

TEST REPORT

Official Technical Translation & Environmental Compliance Record

1. **Sampling Location:** Surface water 100m downstream of cooling water discharge into Thi Vai River (Coordinates X: 1171103; Y: 421432)
2. **Date of Monitoring:** 28/02/2023 (09:40)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Benzene hexachloride (BHC)	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
2	Heptachlor & Heptachlorepoxide	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
3	pH	-	TCVN 6492:2011	7.5
4	Temperature	°C	SMEWW 2550B:2017	29.9
5	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	6.3
6	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.43
7	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
8	Arsenic (As)	mg/l	ASTM-D2972:15	ND (<0.0100)
9	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2017	1.1
10	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)
11	Total Chromium (Cr)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
12	Nitrate (NO ₃ ⁻ as N)	mg/l	TCVN 6494-1:2011	0.59
13	Nitrite (NO ₂ ⁻ as N)	mg/l	TCVN 6494-1:2011	ND (<0.020)
14	Phosphate (PO ₄ 3 ⁻ as P)	mg/l	TCVN 6202:2008	0.019
15	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2017	ND (<5)
16	Total Coliform	MPN/100ml	TCVN 6187-2:2020	24 x 10 ^{^1}
17	Escherichia coli (E.coli)	MPN/100ml	TCVN 6187-2:2020	15
18	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
19	Lead (Pb)	mg/l	ASTM-D3559:15	ND (<0.0100)
20	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
21	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
22	Cadmium (Cd)	mg/l	ASTM-D3557:17	ND (<0.0023)
23	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
24	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
25	Total Iron (T-Fe)	mg/l	US EPA 3015A & SMEWW 3120 B	0.086
26	Total Oil and Grease	mg/l	SMEWW 5520B:2017	ND (<0.3)
27	Cyanide (CN ⁻)	mg/l	TCVN 6181-1996	ND (<0.008)
28	DDT	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
29	Aldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
30	Dieldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
31	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	7.8

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
32	Chloride (Cl-)	mg/l	TCVN 6194:1996	14,754
33	Surfactants	mg/l	TCVN 6622-1:2009	ND (<0.01)
34	Total Phenol	mg/l	TCVN 6216:1996	ND (<0.001)
35	Total Organic Carbon (TOC)	mg/l	TCVN 6634:2000	5.79
36	Gross Alpha Radioactivity	Bq/l	TCVN 8879:2011	ND (<0.021)
37	Gross Beta Radioactivity	Bq/l	TCVN 8879:2011	ND (<0.018)

Notes / Remarks:

- Sample collected and analyzed by CEMRB according to official service contract.
- ND: Not Detected below method detection limit.
- Test results are only valid for the analyzed samples at the time and location indicated.

HEAD OF ENVIRONMENTAL ADVISORY / TESTING DIVISION

DIRECTOR / VICE DIRECTOR

Nguyen Thi Le Hang / Nguyen Thi Hang

Le Tuan Kiet / Nguyen Xuan Son / Vo Phi Long

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TEST REPORT

Official Technical Translation & Environmental Compliance Record

- 1. Sampling Location:** Surface water 100m downstream of cooling water discharge into Thi Vai River (Coordinates X: 1171103; Y: 421432)
- 2. Date of Monitoring:** 30/06/2023 (11:20)
- 3. Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.265
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	15
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.4
4	Nitrate (NO ₃ ⁻ as N)	mg/l	TCVN 6494-1:2011	3.5
5	Phosphate (PO ₄ 3 ⁻ as P)	mg/l	TCVN 6202:2008	ND (<0.010)
6	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
7	Escherichia coli (E.coli)	MPN/100ml	TCVN 6187-2:2020	24 x 10 ²
8	Lead (Pb)	mg/l	ASTM-D3559:D-15	ND (<0.0100)
9	Arsenic (As)	mg/l	ASTM-D2972:C-15	0.278
10	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
11	Total Iron (T-Fe)	mg/l	TCVN 6177:1996	0.33
12	Total Oil and Grease	mg/l	SMEWW 5520B:2023	ND (<0.3)
13	Aldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
14	DDT	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
15	Heptachlor & Heptachlorepoide	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
16	Cyanide (CN ⁻)	mg/l	TCVN 6181-1996	ND (<0.008)
17	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	7.2
18	pH	-	TCVN 6492:2011	7.6
19	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
20	Nitrite (NO ₂ ⁻ as N)	mg/l	TCVN 6494-1:2011	ND (<0.020)
21	Chloride (Cl ⁻)	mg/l	TCVN 6194:1996	10,961
22	Dieldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
23	BHC	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
24	Total Chromium (Cr)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
25	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
26	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
27	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
28	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
29	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
30	Total Coliform	MPN/100ml	TCVN 6187-2:2020	46 x 10 ²
31	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
32	Surfactants	mg/l	TCVN 6622-1:2009	ND (<0.01)
33	Total Phenol	mg/l	TCVN 6216:1996	ND (<0.001)
34	Gross Alpha Radioactivity	Bq/l	TCVN 8879:2011	ND (<0.021)
35	Gross Beta Radioactivity	Bq/l	TCVN 8879:2011	ND (<0.018)
36	Total Organic Carbon (TOC)	mg/l	TCVN 6634:2000	4.37

Notes / Remarks:

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TEST REPORT

Official Technical Translation & Environmental Compliance Record

- 1. Sampling Location:** Surface water 100m downstream of cooling water discharge into Thi Vai River (Coordinates X: 1171103; Y: 421432)
- 2. Date of Monitoring:** 07/09/2023 (11:05)
- 3. Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	ND (<0.100)
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	13
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.2
4	Nitrate (NO ₃ ⁻ as N)	mg/l	TCVN 6494-1:2011	3.1
5	Phosphate (PO ₄ 3 ⁻ as P)	mg/l	TCVN 6202:2008	0.039
6	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
7	Escherichia coli (E.coli)	MPN/100ml	TCVN 6187-2:2020	23 x 10 ^{^1}
8	Lead (Pb)	mg/l	ASTM-D3559:D-15	0.0132
9	Arsenic (As)	mg/l	ASTM-D2972:C-15	ND (<0.0100)
10	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
11	Total Iron (T-Fe)	mg/l	TCVN 6177:1996	0.33
12	Total Oil and Grease	mg/l	SMEWW 5520B:2023	ND (<0.3)
13	Aldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
14	DDT	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
15	Heptachlor & Heptachlorepoide	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
16	Cyanide (CN ⁻)	mg/l	TCVN 6181-1996	ND (<0.008)
17	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	6.2
18	pH	-	TCVN 6492:2011	7.2
19	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
20	Nitrite (NO ₂ ⁻ as N)	mg/l	TCVN 6494-1:2011	ND (<0.020)
21	Chloride (Cl ⁻)	mg/l	TCVN 6194:1996	10,968
22	Dieldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
23	BHC	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
24	Total Chromium (Cr)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
25	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
26	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B	0.050
27	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
28	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
29	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
30	Total Coliform	MPN/100ml	TCVN 6187-2:2020	46 x 10 ^{^2}
31	Hexavalent Chromium (Cr6 ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
32	Surfactants	mg/l	SMEWW 5540B&C:2017	ND (<0.03)
33	Total Phenol	mg/l	SMEWW 5530B&C:2017	ND (<0.002)
34	Gross Alpha Radioactivity	Bq/l	TCVN 6053:2011	ND (<0.010)
35	Gross Beta Radioactivity	Bq/l	TCVN 6219:2011	3.29
36	Total Organic Carbon (TOC)	mg/l	SMEWW 5310C:2017	3.1
37	Temperature	°C	SMEWW 2550B:2023	32.6

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TEST REPORT

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1. **Sampling Location:** Surface water 100m downstream of cooling water discharge into Thi Vai River (Coordinates X: 1171103; Y: 421432)
2. **Date of Monitoring:** 13/10/2023 (11:15)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	2.63
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	17
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.1
4	Nitrate (NO ₃ ⁻ as N)	mg/l	TCVN 6494-1:2011	2.4
5	Phosphate (PO ₄ 3 ⁻ as P)	mg/l	TCVN 6202:2008	0.020
6	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
7	Escherichia coli (E.coli)	MPN/100ml	TCVN 6187-2:2020	43 x 10 ^{^1}
8	Lead (Pb)	mg/l	ASTM-D3559:D-15	ND (<0.0100)
9	Arsenic (As)	mg/l	ASTM-D2972:C-15	ND (<0.0100)
10	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
11	Total Iron (T-Fe)	mg/l	SMEWW 3125B:2025	0.301
12	Total Oil and Grease	mg/l	SMEWW 5520B:2023	ND (<0.3)
13	Aldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
14	DDT	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
15	Heptachlor & Heptachlorepoide	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
16	Cyanide (CN ⁻)	mg/l	TCVN 6181-1996	ND (<0.008)
17	Dissolved Oxygen (DO)	mg/l	TCVN 7325:2016	6.9
18	pH	-	TCVN 6492:2011	7.0
19	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
20	Nitrite (NO ₂ ⁻ as N)	mg/l	TCVN 6494-1:2011	ND (<0.020)
21	Chloride (Cl ⁻)	mg/l	TCVN 6194:1996	10,354
22	Dieldrin	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
23	BHC	µg/l	US EPA 8270D/3510C/3630C	ND (<0.020)
24	Total Chromium (Cr)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
25	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
26	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B	0.103
27	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
28	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
29	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B	ND (<0.050)
30	Total Coliform	MPN/100ml	TCVN 6187-2:2020	46 x 10 ^{^2}
31	Hexavalent Chromium (Cr6 ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
32	Surfactants	mg/l	SMEWW 5540B&C:2017	ND (<0.03)
33	Total Phenol	mg/l	SMEWW 5530B&C:2017	ND (<0.002)
34	Gross Alpha Radioactivity	Bq/l	TCVN 6053:2011	ND (<0.010)
35	Gross Beta Radioactivity	Bq/l	TCVN 6219:2011	1.32
36	Total Organic Carbon (TOC)	mg/l	SMEWW 5310C:2017	4.5
37	Temperature	°C	SMEWW 2550B:2023	30.6

Notes / Remarks:

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