99023

BOARHEAD FARMS NPL SITE
INTERIM ACTION

ANALYSIS OF WATER GENERATED DURING PUMP TESTS

AND CONTAINED IN STORAGE TANK

WATER SAMPLES TAKEN FORM THE TANK
NOVEMBER 3, 1994

November 14, 1994

To: Glenn Howard, Team Leader

From: Jamie Macartney and Bayard Yang, Sampling team members

Subject: Site Exit Report - Sampling of Pump Test Water - Interim Action, Boarhead Farms NPL Site - Blackwater county, Pa.

Boarhead Summary - Besides following the requirements of the approved Pre-Entry Check Sheet and the approved Sampling and Analysis Plan for Boarhead Farms dated October 27, 1994, the following describes our activities while on the site during this sampling event:

Bayard and I left Butz at about 12:30 Thursday November 3, 1994.

Mr. Yang and I proceeded to Boarhead, to take samples of the purge water in a storage tank.

We arrived at the site at 15:15.

Both dawned tyvek and vinyl gloves, Bayard dawned a respirator and took the OVM around for readings. He got 000.0 ppm at all locations monitored - around the tank on the ground, the access to the top of the tank, the already open top of the tank, above that opening at the top of the tank, and also approximately 4 inches into the inside the top of the tank. The tank appeared to be half full of water.

As a result, I dawned a acid gas mask and climbed on top to assist Bayard.

We continuously monitored the air checking the meter about every 5 or ten minutes.

When I turned off the meter when we were finished a reading of 2.6 ppm flashed on the screen before the lamp went out. I believe that means that was the highest reading the OVM read during the time it was on. Hence we may have missed the one time it actually had a reading.

We took two complete samples, and then came down off the tank for a break.

We then climbed back and took the last two samples.

We lost two bailers into the tank, as the water made our nylon rope very slippery.

Mr. Yang with my assistance took four complete samples of the water in the tank. One complete sample consisted of: 1) a 1000 ml container for semi-volatile organics, pesticides and PCBs; 2) a 1000 ml container for inorganics and metals; 3) a 500 ml container for Chromium (VI), nitrates, nitrites, sulfates, sulfites, alkalinity, chlorides, and TDS; 4) a 500 ml container for ammonia; and 5) two 40 ml vials for volatile organics.

We also took a field blank (2) 40 ml vials, and there was a trip blank (2) 40 ml vials which had been sent with the empty containers.

We were finished at 16:45 and we spent about fifteen minutes checking out the proposed alignment of the pipe line. It got dark at 17:00.

We traveled back to Hellertown, bought ice, iced all coolers, and the Boarhead samples as well as the Butz RAS samples were shipped to their respective laboratories, both via Federal Express Thursday evening from Allentown.

Bayard has Chain of Custody forms and the airbill receipt.

The weather Thursday was quite mild with no precipitation.

Signed Jaime Macartney 21-NOV-94

Bayard Yang 11/22/94

Suggested changes to the Sampling Analysis Plan based on this event:

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: 1E
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0205
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE		2.94 J
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE		25.3
10.	540-59-0	1,2-DICHLOROETHENE (total)		89.3
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE		109
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE		177
21.	71-43-2	BENZENE		41.3
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE		2.95
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE		25.9
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		3.40

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: 2E
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0206
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE		4.22 J
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE		22.3
10.	540-59-0	1,2-DICHLOROETHENE (total)		85.3
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE		109
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE		176
21.	71-43-2	BENZENE		40.8
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE		2.91
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE		25.6
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		2.69

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: 3E
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0207
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE		2.81 J
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE		24.6
10.	540-59-0	1,2-DICHLOROETHENE (total)		88.4
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE		113
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE		180
21.	71-43-2	BENZENE		41.9
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE		3.02
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE		25.9
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		2.65

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: 4E
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0208
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE		4.31 J
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE		24.1
10.	540-59-0	1,2-DICHLOROETHENE (total)		87.6
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE		111
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE		177
21.	71-43-2	BENZENE		40.9
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE		3.00
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE		25.2
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		2.62

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: Lab Blank
DATE RECEIVED:

US EPA METHOD: 8240
FILE REF. NO: >V0202
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	10	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)	2.5	U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: Trip Blank
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0203
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	10	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)	2.5	U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

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VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
LAB SAMPLE I.D. NO: Field Blank
DATE RECEIVED: 11-04-94

US EPA METHOD: 8240
FILE REF. NO: >V0204
DATE ANALYZED: 11-04-94

	CAS #	COMPOUND	AMOUNT (Ug/L)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	10	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	10	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-6	trans-1,3-DICHLOROPROPENE	2.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-5	cis-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	10	U
28.	591-78-6	2-HEXANONE	10	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)	2.5	U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit.
J - Compound detected below detection limit.

Analysis Certified by _____ Laboratory Director

AR305316

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5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

Volatile Surrogate Recovery

Study Name: Bureau of Reclamation - Boarhead Farm Date: 11-04-94

	Sample ID	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	Other	Out
01	V0202	105	94	96		
02	V0203	103	94	95		
03	V0204	101	95	96		
04	V0205	100	97	93		
05	V0206	100	97	94		
06	V0207	98	97	95		
07	V0208	97	96	95		
08	V0209	99	101	95		
09	V0210	99	100	95		
10						
11						
12						
13						
14						
15						
16						
17						

		QC Limits
S1 (TOL)	= Toluene-d8	(81 - 117)
S2 (BFB)	= Bromofluorobenzene	(74 - 121)
S3 (DCE)	= 1,2-dichloroethane-d4	(70 - 121)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

GRACE ANALYTICAL LAB, INC.
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Volatile Matrix Spike/Matrix Spike Duplicate Recovery

Study Name: Bureau of Reclamation - Boarhead Farm Date: 11-04-94

Sample ID: 4E

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE RESULT (ug/L)	MS RESULT (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10.0	0.0	8.49	85	61-145
1,1,2-Trichloroethane	10.0	3.0	12.0	90	71-120
Ethylbenzene	10.0	0.0	10.2	102	76-127
Toluene	10.0	0.0	11.2	112	76-125
Chlorobenzene	10.0	0.0	10.5	105	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD RESULT (ug/L)	MS % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	10.0	8.97	90	5.7	14	61-145
1,1,2-Trichloroethane	10.0	12.2	92	2.2	14	71-120
Ethylbenzene	10.0	10.1	101	1.0	11	76-127
Toluene	10.0	9.91	99	12	13	76-125
Chlorobenzene	10.0	10.7	107	1.9	13	76-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

Analysis Certified By: Steven [illegible] Laboratory Director

AR305318

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

PESTICIDE AND PCB ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE I.D. NO: 1A
DATE RECEIVED: 11-04-94

US EPA METHOD: 8080
FILE REF. NO: P6348
DATE ANALYZED: 11-10-94

	CAS #	COMPOUND	CONCENTRATION (UG/L)
1.	319-84-6	alpha-BHC	0.02 U
2.	319-85-7	beta-BHC	0.02 U
3.	58-89-9	gamma-BHC	0.02 U
4.	319-86-8	delta-BHC	0.02 U
5.	76-44-8	HEPTACHLOR	0.03 U
6.	309-00-2	ALDRIN	0.03 U
7.	1024-57-3	HEPTACHLOR EPOXIDE	0.01 U
8.	959-98-8	ENDOSULFAN I	0.01 U
9.	72-55-9	4,4'-DDE	0.02 U
10.	60-57-1	DIELDRIN	0.01 U
11.	72-20-8	ENDRIN	0.01 U
12.	33213-65-9	ENDOSULFAN II	0.01 U
13.	72-54-8	4,4'-DDD	0.04 U
14.	7421-93-4	ENDRIN ALDEHYDE	0.05 U
15.	1031-07-8	ENDOSULFAN SULFATE	0.02 U
16.	50-29-3	4,4'-DDT	0.02 U
17.	72-43-5	METHOXYCHLOR	0.02 U
18.	57-74-9	CHLORDANE	0.2 U
19.	8001-35-2	TOXAPHENE	1.0 U
20.	12674-11-2	AROCLOR-1016	0.2 U
21.	11104-28-2	AROCLOR-1221	0.2 U
22.	11141-16-5	AROCLOR-1232	0.2 U
23.	53469-21-9	AROCLOR-1242	0.2 U
24.	12672-29-6	AROCLOR-1248	0.2 U
25.	11097-69-1	AROCLOR-1254	0.2 U
26.	11096-82-5	AROCLOR-1260	0.2 U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC - Suspected laboratory contaminant.
SFC - Suspected field contaminant

Analysis Certified by _____ Laboratory Director

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

PESTICIDE AND PCB ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE I.D. NO: 2A
DATE RECEIVED: 11-04-94

US EPA METHOD: 8080
FILE REF. NO: P6349
DATE ANALYZED: 11-10-94

	CAS #	COMPOUND	CONCENTRATION (UG/L)
1.	319-84-6	alpha-BHC	0.02 U
2.	319-85-7	beta-BHC	0.02 U
3.	58-89-9	gamma-BHC	0.02 U
4.	319-86-8	delta-BHC	0.02 U
5.	76-44-8	HEPTACHLOR	0.03 U
6.	309-00-2	ALDRIN	0.03 U
7.	1024-57-3	HEPTACHLOR EPOXIDE	0.01 U
8.	959-98-8	ENDOSULFAN I	0.01 U
9.	72-55-9	4,4'-DDE	0.02 U
10.	60-57-1	DIELDRIN	0.01 U
11.	72-20-8	ENDRIN	0.01 U
12.	33213-65-9	ENDOSULFAN II	0.01 U
13.	72-54-8	4,4'-DDD	0.04 U
14.	7421-93-4	ENDRIN ALDEHYDE	0.05 U
15.	1031-07-8	ENDOSULFAN SULFATE	0.02 U
16.	50-29-3	4,4'-DDT	0.02 U
17.	72-43-5	METHOXYCHLOR	0.02 U
18.	57-74-9	CHLORDANE	0.2 U
19.	8001-35-2	TOXAPHENE	1.0 U
20.	12674-11-2	AROCLOR-1016	0.2 U
21.	11104-28-2	AROCLOR-1221	0.2 U
22.	11141-16-5	AROCLOR-1232	0.2 U
23.	53469-21-9	AROCLOR-1242	0.2 U
24.	12672-29-6	AROCLOR-1248	0.2 U
25.	11097-69-1	AROCLOR-1254	0.2 U
26.	11096-82-5	AROCLOR-1260	0.2 U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC - Suspected laboratory contaminant.
SFC - Suspected field contaminant

Analysis Certified by _____ Laboratory Director

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PESTICIDE AND PCB ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE I.D. NO: 3A
DATE RECEIVED: 11-04-94

US EPA METHOD: 8080
FILE REF. NO: P6350
DATE ANALYZED: 11-10-94

	CAS #	COMPOUND	CONCENTRATION (UG/L)
1.	319-84-6	alpha-BHC	0.02 U
2.	319-85-7	beta-BHC	0.02 U
3.	58-89-9	gamma-BHC	0.02 U
4.	319-86-8	delta-BHC	0.02 U
5.	76-44-8	HEPTACHLOR	0.03 U
6.	309-00-2	ALDRIN	0.03 U
7.	1024-57-3	HEPTACHLOR EPOXIDE	0.01 U
8.	959-98-8	ENDOSULFAN I	0.01 U
9.	72-55-9	4,4'-DDE	0.02 U
10.	60-57-1	DIELDRIN	0.01 U
11.	72-20-8	ENDRIN	0.01 U
12.	33213-65-9	ENDOSULFAN II	0.01 U
13.	72-54-8	4,4'-DDD	0.04 U
14.	7421-93-4	ENDRIN ALDEHYDE	0.05 U
15.	1031-07-8	ENDOSULFAN SULFATE	0.02 U
16.	50-29-3	4,4'-DDT	0.02 U
17.	72-43-5	METHOXYCHLOR	0.02 U
18.	57-74-9	CHLORDANE	0.2 U
19.	8001-35-2	TOXAPHENE	1.0 U
20.	12674-11-2	AROCLOR-1016	0.2 U
21.	11104-28-2	AROCLOR-1221	0.2 U
22.	11141-16-5	AROCLOR-1232	0.2 U
23.	53469-21-9	AROCLOR-1242	0.2 U
24.	12672-29-6	AROCLOR-1248	0.2 U
25.	11097-69-1	AROCLOR-1254	0.2 U
26.	11096-82-5	AROCLOR-1260	0.2 U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC - Suspected laboratory contaminant.
SFC - Suspected field contaminant

Analysis Certified by _____ Laboratory Director

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PESTICIDE AND PCB ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE I.D. NO: 4A
DATE RECEIVED: 11-04-94

US EPA METHOD: 8080
FILE REF. NO: P6353
DATE ANALYZED: 11-10-94

	CAS #	COMPOUND	CONCENTRATION (UG/L)
1.	319-84-6	alpha-BHC	0.02 U
2.	319-85-7	beta-BHC	0.02 U
3.	58-89-9	gamma-BHC	0.02 U
4.	319-86-8	delta-BHC	0.02 U
5.	76-44-8	HEPTACHLOR	0.03 U
6.	309-00-2	ALDRIN	0.03 U
7.	1024-57-3	HEPTACHLOR EPOXIDE	0.01 U
8.	959-98-8	ENDOSULFAN I	0.01 U
9.	72-55-9	4,4'-DDE	0.02 U
10.	60-57-1	DIELDRIN	0.01 U
11.	72-20-8	ENDRIN	0.01 U
12.	33213-65-9	ENDOSULFAN II	0.01 U
13.	72-54-8	4,4'-DDD	0.04 U
14.	7421-93-4	ENDRIN ALDEHYDE	0.05 U
15.	1031-07-8	ENDOSULFAN SULFATE	0.02 U
16.	50-29-3	4,4'-DDT	0.02 U
17.	72-43-5	METHOXYCHLOR	0.02 U
18.	57-74-9	CHLORDANE	0.2 U
19.	8001-35-2	TOXAPHENE	1.0 U
20.	12674-11-2	AROCLOR-1016	0.2 U
21.	11104-28-2	AROCLOR-1221	0.2 U
22.	11141-16-5	AROCLOR-1232	0.2 U
23.	53469-21-9	AROCLOR-1242	0.2 U
24.	12672-29-6	AROCLOR-1248	0.2 U
25.	11097-69-1	AROCLOR-1254	0.2 U
26.	11096-82-5	AROCLOR-1260	0.2 U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC - Suspected laboratory contaminant.
SFC - Suspected field contaminant

Analysis Certified by _____ Laboratory Director

GRACE ANALYTICAL LAB, INC.
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PESTICIDE AND PCB ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE I.D. NO: Lab Blank
DATE RECEIVED:

US EPA METHOD: 8080
FILE REF. NO: P6347
DATE ANALYZED: 11-10-94

	CAS #	COMPOUND	CONCENTRATION (UG/L)
1.	319-84-6	alpha-BHC	0.02 U
2.	319-85-7	beta-BHC	0.02 U
3.	58-89-9	gamma-BHC	0.02 U
4.	319-86-8	delta-BHC	0.02 U
5.	76-44-8	HEPTACHLOR	0.03 U
6.	309-00-2	ALDRIN	0.03 U
7.	1024-57-3	HEPTACHLOR EPOXIDE	0.01 U
8.	959-98-8	ENDOSULFAN I	0.01 U
9.	72-55-9	4,4'-DDE	0.02 U
10.	60-57-1	DIELDRIN	0.01 U
11.	72-20-8	ENDRIN	0.01 U
12.	33213-65-9	ENDOSULFAN II	0.01 U
13.	72-54-8	4,4'-DDD	0.04 U
14.	7421-93-4	ENDRIN ALDEHYDE	0.05 U
15.	1031-07-8	ENDOSULFAN SULFATE	0.02 U
16.	50-29-3	4,4'-DDT	0.02 U
17.	72-43-5	METHOXYCHLOR	0.02 U
18.	57-74-9	CHLORDANE	0.2 U
19.	8001-35-2	TOXAPHENE	1.0 U
20.	12674-11-2	AROCLOR-1016	0.2 U
21.	11104-28-2	AROCLOR-1221	0.2 U
22.	11141-16-5	AROCLOR-1232	0.2 U
23.	53469-21-9	AROCLOR-1242	0.2 U
24.	12672-29-6	AROCLOR-1248	0.2 U
25.	11097-69-1	AROCLOR-1254	0.2 U
26.	11096-82-5	AROCLOR-1260	0.2 U

CODES: U - Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC - Suspected laboratory contaminant.
SFC - Suspected field contaminant

Analysis Certified by _____ Laboratory Director

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PESTICIDES AND PCBs
QUALITY CONTROL DATA SHEET
SURROGATE SPIKE PERCENT RECOVERY

STUDY NAME: Bureau of Reclamation - Boarhead Farm

DATE OF ANALYSIS: 11-10-94

SAMPLE #	SPIKE LEVEL	RESULT	% RECOVERY
1A	0.2 UG	0.134 UG	67.0
2A	0.2 UG	0.160 UG	80.0
3A	0.2 UG	0.161 UG	80.5
4A	0.2 UG	0.140 UG	70.0
Lab Blank	0.2 UG	0.132 UG	66.0

SURROGATE COMPOUND IS DCB

Analysis Certified by _____ Laboratory Director

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Pesticide & PCB Matrix Spike/Matrix Spike Duplicate Recovery

Study Name: Bureau of Reclamation - Boarhead Farm
Date Analyzed: 11-10-94
Sample ID: 3A

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE RESULT (ug/l)	MS RESULT (ug/l)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.500	<0.02	0.310	62.0	56-123
Heptachlor	0.500	<0.03	0.389	77.8	40-131
Aldrin	0.500	<0.03	0.239	47.8	40-120

COMPOUND	SPIKE ADDED (ug/L)	MSD RESULT (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.500	0.321	64.2	3.3	15	56-123
Heptachlor	0.500	0.354	70.8	9.4	20	40-131
Heptachlor epoxide	0.500	0.306	61.2	25*	22	40-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 3 outside limits

Spike Recovery: 0 ut of 6 outside limits

COMMENTS:

Analysis Certified by _____ Laboratory Director

AR305325

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

METALS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 1B
Sample Matrix: Water
Date Received: 11/04/94

Metal	Result (mg/L)	MDL (mg/L)	Date Analyzed	USEPA Method
Aluminum	<0.04	0.04	11/11/94	200.7
Antimony	<0.002	0.002	11/10/94	200.9
Arsenic	<0.002	0.002	11/09/94	200.9
Barium	0.400	0.04	11/09/94	200.7
Beryllium	<0.01	0.01	11/10/94	200.7
Cadmium	0.0111	0.0005	11/10/94	200.9
Calcium	80.5	0.01	11/10/94	200.7
Chromium	<0.02	0.02	11/09/94	200.7
Cobalt	<0.02	0.02	11/10/94	200.7
Copper	0.0222	0.01	11/10/94	200.7
Iron	7.02	0.02	11/11/94	200.7
Lead	<0.001	0.001	11/10/94	200.9
Magnesium	41.3	0.03	11/10/94	200.7
Manganese	3.70	0.005	11/10/94	200.7
Mercury	<0.0002	0.0002	11/09/94	245.1
Nickel	0.121	0.03	11/10/94	200.7
Potassium	1.39	0.5	11/09/94	200.7
Selenium	<0.002	0.002	11/09/94	200.9
Silver	<0.01	0.01	11/08/94	200.7
Sodium	10.2	0.2	11/09/94	200.7
Thallium	<0.002	0.002	11/10/94	200.9
Vanadium	<0.02	0.02	11/10/94	200.7
Zinc	0.0334	0.005	11/10/94	200.7

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
Reported By: DJ

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

METALS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boathead Farm
SAMPLE ID. 2B
Sample Matrix: Water
Date Received: 11/04/94

Metal	Result (mg/L)	MDL (mg/L)	Date Analyzed	USEPA Method
Aluminum	<0.04	0.04	11/11/94	200.7
Antimony	<0.002	0.002	11/10/94	200.9
Arsenic	<0.002	0.002	11/09/94	200.9
Barium	0.0479	0.04	11/09/94	200.7
Beryllium	<0.01	0.01	11/10/94	200.7
Cadmium	0.0111	0.0005	11/10/94	200.9
Calcium	81.5	0.01	11/10/94	200.7
Chromium	<0.02	0.02	11/09/94	200.7
Cobalt	0.0254	0.02	11/10/94	200.7
Copper	0.0143	0.01	11/10/94	200.7
Iron	7.02	0.02	11/11/94	200.7
Lead	<0.001	0.001	11/10/94	200.9
Magnesium	42.8	0.03	11/10/94	200.7
Manganese	3.71	0.005	11/10/94	200.7
Mercury	<0.0002	0.0002	11/09/94	245.1
Nickel	0.115	0.03	11/10/94	200.7
Potassium	1.40	0.5	11/09/94	200.7
Selenium	<0.002	0.002	11/09/94	200.9
Silver	<0.01	0.01	11/08/94	200.7
Sodium	10.3	0.2	11/09/94	200.7
Thallium	<0.002	0.002	11/10/94	200.9
Vanadium	<0.02	0.02	11/10/94	200.7
Zinc	0.0370	0.005	11/10/94	200.7

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
Reported By: DJ

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

METALS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 3B
Sample Matrix: Water
Date Received: 11/04/94

Metal	Result (mg/L)	MDL (mg/L)	Date Analyzed	USEPA Method
Aluminum	<0.04	0.04	11/11/94	200.7
Antimony	<0.002	0.002	11/10/94	200.9
Arsenic	<0.002	0.002	11/09/94	200.9
Barium	<0.04	0.04	11/09/94	200.7
Beryllium	<0.01	0.01	11/10/94	200.7
Cadmium	0.0114	0.0005	11/10/94	200.9
Calcium	80.0	0.01	11/10/94	200.7
Chromium	<0.02	0.02	11/09/94	200.7
Cobalt	0.0220	0.02	11/10/94	200.7
Copper	0.0203	0.01	11/10/94	200.7
Iron	8.83	0.02	11/11/94	200.7
Lead	<0.001	0.001	11/10/94	200.9
Magnesium	39.7	0.03	11/10/94	200.7
Manganese	3.75	0.005	11/10/94	200.7
Mercury	<0.0002	0.0002	11/09/94	245.1
Nickel	0.115	0.03	11/10/94	200.7
Potassium	1.25	0.5	11/09/94	200.7
Selenium	<0.002	0.002	11/09/94	200.9
Silver	<0.01	0.01	11/08/94	200.7
Sodium	10.2	0.2	11/09/94	200.7
Thallium	<0.002	0.002	11/10/94	200.9
Vanadium	<0.02	0.02	11/10/94	200.7
Zinc	0.0362	0.005	11/10/94	200.7

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
Reported By: DJ

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

METALS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 4B
Sample Matrix: Water
Date Received: 11/04/94

Metal	Result (mg/L)	MDL (mg/L)	Date Analyzed	USEPA Method
Aluminum	0.31	0.04	11/11/94	200.7
Antimony	<0.002	0.002	11/10/94	200.9
Arsenic	<0.002	0.002	11/09/94	200.9
Barium	<0.04	0.04	11/09/94	200.7
Beryllium	<0.01	0.01	11/10/94	200.7
Cadmium	0.0121	0.0005	11/10/94	200.9
Calcium	80.7	0.01	11/10/94	200.7
Chromium	<0.02	0.02	11/09/94	200.7
Cobalt	0.0385	0.02	11/10/94	200.7
Copper	0.0167	0.01	11/10/94	200.7
Iron	18.1	0.02	11/11/94	200.7
Lead	<0.001	0.001	11/10/94	200.9
Magnesium	39.9	0.03	11/10/94	200.7
Manganese	0.417	0.005	11/10/94	200.7
Mercury	<0.0002	0.0002	11/09/94	245.1
Nickel	0.0602	0.03	11/10/94	200.7
Potassium	1.23	0.5	11/09/94	200.7
Selenium	<0.002	0.002	11/09/94	200.9
Silver	<0.01	0.01	11/08/94	200.7
Sodium	10.1	0.2	11/09/94	200.7
Thallium	<0.002	0.002	11/10/94	200.9
Vanadium	<0.02	0.02	11/10/94	200.7
Zinc	0.0537	0.005	11/10/94	200.7

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
Reported By: DJ

GRACE ANALYTICAL LAB, INC.
5300-B McDermott Drive, Berkeley, Illinois 60163 Tel. (708) 449-9449, Fax (708) 449-3663

METALS ANALYSIS QC DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm

INITIAL CALIBRATION VERIFICATION SAMPLE

Metal	Result (mg/L)	Acceptable Range (mg/L)	Date Analyzed	USEPA Method
Aluminum	0.387	0.360 - 0.440	11/11/94	200.7
Antimony	0.0508	0.045 - 0.055	11/10/94	200.9
Arsenic	0.0482	0.045 - 0.055	11/09/94	200.9
Barium	0.532	0.45 - 0.55	11/09/94	200.7
Beryllium	0.460	0.45 - 0.55	11/10/94	200.7
Cadmium	0.00265	0.00225 - 0.00275	11/10/94	200.9
Calcium	4.04	3.60 - 4.40	11/10/94	200.7
Chromium	0.983	0.9 - 1.1	11/09/94	200.7
Cobalt	0.982	0.9 - 1.1	11/10/94	200.7
Copper	0.455	0.45 - 0.55	11/10/94	200.7
Iron	3.99	3.60 - 4.40	11/11/94	200.7
Lead	0.0480	0.045 - 0.055	11/10/94	200.9
Magnesium	1.43	1.35 - 1.65	11/10/94	200.7
Manganese	1.00	0.9 - 1.1	11/10/94	200.7
Mercury	0.00451	0.00405 - 0.00495	11/09/94	245.1
Nickel	1.00	0.9 - 1.1	11/10/94	200.7
Potassium	5.01	4.5 - 5.5	11/09/94	200.7
Selenium	0.0508	0.045 - 0.055	11/09/94	200.9
Silver	0.100	0.09 - 0.11	11/08/94	200.7
Sodium	0.549	0.45 - 0.55	11/09/94	200.7
Thallium	0.0497	0.045 - 0.055	11/10/94	200.9
Vanadium	0.477	0.45 - 0.55	11/10/94	200.7
Zinc	0.971	0.9 - 1.1	11/10/94	200.7

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METALS ANALYSIS QC DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Metal	Sample Result 2B (mg/L)	Spiked Sample Result (mg/L)	Spike Added (mg/L)	% Recovery	Spiked Duplicate Result	RPD
Al	<0.04	0.492	0.500	98.4	0.493	0.20
Sb	<0.002	0.512	0.500	102	0.527	2.9
As	<0.002	0.464	0.500	92.8	0.437	6.0
Ba	0.0479	0.531	0.500	96.6	0.506	4.8
Be	<0.01	0.483	0.500	96.6	0.472	2.3
Cd	0.0111	0.519	0.500	102	0.504	2.9
Cr	<0.02	0.511	0.500	102	0.506	1.0
Co	0.0254	0.544	0.500	104	0.538	1.1
Cu	0.0143	0.526	0.500	102	0.503	4.5
Fe	7.02	7.66	0.500	128	7.37	3.9
Pb	<0.001	0.495	0.500	99.0	0.547	10.0
Mn	3.71	4.18	0.500	94.0	4.12	1.4
Hg	<0.0002	0.00168	0.00150	112	0.00158	6.1
Ni	0.115	0.643	0.500	106	0.611	5.1
Se	<0.002	0.468	0.500	93.6	0.450	3.9
Ag	<0.01	0.391	0.500	78.2	0.456	15.3
Tl	<0.002	0.449	0.500	89.8	0.441	1.8
V	<0.02	0.508	0.500	102	0.478	6.1
Zn	0.0370	0.550	0.500	103	0.542	1.5

% Recovery = [(SSR-SR)/SA]*100%
RPD = Relative Percent Difference = [|SSR-SDR|/0.5*(SSR+SDR)]*100%
SR = Sample Result
SSR = Spiked Sample Result
SA = Spike Added
SDR = Spiked Duplicate Result

Control Limits for % Recovery: 75% - 125%
Control Limits for RPD: 20%
If the sample result is at least four times greater than the spike added, then the recovery control limits do not apply.

Analysis Certified By _____ Laboratory Director
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INORGANICS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 1C,D
Sample Matrix: Water
Date Received: 11/04/94

Parameter	Result (mg/L)	MDL (mg/L)	Date Analyzed	Method
Hexavalent Chromium	<0.01	0.01	11/04/94	SM 3500D
Chloride	17.5	0.05	11/07/94	300.0
Ammonia (as N)	2.22	0.05	11/10/94	350.2
Nitrate (as N)	<0.5	0.5	11/07/94	300.0
Nitrite (as N)	<0.5	0.5	11/07/94	300.0
TDS	694	10.0	11/07/94	160.1
Sulfate	409	0.1	11/07/94	300.0
Sulfite	<1	1	11/04/94	377.1
Alkalinity (as $CaCO_3$)	24	0.0	11/11/94	310.1

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
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INORGANICS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 2C,D
Sample Matrix: Water
Date Received: 11/04/94

Parameter	Result (mg/L)	MDL (mg/L)	Date Analyzed	Method
Hexavalent Chromium	<0.01	0.01	11/04/94	SM 3500D
Chloride	17.6	0.05	11/07/94	300.0
Ammonia (as N)	1.87	0.05	11/10/94	350.2
Nitrate (as N)	<0.5	0.5	11/07/94	300.0
Nitrite (as N)	<0.5	0.5	11/07/94	300.0
TDS	660	10.0	11/07/94	160.1
Sulfate	409	0.1	11/07/94	300.0
Sulfite	<1	1	11/04/94	377.1
Alkalinity (as $CaCO_3$)	22	0.0	11/11/94	310.1

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
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INORGANICS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 3C,D
Sample Matrix: Water
Date Received: 11/04/94

Parameter	Result (mg/L)	MDL (mg/L)	Date Analyzed	Method
Hexavalent Chromium	<0.01	0.01	11/04/94	SM 3500D
Chloride	21.7	0.05	11/07/94	300.0
Ammonia (as N)	1.84	0.05	11/10/94	350.2
Nitrate (as N)	<0.5	0.5	11/07/94	300.0
Nitrite (as N)	<0.5	0.5	11/07/94	300.0
TDS	726	10.0	11/07/94	160.1
Sulfate	395	0.1	11/07/94	300.0
Sulfite	<1	1	11/04/94	377.1
Alkalinity (as $CaCO_3$)	22	0.0	11/11/94	310.1

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
Reported By: DJ

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INORGANICS ANALYSIS DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm
SAMPLE ID: 4C,D
Sample Matrix: Water
Date Received: 11/04/94

Parameter	Result (mg/L)	MDL (mg/L)	Date Analyzed	Method
Hexavalent Chromium	<0.01	0.01	11/04/94	SM 3500D
Chloride	17.3	0.05	11/07/94	300.0
Ammonia (as N)	1.86	0.05	11/10/94	350.2
Nitrate (as N)	<0.5	0.5	11/07/94	300.0
Nitrite (as N)	<0.5	0.5	11/07/94	300.0
TDS	708	10.0	11/07/94	160.1
Sulfate	409	0.1	11/07/94	300.0
Sulfite	<1	1	11/04/94	377.1
Alkalinity (as $CaCO_3$)	23	0.0	11/11/94	310.1

MDL: Method Detection Limit

Analysis Certified By _____ Laboratory Director
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INORGANICS ANALYSIS QC DATA SHEET

STUDY NAME: Bureau of Reclamation - Boarhead Farm

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Parameter	Sample Result 1D (mg/L)	Spiked Sample Result (mg/L)	Spike Added (mg/L)	% Recovery	Spiked Duplicate Result	RPD
Cr^{+6}	<0.01	0.100	0.100	100	0.0952	4.9
Cl^{-1}	17.5	23.4	5.50	107	23.3	0.43
NH_3	2.01*	5.96	4.00	98.8	5.98	0.34
NO_3^{-1}	<0.05	1.42	1.50	94.7	1.42	0
NO_2^{-1}	<0.05	1.04	1.00	104	1.03	0.97
SO_4^{-2}	409	598	190	99.5	603	0.83

% Recovery = [(SSR-SR)/SA]*100%
RPD = Relative Percent Difference = [|SSR-SDR|/0.5*(SSR+SDR)]*100%
SR = Sample Result
SSR = Spiked Sample Result
SA = Spike Added
SDR = Spiked Duplicate Result

Control Limits for % Recovery: 75% - 125%
Control Limits for RPD: 20%

*The sample used for the ammonia matrix spike and matrix spike duplicate analyses was not one of the Boarhead Farm samples. The laboratory sample ID was S4-11-205-02.

DUPLICATE RESULTS

Parameter	Sample ID	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD
SO_3^{-2}	4D	<1	<1	0
TDS	S4-11-175-02**	304	314	3.2
Alkalinity	1D	24	24	0

Control Limits for RPD: 20%

**The sample used for the TDS duplicate analysis was not one of the Boarhead Farm samples.

Analysis Certified By _____ Laboratory Director
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