2$

$350 = \text{count} - 1$

$0.437141 = \text{standard deviation}^2$

$340.9811 = \text{sum of } M_i^2$

$0.89 = W \text{ statistic}$

$0.976$  is acceptable low value

Fails Shapiro-Francia test

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
1.7227666	55	0.15625	-1.00999	-1.739975863	1.020078
1.7387102	56	0.159091	-0.9982	-1.735584512	0.996408
1.7578579	57	0.161932	-0.98655	-1.734213615	0.97328
1.7749524	58	0.164773	-0.97503	-1.730632885	0.950685
1.7749524	59	0.167614	-0.96364	-1.710413655	0.9286
1.7833912	60	0.170455	-0.95237	-1.698449287	0.90701
1.7833912	61	0.173295	-0.94122	-1.678567807	0.8859
1.8082888	62	0.176136	-0.93019	-1.682052591	0.865254
1.8245493	63	0.178977	-0.91927	-1.677252508	0.845056
1.8245493	64	0.181818	-0.90846	-1.657526178	0.825296
1.8245493	65	0.184659	-0.89775	-1.63799068	0.805957
1.8547343	66	0.1875	-0.88715	-1.645420353	0.787028
1.856298	67	0.190341	-0.87664	-1.627307816	0.7685
1.8640801	68	0.193182	-0.86623	-1.614722204	0.750354
1.8640801	69	0.196023	-0.85591	-1.595492458	0.732589
1.8870696	70	0.198864	-0.84569	-1.595869944	0.715186
1.8870696	71	0.201705	-0.83555	-1.576737715	0.698141
1.8870696	72	0.204545	-0.82549	-1.557764241	0.68144
1.8870696	73	0.207386	-0.81552	-1.538949523	0.665078
1.9006139	74	0.210227	-0.80563	-1.53119665	0.649044
1.9169226	75	0.213068	-0.79582	-1.525526062	0.63333
1.9169226	76	0.215909	-0.78608	-1.506860454	0.617927
1.9169226	77	0.21875	-0.77642	-1.488340859	0.602831
1.9213247	78	0.221591	-0.76683	-1.473332018	0.58803
1.9242487	79	0.224432	-0.75731	-1.457255108	0.57352
1.926436	80	0.227273	-0.74786	-1.440703114	0.559294
1.9315214	81	0.230114	-0.73847	-1.426377026	0.545343
1.938022	82	0.232955	-0.72915	-1.413110657	0.531661
1.9387417	83	0.235795	-0.71989	-1.395685272	0.518245
1.9387417	84	0.238636	-0.7107	-1.377854151	0.505087
1.9459101	85	0.241477	-0.70156	-1.365171171	0.492185
1.9466242	86	0.244318	-0.69248	-1.347996432	0.479527
1.9586853	87	0.247159	-0.68346	-1.338676906	0.467113
1.9671124	88	0.25	-0.67449	-1.326798333	0.454937
1.9671124	89	0.252841	-0.66558	-1.30926313	0.442992
1.974081	90	0.255682	-0.65672	-1.296411712	0.431277
1.974081	91	0.258523	-0.64791	-1.279018617	0.419782
1.974081	92	0.261364	-0.63915	-1.261728758	0.408509
1.974081	93	0.264205	-0.63044	-1.244533159	0.39745
1.9775472	94	0.267045	-0.62177	-1.229587017	0.386603
1.9810015	95	0.269886	-0.61316	-1.214663564	0.375961
1.9810015	96	0.272727	-0.60458	-1.197682444	0.365522
1.9851309	97	0.275568	-0.59606	-1.183252767	0.355285
1.9851309	98	0.278409	-0.58757	-1.166412283	0.345244
1.9947003	99	0.28125	-0.57913	-1.155195021	0.335394
2.00148	100	0.284091	-0.57073	-1.142306007	0.325733
2.00148	101	0.286932	-0.56237	-1.125572573	0.31626

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.00148	102	0.289773	-0.55405	-1.108916504	0.306969
2.008214	103	0.292614	-0.54577	-1.096012998	0.297859
2.014903	104	0.295455	-0.53752	-1.083047025	0.288926
2.014903	105	0.298295	-0.52931	-1.066508318	0.280169
2.0215476	106	0.301136	-0.52113	-1.053498744	0.271581
2.0281482	107	0.303977	-0.513	-1.040431815	0.263165
2.0425182	108	0.306818	-0.50489	-1.031247146	0.254914
2.0431665	109	0.309659	-0.49682	-1.015080181	0.246827
2.0457555	110	0.3125	-0.48878	-0.999916377	0.238902
2.0541237	111	0.315341	-0.48077	-0.987556948	0.231138
2.0541237	112	0.318182	-0.47279	-0.971168034	0.22353
2.0541237	113	0.321023	-0.46484	-0.954839838	0.216077
2.0605135	114	0.323864	-0.45692	-0.941491993	0.208777
2.0668628	115	0.326705	-0.44903	-0.928085817	0.201629
2.0794415	116	0.329545	-0.44117	-0.917384303	0.19463
2.0794415	117	0.332386	-0.43333	-0.901091262	0.187778
2.0806908	118	0.335227	-0.42552	-0.885384166	0.181071
2.083807	119	0.338068	-0.41774	-0.870491929	0.174508
2.0893919	120	0.340909	-0.40998	-0.856615479	0.168086
2.0906287	121	0.34375	-0.40225	-0.840955783	0.161805
2.0918641	122	0.346591	-0.39454	-0.825326296	0.155663
2.0918641	123	0.349432	-0.38685	-0.809247461	0.149657
2.0918641	124	0.352273	-0.37919	-0.793218568	0.143787
2.0930979	125	0.355114	-0.37155	-0.777693282	0.13805
2.0943302	126	0.357955	-0.36393	-0.762193827	0.132447
2.0992442	127	0.360795	-0.35633	-0.748030398	0.126973
2.1004689	128	0.363636	-0.34876	-0.732551083	0.121631
2.1016922	129	0.366477	-0.3412	-0.717093314	0.116416
2.1041342	130	0.369318	-0.33366	-0.70206435	0.111329
2.1059618	131	0.372159	-0.32614	-0.686838898	0.106367
2.1246539	132	0.375	-0.31864	-0.676998003	0.101531
2.1282317	133	0.377841	-0.31116	-0.662212761	0.096818
2.1282317	134	0.380682	-0.30369	-0.646323778	0.092228
2.1282317	135	0.383523	-0.29624	-0.630471087	0.087759
2.1341664	136	0.386364	-0.28881	-0.616368701	0.083411
2.1400662	137	0.389205	-0.28139	-0.60219988	0.079182
2.1412419	138	0.392045	-0.27399	-0.586683377	0.075072
2.1482677	139	0.394886	-0.26661	-0.57274078	0.071079
2.1517622	140	0.397727	-0.25923	-0.557810809	0.067202
2.1564026	141	0.400568	-0.25188	-0.54314735	0.063442
2.1690537	142	0.403409	-0.24453	-0.530406438	0.059797
2.1747517	143	0.40625	-0.2372	-0.515855246	0.056265
2.1747517	144	0.409091	-0.22988	-0.499940366	0.052847
2.1747517	145	0.411932	-0.22258	-0.484052682	0.049541
2.1758874	146	0.414773	-0.21528	-0.468434224	0.046347
2.1758874	147	0.417614	-0.208	-0.452590191	0.043265
2.1792869	148	0.420455	-0.20073	-0.437450794	0.040293
2.1860513	149	0.423295	-0.19347	-0.422935311	0.037431
2.1871742	150	0.426136	-0.18622	-0.407293488	0.034678
2.1882959	151	0.428977	-0.17898	-0.391657544	0.032033
2.1916535	152	0.431818	-0.17175	-0.376409274	0.029497

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
2.1916535	153	0.434659	-0.16453	-0.360582494	0.027069
2.1972246	154	0.4375	-0.15731	-0.345647049	0.024747
2.1972246	155	0.440341	-0.15011	-0.329815009	0.022532
2.1972246	156	0.443182	-0.14291	-0.313997957	0.020422
2.1972246	157	0.446023	-0.13572	-0.298200889	0.018419
2.2082744	158	0.448864	-0.12853	-0.28383407	0.01652
2.2192035	159	0.451705	-0.12136	-0.269313995	0.014727
2.2192035	160	0.454545	-0.11418	-0.253399275	0.013038
2.2192035	161	0.457386	-0.10702	-0.237499693	0.011453
2.2202899	162	0.460227	-0.09986	-0.221721212	0.009972
2.222459	163	0.463068	-0.09271	-0.206037664	0.008595
2.2300144	164	0.465909	-0.08556	-0.190794019	0.00732
2.2300144	165	0.46875	-0.07841	-0.17486008	0.006148
2.2343063	166	0.471591	-0.07127	-0.159242169	0.00508
2.2407097	167	0.474432	-0.06413	-0.143703477	0.004113
2.2407097	168	0.477273	-0.057	-0.127718592	0.003249
2.2407097	169	0.480114	-0.04987	-0.111738802	0.002487
2.2512918	170	0.482955	-0.04274	-0.096218928	0.001827
2.2617631	171	0.485795	-0.03561	-0.080549388	0.001268
2.2617631	172	0.488636	-0.02849	-0.064432311	0.000812
2.2617631	173	0.491477	-0.02137	-0.048322947	0.000456
2.2617631	174	0.494318	-0.01424	-0.032213584	0.000203
2.2617631	175	0.497159	-0.00712	-0.016106792	5.07E-05
2.2669579	176	0.5	0	0	0
2.2721259	177	0.502841	0.007121	0.016180589	5.07E-05
2.2721259	178	0.505682	0.014243	0.032361178	0.000203
2.2823824	179	0.508523	0.021365	0.048763482	0.000456
2.2823824	180	0.511364	0.028488	0.065019706	0.000812
2.2844211	181	0.514205	0.035614	0.08135632	0.001268
2.2925348	182	0.517045	0.042739	0.097981628	0.001827
2.3025851	183	0.519886	0.049868	0.11482438	0.002487
2.3025851	184	0.522727	0.056999	0.131245439	0.003249
2.3025851	185	0.525568	0.064133	0.147671733	0.004113
2.306079	186	0.528409	0.071271	0.164357513	0.00508
2.3075726	187	0.53125	0.078412	0.180941583	0.006148
2.3100571	188	0.534091	0.085557	0.197642257	0.00732
2.3125354	189	0.536932	0.092707	0.21438838	0.008595
2.3125354	190	0.539773	0.099861	0.230932982	0.009972
2.3321439	191	0.542614	0.10702	0.249586603	0.011453
2.3331143	192	0.545455	0.114185	0.266406157	0.013038
2.3418058	193	0.548295	0.121356	0.284192541	0.014727
2.3418058	194	0.551136	0.128532	0.300997136	0.01652
2.3418058	195	0.553977	0.135717	0.31782303	0.018419
2.3513753	196	0.556818	0.142907	0.336027111	0.020422
2.3513753	197	0.559659	0.150105	0.35295384	0.022532
2.3513753	198	0.5625	0.157311	0.369896608	0.024747
2.360854	199	0.565341	0.164525	0.388420255	0.027069
2.360854	200	0.568182	0.171747	0.405468897	0.029497
2.360854	201	0.571023	0.178978	0.422541696	0.032033
2.3655599	202	0.573864	0.186219	0.440512293	0.034678
2.3702437	203	0.576705	0.19347	0.458571025	0.037431

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.3795461	204	0.579545	0.200731	0.477649068	0.040293
2.3795461	205	0.582386	0.208003	0.494951724	0.043265
2.3887628	206	0.585227	0.215284	0.514262927	0.046347
2.3978953	207	0.588068	0.222578	0.533719608	0.049541
2.3978953	208	0.590909	0.229884	0.551237471	0.052847
2.3978953	209	0.59375	0.237202	0.568785321	0.056265
2.4069451	210	0.596591	0.244534	0.588578872	0.059797
2.4069451	211	0.599432	0.251877	0.606253149	0.063442
2.4159138	212	0.602273	0.259234	0.626287987	0.067202
2.4159138	213	0.605114	0.266606	0.644096786	0.071079
2.4203681	214	0.607955	0.273992	0.663161747	0.075072
2.4292177	215	0.610795	0.281393	0.683565144	0.079182
2.4292177	216	0.613636	0.28881	0.70158248	0.083411
2.4336134	217	0.616477	0.296242	0.720937882	0.087759
2.4336134	218	0.619318	0.303691	0.739065288	0.092228
2.442347	219	0.622159	0.311156	0.759951734	0.096818
2.442347	220	0.625	0.318639	0.778227493	0.101531
2.442347	221	0.627841	0.32614	0.796547679	0.106367
2.4510051	222	0.630682	0.33366	0.817801136	0.111329
2.4510051	223	0.633523	0.341198	0.836278219	0.116416
2.4595888	224	0.636364	0.348756	0.857796305	0.121631
2.4595888	225	0.639205	0.356333	0.87643317	0.126973
2.4680995	226	0.642045	0.363932	0.898220476	0.132447
2.4765384	227	0.644886	0.371551	0.920161119	0.13805
2.4807313	228	0.647727	0.379192	0.940673989	0.143787
2.4849066	229	0.650568	0.386855	0.961297837	0.149657
2.4849066	230	0.653409	0.394541	0.980397742	0.155663
2.4849066	231	0.65625	0.40225	0.999554147	0.161805
2.4849066	232	0.659091	0.409983	1.018769877	0.168086
2.4932055	233	0.661932	0.417741	1.041514509	0.174508
2.501436	234	0.664773	0.425524	1.064421405	0.181071
2.501436	235	0.667614	0.433333	1.083955491	0.187778
2.5095993	236	0.670455	0.441169	1.107156381	0.19463
2.5095993	237	0.673295	0.449031	1.12688831	0.201629
2.5095993	238	0.676136	0.456921	1.146688713	0.208777
2.5095993	239	0.678977	0.46484	1.166563296	0.216077
2.5176965	240	0.681818	0.472789	1.190340336	0.22353
2.5176965	241	0.684659	0.480768	1.210427883	0.231138
2.5217206	242	0.6875	0.488776	1.232556759	0.238902
2.5336968	243	0.690341	0.496817	1.258784069	0.246827
2.541602	244	0.693182	0.50489	1.283229602	0.254914
2.541602	245	0.696023	0.512996	1.303831501	0.263165
2.5494452	246	0.698864	0.521135	1.328604548	0.271581
2.5494452	247	0.701705	0.52931	1.349446824	0.280169
2.5494452	248	0.704545	0.537518	1.370373154	0.288926
2.5572273	249	0.707386	0.545765	1.395645248	0.297859
2.5649494	250	0.710227	0.554048	1.421105719	0.306969
2.5649494	251	0.713068	0.56237	1.44245091	0.31626
2.5726122	252	0.715909	0.570731	1.468268683	0.325733
2.5726122	253	0.71875	0.579132	1.489882375	0.335394
2.5802168	254	0.721591	0.587575	1.516069625	0.345244

Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.587764	255	0.724432	0.596058	1.54245698	0.355285
2.587764	256	0.727273	0.604584	1.564521584	0.365522
2.5952547	257	0.730114	0.613156	1.591296817	0.375961
2.5952547	258	0.732955	0.621774	1.613661327	0.386603
2.5989791	259	0.735795	0.630437	1.638491853	0.39745
2.6026897	260	0.738636	0.639147	1.66350235	0.408509
2.6026897	261	0.741477	0.647906	1.686297836	0.419782
2.6173958	262	0.744318	0.656717	1.718887202	0.431277
2.6173958	263	0.747159	0.665576	1.742076322	0.442992
2.619219	264	0.75	0.67449	1.766637973	0.454937
2.6390573	265	0.752841	0.683457	1.803681801	0.467113
2.6390573	266	0.755682	0.692479	1.827491871	0.479527
2.6411979	267	0.758523	0.701559	1.852956687	0.492185
2.6461748	268	0.761364	0.710695	1.880623399	0.505087
2.6497146	269	0.764205	0.719892	1.907509264	0.518245
2.653242	270	0.767045	0.729151	1.934614025	0.531661
2.6602595	271	0.769886	0.738473	1.964530687	0.545343
2.6602595	272	0.772727	0.747859	1.989499844	0.559294
2.6741486	273	0.775568	0.757311	2.025162795	0.57352
2.6741486	274	0.778409	0.766831	2.050621053	0.58803
2.6741486	275	0.78125	0.776422	2.076267801	0.602831
2.6844403	276	0.784091	0.786083	2.110193159	0.617927
2.6912431	277	0.786932	0.79582	2.141746065	0.63333
2.6946272	278	0.789773	0.805633	2.170879719	0.649044
2.7080502	279	0.792614	0.815523	2.208478403	0.665078
2.7080502	280	0.795455	0.825494	2.235478573	0.68144
2.7080502	281	0.798295	0.835548	2.262706566	0.698141
2.7146947	282	0.801136	0.845687	2.295781585	0.715186
2.7146947	283	0.803977	0.855914	2.323545495	0.732589
2.7180005	284	0.806818	0.86623	2.354413706	0.750354
2.7212954	285	0.809659	0.876641	2.38560045	0.7685
2.7212954	286	0.8125	0.887146	2.414186743	0.787028
2.7212954	287	0.815341	0.897751	2.443045287	0.805957
2.7212954	288	0.818182	0.908458	2.472182269	0.825296
2.7278528	289	0.821023	0.919269	2.507631895	0.845056
2.7343675	290	0.823864	0.93019	2.543482007	0.865254
2.7343675	291	0.826705	0.941222	2.573648017	0.8859
2.74084	292	0.829545	0.952371	2.610295337	0.90701
2.7472709	293	0.832386	0.963639	2.647377933	0.9286
2.7472709	294	0.835227	0.975031	2.678673253	0.950685
2.7562052	295	0.838068	0.986549	2.719132537	0.97328
2.7663191	296	0.840909	0.998202	2.761346007	0.996408
2.7725887	297	0.84375	1.009989	2.800284995	1.020078
2.7757088	298	0.846591	1.021922	2.836557632	1.044324
2.7972813	299	0.849432	1.034	2.892388841	1.069156
2.7972813	300	0.852273	1.04623	2.926600795	1.094598
2.8094027	301	0.855114	1.05862	2.974089883	1.120676
2.8213789	302	0.857955	1.071176	3.022192151	1.147417
2.8213789	303	0.860795	1.083899	3.058090898	1.174838
2.8273136	304	0.863636	1.096803	3.101005672	1.202977
2.8332133	305	0.866477	1.109893	3.14456299	1.231862



Table B-16. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	i/(n+1)	Mi	Mi * Xi	Mi^2
2.8332133	306	0.869318	1.123174	3.182190603	1.261519
2.8449094	307	0.872159	1.136657	3.233685937	1.291989
2.8507065	308	0.875	1.150349	3.279308406	1.323304
2.8507065	309	0.877841	1.164262	3.318970272	1.355507
2.8558953	310	0.880682	1.178403	3.365394842	1.388633
2.8564702	311	0.883523	1.192784	3.407152277	1.422734
2.8791985	312	0.886364	1.207413	3.476382608	1.457847
2.8903718	313	0.889205	1.222309	3.532926208	1.494038
2.8903718	314	0.892045	1.237481	3.576780794	1.53136
2.9123507	315	0.894886	1.252943	3.649008326	1.569865
2.9177707	316	0.897727	1.268709	3.701801198	1.609622
2.9247732	317	0.900568	1.284798	3.757741833	1.650705
2.926918	318	0.903409	1.301223	3.808573448	1.693182
2.9391619	319	0.90625	1.318012	3.873851968	1.737157
2.944439	320	0.909091	1.335179	3.931353532	1.782703
2.9601051	321	0.911932	1.352746	4.004270445	1.829922
2.9704145	322	0.914773	1.370745	4.071680598	1.878942
2.9755296	323	0.917614	1.389199	4.13360147	1.929873
2.9755296	324	0.920455	1.408134	4.189945145	1.982842
2.9856819	325	0.923295	1.427593	4.262338354	2.038022
2.9957323	326	0.926136	1.447606	4.336641023	2.095564
3.0007198	327	0.928977	1.468215	4.405703305	2.155657
3.0325462	328	0.931818	1.48947	4.516887805	2.218522
3.0671223	329	0.934659	1.511421	4.635713108	2.284394
3.0910425	330	0.9375	1.534122	4.742036294	2.35353
3.1068263	331	0.940341	1.557642	4.839321777	2.426247
3.109061	332	0.943182	1.582057	4.918711463	2.502904
3.1311369	333	0.946023	1.607455	5.033160362	2.58391
3.1354942	334	0.948864	1.633935	5.123192226	2.669742
3.1354942	335	0.951705	1.66161	5.209969925	2.760949
3.1441523	336	0.954545	1.690623	5.315577168	2.858207
3.165475	337	0.957386	1.721128	5.448187022	2.962281
3.1696856	338	0.960227	1.753328	5.557499854	3.074161
3.1696856	339	0.963068	1.787457	5.665677383	3.195003
3.1696856	340	0.965909	1.823801	5.780874561	3.326249
3.1904764	341	0.96875	1.862727	5.942986453	3.469752
3.2108437	342	0.971591	1.904709	6.1157237	3.627917
3.2108437	343	0.974432	1.95033	6.262203204	3.803785
3.2158713	344	0.977273	2.000425	6.433107774	4.001698
3.22605	345	0.980114	2.056095	6.633064276	4.227525
3.2386785	346	0.982955	2.118995	6.862744502	4.490141
3.2921263	347	0.985795	2.191591	7.214994976	4.803072
3.4339872	348	0.988636	2.277993	7.822599465	5.189253
3.4436181	349	0.991477	2.385714	8.215487018	5.69163
3.5025499	350	0.994318	2.531306	8.866024304	6.407508
3.5025499	351	0.997159	2.765591	9.686622127	7.648496

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
0.35	-1.049822124	1	0.00197	-2.8824	-1.00886	8.30848	3.026052821
0.44	-0.820980552	2	0.00479	-2.5908	-1.13993	6.711987	2.126955552
0.48	-0.733969175	3	0.00763	-2.4259	-1.16445	5.885144	1.780559014
0.59	-0.527632742	4	0.01048	-2.3087	-1.36212	5.330001	1.218134917
0.81	-0.210721031	5	0.01333	-2.2166	-1.79542	4.913164	0.467077056
1.16	0.148420005	6	0.01617	-2.1401	-2.48253	4.580087	-0.3176357
1.23	0.207014169	7	0.01902	-2.0744	-2.55157	4.303336	-0.429440187
1.29	0.254642218	8	0.02186	-2.0167	-2.60151	4.066987	-0.513531149
1.32	0.277631737	9	0.02471	-1.9649	-2.59372	3.860974	-0.545528599
1.4	0.336472237	10	0.02756	-1.9180	-2.68517	3.678643	-0.645346619
1.9	0.641853886	11	0.03040	-1.8749	-3.56232	3.515269	-1.203415149
2.05	0.717839793	12	0.03325	-1.8351	-3.76185	3.367412	-1.317272688
2.26	0.815364813	13	0.03609	-1.7979	-4.06329	3.232503	-1.465957779
2.85	1.047318994	14	0.03894	-1.7631	-5.02486	3.108557	-1.846538643
2.98	1.091923301	15	0.04179	-1.7303	-5.15633	2.993985	-1.889369814
2.98	1.091923301	16	0.04463	-1.6993	-5.06386	2.887558	-1.855485294
3.04	1.111857515	17	0.04748	-1.6698	-5.07621	2.788249	-1.856585225
3.13	1.141033005	18	0.05033	-1.6417	-5.13855	2.695214	-1.873246088
3.15	1.147402453	19	0.05317	-1.6149	-5.08679	2.607751	-1.852886658
3.2	1.16315081	20	0.05602	-1.5891	-5.08517	2.525285	-1.848379954
3.22	1.16938136	21	0.05886	-1.5644	-5.03732	2.447302	-1.829363192
3.26	1.181727195	22	0.06171	-1.5406	-5.0223	2.373399	-1.820549986
3.305	1.195436473	23	0.06456	-1.5176	-5.01573	2.303168	-1.814217391
3.49	1.249901736	24	0.06740	-1.4954	-5.21904	2.236304	-1.869137514
3.5	1.252762968	25	0.07025	-1.4739	-5.15882	2.172528	-1.846509791
3.6	1.280933845	26	0.07309	-1.4531	-5.23127	2.111591	-1.861365342
3.74	1.319085611	27	0.07594	-1.4329	-5.35915	2.05328	-1.89015351
3.8	1.335001067	28	0.07879	-1.4133	-5.37049	1.997379	-1.886739058
3.8	1.335001067	29	0.08163	-1.3942	-5.29789	1.943739	-1.861232247
4.02	1.391281903	30	0.08448	-1.3756	-5.52979	1.892192	-1.913805381
4.1	1.410986974	31	0.08732	-1.3574	-5.56543	1.842591	-1.915303126
4.13	1.418277407	32	0.09017	-1.3397	-5.53301	1.794825	-1.900081427
4.2	1.435084525	33	0.09302	-1.3224	-5.55412	1.748768	-1.897769903
4.25	1.446918983	34	0.09586	-1.3055	-5.54837	1.704324	-1.888949534
4.26	1.44926916	35	0.09871	-1.2889	-5.49093	1.661391	-1.868034808

#### Normal

1956.946 =sum X(i)\*M(i)  
 346.173 =sum M(i)^2  
 5.79 = standard deviation  
 18.6057 = square root of sum Mi<sup>2</sup>  
 0.971 = Filliben's Statistic

#### Lognormal

217.871 =sum X(i)\*M(i)  
 346.173 =sum M(i)^2  
 0.66 = standard deviation  
 18.6057 = square root of sum Mi<sup>2</sup>  
 0.947 = Filliben's Statistic

.987+ is acceptable value

Normal - Fail

Lognormal - Fail

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
4.33	1.465567542	36	0.10155	-1.2727	-5.51099	1.619885	-1.865296525
4.4	1.481604541	37	0.10440	-1.2569	-5.53024	1.579726	-1.862186752
4.54	1.512927012	38	0.10725	-1.2413	-5.63554	1.540845	-1.878008294
4.6	1.526056303	39	0.11009	-1.2260	-5.63978	1.503174	-1.871005743
4.6	1.526056303	40	0.11294	-1.2111	-5.57084	1.466645	-1.848132489
4.725	1.552867561	41	0.11578	-1.1963	-5.65265	1.431203	-1.85774029
4.8	1.568615918	42	0.11863	-1.1819	-5.67293	1.396796	-1.853886103
4.9	1.589235205	43	0.12148	-1.1676	-5.72143	1.36338	-1.855652778
4.9	1.589235205	44	0.12432	-1.1536	-5.65288	1.330905	-1.833418897
5	1.609437912	45	0.12717	-1.1399	-5.69939	1.299324	-1.834564164
5.1	1.62924054	46	0.13001	-1.1263	-5.74425	1.268603	-1.835050744
5.1	1.62924054	47	0.13286	-1.1130	-5.67615	1.238705	-1.813298131
5.14	1.637053079	48	0.13571	-1.0998	-5.65305	1.209594	-1.800456454
5.2	1.648658626	49	0.13855	-1.0868	-5.6516	1.181235	-1.791838311
5.3	1.667706821	50	0.14140	-1.0741	-5.6925	1.153597	-1.791211183
5.4	1.686398954	51	0.14424	-1.0614	-5.73179	1.126658	-1.790014185
5.4	1.686398954	52	0.14709	-1.0490	-5.66456	1.100386	-1.769020696
5.5	1.704748092	53	0.14994	-1.0367	-5.70188	1.074759	-1.767322108
5.6	1.722766598	54	0.15278	-1.0246	-5.7376	1.049745	-1.765096339
5.6	1.722766598	55	0.15563	-1.0126	-5.67048	1.02533	-1.744449211
5.69	1.738710248	56	0.15847	-1.0007	-5.69425	1.001494	-1.740008333
5.8	1.757857918	57	0.16132	-0.9890	-5.73645	0.978207	-1.738598221
5.9	1.774952351	58	0.16417	-0.9775	-5.7671	0.955457	-1.734971342
5.9	1.774952351	59	0.16701	-0.9660	-5.69961	0.933225	-1.714667361
5.95	1.78339122	60	0.16986	-0.9547	-5.68059	0.911493	-1.702642118
5.95	1.78339122	61	0.17271	-0.9435	-5.61401	0.890249	-1.682683594
6.1	1.808288771	62	0.17555	-0.9325	-5.68796	0.869468	-1.686143606
6.2	1.824549292	63	0.17840	-0.9215	-5.71324	0.849146	-1.681305637
6.2	1.824549292	64	0.18124	-0.9106	-5.64596	0.829262	-1.661504632
6.2	1.824549292	65	0.18409	-0.8999	-5.57932	0.809803	-1.641894461
6.39	1.854734268	66	0.18694	-0.8892	-5.68229	0.79076	-1.649317025
6.4	1.85629799	67	0.18978	-0.8787	-5.62369	0.772116	-1.631131801
6.45	1.864080131	68	0.19263	-0.8683	-5.60025	0.753868	-1.618498643
6.45	1.864080131	69	0.19547	-0.8579	-5.53346	0.735995	-1.599196844
6.6	1.887069649	70	0.19832	-0.8476	-5.59442	0.718494	-1.599555655
6.6	1.887069649	71	0.20117	-0.8375	-5.52727	0.701348	-1.580354774
6.6	1.887069649	72	0.20401	-0.8274	-5.46069	0.684554	-1.561319086
6.6	1.887069649	73	0.20686	-0.8174	-5.39466	0.668099	-1.542440007
6.69	1.900613874	74	0.20970	-0.8074	-5.40184	0.651975	-1.534649525
6.8	1.916922612	75	0.21255	-0.7976	-5.42372	0.636176	-1.528949724
6.8	1.916922612	76	0.21540	-0.7878	-5.3573	0.620689	-1.510225276
6.8	1.916922612	77	0.21824	-0.7781	-5.29139	0.60551	-1.49164466
6.83	1.921324674	78	0.22109	-0.7685	-5.24903	0.590631	-1.476586615
6.85	1.924248652	79	0.22393	-0.7590	-5.19898	0.576044	-1.46045778
6.865	1.926436039	80	0.22678	-0.7495	-5.14528	0.561741	-1.443852484
6.9	1.931521412	81	0.22963	-0.7401	-5.10654	0.547716	-1.429477616
6.945	1.938021976	82	0.23247	-0.7307	-5.07492	0.533966	-1.416171007
6.95	1.93874166	83	0.23532	-0.7214	-5.01404	0.520483	-1.398696065

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
6.95	1.93874166	84	0.23816	-0.7122	-4.94993	0.507258	-1.380812046
7	1.945910149	85	0.24101	-0.7031	-4.9214	0.49429	-1.368086908
7.005	1.94662418	86	0.24386	-0.6940	-4.86113	0.481568	-1.350862339
7.09	1.958685341	87	0.24670	-0.6849	-4.85597	0.469094	-1.341511581
7.15	1.967112357	88	0.24955	-0.6759	-4.83277	0.456856	-1.329593768
7.15	1.967112357	89	0.25239	-0.6670	-4.76886	0.444854	-1.312011601
7.2	1.974081026	90	0.25524	-0.6581	-4.73825	0.433082	-1.29912279
7.2	1.974081026	91	0.25809	-0.6493	-4.67465	0.421534	-1.28168481
7.2	1.974081026	92	0.26093	-0.6405	-4.61141	0.410206	-1.264345578
7.2	1.974081026	93	0.26378	-0.6317	-4.54852	0.399095	-1.247105093
7.225	1.977547234	94	0.26662	-0.6231	-4.50156	0.388196	-1.232118503
7.25	1.981001469	95	0.26947	-0.6144	-4.45451	0.377506	-1.217156681
7.25	1.981001469	96	0.27232	-0.6058	-4.3922	0.367019	-1.20013277
7.28	1.985130862	97	0.27516	-0.5973	-4.34814	0.356734	-1.185663064
7.28	1.985130862	98	0.27801	-0.5888	-4.28623	0.346648	-1.168781957
7.35	1.994700313	99	0.28085	-0.5803	-4.26524	0.336753	-1.157533032
7.4	2.00148	100	0.28370	-0.5719	-4.23194	0.327051	-1.144613282
7.4	2.00148	101	0.28655	-0.5635	-4.16991	0.317534	-1.127836616
7.4	2.00148	102	0.28939	-0.5552	-4.10818	0.308203	-1.111141864
7.45	2.008214032	103	0.29224	-0.5469	-4.07408	0.299052	-1.09820475
7.5	2.014903021	104	0.29508	-0.5386	-4.03942	0.290078	-1.085204845
7.5	2.014903021	105	0.29793	-0.5304	-3.9777	0.281282	-1.068624906
7.55	2.021547563	106	0.30078	-0.5222	-3.94236	0.272658	-1.05558554
7.6	2.028148247	107	0.30362	-0.5140	-3.90646	0.264204	-1.042483921
7.71	2.042518188	108	0.30647	-0.5059	-3.90036	0.255918	-1.033276639
7.715	2.043166486	109	0.30932	-0.4978	-3.84047	0.247797	-1.017073154
7.735	2.045755484	110	0.31216	-0.4897	-3.78809	0.239839	-1.001874663
7.8	2.054123734	111	0.31501	-0.4817	-3.75731	0.232042	-0.989485879
7.8	2.054123734	112	0.31785	-0.4737	-3.69494	0.224401	-0.973059602
7.8	2.054123734	113	0.32070	-0.4657	-3.63281	0.216918	-0.956696377
7.85	2.060513532	114	0.32355	-0.4578	-3.59379	0.209588	-0.943319168
7.9	2.066862759	115	0.32639	-0.4499	-3.55421	0.20241	-0.929881027
8	2.079441542	116	0.32924	-0.4420	-3.53616	0.195382	-0.919154978
8	2.079441542	117	0.33208	-0.4342	-3.47334	0.188502	-0.902826475
8.01	2.080690761	118	0.33493	-0.4263	-3.415	0.181767	-0.88708494
8.035	2.083806999	119	0.33778	-0.4185	-3.36299	0.175178	-0.872162084
8.08	2.089391873	120	0.34062	-0.4108	-3.319	0.16873	-0.85825448
8.09	2.090628731	121	0.34347	-0.4030	-3.26041	0.162423	-0.842560103
8.1	2.091864062	122	0.34631	-0.3953	-3.20187	0.156256	-0.826898269
8.1	2.091864062	123	0.34916	-0.3876	-3.13948	0.150226	-0.81078614
8.1	2.091864062	124	0.35201	-0.3799	-3.07729	0.144333	-0.794723952
8.11	2.093097868	125	0.35485	-0.3723	-3.01898	0.138573	-0.779163861
8.12	2.094330154	126	0.35770	-0.3646	-2.9607	0.132947	-0.763631938
8.16	2.099244169	127	0.36054	-0.3570	-2.91317	0.127453	-0.749443245
8.17	2.100468909	128	0.36339	-0.3494	-2.8547	0.122089	-0.733928934
8.18	2.101692151	129	0.36624	-0.3418	-2.79625	0.116854	-0.718440906
8.2	2.104134154	130	0.36908	-0.3343	-2.74114	0.111747	-0.70338241
8.215	2.105961751	131	0.37193	-0.3268	-2.68427	0.106767	-0.688126978

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
8.37	2.124653885	132	0.37477	-0.3192	-2.672	0.101911	-0.6782637
8.4	2.128231706	133	0.37762	-0.3117	-2.61859	0.09718	-0.663449136
8.4	2.128231706	134	0.38047	-0.3043	-2.55576	0.092572	-0.647528699
8.4	2.128231706	135	0.38331	-0.2968	-2.49306	0.088086	-0.631644554
8.45	2.134166441	136	0.38616	-0.2893	-2.44498	0.083721	-0.617513898
8.5	2.140066163	137	0.38900	-0.2819	-2.39628	0.079476	-0.603316615
8.51	2.141241943	138	0.39185	-0.2745	-2.33599	0.07535	-0.587769079
8.57	2.148267733	139	0.39470	-0.2671	-2.28904	0.071342	-0.573800737
8.6	2.151762203	140	0.39754	-0.2597	-2.23353	0.067451	-0.558840689
8.64	2.156402583	141	0.40039	-0.2523	-2.18023	0.063676	-0.544150032
8.75	2.1690537	142	0.40323	-0.2450	-2.14361	0.060017	-0.531382945
8.8	2.174751721	143	0.40608	-0.2376	-2.09123	0.056473	-0.516807122
8.8	2.174751721	144	0.40893	-0.2303	-2.0267	0.053041	-0.500860101
8.8	2.174751721	145	0.41177	-0.2230	-1.96229	0.049723	-0.484942748
8.81	2.17588744	146	0.41462	-0.2157	-1.90014	0.046518	-0.469295071
8.81	2.17588744	147	0.41746	-0.2084	-1.83586	0.043424	-0.453418879
8.84	2.179286877	148	0.42031	-0.2011	-1.77771	0.040441	-0.438251046
8.9	2.186051277	149	0.42316	-0.1938	-1.72504	0.037568	-0.42371071
8.91	2.187174241	150	0.42600	-0.1866	-1.66225	0.034805	-0.408039447
8.92	2.188295947	151	0.42885	-0.1793	-1.59941	0.032151	-0.392374032
8.95	2.191653532	152	0.43169	-0.1721	-1.53994	0.029605	-0.377096962
8.95	2.191653532	153	0.43454	-0.1648	-1.47518	0.027167	-0.36123779
9	2.197224577	154	0.43739	-0.1576	-1.41838	0.024837	-0.346276533
9	2.197224577	155	0.44023	-0.1504	-1.3534	0.022614	-0.330414518
9	2.197224577	156	0.44308	-0.1432	-1.2885	0.020497	-0.314569989
9	2.197224577	157	0.44593	-0.1360	-1.22366	0.018486	-0.298740447
9.1	2.208274414	158	0.44877	-0.1288	-1.17177	0.016581	-0.284351237
9.2	2.219203484	159	0.45162	-0.1216	-1.11851	0.014781	-0.269803446
9.2	2.219203484	160	0.45446	-0.1144	-1.0524	0.013085	-0.253858451
9.2	2.219203484	161	0.45731	-0.1072	-0.98637	0.011495	-0.237931116
9.21	2.22028985	162	0.46016	-0.1000	-0.92139	0.010008	-0.222122556
9.23	2.22459049	163	0.46300	-0.0929	-0.85724	0.008626	-0.206411607
9.3	2.2300144	164	0.46585	-0.0857	-0.79713	0.007347	-0.191141346
9.3	2.2300144	165	0.46869	-0.0786	-0.73055	0.006171	-0.175176984
9.34	2.234306252	166	0.47154	-0.0714	-0.66687	0.005098	-0.159529202
9.4	2.240709689	167	0.47439	-0.0643	-0.60395	0.004128	-0.143965858
9.4	2.240709689	168	0.47723	-0.0571	-0.53676	0.003261	-0.127950405
9.4	2.240709689	169	0.48008	-0.0500	-0.46961	0.002496	-0.111942594
9.5	2.251291799	170	0.48292	-0.0428	-0.40676	0.001833	-0.096392968
9.6	2.261763098	171	0.48577	-0.0357	-0.3425	0.001273	-0.080693382
9.6	2.261763098	172	0.48862	-0.0285	-0.27398	0.000815	-0.064550592
9.6	2.261763098	173	0.49146	-0.0214	-0.20548	0.000458	-0.048410372
9.6	2.261763098	174	0.49431	-0.0143	-0.13697	0.000204	-0.032270153
9.6	2.261763098	175	0.49715	-0.0071	-0.06848	5.09E-05	-0.016135077
9.65	2.266957915	176	0.50000	0.0000	0	0	0
9.7	2.272125886	177	0.50285	0.0071	0.069198	5.09E-05	0.016209003
9.7	2.272125886	178	0.50569	0.0143	0.138397	0.000204	0.032418006
9.8	2.282382386	179	0.50854	0.0214	0.209757	0.000458	0.048851704

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
9.8	2.282382386	180	0.51138	0.0285	0.279691	0.000815	0.065139065
9.82	2.284421122	181	0.51423	0.0357	0.35035	0.001273	0.081501757
9.9	2.292534757	182	0.51708	0.0428	0.423886	0.001833	0.098158857
10	2.302585093	183	0.51992	0.0500	0.499585	0.002496	0.115033799
10	2.302585093	184	0.52277	0.0571	0.571026	0.003261	0.131483653
10	2.302585093	185	0.52561	0.0643	0.642501	0.004128	0.14794136
10.035	2.306078982	186	0.52846	0.0714	0.716498	0.005098	0.164653766
10.05	2.307572635	187	0.53131	0.0786	0.78947	0.006171	0.181269509
10.075	2.310057108	188	0.53415	0.0857	0.863559	0.007347	0.198002051
10.1	2.312535424	189	0.53700	0.0929	0.938041	0.008626	0.21477748
10.1	2.312535424	190	0.53984	0.1000	1.010426	0.010008	0.231351001
10.3	2.332143895	191	0.54269	0.1072	1.104311	0.011495	0.250039982
10.31	2.333114298	192	0.54554	0.1144	1.179378	0.013085	0.266888902
10.4	2.341805806	193	0.54838	0.1216	1.264398	0.014781	0.284709032
10.4	2.341805806	194	0.55123	0.1288	1.339169	0.016581	0.301545575
10.4	2.341805806	195	0.55407	0.1360	1.414011	0.018486	0.318398092
10.5	2.351375257	196	0.55692	0.1432	1.503253	0.020497	0.336639275
10.5	2.351375257	197	0.55977	0.1504	1.57897	0.022614	0.353595409
10.5	2.351375257	198	0.56261	0.1576	1.654771	0.024837	0.370570255
10.6	2.360854001	199	0.56546	0.1648	1.747138	0.027167	0.389126142
10.6	2.360854001	200	0.56831	0.1721	1.823841	0.029605	0.406209676
10.6	2.360854001	201	0.57115	0.1793	1.900641	0.032151	0.423314682
10.65	2.365559892	202	0.57400	0.1866	1.986865	0.034805	0.441319092
10.7	2.370243741	203	0.57684	0.1938	2.073924	0.037568	0.459411758
10.8	2.379546134	204	0.57969	0.2011	2.171862	0.040441	0.478522857
10.8	2.379546134	205	0.58254	0.2084	2.250541	0.043424	0.495857976
10.9	2.388762789	206	0.58538	0.2157	2.35091	0.046518	0.515207994
11	2.397895273	207	0.58823	0.2230	2.452864	0.049723	0.534701001
11	2.397895273	208	0.59107	0.2303	2.533375	0.053041	0.552251577
11	2.397895273	209	0.59392	0.2376	2.614036	0.056473	0.569834866
11.1	2.406945108	210	0.59677	0.2450	2.71932	0.060017	0.589662479
11.1	2.406945108	211	0.59961	0.2523	2.800992	0.063676	0.607372329
11.2	2.415913778	212	0.60246	0.2597	2.908786	0.067451	0.627444296
11.2	2.415913778	213	0.60530	0.2671	2.991512	0.071342	0.6452888
11.25	2.420368129	214	0.60815	0.2745	3.088115	0.07535	0.664388978
11.35	2.429217744	215	0.61100	0.2819	3.199735	0.079476	0.684832764
11.35	2.429217744	216	0.61384	0.2893	3.284084	0.083721	0.702886003
11.4	2.433613355	217	0.61669	0.2968	3.383442	0.088086	0.722279731
11.4	2.433613355	218	0.61953	0.3043	3.468526	0.092572	0.740443103
11.5	2.442347035	219	0.62238	0.3117	3.584979	0.09718	0.76137059
11.5	2.442347035	220	0.62523	0.3192	3.671202	0.101911	0.779682446
11.5	2.442347035	221	0.62807	0.3268	3.757647	0.106767	0.798041504
11.6	2.451005098	222	0.63092	0.3343	3.877717	0.111747	0.819336481
11.6	2.451005098	223	0.63376	0.3418	3.965336	0.116854	0.837849789
11.7	2.459588842	224	0.63661	0.3494	4.08812	0.122089	0.859409729
11.7	2.459588842	225	0.63946	0.3570	4.176973	0.127453	0.878088537
11.8	2.468099531	226	0.64230	0.3646	4.302501	0.132947	0.899915242
11.9	2.4765384	227	0.64515	0.3723	4.429822	0.138573	0.921901097

Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
11.95	2.480731278	228	0.64799	0.3799	4.539947	0.144333	0.942459217
12	2.48490665	229	0.65084	0.3876	4.651083	0.150226	0.96312562
12	2.48490665	230	0.65369	0.3953	4.743511	0.156256	0.982265075
12	2.48490665	231	0.65653	0.4030	4.836211	0.162423	1.00146103
12	2.48490665	232	0.65938	0.4108	4.929211	0.16873	1.020719135
12.1	2.493205453	233	0.66222	0.4185	5.064366	0.175178	1.043512794
12.2	2.501435952	234	0.66507	0.4263	5.201367	0.181767	1.0664661
12.2	2.501435952	235	0.66792	0.4342	5.296847	0.188502	1.086042843
12.3	2.509599262	236	0.67076	0.4420	5.436847	0.195382	1.109293341
12.3	2.509599262	237	0.67361	0.4499	5.533767	0.20241	1.129068066
12.3	2.509599262	238	0.67645	0.4578	5.631036	0.209588	1.148914119
12.3	2.509599262	239	0.67930	0.4657	5.728655	0.216918	1.168831498
12.4	2.517696473	240	0.68215	0.4737	5.874008	0.224401	1.19265879
12.4	2.517696473	241	0.68499	0.4817	5.973167	0.232042	1.212792135
12.45	2.521720623	242	0.68784	0.4897	6.09718	0.239839	1.234970659
12.6	2.533696814	243	0.69068	0.4978	6.272187	0.247797	1.26125552
12.7	2.541601993	244	0.69353	0.5059	6.424723	0.255918	1.285754996
12.7	2.541601993	245	0.69638	0.5140	6.527898	0.264204	1.306403127
12.8	2.549445171	246	0.69922	0.5222	6.683738	0.272658	1.33123628
12.8	2.549445171	247	0.70207	0.5304	6.788614	0.281282	1.352124931
12.8	2.549445171	248	0.70492	0.5386	6.893941	0.290078	1.373103431
12.9	2.557227311	249	0.70776	0.5469	7.054448	0.299052	1.39843619
13	2.564949357	250	0.71061	0.5552	7.217081	0.308203	1.423957576
13	2.564949357	251	0.71345	0.5635	7.325517	0.317534	1.44535234
13.1	2.57261223	252	0.71630	0.5719	7.491673	0.327051	1.471234351
13.1	2.57261223	253	0.71915	0.5803	7.601985	0.336753	1.492897763
13.2	2.58021683	254	0.72199	0.5888	7.77174	0.346648	1.519149661
13.3	2.587764035	255	0.72484	0.5973	7.943717	0.356734	1.54559898
13.3	2.587764035	256	0.72768	0.6058	8.057423	0.367019	1.567722422
13.4	2.595254707	257	0.73053	0.6144	8.233159	0.377506	1.59456298
13.4	2.595254707	258	0.73338	0.6231	8.348922	0.388196	1.616983548
13.45	2.598979106	259	0.73622	0.6317	8.496897	0.399095	1.641877936
13.5	2.602689685	260	0.73907	0.6405	8.646385	0.410206	1.666952445
13.5	2.602689685	261	0.74191	0.6493	8.764962	0.421534	1.689813027
13.7	2.617395833	262	0.74476	0.6581	9.015832	0.433082	1.722481769
13.7	2.617395833	263	0.74761	0.6670	9.137535	0.444854	1.745733377
13.725	2.619218987	264	0.75045	0.6759	9.276885	0.456856	1.770360107
14	2.63905733	265	0.75330	0.6849	9.588657	0.469094	1.807501133
14	2.63905733	266	0.75614	0.6940	9.715318	0.481568	1.831377208
14.03	2.641197894	267	0.75899	0.7031	9.863898	0.49429	1.856914238
14.1	2.646174797	268	0.76184	0.7122	10.04231	0.507258	1.884660608
14.15	2.649714624	269	0.76468	0.7214	10.20845	0.520483	1.911624171
14.2	2.653241965	270	0.76753	0.7307	10.37637	0.533966	1.938803786
14.3	2.660259537	271	0.77037	0.7401	10.58312	0.547716	1.968801091
14.3	2.660259537	272	0.77322	0.7495	10.71777	0.561741	1.993848881
14.5	2.674148649	273	0.77607	0.7590	11.00515	0.576044	2.029613582
14.5	2.674148649	274	0.77891	0.7685	11.14362	0.590631	2.055150884
14.5	2.674148649	275	0.78176	0.7781	11.28311	0.60551	2.080876676



Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
14.65	2.684440335	276	0.78460	0.7878	11.54183	0.620689	2.114905224
14.75	2.691243083	277	0.78745	0.7976	11.76469	0.636176	2.146552679
14.8	2.694627181	278	0.79030	0.8074	11.95025	0.651975	2.17577509
15	2.708050201	279	0.79314	0.8174	12.2606	0.668099	2.213487443
15	2.708050201	280	0.79599	0.8274	12.41066	0.684554	2.240579973
15	2.708050201	281	0.79883	0.8375	12.56197	0.701348	2.267897248
15.1	2.714694744	282	0.80168	0.8476	12.79936	0.718494	2.301083763
15.1	2.714694744	283	0.80453	0.8579	12.95431	0.735995	2.328940261
15.15	2.718000532	284	0.80737	0.8683	13.15408	0.753868	2.359920102
15.2	2.721295428	285	0.81022	0.8787	13.35626	0.772116	2.391206333
15.2	2.721295428	286	0.81306	0.8892	13.51656	0.79076	2.419904002
15.2	2.721295428	287	0.81591	0.8999	13.67833	0.809803	2.448867734
15.2	2.721295428	288	0.81876	0.9106	13.8417	0.829262	2.478116091
15.3	2.727852828	289	0.82160	0.9215	14.09881	0.849146	2.513691659
15.4	2.734367509	290	0.82445	0.9325	14.35977	0.869468	2.549668153
15.4	2.734367509	291	0.82729	0.9435	14.53037	0.890249	2.579958507
15.5	2.740840024	292	0.83014	0.9547	14.79818	0.911493	2.616739172
15.6	2.747270914	293	0.83299	0.9660	15.07016	0.933225	2.653961818
15.6	2.747270914	294	0.83583	0.9775	15.24861	0.955457	2.685388316
15.74	2.756205243	295	0.83868	0.9890	15.56755	0.978207	2.72600731
15.9	2.766319109	296	0.84153	1.0007	15.91187	1.001494	2.768384385
16	2.772588722	297	0.84437	1.0126	16.20137	1.02533	2.807484319
16.05	2.77570885	298	0.84722	1.0246	16.44436	1.049745	2.843910216
16.4	2.797281335	299	0.85006	1.0367	17.00197	1.074759	2.899957576
16.4	2.797281335	300	0.85291	1.0490	17.20349	1.100386	2.934328537
16.6	2.809402695	301	0.85576	1.0614	17.61993	1.126658	2.982017195
16.8	2.821378886	302	0.85860	1.0741	18.04415	1.153597	3.030320048
16.8	2.821378886	303	0.86145	1.0868	18.25902	1.181235	3.066404833
16.9	2.827313622	304	0.86429	1.0998	18.58688	1.209594	3.109523523
17	2.833213344	305	0.86714	1.1130	18.92051	1.238705	3.153285433
17	2.833213344	306	0.86999	1.1263	19.14749	1.268603	3.191112747
17.2	2.844909384	307	0.87283	1.1399	19.60592	1.299324	3.242851908
17.3	2.850706502	308	0.87568	1.1536	19.95812	1.330905	3.288713435
17.3	2.850706502	309	0.87852	1.1676	20.20015	1.36338	3.32859568
17.39	2.855895328	310	0.88137	1.1819	20.55256	1.396796	3.375271537
17.4	2.856470206	311	0.88422	1.1963	20.81612	1.431203	3.417277766
17.8	2.879198457	312	0.88706	1.2111	21.55671	1.466645	3.486857071
18	2.890371758	313	0.88991	1.2260	22.06872	1.503174	3.543710769
18	2.890371758	314	0.89275	1.2413	22.34354	1.540845	3.587841377
18.4	2.912350665	315	0.89560	1.2569	23.12644	1.579726	3.660451002
18.5	2.917770732	316	0.89845	1.2727	23.54582	1.619885	3.713583612
18.63	2.924773185	317	0.90129	1.2889	24.01313	1.661391	3.769885033
18.67	2.926917958	318	0.90414	1.3055	24.37364	1.704324	3.821084925
18.9	2.939161922	319	0.90698	1.3224	24.99355	1.748768	3.886776658
19	2.944438979	320	0.90983	1.3397	25.4545	1.794825	3.944696426
19.3	2.960105096	321	0.91268	1.3574	26.19822	1.842591	4.018108353
19.5	2.970414466	322	0.91552	1.3756	26.82361	1.892192	4.08601246
19.6	2.975529566	323	0.91837	1.3942	27.32593	1.943739	4.148424836



Table B-17. Nitrate Near Upgradient Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
19.6	2.975529566	324	0.92121	1.4133	27.70042	1.997379	4.205275928
19.8	2.985681938	325	0.92406	1.4329	28.37196	2.05328	4.278264538
20	2.995732274	326	0.92691	1.4531	29.06263	2.111591	4.353192984
20.1	3.000719815	327	0.92975	1.4739	29.62639	2.172528	4.422910524
20.75	3.032546247	328	0.93260	1.4954	31.03012	2.236304	4.53495326
21.48	3.06712227	329	0.93544	1.5176	32.59846	2.303168	4.654723765
22	3.091042453	330	0.93829	1.5406	33.89285	2.373399	4.762010486
22.35	3.106826321	331	0.94114	1.5644	34.96401	2.447302	4.860273913
22.4	3.109060959	332	0.94398	1.5891	35.59617	2.525285	4.940654217
22.9	3.131136911	333	0.94683	1.6149	36.98014	2.607751	5.056326828
23	3.135494216	334	0.94967	1.6417	37.75935	2.695214	5.147574392
23	3.135494216	335	0.95252	1.6698	38.40551	2.788249	5.23566388
23.2	3.144152279	336	0.95537	1.6993	39.42334	2.887558	5.342800463
23.7	3.165475048	337	0.95821	1.7303	41.00843	2.993985	5.477264748
23.8	3.169685581	338	0.96106	1.7631	41.96202	3.108557	5.5885045
23.8	3.169685581	339	0.96391	1.7979	42.79041	3.232503	5.698829724
23.8	3.169685581	340	0.96675	1.8351	43.67422	3.367412	5.816534948
24.3	3.19047635	341	0.96960	1.8749	45.56019	3.515269	5.981840501
24.8	3.210843653	342	0.97244	1.9180	47.56587	3.678643	6.158330079
24.8	3.210843653	343	0.97529	1.9649	48.73041	3.860974	6.309102343
24.925	3.215871316	344	0.97814	2.0167	50.26568	4.066987	6.485374271
25.18	3.226050029	345	0.98098	2.0744	52.23461	4.303336	6.692273918
25.5	3.238678452	346	0.98383	2.1401	54.5729	4.580087	6.931140426
26.9	3.292126287	347	0.98667	2.2166	59.62562	4.913164	7.297214923
31	3.433987204	348	0.98952	2.3087	71.56907	5.330001	7.927976003
31.3	3.443618098	349	0.99237	2.4259	75.93166	5.885144	8.353981954
33.2	3.502549876	350	0.99521	2.5908	86.01291	6.711987	9.074231889
33.2	3.502549876	351	0.99803	2.8824	95.69712	8.30848	10.09590166

Table B-18. Nitrate Near Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Coefficient of Skewness (-1 to 1)	Shapiro-Francia Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Nitrate	Normal	Pass	Pass	Pass	Fail	Fail	?	X	351	Nonparametric
Nitrate	Lognormal	Pass	NA	Fail	Fail	Fail	?		351	

NA - not applicable

? - Results of graphical test were inconclusive.

Table B-19.  $T_n$  Statistic Analysis for Nitrate Near Upgradient Background Data Set

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	$T_n$ Statistic	N	Upper 5% Critical Value	Pass or Fail $T_n$ Statistic
Nitrate	Normal	33.2	10.83	5.79	3.864	351	3.34+	Fail
Nitrate	Normal	33.2	10.76	5.67	3.955	350	3.34+	Fail
Nitrate	Normal	31.3	10.70	5.55	3.711	349	3.34+	Fail
Nitrate	Normal	31	10.64	5.45	3.737	348	3.34+	Fail
Nitrate	Normal	26.9	10.58	5.35	3.053	347	3.34+	Pass

N - number of samples

Table B-21. 95th Percentile for Near Upgradient Nitrate Background Data Set

Parameter	Distribution	Censored?	95th Percentile (mg/L)	Sample #
Nitrate	Nonparametric	No	22.95	351

SD = standard deviation

Table B-22. Summary Table for Near Upgradient Nitrate Background Data Set

Parameter	Distribution	Mean	SD	95th Percentile (mg/L)	Range (normal)	Sample #
Nitrate	Nonparametric	10.83	5.79	22.95	33.2 to 0.35	351

SD = standard deviation

Table B-20. Nitrate Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis  
(censored data set)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
0.35	1	0.002874	-2.76188	-0.966658263	7.627985
0.44	2	0.005747	-2.5273	-1.112013706	6.387265
0.48	3	0.008621	-2.38153	-1.143134432	5.671685
0.59	4	0.011494	-2.27363	-1.341440293	5.169383
0.81	5	0.014368	-2.1871	-1.771549614	4.783399
1.16	6	0.017241	-2.11438	-2.452675108	4.470582
1.23	7	0.020115	-2.05138	-2.523201692	4.208174
1.29	8	0.022989	-1.9956	-2.574329392	3.982436
1.32	9	0.025862	-1.94542	-2.567952106	3.784652
1.4	10	0.028736	-1.89971	-2.659589882	3.608887
1.9	11	0.031609	-1.85765	-3.529538844	3.450871
2.05	12	0.034483	-1.81864	-3.728219781	3.307465
2.26	13	0.037356	-1.78222	-4.027824161	3.176319
2.85	14	0.04023	-1.74802	-4.981861366	3.055579
2.98	15	0.043103	-1.71575	-5.112942927	2.943807
2.98	16	0.045977	-1.68518	-5.021836387	2.839832
3.04	17	0.048851	-1.6561	-5.034554488	2.742679
3.13	18	0.051724	-1.62836	-5.096764653	2.651554
3.15	19	0.054598	-1.60182	-5.045733815	2.565828
3.2	20	0.057471	-1.57636	-5.044363206	2.484922
3.22	21	0.060345	-1.55188	-4.997067936	2.408345
3.26	22	0.063218	-1.52831	-4.982276914	2.335719
3.305	23	0.066092	-1.50555	-4.975828529	2.266668
3.49	24	0.068966	-1.48354	-5.17755625	2.200892
3.5	25	0.071839	-1.46223	-5.117808541	2.13812
3.6	26	0.074713	-1.44156	-5.189625881	2.078103
3.74	27	0.077586	-1.4215	-5.316398847	2.020654
3.8	28	0.08046	-1.40199	-5.327547115	1.965565
3.8	29	0.083333	-1.383	-5.255384167	1.912677
4.02	30	0.086207	-1.36449	-5.485240217	1.861826
4.1	31	0.08908	-1.34644	-5.520398645	1.812897
4.13	32	0.091954	-1.32882	-5.488015177	1.765755
4.2	33	0.094828	-1.3116	-5.508722097	1.720296
4.25	34	0.097701	-1.29476	-5.502735121	1.676407
4.26	35	0.100575	-1.27829	-5.445497118	1.634014
4.33	36	0.103448	-1.26215	-5.465095319	1.593014
4.4	37	0.106322	-1.24633	-5.483854693	1.55334
4.54	38	0.109195	-1.23082	-5.587919077	1.514916
4.6	39	0.112069	-1.2156	-5.591754416	1.47768
4.6	40	0.114943	-1.20066	-5.523016625	1.441574
4.725	41	0.117816	-1.18598	-5.603739169	1.40654
4.8	42	0.12069	-1.17155	-5.623427569	1.372523
4.9	43	0.123563	-1.15736	-5.671049394	1.339475
4.9	44	0.126437	-1.1434	-5.602652891	1.30736
5	45	0.12931	-1.12966	-5.648280421	1.276123
5.1	46	0.132184	-1.11613	-5.692249488	1.24574
5.1	47	0.135057	-1.1028	-5.624273399	1.216165
5.14	48	0.137931	-1.08966	-5.600857821	1.187361
5.2	49	0.140805	-1.07671	-5.598903044	1.159309
5.3	50	0.143678	-1.06394	-5.638872835	1.131965
5.4	51	0.146552	-1.05134	-5.677220997	1.10531
5.4	52	0.149425	-1.0389	-5.610071639	1.079318
5.5	53	0.152299	-1.02662	-5.646431873	1.053957
5.6	54	0.155172	-1.0145	-5.681189577	1.029206
5.6	55	0.158046	-1.00252	-5.614125257	1.005051
5.69	56	0.16092	-0.99069	-5.636999322	0.981457
5.8	57	0.163793	-0.97899	-5.678124126	0.958415
5.9	58	0.166667	-0.96742	-5.707780474	0.935902
5.9	59	0.16954	-0.95598	-5.640302788	0.913904
5.95	60	0.172414	-0.94467	-5.620782986	0.8924

Nitrate - normal

$$3214579 = (\text{sum of } M_i * X_i)^2$$

$$346 = \text{count} - 1$$

$$28.57442 = \text{standard deviation}^2$$

$$337.0027 = \text{sum of } M_i^2$$

$$0.96 = W \text{ statistic}$$

0.976 is acceptable low value  
Fails Shapiro-Francia test

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
5.95	61	0.175287	-0.93348	-5.55418103	0.871377
6.1	62	0.178161	-0.9224	-5.626614893	0.850814
6.2	63	0.181034	-0.91143	-5.650863841	0.830704
6.2	64	0.183908	-0.90057	-5.583549864	0.811031
6.2	65	0.186782	-0.88982	-5.51687026	0.791776
6.39	66	0.189655	-0.87917	-5.61788097	0.772936
6.4	67	0.192529	-0.86862	-5.559137207	0.754492
6.45	68	0.195402	-0.85816	-5.535120863	0.736436
6.45	69	0.198276	-0.84779	-5.468275049	0.718756
6.6	70	0.201149	-0.83752	-5.527644134	0.701443
6.6	71	0.204023	-0.82734	-5.460429293	0.684488
6.6	72	0.206897	-0.81724	-5.393762194	0.667876
6.6	73	0.20977	-0.80722	-5.327650342	0.651604
6.69	74	0.212644	-0.79728	-5.333811532	0.635657
6.8	75	0.215517	-0.78742	-5.354471796	0.620034
6.8	76	0.218391	-0.77764	-5.287941349	0.604722
6.8	77	0.221264	-0.76793	-5.221921128	0.589716
6.83	78	0.224138	-0.75829	-5.179136713	0.575007
6.85	79	0.227011	-0.74873	-5.12877034	0.56059
6.865	80	0.229885	-0.73923	-5.074785975	0.546455
6.9	81	0.232759	-0.72979	-5.035566119	0.532597
6.945	82	0.235632	-0.72042	-5.003339533	0.51901
6.95	83	0.238506	-0.71112	-4.942270039	0.505689
6.95	84	0.241379	-0.70187	-4.878017194	0.492626
7	85	0.244253	-0.69269	-4.848809567	0.479815
7.005	86	0.247126	-0.68356	-4.788339913	0.467255
7.09	87	0.25	-0.67449	-4.782136693	0.454937
7.15	88	0.252874	-0.66547	-4.758146247	0.442857
7.15	89	0.255747	-0.65651	-4.694060294	0.431008
7.2	90	0.258621	-0.6476	-4.662744686	0.41939
7.2	91	0.261494	-0.63874	-4.598963642	0.407995
7.2	92	0.264368	-0.62994	-4.535542757	0.39682
7.2	93	0.267241	-0.62118	-4.472482033	0.385862
7.225	94	0.270115	-0.61247	-4.425060354	0.375113
7.25	95	0.272989	-0.6038	-4.377549203	0.364574
7.25	96	0.275862	-0.59518	-4.315039632	0.354237
7.28	97	0.278736	-0.5866	-4.270457794	0.344101
7.28	98	0.281609	-0.57807	-4.208335122	0.334163
7.35	99	0.284483	-0.56958	-4.186380693	0.324416
7.4	100	0.287356	-0.56112	-4.152318525	0.31486
7.4	101	0.29023	-0.55271	-4.090080438	0.305492
7.4	102	0.293103	-0.54434	-4.028128387	0.296308
7.45	103	0.295977	-0.53601	-3.993245855	0.287303
7.5	104	0.298851	-0.52771	-3.957819672	0.278477
7.5	105	0.301724	-0.51945	-3.89586603	0.269827
7.55	106	0.304598	-0.51122	-3.859729304	0.261348
7.6	107	0.307471	-0.50303	-3.823029147	0.253039
7.71	108	0.310345	-0.49487	-3.815471757	0.244899
7.715	109	0.313218	-0.48675	-3.755260218	0.236924
7.735	110	0.316092	-0.47866	-3.702401784	0.229111
7.8	111	0.318966	-0.47059	-3.670625574	0.221458

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
7.8	112	0.321839	-0.46256	-3.607985036	0.213964
7.8	113	0.324713	-0.45456	-3.545575055	0.206626
7.85	114	0.327586	-0.44659	-3.505716165	0.199441
7.9	115	0.33046	-0.43864	-3.465293503	0.192409
8	116	0.333333	-0.43073	-3.445820767	0.185526
8	117	0.336207	-0.42284	-3.382701834	0.178792
8.01	118	0.33908	-0.41497	-3.323941826	0.172203
8.035	119	0.341954	-0.40714	-3.271341296	0.16576
8.08	120	0.344828	-0.39932	-3.22652777	0.159459
8.09	121	0.347701	-0.39154	-3.167519731	0.1533
8.1	122	0.350575	-0.38377	-3.108530905	0.147279
8.1	123	0.353448	-0.37603	-3.045829317	0.141397
8.1	124	0.356322	-0.36831	-2.983293484	0.135651
8.11	125	0.359195	-0.36061	-2.924547925	0.13004
8.12	126	0.362069	-0.35293	-2.865823808	0.124562
8.16	127	0.364943	-0.34528	-2.817470886	0.119217
8.17	128	0.367816	-0.33764	-2.758544019	0.114003
8.18	129	0.37069	-0.33003	-2.699622542	0.108918
8.2	130	0.373563	-0.32243	-2.643931339	0.103962
8.215	131	0.376437	-0.31485	-2.586520873	0.099133
8.37	132	0.37931	-0.30729	-2.572044491	0.094429
8.4	133	0.382184	-0.29975	-2.517901066	0.08985
8.4	134	0.385057	-0.29223	-2.454691639	0.085396
8.4	135	0.387931	-0.28472	-2.391606358	0.081063
8.45	136	0.390805	-0.27722	-2.342535026	0.076853
8.5	137	0.393678	-0.26974	-2.292830459	0.072762
8.51	138	0.396552	-0.26228	-2.232022848	0.068792
8.57	139	0.399425	-0.25484	-2.183943388	0.064941
8.6	140	0.402299	-0.2474	-2.127646439	0.061207
8.64	141	0.405172	-0.23998	-2.073440555	0.057591
8.75	142	0.408046	-0.23257	-2.035019975	0.054091
8.8	143	0.41092	-0.22518	-1.981589776	0.050706
8.8	144	0.413793	-0.2178	-1.916630936	0.047436
8.8	145	0.416667	-0.21043	-1.85177214	0.04428
8.81	146	0.41954	-0.20307	-1.789044086	0.041237
8.81	147	0.422414	-0.19572	-1.724311903	0.038307
8.84	148	0.425287	-0.18839	-1.665331456	0.035489
8.9	149	0.428161	-0.18106	-1.611413154	0.032782
8.91	150	0.431034	-0.17374	-1.548030286	0.030186
8.92	151	0.433908	-0.16643	-1.484582208	0.0277
8.95	152	0.436782	-0.15913	-1.424251877	0.025324
8.95	153	0.439655	-0.15184	-1.358999782	0.023056
9	154	0.442529	-0.14456	-1.30104695	0.020898
9	155	0.445402	-0.13729	-1.235573563	0.018847
9	156	0.448276	-0.13002	-1.170171799	0.016905
9	157	0.451149	-0.12276	-1.104821195	0.01507
9.1	158	0.454023	-0.1155	-1.051082336	0.013341
9.2	159	0.456897	-0.10825	-0.995944902	0.011719
9.2	160	0.45977	-0.10101	-0.929319867	0.010204
9.2	161	0.462644	-0.09378	-0.86273667	0.008794
9.21	162	0.465517	-0.08654	-0.797060738	0.00749

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
9.23	163	0.468391	-0.07931	-0.732075227	0.006291
9.3	164	0.471264	-0.07209	-0.670447207	0.005197
9.3	165	0.474138	-0.06487	-0.603309445	0.004208
9.34	166	0.477011	-0.05766	-0.538499035	0.003324
9.4	167	0.479885	-0.05044	-0.474152102	0.002544
9.4	168	0.482759	-0.04323	-0.406367235	0.001869
9.4	169	0.485632	-0.03602	-0.338614427	0.001298
9.5	170	0.488506	-0.02882	-0.273743126	0.00083
9.6	171	0.491379	-0.02161	-0.207463017	0.000467
9.6	172	0.494253	-0.01441	-0.138301402	0.000208
9.6	173	0.497126	-0.0072	-0.069150701	5.19E-05
9.6	174	0.5	0	0	0
9.6	175	0.502874	0.007203	0.069150701	5.19E-05
9.65	176	0.505747	0.014406	0.139021722	0.000208
9.7	177	0.508621	0.021611	0.209624091	0.000467
9.7	178	0.511494	0.028815	0.279506139	0.00083
9.8	179	0.514368	0.036023	0.353023552	0.001298
9.8	180	0.517241	0.043231	0.423659458	0.001869
9.82	181	0.520115	0.050442	0.495337622	0.002544
9.9	182	0.522989	0.057655	0.570785915	0.003324
10	183	0.525862	0.064872	0.648719833	0.004208
10	184	0.528736	0.072091	0.720910975	0.005197
10	185	0.531609	0.079315	0.793147592	0.006291
10.035	186	0.534483	0.086543	0.868458687	0.00749
10.05	187	0.537356	0.093776	0.942446036	0.008794
10.075	188	0.54023	0.101013	1.017706268	0.010204
10.1	189	0.543103	0.108255	1.093374294	0.011719
10.1	190	0.545977	0.115504	1.166585889	0.013341
10.3	191	0.548851	0.122758	1.264406478	0.01507
10.31	192	0.551724	0.130019	1.340496806	0.016905
10.4	193	0.554598	0.137286	1.427773896	0.018847
10.4	194	0.557471	0.144561	1.503432031	0.020898
10.4	195	0.560345	0.151844	1.579172931	0.023056
10.5	196	0.563218	0.159134	1.670910024	0.025324
10.5	197	0.566092	0.166433	1.747546321	0.0277
10.5	198	0.568966	0.173741	1.824278115	0.030186
10.6	199	0.571839	0.181058	1.919211172	0.032782
10.6	200	0.574713	0.188386	1.99689066	0.035489
10.6	201	0.577586	0.195722	2.074654503	0.038307
10.65	202	0.58046	0.20307	2.16269234	0.041237
10.7	203	0.583333	0.210429	2.251586579	0.04428
10.8	204	0.586207	0.217799	2.352228876	0.047436
10.8	205	0.58908	0.225181	2.431951089	0.050706
10.9	206	0.591954	0.232574	2.535053454	0.054091
11	207	0.594828	0.239982	2.639797003	0.057591
11	208	0.597701	0.247401	2.721408237	0.061207
11	209	0.600575	0.254836	2.803194548	0.064941
11.1	210	0.603448	0.262282	2.91133415	0.068792
11.1	211	0.606322	0.269745	2.994166834	0.072762
11.2	212	0.609195	0.277223	3.104898497	0.076853
11.2	213	0.612069	0.284715	3.188808478	0.081063

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
11.25	214	0.614943	0.292225	3.287533445	0.085396
11.35	215	0.617816	0.29975	3.402163941	0.08985
11.35	216	0.62069	0.307293	3.487778372	0.094429
11.4	217	0.623563	0.314853	3.589329026	0.099133
11.4	218	0.626437	0.322431	3.675709422	0.103962
11.5	219	0.62931	0.330027	3.795312864	0.108918
11.5	220	0.632184	0.337643	3.882895498	0.114003
11.5	221	0.635057	0.345278	3.970700391	0.119217
11.6	222	0.637931	0.352934	4.094034011	0.124562
11.6	223	0.640805	0.36061	4.183077181	0.13004
11.7	224	0.643678	0.368308	4.309201699	0.135651
11.7	225	0.646552	0.376028	4.399531235	0.141397
11.8	226	0.649425	0.383769	4.52847712	0.147279
11.9	227	0.652299	0.391535	4.659268825	0.1533
11.95	228	0.655172	0.399323	4.771906788	0.159459
12	229	0.658046	0.407136	4.885637281	0.16576
12	230	0.66092	0.414974	4.979688129	0.172203
12	231	0.663793	0.422838	5.074052751	0.178792
12	232	0.666667	0.430728	5.16873115	0.185526
12.1	233	0.66954	0.438645	5.307601441	0.192409
12.2	234	0.672414	0.446588	5.448374168	0.199441
12.2	235	0.675287	0.454561	5.545643035	0.206626
12.3	236	0.678161	0.462562	5.689514865	0.213964
12.3	237	0.681034	0.470593	5.788294175	0.221458
12.3	238	0.683908	0.478656	5.887465022	0.229111
12.3	239	0.686782	0.486748	5.98699944	0.236924
12.4	240	0.689655	0.494873	6.136426691	0.244899
12.4	241	0.692529	0.50303	6.237573871	0.253039
12.45	242	0.695402	0.511222	6.364719184	0.261348
12.6	243	0.698276	0.519449	6.54505493	0.269827
12.7	244	0.701149	0.527709	6.701907978	0.278477
12.7	245	0.704023	0.536006	6.807278169	0.287303
12.8	246	0.706897	0.544342	6.967573427	0.296308
12.8	247	0.70977	0.552714	7.07473373	0.305492
12.8	248	0.712644	0.561124	7.182388799	0.31486
12.9	249	0.715517	0.569576	7.347525298	0.324416
13	250	0.718391	0.578068	7.514884146	0.334163
13	251	0.721264	0.586601	7.625817489	0.344101
13.1	252	0.724138	0.595178	7.796830232	0.354237
13.1	253	0.727011	0.6038	7.90977856	0.364574
13.2	254	0.729885	0.612465	8.084539331	0.375113
13.3	255	0.732759	0.621178	8.261668199	0.385862
13.3	256	0.735632	0.629936	8.378155371	0.39682
13.4	257	0.738506	0.638745	8.559182334	0.407995
13.4	258	0.741379	0.647603	8.677885944	0.41939
13.45	259	0.744253	0.656512	8.830085449	0.431008
13.5	260	0.747126	0.665475	8.983912494	0.442857
13.5	261	0.75	0.67449	9.105619938	0.454937
13.7	262	0.752874	0.68356	9.364776133	0.467255
13.7	263	0.755747	0.692687	9.48981301	0.479815
13.725	264	0.758621	0.701873	9.633206616	0.492626

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
14	265	0.761494	0.711118	9.955651876	0.505689
14	266	0.764368	0.720423	10.08592562	0.51901
14.03	267	0.767241	0.729792	10.23898444	0.532597
14.1	268	0.770115	0.739226	10.42308554	0.546455
14.15	269	0.772989	0.748726	10.5944672	0.56059
14.2	270	0.775862	0.758292	10.76775129	0.575007
14.3	271	0.778736	0.76793	10.98139296	0.589716
14.3	272	0.781609	0.777638	11.1202296	0.604722
14.5	273	0.784483	0.787422	11.41762368	0.620034
14.5	274	0.787356	0.797281	11.56057806	0.635657
14.5	275	0.79023	0.80722	11.70468636	0.651604
14.65	276	0.793103	0.817237	11.9725176	0.667876
14.75	277	0.795977	0.827338	12.20323213	0.684488
14.8	278	0.798851	0.837522	12.39532321	0.701443
15	279	0.801724	0.847795	12.71691872	0.718756
15	280	0.804598	0.858158	12.8723741	0.736436
15	281	0.807471	0.868615	13.02922783	0.754492
15.1	282	0.810345	0.879168	13.27543077	0.772936
15.1	283	0.813218	0.889818	13.43624854	0.791776
15.15	284	0.816092	0.900573	13.64367427	0.811031
15.2	285	0.818966	0.91143	13.85373071	0.830704
15.2	286	0.821839	0.922396	14.02041744	0.850814
15.2	287	0.824713	0.933476	14.18883221	0.871377
15.2	288	0.827586	0.944669	14.35897502	0.8924
15.3	289	0.83046	0.955984	14.62654791	0.913904
15.4	290	0.833333	0.96742	14.89827446	0.935902
15.4	291	0.836207	0.978987	15.07639854	0.958415
15.5	292	0.83908	0.990685	15.35562205	0.981457
15.6	293	0.841954	1.002522	15.63934893	1.005051
15.6	294	0.844828	1.014498	15.82617097	1.029206
15.74	295	0.847701	1.026624	16.1590614	1.053957
15.9	296	0.850575	1.038902	16.51854427	1.079318
16	297	0.853448	1.051337	16.82139555	1.10531
16.05	298	0.856322	1.063938	17.07620925	1.131965
16.4	299	0.859195	1.076712	17.65807883	1.159309
16.4	300	0.862069	1.089661	17.8704413	1.187361
16.6	301	0.864943	1.102799	18.30645851	1.216165
16.8	302	0.867816	1.116127	18.75093949	1.24574
16.8	303	0.87069	1.129656	18.97822222	1.276123
16.9	304	0.873563	1.143399	19.32343548	1.30736
17	305	0.876437	1.157357	19.67506932	1.339475
17	306	0.87931	1.171547	19.91630597	1.372523
17.2	307	0.882184	1.185977	20.39879655	1.40654
17.3	308	0.885057	1.200656	20.77134513	1.441574
17.3	309	0.887931	1.215599	21.029859	1.47768
17.39	310	0.890805	1.230819	21.40394554	1.514916
17.4	311	0.893678	1.246331	21.68615265	1.55334
17.8	312	0.896552	1.262147	22.4662117	1.593014
18	313	0.899425	1.278286	23.00914275	1.634014
18	314	0.902299	1.294761	23.30570169	1.676407
18.4	315	0.905172	1.3116	24.13344919	1.720296



Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
18.5	316	0.908046	1.328817	24.58311883	1.765755
18.63	317	0.91092	1.346439	25.08415287	1.812897
18.67	318	0.913793	1.364488	25.47498379	1.861826
18.9	319	0.916667	1.382996	26.13862125	1.912677
19	320	0.91954	1.401986	26.63773557	1.965565
19.3	321	0.922414	1.421497	27.43489244	2.020654
19.5	322	0.925287	1.441563	28.11047352	2.078103
19.6	323	0.928161	1.462231	28.65972783	2.13812
19.6	324	0.931034	1.48354	29.07739326	2.200892
19.8	325	0.933908	1.505546	29.8098048	2.266668
20	326	0.936782	1.528306	30.56611604	2.335719
20.1	327	0.939655	1.551884	31.19287749	2.408345
20.75	328	0.942529	1.576364	32.70954267	2.484922
21.48	329	0.945402	1.60182	34.40709916	2.565828
22	330	0.948276	1.628359	35.82390491	2.651554
22.35	331	0.951149	1.656103	37.01391211	2.742679
22.4	332	0.954023	1.68518	37.7480319	2.839832
22.9	333	0.956897	1.715753	39.29073591	2.943807
23	334	0.95977	1.748022	40.20449524	3.055579
23	335	0.962644	1.782223	40.99113085	3.176319
23.2	336	0.965517	1.818644	42.19253606	3.307465
23.7	337	0.968391	1.857652	44.02635295	3.450871
23.8	338	0.971264	1.899707	45.21302799	3.608887
23.8	339	0.974138	1.945418	46.30095464	3.784652
23.8	340	0.977011	1.995604	47.49537948	3.982436
24.3	341	0.979885	2.051383	49.8486188	4.208174
24.8	342	0.982759	2.114375	52.4365023	4.470582
24.8	343	0.985632	2.187098	54.24003757	4.783399
24.925	344	0.988506	2.273628	56.67016831	5.169383
25.18	345	0.991379	2.38153	59.96692707	5.671685
25.5	346	0.994253	2.527304	64.44624887	6.387265
26.9	347	0.997126	2.761881	74.2945922	7.627985

Table B-20. Nitrate Near Upgradient Background Data Set, Shapiro-Francia Test of Normality Analysis  
(censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i \cdot X_i$	$M_i^2$
-1.0498221	1	0.002874	-2.76188	2.899483517	7.627985
-0.8209806	2	0.005747	-2.5273	2.074867332	6.387265
-0.7339692	3	0.008621	-2.38153	1.747969658	5.671685
-0.5276327	4	0.011494	-2.27363	1.199640373	5.169383
-0.210721	5	0.014368	-2.1871	0.460867607	4.783399
0.14842	6	0.017241	-2.11438	-0.313815562	4.470582
0.2070142	7	0.020115	-2.05138	-0.424665449	4.208174
0.2546422	8	0.022989	-1.9956	-0.508165075	3.982436
0.2776317	9	0.025862	-1.94542	-0.54010985	3.784652
0.3364722	10	0.028736	-1.89971	-0.639198683	3.608887
0.6418539	11	0.031609	-1.85765	-1.19234117	3.450871
0.7178398	12	0.034483	-1.81864	-1.305494886	3.307465
0.8153648	13	0.037356	-1.78222	-1.453161989	3.176319
1.047319	14	0.04023	-1.74802	-1.830736153	3.055579
1.0919233	15	0.043103	-1.71575	-1.873470307	2.943807
1.0919233	16	0.045977	-1.68518	-1.840087303	2.839832
1.1118575	17	0.048851	-1.6561	-1.841351067	2.742679
1.141033	18	0.051724	-1.62836	-1.858011721	2.651554
1.1474025	19	0.054598	-1.60182	-1.837932494	2.565828
1.1631508	20	0.057471	-1.57636	-1.833548484	2.484922
1.1693814	21	0.060345	-1.55188	-1.81474475	2.408345
1.1817272	22	0.063218	-1.52831	-1.806040529	2.335719
1.1954365	23	0.066092	-1.50555	-1.799784238	2.266668
1.2499017	24	0.068966	-1.48354	-1.854279813	2.200892
1.252763	25	0.071839	-1.46223	-1.831828863	2.13812
1.2809338	26	0.074713	-1.44156	-1.84654651	2.078103
1.3190856	27	0.077586	-1.4215	-1.875076263	2.020654
1.3350011	28	0.08046	-1.40199	-1.871652916	1.965565
1.3350011	29	0.083333	-1.383	-1.846300913	1.912677
1.3912819	30	0.086207	-1.36449	-1.898386927	1.861826
1.410987	31	0.08908	-1.34644	-1.899807458	1.812897
1.4182774	32	0.091954	-1.32882	-1.884631461	1.765755
1.4350845	33	0.094828	-1.3116	-1.88225758	1.720296
1.446919	34	0.097701	-1.29476	-1.873414566	1.676407
1.4492692	35	0.100575	-1.27829	-1.852580055	1.634014
1.4655675	36	0.103448	-1.26215	-1.849761273	1.593014
1.4816045	37	0.106322	-1.24633	-1.846569094	1.55334
1.512927	38	0.109195	-1.23082	-1.862139584	1.514916
1.5260563	39	0.112069	-1.2156	-1.85507219	1.47768
1.5260563	40	0.114943	-1.20066	-1.832268334	1.441574
1.5528676	41	0.117816	-1.18598	-1.841664503	1.40654
1.5686159	42	0.12069	-1.17155	-1.837707916	1.372523
1.5892352	43	0.123563	-1.15736	-1.83931252	1.339475
1.5892352	44	0.126437	-1.1434	-1.817129228	1.30736
1.6094379	45	0.12931	-1.12966	-1.81811133	1.276123
1.6292405	46	0.132184	-1.11613	-1.818439927	1.24574
1.6292405	47	0.135057	-1.1028	-1.796724358	1.216165
1.6370531	48	0.137931	-1.08966	-1.783832985	1.187361
1.6486586	49	0.140805	-1.07671	-1.77513073	1.159309
1.6677068	50	0.143678	-1.06394	-1.774337111	1.131965
1.686399	51	0.146552	-1.05134	-1.772973991	1.10531
1.686399	52	0.149425	-1.0389	-1.752003508	1.079318
1.7047481	53	0.152299	-1.02662	-1.750135266	1.053957
1.7227666	54	0.155172	-1.0145	-1.747743507	1.029206
1.7227666	55	0.158046	-1.00252	-1.727112048	1.005051
1.7387102	56	0.16092	-0.99069	-1.722514673	0.981457
1.7578579	57	0.163793	-0.97899	-1.720919905	0.958415
1.7749524	58	0.166667	-0.96742	-1.717125148	0.935902
1.7749524	59	0.16954	-0.95598	-1.696825202	0.913904

Nitrate - lognormal

$$43589.68 = (\text{sum of } M_i \cdot X_i)^2$$

$$346 = \text{count} - 1$$

$$0.423661 = \text{standard deviation}^2$$

$$337.0027 = \text{sum of } M_i^2$$

$$0.88 = W \text{ statistic}$$

0.976 is acceptable low value

Fails Shapiro-Francia test

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
1.7833912	60	0.172414	-0.94467	-1.68471513	0.8924
1.7833912	61	0.175287	-0.93348	-1.664752551	0.871377
1.8082888	62	0.178161	-0.9224	-1.66795812	0.850814
1.8245493	63	0.181034	-0.91143	-1.662948326	0.830704
1.8245493	64	0.183908	-0.90057	-1.643139025	0.811031
1.8245493	65	0.186782	-0.88982	-1.623516408	0.791776
1.8547343	66	0.189655	-0.87917	-1.630622277	0.772936
1.856298	67	0.192529	-0.86862	-1.612408629	0.754492
1.8640801	68	0.195402	-0.85816	-1.599675786	0.736436
1.8640801	69	0.198276	-0.84779	-1.580357034	0.718756
1.8870696	70	0.201149	-0.83752	-1.580462042	0.701443
1.8870696	71	0.204023	-0.82734	-1.561243998	0.684488
1.8870696	72	0.206897	-0.81724	-1.542182565	0.667876
1.8870696	73	0.20977	-0.80722	-1.523279888	0.651604
1.9006139	74	0.212644	-0.79728	-1.515323797	0.635657
1.9169226	75	0.215517	-0.78742	-1.509427656	0.620034
1.9169226	76	0.218391	-0.77764	-1.490672698	0.604722
1.9169226	77	0.221264	-0.76793	-1.472061572	0.589716
1.9213247	78	0.224138	-0.75829	-1.456925791	0.575007
1.9242487	79	0.227011	-0.74873	-1.440734221	0.56059
1.926436	80	0.229885	-0.73923	-1.424071463	0.546455
1.9315214	81	0.232759	-0.72979	-1.409609243	0.532597
1.938022	82	0.235632	-0.72042	-1.396196108	0.51901
1.9387417	83	0.238506	-0.71112	-1.378674074	0.505689
1.9387417	84	0.241379	-0.70187	-1.360750381	0.492626
1.9459101	85	0.244253	-0.69269	-1.347906821	0.479815
1.9466242	86	0.247126	-0.68356	-1.330635012	0.467255
1.9586853	87	0.25	-0.67449	-1.321114392	0.454937
1.9671124	88	0.252874	-0.66547	-1.309064095	0.442857
1.9671124	89	0.255747	-0.65651	-1.291432728	0.431008
1.974081	90	0.258621	-0.6476	-1.278421641	0.41939
1.974081	91	0.261494	-0.63874	-1.260934287	0.407995
1.974081	92	0.264368	-0.62994	-1.243545681	0.39682
1.974081	93	0.267241	-0.62118	-1.226255822	0.385862
1.9775472	94	0.270115	-0.61247	-1.211178666	0.375113
1.9810015	95	0.272989	-0.6038	-1.196128469	0.364574
1.9810015	96	0.275862	-0.59518	-1.179048255	0.354237
1.9851309	97	0.278736	-0.5866	-1.164480434	0.344101
1.9851309	98	0.281609	-0.57807	-1.14754065	0.334163
1.9947003	99	0.284483	-0.56958	-1.136132637	0.324416
2.00148	100	0.287356	-0.56112	-1.123078714	0.31486
2.00148	101	0.29023	-0.55271	-1.106245162	0.305492
2.00148	102	0.293103	-0.54434	-1.089488974	0.296308
2.008214	103	0.295977	-0.53601	-1.076415082	0.287303
2.014903	104	0.298851	-0.52771	-1.063283042	0.278477
2.014903	105	0.301724	-0.51945	-1.046638964	0.269827
2.0215476	106	0.304598	-0.51122	-1.033460446	0.261348
2.0281482	107	0.307471	-0.50303	-1.020219719	0.253039
2.0425182	108	0.310345	-0.49487	-1.010787349	0.244899
2.0431665	109	0.313218	-0.48675	-0.994507041	0.236924

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.0457555	110	0.316092	-0.47866	-0.979212509	0.229111
2.0541237	111	0.318966	-0.47059	-0.966656296	0.221458
2.0541237	112	0.321839	-0.46256	-0.950159961	0.213964
2.0541237	113	0.324713	-0.45456	-0.933724342	0.206626
2.0605135	114	0.327586	-0.44659	-0.920200713	0.199441
2.0668628	115	0.33046	-0.43864	-0.906618493	0.192409
2.0794415	116	0.333333	-0.43073	-0.895672856	0.185526
2.0794415	117	0.336207	-0.42284	-0.87926634	0.178792
2.0806908	118	0.33908	-0.41497	-0.86343259	0.172203
2.083807	119	0.341954	-0.40714	-0.848393764	0.16576
2.0893919	120	0.344828	-0.39932	-0.834341695	0.159459
2.0906287	121	0.347701	-0.39154	-0.818554729	0.1533
2.0918641	122	0.350575	-0.38377	-0.802793097	0.147279
2.0918641	123	0.353448	-0.37603	-0.786600109	0.141397
2.0918641	124	0.356322	-0.36831	-0.770449929	0.135651
2.0930979	125	0.359195	-0.36061	-0.754792235	0.13004
2.0943302	126	0.362069	-0.35293	-0.739160248	0.124562
2.0992442	127	0.364943	-0.34528	-0.724823447	0.119217
2.1004689	128	0.367816	-0.33764	-0.709208806	0.114003
2.1016922	129	0.37069	-0.33003	-0.693615587	0.108918
2.1041342	130	0.373563	-0.32243	-0.678437345	0.103962
2.1059618	131	0.376437	-0.31485	-0.663069267	0.099133
2.1246539	132	0.37931	-0.30729	-0.652891794	0.094429
2.1282317	133	0.382184	-0.29975	-0.637937724	0.08985
2.1282317	134	0.385057	-0.29223	-0.621922926	0.085396
2.1282317	135	0.387931	-0.28472	-0.605939581	0.081063
2.1341664	136	0.390805	-0.27722	-0.591640194	0.076853
2.1400662	137	0.393678	-0.26974	-0.577271633	0.072762
2.1412419	138	0.396552	-0.26228	-0.561609981	0.068792
2.1482677	139	0.399425	-0.25484	-0.547455672	0.064941
2.1517622	140	0.402299	-0.2474	-0.53234758	0.061207
2.1564026	141	0.405172	-0.23998	-0.517496825	0.057591
2.1690537	142	0.408046	-0.23257	-0.504464869	0.054091
2.1747517	143	0.41092	-0.22518	-0.48971202	0.050706
2.1747517	144	0.413793	-0.2178	-0.473658685	0.047436
2.1747517	145	0.416667	-0.21043	-0.457630074	0.04428
2.1758874	146	0.41954	-0.20307	-0.441856817	0.041237
2.1758874	147	0.422414	-0.19572	-0.425869309	0.038307
2.1792869	148	0.425287	-0.18839	-0.410546944	0.035489
2.1860513	149	0.428161	-0.18106	-0.395801324	0.032782
2.1871742	150	0.431034	-0.17374	-0.380001343	0.030186
2.1882959	151	0.433908	-0.16643	-0.364204622	0.0277
2.1916535	152	0.436782	-0.15913	-0.348767224	0.025324
2.1916535	153	0.439655	-0.15184	-0.332788455	0.023056
2.1972246	154	0.442529	-0.14456	-0.317632482	0.020898
2.1972246	155	0.445402	-0.13729	-0.301648067	0.018847
2.1972246	156	0.448276	-0.13002	-0.285681137	0.016905
2.1972246	157	0.451149	-0.12276	-0.269726698	0.01507
2.2082744	158	0.454023	-0.1155	-0.255063542	0.013341
2.2192035	159	0.456897	-0.10825	-0.240239608	0.011719

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.2192035	160	0.45977	-0.10101	-0.224168466	0.010204
2.2192035	161	0.462644	-0.09378	-0.208107416	0.008794
2.2202899	162	0.465517	-0.08654	-0.192150474	0.00749
2.222459	163	0.468391	-0.07931	-0.176273804	0.006291
2.2300144	164	0.471264	-0.07209	-0.160764186	0.005197
2.2300144	165	0.474138	-0.06487	-0.144665457	0.004208
2.2343063	166	0.477011	-0.05766	-0.128819246	0.003324
2.2407097	167	0.479885	-0.05044	-0.113025235	0.002544
2.2407097	168	0.482759	-0.04323	-0.096867128	0.001869
2.2407097	169	0.485632	-0.03602	-0.080716663	0.001298
2.2512918	170	0.488506	-0.02882	-0.064871122	0.00083
2.2617631	171	0.491379	-0.02161	-0.048878354	0.000467
2.2617631	172	0.494253	-0.01441	-0.032583855	0.000208
2.2617631	173	0.497126	-0.0072	-0.016291928	5.19E-05
2.2617631	174	0.5	0	0	0
2.2617631	175	0.502874	0.007203	0.016291928	5.19E-05
2.2669579	176	0.505747	0.014406	0.032658694	0.000208
2.2721259	177	0.508621	0.021611	0.049102301	0.000467
2.2721259	178	0.511494	0.028815	0.065471457	0.00083
2.2823824	179	0.514368	0.036023	0.08221783	0.001298
2.2823824	180	0.517241	0.043231	0.098668662	0.001869
2.2844211	181	0.520115	0.050442	0.115230115	0.002544
2.2925348	182	0.522989	0.057655	0.132176419	0.003324
2.3025851	183	0.525862	0.064872	0.149373262	0.004208
2.3025851	184	0.528736	0.072091	0.165995887	0.005197
2.3025851	185	0.531609	0.079315	0.182628982	0.006291
2.306079	186	0.534483	0.086543	0.19957492	0.00749
2.3075726	187	0.537356	0.093776	0.216394297	0.008794
2.3100571	188	0.54023	0.101013	0.233345866	0.010204
2.3125354	189	0.543103	0.108255	0.250343246	0.011719
2.3125354	190	0.545977	0.115504	0.267106059	0.013341
2.3321439	191	0.548851	0.122758	0.286289112	0.01507
2.3331143	192	0.551724	0.130019	0.303349395	0.016905
2.3418058	193	0.554598	0.137286	0.321497038	0.018847
2.3418058	194	0.557471	0.144561	0.338533256	0.020898
2.3418058	195	0.560345	0.151844	0.35558811	0.023056
2.3513753	196	0.563218	0.159134	0.374184427	0.025324
2.3513753	197	0.566092	0.166433	0.391346398	0.0277
2.3513753	198	0.568966	0.173741	0.408529755	0.030186
2.360854	199	0.571839	0.181058	0.427450696	0.032782
2.360854	200	0.574713	0.188386	0.444751632	0.035489
2.360854	201	0.577586	0.195722	0.462071357	0.038307
2.3655599	202	0.58046	0.20307	0.480373545	0.041237
2.3702437	203	0.583333	0.210429	0.498767196	0.04428
2.3795461	204	0.586207	0.217799	0.518262697	0.047436
2.3795461	205	0.58908	0.225181	0.53582776	0.050706
2.3887628	206	0.591954	0.232574	0.555563428	0.054091
2.3978953	207	0.594828	0.239982	0.575450614	0.057591
2.3978953	208	0.597701	0.247401	0.593241086	0.061207
2.3978953	209	0.600575	0.254836	0.611069723	0.064941

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.4069451	210	0.603448	0.262282	0.631299233	0.068792
2.4069451	211	0.606322	0.269745	0.64926083	0.072762
2.4159138	212	0.609195	0.277223	0.669747059	0.076853
2.4159138	213	0.612069	0.284715	0.687846994	0.081063
2.4203681	214	0.614943	0.292225	0.707292549	0.085396
2.4292177	215	0.617816	0.29975	0.728158327	0.08985
2.4292177	216	0.62069	0.307293	0.746482212	0.094429
2.4336134	217	0.623563	0.314853	0.766231496	0.099133
2.4336134	218	0.626437	0.322431	0.784671539	0.103962
2.442347	219	0.62931	0.330027	0.806040967	0.108918
2.442347	220	0.632184	0.337643	0.824641592	0.114003
2.442347	221	0.635057	0.345278	0.84328942	0.119217
2.4510051	222	0.637931	0.352934	0.865042951	0.124562
2.4510051	223	0.640805	0.36061	0.883857198	0.13004
2.4595888	224	0.643678	0.368308	0.905885848	0.135651
2.4595888	225	0.646552	0.376028	0.924875037	0.141397
2.4680995	226	0.649425	0.383769	0.9471807	0.147279
2.4765384	227	0.652299	0.391535	0.969651946	0.1533
2.4807313	228	0.655172	0.399323	0.990612421	0.159459
2.4849066	229	0.658046	0.407136	1.011696047	0.16576
2.4849066	230	0.66092	0.414974	1.031171679	0.172203
2.4849066	231	0.663793	0.422838	1.050712285	0.178792
2.4849066	232	0.666667	0.430728	1.070317867	0.185526
2.4932055	233	0.66954	0.438645	1.093631475	0.192409
2.501436	234	0.672414	0.446588	1.117111395	0.199441
2.501436	235	0.675287	0.454561	1.137054989	0.206626
2.5095993	236	0.678161	0.462562	1.160845716	0.213964
2.5095993	237	0.681034	0.470593	1.180999902	0.221458
2.5095993	238	0.683908	0.478656	1.201233974	0.229111
2.5095993	239	0.686782	0.486748	1.221542226	0.236924
2.5176965	240	0.689655	0.494873	1.245940309	0.244899
2.5176965	241	0.692529	0.50303	1.266477236	0.253039
2.5217206	242	0.695402	0.511222	1.28916013	0.261348
2.5336968	243	0.698276	0.519449	1.31612578	0.269827
2.541602	244	0.701149	0.527709	1.341226982	0.278477
2.541602	245	0.704023	0.536006	1.362314312	0.287303
2.5494452	246	0.706897	0.544342	1.387769252	0.296308
2.5494452	247	0.70977	0.552714	1.409112949	0.305492
2.5494452	248	0.712644	0.561124	1.430555191	0.31486
2.5572273	249	0.715517	0.569576	1.456534292	0.324416
2.5649494	250	0.718391	0.578068	1.482715174	0.334163
2.5649494	251	0.721264	0.586601	1.504602744	0.344101
2.5726122	252	0.724138	0.595178	1.531161894	0.354237
2.5726122	253	0.727011	0.6038	1.553342982	0.364574
2.5802168	254	0.729885	0.612465	1.580292761	0.375113
2.587764	255	0.732759	0.621178	1.607462243	0.385862
2.587764	256	0.735632	0.629936	1.630127004	0.39682
2.5952547	257	0.738506	0.638745	1.657705839	0.407995
2.5952547	258	0.741379	0.647603	1.680695846	0.41939
2.5989791	259	0.744253	0.656512	1.706260787	0.431008

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.6026897	260	0.747126	0.665475	1.732024917	0.442857
2.6026897	261	0.75	0.67449	1.755489118	0.454937
2.6173958	262	0.752874	0.68356	1.789147885	0.467255
2.6173958	263	0.755747	0.692687	1.813036279	0.479815
2.619219	264	0.758621	0.701873	1.838359029	0.492626
2.6390573	265	0.761494	0.711118	1.876681147	0.505689
2.6390573	266	0.764368	0.720423	1.901238282	0.51901
2.6411979	267	0.767241	0.729792	1.927525598	0.532597
2.6461748	268	0.770115	0.739226	1.956121012	0.546455
2.6497146	269	0.772989	0.748726	1.983909164	0.56059
2.653242	270	0.775862	0.758292	2.01193307	0.575007
2.6602595	271	0.778736	0.76793	2.042891983	0.589716
2.6602595	272	0.781609	0.777638	2.06872006	0.604722
2.6741486	273	0.784483	0.787422	2.105684341	0.620034
2.6741486	274	0.787356	0.797281	2.132048566	0.635657
2.6741486	275	0.79023	0.80722	2.158625601	0.651604
2.6844403	276	0.793103	0.817237	2.193823151	0.667876
2.6912431	277	0.795977	0.827338	2.226567055	0.684488
2.6946272	278	0.798851	0.837522	2.256809111	0.701443
2.7080502	279	0.801724	0.847795	2.295870286	0.718756
2.7080502	280	0.804598	0.858158	2.323935685	0.736436
2.7080502	281	0.807471	0.868615	2.352253536	0.754492
2.7146947	282	0.810345	0.879168	2.386671665	0.772936
2.7146947	283	0.813218	0.889818	2.415583661	0.791776
2.7180005	284	0.816092	0.900573	2.447756694	0.811031
2.7212954	285	0.818966	0.91143	2.480269344	0.830704
2.7212954	286	0.821839	0.922396	2.510111702	0.850814
2.7212954	287	0.824713	0.933476	2.540263436	0.871377
2.7212954	288	0.827586	0.944669	2.570724545	0.8924
2.7278528	289	0.83046	0.955984	2.607782358	0.913904
2.7343675	290	0.833333	0.96742	2.645282963	0.935902
2.7343675	291	0.836207	0.978987	2.676910021	0.958415
2.74084	292	0.83908	0.990685	2.715309904	0.981457
2.7472709	293	0.841954	1.002522	2.754200541	1.005051
2.7472709	294	0.844828	1.014498	2.787101229	1.029206
2.7562052	295	0.847701	1.026624	2.829586388	1.053957
2.7663191	296	0.850575	1.038902	2.873934885	1.079318
2.7725887	297	0.853448	1.051337	2.914925724	1.10531
2.7757088	298	0.856322	1.063938	2.953182874	1.131965
2.7972813	299	0.859195	1.076712	3.011866727	1.159309
2.7972813	300	0.862069	1.089661	3.04808853	1.187361
2.8094027	301	0.864943	1.102799	3.098205656	1.216165
2.8213789	302	0.867816	1.116127	3.149018141	1.24574
2.8213789	303	0.87069	1.129656	3.187187825	1.276123
2.8273136	304	0.873563	1.143399	3.232746293	1.30736
2.8332133	305	0.876437	1.157357	3.27903935	1.339475
2.8332133	306	0.87931	1.171547	3.319243756	1.372523
2.8449094	307	0.882184	1.185977	3.373995798	1.40654
2.8507065	308	0.885057	1.200656	3.422717261	1.441574
2.8507065	309	0.887931	1.215599	3.465315363	1.47768

Table B-20. Nitrate Near Upgradient Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.8558953	310	0.890805	1.230819	3.515090746	1.514916
2.8564702	311	0.893678	1.246331	3.56010626	1.55334
2.8791985	312	0.896552	1.262147	3.633970903	1.593014
2.8903718	313	0.899425	1.278286	3.69472091	1.634014
2.8903718	314	0.902299	1.294761	3.74234122	1.676407
2.9123507	315	0.905172	1.3116	3.819840586	1.720296
2.9177707	316	0.908046	1.328817	3.877184034	1.765755
2.9247732	317	0.91092	1.346439	3.938027787	1.812897
2.926918	318	0.913793	1.364488	3.993743307	1.861826
2.9391619	319	0.916667	1.382996	4.064848692	1.912677
2.944439	320	0.91954	1.401986	4.12806247	1.965565
2.9601051	321	0.922414	1.421497	4.207780566	2.020654
2.9704145	322	0.925287	1.441563	4.28203883	2.078103
2.9755296	323	0.928161	1.462231	4.350911608	2.13812
2.9755296	324	0.931034	1.48354	4.414318539	2.200892
2.9856819	325	0.933908	1.505546	4.495080594	2.266668
2.9957323	326	0.936782	1.528306	4.578395015	2.335719
3.0007198	327	0.939655	1.551884	4.656770426	2.408345
3.0325462	328	0.942529	1.576364	4.780395221	2.484922
3.0671223	329	0.945402	1.60182	4.912978587	2.565828
3.0910425	330	0.948276	1.628359	5.033327769	2.651554
3.1068263	331	0.951149	1.656103	5.145225789	2.742679
3.109061	332	0.954023	1.68518	5.239327333	2.839832
3.1311369	333	0.956897	1.715753	5.372256483	2.943807
3.1354942	334	0.95977	1.748022	5.480911403	3.055579
3.1354942	335	0.962644	1.782223	5.58815016	3.176319
3.1441523	336	0.965517	1.818644	5.718093034	3.307465
3.165475	337	0.968391	1.857652	5.880351128	3.450871
3.1696856	338	0.971264	1.899707	6.02147407	3.608887
3.1696856	339	0.974138	1.945418	6.166364214	3.784652
3.1696856	340	0.977011	1.995604	6.325437793	3.982436
3.1904764	341	0.979885	2.051383	6.54489051	4.208174
3.2108437	342	0.982759	2.114375	6.788927847	4.470582
3.2108437	343	0.985632	2.187098	7.022430661	4.783399
3.2158713	344	0.988506	2.273628	7.31169383	5.169383
3.22605	345	0.991379	2.38153	7.682935139	5.671685
3.2386785	346	0.994253	2.527304	8.185124609	6.387265
3.2921263	347	0.997126	2.761881	9.09246022	7.627985



Table B-23. Nitrate Far Upgradient Background Data Set  
(data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
0914	10-Jan-83	Nitrate	Homestake	None	0.8
0914	14-Mar-94	Nitrate	Energy Labs	None	6.92
0914	12-May-94	Nitrate	Energy Labs	None	3.22
0914	24-Jan-96	Nitrate	Energy Labs	Less Than	0.1
0914	22-May-97	Nitrate	Energy Labs	Less Than	0.1
0914	12-May-98	Nitrate	Energy Labs	Less Than	0.1
0914	19-May-99	Nitrate	Energy Labs	Less Than	0.1
0916	21-Feb-94	Nitrate	Energy Labs	None	4.07
0916	26-Apr-94	Nitrate	Energy Labs	None	4.3
0916	29-Jan-96	Nitrate	Energy Labs	None	4.09
0916	28-May-97	Nitrate	Energy Labs	None	4
0916	12-May-98	Nitrate	Energy Labs	None	3.95
0916	20-May-99	Nitrate	Energy Labs	None	4.39
0920	03-Nov-81	Nitrate	Homestake	None	25
0920	30-Aug-82	Nitrate	Homestake	None	24.4
0920	05-Jan-83	Nitrate	Homestake	None	24
0920	31-Aug-83	Nitrate	Homestake	None	26
0920	14-Dec-89	Nitrate	Homestake	None	10.2
0920	09-May-90	Nitrate	Homestake	None	21.5
0920	21-May-91	Nitrate	Homestake	None	21
0920	06-May-92	Nitrate	Homestake	None	24
0920	06-May-93	Nitrate	Homestake	None	21
0920	28-Feb-94	Nitrate	Energy Labs	None	22.9
0920	29-Apr-94	Nitrate	Energy Labs	None	19.4
0920	29-Apr-94	Nitrate	Energy Labs	None	19.9
0920	11-May-94	Nitrate	Energy Labs	None	14.6
0920	10-May-95	Nitrate	Energy Labs	None	17.3
0920	24-Jan-96	Nitrate	Energy Labs	None	14.4
0920	20-May-96	Nitrate	Energy Labs	None	17.2
0920	23-May-97	Nitrate	Energy Labs	None	15.1
0920	12-May-98	Nitrate	Energy Labs	None	15.9
0920	19-May-99	Nitrate	Energy Labs	None	14.5
0921	28-Feb-94	Nitrate	Energy Labs	None	16.9
0921	16-May-94	Nitrate	Energy Labs	None	12
0921	24-Jan-96	Nitrate	Energy Labs	None	15
0921	23-May-97	Nitrate	Energy Labs	None	16.1
0921	12-May-98	Nitrate	Energy Labs	None	14.6
0921	19-May-99	Nitrate	Energy Labs	None	15.2
0922	03-Nov-81	Nitrate	Homestake	None	9.9
0922	04-Mar-94	Nitrate	Energy Labs	None	0.86
0922	16-May-94	Nitrate	Energy Labs	Less Than	0.1
0922	24-Jan-96	Nitrate	Energy Labs	None	0.74
0922	23-May-97	Nitrate	Energy Labs	None	0.22
0922	12-May-98	Nitrate	Energy Labs	Less Than	0.1
0922	19-May-99	Nitrate	Energy Labs	Less Than	0.1
0950	28-Feb-94	Nitrate	Energy Labs	None	11.7
0950	11-May-94	Nitrate	Energy Labs	None	7.56
0950	25-Jan-96	Nitrate	Energy Labs	None	10.7

**Table B-24. Nitrate Far Upgradient Background Data Set for Well 0914**  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
10-Jan-83	Nitrate	0.8
14-Mar-94	Nitrate	6.92
12-May-94	Nitrate	3.22
24-Jan-96	Nitrate	0.05
22-May-97	Nitrate	0.05
12-May-98	Nitrate	0.05
19-May-99	Nitrate	0.05

**Table B-25. Nitrate Far Upgradient Background Data Set for Well 0916**  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Feb-94	Nitrate	4.07
26-Apr-94	Nitrate	4.3
29-Jan-96	Nitrate	4.09
28-May-97	Nitrate	4
12-May-98	Nitrate	3.95
20-May-99	Nitrate	4.39

**Table B-26. Nitrate Far Upgradient Background Data Set for Well 0920**  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Nitrate	25
30-Aug-82	Nitrate	24.4
05-Jan-83	Nitrate	24
31-Aug-83	Nitrate	26
14-Dec-89	Nitrate	10.2
09-May-90	Nitrate	21.5
21-May-91	Nitrate	21
06-May-92	Nitrate	24
06-May-93	Nitrate	21
28-Feb-94	Nitrate	22.9
29-Apr-94	Nitrate	19.65
11-May-94	Nitrate	14.6
10-May-95	Nitrate	17.3
24-Jan-96	Nitrate	14.4
20-May-96	Nitrate	17.2
23-May-97	Nitrate	15.1
12-May-98	Nitrate	15.9
19-May-99	Nitrate	14.5

Table B-27. Nitrate Far Upgradient Background Data Set for Well 0921  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Nitrate	16.9
16-May-94	Nitrate	12
24-Jan-96	Nitrate	15
23-May-97	Nitrate	16.1
12-May-98	Nitrate	14.6
19-May-99	Nitrate	15.2

Table B-28. Nitrate Far Upgradient Background Data Set for Well 0922  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Nitrate	9.9
04-Mar-94	Nitrate	0.86
16-May-94	Nitrate	0.05
24-Jan-96	Nitrate	0.74
23-May-97	Nitrate	0.22
12-May-98	Nitrate	0.05
19-May-99	Nitrate	0.05

Table B-29. Nitrate Far Upgradient Background Data Set for Well 0950  
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Nitrogen	11.7
11-May-94	Nitrogen	7.56
25-Jan-96	Nitrogen	10.7

Table B-30. Nitrate Far Upgradient Background Data Set Used in Statistical Analysis  
(all concentrations in mg/L)

Well ID					
Well 914	Well 916	Well 920	Well 921	Well 922	Well 950
6.92	4.39	26	16.9	9.9	11.7
3.22	4.3	25	16.1	0.86	10.7
0.8	4.09	24.4	15.2	0.74	7.56
0.05	4.07	24	15	0.22	
0.05	4	24	14.6	0.05	
0.05	3.95	22.9	12	0.05	
0.05		21.5		0.05	
		21			
		21			
		19.65			
		17.3			
		17.2			
		15.9			
		15.1			
		14.6			
		14.5			
		14.4			
		10.2			

Table B-31. Nitrate Far Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Nitrate	26	25	1.0	Pass

Table B-32. Nitrate Far Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Nitrate, normal	10.98	8.56	0.78	Pass
Nitrate, lognormal	1.42	2.13	1.50	Fail

Table B-33. Nitrate Far Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Nitrate, normal	26	0.05 <sup>a</sup>	8.56	5.35	3.83	3.03	Fail

W = range of values

S = standard deviation

<sup>a</sup> = minimum concentration was non-detect. Minimum concentration is 0.5 of detection limit.

Table B-34. Far Upgradient Background Nitrate Data Set, Coefficient of Skewness Analysis

Nitrate	Normal (xi-avg)^3	
0.05	-1306.9718	<b>Normal</b> standard deviation = 8.561185 mean = 10.983 count = 47 sum of (xi-avg)^3 = 3750.633 1/n = 0.021277 standard deviation cubed = 627.4825 ((n-1)/n)^(3/2) = 0.968255  coef. of skewness = 0.1  acceptable range -1 to 1 <b>Pass</b>
0.05	-1306.9718	
0.05	-1306.9718	
0.05	-1306.9718	
0.05	-1306.9718	
0.05	-1306.9718	
0.22	-1246.94976	
0.74	-1074.81307	
0.8	-1056.03656	
0.86	-1037.48001	
3.22	-467.903834	
3.95	-347.933896	
4	-340.566205	
4.07	-330.427251	
4.09	-327.56783	
4.3	-298.533582	
4.39	-286.634929	
6.92	-67.0919003	
7.56	-40.1212595	
9.9	-1.27166176	
10.2	-0.4807926	
10.7	-0.02276246	
11.7	0.36797869	
12	1.05061806	
14.4	39.8823543	
14.5	43.4877901	
14.6	47.3042216	
14.6	47.3042216	
15	64.7999053	
15.1	69.7613156	
15.2	74.9697217	
15.9	118.848445	
16.1	133.950184	
16.9	207.116973	
17.2	240.246949	
17.3	252.028265	
19.65	650.946982	
21	1004.98699	
21	1004.98699	
21.5	1163.12272	
22.9	1692.21921	
24	2205.42479	
24	2205.42479	
24.4	2415.05487	
25	2753.76987	
26	3386.21453	

Table B-34. Far Upgradient Background Nitrate Data Set, Coefficient of Skewness Analysis  
(continued)

Nitrate	Lognormal (xi-avg)^3	
-2.9957323	-85.947572	<b>Lognormal</b> standard deviation = 2.131398 mean = 1.417 count = 47 sum of (xi-avg)^3 = -556.482 1/n = 0.021277 standard deviation cubed = 9.682639 ((n-1)/n)^(3/2) = 0.968255  coef. of skewness = -1.3  acceptable range -1 to 1 <b>Fail</b>
-2.9957323	-85.947572	
-2.9957323	-85.947572	
-2.9957323	-85.947572	
-2.9957323	-85.947572	
-2.9957323	-85.947572	
-2.9957323	-85.947572	
-1.5141277	-25.1924932	
-0.3011051	-5.07497522	
-0.2231436	-4.41513377	
-0.1508229	-3.85658621	
1.16938136	-0.01525192	
1.37371558	-8.3224E-05	
1.38629436	-3.0026E-05	
1.403643	-2.5897E-06	
1.40854497	-6.886E-07	
1.45861502	7.0136E-05	
1.47932923	0.00023779	
1.93441577	0.13822067	
2.02287119	0.22198983	
2.29253476	0.67028764	
2.32238772	0.74124755	
2.37024374	0.86516412	
2.45958884	1.13206102	
2.48490665	1.21658265	
2.66722821	1.95243445	
2.67414865	1.98504629	
2.68102153	2.01779141	
2.68102153	2.01779141	
2.7080502	2.15005887	
2.71469474	2.18343637	
2.72129543	2.21693382	
2.76631911	2.45460348	
2.77881927	2.52347549	
2.82731362	2.80285172	
2.84490938	2.90910395	
2.8507065	2.94468908	
2.97807734	3.80154199	
3.04452244	4.30804556	
3.04452244	4.30804556	
3.06805294	4.49765989	
3.13113691	5.0332795	
3.17805383	5.45808164	
3.17805383	5.45808164	
3.19458313	5.61325122	
3.21887582	5.84659492	

Table B-35. Nitrate Far Upgradient Data Set, Shapiro-Wilk Test of Normality Analysis

Nitrate - raw data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
0.05	26	25.95	0.3808	9.88176
0.05	25	24.95	0.262	6.5369
0.05	24.4	24.35	0.2291	5.578585
0.05	24	23.95	0.2052	4.91454
0.05	24	23.95	0.1859	4.452305
0.05	22.9	22.85	0.1695	3.873075
0.05	21.5	21.45	0.155	3.32475
0.22	21	20.78	0.142	2.95076
0.74	21	20.26	0.13	2.6338
0.8	19.65	18.85	0.1189	2.241265
0.86	17.3	16.44	0.1085	1.78374
3.22	17.2	13.98	0.0986	1.378428
3.95	16.9	12.95	0.0892	1.15514
4	16.1	12.1	0.0801	0.96921
4.07	15.9	11.83	0.0713	0.843479
4.09	15.2	11.11	0.0628	0.697708
4.3	15.1	10.8	0.0546	0.58968
4.39	15	10.61	0.0465	0.493365
6.92	14.6	7.68	0.0385	0.29568
7.56	14.6	7.04	0.0307	0.216128
9.9	14.5	4.6	0.0229	0.10534
10.2	14.4	4.2	0.0153	0.06426
10.7	12	1.3	0.0076	0.00988
11.7	11.7	0	0	0
12	10.7	-1.3		
14.4	10.2	-4.2		
14.5	9.9	-4.6		
14.6	7.56	-7.04		
14.6	6.92	-7.68		
15	4.39	-10.61		
15.1	4.3	-10.8		
15.2	4.09	-11.11		
15.9	4.07	-11.83		
16.1	4	-12.1		
16.9	3.95	-12.95		
17.2	3.22	-13.98		
17.3	0.86	-16.44		
19.65	0.8	-18.85		
21	0.74	-20.26		
21	0.22	-20.78		
21.5	0.05	-21.45		
22.9	0.05	-22.85		
24	0.05	-23.95		
24	0.05	-23.95		
24.4	0.05	-24.35		
25	0.05	-24.95		
26	0.05	-25.95		

54.98978 = sum of B  
8.561185 = standard deviation  
46 = count - 1

0.897 = W statistic  
0.946 is acceptable low value  
Fails Shapiro-Wilk test



Table B-35. Nitrate Far Upgradient Data Set, Shapiro-Wilk Test of Normality Analysis (continued)

Nitrate - log data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
-2.995732	3.258097	6.253828812	0.3808	2.381458
-2.995732	3.218876	6.214608098	0.262	1.628227
-2.995732	3.194583	6.190315406	0.2291	1.418201
-2.995732	3.178054	6.173786104	0.2052	1.266861
-2.995732	3.178054	6.173786104	0.1859	1.147707
-2.995732	3.131137	6.126869184	0.1695	1.038504
-2.995732	3.068053	6.063785209	0.155	0.939887
-1.514128	3.044522	4.55865017	0.142	0.647328
-0.301105	3.044522	3.345627531	0.13	0.434932
-0.223144	2.978077	3.20122089	0.1189	0.380625
-0.150823	2.850707	3.001529391	0.1085	0.325666
1.169381	2.844909	1.675528024	0.0986	0.165207
1.373716	2.827314	1.453598043	0.0892	0.129661
1.386294	2.778819	1.392524911	0.0801	0.111541
1.403643	2.766319	1.36267611	0.0713	0.097159
1.408545	2.721295	1.312750458	0.0628	0.082441
1.458615	2.714695	1.256079721	0.0546	0.068582
1.479329	2.70805	1.228720974	0.0465	0.057136
1.934416	2.681022	0.746605759	0.0385	0.028744
2.022871	2.681022	0.658150339	0.0307	0.020205
2.292535	2.674149	0.381613892	0.0229	0.008739
2.322388	2.667228	0.344840486	0.0153	0.005276
2.370244	2.484907	0.114662908	0.0076	0.000871
2.459589	2.459589	0	0	0
2.484907	2.370244	-0.114662908		
2.667228	2.322388	-0.344840486		
2.674149	2.292535	-0.381613892		
2.681022	2.022871	-0.658150339		
2.681022	1.934416	-0.746605759		
2.70805	1.479329	-1.228720974		
2.714695	1.458615	-1.256079721		
2.721295	1.408545	-1.312750458		
2.766319	1.403643	-1.36267611		
2.778819	1.386294	-1.392524911		
2.827314	1.373716	-1.453598043		
2.844909	1.169381	-1.675528024		
2.850707	-0.150823	-3.001529391		
2.978077	-0.223144	-3.20122089		
3.044522	-0.301105	-3.345627531		
3.044522	-1.514128	-4.55865017		
3.068053	-2.995732	-6.063785209		
3.131137	-2.995732	-6.126869184		
3.178054	-2.995732	-6.173786104		
3.178054	-2.995732	-6.173786104		
3.194583	-2.995732	-6.190315406		
3.218876	-2.995732	-6.214608098		
3.258097	-2.995732	-6.253828812		

12.38496 = sum of B  
2.131398 = standard deviation  
46 = count - 1

0.73401 = W statistic  
0.946 is acceptable low value  
**Fails Shapiro-Wilk test**

Table B-36. Nitrate Far Upgradient Background Data Set, Filliben's Statistic Analysis

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
0.05	-3.00	1	0.01464	-2.1797	-0.10899	4.75115	6.5298372
0.05	-3.00	2	0.03552	-1.8052	-0.09026	3.258719	5.407873
0.05	-3.00	3	0.05663	-1.5837	-0.07918	2.508	4.7442416
0.05	-3.00	4	0.07775	-1.4204	-0.07102	2.017507	4.2551073
0.05	-3.00	5	0.09886	-1.2881	-0.0644	1.659141	3.8587321
0.05	-3.00	6	0.11997	-1.1751	-0.05876	1.380916	3.5203569
0.05	-3.00	7	0.14109	-1.0755	-0.05377	1.156608	3.2217813
0.22	-1.51	8	0.16220	-0.9855	-0.2168	0.971141	1.4921196
0.74	-0.30	9	0.18331	-0.9028	-0.66809	0.815086	0.2718441
0.8	-0.22	10	0.20442	-0.8259	-0.66074	0.682153	0.1843
0.86	-0.15	11	0.22554	-0.7536	-0.64812	0.567958	0.1136647
3.22	1.17	12	0.24665	-0.6851	-2.20594	0.469327	-0.8011135
3.95	1.37	13	0.26776	-0.6196	-2.44741	0.383901	-0.8511512
4	1.39	14	0.28887	-0.5567	-2.22672	0.309891	-0.7717209
4.07	1.40	15	0.30999	-0.4959	-2.01827	0.245906	-0.6960518
4.09	1.41	16	0.33110	-0.4369	-1.78684	0.190864	-0.6153656
4.3	1.46	17	0.35221	-0.3794	-1.63124	0.143912	-0.5533359
4.39	1.48	18	0.37332	-0.3231	-1.41824	0.104369	-0.4779145
6.92	1.93	19	0.39444	-0.2678	-1.85299	0.071703	-0.5179851
7.56	2.02	20	0.41555	-0.2133	-1.61249	0.045494	-0.4314631
9.9	2.29	21	0.43666	-0.1594	-1.57843	0.02542	-0.3655168
10.2	2.32	22	0.45777	-0.1060	-1.08162	0.011245	-0.2462692
10.7	2.37	23	0.47889	-0.0529	-0.56652	0.002803	-0.1254955
11.7	2.46	24	0.50000	0.0000	0	0	0
12	2.48	25	0.52111	0.0529	0.635355	0.002803	0.1315664
14.4	2.67	26	0.54223	0.1060	1.526996	0.011245	0.2828366
14.5	2.67	27	0.56334	0.1594	2.311849	0.02542	0.4263605
14.6	2.68	28	0.58445	0.2133	3.114069	0.045494	0.5718416
14.6	2.68	29	0.60556	0.2678	3.909492	0.071703	0.7179063
15	2.71	30	0.62668	0.3231	4.845924	0.104369	0.8748671
15.1	2.71	31	0.64779	0.3794	5.728292	0.143912	1.0298386
15.2	2.72	32	0.66890	0.4369	6.640581	0.190864	1.1888804
15.9	2.77	33	0.69001	0.4959	7.884643	0.245906	1.3717885
16.1	2.78	34	0.71113	0.5567	8.962531	0.309891	1.5469102
16.9	2.83	35	0.73224	0.6196	10.4712	0.383901	1.7517973
17.2	2.84	36	0.75335	0.6851	11.78328	0.469327	1.9489752
17.3	2.85	37	0.77446	0.7536	13.0378	0.567958	2.1483781
19.65	2.98	38	0.79558	0.8259	16.22944	0.682153	2.4596709
21	3.04	39	0.81669	0.9028	18.95925	0.815086	2.7486597
21	3.04	40	0.83780	0.9855	20.69476	0.971141	3.0002697
21.5	3.07	41	0.85891	1.0755	23.12233	1.156608	3.2995591
22.9	3.13	42	0.88003	1.1751	26.91034	1.380916	3.6794741
24	3.18	43	0.90114	1.2881	30.91383	1.659141	4.0935762
24	3.18	44	0.92225	1.4204	34.08935	2.017507	4.514075
24.4	3.19	45	0.94337	1.5837	38.64147	2.508	5.0591551
25	3.22	46	0.96448	1.8052	45.12981	3.258719	5.8106901
26	3.26	47	0.98536	2.1797	56.67254	4.75115	7.101716

Normal

369.068 =sum X(i)\*M(i)  
 43.546 =sum M(i)^2  
 8.56 = standard deviation  
 6.5990 = square root of sum Mi<sup>2</sup>  
 0.963 = Filliben's Statistic

Lognormal

82.905 =sum X(i)\*M(i)  
 43.546 =sum M(i)^2  
 2.13 = standard deviation  
 6.5990 = square root of sum Mi<sup>2</sup>  
 0.869 = Filliben's Statistic

.975 is acceptable value

Normal - Fail

Lognormal - Fail

Table B-37. Nitrate Far Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Coefficient of Skewness (-1 to 1)	Shapiro-Wilk Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Nitrate	Normal	Pass	Fail	Pass	Fail	Fail	?	X	47	Nonparametric
Nitrate	Lognormal	Fail	NA	Fail	Fail	Fail	?		47	

NA - not applicable

? - Results of graphical test were inconclusive.

Table B-38.  $T_n$  Statistic Analysis for Nitrate Far Upgradient Background Data Set

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	$T_n$ Statistic	N	Upper 5% Critical Value	Pass or Fail $T_n$ Statistic
Nitrate	Normal	26	10.98	8.56	1.754	47	2.931	Pass

N - number of samples

Table B-39. 95th Percentile for Far Upgradient Nitrate Background Data Set

Parameter	Distribution	Censored?	95th Percentile (mg/L)	Sample #
Nitrate	Nonparametric	No	24.28	47

Table B-40. Summary Table for Far Upgradient Nitrate Background Data Set

Parameter	Distribution	Mean	SD	95th Percentile (mg/L)	Range (normal)	Sample #
Nitrate	Nonparametric	10.98	8.56	24.28	26 to 0.05(ND)	47

SD = standard deviation

ND = non-detect, concentration reported as 0.5 the detection limit

Table B-41. Nitrate Upgradient Background Data, Comparison Statistics Results

Comparison of Medians

Median of Sample 1: 11.7

Median of Sample 2: 9.65

Mann-Whitney (Wilcoxon) W test to compare medians

Null hypothesis: median1 = median2

Alt. Hypothesis: median1 NE median2

Average rank of sample 1: 199.415

Average rank of sample 2: 199.511

w = 8252.5

P-value = 0.996224

The StatAdvisor

This option runs the Mann-Whitney W test to compare the medians of the two samples. This test is constructed by combining the two samples, sorting the data from the smallest to the largest, and comparing the average ranks of the two samples in the combined data. Since the P-value is greater than or equal to 0.05, there is not a statistically significant difference between the medians at the 95.0% confidence level.

Table B-42. Nitrate Combined Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L)

Well ID														
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R	Well 914	Well 916	Well 920	Well 921	Well 922	Well 950
33.2	1.9	22	31	26.9	7.28	3.13	33.2	23.8	6.92	4.39	26	16.9	9.9	11.7
25.5	4.1	19.6	23	18.9			31.3	19.6	3.22	4.3	25	16.1	0.86	10.7
24.3	1.4	17.3	18	17.4			25.18	17.3	0.8	4.09	24.4	15.2	0.74	7.56
23.8	4.4	14.3	16.9	17			24.925	13.7	0.05	4.07	24	15	0.22	
19	4.8	14.1	16.4	16.4			24.8	12.8	0.05	4	24	14.6	0.05	
18.4	6.2	13.7	15.9	16.05			24.8	12.8	0.05	3.95	22.9	12	0.05	
18	1.29	12.9	15.4	15.5			23.8	12.7	0.05		21.5		0.05	
16.8	0.48	12.2	15.2	15.4			23.7	12.3			21			
16.8	1.32	12	15.15	15.2			23.2	11.7			21			
15.2	1.23	11.95	14.5	14.75			23	11.4			19.65			
15.1	0.81	11.5	14.2	14.3			22.9	11			17.3			
15.1	0.44	10.8	13.4	14.15			22.4	10.5			17.2			
15	0.59	10.5	13.3	13.45			22.35	9.7			15.9			
15		10.1	13.1	13.4			21.48	9.7			15.1			
14.5		10.05	12.8	13.3			20.75	9.6			14.6			
14		10.035	12.45	13.1			20.1	9.4			14.5			
13.5		10	12.4	12.7			20	9.21			14.4			
13.2		10	12.3	12.4			19.8	9			10.2			
13		9.9	12.2	12.3			19.5	9						
12.6		9.82	12.1	11.6			19.3	8.95						
12.3		9.8	11.9	11.4			18.67	8.84						
11.35		9.4	11.8	10.6			18.63	8.81						
11.25		9.23	11.6	10.6			18.5	8.8						
11.2		9.2	11.1	10.4			17.8	8.75						
10.9		9.2	11	10.4			17.39	8.6						
10.8		9.2	10.5	10			17.2	8.57						
10.4		9	4.54				17	8.51						
10.31		9					16.6	8.5						
10.3		8.91					16	8.17						
9.8		8.9					15.74	8.12						
9.6		8.8					15.6	8.1						
9.6		8.8					15.6	8.1						
9.6		8.64					15.3	8.1						
9.5		8.45			15.2	8								
9.4		8.4			15	7.85								
9.3		8.4			14.8	7.8								

Table B-42. Nitrate Combined Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L) (cont.)

Well DD	Well ND	Well P	Well ID											
			Well P1	Well P2	Well P3	Well P4	Well Q	Well R	Well 914	Well 916	Well 920	Well 921	Well 922	Well 950
9.1		8.215					14.65	7.8						
8.95		8.11					14.5	7.715						
8.37		8.08					14.03	7.6						
8.2		8.035					14	7.5						
7.28		8.01					13.725	7.5						
7.2		8					13.5	7.225						
6.95		7.735					13	7.2						
6.2		7.55					12	7.15						
5.14		7.45					12	7.09						
5.1		7.4					12	7.005						
4.26		7.4					11.7	7						
3.74		7.4					11.5	6.95						
		7.35					11.5	6.945						
		7.25					11.35	6.9						
		7.25					11.2	6.865						
		7.2					11.1	6.85						
		7.2					11	6.83						
		7.15					10.7	6.8						
		6.8					10.65	6.69						
		6.8					10.6	6.6						
		6.6					10.1	6.45						
		6.6					10.075	6.45						
		6.6					9.65	6.4						
		6.2					9.6	6.39						
		5.95					9.34	6.1						
		5.9					9.3	5.95						
		5.6					8.92	5.9						
		5.5					8.81	5.8						
		5.4					8.4	5.69						
		5.2					8.18	5.6						
		5.1					8.16	5.4						
		4.9					8.09	5.3						
		4.9					7.9	5						
		4.33					7.8	4.725						
		4.25					7.71	4.6						
		4.2						4.6						

Table B-42. Nitrate Combined Background Groundwater Data Set Used in Statistical Analysis  
(all concentrations in mg/L) (continued)

Well ID														
Well DD	Well ND	Well P	Well P1	Well P2	Well P3	Well P4	Well Q	Well R	Well 914	Well 916	Well 920	Well 921	Well 922	Well 950
		4.13												
		4.02												
		3.8												
		3.8												
		3.6												
		3.5												
		3.49												
		3.305												
		3.26												
		3.22												
		3.2												
		3.15												
		3.04												
		2.98												
		2.98												
		2.85												
		2.26												
		2.05												
		1.16												
		0.35												

Table B-43. Nitrate Combined Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Nitrate	33.2	33.2	1.0	<b>Pass</b>

Table B-44. Nitrate Combined Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Nitrate, normal	10.84	6.17	0.57	<b>Pass</b>
Nitrate, lognormal	2.12	0.99	0.47	<b>Pass</b>

Table B-45. Nitrate Combined Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Nitrate, normal	33.2	0.05 <sup>a</sup>	6.17	6.94	5.47	5.37	<b>Fail</b>

W = range of values

S = standard deviation

<sup>a</sup> = minimum concentration was non-detect. Minimum concentration is 0.5 of detection limit.



Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis

Nitrate	Normal (xi-avg)^3		
0.05	-1257.58554	<b>Normal</b> standard deviation = 6.16887 mean = 10.844 count = 398 sum of (xi-avg)^3 = 73366.53 1/n = 0.002513 standard deviation cubed = 234.756 ((n-1)/n)^(3/2) = 0.996234	
0.05	-1257.58554		
0.05	-1257.58554		
0.05	-1257.58554		
0.05	-1257.58554		
0.05	-1257.58554		
0.05	-1257.58554		
0.22	-1199.09703		
0.35	-1155.61507		
0.44	-1126.13631		
0.48	-1113.1972	coef. of skewness = 0.8  acceptable range -1 to 1 <b>Pass</b>	
0.59	-1078.12651		
0.74	-1031.50098		
0.8	-1013.23383		
0.81	-1010.21043		
0.86	-995.183633		
1.16	-908.141505		
1.23	-888.590073		
1.29	-872.056747		
1.32	-863.867551		
1.4	-842.280688		
1.9	-715.457201		
2.05	-680.060377		
2.26	-632.494748		
2.85	-510.83345		
2.98	-486.314472		
2.98	-486.314472		
3.04	-475.267765		
3.13	-459.013357		
3.15	-455.452333		
3.2	-446.630452		
3.22	-443.133847		
3.22	-443.133847		
3.26	-436.195479		
3.305	-428.476823		
3.49	-397.700953		
3.5	-396.080754		
3.6	-380.120126		
3.74	-358.504088		
3.8	-349.496773		
3.8	-349.496773		
3.95	-327.641301		
4	-320.563962		
4.02	-317.761812		
4.07	-310.827985		
4.09	-308.082946		
4.1	-306.716508		

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
4.13	-302.641449
4.2	-293.273691
4.25	-286.702145
4.26	-285.399729
4.3	-280.229508
4.33	-276.39309
4.39	-268.825618
4.4	-267.57796
4.54	-250.513997
4.6	-243.428771
4.6	-243.428771
4.725	-229.099552
4.8	-220.778122
4.9	-209.99975
4.9	-209.99975
5	-199.578014
5.1	-189.506913
5.1	-189.506913
5.14	-185.575306
5.2	-179.780447
5.3	-170.392616
5.4	-161.33742
5.4	-161.33742
5.5	-152.608859
5.6	-144.200934
5.6	-144.200934
5.69	-136.902985
5.8	-128.322989
5.9	-120.840969
5.9	-120.840969
5.95	-117.211572
5.95	-117.211572
6.1	-106.760834
6.2	-100.15072
6.2	-100.15072
6.2	-100.15072
6.39	-88.3541837
6.4	-87.7603969
6.45	-84.831338
6.45	-84.831338
6.6	-76.4366144
6.6	-76.4366144
6.6	-76.4366144
6.6	-76.4366144
6.69	-71.6760822
6.8	-66.1313726
6.8	-66.1313726
6.8	-66.1313726
6.83	-64.6704685
6.85	-63.7085841
6.865	-62.9934639
6.9	-61.3457045
6.92	-60.4171591

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
6.945	-59.2697149
6.95	-59.0419836
6.95	-59.0419836
7	-56.7966715
7.005	-56.5753239
7.09	-52.8999059
7.15	-50.403688
7.15	-50.403688
7.2	-48.3845111
7.2	-48.3845111
7.2	-48.3845111
7.2	-48.3845111
7.225	-47.3954666
7.25	-46.419993
7.25	-46.419993
7.28	-45.2672064
7.28	-45.2672064
7.35	-42.6519332
7.4	-40.8468915
7.4	-40.8468915
7.4	-40.8468915
7.45	-39.0935085
7.5	-37.3910344
7.5	-37.3910344
7.55	-35.7387191
7.56	-35.414209
7.6	-34.1358125
7.71	-30.779641
7.715	-30.6325542
7.735	-30.0488926
7.8	-28.2032742
7.8	-28.2032742
7.8	-28.2032742
7.85	-26.8361617
7.9	-25.5139579
8	-23.0012767
8	-23.0012767
8.01	-22.7594925
8.035	-22.162458
8.08	-21.1142771
8.09	-20.8859277
8.1	-20.6592307
8.1	-20.6592307
8.1	-20.6592307
8.11	-20.43418
8.12	-20.2107697
8.16	-19.3334119
8.17	-19.1181134
8.18	-18.9044192
8.2	-18.4818198
8.215	-18.1690371
8.37	-15.1410761
8.4	-14.5969037

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
8.4	-14.5969037
8.4	-14.5969037
8.45	-13.7191966
8.5	-12.8773984
8.51	-12.7132818
8.57	-11.7577796
8.6	-11.2985282
8.64	-10.705014
8.75	-9.18078898
8.8	-8.53869348
8.8	-8.53869348
8.8	-8.53869348
8.81	-8.41397744
8.81	-8.41397744
8.84	-8.04712742
8.9	-7.34572887
8.91	-7.23294635
8.92	-7.12132417
8.95	-6.79335976
8.95	-6.79335976
9	-6.26939944
9	-6.26939944
9	-6.26939944
9	-6.26939944
9.1	-5.30370518
9.2	-4.4426461
9.2	-4.4426461
9.2	-4.4426461
9.21	-4.36206413
9.23	-4.20383523
9.3	-3.68022219
9.3	-3.68022219
9.34	-3.40152648
9.4	-3.01043346
9.4	-3.01043346
9.4	-3.01043346
9.5	-2.42727991
9.6	-1.92476153
9.6	-1.92476153
9.6	-1.92476153
9.6	-1.92476153
9.6	-1.92476153
9.65	-1.70186554
9.7	-1.49687833
9.7	-1.49687833
9.8	-1.13763031
9.8	-1.13763031
9.82	-1.07348892
9.9	-0.84101745
9.9	-0.84101745
10	-0.60103978
10	-0.60103978
10	-0.60103978

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg) <sup>3</sup>
10.035	-0.52931728
10.05	-0.50041413
10.075	-0.45461398
10.1	-0.41169728
10.1	-0.41169728
10.2	-0.26698996
10.3	-0.16091781
10.31	-0.15220453
10.4	-0.08748084
10.4	-0.08748084
10.4	-0.08748084
10.5	-0.04067905
10.5	-0.04067905
10.5	-0.04067905
10.6	-0.01451243
10.6	-0.01451243
10.6	-0.01451243
10.65	-0.00729231
10.7	-0.00298099
10.7	-0.00298099
10.8	-8.4718E-05
10.8	-8.4718E-05
10.9	0.00017637
11	0.00380229
11	0.00380229
11	0.00380229
11.1	0.01679303
11.1	0.01679303
11.2	0.04514859
11.2	0.04514859
11.25	0.06696318
11.35	0.12961598
11.35	0.12961598
11.4	0.17195419
11.4	0.17195419
11.5	0.28240423
11.5	0.28240423
11.5	0.28240423
11.6	0.43221909
11.6	0.43221909
11.7	0.62739877
11.7	0.62739877
11.7	0.62739877
11.8	0.87394328
11.9	1.17785261
11.95	1.35319409
12	1.54512677
12	1.54512677
12	1.54512677
12	1.54512677
12	1.54512677
12.1	1.98176575
12.2	2.49376956

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
12.2	2.49376956
12.3	3.08713819
12.3	3.08713819
12.3	3.08713819
12.3	3.08713819
12.4	3.76787164
12.4	3.76787164
12.45	4.14287517
12.6	5.41543302
12.7	6.39426094
12.7	6.39426094
12.8	7.48445369
12.8	7.48445369
12.8	7.48445369
12.9	8.69201127
13	10.0229337
13	10.0229337
13.1	11.4832209
13.1	11.4832209
13.2	13.0788729
13.3	14.8158898
13.3	14.8158898
13.4	16.7002715
13.4	16.7002715
13.45	17.6995992
13.5	18.738018
13.5	18.738018
13.7	23.2976055
13.7	23.2976055
13.725	23.9147659
14	31.437223
14	31.437223
14.03	32.3422473
14.1	34.5211584
14.15	36.136013
14.2	37.8004587
14.3	41.2811238
14.3	41.2811238
14.4	44.9691538
14.5	48.8705485
14.5	48.8705485
14.5	48.8705485
14.5	48.8705485
14.6	52.9913081
14.6	52.9913081
14.65	55.1358247
14.75	59.5968815
14.8	61.9149218
15	71.7879947
15	71.7879947
15	71.7879947
15	71.7879947
15.1	77.0955784

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
15.1	77.0955784
15.1	77.0955784
15.15	79.8447571
15.2	82.6585269
15.2	82.6585269
15.2	82.6585269
15.2	82.6585269
15.2	82.6585269
15.3	88.4828403
15.4	94.5745185
15.4	94.5745185
15.5	100.939561
15.6	107.583969
15.6	107.583969
15.74	117.366897
15.9	129.253382
15.9	129.253382
16	137.075249
16.05	141.101819
16.1	145.206481
16.4	171.516366
16.4	171.516366
16.6	190.713113
16.8	211.291319
16.8	211.291319
16.9	222.11347
16.9	222.11347
17	233.298985
17	233.298985
17.2	256.784111
17.2	256.784111
17.3	269.09572
17.3	269.09572
17.3	269.09572
17.39	280.507195
17.4	281.794695
17.8	336.584242
18	366.459204
18	366.459204
18.4	431.409507
18.5	448.765495
18.63	472.015926
18.67	479.328129
18.9	522.843094
19	542.555906
19.3	604.65453
19.5	648.580437
19.6	671.319438
19.6	671.319438
19.65	682.885575
19.8	718.379534
20	767.589089
20.1	793.014914

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Normal (xi-avg)^3
20.75	972.087919
21	1047.55876
21	1047.55876
21.48	1203.21943
21.5	1210.01977
22	1388.4649
22.35	1523.28868
22.4	1543.23358
22.9	1752.34013
22.9	1752.34013
23	1796.30754
23	1796.30754
23.2	1886.43644
23.7	2124.83758
23.8	2174.80791
23.8	2174.80791
23.8	2174.80791
24	2277.08665
24	2277.08665
24.3	2436.44
24.4	2491.16451
24.8	2718.25621
24.8	2718.25621
24.925	2791.95192
25	2836.80224
25.18	2946.39714
25.5	3148.13622
26	3481.45432
26.9	4139.22089
31	8188.76195
31.3	8559.87191
33.2	11173.4422
33.2	11173.4422



Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3	
-2.99573	-133.74978	<b>Lognormal</b> standard deviation = 0.988797 mean = 2.118 count = 398 sum of (xi-avg)^3 = -1125.78 1/n = 0.002513 standard deviation cubed = 0.966765 ((n-1)/n)^(3/2) = 0.996234  coef. of skewness = -2.9  acceptable range -1 to 1 <b>Fail</b>
-2.99573	-133.74978	
-2.99573	-133.74978	
-2.99573	-133.74978	
-2.99573	-133.74978	
-2.99573	-133.74978	
-1.51413	-47.9285981	
-1.04982	-31.7987519	
-0.82098	-25.3938057	
-0.73397	-23.2047202	
-0.52763	-18.5242907	
-0.30111	-14.1622235	
-0.22314	-12.8368048	
-0.21072	-12.6335709	
-0.15082	-11.6836919	
0.14842	-7.64409851	
0.207014	-6.98206842	
0.254642	-6.47300383	
0.277632	-6.23640094	
0.336472	-5.65724342	
0.641854	-3.21856361	
0.71784	-2.74676888	
0.815365	-2.21196866	
1.047319	-1.22845179	
1.091923	-1.08126893	
1.091923	-1.08126893	
1.111858	-1.01948424	
1.141033	-0.93336978	
1.147402	-0.91523864	
1.163151	-0.87142096	
1.169381	-0.854479	
1.169381	-0.854479	
1.181727	-0.82155999	
1.195436	-0.78600863	
1.249902	-0.65489646	
1.252763	-0.64844451	
1.280934	-0.58716829	
1.319086	-0.51051329	
1.335001	-0.4806181	
1.335001	-0.4806181	
1.373716	-0.41281956	
1.386294	-0.39224916	
1.391282	-0.38428598	
1.403643	-0.36501622	
1.408545	-0.35755658	
1.410987	-0.35387866	
1.418277	-0.3430487	

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
1.435085	-0.31892838
1.446919	-0.30264089
1.449269	-0.29947386
1.458615	-0.28709828
1.465568	-0.27811643
1.479329	-0.26089422
1.481605	-0.25811712
1.512927	-0.22186653
1.526056	-0.2077421
1.526056	-0.2077421
1.552868	-0.18078668
1.568616	-0.16609802
1.589235	-0.14809914
1.589235	-0.14809914
1.609438	-0.13177325
1.629241	-0.11698039
1.629241	-0.11698039
1.637053	-0.11146343
1.648659	-0.10359249
1.667707	-0.09149225
1.686399	-0.08057207
1.686399	-0.08057207
1.704748	-0.07073319
1.722767	-0.06188483
1.722767	-0.06188483
1.73871	-0.05469903
1.757858	-0.0468322
1.774952	-0.04048016
1.774952	-0.04048016
1.783391	-0.03756822
1.783391	-0.03756822
1.808289	-0.02979727
1.824549	-0.02535032
1.824549	-0.02535032
1.824549	-0.02535032
1.854734	-0.01831129
1.856298	-0.01798731
1.86408	-0.0164317
1.86408	-0.0164317
1.88707	-0.01236499
1.88707	-0.01236499
1.88707	-0.01236499
1.88707	-0.01236499
1.900614	-0.01031704
1.916923	-0.00816771
1.916923	-0.00816771
1.916923	-0.00816771
1.921325	-0.00764373
1.924249	-0.00730837
1.926436	-0.00706402
1.931521	-0.00651711
1.934416	-0.00621882
1.938022	-0.00586009

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
1.938742	-0.00579019
1.938742	-0.00579019
1.94591	-0.00512407
1.946624	-0.00506066
1.958685	-0.00406728
1.967112	-0.00345652
1.967112	-0.00345652
1.974081	-0.00300028
1.974081	-0.00300028
1.974081	-0.00300028
1.974081	-0.00300028
1.977547	-0.00278913
1.981001	-0.00258879
1.981001	-0.00258879
1.985131	-0.00236218
1.985131	-0.00236218
1.9947	-0.0018887
2.00148	-0.00159466
2.00148	-0.00159466
2.00148	-0.00159466
2.008214	-0.00133451
2.014903	-0.00110575
2.014903	-0.00110575
2.021548	-0.000906
2.022871	-0.00086933
2.028148	-0.00073295
2.042518	-0.00043539
2.043166	-0.00042431
2.045755	-0.00038195
2.054124	-0.00026445
2.054124	-0.00026445
2.054124	-0.00026445
2.060514	-0.00019307
2.066863	-0.00013618
2.079442	-5.8723E-05
2.079442	-5.8723E-05
2.080691	-5.3241E-05
2.083807	-4.1076E-05
2.089392	-2.4184E-05
2.090629	-2.1212E-05
2.091864	-1.8497E-05
2.091864	-1.8497E-05
2.091864	-1.8497E-05
2.093098	-1.6027E-05
2.09433	-1.379E-05
2.099244	-6.9311E-06
2.100469	-5.6794E-06
2.101692	-4.5895E-06
2.104134	-2.849E-06
2.105962	-1.8831E-06
2.124654	2.5524E-07
2.128232	9.7654E-07
2.128232	9.7654E-07

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
2.128232	9.7654E-07
2.134166	3.9863E-06
2.140066	1.0297E-05
2.141242	1.2058E-05
2.148268	2.6885E-05
2.151762	3.7433E-05
2.156403	5.5272E-05
2.169054	0.00013066
2.174752	0.0001798
2.174752	0.0001798
2.174752	0.0001798
2.175887	0.00019087
2.175887	0.00019087
2.179287	0.00022672
2.186051	0.00031085
2.187174	0.00032657
2.188296	0.00034279
2.191654	0.00039453
2.191654	0.00039453
2.197225	0.00049143
2.197225	0.00049143
2.197225	0.00049143
2.197225	0.00049143
2.208274	0.00072812
2.219203	0.00102703
2.219203	0.00102703
2.219203	0.00102703
2.22029	0.00106056
2.222459	0.00112969
2.230014	0.00139381
2.230014	0.00139381
2.234306	0.00156072
2.24071	0.00183373
2.24071	0.00183373
2.24071	0.00183373
2.251292	0.00235164
2.261763	0.00295206
2.261763	0.00295206
2.261763	0.00295206
2.261763	0.00295206
2.266958	0.00328452
2.272126	0.00363914
2.272126	0.00363914
2.282382	0.00441674
2.282382	0.00441674
2.284421	0.00458344
2.292535	0.00528842
2.292535	0.00528842
2.302585	0.00625743
2.302585	0.00625743
2.302585	0.00625743
2.306079	0.00662015

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
2.307573	0.0067794
2.310057	0.0070499
2.312535	0.00732681
2.312535	0.00732681
2.322388	0.0084993
2.332144	0.00977747
2.333114	0.00991119
2.341806	0.01116362
2.341806	0.01116362
2.341806	0.01116362
2.351375	0.01265988
2.351375	0.01265988
2.351375	0.01265988
2.360854	0.01426819
2.360854	0.01426819
2.360854	0.01426819
2.36556	0.01511491
2.370244	0.01599029
2.370244	0.01599029
2.379546	0.01782777
2.379546	0.01782777
2.388763	0.01978207
2.397895	0.02185448
2.397895	0.02185448
2.397895	0.02185448
2.406945	0.02404612
2.406945	0.02404612
2.415914	0.02635803
2.415914	0.02635803
2.420368	0.02755937
2.429218	0.03005332
2.429218	0.03005332
2.433613	0.0313461
2.433613	0.0313461
2.442347	0.03402372
2.442347	0.03402372
2.442347	0.03402372
2.451005	0.03682452
2.451005	0.03682452
2.459589	0.03974899
2.459589	0.03974899
2.459589	0.03974899
2.4681	0.0427975
2.476538	0.04597038
2.480731	0.04760353
2.484907	0.04926785
2.484907	0.04926785
2.484907	0.04926785
2.484907	0.04926785
2.484907	0.04926785
2.493205	0.05269006
2.501436	0.0562371
2.501436	0.0562371

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
2.509599	0.05990899
2.509599	0.05990899
2.509599	0.05990899
2.509599	0.05990899
2.517696	0.0637057
2.517696	0.0637057
2.521721	0.06565084
2.533697	0.07167314
2.541602	0.07584353
2.541602	0.07584353
2.549445	0.08013805
2.549445	0.08013805
2.549445	0.08013805
2.557227	0.08455641
2.564949	0.0890983
2.564949	0.0890983
2.572612	0.09376334
2.572612	0.09376334
2.580217	0.09855114
2.587764	0.10346126
2.587764	0.10346126
2.595255	0.10849323
2.595255	0.10849323
2.598979	0.11105476
2.60269	0.11364657
2.60269	0.11364657
2.617396	0.12431523
2.617396	0.12431523
2.619219	0.12568258
2.639057	0.14121467
2.639057	0.14121467
2.641198	0.14296326
2.646175	0.14708446
2.649715	0.15006337
2.653242	0.15307151
2.66026	0.15917515
2.66026	0.15917515
2.667228	0.16539472
2.674149	0.17172953
2.674149	0.17172953
2.674149	0.17172953
2.674149	0.17172953
2.681022	0.17817887
2.681022	0.17817887
2.68444	0.18144627
2.691243	0.18806609
2.694627	0.19141832
2.70805	0.20510726
2.70805	0.20510726
2.70805	0.20510726
2.70805	0.20510726
2.714695	0.21211843
2.714695	0.21211843

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
2.714695	0.21211843
2.718001	0.21566537
2.721295	0.21923975
2.721295	0.21923975
2.721295	0.21923975
2.721295	0.21923975
2.721295	0.21923975
2.727853	0.22647045
2.734368	0.23380976
2.734368	0.23380976
2.74084	0.24125693
2.747271	0.24881117
2.747271	0.24881117
2.756205	0.25956552
2.766319	0.2721086
2.766319	0.2721086
2.772589	0.28008337
2.775709	0.28410951
2.778819	0.28816133
2.797281	0.31300646
2.797281	0.31300646
2.809403	0.33007141
2.821379	0.34753028
2.821379	0.34753028
2.827314	0.35640549
2.827314	0.35640549
2.833213	0.36537684
2.833213	0.36537684
2.844909	0.38360488
2.844909	0.38360488
2.850707	0.39286002
2.850707	0.39286002
2.850707	0.39286002
2.855895	0.40126924
2.85647	0.40220822
2.879198	0.44051639
2.890372	0.46020913
2.890372	0.46020913
2.912351	0.50064209
2.917771	0.51096428
2.924773	0.5245088
2.926918	0.5287047
2.939162	0.55308721
2.944439	0.56382293
2.960105	0.59651085
2.970414	0.61869657
2.97553	0.62990552
2.97553	0.62990552
2.978077	0.63553873
2.985682	0.65255227
2.995732	0.67549972
3.00072	0.68708458
3.032546	0.76414284

Table B-46. Combined Background Nitrate Data Set, Coefficient of Skewness Analysis  
(cont.)

Nitrate	Lognormal (xi-avg)^3
3.044522	0.79456801
3.044522	0.79456801
3.067122	0.8541618
3.068053	0.85667774
3.091042	0.92040613
3.106826	0.96594151
3.109061	0.97250715
3.131137	1.03897479
3.131137	1.03897479
3.135494	1.05244196
3.135494	1.05244196
3.144152	1.07954588
3.165475	1.14827194
3.169686	1.16217893
3.169686	1.16217893
3.169686	1.16217893
3.178054	1.19015092
3.178054	1.19015092
3.190476	1.232497
3.194583	1.24671405
3.210844	1.3040788
3.210844	1.3040788
3.215871	1.32216526
3.218876	1.33305307
3.22605	1.3592925
3.238678	1.40631301
3.258097	1.48070984
3.292126	1.61733432
3.433987	2.27744304
3.443618	2.32782341
3.50255	2.6523667
3.50255	2.6523667



Table B-47. Nitrate Combined Background Data Set, Shapiro-Francia Test of Normality Analysis

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i \cdot X_i$	$M_i^2$
0.05	1	0.002506	-2.806264	-0.140313205	7.875118
0.05	2	0.005013	-2.574961	-0.12874807	6.630426
0.05	3	0.007519	-2.43148	-0.121573976	5.912093
0.05	4	0.010025	-2.325414	-0.116270712	5.407551
0.05	5	0.012531	-2.240431	-0.112021553	5.019531
0.05	6	0.015038	-2.16909	-0.108454515	4.704953
0.05	7	0.017544	-2.107345	-0.105367235	4.440902
0.22	8	0.02005	-2.052711	-0.451596497	4.213624
0.35	9	0.022556	-2.003599	-0.701259523	4.014408
0.44	10	0.025063	-1.958888	-0.861910667	3.837242
0.48	11	0.027569	-1.917788	-0.92053815	3.67791
0.59	12	0.030075	-1.879689	-1.109016557	3.533231
0.74	13	0.032581	-1.844137	-1.36466133	3.400841
0.8	14	0.035088	-1.810777	-1.448621333	3.278912
0.81	15	0.037594	-1.779317	-1.441246968	3.16597
0.86	16	0.0401	-1.749522	-1.50458909	3.060828
1.16	17	0.042607	-1.72121	-1.996603169	2.962563
1.23	18	0.045113	-1.694207	-2.083874278	2.870336
1.29	19	0.047619	-1.668391	-2.152224033	2.783528
1.32	20	0.050125	-1.643639	-2.169603249	2.701549
1.4	21	0.052632	-1.619856	-2.267797754	2.623932
1.9	22	0.055138	-1.596954	-3.034213478	2.550264
2.05	23	0.057644	-1.574863	-3.228468813	2.480193
2.26	24	0.06015	-1.553512	-3.510938132	2.413401
2.85	25	0.062657	-1.532849	-4.368618875	2.349625
2.98	26	0.065163	-1.512817	-4.508194979	2.288616
2.98	27	0.067669	-1.493377	-4.450262441	2.230174
3.04	28	0.070175	-1.474486	-4.482438817	2.17411
3.13	29	0.072682	-1.456106	-4.557610418	2.120243
3.15	30	0.075188	-1.438207	-4.530351134	2.068439
3.2	31	0.077694	-1.420754	-4.546411219	2.018541
3.22	32	0.080201	-1.403723	-4.519988761	1.970439
3.22	33	0.082707	-1.387093	-4.466439805	1.924027
3.26	34	0.085213	-1.370836	-4.468924999	1.879191
3.305	35	0.087719	-1.354933	-4.478054802	1.835844
3.49	36	0.090226	-1.339367	-4.67439213	1.793905
3.5	37	0.092732	-1.32412	-4.634418929	1.753293
3.6	38	0.095238	-1.309172	-4.713019734	1.713932
3.74	39	0.097744	-1.294511	-4.841471491	1.675759
3.8	40	0.100251	-1.280125	-4.864475613	1.63872
3.8	41	0.102757	-1.265998	-4.810794053	1.602752
3.95	42	0.105263	-1.25212	-4.945872206	1.567803
4	43	0.107769	-1.238477	-4.953908501	1.533826
4.02	44	0.110276	-1.225062	-4.924749555	1.500777
4.07	45	0.112782	-1.211865	-4.932291813	1.468618
4.09	46	0.115288	-1.198875	-4.9034006	1.437302
4.1	47	0.117794	-1.186086	-4.8629513	1.406799
4.13	48	0.120301	-1.173485	-4.846491538	1.377066
4.2	49	0.122807	-1.16107	-4.876494131	1.348084
4.25	50	0.125313	-1.148828	-4.882519988	1.319806
4.26	51	0.12782	-1.136759	-4.842594353	1.292222
4.3	52	0.130326	-1.124852	-4.836862217	1.265291
4.33	53	0.132832	-1.113103	-4.819737205	1.238999
4.39	54	0.135338	-1.101505	-4.835606728	1.213313
4.4	55	0.137845	-1.090054	-4.796239409	1.188219
4.54	56	0.140351	-1.078745	-4.897501594	1.16369
4.6	57	0.142857	-1.067569	-4.910819371	1.139704
4.6	58	0.145363	-1.056528	-4.860029549	1.116252

Nitrate - normal

$$5624942 = (\text{sum of } M_i \cdot X_i)^2$$

$$397 = \text{count} - 1$$

$$38.05495 = \text{standard deviation}^2$$

$$387.7493 = \text{sum of } M_i^2$$

$$0.96 = W \text{ statistic}$$

0.976 is acceptable low value

Fails Shapiro-Francia test

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
4.725	59	0.14787	-1.045614	-4.940527219	1.093309
4.8	60	0.150376	-1.034823	-4.967150744	1.070859
4.9	61	0.152882	-1.02415	-5.018335742	1.048884
4.9	62	0.155388	-1.013593	-4.966606639	1.027371
5	63	0.157895	-1.003148	-5.015738225	1.006305
5.1	64	0.160401	-0.992811	-5.063337312	0.985674
5.1	65	0.162907	-0.982579	-5.011155054	0.965462
5.14	66	0.165414	-0.97245	-4.998392615	0.945659
5.2	67	0.16792	-0.962418	-5.004574632	0.926249
5.3	68	0.170426	-0.952482	-5.048154435	0.907222
5.4	69	0.172932	-0.942641	-5.090262675	0.888573
5.4	70	0.175439	-0.932889	-5.037601568	0.870282
5.5	71	0.177945	-0.923226	-5.077741889	0.852346
5.6	72	0.180451	-0.913647	-5.116420652	0.83475
5.6	73	0.182957	-0.904151	-5.063247954	0.81749
5.69	74	0.185464	-0.894738	-5.091060075	0.800556
5.8	75	0.18797	-0.885402	-5.135332685	0.783937
5.9	76	0.190476	-0.876144	-5.169246833	0.767627
5.9	77	0.192982	-0.866958	-5.115050044	0.751616
5.95	78	0.195489	-0.857847	-5.10418829	0.735901
5.95	79	0.197995	-0.848804	-5.050384516	0.720468
6.1	80	0.200501	-0.839832	-5.122974926	0.705318
6.2	81	0.203008	-0.830926	-5.151739515	0.690438
6.2	82	0.205514	-0.822085	-5.096929726	0.675824
6.2	83	0.20802	-0.813311	-5.042528755	0.661475
6.39	84	0.210526	-0.804596	-5.141367524	0.647374
6.4	85	0.213033	-0.795942	-5.094028893	0.633524
6.45	86	0.215539	-0.78735	-5.078404683	0.619919
6.45	87	0.218045	-0.778812	-5.023335348	0.606548
6.6	88	0.220551	-0.770333	-5.084197255	0.593413
6.6	89	0.223058	-0.761906	-5.028582564	0.580501
6.6	90	0.225564	-0.753537	-4.973343039	0.567818
6.6	91	0.22807	-0.745217	-4.91843366	0.555349
6.69	92	0.230576	-0.73695	-4.930194928	0.543095
6.8	93	0.233083	-0.728733	-4.955381883	0.531051
6.8	94	0.235589	-0.720563	-4.899829037	0.519211
6.8	95	0.238095	-0.712444	-4.844616342	0.507576
6.83	96	0.240602	-0.70437	-4.810843961	0.496136
6.85	97	0.243108	-0.696341	-4.769935686	0.484891
6.865	98	0.245614	-0.688357	-4.725569084	0.473835
6.9	99	0.24812	-0.680416	-4.694868494	0.462966
6.92	100	0.250627	-0.672519	-4.653831729	0.452282
6.945	101	0.253133	-0.664663	-4.616086449	0.441777
6.95	102	0.255639	-0.656848	-4.565096674	0.43145
6.95	103	0.258145	-0.649073	-4.511060126	0.421296
7	104	0.260652	-0.641337	-4.489359071	0.411313
7.005	105	0.263158	-0.63364	-4.438651081	0.4015
7.09	106	0.265664	-0.62598	-4.438199562	0.391851
7.15	107	0.26817	-0.618356	-4.421247922	0.382365
7.15	108	0.270677	-0.610767	-4.366981329	0.373036
7.2	109	0.273183	-0.603214	-4.343143701	0.363868
7.2	110	0.275689	-0.595696	-4.289013305	0.354854
7.2	111	0.278195	-0.588211	-4.235120286	0.345992
7.2	112	0.280702	-0.580758	-4.181456461	0.33728
7.225	113	0.283208	-0.573338	-4.142363451	0.328716
7.25	114	0.285714	-0.565949	-4.103130209	0.320298
7.25	115	0.288221	-0.558591	-4.049786071	0.312024
7.28	116	0.290727	-0.551263	-4.01319412	0.303891

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
7.28	117	0.293233	-0.543964	-3.960059621	0.295897
7.35	118	0.295739	-0.536695	-3.944708965	0.288042
7.4	119	0.298246	-0.529453	-3.917954018	0.280321
7.4	120	0.300752	-0.522239	-3.864566224	0.272733
7.4	121	0.303258	-0.515053	-3.811388751	0.265279
7.45	122	0.305764	-0.507893	-3.7837994	0.257955
7.5	123	0.308271	-0.500759	-3.755690159	0.250759
7.5	124	0.310777	-0.493649	-3.702365348	0.243689
7.55	125	0.313283	-0.486566	-3.673573474	0.236746
7.56	126	0.315789	-0.479506	-3.625065892	0.229926
7.6	127	0.318296	-0.47247	-3.590771939	0.223228
7.71	128	0.320802	-0.465457	-3.588670779	0.21665
7.715	129	0.323308	-0.458467	-3.537074326	0.210192
7.735	130	0.325815	-0.4515	-3.492356018	0.203853
7.8	131	0.328321	-0.444554	-3.467522674	0.197628
7.8	132	0.330827	-0.437631	-3.413519153	0.191521
7.8	133	0.333333	-0.430728	-3.359675247	0.185526
7.85	134	0.33584	-0.423845	-3.327183208	0.179645
7.9	135	0.338346	-0.416982	-3.294155559	0.173874
8	136	0.340852	-0.410139	-3.281111276	0.168214
8	137	0.343358	-0.403315	-3.226523404	0.162663
8.01	138	0.345865	-0.39651	-3.176046152	0.15722
8.035	139	0.348371	-0.389723	-3.131424523	0.151884
8.08	140	0.350877	-0.382954	-3.094269232	0.146654
8.09	141	0.353383	-0.376201	-3.043467018	0.141527
8.1	142	0.35589	-0.369467	-2.992686291	0.136506
8.1	143	0.358396	-0.36275	-2.938272473	0.131587
8.1	144	0.360902	-0.356049	-2.883996785	0.126771
8.11	145	0.363409	-0.349363	-2.83333444	0.122055
8.12	146	0.365915	-0.342693	-2.782667616	0.117439
8.16	147	0.368421	-0.336038	-2.742068682	0.112921
8.17	148	0.370927	-0.329399	-2.691185887	0.108503
8.18	149	0.373434	-0.322773	-2.6402819	0.104182
8.2	150	0.37594	-0.316162	-2.592528062	0.099958
8.215	151	0.378446	-0.309565	-2.543074106	0.09583
8.37	152	0.380952	-0.30298	-2.535942349	0.091797
8.4	153	0.383459	-0.29641	-2.489844064	0.087859
8.4	154	0.385965	-0.289851	-2.434751877	0.084014
8.4	155	0.388471	-0.283305	-2.379764737	0.080262
8.45	156	0.390977	-0.276773	-2.338730837	0.076603
8.5	157	0.393484	-0.270251	-2.297130663	0.073035
8.51	158	0.39599	-0.26374	-2.244425878	0.069559
8.57	159	0.398496	-0.257241	-2.204559496	0.066173
8.6	160	0.401003	-0.250753	-2.156479013	0.062877
8.64	161	0.403509	-0.244275	-2.110540299	0.059671
8.75	162	0.406015	-0.237808	-2.080818717	0.056553
8.8	163	0.408521	-0.23135	-2.035883881	0.053523
8.8	164	0.411028	-0.224902	-1.979138688	0.050581
8.8	165	0.413534	-0.218464	-1.922483534	0.047727
8.81	166	0.41604	-0.212035	-1.868028767	0.044959
8.81	167	0.418546	-0.205614	-1.81145947	0.042277
8.84	168	0.421053	-0.199202	-1.760946361	0.039681
8.9	169	0.423559	-0.192797	-1.71589295	0.037171
8.91	170	0.426065	-0.186401	-1.660832368	0.034745
8.92	171	0.428571	-0.180012	-1.605704711	0.032404
8.95	172	0.431078	-0.173632	-1.55400312	0.030148
8.95	173	0.433584	-0.167257	-1.496952052	0.027975
9	174	0.43609	-0.16089	-1.448006515	0.025885

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
9	175	0.438596	-0.154529	-1.390759508	0.023879
9	176	0.441103	-0.148174	-1.33356366	0.021955
9	177	0.443609	-0.141825	-1.276429202	0.020114
9.1	178	0.446115	-0.135483	-1.232894192	0.018356
9.2	179	0.448622	-0.129145	-1.188132501	0.016678
9.2	180	0.451128	-0.122812	-1.129874818	0.015083
9.2	181	0.453634	-0.116485	-1.071658971	0.013569
9.21	182	0.45614	-0.110163	-1.014597046	0.012136
9.23	183	0.458647	-0.103844	-0.958478563	0.010784
9.3	184	0.461153	-0.09753	-0.907025878	0.009512
9.3	185	0.463659	-0.091219	-0.848335844	0.008321
9.34	186	0.466165	-0.084913	-0.79308461	0.00721
9.4	187	0.468672	-0.07861	-0.738933068	0.00618
9.4	188	0.471178	-0.072309	-0.679708137	0.005229
9.4	189	0.473684	-0.066011	-0.620504579	0.004357
9.5	190	0.47619	-0.059717	-0.56731551	0.003566
9.6	191	0.478697	-0.053425	-0.512878614	0.002854
9.6	192	0.481203	-0.047135	-0.452491804	0.002222
9.6	193	0.483709	-0.040845	-0.392115908	0.001668
9.6	194	0.486216	-0.034559	-0.331761839	0.001194
9.6	195	0.488722	-0.028274	-0.271429599	0.000799
9.65	196	0.491228	-0.021989	-0.212196824	0.000484
9.7	197	0.493734	-0.015707	-0.152357643	0.000247
9.7	198	0.496241	-0.009424	-0.091407969	8.88E-05
9.8	199	0.498747	-0.003141	-0.03078344	9.87E-06
9.8	200	0.501253	0.003141	0.03078344	9.87E-06
9.82	201	0.503759	0.009424	0.092538789	8.88E-05
9.9	202	0.506266	0.015707	0.155499038	0.000247
9.9	203	0.508772	0.021989	0.217694151	0.000484
10	204	0.511278	0.028274	0.282739165	0.000799
10	205	0.513784	0.034559	0.345585249	0.001194
10	206	0.516291	0.040845	0.408454071	0.001668
10.035	207	0.518797	0.047135	0.472995339	0.002222
10.05	208	0.521303	0.053425	0.536919799	0.002854
10.075	209	0.52381	0.059717	0.601653028	0.003566
10.1	210	0.526316	0.066011	0.666712367	0.004357
10.1	211	0.528822	0.072309	0.7303247	0.005229
10.2	212	0.531328	0.07861	0.801820988	0.00618
10.3	213	0.533835	0.084913	0.874600801	0.00721
10.31	214	0.536341	0.091219	0.940466941	0.008321
10.4	215	0.538847	0.09753	1.014308509	0.009512
10.4	216	0.541353	0.103844	1.079975846	0.010784
10.4	217	0.54386	0.110163	1.145690476	0.012136
10.5	218	0.546366	0.116485	1.223089043	0.013569
10.5	219	0.548872	0.122812	1.289531042	0.015083
10.5	220	0.551378	0.129145	1.356020789	0.016678
10.6	221	0.553885	0.135483	1.436118509	0.018356
10.6	222	0.556391	0.141825	1.503349949	0.020114
10.6	223	0.558897	0.148174	1.570641643	0.021955
10.65	224	0.561404	0.154529	1.645732084	0.023879
10.7	225	0.56391	0.16089	1.721518856	0.025885
10.7	226	0.566416	0.167257	1.789652174	0.027975
10.8	227	0.568922	0.173632	1.875221642	0.030148
10.8	228	0.571429	0.180012	1.94412678	0.032404
10.9	229	0.573935	0.186401	2.031770236	0.034745
11	230	0.576441	0.192797	2.120766567	0.037171
11	231	0.578947	0.199202	2.191222848	0.039681
11	232	0.581454	0.205614	2.261754162	0.042277

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
11.1	233	0.58396	0.212035	2.353589025	0.044959
11.1	234	0.586466	0.218464	2.424950821	0.047727
11.2	235	0.588972	0.224902	2.518903784	0.050581
11.2	236	0.591479	0.23135	2.591124939	0.053523
11.25	237	0.593985	0.237808	2.675338351	0.056553
11.35	238	0.596491	0.244275	2.772526898	0.059671
11.35	239	0.598997	0.250753	2.846050791	0.062877
11.4	240	0.601504	0.257241	2.932552889	0.066173
11.4	241	0.60401	0.26374	3.00663396	0.069559
11.5	242	0.606516	0.270251	3.107882662	0.073035
11.5	243	0.609023	0.276773	3.182888122	0.076603
11.5	244	0.611529	0.283305	3.258011247	0.080262
11.6	245	0.614035	0.289851	3.362276402	0.084014
11.6	246	0.616541	0.29641	3.438356089	0.087859
11.7	247	0.619048	0.30298	3.544865649	0.091797
11.7	248	0.621554	0.309565	3.621907126	0.09583
11.7	249	0.62406	0.316162	3.699094918	0.099958
11.8	250	0.626566	0.322773	3.808719612	0.104182
11.9	251	0.629073	0.329399	3.919842356	0.108503
11.95	252	0.631579	0.336038	4.015652053	0.112921
12	253	0.634085	0.342693	4.112316674	0.117439
12	254	0.636591	0.349363	4.192356755	0.122055
12	255	0.639098	0.356049	4.27258783	0.126771
12	256	0.641604	0.36275	4.352996257	0.131587
12	257	0.64411	0.369467	4.43360932	0.136506
12.1	258	0.646617	0.376201	4.552033488	0.141527
12.2	259	0.649123	0.382954	4.672040177	0.146654
12.2	260	0.651629	0.389723	4.754620932	0.151884
12.3	261	0.654135	0.39651	4.877074616	0.15722
12.3	262	0.656642	0.403315	4.960779734	0.162663
12.3	263	0.659148	0.410139	5.044708587	0.168214
12.3	264	0.661654	0.416982	5.128875159	0.173874
12.4	265	0.66416	0.423845	5.255677934	0.179645
12.4	266	0.666667	0.430728	5.341022188	0.185526
12.45	267	0.669173	0.437631	5.448501724	0.191521
12.6	268	0.671679	0.444554	5.601382782	0.197628
12.7	269	0.674185	0.4515	5.734055776	0.203853
12.7	270	0.676692	0.458467	5.82253324	0.210192
12.8	271	0.679198	0.465457	5.957845133	0.21665
12.8	272	0.681704	0.47247	6.047615898	0.223228
12.8	273	0.684211	0.479506	6.137677701	0.229926
12.9	274	0.686717	0.486566	6.276701697	0.236746
13	275	0.689223	0.493649	6.417433269	0.243689
13	276	0.691729	0.500759	6.509862942	0.250759
13.1	277	0.694236	0.507893	6.653392234	0.257955
13.1	278	0.696742	0.515053	6.747188195	0.265279
13.2	279	0.699248	0.522239	6.893550562	0.272733
13.3	280	0.701754	0.529453	7.041728168	0.280321
13.3	281	0.704261	0.536695	7.138044793	0.288042
13.4	282	0.706767	0.543964	7.289120731	0.295897
13.4	283	0.709273	0.551263	7.386923244	0.303891
13.45	284	0.711779	0.558591	7.513051401	0.312024
13.5	285	0.714286	0.565949	7.640311424	0.320298
13.5	286	0.716792	0.573338	7.740056276	0.328716
13.7	287	0.719298	0.580758	7.956382433	0.337728
13.7	288	0.721805	0.588211	8.058492767	0.345992
13.725	289	0.724311	0.595696	8.175931612	0.354854
14	290	0.726817	0.603214	8.44500164	0.363868

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
14	291	0.729323	0.610767	8.550732673	0.373036
14.03	292	0.73183	0.618356	8.67553963	0.382365
14.1	293	0.734336	0.62598	8.826320709	0.391851
14.15	294	0.736842	0.63364	8.966011819	0.4015
14.2	295	0.739348	0.641337	9.106985544	0.411313
14.3	296	0.741855	0.649073	9.281749612	0.421296
14.3	297	0.744361	0.656848	9.392932725	0.43145
14.4	298	0.746867	0.664663	9.571151168	0.441777
14.5	299	0.749373	0.672519	9.751526022	0.452282
14.5	300	0.75188	0.680416	9.866027995	0.462966
14.5	301	0.754386	0.688357	9.981172866	0.473835
14.5	302	0.756892	0.696341	10.09694415	0.484891
14.6	303	0.759398	0.70437	10.28379529	0.496136
14.6	304	0.761905	0.712444	10.40167626	0.507576
14.65	305	0.764411	0.720563	10.55624932	0.519211
14.75	306	0.766917	0.728733	10.74880629	0.531051
14.8	307	0.769424	0.73695	10.90685873	0.543095
15	308	0.77193	0.745217	11.17825832	0.555349
15	309	0.774436	0.753537	11.30305236	0.567818
15	310	0.776942	0.761906	11.42859674	0.580501
15	311	0.779449	0.770333	11.55499376	0.593413
15.1	312	0.781955	0.778812	11.7600564	0.606548
15.1	313	0.784461	0.78735	11.88897841	0.619919
15.1	314	0.786967	0.795942	12.01872442	0.633524
15.15	315	0.789474	0.804596	12.18962723	0.647374
15.2	316	0.79198	0.813311	12.36232856	0.661475
15.2	317	0.794486	0.822085	12.49569868	0.675824
15.2	318	0.796992	0.830926	12.63007107	0.690438
15.2	319	0.799499	0.839832	12.76544572	0.705318
15.2	320	0.802005	0.848804	12.90182263	0.720468
15.3	321	0.804511	0.857847	13.1250556	0.735901
15.4	322	0.807018	0.866958	13.35114757	0.751616
15.4	323	0.809524	0.876144	13.49261038	0.767627
15.5	324	0.81203	0.885402	13.7237339	0.783937
15.6	325	0.814536	0.894738	13.95791514	0.800556
15.6	326	0.817043	0.904151	14.10476216	0.81749
15.74	327	0.819549	0.913647	14.38079662	0.83475
15.9	328	0.822055	0.923226	14.67929019	0.852346
15.9	329	0.824561	0.932889	14.83293795	0.870282
16	330	0.827068	0.942641	15.08225978	0.888573
16.05	331	0.829574	0.952482	15.2873356	0.907222
16.1	332	0.83208	0.962418	15.494933	0.926249
16.4	333	0.834586	0.97245	15.94817877	0.945659
16.4	334	0.837093	0.982579	16.11430253	0.965462
16.6	335	0.839599	0.992811	16.48066655	0.985674
16.8	336	0.842105	1.003148	16.85288044	1.006305
16.8	337	0.844612	1.013593	17.02836562	1.027371
16.9	338	0.847118	1.02415	17.30813756	1.048884
16.9	339	0.849624	1.034823	17.48850991	1.070859
17	340	0.85213	1.045614	17.77544185	1.093309
17	341	0.854637	1.056528	17.96097877	1.116252
17.2	342	0.857143	1.067569	18.36219417	1.139704
17.2	343	0.859649	1.078745	18.55441133	1.16369
17.3	344	0.862155	1.090054	18.85794131	1.188219
17.3	345	0.864662	1.101505	19.05603563	1.213313
17.3	346	0.867168	1.113103	19.25668676	1.238999
17.39	347	0.869674	1.124852	19.56117069	1.265291
17.4	348	0.87218	1.136759	19.77961074	1.292222

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
17.8	349	0.874687	1.148828	20.44914254	1.319806
18	350	0.877193	1.16107	20.89926056	1.348084
18	351	0.879699	1.173485	21.12272341	1.377066
18.4	352	0.882206	1.186086	21.82397657	1.406799
18.5	353	0.884712	1.198875	22.17919587	1.437302
18.63	354	0.887218	1.211865	22.57705073	1.468618
18.67	355	0.889724	1.225062	22.871909	1.500777
18.9	356	0.892231	1.238477	23.40721767	1.533826
19	357	0.894737	1.25212	23.79027137	1.567803
19.3	358	0.897243	1.265998	24.43376979	1.602752
19.5	359	0.899749	1.280125	24.96244065	1.63872
19.6	360	0.902256	1.294511	25.37241744	1.675759
19.6	361	0.904762	1.309172	25.65977411	1.713932
19.65	362	0.907268	1.32412	26.01895198	1.753293
19.8	363	0.909774	1.339367	26.51947398	1.793905
20	364	0.912281	1.354933	27.09866749	1.835844
20.1	365	0.914787	1.370836	27.55380137	1.879191
20.75	366	0.917293	1.387093	28.78218197	1.924027
21	367	0.919799	1.403723	29.47818757	1.970439
21	368	0.922306	1.420754	29.83582363	2.018541
21.48	369	0.924812	1.438207	30.89268012	2.068439
21.5	370	0.927318	1.456106	31.30626965	2.120243
22	371	0.929825	1.474486	32.43870196	2.17411
22.35	372	0.932331	1.493377	33.3769683	2.230174
22.4	373	0.934837	1.512817	33.8871032	2.288616
22.9	374	0.937343	1.532849	35.10223587	2.349625
22.9	375	0.93985	1.553512	35.57543505	2.413401
23	376	0.942356	1.574863	36.22184522	2.480193
23	377	0.944862	1.596954	36.72995263	2.550264
23.2	378	0.947368	1.619856	37.5806485	2.623932
23.7	379	0.949875	1.643639	38.95424015	2.701549
23.8	380	0.952381	1.668391	39.70769922	2.783528
23.8	381	0.954887	1.694207	40.32212019	2.870336
23.8	382	0.957393	1.72121	40.96478915	2.962563
24	383	0.9599	1.749522	41.98853276	3.060828
24	384	0.962406	1.779317	42.70361387	3.16597
24.3	385	0.964912	1.810777	44.00187299	3.278912
24.4	386	0.967419	1.844137	44.99694114	3.400841
24.8	387	0.969925	1.879689	46.61628918	3.533231
24.8	388	0.972431	1.917788	47.56113776	3.67791
24.925	389	0.974937	1.958888	48.82528037	3.837242
25	390	0.977444	2.003599	50.08996595	4.014408
25.18	391	0.97995	2.052711	51.68727184	4.213624
25.5	392	0.982456	2.107345	53.73728982	4.440902
26	393	0.984962	2.16909	56.39634765	4.704953
26.9	394	0.987469	2.240431	60.26759547	5.019531
31	395	0.989975	2.325414	72.08784154	5.407551
31.3	396	0.992481	2.43148	76.10530884	5.912093
33.2	397	0.994987	2.574961	85.48871847	6.630426
33.2	398	0.997494	2.806264	93.16796786	7.875118

Table B-47. Nitrate Combined Background Data Set, Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
-2.9957323	1	0.002506	-2.806264	8.406815909	7.875118
-2.9957323	2	0.005013	-2.574961	7.713894968	6.630426
-2.9957323	3	0.007519	-2.43148	7.284061657	5.912093
-2.9957323	4	0.010025	-2.325414	6.966318498	5.407551
-2.9957323	5	0.012531	-2.240431	6.711731628	5.019531
-2.9957323	6	0.015038	-2.16909	6.498013798	4.704953
-2.9957323	7	0.017544	-2.107345	6.313040526	4.440902
-1.5141277	8	0.02005	-2.052711	3.108067185	4.213624
-1.0498221	9	0.022556	-2.003599	2.103422179	4.014408
-0.8209806	10	0.025063	-1.958888	1.608208852	3.837242
-0.7339692	11	0.027569	-1.917788	1.407597139	3.67791
-0.5276327	12	0.030075	-1.879689	0.991785504	3.533231
-0.3011051	13	0.032581	-1.844137	0.555279022	3.400841
-0.2231436	14	0.035088	-1.810777	0.404063136	3.278912
-0.210721	15	0.037594	-1.779317	0.374939565	3.16597
-0.1508229	16	0.0401	-1.749522	0.263867994	3.060828
0.14842001	17	0.042607	-1.72121	-0.255461942	2.962563
0.20701417	18	0.045113	-1.694207	-0.350724799	2.870336
0.25464222	19	0.047619	-1.668391	-0.424842715	2.783528
0.27763174	20	0.050125	-1.643639	-0.456326301	2.701549
0.33647224	21	0.052632	-1.619856	-0.545036416	2.623932
0.64185389	22	0.055138	-1.596954	-1.025011427	2.550264
0.71783979	23	0.057644	-1.574863	-1.130499212	2.480193
0.81536481	24	0.06015	-1.553512	-1.266679387	2.413401
1.04731899	25	0.062657	-1.532849	-1.605381588	2.349625
1.0919233	26	0.065163	-1.512817	-1.651880249	2.288616
1.0919233	27	0.067669	-1.493377	-1.630652769	2.230174
1.11185752	28	0.070175	-1.474486	-1.639418844	2.17411
1.141033	29	0.072682	-1.456106	-1.661464508	2.120243
1.14740245	30	0.075188	-1.438207	-1.650201906	2.068439
1.16315081	31	0.077694	-1.420754	-1.652550591	2.018541
1.16938136	32	0.080201	-1.403723	-1.641487765	1.970439
1.16938136	33	0.082707	-1.387093	-1.622040823	1.924027
1.1817272	34	0.085213	-1.370836	-1.619954051	1.879191
1.19543647	35	0.087719	-1.354933	-1.619736775	1.835844
1.24990174	36	0.090226	-1.339367	-1.674077604	1.793905
1.25276297	37	0.092732	-1.32412	-1.658808118	1.753293
1.28093385	38	0.095238	-1.309172	-1.676962915	1.713932
1.31908561	39	0.097744	-1.294511	-1.707570958	1.675759
1.33500107	40	0.100251	-1.280125	-1.708968456	1.63872
1.33500107	41	0.102757	-1.265998	-1.690109261	1.602752
1.37371558	42	0.105263	-1.25212	-1.720056127	1.567803
1.38629436	43	0.107769	-1.238477	-1.716893855	1.533826
1.3912819	44	0.110276	-1.225062	-1.704406699	1.500777
1.403643	45	0.112782	-1.211865	-1.701026259	1.468618
1.40854497	46	0.115288	-1.198875	-1.688669988	1.437302
1.41098697	47	0.117794	-1.186086	-1.673551448	1.406799
1.41827741	48	0.120301	-1.173485	-1.664326744	1.377066
1.43508453	49	0.122807	-1.16107	-1.666233635	1.348084
1.44691898	50	0.125313	-1.148828	-1.662261378	1.319806
1.44926916	51	0.12782	-1.136759	-1.647470106	1.292222
1.45861502	52	0.130326	-1.124852	-1.640725557	1.265291
1.46556754	53	0.132832	-1.113103	-1.631328039	1.238999
1.47932923	54	0.135338	-1.101505	-1.629488466	1.213313
1.48160454	55	0.137845	-1.090054	-1.615029565	1.188219
1.51292701	56	0.140351	-1.078745	-1.632062214	1.16369
1.5260563	57	0.142857	-1.067569	-1.629171056	1.139704

Nitrate - lognormal

$$108531.3 = (\text{sum of } M_i * X_i)^2$$

$$397 = \text{count} - 1$$

$$0.977719 = \text{standard deviation}^2$$

$$387.7493 = \text{sum of } M_i^2$$

$$0.72 = W \text{ statistic}$$

0.976 is acceptable low value

Falls Shapiro-Francia test



Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
1.5260563	58	0.145363	-1.056528	-1.612321463	1.116252
1.55286756	59	0.14787	-1.045614	-1.623700413	1.093309
1.56861592	60	0.150376	-1.034823	-1.623239942	1.070859
1.58923521	61	0.152882	-1.02415	-1.627615476	1.048884
1.58923521	62	0.155388	-1.013593	-1.610837984	1.027371
1.60943791	63	0.157895	-1.003148	-1.614503852	1.006305
1.62924054	64	0.160401	-0.992811	-1.617528317	0.985674
1.62924054	65	0.162907	-0.982579	-1.600858228	0.965462
1.63705308	66	0.165414	-0.97245	-1.591952144	0.945659
1.64865863	67	0.16792	-0.962418	-1.586699064	0.926249
1.66770682	68	0.170426	-0.952482	-1.588460676	0.907222
1.68639895	69	0.172932	-0.942641	-1.589669194	0.888573
1.68639895	70	0.175439	-0.932889	-1.573223336	0.870282
1.70474809	71	0.177945	-0.923226	-1.573867418	0.852346
1.7227666	72	0.180451	-0.913647	-1.57399975	0.83475
1.7227666	73	0.182957	-0.904151	-1.557641866	0.81749
1.73871025	74	0.185464	-0.894738	-1.555690391	0.800556
1.75785792	75	0.18797	-0.885402	-1.556411245	0.783937
1.77495235	76	0.190476	-0.876144	-1.55511302	0.767627
1.77495235	77	0.192982	-0.866958	-1.538808492	0.751616
1.78339122	78	0.195489	-0.857847	-1.5298764	0.735901
1.78339122	79	0.197995	-0.848804	-1.513749815	0.720468
1.80828877	80	0.200501	-0.839832	-1.518658694	0.705318
1.82454929	81	0.203008	-0.830926	-1.516064949	0.690438
1.82454929	82	0.205514	-0.822085	-1.499935407	0.675824
1.82454929	83	0.20802	-0.813311	-1.483926173	0.661475
1.85473427	84	0.210526	-0.804596	-1.492311507	0.647374
1.85629799	85	0.213033	-0.795942	-1.477505562	0.633524
1.86408013	86	0.215539	-0.78735	-1.467682677	0.619919
1.86408013	87	0.218045	-0.778812	-1.451767382	0.606548
1.88706965	88	0.220551	-0.770333	-1.453671868	0.593413
1.88706965	89	0.223058	-0.761906	-1.437770535	0.580501
1.88706965	90	0.225564	-0.753537	-1.42197647	0.567818
1.88706965	91	0.22807	-0.745217	-1.4062768	0.555349
1.90061387	92	0.230576	-0.73695	-1.400657232	0.543095
1.91692261	93	0.233083	-0.728733	-1.396924056	0.531051
1.91692261	94	0.235589	-0.720563	-1.381263688	0.519211
1.91692261	95	0.238095	-0.712444	-1.365699208	0.507576
1.92132467	96	0.240602	-0.70437	-1.353322577	0.496136
1.92424865	97	0.243108	-0.696341	-1.339933185	0.484891
1.92643604	98	0.245614	-0.688357	-1.32607525	0.473835
1.93152141	99	0.24812	-0.680416	-1.314237539	0.462966
1.93441577	100	0.250627	-0.672519	-1.300931429	0.452282
1.93802198	101	0.253133	-0.664663	-1.288132035	0.441777
1.93874166	102	0.255639	-0.656848	-1.273459439	0.43145
1.93874166	103	0.258145	-0.649073	-1.25838564	0.421296
1.94591015	104	0.260652	-0.641337	-1.247984197	0.411313
1.94662418	105	0.263158	-0.63364	-1.233459746	0.4015
1.95868534	106	0.265664	-0.62598	-1.226098226	0.391851
1.96711236	107	0.26817	-0.618356	-1.216376422	0.382365
1.96711236	108	0.270677	-0.610767	-1.201446564	0.373036
1.97408103	109	0.273183	-0.603214	-1.190794107	0.363868
1.97408103	110	0.275689	-0.595696	-1.175952748	0.354854
1.97408103	111	0.278195	-0.588211	-1.161176472	0.345992
1.97408103	112	0.280702	-0.580758	-1.146463036	0.33728
1.97754723	113	0.283208	-0.573338	-1.133801991	0.328716
1.98100147	114	0.285714	-0.565949	-1.121145789	0.320298

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
1.98100147	115	0.288221	-0.558591	-1.106569952	0.312024
1.98513086	116	0.290727	-0.551263	-1.094329053	0.303891
1.98513086	117	0.293233	-0.543964	-1.079840188	0.295897
1.99470031	118	0.295739	-0.536695	-1.070545879	0.288042
2.00148	119	0.298246	-0.529453	-1.059690082	0.280321
2.00148	120	0.300752	-0.522239	-1.045250271	0.272733
2.00148	121	0.303258	-0.515053	-1.030867346	0.265279
2.00821403	122	0.305764	-0.507893	-1.01995692	0.257955
2.01490302	123	0.308271	-0.500759	-1.008980193	0.250759
2.01490302	124	0.310777	-0.493649	-0.994654283	0.243689
2.02154756	125	0.313283	-0.486566	-0.983616358	0.236746
2.02287119	126	0.315789	-0.479506	-0.969979015	0.229926
2.02814825	127	0.318296	-0.47247	-0.958239186	0.223228
2.04251819	128	0.320802	-0.465457	-0.950703675	0.21665
2.04316649	129	0.323308	-0.458467	-0.936724786	0.210192
2.04575548	130	0.325815	-0.4515	-0.923659531	0.203853
2.05412373	131	0.328321	-0.444554	-0.913169311	0.197628
2.05412373	132	0.330827	-0.437631	-0.898947527	0.191521
2.05412373	133	0.333333	-0.430728	-0.884767777	0.185526
2.06051353	134	0.33584	-0.423845	-0.873338347	0.179645
2.06686276	135	0.338346	-0.416982	-0.861843989	0.173874
2.07944154	136	0.340852	-0.410139	-0.852859886	0.168214
2.07944154	137	0.343358	-0.403315	-0.83867085	0.162663
2.08069076	138	0.345865	-0.39651	-0.825014967	0.15722
2.083807	139	0.348371	-0.389723	-0.812107572	0.151884
2.08939187	140	0.350877	-0.382954	-0.800141211	0.146654
2.09062873	141	0.353383	-0.376201	-0.786496859	0.141527
2.09186406	142	0.35589	-0.369467	-0.772875667	0.136506
2.09186406	143	0.358396	-0.36275	-0.758823036	0.131587
2.09186406	144	0.360902	-0.356049	-0.744806078	0.126771
2.09309787	145	0.363409	-0.349363	-0.731251082	0.122055
2.09433015	146	0.365915	-0.342693	-0.717712401	0.117439
2.09924417	147	0.368421	-0.336038	-0.705425452	0.112921
2.10046891	148	0.370927	-0.329399	-0.691891344	0.108503
2.10169215	149	0.373434	-0.322773	-0.678369162	0.104182
2.10413415	150	0.37594	-0.316162	-0.665247176	0.099958
2.10596175	151	0.378446	-0.309565	-0.651931442	0.09583
2.12465388	152	0.380952	-0.30298	-0.64372757	0.091797
2.12823171	153	0.383459	-0.29641	-0.630829176	0.087859
2.12823171	154	0.385965	-0.289851	-0.616870969	0.084014
2.12823171	155	0.388471	-0.283305	-0.602939377	0.080262
2.13416644	156	0.390977	-0.276773	-0.590679393	0.076603
2.14006616	157	0.393484	-0.270251	-0.578354307	0.073035
2.14124194	158	0.39599	-0.26374	-0.564730767	0.069559
2.14826773	159	0.398496	-0.257241	-0.552623574	0.066173
2.1517622	160	0.401003	-0.250753	-0.539561632	0.062877
2.15640258	161	0.403509	-0.244275	-0.526756314	0.059671
2.1690537	162	0.406015	-0.237808	-0.515818004	0.056553
2.17475172	163	0.408521	-0.23135	-0.50312977	0.053523
2.17475172	164	0.411028	-0.224902	-0.48910628	0.050581
2.17475172	165	0.413534	-0.218464	-0.475105043	0.047727
2.17588744	166	0.41604	-0.212035	-0.461364396	0.044959
2.17588744	167	0.418546	-0.205614	-0.447392952	0.042277
2.17928688	168	0.421053	-0.199202	-0.434118472	0.039681
2.19605128	169	0.423559	-0.192797	-0.421464042	0.037171
2.18717424	170	0.426065	-0.186401	-0.407691333	0.034745
2.18829595	171	0.428571	-0.180012	-0.393918958	0.032404

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.19165353	172	0.431078	-0.173632	-0.380540383	0.030148
2.19165353	173	0.433584	-0.167257	-0.366569861	0.027975
2.19722458	174	0.43609	-0.16089	-0.353510611	0.025885
2.19722458	175	0.438596	-0.154529	-0.339534552	0.023879
2.19722458	176	0.441103	-0.148174	-0.325570983	0.021955
2.19722458	177	0.443609	-0.141825	-0.311622402	0.020114
2.20827441	178	0.446115	-0.135483	-0.299183374	0.018356
2.21920348	179	0.448622	-0.129145	-0.286598672	0.016678
2.21920348	180	0.451128	-0.122812	-0.272545884	0.015083
2.21920348	181	0.453634	-0.116485	-0.258503187	0.013569
2.22028985	182	0.45614	-0.110163	-0.244592782	0.012136
2.22245905	183	0.458647	-0.103844	-0.230788663	0.010784
2.2300144	184	0.461153	-0.09753	-0.217492556	0.009512
2.2300144	185	0.463659	-0.091219	-0.203419478	0.008321
2.23430625	186	0.466165	-0.084913	-0.189720974	0.00721
2.24070969	187	0.468672	-0.07861	-0.176141966	0.00618
2.24070969	188	0.471178	-0.072309	-0.16202432	0.005229
2.24070969	189	0.473684	-0.066011	-0.147911768	0.004357
2.2512918	190	0.47619	-0.059717	-0.134441343	0.003566
2.2617631	191	0.478697	-0.053425	-0.120834367	0.002854
2.2617631	192	0.481203	-0.047135	-0.106607215	0.002222
2.2617631	193	0.483709	-0.040845	-0.092382634	0.001668
2.2617631	194	0.486216	-0.034559	-0.078163196	0.001194
2.2617631	195	0.488722	-0.028274	-0.063948901	0.000799
2.26695792	196	0.491228	-0.021989	-0.049848836	0.000484
2.27212589	197	0.493734	-0.015707	-0.035688221	0.000247
2.27212589	198	0.496241	-0.009424	-0.021411383	8.88E-05
2.28238239	199	0.498747	-0.003141	-0.007169345	9.87E-06
2.28238239	200	0.501253	0.003141	0.007169345	9.87E-06
2.28442112	201	0.503759	0.009424	0.021527247	8.88E-05
2.29253476	202	0.506266	0.015707	0.036008783	0.000247
2.29253476	203	0.508772	0.021989	0.050411253	0.000484
2.30258509	204	0.511278	0.028274	0.065103099	0.000799
2.30258509	205	0.513784	0.034559	0.079573944	0.001194
2.30258509	206	0.516291	0.040845	0.094050025	0.001668
2.30607898	207	0.518797	0.047135	0.108696025	0.002222
2.30757263	208	0.521303	0.053425	0.123281735	0.002854
2.31005711	209	0.52381	0.059717	0.137950655	0.003566
2.31253542	210	0.526316	0.066011	0.152653066	0.004357
2.31253542	211	0.528822	0.072309	0.167217994	0.005229
2.32238772	212	0.531328	0.07861	0.182562668	0.00618
2.3321439	213	0.533835	0.084913	0.198028633	0.00721
2.3331143	214	0.536341	0.091219	0.212824138	0.008321
2.34180581	215	0.538847	0.09753	0.228395534	0.009512
2.34180581	216	0.541353	0.103844	0.243182087	0.010784
2.34180581	217	0.54386	0.110163	0.257979289	0.012136
2.35137526	218	0.546366	0.116485	0.273899173	0.013569
2.35137526	219	0.548872	0.122812	0.288778227	0.015083
2.35137526	220	0.551378	0.129145	0.303667974	0.016678
2.360854	221	0.553885	0.135483	0.319855295	0.018356
2.360854	222	0.556391	0.141825	0.334829221	0.020114
2.360854	223	0.558897	0.148174	0.349816567	0.021955
2.36555989	224	0.561404	0.154529	0.365547212	0.023879
2.37024374	225	0.56391	0.16089	0.381347598	0.025885
2.37024374	226	0.566416	0.167257	0.396440361	0.027975
2.37954613	227	0.568922	0.173632	0.413164482	0.030148
2.37954613	228	0.571429	0.180012	0.428346237	0.032404

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.38876279	229	0.573935	0.186401	0.445267627	0.034745
2.39789527	230	0.576441	0.192797	0.46230692	0.037171
2.39789527	231	0.578947	0.199202	0.477665719	0.039681
2.39789527	232	0.581454	0.205614	0.493040874	0.042277
2.40694511	233	0.58396	0.212035	0.51035672	0.044959
2.40694511	234	0.586466	0.218464	0.525830948	0.047727
2.41591378	235	0.588972	0.224902	0.543344139	0.050581
2.41591378	236	0.591479	0.23135	0.558922718	0.053523
2.42036813	237	0.593985	0.237808	0.575582549	0.056553
2.42921774	238	0.596491	0.244275	0.593398373	0.059671
2.42921774	239	0.598997	0.250753	0.609134545	0.062877
2.43361336	240	0.601504	0.257241	0.626026305	0.066173
2.43361336	241	0.60401	0.26374	0.641840751	0.069559
2.44234704	242	0.606516	0.270251	0.660045914	0.073035
2.44234704	243	0.609023	0.276773	0.675975423	0.076603
2.44234704	244	0.611529	0.283305	0.691929923	0.080262
2.4510051	245	0.614035	0.289851	0.710427293	0.084014
2.4510051	246	0.616541	0.29641	0.72650244	0.087859
2.45958884	247	0.619048	0.30298	0.745206154	0.091797
2.45958884	248	0.621554	0.309565	0.761401911	0.09583
2.45958884	249	0.62406	0.316162	0.777628426	0.099958
2.46809953	250	0.626566	0.322773	0.796635516	0.104182
2.4765384	251	0.629073	0.329399	0.815768077	0.108503
2.48073128	252	0.631579	0.336038	0.833619552	0.112921
2.48490665	253	0.634085	0.342693	0.851560254	0.117439
2.48490665	254	0.636591	0.349363	0.868134598	0.122055
2.48490665	255	0.639098	0.356049	0.884748493	0.126771
2.48490665	256	0.641604	0.36275	0.901399112	0.131587
2.48490665	257	0.64411	0.369467	0.918092107	0.136506
2.49320545	258	0.646617	0.376201	0.93794667	0.141527
2.50143595	259	0.649123	0.382954	0.957935186	0.146654
2.50143595	260	0.651629	0.389723	0.974867191	0.151884
2.50959926	261	0.654135	0.39651	0.995081533	0.15722
2.50959926	262	0.656642	0.403315	1.012160094	0.162663
2.50959926	263	0.659148	0.410139	1.029284305	0.168214
2.50959926	264	0.661654	0.416982	1.046457018	0.173874
2.51769647	265	0.66416	0.423845	1.067113048	0.179645
2.51769647	266	0.666667	0.430728	1.084441349	0.185526
2.52172062	267	0.669173	0.437631	1.103582262	0.191521
2.53369681	268	0.671679	0.444554	1.126365532	0.197628
2.54160199	269	0.674185	0.4515	1.147534456	0.203853
2.54160199	270	0.676692	0.458467	1.165241109	0.210192
2.54944517	271	0.679198	0.465457	1.186656211	0.21665
2.54944517	272	0.681704	0.47247	1.20453634	0.223228
2.54944517	273	0.684211	0.479506	1.222474436	0.229926
2.55722731	274	0.686717	0.486566	1.244259923	0.236746
2.56494936	275	0.689223	0.493649	1.266183949	0.243689
2.56494936	276	0.691729	0.500759	1.284420675	0.250759
2.57261223	277	0.694236	0.507893	1.306610552	0.257955
2.57261223	278	0.696742	0.515053	1.325030448	0.265279
2.58021683	279	0.699248	0.522239	1.347489029	0.272733
2.58776404	280	0.701754	0.529453	1.370100068	0.280321
2.58776404	281	0.704261	0.536695	1.388840271	0.288042
2.59525471	282	0.706767	0.543964	1.411725738	0.295897
2.59525471	283	0.709273	0.551263	1.43066771	0.303891
2.59897911	284	0.711779	0.558591	1.451766811	0.312024
2.60268969	285	0.714286	0.565949	1.47298961	0.320298

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.60268969	286	0.716792	0.573338	1.492219603	0.328716
2.61739583	287	0.719298	0.580758	1.520073155	0.33728
2.61739583	288	0.721805	0.588211	1.539581415	0.345992
2.61921899	289	0.724311	0.595696	1.560259039	0.354854
2.63905733	290	0.726817	0.603214	1.591917391	0.363868
2.63905733	291	0.729323	0.610767	1.611848124	0.373036
2.64119789	292	0.73183	0.618356	1.633201497	0.382365
2.6461748	293	0.734336	0.62598	1.656453008	0.391851
2.64971462	294	0.736842	0.63364	1.678966264	0.4015
2.65324196	295	0.739348	0.641337	1.701622269	0.411313
2.66025954	296	0.741855	0.649073	1.726703701	0.421296
2.66025954	297	0.744361	0.656848	1.747387333	0.43145
2.66722821	298	0.746867	0.664663	1.772808636	0.441777
2.67414865	299	0.749373	0.672519	1.798415872	0.452282
2.67414865	300	0.75188	0.680416	1.819532789	0.462966
2.67414865	301	0.754386	0.688357	1.840768272	0.473835
2.67414865	302	0.756892	0.696341	1.86211928	0.484891
2.68102153	303	0.759398	0.70437	1.888429902	0.496136
2.68102153	304	0.761905	0.712444	1.910076575	0.507576
2.68444034	305	0.764411	0.720563	1.934308633	0.519211
2.69124308	306	0.766917	0.728733	1.961196649	0.531051
2.69462718	307	0.769424	0.73695	1.98580527	0.543095
2.7080502	308	0.77193	0.745217	2.018085646	0.555349
2.7080502	309	0.774436	0.753537	2.040615548	0.567818
2.7080502	310	0.776942	0.761906	2.063280913	0.580501
2.7080502	311	0.779449	0.770333	2.086100212	0.593413
2.71469474	312	0.781955	0.778812	2.114235979	0.606548
2.71469474	313	0.784461	0.78735	2.137413721	0.619919
2.71469474	314	0.786967	0.795942	2.160739603	0.633524
2.71800053	315	0.789474	0.804596	2.186891966	0.647374
2.72129543	316	0.79198	0.813311	2.21325975	0.661475
2.72129543	317	0.794486	0.822085	2.237137348	0.675824
2.72129543	318	0.796992	0.830926	2.261194385	0.690438
2.72129543	319	0.799499	0.839832	2.28543086	0.705318
2.72129543	320	0.802005	0.848804	2.309846772	0.720468
2.72785283	321	0.804511	0.857847	2.340079742	0.735901
2.73436751	322	0.807018	0.866958	2.370580788	0.751616
2.73436751	323	0.809524	0.876144	2.395698405	0.767627
2.74084002	324	0.81203	0.885402	2.426745752	0.783937
2.74727091	325	0.814536	0.894738	2.458088096	0.800556
2.74727091	326	0.817043	0.904151	2.483948899	0.81749
2.75620524	327	0.819549	0.913647	2.518197398	0.83475
2.76631911	328	0.822055	0.923226	2.553937167	0.852346
2.76631911	329	0.824561	0.932889	2.580669163	0.870282
2.77258872	330	0.827068	0.942641	2.613556461	0.888573
2.77570885	331	0.829574	0.952482	2.64381263	0.907222
2.77881927	332	0.83208	0.962418	2.674386238	0.926249
2.79728133	333	0.834586	0.97245	2.720216024	0.945659
2.79728133	334	0.837093	0.982579	2.748551078	0.965462
2.8094027	335	0.839599	0.992811	2.789206567	0.985674
2.82137889	336	0.842105	1.003148	2.830259585	1.006305
2.82137889	337	0.844612	1.013593	2.85973043	1.027371
2.82731362	338	0.847118	1.02415	2.895593674	1.048884
2.82731362	339	0.849624	1.034823	2.925769367	1.070859
2.83321334	340	0.85213	1.045614	2.962448179	1.093309
2.83321334	341	0.854637	1.056528	2.993369689	1.116252
2.84490938	342	0.857143	1.067569	3.037138285	1.139704

Table B-47. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.84490938	343	0.859649	1.078745	3.068931331	1.16369
2.8507065	344	0.862155	1.090054	3.107425197	1.188219
2.8507065	345	0.864662	1.101505	3.140067321	1.213313
2.8507065	346	0.867168	1.113103	3.173130759	1.238999
2.85589533	347	0.869674	1.124852	3.212458654	1.265291
2.85647021	348	0.87218	1.136759	3.247118895	1.292222
2.87919846	349	0.874687	1.148828	3.307704475	1.319806
2.89037176	350	0.877193	1.16107	3.355924027	1.348084
2.89037176	351	0.879699	1.173485	3.391806844	1.377066
2.91235066	352	0.882206	1.186086	3.454297427	1.406799
2.91777073	353	0.884712	1.198875	3.498043706	1.437302
2.92477318	354	0.887218	1.211865	3.544431163	1.468618
2.92691796	355	0.889724	1.225062	3.585656197	1.500777
2.93916192	356	0.892231	1.238477	3.640084808	1.533826
2.94443898	357	0.894737	1.25212	3.686789597	1.567803
2.9601051	358	0.897243	1.265998	3.747488419	1.602752
2.97041447	359	0.899749	1.280125	3.802502297	1.63872
2.97552957	360	0.902256	1.294511	3.851856034	1.675759
2.97552957	361	0.904762	1.309172	3.895480435	1.713932
2.97807734	362	0.907268	1.32412	3.943330854	1.753293
2.98568194	363	0.909774	1.339367	3.998924972	1.793905
2.99573227	364	0.912281	1.354933	4.059017638	1.835844
3.00071982	365	0.914787	1.370836	4.113494416	1.879191
3.03254625	366	0.917293	1.387093	4.206423996	1.924027
3.04452244	367	0.919799	1.403723	4.273666833	1.970439
3.04452244	368	0.922306	1.420754	4.325515927	2.018541
3.06712227	369	0.924812	1.438207	4.411155826	2.068439
3.06805294	370	0.927318	1.456106	4.467408953	2.120243
3.09104245	371	0.929825	1.474486	4.557700223	2.17411
3.10682632	372	0.932331	1.493377	4.639661908	2.230174
3.10906096	373	0.934837	1.512817	4.703440606	2.288616
3.13113691	374	0.937343	1.532849	4.79955923	2.349625
3.13113691	375	0.93985	1.553512	4.864260166	2.413401
3.13549422	376	0.942356	1.574863	4.937973312	2.480193
3.13549422	377	0.944862	1.596954	5.007241479	2.550264
3.14415228	378	0.947368	1.619856	5.093072483	2.623932
3.16547505	379	0.949875	1.643639	5.202897689	2.701549
3.16968558	380	0.952381	1.668391	5.288274019	2.783528
3.16968558	381	0.954887	1.694207	5.370102644	2.870336
3.16968558	382	0.957393	1.72121	5.45569334	2.962563
3.17805383	383	0.9599	1.749522	5.560075723	3.060828
3.17805383	384	0.962406	1.779317	5.654765985	3.16597
3.19047635	385	0.964912	1.810777	5.77724013	3.278912
3.19458313	386	0.967419	1.844137	5.891248737	3.400841
3.21084365	387	0.969925	1.879689	6.035387752	3.533231
3.21084365	388	0.972431	1.917788	6.157716827	3.67791
3.21587132	389	0.974937	1.958888	6.29953134	3.837242
3.21887582	390	0.977444	2.003599	6.449335219	4.014408
3.22605003	391	0.97995	2.052711	6.622149516	4.213624
3.23867845	392	0.982456	2.107345	6.825011867	4.440902
3.25809654	393	0.984962	2.16909	7.067105578	4.704953
3.29212629	394	0.987469	2.240431	7.375781981	5.019531
3.4339872	395	0.989975	2.325414	7.985442757	5.407551
3.4436181	396	0.992481	2.43148	8.373086863	5.912093
3.50254988	397	0.994987	2.574961	9.018930731	6.630426
3.50254988	398	0.997494	2.806264	9.829079948	7.875118

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
0.05	-2.995732274	1	0.00174	-2.9218	-0.14609	8.536952	8.752949427
0.05	-2.995732274	2	0.00422	-2.6337	-0.13168	6.936262	7.889795314
0.05	-2.995732274	3	0.00673	-2.4712	-0.12356	6.10668	7.402963316
0.05	-2.995732274	4	0.00924	-2.3557	-0.11779	5.549324	7.057047766
0.05	-2.995732274	5	0.01175	-2.2651	-0.11325	5.130498	6.785513868
0.05	-2.995732274	6	0.01426	-2.1899	-0.1095	4.795819	6.56046169
0.05	-2.995732274	7	0.01677	-2.1254	-0.10627	4.517511	6.367260118
0.22	-1.514127733	8	0.01929	-2.0687	-0.45512	4.279671	3.132331531
0.35	-1.049822124	9	0.02180	-2.0180	-0.7063	4.072344	2.118546332
0.44	-0.820980552	10	0.02431	-1.9720	-0.86767	3.888723	1.618961007
0.48	-0.733969175	11	0.02682	-1.9298	-0.92631	3.724137	1.416415357
0.59	-0.527632742	12	0.02933	-1.8908	-1.11557	3.575102	0.997644828
0.74	-0.301105093	13	0.03184	-1.8545	-1.3723	3.439021	0.558387259
0.8	-0.223143551	14	0.03435	-1.8204	-1.45634	3.313969	0.406217428
0.81	-0.210721031	15	0.03686	-1.7884	-1.44859	3.198321	0.376850312
0.86	-0.15082289	16	0.03937	-1.7581	-1.51195	3.090831	0.265158102
1.16	0.148420005	17	0.04188	-1.7293	-2.00599	2.990493	-0.256663328
1.23	0.207014169	18	0.04439	-1.7019	-2.09333	2.896436	-0.352315751
1.29	0.254642218	19	0.04690	-1.6757	-2.16166	2.807996	-0.426705903
1.32	0.277631737	20	0.04941	-1.6506	-2.17882	2.724544	-0.458264274
1.4	0.336472237	21	0.05192	-1.6265	-2.27714	2.645604	-0.547282601
1.9	0.641853886	22	0.05443	-1.6033	-3.04636	2.570725	-1.029115279
2.05	0.717839793	23	0.05694	-1.5810	-3.24105	2.499567	-1.134906095
2.26	0.815364813	24	0.05945	-1.5594	-3.52428	2.431775	-1.271492176
2.85	1.047318994	25	0.06196	-1.5385	-4.38481	2.36707	-1.611330145
2.98	1.091923301	26	0.06447	-1.5183	-4.52452	2.305225	-1.657863667
2.98	1.091923301	27	0.06698	-1.4987	-4.46602	2.245998	-1.636427637
3.04	1.111857515	28	0.06949	-1.4796	-4.49798	2.18921	-1.645101948
3.13	1.141033005	29	0.07200	-1.4611	-4.5731	2.134677	-1.667109941
3.15	1.147402453	30	0.07451	-1.4430	-4.54543	2.082235	-1.655696231
3.2	1.16315081	31	0.07702	-1.4254	-4.56127	2.031755	-1.657951066
3.22	1.16938136	32	0.07953	-1.4082	-4.5345	1.983111	-1.646757636
3.22	1.16938136	33	0.08204	-1.3915	-4.48053	1.936183	-1.62715648
3.26	1.181727195	34	0.08455	-1.3751	-4.48279	1.890873	-1.624981309
3.305	1.195436473	35	0.08706	-1.3591	-4.49173	1.847076	-1.624683731

**Normal**

2388.050 =sum X(i)\*M(i)

393.087 =sum M(i)^2

6.17 = standard deviation

19.8264 = square root of sum Mi<sup>2</sup>

0.980 = Filliben's Statistic

**Lognormal**

332.294 =sum X(i)\*M(i)

393.087 =sum M(i)^2

0.99 = standard deviation

19.8264 = square root of sum Mi<sup>2</sup>

0.851 = Filliben's Statistic

.987+ is acceptable value

**Normal - Fail****Lognormal - Fail**

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(I)	M(I)	X(I)*Mi	Mi <sup>2</sup>	X(I)*Mi (log)
3.49	1.249901736	36	0.08957	-1.3434	-4.688438	1.804702	-1.679107852
3.5	1.252762968	37	0.09208	-1.3280	-4.648139	1.763689	-1.663718852
3.6	1.280933845	38	0.09459	-1.3130	-4.726771	1.723948	-1.681855925
3.74	1.319085611	39	0.09710	-1.2982	-4.855401	1.685415	-1.712483735
3.8	1.335001067	40	0.09961	-1.2838	-4.878274	1.64803	-1.713816055
3.8	1.335001067	41	0.10212	-1.2695	-4.824264	1.61174	-1.694841514
3.95	1.373715579	42	0.10463	-1.2556	-4.959542	1.576482	-1.724810044
4	1.386294361	43	0.10714	-1.2419	-4.967442	1.542217	-1.721584133
4.02	1.391281903	44	0.10965	-1.2284	-4.93804	1.508888	-1.709006296
4.07	1.403642999	45	0.11216	-1.2151	-4.945442	1.476459	-1.705561401
4.09	1.40854497	46	0.11467	-1.2020	-4.916327	1.44489	-1.693121686
4.1	1.410986974	47	0.11719	-1.1892	-4.87562	1.414139	-1.67791141
4.13	1.418277407	48	0.11970	-1.1765	-4.85899	1.384178	-1.668618938
4.2	1.435084525	49	0.12221	-1.1640	-4.888928	1.354967	-1.6704810044
4.25	1.446918983	50	0.12472	-1.1517	-4.89485	1.326481	-1.666459307
4.26	1.44926916	51	0.12723	-1.1396	-4.854702	1.298691	-1.651589177
4.3	1.458615023	52	0.12974	-1.1276	-4.848839	1.271565	-1.644788277
4.33	1.465567542	53	0.13225	-1.1158	-4.831561	1.245086	-1.635330149
4.39	1.479329227	54	0.13476	-1.1042	-4.847355	1.219216	-1.633447429
4.4	1.481604541	55	0.13727	-1.0927	-4.807795	1.193951	-1.618920505
4.54	1.512927012	56	0.13978	-1.0813	-4.909187	1.16925	-1.635956292
4.6	1.526056303	57	0.14229	-1.0701	-4.92245	1.145109	-1.633029529
4.6	1.526056303	58	0.14480	-1.0590	-4.871441	1.1215	-1.616107069
4.725	1.552867561	59	0.14731	-1.0480	-4.952023	1.098403	-1.627478382
4.8	1.568615918	60	0.14982	-1.0372	-4.97861	1.075806	-1.626984893
4.9	1.589235205	61	0.15233	-1.0265	-5.029834	1.053695	-1.63134461
4.9	1.589235205	62	0.15484	-1.0159	-4.977893	1.032046	-1.614498462
5	1.609437912	63	0.15735	-1.0054	-5.027061	1.010854	-1.618148652
5.1	1.62924054	64	0.15986	-0.9950	-5.074678	0.990095	-1.621151283
5.1	1.62924054	65	0.16237	-0.9848	-5.022299	0.969761	-1.604418218
5.14	1.637053079	66	0.16488	-0.9746	-5.009425	0.949838	-1.595465927
5.2	1.648658626	67	0.16739	-0.9645	-5.015547	0.930315	-1.59017778
5.3	1.667706821	68	0.16990	-0.9546	-5.059157	0.911181	-1.591922705
5.4	1.686398954	69	0.17241	-0.9447	-5.101276	0.892422	-1.593108676
5.4	1.686398954	70	0.17492	-0.9349	-5.048431	0.874028	-1.577228039
5.5	1.704748092	71	0.17743	-0.9252	-5.088584	0.85599	-1.577228039
5.6	1.722766598	72	0.17994	-0.9156	-5.127282	0.838298	-1.577341051
5.6	1.722766598	73	0.18245	-0.9061	-5.073931	0.820943	-1.560928328
5.69	1.738710248	74	0.18496	-0.8966	-5.101734	0.803917	-1.558951921
5.8	1.757857918	75	0.18747	-0.8872	-5.146041	0.78721	-1.559656733
5.9	1.774952351	76	0.18998	-0.8780	-5.179965	0.770814	-1.558337604
5.9	1.774952351	77	0.19249	-0.8687	-5.125594	0.754718	-1.54198061
5.95	1.78339122	78	0.19500	-0.8596	-5.114646	0.73892	-1.533010886
5.95	1.78339122	79	0.19751	-0.8505	-5.060693	0.723413	-1.516839696
6.1	1.808288771	80	0.20002	-0.8415	-5.133363	0.708181	-1.521738262
6.2	1.824549292	81	0.20253	-0.8326	-5.162143	0.693229	-1.519126575
6.2	1.824549292	82	0.20504	-0.8237	-5.107171	0.678543	-1.502949325
6.2	1.824549292	83	0.20755	-0.8149	-5.052594	0.664118	-1.486888234
6.39	1.854734268	84	0.21006	-0.8062	-5.151596	0.649953	-1.4952804
6.4	1.85629799	85	0.21258	-0.7975	-5.104113	0.636035	-1.48043053
6.45	1.864080131	86	0.21509	-0.7889	-5.088399	0.622362	-1.470571165
6.45	1.864080131	87	0.21760	-0.7803	-5.033191	0.60893	-1.454615605
6.6	1.887069649	88	0.22011	-0.7718	-5.094117	0.595731	-1.456508021
6.6	1.887069649	89	0.22262	-0.7634	-5.038352	0.582759	-1.440563781



Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*MI	MI <sup>2</sup>	X(i)*MI (log)
6.6	1.887069649	90	0.22513	-0.7550	-4.982955	0.570015	-1.424724663
6.6	1.887069649	91	0.22764	-0.7467	-4.927903	0.557489	-1.408984232
6.69	1.900613874	92	0.23015	-0.7384	-4.939641	0.545178	-1.403340881
6.8	1.916922612	93	0.23266	-0.7301	-4.964844	0.533081	-1.399591506
6.8	1.916922612	94	0.23517	-0.7219	-4.909152	0.521189	-1.38389191
6.8	1.916922612	95	0.23768	-0.7138	-4.853785	0.509499	-1.368283844
6.83	1.921324674	96	0.24019	-0.7057	-4.819913	0.498009	-1.355873832
6.85	1.924248652	97	0.24270	-0.6976	-4.778891	0.486713	-1.342448945
6.865	1.926436039	98	0.24521	-0.6896	-4.734412	0.47561	-1.328556638
6.9	1.931521412	99	0.24772	-0.6817	-4.703631	0.464695	-1.316690343
6.92	1.93441577	100	0.25023	-0.6738	-4.662486	0.453965	-1.303350522
6.945	1.938021976	101	0.25274	-0.6659	-4.624629	0.443414	-1.290515979
6.95	1.93874166	102	0.25525	-0.6581	-4.573519	0.433043	-1.275809003
6.95	1.93874166	103	0.25776	-0.6503	-4.519356	0.422847	-1.260699938
7	1.945910149	104	0.26027	-0.6425	-4.497588	0.412822	-1.250271657
7.005	1.94662418	105	0.26278	-0.6348	-4.446758	0.402968	-1.235712636
7.09	1.958685341	106	0.26529	-0.6271	-4.446276	0.393279	-1.228329447
7.15	1.967112357	107	0.26780	-0.6195	-4.429263	0.383752	-1.218581461
7.15	1.967112357	108	0.27031	-0.6119	-4.374882	0.374387	-1.203620294
7.2	1.974081026	109	0.27282	-0.6043	-4.350977	0.365181	-1.192941874
7.2	1.974081026	110	0.27533	-0.5968	-4.296716	0.35613	-1.178064606
7.2	1.974081026	111	0.27784	-0.5893	-4.2427	0.347232	-1.163254667
7.2	1.974081026	112	0.28035	-0.5818	-4.188922	0.338485	-1.148509811
7.225	1.977547234	113	0.28286	-0.5744	-4.149748	0.329889	-1.135823133
7.25	1.981001469	114	0.28537	-0.5670	-4.110416	0.321437	-1.123136679
7.25	1.981001469	115	0.28788	-0.5596	-4.056957	0.31313	-1.108529312
7.28	1.985130862	116	0.29039	-0.5522	-4.020279	0.304965	-1.096260901
7.28	1.985130862	117	0.29290	-0.5449	-3.967028	0.296939	-1.081740441
7.35	1.994700313	118	0.29541	-0.5376	-3.951628	0.289053	-1.072423544
7.4	2.00148	119	0.29792	-0.5304	-3.924819	0.281304	-1.061546824
7.4	2.00148	120	0.30043	-0.5232	-3.871322	0.273688	-1.047077433
7.4	2.00148	121	0.30294	-0.5159	-3.818026	0.266204	-1.032662652
7.45	2.008214032	122	0.30545	-0.5088	-3.79038	0.258853	-1.021730869
7.5	2.014903021	123	0.30797	-0.5016	-3.762204	0.25163	-1.010730272
7.5	2.014903021	124	0.31048	-0.4945	-3.708777	0.244534	-0.996376874
7.55	2.021547563	125	0.31299	-0.4874	-3.679908	0.237564	-0.985312455
7.56	2.02287119	126	0.31550	-0.4803	-3.631306	0.230718	-0.971648625
7.6	2.028148247	127	0.31801	-0.4733	-3.596941	0.223996	-0.959885483
7.71	2.042518188	128	0.32052	-0.4663	-3.594824	0.217393	-0.952333771
7.715	2.043166486	129	0.32303	-0.4593	-3.543126	0.210912	-0.938327525
7.735	2.045755484	130	0.32554	-0.4523	-3.498318	0.204549	-0.925236393
7.8	2.054123734	131	0.32805	-0.4453	-3.473428	0.198302	-0.914724599
7.8	2.054123734	132	0.33056	-0.4384	-3.419319	0.192172	-0.900474792
7.8	2.054123734	133	0.33307	-0.4315	-3.365368	0.186156	-0.88626702
7.85	2.060513532	134	0.33558	-0.4246	-3.332815	0.180253	-0.874816485
7.9	2.066862759	135	0.33809	-0.4177	-3.299724	0.174462	-0.863300835
8	2.079441542	136	0.34060	-0.4108	-3.286641	0.168781	-0.854297229
8	2.079441542	137	0.34311	-0.4040	-3.231944	0.16321	-0.840079825
8.01	2.080690761	138	0.34562	-0.3972	-3.181382	0.157749	-0.826401133
8.035	2.083806999	139	0.34813	-0.3904	-3.136668	0.152393	-0.813467386
8.08	2.089391873	140	0.35064	-0.3836	-3.09945	0.147145	-0.801480916
8.09	2.090628731	141	0.35315	-0.3768	-3.048562	0.142002	-0.787813589
8.1	2.091864062	142	0.35566	-0.3701	-2.997687	0.136963	-0.774167015
8.1	2.091864062	143	0.35817	-0.3634	-2.943171	0.132026	-0.760088224

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
8.1	2.091864062	144	0.36068	-0.3566	-2.888785	0.127192	-0.746042728
8.11	2.093097868	145	0.36319	-0.3499	-2.838037	0.12246	-0.732464666
8.12	2.094330154	146	0.36570	-0.3433	-2.787283	0.117828	-0.71890289
8.16	2.099244169	147	0.36821	-0.3366	-2.746614	0.113296	-0.706594869
8.17	2.100468909	148	0.37072	-0.3299	-2.695635	0.108862	-0.693035176
8.18	2.101692151	149	0.37323	-0.3233	-2.644643	0.104527	-0.679489766
8.2	2.104134154	150	0.37574	-0.3167	-2.596807	0.100289	-0.666345161
8.215	2.105961751	151	0.37825	-0.3101	-2.547258	0.096146	-0.653004045
8.37	2.124653885	152	0.38076	-0.3035	-2.54011	0.092099	-0.644785538
8.4	2.128231706	153	0.38327	-0.2969	-2.493931	0.088148	-0.63186473
8.4	2.128231706	154	0.38578	-0.2903	-2.438744	0.08429	-0.617882328
8.4	2.128231706	155	0.38829	-0.2838	-2.383671	0.080526	-0.60392896
8.45	2.134166441	156	0.39080	-0.2772	-2.342554	0.076854	-0.591645047
8.5	2.140066163	157	0.39331	-0.2707	-2.30089	0.073275	-0.579300733
8.51	2.141241943	158	0.39582	-0.2642	-2.248093	0.069786	-0.56565337
8.57	2.148267733	159	0.39833	-0.2577	-2.208155	0.066389	-0.553524782
8.6	2.151762203	160	0.40084	-0.2512	-2.159989	0.063082	-0.540439843
8.64	2.156402583	161	0.40335	-0.2447	-2.113968	0.059865	-0.527611903
8.75	2.1690537	162	0.40587	-0.2382	-2.084201	0.056737	-0.51665642
8.8	2.174751721	163	0.40838	-0.2317	-2.039185	0.053697	-0.503945664
8.8	2.174751721	164	0.41089	-0.2253	-1.98235	0.050745	-0.489899923
8.8	2.174751721	165	0.41340	-0.2188	-1.925595	0.047881	-0.475873961
8.81	2.17588744	166	0.41591	-0.2124	-1.871044	0.045104	-0.462108979
8.81	2.17588744	167	0.41842	-0.2059	-1.814384	0.042414	-0.448115272
8.84	2.179286877	168	0.42093	-0.1995	-1.76378	0.039809	-0.434817145
8.9	2.186051277	169	0.42344	-0.1931	-1.718665	0.037291	-0.422145001
8.91	2.187174241	170	0.42595	-0.1867	-1.663507	0.034857	-0.408347776
8.92	2.188295947	171	0.42846	-0.1803	-1.608301	0.032509	-0.394555836
8.95	2.191653532	172	0.43097	-0.1739	-1.556506	0.030245	-0.381153322
8.95	2.191653532	173	0.43348	-0.1675	-1.499364	0.028065	-0.367160375
9	2.197224577	174	0.43599	-0.1611	-1.450339	0.025969	-0.354080145
9	2.197224577	175	0.43850	-0.1548	-1.39299	0.023956	-0.340079107
9	2.197224577	176	0.44101	-0.1484	-1.335702	0.022026	-0.326093056
9	2.197224577	177	0.44352	-0.1421	-1.278476	0.020179	-0.312121993
9.1	2.208274414	178	0.44603	-0.1357	-1.23486	0.018414	-0.299660372
9.2	2.219203484	179	0.44854	-0.1294	-1.190036	0.016732	-0.287057848
9.2	2.219203484	180	0.45105	-0.1230	-1.131684	0.015131	-0.272982353
9.2	2.219203484	181	0.45356	-0.1167	-1.073374	0.013612	-0.25891695
9.21	2.22028985	182	0.45607	-0.1103	-1.01622	0.012175	-0.24498403
9.23	2.222459049	183	0.45858	-0.1040	-0.960011	0.010818	-0.231157552
9.3	2.2300144	184	0.46109	-0.0977	-0.908474	0.009542	-0.217839883
9.3	2.2300144	185	0.46360	-0.0914	-0.8497	0.008348	-0.203746523
9.34	2.234306252	186	0.46611	-0.0850	-0.794348	0.007233	-0.190023248
9.4	2.240709689	187	0.46862	-0.0787	-0.740109	0.006199	-0.17642218
9.4	2.240709689	188	0.47113	-0.0724	-0.680787	0.005245	-0.162281607
9.4	2.240709689	189	0.47364	-0.0661	-0.621498	0.004371	-0.148148676
9.5	2.251291799	190	0.47615	-0.0598	-0.568223	0.003578	-0.134656334
9.6	2.261763098	191	0.47866	-0.0535	-0.513697	0.002863	-0.121027217
9.6	2.261763098	192	0.48117	-0.0472	-0.453212	0.002229	-0.106776923
9.6	2.261763098	193	0.48368	-0.0409	-0.392749	0.001674	-0.092531771
9.6	2.261763098	194	0.48619	-0.0346	-0.332297	0.001198	-0.078289191
9.6	2.261763098	195	0.48870	-0.0283	-0.271866	0.000802	-0.064051754
9.65	2.266957915	196	0.49121	-0.0220	-0.212537	0.000485	-0.04992873
9.7	2.272125886	197	0.49372	-0.0157	-0.1526	0.000247	-0.035745049

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*Mi	Mi <sup>2</sup>	X(i)*Mi (log)
9.7	2.272125886	198	0.49623	-0.0094	-0.091551	8.91E-05	-0.021444963
9.8	2.282382386	199	0.49874	-0.0031	-0.030839	9.9E-06	-0.007182319
9.8	2.282382386	200	0.50126	0.0031	0.030839	9.9E-06	0.007182319
9.82	2.284421122	201	0.50377	0.0094	0.092684	8.91E-05	0.021561009
9.9	2.292534757	202	0.50628	0.0157	0.155747	0.000247	0.036066122
9.9	2.292534757	203	0.50879	0.0220	0.218043	0.000485	0.050492049
10	2.302585093	204	0.51130	0.0283	0.283194	0.000802	0.065207808
10	2.302585093	205	0.51381	0.0346	0.346142	0.001198	0.079702213
10	2.302585093	206	0.51632	0.0409	0.409113	0.001674	0.094201854
10.035	2.306078982	207	0.51883	0.0472	0.473748	0.002229	0.108869058
10.05	2.307572635	208	0.52134	0.0535	0.537777	0.002863	0.12347849
10.075	2.310057108	209	0.52385	0.0598	0.602615	0.003578	0.138171259
10.1	2.312535424	210	0.52636	0.0661	0.66778	0.004371	0.152897567
10.1	2.312535424	211	0.52887	0.0724	0.731484	0.005245	0.167483528
10.2	2.32238772	212	0.53138	0.0787	0.803097	0.006199	0.182853096
10.3	2.332143895	213	0.53389	0.0850	0.875994	0.007233	0.198344142
10.31	2.333114298	214	0.53640	0.0914	0.941979	0.008348	0.213166304
10.4	2.341805806	215	0.53891	0.0977	1.015928	0.009542	0.228760273
10.4	2.341805806	216	0.54142	0.1040	1.081702	0.010818	0.243570787
10.4	2.341805806	217	0.54393	0.1103	1.147523	0.012175	0.25839196
10.5	2.351375257	218	0.54644	0.1167	1.225047	0.013612	0.274337578
10.5	2.351375257	219	0.54895	0.1230	1.291596	0.015131	0.289240692
10.5	2.351375257	220	0.55146	0.1294	1.358193	0.016732	0.304154498
10.6	2.360854001	221	0.55397	0.1357	1.438408	0.018414	0.320365251
10.6	2.360854001	222	0.55648	0.1421	1.50576	0.020179	0.335366017
10.6	2.360854001	223	0.55899	0.1484	1.57316	0.022026	0.350377519
10.65	2.365559892	224	0.56150	0.1548	1.648372	0.023956	0.366133486
10.7	2.370243741	225	0.56401	0.1611	1.724292	0.025969	0.381961979
10.7	2.370243741	226	0.56652	0.1675	1.792535	0.028065	0.397078994
10.8	2.379546134	227	0.56903	0.1739	1.878242	0.030245	0.413829969
10.8	2.379546134	228	0.57154	0.1803	1.94727	0.032509	0.429038776
10.9	2.388762789	229	0.57405	0.1867	2.035042	0.034857	0.445984574
11	2.397895273	230	0.57656	0.1931	2.124193	0.037291	0.463053869
11	2.397895273	231	0.57907	0.1995	2.194749	0.039809	0.478434477
11	2.397895273	232	0.58158	0.2059	2.265406	0.042414	0.493836893
11.1	2.406945108	233	0.58409	0.2124	2.357387	0.045104	0.51118037
11.1	2.406945108	234	0.58660	0.2188	2.428875	0.047881	0.526681962
11.2	2.415913778	235	0.58911	0.2253	2.522991	0.050745	0.54422579
11.2	2.415913778	236	0.59162	0.2317	2.595327	0.053697	0.559829088
11.25	2.420368129	237	0.59413	0.2382	2.679687	0.056737	0.576518107
11.35	2.429217744	238	0.59665	0.2447	2.77703	0.059865	0.594362207
11.35	2.429217744	239	0.59916	0.2512	2.850683	0.063082	0.610125995
11.4	2.433613355	240	0.60167	0.2577	2.937335	0.066389	0.627047216
11.4	2.433613355	241	0.60418	0.2642	3.011546	0.069786	0.64288933
11.5	2.442347035	242	0.60669	0.2707	3.112968	0.073275	0.661126022
11.5	2.442347035	243	0.60920	0.2772	3.188092	0.076854	0.677080521
11.5	2.442347035	244	0.61171	0.2838	3.263359	0.080526	0.693065563
11.6	2.451005098	245	0.61422	0.2903	3.367789	0.08429	0.711592038
11.6	2.451005098	246	0.61673	0.2969	3.444	0.088148	0.727695049
11.7	2.459588842	247	0.61924	0.3035	3.550692	0.092099	0.746430902
11.7	2.459588842	248	0.62175	0.3101	3.627866	0.096146	0.762654621
11.7	2.459588842	249	0.62426	0.3167	3.7052	0.100289	0.778911895
11.8	2.468099531	250	0.62677	0.3233	3.815011	0.104527	0.797951485
11.9	2.4765384	251	0.62928	0.3299	3.926323	0.108862	0.817116701

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(l)	M(l)	X(l)*Mi	Mi <sup>2</sup>	X(l)*Mi (log)
14.75	2.691243083	306	0.76734	0.7301	10.76933	0.533081	1.964941586
14.8	2.694627181	307	0.76985	0.7384	10.92776	0.545178	1.989610058
15	2.708050201	308	0.77236	0.7467	11.19978	0.557489	2.021970961
15	2.708050201	309	0.77487	0.7550	11.3249	0.570015	2.044559358
15	2.708050201	310	0.77738	0.7634	11.4508	0.582759	2.067289376
15	2.708050201	311	0.77989	0.7718	11.57754	0.595731	2.090170249
15.1	2.714694744	312	0.78240	0.7803	11.78313	0.60893	2.1183839
15.1	2.714694744	313	0.78491	0.7889	11.91238	0.622362	2.141620281
15.1	2.714694744	314	0.78742	0.7975	12.04252	0.636035	2.165017147
15.15	2.718000532	315	0.78994	0.8062	12.21388	0.649953	2.191242699
15.2	2.721295428	316	0.79245	0.8149	12.387	0.664118	2.217677631
15.2	2.721295428	317	0.79496	0.8237	12.52081	0.678543	2.241632574
15.2	2.721295428	318	0.79747	0.8326	12.65558	0.693229	2.265760767
15.2	2.721295428	319	0.79998	0.8415	12.79133	0.708181	2.290065304
15.2	2.721295428	320	0.80249	0.8505	12.92816	0.723413	2.314561654
15.3	2.727852828	321	0.80500	0.8596	13.15195	0.73892	2.344874212
15.4	2.734367509	322	0.80751	0.8687	13.37867	0.754718	2.375467532
15.4	2.734367509	323	0.81002	0.8780	13.52059	0.770814	2.400665973
15.5	2.740840024	324	0.81253	0.8872	13.75235	0.78721	2.431806094
15.6	2.747270914	325	0.81504	0.8966	13.98718	0.803917	2.463241517
15.6	2.747270914	326	0.81755	0.9061	14.13452	0.820943	2.489189772
15.74	2.756205243	327	0.82006	0.9156	14.41132	0.838298	2.523543051
15.9	2.766319109	328	0.82257	0.9252	14.71063	0.85599	2.559390494
15.9	2.766319109	329	0.82508	0.9349	14.86482	0.874028	2.586216839
16	2.772588722	330	0.82759	0.9447	15.11489	0.892422	2.619211271
16.05	2.77570885	331	0.83010	0.9546	15.32065	0.911181	2.649574784
16.1	2.778819272	332	0.83261	0.9645	15.5289	0.930315	2.680249623
16.4	2.797281335	333	0.83512	0.9746	15.98338	0.949838	2.72622013
16.4	2.797281335	334	0.83763	0.9848	16.15014	0.969761	2.754663308
16.6	2.809402695	335	0.84014	0.9950	16.51758	0.990095	2.795453877
16.8	2.821378886	336	0.84265	1.0054	16.89093	1.010854	2.836648998
16.8	2.821378886	337	0.84516	1.0159	17.06706	1.032046	2.866228899
16.9	2.827313622	338	0.84767	1.0265	17.34779	1.053695	2.902227955
16.9	2.827313622	339	0.85018	1.0372	17.52886	1.075806	2.932519362
17	2.833213344	340	0.85269	1.0480	17.8168	1.098403	2.969341099
17	2.833213344	341	0.85520	1.0590	18.00315	1.1215	3.000397891
17.2	2.844909384	342	0.85771	1.0701	18.40568	1.145109	3.04433134
17.2	2.844909384	343	0.86022	1.0813	18.59868	1.16925	3.076253758
17.3	2.850706502	344	0.86273	1.0927	18.90337	1.193951	3.114911625
17.3	2.850706502	345	0.86524	1.1042	19.10233	1.219216	3.147696348
17.3	2.850706502	346	0.86775	1.1158	19.30393	1.245086	3.180915348
17.39	2.855895328	347	0.87026	1.1276	19.60961	1.271565	3.220413258
17.4	2.856470206	348	0.87277	1.1396	19.82906	1.298691	3.255237471
17.8	2.879198457	349	0.87528	1.1517	20.50079	1.326481	3.316057859
18	2.890371758	350	0.87779	1.1640	20.95255	1.354967	3.364480699
18	2.890371758	351	0.88030	1.1765	21.1772	1.384178	3.400554102
18.4	2.912350665	352	0.88281	1.1892	21.88083	1.414139	3.463296615
18.5	2.917770732	353	0.88533	1.2020	22.23767	1.44489	3.507265303
18.63	2.924773185	354	0.88784	1.2151	22.63724	1.476459	3.553881046
18.67	2.926917958	355	0.89035	1.2284	22.93363	1.508888	3.595332626
18.9	2.939161922	356	0.89286	1.2419	23.47116	1.542217	3.650028934
19	2.944438979	357	0.89537	1.2556	23.85602	1.576482	3.696979203
19.3	2.960105096	358	0.89788	1.2695	24.50218	1.611174	3.757981268
19.5	2.970414466	359	0.90039	1.2838	25.03325	1.64803	3.81328834

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(i)	M(i)	X(i)*MI	MI <sup>2</sup>	X(i)*MI (log)
11.95	2.480731278	252	0.63179	0.3366	4.022309	0.113296	0.835001482
12	2.48490665	253	0.63430	0.3433	4.119138	0.117828	0.85297276
12	2.48490665	254	0.63681	0.3499	4.199314	0.12246	0.869575354
12	2.48490665	255	0.63932	0.3566	4.279682	0.127192	0.886217499
12	2.48490665	256	0.64183	0.3634	4.360254	0.132026	0.902902018
12	2.48490665	257	0.64434	0.3701	4.441017	0.136963	0.919626088
12.1	2.493205453	258	0.64685	0.3768	4.559654	0.142002	0.939516954
12.2	2.501435952	259	0.64936	0.3836	4.679863	0.147145	0.959539091
12.2	2.501435952	260	0.65187	0.3904	4.762582	0.152393	0.976499535
12.3	2.509599262	261	0.65438	0.3972	4.885269	0.157749	0.996753441
12.3	2.509599262	262	0.65689	0.4040	4.969114	0.16321	1.013860532
12.3	2.509599262	263	0.65940	0.4108	5.053211	0.168781	1.03101898
12.3	2.509599262	264	0.66191	0.4177	5.137545	0.174462	1.04822593
12.4	2.517696473	265	0.66442	0.4246	5.264573	0.180253	1.068919153
12.4	2.517696473	266	0.66693	0.4315	5.350073	0.186156	1.086278938
12.45	2.521720623	267	0.66944	0.4384	5.457758	0.192172	1.105457191
12.6	2.533696814	268	0.67195	0.4453	5.610923	0.198302	1.128283932
12.7	2.541601993	269	0.67446	0.4523	5.743845	0.204549	1.149493515
12.7	2.541601993	270	0.67697	0.4593	5.832496	0.210912	1.167234842
12.8	2.549445171	271	0.67948	0.4663	5.968061	0.217393	1.188690876
12.8	2.549445171	272	0.68199	0.4733	6.058006	0.223996	1.206605785
12.8	2.549445171	273	0.68450	0.4803	6.148242	0.230718	1.224578662
12.9	2.557227311	274	0.68701	0.4874	6.287525	0.237564	1.246405459
13	2.564949357	275	0.68952	0.4945	6.428547	0.244534	1.268376789
13	2.564949357	276	0.69203	0.5016	6.521154	0.25163	1.286648506
13.1	2.57261223	277	0.69455	0.5088	6.664964	0.258853	1.308883061
13.1	2.57261223	278	0.69706	0.5159	6.758939	0.266204	1.327338053
13.2	2.58021683	279	0.69957	0.5232	6.905601	0.273688	1.349844522
13.3	2.587764035	280	0.70208	0.5304	7.054066	0.281304	1.372500696
13.3	2.587764035	281	0.70459	0.5376	7.150564	0.289053	1.391276203
13.4	2.595254707	282	0.70710	0.5449	7.301948	0.296939	1.414210028
13.4	2.595254707	283	0.70961	0.5522	7.399964	0.304965	1.433193307
13.45	2.598979106	284	0.71212	0.5596	7.526354	0.31313	1.454337398
13.5	2.602689685	285	0.71463	0.5670	7.653879	0.321437	1.475605291
13.5	2.602689685	286	0.71714	0.5744	7.753854	0.329889	1.494879668
13.7	2.617395833	287	0.71965	0.5818	7.970587	0.338485	1.522786934
13.7	2.617395833	288	0.72216	0.5893	8.072915	0.347232	1.542336853
13.725	2.619218987	289	0.72467	0.5968	8.190615	0.35613	1.563061062
14	2.63905733	290	0.72718	0.6043	8.460233	0.365181	1.594788641
14	2.63905733	291	0.72969	0.6119	8.566203	0.374387	1.614764377
14.03	2.641197894	292	0.73220	0.6195	8.691267	0.383752	1.636162153
14.1	2.646174797	293	0.73471	0.6271	8.842383	0.393279	1.659467377
14.15	2.649714624	294	0.73722	0.6348	8.982388	0.402968	1.682032864
14.2	2.653241965	295	0.73973	0.6425	9.123678	0.412822	1.704741213
14.3	2.660259537	296	0.74224	0.6503	9.29882	0.422847	1.729879285
14.3	2.660259537	297	0.74475	0.6581	9.410263	0.433043	1.750611306
14.4	2.667228207	298	0.74726	0.6659	9.588864	0.443414	1.776089571
14.5	2.674148649	299	0.74977	0.6738	9.769659	0.453965	1.801760042
14.5	2.674148649	300	0.75228	0.6817	9.884441	0.464695	1.822928642
14.5	2.674148649	301	0.75479	0.6896	9.99985	0.47561	1.844212767
14.5	2.674148649	302	0.75730	0.6976	10.1159	0.486713	1.865615459
14.6	2.681021529	303	0.75981	0.7057	10.30318	0.498009	1.891989929
14.6	2.681021529	304	0.76232	0.7138	10.42136	0.509499	1.913691466
14.65	2.684440335	305	0.76483	0.7219	10.57634	0.521189	1.93798917

Table B-48. Nitrate Combined Background Data Set, Filliben's Statistic Analysis (cont.)

Nitrate	Ln(Nitrate)	Count	m(l)	M(l)	X(l)*MI	MI <sup>2</sup>	X(l)*MI (log)
19.6	2.975529566	360	0.90290	1.2982	25.44542	1.685415	3.862938039
19.6	2.975529566	361	0.90541	1.3130	25.73464	1.723948	3.906846594
19.65	2.978077338	362	0.90792	1.3280	26.09598	1.763689	3.955004685
19.8	2.985681938	363	0.91043	1.3434	26.59916	1.804702	4.010940891
20	2.995732274	364	0.91294	1.3591	27.18143	1.847076	4.07141458
20.1	3.000719815	365	0.91545	1.3751	27.63931	1.890873	4.126259963
20.75	3.032546247	366	0.91796	1.3915	28.87296	1.936183	4.219690383
21	3.044522438	367	0.92047	1.4082	29.57283	1.983111	4.287387114
21	3.044522438	368	0.92298	1.4254	29.93333	2.031755	4.339651555
21.48	3.06712227	369	0.92549	1.4430	30.99554	2.082235	4.425842709
21.5	3.068052935	370	0.92800	1.4611	31.41264	2.134677	4.482588608
22	3.091042453	371	0.93051	1.4796	32.55115	2.18921	4.573499654
22.35	3.106826321	372	0.93302	1.4987	33.49517	2.245998	4.656093017
22.4	3.109060959	373	0.93553	1.5183	34.00985	2.305225	4.720477344
22.9	3.131136911	374	0.93804	1.5385	35.2323	2.36707	4.817343444
22.9	3.131136911	375	0.94055	1.5594	35.71061	2.431775	4.882742079
23	3.135494216	376	0.94306	1.5810	36.36304	2.499567	4.957222391
23	3.135494216	377	0.94557	1.6033	36.87701	2.570725	5.027289038
23.2	3.144152279	378	0.94808	1.6265	37.73552	2.645604	5.114061872
23.7	3.165475048	379	0.95059	1.6506	39.11967	2.724544	5.224993882
23.8	3.169685581	380	0.95310	1.6757	39.88184	2.807996	5.311466243
23.8	3.169685581	381	0.95561	1.7019	40.50503	2.896436	5.394462408
23.8	3.169685581	382	0.95812	1.7293	41.15744	2.990493	5.481350369
24	3.17805383	383	0.96063	1.7581	42.19382	3.090831	5.587260153
24	3.17805383	384	0.96314	1.7884	42.92124	3.198321	5.683583503
24.3	3.19047635	385	0.96565	1.8204	44.23647	3.313969	5.808041902
24.4	3.194583132	386	0.96816	1.8545	45.24882	3.439021	5.924225667
24.8	3.210843653	387	0.97067	1.8908	46.89169	3.575102	6.071043947
24.8	3.210843653	388	0.97318	1.9298	47.8591	3.724137	6.196293268
24.925	3.215871316	389	0.97569	1.9720	49.15172	3.888723	6.341648718
25	3.218875825	390	0.97820	2.0180	50.45013	4.072344	6.495707619
25.18	3.226050029	391	0.98071	2.0687	52.09079	4.279671	6.673847925
25.5	3.238678452	392	0.98323	2.1254	54.19881	4.517511	6.883628529
26	3.258096538	393	0.98574	2.1899	56.93833	4.795819	7.135022615
26.9	3.292126287	394	0.98825	2.2651	60.93012	5.130498	7.456864143
31	3.433987204	395	0.99076	2.3557	73.02671	5.549324	8.089445089
31.3	3.443618098	396	0.99327	2.4712	77.34762	6.10668	8.509765267
33.2	3.502549876	397	0.99578	2.6337	87.43812	6.936262	9.224589875
33.2	3.502549876	398	0.99826	2.9218	97.00397	8.536952	10.23377229

Table B-49. Nitrate Combined Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Coefficient of Skewness (-1 to 1)	Shapiro-Francia Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Nitrate	Normal	Pass	Fail	Pass	Fail	Fail	X	X	398	Nonparametric
Nitrate	Lognormal	Pass	NA	Fail	Fail	Fail			398	

NA - not applicable

Table B-50.  $T_n$  Statistic Analysis for Nitrate Combined Background Data Set

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	$T_n$ Statistic	N	Upper 5% Critical Value	Pass or Fail $T_n$ Statistic
Nitrate	Normal	33.2	10.84	6.17	3.624	398	3.34+	Fail
Nitrate	Normal	33.2	10.79	6.07	3.690	397	3.34+	Fail
Nitrate	Normal	31.3	10.73	5.98	3.442	396	3.34+	Fail
Nitrate	Normal	31	10.68	5.89	3.449	395	3.34+	Fail
Nitrate	Normal	26.9	10.63	5.81	2.801	394	3.34+	Pass

N - number of samples

Table B-52. 95th Percentile for Near Upgradient Nitrate Background Data Set

Parameter	Distribution	Censored?	95th Percentile (mg/L)	Sample #
Nitrate	Nonparametric	No	23.28	398

Table B-53. Summary Table for Near Upgradient Nitrate Background Data Set

Parameter	Distribution	Mean	SD	95th Percentile (mg/L)	Range (normal)	Sample #
Nitrate	Nonparametric	10.84	6.17	23.28	33.2 to 0.05(ND)	398

SD = standard deviation

ND = non-detect, concentration reported as 0.5 the detection limit

Table B-51. Nitrate Combined Background Data Set, Shapiro-Francia Test of Normality Analysis (censored data set)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
0.05	1	0.002532	-2.80299	-0.140149496	7.856752
0.05	2	0.005063	-2.57147	-0.128573447	6.612453
0.05	3	0.007595	-2.42782	-0.121391167	5.894326
0.05	4	0.010127	-2.32161	-0.116080628	5.389885
0.05	5	0.012658	-2.23654	-0.111826921	5.002104
0.05	6	0.01519	-2.16511	-0.108255335	4.687687
0.05	7	0.017722	-2.10326	-0.105163053	4.423707
0.22	8	0.020253	-2.04855	-0.450680091	4.19654
0.35	9	0.022785	-1.99936	-0.699776137	3.997442
0.44	10	0.025316	-1.95458	-0.860013824	3.820371
0.48	11	0.027848	-1.9134	-0.918433943	3.661115
0.59	12	0.03038	-1.87524	-1.106392574	3.516531
0.74	13	0.032911	-1.83963	-1.36132312	3.384223
0.8	14	0.035443	-1.80621	-1.444965164	3.262382
0.81	15	0.037975	-1.77469	-1.437497212	3.149517
0.86	16	0.040506	-1.74484	-1.500560938	3.044461
1.16	17	0.043038	-1.71647	-1.991106546	2.946273
1.23	18	0.04557	-1.68942	-2.077984436	2.854134
1.29	19	0.048101	-1.66355	-2.145976487	2.767391
1.32	20	0.050633	-1.63875	-2.163144381	2.685488
1.4	21	0.053165	-1.61492	-2.260883775	2.607957
1.9	22	0.055696	-1.59197	-3.024735179	2.534355
2.05	23	0.058228	-1.56982	-3.218139682	2.464348
2.26	24	0.060759	-1.54843	-3.499448121	2.39763
2.85	25	0.063291	-1.52772	-4.353999657	2.333926
2.98	26	0.065823	-1.50765	-4.492786957	2.272998
2.98	27	0.068354	-1.48816	-4.434718903	2.214622
3.04	28	0.070886	-1.46923	-4.466444079	2.158622
3.13	29	0.073418	-1.4508	-4.540999817	2.104817
3.15	30	0.075949	-1.43286	-4.513505473	2.053085
3.2	31	0.078481	-1.41536	-4.5291672	2.003257
3.22	32	0.081013	-1.39829	-4.50250518	1.955225
3.22	33	0.083544	-1.38162	-4.448809796	1.908868
3.26	34	0.086076	-1.36532	-4.450949973	1.864104
3.305	35	0.088608	-1.34938	-4.459703905	1.820829
3.49	36	0.091139	-1.33377	-4.654871191	1.778953
3.5	37	0.093671	-1.31849	-4.61469881	1.738404
3.6	38	0.096203	-1.3035	-4.692588846	1.699104
3.74	39	0.098734	-1.2888	-4.820110007	1.661004
3.8	40	0.101266	-1.27437	-4.842615908	1.624026
3.8	41	0.103797	-1.26021	-4.788787464	1.588122
3.95	42	0.106329	-1.24629	-4.922844255	1.553238
4	43	0.108861	-1.23261	-4.930443538	1.51933
4.02	44	0.111392	-1.21916	-4.90101188	1.486344
4.07	45	0.113924	-1.20592	-4.908101573	1.454247
4.09	46	0.116456	-1.19289	-4.878933396	1.422994
4.1	47	0.118987	-1.18006	-4.838265795	1.392553
4.13	48	0.121519	-1.16743	-4.821475159	1.362887
4.2	49	0.124051	-1.15497	-4.850891401	1.333965
4.25	50	0.126582	-1.1427	-4.856467513	1.305759
4.26	51	0.129114	-1.13059	-4.816315914	1.278235
4.3	52	0.131646	-1.11865	-4.810180599	1.25137
4.33	53	0.134177	-1.10686	-4.792702066	1.225138
4.39	54	0.136709	-1.09523	-4.808047242	1.199523
4.4	55	0.139241	-1.08374	-4.76844707	1.174488
4.54	56	0.141772	-1.07239	-4.868659789	1.150025
4.6	57	0.144304	-1.06118	-4.881429049	1.126103
4.6	58	0.146835	-1.0501	-4.83047188	1.102715
4.725	59	0.149367	-1.03915	-4.909994459	1.079837
4.8	60	0.151899	-1.02832	-4.935958714	1.057452
4.9	61	0.15443	-1.01762	-4.986315616	1.035541
4.9	62	0.156962	-1.00702	-4.934408253	1.014093

Nitrate - normal

$4952373 = (\text{sum of } M_i * X_i)^2$

$393 = \text{count} - 1$

$33.75326 = \text{standard deviation}^2$

$383.7677 = \text{sum of } M_i^2$

$0.973 = W \text{ statistic}$

$0.976$  is acceptable low value

Fails Shapiro-Francia test



Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (c

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
5	63	0.159494	-0.99654	-4.98270083	0.993092
5.1	64	0.162025	-0.98617	-5.029453632	0.972526
5.1	65	0.164557	-0.9759	-4.977085837	0.952379
5.14	66	0.167089	-0.96573	-4.963869196	0.932641
5.2	67	0.16962	-0.95567	-4.969470865	0.9133
5.3	68	0.172152	-0.94569	-5.012182783	0.894339
5.4	69	0.174684	-0.93582	-5.053415862	0.875755
5.4	70	0.177215	-0.92603	-5.000558303	0.85753
5.5	71	0.179747	-0.91633	-5.03981255	0.83966
5.6	72	0.182278	-0.90672	-5.077610695	0.822134
5.6	73	0.18481	-0.89718	-5.02423427	0.80494
5.69	74	0.187342	-0.88774	-5.051212383	0.788074
5.8	75	0.189873	-0.87836	-5.094503649	0.771521
5.9	76	0.192405	-0.86907	-5.127499207	0.755279
5.9	77	0.194937	-0.85985	-5.073101192	0.739338
5.95	78	0.197468	-0.8507	-5.061653951	0.723687
5.95	79	0.2	-0.84162	-5.007647246	0.708327
6.1	80	0.202532	-0.83261	-5.078938329	0.693244
6.2	81	0.205063	-0.82367	-5.106755452	0.678433
6.2	82	0.207595	-0.81479	-5.051720109	0.663689
6.2	83	0.210127	-0.80598	-4.997093583	0.649608
6.39	84	0.212658	-0.79723	-5.094307517	0.635578
6.4	85	0.21519	-0.78854	-5.046662409	0.621797
6.45	86	0.217722	-0.77991	-5.030426166	0.608261
6.45	87	0.220253	-0.77134	-4.975129514	0.594962
6.6	88	0.222785	-0.76282	-5.034622745	0.581897
6.6	89	0.225316	-0.75436	-4.978775451	0.569059
6.6	90	0.227848	-0.74595	-4.923280812	0.556444
6.6	91	0.23038	-0.7376	-4.868131327	0.544047
6.69	92	0.232911	-0.72929	-4.878963273	0.531867
6.8	93	0.235443	-0.72104	-4.903060471	0.519896
6.8	94	0.237975	-0.71283	-4.847260243	0.50813
6.8	95	0.240506	-0.70467	-4.791784704	0.496566
6.83	96	0.243038	-0.69656	-4.757530769	0.485201
6.85	97	0.24557	-0.6885	-4.716209389	0.474029
6.865	98	0.248101	-0.68048	-4.671475392	0.463049
6.9	99	0.250633	-0.6725	-4.640240149	0.452254
6.92	100	0.253165	-0.66456	-4.598785426	0.441846
6.945	101	0.255696	-0.65667	-4.560580726	0.431217
6.95	102	0.258228	-0.64882	-4.509282348	0.420964
6.95	103	0.260759	-0.64101	-4.45498506	0.410887
7	104	0.263291	-0.63323	-4.43261797	0.400982
7.005	105	0.265823	-0.6255	-4.381598683	0.391245
7.09	106	0.268354	-0.6178	-4.380180826	0.381673
7.15	107	0.270886	-0.61013	-4.362461823	0.372264
7.15	108	0.273418	-0.60251	-4.307935114	0.363016
7.2	109	0.275949	-0.59492	-4.283398084	0.353926
7.2	110	0.278481	-0.58736	-4.228989383	0.344991
7.2	111	0.281013	-0.57984	-4.174818059	0.33621
7.2	112	0.283544	-0.57235	-4.120884114	0.327579
7.225	113	0.286076	-0.56488	-4.081293298	0.319095
7.25	114	0.288608	-0.55746	-4.04156026	0.310758
7.25	115	0.291139	-0.55006	-3.987935884	0.302566
7.28	116	0.293671	-0.54269	-3.950798327	0.294515
7.28	117	0.296203	-0.53535	-3.897374154	0.286603
7.35	118	0.298734	-0.52804	-3.881128293	0.278831
7.4	119	0.301266	-0.52076	-3.853646376	0.271194
7.4	120	0.303797	-0.51351	-3.799972546	0.263692
7.4	121	0.306329	-0.50628	-3.746492212	0.256322
7.45	122	0.308861	-0.49908	-3.718167932	0.249084
7.5	123	0.311392	-0.49191	-3.68930273	0.241973
7.5	124	0.313924	-0.48476	-3.635688017	0.234991
7.55	125	0.316456	-0.47763	-3.60612546	0.228133
7.56	126	0.318987	-0.47053	-3.557219134	0.2214
7.6	127	0.321519	-0.46346	-3.522263796	0.214791
7.71	128	0.324051	-0.4564	-3.518855522	0.208302
7.715	129	0.326582	-0.44937	-3.466889268	0.201933

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (c)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
7.735	130	0.329114	-0.44236	-3.421663649	0.195683
7.8	131	0.331646	-0.43537	-3.39591702	0.18955
7.8	132	0.334177	-0.42841	-3.341585398	0.183534
7.8	133	0.336709	-0.42146	-3.287404525	0.17763
7.85	134	0.339241	-0.41454	-3.254110084	0.17184
7.9	135	0.341772	-0.40763	-3.220284725	0.166163
8	136	0.344304	-0.40075	-3.205968824	0.160597
8	137	0.346835	-0.39388	-3.151026249	0.15514
8.01	138	0.349367	-0.38703	-3.100108586	0.149792
8.035	139	0.351899	-0.3802	-3.054902828	0.144552
8.08	140	0.35443	-0.37339	-3.016960727	0.139417
8.09	141	0.356962	-0.36659	-2.965722535	0.134389
8.1	142	0.359494	-0.35981	-2.914477363	0.129465
8.1	143	0.362025	-0.35305	-2.859704409	0.124644
8.1	144	0.364557	-0.3463	-2.805069585	0.119927
8.11	145	0.367089	-0.33957	-2.753950218	0.115311
8.12	146	0.36962	-0.33286	-2.702816255	0.110795
8.16	147	0.372152	-0.32616	-2.661462167	0.10638
8.17	148	0.374684	-0.31947	-2.610099773	0.102063
8.18	149	0.377215	-0.3128	-2.558724555	0.097845
8.2	150	0.379747	-0.30615	-2.510398417	0.093725
8.215	151	0.382278	-0.2995	-2.460411309	0.089702
8.37	152	0.38481	-0.29287	-2.451339253	0.085774
8.4	153	0.387342	-0.28625	-2.404536644	0.081942
8.4	154	0.389873	-0.27965	-2.34905292	0.078204
8.4	155	0.392405	-0.27306	-2.293674243	0.07456
8.45	156	0.394937	-0.26648	-2.251714818	0.071009
8.5	157	0.397468	-0.25991	-2.209203558	0.067551
8.51	158	0.4	-0.25335	-2.155979314	0.064184
8.57	159	0.402532	-0.2468	-2.115080133	0.06091
8.6	160	0.405063	-0.24026	-2.066266006	0.057727
8.64	161	0.407595	-0.23374	-2.019475505	0.054632
8.75	162	0.410127	-0.22722	-1.988166787	0.051629
8.8	163	0.412658	-0.22071	-1.942262315	0.048714
8.8	164	0.41519	-0.21421	-1.885086931	0.045888
8.8	165	0.417722	-0.20773	-1.827991582	0.04315
8.81	166	0.420253	-0.20125	-1.772978726	0.0405
8.81	167	0.422785	-0.19478	-1.715968733	0.037937
8.84	168	0.425316	-0.18831	-1.664668162	0.035461
8.9	169	0.427848	-0.18186	-1.61851608	0.033072
8.91	170	0.43038	-0.17541	-1.562880129	0.030768
8.92	171	0.432911	-0.16897	-1.507186198	0.02855
8.95	172	0.435443	-0.16253	-1.454675044	0.026417
8.95	173	0.437975	-0.15611	-1.397145752	0.024369
9	174	0.440506	-0.14969	-1.347171974	0.022406
9	175	0.443038	-0.14327	-1.289444072	0.020527
9	176	0.44557	-0.13686	-1.231767328	0.018731
9	177	0.448101	-0.13046	-1.174141744	0.01702
9.1	178	0.450633	-0.12406	-1.128963277	0.015391
9.2	179	0.453165	-0.11767	-1.082567906	0.013846
9.2	180	0.455696	-0.11128	-1.023797722	0.012384
9.2	181	0.458228	-0.1049	-0.965069376	0.011004
9.21	182	0.460759	-0.09852	-0.907378535	0.009706
9.23	183	0.463291	-0.09215	-0.850502556	0.008491
9.3	184	0.465823	-0.08577	-0.797702342	0.007357
9.3	185	0.468354	-0.07941	-0.738483664	0.006305
9.34	186	0.470886	-0.07304	-0.68221841	0.005335
9.4	187	0.473418	-0.06668	-0.626798965	0.004446
9.4	188	0.475949	-0.06032	-0.567029019	0.003639
9.4	189	0.478481	-0.05397	-0.507280447	0.002912
9.5	190	0.481013	-0.04761	-0.452314453	0.002267
9.6	191	0.483544	-0.04126	-0.396088581	0.001702
9.6	192	0.486076	-0.03491	-0.335123332	0.001219
9.6	193	0.488608	-0.02856	-0.274179911	0.000816
9.6	194	0.491139	-0.02221	-0.21323649	0.000493
9.6	195	0.493671	-0.01586	-0.152303983	0.000252
9.65	196	0.496203	-0.00952	-0.09185834	9.06E-05

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (c)

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i \cdot X_i$	$M_i^2$
9.7	197	0.498734	-0.00317	-0.030778097	1.01E-05
9.7	198	0.501266	0.003173	0.030778097	1.01E-05
9.8	199	0.503797	0.009519	0.093286189	9.06E-05
9.8	200	0.506329	0.015865	0.155476982	0.000252
9.82	201	0.508861	0.022212	0.218123159	0.000493
9.9	202	0.511392	0.02856	0.282748033	0.000816
9.9	203	0.513924	0.034909	0.345595936	0.001219
10	204	0.516456	0.041259	0.412592271	0.001702
10	205	0.518987	0.047612	0.476120476	0.002267
10	206	0.521519	0.053966	0.53966005	0.002912
10.035	207	0.524051	0.060322	0.605333639	0.003639
10.05	208	0.526582	0.066681	0.670141446	0.004446
10.075	209	0.529114	0.073043	0.735904763	0.005335
10.1	210	0.531646	0.079407	0.80200914	0.006305
10.1	211	0.534177	0.085774	0.866321898	0.007357
10.2	212	0.536709	0.092145	0.939883648	0.008491
10.3	213	0.539241	0.098521	1.01476644	0.009706
10.31	214	0.541772	0.104899	1.081507094	0.011004
10.4	215	0.544304	0.111282	1.157336555	0.012384
10.4	216	0.546835	0.11767	1.223772415	0.013846
10.4	217	0.549367	0.124062	1.290243745	0.015391
10.5	218	0.551899	0.13046	1.369832034	0.01702
10.5	219	0.55443	0.136863	1.437061883	0.018731
10.5	220	0.556962	0.143272	1.504351417	0.020527
10.6	221	0.559494	0.149686	1.586669214	0.022406
10.6	222	0.562025	0.156106	1.654720108	0.024369
10.6	223	0.564557	0.162534	1.722855359	0.026417
10.65	224	0.567089	0.168967	1.799499216	0.02855
10.7	225	0.56962	0.175407	1.876859415	0.030768
10.7	226	0.572152	0.181856	1.945856411	0.033072
10.8	227	0.574684	0.188311	2.033757482	0.035461
10.8	228	0.577215	0.194775	2.103571205	0.037937
10.9	229	0.579747	0.201246	2.193583214	0.0405
11	230	0.582278	0.207726	2.284989478	0.04315
11	231	0.58481	0.214214	2.356358664	0.045888
11	232	0.587342	0.220712	2.427827894	0.048714
11.1	233	0.589873	0.227219	2.522131581	0.051629
11.1	234	0.592405	0.233736	2.594465059	0.054632
11.2	235	0.594937	0.240263	2.690951078	0.057727
11.2	236	0.597468	0.2468	2.764165401	0.06091
11.25	237	0.6	0.253347	2.850148917	0.064184
11.35	238	0.602532	0.259906	2.949936516	0.067551
11.35	239	0.605063	0.266475	3.024492685	0.071009
11.4	240	0.607595	0.273056	3.112843615	0.07456
11.4	241	0.610127	0.279649	3.188000392	0.078204
11.5	242	0.612658	0.286254	3.291925168	0.081942
11.5	243	0.61519	0.292872	3.368028842	0.085774
11.5	244	0.617722	0.299502	3.444276331	0.089702
11.6	245	0.620253	0.306146	3.551295322	0.093725
11.6	246	0.622785	0.312803	3.628509148	0.097845
11.7	247	0.625316	0.319474	3.73784178	0.102063
11.7	248	0.627848	0.32616	3.816067078	0.10638
11.7	249	0.63038	0.332859	3.894451993	0.110795
11.8	250	0.632911	0.339575	4.006980589	0.115311
11.9	251	0.635443	0.346305	4.121028155	0.119927
11.95	252	0.637975	0.35305	4.218946628	0.124644
12	253	0.640506	0.359812	4.317744242	0.129465
12	254	0.643038	0.366591	4.399093996	0.134389
12	255	0.64557	0.373386	4.480634743	0.139417
12	256	0.648101	0.380199	4.562393769	0.144552
12	257	0.650633	0.38703	4.644357432	0.149792
12.1	258	0.653165	0.393878	4.765927201	0.15514
12.2	259	0.655696	0.400746	4.889102456	0.160597
12.2	260	0.658228	0.407631	4.97309793	0.166163
12.3	261	0.660759	0.414536	5.098796692	0.17184
12.3	262	0.663291	0.421462	5.183984058	0.17763
12.3	263	0.665823	0.428408	5.269423127	0.183534

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (c

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
12.3	264	0.668354	0.435374	5.355099916	0.18955
12.4	265	0.670886	0.442361	5.485278507	0.195683
12.4	266	0.673418	0.44937	5.572187547	0.201933
12.45	267	0.675949	0.456401	5.682198605	0.208302
12.6	268	0.678481	0.463456	5.839542609	0.214791
12.7	269	0.681013	0.470532	5.975751719	0.2214
12.7	270	0.683544	0.477633	6.065932894	0.228133
12.8	271	0.686076	0.484758	6.20490755	0.234991
12.8	272	0.688608	0.491907	6.296409993	0.241973
12.8	273	0.691139	0.499083	6.388261681	0.249084
12.9	274	0.693671	0.506283	6.531047234	0.256322
13	275	0.696203	0.51351	6.675627446	0.263692
13	276	0.698734	0.520763	6.76991931	0.271194
13.1	277	0.701266	0.528045	6.917385122	0.278831
13.1	278	0.703797	0.535354	7.013132063	0.286603
13.2	279	0.706329	0.542692	7.163535429	0.294515
13.3	280	0.708861	0.55006	7.315799621	0.302566
13.3	281	0.711392	0.557457	7.414172615	0.310758
13.4	282	0.713924	0.564885	7.569457466	0.319095
13.4	283	0.716456	0.572345	7.669423212	0.327579
13.45	284	0.718987	0.579836	7.798792069	0.33621
13.5	285	0.721519	0.58736	7.929355093	0.344991
13.5	286	0.724051	0.594916	8.031371408	0.353926
13.7	287	0.726582	0.602508	8.254365184	0.363016
13.7	288	0.729114	0.610135	8.358842933	0.372264
13.725	289	0.731646	0.617797	8.479264011	0.381673
14	290	0.734177	0.625496	8.756942407	0.391245
14	291	0.736709	0.633231	8.865235941	0.400982
14.03	292	0.739241	0.641005	8.993300776	0.410887
14.1	293	0.741772	0.648818	9.148328218	0.420964
14.15	294	0.744304	0.656671	9.291895935	0.431217
14.2	295	0.746835	0.664564	9.436814025	0.441646
14.3	296	0.749367	0.672499	9.616729585	0.452254
14.3	297	0.751899	0.680477	9.73082274	0.463049
14.4	298	0.75443	0.688498	9.914367183	0.474029
14.5	299	0.756962	0.696564	10.10017513	0.485201
14.5	300	0.759494	0.704674	10.21777621	0.496566
14.5	301	0.762025	0.712832	10.33606964	0.50813
14.5	302	0.764557	0.721038	10.45505542	0.519896
14.6	303	0.767089	0.729292	10.64766275	0.531867
14.6	304	0.76962	0.737596	10.76889657	0.544047
14.65	305	0.772152	0.745952	10.9281915	0.556444
14.75	306	0.774684	0.75436	11.12680877	0.569059
14.8	307	0.777215	0.762822	11.2897601	0.581897
15	308	0.779747	0.771338	11.57006864	0.594962
15	309	0.782278	0.779911	11.6986655	0.608261
15	310	0.78481	0.788541	11.82811502	0.621797
15	311	0.787342	0.797231	11.95846835	0.635578
15.1	312	0.789873	0.805983	12.17034082	0.649608
15.1	313	0.792405	0.814794	12.30338285	0.663889
15.1	314	0.794937	0.82367	12.43742054	0.678433
15.15	315	0.797468	0.832613	12.61408454	0.693244
15.2	316	0.8	0.841621	12.79264507	0.708327
15.2	317	0.802532	0.850698	12.93061177	0.723687
15.2	318	0.805063	0.859848	13.06968443	0.739338
15.2	319	0.807595	0.869068	13.20982847	0.755279
15.2	320	0.810127	0.878363	13.35111301	0.771521
15.3	321	0.812658	0.887735	13.58234613	0.788074
15.4	322	0.81519	0.897185	13.81664424	0.80494
15.4	323	0.817722	0.906716	13.96342941	0.822134
15.5	324	0.820253	0.91633	14.20310809	0.83966
15.6	325	0.822785	0.926029	14.44605732	0.85753
15.6	326	0.825316	0.935818	14.59875693	0.875755
15.74	327	0.827848	0.945695	14.88523717	0.894339
15.9	328	0.83038	0.955667	15.19511284	0.9133
15.9	329	0.832911	0.965733	15.35515958	0.932641
16	330	0.835443	0.975899	15.61438694	0.952379

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (c

Nitrate	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
16.05	331	0.837975	0.986167	15.82798643	0.972526
16.1	332	0.840506	0.99654	16.04429667	0.993092
16.4	333	0.843038	1.007022	16.51516232	1.014093
16.4	334	0.84557	1.017615	16.68889308	1.035541
16.6	335	0.848101	1.028325	17.07019055	1.057452
16.8	336	0.850633	1.039152	17.45775808	1.079837
16.8	337	0.853165	1.050103	17.64172339	1.102715
16.9	338	0.855696	1.06118	17.93394586	1.126103
16.9	339	0.858228	1.072392	18.12342521	1.150025
17	340	0.860759	1.083738	18.4235455	1.174488
17	341	0.863291	1.095227	18.61886176	1.199523
17.2	342	0.865823	1.10686	19.03798511	1.225138
17.2	343	0.868354	1.118647	19.24072239	1.25137
17.3	344	0.870886	1.130591	19.55921721	1.278235
17.3	345	0.873418	1.142698	19.76867952	1.305759
17.3	346	0.875949	1.154974	19.98105267	1.333965
17.39	347	0.878481	1.167427	20.30156247	1.362887
17.4	348	0.881013	1.180065	20.53312801	1.392553
17.8	349	0.883544	1.192893	21.23349987	1.422994
18	350	0.886076	1.205922	21.70659172	1.454247
18	351	0.888608	1.219157	21.94482931	1.486344
18.4	352	0.891139	1.232611	22.68004027	1.51933
18.5	353	0.893671	1.24629	23.05635917	1.553238
18.63	354	0.896203	1.260207	23.47766065	1.588122
18.67	355	0.898734	1.274373	23.79253658	1.624026
18.9	356	0.901266	1.288799	24.35830993	1.661004
19	357	0.903797	1.303497	24.76644113	1.699104
19.3	358	0.906329	1.318485	25.44676772	1.738404
19.5	359	0.908861	1.333774	26.00859261	1.778953
19.6	360	0.911392	1.349381	26.44786582	1.820829
19.6	361	0.913924	1.365322	26.76031272	1.864104
19.65	362	0.916456	1.381618	27.1487927	1.908868
19.8	363	0.918987	1.398294	27.68621198	1.955225
20	364	0.921519	1.415365	28.307295	2.003257
20.1	365	0.924051	1.432859	28.8004635	2.053085
20.75	366	0.926582	1.450799	30.10407227	2.104817
21	367	0.929114	1.469225	30.85372555	2.158622
21	368	0.931646	1.488161	31.25137482	2.214622
21.48	369	0.934177	1.507647	32.38424961	2.272998
21.5	370	0.936709	1.527719	32.84596232	2.333926
22	371	0.939241	1.548428	34.06542419	2.39763
22.35	372	0.941772	1.569824	35.08557165	2.464348
22.4	373	0.944304	1.591966	35.66003579	2.534355
22.9	374	0.946835	1.614917	36.9815989	2.607957
22.9	375	0.949367	1.638746	37.52727753	2.685488
23	376	0.951899	1.663548	38.26159627	2.767391
23	377	0.95443	1.689418	38.85661954	2.854134
23.2	378	0.956962	1.716471	39.82213093	2.946273
23.7	379	0.959494	1.744838	41.35266772	3.044461
23.8	380	0.962025	1.774688	42.23757242	3.149517
23.8	381	0.964557	1.806206	42.98771364	3.262382
23.8	382	0.967089	1.839626	43.78309495	3.384223
24	383	0.96962	1.875242	45.00579962	3.516531
24	384	0.972152	1.913404	45.92169716	3.661115
24.3	385	0.974684	1.954577	47.49621803	3.820371
24.4	386	0.977215	1.99936	48.78439358	3.997442
24.8	387	0.979747	2.048546	50.80393748	4.19654
24.8	388	0.982278	2.103261	52.16087447	4.423707
24.925	389	0.98481	2.165107	53.96528468	4.687687
25	390	0.987342	2.236538	55.91346053	5.002104
25.18	391	0.989873	2.321613	58.45820415	5.389885
25.5	392	0.992405	2.427823	61.90949534	5.894326
26	393	0.994937	2.571469	66.85819244	6.612453
26.9	394	0.997468	2.80299	75.40042861	7.856752

Table B-51. Nitrate Combined Background Data Set, Shapiro-Francia Test of Normality Analysis (censored data set)  
(cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
-2.9957323	1	0.002532	-2.80299	8.39700734	7.856752
-2.9957323	2	0.005063	-2.57147	7.703432494	6.612453
-2.9957323	3	0.007595	-2.42782	7.273108755	5.894326
-2.9957323	4	0.010127	-2.32161	6.954929659	5.389885
-2.9957323	5	0.012658	-2.23654	6.700070329	5.002104
-2.9957323	6	0.01519	-2.16511	6.486080039	4.687687
-2.9957323	7	0.017722	-2.10326	6.30080706	4.423707
-1.5141277	8	0.020253	-2.04855	3.101760108	4.19654
-1.0498221	9	0.022785	-1.99936	2.098972775	3.997442
-0.8209806	10	0.025316	-1.95458	1.604669601	3.820371
-0.7339692	11	0.027848	-1.9134	1.404379591	3.661115
-0.5276327	12	0.03038	-1.87524	0.989438894	3.516531
-0.3011051	13	0.032911	-1.83963	0.553920709	3.384223
-0.2231436	14	0.035443	-1.80621	0.403043323	3.262382
-0.210721	15	0.037975	-1.77469	0.373964068	3.149517
-0.1508229	16	0.040506	-1.74484	0.263161555	3.044461
0.14842	17	0.043038	-1.71647	-0.254758658	2.946273
0.2070142	18	0.04557	-1.68942	-0.349733514	2.854134
0.2546422	19	0.048101	-1.66355	-0.423609468	2.767391
0.2776317	20	0.050633	-1.63875	-0.454967827	2.685488
0.3364722	21	0.053165	-1.61492	-0.543374729	2.607957
0.6418539	22	0.055696	-1.59197	-1.021809489	2.534355
0.7178398	23	0.058228	-1.56982	-1.126882304	2.464348
0.8153648	24	0.060759	-1.54843	-1.262534011	2.39763
1.047319	25	0.063291	-1.52772	-1.600009313	2.333926
1.0919233	26	0.065823	-1.50765	-1.646234484	2.272998
1.0919233	27	0.068354	-1.48816	-1.62495735	2.214622
1.1118575	28	0.070886	-1.46923	-1.633568887	2.158622
1.141033	29	0.073418	-1.4508	-1.655409158	2.104817
1.1474025	30	0.075949	-1.43286	-1.644065794	2.053085
1.1631508	31	0.078481	-1.41536	-1.64628655	2.003257
1.1693814	32	0.081013	-1.39829	-1.635138394	1.955225
1.1693814	33	0.083544	-1.38162	-1.615638276	1.908868
1.1817272	34	0.086076	-1.36532	-1.61343823	1.864104
1.1954365	35	0.088608	-1.34938	-1.613099155	1.820829
1.2499017	36	0.091139	-1.33377	-1.667086414	1.778953
1.252763	37	0.093671	-1.31849	-1.651749651	1.738404
1.2809338	38	0.096203	-1.3035	-1.669693299	1.699104
1.3190856	39	0.098734	-1.2888	-1.700036833	1.661004
1.3350011	40	0.101266	-1.27437	-1.70128879	1.624026
1.3350011	41	0.103797	-1.26021	-1.682377993	1.588122
1.3737156	42	0.106329	-1.24629	-1.712047556	1.553238
1.3862944	43	0.108861	-1.23261	-1.708761519	1.51933
1.3912819	44	0.111392	-1.21916	-1.696191327	1.486344
1.403643	45	0.113924	-1.20592	-1.69268364	1.454247
1.408545	46	0.116456	-1.19289	-1.680243788	1.422994
1.410987	47	0.118987	-1.18006	-1.665056101	1.392553
1.4182774	48	0.121519	-1.16743	-1.655735905	1.362887
1.4350845	49	0.124051	-1.15497	-1.65748552	1.333965
1.446919	50	0.126582	-1.1427	-1.653391773	1.305759
1.4492692	51	0.129114	-1.13059	-1.638530075	1.278235
1.458615	52	0.131646	-1.11865	-1.63167481	1.25137
1.4655675	53	0.134177	-1.10686	-1.622177503	1.225138
1.4793292	54	0.136709	-1.09523	-1.620201551	1.199523
1.4816045	55	0.139241	-1.08374	-1.605671098	1.174488
1.512927	56	0.141772	-1.07239	-1.622450861	1.150025
1.5260563	57	0.144304	-1.06118	-1.619420776	1.126103
1.5260563	58	0.146835	-1.0501	-1.602515666	1.102715
1.5528676	59	0.149367	-1.03915	-1.613665845	1.079837
1.5686159	60	0.151899	-1.02832	-1.613046543	1.057452
1.5892352	61	0.15443	-1.01762	-1.61723027	1.035541

Nitrate - lognormal  
 $103837.2 = (\text{sum of } M_i * X_i)^2$   
 $393 = \text{count} - 1$   
 $0.968856 = \text{standard deviation}^2$   
 $383.7677 = \text{sum of } M_i^2$

0.71 = W statistic

0.976 is acceptable low value  
 Fails Shapiro-Francia test

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
1.58923521	62	0.156962	-1.007022	-1.600394962	1.014093
1.60943791	63	0.159494	-0.99654	-1.603869524	0.993092
1.62924054	64	0.162025	-0.986167	-1.606703873	0.972526
1.62924054	65	0.164557	-0.975899	-1.589974513	0.952379
1.63705308	66	0.167089	-0.965733	-1.580956684	0.932641
1.64865863	67	0.16962	-0.955667	-1.575569424	0.9133
1.66770682	68	0.172152	-0.945695	-1.577141776	0.894339
1.68639895	69	0.174684	-0.935818	-1.578162078	0.875755
1.68639895	70	0.177215	-0.926029	-1.561654869	0.85753
1.70474809	71	0.179747	-0.91633	-1.56211106	0.83966
1.7227666	72	0.182278	-0.906716	-1.562060375	0.822134
1.7227666	73	0.18481	-0.897185	-1.545639818	0.80494
1.73871025	74	0.187342	-0.887735	-1.543514013	0.788074
1.75785792	75	0.189873	-0.878363	-1.544036823	0.771521
1.77495235	76	0.192405	-0.869068	-1.54255369	0.755279
1.77495235	77	0.194937	-0.859848	-1.526188625	0.739338
1.78339122	78	0.197468	-0.850698	-1.517127599	0.723687
1.78339122	79	0.2	-0.841621	-1.50094019	0.708327
1.80828877	80	0.202532	-0.832613	-1.505604451	0.693244
1.82454929	81	0.205063	-0.82367	-1.502826943	0.678433
1.82454929	82	0.207595	-0.814794	-1.486631024	0.663889
1.82454929	83	0.210127	-0.805983	-1.470555413	0.649608
1.85473427	84	0.212658	-0.797231	-1.47865207	0.635578
1.85629799	85	0.21519	-0.788541	-1.463767076	0.621797
1.86408013	86	0.217722	-0.779911	-1.453816661	0.608261
1.86408013	87	0.220253	-0.771338	-1.43783567	0.594962
1.88706965	88	0.222785	-0.762822	-1.439497542	0.581897
1.88706965	89	0.225316	-0.75436	-1.423529703	0.569059
1.88706965	90	0.227848	-0.745952	-1.407662696	0.556444
1.88706965	91	0.23038	-0.737596	-1.391894375	0.544047
1.90061387	92	0.232911	-0.729292	-1.386102435	0.531867
1.91692261	93	0.235443	-0.721038	-1.38217463	0.519896
1.91692261	94	0.237975	-0.712832	-1.366444525	0.50813
1.91692261	95	0.240506	-0.704674	-1.350805949	0.496566
1.92132467	96	0.243038	-0.696564	-1.33832522	0.485201
1.92424865	97	0.24557	-0.688498	-1.324840812	0.474029
1.92643604	98	0.248101	-0.680477	-1.310895638	0.463049
1.93152141	99	0.250633	-0.672499	-1.298945392	0.452254
1.93441577	100	0.253165	-0.664564	-1.285543793	0.441646
1.93802198	101	0.255696	-0.656671	-1.272643005	0.431217
1.93874166	102	0.258228	-0.648818	-1.257889719	0.420964
1.93874166	103	0.260759	-0.641005	-1.242743184	0.410887
1.94591015	104	0.263291	-0.633231	-1.232210899	0.400982
1.94662418	105	0.265823	-0.625496	-1.217605416	0.391245
1.95868534	106	0.268354	-0.617797	-1.210069954	0.381673
1.96711236	107	0.270886	-0.610135	-1.200203155	0.372264
1.96711236	108	0.273418	-0.602508	-1.185201734	0.363016
1.97408103	109	0.275949	-0.594916	-1.174413178	0.353926
1.97408103	110	0.278481	-0.58736	-1.159495514	0.344991
1.97408103	111	0.281013	-0.579836	-1.144642933	0.33621
1.97408103	112	0.283544	-0.572345	-1.129855436	0.327579
1.97754723	113	0.286076	-0.564885	-1.117086543	0.319095
1.98100147	114	0.288608	-0.557457	-1.104322319	0.310758
1.98100147	115	0.291139	-0.55006	-1.089669909	0.302566
1.98513086	116	0.293671	-0.542692	-1.077314793	0.294515
1.98513086	117	0.296203	-0.535354	-1.062746939	0.286603
1.99470031	118	0.298734	-0.528045	-1.05329086	0.278831

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.00148	119	0.301266	-0.520763	-1.042296777	0.271194
2.00148	120	0.303797	-0.51351	-1.027779602	0.263692
2.00148	121	0.306329	-0.506283	-1.013314761	0.256322
2.00821403	122	0.308861	-0.499083	-1.002265371	0.249084
2.01490302	123	0.311392	-0.491907	-0.991144962	0.241973
2.01490302	124	0.313924	-0.484758	-0.976741169	0.234991
2.02154756	125	0.316456	-0.477633	-0.965556839	0.228133
2.02287119	126	0.318987	-0.470532	-0.951824881	0.2214
2.02814825	127	0.321519	-0.463456	-0.939956993	0.214791
2.04251819	128	0.324051	-0.456401	-0.932208353	0.208302
2.04316649	129	0.326582	-0.44937	-0.918137649	0.201933
2.04575548	130	0.329114	-0.442361	-0.904962789	0.195683
2.05412373	131	0.331646	-0.435374	-0.894312019	0.18955
2.05412373	132	0.334177	-0.428408	-0.88000383	0.183534
2.05412373	133	0.336709	-0.421462	-0.865735341	0.17763
2.06051353	134	0.339241	-0.414536	-0.854157689	0.17184
2.0686276	135	0.341772	-0.407631	-0.842517288	0.166163
2.07944154	136	0.344304	-0.400746	-0.833328094	0.160597
2.07944154	137	0.346835	-0.393878	-0.81904686	0.15514
2.08069076	138	0.349367	-0.38703	-0.8052893	0.149792
2.083807	139	0.351899	-0.380199	-0.792262339	0.144552
2.08939187	140	0.35443	-0.373386	-0.780150151	0.139417
2.09062873	141	0.356962	-0.366591	-0.766406025	0.134389
2.09186406	142	0.359494	-0.359812	-0.752677834	0.129465
2.09186406	143	0.362025	-0.35305	-0.738532454	0.124644
2.09186406	144	0.364557	-0.346305	-0.724422747	0.119927
2.09309787	145	0.367089	-0.339575	-0.710762926	0.115311
2.09433015	146	0.36962	-0.332859	-0.697116944	0.110795
2.09924417	147	0.372152	-0.32616	-0.684688595	0.10638
2.10046891	148	0.374684	-0.319474	-0.671044483	0.102063
2.10169215	149	0.377215	-0.312803	-0.657414586	0.097845
2.10413415	150	0.379747	-0.306146	-0.644172567	0.093725
2.10596175	151	0.382278	-0.299502	-0.630740366	0.089702
2.12465388	152	0.38481	-0.292872	-0.622251788	0.085774
2.12823171	153	0.387342	-0.286254	-0.60921561	0.081942
2.12823171	154	0.389873	-0.279649	-0.595158203	0.078204
2.12823171	155	0.392405	-0.273056	-0.58112741	0.07456
2.13416644	156	0.394937	-0.266475	-0.568702272	0.071009
2.14006616	157	0.397468	-0.259906	-0.55621668	0.067551
2.14124194	158	0.4	-0.253347	-0.542476303	0.064184
2.14826773	159	0.402532	-0.2468	-0.530193512	0.06091
2.1517622	160	0.405063	-0.240263	-0.516989895	0.057727
2.15640258	161	0.407595	-0.233736	-0.504028032	0.054632
2.1690537	162	0.410127	-0.227219	-0.492850346	0.051629
2.17475172	163	0.412658	-0.220712	-0.47999299	0.048714
2.17475172	164	0.41519	-0.214214	-0.465863187	0.045888
2.17475172	165	0.417722	-0.207726	-0.451753164	0.04315
2.17588744	166	0.420253	-0.201246	-0.437889006	0.0405
2.17588744	167	0.422785	-0.194775	-0.423808719	0.037937
2.17928688	168	0.425316	-0.188311	-0.410383425	0.035461
2.18605128	169	0.427848	-0.181856	-0.397545971	0.033072
2.18717424	170	0.43038	-0.175407	-0.383646595	0.030768
2.18829595	171	0.432911	-0.168967	-0.369749938	0.02855
2.19165353	172	0.435443	-0.162534	-0.356217173	0.026417
2.19165353	173	0.437975	-0.156106	-0.342129544	0.024369
2.19722458	174	0.440506	-0.149686	-0.328893263	0.022406
2.19722458	175	0.443038	-0.143272	-0.314799801	0.020527



Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.19722458	176	0.44557	-0.136863	-0.300718827	0.018731
2.19722458	177	0.448101	-0.13046	-0.286650344	0.01702
2.20827441	178	0.450633	-0.124062	-0.273962716	0.015391
2.21920348	179	0.453165	-0.11767	-0.261134616	0.013846
2.21920348	180	0.455696	-0.111282	-0.246958203	0.012384
2.21920348	181	0.458228	-0.104899	-0.232791883	0.011004
2.22028985	182	0.460759	-0.098521	-0.218745206	0.009706
2.22245905	183	0.463291	-0.092145	-0.204789502	0.008491
2.2300144	184	0.465823	-0.085774	-0.191278248	0.007357
2.2300144	185	0.468354	-0.079407	-0.177078409	0.006305
2.23430625	186	0.470886	-0.073043	-0.163199664	0.005335
2.24070969	187	0.473418	-0.066681	-0.149412182	0.004446
2.24070969	188	0.475949	-0.060322	-0.135164619	0.003639
2.24070969	189	0.478481	-0.053966	-0.12092215	0.002912
2.2512918	190	0.481013	-0.047612	-0.107188612	0.002267
2.2617631	191	0.483544	-0.041259	-0.093318597	0.001702
2.2617631	192	0.486076	-0.034909	-0.078955165	0.001219
2.2617631	193	0.488608	-0.02856	-0.064596875	0.000816
2.2617631	194	0.491139	-0.022212	-0.050238586	0.000493
2.2617631	195	0.493671	-0.015865	-0.035882867	0.000252
2.26695792	196	0.496203	-0.009519	-0.02157917	9.06E-05
2.27212589	197	0.498734	-0.003173	-0.007209455	1.01E-05
2.27212589	198	0.501266	0.003173	0.007209455	1.01E-05
2.28238239	199	0.503797	0.009519	0.021725995	9.06E-05
2.28238239	200	0.506329	0.015865	0.036209992	0.000252
2.28442112	201	0.508861	0.022212	0.050741869	0.000493
2.29253476	202	0.511392	0.02856	0.065475727	0.000816
2.29253476	203	0.513924	0.034909	0.080029363	0.001219
2.30258509	204	0.516456	0.041259	0.095002881	0.001702
2.30258509	205	0.518987	0.047612	0.109630791	0.002267
2.30258509	206	0.521519	0.053966	0.124261319	0.002912
2.30607898	207	0.524051	0.060322	0.139107841	0.003639
2.30757263	208	0.526582	0.066681	0.153870653	0.004446
2.31005711	209	0.529114	0.073043	0.168732708	0.005335
2.31253542	210	0.531646	0.079407	0.183631143	0.006305
2.31253542	211	0.534177	0.085774	0.198356443	0.007357
2.32238772	212	0.536709	0.092145	0.213997475	0.008491
2.3321439	213	0.539241	0.098521	0.22976518	0.009706
2.3331143	214	0.541772	0.104899	0.244740996	0.011004
2.34180581	215	0.544304	0.111282	0.260601679	0.012384
2.34180581	216	0.546835	0.11767	0.275561283	0.013846
2.34180581	217	0.549367	0.124062	0.290528874	0.015391
2.35137526	218	0.551899	0.13046	0.306760872	0.01702
2.35137526	219	0.55443	0.136863	0.321816358	0.018731
2.35137526	220	0.556962	0.143272	0.336885209	0.020527
2.360854	221	0.559494	0.149686	0.353386261	0.022406
2.360854	222	0.562025	0.156106	0.368542697	0.024369
2.360854	223	0.564557	0.162534	0.383717921	0.026417
2.36555989	224	0.567089	0.168967	0.399701706	0.02855
2.37024374	225	0.56962	0.175407	0.415758344	0.030768
2.37024374	226	0.572152	0.181856	0.431042428	0.033072
2.37954613	227	0.574684	0.188311	0.448094422	0.035461
2.37954613	228	0.577215	0.194775	0.463476364	0.037937
2.38876279	229	0.579747	0.201246	0.480729354	0.0405
2.39789527	230	0.582278	0.207726	0.498105952	0.04315
2.39789527	231	0.58481	0.214214	0.513663755	0.045888
2.39789527	232	0.587342	0.220712	0.529243366	0.048714

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.40694511	233	0.589873	0.227219	0.546903808	0.051629
2.40694511	234	0.592405	0.233736	0.562588737	0.054632
2.41591378	235	0.594937	0.240263	0.580455874	0.057727
2.41591378	236	0.597468	0.2468	0.596248686	0.06091
2.42036813	237	0.6	0.253347	0.613191964	0.064184
2.42921774	238	0.602532	0.259906	0.631368998	0.067551
2.42921774	239	0.605063	0.266475	0.647326105	0.071009
2.43361336	240	0.607595	0.273056	0.664513842	0.07456
2.43361336	241	0.610127	0.279649	0.680557924	0.078204
2.44234704	242	0.612658	0.286254	0.699132493	0.081942
2.44234704	243	0.61519	0.292872	0.71529524	0.085774
2.44234704	244	0.617722	0.299502	0.731488529	0.089702
2.4510051	245	0.620253	0.306146	0.750365771	0.093725
2.4510051	246	0.622785	0.312803	0.766680554	0.097845
2.45958884	247	0.625316	0.319474	0.785773841	0.102063
2.45958884	248	0.627848	0.32616	0.802218462	0.10638
2.45958884	249	0.63038	0.332859	0.818696638	0.110795
2.46809953	250	0.632911	0.339575	0.838103976	0.115311
2.4765384	251	0.635443	0.346305	0.857637351	0.119927
2.48073128	252	0.637975	0.35305	0.875821997	0.124644
2.48490665	253	0.640506	0.359812	0.894099282	0.129465
2.48490665	254	0.643038	0.366591	0.910944827	0.134389
2.48490665	255	0.64557	0.373386	0.927829922	0.139417
2.48490665	256	0.648101	0.380199	0.944760218	0.144552
2.48490665	257	0.650633	0.38703	0.961732889	0.149792
2.49320545	258	0.653165	0.393878	0.982019478	0.15514
2.50143595	259	0.655696	0.400746	1.002440709	0.160597
2.50143595	260	0.658228	0.407631	1.019662783	0.166163
2.50959926	261	0.660759	0.414536	1.040320034	0.17184
2.50959926	262	0.663291	0.421462	1.057701022	0.17763
2.50959926	263	0.665823	0.428408	1.075133365	0.183534
2.50959926	264	0.668354	0.435374	1.092614211	0.18955
2.51769647	265	0.670886	0.442361	1.113731157	0.195683
2.51769647	266	0.673418	0.44937	1.131377172	0.201933
2.52172062	267	0.675949	0.456401	1.150917061	0.208302
2.53369681	268	0.678481	0.463456	1.174256389	0.214791
2.54160199	269	0.681013	0.470532	1.195904132	0.2214
2.54160199	270	0.683544	0.477633	1.213951743	0.228133
2.54944517	271	0.686076	0.484758	1.235864968	0.234991
2.54944517	272	0.688608	0.491907	1.254090004	0.241973
2.54944517	273	0.691139	0.499083	1.272384601	0.249084
2.55722731	274	0.693671	0.506283	1.294680028	0.256322
2.56494936	275	0.696203	0.51351	1.317126641	0.263692
2.56494936	276	0.698734	0.520763	1.335730783	0.271194
2.57261223	277	0.701266	0.528045	1.358454165	0.278831
2.57261223	278	0.703797	0.535354	1.3772572	0.286603
2.58021683	279	0.706329	0.542692	1.400263233	0.294515
2.58776404	280	0.708861	0.55006	1.423425801	0.302566
2.58776404	281	0.711392	0.557457	1.442566108	0.310758
2.59525471	282	0.713924	0.564885	1.466020158	0.319095
2.59525471	283	0.716456	0.572345	1.485381096	0.327579
2.59897911	284	0.718987	0.579836	1.506981237	0.33621
2.60268969	285	0.721519	0.58736	1.528714868	0.344991
2.60268969	286	0.724051	0.594916	1.54838278	0.353926
2.61739583	287	0.726582	0.602508	1.577002995	0.363016
2.61739583	288	0.729114	0.610135	1.596963552	0.372264
2.61921899	289	0.731646	0.617797	1.618145668	0.381673

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.63905733	290	0.734177	0.625496	1.650719503	0.391245
2.63905733	291	0.736709	0.633231	1.671133278	0.400982
2.64119789	292	0.739241	0.641005	1.693021174	0.410887
2.6461748	293	0.741772	0.648818	1.716884792	0.420964
2.64971462	294	0.744304	0.656671	1.739990993	0.431217
2.65324196	295	0.746835	0.664564	1.763250069	0.441646
2.66025954	296	0.749367	0.672499	1.789020741	0.452254
2.66025954	297	0.751899	0.680477	1.810245734	0.463049
2.66722821	298	0.75443	0.688498	1.836380542	0.474029
2.67414865	299	0.756962	0.696564	1.862715151	0.485201
2.67414865	300	0.759494	0.704674	1.884403617	0.496566
2.67414865	301	0.762025	0.712832	1.906219769	0.50813
2.67414865	302	0.764557	0.721038	1.928163608	0.519896
2.68102153	303	0.767089	0.729292	1.95524747	0.531867
2.68102153	304	0.76962	0.737596	1.977509832	0.544047
2.68444034	305	0.772152	0.745952	2.002462666	0.556444
2.69124308	306	0.774684	0.75436	2.030165908	0.569059
2.69462718	307	0.777215	0.762822	2.055519893	0.581897
2.7080502	308	0.779747	0.771338	2.08882178	0.594962
2.7080502	309	0.782278	0.779911	2.112038231	0.608261
2.7080502	310	0.78481	0.788541	2.135408617	0.621797
2.7080502	311	0.787342	0.797231	2.158942174	0.635578
2.71469474	312	0.789873	0.805983	2.187997369	0.649608
2.71469474	313	0.792405	0.814794	2.211915811	0.663889
2.71469474	314	0.794937	0.82367	2.236013256	0.678433
2.71800053	315	0.797468	0.832613	2.263042144	0.693244
2.72129543	316	0.8	0.841621	2.290300429	0.708327
2.72129543	317	0.802532	0.850698	2.315000967	0.723687
2.72129543	318	0.805063	0.859848	2.339899505	0.739338
2.72129543	319	0.807595	0.869068	2.364989856	0.755279
2.72129543	320	0.810127	0.878363	2.390284394	0.771521
2.72785283	321	0.812658	0.887735	2.421610543	0.788074
2.73436751	322	0.81519	0.897185	2.453232669	0.80494
2.73436751	323	0.817722	0.906716	2.479295305	0.822134
2.74084002	324	0.820253	0.91633	2.511512718	0.83966
2.74727091	325	0.822785	0.926029	2.544053404	0.85753
2.74727091	326	0.825316	0.935818	2.570944892	0.875755
2.75620524	327	0.827848	0.945695	2.606529144	0.894339
2.76631911	328	0.83038	0.955667	2.643681196	0.9133
2.76631911	329	0.832911	0.965733	2.671526501	0.932641
2.77258872	330	0.835443	0.975899	2.705767071	0.952379
2.77570885	331	0.837975	0.986167	2.737313521	0.972526
2.77881927	332	0.840506	0.99654	2.769205018	0.993092
2.79728133	333	0.843038	1.007022	2.816924103	1.014093
2.79728133	334	0.84557	1.017615	2.846556654	1.035541
2.8094027	335	0.848101	1.028325	2.888978274	1.057452
2.82137889	336	0.850633	1.039152	2.931842264	1.079837
2.82137889	337	0.853165	1.050103	2.962737255	1.102715
2.82731362	338	0.855696	1.06118	3.000289314	1.126103
2.82731362	339	0.858228	1.072392	3.031988578	1.150025
2.83321334	340	0.860759	1.083738	3.070460879	1.174488
2.83321334	341	0.863291	1.095227	3.103012211	1.199523
2.84490938	342	0.865823	1.10686	3.148915261	1.225138
2.84490938	343	0.868354	1.118647	3.182448354	1.25137
2.8507065	344	0.870886	1.130591	3.222981946	1.278235
2.8507065	345	0.873418	1.142698	3.257497297	1.305759
2.8507065	346	0.875949	1.154974	3.292492298	1.333965

Table B-51. Nitrate Combined Background Data Set,  
Shapiro-Francia Test of Normality Analysis (censored data set) (cont.)

Nitrate (lognormal)	Count	$i/(n+1)$	$M_i$	$M_i * X_i$	$M_i^2$
2.85589533	347	0.878481	1.167427	3.334050456	1.362887
2.85647021	348	0.881013	1.180065	3.370820023	1.392553
2.87919846	349	0.883544	1.192893	3.434576408	1.422994
2.89037176	350	0.886076	1.205922	3.485562204	1.454247
2.89037176	351	0.888608	1.219157	3.523817493	1.486344
2.91235066	352	0.891139	1.232611	3.589795129	1.51933
2.91777073	353	0.893671	1.24629	3.636387566	1.553238
2.92477318	354	0.896203	1.260207	3.685820306	1.588122
2.92691796	355	0.898734	1.274373	3.729984069	1.624026
2.93916192	356	0.901266	1.288799	3.787990319	1.661004
2.94443898	357	0.903797	1.303497	3.838067086	1.699104
2.9601051	358	0.906329	1.318485	3.902855275	1.738404
2.97041447	359	0.908861	1.333774	3.961861524	1.778953
2.97552957	360	0.911392	1.349381	4.015122792	1.820829
2.97552957	361	0.913924	1.365322	4.062556209	1.864104
2.97807734	362	0.916456	1.381618	4.114565104	1.908868
2.98568194	363	0.918987	1.398294	4.174859749	1.955225
2.99573227	364	0.921519	1.415365	4.24005386	2.003257
3.00071982	365	0.924051	1.432859	4.299608035	2.053085
3.03254625	366	0.926582	1.450799	4.399614041	2.104817
3.04452244	367	0.929114	1.469225	4.473088558	2.158622
3.04452244	368	0.931646	1.488161	4.53073866	2.214622
3.06712227	369	0.934177	1.507647	4.624136553	2.272998
3.06805294	370	0.936709	1.527719	4.687123308	2.333926
3.09104245	371	0.939241	1.548428	4.786257834	2.39763
3.10682632	372	0.941772	1.569824	4.877171253	2.464348
3.10906096	373	0.944304	1.591966	4.949518976	2.534355
3.13113691	374	0.946835	1.614917	5.056526171	2.607957
3.13113691	375	0.949367	1.638746	5.131137285	2.685488
3.13549422	376	0.951899	1.663548	5.216044079	2.767391
3.13549422	377	0.95443	1.689418	5.297161122	2.854134
3.14415228	378	0.956962	1.716471	5.396846711	2.946273
3.16547505	379	0.959494	1.744838	5.523242103	3.044461
3.16968558	380	0.962025	1.774688	5.6252027	3.149517
3.16968558	381	0.964557	1.806206	5.725106558	3.262382
3.16968558	382	0.967089	1.839626	5.831035494	3.384223
3.17805383	383	0.96962	1.875242	5.959618911	3.516531
3.17805383	384	0.972152	1.913404	6.080901065	3.661115
3.19047635	385	0.974684	1.954577	6.23603129	3.820371
3.19458313	386	0.977215	1.99936	6.387122986	3.997442
3.21084365	387	0.979747	2.048546	6.577560493	4.19654
3.21084365	388	0.982278	2.103261	6.75324245	4.423707
3.21587132	389	0.98481	2.165107	6.962704556	4.687687
3.21887582	390	0.987342	2.236538	7.199139455	5.002104
3.22605003	391	0.989873	2.321613	7.489638251	5.389885
3.23867845	392	0.992405	2.427823	7.862939159	5.894326
3.25809654	393	0.994937	2.571469	8.378094051	6.612453
3.29212629	394	0.997468	2.80299	9.227796768	7.856752