

Table 4-1
Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	0241498	100968	101966	102264	104955	106046	114300	126998-A
				Sample Date:	05/02/07	05/04/07	04/26/07	05/03/07	05/02/07	05/04/07	05/02/07	04/27/07
				Sample Type:	N	N	N	N	N	N	N	N
Inorganics	Bromide	T MG/L			0.052 J	0.068 J	0.043 J	0.83 :	0.40 J	<0.50 :	0.13 J	0.35 J
	Chloride (as Cl)	T MG/L	250		5.0 :	7.7 :	4.4 :	74 :	26 :	2.1 :	16 :	22 :
	Fluoride	T MG/L	4.0		1.2 :	0.95 :	0.83 :	0.97 :	0.39 J	1.0 :	0.88 :	0.90 :
	Sulfate	T MG/L	250		13 :	15 :	10 :	6.9 :	25 :	9.2 :	12 :	17 :
Metals	Arsenic	D MG/L	0.010		<0.10 :	<0.10 :	<0.10 :	<0.10 :	<0.10 :	<0.10 :	<0.10 :	<0.10 :
	Barium	D MG/L	2.0		0.16 :	0.13 :	0.15 :	0.54 :	0.43 :	0.18 :	0.18 :	0.15 :
	Cadmium	D MG/L	0.0050		<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :
	Calcium	T MG/L			40 :	37 :	39 :	81 :	68 :	37 :	41 :	42 :
	Chromium, Total	D MG/L	0.10		<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :
	Iron	T MG/L	0.30		<0.020 :	0.0051 J	0.098 :	0.029 :	<0.020 :	0.054 :	0.074 :	0.021 :
	Lead	D MG/L	0.050		<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :
	Magnesium	T MG/L			15 :	14 :	9.9 :	34 :	16 :	11 :	12 :	14 :
	Manganese	D MG/L	0.050		<0.0050 :	0.0012 J	0.00082 J	0.0013 J	<0.0050 :	0.0057 :	<0.0050 :	0.0021 J
	Potassium	T MG/L			7.2 :	7.7 :	4.0 :	8.7 :	7.7 :	7.3 :	7.0 :	10 :
Selenium	T MG/L			0.0017 J	0.0015 J	<0.0050 :	0.0013 J	0.0032 J	0.00045 J	0.0023 J	0.0049 J	
Sodium	T MG/L			19 :	16 :	11 :	27 :	7.7 :	11 :	16 :	21 :	
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L			166 :	136 :	128 :	250 :	139 :	126 :	114 :	122 :
	Carbonate Alkalinity (as CaCO3)	T MG/L			<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :
	pH	T PH UNITS			7.4 J	7.5 J	7.7 J	7.3 J	5.4 J	7.4 J	7.3 J	7.7 J

Notes:

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		Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	0241498 05/02/07 N	100968 05/04/07 N	101966 04/26/07 N	102264 05/03/07 N	104955 05/02/07 N	106046 05/04/07 N	114300 05/02/07 N	126998-A 04/27/07 N
Parameter	Fraction	Units									
Miscellaneous	Specific Conductance	T	UMHOS/CM	365	348	308	706	693	296	355	382
	Temperature	T	DEG C	24	22	22	22	24	22	24	22
	Total Dissolved Solids	D	MG/L	286	80	243	522	352	241	288	287
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	1.7 J	2.7 J	2.0 J	3.4 J	6.5 J	1.1 J	4.6 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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	Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	127427-A 05/03/07 N	137831 05/02/07 N	138083 04/27/07 N	148427 05/01/07 N	149001 04/26/07 N	153730 04/27/07 N	15635-F 04/24/07 N	15635-F 04/24/07 FD	
Parameter	Fraction Units										
Inorganics	Bromide	T MG/L	<0.50	0.47 J	<0.50	0.053 J	<0.50	<0.50	0.072 J	0.074 J	
	Chloride (as Cl)	T MG/L	250	18	2.2	3.5	3.2	2.4	8.8	8.8	
	Fluoride	T MG/L	4.0	1.0	1.4	1.1	1.3	1.3	0.95	1.1	
	Sulfate	T MG/L	250	3.9	59	15	9.2	12	11	18	
Metals	Arsenic	D MG/L	0.010	<0.10	0.017 J	<0.10	<0.10	<0.10	<0.10	<0.10	0.020 J
	Barium	D MG/L	2.0	0.31	0.16	0.11	0.18	0.15	0.16	0.083	0.085
	Cadmium	D MG/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0015 J	<0.0050	<0.0050	<0.0050
	Calcium	T MG/L		26	64	38	40	32	36	32	32
	Chromium, Total	D MG/L	0.10	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T MG/L	0.30	0.012 J	<0.020	0.0062 J	<0.020	0.014 J	<0.020	0.037	0.039
	Lead	D MG/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L		11	24	17	17	12	18	11	10
	Manganese	D MG/L	0.050	0.0010 J	0.0016 J	0.00074 J	0.0012 J	<0.0050	<0.0050	0.00066 J	0.00065 J
	Potassium	T MG/L		7.7	12	9.1	8.6	6.9	8.7	7.9	7.5
Selenium	T MG/L		<0.0050	0.016	0.0023 J	0.0032 J	<0.0050	0.0027 J	0.0041 J	0.0037 J	
Sodium	T MG/L		6.2	28	14	16	22	12	29	29	
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L	120	172	147	155	136	139	127	122	
	Carbonate Alkalinity (as CaCO3)	T MG/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
	pH	T PH UNITS	7.6 J	7.2 J	7.7 J	7.3 J	7.7 J	7.7 J	7.0 J	7.1 J	

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Parameter	Fraction	Units									
Miscellaneous	Specific Conductance	T UMHOS/CM		244	473	337	382	314	350	349	348
	Temperature	T DEG C		22	24	22	21	22	22	22	22
	Total Dissolved Solids	D MG/L		209	443	268	296	274	254	280	258
Organics	Benzene	T UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T MG/L	10	1.3 J	5.2 J	1.9 J	2.8	1.8 J	2.8 J	3.9 J	3.9 J
	Nitrite (as N)	T MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50	<0.50 J	<0.50 J	<0.50 J	0.37 J



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Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	157434-A	167457-A	169777-A	174252	175237-A	194080-A	198791	198791-A
				Sample Date:	04/25/07	04/25/07	05/03/07	04/24/07	04/25/07	04/25/07	05/03/07	05/03/07
				Sample Type:	N	N	N	N	N	N	N	N
Inorganics	Bromide	T	MG/L		<0.50	<0.50	0.92	0.052	0.057	9.4	0.053	0.10
	Chloride (as Cl)	T	MG/L	250	1.9	1.8	70	6.5	6.1	571	5.0	7.9
	Fluoride	T	MG/L	4.0	0.98	1.5	1.2	0.84	0.93	<5.0	1.1	0.75
	Sulfate	T	MG/L	250	8.2	9.1	93	8.2	8.5	25	8.1	10
Metals	Arsenic	D	MG/L	0.010	<0.10	0.017	<0.10	<0.10	0.034	0.017	<0.10	<0.10
	Barium	D	MG/L	2.0	0.17	0.18	0.084	0.11	0.19	0.88	0.14	0.23
	Cadmium	D	MG/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium	T	MG/L		32	38	75	28	32	260	41	39
	Chromium, Total	D	MG/L	0.10	0.0042	0.0040	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T	MG/L	0.30	0.013	0.0046	0.035	0.011	0.016	0.011	0.022	0.0044
	Lead	D	MG/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T	MG/L		12	13	33	8.1	11	91	11	11
	Manganese	D	MG/L	0.050	<0.0050	<0.0050	0.0028	<0.0050	0.0018	<0.0050	0.0020	0.00076
	Potassium	T	MG/L		7.6	8.6	8.3	6.6	6.4	21	5.5	4.8
	Selenium	T	MG/L		0.0025	0.0024	0.017	0.0022	0.0022	0.0071	0.0014	0.0027
Sodium	T	MG/L		11	13	42	9.5	13	47	15	14	
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T	MG/L		124	143	163	91	110	191	157	108
	Carbonate Alkalinity (as CaCO3)	T	MG/L		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T	PH UNITS		7.6	7.4	7.3	7.6	7.5	6.7	7.4	7.7

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	Parameter	Location ID: Sample Date: Sample Type:		Appropriate Groundwater Standard	157434-A	167457-A	169777-A	174252	175237-A	194080-A	198791	198791-A
		Fraction	Units		04/25/07 N	04/25/07 N	05/03/07 N	04/24/07 N	04/25/07 N	04/25/07 N	05/03/07 N	05/03/07 N
Miscellaneous	Specific Conductance	T	UMHOS/CM		298	338	776	245	296	2,150	333	331
	Temperature	T	DEG C		23	23	23	22	23	23	20	20
	Total Dissolved Solids	D	MG/L		250	267	583	180	242	2,210	439	276
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.77 J	<1.0
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	2.0 J	1.4 J	7.7 J	3.0 J	2.4 J	4.8 J	2.2 J	7.3 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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				Sample Date:	04/27/07	05/04/07	05/02/07	05/01/07	04/24/07	04/26/07	04/25/07	04/25/07
				Sample Type:	N	N	N	N	N	N	N	N
Inorganics	Bromide	T MG/L			<0.50	0.14 J	<0.50	<0.50	0.054 J	0.088 J	0.036 J	<0.50
	Chloride (as Cl)	T MG/L	250		1.4	62	2.3	2.8	4.7	13	3.3	1.4
	Fluoride	T MG/L	4.0		1.3	0.46 J	1.1	1.7	1.0	1.4	0.99	1.1
	Sulfate	T MG/L	250		13	9.7	6.2	9.6	12	15	11	6.6
Metals	Arsenic	D MG/L	0.010		0.025 J	<0.10	0.030 J	0.018 J	<0.10	<0.10	<0.10	0.018 J
	Barium	D MG/L	2.0		0.081	0.78	0.14	0.26	0.13	0.12	0.14	0.20
	Cadmium	D MG/L	0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium	T MG/L			34	158	33	40	34	40	32	32
	Chromium, Total	D MG/L	0.10		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0039 J	0.0039 J
	Iron	T MG/L	0.30		0.010 J	0.0071 J	<0.020	0.026	0.0038 J	0.0036 J	0.011 J	0.0055 J
	Lead	D MG/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L			16	41	16	14	12	15	13	11
	Manganese	D MG/L	0.050		<0.0050	0.0019 J	<0.0050	0.0015 J	<0.0050	0.0010 J	<0.0050	<0.0050
	Potassium	T MG/L			9.3	9.2	8.4	8.3	8.8	6.9	8.1	8.2
	Selenium	T MG/L			0.0021 J	0.0018 J	<0.0050	0.0019 J	<0.0050	0.0036 J	0.0019 J	<0.0050
	Sodium	T MG/L			15	26	13	26	14	23	14	9.5
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L			144	434	142	171	129	145	128	125
	Carbonate Alkalinity (as CaCO3)	T MG/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T PH UNITS			7.7 J	6.7 J	5.3 J	7.2 J	7.1 J	7.6 J	7.0 J	6.9 J

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Parameter	Fraction	Units									
Miscellaneous	Specific Conductance	T UMHOS/CM		332	990	317	405	319	399	313	280
	Temperature	T DEG C		22	22	24	21	22	22	23	23
	Total Dissolved Solids	D MG/L		273	729	245	318	229	346	275	229
Organics	Benzene	T UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T MG/L	10	1.4 J	4.0 J	2.3 J	3.2 J	2.4 J	7.0 J	1.3 J	1.4 J
	Nitrite (as N)	T MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	0.94 J	<0.50 J	1.1 J	<0.50 J



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Table 4-1
Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

	Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	213107-A 04/26/07 N	223834-A 04/26/07 N	223869 04/25/07 N	223936 05/01/07 N	224484 04/27/07 N	227094 04/27/07 N	228121-A 04/26/07 N	229677 05/03/07 N
Parameter	Fraction Units									
Inorganics	Bromide	T MG/L	8.5	<0.50	0.29 J	0.88	0.061 J	0.046 J	0.073 J	0.055 J
	Chloride (as Cl)	T MG/L	250	227	3.7	17	74	5.4	4.1	8.7
	Fluoride	T MG/L	4.0	4.8	1.2	1.1	0.69	0.77	0.98	1.0
	Sulfate	T MG/L	250	1,750	5.6	16	31	10.0	10	10
Metals	Arsenic	D MG/L	0.010	<0.10	0.021 J	<0.10	<0.10	<0.10	<0.10	<0.10
	Barium	D MG/L	2.0	0.026	0.14	0.12	0.14	0.16	0.19	0.12
	Cadmium	D MG/L	0.0050	0.0016 J	<0.0050	<0.0050	<0.0050	0.0015 J	0.0015 J	<0.0050
	Calcium	T MG/L		638	36	40	73	43	37	36
	Chromium, Total	D MG/L	0.10	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T MG/L	0.30	<0.020	0.0054 J	0.0080 J	<0.020	0.0094 J	0.014 J	<0.020
	Lead	D MG/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L		143	14	17	33	13	11	11
	Manganese	D MG/L	0.050	1.5	0.00078 J	<0.0050	<0.0050	0.0019 J	<0.0050	0.0016 J
	Potassium	T MG/L		43	7.8	11	10	9.9	8.7	3.9
Selenium	T MG/L		0.88	<0.0050	0.0057	0.0030 J	0.0026 J	<0.0050	0.0028 J	
Sodium	T MG/L		362	23	14	28	20	16	16	
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L	153	153	135	190	151	128	120	154
	Carbonate Alkalinity (as CaCO3)	T MG/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T PH UNITS	7.1 J	7.6 J	7.5 J	7.0 J	7.6 J	7.7 J	7.6 J	7.4 J

Notes:

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Table 4-1
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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

		Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	213107-A 04/26/07 N	223834-A 04/26/07 N	223869 04/25/07 N	223936 05/01/07 N	224484 04/27/07 N	227094 04/27/07 N	228121-A 04/26/07 N	229677 05/03/07 N
Parameter	Fraction	Units									
Miscellaneous	Specific Conductance	T UMHOS/CM		3,970	351	384	709	355	308	311	340
	Temperature	T DEG C		22	22	23	21	22	22	22	20
	Total Dissolved Solids	D MG/L		4,350	273	306	520	282	252	254	260
Organics	Benzene	T UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T MG/L	10	147 J	3.3 J	3.3 J	2.8 J	2.6 J	1.6 J	2.3 J	1.9 J
	Nitrite (as N)	T MG/L	1.0	<5.0 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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Table 4-1
Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	229942	236133	236358	236358	237029-A	237170	237511	238071
				04/26/07	04/27/07	05/01/07	05/01/07	05/02/07	04/26/07	04/25/07	05/03/07
Location ID:	Sample Date:	Sample Type:		N	N	N	FD	N	N	N	N
Inorganics	Bromide	T MG/L		0.061 J	0.055 J	<0.50 :	<0.50 :	0.68 :	0.072 J	0.55 :	0.054 J
	Chloride (as Cl)	T MG/L	250	5.8 :	4.5 :	1.9 :	1.9 :	49 :	5.2 :	24 :	4.9 :
	Fluoride	T MG/L	4.0	0.90 :	0.91 :	0.72 :	0.81 :	0.78 :	1.2 :	1.2 :	1.1 :
	Sulfate	T MG/L	250	21 :	8.0 :	10 :	10 :	38 :	12 :	118 :	8.1 :
Metals	Arsenic	D MG/L	0.010	<0.10 :	<0.10 :	0.022 J	0.022 J	<0.10 :	<0.10 :	0.033 J	<0.10 :
	Barium	D MG/L	2.0	0.17 :	0.22 :	0.12 :	0.12 :	0.23 :	0.15 :	0.014 :	0.13 :
	Cadmium	D MG/L	0.0050	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :	<0.0050 :
	Calcium	T MG/L		45 :	43 :	34 :	35 :	73 :	34 :	26 :	43 :
	Chromium, Total	D MG/L	0.10	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :	<0.0100 :
	Iron	T MG/L	0.30	<0.020 :	0.021 :	0.0054 J	0.0061 J	0.098 :	0.010 J	0.11 :	0.041 :
	Lead	D MG/L	0.050	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :	<0.050 :
	Magnesium	T MG/L		16 :	15 :	11 :	11 :	20 :	13 :	6.9 :	12 :
	Manganese	D MG/L	0.050	0.0027 J	0.0013 J	0.00078 J	0.0042 J	0.0072 :	0.0038 J	0.0088 :	0.0015 J
	Potassium	T MG/L		6.1 :	9.6 :	8.6 :	8.4 :	11 :	5.0 :	8.4 :	4.1 :
	Selenium	T MG/L		<0.0050 :	0.0027 J	0.0017 J	0.0018 J	0.0034 J	0.0025 J	0.00032 J	0.0023 J
	Sodium	T MG/L		19 :	18 :	12 :	12 :	21 :	21 :	131 :	16 :
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L		188 :	146 :	126 :	144 :	146 :	264 :	198 :	152 :
	Carbonate Alkalinity (as CaCO3)	T MG/L		<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :	<2.0 :
	pH	T PH UNITS		7.7 J	7.6 J	7.2 J	7.2 J	5.6 J	7.7 J	7.6 J	7.5 J

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Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Location ID: Sample Date: Sample Type: Appropriate Groundwater Standard	229942	236133	236358	236358	237029-A	237170	237511	238071	
				04/26/07 N	04/27/07 N	05/01/07 N	05/01/07 FD	05/02/07 N	04/26/07 N	04/25/07 N	05/03/07 N	
Miscellaneous	Specific Conductance	T	UMHOS/CM	387	363	304	310	574	335	736	339	
	Temperature	T	DEG C	22	22	21	21	24	22	23	23	
	Total Dissolved Solids	D	MG/L	299	288	254	223	494	283	513	287	
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.77 J	
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	0.50 J	5.1 J	0.75 J	0.76 J	3.0 J	4.2 J	0.28 J	2.2 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	238885	238891	239197	240083	242812-A	242812-A	243252	249906
				Sample Date:	04/24/07	05/03/07	05/02/07	04/25/07	05/03/07	05/03/07	04/24/07	04/24/07
				Sample Type:	N	N	N	N	N	FD	N	N
Inorganics	Bromide	T MG/L			0.15 J	0.041 J	0.047 J	0.040 J	<0.50	<0.50	<0.50	0.062 J
	Chloride (as Cl)	T MG/L	250		20	2.8	3.9	3.2	1.8	1.8	2.7	7.3
	Fluoride	T MG/L	4.0		1.3	0.85	0.75	1.0	0.85	1.1	1.1	1.3
	Sulfate	T MG/L	250		23	8.0	9.5	14	7.3	7.3	12	17
Metals	Arsenic	D MG/L	0.010		<0.10	<0.10	0.017 J	0.018 J	<0.10	<0.10	<0.10	<0.10
	Barium	D MG/L	2.0		0.16	0.29	0.18	0.12	0.25	0.25	0.11	0.13
	Cadmium	D MG/L	0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium	T MG/L			43	35	42	34	33	34	30	35
	Chromium, Total	D MG/L	0.10		0.0053 J	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T MG/L	0.30		0.016 J	<0.020	<0.020	<0.020	0.013 J	0.0095 J	0.0044 J	0.0051 J
	Lead	D MG/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L			13	14	13	11	11	11	12	12
	Manganese	D MG/L	0.050		<0.0050	<0.0050	<0.0050	0.0062	0.0010 J	0.0010 J	<0.0050	<0.0050
	Potassium	T MG/L			9.4	7.1	8.9	8.5	7.7	7.8	8.5	8.4
	Selenium	T MG/L			0.0067	0.0016 J	0.0017 J	0.0019 J	0.00063 J	0.00085 J	<0.0050	0.0027 J
	Sodium	T MG/L			18	13	14	18	9.3	9.8	16	17
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L			114	135	144	138	115	121	124	124
	Carbonate Alkalinity (as CaCO3)	T MG/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T PH UNITS			7.0 J	7.4 J	5.7 J	7.5 J	7.3 J	7.4 J	6.9 J	7.8 J

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Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

	Parameter	Location ID: Sample Date: Sample Type:		Appropriate Groundwater Standard	238885	238891	239197	240083	242812-A	242812-A	243252	249906
		Fraction	Units		04/24/07 N	05/03/07 N	05/02/07 N	04/25/07 N	05/03/07 N	05/03/07 FD	04/24/07 N	04/24/07 N
Miscellaneous	Specific Conductance	T	UMHOS/CM		387	320	354	319	287	286	309	340
	Temperature	T	DEG C		22	22	24	23	20	20	22	22
	Total Dissolved Solids	D	MG/L		304	253	286	259	243	229	257	256
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	4.8 J	<0.50 J	3.2 J	1.7 J	1.5 J	1.5 J	2.2 J	3.0 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	253027-A	25489-A	25573/241380	264207	264207	265097	26527-A	265755
				Sample Date:	04/25/07	04/24/07	05/04/07	04/27/07	04/27/07	05/01/07	05/03/07	04/25/07
				Sample Type:	N	N	N	N	FD	N	N	N
Inorganics	Bromide	T MG/L			0.093 J	<0.50	<0.50	<0.50	<0.50	0.052 J	<0.50	0.034 J
	Chloride (as Cl)	T MG/L	250		11	2.7	4.6	2.3	2.3	4.8	2.7	2.4
	Fluoride	T MG/L	4.0		0.85	1.1	0.98	1.0	1.1	1.3	0.93	1.1
	Sulfate	T MG/L	250		8.8	10	14	7.3	7.3	14	13	8.4
Metals	Arsenic	D MG/L	0.010		0.024 J	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.019 J
	Barium	D MG/L	2.0		0.20	0.13	0.13	0.22	0.22	0.085	0.23	0.15
	Cadmium	D MG/L	0.0050		<0.0050	<0.0050	0.0017 J	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium	T MG/L			35	31	37	30	30	31	35	35
	Chromium, Total	D MG/L	0.10		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T MG/L	0.30		0.014 J	0.0081 J	0.0071 J	0.052	0.012 J	0.025	0.0055 J	0.0059 J
	Lead	D MG/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L			13	12	10	13	13	12	15	12
	Manganese	D MG/L	0.050		<0.0050	0.0012 J	0.0015 J	<0.0050	0.0014 J	<0.0050	<0.0050	<0.0050
	Potassium	T MG/L			7.6	7.7	8.4	7.9	8.3	5.8	8.1	7.6
	Selenium	T MG/L			0.0033 J	<0.0050	0.00050 J	<0.0050	<0.0050	0.0019 J	0.0029 J	<0.0050
	Sodium	T MG/L			10	16	16	12	12	28	10	12
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L			132	123	139	121	127	122	136	134
	Carbonate Alkalinity (as CaCO3)	T MG/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T PH UNITS			6.9 J	7.0 J	7.6 J	7.7 J	7.8 J	7.3 J	7.5 J	7.5 J

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Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Location ID: Sample Date: Sample Type: Appropriate Groundwater Standard	253027-A	25489-A	25573/241380	264207	264207	265097	26527-A	265755
				04/25/07 N	04/24/07 N	05/04/07 N	04/27/07 N	04/27/07 FD	05/01/07 N	05/03/07 N	04/25/07 N
Miscellaneous	Specific Conductance	T	UMHOS/CM	326	298	318	278	278	350	328	303
	Temperature	T	DEG C	23	22	22	22	22	21	20	23
	Total Dissolved Solids	D	MG/L	263	257	268	219	219	259	277	245
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	2.7 J	2.2 J	1.6 J	1.2 J	1.1 J	2.7 J	6.1 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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Table 4-1
Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	266255-A	266899	269430-A	269906-A	3134-FP	36998-A	38438	39022
				Sample Date:	04/24/07	05/03/07	05/04/07	05/01/07	04/26/07	05/02/07	05/04/07	04/26/07
				Sample Type:	N	N	N	N	N	N	N	N
Inorganics	Bromide	T MG/L			1.0	0.034 J	0.11 J	<0.50	0.063 J	0.051 J	0.35 J	0.041 J
	Chloride (as Cl)	T MG/L	250		69	3.5	12	2.2	6.2	5.2	26	3.4
	Fluoride	T MG/L	4.0		0.92	0.88	1.5	0.90	0.88	1.3	0.79	0.96
	Sulfate	T MG/L	250		51	8.7	20	12	39	15	29	8.9
Metals	Arsenic	D MG/L	0.010		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Barium	D MG/L	2.0		0.27	0.074	0.16	0.13 J	0.28	0.23	0.073	0.10
	Cadmium	D MG/L	0.0050		<0.0050	<0.0050	0.0017 J	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Calcium	T MG/L			79	34	43	33	69	54	40	32
	Chromium, Total	D MG/L	0.10		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Iron	T MG/L	0.30		0.0070 J	0.083	0.027	0.023	0.010 J	<0.020	<0.020	0.0033 J
	Lead	D MG/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Magnesium	T MG/L			25	10	17	14	21	15	14	10
	Manganese	D MG/L	0.050		<0.0050	0.0019 J	0.0019 J	<0.0050	<0.0050	0.065	<0.0050	0.0014 J
	Potassium	T MG/L			13	4.5	8.9	8.8	6.7	8.9	6.7	4.2
	Selenium	T MG/L			0.011	0.0011 J	0.0041 J	0.0018 J	0.0029 J	<0.0050	0.0029 J	0.0016 J
Sodium	T MG/L			25	15	17	12	27	22	36	18	
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L			146	121	134	134	226	201	137	126
	Carbonate Alkalinity (as CaCO3)	T MG/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	pH	T PH UNITS			6.9 J	7.6 J	7.4 J	7.4 J	7.4 J	5.4 J	7.5 J	7.7 J

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Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	266255-A	266899	269430-A	269906-A	3134-FP	36998-A	38438	39022
				Sample Date:	04/24/07	05/03/07	05/04/07	05/01/07	04/26/07	05/02/07	05/04/07	04/26/07
				Sample Type:	N	N	N	N	N	N	N	N
Miscellaneous	Specific Conductance	T	UMHOS/CM		682	283	395	317	549	435	444	291
	Temperature	T	DEG C		22	23	22	21	22	24	22	22
	Total Dissolved Solids	D	MG/L		554	232	308	222	403	333	352	245
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Toluene	T	UG/L	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Xylenes	T	UG/L	1,400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Soluble Nitrogen	Nitrate (as N)	T	MG/L	10	7.9 J	1.7 J	2.4 J	1.2	7.5 J	0.58 J	3.0 J	2.3 J
	Nitrite (as N)	T	MG/L	1.0	<0.50 J	<0.50 J	<0.50 J	<0.50	<0.50 J	<0.50 J	<0.50 J	<0.50 J



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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	39537-A	4539-A	5775/5775-FP	704571	704571	704625	704625	70640
				04/26/07	04/24/07	05/01/07	09/09/97	03/27/98	03/14/90	04/03/92	05/04/07
				N	N	N	N	N	N	N	N
Inorganics	Bromide	T MG/L		0.044 J	0.12 J	0.038 J	-	7.3	-	-	0.060 J
	Chloride (as Cl)	T MG/L	250	5.1 :	8.4 :	3.9 :	1,126	838	456	510	4.7 :
	Fluoride	T MG/L	4.0	1.2 :	1.1 :	0.70 :	-	<0.40	-	-	0.94 :
	Sulfate	T MG/L	250	9.5 :	27 :	7.9 :	3.8	19	23	18	16 :
Metals	Arsenic	D MG/L	0.010	<0.10 :	<0.10 :	0.024 J	-	-	-	-	<0.10 :
	Barium	D MG/L	2.0	0.19 :	0.076 :	0.33 :	-	-	-	-	0.11 :
	Barium	T MG/L		-	-	-	-	-	-	1.2	-
	Cadmium	D MG/L	0.0050	<0.0050 :	<0.0050 :	<0.0050 :	-	-	-	-	<0.0050 :
	Calcium	T MG/L		38 :	35 :	44 :	333	335	221	256	40 :
	Chromium, Total	D MG/L	0.10	<0.0100 :	<0.0100 :	<0.0100 :	-	-	-	-	<0.0100 :
	Chromium, Total	T MG/L		-	-	-	-	-	-	0.040	-
	Iron	T MG/L	0.30	0.087 :	0.018 J	0.12 :	-	0.16	-	0.080	0.0069 J
	Lead	D MG/L	0.050	<0.050 :	<0.050 :	<0.050 :	-	-	-	-	<0.050 :
	Magnesium	T MG/L		9.5 :	12 :	14 :	143	124	69	75	11 :
	Manganese	D MG/L	0.050	0.0035 J	0.00090 J	0.0027 J	-	-	-	-	<0.0050 :
	Manganese	T MG/L		-	-	-	-	0.0027	-	-	-
	Potassium	T MG/L		3.8 :	7.5 :	7.3 :	-	26	17	20	7.7 :
	Selenium	T MG/L		0.0024 J	0.0030 J	0.0012 J	-	-	-	-	0.0025 J
	Sodium	T MG/L		11 :	22 :	7.3 :	60	93	46	54	15 :

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Table 4-1
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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

	Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	39537-A 04/26/07 N	4539-A 04/24/07 N	5775/5775-FP 05/01/07 N	704571 09/09/97 N	704571 03/27/98 N	704625 03/14/90 N	704625 04/03/92 N	70640 05/04/07 N
Parameter	Fraction Units									
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T MG/L	113	119	131	-	-	353	623	145
	Carbonate Alkalinity (as CaCO3)	T MG/L	<2.0	<2.0	<2.0	-	-	-	-	<2.0
	pH	T PH UNITS	7.4 J	7.0 J	7.3 J	7.5	7.0	6.7	7.1	7.5 J
	Specific Conductance	T UMHOS/CM	292	355	362	-	-	-	-	327
	Specific Conductance	T US/CM	-	-	-	3,390	2,557	-	-	-
	Temperature	T DEG C	22	22	21	-	-	-	-	22
	Total Dissolved Solids	D MG/L	231	298	269	1,720	1,960	1,196	1,242	278
Organics	Benzene	T UG/L	5.0	<1.0	<1.0	-	<0.40	-	-	<1.0
	Ethylbenzene	T UG/L	700	<1.0	<1.0	-	<0.40	-	-	<1.0
	m,p-Xylene	T UG/L		<1.0	<1.0	-	<0.40	-	-	<1.0
	Methane	T MG/L	<0.0012	<0.0012	<0.0012	-	-	-	-	<0.0012
	o-Xylene	T UG/L		<1.0	<1.0	-	<0.40	-	-	<1.0
	Toluene	T UG/L	1,000	<1.0	<1.0	-	<0.40	-	-	<1.0
	Total Xylenes	T UG/L	1,400	<1.0	<1.0	-	-	-	-	<1.0
Soluble Nitrogen	Nitrate (as N)	T MG/L	10	4.0 J	3.3 J	9.0	5.5	18	-	1.7 J
	Nitrite (as N)	T MG/L	1.0	<0.50 J	<0.50 J	<0.50	0.0100	<2.5	11	7.7



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Table 4-1
Summary of Constituents and Comparison to Groundwater Standards
COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Appropriate Groundwater Standard	Location ID:	77089	81075-A	83141	ARAPAHOE	DAWSON	DENVER	LARAMIE-FO	USGS-1	
				Sample Date:	04/26/07	04/25/07	04/26/07	01/01/87	01/01/87	01/01/87	01/01/87	01/01/87	04/24/03
				Sample Type:	N	N	N	N	N	N	N	N	
Inorganics	Bromide	T	MG/L		<0.50	<0.50	0.057	J	-	-	-	0.050	
	Chloride (as Cl)	T	MG/L	250	3.5	2.5	6.0		57	3.7	3.8	43	4.5
	Dissolved Oxygen	D	MG/L		-	-	-		-	-	-	-	8.4
	Fluoride	T	MG/L	4.0	0.67	1.1	1.00		1.1	0.50	1.6	2.7	0.74
	Sulfate	T	MG/L	250	7.3	8.2	8.3		110	12	13	7.6	12
Metals	Arsenic	D	MG/L	0.010	<0.10	<0.10	<0.10		-	-	-	-	-
	Arsenic	T	UG/L		-	-	-		-	-	-	-	4.4
	Barium	D	MG/L	2.0	0.14	0.22	0.22		-	-	-	-	-
	Barium	T	UG/L		-	-	-		-	-	-	-	155
	Cadmium	D	MG/L	0.0050	<0.0050	<0.0050	0.0015	J	-	-	-	-	-
	Cadmium	T	UG/L		-	-	-		-	-	-	-	<0.040
	Calcium	T	MG/L		34	34	35		31	30	11	4.2	36
	Chromium, Total	D	MG/L	0.10	<0.0100	<0.0100	<0.0100		-	-	-	-	-
	Chromium, Total	T	UG/L		-	-	-		-	-	-	-	<0.80
	Iron	T	MG/L	0.30	<0.020	0.028	0.0042	J	-	-	-	-	-
	Iron	T	UG/L		-	-	-		170	80	30	100	<10
	Lead	D	MG/L	0.050	<0.050	<0.050	<0.050		-	-	-	-	-
	Lead	T	UG/L		-	-	-		-	-	-	-	0.090
Magnesium	T	MG/L		8.6	10	9.9		3.0	2.7	0.40	0.90	8.3	

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Table 4-1
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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

Parameter	Fraction	Units	Location ID:	Appropriate	77089	81075-A	83141	ARAPAHOE	DAWSON	DENVER	LARAMIE-FO	USGS-1
			Sample Date:	Groundwater	04/26/07	04/25/07	04/26/07	01/01/87	01/01/87	01/01/87	01/01/87	04/24/03
			Sample Type:	Standard	N	N	N	N	N	N	N	N
Metals	Manganese	D	MG/L	0.050	<0.0050	0.00092 J	0.010	-	-	-	-	-
	Manganese	T	UG/L		-	-	-	30	20	10	10	<0.20
	Potassium	T	MG/L		4.1	8.1	3.7	4.1	3.5	1.0	2.8	4.5
	Selenium	T	MG/L		0.0015 J	0.0015 J	0.0024 J	-	-	-	-	-
	Selenium	T	UG/L		-	-	-	-	-	-	-	1.7
	Sodium	T	MG/L		12	33	14	140	12	57	270	14
Miscellaneous	Bicarbonate Alkalinity (as CaCO3)	T	MG/L		126	133	318	250	120	150	640	129
	Carbonate Alkalinity (as CaCO3)	T	MG/L		<2.0	<2.0	<2.0	-	-	-	-	-
	pH	T	PH UNITS		7.6 J	6.9 J	7.6 J	-	-	-	-	7.4
	Specific Conductance	T	UMHOS/CM		273	298	291	-	-	-	-	-
	Specific Conductance	T	US/CM		-	-	-	-	-	-	-	317
	Temperature	T	DEG C		22	23	22	-	-	-	-	14
	Total Dissolved Solids	D	MG/L		218	283	235	479	164	175	662	220
	Turbidity	T	NTU		-	-	-	-	-	-	-	-
Organics	Benzene	T	UG/L	5.0	<1.0	<1.0	<1.0	-	-	-	-	<0.040
	Ethylbenzene	T	UG/L	700	<1.0	<1.0	<1.0	-	-	-	-	<0.030
	m,p-Xylene	T	UG/L		<1.0	<1.0	<1.0	-	-	-	-	<0.060
	Methane	T	MG/L		<0.0012	<0.0012	<0.0012	-	-	-	-	-
	o-Xylene	T	UG/L		<1.0	<1.0	<1.0	-	-	-	-	<0.070

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Table 4-1
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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

	Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	77089 04/26/07 N	81075-A 04/25/07 N	83141 04/26/07 N	ARAPAHOE 01/01/87 N	DAWSON 01/01/87 N	DENVER 01/01/87 N	LARAMIE-FO 01/01/87 N	USGS-1 04/24/03 N
Parameter	Fraction Units									
Organics	Toluene T UG/L	1,000	<1.0 :	<1.0 :	<1.0 :	-	-	-	-	<0.050
	Total Xylenes T UG/L	1,400	<1.0 :	<1.0 :	<1.0 :	-	-	-	-	-
Soluble Nitrogen	Nitrate (as N) T MG/L	10	1.8 J	1.1 J	1.8 J	0.040	0.11	0.050	0.030	-
	Nitrite (as N) T MG/L	1.0	<0.50 J	<0.53 J	<0.50 J	-	-	-	-	<0.0080

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Parameter	Fraction	Units	Location ID: Sample Date: Sample Type:	Appropriate Groundwater Standard	USGS-2 05/28/03 N	USGS-3 05/06/03 N	USGS-4 05/09/03 N	USGS-5 04/23/03 N	USGS-6 05/29/03 N	USGS-7 05/08/03 N	USGS-8 05/06/03 N	USGS-9 05/30/03 N
Inorganics	Bromide	T	MG/L		0.050	0.12	0.040	0.77	0.050	0.21	0.040	0.050
	Chloride (as Cl)	T	MG/L	250	4.2	11	3.3	68	2.8	22	2.8	2.7
	Dissolved Oxygen	D	MG/L		8.5	7.5	8.1	8.0	8.9	8.5	7.2	8.7
	Fluoride	T	MG/L	4.0	0.60	0.88	1.1	0.51	1.3	0.23	1.0	0.50
	Sulfate	T	MG/L	250	8.0	85	11	105	12	24	9.0	5.7
Metals	Arsenic	T	UG/L		4.3	5.8	6.7	3.8	9.0	3.8	10	8.3
	Barium	T	UG/L		157	106	161	294	147	452	217	294
	Cadmium	T	UG/L		<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.060	<0.040
	Calcium	T	MG/L		33	60	31	101	34	64	34	45
	Chromium, Total	T	UG/L		<0.80	<0.80	<0.80	<0.80	0.60	<0.80	1.6	1.6
	Iron	T	UG/L		<8.0	<10	<10	<10	<8.0	<10	<10	<8.0
	Lead	T	UG/L		<0.080	<0.080	0.060	<0.080	<0.080	0.070	0.26	<0.080
	Magnesium	T	MG/L			18	11	19	15	15	10	5.4
	Manganese	T	UG/L		<0.20	0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Potassium	T	MG/L		3.7	6.4	5.0	7.4	8.1	8.3	8.0	6.3
	Selenium	T	UG/L		1.4	2.9	1.0	17	2.6	5.5	1.3	1.7
Miscellaneous	Sodium	T	MG/L		11	38	17	35	11	6.8	12	6.9
	Bicarbonate Alkalinity (as CaCO3)	T	MG/L		120	158	133	190	162	161	135	126
pH	T	PH UNITS			7.7	7.5	7.7	7.0	7.7	7.4	7.6	7.7

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COGCC Ogallala Baseline Study
Ogallala Hydrogeologic Study, Washington and Yuma Counties, Colorado

	Parameter	Location ID: Sample Date: Sample Type:		Appropriate Groundwater Standard	USGS-2	USGS-3	USGS-4	USGS-5	USGS-6	USGS-7	USGS-8	USGS-9
		Fraction	Units		05/28/03 N	05/06/03 N	05/09/03 N	04/23/03 N	05/29/03 N	05/08/03 N	05/06/03 N	05/30/03 N
Miscellaneous	Specific Conductance	T	US/CM		293	610	311	826	373	497	309	295
	Temperature	T	DEG C		15	13	15	12	15	13	15	15
	Total Dissolved Solids	D	MG/L		204	432	219	538	248	325	227	214
	Turbidity	T	NTU		0.10	0.50	0.20	0.10	0.10	1.3	0.30	0.20
Organics	Benzene	T	UG/L	5.0	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
	Ethylbenzene	T	UG/L	700	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
	m,p-Xylene	T	UG/L		<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
	o-Xylene	T	UG/L		<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
	Toluene	T	UG/L	1,000	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Soluble Nitrogen	Nitrite (as N)	T	MG/L	1.0	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080



Notes:
 Non-detects are indicated as less than (" $<$ ") the reporting limit
 D = Dissolved Sample Fraction
 DEG C = degrees Celsius
 FD = Field Duplicate
 J = The associated value is an estimated quantity

MG/L = milligrams per liter
 N = Normal Environmental Sample
 T = Total Sample Fraction
 UG/L = micrograms per liter
 UMHOS/CM = micromhos per centimeter

