

GRC89

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March 1, 1989

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Route 3, Box 7
Gallup, New Mexico
87301

HAZARDOUS WASTE SECTION

505
722-3833

Jack Elvinger
Bureau Chief
Hazardous Waste Division
NMEID
P.O. Box 968
Santa Fe, NM 87504-0968

RE: Giant Refining's Annual Ground Water Monitoring
Report, Ciniza Refinery

Dear Mr. Elvinger:

Attached is the information required pursuant to NMHWMR-5
Part VI Sec. 265.94. The additional information your
staff requested is anticipated to be completed and for-
warded to your office by March 31, 1989.

Please contact Bob McClenahan, Jr. if you or your staff
have any questions regarding this submittal.

Sincerely,

A handwritten signature in cursive script, appearing to read "Bob McClenahan, Jr.", written in dark ink.

John J. Stokes
Refinery Manager

JJS:ds

cc: Bob McClenahan
Kim Bullerdick

Attachments

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMDQQ0333211-1

Date: SPRING 88 Parameter: TOC

Well Number: 1 Up or Downgradient: DOWN

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)2= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1.1	0
2	1.1	0
3	1.1	0
4	1.1	0
Total 1	4.4	Total 2 0
Mean value X(m)	1.1	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= -5.71524

If t(*) is negative there has not been an increase in the value

t(c)= 2.602

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMDQ000333211-1

Date: SPRING 88 Parameter: TOX

Well Number: 1 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)2= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	0.0025	0
2	0.0025	0
3	0.0025	0
4	0.0025	0
Total 1	0.01	Total 2 0
Mean value X(m)	0.0025	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= -29.4803

If t(*) is negative there has not
been an increase in the value

t(c)= 2.602

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: pH

Well Number: 1 UP or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	9.13	0.001225
2	9.18	0.000225
3	9.16	0.000025
4	9.19	0.000625
Total 1	36.66	Total 2 0.0021
Mean value X(m)	9.165	t(m) = 5.841
Variance S(m) ²	0.0007	W(m) = 0.000175

$t(*) = 19.63773$

$t(c) = 3.402235$

If $t(*)$ absolute is greater than $t(c)$
there has been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: SPEC. COND.

Well Number: 1 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1100	2256.25
2	1020	1056.25
3	1010	1806.25
4	1080	756.25
Total 1	4210	Total 2 5875
Mean value X(m)	1052.5	t(m)= 4.541
Variance S(m)2	1958.333	W(m)= 489.5833

t(*)= 2.838146

If t(*) is negative there has not
been an increase in the value

t(c)= 4.231644

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone:(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: FALL 88 Parameter: TOC

Well Number: 1 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)2= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²	
1	3	0.25	
2	3	0.25	
3	4	0.25	
4	4	0.25	
Total 1	14	Total 2	1
Mean value X(m)	3.5	t(m)=	4.541
Variance S(m) ²	0.333333	W(m)=	0.083333

t(*)= -2.89593

If t(*) is nesative there has not
been an increase in the value

t(c)= 2.783690

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: TOX

Well Number: 1 UP or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)²= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	0.017	0.000006
2	0.025	0.000112
3	0.02	0.000031
4	0.01	0.000019
Total 1	0.072	Total 2 0.000169
Mean value X(m)	0.0144	t(m)= 4.541
Variance S(m) ²	0.000056	W(m)= 0.000014

t(*)= -29.3084

If t(*) is negative there has not
been an increase in the value

t(c)= 2.605912

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: pH

Well Number: 1 UP or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 8.51 S(b)2= 0.015 t(b)= 2.947
W(b)= 0.000937 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	8.9	0.000156
2	8.85	0.001406
3	8.9	0.000156
4	8.9	0.000156
Total 1	35.55	Total 2 0.001875
Mean value X(m)	8.8875	t(m)= 5.841
Variance S(m)2	0.000625	W(m)= 0.000156

t(*)= 11.41452

t(c)= 3.360428

If t(*) absolute is greater than t(c)
there has been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: SPEC. COND.

Well Number: 1 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1100	0
2	1100	0
3	1100	0
4	1100	0
Total 1	4400	Total 2 0
Mean value X(m)	1100	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= 12.03268

t(c)= 2.602

If t(*) is negative there has not
been an increase in the value

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833
 Facility Name: GIANT CINIZA EPA ID #: NMDO00333211-1
 Date: SPRING 88 Parameter: TOC
 Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)2= 12.892 t(b)= 2.602
 W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	0.8	0.015625
2	1	0.005625
3	0.9	0.000625
4	1	0.005625
Total 1	3.7	Total 2 0.0275
Mean value X(m)	0.925	t(m)= 4.541
Variance S(m) ²	0.009166	W(m)= 0.002291

t(*)= -5.90178

If t(*) is negative there has not
been an increase in the value

t(c)= 2.607497

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: TOX

Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)2= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	0.0025	0
2	0.0025	0
3	0.0025	0
4	0.0025	0
Total 1	0.01	Total 2 0
Mean value X(m)	0.0025	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= -29.4803

If t(*) is nesative there has not
been an increase in the value

t(c)= 2.602

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: pH

Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	9.18	0.000156
2	9.2	0.000056
3	9.19	0.000006
4	9.2	0.000056
Total 1	36.77	Total 2 0.000275
Mean value X(m)	9.1925	t(m) = 4.541
Variance S(m) ²	0.000091	W(m) = 0.000022

$t(*) = 22.02281$

If $t(*)$ is negative there has not
been an increase in the value

$t(c) = 2.985034$

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: SPEC. COND.

Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1220	100
2	1210	400
3	1210	400
4	1280	2500
Total 1	4920	Total 2 3400
Mean value X(m)	1230	t(m)= 4.541
Variance S(m)2	1133.333	W(m)= 283.3333

t(*)= 12.68191

If t(*) is nesative there has not
been an increase in the value

t(c)= 4.062074

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: FALL 88 Parameter: TOC

Well Number: 2 Up or Down gradient: DOWN

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)²= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value		(Value - X(m)) ²
1	4		0.0625
2	4		0.0625
3	4		0.0625
4	3		0.5625
Total 1	15	Total 2	0.75
Mean value X(m)	3.75	t(m)=	4.541
Variance S(m) ²	0.25	W(m)=	0.0625

t(*)= -2.66220

If t(*) is negative there has not been an increase in the value

t(c)= 2.741536

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: TOX

Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)²= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	0.024	0.000036
2	0.017	0.000001
3	0.02	0.000004
4	0.011	0.000049
Total 1	0.072	Total 2 0.00009
Mean value X(m)	0.018	t(m)= 4.541
Variance S(m) ²	0.00003	W(m)= 0.000007

t(*)= -29.2793

If t(*) is negative there has not
been an increase in the value

t(c)= 2.604075

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMDO00333211-1

Date: FALL 88 Parameter: pH

Well Number: 2 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	8.9	0
2	8.9	0
3	8.9	0
4	8.9	0
Total 1	35.6	Total 2 0
Mean value X(m)	8.9	t(m) = 4.541
Variance S(m) ²	0	W(m) = 0

$t(*) = 12.73734$

If t(*) is negative there has not
been an increase in the value

$t(c) = 2.947$

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: SPEC. COND.

Well Number: 2 UP or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1100	0
2	1100	0
3	1100	0
4	1100	0
Total 1	4400	Total 2 0
Mean value X(m)	1100	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= 12.03268

If t(*) is negative there has not
been an increase in the value

t(c)= 2.602

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: SPRING 88 Parameter: TOC

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)2= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	1.4	0.0016
2	1.44	0.0064
3	1.3	0.0036
4	1.3	0.0036
Total 1	5.44	Total 2 0.0152
Mean value X(m)	1.36	t(m)= 4.541
Variance S(m) ²	0.005066	W(m)= 0.001266

t(*)= -5.42137

If t(*) is negative there has not
been an increase in the value

t(c)= 2.605042

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: TOX

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)2= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	0.0025	0
2	0.0025	0
3	0.0025	0
4	0.0025	0
Total 1	0.01	Total 2 0
Mean value X(m)	0.0025	t(m)= 4.541
Variance S(m)2	0	W(m)= 0

t(*)= -29.4803

If t(*) is negative there has not
been an increase in the value

t(c)= 2.602

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: pH

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	8.9	0.0001
2	8.88	0.0001
3	8.89	0
4	8.89	0
Total 1	35.56	Total 2 0.0002
Mean value X(m)	8.89	t(m) = 5.841
Variance S(m) ²	0.000066	W(m) = 0.000016

$t(*) = 12.30187$

$t(c) = 2.997550$

If $t(*)$ absolute is less than $t(c)$
there has not been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClonahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMDO00333211-1

Date: SPRING 88 Parameter: SPEC. COND.

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1190	5625
2	1110	24025
3	1390	15625
4	1370	11025
Total 1	5060	Total 2 56300
Mean value X(m)	1265	t(m)= 4.541
Variance S(m)2	18766.66	W(m)= 4691.666

t(*)= 4.062405

If t(*) is negative there has not
been an increase in the value

t(c)= 4.503336

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: FALL 88 Parameter: TOC

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)²= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	4	0.25
2	4	0.25
3	5	0.25
4	5	0.25
Total 1	18	Total 2 1
Mean value X(m)	4.5	t(m)= 4.541
Variance S(m) ²	0.333333	W(m)= 0.083333

t(*)= -1.83554

If t(*) is negative there has not
been an increase in the value

t(c)= 2.783690

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: TOX

Well Number: 4 UP or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)2= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	0.022	0.000002
2	0.023	0.000006
3	0.014	0.000042
4	0.023	0.000006
Total 1	0.082	Total 2 0.000057
Mean value X(m)	0.0205	t(m)= 4.541
Variance S(m)2	0.000019	W(m)= 0.000004

t(*)= -29.2552

If t(*) is negative there has not
been an increase in the value

t(c)= 2.603314

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: pH

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	8.6	0.000625
2	8.55	0.000625
3	8.6	0.000625
4	8.55	0.000625
Total 1	34.3	Total 2 0.0025
Mean value X(m)	8.575	t(m) = 5.841
Variance S(m) ²	0.000833	W(m) = 0.000208

$t(*) = 1.920227$

$t(c) = 3.473181$

If $t(*)$ absolute is less than $t(c)$
there has not been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: SPEC. COND.

Well Number: 4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1100	5625
2	1200	625
3	1200	625
4	1200	625
Total 1	4700	Total 2 7500
Mean value X(m)	1175	t(m)= 4.541
Variance S(m)2	2500	W(m)= 625

t(*)= 7.128366

If t(*) is negative there has not
been an increase in the value

t(c)= 4.289995

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: SPRING 88 Parameter: TOC

Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)²= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	1.1	0.005625
2	1.1	0.005625
3	0.9	0.015625
4	1	0.000625
Total 1	4.1	Total 2 0.0275
Mean value X(m)	1.025	t(m)= 4.541
Variance S(m) ²	0.009166	W(m)= 0.002291

t(*)= -5.79055

If t(*) is negative there has not
been an increase in the value

t(c)= 2.607497

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: TOX

Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 2.469$ $S(b)^2 = 0.11$ $t(b) = 2.602$
 $W(b) = 0.007$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	0.0025	0.000001
2	0.007	0.000011
3	0.0025	0.000001
4	0.0025	0.000001
Total 1	0.0145	Total 2 0.000015
Mean value X(m)	0.003625	t(m) = 4.541
Variance S(m) ²	0.000005	W(m) = 0.000001

$t(*) = -29.4642$

If $t(*)$ is negative there has not
been an increase in the value

$t(c) = 2.602350$

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: pH

Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	8	0.0004
2	7.99	0.0001
3	7.99	0.0001
4	7.94	0.0016
Total 1	31.92	Total 2 0.0022
Mean value X(m)	7.98	t(m) = 5.841
Variance S(m) ²	0.000733	W(m) = 0.000183

$t(*) = -15.8308$

$t(c) = 3.420368$

If $t(*)$ absolute is less than $t(c)$
there has not been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: SPRING 88 Parameter: SPEC. COND.

Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 984$ $S(b)^2 = 1487$ $t(b) = 2.602$
 $W(b) = 92.9375$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	1270	400
2	1240	100
3	1240	100
4	1250	0
Total 1	5000	Total 2 600
Mean value X(m)	1250	t(m) = 4.541
Variance S(m) ²	200	W(m) = 50

$t(*) = 22.24890$

If t(*) is negative there has not
been an increase in the value

$t(c) = 3.280268$

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone: (505) 722-3833

Facility Name: GIANT CINIZA EPA ID #: NMD000333211-1

Date: FALL 88 Parameter: TOC

Well Number: 5 Up or Down gradient: DOWN

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

X(b)= 6.231 S(b)²= 12.892 t(b)= 2.602
W(B)= 0.806 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²	
1	4	0.0625	
2	4	0.0625	
3	4	0.0625	
4	3	0.5625	
Total 1	15	Total 2	0.75
Mean value X(m)	3.75	t(m)=	4.541
Variance S(m) ²	0.25	W(m)=	0.0625

t(*)= -2.66220

If t(*) is negative there has not been an increase in the value

t(c)= 2.741536

Z

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833
Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1
Date: FALL 88 Parameter: TOX
Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 2.469 S(b)2= 0.11 t(b)= 2.602
W(b)= 0.007 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	0.003	0.000000
2	0.005	0.000001
3	0.003	0.000000
4	0.004	0.000000
Total 1	0.015	Total 2 0.000002
Mean value X(m)	0.00375	t(m)= 4.541
Variance S(m)2	0.000000	W(m)= 0.000000

t(*)= -29.4648

If t(*) is negative there has not
been an increase in the value

t(c)= 2.602063

X

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMD000333211-1

Date: FALL 88 Parameter: pH

Well Number: 5 Up or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

$X(b) = 8.51$ $S(b)^2 = 0.015$ $t(b) = 2.947$
 $W(b) = 0.000937$ $n(b) = 16$

Please list the current values for this monitoring well.

	Value	(Value - X(m)) ²
1	8.9	0
2	8.9	0
3	8.9	0
4	8.9	0
Total 1	35.6	Total 2 0
Mean value X(m)	8.9	t(m) = 5.841
Variance S(m) ²	0	W(m) = 0

$t(*) = 12.73734$

$t(c) = 2.947$

If $t(*)$ absolute is less than $t(c)$
there has not been an increase
in the value

C

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Print Your Name: R. L. McClenahan Telephone(505) 722-3833

Facility Name: GIANT CINIZA EPA ID #:NMDO00333211-1

Date: FALL 88 Parameter: SPEC. COND.

Well Number: 5 UP or Downgradient: DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)= 984 S(b)2= 1487 t(b)= 2.602
W(b)= 92.9375 n(b)= 16

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1200	2500
2	1150	0
3	1100	2500
4	1150	0
Total 1	4600	Total 2 5000
Mean value X(m)	1150	t(m)= 4.541
Variance S(m)2	1666.666	W(m)= 416.6666

t(*)= 7.353457

If t(*) is negative there has not
been an increase in the value

t(c)= 4.187380