State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____ Locin: _____
To: _____ Locin: _____
To: _____ Locin: _____
From: _____ Date: _____

TO: Ms. Mary Smallwood, Division Director
Division of Environmental Permitting
and District Managers

cc: ALEX
TOM WALKER
VIC — Bill: Please
CHARLES note &
JOE return
JANET VK
TIM 10/31/86

THROUGH: Howard Rhodes, Division Director
Division of Environmental Programs

Chuck Aller, Bureau Chief
Bureau of Ground Water Protection

Rodney S. DeHan, Assistant Bureau Chief
Bureau of Ground Water Protection

FROM: James E. McNeal, Administrator
~~UIC and~~ Technical Support Section

Randy Merchant, Environmental Specialist
UIC and Technical Support Section

NOT STANDARDS

DATE: October 2, 1986

SUBJECT: Ground Water Minimum Criteria; Guidance Concentrations

Since 1983 when the current Chapter 17-3.402 F.A.C. ground water regulations were adopted, minimum criteria have been espoused as water quality standards. DER districts require permittees to provide a wastestream analysis encompassing the EPA priority pollutant list but no prohibitive concentrations based upon the carcinogenicity, mutagenicity, teratogenicity, or toxicity to human beings as stated in Rule 17-3.402 have yet been established. Providing a limited listing of minimum criteria guidance concentrations is the objective of this paper.

We compiled the table Ground Water Guidance Concentrations to alert DER District personnel to concentrations of synthetic organics and inorganics in effluent and ground water that warrant further inquiry. These guidelines will be used to screen analytical chemical results so that concentrations above the guidance levels will be given closer scrutiny. This table is based upon human health risks for the direct consumption of ground water and has been compiled from several published research materials. The concentrations noted in this table, however, are not standards and without further justification can not be used as standards. They are designed to be used as interim guidelines until enforceable standards can be developed. As such, these concentrations can be expected to be modified in the future as new research becomes available and feedback is received. The Secretary is authorized to adopt standards for any of these chemicals if there is a need and sufficient information exists to support such adoption. In

administrative hearings or court cases an expert will still be needed to testify to the carcinogenicity or other human health hazards of each chemical at the guidance concentration.

The list of chemicals in this table was compiled from the following health based data sources: the Florida Primary and Secondary Drinking Water Standards, the EPA Maximum Contaminant Level (MCL) and Recommended Maximum Contaminant Level (RMCL), the 129 EPA Priority Pollutants, the EPA Ambient Water Quality Criteria documents, The EPA Office of Drinking Water Health Advisories, and table 1 of the EPA Draft Preliminary Protective Concentration Limits (PPCLs). The Appendix to the table elaborates on the procedures and priorities used to compile these references. The resulting concentrations were compared to other states guidelines and standards as well as to toxicant profiles currently under review. State and EPA toxicologists were also consulted.

Concentrations of chemicals in a permittee's effluent discharging to ground water that are above minimum detection limits will continue to require monitoring for those chemicals in the ground water. Concentrations in a permittee's effluent or monitor wells that exceed these guidelines will require further assurances (hydrological, toxicological, etc.) from the permittee that the designated use of the receiving ground water will not be adversely affected.

Hydrological assurances that the designated use of the receiving ground water will not be adversely affected include, but are not limited to, the existence of an effective confining layer below the area of the effluent discharge, exceedingly long travel times to the nearest potable well or ground water to surface discharge, etc. Toxicological assurances that the receiving ground water will not be adversely affected would include, but are not limited to a satisfactory demonstration that, for those chemicals with little health based data, concentrations above the routine detection limit would not be carcinogenic, mutagenic, teratogenic, or toxic to human beings. Site specific details must be considered when applying these guidance concentrations since local conditions could warrant more restrictive concentrations.

The concentrations in this guidance table are designed to apply to ground water only and should not be used for surface water applications. In cases where a significant ground water discharge to surface water bodies is anticipated, a lower guidance concentration may be necessary due to the additional human exposure via consumption of contaminated fish and other aquatic organisms. These ground water concentrations are not necessarily meant to be used as ground water clean-up standards since clean-up standards consider additional factors such as feasibility, existing technology, and costs while the ground water concentrations in this table are based on health effects. In many cases it is not feasible to clean up ground water to low level, health based concentrations.

The Bureau of Ground Water Protection, UIC and Technical Support Section is prepared to assist in the interpretation and application of this information. Questions regarding the table Ground Water Guidance Concentrations should be directed to either Jim McNeal or Randy Merchant at SunCom 278-3601.

EMcRMsube

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
GROUND WATER GUIDANCE CONCENTRATIONS[1]
(µg/l)

CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
7440-38-2	Arsenic	50	1.0 E	Fl Primary Std
7440-39-3	Barium	1000	500.0 D	Fl Primary Std
7440-43-9	Cadmium	10	0.1 E	Fl Primary Std
7440-47-3	Chromium	50	25.0 D	Fl Primary Std
7439-92-1	Lead	50	50.0 D	Fl Primary Std
7439-97-6	Mercury	2	0.2 D	Fl Primary Std
	Nitrate (as N)	10,000	5.0 D	Fl Primary Std
7782-49-2	Selenium	10	4.0 D	Fl Primary Std
7440-22-4	Silver	50	0.2 D	Fl Primary Std
7440-23-5	Sodium	160,000	0.4 D	Fl Primary Std
	Fluoride	1,400	10.0 D	Fl Primary Std
72-20-8	Endrin	0.2	0.03D	Fl Primary Std
58-89-9	Lindane	4.0	0.01D	Fl Primary Std
72-43-5	Methoxychlor	100	0.1 E	Fl Primary Std
8001-35-2	Toxaphene	5.0	0.25D	Fl Primary Std
94-75-7	2,4-D	100	0.05E	Fl Primary Std
93-72-1	2,4,5-TP (Silvex)	10	0.01E	Fl Primary Std
	Trihalomethanes (total)	100	5-10 A	Fl Primary Std
79-01-6	Trichloroethylene	3.0	0.2 E	Fl Primary Std
127-18-4	Tetrachloroethylene	3.0	1.0 D	Fl Primary Std
56-23-5	Carbon tetrachloride	3.0	0.3 E	Fl Primary Std
75-01-4	Vinyl chloride	1.0	0.3 E	Fl Primary Std
71-55-6	1,1,1-Trichloroethane	200	1.0 D	Fl Primary Std
107-06-2	1,2-Dichloroethane	3.0	0.3 E	Fl Primary Std
71-43-2	Benzene	1.0	0.2 E	Fl Primary Std
106-93-4	Ethylene dibromide (EDB)	0.02	0.4 E	Fl Primary Std
	Radium-226 and 228	5 pCi/l		Fl Primary Std
	Gross Alpha	15 pCi/l		Fl Primary Std
	Chloride	250,000	1,000 D	Fl Secondary Std
7440-50-8	Copper	1,000	20 D	Fl Secondary Std
	Iron	300	50 D	Fl Secondary Std
7439-96-5	Manganese	50	25 D	Fl Secondary Std
	Sulfate	250,000	500 D	Fl Secondary Std
7440-66-6	Zinc	5,000	10 D	Fl Secondary Std
	pH	≥6.5 (no max.)		Fl Secondary Std
	TDS	500 mg/l		Fl Secondary Std

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
83-32-9	Acenaphthene	20.0	1.8 E	Organoleptic, AWQCD
208-96-8	Acenaphthylene	2.3	2.3 E	EPA detection limit
79-34-5	Acetylene tetrachloride (See 1,1,2,2-tetrachloroethane)			
107-02-8	Acrolein	110	0.7 E	EPA PPCL (ADI)
79-06-1	Acrylamide	0.2	0.2 E	DL / ($0.01\mu g/l = 10^{-6}$ cancer risk, CAG)
107-13-1	Acrylonitrile	0.5	0.5 E	DL / ($0.063\mu g/l = 10^{-6}$ cancer risk, AWQCD)
15972-60-8	Alachlor	0.2	0.2 E	DL / ($0.15\mu g/l = 10^{-6}$ cancer risk, Health Ad.
116-06-3	Aldicarb	9.0	1.3 E	EPA proposed RMCL
309-00-2	Aldrin	1.9	1.9 E	DL / ($0.003\mu g/l = 10^{-6}$ cancer risk, AWQCD)
7440-36-0	Antimony	29	3.0 E	EPA PPCL (ADI)
120-12-7	Anthracene	0.6	0.6 E	EPA detection limit
92-87-5	Benzidine	10	10.0 D	DL / ($0.00015\mu g/l = 10^{-6}$ cancer risk, AWQCD)
56-55-3	Benzo(a)anthracene	7.9	7.9 E	EPA detection limit
205-99-2	Benzo(b)fluoranthene	4.8	4.8 E	EPA detection limit
207-08-9	Benzo(k)fluoranthane	2.5	2.5 E	EPA detection limit
191-24-2	Benzo(g,h,i)perylene	4.1	4.1 E	EPA detection limit
50-32-8	Benzo(a)pyrene	2.5	2.5 E	DL / ($0.003\mu g/l = 10^{-6}$ cancer risk, AWQCD)
7440-41-7	Beryllium	0.5	0.5 D	DL / ($0.004\mu g/l = 10^{-6}$ cancer risk, AWQCD)
	BHC (See Hexachlorocyclohexanes)			
75-27-4	Bromodichloromethane (See Trihalomethane, total)			
75-25-2	Bromoform (See Trihalomethane, total)			
74-83-9	Bromomethane	150	1.1 E	EPA PPCL (ADI)
101-55-3	4-Bromophenyl phenyl ether	1.9	1.9 E	EPA detection limit
78-93-3	2-Butanone (See Methyl ethyl ketone)			
85-68-7	Butyl benzyl phthalate	8,800	2.5 E	Similarity to Di-n-butyl phthalate
85-70-1	Butyl phthalyl butyl glycolate	120,000	5-10 A	Water solubility limi (AWQCD ADI=350,000µg/

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
1563-66-2	Carbofuran	36	0.9 E	EPA proposed RMCL
108-95-2	Carbolic acid (See Phenol)			
57-74-9	Chlordane	0.25	0.25D	DL / (0.022µg/l=10^{-6} cancer risk, AWQCD)
108-90-7	Chlorobenzene	60	0.3 E	EPA Proposed RMCL
124-48-1	Chlorodibromomethane (See Trihalomethane, total)			
106-89-8	1-Chloro-2,3-epoxypropane (See Epichlorohydrin)			
75-00-3	Chloroethane	0.5	0.5 E	EPA detection limit
111-91-1	bis(2-Chloroethoxy) methane	0.5	0.5 E	EPA detection limit
75-01-4	Chloroethylene (See Vinyl chloride)			
111-44-4	bis(2-Chloroethyl) ether	0.3	0.3 E	DL / (0.031µg/l=10^{-6} cancer risk, AWQCD)
110-75-8	2-Chloroethyl vinyl ether	0.1	0.1 E	EPA detection limit
67-66-3	Chloroform (See Tri-(halomethane, total)			
108-60-1	bis(2-Chloroisopropyl) ether	7.0	0.8 E	EPA PPCL (ADI)
74-87-3	Chloromethane	3,800	1.0 D	EPA PPCL (ADI)
542-88-1	bis(Chloromethyl) ether	10	5-10 A	DL/(3.8x10^{-6} µg/l=10^{-6} cancer risk, AWQCD)
59-50-7	4-Chloro-3-methyl phenol (para-chloro-meta-cresol)	3000	0.3 E	Organoleptic, AWQCD
91-58-7	2-Chloronaphthalene	0.9	0.9 E	EPA detection limit
95-57-8	2-Chlorophenol	0.3	0.3 E	DL / (0.1µg/l organoleptic)
7005-72-3	4-Chlorophenyl phenyl ether	3.9	3.9 E	EPA detection limit
218-01-9	Chrysene	0.1	0.1 E	EPA detection limit
100-42-5	Cinnamene (See Styrene)			
57-12-5	Cyanide	200	20.0 E	US Public Health Serv DW Standard (1962)
50-29-3	DDT	0.03	0.03E	DL / (0.004µg/l=10^{-6} cancer risk, AWQCD)
2303-16-4	Diallate	10	5-10 X	DL / (0.045µg/l=10^{-6} cancer risk, EPA PPC
53-70-3	Dibenzo(a,h)anthracene	2.5	2.5 E	EPA detection limit

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
124-48-1	Dibromochloromethane (See Chlorodibromo-methane)			
96-12-8	1,2-Dibromo-3-chloro-propane (DBCP)	0.05	0.05D	DL / (0.025µg/l=10^{-6} cancer risk, CAG)
106-93-4	1,2-Dibromoethane (See Ethylene dibromide)			
84-74-2	Di-n-butyl phthalate	8,800	0.3 E	EPA PPCL (ADI)
95-50-1	o-Dichlorobenzene	620 Y	0.3 E	EPA Proposed RMCL
541-73-1	m-Dichlorobenzene	620 Y	0.3 E	Similarity to o-DCB
106-46-7	p-Dichlorobenzene	750 Y	0.3 E	EPA Proposed MCL
91-94-1	3,3-Dichlorobenzidine	0.1	0.1 E	DL / (0.021µg/l=10^{-6} cancer risk, AWQCD)
75-27-4	Dichlorobromomethane (See Bromo-dichloromethane)			
75-71-8	Dichlorodifluoro-methane	5,600	1.8 E	EPA PPCL (ADI)
75-34-3	1,1-Dichloroethane	810	4.7 E	EPA PPCL (ADI)
75-35-4	1,1-Dichloroethylene	7.0	0.2 E	EPA proposed MCL
156-59-2	cis-1,2-Dichloro-ethylene	70.0	1.0 D	EPA proposed RMCL
156-60-5	trans-1,2-Dichloro-ethylene	70.0	0.2 E	EPA proposed RMCL
111-44-4	Dichloroethyl ether (See bis(2-Chloro-ethyl) ether)			
108-60-1	Dichloroisopropyl ether (See bis(2-Chloro-isopropyl) ether)			
75-09-2	Dichloromethane (See Methylene chloride)			
542-88-1	Dichloromethyl ether (See bis(Chloro-methyl) ether)			
120-83-2	2,4-Dichlorophenol	0.3	0.3 E	Organoleptic, AWQCD
78-87-5	1,2-Dichloropropane	6.0	0.2 E	EPA proposed RMCL
542-75-6	1,3-Dichloropropene	18.0	0.2 E	EPA PPCL (ADI)
60-57-1	Dieldrin	2.5	2.5 E	DL / (0.001µg/l=10^{-6} cancer risk, AWQCD)
84-66-2	Diethyl phthalate	88,000	0.4 E	EPA PPCL (ADI)
105-67-9	2,4-Dimethyl phenol	400	0.3 E	Organoleptic, AWQCD
131-11-3	Dimethyl phthalate	70,000	0.2 E	EPA PPCL (ADI)

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
534-52-1	4,6-Dinitro-ortho-cresol	16.0	16.0 E	EPA detection limit
51-28-5	2,4-Dinitrophenol	70.0	13.0 E	EPA PPCL (ADI)
121-14-2	2,4-Dinitrotoluene	5.7	5.7 E	DL / (0.11µg/l=10^{-6} cancer risk, AWQCD)
606-20-2	2,6-Dinitrotoluene	1.9	1.9 E	EPA detection limit
117-84-0	Di-n-octyl phthalate	2.5	2.5 E	EPA detection limit
123-91-1	p-Dioxane	114	5-10 A	EPA 10 day Health Adv. for 10 Kg child
1746-01-6	Dioxin (See Tetrachloro dibenzo-p-dioxin)			
122-66-7	1,2-Diphenylhydrazine	10	10.0 D	DL / (0.045µg/l=10^{-6} cancer risk, AWQCD)
15-29-7	Endosulfan (α + β)	28	0.03D	EPA PPCL (ADI)
1031-07-8	Endosulfan sulfate	5.6	5.6 E	EPA detection limit
7421-93-4	Endrin aldehyde	0.03	0.03D	DER detection limit
106-89-8	Epichlorohydrin (unstable in H_2O)	10	5-10 A	DL / (3.54µg/l=10^{-6} cancer risk, Health Ad.
75-21-8	1,2-Epoxyethane (See Ethylene oxide)			
100-41-4	Ethylbenzene	680	0.2 E	EPA proposed RMCL
75-00-3	Ethylchloride (See Chloroethane)			
107-21-1	Ethylene glycol	3,850	5-10 A	Longer-term Health Adv
75-21-8	Ethylene oxide (unstable in H_2O)	10	5-10 X	DL / (0.028µg/l=10^{-6} cancer risk, EPA PPCL
96-45-7	Ethylene thiourea	10	5-10 X	DL / (0.972µg/l=10^{-6} cancer risk, EPA PPCL
117-81-7	bis(2-Ethylhexyl) phthalate	4,200 Z	2.0 E	EPA PPCL (ADI)
84-72-0	Ethyl phthalate ethyl glycolate	17,500	5-10 A	EPA PPCL (ADI)
206-44-0	Fluoranthene	42	0.2 E	EPA PPCL (ADI)
86-73-7	Fluorene	0.2	0.2 E	EPA detection limit
75-69-4	Fluorotrichloro methane (See Tri chloromonofluro methane)			
76-44-8	Heptachlor	1.0	1.0 E	DL / (0.01µg/l=10^{-6} cancer risk, AWQCD)
1024-57-3	Heptachlor epoxide	1.0	1.0 E	DL / (0.0006µg/l=10^{-6} cancer risk, CAG)
118-74-1	Hexachlorobenzene (HCB)	1.0	1.0 E	DL/ (0.02µg/l=10^{-6} cancer risk, CAG)

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
87-68-3	Hexachlorobutadiene	0.45	0.4 E	10^{-6}cancer risk, AWQCD
319-84-6	alpha-Hexachloro-cyclohexane (BHC)	0.01	0.01E	DL / (0.00315µg/l=10^{-6} cancer risk, EPA CAG)
319-85-7	beta-Hexachloro-cyclohexane (BHC)	0.02	0.01E	10^{-6} cancer risk PPCL, CAG
58-89-9	gamma-Hexachloro-cyclohexane (see Lindane)			
319-86-8	delta-Hexachloro-cyclohexane (BHC)	3.1	3.1 E	EPA detection limit
77-47-4	Hexachlorocyclo-pentadiene	1.0	0.4 E	Organoleptic, AWCQD
67-72-1	Hexachloroethane	3.38	1.6 E	10^{-6}cancer risk, AWQCD
110-54-3	n-Hexane	2,800	5-10 A	Longer-term Health Adv.
206-44-0	Idryl (See Fluoranthene)			
96-45-7	2-Imidazolidinethione (See Ethylene thiourea)			
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	3.7 E	EPA detection limit
78-59-1	Isoacetophorone (See Isophorone)			
78-59-1	Isophorone	1,050	2.2 E	AWQCD (ADI)
74-83-9	Methyl bromide (See Bromomethane)			
74-87-3	Methyl chloride (See Chloromethane)			
75-09-2	Methylene chloride	5.0	0.3 E	10^{-6} cancer risk, EPA CAG
534-52-1	2-Methyl-4,6-dinitro-phenol (See 4,6-dinitro-o-cresol)			
78-93-3	Methyl ethyl ketone (MEK)	172	50.0 E	Lifetime Health Adv.
60-34-4	Methyl hydrazine	10	5-10 A	DL / (0.03µg/l=10^{-6} cancer risk, EPA PPCL
91-20-3	Naphthalene	1.6	1.6 E	EPA detection limit
7440-02-0	Nickel	150	1.0 D	Lifetime Health Adv.
98-95-3	Nitrobenzene	30	1.9 E	AWQCD organoleptic
534-52-1	2-Nitrophenol	0.4	0.4 E	EPA detection limit
100-02-7	4-Nitrophenol	2.4	2.4 E	EPA detection limit
924-16-3	N-Nitrosodi-n-butylamine	10	5-10 A	DL / (0.0064µg/l=10^{-6} cancer risk, AWQCD)
55-18-5	N-Nitrosodiethylamine	10	5-10 A	DL / (0.0008µg/l=10^{-6} cancer risk, AWQCD)

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
62-75-9	N-Nitrosodimethylamine	0.1	0.1 E	DL / (0.0014µg/l=10^{-6} cancer risk, AWQCD)
86-30-6	N-Nitrosodiphenylamine	6.42	0.8 E	10^{-6} cancer risk, AWQCD
759-73-9	N-Nitroso-N-ethylurea	10	5-10 X	DL / (0.001µg/l=10^{-6} cancer risk, EPA PPCL)
684-93-5	N-Nitroso-N-methylurea	10	5-10 X	DL / (0.000116µg/l=10^{-6} cancer risk, EPA PPCL)
621-64-7	N-Nitrosodi-N-propylamine	0.4	0.4 E	EPA detection limit
930-55-2	Nitrosopyrrolidine	10	5-10 X	DL / (0.016µg/l=10^{-6} cancer risk, AWQCD)
23135-22-0	Oxamyl	160	1.6 E	Lifetime Health Adv.
75-21-8	Oxirane (See Ethylene oxide)			
608-93-5	Pentachlorobenzene	120	5-10 A	EPA PPCL (ADI)
87-86-5	Pentachlorophenol (PCP)	220	7.4 E	EPA Proposed RMCL
127-18-4	Perchloroethylene (See Tetrachloro-ethylene)			
85-01-8	Phenathrene	0.6	0.6 E	EPA detection limit
108-95-2	Phenol	300	0.1 E	AWQCD organoleptic
103-85-8	N-Phenylthiourea	1,400	5-10 A	EPA PPCL (ADI)
9936-36-3	Polychlorinated Biphenyls (PCBs)	0.25	0.25D	DL / (0.008µg/l=10^{-6} cancer risk, Health Ad
107-02-8	Propenal (See Acrolein)			
79-06-1	2-Propeneamide (see Acrylamide)			
129-00-0	Pyrene	0.2	0.2 E	EPA detection limit
100-42-5	Styrene	140	1.0 D	EPA Proposed RMCL
116-06-3	Temik (See Aldicarb)			
95-94-3	1,2,4,5-Tetrachloro-benzene	35	5-10 A	EPA PPCL (ADI)
1746-01-6	2,3,7,8-Tetrachloro-dibenzo-p-dioxin (TCDD)	0.02	0.02E	DL/(2.2x10^{-7} µg/l=10^{-6} cancer risk, AWQCD)
79-34-5	1,1,2,2-Tetrachloro-ethane	6.9	6.9 E	DL / (0.175µg/l=10^{-6} cancer risk, AWQCD)
56-23-5	Tetrachloromethane (See Carbon tetra-chloride			
7440-28-0	Thallium	3.7	2.0 E	EPA PPCL (ADI)
108-88-3	Toluene	2,000	0.2 E	EPA proposed RMCL
636-21-5	o-Toluidine hydrochloride	10	5-10 X	DL / (0.146µg/l=10^{-6} cancer risk, EPA PPCL
75-25-2	Tribromomethane (see Bromoform)			

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CAS #	Contaminant	Guidance Concentration (µg/l)	Detection Limit (µg/l)	Basis/Comment
120-82-1	1,2,4-Trichlorobenzene	1.9	1.9 E	EPA detection limit
79-00-5	1,1,2-Trichloroethane	5.0	5.0 E	DL / (0.61µg/l=10^{-6} cancer risk, AWQCD)
79-01-6	Trichloroethene (See Trichloro-ethylene			
67-66-3	Trichloromethane (See Chloroform)			
75-69-4	Trichloromono-fluoromethane	2,400	1.0 D	EPA PPCL (ADI)
95-95-4	2,4,5-Trichlorophenol	10	5-10 A	DL / (1.0µg/l organoleptic, AWQCD)
88-06-2	2,4,6-Trichlorophenol	2.0	0.6 E	Organoleptic, AWQCD
93-76-5	2,4,5-Trichlorophenoxy-acetic acid (2,4,5-T)	210	0.2 E	EPA PPCL (ADI)
100-42-5	Vinyl benzene (See Styrene)			
110-75-8	Vinyl 2-chloroethyl ether (See 2-Chloroethyl vinyl ether)			
107-13-1	Vinyl cyanide (See Acrylonitrile)			
75-35-4	Vinylidene chloride (See 1,1-Dichloro-ethylene)			
1330-20-7	Xylenes (total)	440	1.0 D	EPA proposed RMCL
105-67-9	2,4-Xylenol (See 2,4-Dimethyl phenol)			

1 – The concentrations in this table are only to be used as a screening guideline for ground water contamination. These concentrations are not standards and without further justification can not be used as standards.

A – Approximate detection limit of 5-10 µg/l based on gas chromatograph detection with mass spectrometer confirmation. Estimated by Tom Presely, Methodology Department, EPA Laboratory, Cincinnati and Geoffrey Watts, Bureau of Ground Water Protection DER, Tallahassee.

ADI – Acceptable Daily Intake

AWQCD – Ambient Water Quality Criteria Documents, EPA 1980.

CAG – Carcinogen Assesment Group, EPA 1984.

CAS – American Chemical Society's Chemical Abstract Service, 8th Collective Index

D – DER Detection Limit, SPAN Laboratory, Tallahassee

DL – Detection Limit

E – EPA Detection Limit, 600 Series Approved Methodologies

MCL – Maximum Contaminant Level, EPA

PPCL – Preliminary Protective Concentration Limits, EPA Draft 1984.

MCL - Recommended Maximum Contaminant Level, EPA

X - EPA approved methodologies for the analyses of these chemicals in water have not been established at this time. Routine analyses for these chemicals is not recommended unless their presence is suspected.

Y - The dichlorobenzenes (o, m, and p) are suspected of being carcinogenic and are currently under review. Guidance concentrations may be lower in the future.

Z - Guidance concentrations for the phthalate esters are based upon non-carcinogenic endpoints. Bis(2-ethlyhexyl) phthalate has shown evidence of being a rodent carcinogen and the guidance concentration may be lower in the future.

Appendix
Florida Department of Environmental Regulation
Ground Water Guidance Concentrations

The chemical concentrations in this table were derived from background material using the following priorities. First, the Florida Primary and Secondary Drinking Water Standards were used. Second, if there existed an EPA proposed Maximum Contaminant Level (MCL) or Recommended Maximum Contaminant Level (RMCL), that concentration was selected. Third, concentrations from the EPA Ambient Water Quality Criteria Documents (AWQCD), EPA Office of Drinking Water Health Advisories, and table 1 of the EPA Draft Preliminary Protective Concentration Limits (PPCLs) for ground water were compiled. Where the concentrations from two of more of these three health based sources were significantly different, the data were reviewed and a judgement made on their reliability, taking into account the dates of the studies. Last, the 129 EPA Priority Pollutants were added to the list.

Routine detection limits were compiled from the EPA 600 Series Approved Methodologies and those used by the DER SPAN Laboratory, Tallahassee. For those chemicals with no approved detection limits, 5-10 µg/l was estimated based upon gas chromatograph detection with mass spectrometer confirmation. When the health based concentration was below the routine detection limit, the routine detection limit was selected and the health based concentration noted. For those cases where there was no health based information available from the above sources, the routine detection limit was selected as the guidance concentration.

The 1980 EPA AWQCD criterion concentrations are based upon carcinogenic, toxic, and organoleptic (taste and smell) endpoints. A modification of these concentrations was necessary since they assume exposure from consumption of aquatic organisms, as well as from drinking the affected water directly. For a ground water guideline, exposure is assumed to be from drinking only, since edible aquatic organisms are not usually found in groundwater. This correction was accomplished by adding the percentage of the exposure due to the consumption of aquatic organisms to the derived concentration. Where this percentage was not given, the guidance concentration was derived by dividing the Acceptable Daily Intake (ADI) by the average adult daily consumption of water (2L). The 10^{-6} additional lifetime cancer risk was cited for potential carcinogens. For noncarcinogens, the criterion was based upon extrapolation from animal experimentaion or human data. In cases where the organoleptic threshold was less than the health derived criterion, the organoleptic level was chosen.

For the Draft 1985 EPA Health Advisories, the longest exposure health advisory given was used. It was accepted that drinking water contributes 20% of an adult's daily exposure to a chemical. This relative source contribution is reflected in the Health Advisories.

The Draft EPA PPCLs were developed in October, 1984 by the EPA Environmental Criteria and Standards Office, Cincinnati and the EPA Carcinogen Assesment Group, DC to give guidance to permit

writers in cases of ground water contamination. The PPCLs are based upon the Acceptable Daily Intakes (ADIs) and the incremental cancer risk of 10^{-6}, but are not standards. In those cases where two PPCL values were given for one chemical the lower value was chosen unless the higher value was an enforceable Maximum Contaminant Level (MCL).