Table 1. Groundwater Monitoring Well Construction Summary
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Well ID	Completion Date	Northing	Easting	Total Depth Drilled/Cased (ft bgs)	Casing Material	Casing Diameter for Screened Interval (in)	Screend Interval (ft bgs)	Measuring Point Elevation (ft amsl)
MW-1	9/26/1984	586359.08	1014625.54	842/840	steel	4.125	772 - 840 [6]	3640.91
MW-2	1/12/1985	585936.26	1013980.26	800/800	steel	4.125	632 - 800 [7]	3629.73
MW-3	1/18/1985	586332.77	1014143.73	800/800	steel	4.125	632 - 800 [7]	3632.45
MW-4	3/8/1985	585842.57	1014583.06	800/800	steel	4.125	632 - 800 [7]	3631.96
MW-5	9/24/1990	586409.13	1014625.05	755/750	steel	6	640 - 740 [8]	3642.28

Notes:

1. Source of survey data: Urban Engineering, Inc., 2/28/01 (reproduced from HGC, 2003).
2. Source of data for MW-1 through MW-4: EMA, 1985.
3. Source of data for MW-5: EEC, 1991.
4. Well MW-1 was replaced by well MW-5 in 1990.
5. Measuring point is the top of sounder tube.
6. Perforations are 3-inch by 0.125-inch vertical machine cut slots, 24 slots per foot.
7. Perforations are 3-inch by 0.100-inch vertical machine cut slots, 12 to 24 slots per foot.
8. Perforations not specified in report.

Abbreviations:
ft = feet
bgs = below ground surface
amsl = above mean sea level

Table 2. Groundwater Elevations (revised December 7, 2011)
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

	MW-2			MW-3		MW-4		MW-5		
MP Elevation (ft amsl)	3629.73		Note	3632.45		3631.96		3642.28		Note
Date	DTW (ft bgs)[1]	WL (ft amsl)		DTW (ft bgs)[1]	WL (ft amsl)	DTW (ft bgs)[1]	WL (ft amsl)	DTW (ft bgs)[1]	WL (ft amsl)	
1/31/2001	642.70	2987.03		645.30	2987.15	644.81	2987.15	655.32	2986.96	
10/10/2001	642.71	2987.02		645.57	2986.88	644.89	2987.07	654.75	2987.53	
3/27/2002	642.42	2987.31		645.44	2987.01	644.92	2987.04	655.08	2987.20	
10/23/2002	642.34	2987.39		645.48	2986.97	645.23	2986.73	654.96	2987.32	
4/23/2003	642.38	2987.35		645.27	2987.18	645.07	2986.89	664.74	2977.54	2
10/22/2003	642.79	2986.94		645.83	2986.62	645.57	2986.39	662.23	2980.05	2
4/21/2004	642.55	2987.18		645.60	2986.85	645.31	2986.65	664.02	2978.26	2
5/5/2004	642.63	2987.10		645.90	2986.55	645.63	2986.33	655.49	2986.79	
10/13/2004	642.75	2986.98		644.92	2987.53	645.71	2986.25	655.62	2986.66	
4/13/2005	643.47	2986.26		646.08	2986.37	645.81	2986.15	656.67	2985.61	
10/12/2005	644.50	2985.23		647.37	2985.08	647.33	2984.63	657.61	2984.67	
4/12/2006	645.33	2984.40		648.20	2984.25	647.66	2984.30	657.61	2984.67	
10/11/2006	NM			649.16	2983.29	648.96	2983.00	658.00	2984.28	
11/7/2006	646.49	2983.24		NM		NM		652.89	2989.39	2
4/11/2007	646.02	2983.71		649.11	2983.34	648.99	2982.97	658.37	2983.91	
10/24/2007	646.78	2982.95		649.85	2982.60	649.21	2982.75	658.56	2983.72	
4/9/2008	646.79	2982.94		649.29	2983.16	649.18	2982.78	658.67	2983.61	
10/22/2008	647.48	2982.25		649.87	2982.58	649.69	2982.27	659.32	2982.96	
4/8/2009	647.47	2982.26		649.97	2982.48	649.08	2982.88	659.70	2982.58	
10/14/2009	647.97	2981.76		650.61	2981.84	650.47	2981.49	659.88	2982.40	
4/14/2010	574.94	3054.79	2	650.57	2981.88	650.35	2981.61	659.88	2982.40	
10/13/2010	648.95	2980.78		650.36	2982.09	651.28	2980.68	660.74	2981.54	
4/20/2011	649.19	2980.54		651.62	2980.83	651.59	2980.37	661.28	2981.00	
10/18/2011	649.79	2979.94		652.38	2980.07	652.10	2979.86	661.67	2980.61	

Notes:
1. Depth to water measurements collected by University of Arizona.
2. Anormalous measurement.

Abbreviations:
MP = measuring point
DTW = depth to water
WL = water level
ft = feet
bgs = below ground surface
amsl = above mean sea level
NM = not measured

Table 3. Soil Vapor Well Construction Summary
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Well ID	**Completion Date**	**Northing**	**Easting**	**Total Depth Drilled** (ft bgs)	**Casing Diameter and Material**	**Screen**	**Screend Interval** (ft bgs)	**Steel Casing Elevation** (ft amsl)
SGS-SP	12/5/2003	12976.08	10378.00	255	0.5-inch PVC	0.02-inch mill-slotted	75 - 80	3633.77
SGS-Well	12/5/2003	12976.08	10378.00	255	4-inch PVC	0.08-inch mill-slotted	100 - 220	3633.77
SGD-SP	12/9/2003	12934.99	10175.80	605	0.5-inch PVC	0.02-inch mill-slotted	100 - 120	3629.69
SGD-MP	12/9/2003	12934.99	10175.80	605	0.5-inch PVC	0.02-inch mill-slotted	195 - 215	3629.69
SGD-Well	12/9/2003	12934.99	10175.80	605	2-inch PVC	0.08-inch mill-slotted	480 - 540 560 - 600	3629.69
SGD-DP	12/13/2003	12934.75	10156.28	355	0.5-inch PVC	0.02-inch mill-slotted	330 - 350	3629.14

Notes:
1. Source of data: HGC, 2004
2. Survey information is for steel casing at each borehole.

Abbreviations:
ft = feet
bgs = below ground surface
amsl = above mean sea level

Table 4. Classes and Names of Pesticides in the Landfill
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Chemical Class	Pesticide (and Synonyms)
Carbamates	Advantage (Marshal, Carbosulfan) Baygon 2% (Propoxur) Carbyne Furloe 124-20G (Chlorpropham) Temik (Aldicarb) Zectran 2E (Mexacarbate)
Carbamate Herbicides	Betanal (Phenmedipham)
Chlorinated Hydrocarbons (DDT and its analogs)	DDT Kelthan. EC (Dicolol) Methoxy·Chlor 2EC IDiphenyl chloride)
Chlorinated Hydrocarbon Fumigants	Fumazone 86 (Dibromochloropropane)
Chlorinated Hydrocarbon Herbicides	Dowpon (Dalapan; 2,2-dichloropropionic acid)
Chloroalkyl Thio Fungicides	Diflotan (Dilolatan, Captafol)
Chlorophenoxy Herbicides	Weedar 64 (2,4·D)
Dinitroaniline Herbicides	Prowl
Dinitrophenols	Sinox (Dinoseb)
Dithiocarbamates	Morestan
Organo-Phosphorus Insecticides	Azodrin (Monocrotophos) Bidrin (Dicrotophos) Cygon (Dimethoate) Di-Syston (Disulfoton) Diazinon Dibrom 8 Emulsion (Naled) Dipterex (Trichlorfon) Dursban (Chlorpyrifos) Dyfonate (Fonofos) Dylox (Trichlorfon) Guthion 25 (Azinphos·methyl) Imidan 1-E (Phosmet) Kor!an (Ronnel) Malathion Meta-Systox R {Oxydemeton-methyll Parathion Paratox 3G (Methyl parathion) Saralex (Diazinon) Supracide (Methidathion) Thimet 600 (Phorale) Vaponite (DDVP, Dichlorvos)

Table 4. Classes and Names of Pesticides in the Landfill (Continued)
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Chemical Class	Pesticide (and Synonyms)
Pyrethrums	Pounce (Permethrinl
Quaternary Nitrogen Compounds	Paraquat
Rodenticide	Brodifacoum
Thiocarbamate Herbicides	Avadex Eptam (EPTC) Vernam 6E (Vernolate)
Triazines and Triazoles	Pramital 25E Sencor (Metribuzin, Triazinone)
Mixtures	Alta-Tox (Diazinon + Methoxychlor) Galecron 4EC (Chlordimeform + Methyl Parathion) Torbidan 28 (Toxaphene + Methyl Parathion)
Miscellaneous	Acarol 2E (Acaral; Isopropyl 4,4'-dibromobenzilatel Annex (Butralin; 4-(1, 1-dimethylethyl)-N-(1-methylpropyl)-2,6-dinitrobenzenamine) Baam EC (Amitraz; triazapentadiene) Balan L.C. (Benefin; N-butyl-N-ethyl-a,a,a-trifluoro-2,6-dinitro-p-toluidine) Cobex (N_4,N_4-diethyl-a,a,a-trifluoro-3,5-dinitroto!uene-2,4-diamine) Dimilin 25W (Difluobenzuron; substituted benzoylurea) Surflan (3, 5-dinitro-N_4, N_4-dipropylsulfanilamide) Teremac Pesticide Toxaphene (chlorinated camphene)

Note:
1. Reproduced from UA, 1997.

Table 5. Pesticide Properties
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Pesticide	pK_A	K_{SP}	VP (mmHgx 10^{-6})	K_{OC}	T-1/2 (days)
Carbamates					
Advantage		0.3	0.3	2000	2
Baygon		2000	0.02	30	60
Furloe		89	10	400	30
Temik		6000	200	20	30
Betanal		4.7	<0.001	3000	30
Chlorinated Hydrocarbon					
Methoxychlor		0.10	<1	10^5	120
Toxaphene		0.04	12	10^5	70
Acidic Herbicides					
Dowpon	1.84	5×10^5	<10	1	20
Weedar 64	3.0	890 pH 6	8	20 pH 6	10
Hydroxy Acid Herbicides					
Sinox	4.5	52 pH 7	20	63 pH7	20
Quarternary N					
Paraquat	11	70%	0.01	106	500
Basic Pesticides					
Sencor	1	1220	10	60	20
Organophosphate					
Azodrin		10^6	160	1	30
Bidrin		10^6	140	75	28
Cygon		3.2×10^4	8.25	20	7
Di-Syston		25	370	600	30
Diazinon		60	60	1000	40
Dibrom		2000	1960	200	1
Dursban		0.4	18.7	6000	30
Guthion		29	16	1000	30
Malathion		145	20	1800	2
Parathion		24	92	5000	14
Supracide		240	2.5	400	7
Thimet		50	1900	1000	7
Thiocarbamates					
Eptam		375	32250	200	7
Vernam		108	10425	260	7
Other					
Pounce		0.2	<0.001	10^5	13
Baam EC		1.0	0.9	1000	2
Balan		0.10	78	10^4	40
Dimilin		0.08	0.001	10^4	10

Note:
1. Reproduced from UA, 1997.

Table 6a. Background Groundwater Quality
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Parameter	Lower Range Indicators	Upper Range Indicators	Alert Levels
MW-2			
pH (unitless)	6.491	7.699	-
Conductivity (µmhos)	220.097	339.903	-
Temperature (°C)	26.633	31.767	-
Chloride (Cl^-)	-	-	9.045
Sulfate (SO_4^{2-})	-	-	7.954
Manganese (Mn)	-	-	6.8
Sodium (Na)	-	-	47
MW-3			
pH (unitless)	6.690	8.070	-
Conductivity (µmhos)	225.761	334.239	-
Temperature (°C)	26.630	33.340	-
Chloride (Cl^-)	-	-	9.135
Sulfate (SO_4^{2-})	-	-	7.757
Manganese (Mn)	-	-	7.72
Sodium (Na)	-	-	52
MW-4			
pH (unitless)	6.681	8.069	-
Conductivity (µmhos)	207.711	322.289	-
Temperature (°C)	26.635	33.565	-
Chloride (Cl^-)	-	-	9.65
Sulfate (SO_4^{2-})	-	-	6.686
Manganese (Mn)	-	-	0.412
Sodium (Na)	-	-	45
MW-5			
pH (unitless)	6.637	7.633	-
Conductivity (µmhos)	244.371	345.629	-
Temperature (°C)	25.250	32.250	-
Chloride (Cl^-)	-	-	8.992
Sulfate (SO_4^{2-})	-	-	6.339
Manganese (Mn)	-	-	0.88
Sodium (Na)	-	-	54

Notes:
1. All concentrations are in unit mg/L.
2. "-" = not applicable.

Table 6b. Alert Levels for Proposed Parameters for MW-2
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

	Number of Original Data	Number of Outliers Removed	Number of Data Used for Alert Level Calculation	Number of Non-detects	Percentage of Non-detect	Lowest Detection	Highest Detection	Statistical Method	Alert Level
Chloride (Cl^-)	41	1	40	1	3%	5	10	MLE	9.045
Sulfate (SO_4^{2-})	42	1	41	17	41%	0.0728	11	KM	7.954
Manganese (Mn)	38	1	37	0	0%	0.085	6.8	KM	6.8
Sodium (Na)	37	1	36	0	0%	15.7	47	KM	47

Notes:
1. No long-term temporal trend is apparent by visual inspection.
2. In the case of duplicate results, one value is randomly selected into the original dataset.
3. Detections of chloride, sulfate, manganese, and sodium on 9/20/1985 are orders of magnitude lower than the other data for MW-2, MW-3, and MW-4. Therefore, they were excluded from alert level calcualtion.
4. A detection of chloride at 10 mg/L on 5/6/1991 was identified as an outlier. Because there is no evidence to suggest that this is an incorrect measurement, it is retained for alert level calculation.

Abbreviations:
MLW = Maximum Likehood Estimate
KM = Kaplan-Meier

Table 6c. Alert Levels for Proposed Parameters for MW-3
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

	Number of Original Data	Number of Outliers Removed	Number of Data Used for Alert Level Calculation	Number of Non-detects	Percentage of Non-detect	Lowest Detection	Highest Detection	Statistical Method	Alert Level
Chloride (Cl^-)	41	1	40	1	3%	0.00521	10	KM	9.135
Sulfate (SO_4^{2-})	41	1	40	17	43%	0.0912	10	KM	7.757
Manganese (Mn)	36	1	35	0	0%	0.05	7.72	KM	7.72
Sodium (Na)	36	1	35	0	0%	17.1	52	KM	52

Notes:
1. No long-term temporal trend is apparent by visual inspection.
2. In the case of duplicate results, one value is randomly selected into the original dataset.
3. Detections of chloride, sulfate, manganese, and sodium on 9/20/1985 were identified as outliers. These values are orders of magnitude lower than the other data, and therefore were excluded from alert level calcualtion.
4. A detection of chloride at 0.00521 mg/L on 4/10/1985 was identified as an outlier Because there is no evidence to suggest that this is an incorrect measurements, it is retained for alert level calculation.

Abbreviations:
KM = Kaplan-Meier

Table 6d. Alert Levels for Proposed Parameters for MW-4
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

	Number of Original Data	Number of Outliers Removed	Number of Data Used for Alert Level Calculation	Number of Non-detects	Percentage of Non-detect	Lowest Detection	Highest Detection	Statistical Method	Alert Level
Chloride (Cl^-)	43	1	42	1	2%	0.00482	10	MLE	9.65
Sulfate (SO_4^{2-})	43	1	42	18	43%	0.00482	9	KM	6.686
Manganese (Mn)	38	1	37	0	0%	0.066	0.44	parametric-normal	0.412
Sodium (Na)	38	1	37	0	0%	16.3	45	KM	45

Notes:
1. No long-term temporal trend is apparent by visual inspection.
2. In the case of duplicate results, one value is randomly selected into the original dataset.
3. Detections of chloride, sulfate, manganese, and sodium on 9/20/1985 were identified as outliers. These values are orders of magnitude lower than the other data, and therefore were excluded from alert level calcualtion.

Abbreviations:
MLW = Maximum Likehood Estimate
KM = Kaplan-Meier

Table 6e. Alert Levels for Proposed Parameters for MW-5
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

	Number of Original Data	Number of Outliers Removed	Number of Data Used for Alert Level Calculation	Number of Non-detects	Percentage of Non-detect	Lowest Detection	Highest Detection	Statistical Method	Alert Level
Chloride (Cl^-)	29	0	28	1	4%	5.7	10	KM	8.992
Sulfate (SO_4^{2-})	29	0	29	13	45%	2.6	6	KM	6.339
Manganese (Mn)	28	0	28	0	0%	0.046	0.88	KM	0.88
Sodium (Na)	29	0	29	0	0%	16.6	54	KM	54

Notes:
1. No long-term temporal trend is apparent by visual inspection.
2. In the case of duplicate results, one value is randomly selected into the original dataset.
3. A detection of chloride at 10 mg/L on 5/6/1991 was identified as an outlier. Because there is no evidence to suggest that this is an incorrect measurement, it is retained for alert level calculation.

Abbreviations:
KM = Kaplan-Meier

Table 7. Alert Levels for VOCs, SVOCs, and Organochlorine Pesticides
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Concentrations shown in milligrams per liter (mg/L)

Analyte	MCL	Alert Level
Polychlorinated Biphenyls (PCBs)	0.0005	0.0004
Pesticides		
Chlordane	0.002	0.0016
Endrin	0.002	0.0016
Heptachlor	0.0004	0.00032
Heptachlor epoxide	0.0002	0.00016
Lindane	0.0002	0.00016
Methoxychlor	0.04	0.032
Toxaphene	0.003	0.0024
Semivolatile Organic Compounds		0
1,2,4-Trichlorobenzene	0.07	0.056
1,2-Dichlorobenzene	0.6	0.48
1,4-Dichlorobenzene	0.075	0.06
Benzo(a)pyrene	0.0002	0.00016
Bis(2-ethylhexyl) phthalate	0.006	0.0048
Hexachlorobenzene	0.001	0.0008
Hexachlorocyclopentadiene	0.05	0.04
Pentachlorophenol	0.001	0.0008
Volatile Organic Compounds		
1,1,1-Trichloroethane	0.2	0.16
1,1,2-Trichloroethane	0.005	0.004
1,1-Dichloroethene	0.007	0.0056
1,2-Dibromo-3-chloropropane	0.0002	0.00016
Ethylene Dibromide (EDB)	0.00005	0.00004
1,2-Dichlorobenzene	0.6	0.48
1,2-Dichloroethane	0.005	0.004
1,2-Dichloropropane	0.005	0.004
1,4-Dichlorobenzene	0.075	0.06
Benzene	0.005	0.004
Carbon tetrachloride	0.005	0.004
Chlorobenzene	0.1	0.08
cis-1,2-Dichloroethene	0.07	0.056
Ethylbenzene	0.7	0.56
Methylene chloride	0.005	0.004
Styrene	0.1	0.08
Tetrachloroethene	0.005	0.004
Toluene	1	0.8
trans-1,2-Dichloroethene	0.1	0.08
Trichloroethene	0.005	0.004
Trihalomethanes	0.08	0.064
Vinyl chloride	0.002	0.0016
Xylenes, total	10	8

Notes
1. Only chemicals that have primary MCLs are listed.
2. Primary MCLs obtained from National Primary Drinking Water Regulations (EPA 816-F-09-0004, May 2009).
3. Alert levels are calculated as 80% of MCLs.

Abbreviations
EPA = US Environmental Protection Agency
MCLs = maximum contaminant levels

Table 8. Proposed Thresholds for Additional Actions
RCRA Part B Post Closure Permit Renewal
Page-Trowbridge Ranch Landfill

Compound	SGS-Well/SVE Influent	SGS-SP	SGD-SP	SGD-MP	SGD-DP	MW-2	MW-5
Carbon tetrachloride	850	450	180	130	130	6	6
Chloroform	900	480	210	140	140	12	12
1,1-Dichloroethene (1,1-DCE)	2160	1150	470	340	340	7	7
Methylene chloride	530	280	120	80	80	1	1
Tetrachloroethene (PCE)	130	70	30	20	20	4	4
Trichloroethene (TCE)	330	180	80	50	50	2	2
Trichlorofluoromethane (Freon-11)	3870	2060	860	640	640	596	596

Notes:
1. All concentrations are in mg/m^3