



ภาคผนวก ค
ผลการวิเคราะห์คุณภาพสิ่งแวดล้อม

Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงนครไชยศรี เขตดุสิต กรุงเทพมหานคร
Tel./E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำผิวดิน Sampling Time : ² Report No. : RP6804136
Sampling Method : Grab Received Date : 25/04/68 Analysis No. : W6804259-W6804261
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 25/04-22/05/68 Request No. : 7.1-01-227/68
Analyst By : อรุมา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6804259 23/04/68 ¹ 16.45 น. ²	SW.2 W6804260 23/04/68 ¹ 14.30 น. ²	SW.3 W6804261 23/04/68 ¹ 14.15 น. ²
DO ³	mg/L	Field Analysis	7.0	6.5	6.1
Turbidity	NTU	SM 2023 (2130 B)	6.12	34.2	34.1
Conductivity	μS/cm	SM 2023 (2510 B)	219	236	241
Salinity	ppt	SM 2023 (2520 B)	0.1	0.1	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	8.2 at 24.4 °C	8.2 at 24.6 °C	8.1 at 24.7 °C
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	0.86	3.82	2.81
Total Suspended Solids	mg/L	SM 2023 (2540 D)	<LOQ*	35*	30*
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	114	106	102
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	97.8	102	104
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	86.4	91.3	95.3
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	2.47	2.93	2.93
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	7.89	11.7	11.3
Nitrate-Nitrogen	mg/L as NO ₃ ⁻ -N	SM 2023 (4500-NO ₃ ⁻ E)	0.031	0.021	0.021
Ammonia-Nitrogen	mg/L as NH ₃ -N	SM 2023 (4500-NH ₃ B, C)	<0.40	<0.40	<0.40
Phosphate	mg/L as P	SM 2023 (4500-P E)	0.013	0.008	0.012
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	140	490	340
Fecal Coliform Bacteria	MPN/100mL	SM 2023 (9221 E, C)	23	130	78
Calcium	mg/L	SM 2023 (3030 F and 3120 B)	23.22	24.55	27.49
Magnesium	mg/L	SM 2023 (3030 F and 3120 B)	5.396	5.709	5.998
Sodium	mg/L	SM 2023 (3030 F and 3120 B)	7.282	7.716	7.431
Potassium	mg/L	SM 2023 (3030 F and 3120 B)	1.345	2.755	2.682
SAR	-	Calculation	0.3539	0.3646	0.3347
RSC	meq/L	Calculation	0.35	0.34	0.22

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6804259 23/04/68 ¹ 16.45 น. ²	SW.2 W6804260 23/04/68 ¹ 14.30 น. ²	SW.3 W6804261 23/04/68 ¹ 14.15 น. ²
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0
Bicarbonate	mg/L as HCO ₃ ⁻	SM 2023 (2320 B)	119	124	127
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	0.3558	0.6447	1.540
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	0.0251	0.0369	0.1044
Nickel	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Phenols ⁴	mg/L	SM 2023 (5530 B, C)	ND	ND	ND
Cyanide ⁴	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND
Mercury ⁴	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ⁴					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
g-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6804259 23/04/68 ¹ 16.45 น. ²	SW.2 W6804260 23/04/68 ¹ 14.30 น. ²	SW.3 W6804261 23/04/68 ¹ 14.15 น. ²
Organophosphate Pesticide ⁴					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition		Observation	เหลือียงขึ้น ตะกอนเหลือียง	เหลือียงขึ้น ตะกอนน้ำตาล	เหลือียงขึ้น ตะกอนน้ำตาล

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

- * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ตรวจวัดภาคสนาม : ⁴ ส่งตรวจภายนอก
: SW.1 = ดินน้ำน้ำปี้ : SW.2 = อ่างเก็บน้ำน้ำปี้ : SW.3 = หัวงานอ่างเก็บน้ำน้ำปี้

: <LOQ = Total Suspended Solids ผลการทดสอบมีค่าระหว่าง ≥ 1 mg/L แต่ <5 mg/L

: ND = Non detectable (Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Nickel <0.0050 mg/L, Zinc <0.0100 mg/L, Phenols <0.001 mg/L, Cyanide <0.001 mg/L, Mercury <0.0001 mg/L, a-BHC <0.005 µg/L, b-BHC <0.005 µg/L, g-BHC <0.005 µg/L, d-BHC <0.005 µg/L, Heptachlor <0.005 µg/L, Aldrin <0.005 µg/L, Heptachlor Epoxide <0.005 µg/L, Endosulfan I <0.005 µg/L, p,p-DDE <0.01 µg/L, Dieldrin <0.005 µg/L, Endrin <0.01 µg/L, Endosulfan II <0.01 µg/L, p,p-DDD <0.01 µg/L, Endrin Aldehyde <0.01 µg/L, Endosulfan Sulfate <0.01 µg/L, p,p-DDT <0.01 µg/L, Methoxychlor <0.05 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


(Miss Sasitorn Limprasat)
Technical Manager
22/05/68


(Miss Usanee Lertapiradee)
Laboratory Manager
22/05/68

Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
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Tel./E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำผิวดิน Sampling Time : ² Report No. : RP6804137
Sampling Method : Grab Received Date : 25/04/68 Analysis No. : W6804262-W6804264
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 25/04-22/05/68 Request No. : 7.1-01-227/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6804262 22/04/68 ¹ 17.40 น. ²	SW.5 W6804263 23/04/68 ¹ 17.55 น. ²	SW.6 W6804264 22/04/68 ¹ 16.25 น. ²
DO ³	mg/L	Field Analysis	5.4	6.3	6.4
Turbidity	NTU	SM 2023 (2130 B)	442	22.7	332
Conductivity	μS/cm	SM 2023 (2510 B)	250	250	318
Salinity	ppt	SM 2023 (2520 B)	0.1	0.1	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	7.7 at 25.0 °C*	8.1 at 25.0 °C	8.0 at 25.1 °C*
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	2.25	1.16	1.08
Total Suspended Solids	mg/L	SM 2023 (2540 D)	222*	15*	154*
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	132	130	192
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	105	112	125
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	99.4	101	130
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	3.40	2.93	2.70
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	12.6	8.56	16.3
Nitrate-Nitrogen	mg/L as NO ₃ ⁻ -N	SM 2023 (4500-NO ₃ ⁻ E)	0.024	0.057	0.612
Ammonia-Nitrogen	mg/L as NH ₃ -N	SM 2023 (4500-NH ₃ B, C)	<0.40	<0.40	<0.40
Phosphate	mg/L as P	SM 2023 (4500-P E)	0.037	0.012	0.100
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	220	170	160
Fecal Coliform Bacteria	MPN/100mL	SM 2023 (9221 E, C)	78	18	49
Calcium	mg/L	SM 2023 (3030 F and 3120 B)	27.47	28.89	37.26
Magnesium	mg/L	SM 2023 (3030 F and 3120 B)	7.438	5.367	7.974
Sodium	mg/L	SM 2023 (3030 F and 3120 B)	8.190	7.986	10.16
Potassium	mg/L	SM 2023 (3030 F and 3120 B)	4.319	1.317	4.931
SAR	-	Calculation	0.3578	0.3580	0.3941
RSC	meq/L	Calculation	0.12	0.36	<0.01

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6804262 22/04/68 ¹ 17.40 น. ²	SW.5 W6804263 23/04/68 ¹ 17.55 น. ²	SW.6 W6804264 22/04/68 ¹ 16.25 น. ²
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0
Bicarbonate	mg/L as HCO ₃ ⁻	SM 2023 (2320 B)	128	137	153
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	0.0115	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	12.00	0.7395	6.615
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	0.3358	0.0640	0.1149
Nickel	mg/L	SM 2023 (3030 F and 3120 B)	0.0086	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Phenols ⁴	mg/L	SM 2023 (5530 B, C)	ND	ND	ND
Cyanide ⁴	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND
Mercury ⁴	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ⁴					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
γ-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND


ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6804262 22/04/68 ¹ 17.40 น. ²	SW.5 W6804263 23/04/68 ¹ 17.55 น. ²	SW.6 W6804264 22/04/68 ¹ 16.25 น. ²
Organophosphate Pesticide ⁴					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition		Observation	น้ำตาลขุ่น ตะกอนน้ำตาล	เหลืองขุ่น ตะกอนน้ำตาล	น้ำตาลขุ่น ตะกอนน้ำตาล

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

- : * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ตรวจวัดภาคสนาม : ⁴ ส่งตรวจภายนอก
- : SW.4 = น้ำผ่านโครงการ : SW.5 = จุดบรรจบน้ำยม น้ำปี้ : SW.6 = ฝ่ายแม่ยม
- : ND = Non detectable (Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Nickel <0.0050 mg/L, Zinc <0.0100 mg/L, Phenols <0.001 mg/L, Cyanide <0.001 mg/L, Mercury <0.0001 mg/L, a-BHC <0.005 µg/L, b-BHC <0.005 µg/L, g-BHC <0.005 µg/L, d-BHC <0.005 µg/L, Heptachlor <0.005 µg/L, Aldrin <0.005 µg/L, Heptachlor Epoxide <0.005 µg/L, Endosulfan I <0.005 µg/L, p,p-DDE <0.01 µg/L, Dieldrin <0.005 µg/L, Endrin <0.01 µg/L, Endosulfan II <0.01 µg/L, p,p-DDD <0.01 µg/L, Endrin Aldehyde <0.01 µg/L, Endosulfan Sulfate <0.01 µg/L, p,p-DDT <0.01 µg/L, Methoxychlor <0.05 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


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(Miss Sasitorn Limprasat)
Technical Manager
22/05/68


.....
(Miss Usanee Lertapiradee)
Laboratory Manager
22/05/68

Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงนครไชยศรี เขตดุสิต กรุงเทพมหานคร
Tel./E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำใต้ดิน Sampling Time : ²
Sampling Method : Grab Received Date : 25/04/68
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 25/04-22/05/68
Report No. : RP6804138
Analysis No. : W6804265-W6804267
Request No. : 7.1-01-227/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6804265 23/04/68 ¹ 14.50 น. ²	GW.2 W6804266 23/04/68 ¹ 17.35 น. ²	GW.3 W6804267 23/04/68 ¹ 13.35 น. ²
Color	Pt-Co	SM 2023 (2120 C)	ND	ND	ND
Turbidity	NTU	SM 2023 (2130 B)	0.70	1.98	1.03
Salinity	ppt	SM 2023 (2520 B)	0.4	0.3	0.2
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	8.2 at 24.7 °C	6.8 at 24.2 °C*	6.8 at 23.9 °C*
Total Suspended Solids	mg/L	SM 2023 (2540 D)	ND	ND	ND
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	589	348	408
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	429	233	262
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	128	222	167
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0
Non Carbonate Hardness	mg/L as CaCO ₃	SM 2023 (2340 A)	0	0	0
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	5.72	35.5	21.3
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	95.1	54.5	47.1
Nitrate	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	0.408	19.5	2.40
Phosphate	mg/l as P	SM 2023 (4500-P E)	0.037	0.011	0.079
Fluoride	mg/L	SM 2023 (4500-F ⁻ D)	2.13	0.352	0.416
Total Bacteria	CFU/mL	SM 2023 (9215 B)	1,100	710	4,700
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	23	<1.8	540
<i>Escherichia coli</i>	MPN/100mL	SM 2023 (9221 G, C)	7.8	Negative	33

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6804265 23/04/68 ¹ 14.50 น. ²	GW.2 W6804266 23/04/68 ¹ 17.35 น. ²	GW.3 W6804267 23/04/68 ¹ 13.35 น. ²
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	0.1115	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	0.0168	0.0150	0.0202
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Cyanide ³	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND
Mercury ³	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ³					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
g-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6804265 23/04/68 ¹ 14.50 น. ²	GW.2 W6804266 23/04/68 ¹ 17.35 น. ²	GW.3 W6804267 23/04/68 ¹ 13.35 น. ²
Organophosphate Pesticide ³					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition		Observation	ใส ตะกอนเหลือง	ใส ตะกอนเทา	ใส

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

: * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ส่งตรวจภายนอก

: GW.1 = บาดาลโครงการน้ำปี้


: GW.2 = บ่อน้ำดิน ข้างรพ.สต.ไชยสถาน

: GW.3 = บ่อน้ำดิน บ้านสบทราย

: Negative = ตรวจไม่พบ (*Escherichia coli* <1.8 MPN/100mL)

: ND = Non detectable (Color <1.00 Pt-Co, Total Suspended Solids <1 mg/L, Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Manganese <0.0050 mg/L, Zinc 0.0100 mg/L, Cyanide <0.005 mg/L, Mercury <0.0001 mg/L, a-BHC <0.02 µg/L, b-BHC <0.02 µg/L, g-BHC <0.02 µg/L, d-BHC <0.02 µg/L, Heptachlor <0.02 µg/L, Aldrin <0.02 µg/L, Heptachlor Epoxide <0.02 µg/L, Endosulfan I <0.02 µg/L, p,p-DDE <0.04 µg/L, Dieldrin <0.02 µg/L, Endrin <0.04 µg/L, Endosulfan II <0.04 µg/L, p,p-DDD <0.04 µg/L, Endrin Aldehyde <0.04 µg/L, Endosulfan Sulfate <0.04 µg/L, p,p-DDT <0.04 µg/L, Methoxychlor <0.20 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


.....
(Miss Sasitorn Limprasat)
Technical Manager
22/05/68


.....
(Miss Usanee Lertapiradee)
Laboratory Manager
22/05/68

Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงนครไชยศรี เขตดุสิต กรุงเทพมหานคร
Tel./E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำใต้ดิน Sampling Time : ² Report No. : RP6804139
Sampling Method : Grab Received Date : 25/04/68 Analysis No. : W6804268-W6804271
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 25/04-22/05/68 Request No. : 7.1-01-227/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6804268 23/04/68 ¹ 18.20 น. ²	GW.5 W6804269 23/04/68 ¹ 18.30 น. ²	GW.6 W6804270 22/04/68 ¹ 16.40 น. ²	GW.7 W6804271 22/04/68 ¹ 15.30 น. ²
Color	Pt-Co	SM 2023 (2120 C)	ND	ND	ND	ND
Turbidity	NTU	SM 2023 (2130 B)	1.30	1.34	1.34	1.60
Salinity	ppt	SM 2023 (2520 B)	0.5	0.3	0.2	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	8.6 at 23.9 °C	8.1 at 24.4 °C	6.8 at 24.6 °C*	7.7 at 24.6 °C*
Total Suspended Solids	mg/L	SM 2023 (2540 D)	ND	ND	ND	ND
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	790	448	342	180
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	640	365	222	128
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	26.2	110	238	114
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0	0
Non Carbonate Hardness	mg/L as CaCO ₃	SM 2023 (2340 A)	0	0	16.0	0
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	13.6	10.6	23.2	4.79
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	63.8	24.7	42.4	16.2
Nitrate	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	1.16	1.69	39.6	0.828
Phosphate	mg/l as P	SM 2023 (4500-P E)	0.050	0.040	0.035	0.006
Fluoride	mg/L	SM 2023 (4500-F ⁻ D)	4.65	2.22	0.354	0.287
Total Bacteria	CFU/mL	SM 2023 (9215 B)	1,500	21,000	18,000	1,300
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	13	110	170	7.8
<i>Escherichia coli</i>	MPN/100mL	SM 2023 (9221 G, C)	2.0	110	170	Negative

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6804268 23/04/68 ¹ 18.20 น. ²	GW.5 W6804269 23/04/68 ¹ 18.30 น. ²	GW.6 W6804270 22/04/68 ¹ 16.40 น. ²	GW.7 W6804271 22/04/68 ¹ 15.30 น. ²
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	0.1711	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	0.0682	0.0556	0.0125	0.0554
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Cyanide ³	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND	ND
Mercury ³	mg/L	SM 2023 (3112 B)	ND	ND	ND	ND
Organochlorine Pesticide ³						
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
g-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6804268 23/04/68 ¹ 18.20 น. ²	GW.5 W6804269 23/04/68 ¹ 18.30 น. ²	GW.6 W6804270 22/04/68 ¹ 16.40 น. ²	GW.7 W6804271 22/04/68 ¹ 15.30 น. ²
Organophosphate Pesticide ³						
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Sample Condition	Observation		ใส ตะกอนเหลือง	ใส ตะกอนเหลือง	ใส ตะกอนเหลือง	ใส ตะกอนเหลือง

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

- * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ส่งตรวจภายนอก
- : GW.4 = บ่อบาดาล บ้านแพทยา : GW.6 = บ่อน้ำดิน บ้านหนองสุวรรณ (บ้านเลขที่ 5)
- : GW.5 = บาดาล บ้านหนองหมู : GW.7 = บาดาล บ้านนันทาราม
- : Negative = ตรวจไม่พบ (*Escherichia coli* <1.8 MPN/100mL)
- : ND = Non detectable (Color <1.00 Pt-Co, Total Suspended Solids <1 mg/L, Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Manganese <0.0050 mg/L, Zinc 0.0100 mg/L, Cyanide <0.005 mg/L, Mercury <0.0001 mg/L, a-BHC <0.02 µg/L, b-BHC <0.02 µg/L, g-BHC <0.02 µg/L, d-BHC <0.02 µg/L, Heptachlor <0.02 µg/L, Aldrin <0.02 µg/L, Heptachlor Epoxide <0.02 µg/L, Endosulfan I <0.02 µg/L, p,p-DDE <0.04 µg/L, Dieldrin <0.02 µg/L, Endrin <0.04 µg/L, Endosulfan II <0.04 µg/L, p,p-DDD <0.04 µg/L, Endrin Aldehyde <0.04 µg/L, Endosulfan Sulfate <0.04 µg/L, p,p-DDT <0.04 µg/L, Methoxychlor <0.20 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


.....
(Miss Sasitorn Limprasat)
Technical Manager
22/05/68


.....
(Miss Usanee Lertapradee)
Laboratory Manager
22/05/68

Project Name : โครงการอ่างเก็บน้ำน้ำป้านเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงถนนนครไชยศรี เขตดุสิต กรุงเทพมหานคร 10300
Tel./E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา **Sampling Date** : ¹
Sample Type : น้ำผิวดิน **Sampling Time** : ²
Sampling Method : Grab **Received Date** : 08/08/68
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน **Analytical Date** : 08/08-16/09/68
Report No. : RP6808036
Analysis No. : W6808096-W6808098
Request No. : 7.1-01-401/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6808096 06/08/68 ¹ 16.34 น. ²	SW.2 W6808097 06/08/68 ¹ 15.11 น. ²	SW.3 W6808098 06/08/68 ¹ 14.35 น. ²
DO ³	mg/L	Field Analysis	6.0	6.4	7.0
Turbidity	NTU	SM 2023 (2130 B)	51.4	31.8	31.0
Conductivity	μS/cm	SM 2023 (2510 B)	180	196	199
Salinity	ppt	SM 2023 (2520 B)	0.1	0.1	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	7.4 at 23.4 °C*	7.6 at 23.5 °C*	7.9 at 23.5 °C*
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	0.99	0.57	0.54
Total Suspended Solids	mg/L	SM 2023 (2540 D)	30*	13*	14*
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	114*	116*	118*
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	83.3	90.3	88.8
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	73.9	81.0	83.6
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	2.43	2.66	2.48
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	6.38	7.75	7.79
Nitrate-Nitrogen	mg/L as NO ₃ ⁻ -N	SM 2023 (4500-NO ₃ ⁻ E)	0.239	0.265	0.246
Ammonia-Nitrogen	mg/L as NH ₃ -N	SM 2023 (4500-NH ₃ B, C)	<0.40	<0.40	<0.40
Phosphate	mg/L as P	SM 2023 (4500-P E)	0.031	0.020	0.022
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	280	350	350
Fecal Coliform Bacteria	MPN/100mL	SM 2023 (9221 E, C)	170	70	70
Calcium	mg/L	SM 2023 (3030 F and 3120 B)	21.09	22.94	22.96
Magnesium	mg/L	SM 2023 (3030 F and 3120 B)	4.626	4.906	4.796
Sodium	mg/L	SM 2023 (3030 F and 3120 B)	5.588	5.936	5.894
Potassium	mg/L	SM 2023 (3030 F and 3120 B)	1.021	1.127	1.154
SAR	-	Calculation	0.2872	0.2935	0.2921
RSC	meq/L	Calculation	0.24	0.25	0.23

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6808096 06/08/68 ¹ 16.34 น. ²	SW.2 W6808097 06/08/68 ¹ 15.11 น. ²	SW.3 W6808098 06/08/68 ¹ 14.35 น. ²
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0
Bicarbonate	mg/L as HCO ₃ ⁻	SM 2023 (2320 B)	102	110	108
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	2.028	1.027	1.065
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	0.0582	0.0171	0.0173
Nickel	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Phenols ⁴	mg/L	SM 2023 (5530 B, C)	ND	ND	ND
Cyanide ⁴	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND
Mercury ⁴	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ⁴					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
γ-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.1 W6808096 06/08/68 ¹ 16.34 น. ²	SW.2 W6808097 06/08/68 ¹ 15.11 น. ²	SW.3 W6808098 06/08/68 ¹ 14.35 น. ²
Organophosphate Pesticide ⁴					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition		Observation	เหลือขุ่น ตะกอนน้ำตาล	เหลือขุ่น ตะกอนน้ำตาล	เหลือขุ่น ตะกอนน้ำตาล

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

: * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ตรวจวัดภาคสนาม : ⁴ ส่งตรวจภายนอก

: SW.1 = ดินน้ำน้ำขุ่น : SW.2 = อ่างเก็บน้ำน้ำขุ่น : SW.3 = ห้วยงานอ่างเก็บน้ำน้ำขุ่น

: ND = Non detectable (Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Nickel <0.0050 mg/L, Zinc <0.0100 mg/L, Phenols <0.001 mg/L, Cyanide <0.001 mg/L, Mercury <0.0001 mg/L, a-BHC <0.005 µg/L, b-BHC <0.005 µg/L, g-BHC <0.005 µg/L, d-BHC <0.005 µg/L, Heptachlor <0.005 µg/L, Aldrin <0.005 µg/L, Heptachlor Epoxide <0.005 µg/L, Endosulfan I <0.005 µg/L, p,p-DDE <0.01 µg/L, Dieldrin <0.005 µg/L, Endrin <0.01 µg/L, Endosulfan II <0.01 µg/L, p,p-DDD <0.01 µg/L, Endrin Aldehyde <0.01 µg/L, Endosulfan Sulfate <0.01 µg/L, p,p-DDT <0.01 µg/L, Methoxychlor <0.05 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


(Miss Sasitorn Limprasat)
Technical Manager
16/09/68


(Miss Usanee Lertapiradee)
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16/09/68

Project Name : โครงการอ่างเก็บน้ำบ้านป้านเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงถนนนครไชยศรี เขตดุสิต กรุงเทพมหานคร 10300
Tel/E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำผิวดิน Sampling Time : ²
Sampling Method : Grab Received Date : 08/08/68
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 08/08-16/09/68
Report No. : RP6808037
Analysis No. : W6808099-W6808101
Request No. : 7.1-01-401/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6808099 05/08/68 ¹ 17.20 น. ²	SW.5 W6808100 05/08/68 ¹ 16.50 น. ²	SW.6 W6808101 05/08/68 ¹ 15.10 น. ²
DO ³	mg/L	Field Analysis	4.5	5.6	7.3
Turbidity	NTU	SM 2023 (2130 B)	44.6	204	94.6
Conductivity	μS/cm	SM 2023 (2510 B)	208	189	244
Salinity	ppt	SM 2023 (2520 B)	0.1	0.1	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	7.9 at 23.5 °C*	7.8 at 23.4 °C*	7.9 at 23.4 °C*
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	1.52	0.93	0.51
Total Suspended Solids	mg/L	SM 2023 (2540 D)	22*	130*	39*
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	154*	102*	140*
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	92.0	84.0	106
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	85.1	79.9	105
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	2.94	2.57	2.38
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	8.25	7.15	12.7
Nitrate-Nitrogen	mg/L as NO ₃ ⁻ -N	SM 2023 (4500-NO ₃ ⁻ E)	0.361	0.420	0.491
Ammonia-Nitrogen	mg/L as NH ₃ -N	SM 2023 (4500-NH ₃ B, C)	<0.40	<0.40	<0.40
Phosphate	mg/L as P	SM 2023 (4500-P E)	0.019	0.022	0.034
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	1,600	280	280
Fecal Coliform Bacteria	MPN/100mL	SM 2023 (9221 E, C)	26	34	27
Calcium	mg/L	SM 2023 (3030 F and 3120 B)	25.15	24.94	32.84
Magnesium	mg/L	SM 2023 (3030 F and 3120 B)	5.075	4.685	5.344
Sodium	mg/L	SM 2023 (3030 F and 3120 B)	6.346	5.059	5.675
Potassium	mg/L	SM 2023 (3030 F and 3120 B)	1.467	1.355	1.490
SAR	-	Calculation	0.3019	0.2438	0.2422
RSC	meq/L	Calculation	0.16	0.06	0.04

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6808099 05/08/68 ¹ 17.20 น. ²	SW.5 W6808100 05/08/68 ¹ 16.50 น. ²	SW.6 W6808101 05/08/68 ¹ 15.10 น. ²
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	0	0	0
Bicarbonate	mg/L as HCO ₃ ⁻	SM 2023 (2320 B)	112	103	129
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	1.410	6.858	2.953
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	0.0584	0.1886	0.0252
Nickel	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Phenols ⁴	mg/L	SM 2023 (5530 B, C)	ND	<0.005	<0.005
Cyanide ⁴	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND *
Mercury ⁴	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ⁴					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
γ-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	SW.4 W6808099 05/08/68 ¹ 17.20 น. ²	SW.5 W6808100 05/08/68 ¹ 16.50 น. ²	SW.6 W6808101 05/08/68 ¹ 15.10 น. ²
Organophosphate Pesticide ⁴					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition		Observation	เหลือขุ่น ตะกอนน้ำตาล	เหลือขุ่น ตะกอนน้ำตาล	เหลือขุ่น ตะกอนน้ำตาล

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

- : * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025 : ³ ตรวจวัดภาคสนาม : ⁴ ส่งตรวจภายนอก
- : SW.4 = น้ำผ่านโครงการ : SW.5 = จุดบรรจบน้ำยม น้ำปี้ : SW.6 = ฝ่ายแม่ยม
- : ND = Non detectable (Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Nickel <0.0050 mg/L, Zinc <0.0100 mg/L, Phenols <0.001 mg/L, Cyanide <0.001 mg/L, Mercury <0.0001 mg/L, a-BHC <0.005 µg/L, b-BHC <0.005 µg/L, g-BHC <0.005 µg/L, d-BHC <0.005 µg/L, Heptachlor <0.005 µg/L, Aldrin <0.005 µg/L, Heptachlor Epoxide <0.005 µg/L, Endosulfan I <0.005 µg/L, p,p-DDE <0.01 µg/L, Dieldrin <0.005 µg/L, Endrin <0.01 µg/L, Endosulfan II <0.01 µg/L, p,p-DDD <0.01 µg/L, Endrin Aldehyde <0.01 µg/L, Endosulfan Sulfate <0.01 µg/L, p,p-DDT <0.01 µg/L, Methoxychlor <0.05 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


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Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงถนนนครไชยศรี เขตดุสิต กรุงเทพมหานคร 10300
Tel/E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำใต้ดิน Sampling Time : ² Report No. : RP6808038
Sampling Method : Grab Received Date : 08/08/68 Analysis No. : W6808102-W6808104
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 08/08-16/09/68 Request No. : 7.1-01-401/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6808102 06/08/68 ¹ 14.12 น. ²	GW.2 W6808103 06/08/68 ¹ 17.35 น. ²	GW.3 W6808104 06/08/68 ¹ 17.50 น. ²
Color	Pt-Co	SM 2023 (2120 C)	3.42	5.17	4.10
Turbidity	NTU	SM 2023 (2130 B)	1.60	3.70	2.37
Salinity	ppt	SM 2023 (2520 B)	0.3	0.1	0.2
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	8.1 at 23.3 °C	6.8 at 23.6 °C*	6.8 at 23.3 °C*
Total Suspended Solids	mg/L	SM 2023 (2540 D)	ND	ND	ND
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	462*	220*	332*
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	337	75.0	198
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	138	81.3	140
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	10.8	0	0
Non Carbonate Hardness	mg/L as CaCO ₃	SM 2023 (2340 A)	0	6.30	0
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	5.19	15.9	20.4
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	62.9	20.7	33.3
Nitrate	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	0.616	23.1	28.0
Phosphate	mg/l as P	SM 2023 (4500-P E)	0.006	0.014	0.027
Fluoride	mg/L	SM 2023 (4500-F ⁻ D)	1.38	0.179	0.439
Total Bacteria	CFU/mL	SM 2023 (9215 B)	1,400	1,400	2,900
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	170	2.0	280
<i>Escherichia coli</i>	MPN/100mL	SM 2023 (9221 G, C)	Negative	Negative	220

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6808102 06/08/68 ¹ 14.12 น. ²	GW.2 W6808103 06/08/68 ¹ 17.35 น. ²	GW.3 W6808104 06/08/68 ¹ 17.50 น. ²
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	0.0685	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	ND	0.0154	0.0110
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	0.0581	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	0.0128	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	0.4746	ND
Cyanide ³	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND
Mercury ³	mg/L	SM 2023 (3112 B)	ND	ND	ND
Organochlorine Pesticide ³					
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
g-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.1 W6808102 06/08/68 ¹ 14.12 น. ²	GW.2 W6808103 06/08/68 ¹ 17.35 น. ²	GW.3 W6808104 06/08/68 ¹ 17.50 น. ²
Organophosphate Pesticide ³					
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Phosalone	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND
Sample Condition	Observation		ใส ตะกอนเหลือง	ใส ตะกอนน้ำตาล	ใส

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

* รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025

: ³ ส่งตรวจภายนอก

: GW.1 = บาดาลโครงการน้ำปี้


: GW.2 = บ่อน้ำดิน รร.บ้านไชยสถาน

: GW.3 = บ่อน้ำดิน บ้านสบทราย

: Negative = ตรวจไม่พบ (*Escherichia coli* <1.8 MPN/100mL)

: ND = Non detectable (Total Suspended Solids <1 mg/L, Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Iron <0.0050 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Manganese <0.0050 mg/L, Zinc 0.0100 mg/L, Cyanide <0.005 mg/L, Mercury <0.0001 mg/L, a-BHC <0.02 µg/L, b-BHC <0.02 µg/L, γ-BHC <0.02 µg/L, d-BHC <0.02 µg/L, Heptachlor <0.02 µg/L, Aldrin <0.02 µg/L, Heptachlor Epoxide <0.02 µg/L, Endosulfan I <0.02 µg/L, p,p-DDE <0.04 µg/L, Dieldrin <0.02 µg/L, Endrin <0.04 µg/L, Endosulfan II <0.04 µg/L, p,p-DDD <0.04 µg/L, Endrin Aldehyde <0.04 µg/L, Endosulfan Sulfate <0.04 µg/L, p,p-DDT <0.04 µg/L, Methoxychlor <0.20 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


(Miss Sasitorn Limprasat)
Technical Manager
16/09/68


(Miss Usanee Lertapiradee)
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Project Name : โครงการอ่างเก็บน้ำน้ำป้อนเนื่องมาจากพระราชดำริ จังหวัดพะเยา
Customer Name : สำนักบริหารโครงการ ส่วนสิ่งแวดล้อม กรมชลประทาน
Address : 811 ถนนสามเสน แขวงถนนนครไชยศรี เขตดุสิต กรุงเทพมหานคร 10300
Tel/E-mail : 02-241-4421 / rid_envi@hotmail.com
Sample Site : จังหวัดพะเยา Sampling Date : ¹
Sample Type : น้ำใต้ดิน Sampling Time : ² Report No. : RP6808039
Sampling Method : Grab Received Date : 08/08/68 Analysis No. : W6808105-W6808108
Sampling By : ส่วนสิ่งแวดล้อม กรมชลประทาน Analytical Date : 08/08-16/09/68 Request No. : 7.1-01-401/68
Analyst By : อรุณา คุณสมกัน

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6808105 05/08/68 ¹ 17.40 น. ²	GW.5 W6808106 05/08/68 ¹ 17.50 น. ²	GW.6 W6808107 05/08/68 ¹ 15.20 น. ²	GW.7 W6808108 05/08/68 ¹ 14.20 น. ²
Color	Pt-Co	SM 2023 (2120 C)	1.44	2.10	1.24	1.31
Turbidity	NTU	SM 2023 (2130 B)	2.10	0.89	1.06	1.86
Salinity	ppt	SM 2023 (2520 B)	0.5	0.3	0.2	0.1
pH	-	In-house method : LAB-Test-129 base on SM 2023 (4500-H ⁺ B)	8.5 at 23.2 °C	8.3 at 23.8 °C	6.9 at 23.2 °C*	7.8 at 23.2 °C*
Total Suspended Solids	mg/L	SM 2023 (2540 D)	ND	ND	ND	ND
Total Dissolved Solids	mg/L	SM 2023 (2540 C)	754*	416*	374*	184*
Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	599	382	212	130
Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	31.7	117	219	114
Carbonate	mg/L as CO ₃ ²⁻	SM 2023 (2320 B)	46.5	28.0	0	0
Non Carbonate Hardness	mg/L as CaCO ₃	SM 2023 (2340 A)	0	0	7.00	0
Chloride	mg/L	SM 2023 (4500-Cl ⁻ B)	12.9	11.5	20.4	4.72
Sulfate	mg/L	SM 2023 (4500-SO ₄ ²⁻ E)	63.7	26.3	39.8	17.1
Nitrate	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	1.44	1.01	37.3	0.563
Phosphate	mg/l as P	SM 2023 (4500-P E)	0.019	0.008	0.162	0.006
Fluoride	mg/L	SM 2023 (4500-F ⁻ D)	4.75	1.94	0.340	0.277
Total Bacteria	CFU/mL	SM 2023 (9215 B)	2,200	2,600	2,600	1,500
Total Coliform Bacteria	MPN/100mL	SM 2023 (9221 B, C)	49	79	280	140
<i>Escherichia coli</i>	MPN/100mL	SM 2023 (9221 G, C)	4.0	79	4.5	7.8

ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6808105 05/08/68 ¹ 17.40 น. ²	GW.5 W6808106 05/08/68 ¹ 17.50 น. ²	GW.6 W6808107 05/08/68 ¹ 15.20 น. ²	GW.7 W6808108 05/08/68 ¹ 14.20 น. ²
Arsenic	mg/L	SM 2023 (3030 F and 3120 B)	0.1621	ND	ND	ND
Chromium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Iron	mg/L	SM 2023 (3030 F and 3120 B)	0.0714	ND	ND	0.0670
Cadmium	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Copper	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Lead	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Manganese	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Zinc	mg/L	SM 2023 (3030 F and 3120 B)	ND	ND	ND	ND
Cyanide ³	mg/L	SM 2023 (4500-CN ⁻ C, E)	ND	ND	ND	ND
Mercury ³	mg/L	SM 2023 (3112 B)	ND	ND	ND	ND
Organochlorine Pesticide ³						
a-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
b-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
g-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
d-BHC	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Heptachlor	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Aldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Heptachlor Epoxide	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan I	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDE	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Dieldrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endrin	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan II	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDD	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endrin Aldehyde	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
p,p-DDT	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND
Methoxychlor	µg/L	SM 2023 (6630 C)	ND	ND	ND	ND


ANALYSIS REPORT

PARAMETER	UNIT	METHOD	GW.4 W6808105 05/08/68 ¹ 17.40 น. ²	GW.5 W6808106 05/08/68 ¹ 17.50 น. ²	GW.6 W6808107 05/08/68 ¹ 15.20 น. ²	GW.7 W6808108 05/08/68 ¹ 14.20 น. ²
Organophosphate Pesticide ³						
Methyl Parathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Methamidophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Mevinphos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Malathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Monocrotophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Dimethoate	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Ethoprophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Methidathion	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Chlorpyrifos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Profenofos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Triazophos	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Phosalone *	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
EPN	mg/L	U.S.EPA 1996:3510 C and U.S.EPA 2007:8141 B	ND	ND	ND	ND
Sample Condition		Observation	ใส ตะกอนเหลือง	ใส ตะกอนเหลือง	ใส ตะกอนเหลือง	ใส ตะกอนเหลือง

หมายเหตุ : SM 2023 = Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023

- : * รายการทดสอบที่ได้รับการรับรอง ISO/IEC 17025
- : ³ ส่งตรวจภายนอก
- : GW.4 = บ่อบาดาล บ้านแพทย์
- : GW.6 = บ่อน้ำดื่ม บ้านหนองสุวรรณ (บ้านเลขที่ 5)
- : GW.5 = บาดาล บ้านหนองหมู
- : GW.7 = บาดาล บ้านนันทาราม
- : ND = Non detectable (Total Suspended Solids <1 mg/L, Arsenic <0.0050 mg/L, Chromium <0.0100 mg/L, Iron <0.0050 mg/L, Cadmium <0.0010 mg/L, Copper <0.0050 mg/L, Lead <0.0100 mg/L, Manganese <0.0050 mg/L, Zinc 0.0100 mg/L, Cyanide <0.005 mg/L, Mercury <0.0001 mg/L, a-BHC <0.02 µg/L, b-BHC <0.02 µg/L, γ-BHC <0.02 µg/L, d-BHC <0.02 µg/L, Heptachlor <0.02 µg/L, Aldrin <0.02 µg/L, Heptachlor Epoxide <0.02 µg/L, Endosulfan I <0.02 µg/L, p,p-DDE <0.04 µg/L, Dieldrin <0.02 µg/L, Endrin <0.04 µg/L, Endosulfan II <0.04 µg/L, p,p-DDD <0.04 µg/L, Endrin Aldehyde <0.04 µg/L, Endosulfan Sulfate <0.04 µg/L, p,p-DDT <0.04 µg/L, Methoxychlor <0.20 µg/L, Methyl Parathion <0.02 mg/L, Methamidophos <0.02 mg/L, Mevinphos <0.02 mg/L, Malathion <0.02 mg/L, Monocrotophos <0.02 mg/L, Dimethoate <0.02 mg/L, Ethoprophos <0.02 mg/L, Methidathion <0.02 mg/L, Chlorpyrifos <0.02 mg/L, Profenofos <0.02 mg/L, Triazophos <0.02 mg/L, Phosalone <0.02 mg/L, EPN <0.02 mg/L)


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