AGRICULTURAL EXTENSION
UNIVERSITY OF CALIFORNIA

DAVIS, CALIFORNIA 95616

REPLY TO: Land, Air and Water Resources
Water Science & Engr. Section

April 19, 1977

State Water Resources Control Board
Resources Building
P.O. Box 100
Sacramento, California 95801

Subject: Delta Hearings, Phase II

Dear Mr. Bryson,

The question of the validity of the corn tolerance data is expected to be raised at the Phase II Delta Hearings.

If data should indicate an adjustment for salinity tolerance of corn grown under the Delta conditions is justified, we have been asked by some of the participants to prepare an appropriate comparison of the relative effect on projected yield of various qualities of applied water.

This has been done and we wish now to include these comparisons as our exhibit UC-II-8. Calculations have been made following the outlined procedure in our Phase I exhibit UC-8.

Sincerely

Robert S. Ayers

Robert S. Ayers
Extension Soil and
Water Specialist

RSA:jh

STATE WATER RESOURCES CONTROL BOARD
APPLICATION NO. 5625 ET AL (1977 DELTA)
UC/AG SCIENCES EXH. II-8
FOR IDENTIFICATION 4/25/77
IN EVIDENCE 5/4/77

UC-II-8

Predicted effect of water quality (ECw) on yield of corn from equation $y = 100 - b(ECe - a)$, where $a = 1.7$ mmho/cm, $b = 12.05$

ECw	(chloride) San Andreas	Fairmeter	surface irrigation (ECw × 5/2 = ECe) ECe	% yield	subirrigation ECw × 5/2 % yield	ECw × 10/2 % yield	ECw × 7.5/2 % yield
0.30	42	43	.45	100	100%	100%	100%
0.35	51	58	.53	100	100	99	100
0.40	66	73	.60	100	100	96	100
0.45	70	88	.68	100	100	93	100
0.50	80	103	.75	100	100	90	98
0.55	89	118	.83	100	100	87	96
0.60	98	133	.90	100	100	84	93
0.65	108	148	.98	100	100	81	91
0.70	117	163	1.05	100	99	78	89
0.80	136	192	1.20	100	96	72	84
0.90	155	222	1.35	100	93	66	78
1.00	174	252	1.50	100	90	60	75
1.10		282	1.65	100	87	54	71
1.50		401	2.25	93	75	30	53
2.00		550	3.00	84	60	0	30
2.50		699	3.75	75	45	0	7
3.00		848	4.50	66	30	0	0
3.50		1004	5.25	57	15	0	0
4.00		1160	6.00	48	0	0	0
4.50		1316	6.75	39	0	0	0
5.00		1472	7.50	30	0	0	0

Corn
tolerance ECe = 1.7

Predicted effect of water quality (ECw) on yield of corn from equation $y = 100 - b(ECe - a)$, where $a = 1.7$ mmhos/cm, $b = 12.35\ \%$

ECw	(chloride) San Andreas Equation		surface irrigation (ECw × 3) ECe	% Yield	subirrigation ECw × 9/2 %	ECw × 10/2 %	ECw × 7.5/2 %
0.30	42	43	.45	100	100	100	100
0.35	51	58	.53	100	100	100	100
0.40	60	73	.60	100	100	99	100
0.45	70	88	.68	100	100	96	100
0.50	80	103	.75	100	100	93	100
0.55	89	118	.83	100	100	90	98
0.60	98	133	.90	100	100	86	96
0.65	108	148	.98	100	100	83	93
0.70	117	163	1.05	100	100	80	91
0.80	136	192	1.20	100	99	74	86
0.90	155	222	1.35	100	96	68	82
1.00	174	252	1.50	100	93	62	77
1.10		282	1.65	100	90	56	73
1.50		401	2.25	96	77	31	54
2.00		550	3.00	86	62	0	31
2.50		699	3.75	77	46	0	8
3.00		848	4.50	68	31	0	0
3.50		1004	5.25	59	15	0	0
4.00		1160	6.00	49	0	0	0
4.50		1316	6.75	40	0	0	0
5.00		1472	7.50	31	0	0	0

corn tolerance ECe = 1.9

Predicted effect of water quality (ECw) on yield of corn from equation $y = 100 - b(ECe - a)$, where $a = 2.1$ mmhos/cm, $b = 12.6\%$

ECw	(chloride) San Andreas ppm	Symmes ppm	surface irrigation (ECw x 1/2) ECe	% yield	subirrigation ECw x 1/2 %	ECw x 1 %	ECw x 1.5 %
0.30	42	43	.45	100	100	100	100
0.35	51	58	.53	100	100	100	100
0.40	60	73	.60	100	100	100	100
0.45	70	88	.68	100	100	98	100
0.50	80	103	.75	100	100	95	100
0.55	89	118	.83	100	100	92	100
0.60	98	133	.90	100	100	89	98
0.65	108	148	.98	100	100	85	96
0.70	117	163	1.05	100	100	82	93
0.80	136	192	1.20	100	100	76	89
0.90	155	222	1.35	100	98	70	84
1.00	174	252	1.50	100	95	63	79
1.10		282	1.65	100	92	57	74
1.50		401	2.25	98	79	32	55
2.00		550	3.00	89	63	0	32
2.50		699	3.75	79	47	0	8
3.00		848	4.50	70	32	0	0
3.50		1004	5.25	60	16	0	0
4.00		1160	6.00	51	0	0	0
4.50		1316	6.75	41	0	0	0
5.00		1472	7.50	32	0	0	0

Corn tolerance ECe = 2.1