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MINISTERIO DE AGRICULTURA

INSTITUTO NACIONAL DE AMPLIACION DE LA FONTERA **AGRICOLA**
PROYECTO ESPECIAL DE REHABILITACION DE TIERRAS **COSTERAS**

A N E X O 1
SANTA-LACRAMARCA

AUTORIDAD NACIONAL DEL AGUA

ESTUDIO GEOFISICO De RESISTIVIDAD ELECTRICA

MAYO 1985

JOSE E. ARCE HELBERG
GEOFISICO DE EXPLORACIONES
ESTUDIO NO. 300-85

BY NC ND

MINISTERIO DE AGRICULTURA

INSTITUTO NACIONAL DE AMPLIACION DE LA FONTERA AGRICOLA

PROYECTO ESPECIAL DE REHAIBLITACION DE TIERRAS COSTERAS

PLANREHATIC III

A N E X O 1
SANTA-LACRAMARCA

AUTORIDAD NACIONAL DEL AGUA

ESTUDIO GEOFISICO DE RESISTIVIDAD ELECTRICA

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ANEXO 1 : Santa-Lacramarca

Ubicación de Sondeos Eléctricos Verticales

SEV	N	E	Cota
A1	9 015 590	774 600	161 m
A2	9 015 920	774 450	162 m
A3	9 016 300	774 280	170 m
A4	9 017 330	773 340	178 m
A5	9 017 400	772 950	178 m
B1	9 011 290	772 940	133 m
B2	9 011 800	772 500	127 m
B3	9 012 290	772 270	123 m
B4	9 012 780	771 780	112 m
B5	9 013 330	771 260	115 m
B6	9 013 730	770 870	111 m
C1	9 009 710	770 120	85 m
C2	9 010 130	769 640	80 m
C3	9 011 200	768 440	77 m
D1	9 013 550	767 220	60 m
D2	9 013 600	766 870	58 m
D3	9 013 680	766 500	60 m
D4	9 013 750	766 150	60 m
E1	9 008 980	767 830	64 m
E2	9 008 580	767 600	61 m
E3	9 008 130	767 380	59 m
E4	9 007 710	767 100	58 m
E5	9 007 310	766 770	52 m
F1	9 005 960	774 020	99 m
F2	9 006 390	773 950	100 m
F3	9 006 520	772 950	102 m
F4	9 006 030	771 450	90 m
F5	9 005 850	771 070	98 m
F6	9 005 340	769 300	78 m
G1	9 002 250	771 370	62 m
G2	9 002 350	770 900	54 m
G3	9 002 610	770 200	55 m
G4	9 002 780	769 650	55 m
H1	8 998 000	769 770	29 m
H2	8 998 230	769 080	26 m
H3	8 998 520	768 330	28 m
H4	8 998 770	767 800	24 m
H5	8 998 960	767 050	23 m

GEOFISICA APLICADA
JOSE E. ARCE HELBERG
LIMA - PERU
25/5/85

BY NC ND

PLANREHATIC III
SANTA-LACRAMARCA

A1

R=> 132, 90, 16, 110, 0, 0,
H=> 2, 22, 160, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	131.18	1.5	129.7
2.15	126.57	3.23	119.73
4.64	111.11	6.96	101.41
10	94.64	15	88.55
21.54	81.23	32.31	66.44
46.41	48.2	69.62	30.18
99.99	21.75	149.99	20.17
215.42	23.04	323.13	29.56
464.1	37.92	696.15	49.43
999.86	60.8	1499.78	73.68

A2

R=> 34, 110, 42, 10, 260, 0,
H=> .7, 4, 28, 130, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	41.73	1.5	50.12
2.15	59.67	3.23	70.24
4.64	76.74	6.96	77.08
10	70.09	15	57.97
21.54	48	32.31	38.92
46.41	30.69	69.62	21.6
99.99	16.4	149.99	15.86
215.42	19.67	323.13	27.66
464.1	37.84	696.15	53.12
999.86	70.72	1499.78	95.01

A3

R=> 108, 80, 30, 300, 0, 0,
H=> 1.5, 8, 125, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	106.76	1.5	105.01
2.15	101.53	3.23	95.12
4.64	88.28	6.96	80.34
10	71.69	15	58.8
21.54	46.79	32.31	37.32
46.41	33.55	69.62	32.82
99.99	34.31	149.99	39.55
215.42	49.27	323.13	66.76
464.1	87.93	696.15	117.01
999.86	146.76	1499.78	182.15

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PLANREHATIC III
SANTA-LACRAMARCA

A4

R=> 120, 400, 150, 30, 250, 0,
H=> 1, 2.3, 25, 150, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	131.36	1.5	147.56
2.15	169.78	3.23	195.19
4.64	207.29	6.96	202.1
10	185.42	15	164.55
21.54	147.71	32.31	124.64
46.41	96.04	69.62	63.41
99.99	45.11	149.99	40.38
215.42	46.55	323.13	61.15
464.1	79.46	696.15	104.67
999.86	130.07	1499.78	159.58

A5

R=> 90, 360, 220, 30, 18, 220,
H=> .7, 1.8, 20, 35, 220, 0,

AB/2=	Ra	AB/2=	Ra
1	113.25	1.5	137.59
2.15	165.18	3.23	195.1
4.64	214.39	6.96	223.79
10	222.36	15	212.27
21.54	192.61	32.31	150.74
46.41	100.07	69.62	51.24
99.99	28.57	149.99	22
215.42	23.38	323.13	28.76
464.1	37.4	696.15	51.66
999.86	68.11	1499.78	90.2

B1

R=> 166, 55, 24, 11, 250, 0,
H=> .7, 8, 30, 170, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	135.87	1.5	108.1
2.15	83.43	3.23	65.42
4.64	58.06	6.96	53.73
10	49.01	15	41.25
21.54	33.58	32.31	26.37
46.41	21.41	69.62	17.14
99.99	14.81	149.99	14.54
215.42	16.8	323.13	22.52
464.1	30.61	696.15	43.25
999.86	58.11	1499.78	79.15

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PLANREHATIC III
SANTA-LACRAMARCA

B2

R=> 48, 200, 30, 8, 450, 0,
H=> .6, 6, 34, 110, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	65.55	1.5	82.58
2.15	101.36	3.23	122.51
4.64	137.79	6.96	144.21
10	132.79	15	100.02
21.54	65.91	32.31	39.12
46.41	26.91	69.62	19.34
99.99	15.54	149.99	15.89
215.42	20.61	323.13	29.86
464.1	41.52	696.15	59.39
999.86	80.84	1499.78	112.23

B3

R=> 45, 50, 11, 270, 0, 0,
H=> 1.5, 24, 90, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	45.14	1.5	45.37
2.15	45.83	3.23	46.73
4.64	47.73	6.96	48.62
10	48.86	15	48.22
21.54	46.15	32.31	40.51
46.41	32.31	69.62	23.31
99.99	19.85	149.99	22.9
215.42	30.56	323.13	43.28
464.1	58.36	696.15	79.94
999.86	103.43	1499.78	133.54

B4

R=> 5.5, 220, 19, 190, 0, 0,
H=> .5, 4, 240, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	10.63	1.5	15.21
2.15	21.15	3.23	30
4.64	39.62	6.96	51.09
10	59.44	15	61.96
21.54	55.27	32.31	40.98
46.41	29.26	69.62	22.33
99.99	20.59	149.99	20.72
215.42	22.04	323.13	26.04
464.1	33.02	696.15	45
999.86	59.11	1499.78	78.17

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PLANREHATIC III
SANTA-LACRAMARCA

B5

R=> 128, 31, 15, 310, 0, 0,
H=> 2, 55, 120, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	125.72	1.5	121.71
2.15	112.9	3.23	93.3
4.64	69.91	6.96	47.67
10	37.03	15	33
21.54	31.99	32.31	31.3
46.41	30.63	69.62	29.41
99.99	28.18	149.99	29.1
215.42	34.61	323.13	47.13
464.1	63.49	696.15	87.26
999.86	113.33	1499.78	147.18

B6

R=> 150, 85, 28, 13, 250, 0,
H=> 2, 22, 45, 130, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	148.7	1.5	146.38
2.15	141.35	3.23	130.18
4.64	116.26	6.96	101.34
10	92.02	15	85.29
21.54	79.01	32.31	67.32
46.41	52.31	69.62	35.33
99.99	25.38	149.99	22.8
215.42	27.23	323.13	37.59
464.1	50.7	696.15	69.71
999.86	90.63	1499.78	117.85

C1

R=> 600, 50, 34, 11, 280, 0,
H=> .85, 4.8, 34, 130, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	483.89	1.5	349.09
2.15	209.25	3.23	99.07
4.64	58.95	6.96	47.86
10	43.51	15	38.53
21.54	35.41	32.31	32.7
46.41	29.13	69.62	23.57
99.99	19.39	149.99	18.62
215.42	22.37	323.13	31.01
464.1	42.26	696.15	59.12
999.86	78.48	1499.78	105.1

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PLANREHATIC III
SANTA-LACRAMARCA

C2

R=> 85, 42, 85, 28, 9.6, 250,
H=> .6, 9.4, 15, 43, 121, 0,

AB/2=	Ra	AB/2=	Ra
1	70.89	1.5	60.16
2.15	51.67	3.23	46.01
4.64	43.96	6.96	43.5
10	44.16	15	45.69
21.54	46.13	32.31	43
46.41	36.56	69.62	27.54
99.99	21.09	149.99	18.96
215.42	22.39	323.13	31.11
464.1	42.39	696.15	59
999.86	77.76	1499.78	103.03

C3

R=> 10.5, 53, 11, 280, 0, 0,
H=> 1, 30, 47, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	11.99	1.5	14.11
2.15	17.38	3.23	22.44
4.64	27.8	6.96	34.1
10	39.31	15	43.98
21.54	46.66	32.31	47.24
46.41	45.2	69.62	42.8
99.99	45.62	149.99	57.87
215.42	75.99	323.13	101.99
464.1	129	696.15	161.78
999.86	190.99	1499.78	220.38

D1

R=> 10.8, 160, 42, 160, 0, 0,
H=> 1.1, 29, 135, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	12.65	1.5	15.24
2.15	19.58	3.23	27.09
4.64	36.31	6.96	49.64
10	63.95	15	81.45
21.54	96.46	32.31	108.89
46.41	111.17	69.62	99.91
99.99	81.99	149.99	66.53
215.42	65.13	323.13	76.2
464.1	91.52	696.15	109.57
999.86	124.31	1499.78	137.86

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PLANREHATIC III
SANTA-LACRAMARCA

D2

R=> 23, 120, 50, 180, 0, 0,
H=> 3, 60, 105, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	23.34	1.5	23.7
2.15	24.53	3.23	26.92
4.64	31.51	6.96	40.21
10	50.76	15	64.41
21.54	76.84	32.31	89.43
46.41	98.14	69.62	103.17
99.99	102.55	149.99	100.02
215.42	102.94	323.13	115.33
464.1	130.91	696.15	147.61
999.86	159.36	1499.78	168.53

D3

R=> 11, 130, 40, 170, 0, 0,
H=> 1.5, 54, 113, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	11.9	1.5	13.19
2.15	15.78	3.23	21
4.64	27.9	6.96	38.1
10	49.39	15	63.92
21.54	77.41	32.31	91.28
46.41	100.64	69.62	104.55
99.99	100.03	149.99	90.46
215.42	87.43	323.13	96.2
464.1	111.25	696.15	129.09
999.86	142.59	1499.78	153.94

D4

R=> 25, 150, 36, 180, 0, 0,
H=> 1, 60, 124, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	28.87	1.5	34.39
2.15	42.98	3.23	56.38
4.64	70.68	6.96	88.04
10	103.57	15	119.13
21.54	129.72	32.31	136.77
46.41	138.1	69.62	131.42
99.99	115.99	149.99	94.89
215.42	85.58	323.13	92.65
464.1	108.85	696.15	128.9
999.86	144.65	1499.78	158.56

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PLANREHATIC III
SANTA-LACRAMARCA

E1

R=> 34, 44, 11, 230, 0, 0,
H=> 1, 36, 100, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	34.8	1.5	35.93
2.15	37.52	3.23	39.55
4.64	41.15	6.96	42.46
10	43.14	15	43.31
21.54	42.84	32.31	41.07
46.41	37.27	69.62	30.37
99.99	24.83	149.99	24.14
215.42	29.74	323.13	41.42
464.1	55.53	696.15	75.34
999.86	96.46	1499.78	122.9

E2

R=> 53, 26, 45, 13, 65, 0,
H=> 2.3, 9, 36, 150, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	52.67	1.5	51.98
2.15	50.42	3.23	46.58
4.64	41.21	6.96	35.16
10	32.08	15	32.07
21.54	33.88	32.31	35.54
46.41	34.66	69.62	30
99.99	24.24	149.99	19.94
215.42	20.15	323.13	24.45
464.1	30.32	696.15	37.76
999.86	44.42	1499.78	51.18

E3

R=> 22, 11, 30, 12, 55, 0,
H=> 2.2, 5.5, 55, 180, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	21.88	1.5	21.59
2.15	20.97	3.23	19.51
4.64	17.72	6.96	16.5
10	17.15	15	19.58
21.54	22.2	32.31	24.63
46.41	25.84	69.62	25.54
99.99	23.49	149.99	20.29
215.42	18.82	323.13	20.52
464.1	24.67	696.15	30.76
999.86	36.41	1499.78	42.26

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PLANREHATIC III
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E4

R=> 2.7. 28, 3.6, 35, 0, 0,
H=> .45, 26, 95, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	5.2	1.5	7.1
2.15	9.25	3.23	12.13
4.64	15.01	6.96	18.33
10	20.96	15	23.09
21.54	23.84	32.31	22.52
46.41	18.7	69.62	12.63
99.99	8.42	149.99	7.19
215.42	8.64	323.13	11.61
464.1	14.81	696.15	18.8
999.86	22.49	1499.78	26.36

E5

R=> 23, 11, 22, 11, 200, 0,
H=> 2, 4, 55, 210, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	22.8	1.5	22.42
2.15	21.6	3.23	19.84
4.64	18.01	6.96	17
10	17.48	15	18.84
21.54	19.97	32.31	20.71
46.41	20.81	69.62	20.06
99.99	18.54	149.99	16.7
215.42	16.47	323.13	19.43
464.1	25.41	696.15	35.62
999.86	47.76	1499.78	64.88

F1

R=> 24, 130, 78, 27, 190, 0,
H=> 1, 3.7, 18, 140, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	27.32	1.5	32.23
2.15	39.78	3.23	51.2
4.64	62.34	6.96	73.13
10	78.93	15	79.61
21.54	74.56	32.31	62.88
46.41	49.86	69.62	38.15
99.99	33.4	149.99	34.57
215.42	40.86	323.13	53.4
464.1	68.73	696.15	89.15
999.86	108.96	1499.78	131.03

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F2

R=> 70, 80, 23, 50, 0, 0,
H=> 1, 9.8, 65, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	70.64	1.5	71.82
2.15	73.53	3.23	75.49
4.64	76.44	6.96	75.72
10	72.01	15	62.18
21.54	49.2	32.31	35.68
46.41	28.78	69.62	27
99.99	28.83	149.99	32.86
215.42	37.13	323.13	41.58
464.1	44.71	696.15	47.13
999.86	48.45	1499.78	49.26

F3

R=> 160, 5000, 39, 80, 0, 0,
H=> .65, 1.9, 75, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	242.06	1.5	335.41
2.15	451.34	3.23	600.76
4.64	724.58	6.96	792.29
10	724.36	15	496.95
21.54	261.01	32.31	94.6
46.41	47.02	69.62	42.86
99.99	45.56	149.99	49.67
215.42	56.04	323.13	64.16
464.1	70.17	696.15	74.78
999.86	77.28	1499.78	78.81

F4

R=> 65, 6000, 150, 18, 270, 0,
H=> .65, .9, 4, 80, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	98.41	1.5	135
2.15	178.37	3.23	230.6
4.64	268.28	6.96	277.28
10	237.39	15	150.17
21.54	75.4	32.31	30.95
46.41	21.08	69.62	21.89
99.99	25.21	149.99	32.74
215.42	44.04	323.13	61.56
464.1	81.38	696.15	108.07
999.86	135.15	1499.78	167.07

BY NC ND

PLANREHATIC III
SANTA-LACRAMARCA

F5

R=> 67, 350, 80, 300, 0, 0,
H=> 1.4, 4, 9, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	70.83	1.5	77.69
2.15	90.18	3.23	112.09
4.64	135.02	6.96	155.87
10	164.07	15	165.44
21.54	171.5	32.31	191.77
46.41	217.48	69.62	245.43
99.99	265.17	149.99	280.59
215.42	289.24	323.13	294.75
464.1	297.3	696.15	298.71
999.86	299.3	1499.78	299.6

F6

R=> 25, 75, 800, 0, 0, 0,
H=> 2.7, 23, 0, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	25.29	1.5	25.71
2.15	26.68	3.23	29.24
4.64	33.61	6.96	40.96
10	49.09	15	59.3
21.54	70.16	32.31	87.89
46.41	113.2	69.62	155.68
99.99	207	149.99	278.99
215.42	354.68	323.13	447.76
464.1	531.8	696.15	617.83
999.86	680.74	1499.78	731.96

G1

R=> 580, 50, 250, 0, 0, 0,
H=> 3.7, 55, 0, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	577.37	1.5	572.14
2.15	559.63	3.23	524.59
4.64	451.9	6.96	314.83
10	183.56	15	89.11
21.54	59.35	32.31	55.03
46.41	57.26	69.62	64.4
99.99	77.86	149.99	100.55
215.42	125.06	323.13	154.2
464.1	179.34	696.15	203.86
999.86	220.88	1499.78	234.02

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G2

R=> 7.4, 23, 32, 450, 0, 0,
H=> 2.2, 16, 140, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	7.53	1.5	7.72
2.15	8.15	3.23	9.21
4.64	10.84	6.96	13.28
10	15.7	15	18.42
21.54	20.78	32.31	23.48
46.41	26.01	69.62	28.99
99.99	32.01	149.99	37.11
215.42	45.45	323.13	61.49
464.1	82.71	696.15	114.42
999.86	149.87	1499.78	196.9

G3

R=> 9.5, 32, 24, 400, 0, 0,
H=> 1, 12, 195, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	10.53	1.5	12.02
2.15	14.3	3.23	17.64
4.64	20.86	6.96	24.19
10	26.56	15	28.17
21.54	28.45	32.31	27.66
46.41	26.61	69.62	25.82
99.99	25.87	149.99	27.23
215.42	30.71	323.13	39.2
464.1	52.15	696.15	73.16
999.86	97.98	1499.78	132.83

G4

R=> 160, 40, 90, 350, 0, 0,
H=> 6.7, 14, 70, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	159.59	1.5	159.68
2.15	159.31	3.23	157.67
4.64	154.11	6.96	144.15
10	125.79	15	98.25
21.54	79.39	32.31	73.64
46.41	78.92	69.62	90.36
99.99	105.82	149.99	132.09
215.42	163.31	323.13	203.14
464.1	239	696.15	275.29
999.86	301.51	1499.78	322.61

BY NC ND

PLANREHATIC III
SANTA-LACRAMARCA

H1

R=> 90. 9.5, 10, 110, 0, 0,
H=> .7, 9.6, 53, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	64.98	1.5	42.7
2.15	24.48	3.23	13.36
4.64	10.46	6.96	10.01
10	9.91	15	9.89
21.54	10.09	32.31	10.58
46.41	11.46	69.62	13.61
99.99	17.25	149.99	23.57
215.42	31.14	323.13	41.59
464.1	52.37	696.15	65.32
999.86	76.69	1499.78	87.96

H2

R=> 15, 40, 13, 140, 0, 0,
H=> 2.3, 4, 85, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	15.09	1.5	15.33
2.15	15.81	3.23	16.97
4.64	18.41	6.96	19.45
10	19.01	15	17.21
21.54	15.49	32.31	14.34
46.41	14.15	69.62	14.86
99.99	16.83	149.99	21.49
215.42	28.27	323.13	38.69
464.1	50.3	696.15	65.42
999.86	80.08	1499.78	96.41

H3

R=> 29. 10, 60. 14, 200, 0,
H=> 2.8, 8, 12, 180, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	28.87	1.5	28.53
2.15	27.81	3.23	25.91
4.64	22.74	6.96	18.59
10	16.43	15	16.8
21.54	18.27	32.31	18.98
46.41	18.26	69.62	16.87
99.99	16.12	149.99	16.55
215.42	18.72	323.13	24.12
464.1	32.1	696.15	44.63
999.86	59.02	1499.78	78.58

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PLANREHATIC III
SANTA-LACRAMARCA

H4

R=> 60, 25, 12, 270, 0, 0,
H=> 6, 60, 260, 0, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	59.86	1.5	59.85
2.15	59.69	3.23	59.09
4.64	57.76	6.96	54.13
10	47.98	15	39.07
21.54	32.16	32.31	27.55
46.41	25.45	69.62	23.45
99.99	21.04	149.99	18.2
215.42	16.99	323.13	18.75
464.1	23.8	696.15	33.39
999.86	45.46	1499.78	63.31

H5

R=> 86, 42, 300, 23, 230, 0,
H=> 1.4, 2.6, 5.5, 210, 0, 0,

AB/2=	Ra	AB/2=	Ra
1	84.29	1.5	82.1
2.15	78.95	3.23	77.34
4.64	81.98	6.96	92.47
10	97.55	15	88.06
21.54	67.06	32.31	42.77
46.41	29.95	69.62	25.21
99.99	24.73	149.99	25.51
215.42	27.93	323.13	34.43
464.1	44.63	696.15	60.95
999.86	79.44	1499.78	103.79

BY NC ND