APPENDIX

APPENDIX 一覧

APPENDIX 1

プロジェクトに関係する人名

- プロジェクト長**:** Mr. Felipe I. Arreguín Cortés, Deputy Director General (Technical Area), CONAGUA
- プロジェクトマネージャー**P:** Mr. Enrique Mejía Maravilla, General Manager of Manager's Office of Water Quality, CONAGUA
- テクニカルカウンターカート**:**

[成果 1、成果 2]

Mr. Eric Gutiérrez López. General Submanager of Water Quality Studies and Environmental Impact, CONAGUA

Mr. Jesús García Cabrera, Submanager of the National Measurement Network of Water Quality, CONAGUA

Mr. Jesús Núñez Morales, Submanager of Technical Dictamination, Hydroecological Emergencies and Environmental Services

Ms. Sylvia F. Vega Gleason, Hydraulic Specialist, Department of Water Quality Studies and Environmental Impact, CONAGUA

Mr. Fernando Rosales Cristerna, Head of Water Quality Studies Area, CONAGUA

Ms. Ivonne Cuesta Zarco, Hydraulic Specialist, Water Quality Studies Area, CONAGUA

Ms. Claudia Nava Ramírez, Head of the National Monitoring Network, CONAGUA

Mr. Leopoldo Sánchez Espinoza. Head of Department of Evaluation and Interpretation of Water Quality in Epicontinental Aquatic Systems.

[成果 3]

Ms. Margarita Lobato Calleros, Head of National Laboratories Network, CONAGUA

Ms. Valia M. Goytia Leal, Head of National Reference Laboratory Operation, CONAGUA

Ms. Norma L. Heiras Rentería, Hydraulic Specialist, National Measurement Network of Water Quality, CONAGUA.

Ms. Guadalupe Machado Osuna, Hydraulic Specialist, National Measurement Network of Water Quality, CONAGUA

- 合同調整委員会（**JCC**）**:**

The Joint Coordinating Committee (here in after referred to as "JCC"), which consists of both the Mexican side and the Japanese side, is established for smooth and effective implementation of the project. JCC will basically meet twice a year or whenever necessary arises. The functions of JCC are as follows:

- To formulate the annual operational work plan of the project based on PDM (Project design Matrix) and PO (Plan of Operation).
- To review the results of the annual operational work plan and the overall progress of the project.

- To exchange views on major issue arising from or in connection with implementation of the project.

議長: Mr. Felipe I. Arreguín Cortés, Deputy Director General (Technical Area), CONAGUA (Project Director)

委員:

【メキシコ側】

Mr. Felipe I. Arreguín Cortés, General Director (Technical area), CONAGUA

Mr. José Antonio Rodríguez Tirado, Deputy Director General (Planning area), CONAGUA

Mr. Enrique Mejía Maravilla, General Manager of Manager's Office of Water Quality (Project Manager), CONAGUA

Mr. Eric Gutiérrez López, Submanager of Water Quality Studies and Environmental Impact, CONAGUA

Mr. Jesús García Cabrera, Submanager of the National Measurement Network of Water Quality, CONAGUA

Mr. Jesús Núñez Morales, Submanager of Technical Dictamination, Hydroecological Emergencies and Environmental Services, CONAGUA

Ms. Irma González López, Deputy Manager of Sectorial Programs, CONAGUA

Mr. Guillermo Gutiérrez Gómez, Head of International Cooperation, CONAGUA

Ms. Liliana Martin Escalante, Head of Administrative Systems, General Subdirection of Planning, CONAGUA

Mr. Fernando Rosales Cristerna, Head of Water Quality Studies Area, CONAGUA

Ms. Margarita Lobato Calleros, Head of the Department of the National Laboratories Network, CONAGUA

Ms. Valia M. Goytia Leal, Head of National Reference Laboratory Operation, CONAGUA

Mr. Máximo Romero Jiménez, Coordinator for General Director of Technical and Scientific Cooperation, Secretariat of Foreign Affairs

Mr. Efraín del Ángel Ramírez, Deputy Director for Asia Bilateral Cooperation, Secretariat of Foreign Affairs

Mr. Cesar Arellano, Coordinator for Bilateral Cooperation with Japan, Secretariat of Foreign Affairs

The Representative of the Direction of Legal Affairs, CONAGUA

The Representative of the Direction of Economic Analysis and Legal of the Primary Sector and Renewable Natural Resources, SEMARNAT

The Representative of the Direction of Normativity of the Primary Sector and Renewable

Natural Resources, SEMARNAT

The Representative of Coordination Unit of International Affairs, SEMARNAT

【日本側】

Experts

Representatives of JICA Mexico Office

Members of JICA study team, to be dispatched when necessary

Official(s) of the Embassy of Japan in Mexico may attend the JCC as observer(s).

- テクニカルコミッティ:

The function of the Technical Committee is to discuss technical or practical details of the project. Technical Committee is formed by the following members.

Project Manager:

- Mr. Enrique Mejía Maravilla

Administrator General:

- Mr. Eric Gutiérrez López

Administrating Members:

- Dr. Jesus García Cabrera
- Mr. Jesus Núñez Morales
- Ms. Irma González López

Chief Adviser of the Expert Team:

- Mr. Yoichi Harada

- ワーキンググループ:

The working groups consist of the technical counterparts from the Mexican side. Occasionally, members from other organizations out of CONAGUA are also included in the Working Groups.

APPENDIX 2

PDM **Ver.3**

Name of Project: Project on Capacity Enhancement for Establishing Mexican Norms of Water Quality Criteria
Created Date: July 24, 2009 Terms of Project: 25 months
Project Area: Mexico City and Turbio River and Valsequillo Dam in Atoyac River
Target Group: CONAGUA

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The water quality criteria are established as a Norma Mexicana (NMX) and utilize as water quality standard.	1. Draft of NMX approved by Technical General Subdirector of CONAGUA	1. Draft NMX（Signed by the Inter-institutional Working Group） 2. Annual report of CONAGUA	
Project Purpose The capacity of CONAGUA for establishing water quality criteria (WQC) is enhanced.	1. Draft of WQC approved by the General Manager of the Manager's Office of Water Quality in CONAGUA 2. Appropriateness of the reviewing process of WQC. 3. Appropriateness of the manual for establishing WQC.	1. The draft of the WQC (signed by the General Manager of the Manager's Office of Water Quality in CONAGUA) 2. Report on procedure for revision* 3. Manual (* This is included in the Progress Reports)	The government of Mexico actively applies the outputs of the Project to policies.

Output 1. The capacity of identifying parameters for criteria (chemicals and others) (PFC) n freshwater to protect aquatic life and human health is enhanced.	1. Appropriateness of collected information on pesticides and herbicides. 2.Number of parameters reviewed for selecting PFC from toxicological view point 3.Appropriateness of the relations between chemicals discharged and the current draft of WQC 4.Appropriateness of the relations between usage of pesticides and herbicides and the current draft of WQC 5.Relevance of the selected PFC from the point of protection of human health and water resources 6.Appropriateness of process and method for establishment of WQC 7. Result of review work for "Revision of the water quality criteria for water usage specified by the National Waters Law and Federal Law of Rights (Report)". 8.Number of participants of the seminar and levels of understanding 9.Development of manual	1. Reports on study for selecting PFC* 2. Reports on study for appropriateness of PFC from scientific and technical view point* 3. Draft of manual for establishment WQC (*: These items are included in the Progress Reports)	The role of CONAGUA regarding development of WQC is not changed.
2. The capacity of deciding maximum permissible concentrations and levels of the identified PFC appropriate to the moderate tropical environment in the American continent is enhanced.	1. Appropriateness of the understanding of characteristic of water pollution for decision of maximum permissible concentrations and levels 2. Number of PFC of which maximum permissible concentration are reviewed from toxicological view point 3. Appropriateness of comparison with international organizations and major countries and evaluation regarding maximum permissible concentrations and levels 4. Appropriateness of relations between maximum permissible concentrations and levels , and pollution sources 5. Technical and practical appropriateness of selected methods for analysis 6. Relevance of reviewed criteria 7. Development of manual	1. Table to show comparison of maximum permissible concentrations /levels of PFC* 2. Draft of manual for study of maximum permissible concentrations/levels and methods for analysis **(*: This item is included in the Progress Reports)**	

3. CONAGUA is capable of analyzing the chemicals in the draft of WQC (such as Total Organic Carbon (TOC), agricultural chemicals, Volatile Organic Compounds (VOC) and others agreed upon the Mexican and the Japanese side), with sufficient reliability.	1. Number of participants for training of analysis of TOC, agricultural chemicals , VOC and others , levels of understanding, number of participants acquiring knowledge 2. Number of SOP 3. Technical and practical appropriateness of LDLs of pesticides and VOC 4. Capacity of analysis of central laboratory and capacity of guidance for regional laboratories 5. Number of participants of workshop and levels of understanding 6. Decrease the analysis errors from true value of standard materials	1. Reports of trainings for TOC, agricultural chemicals , VOC and others* 2. SOPs for analysis of target chemicals 3. Report of workshop* 4. Analysis of standard materials (*: These items are included in the Progress Reports)	
Activities **Output-1 The capacity of identifying parameters for criteria (chemicals and other parameters) (PFC) in freshwater to protect aquatic life and human health is enhanced.** 1-1 To assess the capacity of CONAGUA. 1-2 To collect information on pesticides and herbicides (kinds, production, consumption and amount of import etc.) in the country. 1-3 To evaluate the criteria for selecting PFC in the report "Revision of the water quality criteria for water usage specified by the National Waters Law and Federal Law of Rights (Report)". 1-4 To establish new criteria for selecting PFC if necessary. 1-5 To select PFC for the draft of WQC. 1-6 To plan and conduct a seminar. 1-7 To integrate the above process as a manual.	Inputs. Japanese side 1. Short term experts 1) Chief Adviser/Water quality standard/ Chemical analysis of organic compounds 2) Chemical risk assessment 3) Industrial effluents 4) Toxicologist 5) Chemical analysis of organic compounds 2. Lecturers for a seminar and a workshop 3. Project operation and management cost Mexican side 1. Counterpart personnel 2. Building and facilities 3. Project operation and management cost		C/P is continuously allocated for implementation of project activities. Budget for implementation of the Project is continuously allocated. Procurement process of reagents is improved.

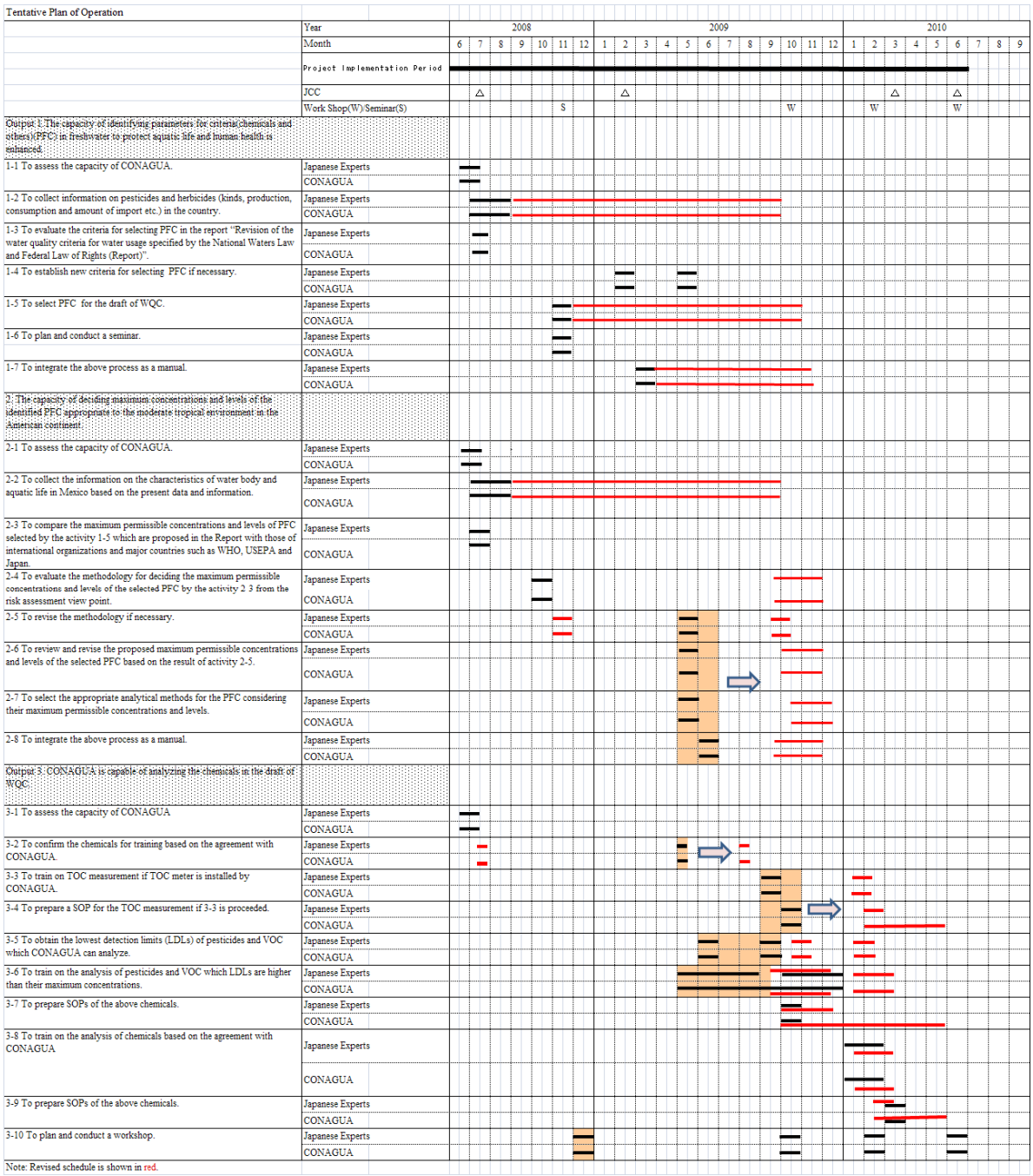
Output-2. The capacity of deciding maximum permissible concentrations and levels of the identified PFC appropriate to the moderate tropical environment in the American continent **is enhanced** 2-1 To assess the capacity of CONAGUA. 2-2 To collect the information on the characteristics of water body and aquatic life in Mexico based on the present data and information. 2-3 To compare the maximum permissible concentrations and levels of PFC selected by the activity 1-5 which are proposed in the Report with those of international organizations and major countries such as WHO, USEPA and Japan. 2-4 To evaluate the methodology for deciding the maximum permissible concentrations and levels of the selected PFC by the activity 2-3from the risk assessment view point. 2-5 To revise the methodology if necessary. 2-6 To review and revise the proposed maximum permissible concentrations and levels of the selected PFC based on the result of activity 2-5. 2-7 To select the appropriate analytical methods for the PFC considering their maximum permissible concentrations and levels. 2-8 To integrate the above process as a manual.		
Output 3. CONAGUA is capable of analyzing the chemicals in the draft of WQC (such as Total Organic Carbon [TOC], agricultural chemicals , Volatile Organic Compounds [VOC] and others agreed upon the Mexican and the Japanese side) with sufficient reliability. 3-1 To assess the capacity of CONAGUA 3-2 To confirm the chemicals for training in agreement with CONAGUA. 3-3 To train on TOC measurement if TOC meter is available to be used by CONAGUA.		Pre-condition: Necessary C/P, equipment and budget are prepared by CONAGUA.

3-4 To prepare a SOP for the TOC measurement if 3-3 is proceeded. 3-5 To obtain the lowest detection limits (LDLs) of pesticides and VOC which CONAGUA can analyze. 3-6 To train on the analysis of pesticides and VOC which LDLs are higher than their maximum concentrations. 3-7 To prepare SOPs of the above chemicals. 3-8 To train on the analysis of chemicals in agreement with CONAGUA. 3-9 To prepare SOPs of the above chemicals. 3-10 To plan and conduct a workshop.		

Tentative chemicals agreed with CONAGUA: 2,4-D, 2,4,5-T, Paraquat, Carbaryl, Formaldehyde, Acrolein, 1,2-Dibromo-3-chloropropane (DBCP), Methyl tert-butyl ether (MTBE), GC/FID simultaneous analysis, Toxaphene

Created Date: July 24, 2009

Tentative Plan of Operation



Note: Revised schedule is shown in red.

APPENDIX 3

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
Fecal coliforms	-	B	925	0.00E+00	8.00E+08	7.87E+08	604	0.00E+00	2.40E+10	2.39E+09
Fecal streptococcus	-	B	150	1.00E+00	1.47E+05	1.42E+03	34	1.00E+00	2.73E+06	1.35E+05
Helminth Eggs	-	B	70	0.0	50.4	2.0	105	0.0	280.0	5.1
Total coliforms	-	B	470	0.00E+00	1.10E+11	2.65E+08	226	0.00E+00	2.10E+09	2.69E+07
Chlorophyll	28302-36-5	B	208	0.001	0.059	0.014	7	0.002	0.158	0.037
Farnesol isomer B	-	H	1	0.00100	0.00100	0.00100	0	0.00000	0.00000	-
Heptachlor Epoxide	1024-57-3	H	36	0.00300	0.05000	0.00678	14	0.00000	0.00023	0.00002
Endosulfan sulfate	1031-07-8	H	28	0.00000	0.00055	0.00005	6	0.00002	0.00018	0.00007
1,4-Dichlorobenzene	106-46-7	H	182	0.00000	1.05000	0.01905	84	0.17840	1.11000	0.01811
Glyphosate	1071-83-6	H	10	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
Bis-2-chloroisopropyl ether	108-60-1	H	60	0.00000	0.00014	0.00001	74	0.02900	0.02900	0.00108
Endosulfan	115-29-7	H	0	0.00000	0.00000	-	49	0.00000	0.00115	0.00080
Aldicarb	116-06-3	H	23	0.00000	0.00016	0.00002	4	0.00000	0.00001	0.00001
Malathion	121-75-5	H	27	0.00000	0.00019	0.00002	13	0.00000	0.00005	0.00001
Fenitrothion	122-14-5	H	27	0.00000	0.00005	0.00001	13	0.00000	0.00045	0.00006
Terbufos	13071-79-9	H	27	0.00000	0.00137	0.00013	13	0.00000	0.00587	0.00097
Captan	133-06-2	H	21	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
1,3-Dichloropropane	142-28-9	H	20	0.00000	0.47100	0.05605	0	0.00000	0.00000	-
Carbofuran	1563-66-2	H	20	0.00000	0.00013	0.00007	4	0.00000	0.00027	0.00027
Methomyl	16752-77-5	H	20	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
Bromoxynil	1689-84-5	H	21	0.00000	0.16678	0.07942	7	0.00000	0.00000	0.00000
O-ethyl O-4-nitrophenyl phenylphosphonothioate	2104-64-5	H	27	0.00000	0.00038	0.00005	13	0.00000	0.00007	0.00003
Bendiocarb	22781-23-3	H	20	0.00000	0.00011	0.00001	4	0.00000	0.00000	0.00000
Oxamyl	23135-22-0	H	20	0.00000	0.00389	0.00175	4	0.00000	0.00000	0.00000
Diquat	2764-72-9	H	8	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
Thiobencarb	28249-77-6	H	10	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
Phorate	298-02-2	H	43	0.00000	0.00020	0.00002	26	0.00000	0.00206	0.00012
Delta-Benzene Hexachloride	319-86-8	H	27	0.00000	0.00190	0.00015	15	0.00000	0.01059	0.00094
beta-Endosulfan	33213-65-9	H	28	0.00000	0.24715	0.01369	16	0.00004	0.50040	0.03524
Diazinon	333-41-5	H	43	0.00000	0.00023	0.00001	13	0.00000	0.00024	0.00004
Fenobucarb	3766-81-2	H	20	0.00000	0.00013	0.00003	4	0.00002	0.00007	0.00004
Farnesol isomer A	4602-84-0	H	1	0.00100	0.00100	0.00100	0	0.00000	0.00000	-
Paraquat	4685-14-7	H	8	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000

Legend in category
B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
Endrin ketone	53494-70-5	H	16	0.00000	0.00785	0.00068	13	0.00000	0.00308	0.00050
cis-1,3-Dichloropropylene	542-75-6	H	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
Fenthion	55-38-9	H	27	0.00000	0.00007	0.00001	13	0.00000	0.00000	0.00001
Chlorpyrifos methyl	5598-13-0	H	16	0.00000	0.00000	0.00000	13	0.00000	0.00000	0.00001
Parathion	56-38-2	H	43	0.00000	0.00037	0.00001	13	0.00000	0.00043	0.00006
Dimethoate	60-51-5	H	27	0.00000	0.00000	0.00000	13	0.00000	0.00206	0.00020
Dichlorvos	62-73-7	H	24	0.00000	0.00011	0.00001	12	0.00000	0.00019	0.00005
Carbaryl	63-25-2	H	25	0.00000	0.00010	0.00002	4	0.00000	0.00044	0.00030
Methoxychlor	72-43-5	H	47	0.00000	0.02616	0.00619	16	0.00008	0.03203	0.00408
Demeton	8065-48-3	H	16	0.00000	0.00000	0.00000	13	0.00000	0.00018	0.00002
Pentachlorophenol	87-86-5	H	60	0.00000	0.01040	0.00032	39	0.01120	0.01980	0.00099
2-(2,4,5-Trichlorophenoxy)propionic acid	93-72-1	H	22	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
2,4,5-Trichlorophenoxyacetic acid	93-76-5	H	22	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
2,4-Dichlorophenoxyacetic acid	94-75-7	H	22	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
4-(2,4-Dichlorophenoxy)butyric acid	94-82-6	H	22	0.00000	0.00000	0.00000	4	0.00000	0.00000	0.00000
alpha-Endosulfan	959-98-8	H	17	0.00006	0.01577	0.00204	19	0.00003	0.00595	0.00094
1,2-Dibromoethane	106-93-4	H(O)	26	0.00000	0.00000	0.00000	50	0.00000	0.00144	0.00098
Tetrachloroethylene	127-18-4	H(O)	188	0.00000	0.01025	0.00011	60	0.00000	0.00219	0.00064
Dichloropropane	78-99-9, 78-87-5, 142-28-9	H(O)	0	0.00000	0.00000	-	50	0.00000	0.00067	0.00082
Trichloroethylene	79-01-6	H(O)	58	0.00000	0.00091	0.00002	60	0.00000	0.00000	0.00060
Ammonia nitrogen	-	I	662	0.000	423.360	10.367	654	0.010	4892.000	66.358
Bicarbonate	-	I	25	0.000	1005.500	300.640	0	0.000	0.000	-
Carbonate	-	I	25	0.000	0.000	0.000	0	0.000	0.000	-
Dissolved phosphorus	-	I	361	0.000	21.024	2.744	165	0.001	0.980	0.039
Fixed Organic Carbon	-	I	49	0.000	> 2400000	#########	310	0.007	956.000	13.584
Fluoride	-	I	24	0.096	1.360	0.592	19	25.01000	#########	335.16978
Inorganic carbon	-	I	18	4.570	560.380	160.133	27	0.002	2.243	0.856
Inorganic phosphorus	-	I	360	0.000	27.500	2.404	15	55.70000	#########	313.75333
Nitrate nitrogen	-	I	509	0.000	8.370	0.657	107	0.068	339.000	8.969
Nitrite nitrogen	-	I	573	0.000	31.600	1.913	440	0.000	48.240	1.492
Organic	-	I	882	0.000	604.300	9.403	455	0.000	118.650	3.700

Legend in category

B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
nitrogen										
Organic phosphorus	-	I	538	0.000	140.740	1.861	545	0.001	8243.000	61.978
Solid Sulfate	-	I	170	0.200	0.402	0.084	336	0.003	278.910	6.757
Sulfate	-	I	438	0.000	3076.000	304.176	0	0.000	0.000	-
Sulfide	-	I	114	0.000	3670.000	62.023	195	0.000	12118.000	298.190
Total Carbon	-	I	18	13.900	1067.600	303.790	66	0.000	1010.400	31.308
Total nitrogen	-	I	387	0.040	81202.000	1916.591	15	88.80000	#########	577.28133
Total nitrogen(Kjeldahl)	-	I	463	0.033	759.050	21.034	494	0.000	1327.000	71.461
Total Organic Carbon	-	I	50	5.000	1166.000	148.393	314	0.170	21266.243	153.767
Total Phosphate	-	I	299	0.000	126.120	1.434	44	10.00000	#########	980.60255
Total phosphorus	-	I	861	0.000	148.700	4.250	148	0.030	101.632	8.394
Orthophosphate	14265-44-2	I	233	0.001	455.020	9.463	524	0.000	1075.000	18.843
Nitrate	14797-55-8	I	534	0.000	65.900	1.107	282	0.001	908.670	24.904
Nitrite	14797-65-0	I	263	0.000	1.800	0.156	84	0.100	58.200	2.515
Chloride	16887-00-6	I	814	0.000	50014.601	1035.961	84	0.005	3.020	0.140
Cyanide	57-12-5	I	297	0.000	0.121	0.010	317	1.060	2.00E+10	6.31E+07
Potassium	7440-09-7	I	0	0.000	0.000	-	0	0.000	0.000	-
Sodium	7440-23-5	I	143	4.590	8888.000	956.651	82	0.000	36479.520	1581.740
Ammonia	7664-41-7	I	527	0.000	81.000	6.790	43	0.300	74.600	19.049
Residual Chlorine	7782-50-5	I	132	0.000	5.000	0.198	224	0.000	3.000	0.200
Hexavalent chromium	18540-29-9	M	1339	0.00000	0.63100	0.02959	158	0.01000	0.41000	0.02623
Aluminum	7429-90-5	M	118	0.00000	369.16000	6.15971	29	5.06000	13.26730	1.25301
Dissolved Aluminum	7429-90-5	M	5	0.19900	1.27000	0.60740	0	0.00000	0.00000	-
Dissolved Iron	7439-89-6	M	1340	0.00000	4.44000	0.36911	0	0.00000	0.00000	-
Iron	7439-89-6	M	1579	0.00000	354.29900	0.75948	170	0.00100	92.50000	1.82626
Dissolved Lead	7439-92-1	M	220	0.00000	0.17000	0.01119	0	0.00000	0.00000	-
Lead	7439-92-1	M	636	0.00000	8.97270	0.06939	426	0.00000	1.93400	0.07586
Lithium	7439-93-2	M	11	0.01810	0.04790	0.02523	0	0.00000	0.00000	-
Magnesium	7439-95-4	M	2809	0.00000	#########	48.57994	62	1.59400	#########	368.53113
Manganese	7439-96-5	M	1367	0.00000	793.00000	3.10440	224	0.00200	0.50000	0.02435
Dissolved Mercury	7439-97-6	M	5	0.00000	0.00060	0.00018	0	0.00000	0.00000	-
Mercury	7439-97-6	M	322	0.00000	0.01000	0.00085	343	0.00000	0.01000	0.00118
Nickel	7440-02-0	M	473	0.00000	5.99333	0.06061	394	0.00000	3.10000	0.08525
Silver	7440-22-4	M	164	0.000	0.079	0.006	0	0.000	0.000	-
Antimony	7440-36-0	M	11	0.00000	0.00000	0.00000	5	0.00120	0.00520	0.00283
Arsenic	7440-38-2	M	665	0.00000	0.63750	0.02002	362	0.00000	0.13100	0.01470
Dissolved Arsenic	7440-38-2	M	5	0.00000	0.00800	0.00220	0	0.00000	0.00000	-

Legend in category

B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
Barium	7440-39-3	M	49	0.06100	0.57400	0.16495	24	0.00000	0.19290	0.09850
Boron	7440-42-8	M	29	0.00000	0.00600	0.00228	57	0.03000	34.24100	1.22500
Cadmiun	7440-43-9	M	343	0.00000	0.28700	0.00968	398	0.00000	0.65340	0.02603
Dissolved Cadmium	7440-43-9	M	5	0.00100	0.00200	0.00120	0	0.00000	0.00000	-
Chromium	7440-47-3	M	468	0.00000	14.43000	0.12391	404	0.00000	86.13000	0.40334
Copper	7440-50-8	M	1321	0.00000	14.93910	0.03874	396	0.00000	4.65000	0.17316
Vanadium	7440-62-2	M	50	0.00000	1.40342	0.09272	35	0.01797	0.85000	0.13757
Zinc	7440-66-6	M	625	0.00000	#########	3.86338	428	0.00490	30.90000	0.51125
Calcium	7440-70-2	M	143	13.51600	647.80000	122.55459	85	3.92700	#########	577.82780
1,1-Dichloro-2-dodecanol	-	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00421	0.00018
1-Methyl-2-(methylthio)-5-(trifluoromethyl)-1H-pyrrole	-	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01185	0.00049
2-cyclohexyloxy-N,N-dimethylethanamine	-	O	1	0.00430	0.00430	0.00430	0	0.00000	0.00000	-
2-Isopropyl-6-methoxynaphthalene	-	O	33	0.00000	0.00980	0.00030	24	0.00000	0.00000	0.00000
Absorbable Organic Halogens	-	O	35	0.00479	3.45240	0.32814	22	0.00071	31.49000	2.35827
Methylene Blue Active Substances (MBAS)	-	O	565	0.00000	186.00000	1.72065	388	0.00500	45.92000	3.01799
Octylphenol Isomer	-	O	1	0.00550	0.00550	0.00550	0	0.00000	0.00000	-
Polyaromatic hydrocarbon	-	O	0	0.00000	0.00000	-	52	0.02400	4.80000	0.24583
Purgeable Organic Carbon	-	O	29	0.000	279.500	42.398	15	0.00000	96.90000	54.71250
Purgeable Organic Halogens	-	O	11	0.00000	0.00359	0.00075	0	0.00000	0.00000	-
Total Trihalomethane	-	O	11	0.00000	1.03000	0.43333	0	0.00000	0.00000	-
Compuestos orgánicos no halogenados por FID	-	O	25	0.09350	95.25630	13.15493	13	0.23650	53.16900	22.43552
p-Nitroaniline	100-01-6	O	16	0.00000	0.39430	0.12184	13	0.00000	1.73190	0.21411
4-Nitrophenol	100-02-7	O	60	0.00000	0.05870	0.00149	37	0.00000	0.09118	0.00346
Pentadecanoic acid	1002-84-2	O	34	0.00000	0.00615	0.00026	24	0.00000	0.01910	0.00203
1,1-Diethylcyclopropane	1003-19-6	O	41	0.00580	0.00580	0.00014	0	0.00000	0.00000	-
Ethylbenzene	100-41-4	O	218	0.00000	6.43265	0.03266	99	0.00000	8.23000	0.09681
Styrene	100-42-5	O	46	0.00000	3.52000	0.07652	52	0.02550	0.07615	0.00423

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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Benzyl alcohol	100-51-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.03279	0.00137
2-Ethyl-6-methyl-1,5-heptadiene	10054-09-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
trans-1,3-Dichloropropylene	10061-02-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
N-Methylbenzenamine	100-61-8	O	1	0.00055	0.00055	0.00055	0	0.00000	0.00000	-
3-Acetoxy-4-methylpyridine	1006-96-8	O	2	0.00060	0.00060	0.00060	0	0.00000	0.00000	-
3-(Methylthio)-1-propene	10152-76-8	O	2	0.00070	0.00080	0.00075	0	0.00000	0.00000	-
15-methyltricyclo	102521-04-0	O	1	0.00420	0.00420	0.00420	0	0.00000	0.00000	-
2-Ethylhexyl acetate	103-09-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
Azobenzene	103-33-3	O	16	0.00000	0.00940	0.00103	16	0.01660	0.05330	0.00780
n-Propylbenzene	103-65-1	O	29	0.00000	0.00775	0.00027	54	0.00660	1.07028	0.02278
n-Ethylbenzenamine	103-69-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00790	0.00033
Benzeneacetic acid	103-82-2	O	33	0.00000	0.02297	0.00197	24	0.00000	0.09799	0.01053
4-Butylbenzenamine	104-13-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00117	0.00005
4-Nonylphenol	104-40-5	O	67	0.00000	0.00090	0.00001	48	0.00000	15.04300	0.31376
n-Butylbenzene	104-51-8	O	15	0.00000	0.00000	0.00000	50	0.00000	0.00755	0.00170
2-(2-Phenoxyethoxy)ethanol	104-68-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02463	0.00103
2-Ethyl-1-hexanol	104-76-7	O	68	0.00000	0.08920	0.00140	48	0.00000	0.16551	0.00348
(-)-alpha-Terpineol	10482-56-1	O	1	0.07990	0.07990	0.07990	0	0.00000	0.00000	-
2,4-Xylenol	105-67-9	O	69	0.00000	0.27200	0.00616	34	0.00850	0.15155	0.01482
Stigmast-4-en-3-one	1058-61-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01983	0.00117
beta-Citronellol	106-22-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00307	0.00013
(2E,6E)-3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol	106-28-5	O	1	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
Dodecanoic acid ethyl ester	106-33-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02155	0.00090
p-Xylene	106-42-3	O	15	0.00000	0.02347	0.00579	52	0.01050	0.07650	0.00408
4-Chlorotoluene	106-43-4	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
p-Cresol	106-44-5	O	0	0.00000	0.00000	-	36	0.00000	13.22000	1.28754
p-Chloroaniline	106-47-8	O	16	0.00000	0.00144	0.00122	13	0.00000	0.01037	0.00206
Acrolein	107-02-8	O	44	0.00000	0.00000	0.00000	29	0.00000	0.00000	0.00002
1,2-Dichloroethane	107-06-2	O	136	0.00000	0.00970	0.00026	38	0.00000	0.00190	0.00046

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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Acrylonitrile	107-13-1	O	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
1,4-Cyclooctadiene	1073-07-0	O	1	0.00130	0.00130	0.00130	0	0.00000	0.00000	-
1-Methyl-4-propylbenzene	1074-55-1	O	1	0.00065	0.00065	0.00065	0	0.00000	0.00000	-
7-Hydroxy-3,7-dimethyloctanal	107-75-5	O	33	0.00000	0.00563	0.00017	24	0.00000	0.00000	0.00000
Butyric acid	107-92-6	O	99	0.00000	0.08363	0.00128	74	0.00000	0.31622	0.01367
4-Methyl-2-pentanone	108-10-1	O	1	0.00031	0.00031	0.00031	0	0.00000	0.00000	-
m-Xylene	108-38-3	O	102	0.00000	29.86570	0.29609	36	0.00000	0.00000	0.00100
m-Cresol	108-39-4	O	88	0.00000	1.65460	0.03003	36	0.00000	0.00000	0.00100
	108643-44-3	O	2	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
1,3,5-Trimethylbenzene	108-67-8	O	63	0.00000	0.02307	0.00076	44	0.00690	0.10960	0.00669
Bromobenzene	108-86-1	O	15	0.00000	0.00000	0.00000	50	0.00170	0.00238	0.00121
Toluene	108-88-3	O	231	0.00000	11.32000	0.33105	127	0.00000	13.42000	0.35393
Chlorobenzene	108-90-7	O	26	0.00000	0.00000	0.00000	50	0.00000	0.00816	0.00152
Cyclohexanone	108-94-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00053	0.00002
Phenol	108-95-2	O	181	0.00000	0.72500	0.04601	161	0.00000	#########	68.93449
Butanoic acid butyl ester	109-21-7	O	33	0.00000	0.00000	0.00000	25	0.00000	0.01418	0.00057
Octadecanoic acid, octyl ester	109-36-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01702	0.00071
Pentanoic acid	109-52-4	O	99	0.00000	0.06867	0.00134	72	0.00000	0.94099	0.01589
Decanoic acid methyl ester	110-42-9	O	34	0.00000	0.00060	0.00002	24	0.00000	0.00310	0.00013
(E,E)-2,4-Hexadienoicacid	110-44-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01280	0.00053
Hexane	110-54-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00382	0.00016
Pyridine	110-86-1	O	33	0.00000	0.00000	0.00000	60	0.00000	0.00000	0.00060
1a,9b-dihydro-4-methyl-1H-phenanth	111005-47-1	O	1	0.00350	0.00350	0.00350	0	0.00000	0.00000	-
Bis-2-Chloroethyl ether	111-44-4	O	60	0.00000	0.01050	0.00020	73	0.00000	0.00023	0.00051
[R,(+)]-3,7-Dimethyl-6-octen-1-ol	1117-61-9	O	1	0.00780	0.00780	0.00780	0	0.00000	0.00000	-
2-Butoxyethanol	111-76-2	O	34	0.00000	0.01917	0.00063	24	0.00000	0.05492	0.00605
Nonane	111-84-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.05540	0.00231
1-Octanol	111-87-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.08884	0.00370
Bis-2-Chloroethoxymethane	111-91-1	O	16	0.00000	0.00960	0.00169	15	0.00570	0.00670	0.00211
Undecane	1120-21-4	O	34	0.00000	0.00320	0.00009	24	0.00000	0.02762	0.00115
Nonanoic acid	112-05-0	O	33	0.00000	0.00556	0.00017	24	0.00000	0.01958	0.00118

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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2-Undecanone	112-12-9	O	33	0.00000	0.00000	0.00000	25	0.00000	0.00000	0.00000
n,n-Dimethy-1-dodecanamine	112-18-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00341	0.00014
Hexadecanoic acid methyl	112-39-0	O	2	0.00110	0.00120	0.00115	0	0.00000	0.00000	-
Dodecane	112-40-3	O	35	0.00000	0.01995	0.00062	24	0.00000	0.00000	0.00000
1-Dodecanethiol	112-55-0	O	33	0.00000	0.00805	0.00024	24	0.00000	0.00000	0.00000
Octadecanoic acid methyl ester	112-61-8	O	33	0.00000	0.00502	0.00015	24	0.00000	0.00000	0.00000
1-Tetradecanol	112-72-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00018	0.00001
(Z)-9-Octadecenoic acid	112-80-1	O	35	0.00000	0.78466	0.03030	24	0.00000	0.31512	0.02490
Docosanoic acid	112-85-6	O	33	0.00000	0.01752	0.00053	24	0.00000	0.00000	0.00000
1-Octadecene	112-88-9	O	35	0.00000	0.01796	0.00071	24	0.00000	0.01817	0.00133
1-Octadecanol	112-92-5	O	34	0.00000	0.01699	0.00168	24	0.00000	0.00565	0.00036
Eicosane	112-95-8	O	74	0.00000	0.02400	0.00088	48	0.00000	0.07715	0.00200
Tris(2-chloroethyl) phosphate	115-96-8	O	1	0.00090	0.00090	0.00090	0	0.00000	0.00000	-
2-Methylbutanoic acid	116-53-0	O	66	0.00000	0.00000	0.00000	50	0.00000	0.01846	0.00067
(1S)-1-methyl-8-isopropyl bicyclo	117106-89-5	O	1	0.00080	0.00080	0.00080	0	0.00000	0.00000	-
Bis(2-ethylhexyl)phtalato	117-81-7	O	169	0.00000	30.32000	0.93662	77	0.00540	47.54000	3.23715
Diocthylphtalate	117-84-0	O	49	0.00000	0.01180	0.00049	38	0.02740	0.02740	0.00106
Maltol	118-71-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02019	0.00084
Hexachlorobenzene	118-74-1	O	47	0.00000	0.00930	0.00040	13	0.00000	0.00000	0.00059
Fenchone	1195-79-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01424	0.00059
Diphenylmethanone	119-61-9	O	33	0.00000	0.01347	0.00041	24	0.00000	0.00000	0.00000
Isoquinoline	119-65-3	O	1	0.00410	0.00410	0.00410	0	0.00000	0.00000	-
Trichloroben zene	12002-48-1	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Anthracene	120-12-7	O	80	0.00000	0.60000	0.02663	84	0.00000	0.00598	0.00064
Anthracene/phenantrene	120-12-7, 85-01-8	O	0	0.00000	0.00000	-	4	0.00030	0.00450	0.00145
1H-Indole	120-72-9	O	68	0.00000	0.02906	0.00193	48	0.00000	0.12469	0.00608
1,2,4-Trichlorobenzene	120-82-1	O	41	0.00000	0.00960	0.00080	15	0.00570	0.00570	0.00093
2,4-Dichlorophenol	120-83-2	O	44	0.00000	0.00134	0.00003	31	0.00250	0.01750	0.00109
2,4-Dinitrotoluene	121-14-2	O	60	0.00000	0.00960	0.00035	38	0.01880	0.01880	0.00076
4,6,6,7,8,8-Hexamethyl-1,3,4,7-tetrahydrocyclopenta[g]isochrom	1222-05-5	O	7	0.00050	0.00090	0.00070	0	0.00000	0.00000	-

Legend in category

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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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ene										
Benzenacetaldehyde	122-78-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.04096	0.00209
Benzenepropanol	122-97-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01822	0.00076
2-Phenoxyethanol	122-99-6	O	34	0.00000	0.00440	0.00013	24	0.00000	0.06955	0.00450
8-(phenylethynyl)quinoline	123172-87-2	O	1	0.01450	0.01450	0.01450	0	0.00000	0.00000	-
4-Hydroxy-4-methyl-2-pentanone	123-42-2	O	34	0.00000	0.03907	0.00115	25	0.00000	0.01762	0.00070
8-ethyl-2-methylthioindolizine	123471-64-7	O	1	0.00040	0.00040	0.00040	0	0.00000	0.00000	-
Octadecanoic acid butyl ester	123-95-5	O	37	0.00000	0.00110	0.00009	24	0.00000	0.01675	0.00070
Octanoic acid	124-07-2	O	99	0.00000	0.03119	0.00060	73	0.00000	0.05941	0.00082
Decane	124-18-5	O	34	0.00000	0.00423	0.00016	24	0.00000	0.00000	0.00000
n,n-Dimethyl-1-octadecanamine	124-28-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02182	0.00091
Dibromochloromethane	124-48-1	O	62	0.00000	0.00035	0.00001	74	0.00000	0.00528	0.00065
2,4,7,9-Tetramethyl-5-decyne-4,7-diol	126-86-3	O	34	0.00000	0.00050	0.00001	24	0.00000	0.15618	0.00651
1,1'-Sulfonylbisbenzene	127-63-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.04296	0.00179
2,6-Bis(1,1-dimethylethyl)-4-methylphenol	128-37-0	O	4	0.00050	0.00080	0.00068	0	0.00000	0.00000	-
Pyrene	129-00-0	O	91	0.00000	0.00950	0.00021	52	0.00030	0.00487	0.00030
Dimethylphtalate	131-11-3	O	62	0.00000	9.48000	0.89558	38	0.01664	0.01664	0.00079
Decanoic acid silver(I) salt	13126-67-5	O	33	0.00000	0.01590	0.00048	24	0.00000	0.00000	0.00000
2,6-Dimethyldecane	13150-81-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01525	0.00064
3-Methyldecane	13151-34-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02123	0.00088
(2-Hydroxy-4-methoxyphenyl)phenylmethanone	131-57-7	O	1	0.00650	0.00650	0.00650	0	0.00000	0.00000	-
Methylnaphthalene	1321-94-4	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Dibenzofuran Dibenzofuran	132-64-9	O	16	0.00000	0.50640	0.05494	13	0.00000	0.66883	0.11665
8-Methylheptadecane	13287-23-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00767	0.00032
9-Methylnonadecane	13287-24-6	O	35	0.00000	0.00650	0.00021	24	0.00000	0.09687	0.00430
Xylene	1330-20-7	O	48	0.00000	1.38000	0.35833	58	0.00007	0.61750	0.04949
1-Pentadece	13360-61-7	O	33	0.00000	0.02486	0.00075	24	0.00000	0.00000	0.00000

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
ne										
1-(2-Methoxy propoxy)-2-p ropanol	13429-07-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.09386	0.00391
1-Naphthale namine	134-32-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.09139	0.00381
8-Hexylpenta decane	13475-75-7	O	2	0.00410	0.01030	0.00720	0	0.00000	0.00000	-
sec-butylben zene	135-98-8	O	15	0.00000	0.02682	0.00349	50	0.00000	0.03285	0.00186
1-Phenanthr enecarboxal dehyd	13601-88-2	O	33	0.00000	0.00243	0.00007	24	0.00000	0.00000	0.00000
Tris (2-chloroisop ropyl) phosphate	13674-84-5	O	1	0.00080	0.00080	0.00080	0	0.00000	0.00000	-
3,7-Dimethyl-1,3,6-octatrie ne	13877-91-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00156	0.00007
Limonene	138-86-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.62794	0.02626
1-Bromo-3-m ethylcyclohe xane	13905-48-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01948	0.00081
Nitrilotriaceti c acid	139-13-9	O	23	0.00000	0.56620	0.17047	7	0.00000	0.00000	0.00000
4-(1,1,3,3-Te tramethylbut yl)phenol	140-66-9	O	66	0.00000	0.01202	0.00036	48	0.00000	0.01628	0.00034
Tetratriacont ane	14167-59-0	O	1	0.00510	0.00510	0.00510	0	0.00000	0.00000	-
Hexahydropy rrolizin-1-one	14174-83-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01584	0.00066
Acetic acid ethyl ester	141-78-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01479	0.00062
Hexanoic acid	142-62-1	O	32	0.00000	0.05700	0.00236	24	0.00000	0.09938	0.00619
Dodecanoic acid	143-07-7	O	35	0.00000	0.04556	0.00281	24	0.00000	0.31732	0.01969
13-Epimanoo l	1438-62-6	O	33	0.00000	0.02114	0.00073	24	0.00000	0.00000	0.00000
1-Nonadeca nol	1454-84-8	O	33	0.00000	0.00685	0.00037	24	0.00000	0.01395	0.00058
1-Heptadeca nol	1454-85-9	O	34	0.00000	0.00400	0.00012	24	0.00000	0.00881	0.00037
11-Pentylhen eicosane	14739-72-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01388	0.00058
Menthol	1490-04-6	O	1	0.00330	0.00330	0.00330	0	0.00000	0.00000	-
2-Ethylhexan oic acid	149-57-5	O	33	0.00000	0.01168	0.00042	24	0.00000	0.06137	0.00256
3-Methyl-1H-indol-2(3H)-o ne	1504-06-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01177	0.00049
Phytol	150-86-7	O	34	0.00000	0.00582	0.00019	24	0.00000	0.00000	0.00000
2-Methylicos ane	1560-84-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01202	0.00050
cis-1,2-Dichl oroethene	156-59-2	O	31	0.00000	0.00203	0.00007	0	0.00000	0.00000	-
trans-1,2-Dic hloroethylen e	156-60-5	O	63	0.00000	0.03298	0.00118	39	0.00000	0.00681	0.00086

Legend in category
B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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[(Hexadecyloxy)methyl]oxirane	15965-99-8	O	33	0.00000	0.00056	0.00002	24	0.00000	0.00000	0.00000
1-Docosene	1599-67-3	O	33	0.00000	0.05900	0.00195	24	0.00000	0.00000	0.00000
5-Methylundecane	1632-70-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00664	0.00028
d-Fenchyl alcohol	1632-73-1	O	33	0.00000	0.02199	0.00155	24	0.00000	0.00017	0.00001
Methyl tert-butyl ether(MTBE)	1634-04-4	O	132	0.00000	0.00211	0.00002	24	0.00000	0.00000	0.00000
3-Cyclohexyloxy propylamine	16728-63-5	O	33	0.00000	0.00536	0.00016	25	0.00000	0.00000	0.00000
Propylcyclohexane	1678-92-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02937	0.00122
1,3-Cyclooctadiene	1700-10-3	O	1	0.00100	0.00100	0.00100	0	0.00000	0.00000	-
2,3-dihydro-1,2-dimethyl-1H-indene	17057-82-8	O	1	0.00099	0.00099	0.00099	0	0.00000	0.00000	-
2,10-Dimethylundecane	17301-27-8	O	1	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
3,8-Dimethyldecane	17312-55-9	O	34	0.00000	0.00130	0.00004	24	0.00000	0.07132	0.00345
(22E,24S)-Ergosta-5,22-dien-3beta-ol	17472-78-5	O	1	0.00170	0.00170	0.00170	0	0.00000	0.00000	-
Decylcyclohexane	1795-16-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.08805	0.00367
5alpha-Androst-16-en-3-one	18339-16-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00396	0.00017
2,6,10,14-Tetramethylheptadecane	18344-37-1	O	33	0.00000	0.00599	0.00018	24	0.00000	0.00000	0.00000
1-Nonadecene	18435-45-5	O	34	0.00000	0.04550	0.00134	24	0.00000	0.00991	0.00041
2,6-Dimethyl-7-octen-2-ol	18479-58-8	O	67	0.00000	0.00876	0.00027	48	0.00000	0.01980	0.00041
1,2,3,4-Tetrahydro-2,3-bis(tetrahydrofuran-2-yl)quinoxaline	18503-40-7	O	2	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
Benzenemethanol	185532-71-2	O	33	0.00000	0.01660	0.00050	24	0.00000	0.00000	0.00000
6-Dimethylamino-1-hexanol	1862-07-3	O	1	0.00890	0.00890	0.00890	0	0.00000	0.00000	-
Phosphonic acid dioctadecyl ester	19047-85-9	O	2	0.00180	0.00260	0.00220	0	0.00000	0.00000	-
Benzo (g,h,i) perilene	191-24-2	O	90	0.00000	0.00210	0.00023	51	0.00000	0.00073	0.00024
1-Heptacosanol	2004-39-9	O	33	0.00000	0.01178	0.00036	24	0.00000	0.00000	0.00000
3-Ethyl-4-methyl-1H-pyrrole-2,5-dione	20189-42-8	O	33	0.00000	0.00642	0.00019	24	0.00000	0.00000	0.00000
1,3-Diethyl-5-methylbenz	2050-24-0	O	1	0.00054	0.00054	0.00054	0	0.00000	0.00000	-

Legend in category

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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
ene										
4-Bromophenyl ether	2050-47-7	O	60	0.00000	0.00970	0.00032	38	0.00840	0.00840	0.00044
Hexanoic acid anhydride	2051-49-2	O	33	0.00000	0.00958	0.00029	24	0.00000	0.00000	0.00000
Benzo (b) fluoranthene	205-99-2	O	91	0.00000	0.00062	0.00018	87	0.00000	0.00062	0.00056
Fluoranthene	206-44-0	O	90	0.00000	0.00970	0.00036	91	0.02740	0.05740	0.00264
Benzo(k)Fluoranthene	207-08-9	O	73	0.00000	0.02320	0.00088	46	0.00000	0.00118	0.00037
2-Methoxy-1,4-dioxane	20732-36-9	O	33	0.00000	0.00000	0.00000	25	0.00000	0.00396	0.00016
Dodecanoic acid hexadecyl ester	20834-06-4	O	33	0.00000	0.03433	0.00131	24	0.00000	0.00972	0.00041
Methyl-beta-ionone	208-71-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00638	0.00027
2-Methyl-1-penten-3-ol	2088-07-5	O	1	0.00500	0.00500	0.00500	0	0.00000	0.00000	-
3β-Ethoxy-5α-cholestane	2089-02-3	O	2	0.00970	0.01070	0.01020	0	0.00000	0.00000	-
Acenaphthylene	208-96-8	O	28	0.00000	0.10000	0.00422	17	0.00000	0.02400	0.00202
1,4,6-Trimethylnaphthalene	2131-42-2	O	1	0.00300	0.00300	0.00300	0	0.00000	0.00000	-
Chrysene	218-01-9	O	46	0.00000	1.01990	0.03819	25	0.00000	0.37150	0.02087
l-menthol	2216-51-5	O	34	0.00000	0.01420	0.00042	24	0.00000	0.00401	0.00017
Oleic acid icosyl ester	22393-88-0	O	34	0.00000	0.00945	0.00048	24	0.00000	0.05662	0.00236
(Z)-9-Hexadecenoic acid icosyl ester	22522-34-5	O	33	0.00000	0.00526	0.00016	24	0.00000	0.01590	0.00066
1-Ethoxy-9,10-anthracenedione	22924-20-5	O	33	0.00000	0.00792	0.00024	24	0.00000	0.00000	0.00000
Dihydro-2H-pyran-3(4H)-one	23462-75-1	O	33	0.00000	0.00000	0.00000	25	0.00000	0.00576	0.00023
1H-Indol-4-ol	2380-94-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02647	0.00110
1-[4-(1,1-Dimethylethyl)phenoxy]-2-propanol	2416-30-0	O	1	0.00040	0.00040	0.00040	0	0.00000	0.00000	-
(Z)-9-Octadecenal	2423-10-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00935	0.00039
1-Chlorotetradecane	2425-54-9	O	33	0.00000	0.00051	0.00002	24	0.00000	0.00000	0.00000
2,3-Butanediol	24347-58-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.08593	0.00358
1-Tridecene	2437-56-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00804	0.00034
Tinuvin P	2440-22-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
(22E)-5alpha-Ergosta-7,22-dien-3beta-ol	2465-11-4	O	1	0.00130	0.00130	0.00130	0	0.00000	0.00000	-
1-Methylene-1H-indene	2471-84-3	O	1	0.00038	0.00038	0.00038	0	0.00000	0.00000	-

Legend in category

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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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Methyl dihydrojasmonate	24851-98-7	O	34	0.00000	0.00330	0.00010	24	0.00000	0.00879	0.00037
2-Methyl-1-hexadecanol	2490-48-4	O	33	0.00000	0.00710	0.00022	24	0.00000	0.00000	0.00000
Nonylphenol	25154-52-3	O	54	0.00000	0.48290	0.02126	31	0.00605	0.22295	0.01985
Nitrophenol	25154-55-6	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Dichlorophenol	25167-81-1	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Trichlorophenol	25167-82-2	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Tetrachoroethene	25322-20-7	O	17	0.00000	0.01684	0.00380	58	0.00630	0.13620	0.00504
Diethylbenzene	25340-17-4	O	1	0.00083	0.00083	0.00083	0	0.00000	0.00000	-
Trimethylbenzene	25551-13-7	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Methylarachidonate	2566-89-4	O	33	0.00000	0.00320	0.00010	24	0.00000	0.00000	0.00000
Trichloropropane	25735-29-9	O	15	0.00000	0.11071	0.01146	50	0.00000	1.07028	0.02672
Tetradecanoic acid hexadecyl ester	2599-01-1	O	33	0.00000	0.02387	0.00092	24	0.00000	0.00000	0.00000
Ergost-7-en-3beta-ol	26047-31-4	O	34	0.00000	0.01361	0.00059	24	0.00000	0.00000	0.00000
9,12,15-Octadecatrienal	26537-71-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
(Z)-9-Tricosene	27519-02-4	O	66	0.00000	0.00644	0.00010	48	0.00000	0.00648	0.00014
5alpha-Cholest-3-ene	28338-69-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00878	0.00062
4-Methyldecane	2847-72-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01564	0.00065
Bicyclo(3.1.0)hexane	285-58-5	O	33	0.00000	0.00000	0.00000	25	0.00000	0.02231	0.00089
1-Octadecanethiol	2885-00-9	O	33	0.00000	0.00148	0.00004	24	0.00000	0.00000	0.00000
Anisidine	29191-52-4	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Cyclodecane	293-96-9	O	34	0.00000	0.00350	0.00010	24	0.00000	0.00185	0.00008
Cyclododecane	294-62-2	O	34	0.00000	0.02580	0.00099	24	0.00000	0.01881	0.00111
Cyclotetradecane	295-17-0	O	33	0.00000	0.02132	0.00144	24	0.00000	0.02976	0.00209
Cyclopentadecane	295-48-7	O	33	0.00000	0.02372	0.00099	24	0.00000	0.00798	0.00033
Cyclohexadecane	295-65-8	O	66	0.00000	0.01890	0.00029	48	0.00000	0.02063	0.00079
Cyclotetracosane	297-03-0	O	33	0.00000	0.00393	0.00030	24	0.00000	0.01266	0.00053
Cyclooctacosane	297-24-5	O	33	0.00000	0.00637	0.00019	24	0.00000	0.01062	0.00044
Methyl Parathion	298-00-0	O	27	0.00000	0.00002	0.00001	13	0.00000	0.00021	0.00006
(Z)-9-Octadecenamide	301-02-0	O	33	0.00000	0.02938	0.00224	24	0.00000	0.01462	0.00108
1,2-Dihydro-1,1,6-trimethylnaphthalene	30364-38-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01586	0.00066

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Phosphoric acid dioctadecyl ester	3037-89-6	O	66	0.00000	0.00873	0.00043	48	0.00000	0.00000	0.00000
(3beta)-Cholesta-5,24-dien-3-ol	313-04-2	O	33	0.00000	0.00122	0.00004	24	0.00000	0.00000	0.00000
2-Butylphenol	3180-09-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01898	0.00079
Tetradecanoic acid tetradecyl ester	3234-85-3	O	66	0.00000	0.01415	0.00021	48	0.00000	0.02104	0.00054
Decanoic acid	334-48-5	O	33	0.00000	0.05779	0.00208	24	0.00000	0.05970	0.00450
1-Chlorooctadecane	3386-33-2	O	33	0.00000	0.03286	0.00100	24	0.00000	0.01104	0.00046
2-Methyl-5-propylthiophene	33933-73-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01566	0.00065
(Z)-3-Hexadecene	34303-81-6	O	33	0.00000	0.00336	0.00010	24	0.00000	0.00000	0.00000
2,2,5-Trimethylhexane	3522-94-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00096	0.00004
(Z)-7-Hexadecene	35507-09-6	O	66	0.00000	0.00000	0.00000	48	0.00000	0.01651	0.00081
Dimethyl trisulfide	3658-80-8	O	1	0.00119	0.00119	0.00119	0	0.00000	0.00000	-
1-Hexadecanol	36653-82-4	O	33	0.00000	0.00574	0.00027	24	0.00000	0.00000	0.00000
7-Methyl-3,4-octadiene	37050-05-8	O	33	0.00000	0.00000	0.00000	25	0.00000	0.01901	0.00076
9-Hexadecenoic acid	373-49-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01337	0.00093
Hentetracontan-1-ol	40710-42-7	O	2	0.00130	0.00260	0.00195	0	0.00000	0.00000	-
(E)-5-Tetradecene	41446-66-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00018	0.00001
2,3-dihydro-1,3-dimethyl-1H-indene	4175-53-5	O	1	0.00040	0.00040	0.00040	0	0.00000	0.00000	-
1,4-Dimethyl-1,2,3,4-tetrahydronaphthalene	4175-54-6	O	1	0.00089	0.00089	0.00089	0	0.00000	0.00000	-
3a,4,5,6,7,7a-Hexahydro-4,7-methano-1H-inden-1-ol	42554-02-9	O	2	0.00450	0.00970	0.00710	0	0.00000	0.00000	-
2-Methylhexanoic acid	4536-23-6	O	33	0.00000	0.01059	0.00032	24	0.00000	0.02109	0.00088
Hexadecanoic acid tetradecyl ester	4536-26-9	O	67	0.00000	0.01390	0.00040	48	0.00000	0.00714	0.00015
9,12,15-Octadecatrienoic acid	463-40-1	O	33	0.00000	0.00662	0.00020	24	0.00000	0.03022	0.00126
l-Borneol	464-45-9	O	33	0.00000	0.00622	0.00019	25	0.00000	0.00723	0.00029
Ergost-5-en-3beta-ol	4651-51-8	O	33	0.00000	0.01282	0.00068	24	0.00000	0.00000	0.00000

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(-)-beta-Fenchyl alcohol	470-08-6	O	34	0.00000	0.07378	0.00488	25	0.00000	0.07823	0.00995
1,8-Cineole	470-82-6	O	34	0.00000	0.02300	0.00102	24	0.00000	0.01282	0.00160
Cyclopentadecanol	4727-18-8	O	66	0.00000	0.00000	0.00000	48	0.00000	0.01879	0.00048
1,2,3,4-Tetramethylbenzene	488-23-3	O	1	0.00030	0.00030	0.00030	0	0.00000	0.00000	-
p-Menthan-8-ol	498-81-7	O	33	0.00000	0.00996	0.00030	24	0.00000	0.00000	0.00000
Benzenepropanoic acid	501-52-0	O	33	0.00000	0.01075	0.00033	24	0.00000	0.01036	0.00078
Benzo (a) pyrene	50-32-8	O	90	0.00000	0.00000	0.00000	87	0.00000	0.02070	0.00087
3-Methylbutanoic acid	503-74-2	O	66	0.00000	0.04940	0.00075	50	0.00000	0.05090	0.00242
1,3-Propanediol	504-63-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01386	0.00058
Heptadecanoic acid	506-12-7	O	35	0.00000	0.03134	0.00124	24	0.00000	0.05931	0.00417
Eicosanoic acid	506-30-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00936	0.00039
1-Hexacosanol	506-52-5	O	66	0.00000	0.00208	0.00006	48	0.00000	0.00000	0.00000
2,4-Dinitrophenol	51-28-5	O	60	0.00000	0.00000	0.00000	37	0.00000	0.00000	0.00025
4-Methyl-3-heptene	51886-28-3	O	20	0.00000	0.00023	0.00001	0	0.00000	0.00000	-
Stigmast-7-en-3beta-ol	521-03-9	O	33	0.00000	0.00777	0.00024	24	0.00000	0.00000	0.00000
1,2,3-Trimethylbenzene	526-73-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00128	0.00005
Dihydromyrcenol	53219-21-9	O	1	0.00500	0.00500	0.00500	0	0.00000	0.00000	-
Androsterone	53-41-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00737	0.00031
2-Methyl-4,6-Dinitrophenol	534-52-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
1-Methyl-3-(1-methylethyl)-benzene	535-77-3	O	35	0.00000	0.00947	0.00034	24	0.00000	0.00000	0.00000
Dibenzo (a,h) anthracene	53-70-3	O	73	0.00000	0.21576	0.00625	82	0.00000	0.00063	0.00060
Dibenzant/Indenopyrene	53-70-3, 193-39-5	O	57	0.00000	0.02320	0.00152	26	0.00000	0.00100	0.00064
12-Tricosanone	540-09-0	O	33	0.00000	0.00607	0.00018	24	0.00000	0.00000	0.00000
Hexadecanoic acid hexadecyl ester	540-10-3	O	66	0.00000	0.03722	0.00126	48	0.00000	0.00000	0.00000
1,2-Dimethyl hydrazine	540-73-8	O	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
2,6,6-Trimethyloctane	54166-32-4	O	33	0.00000	0.00708	0.00021	24	0.00000	0.00000	0.00000
1,3-Dichlorobenzene	541-73-1	O	75	0.00000	0.01050	0.00025	85	0.00310	0.00790	0.00070
1-(2-Butenyl)-2,3-dimethyl benzene	54340-85-1	O	1	0.00048	0.00048	0.00048	0	0.00000	0.00000	-
Ethyl Linoleate	544-35-4	O	33	0.00000	0.00463	0.00016	24	0.00000	0.02347	0.00180

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
Tetradecanoic acid	544-63-8	O	35	0.00000	0.07770	0.00429	24	0.00000	0.42060	0.02250
Hexadecane	544-76-3	O	37	0.00000	0.01140	0.00061	24	0.00000	0.18825	0.00880
Dotriacontane	544-85-4	O	33	0.00000	0.00852	0.00026	24	0.00000	0.01646	0.00069
10-Methylicosane	54833-23-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01215	0.00078
2,6,10,15-Tetramethylheptadecane	54833-48-6	O	67	0.00000	0.00140	0.00002	48	0.00000	0.01498	0.00042
4-(2,2,3,3-Tetramethylbutyl)phenol	54932-78-4	O	34	0.00000	0.00370	0.00011	24	0.00000	0.01575	0.00066
2-Methyl-6-propyldodecane	55045-08-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00788	0.00033
2,3,4-Trimethyl-4-tetradecene	55103-81-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01119	0.00047
3-Ethyl-5-(2-ethylbutyl)octadecane	55282-12-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.07730	0.00409
9-Butyldocosane	55282-14-9	O	34	0.00000	0.00810	0.00024	24	0.00000	0.02434	0.00159
3-Ethyltetracosane	55282-17-2	O	34	0.00000	0.02610	0.00077	24	0.00000	0.00806	0.00034
7-Hexyldocosane	55373-86-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.07566	0.00416
24alpha-Ethyl-5alpha‐cholestane-3beta-ol	55529-51-6	O	67	0.00000	0.00741	0.00033	24	0.00000	0.01045	0.00113
Octacosanoic acid methyl ester	55682-92-3	O	33	0.00000	0.00502	0.00015	24	0.00000	0.00000	0.00000
Carbon tetrachloride	56-23-5	O	59	0.00000	0.02477	0.00285	74	0.00000	0.02507	0.00262
1,1-Dichloropropene	563-58-6	O	15	0.00000	0.01273	0.00287	14	0.00000	0.01234	0.00281
Benz(a)Anthracene	56-55-3	O	90	0.00000	0.00000	0.00000	53	0.00040	0.00850	0.00136
1-chloro-7-Heptadecene	56554-78-0	O	34	0.00000	0.00790	0.00023	24	0.00000	0.00593	0.00025
17-Chloro-7-heptadecene	56554-79-1	O	1	0.00060	0.00060	0.00060	0	0.00000	0.00000	-
3-Ethyl-3-hexanamine	56667-17-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01278	0.00053
5alpha-Cholestan-3-one	566-88-1	O	33	0.00000	0.01693	0.00057	24	0.00000	0.02270	0.00129
Hexadecanoic acid	57-10-3	O	143	0.00000	1.22740	0.01795	96	0.00000	0.83079	0.02181
Octadecanoic acid	57-11-4	O	3	0.00060	0.00130	0.00107	0	0.00000	0.00000	-
Isoheptadecanol	57289-07-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00321	0.00013
(3beta)-Cholest-5-en-3-ol	57-88-5	O	72	0.00000	0.04928	0.00483	48	0.00000	0.07161	0.00769
1,5,7-Triazabicyclo(4.4.0)dec-5-ene	5807-14-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02824	0.00118
Caffeine	58-08-2	O	35	0.00000	0.02600	0.00096	25	0.00000	0.01316	0.00076
2,3-Dimethyl	581-40-8	O	1	0.00340	0.00340	0.00340	0	0.00000	0.00000	-

Legend in category

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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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naphthalene										
1H-Indole-1-carboxaldehyde	58246-76-7	O	66	0.00000	0.00383	0.00006	48	0.00000	0.00843	0.00018
3-(1,1-Dimethylethyl)phenol	585-34-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00783	0.00033
alpha-Terpinolene	586-62-9	O	34	0.00000	0.01632	0.00058	24	0.00000	0.00000	0.00000
Isoterpinolene	586-63-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00884	0.00037
gamma-Terpineol	586-81-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01558	0.00114
1-Terpineol	586-82-3	O	1	0.00900	0.00900	0.00900	0	0.00000	0.00000	-
3-Ethyloctane	5881-17-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
2,3,4,6-Tetrachlorophenol	58-90-2	O	44	0.00000	0.00000	0.00000	24	0.00000	0.02950	0.00123
2,4-Dimethylhexane	589-43-5	O	20	0.00000	0.00023	0.00001	0	0.00000	0.00000	-
3-Methylnonane	5911-04-6	O	66	0.00000	0.00000	0.00000	48	0.00000	0.05556	0.00116
Octadecane	593-45-3	O	42	0.00000	0.01080	0.00080	24	0.00000	0.23440	0.01009
Heptacosane	593-49-7	O	35	0.00000	0.00090	0.00005	24	0.00000	0.01588	0.00096
4-Chloro-3-methylphenol	59-50-7	O	33	0.00000	0.00000	0.00000	61	0.00900	0.00900	0.00074
4-Methoxy-n-methylbenzenamine	5961-59-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00859	0.00036
10-Dimethyl squalene	59681-06-0	O	33	0.00000	0.01662	0.00058	24	0.00000	0.00000	0.00000
Ethylenediaminetetraacetic Acid (EDTA)	60-00-4	O	26	0.00000	1.29232	0.59151	7	0.00000	1.45810	0.71624
Phenethyl alcohol	60-12-8	O	67	0.00000	0.04543	0.00120	48	0.00000	0.81593	0.01821
Cholest-4-en-3-one	601-57-0	O	33	0.00000	0.00544	0.00019	24	0.00000	0.01553	0.00123
3-Nitro-1,2-benzenedicarboxylic acid	603-11-2	O	5	0.00120	0.00170	0.00148	0	0.00000	0.00000	-
Linoleic acid	60-33-3	O	66	0.00000	0.01401	0.00021	48	0.00000	0.52458	0.01131
2,6-Dinitrotoluene	606-20-2	O	60	0.00000	0.00318	0.00080	38	0.01150	0.01150	0.00139
2-Nitro-4,6-dichlorophenol	609-89-2	O	33	0.00000	0.00428	0.00013	24	0.00000	0.00000	0.00000
1-Ethyl-2-methylbenzene	611-14-3	O	35	0.00000	0.00043	0.00001	24	0.00000	0.12213	0.00509
9-Methylacridine	611-64-3	O	33	0.00000	0.01201	0.00036	24	0.00000	0.00000	0.00000
Tetrahydroionone	6138-85-8	O	1	0.00080	0.00080	0.00080	0	0.00000	0.00000	-
Benzylmalonic acid	616-75-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01071	0.00045
1-Ethyl-3-methylbenzene	620-14-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
2,3-Dihydro-4-methyl-1H-indole	62108-16-1	O	33	0.00000	0.00594	0.00018	24	0.00000	0.01000	0.00042

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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n-Nitrosodipropylamine	621-64-7	O	60	0.00000	0.04600	0.00129	38	0.01160	0.13660	0.00638
n,4-Dimethylbenzenamine	623-08-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00393	0.00016
Aniline	62-53-3	O	27	0.00000	0.00580	0.00058	49	0.00000	0.00000	0.00088
Pentanamide	626-97-1	O	33	0.00000	0.00291	0.00009	24	0.00000	0.00000	0.00000
n-Nitrosodimethylamine	62-75-9	O	60	0.00000	0.00310	0.00025	82	0.00920	0.11691	0.00562
Tridecane	629-50-5	O	35	0.00000	0.00690	0.00022	24	0.00000	0.00404	0.00017
Tetradecane	629-59-4	O	36	0.00000	0.01030	0.00076	24	0.00000	0.08600	0.00435
Pentadecane	629-62-9	O	40	0.00000	0.01200	0.00089	24	0.00000	0.02298	0.00222
1-Hexadecene	629-73-2	O	33	0.00000	0.01767	0.00054	24	0.00000	0.00000	0.00000
1-Pentadecanol	629-76-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00198	0.00008
Heptadecane	629-78-7	O	37	0.00000	0.01327	0.00112	24	0.00000	0.07443	0.00320
Nonadecane	629-92-5	O	39	0.00000	0.00670	0.00054	24	0.00000	0.07672	0.00379
Heneicosane	629-94-7	O	35	0.00000	0.01627	0.00058	24	0.00000	0.11458	0.00689
1-Eicosanol	629-96-9	O	34	0.00000	0.00837	0.00111	24	0.00000	0.00542	0.00036
Docosane	629-97-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.18574	0.00774
Pentacosane	629-99-2	O	34	0.00000	0.00070	0.00002	24	0.00000	0.02471	0.00136
Hexacosane	630-01-3	O	68	0.00000	0.00070	0.00002	48	0.00000	0.10830	0.00254
Octacosane	630-02-4	O	33	0.00000	0.00800	0.00024	24	0.00000	0.02091	0.00087
Nonacosane	630-03-5	O	35	0.00000	0.02006	0.00062	24	0.00000	0.01310	0.00091
Hexatriacontane	630-06-8	O	37	0.00000	0.01095	0.00065	24	0.00000	0.01523	0.00093
1,1,1,2-Tetrachloroethane	630-20-6	O	48	0.00000	0.00000	0.00000	41	0.00960	0.45430	0.01363
8-Ketotricyclo[5.2.1.0(2,6)]-4-decene	6316-16-1	O	1	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
2,6,10,14-Tetramethylhexadecane	638-36-8	O	34	0.00000	0.00590	0.00017	24	0.00000	0.02044	0.00153
Octadecanal	638-66-4	O	33	0.00000	0.00189	0.00006	24	0.00000	0.00000	0.00000
Tricosane	638-67-5	O	34	0.00000	0.00590	0.00017	24	0.00000	0.10354	0.00529
Triacontane	638-68-6	O	35	0.00000	0.01663	0.00078	24	0.00000	0.10507	0.00484
Ethanol	64-17-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.40493	0.01939
Octadecanoic acid 2-methylpropyl	646-13-9	O	5	0.00070	0.00100	0.00092	0	0.00000	0.00000	-
Tetracosane	646-31-1	O	35	0.00000	0.00590	0.00020	24	0.00000	0.25399	0.01237
Cyclopentadecene	6573-72-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00443	0.00018
Benzoic acid	65-85-0	O	33	0.00000	0.05008	0.00382	24	0.00000	0.42502	0.02711
1-Docosanol	661-19-8	O	1	0.00160	0.00160	0.00160	0	0.00000	0.00000	-
Hexanal	66-25-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00227	0.00009
11-Cyclopentylheneicosane	6703-81-7	O	33	0.00000	0.05084	0.00154	24	0.00000	0.00000	0.00000

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2-Propanol	67-63-0	O	35	0.00000	0.00220	0.00012	24	0.00000	0.00254	0.00011
Acetone	67-64-1	O	45	0.00000	224.17382	5.13622	24	0.00000	1.29414	0.07283
1-Heptadecene	6765-39-5	O	34	0.00000	0.02685	0.00119	24	0.00000	0.02736	0.00114
Chloroform	67-66-3	O	171	0.00000	3.87000	0.17775	100	0.00270	9.25000	0.42084
Sulfonylbismethane	67-71-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01029	0.00043
Hexachloroethane	67-72-1	O	60	0.00000	0.04599	0.00142	74	0.29130	36.00000	17.51927
[(2,4,6-Triethylbenzoyl)thio]acetic acid	67902-78-7	O	1	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
2,3-Dihydro-5,6-methylenedioxy-1	69089-16-3	O	1	0.00120	0.00120	0.00120	0	0.00000	0.00000	-
15-Hexadecanolide	69297-56-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00401	0.00017
5-Ethyldihydro-2(3H)-furanone	695-06-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.04660	0.00194
17-Pendatriacontene	6971-40-0	O	33	0.00000	0.00521	0.00042	24	0.00000	0.00000	0.00000
2-Methyldecane	6975-98-0	O	34	0.00000	0.00350	0.00010	24	0.00000	0.04540	0.00221
Tritetracontane	7098-21-7	O	1	0.00130	0.00130	0.00130	0	0.00000	0.00000	-
Tetratetracontane	7098-22-8	O	34	0.00000	0.00080	0.00002	24	0.00000	0.00540	0.00023
delta-Undecanolactone	710-04-3	O	33	0.00000	0.00679	0.00021	24	0.00000	0.00000	0.00000
Propanol	71-23-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00065	0.00005
Benzene	71-43-2	O	196	0.00000	0.33300	0.03687	95	0.00000	1.55000	0.04011
Trichloroethene	71-55-6	O	51	0.00000	0.06716	0.00313	74	0.00000	0.00000	0.00104
1,3,5-Tris(1-methylethyl)benzene	717-74-8	O	1	0.00060	0.00060	0.00060	0	0.00000	0.00000	-
(E)-5-Octadecene	7206-21-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01959	0.00082
9-Octylheptadecane	7225-64-1	O	66	0.00000	0.00000	0.00000	48	0.00000	0.01887	0.00039
4-Methylphenol	72269-62-6	O	22	0.00339	0.03472	0.01338	20	0.00562	0.14810	0.01512
Dimethyloctylamine	7378-99-6	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02068	0.00108
Endrin Aldehido	7421-93-4	O	27	0.00000	0.03107	0.00252	15	0.00000	0.03571	0.00284
2-Ethylhexyl-2-ethylhexanoate	7425-14-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02373	0.00099
Nonylcyclopropane	74663-85-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.11216	0.00467
1a,7b-dihydroazirine(5,6)benzo	74684-61-0	O	1	0.00080	0.00080	0.00080	0	0.00000	0.00000	-
Bromomethane	74-83-9	O	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
Methanethiol	74-93-1	O	33	0.00000	0.00394	0.00012	24	0.00000	0.10705	0.00583
Dibromomethane	74-95-3	O	15	0.00000	0.00000	0.00000	14	0.00000	0.03161	0.00371

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Bromochloromethane	74-97-5	O	26	0.00000	0.00000	0.00000	51	0.02650	0.02650	0.00175
Vinyl chloride	75-01-4	O	132	0.00000	8.58505	0.07144	24	0.00000	0.00000	0.00000
Acetaldehyde	75-07-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00529	0.00026
Dichloromethane	75-09-2	O	92	0.00000	0.00000	0.00000	99	0.00000	0.64235	0.00729
Carbon disulfide	75-15-0	O	121	0.00000	0.01920	0.00035	24	0.00000	0.02240	0.00234
Thiobismethane	75-18-3	O	33	0.00000	0.00563	0.00017	24	0.00000	0.39492	0.01702
Bromoform	75-25-2	O	59	0.00000	0.00000	0.00000	74	0.00000	0.00316	0.00088
Bromodichloromethane	75-27-4	O	49	0.00000	0.04228	0.00128	80	0.00582	0.88000	0.01243
1,1-Dichloroethane	75-34-3	O	26	0.00000	0.00000	0.00000	50	0.00000	0.00000	0.00114
1,1-Dichloroethylene	75-35-4	O	48	0.00000	0.00000	0.00000	40	0.01570	0.02180	0.00181
l-Citronellol	7540-51-4	O	33	0.00000	0.01582	0.00048	24	0.00000	0.00000	0.00000
Trimethylamine	75-50-3	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Methyloxirane	75-56-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00766	0.00032
gamma-Tocopherol	7616-22-0	O	34	0.00000	0.00690	0.00039	24	0.00000	0.01826	0.00219
Camphor	76-22-2	O	1	0.00047	0.00047	0.00047	0	0.00000	0.00000	-
Oct-4-ene	7642-15-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.06838	0.00285
2,4-Pentadienal	764-40-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
2,6,10,15,19,23-Hexamethyl-2,6,10,14,18,22-tetracosahexaene	7683-64-9	O	37	0.00000	0.09170	0.00431	24	0.00000	0.03149	0.00960
(2-Methyl-1-propenyl)benzene	768-49-0	O	1	0.00104	0.00104	0.00104	0	0.00000	0.00000	-
Hexachlorocyclopentadiene	77-47-4	O	60	0.00000	0.00820	0.00031	41	0.00590	0.01376	0.00123
1-Docosanethiol	7773-83-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00964	0.00040
(Z)-14-Tricosenylformate	77899-10-6	O	33	0.00000	0.00464	0.00014	24	0.00000	0.00000	0.00000
Triethyl citrate	77-93-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00907	0.00043
Phosphoric acid triethyl	78-40-0	O	2	0.00140	0.00190	0.00165	0	0.00000	0.00000	-
Tris(2-butoxyethyl) phosphate	78-51-3	O	1	0.00410	0.00410	0.00410	0	0.00000	0.00000	-
Isophorone	78-59-1	O	67	0.00000	0.01520	0.00050	43	0.00187	4.63000	0.13036
Linalool	78-70-6	O	34	0.00000	0.01480	0.00044	24	0.00000	0.01240	0.00052
2-Methylpropanal	78-84-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00050	0.00002
1,2-Dichloropropane	78-87-5	O	59	0.00000	0.00000	0.00000	38	0.00000	0.00067	0.00013
2-Butanone	78-93-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00049	0.00002
1,1,2-Trichlor	79-00-5	O	64	0.00000	0.00046	0.00001	15	0.00000	0.00584	0.00196

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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oethane										
Acrylamide	79-06-1	O	10	0.00000	0.00000	0.00000	7	0.00000	0.00000	0.00000
1,1,2,2-Tetrachloroethane	79-34-5	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
Camphene	79-92-5	O	34	0.00000	0.00094	0.00003	25	0.00000	0.01117	0.00045
4-Chlorophenyl phenyl sulphone	80-00-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01793	0.00075
l-Linalool	8008-26-2	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00867	0.00036
4-(1,1-Dimethylpropyl)phenol	80-46-6	O	37	0.00000	0.00080	0.00007	24	0.00000	0.00764	0.00032
Dihydrocholesterol	80-97-7	O	70	0.00000	0.08790	0.00564	48	0.00000	0.10737	0.01258
Oct-3-ene	81624-05-7	O	33	0.00000	0.00000	0.00000	24	0.00000	0.06993	0.00291
1-Heptadecanol acetate	822-20-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01163	0.00048
2-Cyclohexen-1-ol	822-67-3	O	33	0.00000	0.01105	0.00043	24	0.00000	0.00000	0.00000
2,2,6,6-Tetramethyl-4-piperidone	826-36-8	O	8	0.00610	0.01720	0.01109	0	0.00000	0.00000	-
2-Ethenylnaphthalene	827-54-3	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01236	0.00052
Cyclododecanone	830-13-7	O	33	0.00000	0.01598	0.00048	24	0.00000	0.00000	0.00000
Acenaphthene	83-32-9	O	90	0.00000	0.07977	0.00697	50	0.00000	0.12688	0.01480
3-Methyl-1H-indole	83-34-1	O	67	0.00000	0.01629	0.00031	48	0.00000	0.01614	0.00034
Stigmast-5-en-3beta-ol	83-46-5	O	33	0.00000	0.01022	0.00212	24	0.00000	0.10040	0.00551
(24S)-Stigmast-5-en-3beta-ol	83-47-6	O	8	0.00190	0.00570	0.00311	0	0.00000	0.00000	-
Stigmasta-5,22-dien-3-ol	83-48-7	O	35	0.00000	0.01370	0.00181	24	0.00000	0.01697	0.00162
Theobromine	83-67-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00112	0.00005
Diethyl phtalate	84-66-2	O	161	0.00000	14.34000	0.71174	62	0.00400	13.26000	0.95506
Diisobutyl phthalate	84-69-5	O	1	0.00070	0.00070	0.00070	0	0.00000	0.00000	-
Dibutyl phthalate	84-74-2	O	44	0.00000	3.09000	0.48264	24	0.00000	0.02458	0.00124
Phenanthrene	85-01-8	O	96	0.00000	0.00980	0.00029	90	0.00000	0.02100	0.00081
Octadecanoic acid	85404-83-7	O	42	0.00000	1.35710	0.04643	24	0.00000	0.35180	0.03906
Butylbenzyl phtalate	85-68-7	O	27	0.00000	0.00000	0.00000	14	0.01190	0.05900	0.00630
n-Nitrosodiphenylamine	86-30-6	O	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
Fluorene	86-73-7	O	91	0.00000	0.31278	0.01533	52	0.00000	0.08198	0.00638
Carbazole	86-74-8	O	16	0.00000	0.00970	0.00113	13	0.00000	0.00834	0.00117
7-Methoxy-2,2-dimethyl-2H-1-benzot	86778-10-1	O	1	0.00680	0.00680	0.00680	0	0.00000	0.00000	-
1-Decene	872-05-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01554	0.00065

Legend in category
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項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
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1-Methyl-2-pyrrolidinone	872-50-4	O	33	0.00000	0.00000	0.00000	25	0.00000	0.01291	0.00052
2-Ethylthiophene	872-55-9	O	20	0.00000	0.00023	0.00001	0	0.00000	0.00000	-
1-Ethyl-2,4-dimethylbenzene	874-41-9	O	1	0.00086	0.00086	0.00086	0	0.00000	0.00000	-
1,2,3-Trichlorobenzene	87-61-6	O	26	0.00000	0.00000	0.00000	15	0.00000	0.06878	0.00753
Hexachlorobutadiene	87-68-3	O	80	0.00000	0.00980	0.00025	81	0.00000	0.00000	0.00065
4-Chloro-3,5-dimethylphenol	88-04-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.02267	0.00094
2,4,6-Trichlorophenol	88-06-2	O	44	0.00000	0.00000	0.00000	25	0.02290	0.02290	0.00092
7-Acetyl-6-ethyl-1,1,4,4-tetramethyltetralin	88-29-9	O	33	0.00000	0.01523	0.00046	24	0.00000	0.00000	0.00000
2-Nitrophenol	88-75-5	O	44	0.00000	0.00000	0.00000	33	0.00510	0.01760	0.00239
2-Methoxybenzenamine	90-04-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00336	0.00014
1-Chloronaphthalene	90-13-1	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
1,1'-Biphenyl-2-ol	90-43-7	O	33	0.00000	0.00680	0.00021	24	0.00000	0.00000	0.00000
Decahydronaphthalene	91-17-8	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01625	0.00068
Naphthalene	91-20-3	O	82	0.00000	1.14000	0.07874	104	0.00010	448.52500	4.41907
2-Chloronaphthalene	91-58-7	O	60	0.00000	0.00960	0.00030	37	0.00000	0.00000	0.00019
1,1'-Biphenyl	92-52-4	O	1	0.00310	0.00310	0.00310	0	0.00000	0.00000	-
Benzidine	92-87-5	O	44	0.00000	0.00000	0.00000	24	0.00000	0.00000	0.00000
1,2-Cyclohexanediol	931-17-9	O	33	0.00000	0.01276	0.00039	24	0.00000	0.00000	0.00000
1-Chloro-4-nitrosobenzene	932-98-9	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00666	0.00028
1-Ethyl-2,3-dimethylbenzene	933-98-2	O	1	0.00083	0.00083	0.00083	0	0.00000	0.00000	-
1-Ethyl-3,5-dimethylbenzene	934-74-7	O	1	0.00104	0.00104	0.00104	0	0.00000	0.00000	-
2-Methyl-1H-indol	95-20-5	O	66	0.00000	0.00000	0.00000	24	0.00000	0.00687	0.00029
1,2,4-Trimethylbenzene	95-36-3	O	30	0.00119	0.02638	0.00270	44	0.00750	0.25560	0.01643
o-Xylene	95-47-6	O	174	0.00000	11.18780	0.06509	84	0.00000	1.20000	0.01471
o-Cresol	95-48-7	O	33	0.00000	0.01381	0.00042	60	0.00000	0.00000	0.00060
2-Chlorotoluene	95-49-8	O	15	0.00000	0.00000	0.00000	53	0.00410	0.05210	0.00282
1,2-Dichlorobenzene	95-50-1	O	150	0.00000	0.01039	0.00020	78	0.00175	0.01330	0.00092
2-Chlorophenol	95-57-8	O	44	0.00000	0.00000	0.00000	60	0.00000	0.00000	0.00060
1,2,4-Trimethylbenzene	95-63-6	O	34	0.00000	0.00119	0.00004	24	0.00000	0.00359	0.00015

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1,2,4,5-Tetramethylbenzene	95-93-2	O	1	0.00068	0.00068	0.00068	0	0.00000	0.00000	-
2,4,5-Trichlorophenol	95-95-4	O	46	0.00000	0.27187	0.00873	26	0.01955	0.43000	0.02587
1,2-Dibromo-3-chloropropane	96-12-8	O	15	0.00000	0.00000	0.00000	50	0.00000	0.06214	0.00243
3-Methylpentane	96-14-0	O	33	0.00000	0.00000	0.00000	24	0.00000	0.00187	0.00008
2-Methylpentanoic acid	97-61-0	O	33	0.00000	0.01388	0.00042	24	0.00000	0.01529	0.00086
2-Furanmethanol	98-00-0	O	34	0.00000	0.00020	0.00001	24	0.00000	0.01227	0.00051
t-butylbenzene	98-06-6	O	15	0.00000	0.02306	0.00341	51	0.00940	0.02697	0.00195
4-tert-Butyl-1-cyclohexanol	98-52-2	O	1	0.00450	0.00450	0.00450	0	0.00000	0.00000	-
alpha-Terpineol	98-55-5	O	33	0.00000	0.01491	0.00084	24	0.00000	0.04149	0.00251
Isopropylbenzene	98-82-8	O	35	0.00000	0.00595	0.00017	51	0.02280	0.02280	0.00171
Acetophenone	98-86-2	O	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Nitrobenzene	98-95-3	O	148	0.00000	0.64420	0.00449	76	0.01230	0.13653	0.00294
tert-Amyl methyl ether(TAME)	994-05-8	O	48	0.00000	0.00000	0.00000	38	0.00000	0.00796	0.00052
gamma-Terpinene	99-85-4	O	33	0.00000	0.00000	0.00000	24	0.00000	0.01200	0.00050
alpha-Terpinene	99-86-5	O	1	0.00330	0.00330	0.00330	0	0.00000	0.00000	-
p-Isopropyltoluene	99-87-6	O	144	0.00000	2.21000	0.04144	134	0.00514	0.55024	0.00559
dodeca		O	11	0.00110	0.00110	0.00110	0	0.00000	0.00000	-
OTROS COSV No Clorados (Ver CO Tentativos)		O	11	0.01300	3.54170	0.40639	0	0.00000	0.00000	-
OTROS COV Clorados (Ver CO Tentativos)		O	11	0.00000	0.00000	0.00000	0	0.00000	0.00000	-
OTROS COV No Clorados (Ver CO Tentativos)		O	11	0.00000	30.55000	5.51545	0	0.00000	0.00000	-
OTROS COVSV Clorados (Ver CO Tentativos)		O	11	0.00000	7.90000	0.82727	0	0.00000	0.00000	-
Alkalinity	-	Ph	418	20.9	3381.0	263.0	181	10.0	7800.0	624.7
Apparent color	-	Ph	359	0.0	1250.0	104.4	207	0.0	17600.0	667.8
BOD	-	Ph	1071	0.0	27000.0	134.2	976	0.0	19300.0	524.0
Calcium hardness	-	Ph	69	43.6	1040.0	145.5	18	56.0	75000.0	5690.5
COD	-	Ph	1225	1.0	81258.0	319.4	834	0.1	237600.0	1516.4

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Dissolved oxygen	-	Ph	1003	0.0	16.4	4.4	557	0.0	9.3	2.0
Electrical conductivity	-	Ph	755	0.7	223600.0	2668.6	696	0.9	57900.0	2709.9
Floating Matter	-	Ph	34	0.0	0.0	0.0	113	0.0	0.0	0.0
Flow	-	Ph	657	-188200.0	667400.0	9642.2	619	0.0	10805.0	121.2
Hardness	-	Ph	376	11.9	12942.0	856.6	180	9.5	147500.0	1416.5
Oil and grease	-	Ph	522	0.0	1204.6	23.2	656	0.0	3341.0	59.5
pH (field)	-	Ph	1054	3.5	12.8	7.7	678	3.4	20576.0	37.9
pH (lab)	-	Ph	27	7.2	8.5	7.2	86	3.5	11.5	7.2
Phenolphthalein alkalinity	-	Ph	25	0.0	54.7	4.8	1	419.4	419.4	419.4
Salinity	-	Ph	37	0.0	32.2	7.4	7	0.5	1.7	1.0
Sedimentable solids	-	Ph	733	0.0	3584.0	50.9	479	0.0	475.0	8.1
Sodium adsorption ratio	-	Ph	51	0.2	47.5	7.3	39	0.0	37.5	7.8
Soluble BOD	-	Ph	95	0.6	2156.7	160.6	48	0.2	970.0	191.6
Soluble COD	-	Ph	55	14.5	11484.0	743.2	29	254.0	2954.0	693.3
Temperature (ambient)	-	Ph	198	9.0	39.0	28.7	189	2.8	50.2	25.4
Temperature (water)	-	Ph	840	12.0	46.6	22.9	686	7.0	54.8	24.9
Total dissolved solids	-	Ph	829	0.0	42234.0	1106.1	282	0.0	25852.0	1689.5
Total solids	-	Ph	577	0.0	20366.0	832.8	147	124.0	30782.0	2318.7
Total suspended solids	-	Ph	1105	0.0	6392.0	143.0	640	0.0	22260.0	373.4
Total volatile solids	-	Ph	227	4.0	1044.0	175.6	0	0.0	0.0	-
Toxicity with Vibrio fischeri (EC50)	-	Ph	89	0.6	77.4	15.6	41	0.0	13023.3	404.8
Toxicity with Vibrio fischeri (TU)	-	Ph	113	1.1	53.8	22.1	69	1.3	980.4	44.9
Transparency	-	Ph	0	0.0	0.0	-	2	25.5	26.0	25.8
Turbidity	-	Ph	340	0.0	1914.0	59.2	29	0.0	6444.0	943.0
Volatile suspended solids	-	Ph	406	0.0	480.0	26.4	14	3.0	205.8	31.6
Aroclor	-	POPs	0	0.00000	0.00000	-	36	0.00000	0.00000	0.00100
Aroclor 1260	11096-82-5	POPs	0	0.00000	0.00000	-	5	0.01400	0.01400	0.00352
Aroclor 1254	11097-69-1	POPs	0	0.00000	0.00000	-	4	0.00000	0.00000	0.00010
Aroclor 1221	11104-28-2	POPs	0	0.00000	0.00000	-	7	0.00980	0.05680	0.01556

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Aroclor 1232	11141-16-5	POPs	0	0.00000	0.00000	-	4	0.00000	0.00000	0.00800
Aroclor 1248	12672-29-6	POPs	0	0.00000	0.00000	-	5	0.01440	0.01440	0.00928
Aroclor 1016	12674-11-2	POPs	0	0.00000	0.00000	-	6	0.03720	0.34750	0.06945
Polychlorinated biphenyl (PCB)	1336-36-3	POPs	21	0.00000	0.00000	0.00000	28	0.00500	0.03400	0.00436
Aldrin	309-00-2	POPs	78	0.00000	0.01670	0.00258	23	0.00015	0.00175	0.00020
4,4'-DDT	50-29-3	POPs	63	0.00000	0.00025	0.00002	14	0.00000	0.00058	0.00014
Aroclor 1242	53469-21-9	POPs	0	0.00000	0.00000	-	5	0.04890	0.04890	0.01618
Chlordane	57-74-9	POPs	36	0.00200	0.01670	0.00520	54	0.00000	0.00000	0.00067
Dieldrin	60-57-1	POPs	52	0.00000	0.01670	0.00385	54	0.00000	0.01469	0.00121
Endrin	72-20-8	POPs	27	0.00000	0.00255	0.00023	18	0.00003	0.00244	0.00038
4,4-Dichlorodiphenyldichloroethane (4,4-DDD)	72-54-8	POPs	27	0.00000	0.00012	0.00001	16	0.00016	0.00016	0.00004
4,4-Dichlorodiphenyldichloroethylene	72-55-9	POPs	27	0.00000	0.00031	0.00003	20	0.00000	0.00050	0.00009
Heptachlor	76-44-8	POPs	77	0.00000	0.01670	0.00351	20	0.00000	0.00113	0.00019
Toxaphene	8001-35-2	POPs	11	0.00000	0.00000	0.00000	7	0.00000	0.00000	0.00011
Benzene Hexachloride (BHC)	-	POPs (New)	0	0.00000	0.00000	-	40	0.00010	0.00086	0.00094
Alfa-Benzene Hexachloride	319-84-6	POPs (New)	41	0.00000	0.06112	0.00410	15	0.00001	0.18801	0.01650
Beta-Benzene Hexachloride	319-85-7	POPs (New)	41	0.00000	0.00405	0.00035	15	0.00000	0.00324	0.00192
Lindane	58-89-9	POPs	78	0.00000	0.01670	0.00265	14	0.00000	0.00241	0.00050

Legend in category
B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

項目 (English Name)	CAS 番号	区分	全調査 (環境水)				全調査 (排水)			
			データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)	データ数	最小 (mg/L)	最大 (mg/L)	平均 (mg/L)
		(New)								
Pentachlorobenzene	608-93-5	POPs (New)	11	0.00000	0.00000	0.00000	36	0.00000	0.00000	0.00100

Legend in category
B: Biochemical parameter, H: Herbicide and pesticide, I: Inorganic compound, M: Metal, Ph: Physicochemico parameter, POPs: Persistent Organic Pollutants, O: Other organic compound

Appendix 4

既存クライテリアのレビュー（補足）

1） 補足 1：スクリーニングと微量分析についての考え方

農薬その他の化学物質の数は膨大なものとなっており，現在も増え続けている。そのような化学物質を個別に分析することはたいへんな負担であることから，スクリーニングの需要については日本でも識者や政府当局の間で一定の認識がある。したがって試験法の開発も進められているが，現状では環境測定において未だ信頼性の高いものがない。

スクリーニングは，一般には初期の予備選別を意味し，その段階で異常がなければ精密検査を必要としない。しかし環境測定ではスクリーニングテスト（本節では総論としての「スクリーニング」と各論としての「スクリーニングテスト」を明確に区別する）は感度が不足か，または妨害物質を検出しやすく，実用に耐えないものがほとんどである。感度不足の場合，実際に有毒であってもスクリーニングテストでは異常が検出されない場合がある。たとえば，CCAM において 2,3,7,8 Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)のクライテリア値は 0.001ug/L であるが，対応するスクリーニングテストである AOXF のクライテリア値は 10ug/L である。AOXF をスクリーニングテストに位置付けた場合，2,3,7,8-TCDD が 0.001ug/L を超過して有害であっても，AOXF が 10ug/L 未満であれば 2,3,7,8-TCDD は調査されないことになる。

適当なスクリーニングテストがないかという模索は現在でも続けられているが，微量化学物質の個別分析を省略できる十分な論拠を持つに至っていない。ただし，そうした課題があってもなお，スクリーニングテストには次のような意義がある。

- 極端な異常があれば迅速に把握でき，対策を取りうる（例：水道における取水停止）。

- クライテリア外の未規制物質による環境汚染の可能性を検出しうる。

このように，スクリーニングテストは完全ではないが特徴的な意義を持つので，１つの指標として個別分析と同列に置くのが理想的と考えられる。なお，日本ではスクリーニングテストは厳密さに欠けることが忌避され，クライテリアには取り入れられていない。

2） 補足 2：微量分析の優先順位付け

微量分析においては，EPA method その他のマニュアルやガイドラインの多くは概要や例示に止まるため，現実にはそれぞれの試験所で実証試験を行い，SOP を確立しなくてはならない。そのような状況で 300 ものパラメータを一斉に調査するには膨大なマンパワーが必要であり，現実的とはいえない。この問題は，メキシコに限らず日本においても程度の差はあれ同様である。それぞれの物質に優先順位を設け，順次取り組むことは現実的な対応の 1 つであり，日本でも実施されている。

どの物質を重要と見るかは，毒性情報及び国内の生産状況等（最終的には排出量）をもとに判断されるべきである。単純に考えれば，

自国の排出量 / 毒性に基づいたクライテリア値（WHO など）

の大きい物質ほど環境リスクが高いと見做しうる。そうした物質について環境中の実態調査を行い，一定の濃度レベル（リスク評価に基づくクライテリア値の 1/10 以上*）で度々検出されるようであれば，排水の規制と環境基準の導入を検討すべきである。

参考に日本では，環境基準の設定された 26 の健康項目の下位に，規制はないが環境モニタリングを実施している項目があり，環境基準とそれらを合わせると約 300 項目となる。本提案でいえば, Level 2a が環境基準, Level 2b と Level 2c が下位のモニタリング項目に相当する。環境基準項目は一般に毎月調査されるが，下位のモニタリング項目は環境リスクに応じて年 2 回あるいは不定期（数年に 1 回，またはそれ以下）に縮小されている。分析法の確立していない物質について環境省が研究機関に分析法開発を委託し，確立したものから環境モニタリングを実施する枠組みもある。環境基準は適宜見直されており，1993 年にはいくつかの項目の追加，基準値の改正のほか，国内で排出と検出実態のなくなった有機リン系農薬が下位のモニタリング項目に降格されている。

Appendix 5

項目数
160

項目 (人の健康)	CAS 番号	**mg/L**	優先
			89 1
			11 2
			33 3
			27 4
Antimony	7440-36-0	0.0056	**3**
Arsenic	7440-38-2	0.02	**1**
Cadmium	7440-43-9	0.003	**1**
Chromium (total)	18540-29-9	0.05	**1**
Copper	7440-50-8	1.3	**1**
Lead	7439-92-1	0.0072	**1**
Mercury	7439-97-6	0.00007	**1**
Molybdenum	7439-98-7	0.07	**2**
Nickel	7440-02-0	0.02	**1**
Selenium	7782-49-2	0.01	**1**
Thallium	7440-28-0	0.00024	**0**
Zinc	7440-66-6	7.4	**1**
Asbestos	1332-21-4	7 million fibers/L	**1**
Barium	7440-39-3	0.7	**2**
Boron	7440-42-8	0.5	**2**
Cyanide	-	0.014	**1**
Fluorine	7782-41-4	1.5	**2**
Manganese	7439-96-5	0.4	**1**
Nitrate (as NO3-)	14797-55-8	50 Short-term exposure	**2**
Nitrilotriacetic acid (NTA)	139-13-9	0.2	**1**
Nitrite (as NO2-)	14797-65-0	3 Short-term 0.2 Long-term	**1**
Uranium	7440-61-1	0.015	**0**
Dioxane, 1,4	-	0.05	**1**
2,3,7,8-TCDD (Dioxin)	1746016	5E-12	**1**
Acrolein	107-02-8	0.003	**1**
Acrylonitrile	107-13-1	0.000051	**1**

項目 (人の健康)	CAS 番号	**mg/L**	優先
Benzene	71-43-2	0.0086	**1**
Carbon Tetrachloride	56-23-5	0.00023	**1**
Chlorobenzene	108-90-7	0.13	**1**
1,2-Dichloroethane	107-06-2	0.00038	**1**
1,1-Dichloroethylene	75-35-4	0.33	**3**
1,2-Dichloropropane (1,2-DCP)	78-87-5	0.0005	**2**
Ethylbenzene	100-41-4	0.3	**3**
Methyl Bromide	74-83-9	0.047	**1**
Methylene Chloride (Dichloromethane)	75-09-2	0.0046	**1**
1,1,2,2-Tetrachloroethane	79-34-5	0.00017	**1**
Tetrachloroethylene	127-18-4	0.00069	**2**
Toluene	108-88-3	0.7	**1**
1,2-Trans-Dichloroethylene	156-60-5	0.14	**3**
1,1,2-Trichloroethane	79-00-5	0.00059	**1**
Trichloroethylene	79-01-6	0.0025	**1**
Vinylchloride Monomer (Chloroethylene)	75-01-4	0.000025	**3**
2-Chlorophenol	95-57-8	0.081	**3**
2,4-Dichlorophenol	120-83-2	0.077	**3**
2,4-Dimethylphenol (2,4-Xylenol)	105-67-9	0.12	**2**
2-Methyl-4,6-Dinitrophenol	8071-51-0	0.013	**0**
2,4-Dinitrophenol	51-28-5	0.069	**3**
Pentachlorobenzene	608-93-5	0.0000007	**1**
Pentachlorophenol	87-86-5	0.00027	**1**
Phenol	108-95-2	10	**1**
2,4,6-Trichlorophenol	88-06-2	0.0014	**1**
Acenaphthene	83-32-9	0.67	**3**
Anthracene	120-12-7	0.004	**1**
Benzidine	92-87-5	0.000000086	**1**
Benzo(a) Anthracene	56-55-3	0.0000038	**1**
Benzo(a) Pyrene	50-32-8	0.0000038	**1**
Benzo(b) Fluoranthene	205-99-2	0.0000038	**1**
Benzo(k) Fluoranthene	207-08-9	0.0000038	**1**
Benzo(ghi) Perylene	191-24-2	sum 0.000002	**1**
Bis(2-Chloroethyl) Ether	111-44-4	0.00003	**1**

項目 (人の健康)	CAS 番号	**mg/L**	優先
Bis(2-Chloroisopropyl) Ether	39638-32-9	1.4	**3**
Bis(2-Ethylhexyl) PhthalateX (DEHP)	117-81-7	0.0075	**1**
Butylbenzyl PhthalateW	85-68-7	1.5	**3**
2-Chloronaphthalene	91-58-7	1	**3**
Chrysene	218-01-9	0.0000038	**1**
Dibenzo(a,h)Anthracene	53-70-3	0.0000038	**1**
1,2-Dichlorobenzene	95-50-1	0.42	**1**
1,3-Dichlorobenzene	541-73-1	0.32	**3**
1,4-Dichlorobenzene	106-46-7	0.063	**1**
3,3'-Dichlorobenzidine	91-94-1	0.000021	**0**
Diethyl Phthalate	84-66-2	17	**2**
Dimethyl Phthalate	131-11-3	270	**3**
Di-n-Butyl Phthalate	84-74-2	2	**2**
2,4-Dinitrotoluene	121-14-2	0.00011	**1**
Nonylphenol	25154-52-3	0.002	**1**
4-n-Octhylphenol	1806-26-4	0.0001	**1**
1,2-Diphenylhydrazine	122-66-7	0.000036	**0**
Fluoranthene	206-44-0	0.001	**1**
Fluorene	86-73-7	1.1	**3**
Hexachlorobenzene	118-74-1	0.00000028	**1**
Hexachlorobutadiene	87-68-3	0.00044	**1**
Hexachlorocyclopentadiene	77-47-4	0.04	**1**
Hexachloroethane	67-72-1	0.0014	**1**
Ideno(1,2,3-cd)Pyrene	193-39-5	0.0000038	**1**
Isophorone	78-59-1	0.035	**3**
Naphthalene	91-20-3	0.0024	**1**
Nitrobenzene	98-95-3	0.017	**1**
N-Nitrosodimethylamine	62-75-9	0.00000069	**1**
N-Nitrosodi-n-Propylamine	621-64-7	0.000005	**1**
N-Nitrosodiphenylamine	86-30-6	0.0033	**3**
Pyrene	129-00-0	0.83	**3**
Trichlorobenzenes	12002-48-1	0.0004	**1**
1,2,4-Trichlorobenzene	120-82-1	0.035	**3**
C10-13-Chloroalkanes	85535-84-8	0.0014	**0**
Pentabromodiphenyl Ether	32534-81-9	0.0000005	**1**

項目 (人の健康)	CAS 番号	**mg/L**	優先
Tributyltin compounds	688-73-3	0.0000015	**0**
Hexachlorocyclohexane	608-73-1	0.00004	**0**
Aldrin	309-00-2	0.000000049	**1**
alpha-BHC	319-84-6	0.0000026	**1**
beta-BHC	319-85-7	0.0000091	**1**
gamma-BHC (Lindane)	58-89-9	0.0015	**1**
Chlordane	57-74-9	0.0000008	**1**
DDT and metabolites	107917-42-0	0.000025	**1**
4,4'-DDT	50-29-3	0.00000022	**1**
4,4'-DDE	72-55-9	0.00000022	**1**
4,4'-DDD	72-54-8	0.00000031	**1**
Dieldrin	60-57-1	0.000000052	**1**
Endosulfan	115-29-7	0.00001	**1**
alpha-Endosulfan	959-98-8	0.062	**3**
beta-Endosulfan	33213-65-9	0.062	**2**
Endosulfan Sulfate	1031-07-8	0.062	**3**
Endrin	72-20-8	0.000059	**1**
Endrin Aldehyde	7421-93-4	0.00029	**1**
Heptachlor	76-44-8	0.000000079	**1**
Heptachlor Epoxide	1024-57-3	0.000000039	**1**
Polychlorinated Biphenyls (PCBs)	1336-36-3	0.000000064	**1**
Toxaphene	8001-35-2	0.00000027	**1**
Acrylamide	79-06-1	0.0005	**1**
Cyanogen chloride	74-90-8	0.07 for cyanide as total cyanogenic compounds	**0**
Edetic acid (EDTA)	60-00-4	0.6 Applies to the free acid	**1**
Epichlorohydrin	106-89-8	0.0004	**1**
Monochloroacetate	29-16-7	0.02	**0**
Styrene	100-42-5	0.02	**1**
Xylenes	8026-09-3	0.5	**1**
Alachlor	15972-60-8	0.0007	**0**

項目 (人の健康)	CAS 番号	**mg/L**	優先
Aldicarb	116-06-3	0.01 applies to aldicarb sulfoxide and aldicarb sulfone	**3**
Atrazine	1912-24-9	0.002	**0**
Carbofuran	1563-66-2	0.007	**3**
Chlorotoluron	15545-48-9	0.03	**0**
Chlorpyrifos	2921-88-2	0.0001	**0**
Chlorfenvinphos	470-90-6	0.0003	**0**
Cyanazine	21725-46-2	0.0006	**0**
2,4-D (2,4-dichlorophenoxyacetic	94-75-7	0.03	**1**
2,4-DB	94-82-6	0.09	**3**
Diuron	330-54-1	0.0018	**0**
1,2-Dibromo-3-chloropropane	35407	0.001	**1**
1,2-Dibromoethane	106-93-4	0.0004	**1**
Dichlorprop	120-36-5	0.1	**3**
1,3-Dichloropropene	542-75-6	0.00034	**3**
Dimethoate	60-51-5	0.006	**3**
Fenoprop	93-72-1	0.009	**3**
Isoproturon	34123-59-6	0.001	**0**
MCPA	94-74-6	0.002	**3**
Mecoprop	7085-19-0	0.01	**3**
Methoxychlor	72-43-5	0.02	**1**
Metolachlor	51218-45-2	0.01	**0**
Molinate	2212-67-1	0.006	**0**
Oxamyl (Vydate)	23135-22-0	0.2	**3**
Picloram	1918/2/1	0.5	**3**
Pendimethalin	40487-42-1	0.02	**0**
Permethrin	52645-53-1	0.3 only when used as a larvicide for public health perposes	**0**
Pyriproxyfen	95737-68-1	0.3	**0**

項目 (人の健康)	CAS 番号	**mg/L**	優先
Simazine	122-34-9	0.002	**0**
2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)	93-76-5	0.009	**3**
Terbuthylazine	5915-41-3	0.007	**0**
Trifluralin	1582-09-8	0.00003	**0**
Microcystin-LR	101043-37-2	0.001	**0**
Chloroform (Trichloromethane):THM	67-66-3	0.0025	**1**
Bromoform: THM	75-25-2	0.0043	**1**
Chlorodibromomethane (Dibromochloromethane: DBCM) THM	124-48-1	0.0004	**1**

The concentration of yellow hi-lighted parameter was evaluated from the view point of risk assessment by the Team

項目数 33

項目 (農業灌漑)	CAS 番号	mg/L
Aluminium	7429-90-5	5
Arsenic	7440-38-2	0.1
Beryllium	7440-41-7	0.1
Boron	7440-42-8	0.7
Cadmium	7440-43-9	0.01
Cobalt.	7440-48-4	0.05
Copper	7440-50-8	0.2
Chlorides	16887-00-6	140
Chromium	7440-47-3	0.1
Iron	7439-89-6	5
Fluorides	-	1
Lithium	7439-93-2	2.5
Manganese	7439-96-5	0.2
Mercury	7439-97-6	0.002
Molybdenum	7439-98-7	0.01
Nickel	7440-02-0	0.2
Lead	7439-92-1	5
Selenium	7782-49-2	0.02
Sodium	7440-23-5	70
Vanadium	7440-62-2	0.1
Zinc	7440-66-6	2
Dissolved Oxigen	-	4
Potential Hydrogen	-	6.5 - 8.5
Electrical Conductivity	-	750µS/cm
Total Dissolved Solids	-	500
Suspended Solids	-	50
Fecal Coliform	-	1000NMP/100 mL

項目 **(農業灌漑)**	**CAS 番号**	**mg/L**
Helminth Eggs	-	1individual/L
Total Nitrogen	-	5
Total Phosphorus	-	5
BOD5	-	30
COD	-	40
Sodium Adsorption Ratio	-	10

項目数　20

項目 **(畜産)**	**CAS 番号**	**mg/L**
Aluminium	7429-90-5	5
Arsenic	7440-38-2	0.2
Boron	7440-42-8	5
Cadmium ［Cd]	7440-43-9	0.01
Copper And Its Compounds	7440-50-8	0.5
Fluorine	7782-41-4	2
Magnesium	7439-95-4	250
Mercury	7439-97-6	0.002
Lead ［Pb]	7439-92-1	0.1
Selenium ［Se]	7782-49-2	0.02
Vanadium	7440-62-2	0.1
Zinc	7440-66-6	20
Potential Hydrogen, Power Of Hydrogen (pH)	-	6-9
Total Dissolved Solids	-	4000
Nitrate	14797-55-8	90
Nitrite	14797-65-0	10
Coliform bacteria	-	100/100mL
Chromium	7440-47-3	1
Cyanobacteria (Mycrosistis:Blue-green algae)	-	11500cells/ml or 2.3ug/L
Calcium	7440-70-2	1000

項目数 29

項目 (水産養 –淡水-)	CAS 番号	良水質魚種			冷水魚種
		Tilapia	Carp	Catfish	Salmon
Aluminium	7429-90-5	0.087[a]	0.087[a]	0.087[a]	0.087[a]
Arsenic	7440-38-2	0.15[b, c]	0.15[b, c]	0.15[b, c]	0.15[b, c]
Cadmium	7440-43-9	0.0002-0.0018[d]	0.0002-0.0018[d]	0.0002-0.0018[d]	0.0002-0.0018[d]
Copper	7440-50-8	0.009[c]	0.009[c]	0.009[c]	0.009[c]
Chloride	16887-00-6	230	230	230	230
Chromium (VI) Compound	18540-29-9	0.011[c]	0.011[c]	0.011[c]	0.011[c]
Iron	7439-89-6	1	1	1	1
Manganese	7439-96-5	0.1	0.1	0.1	0.1
Mercury	7439-97-6	0.001	0.001	0.001	0.001
Nickel	7440-02-0	0.052[c,e]	0.052[c,e]	0.052[c,e]	0.052[c,e]
Lead	7439-92-1	0.001-0.007[f]	0.001-0.007[f]	0.001-0.007[f]	0.001-0.007[f]
Selenium	7782-49-2	0.3	0.3	0.3	0.3
Zinc	7440-66-6	0.3-2.0[g]	0.3-2.0[g]	0.3-2.0[g]	0.03-0.5[h]
Chlorine	7782-50-5	0.003	0.003	0.003	0.003
Total residual chlorine	7782-50-5	0.005	0.005	0.005	0.005
Dissolved Oxygen	—	5-8	5-8	5-8	6-9
pH (Unidades de pH)	—	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0

項目 (水産養 –淡水-)	CAS 番号	良水質魚種			冷水魚種
		Tilapia	**Carp**	**Catfish**	**Salmon**
Temperature (° C)	—	24-28[i] 28-30[j]	18-23[i] 30-32[j]	24-28[i] 28-30[j]	2-11[i] 12-13[j]
Total Suspended Solids	—	40	40	40	25
Cyanide	57-12-5	0.0052[k]	0.0052[k]	0.0052[k]	0.0052[k]
Sulphides	—	0.001	0.001	0.001	0.001
Biochemical Oxygen Demand	—	6	6	6	3
Chemical Oxygen Demand	—	40	40	40	10
Nitrite	—	0.06	0.06	0.06	0.05
Ammonia	—	0.3	0.3	0.3	0.025
Ammonium Total (NH_4+NH_3)	—	1	1	1	1
Hydrogen Sulphide	—	0.001	0.001	0.001	0.001
Salinity	—	18900	9000	11000	35000
Carbon Dioxide	124-38-9	12	12	12	12

Unit : mg/L except the parameters that the unit is specified.

[a] Rango de pH = 6.5 a 9.0

[b] El criterio de calidad del agua recomendado es aplicable a arsénico total.

[c]El criterio de calidad del agua esta expresado en términos del metal disuelto en la columna de agua.

[d] Dureza ≤ 60 mg $CaCO_3$/L el criterio debe ser 0.0002 mg/L
Dureza >60 y ≤ 120 mg $CaCO_3$/L el criterio debe ser 0.0008 mg/L
Dureza >120 y ≤ 180 mg $CaCO_3$/L el criterio debe ser 0.0013 mg/L
Dureza >180 mg $CaCO_3$/L el criterio debe ser 0.0018 mg/L

[e]El criterio para este metal está expresdo en función de la dureza en la columna de agua. Este valor corresponde a una dureza de 100 mg/L.

[f] Dureza ≤ 60 mg $CaCO_3$/L el criterio debe ser 0.001 mg/L
Dureza >60 y ≤ 120 mg $CaCO_3$/L el criterio debe ser 0.002 mg/L
Dureza >120 y ≤ 180 mg $CaCO_3$/L el criterio debe ser 0.004 mg/L
Dureza >180 mg $CaCO_3$/L el criterio debe ser 0.007 mg/L

[g]Dureza = 10 mg $CaCO_3$/L el criterio debe ser 0.3 mg/L
Dureza = 50 mg $CaCO_3$/L el criterio debe ser 0.7 mg/L
Dureza = 100 mg $CaCO_3$/L el criterio debe ser 1.0 mg/L
Dureza = 500 mg $CaCO_3$/L el criterio debe ser 2.0 mg/L

[h]Dureza = 10 mg $CaCO_3$/L el criterio debe ser 0.03 mg/L
Dureza = 50 mg $CaCO_3$/L el criterio debe ser 0.2 mg/L
Dureza = 100 mg $CaCO_3$/L el criterio debe ser 0.3 mg/L
Dureza = 500 mg $CaCO_3$/L el criterio debe ser 0.5 mg/L

[i]Rango de criterio de calidad del agua para incubación de huevos y desarrollo de larvas.

[j]Rango del criterio de calidad del agua para crecimiento.

[k]El criterio está expresado como mg CN/L

項目数　44

項目 (水供給源)	CAS 番号	mg/L
Aluminium	7429-90-5	0.2
Antimony	7440-36-0	0.005
Arsenic	7440-38-2	0.01
Beryllium	7440-41-7	0.004
Boron	7440-42-8	0.5
Cadmium (compounds)	7440-43-9	0.003
Chloride Ion	16887-00-6	250
Chromium (Vi) Compound	18540-29-9	0.05
Copper And Its Compounds	7440-50-8	2
Cyanide	57-12-5	0.01
Fluorine	7782-41-4	0.7
Iron	7439-89-6	0.3
Lead (compounds)	7439-92-1	0.01
Manganese	7439-96-5	0.05
Mercury (compounds)	7439-97-6	0.0005
Molybdenum	7439-98-7	0.07
Nickel	7440-02-0	0.02
Selenium	7782-49-2	0.01
Sulfate	-	250
Thallium	7440-28-0	0.002
Zinc	7440-66-6	3
Ammonia	7664-41-7	1.5
Nitrate	14797-55-8	10
Nitrite	14797-65-0	3
Biochemical Oxygen Demand (BOD)	-	3
Total Dissolved Solids	-	500
Colour	-	１５TCU
Hardness	-	200

項目 **(水供給源)**	**CAS 番号**	**mg/L**
Odour	-	Not unusual
Oil and grease	-	N.D
Potential Hydrogen, Power Of Hydrogen (pH)	-	6.5-8.5
Turbidity	-	5
Cryptosporidium	-	N.D
Entamoeba hystolitica	-	0/20L
Giardia lamblia	-	0/20L
Helminth eggs	-	N.D
Microcystin-Lr	-	0.001
Total coliform organisms	-	N.D
Toluene	108-88-3	0.024
Ethylbenzene	100-41-4	0.002
1,2,4-Trichlorobenzene	120-82-1	0.005
Monochlorobenzene(Chlorobenzene)	108-90-7	0.03
Sodium	7440-23-5	200
Chlorate	7790-93-4	0.4

		項目数	406
項目 (水生生物の保護)	CAS番号	mg/L	優先
			16
			47
			31
		175	29
			283
Chlorophyll	28302-36-5		4
Heptachlor Epoxide	1024-57-3	0.0000038	1
Endosulfan Sulfate	1031-07-8		4
1,4-Dichlorobenzene	106-46-7	0.06	3
Epichlorohydrin	106-89-8		4
1,2-Dibromoethane	106-93-4		4
Glyphosate	1071-83-6	0.065	4
Bis-2-chloroisopropyl ether	108-60-1		4
Endosulfan	115-29-7	0.0000005	1
Aldicarb	116-06-3	0.001	3
Dichlorprop	120-36-5		4
Malathion	121-75-5	0.00005	3
Fenitrothion	122-14-5	0.0002	3
Simazine	122-34-9	0.001	4
Terbuphos	13071-79-9		4
Captan	133-06-2	0.0013	4
Thiuram	137-26-8	0.0002	4
1,3-Dichloropropane	142-28-9		4
Chlorotoluron	15545-48-9		4
Carbofuran	1563-66-2	0.0012	3

B
1
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4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Trifluralin	1582-09-8	0.00003	4
Alachlor	15972-60-8	0.0003	4
Methomyl	16752-77-5	0.0035	4
Bromoxynil	1689-84-5	0.005	2
Isoxathion	18854-01-8		4
Chlorothalonil	1897-45-6	0.00018	4
Paraquat	1910-42-5		4
Atrazine	1912-24-9	0.0006	4
Dicamba	1918-00-9	0.01	4
Picloram	1918-02-1	0.029	4
O-ethyl O-4-nitrophenyl phenylphosphonothioate	2104-64-5		4
Metribuzin	21087-64-9	0.001	4
Cyanazine	21725-46-2	0.002	4
Molinate	2212-67-1	0.0034	4
Bendiocarb	22781-23-3		4
Triallate	2303-17-5	0.00024	4
Oxamyl	23135-22-0		4
Propyzamide	23950-58-5		4
Bentazone	25057-89-0		4
Iprobenfos	26087-47-8		4
Diquat	2764-72-9	0.0014	4
Thiobencarb	28249-77-6	0.0028	4
Chlorpyrifos	2921-88-2	0.0000035	4
Methyl Parathion	298-00-0		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Phorate	298-02-2		4
Bromacil	314-40-9	0.005	4
delta-Benzene Hexachloride	319-86-8		4
Diuron	330-54-1	0.0002	4
Linuron	330-55-2	0.007	4
beta-Endosulfan	33213-65-9	0.000056	1
Diazinon	333-41-5	0.00001	2
Tebuthiuron	34014-18-1	0.0016	4
Isoproturon	34123-59-6	0.0003	4
Fenobucarb	3766-81-2		4
Pendimethalin	40487-42-1		4
Isodrin	465-73-6	0.000005	4
Chlorfenvinphos	470-90-6	0.0001	4
Isoprothiolane	50512-35-1		4
Metolachlor	51218-45-2	0.0078	4
Trichlorfon	52-68-6		4
Deltamethrin	52918-63-5	0.0000004	4
1,3-Dichloropropene	542-75-6		4
Fenthion	55-38-9		4
Parathion	56-38-2	0.000004	2
Terbuthylazine	5915-41-3		4
Dimethoate	60-51-5	0.00015	4
Dichlorvos	62-73-7		4
Carbaryl	63-25-2	0.0002	3

項目 (水生生物の保護)	CAS番号	mg/L	優先
Esfenvalerate	66230-04-4	0.000001	4
2-(4-Chloro-2-methylphenoxy)propionic acid (Mecoprop)	7085-19-0		4
Methoxychlor	72-43-5	0.00003	1
Dalapon	75-99-0		4
Demeton	8065-48-3	0.0001	4
Guthion	86-50-0	0.00001	4
Pentachlorophenol	87-86-5	0.0004	3
Dinoseb	88-85-7		4
2-(2,4,5-Trichlorophenoxy)propionic acid (Fenoprop)	93-72-1		4
Chlorophenoxy Herbicide (2,4,5,-TP) (SILVEX)	93-72-1		4
2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)	93-76-5	0.036	4
MCPA	94-74-6	0.0026	4
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	0.28	4
4-(2,4-dichlorophenoxy)butyric acid	94-82-6		4
Pyriproxyfen	95737-68-1		4
alpha-Endosulfan	959-98-8	0.000056	2
Tetrachloroethylene	127-18-4	0.01	3
Trichloroethylene	79-01-6	0.01	3
Ammoniacal Nitrogen	-		B
Chlorous Acid (Chlorite)	-		4
Fluoride	-		4
Free residual iodine	-		4
Nitrate Nitrogen	-	0.7	B
Nitrite Nitrogen	-	0.06	B

項目 (水生生物の保護)	CAS番号	mg/L	優先
Organic Nitrogen	-		B
Sulfate	-	100	2
Sulfide	-		4
Total Kjeldahl Nitrogen	-		4
Total Nitrogen	-		B
Total organic carbon	-		4
Total Phosphates	-		4
Total Phosphorus	-		B
Asbest	1332-21-4		4
Orthophosphate	14265-44-2		4
Chloride	16887-00-6	230	2
Sulfur hexafluoride	2551-62-4		4
Hydrazine	302-01-2		4
Cyanogen Chloride	506-77-4		4
Cyanide	57-12-5	0.005	2
Potassium	7440-09-7		4
Sodium	7440-23-5		4
Ammonia	7664-41-7	0.9	2
Fluorine	7782-41-4	0.2	4
Chlorine	7782-50-5	0.0005	1
Hydrogen Sulfide	7783-06-4	0.001	4
Bromic Acid	7789-31-3		4
Chlorate	7790-93-4	30	4
Alkylmercury	-		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Tributyltin (TBT)	-	0.0000002	4
Copper 8-Quinolate	10380-28-6		4
Hexavalent chromium	18540-29-9	0.001	2
Aluminium	7429-90-5	0.055	1
Iron	7439-89-6	0.3	2
Lead	7439-92-1	0.001	2
Lithium	7439-93-2		4
Magnesium	7439-95-4		4
Manganese	7439-96-5	1.9	2
Mercury	7439-97-6	0.000026	2
Molybdenum	7439-98-7	0.073	4
Nickel	7440-02-0	0.011	2
Silver	7440-22-4	0.00005	1
Thallium	7440-28-0	0.0008	4
Antimony	7440-36-0		4
Arsenic	7440-38-2	0.005	2
Barium	7440-39-3		4
Beryllium	7440-41-7		4
Boron	7440-42-8	0.37	3
Cadmium	7440-43-9	0.000017	1
Chromium	7440-47-3	0.0089	2
Cobalt	7440-48-4	0.11	4
Copper	7440-50-8	0.0014	2
Uranium	7440-61-1		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Vanadium	7440-62-2		4
Zinc	7440-66-6	0.008	1
Calcium	7440-70-2		4
Selenium	7782-49-2	0.001	4
Absorbable Organic Halogen	-		4
Alcohol ethoxylated sulfate (AES)	-	0.65	4
Alcohol ethoxylated surfactants (AE)	-	0.14	4
Chloroacetic Acid	-		4
Haloacetic acids (HAA5)	-		4
Halomethanes	-		4
Hydrobromofluorocarbons (HBFC)	-		4
Hydrofluorocarbons	-		4
Methylene blue active substances (MBAS)	-		B
Non-halogenated organic compounds	-		4
Perfluorocarbons (PFC)	-		4
Polycyclic Aromatic Hydrocarbons (PAH)	-		4
Purgeable Absorbable Organic Halogen	-		4
Thermotolerant Organisms	-		4
Total Trihalomethanes	-		4
p-Nitrophenol	100-02-7		4
Ethylbenzene	100-41-4	0.09	3
Styrene	100-42-5	0.072	2
4-Bromophenyl Phenyl Ether	101-55-3		4
Diethylhexyl Adipate	103-23-1		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Azobenzene	103-33-3		4
n-Propylbenzene	103-65-1		4
n-Butylbenzene	104-51-8		4
2,4-Xylenol	105-67-9		4
Chloramine	10599-90-3		4
p-Xylene	106-42-3	0.2	3
4-Chlorotoluene	106-43-4		4
p-Cresol	106-44-5		4
p-Chlorophenol	106-48-9	0.022	4
1,3-Butadiene	106-99-0		4
Acrolein	107-02-8		4
1,2-Dichloroethane	107-06-2	0.01	3
Acrylonitrile	107-13-1		4
Ethylene Glycol	107-21-1		4
m-Xylene	108-38-3		4
m-Cresol	108-39-4		4
m-Chlorophenol	108-43-0	0.042	4
1,3,5-Trimethylbenzene	108-67-8		4
Bromobenzene	108-86-1		4
Toluene	108-88-3	0.002	1
Chlorobenzene	108-90-7	0.0013	4
Phenol	108-95-2	0.004	2
2-Chloroethylvinyl Ether	110-75-8		4
2-Ethoxyethanol	110-80-5		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Pyridine	110-86-1		4
Diisopropanolamine	110-97-4	1.6	4
Bis(2-Chloroethyl) Ether	111-44-4		4
Bis-2-Chloroethoxymethane	111-91-1		4
Bis(2-ethylhexyl)phtalato	117-81-7	0.016	2
Diocthylphtalate	117-84-0		4
2,4,6-Trinitrotoluene	118-96-7	0.14	4
Trichlorobenzenes	12002-48-1	0.0004	4
Anthracene	120-12-7	0.000012	1
1,2,4-Trichlorobenzene	120-82-1	0.024	3
2,4-Dichlorophenol	120-83-2	0.0072	3
2,4-Dinitrotoluene	121-14-2	0.065	3
1,2-Diphenylhydrazine	122-66-7		4
1,4-Dioxane	123-91-1		4
Dibromochloromethane	124-48-1		4
Sulfolane	126-33-0	50	4
Pyrene	129-00-0	0.0000025	2
Dimethylphthalate	131-11-3	3.7	3
Methylnaphthalene	1321-94-4		4
Xylene	1330-20-7		4
Dinitro-O-Cresol	1335-85-9		4
sec-butylbenzene	135-98-8		4
Nitrilotriacetic Acid	139-13-9		4
Endothal	145-73-3		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
cis-1,2-Dichloroethylene	156-59-2		4
trans-1,2-Dichloroethylene	156-60-5		4
2-Methyl-4-Chlorophenol	1570-64-5		4
2,3,4-Trichlorophenol	15950-66-0	0.006	4
Methyl ter-butylether(MTBE)	1634-04-4	10	3
1,1-Dichloro-1-Fluoroethane (HCFC-141b)	1717-00-6		4
4-n-Octhylphenol	1806-26-4	0.00001	4
Benzo[G,H,I]Perylene	191-24-2	0.000002	1
Indeno[1,2,3-Cd]Pyrene	193-39-5		4
4-Bromophenyl ether	2050-47-7		4
Benzo[B]Fluoranthene	205-99-2	0.00003	2
Fluoranthene	206-44-0	0.0001	2
Benzo[K]Fluoranthene	207-08-9		4
Acenaphthylene	208-96-8		4
Chrysene	218-01-9		4
Nonylphenol	25154-52-3	0.0003	2
Nitrophenol	25154-55-6		4
Monochlorophenol	25167-80-0	0.007	4
Dichlorophenol	25167-81-1	0.0002	4
Trichlorophenol	25167-82-2	0.018	4
Acrolein	25314-61-8		4
Dichlorobenzene	25321-22-6		4
Tetrachoroethene	25322-20-7		4
Trimethylbenzene	25551-13-7		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Chloronaphthalenes	25586-43-0		4
Trichloropropane	25735-29-9		4
Acridine	260-94-6	0.0044	4
Toluene diisocyanate	26471-62-5		4
2-Chloro-1,1,2,2-Tetrafluoroethane	2837-89-0		4
Anisidine	29191-52-4		4
Dichloroacetonitrile	3018-12-0		4
2,2-Dichloro-1,1,1-Trifluoroethane	306-83-2		4
Dibromoacetonitrile	3252-43-5		4
Bromochlorodifluoromethane	353-59-3		4
3,3-Dichloro-1,1,1,2,2-Pentafluoropropane	422-56-0		4
Linear Alkylbenzenesulfonate	42615-29-2	0.28	4
2,3,4,5-tetrachlorophenol	4901-51-3	0.0047	4
Formaldehyde	50-00-0		4
Benzo[A]Pyrene	50-32-8	0.000015	4
1,3-Dichloro-1,1,2,2,3-Pentafluoropropane (HCFC-225cb)	507-55-1		4
2,4-Dinitrophenol	51-28-5	0.045	4
2-Methyl-4,6-Dinitrophenol	534-52-1		4
Dibenzo[A,H]Anthracene	53-70-3		4
1,2-Dichloroethylene	540-59-0		4
m-Dichlorobenzene	541-73-1	0.26	3
Bis (Chloromethyl)Ether	542-88-1		4
n-Nitrosodiethylamine	55-18-5		4
2,4-Dichloroaniline	554-00-7	0.007	4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Carbon Tetrachloride	56-23-5	0.012	3
1,2-Dichloropropylene	563-54-2		4
1,1-Dichloropropene	563-58-6		4
Benzo[A]Anthracene	56-55-3	0.000018	4
Propylene Glycol	57-55-6	500	4
2,3-Dichlorophenol	576-24-9	0.014	4
2,5-Dichlorophenol	583-78-8	0.0062	4
2,3,4,6-Tetrachlorophenol	58-90-2	0.013	4
3,5-dichlorophenol	591-35-5	0.0056	4
4-Chloro-3-methylphenol	59-50-7		4
Ethylenediaminetetraacetic Acid (EDTA)	60-00-4		4
2,6-Dinitrotoluene	606-20-2		4
3,4,5-Trichlorophenol	609-19-8	0.0024	4
3-Methyl-6-Chlorophenol	615-74-7		4
n-Nitrosodipropylamine	621-64-7		4
Aniline	62-53-3	0.0022	3
n-Nitrosodimethylamine	62-75-9		4
1,1,1,2-Tetrachloroethane	630-20-6		4
Dibromoacetic Acid	631-64-1		4
1,2,3,4-Tetrachlorobenzene	634-66-2	0.0018	4
Ethanol	64-17-5	1.4	4
Chloroform	67-66-3	0.0018	2
Hexachloroethane	67-72-1	0.36	3
Benzene	71-43-2	0.008	2

項目 (水生生物の保護)	CAS番号	mg/L	優先
1,1,1-Trichloroethane	71-55-6		4
4-Methylphenol	72269-62-6		4
Endrin Aldehyde	7421-93-4		4
Bromomethane	74-83-9		4
Chloromethane	74-87-3		4
Bromochloromethane	74-97-5		4
Vinyl chloride	75-01-4		4
Acetaldehyde	75-07-0		4
Dichloromethane	75-09-2	0.02	4
Bromoform	75-25-2		4
Bromodichloromethane	75-27-4		4
1,1-Dichloroethane	75-34-3		4
1,1-Dichloroethene	75-35-4		4
Chlorodifluoromethane	75-45-6		4
Trimethylamine	75-50-3		4
Bromotrifluoromethane	75-63-8		4
1-Chloro-1,1-Difluoroethane	75-68-3		4
Trichlorofluoroethane	75-69-4		4
Dichlorodifluoromethane	75-71-8		4
9-Chlorotrifluoromethane	75-72-9		4
Trichloroacetaldehyde	75-87-6		4
Trichloroacetic Acid	76-03-9		4
1,1,2-Trichlorotrifluoroethane	76-13-1		4
Dichlorotetrafluoroethane	76-14-2		4

項目 (水生生物の保護)	CAS番号	mg/L	優先
Chloropentafluoroethane	76-15-3		4
Hexachlorocyclopentadiene	77-47-4		4
Isophorone	78-59-1		4
1,2-Dichloropropane	78-87-5		4
1,1,2-Trichloroethane	79-00-5	6.5	3
Acrylamide	79-06-1		4
Bromoacetic Acid	79-08-3		4
Chloroacetic Acid	79-11-8		4
1,1,2,2-Tetrachloroethane	79-34-5		4
Dichloroacetic Acid	79-43-6		4
2-Nitropropane	79-46-9		4
Warfarin	81-81-2		4
Acenaphthene	83-32-9	0.0058	2
Diethyl phthalate	84-66-2	1	3
Dibutyl phthalate	84-74-2	0.019	2
Phenanthrene	85-01-8	0.0004	3
C10-13-Chloroalkanes	85535-84-8	0.0004	4
Butylbenzyl Phthalate	85-68-7		4
n-Nitrosodiphenylamine	86-30-6		4
Fluorene	86-73-7	0.003	2
1,2,3-Trichlorobenzene	87-61-6	0.008	4
2,6-Dichlorophenol	87-65-0	0.025	4
Hexachlorobutadiene	87-68-3	0.0001	2
2,4,6-Trichlorophenol	88-06-2	0.015	4

項目 (水生生物の保護)	CAS番号	mg/L	優先
2-Nitrophenol	88-75-5		4
Poly(acrylonitrile-co-butadiene-co-styrene)	9003-56-9		4
Naphthalene	91-20-3	0.001	2
2-Chloronaphthalene	91-58-7		4
2-Naphthylamine	91-59-8		4
3,3'-Dichlorobenzidine	91-94-1		4
N-Nitrosodibutylamine	924-16-3		4
1,1'-Biphenyl	92-52-4		4
4-Amino diphenyl	92-67-1		4
Benzidine	92-87-5		4
4-Nitrodiphenyl	92-93-3		4
N-Nitrosopyrrolidine	930-55-2		4
2,3,6-Trichlorophenol	933-75-5	0.02	4
2,3,5-Trichlorophenol	933-78-8	0.0061	4
2,3,5,6-tetrachlorophenol	935-95-5	0.0061	4
1,2,4-Trimethylbenzene	95-36-3		4
o-Xylene	95-47-6	0.35	3
2-Chlorotoluene	95-49-8		4
1,2-Dichlorobenzene	95-50-1	0.16	3
2-Chlorophenol	95-57-8	0.048	4
3,4-Dichloroaniline	95-76-1	0.003	4
3,4-Dichlorophenol	95-77-2	0.0074	4
1,2,4,5-Tetrachlorobenzene	95-94-3		4
2,4,5-Trichlorophenol	95-95-4	0.056	3

項目 (水生生物の保護)	CAS番号	mg/L	優先
1,2-Dibromo-3-chloropropane	96-12-8		4
t-butylbenzene	98-06-6		4
Isopropylbenzene	98-82-8		4
Acetophenone	98-86-2		4
Nitrobenzene	98-95-3	0.55	3
p-Isopropyltoluene	99-87-6		4
Alkalinity	-	20	B
Biochemical Oxygen Demand (BOD)	-		B
Chemical oxygen demand (COD)	-		B
Dissolved Oxygen (Dissolved Freshwater / Dissolved Saltwater)	-	5.5<	B
Hardness	-		B
Oil and grease	-		B
pH	-	6.5-9.0	B
Temperature	-		B
Total Suspended solids (TSS)	-		B
Dioxins	-		1
Furans	-		1
DDT Total	107917-42-0	0.000001	1
Aroclor 1260	11096-82-5		1
Aroclor 1254	11097-69-1	0.00003	1
Aroclor 1221	11104-28-2		1
Aroclor 1232	11141-16-5		1
Hexachlorobenzene	118-74-1	0.00001	1
Aroclor 1248	12672-29-6		1

項目 (水生生物の保護)	CAS番号	mg/L	優先
Aroclor 1016	12674-11-2		1
Polychlorinated Biphenyl (PCB)	1336-36-3	0.0000001	1
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	1746-01-6		1
Mirex	2385-85-5	0.000001	1
Aldrin	309-00-2	0.000005	1
4,4'-DDT	50-29-3	0.000001	1
Aroclor 1242	53469-21-9	0.0006	1
Chlordane	57-74-9	0.0000043	1
Dieldrin	60-57-1	0.000005	1
Endrin	72-20-8	0.000005	1
4,4'-DDD	72-54-8		1
4,4'-DDE	72-55-9		1
Heptachlor	76-44-8	0.0000038	1
Toxaphene	8001-35-2	0.000002	1
Chlordecone	143-50-0		1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1		1
Perfluorooctanesulfonyl fluoride	307-35-7		1
alpha-Benzene Hexachloride	319-84-6		1
beta-Benzene Hexachloride	319-85-7		1
Pentabromodiphenyl Ether	32534-81-9	0.0000002	1
Hexabromobiphenyl	36355-01-8		1
Hexabromodiphenyl ether	36483-60-0		1
Tetrabromodiphenyl ether	40088-47-9		1
Lindane (Gamma-Hexachlorocyclohexane)	58-89-9	0.000002	1

項目 (水生生物の保護)	CAS番号	mg/L	優先
Pentachlorobenzene	608-93-5	0.0000007	1
Heptabromodiphenyl ether	68928-80-3		1

Yellow hi-lighted parameter (category B) is the basic paramters that must be at least monitored.

APPENDIX 6

項目選定理由（農業灌漑）

	項目	CAS 番号	MPC (mg/L)	潜在的健康影響	一般的排出源	備考	参照
1	Antimony	7440-36-0	0.0056	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	WHO, IRIS (USEPA)	1
2	Arsenic	7440-38-2	0.02	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer.	Erosion of natural deposits; runoff from orchands, runoff from glass & electronic production wastes	WHO, IRIS (USEPA)	1,2
3	Cadmium	7440-43-9	0.003	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.	WHO, IRIS (USEPA)	1
4	Chromium	18540-29-9	0.05	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits		1
5	Copper	7440-50-8	1.3	Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage.	Corrosion of household plumbing systems; erosion of natural deposits.		1
6	Lead	7439-92-1	0.0072	Infants and children: delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure.	Corrosion of household plumbing systems; erosion of natural deposits.	WHO	1
7	Mercury (inorganic)	7439-97-6	0.00007	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands.	WHO	1
8	Molybdenum	7439-98-7	0.07	No data are available on the carcinogenicity by the oral route.	Naturally in soil and is used in the manufacture of special steels and in the production of tungsten and pigments.	WHO, IRIS (USEPA)	2
9	Nickel	7440-02-0	0.02	Inhaled nickel compounds are carcinogenic to humans and metallic nickel is possibly carcinogenic. However, there is a lack of evidence of a carcinogenic risk from oral exposure. Allergic contact dermatitis is the most prevalent effect in the general population.	Mainly in the production of stainless steel and nickel alloys. There is heavy pollution, where there are areas in which nickel that naturally occurs in groundwater is mobilized or where there is use of certain types of kettles, of non-resistant material in wells or of water that has come into contact with nickel- or chromium-plated taps, the nickel contribution from water may be significant.	WHO	2

10	Selenium	7782-49-2	0.01	Hair or fingernail loss, numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries ; erosion of natural deposits; discharge from mines	WHO, IRIS (USEPA)	1
11	Thallium	7440-28-0	0.00024	Hair loss; changes in blood; kidney, intestine or liver problems.	Leaching from ore-processing sites; discharge from electronics, glass and drug factories.		1
12	Zinc	7440-66-6	7.4	Decreases in erythrocyte Cu, Zn-superoxide dismutase (ESOD) activity in healthy adult male and female volunteers	Essential trace element found in all food and potable water in the form of salts or organic complexes. Diet is normally the principal source. Concentrations in tap water can be much higher than groundwater and surface water as a result of dissolution of zinc from pipes.	IRIS (USEPA)	2, 4
13	Asbestos	1332-21-4	7 million fibers/L	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits		1
14	Barium	7440-39-3	0.7	Increase in blood pressure.	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	IRIS (USEPA)	1
15	Boron	7440-42-8	0.5	Damage in male reproductive tract, testicular lesions.	Used in the manufacture of glass, soaps and detergents and as flame retardants, generally through food intake, naturally found in groundwater, in surface water due to discharge of treated sewage effluent.	WHO, IRIS (USEPA)	2
16	Cyanide	-	0.014	Nerve damage or thyroid problems	Discharge from steel / metal factories ; discharge from plastic and fertilizer factories	WHO, IRIS (USEPA)	1
17	Fluorine	7782-41-4	1.5	Musculoskeletal, Reproductive (Testicular), Neurological, Rena problems. Chronic exposure: Increased risk of bone fractures in humans.	The general population can be exposed to fluorides in contaminated air, food, drinking water and soil.	IRIS (USEPA)	
18	Manganese	7439-96-5	0.4	Neurological effects following inhalation exposur1rticularly in occupational settings,	Naturally found in groundwater and surface sources, and occurs naturally in many food sources	IRIS (USEPA)	2
19	Nitrate (as NO3-)	14797-55-8	50 Short-term exposure	Infants below the age of six months could become seriously ill, and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.	IRIS (USEPA)	1
20	Nitrilotriacetic acid	139-13-9	0.2	Kidney tumours	used primarily in laundry detergents as a replacement for phosphates and in the treatment of boiler water to prevent		2

	(NTA)				accumulation of mineral scale.		
21	Nitrite (as NO2-)	14797-65-0	3: Short-term 0.2: Long-term	Infants below the age of six months could become seriously ill, and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.	IRIS (USEPA)	1
22	Uranium	7440-61-1	0.015	Increased risk of cancer, kidney toxicity	Erosion of natural deposits		1
23	1,4-Dioxane	-	0.05	Hepatic and nasal cavity tumours in long term intake. Tumours in peritoneum, skin and mammary gland increase in the incidence of liver cancer.	Used as a stabilizer in chlorinated solvents and as a solvent for resins, oils and waxes, for agricultural and biochemical intermediates and for adhesives, sealants, cosmetics, pharmaceuticals, rubber chemicals and surface coatings.	IRIS (USEPA)	2
24	2,3,7,8-TCDD (Dioxin)	1746-01-6	5E-12	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories.		1
25	Acrolein	107-02-8	0.003	Breathing large amounts damages the lungs and could cause death. Breathing lower amounts may cause eye watering and burning of the nose and throat and a decreased breathing rate	May be found in soil, water, or air. It breaks down fairly rapidly in the air. Smoking tobacco or breathing air containing tobacco smoke.	IRIS (USEPA)	3
26	Acrylonitrile	107-13-1	0.000051	Breathing: nose and throat irritation, tightness in the chest, difficulty breathing, nausea, dizziness, weakness, headache, impaired judgment, and convulsions. Skin: burn and produce redness and blisters. Children have died following exposure to vapors that caused only minor nose and throat irritation in adults.	Found in the soil, water, or air near industrial sites where it is made, or at hazardous waste sites where it has been disposed of. Most of it is released to the air from facilities where it is produced and used.		3
27	Benzene	71-43-2	0.009	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and distribution lines	WHO, IRIS (USEPA)	1
28	Carbon tetrachloride	56-23-5	0.00023	Liver problems, increased risk of cancer	Discharge from chemical plants and other industrial activities.	WHO, IRIS (USEPA)	1
29	Chloro benzene	108-90-7	0.13	Liver or kidney problems	Discharge from chemical and agricultural chemical factories.	IRIS (USEPA)	1
30	1,2-Dichloro ethane	107-06-2	0.00038	Increased risk of cancer	Discharge from industrial chemical factories	IRIS (USEPA)	1

31	1,1-Dichloro ethylene	75-35-4	0.33	Liver problems	Discharge from industrial chemical factories	IRIS (USEPA)	1
32	1,2-Dichloro propane	78-87-5	0.0005	Increased risk of cancer	Discharge from industrial chemical factories	WHO	1
33	Ethyl benzene	100-41-4	0.3	Liver or kidney problems	Discharge from petroleum refineries	IRIS (USEPA)	1
34	Methyl Bromide	74-83-9	0.047	Convulsions, coma, and long-term neuro-muscular and cognitive deficits. Inflammation of the bronchi or lungs, an accumulation of fluid in the lung, and irritation of the eyes and nose. Tearing. Skin: systemic toxicity and may cause stinging pain and blisters.	Most exposures occur by inhalation and by absorption through the skin.		3
35	Methylene Chloride	75-09-2	0.0046	Breathing it can damage the central nervous system. Contact of eyes or skin can result in burns.	Exposure occurs mostly from breathing contaminated air, but may also occur through skin contact or by drinking contaminated water.	IRIS (USEPA)	3
36	1,1,2,2-Tetra chloroethane	79-34-5	0.00017	Breathing, drinking, or touching large amounts for a long period of time can cause liver damage, stomachaches, or dizziness.	It is not commonly found in drinking water, soil, or food. Higher concentrations in private well water that may have been used for drinking.	IRIS (USEPA)	3
37	Tetrachloro ethylene	127-18-4	0.00069	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	IRIS (USEPA)	1
38	Toluene	108-88-3	0.7	Nervous system, kidney or liver problems	Discharge from petroleum factories	WHO, IRIS (USEPA)	1
39	1,2-Trans-Di chloroethyle ne	156-60-5	0.14	Liver problems	Discharge from industrial chemical factories	IRIS (USEPA)	1
40	1,1,2-Tri chloroethene	79-00-5	0.00059	Liver, kidney, and nervous system damage	Formed when another chemical breaks down in the environment under conditions where there is no air.	IRIS (USEPA)	3
41	Trichloro ethylene	79-01-6	0.0025	Nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death. Exposure to high concentrations can lead to hepatic steatosis (fatty liver)	For cleaning metal parts. It can remain in ground water for a long time. It is found mainly in the atmosphere, although it is mobile in soils and readily migrates to groundwaters. Found in only a small proportion of surface waters and groundwaters	IRIS (USEPA) WHO	2, 3

42	Vinyl chloride	75-01-4	0.000025	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	IRIS (USEPA)	1
43	2-Chloro phenol	95-57-8	0.081	Data on the toxicity are limited.	Present in drinking-water as a result of the chlorination of phenols, as by-products of the reaction of hypochlorite with phenolic acids, as biocides or as degradation products of phenoxy herbicides.	IRIS (USEPA)	2
44	2,4-Dichloro phenol	120-83-2	0.077	Data on the toxicity are limited.	Present in drinking-water as a result of the chlorination of phenols, as by-products of the reaction of hypochlorite with phenolic acids, as biocides or as degradation products of phenoxy herbicides.	IRIS (USEPA)	2
45	2,4-Dimethylphenol (2,4-Xylenol)	105-67-9	0.3	At low levels: cataracts, serious skin rashes, and decreases in white blood cells. High levels: increased heart and breathing rates, and even death.	Enters the air, water, and soil during its manufacture and use. Enter the environment through landfill and storage tank leaks, or accidental spills during manufacture or transport. Bottom sediment in rivers.	WHO, IRIS (USEPA)	3
46	2-Methyl-4, 6-Dinitro phenol	534-52-1	0.013	Corrosive to the eyes and irritating to the skin. Yellow staining of the skin. The substance may cause effects on the metabolic rate. Exposure at high levels may result in death.	Insecticide, Fungicide, Herbicide, Defoliant.		3,7
47	2,4-Dinitrophenol	51-28-5	0.069	Low levels: cataracts, serious skin rashes, and decreases in white blood cells. High levels: increased heart and breathing rates, and even death.	Do not occur naturally in the environment, enters the air, water, and soil during its manufacture and use. Landfill and storage tank leaks or accidental spills during manufacture or transport.	IRIS (USEPA)	3
48	Pentachloro-benzene	608-93-5	0.0000007	Liver and kidney toxicity.	PCB products, fungicides and production of pentachloronitrobenzene. PecB is also produced unintentionally during the combustion of some industrial thermal processes. Appears as an impurity in certain products such as pesticides.	IRIS (USEPA)	5
49	Pentachloro-phenol	87-86-5	0.00027	Potential carcinogen.	Food is usually the major source of exposure.	IRIS (USEPA)	2
50	Phenol	108-95-2	10	Skin burns, liver damage, dark urine, irregular heartbeat, and even death.	Phenolic resins, manufacture of nylon and other synthetic fibers. Slimicides. Medicinal preparations such as mouthwash and sore	IRIS (USEPA)	3

					throat lozenges.		
51	2,4,6-Trichlorophenol	88-06-2	0.0014	Lymphomas and leukaemias and hepatic tumours	In drinking-water as a result of the chlorination of phenols, as by-products of the reaction of hypochlorite with phenolic acids, as biocides or as degradation products of phenoxy herbicides.	IRIS (USEPA)	3
52	Acenaphthene	83-32-9	0.67	Hepatotoxicity.	Preparation of dyes, pesticides and pharmaceuticals. It does not appear to be carcinogenic.	IRIS (USEPA)	7
53	Anthracene	120-12-7	0.004	No observed effects	Artificial production of the red dye alizarin. It is also used in wood preservatives, insecticides, and coating materials.	IRIS (USEPA)	7
54	Benzidine	92-87-5	0.000000086	Increased risk of urinary bladder cancer.	The general population is not likely to be exposed, but people living near uncontrolled hazardous waste sites may be exposed.	IRIS (USEPA)	3
55	Benzo (a) Anthracene	56-55-3	0.0000038	Carcinogenic to humans.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense		7
56	Benzo (a) Pyrene	50-32-8	0.0000038	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	IRIS (USEPA)	1
57	Benzo (b) Fluoranthene	205-99-2	0.0000038	Carcinogenic. May cause genetic damage.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense		7
58	Benzo (k) Fluoranthene	207-08-9	0.0000038	Carcinogenic to humans.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense	IRIS (USEPA)	7
59	Ideno(1,2,3-cd)Pyrene	193-39-5	0.0000038	Carcinogenic to humans.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense		7
60	Indeno (1,2,3-Cd) Pyrene	193-39-5		No data are available for humans for the oral route of exposure.	Enters the environment via the atmosphere from a variety of combustion processes and pyrolysis sources. The main source in drinking-water is usually the coal-tar coating of drinking-water distribution pipes, used to protect the pipes from corrosion.		2
61	Bis(2-Chloroethyl) Ether	111-44-4	0.00003	Irritating to the skin, eyes, nose, throat, and lungs	Discharge from chemical factories	IRIS (USEPA)	3

62	Bis(2-Chloroisopropyl) Ether	108-60-1	1.4	Decrease in hemoglobin and possible erythro-cyte destruction	Has been used as an intermediate in manufacturing of dyes, resins, and pharmaceuticals; used in textile processes		4
63	Bis (2-Ethyl hexyl) Phthalate (DEHP)	117-81-7	0.008	Reproductive difficulties, liver problems; increased risk of cancer	Discharge from rubber and chemical factories	WHO, IRIS (USEPA)	1
64	Butylbenzyl PhthalateW	85-68-7	1.5	Toxicity to human reproduction or developrment.	Plasticizer for vinyl foams, which are often used as floor tiles. Other uses are in traffic cones, food conveyor belts, and artificial leather.	IRIS (USEPA)	7
65	2-Chloro naphthalene	91-58-7	1	May cause eye and skin irritation. and respiratory and digestive tract irritation. The toxicological properties have not been fully investigated.	The manufacturing of chlorinated naphthalenes has been discontinued in the USA since 1977.	IRIS (USEPA)	8
66	Chrysene	218-01-9	0.0000038	Carcinogenic to humans. Human population studies have associated PAH's exposure with cancer and cardiovascular diseases.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense		7
67	Dibenzo (a,h) Anthracene	53-70-3	0.0000038	Effects on the skin, resulting in photosensitization. This substance is probably carcinogenic to humans.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense		7
68	1,2-Dichloro benzene	95-50-1	0.42	Affects mainly the liver and kidneys	Sources of human exposure are predominantly air and food. Rarely found in drinking-water.	WHO, IRIS (USEPA)	2
69	1,3-Dichloro benzene	541-73-1	0.32	Not enough toxicological data	Sources of human exposure are predominantly air and food. Rarely found in drinking-water.		2
70	1,4-Dichloro benzene	106-46-7	0.063	Increases the incidence of renal tumours and of hepatocellular adenomas and carcinomas.	Sources of human exposure are predominantly air and food.	WHO	2
71	3,3'-Dichloro benzidine	91-94-1	0.000021	Sore throat, respiratory infections, stomach upset, headache, dizziness, burns, and dermatitis. Tumors in a variety of organs in animals	Discharge from pigments for printing inks, textiles, plastics and enamels, paint, leather, and rubber factories.		3
72	Diethyl PhthalateW	84-66-2	17	Health effects have not been reported	Exposure occurs in use of plastics that contain it, and when eating food from plastic containers made with it.	IRIS (USEPA)	3

73	Dimethyl Phthalate W	131-11-3	270	Suspected Inmunotoxicant, neurotoxicant, respiratory toxicant and skin or sense organ toxicant.	Insecticides		7
74	Di-n-Butyl PhthalateW	84-74-2	2	No harmful effects have been found in humans.	In the environment due to household products, and most people are exposed to low levels in the air, water, and food	IRIS (USEPA)	3
75	2,4-Dinitrotolluene	121-14-2	0.00011	High levels may affect the nervous system and the blood.	Discharges from factories that produce flexible polyurethane foams used in the bedding and furniture industries.	IRIS (USEPA)	3
76	Nonylphenol	25154-52-3	0.002	Digestive system, eye, kidney, liver, reproductive system, skin, throat and the unborn child.	Dispersive use of preparations, such as in pesticides, detergents etc. Releases can also occur resulting from manufacture and use in and to produce other products, and through the degradation of nonylphenol ethoxylates. Releases primarily to land and water.		7
77	4-n-Octhylphenol	1806-26-4	0.0001	No human health effects have been identified	Dispersive use of preparations, such as in pesticides, detergents etc. Releases can also occur resulting from manufacture and use in and to produce other products, and through the degradation of octylphenol ethoxylates. Releases primarily to land and water.		7
78	1,2-Dipheny l hydrazine	122-66-7	0.000036	No harmful effects on people have been reported.	Used to make certain medicines.		3
79	Fluoranthene	206-44-0	0.001	Increased serum glutamate – pyruvate transaminase levels, kidney and liver pathology, and clinical and haematological changes	Commonly detected in drinking-water and is associated primarily with coal-tar linings of cast iron or ductile iron distribution pipes. Has been detected in a variety of foods as a result of the deposition of airborne PAHs and in fish from contaminated waters.	IRIS (USEPA)	2
80	Fluorene	86-73-7	1.1	Data not available	Occurs in the higher boiling fractions of coal tar. used to make dyes, plastics, and pesticides. It can be found in corn silk and engine exhaust gas	IRIS (USEPA)	8
81	Hexachlorobenzene	118-74-1	0.00000028	Liver or kidney problems. Reproductive difficulties, increased risk of cancer.	Discharge from metal refineries and agricultural chemical factories.	IRIS (USEPA)	1
82	Hexachlorobutadiene	87-68-3	0.00044	Kidney tumours	In the effluents from chemical manufacturing plants. It is also found in air	WHO, IRIS (USEPA)	2

					and food.		
83	Hexachloro cyclopentadiene	77-47-4	0.04	Kidney or stomach problems	Discharge from chemical factories.	IRIS (USEPA)	1
84	Hexachloro ethane	67-72-1	0.0014	Liver and kidney damage. Mild skin irritation.	Can be released to the environment during its production, use, transport, or disposal.	IRIS (USEPA)	7
85	Isophorone	78-59-1	0.035	Irritation of the skin, eyes, nose, and throat, and dizziness and fatigue.	Vapors of isophorone and other chemicals in the printing industry.	IRIS (USEPA)	3
86	Naphthalene	91-20-3	0.0024	Damage or destroy some of your red blood cells.	Breathing air contaminated from the burning of wood, tobacco, or fossil fuels, industrial discharges, or moth repellents.	IRIS (USEPA)	3
87	Nitrobenzene	98-95-3	0.017	Repeated exposures to high levels result in a blood disorder.	Water from industrial releases.	IRIS (USEPA)	3
88	N-Nitrosodimethylamine	62-75-9	0.00000069	Gastric or colorectal cancer.	In drinking-water through the degradation of dimethylhydrazine and other industrial processes. Certain pesticides. Disinfection by-product of chloramination and, to some extent, chlorination.	IRIS (USEPA)	2
89	N-Nitrosodi-n-Propylamine	621-64-7	0.000005	May cause cancer	Contaminated products or from disposal of waste containing this chemical.	IRIS (USEPA)	3
90	N-Nitrosodiphenylamine	86-30-6	0.0033	Blader and kidney damage.	Hazardous waste sites, by drinking contaminated water, contaminated soil and dust.	IRIS (USEPA)	3
91	Pyrene	129-00-0	0.83	Exposure to sun may provoke an irritating effect of pyrene on skin and lead to chronic skin discoloration.	Formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense	IRIS (USEPA)	7
92	Trichlorobenzenes	12002-48-1	0.0004	Liver toxicity	General population exposure will primarily result from air and food.		2
93	1,2,4-Trichloro benzene	120-82-1	0.035	Changes in adrenal glands	Discharge from textile finishing factories	WHO, IRIS (USEPA)	1
94	C10-13-Chloroalkanes	85535-84-8	0.0014	May affect the kidney, liver and thyroid gland, and may cause cancer.	Mainly released to water as a result of fugitive emissions during manufacture and use as metal working fluids.		6
95	Pentabromo diphenyl Ether	32534-81-9	0.0000005	Possible human carcinogen. PBDEs dissolve readily in fat, they can accumulate in breast milk and may be	PBDEs are flame-retardant chemicals that are added to a variety of consumer products to make them difficult to burn. PBDEs	WHO, IRIS (USEPA)	5

				transferred to babies and young children.	enter air, water, and soil during their manufacture and use in consumer products.		
96	Tributyltin Compounds	688-73-3	0.0000015	Excessive exposure to tributyl tin oxide may affect the digestive system, eye, immune system, lung and skin.	A group of compounds such as tributyltin hydride, tributyltin fluoride, tributyltin chloride or tributyltin oxide (TBTO), used as pesticides and biocides in marine antifouling paints and in wood preservatives.		6
97	Hexachlorocyclohexane	608-73-1	0.00004	Toxic to the kidney and liver after administration orally, dermally or by inhalation in short-term and long-term	Mainly via food, but this is decreasing. There may also be exposure from its use in public health and as a wood preservative.	IRIS (USEPA)	2
98	Aldrin	309-00-2	0.000000049	Central nervous system and liver toxicity	Chlorinated pesticide that is used against soil-dwelling pests, for wood protection	IRIS (USEPA)	2
99	Alpha-BHC	319-84-6	0.0000026	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	IRIS (USEPA)	1
100	Beta-BHC	319-85-7	0.0000091	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	IRIS (USEPA)	1
101	Gamma-BHC (Lindane)	58-89-9	0.002	Liver or kidney problems	Runoff/leaching from insecticide use don cattle, lumber, gardens	WHO, IRIS (USEPA)	1
102	Chlordane	57-74-9	0.0000008	Liver or nervous system problems, increased risk of cancer	Residue of banned termiticide	WHO, IRIS (USEPA)	1
103	DDT and Metabolites	107917-42-0	0.000025	Liver tumours. Hepatic effects include increased liver weights, hypertrophy, hyperplasia, induction of microsomal enzymes, cell necrosis, increased activity of serum liver enzymes and mitogenic effects, which might be related to a regenerative liver response to DDT.	Pesticide once widely used to control insects in agriculture and insects that carry diseases such as malaria. Food is the major source of intake	WHO	2
104	4,4'-DDT	50-29-3	0.00000022	Affect the nervous system causing excitability, tremors and seizures.	Foods containing small amounts of these compounds	IRIS (USEPA)	3
105	4,4'-DDE	72-55-9	0.00000022	Can cause a reduction in the duration of lactation and an increased chance of having a premature baby	DDE and DDD are chemicals similar to DDT that contaminate commercial DDT preparations. DDE has no commercial use.	IRIS (USEPA)	3, 5

106	4,4’-DDD	72-54-8	0.00000031	Short-term exposure affects the nervous system, while long-term exposure amounts affects the liver. Harmful effects on reproduction.	DDD was also used to kill pests, but its use has also been banned. Foods containing small amounts of these compounds	IRIS (USEPA)	3, 5
107	Dieldrin	60-57-1	0.000000052	Central nervous system and liver toxicity, liver tumours in both sexes.	Aldrin is rapidly converted to dieldrin under most environmental conditions and in the body. Has low mobility in soil, can be lost to the atmosphere and bioaccumulates.	IRIS (USEPA)	2
108	Endosulfan	115-29-7	0.00001	Kidney toxicity. may bind to estrogen receptors and perturb the endocrine system.	Found in agricultural runoff and rivers in industrialized areas where it is manufactured or formulated, surface water and groundwater samples collected from hazardous waste sites. The main source is food. Use of tobacco products	IRIS (USEPA)	2
109	Alpha-Endosulfan	959-98-8	0.062	Same as Endosulfan	α- and β-endosulfan are conformational isomers arising from the pyramidal stereochemistry of sulfur. α-Endosulfan is the more thermodynamically stable of the two, thus β-endosulfan irreversibly converts to the α form, although the conversion is slow.		5
110	Beta-Endosulfan	33213-65-9	0.062	Same as Endosulfan			5
111	Endosulfan sulfate	1031-07-8	0.062	Hypersensitive to stimulation, sensation of prickling, tingling or creeping on skin. Headache, dizziness, nausea, vomiting, incoordination, tremor, mental confusion, hyperexcitable state. In severe cases: convulsions, seizures, coma and respiratory depression.	Endosulfan breaks down into endosulfan sulfate and endosulfan diol, both of which, have "structures similar to the parent compound and are also of toxicological concern.		3
112	Endrin	72-20-8	0.000059	Liver problems.	Residue of banned insecticide	WHO, IRIS (USEPA)	1
113	Endrin Aldehyde	7421-93-4	0.00029	Most likely similar to Endrin	An impurity and breakdown product of endrin		4
114	Heptachlor	76-44-8	0.000000079	Liver damage, increased risk of cancer	Residue of banned termiticide	IRIS (USEPA)	1

115	Heptachlor Epoxide	1024-57-3	0.000000039	Liver damage, increased risk of cancer	Breakdown of heptachlor	IRIS (USEPA)	1
116	Polychlorinated Biphenyls (PCBs)	1336-36-3	0.000000064	Skin changes; thymus gland problems; inmune deficiences; reproductive or nervous system difficulties; increased risk of cancer.	Runoff from landfills; discharge of waste chemicals	IRIS (USEPA)	1
117	Toxaphene	8001-35-2	0.000003	Kidney, liver, or thyroids problems; increased risk of cancer	Runoff/leaching from Insecticide used on cotton and cattle	IRIS (USEPA)	1
118	Acrylamide	79-06-1	0.0005	Nervous system or blood problems	Added to water during sewage/wastewater increased risk of cancer treatment	IRIS (USEPA)	1
119	Cyanogen Chloride	74-90-8	0.07 for cyanide as total cyanogenic compounds	There are few data on the oral toxicity of cyanogen chloride, and the guideline value is based, therefore, on cyanide.	Cyanogen chloride is a by-product of chloramination. It is a reaction product of organic precursors with hypochlorous acid in the presence of ammonium ion.		2
120	Edetic acid (EDTA)	60-00-4	0.6 Applies to the free acid	Its use in metal poisoning treatment has demonstrated its safety in humans.	Found in food additives, medicines and personal care and hygiene products. Not very likely to be found in drinking water.		2
121	Epichlorohydrin	106-89-8	0.0004	Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals.	WHO, IRIS (USEPA)	1
122	Monochloroacetate	29-16-7	0.02	Has given mixed results in a limited number of mutagenicity assays and has been negative for clastogenicity in genotoxicity studies.	Formed from organic material during water chlorination		2
123	Styrene	100-42-5	0.02	Liver, kidney or circulatory system problems	Discharge from rubber and plastic factories, leaching from landfills	WHO, IRIS (USEPA)	1
124	Xylenes (total)	8026-09-3	0.5	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	WHO	1
125	Alachlor	15972-60-8	0.0007	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	IRIS (USEPA)	1
126	Aldicarb	116-06-3	0.01 applies to aldicarb sulfoxide and aldicarb sulfone	Not genotoxic or carcinogenic	Used to control nematodes in soil and insects and mites on a variety of crops. It is very soluble in water and highly mobile in soil.	WHO, IRIS (USEPA)	2
127	Atrazine	1912-24-9	0.002	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	WHO, IRIS (USEPA)	1

128	Carbofuran	1563-66-2	0.007	Problems with blood, nervous system or reproductive system	Leaching of soil fumigant used on rice and alfalfa	WHO, IRIS (USEPA)	1
129	Chlorotoluron	15545-48-9	0.03	Increase in adenomas and carcinomas of the kidneys	Slowly biodegradable and mobile in soil. There is only very limited exposure from food.	WHO	2
130	Chlorpyrifos	2921-88-2	0.0001	In long-term studies, inhibition of cholinesterase activity was the main toxicological finding.	Strongly absorbed by soil and does not readily leach from it, degrading slowly by microbial action.	WHO, IRIS (USEPA)	2
131	Chlorfenvinphos	470-90-6	0.0003	nervous system effects such as headaches, blurred vision, weakness, and confusion	Runoff after rainfall and leaching from hazardous waste sites. May leach into soil and underground water. surface waters from rain.		3
132	Cyanazine	21725-46-2	0.0006	Causes mammary gland tumours in Sprague-Dawley rats but not in mice, currently under investigation and may prove to be hormonal.	Used as a pre- and post-emergence herbicide for the control of annual grasses and broadleaf weeds. It can be degraded in soil and water by microorganisms and by hydrolysis.	WHO	2
133	2,4-D (2,4-dichlorophenoxyacetic acid)	94-75-7	0.03 applies to free acid	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	WHO, IRIS (USEPA)	1
134	2,4-DB	94-82-6	0.09	Available data from studies in exposed populations and animals do not permit assessment of the carcinogenic potential to humans of any specific chlorophenoxy herbicide.	Chlorophenoxy herbicides are not often found in food.	WHO, IRIS (USEPA)	2
135	Diuron	330-54-1	0.0018	Abnormal pigments in blood	Residual herbicide and algaecide	IRIS (USEPA)	4
136	1,2-Dibromo-3-chloropropane	96-12-8	0.001	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards		1
137	1,2-Dibromoethane	106-93-4	0.0004	Increased incidence of tumours at several sites in all carcinogenicity bioassays identified. Data on the potential carcinogenicity in humans are inadequate.	Currently used principally as a solvent and as an intermediate in the chemical industry.	IRIS (USEPA)	2
138	Dichlorprop	120-36-5	0.1	Slight liver hypertrophy, hepatocellular swelling, mild anaemia, possibly slight degeneration of the tubular epithelium and	The half-lives for degradation in the environment are in the order of several days. Chlorophenoxy herbicides are not often	WHO	2

				decreased urinary specific gravity and protein.	found in food.		
139	1,3-Dichloro propene	542-75-6	0.00034	Forestomach and bladder tumours. Some benign lung tumours by inhalation	Soluble in water, can be considered a potential water contaminant.	IRIS (USEPA)	2
140	Dimethoate	60-51-5	0.006	Cholinesterase inhibitor and a skin irritant	It has a half-life of 18h to 8 weeks and is not expected to persist in water.	WHO, IRIS (USEPA)	2
141	Fenoprop	93-72-1	0.009	Mild degeneration and necrosis of hepatocytes and fibroblastic proliferation in and severe liver pathology, increased kidney weight.	The half-lives for degradation in the environment are several days. Not often found in food.	WHO	2
142	Isoproturon	34123-59-6	0.001	Low acute toxicity and low to moderate toxicity. Causes marked enzyme induction and liver enlargement. Increase in hepatocellular tumours, Liver toxicity. Tumour promoter rather than a complete carcinogen.	Mobile in soil. Exposure through food is low.	WHO	2
143	MCPA	94-74-6	0.002	Not enough data	Only limited persistence in water.	WHO	2
144	Mecoprop	7085-19-0	0.01	Decreased relative kidney weight, increased relative liver weight, effects on blood parameters and depressed body weight gain.	Only limited persistence in water.	WHO	2
145	Methoxychlor	72-43-5	0.02	Reproductive difficulties	Runoff/leaching from insecticide use don fruits, vegetables, alfalfa, livestock	WHO, IRIS (USEPA)	1
146	Metolachlor	51218-45-2	0.01	Decreased kidney weight, decreased body weight gain and decreased survival. Increase in liver tumors, few nasal tumors.	Fairly mobile and can contaminate groundwater, but it is mostly found in surface water.	WHO, IRIS (USEPA)	2
147	Molinate	2212-67-1	0.006	Impairment of the reproductive performance	Data on the occurrence in the environment are limited.	WHO, IRIS (USEPA)	2
148	Oxamyl (vydate)	23135-22-0	0.2	Slight nervous system effects	Runoff/leaching from insecticide use don apples, potatoes and tomatoes.		1
149	Picloram	1918/2/1	0.5	Liver problems	Herbicide runoff	IRIS (USEPA)	1
150	Pendimethalin	40487-42-1	0.02	Hepatotoxicity, increased kidney weight. Hyperglycaemia and hepatotoxicity	Lost through photodegradation, biodegradation and volatilization. The leaching potential appears to be very low	WHO, IRIS (USEPA)	2
151	Permethrin	52645-53-1	0.3 only when used as a larvicide for public health	Not enough data	Exposure is mainly via the diet.	WHO, IRIS (USEPA)	2

			perposes				
152	Pyriproxyfen	95737-68-1	0.3	Liver toxicity, increases in weight and changes in plasma lipid concentrations, particularly cholesterol.	Since it's a relatively new pesticide, few environmental data have been collected.	WHO	2
153	Simazine	122-34-9	0.002	Problems with blood	Herbicide runoff	WHO, IRIS (USEPA)	1
154	2,4,5-Trichloropehoxyacetic Acid	93-76-5	0.009	Reduced neonatal survival, decreased fertility, reduced relative liver weights and thymus weights, reduced body weight gain, increased liver and kidney weights and renal toxicity.	The half-lives for degradation in the environment are in the order of several days. Not often found in food.	WHO, IRIS (USEPA)	2
155	Terbuthylazine	5915-41-3	0.007	Effects on red blood cell parameters, an increased incidence of non-neoplastic lesions in the liver, lung, thyroid and testis and a slight decrease in body weight gain.	Degradation of TBA in natural water depends on the presence of sediments and biological activity.	WHO	2
156	Trifluralin	1582-09-8	0.00003	Does not possess mutagenic properties. No evidence of carcinogenicity was demonstrated.	Few data are available concerning contamination of drinking-water.	WHO, IRIS (USEPA)	2
157	Microcystin-LR	101043-37-2	0.001	Liver toxicity, tumour promotion.	Frequently occurring cyanobacterial genera that contain these toxins are *Microcystis*, *Planktothrix* and *Anabaena*. Microcystins usually occur within the cells; substantial amounts are released due to cell rupture.	WHO	2
158	Chloroform (Trichloromethane):THM	67-66-3	0.0025	liver and kidney tumours, damage to the centrilobular region of the liver.	Formed in drinking-water primarily as a result of chlorination of organic matter present naturally in raw water supplies.	IRIS (USEPA)	2
159	Bromoform: THM	75-25-2	0.0043	Small increase in relatively rare tumours of the large intestine but did not induce tumours	Formed in drinking-water primarily as a result of chlorination of organic matter present naturally in raw water supplies.	WHO, IRIS (USEPA)	2
160	Chlorodibromomethane (Dibromochloromethane: DBCM) THM	124-48-1	0.0004	Hepatic tumours	Formed in drinking-water primarily as a result of chlorination of organic matter present naturally in raw water supplies.	IRIS (USEPA)	2

Reference

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2: WHO (2008) *Guidelines for Drinking-water Quality, THIRD EDITION INCORPORATING THE FIRST AND SECOND ADDENDA, Volume 1, Recommendations*, Geneva, World Health Organization.
3: EPA Office of Pesticide Programs (2009) *Pesticide Reregistration Status* (http://www.epa.gov/pesticides/reregistration/status.htm)
4: EPA (2009) *Integrated Risk Information System* (http://www.epa.gov/iris/)
5: U.S. Agency for Toxic Substances and Disease Registry (2009) *ATSDR Toxicity Profiles* (http://www.atsdr.cdc.gov/toxpro2.html#bookmark05)
6: The Environment Agency, UK (2009) *Pollution Inventory Substances* (http://www.environment-agency.gov.uk/business/topics/pollution/35761.aspx)
7: International Labour Organization (2009) *International Chemical Safety Cards* (http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/index.htm)
8: U.S. National Library of Medicine (2009) *Toxicology Data Network (TOXNET)* (http://toxnet.nlm.nih.gov/)

項目選定理由 (農業灌溉)

項目	最大許容濃度 (mg/L)		理由
	長期使用	短期使用	
Aluminum	5.0	20	It is not a nutrient for plants. It is one of the main constituents of soils. It is toxic and it can cause low productivity in acid soils (pH <5.5), in alkaline soils pH > 7.0 can precipitate the ion and eliminate any toxic effects. Concentrations between 5 and 20 mg/L are acceptable in fine texture and from neutral to alkaline soils. Concentrations higher than 20 mg/L are accepted for short periods and in specific places. The proposed value considers the use of water for long periods, because soils have the capacity for adsorbing complex aluminum ion reducing its toxicity in plants.
Arsenic	0.10	2.0	It is not an essential nutrient, but at very low concentrations stimulates vegetal growth, and in high concentrations it causes decrease in the production. It is strongly adsorbed by soil particles. Solubility decreases with higher pH. It seems its effect is the destruction of chlorophyll in leaves. It bio accumulates in plants, but generally present concentrations in edible parts of the plant do not represent any risk for human beings. Accumulation in potatoes and radish has been observed. It is toxic for a variety of plant species at concentrations between 0.5-10 mg/L. In the range of 12 mg/lL toxic for Sudan grass and less than 0.05 mg/l for rice. Concentrations between 0.1 and 2.0 mg/L are accepted in fine texture and neutral to alkaline floors. Values higher than 2.0 are only accepted by short periods and in specific places.
Beryllium	0.10	0.5	It is not a nutrient for plants. It is strongly adsorbed by soil particles. It is toxic at low concentrations for plants and animals. In the range of 0.5 mg/L for beans/faba beans and in the range of 5 mg/L for cabbage. Concentrations between 0.1 and 0.5 mg/L are accepted in fine texture and alkaline soils. Values higher than 0.5 are only accepted by short periods and in specific places. The 0.1 mg/l value considers the use of water for long periods.
Boron	0.70	2.0	Essential for plant growth, in concentrations represented in µg/L; optimum yields are obtained with few tenths of mg/l in soil solutions. Toxic for many sensitive plants (for example, citrus) at 1.0 mg/L. Most of the grasses are relatively tolerant to concentrations between 2.0-10 mg/L. According to the tolerance in crops, permissible concentrations are proposed from 0.5 up till >15.0 mg/L. The value of 0.7 mg/L considers sensitive crops and the use of water for long periods of time.

Cadmium	0.01	0.05	It is not an essential nutrient for plants, but is easily absorbed. It is strongly adsorbed by soil particles. Due to its chemical resemblance to zinc, it can easily interfere with some metabolic processes, becoming toxic for a variety of plants. Cadmium can accumulate in plants at levels that are not toxic for animals and human beings. Concentrations between 0.01-0.05 mg/L are acceptable for fine texture and neutral to alkaline soils. It is toxic for beans, beets and turnips at concentrations as low as 0.1 mg/l in nutrient solutions. Concentrations between 0.01 and 0.05 are accepted for fine texture and from neutral to alkaline soils. Values larger than 0.05 are only accepted by short periods and in specific places. The conservative limits are recommended due to its potential to accumulate in plants and soils in concentrations that can be toxic to people and animals.
Cobalt	0.05	5.0	It is not an essential nutrient for plants, Although it seems to be nutrient for certain plant species. It is strongly adsorbed by soil particles. At relatively high concentrations it may affect the performance in crops bio-accumulating in plants at concentrations that may affect animal and human being health. It tends to be inactive in neutral and alkaline soils. It is toxic for tomato at concentrations of 0.1 mg/L in soil solutions. Concentrations between 0.05 and 5.0 mg/L are accepted for fine texture and from neutral to alkaline soils. Values larger than 5.0 are only acceptable by short periods and in specific places. The proposed value considers long periods of application.
Chromium	0.10	1.0	It is not an essential nutrient for plants, but at low concentrations beneficial effects in performance have been observed. It is strongly adsorbed by soil particles. Toxic at high concentrations to plants. It is not easily translocated within the plant; keeping most of chromium in the roots. Concentrations between 0.05 and 5.0 mg/L are accepted for fine texture soils and from neutral to alkaline pH. Values higher than 5.0 are only accepted by short periods and in specific places. The proposed value considers long periods of application and in fine texture and from neutral to alkaline soils.
Copper	0.20	5.0	It is an essential micro nutrient for plants, but at high concentrations copper is toxic and can bio-accumulate in parts that can affect human and animal health. It is strongly adsorbed by soil particles. It is toxic for a certain variety of plants at concentrations between 0.1 and 1.0 mg/L in soil solutions. Concentrations between 0.2 and 5.0 are accepted for fine texture and from neutral to alkaline soils. Values higher than 5.0 are only accepted by short periods of exposure and in specific places. The proposed value considers toxicity to plants.

Fluorides	1.0	15.0	Plants respond to the presence of fluoride in soil dissolving. At relatively high concentrations, affects crops performance and it can bio-accumulate in plants at levels that can affect human and animal health. It considers its application to all types of soils and for a continuous crop production. Inactive in neutral and alkaline soils. Concentrations between 2 and 15 mg/L are accepted for fine texture and from neutral to alkaline soils. Values higher than 15 mg/L are only accepted by short periods and in specific places. The proposed value assures soil sustainability for a continuous production.
Iron	5.0	20.0	It is an essential micro nutrient for plants. Chlorosis may be present due to the lack of alkaline soils. It is not toxic in aerated soils, but it can contribute to acidify soils and loss of phosphorous and molybdenum essentials availability on soils. In the case of Irrigation by aspersion it can result in non- aesthetic deposits on top of plants and equipment. Concentrations between 5 and 20 mg/L are accepted for fine texture and from neutral to alkaline soils. The proposed value is not toxic for roots of crops in aerated soils, but can stain and harm leaves during irrigation the moment they get wet.
Lithium	2.5	2.5	It is not a nutrient for plants. Absorption and accumulation in roots makes it toxic to plants, affecting performance and quality in harvests. It has similar effects to sodium regarding physical features. It is moveable in soil. Affects calcium and potassium absorption. Most cultivations are tolerant to 5 mg/L. Toxic to citric at concentrations as low as (<0.075 mg/l). Proposed value considers that toxicity will not be present in most cultivations, and its application in any soil type.
Manganese	0.20	10.0	Essential for plants metabolism due to its participation in nitrogen metabolism and in chlorophyll synthesis. High concentrations in soil solution can be highly toxic to plants, mainly in roots growing in acid soils. Toxic to a number of crops with a few tenths of mg/l, but usually only in acid soils. Concentrations between 0.02 - 10 mg/L are accepted for fine texture and from neutral to alkaline soils. Values higher than 10 mg/Lare only accepted by short periods and in specific places. The proposed value considers the toxic effects in plants.
Mercury	0.002	0.002	Most cultivation does not easily absorb mercury; however, the carrots and mushrooms may bio-accumulate mercury from soil dilution. Absorption from the soil to plants is low which constitutes a barrier for translocation from roots to aerial parts of plants. There are no data describing its toxicity. Since it is considered that toxic effects on cultivations can be present, it is established a maximum concentration of 0.002 mg/L in irrigation waters.

Molybdenum	0.01	0.05	At low concentrations it is an essential micro nutrient for plants, these can absorb relatively large amounts without showing harmful effects. Its accumulation in fodder cultivations results toxic for livestock. Concentrations between 0.01-0.05 mg/L are accepted under conditions of fine texture and acid soils. Values higher than 0.05 are only accepted by short periods and in specific places. The proposed value considers long periods of application and the fact that it does not accumulate in plants at toxic levels.
Nickel	0.20	2.0	Considered an essential micro nutrient for plants. It is highly retained in soil particles. It has been observed that at low concentrations, development of some plants improves, but high concentrations reduce plants growth. It may enter food chain. Toxic to a number of plants from 0.5 to 1.0 mg/L. Low toxicity in soils with neutral to alkaline pH. Concentrations between 0.2 and 2.0 mg/L are accepted under conditions of fine texture and from neutral to alkaline soils. Values higher than 2.0 mg/L are only accepted for short periods and in specific places. The proposed value considers toxicity in crops.
Lead	5.0	10.0	It is not a nutrient for plants. It is strongly retained by soil particles, present in relatively lower concentrations with respect to other metals such as cadmium, zinc and copper. In soils with low pH values, mercury presents greater mobility, allowing a better absorption by plants. It can inhibit cellular growth in plants at very high concentrations. Although it is not translocated easily, mercury can accumulate in aerial parts of plants in concentrations that may be potentially hazardous for people and animals. Concentrations between 5 and 10.0 mg/L are accepted under fine texture and from neutral to alkaline soils. Values higher than 2.0 mg/L are only accepted by short periods and in specific places. The proposed value considers crop sustainability on soils fertility.
Selenium	0.02	0.05	It is not a nutrient for plants. Plants absorb relatively large amounts of selenium without evident harmful effects. It is an essential element for animals but at very low concentrations, it becomes toxic to livestock if the fodder grows in soils with relatively high selenium levels. In most of fruit trees and annual crops, mercury accumulates in fodder. Concentrations between 0.02 and 0.05 mg/L are accepted for fine texture soils. Values higher than 0.05 mg/L are only accepted for short periods and in specific places. The proposed value considers the use of water for long periods, and the non-accumulation in plants at toxic levels for livestock.

Vanadium	0.10	1.0	It is not a nutrient for plants. It is strongly retained in soil particles. Interferes with the absorption of nutrients such as calcium, copper, iron, manganese and phosphorus. Related to the symbiotic fixation of nitrogen. Toxic for many plants at relatively low concentrations, vanadium can concentrate in plants at levels that can cause problems to people and animals. Concentrations between 0.1 and 1.0 mg/L are accepted for fine texture and from neutral to alkaline soils. Values higher than 1.0 mg/L are only accepted by short periods and in specific places. The proposed value considers the use of water for long periods and toxicity in plants.
Zinc	2.0	5.0	It is an essential micro nutrient for plants. It is strongly retained by soil particles. At high concentrations is toxic for a number of plants at different concentrations, causing iron deficiency. Affects symbiotic nitrogen-fixing bacteria. Reduced toxicity at pH > 6.0 and fine or organic texture soils. Concentrations between 2.0 and 5.0 are accepted for fine texture and from neutral to alkaline soils. Values higher than 5.0 are only accepted by short periods and in specific places. The proposed value considers the use of water for long periods and toxicity in plants.

Source: Irrigation Water Quality Standard and Salinity Management Texas Cooperative Extension. The Texas A&M University System.

項目選定理由 (農業灌溉)

項目	最大許容濃度 長期使用	理由
Electrical Conductivity	750 µS/cm	Indicates presence of salts in the water. High concentrations of salts cause problems in the cultivations and soils. In cultivations, some of the present salts might be toxic; affecting disposition of nutrients and water. In soil affects structure and intern drainage. Three intervals have been established to define salinity effects: not detected (<700 µS/cm), moderate (700-3000 µS/cm) and severe (>3000 µS/cm). The proposed value considers crops that are moderately tolerant to salts and a moderate degree of salt washing.
Hydrogen Potential	6.5 a 8.5	Influences solubility and bioavailability of a number of nutrients and potentially hazardous elements for plants. A lot of micro nutrients and heavy metals are not bioavailable at high pH values, but these are available at low values. High pH values inhibit the availability of micro nutrients such as iron, manganese and zinc. pH values higher than 8.5 may indicate high contents of sodium or bicarbonate. The interval of proposed values secures that pH in soil do not show any problems regarding the availability of nutrients for plants, as well as toxic elements.
Sodium	70 mg/L	It is not recognized as an essential nutrient for plants although it is beneficial for the growth of a number of plants. A lot of cultivations show toxicity to sodium when this accumulates in high levels in plants tissues. The sensibility varies considerably between species. Intervals of values have been established according to the sensibility of cultivations with extreme values up until >460 mg/L. This value prevents sodium accumulation at toxic levels in all the plants including the most sensitive ones.
Sodium Absorption Relation	9	It is an indicator for the potential of water for irrigation to induce sodium conditions in the soil. It is determined from sodium, calcium and manganese concentrations present in water. Sodium accumulation in soils affects cultivations and soils. Reduces performance and quality in cultivations, causing toxicity. Affects physical condition in soils, reducing the infiltration rate and hydric conductivity; its tendency to flocculate is increased. There is a relationship with electrical conductivity, and the values that these might take would depend of the soil texture. The proposed value considers the low probability of salinization in the majority of soils.
Chlorides	140 mg/L	It is an essential micro nutrient for plants. The difference between this and other micro nutrients, is that chloride is relatively not toxic for most of the cultivations. Proposed value

項目	最大許容濃度 長期使用	理由
		prevents chloride accumulation at toxic levels for the majority of soils.
Total Nitrogen	5 mg/L	It is a macro nutrient of plants. High concentrations during the flourishing stage and in formation of the fruits might cause loss in production; In the same way, nitrogen can leach and affect groundwater. Proposed value considers sensitive crops such as grapes and most of the fruit-bearing trees; most of this amount will be taken by the plants and a very small amount will be leached to the underground waters.
Total Phosphorous	5 mg/L	It is a macro nutrient for plants. Immobilizes elements such as Fe, Cu, Zn and Al, reducing their availability for plants.
Biochemical Oxygen Demand	8 - 70 (30) mg/L	Indicates presence of biodegradable organic matter, mainly for bacteria. Indicator of municipal contamination. It can improve soil fertility when applied in proper rates, but excessive and continuous applications may affect soil porosity and favors anaerobic processes. The period between irrigations and the application rates can be managed allowing soil re-aeration. The maximum organic load of BOD recommended for most of the soils is 40 kg/ha/d.
Fecal Coliforms	1000 NMP/100mL	It is an indicator of the presence of pathogens such as Salmonella spp., Shigella spp. Vibrio cholera, Campilobacter jejuni, Campylobacter coli, Yersinia enterocolitica and E. coli. This causes diseases such as gastroenteritis, salmonella, dysentery, cholera and typhoid. These organisms can be transmitted through crops that are eaten raw. The proposed value considers the probability of contamination of vegetables and other crops eaten raw and from cow milk feed with irrigated forage, will cause disease by pathogens. Fruit-bearing trees and grapes can be watered provided the fruits are not watered directly by the water. Crops and pasture that are not consumed raw and forages that are dehydrated before being harvested and shepherded can be watered by any method.
Helminth eggs	1individual/L	It is an indicator of infection risk by *Ascaris* in infants and in adults who consume agricultural merchandise watered with wastewaters without any treatment. Proposed value considers cultivations that are commonly consumed raw, industrial cultivations, forages and fruit-bearing trees.
Dissolved	0.5 – 5 mg/L	Its presence in soils is important because plants also breath through the roots. Low concentrations inhibit growth and breathing in the roots. Decreases nutrients adsorption and

項目	最大許容濃度 長期使用	理由
Oxygen	(4.0)	the yield of brown rice.
Total Dissolved Solids	500 mg/L	Accumulation of salts in soils originates saline soils, causing unproductivity. A high concentration of salt causes low performance in cultivations, inhibiting water absorption. There is a direct relationship with electrical conductivity. The proposed value considers crops that are moderately tolerant to salts and a moderate level of salt washing.
Total Suspended Solids	50	Solids reduce the infiltration of water and speed of rotting of organic matter. Causes a shortage of oxygen in soils, affecting cultivations in sprout and development stages.
Chemical Oxygen Demand	40	Indicates presence of biodegradable and non-biodegradable organic matter. Indicator of industrial pollution

Source: Irrigation Water Quality Standard and Salinity Management Texas Cooperative Extension. The Texas A&M University System.

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項目選定理由（畜産）

項目選定のための基本的考え方

- As health parameters are handled separately, only livestock watering is considered.
- Parameters by which watering to livestock may cause death, sickness or insufficient growth of livestock are considered.
- As NOM004-ZOO-1994 regulates the substances in food meet, parameters in this water use does not consider about influence to consumers.
- Life stages of each species are not considered.
- Pesticides and other organic contaminants are excluded due to absence of adequate information.
- Radioactive contaminants may not be included because long-term exposure by those should be considered, which is considered in livestock products.

選定理由

項目	最大許容濃度	理由	参照
Aluminum	5.0 mg/L	High levels of Aluminum react with phosphorus in the intestine of animals to form a non-absorbable complex, thus affecting phosphorus absorption and metabolism and resulting in symptoms of phosphorus deficiency. Symptoms include reduced growth and disturbances in carbohydrate metabolism. A level of 4,000 mg-Al/kg of diet cause phosphorus deficiency in chicks.	2, 3
Arsenic	0.2 mg/L	Acute effects such as diarrhoea, loss of coordination and anaemia are symptoms of arsenic intoxication.	2
Boron	5.0 mg/L	High concentration effects hey consumption and cause a loss of weight.(2) At a concentration equivalent to 15.3mgB/kg body weight daily, there	2, 3

項目	最大許容濃度	理由	参照
		was decreased food consumption, weight loss, edema, inflammation of legs and abnormal blood chemistry. (3)	
Cadmium	0.01 mg/L	Although Cadmium intake by live stock through drinking water is small, its toxic, teratogenic, mutagenic and carcinogenic effect must be considered. Anaemia, abortions, stillbirth and reduced growth are observed in animals given Cadmium in doses of 1-160mg/kg bodyweight.	2
Chromium	1mg/L	Trivalent chromium is an essential element in the diet of mammals, being required for carbohydrate and lipid metabolism. Although major toxic effect is not observed, accumulation in tissue is reported. Chromium (VI) is much more toxic to animals than Chromium (III).	2
Copper	0.5 mg/L	Copper is an essential element in the animal diet. Copper deficiency can result in morbidity and, in some cases death. Copper accumulates in the liver of animals and may cause some reduction in growth. Chronic and acute effects such as liver damage and hemolytic jaundice can occur with extended exposure to high levels of copper.	2
Fluorine	2.0 mg/L	High concentration causes tooth mottling and bone problem. It considers its application to all types of soils and for a continuous crop production. Inactive in neutral and alkaline floors. Concentrations between 2 and 15 are accepted for fine texture and from neutral to alkaline soils. Values larger than 15 are only accepted by short periods and in specific places. The proposed value assures soil sustainability for a continuous production. It affects human and animals when consuming plants that accumulate them. It causes illness.	1
Magnesium	250mg/L	High level of Magnesium causes scouring and diarrhea, lethargy, lameness, decreased feed intake and decreased performance.	1, 2

項目	最大許容濃度	理由	参照
Mercury	0.002 mg/L	Symptoms of mercury poisoning in animals vary with the chemical form of mercury, amount ingested and route of intake. Chronic mercury poisoning in animals results in loss of appetite, with consequent weight loss leading to possible hair loss, anal lesions and paralysis. Severe poisoning results in nervous system disorders (such as lack of coordination, tetanic spasms, convulsions) and is usually fatal.	2
Lead	0.1 mg/L	Lead is accumulated in the skeleton to a critical maximum level, after which circulating concentrations increase until poisoning occurs. Chronic effects such as anorexia and respiratory distress are associated with low level poisoning. Severe poisoning causes acute effects such as frothing at the mouth, uncoordination and convulsions.	2
Selenium	0.02 mg/L	Selenium is an essential element for animal nutrition. Diets containing less than 0.02–0.04 mg Se/kg can result in deficiency symptoms in cattle, sheep, pigs and poultry. Acute selenosis results in blindness and often paralysis. The chronic symptoms of selenium poisoning (Alkali Disease) include loss of hair, lameness and a decrease in food intake, which may result in death by starvation. The symptoms of acute selenium poisoning include stumbling, difficulty breathing, diarrhoea and bloat, with death resulting from respiratory failure.	2
Vanadium	0.1 mg/L	Some experiences with rats and chicks suggest that vanadium is required for lipid, tooth and bone metabolism. Concentrations of 2 mg V/L (as NH 4 VO 3) in drinking water improved the development of growing chicks, but reduced growth rate resulted when chickens and rats were given diets containing 13 mg V/kg and 25 mg V/kg respectively.	2
Zinc	20 mg/L	Zinc is an essential element in the animal diet and is necessary for the function of various enzyme systems. Zinc deficiency leads to growth retardation, disorders of bones and joints, skin diseases and low	2

項目	最大許容濃度	理由	参照
		fertility.	
Hydrogen Potential	6 - 9	Generally, pH itself is not a water quality issue of concern, but it can indicate the presence of a number of related problems. The greatest hazard with high or low pH is the potential for deterioration as a result of corrosion or fouling. Soil and animal health will not generally be affected by water with pH in the range of 4–9.	2
Total Dissolved Solids	4000mg/L	High concentration causes reluctance, scouring, loss of production, decline in animal condition and health. It is directly related to electric conductivity. This value is approximately equivalent to 6 in Salinity and 10mS/cm (at 20 degree Celsius) in Electrical Conductivity, which is recommended by FAO as minimum value for livestock and limited use for poultry.	1, 2
Nitrate	90 mg/L	Causes toxicity. Acute poisoning cause increased urination, restlessness and cyanosis, leading to vomiting, convulsions and death.	2
Nitrite	10 mg/L	Causes toxicity. Acute poisoning cause increased urination, restlessness and cyanosis, leading to vomiting, convulsions and death. Nitrite is absorbed into the bloodstream, where it converts hemoglobin to methaemoglobin, thus reducing the oxygen-carrying capacity of the blood and causing eventual suffocation due to a lack of oxygen in body tissues.	2
Coliform bacteria	100 NMP/100mL	Infections in livestock result in reduced growth and morbidity and possibly mortality.	2
Cyanobacteria (Mycrosistis: Blue-green algae)	11500cells/ml or 2.3ug/L	High toxicity causes animal death. An increasing risk to livestock health is likely when cell counts of Microcystis exceed 11500 cells/mL and/or concentrations of	1, 2

項目	最大許容濃度	理由	参照
		microcystins exceed 2.3 μ μg/L expressed as microcystin-LR toxicity equivalents. The toxins associated with cyanobacteria are mostly intracellular in healthy blooms and only affect stock following direct ingestion of cells (either in the water or as dried mats left on the shore), or from drinking water where the death of cells has caused a considerable release of toxins into the water supply. Worldwide, the most common cyanobacterial toxin is microcystin, a hepatotoxin which is produced predominantly by the genus Microcystis, and occasionally by species of Anabaena. There may be some differences between animal species in the symptoms of this type of poisoning, but typically they include a display of weakness, lethargy, anorexia, paleness, sometimes mental derangement, and often accompanied by diarrhoea. In serious cases animals suffer general distress, muscle tremors and coma which is followed by death within a few hours to a few days.	
Calcium	1000 mg/L	It is an essential element in the animal diet. High concentration, however, may cause phosphorus deficiency by interfering with phosphorus absorption in the gastrointestinal tract.	2

Source:

1. Water quality for agriculture, FAO, 1994

2. Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3 - Livestock drinking water guidelines - , Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand, 2000

3. Water quality guidelines report, Ministry Environment, Government of British Columbia, CANADA, http://www.env.gov.bc.ca/wat/wq/

項目選定理由（水産養殖）

項目選定のための基本的考え方

- The parameters that were taken into consideration have a direct relationship with the growth and survival of fish.
- The four main species of freshwater that are cultivated in Mexico were considered.
- Heavy metals that can have a toxic effect on fish were included.
- Indicators of biodegradable and non-biodegradable organic matter that are directly related to the reduction of dissolved oxygen and industrial wastewater discharges are also included.
- Organic matter indicators that are directly related to the reduction of dissolved oxygen and industrial wastewater discharges are included, respectively.
- Pesticides and toxic organic substances are not included because these are selected in the use of protection of aquatic life.
- The maximum permissible concentrations of the selected parameters were compared with the criteria from protection of aquatic life, and therefore the ones related to aquaculture cannot be stricter than the ones for protection of aquatic life.

項目選定理由

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Aluminum (mg/L)	0.087	0.087	0.087	0.087	Chronic effects can include accumulation of aluminum in tissues, reduction of locomotive activities, cough with mucus that could clog the gills, damage to gills and anemia.	1
Arsenic (mg/L)	0.15	0.15	0.15	0.15	Arsenic in water precipitates on the fish body and gills and produces a mucous film, causing death by asphyxia. High concentrations of arsenic cause direct damage to gills leading to asphyxia and collapse of blood vessels.	1

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Cadmium (mg/L)	0.0002-0.0018	0.0002-0.0018	0.0002-0.0018	0.0002-0.0018	Most of the cadmium forms are toxic and cause irreversible damages to fish when they are exposed to high concentrations. Gill tissue suffers damages such as detachment of the epithelial layer. Changes in kidney and intestinal tract can occur. Respiratory and renal functions are seriously damaged.	2, 3
Chlorides (mg/L)	230	230	230	230	Most of the fish with skeleton are osmo-regulators, since they maintain body fluids on a constant osmotic concentration, despite changes in the external concentration. Body fluids on freshwater fish have a higher ionic concentration than the surrounding water. There is a constant osmotic flow of water in their body and a loss of environmental ions. Freshwater fish compensate this effect by producing large volumes of diluted urine when actively absorbing the surrounding ions. However, if the surrounding water salinity exceeds the osmotic concentration of body fluids, the situation is reversed, since the loss of body water and ions are accumulated. Increase in salinity can result in a reduction of productivity and thus resulting in an increase of stress levels. Eggs and larvae are less tolerant to salinity than young or adult fish. The increase in salinity during life early stages can result in high rates of mortality, and low growth rates in values below the iso-osmotic concentrations.	1
Salinity (mg/L)	18900	9000	11000	35000		3, 6
Copper (mg/L)	0.009	0.009	0.009	0.009	Acute effects of cupper in fish cause severe clogging of gills by mucus and great damage in them, as well as renal and hepatic disorders.	1
Chrome hexavalent (mg/L)	0.011	0.011	0.011	0.011	Fish that are exposed to chrome have significant reduction on growth rates. Chrome accumulation mainly occurs in liver and kidney; however, it may also occur in sexual glands, brain and blood. Hexavalent chrome passes through cell membranes producing internal and external tissue damage. The salmonids are more sensitive to chrome effects.	1

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	CARP	CATFISH	SALMONIDS		
Iron (mg/L)	1	1	1	1	Dissolved iron causes epithelial membrane damage of gills, but this does not seem to imply a wide interruption of sodium balance. It is considered that respiratory insufficiency contributes to mortality associated with iron toxicity. Fish that die presenting iron toxicity show lack of movement, or weak and erratic opercular movements and pale color. High levels of iron are known to increase the susceptibility of fish to infectious diseases.	1
Manganese (mg/L)	0.1	0.1	0.1	0.1	High manganese concentrations interfere with the central nervous system of vertebrates due to the inhibition of dopamine formation (a neuro-transmitter), as well as interfering with other forms of metabolic pathway. Sodium regulation in fish is interrupted by manganese and can definitely cause death. Calcium increase seems to reduce the toxic effects of manganese, which indicates that there is competition between calcium and manganese for binding sites in the gill epithelium. However, high levels of manganese ions inhibit calcium absorption by gills. Sublethal gill damage has been observed in some fish exposed from 0.1 to 0.5 mg Mn/L.	3
Mercury (mg/L)	0.001	0.001	0.001	0.001	An increase in mercury concentrations above the security limits (1 µg/L) inhibits enzymatic activity and provokes an abnormal increase in cellular division. Mercury has also been related to chromosome damage and dysfunction of the central nervous system. Others mercury effects include alterations in sugar metabolism and edema leading to a fast death. Mercury bioaccumulates in fish and seafood, mainly in the form of methyl-mercury.	2, 3
Nickel (mg/L)	0.052	0.052	0.052	0.052	Nickel compounds are considered of medium toxicity for fish. Its toxicity is influenced by physicochemical proprieties in water, especially by its hardness (toxicity increases in soft water). After toxic exposition to nickel compounds, the gill chambers are filled with mucus and lamellae or gill filaments turn dark red.	1

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Lead (mg/L)	0.001-0.007	0.001-0.007	0.001-0.007	0.001-0.007	Acute toxicity of lead in fish causes renal disorders as a result of interference with sugar metabolism. Lead affects hemoglobin synthesis and it also interferes with calcium and potassium absorption through gills. Long exposure of fish on low lead concentrations causes changes in their immunologic system, making them more susceptible to infectious diseases. Fish affected by lead poisoning are disoriented and have frequent spiral movements. Once mucus production increases, their skin turns pale or obscure, depending on the species.	2
Zinc (mg/L)	0.3-2.0	0.3-2.0	0.3-2.0	0.03-0.5	In all the zinc poisoning cases, fish die from suffocation due to precipitated zinc salts are deposited on their gills. Zinc plays an important role in the disruption of ionic exchange. High zinc concentrations can damage feeding behavior and growth and can show evasive behavior.	3
Selenium (mg/L)	0.3	0.3	0.3	0.3	Selenium is generally considered a limiting nutrient and is associated to diseases that result of selenium feeding deficiencies. Selenium lethal concentrations are approximately 37 times higher than those on a natural diet of fish. Although fish rarely have been exposed to toxic levels of selenium transmitted by water, it can be consumed by plants or by benthonic invertebrates that have accumulated sufficient amounts of selenium that could be toxic. This can result in high mortality in fish or reproductive alterations.	3
Chlorine (mg/L)	0.003	0.003	0.003	0.003	Chlorine oxidizes plant and animal enzymes that contain the sulfhydryl group (-SH). It is improbable that fish recover after chlorine exposure. Monochloramine exposure results in anoxia due to hemoglobin oxidation into meta-hemoglobin and disruption of erythrocyte membranes. The number of formed erythrocytes increases which increases blood viscosity, making normal vascular circulation difficult. Salmonids tend to be less tolerant to chlorine. Mortality of eggs increases in the presence of chlorine.	2
Total residual Chlorine (mg/L)	0.005	0.005	0.005	0.005		4

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Dissolved Oxygen (mg/L)	5-8	5-8	5-8	6-9	Low concentrations of dissolved oxygen cause stress on fish, appetite reduction, poor growth and production, increase in susceptibility of infectious diseases. Symptoms include puffs of air at water surface and an increase in the swimming activity. Under conditions of confined aquaculture, low concentrations of dissolved oxygen result in massive fish death.	3
pH (Units of pH)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0	Toxic effects on pH above or below the optimum range (6 - 9) generally create disturbances in the internal ionic homeostasis. Extreme environmental pH fluctuations alter blood pH; therefore, altering the physiological ability of fish to control ion exit diffusion, and reduce the ion exit capacity through epithelium gill. The net effect, both on high and low pH, is a constant reduction on ion plasmatic concentrations of sodium and chlorides. Since these ions are fundamental for active transportation of excretion product, the capacity to eliminate them from the body is inhibited. The excretion accumulation is ultimately, a component of the toxic syndrome. The real product that is accumulated depends on having depressed or elevated blood pH.	3
Total suspended Solids (mg/L)	40	40	40	25	The presence of suspended solids can cause irritations and damage in gill tissue, which increases the stress level on fish. The particle size determines the effect on fish health, since the smaller the particle size, the higher potential for gill obstruction.	2

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Temperature (°C)	24-28 28-30	18-23 30-32	24-28 28-30	2-11 12-13	Temperature affects all the aspects on fish biology. The optimal water temperatures lead to maximum growth rate, efficient conversion of food and improvement on overall fish conditions. Disease resistance and its tolerance to toxins (metabolites and pollutants) are strengthened with an appropriate temperature regimen. The response is manifested as a decrease in the productivity range, from the increased stress levels to complete metabolic dysfunction and death. Acute response of fish to critical exposure to high and low temperatures includes loss of equilibrium and metabolic dysfunction. An increase in respiratory frequency is also observed when fish are exposed to higher critical limits.	3
Cyanides (mg/L)	0.0052	0.0052	0.0052	0.0052	Cyanide toxicity is not easily diagnosed and normally, sudden death is associated to eutrophication and massive production of blue-green bacteria. Mortality on fish population exposed to sublethal cyanide concentrations cannot happen immediately, even when the majority of the fish will die as a consequence of starvation or hepatic insufficiency. Digestive tract atrophy can also be produced. Cyanide interferes with oxygen metabolism, fish respond to cyanide intoxication by increasing water flow on gills and reducing heart beats (bradycardia). Other effects of cyanide on fish can include liver degeneration, histopathological damage in intestines and degeneration on the stomach lining, associated with loss of appetite and disorientation. Sublethal poisoning levels of cyanide can reduce fish growth and inhibit reproduction, probably as a result of alterations on lipid metabolism on liver.	1
Sulphurs (mg/L)	0.001	0.001	0.001	0.001	Acute toxic effects of hydrogen sulphide are manifested as gill damage, causing breathing interference as well as asphyxia and death. Early histological symptoms include thickening of gill epithelium, which leads to the reduction of oxygen permeability. This response is typical of any gill irritation and includes an increase in ventilation and mucus secretion. Fish can also be	3

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Hydrogen Sulphide (mg/L)	0.001	0.001	0.001	0.001	observed taking air from the water surface. The exposure to critical levels of hydrogen sulphide causes bronchial injury, necrosis and descaling of bronchial tissue. This finally results in arterial hypoxia, homeostatic failure and death.	2, 3
Biochemical oxygen demand (mg/L)	6	6	6	3	Biochemical oxygen demand (BOD) measures the amount of dissolved oxygen required by microorganisms to degrade organic matter. Its importance in aquaculture is due to microbial degradation of organic matter, and is the main consumer of dissolved oxygen in the aquatic system. The presence of dissolved oxygen is one of the fundamental parameters for aquaculture.	4, 5
Chemical oxygen demand (mg/L)	40	40	40	10	Chemical oxygen demand (COD) is a concentration measurement of substances that can be attacked in water by a strong oxidant in high temperatures. The COD determination in water above certain levels implies that the aquatic system has received wastewater effluents from industrial origin. Normally this type of effluent discharges toxic substances for fish, as COD is used as an indicator of this type of toxic substances.	2, 5
Nitrites (mg/L)	0.06	0.06	0.06	0.05	Nitrites in solution enter the circulatory system of fish through the gills. The amount of permeable nitrite depends on each species and on the environmental pH. The nitrites in the blood oxidize the ferrous ion (Fe^{2+}) in the hemoglobin to a ferric ion (Fe^{3+}). The resulting product is the meta-hemoglobin, which is unable to combine itself with oxygen, and therefore damages oxygen transportation and causes anoxia. Exposure to low concentrations of nitrate is manifested as a response to stress, reducing productivity, activity and growth, as well as bad health of fish. High nitrate concentrations result in acute anoxia, loss of equilibrium and death.	3

項目	最大許容濃度				理由	参照
	温水魚種			冷水魚種		
	TILAPA	**CARP**	**CATFISH**	**SALMONIDS**		
Ammoniacal nitrogen (mg/L)	0.3	0.3	0.3	0.025	High ammonia concentrations affect intracellular and blood pH, as well as osmo-regulation. Acute ammonia toxicity is produced when passive diffusion of NH_3 in blood is greater than the active excretion of NH_4^+ through gill epithelium, thus ammonia concentration on blood reaches a critical level. Acute toxicity results in hyperventilation, hyper-excitability, equilibrium loss, convulsions, coma and death, probably due to the disruption of membrane processes through substitution of potassium ions by NH_4^+. Before death, fish hang vertically in the water with their mouth in the water surface, which indicates respiratory insufficiency and anguish. The chronic effects include: congestion and capillary dilatation; damage of renal blood vessels, inflammation of the connective tissue and hyperplasia; gill tissue damage; susceptibility to infections by parasites and disease increase.	3
Total Ammonia (NH_4+NH_3) (mg/L)	1	1	1	1		4
Carbon dioxide (mg/L)	12	12	12	12	High concentrations of carbon dioxide (hypercapnia) result in a lower rate of oxygen transportation in blood, and the formation of calcium deposits in kidneys (nephro-calcinosis). Acute CO_2 reactions on fish include changes in respiratory movements in low concentrations and interference of gas interchange in high concentrations that may lead to narcosis and death. Chronic exposure to intermediate CO_2 levels reduces growth and increases food conversion rate in rainbow trout. Continued exposure to concentrations from 12 to 60 mg/L can result in nephro-calcinosis development in rainbow trout.	3

Sources:

1. EPA (2009). National Recommended Water Quality Criteria. United States Environmental Protection Agency. Office of Water. Office of Science and Technology. United States of America.
2. Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Volume 9 – 9.4 Aquaculture and human consumers of aquatic foods.
3. Department of Water Affairs and Forestry (1996). South African Water Quality Guidelines. Volume 6. Agricultural Use: Aquaculture. Second Edition. Edited by S Holmes, CSIR Environmental Services. South Africa.
4. Official Gazette of European Union (2006). Directive 2006/44/CE by the European Parliament and the European Union Congress relative to the Continental Water Quality that Require Protection or Betterment to be Eligible for Fish Life. Published on September 06, 2006. France.
5. CONWATER (2008). Statistics on Water in Mexico. 1ª. Edition. Secretariat of Environmental and Natural Resources. Mexico.
6. Arredondo J. y Ponce J. (1998). Water Quality in Aquiculture. Concepts and Applications. First Edition. AGT Editor, S. A. Mexico.

項目選定理由（水供給源）

項目選定のための基本的考え方

- It is mainly focusing direct intake source which is used for drinking water directly.
- Underground water is not considered.
- Microbiological requirements as well as inorganic and organic substances of significance to human health are included.
- Substances which directly relates to the taste of water are also considered.
- These criteria basically follow the drinking-water regulation (NOM-127).

選定理由

項目	最大許容濃度	理由	参照
Aluminum	0.2 mg/L	Aluminum is the third most abundant element in the earth's crust occurring in minerals, rocks and clays. (3) WHO states that the relative risks for Alzheimer disease (AD) from exposure to aluminum in drinking-water above 100 mg/L are low, although it is hypothesized that aluminum exposure is a risk factor for the development or acceleration of onset of AD in humans.(1)	1, 3
Antimony	0.005 mg/L	Antimony is used in plastic, semiconductor and glass industries. (2) Although the possibility of oral intake exposure is low, soluble antimony (III) salts exert genotoxic effects. (1)	1, 2
Arsenic	0.01 mg/L	Arsenic is introduced into drinking-water sources primarily through the dissolution of naturally occurring minerals and ores. t is an important drinking-water contaminant, as it is one of the few substances shown to cause cancer in humans through consumption of drinking-water.	1

項目	最大許容濃度	理由	参照
Beryllium	0.004 mg/L	WHO exclude beryllium from the guideline, because it is considered unlikely to occur in drinking-water. Beryllium, however, enters natural waters through the weathering process and through atmospheric deposition. The combustion of fossil fuels is the major source of beryllium to the environment. Other less significant sources are slag and ash dumps. Beryllium and beryllium compounds are classified as being probably carcinogenic to humans (Group 2A) by IARC.	3
Boron	0.5 mg/L	Short- and long-term oral exposures to boric acid or borax in laboratory animals have demonstrated the male reproductive tract, such as testicular lesions and developmental toxicity.(1) Mutagenic, genotoxic nor increased tumour incidence has not reported. (1, 3)	1, 3
Cadmium	0.003 mg/L	IARC has classified cadmium and cadmium compounds in Group 2A.(1) The kidney is the main target organ for cadmium toxicity. In humans long-term exposure can cause kidney dysfunction leading to the excretion of protein in the urine. Other effects may include the formation of kidney stones and softening of the bones (osteomalacia). (3)	1, 3
Chloride Ion	250 mg/L	No health-based guideline value is proposed for chloride in drinking-water. However, chloride concentrations in excess of the value can give rise to detectable taste in water.	1, 3
Chromium (VI) Compound	0.05 mg/L	Chromium is present in most soils and rocks and it can enter water naturally from weathering and run-off from soils. (1) IARC has classified chromium (VI) in Group 1 (human carcinogen) and chromium (III) in Group 3. (1)	1, 3

項目	最大許容濃度	理由	参照
		In epidemiological studies, an association has been found between exposure to Cr (VI) and lung cancer. (3)	
Copper and its compound	2 mg/L	Acute gastric irritation may be observed in some individuals at concentrations in drinking-water above 3 mg/L. In adults with Wilson's disease, the copper regulatory mechanism is defective, and long-term ingestion can give rise to liver cirrhosis.	3
Cyanide	0.01 mg/L	The acute toxicity of cyanides is high. Effects on the thyroid and particularly the nervous system were observed in some populations as a consequence of the long-term consumption of inadequately processed cassava containing high levels of cyanide. (1)	1, 3
Fluorine	0.7 mg/L	Fluorine is a common element and exists in the form of fluorides in a number of minerals, such as fluorspar, cryolite and fluorapatite. (1) Low concentrations of fluoride produce beneficial effects on the teeth, especially in children. (3) High fluoride intakes primarily produce effects on skeletal tissues (bones and teeth).(1)	1, 3
Iron	0.3 mg/L	Iron is an essential trace element for humans. The taste and appearance of drinking-water will usually be affected below 2mg/L, which does not present a hazard to health.	3
Lead	0.01 mg/L	Lead is a general toxicant that accumulates in the skeleton and is toxic to both the central and peripheral nervous systems, inducing subencephalopathic neurological and behavioural effects. IARC has classified lead and inorganic lead compounds in Group 2B. (1) Signs of acute intoxication include dullness, restlessness, irritability, poor attention span, headaches, muscle tremor, abdominal cramps,	1, 3

項目	最大許容濃度	理由	参照
		kidney damage, hallucinations, and loss of memory. Signs of chronic toxicity may include tiredness, sleeplessness, irritability, headaches, joint pains and gastrointestinal symptoms. (3)	
Manganese	0.05 mg/L	Manganese is one of the most abundant metals in the Earth's crust, usually occurring with iron. Manganese is an essential element for humans and other animals. Adverse effects can result from both deficiency and overexposure. Manganese is known to cause neurological effects following inhalation exposure, particularly in occupational settings, and there have been epidemiological studies that report adverse neurological effects following extended exposure to very high levels in drinking-water. Excess existence cases water color change (1) Manganese deficiency affects bone, the brain and reproduction in a number of species. (3)	1, 3
Mercury	0.0005 mg/L	The toxic effects of inorganic mercury compounds are seen mainly in the kidney. Acute oral poisoning results primarily in haemorrhagic gastritis and colitis; the ultimate damage is to the kidney. (1) In general, acute lethal toxic doses by ingestion of any form of mercury will result in symptoms including shock, cardiovascular collapse, acute renal failure and severe gastrointestinal damage. Various reports indicate that inorganic mercury binds to, and damages, mammalian DNA. (1) The toxic effects of organic mercury are more severe than those of inorganic mercury. Methylmercury affects the central nervous system and the main effects of poisoning are irreversible neurological disorder and mental disability. (3)	1, 3
Molybdenum	0.07 mg/L	Molybdenum is considered to be an essential element. No data are	1, 3

項目	最大許容濃度	理由	参照
		available on the carcinogenicity of molybdenum by the oral route. (1) One study has linked high intake of molybdenum in food with gout-like symptoms, joint pains of the hands and legs and enlargement of the liver. (3)	
Nickel	0.02 mg/L	IARC concluded that inhaled nickel compounds are carcinogenic to humans (Group 1) and that metallic nickel is possibly carcinogenic (Group 2B). (1) Long-term exposure may result in toxic effects to the kidney. Several epidemiological studies have suggested a risk of nasal, sinus and lung cancer by inhalation of nickel. Nickel is a common skin allergen and can cause dermatitis, particularly in adult women. (3)	1, 3
Selenium	0.01 mg/L	Selenium is an essential element for humans. The occurrence of acute or chronic nutritional toxicity is comparatively rare. Intakes above about 1 mg/day over prolonged periods may produce nail deformities characteristic of selenosis. Other characteristics of excess selenium intake include non-specific symptoms such as gastro-intestinal disturbances, dermatitis, dizziness, lassitude and a garlic odour to the breath.	3
Sulfate	250 mg/L	The presence of sulfate in drinking-water may also cause noticeable taste at concentrations above 250 mg/L.	1
Thallium	0.002 mg/L	As indicated by case reports, the acute toxicity of thallium is characterized by alopecia (hair loss), severe pain in the extremities, lethargy, ataxia, abdominal pain or vomiting, back pain, abnormal reflexes, neuropathy, muscle weakness, coma, convulsion, other neurological symptoms (i.e., mental abnormalities, tremors, abnormal movements, abnormal vision, and headache), and death.	4

項目	最大許容濃度	理由	参照
Zinc	3 mg/L	Zinc imparts an undesirable astringent taste to water at a taste threshold concentration of about 4 mg/L (as zinc sulfate), and water containing zinc at concentrations in excess of 3–5 mg/L may appear opalescent and develop a greasy film on boiling.	1
Ammonia	1.5 mg/L	Ammonia could cause taste and odor problems at concentrations above 1.5 mg/L. (1) Although the guideline by Australia recommends 0.5mg/L as the value based on aesthetic consideration (corrosion of copper pipes and fittings), recommended value by WHO based on the threshold odor concentration (1.5mg/L) is considered. (5, 1) Presence may indicate sewage contamination and/or microbial activity. No health-based guideline value has been proposed. (1)	1, 5
Nitrate	10 mg/L	In human body, methaemoglobinaemia forms as a consequence of the reaction of nitrite with haemoglobin in the red blood cells. And high levels of methaemoglobin (greater than 10%) formation can give rise to cyanosis, referred to as blue-baby syndrome. (1, 3)	1, 3
Nitrite	3 mg/L	Methaemoglobinaemia (so-called blue-baby syndrome) is formed as a result of oxidation of haemoglobin by nitrite. (3) Nitrite can react with nitrosatable compounds, primarily amines, in the body to form N-nitroso compounds. A number of these are considered to be carcinogenic to humans. (1)	1, 3
Biochemical Oxygen Demand (BOD)	3 mg/L	One of typical index for organic contamination. High value of BOD causes deficiency of dissolved oxygen, offensive odor may occur at greater than 10mg/L. Based on the guideline by Spain, this value was chosen.	2
Total Dissolved	500 mg/L	TDS comprise inorganic salts (principally calcium, magnesium,	1, 3

項目	最大許容濃度	理由	参照
Solid		potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter that are dissolved in water. No health-based guideline value is proposed, but the presence of high levels of TDS in drinking-water may be objectionable to consumers. (1) Total dissolved solids influence other qualities of drinking-water, such as taste, hardness, corrosion properties, and tendency for encrustation. (3)	
Color	15 TCU	Most people can detect colors above 15 true color units (TCU) in a glass of water. Levels of color below 15 TCU are usually acceptable to consumers.	1
Hardness	200 mg/L	The taste threshold for the calcium ion is in the range of 100–300 mg/L, depending on the associated anion, and the taste threshold for magnesium is about 100mg/L. (1, 3) Water with a total hardness (as calcium carbonate) above 200 mg/L can cause a rapid build-up of undesirable deposits, or scale, in hot water pipes and fittings. (5)	1, 3, 5
Odor	Not unusual	Taste and odor in drinking-water may be indicative of some form of pollution or of a malfunction during water treatment or distribution. It may therefore be an indication of the presence of potentially harmful substances. (1, 3) Odors of a biological origin can indicate increased biological activity, for example by algae. Some algae can produce toxins and the detection of these algae by taste and odor provides a useful early warning of potential problems. (3, 5)	1, 3, 5
Oil and Grease	N.D.	Petroleum oils can give rise to the presence of a number of low molecular weight hydrocarbons that have low odor thresholds in drinking-water. Although there are no formal data, experience	1

項目	最大許容濃度	理由	参照
		indicates that these may have lower odor thresholds when several are present as a mixture.	
pH	6.5 – 8.5	Although pH usually has no direct impact on consumers, it is one of the most important operational water quality parameters. (1) Extreme values of pH result in irritation of the eyes, skin and mucous membranes. Eye irritation and exacerbation of skin disorders have been associated with high pH values. Gastrointestinal irritation may occur in sensitive individuals at pH values above 10. Below pH 4, redness and irritation of the eyes have been reported, with the severity increasing with decreasing pH. (3, 5)	1, 3, 5
Turbidity	5 mg/L	Particulate matters causes turbidity and they can protect microorganisms from the effects of disinfection and can stimulate bacterial growth. (1,3) Consumption of highly turbid waters is not necessarily a health hazard, but may constitute a health risk if the suspended particles harbour microorganisms capable of causing disease in humans, or if the particles have adsorbed toxic organic or inorganic compounds. (5)	1, 3, 5
Cryptosporidium	N.D.	Cryptosporidium generally causes a self-limiting diarrhoea, sometimes including nausea, vomiting and fever. (1,5) The potential for transmission is great as the infective oocysts can be excreted in very large quantities for many weeks after disease symptoms have ended. (3) It can be considered as one of indicators for fecal contamination.	1, 3, 5
Entamoeba	0 /20L	Entamoeba histolytica is the most prevalent intestinal protozoan	1, 3

項目	最大許容濃度	理由	参照
hystolitica		pathogen worldwide. Symptoms of amoebic dysentery include diarrhoea with cramping, lower abdominal pain, low-grade fever and the presence of blood and mucus in the stool. (1, 3)	
Giardia lamblia	0 /20L	It is also known as *Giardia intestinalis*. Symptoms generally include diarrhoea and abdominal cramps; in severe cases, however, malabsorption deficiencies in the small intestine may be present, mostly among young children. (1) In the majority of cases, the disease is self-limiting and asymptomatic carriers are common. (3) Infection by Giardia may reduce absorption of nutrients and cause diarrhoea. In most cases, is self limiting but in some cases chronic infection with intermittent diarrhoea can occur. (5)	1, 3, 5
Helminth eggs	N.D.	Helminths are an important cause of morbidity and mortality worldwide.. Helminth parasites commonly cause gastrointestinal infections but adult worms, migrating larvae and eggs may also cause damage to other tissues such as the lung, the liver, bile ducts and the brain. Helminth disease pathology relates to the host's immune response to infection, tissue damage and inflammation, and possible gut obstruction, which may lead to malnutrition, anaemia and reduced cognisance. (3)	3
Microcystin-LR	0.001 mg/L	Microcystin-LR is among the most frequent and most toxic microcystin congeners. The primary target for microcystin toxicity is the liver. (1) Microcystin-LR is an extremely potent acute toxin, while a long-term risk may also be present. (3) The mechanism of toxicity for microcystins involves inhibition of protein phosphatase enzymes in eucaryotic cells. Within the liver, this	1, 3, 5

項目	最大許容濃度	理由	参照
		biochemical effect leads to disruption of hepatocyte (liver cell) skeletal structure and cell integrity. This can lead to more widespread disintegration of liver integrity and haemorrhage in the case of acute toxicity from exposure to a high dose. (5)	
Total Coliform	N.D.	Total coliforms include organisms that can survive and grow in water. Hence, they are not useful as an index of faecal pathogens, but they can be used as an indicator of treatment effectiveness and to assess the cleanliness and integrity of distribution systems and the potential presence of biofilms. (1, 3)	1, 3
Toluene	0.024 mg/L	Although higher values (0.7mg/L) in guidelines for drinking water are used, the threshold value for odor, 0.024mg/L (1), is used.	1
Ethylbenzene	0.002 mg/L	Although higher values (0.3mg/L) in guidelines for drinking water are used, the threshold value for odor, 0.002mg/L (1), is used.	1
1,2,4-Trichlorobenzene	0.005 mg/L	WHO (2004) stated that because trichlorobenzenes occur at concentrations well below those at which toxic effects are observed, it is not considered necessary to derive a health-based guideline value. (3) Odor threshold value is considered. (1)	1, 3
Monochlorobenzene (Chlorobenzene)	0.03 mg/L	Because MCB (Monochlorobenzene) occurs at concentrations well below those at which toxic effects are observed, it is not considered necessary to derive a guideline value. (1) Odor threshold value is considered.	1
Sodium	200 mg/L	No firm conclusions can be drawn concerning the possible association between sodium in drinking-water and the occurrence of hypertension. Therefore, no health based guideline value is proposed. However, concentrations in excess of 200 mg/L may give rise to unacceptable taste. (1)	1

項目	最大許容濃度	理由	参照
Chlorate	0.4 mg/L	Although higher value is used for health based guideline, the taste and odor threshold for this compound is 0.4 mg/L. (1)	1

Source:

1. Guidelines for drinking-water quality, WHO, 2008

2. Factsheets for chemical substances, Ministry of Environment, Japan, 2005

3. Draft Guidelines for Drinking-water Quality Management for New Zealand –Second edition-, Ministry of Health of New Zealand, 2005

4. IRIS (Integrated Risk Information System), USEPA, http://www.epa.gov/IRIS/

5. Australian Drinking Water Guidelines 6, Australian Government, National Health and Medical Research Council and Natural Resource Management Ministerial Council, Australia, 2004

Note:

IARC: International Agency for Research on Cancer

Group 1: Carcinogenic to humans

Group 2A: limited evidence of carcinogenicity in humans and sufficient evidence in animals

Group 2B: Possible human carcinogen

Group 3: Not classifiable as to its carcinogenicity to humans

APPENDIX 7

Present Situation and Recommendation on Procurement of the Materials and Reagents by the Laboratory in CONAGUA

1. Background

In general, it is essential for any laboratory to procure necessary materials and reagents properly as well as analytical equipments, since those stuffs are indispensable for their daily chemical analysis. However, the laboratory in CONAGUA seems to have some difficulties on the procurement process; for example; there have been some situations on which CONAGUA was unable to apply the most appropriate technology to their analysis due to lack of the materials and reagents.

Considering those situations, JICA Expert Team for "the Project on Capacity Enhancement for Establishing Mexican Norms of Water Quality Criteria" has made interview to the National Reference Laboratory in CONAGUA to find out the recommendation for the difficulties, since proper procurement of the materials and reagents are closely related to the technical capacity enhancement. This document summarizes the present situation based on the interview and recommendation by the JICA Expert Team towards the solution.

2. Current process for the procurement

2.1 Overall

In Mexico, any federal office and organization has the obligation to procure their necessary stuffs by themselves based on the "Law on Acquisition, Leasing, and Public Sector Services". Additionally, the National Reference Laboratory of CONAGUA has an accredited procedure (QAC: Quality Assurance Control) based on ISO-17025-2005 which includes the procurement procedure. According to this procedure, the National Reference Laboratory and the Chief of the Laboratories Network have to be in charge of all procurement works for the National Reference Laboratory and the Basin Organizations and Local Offices that integrate the Network. The overall process for CONAGUA to procure the materials and reagents is as summarized in Table 2.1-1.

As shown in the table, firstly CONAGUA requests a budget to the Secretariat of Finance and Public Credit one year before in May or June based on the regular inventory control and expectation of the necessary materials, reagents and equipment. At the end of the year the budget is authorized and it is expected to arrive at the beginning of the year. On the following year, the Secretariat of Finance informs that the budget is available by issuing an OLI (*Oficio de Liberacion de Inversion*: Investment Release Letter) for equipment and works. CONAGUA adjusts their original procurement plan to be applicable to the allocated budget and initiates the procurement works with the publication of the public bidding in the Official Gazette, later on the evaluation, the selection of the suppliers and finally the contract is carried out.

The deadline of the payment for the procured stuffs is in December. Therefore, CONAGUA has to complete the procurement works in October at the latest due to the nature and origin of the merchandise, since it takes 60 days until when the ordered stuffs are delivered after the contract. In addition, there is a possibility that the OLI is delayed considerably as happened in 2008. In this year,

the budget had not been issued until August whereas it is expected to come in April or May usually. In such cases, the time schedule for procurement works would become much tighter. According to CONAGUA, they could not implement the allocated budget for the year 2008 for the equipment due to the lack of the issuing of the OLI for the procurement works.

Table 2.1-1 Procurement Process for CONAGUA

Year	Month	Process for Procurement
1st year	Jan	Inventory
	Feb	
	Mar	Planning for procurement
	Apr.	
	May	
	June	Requesting budget
	July	
	Aug.	
	Sep.	
	Oct.	
	Nov.	
	Dec.	
2nd year	Jan.	
	Feb.	
	Mar.	
	Apr.	Secretariat of Finance and Public Credit informs that the budget is ready by issuing OLI.
	May	
	June	
	July	
	Aug.	Procurement works ● Bidding ● Selecting purveyors ● Contract
	Sep.	
	Oct.	
	Nov.	
	Dec.	Delivery — Dead line of the payment

2.2 Inventory work and requisition

Requisition procedure for purchasing the necessary materials and reagents based on the properly controlled inventory is a basic requirement for the procurement works.

QAC, to which the National Reference Laboratory of CONAGUA has to conform, designates the following specific processes related to the requisition and inventory work.

- Requisition of materials, reagents, and equipments (Code IPC1)
- Reception, storage, and delivery of materials and reagents (Code IPC2)
- Inventory control (Code IPC3)

Code IPC1 is to designate the process of annual requisition by the National Reference Laboratory. Based on the regulation, the Head of the Network shall verify the requisitions from the National Reference Laboratory and regional laboratories in CONAGUA and will summarize them into an annual requisition.

Code IPC2 is describing how to receive, store, release, and deliver the procured stuffs by the National Reference Laboratory, which has responsibility on receiving the delivered goods from the purveyors. This process is related to the inventory control procedure designated by Code IPC3.

Code IPC3 is for carrying out the inventory work. Based on this manual, the National Reference Laboratory is obligated to register all the materials and reagents stored in the laboratory on the inventory list and update it at least once a year.

Those regulations are specifying the steps on each process clearly with detailed instruction of how to fill the prescribed forms. In addition, the procedure is working without any problems so far according to CONAGUA. Therefore, those regulations are considered to be sufficient for proper requisition and inventory work.

3. Extracted issues on the process of procurement

Considering the current conditions on the overall procurement process, following issues were extracted to be solved for proper procurement by CONAGUA.

(1) The time period required for the budget to be allocated is too long.

It is considered that the fundamental issue for CONAGUA to procure necessary materials and reagents when they are needed is attributing to the time schedule for budget allocation. In current conditions, CONAGUA acquires the stuffs one and a half years after submitting requisition, and it corresponds to two years after the inventory. This time schedule is considered not to be practical especially for irregular requirements such as emergency sample-analysis and training by the JICA project and so on, since it is difficult to predict the exact necessity before two years.

(2) Time for procurement works is considerably limited.

Another issue for CONAGUA is time shortage for procurement works such as bidding, selecting purveyors, and contract. They have to complete those works and receive the materials by December every year, even if the budget allocation is delayed. According to the Law of Acquisitions of

CONAGUA, it requires 90 days for the bidding process because of the nature of the goods and 60 days for being delivered. Therefore, it would be almost impossible to procure properly, especially when the budget allocation is delay. Actually, CONAGUA could not implement the budget appropriately due to time shortage in 2008 and because the OLI was not issued.

(3) Manpower is running short for the procurement works.

As described above, the procurement works has to be completed in the short period in current condition. On the other hand, the number of employees is shrinking in CONAGUA these days. QAC designates the Head of the National Laboratories Network and the Head of the National Reference Laboratory to review the budget request from regional laboratories and summarize the annual requisition; therefore, they have to be heavily involved in those administrative works in this period at the same time that they are involved in their technical work.

4. Planned Efforts by CONAGUA

Under those circumstanced above, CONAGUA has started considering three options below to solve the current difficulties. Those options are to complete the procurement works in short period by increasing personnel or modifying organization structure. In the case of modifying organization structure (the third option), CONAGUA has to consider the other impacts caused by the restructuring such as change of regional laboratories' authority and their technical supervision.

(1) Hiring a person with a certain wage for the administrative work of the budget (acquisition).

(2) Hiring a person with specific TOR (Outsourcing)

(3) Handing over as concessions the Basin Organizations and Local Offices to state governments.

5. Recommendation

For the proper laboratory works, it is essential to be able to use necessary materials and equipments especially when they are needed. In this point of view, it has to be said that the system of procurement in CONAGUA is not sufficient as described above.

The ideal way to solve the problem is to modify the overall schedule and procedure for budgeting; however, it is not easy as it is ascribing to the federal framework.

Therefore, it is recommended to reinforce the administrative capacity by enhancing the manpower as one of the alternative options to alleviate the problems. Although the general policy for CONAGUA's human resources is to shrink them, it would make the procurement process more smoothly.

The National Reference Laboratory in CONAGUA is playing a role as a leader on the technical field for the Basin Organizations and Local Offices, as well as for the rest of the public and private laboratories that are carrying out water quality analysis. We, the JICA Expert Team, hope that the technical capacity of the National Reference Laboratory would be enhanced favorably to prevent any issues related to the procurement of materials and reagents in the future.

ANNEX

ANNEX 一覧

These are stored in a CD and attached at the end of the report.

（以下は CD に収め、報告書に添付した。）

ANNEX 1	Dispatch of Japanese Experts 日本人専門家の派遣
ANNEX 2	Questionnaires for the Capacity Assessment キャパシティアセスメントのための質問表
ANNEX 3	Agenda items, participant list, Minutes of Meeting and presentation material on the first Joint Coordination Committee, July 25, 2008 第 1 回 JCC（2008 年 7 月 25 日）の議事次第、参加者、M/M、プレゼンテーション資料
ANNEX 4	Agenda items, participant list, Minutes of Meeting and presentation material on the second Joint Coordination Committee, March 3, 2009 第 2 回 JCC（2009 年 3 月 3 日）の議事次第、参加者、M/M、プレゼンテーション資料
ANNEX 5	Agenda items, participant list, Minutes of Meeting and presentation material on the third Joint Coordination Committee, March 18, 2010 第 3 回 JCC（2010 年 3 月 18 日）の議事次第、参加者、M/M、プレゼンテーション資料
ANNEX 6	Agenda items, participant list, Minutes of Meeting and presentation material on the fourth Joint Coordination Committee, June 23, 2010 第 4 回 JCC（2010 年 7 月 23 日）の議事次第、参加者、M/M、プレゼンテーション資料
ANNEX 7	Presentation materials on the first workshop, October 21, 2008 第 1 回ワークショップ（2008 年 10 月 21 日）のプレゼンテーション資料
ANNEX 8	Participant list and presentation material on the second workshop, July 20, 2009 第 2 回ワークショップ（2009 年 7 月 20 日）の参加者、プレゼンテーション資料
ANNEX 9	Participant list and presentation material on the third workshop, August 14, 2009 第 3 回ワークショップ（2009 年 8 月 14 日）の参加者、プレゼンテーション資料
ANNEX 10	Participant list and presentation material on the fourth workshop, November 26, 2009

第 4 回ワークショップ（2009 年 11 月 26 日）の参加者、プレゼンテーション資料

ANNEX 11 Participant list and presentation material on the fifth workshop, February 12, 2010
第 5 回ワークショップ（2010 年 2 月 12 日）の参加者、プレゼンテーション資料

ANNEX 12 Schedule, participant list and presentation material on sixth workshop, June 28 to July 2, 2010
第 6 回ワークショップ（2010 年 6 月 28 日~7 月 2 日）のスケジュール、参加者、プレゼンテーション資料

ANNEX 13 Agenda items, participant list and presentation material on the first seminar, October 20, 2008
第 1 回セミナー（2008 年 10 月 20 日）の議事次第、参加者、プレゼンテーション資料

ANNEX 14 Agenda items and presentation material on the second seminar, October 22-24, 2008
第 2 回セミナー（2008 年 10 月 22 日~24 日）の議事次第、プレゼンテーション資料

ANNEX 15 Participant list and presentation material on the third seminar, November 11, 2008
第 3 回セミナー（2008 年 11 月 11 日）のプレゼンテーション資料

ANNEX 16 Agenda items, participant list and presentation material on the fourth seminar (technical committee), December 11, 2008
第 4 回セミナー（2008 年 12 月 11 日）の議事次第、参加者、プレゼンテーション資料

ANNEX 17 Participant list and presentation material on the fifth seminar, October 12, 2009
第 5 回セミナー（2009 年 10 月 12 日）の参加者、プレゼンテーション資料

ANNEX 18 Participant list and presentation material on the sixth seminar, November 9-13, 2009
第 6 回セミナー（2009 年 11 月 9 日~13 日）の参加者、プレゼンテーション資料

ANNEX 19 Participant list and presentation material on the seventh seminar, March 18, 2010

第 7 回セミナー（2010 年 3 月 18 日）の参加者、プレゼンテーション資料

ANNEX 20 Participant list and presentation material on the eighth seminar, March 18, 2010
第 8 回セミナー（2010 年 3 月 18 日）の参加者、プレゼンテーション資料

ANNEX 21 Participant list and presentation material on the ninth seminar, June 21, 2010
第 9 回セミナー（2010 年 7 月 21 日）の参加者、プレゼンテーション資料

ANNEX 22 Agenda items, participant list and presentation material on the first Technical Committee, December 11, 2008
第 1 回テクニカルコミッティ（2008 年 12 月 11 日）の議事次第、参加者、プレゼンテーション資料