

Figure G6.6 Sampling Locations for Water Quality Analysis in Ia Rsiom Commune

G6-11

Điểm Kinh Tế (11)

Table G6. 6 Data Sheet : Result of Water Quality Analysis

Location	Ia Rsiuom Commune (G-6)											
	G-6-0		G-6-1		G-6-2		G-6-3		G-6-4		G-6-5	
Sample No.	80		78		17		1		25		48	
Location No.	80		78		17		1		25		48	
Name	JICA G-6		Mr. Long		Mr. Lo		Mr. Chuat		UNICEF Hand Pump		UNICEF Hand Pump	
Type	Drilling Well		Dug Well		Dug well		Dug well		Drilling + Hand Pump		Drilling + Hand Pump	
Latitude / Longitude	13°19.395 / 108°34.971		13°19.388 / 108°34.951		13°19.262 / 108°35.156		13°19.518 / 108°34.769		13°18.962 / 108°35.364		13°18.580 / 108°35.482	
Elevation	140		140		148		139		120		120	
Date	16-May-01		20-May-01		20-May-01		20-May-01		20-May-01		20-May-01	
Time	16:40		10:30		10:55		11:20		11:45		12:15	
Flow Quantity	-		-		-		-		-		-	
Well Depth GL-(m)	180.0		7.30		12.14		11.72		8.5		12.0	
Groundwater Table GL-(m)	-		2.40		5.40		10.41		-		-	
Water Temperature (°C)	27.3		26.9		27.9		27.3		32.0		29.5	
pH	6.98		7.33		6.92		7.10		6.37		6.52	
Ec (μ S/cm)	775		670		1,400		902		749		213	
DO (mg/l)	1.25		3.02		1.06		2.02		0.84		1.46	
TDS (mg/l)	195.322		270.872		734.955		406.992		113.474		132.319	
Ca ²⁺ (mg/l)	40.40		37.48		90.00		44.74		13.06		15.48	
Mg ²⁺ (mg/l)	13.94	5	8.784	3	32.076	-	14.130	-	3.232	-	7.727	3
Na ⁺ (mg/l)	34.96		20.70		36.11		32.89		13.80		11.04	
K ⁺ (mg/l)	1.521		17.940		13.65		1.365		0.897		1.911	
HCO ₃ ⁻ (mg/l)	57.26		85.16		435.36		274.81		38.13		50.20	
Cl ⁻ (mg/l)	158.350		76.716		0.944		7.526		9.656		5.254	
SO ₄ ²⁻ (mg/l)	7.28		24.10		126.77		31.54		34.70		40.70	
Total Fe (mg/l)	3.10	2	2.60	2	7.10	-	3.40	-	0.92	-	1.40	0.5
NO ₂ -N (mg/l)	<0.001	<0.02	<0.001	0.02	<0.001	-	<0.001	-	<0.001	-	<0.001	<0.02
NO ₃ -N (mg/l)	9.09	<1	9.22	10	14.54	-	7.68	-	0.53	-	0.52	2
NH ₄ ⁺ (mg/l)	0.138	0.3	0.027	-	0.026	-	0.035	-	0.033	-	0.022	-
PO ₄ ³⁻ (mg/l)	0.04	0.2	0.20	-	0.05	-	<0.01	-	0.04	-	0.07	-
COD/KMnO ₄ (mg/l)	0.779	10	0.315	5	1.338	-	1.889	-	1.338	-	0.866	15
F (mg/l)	0.0870	0	0.0647	-	0.0975	-	0.0843	-	0.1057	-	0.0601	-
As (mg/l)	0.0034	<0.2, (0.00)	0.0036	<0.2, (0.00)	0.0040	-	0.0033	-	0.0026	-	0.0031	<0.2
Mn ²⁺ (mg/l)	0.0672	<0.5	0.0472	<0.5	0.0827	-	0.0975	-	0.0457	-	0.0785	<0.5
Coliform (MPN/100ml)	110	-	790	-	920	-	1,600	-	540	-	1,700	-

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit

Table G6. 7 Data Sheet : Result of Water Quality Analysis

Location	Kong Yang Commune (G-7)											
	G-7-0		G-7-1		G-7-2		G-7-3		G-7-4		G-7-5	
Sample No.	64		63		1		23		47		17	
Location No.	64		63		1		23		47		17	
Name	JICA G-7		Deep Well		Primary School		Mr. Hiep		UNICEF Hand Pump		Mr. Loan	
Type	Drilling Well		Drilling Well		Dug Well		Dug Well		Drilling + Hand Pump		Dug Well	
Latitude / Longitude	13°50.416 / 108°32.553		13°51.053 / 108°32.720		13°51.072 / 108°32.750		13°50.412 / 108°32.539		13°49.427 / 108°32.527		13°50.711 / 108°32.569	
Elevation	451		450		451		451		453		450	
Date	7-Jun-01		19-May-01		19-May-01		19-May-01		19-May-01		19-May-01	
Time	8:30		10:00		10:25		10:55		11:20		11:50	
Flow Quantity	-		-		-		-		-		-	
Well Depth GL-(m)	160.0		70.0		8.18		5.38		16.2		4.20	
Groundwater Table GL-(m)	Pump Depth 43.5m		Pump Depth -		7.92		2.87		-		1.77	
Water Temperature (°C)	27.0		26.1		26.9		28.2		26.8		26.5	
pH	7.18		7.29		6.50		6.02		6.23		5.82	
Ec (μ S/cm)	501		445		139.0		159.0		276		224	
DO (mg/l)	1.42		3.50		3.05		2.57		1.88		2.48	
TDS (mg/l)	426.749		326.479		80.111		82.660		168.043		121.746	
Ca ²⁺ (mg/l)	42.12		37.98		8.36		8.94		20.84		17.14	
Mg ²⁺ (mg/l)	23.219	5	18.845	3	5.200	-	3.524	3	9.939	-	6.597	-
Na ⁺ (mg/l)	28.75		16.56		6.21		8.51		10.58		8.51	
K ⁺ (mg/l)	1.989		1.833		0.195		2.106		0.195		0.819	
HCO ₃ ⁻ (mg/l)	311.34		210.21		22.75		18.24		91.93		33.25	
Cl ⁻ (mg/l)	15.775		0.639		8.449		7.597		17.715		12.283	
SO ₄ ²⁻ (mg/l)	3.55		40.42		28.94		33.74		16.85		43.15	
Total Fe (mg/l)	2.07	1.5	3.50	<0.2	0.90	-	0.74	<0.2	1.90	-	1.40	-
NO ₂ N (mg/l)	0.002	<0.02	<0.001	<0.02	<0.001	-	<0.001	<0.02	<0.001	-	<0.001	-
NO ₃ N (mg/l)	0.01	<1	0.16	<1	2.52	-	5.42	3	9.08	-	1.92	-
NH ₄ ⁺ (mg/l)	0.098	0.2	0.015	-	0.019	-	0.021	-	0.017	-	0.017	-
PO ₄ ³⁻ (mg/l)	0.05	0.2	0.07	-	0.04	-	0.04	-	<0.01	-	<0.01	-
COD/KMnO ₄ (mg/l)	0.866	-	0.787	50	1.338	-	0.866	100	0.551	-	0.630	-
F (mg/l)	0.2200	0	0.0768	-	0.0708	-	0.1373	-	0.0841	-	0.0658	-
As (mg/l)	0.0010	<0.2, (0.00)	0.0026	<0.2, (0.00)	0.0049	-	0.0033	<0.2	0.0038	-	0.0029	-
Mn ²⁺ (mg/l)	0.2860	<0.5	0.0955	<0.5	0.1420	-	0.0675	<0.5	0.0655	-	0.0752	-
Coliform (MPN/100ml)	17	-	1,800	-	1,100	-	1,300	-	2,200	-	2,800	-

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit


Table G6. 8 KẾT QUẢ PHÂN TÍCH DIOXIN TRONG MẪU NƯỚC
(của trung tâm nước sạch và vệ sinh môi trường nông thôn)

1. Mẫu nước kí hiệu:
(Water sampe N^o):
2. Phương pháp phân tích: Sắc kí khí- khối phổ (GC/MS)
(Method of Analysis: Gas-chromatography / Mass spetrometry detection)
3. Kết quả phân tích 15 đồng phân độc của đioxin và furan
(Results of analysis of 15 toxic isomers of dioxins and furans)

N ^o	Hợp chất (compounds)	Nồng độ (concentration)	
		Vietnamese	English
1	2,3,7,8-TCDD	Không tìm thấy	not found
2	1,2,3,7,8-PeCDF (5Cl)	Không phải furan	no furan
3	2,3,4,7,8-PeCDF (5Cl)	Không phải furan	no furan
4	2,3,7,8-TCDD (4Cl)	Không phải dioxin	no dioxin
5	1,2,3,7,8-PeCDD (5Cl)	Không tìm thấy	not found
6	1,2,3,4,7,8-HxCDD (6Cl)	Không tìm thấy	not found
7	1,2,3,6,7,8-HxCDD (6Cl)	Không tìm thấy	not found
8	1,2,3,6,7,8-HxCDD (6Cl)	Không tìm thấy	not found
9	1,2,3,4,6,7,8-HpCDD (7Cl)	Không tìm thấy	not found
10	1,2,3,4,7,8-HxCDF (6Cl)	Không tìm thấy	not found
11	1,2,3,6,7,8-HxCDF (6Cl)	Không tìm thấy	not found
12	1,2,3,7,8,9-HxCDF (6Cl)	Không tìm thấy	not found
13	2,3,4,6,7,8-HxCDF (6Cl)	Không tìm thấy	not found
14	1,2,3,4,6,7,8-HpCDF (7Cl)	Không phải furan	no furan
15	1,2,3,4,7,8,9-HpCDF (7Cl)	Không tìm thấy	not found
16	OCDF (8Cl)	Không tìm thấy	not found
17	OCDD (8Cl)	Không tìm thấy	not found

1. Kết luận : Mẫu nước không chứa đioxin.
(Conclusion: Water sample is not dioxins and furans)

Xác nhận của trường
Hậu này



PGS.TS. Nguyễn Trọng Huyền

Hà nội, ngày 25 tháng 6 năm 2001
Phụ trách phân tích


Nguyễn Đức Huệ

File : C:\HPCHEM\1\DATA\BSB\V-483A.D
Operator : [BSB6]TRINH KHAC SAU
Acquired : 4 Jun 01 4:20 pm using AcqMethod RECDIO
Instrument : GC/MS Ins
Sample Name: Water Sample (Dr.Hue), 4L, ~US EPA-8280
Misc Info : 13C12-2520(4-8ng)+37Cl4(2.5ng);1/7ul;EMV=1706
Vial Number: 1

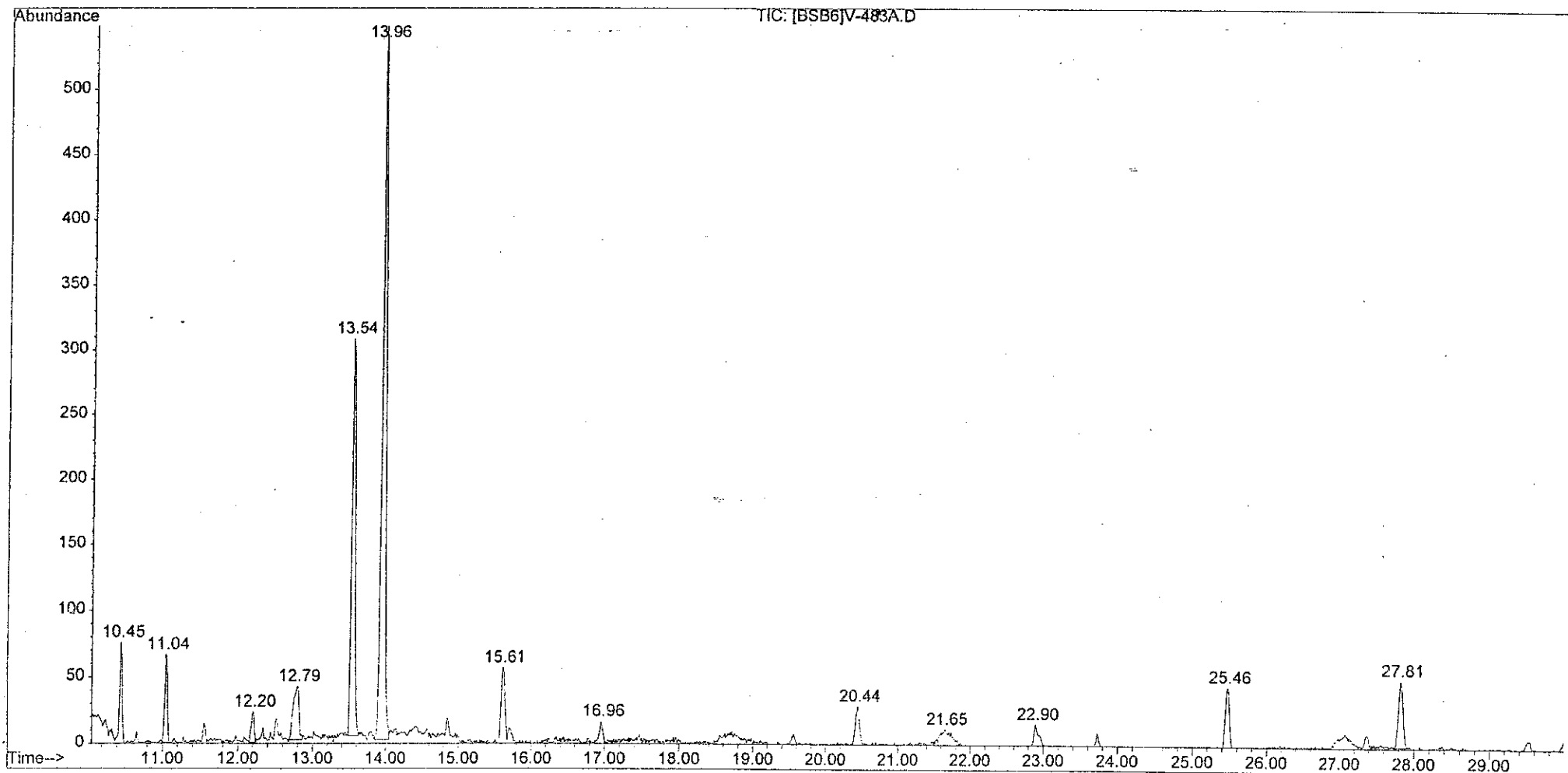


Figure G6. 8 Dioxin Analysis

BỘ Y TẾ
VIỆN VSDT - TN

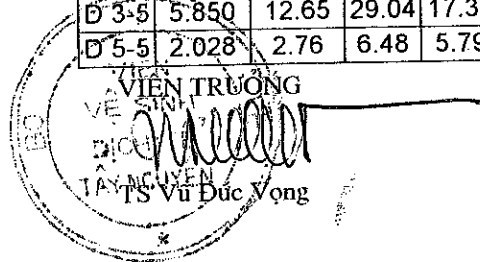
Table G6. 9

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM ĐỘC LẬP-TU DO-HẠNH
PHÚC PHIÊU KIỂM NGHIỆM NƯỚC

KHM	K ⁺ mg/l	Na ⁺ mg/l	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Cl ⁻ mg/l	SO ₄ ⁻ mg/l	HCO ₃ ⁻ mg/l	TDS mg/l	NO ₂ -N mg/l	NO ₃ -N mg/l	NH ₄ mg/l	PO ₄ ³⁻ mg/l	COD mg/l	TotalFe mg/l	As mg/l	F ⁻ mg/l	Mn ⁺⁺ mg/l	STT
D 6-1	2.220	20.24	16.80	5.220	0.210	1.15	113.46	159.310	<0.001	0.02	0.003	0.16	0.150	0.01	0.0001	0.0100	0.0100	1
D 6-2	2.180	14.95	17.20	5.100	0.280	1.05	101.68	142.460	<0.001	0.06	0.010	0.07	0.230	0.01	0.0011	0.0100	0.0190	2
D 6-3	2.060	7.59	27.60	5.100	0.280	1.05	85.64	129.340	<0.001	0.02	0.003	0.08	0.230	0.02	0.0017	0.0100	0.0350	3
D 6-4	2.020	15.18	20.40	4.370	0.280	2.35	91.86	136.480	<0.001	0.01	0.010	0.02	0.150	0.08	0.0014	0.0100	0.0140	4
D 6-5	2.840	10.58	40.80	7.040	0.700	1.01	124.19	187.180	<0.001	0.01	0.010	0.04	0.230	0.02	0.0020	0.0100	0.0140	5
D 2-1	2.820	6.67	30.80	8.740	0.560	1.10	108.79	189.110	<0.001	0.01	0.010	0.10	0.150	0.37	0.0017	0.0100	0.0040	6
D 2-2	1.560	4.83	24.80	5.220	0.490	0.10	81.31	118.320	<0.001	<0.01	0.020	0.17	0.150	0.09	0.0024	0.0100	0.0320	7
D 2-3	1.400	3.68	20.40	5.100	1.130	1.10	61.30	94.130	<0.001	0.05	0.010	0.19	0.150	0.37	0.0031	0.0100	0.0260	8
D 2-4	2.730	8.05	48.00	11.540	6.480	21.93	109.55	208.310	0.050	4.50	0.010	0.17	0.200	0.39	0.0035	0.0100	0.0230	9
G 5-1	4.990	41.40	15.60	3.400	0.280	3.69	142.92	286.870	<0.001	0.03	0.090	0.09	0.200	0.01	0.0037	0.0100	0.0250	10
D 5-1	0.702	92.00	71.00	8.262	1.064	12.48	509.59	695.098	<0.001	0.03	0.040	0.05	0.157	0.20	0.0081	0.0405	0.0040	11
D 5-2	0.858	52.90	77.80	15.552	1.773	9.98	454.27	613.138	<0.001	0.03	0.020	0.05	0.236	0.40	0.0049	0.1423	0.0340	12
D 5-3	4.602	37.95	39.80	35.429	1.773	9.12	425.23	553.904	<0.001	<0.01	0.040	0.09	0.157	2.00	0.0039	0.0455	0.0210	13
D 5-4	7.020	40.25	71.00	28.674	1.418	10.70	454.88	613.946	<0.001	0.18	0.100	0.09	0.157	0.30	0.0097	0.0203	0.0370	14
D 3-1	2.145	12.65	10.34	8.724	0.213	8.06	106.93	149.066	<0.001	0.03	0.010	0.10	0.157	2.50	0.0025	0.0225	0.0220	15
D 1-1	1.677	9.20	14.64	8.141	1.347	5.23	108.03	148.267	0.005	0.18	0.010	0.14	0.472	0.20	0.0029	0.0214	0.0020	16
D 1-2	0.468	2.53	5.26	3.062	1.489	5.23	25.86	43.901	0.002	0.19	0.010	0.09	0.157	0.60	0.0027	0.0256	0.0020	17
D 1-3	0.897	4.83	9.04	7.047	1.560	3.41	64.11	90.892	0.002	0.11	0.020	0.10	0.472	0.20	0.0027	0.0657	0.0020	18
D 3-2	4.407	12.08	30.96	3.135	18.044	29.28	102.18	200.810	0.050	6.86	0.003	0.11	0.393	0.40	0.0032	0.0224	0.0130	19
D 3-3	3.627	12.65	32.88	11.057	38.382	23.23	84.12	206.346	0.010	8.84	0.010	0.21	0.236	0.20	0.0025	0.1452	0.0040	20
D 3-4	1.989	12.08	16.80	7.600	14.712	33.70	44.71	131.646	<0.001	8.16	0.007	0.05	0.157	0.10	0.0031	0.0326	0.0050	21
D 3-5	5.850	12.65	29.04	17.350	42.398	43.87	51.42	202.580	<0.001	10.00	0.009	0.11	0.079	0.10	0.0028	0.0298	0.0010	22
D 5-5	2.028	2.76	6.48	5.796	5.637	32.83	4.94	64.473	0.010	7.70	0.009	0.05	0.551	0.70	0.0030	0.0505	0.0040	23

KHOA YHLD-VSMT

LABO CHẤT LƯỢNG NƯỚC



Nguyễn xuân Tâm

Bùi Vĩnh Diên

BỘ Y TẾ
VIỆN VSDT -TN

Table G6. 10

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM ĐỘC LẬP-TU DO-HẠNH
PHÚC PHIÊU KIỂM NGHIỆM NƯỚC

PHIẾU KIỂM NGHIỆM NƯỚC

Nơi gửi mẫu : JICA

Ngày gửi mẫu : 17/05/2001

Ngày trả lời kết quả : 7/6/2001

KHM	K ⁺ mg/l	Na ⁺ mg/l	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Cl ⁻ mg/l	SO ₄ ⁻ mg/l	HCO ₃ ⁻ mg/l	TDS mg/l	NO ₂ -N mg/l	NO ₃ -N mg/l	NH ₄ mg/l	PO ₄ ³⁻ mg/l	COD mg/l	TotalFe mg/l	As mg/l	F ⁻ mg/l	Mn ⁺⁺ mg/l	STT
K 3-1	1.209	4.83	14.88	7.679	0.213	6.96	84.18	119.951	<0.001	0.02	0.070	<0.01	1.259	0.28	0.0033	0.0851	0.0427	40
K 3-2	1.053	2.07	2.90	0.437	0.284	4.90	11.59	23.230	<0.001	0.16	0.060	<0.01	0.551	0.14	0.0026	0.0658	0.1505	41
K 3-3	1.911	3.68	13.88	8.602	0.213	5.66	91.74	125.694	<0.001	0.02	0.031	0.09	1.810	1.05	0.0031	0.0677	0.0455	42
K 3-4	2.340	4.37	2.74	0.486	3.550	4.75	12.75	30.987	<0.001	0.35	0.045	<0.01	0.630	0.22	0.0034	0.0843	0.0375	43
K 3-5	1.755	2.76	2.16	4.398	0.213	6.10	30.93	48.309	<0.001	0.74	0.044	<0.01	0.551	0.21	0.0033	0.0647	0.0377	44
K 4-1	1.170	1.61	0.80	0.656	0.852	3.50	6.41	14.997	<0.001	0.71	0.064	<0.01	0.393	0.99	0.0037	0.0905	0.0305	45
K 4-2	0.195	0.92	1.44	0.437	0.071	6.58	0.79	10.432	<0.001	0.32	0.061	<0.01	0.393	0.44	0.0036	0.0452	0.0375	46
K 4-3	0.468	0.92	1.38	0.571	0.568	7.49	0.98	12.371	<0.001	1.11	0.110	<0.01	0.787	0.18	0.0039	0.0707	0.0425	47
K 4-4	1.053	0.46	5.42	0.705	0.355	2.74	17.69	28.419	<0.001	0.20	0.042	<0.01	0.551	0.29	0.0035	0.0608	0.0427	48
K 4-5	0.195	0.23	0.22	0.267	0.142	2.26	0.67	3.981	<0.001	0.22	0.041	<0.01	0.236	0.21	0.0039	0.1000	0.0529	49
G 3	2.964	7.13	14.16	11.591	0.213	4.46	127.19	167.707	<0.001	0.06	0.036	0.14	0.157	0.20	0.0043	0.0841	0.1420	50
G 3	2.964	7.13	14.38	11.190	0.213	3.89	126.88	166.645	<0.001	0.05	0.029	0.14	0.236	0.40	0.0042	0.1280	0.1101	51
G 3	2.886	7.13	14.44	11.069	0.213	4.13	129.32	169.186	<0.001	0.07	0.026	0.14	0.393	0.30	0.0040	0.1007	0.0975	52
G 3-1	0.897	1.15	5.06	3.997	0.284	4.13	34.77	50.286	<0.001	0.04	0.023	0.16	0.315	0.25	0.0037	0.0860	0.0355	53
G 3-2	0.546	0.46	0.72	0.450	0.426	4.27	0.67	7.545	<0.001	0.17	0.032	0.04	0.944	0.44	0.0039	0.0841	0.0385	54
G 3-3	0.195	0.46	1.38	0.522	0.639	6.14	0.55	9.889	0.010	0.11	0.022	0.04	0.472	0.29	0.0034	0.1007	0.0475	55
G 3-4	1.014	0.92	3.62	3.548	0.355	5.28	23.79	38.527	<0.001	0.05	0.021	0.09	0.472	0.13	0.0047	0.0601	0.0975	56

KHOA YHLD-VSMT

LABO CHẤT LƯỢNG NƯỚC



Nguyễn xuân Tâm

Bùi Vĩnh Diên

BỘ Y TẾ
VIỆN VSDT -TN

Table G6. 11

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM ĐỘC LẬP-TU DO-HẠNH
PHÚC PHIÊU KIỂM NGHIỆM NƯỚC

PHIẾU KIỂM NGHIỆM NƯỚC

Nơi gửi mẫu : JICA

Ngày gửi mẫu : 19/05/2001

Ngày trả lời kết quả : 7/6/2001

KHM	K ⁺	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	Cl ⁻	SO ₄ ⁻	HCO ₃ ⁻	TDS	NO ₂ -N	NO ₃ -N	NH ₄	PO ₄ ³⁻	COD	TotalFe	As	F ⁻	Mn ⁺⁺	STT
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
K 5-1	0.624	1.61	0.44	0.255	0.355	5.81	0.73	9.824	<0.001	8.22	0.072	0.04	0.551	0.64	0.0036	0.1007	0.0975	57
K 5-2	2.964	3.91	8.10	2.454	0.213	4.66	40.20	62.496	<0.001	9.36	0.017	0.06	0.315	0.28	0.0040	0.0847	0.0577	58
K 5-3	1.365	4.37	2.16	0.535	4.615	10.46	0.73	24.241	<0.001	8.44	0.036	0.04	0.630	0.58	0.0037	0.0905	0.0545	59
K 5-4	1.131	6.44	1.88	1.361	11.786	11.52	0.85	34.972	<0.001	9.58	0.018	0.04	0.472	0.71	0.0040	0.0452	0.0427	60
K 5-5	6.630	3.45	8.10	2.491	8.591	9.65	23.61	62.517	0.010	9.22	0.025	0.04	0.866	0.20	0.0048	0.0705	0.1007	61
K 6-1	3.198	0.69	0.86	0.158	4.047	2.98	0.67	12.600	<0.001	9.56	0.014	0.04	0.708	0.37	0.0044	0.0707	0.1100	62
K 6-2	3.354	8.97	6.58	2.892	1.420	15.41	35.81	74.431	<0.001	9.36	0.012	0.18	0.708	0.27	0.0042	0.1808	0.1171	63
K 6-3	7.410	14.72	23.26	3.596	27.868	30.14	40.26	147.258	0.080	8.66	0.017	0.04	0.787	0.25	0.0041	0.0768	0.1177	64
K 6-4	3.354	1.43	2.16	2.479	0.355	14.69	6.16	30.623	0.020	4.34	0.020	0.04	0.391	0.27	0.0038	0.0853	0.0375	65
K 6-5	3.666	11.96	24.06	4.787	1.846	10.03	115.29	171.641	0.010	1.74	0.017	0.04	0.787	0.30	0.0082	0.1888	0.4070	66
G 1-1	0.273	0.69	0.88	1.932	0.710	7.06	3.97	15.506	<0.001	0.11	0.149	<0.01	0.236	0.23	0.0041	0.1077	0.0987	67
G 1-2	0.117	0.46	1.38	1.543	0.284	8.74	1.40	13.923	<0.001	0.52	0.033	0.04	0.315	0.18	0.0039	0.0475	0.0427	68
G 1-3	0.078	0.69	1.58	0.413	0.213	3.36	3.97	10.299	<0.001	0.30	0.042	<0.01	0.157	0.11	0.0043	0.0945	0.0777	69
G 1-4	0.078	0.69	1.30	0.134	0.071	4.37	1.34	7.983	<0.001	0.25	0.078	<0.01	0.630	0.07	0.0030	0.1800	0.2000	70
G 1-5	0.078	0.46	0.72	0.450	0.639	2.83	1.53	6.704	<0.001	0.02	0.035	<0.01	0.236	0.07	0.0029	0.0674	0.1750	71
G 3-5	2.652	10.12	16.12	8.128	0.213	19.73	89.79	146.753	<0.001	<0.01	0.033	<0.01	0.866	1.50	0.0029	0.1375	0.1070	72

VIỆN TRƯỞNG



TS Vũ Đức Vọng

KHOA YHLĐ-VSMT

Nguyễn xuân Tâm

LABO CHẤT LƯỢNG NƯỚC



Bùi Vĩnh Diên

PHIẾU KIỂM NGHIỆM NƯỚC

Nơi gửi mẫu : JICA

Ngày gửi mẫu : 22/05/2001

Ngày trả lời kết quả : 7/6/2001

KHM	K ⁺	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	Cl ⁻	SO ₄ ⁻	HCO ₃ ⁻	TDS	NO ₂ -N	NO ₃ -N	NH ₄	PO ₄ ³⁻	COD	TotalFe	As	F ⁻	Mn ⁺⁺	STT
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
G 4-2	0.078	1.61	0.50	0.972	0.355	5.86	1.77	11.140	<0.001	0.41	0.035	<0.01	0.315	0.10	0.0032	0.0677	0.0675	73
G 4-3	0.039	0.16	0.14	1.458	0.426	4.18	1.34	7.742	<0.001	0.09	0.042	0.04	0.236	0.12	0.0037	0.0647	0.0555	74
G 4-4	0.039	1.47	1.58	1.337	1.136	7.73	3.66	16.952	<0.001	0.41	0.051	0.04	0.236	0.19	0.0038	0.0608	0.0570	75
G 4-5	0.156	0.32	0.50	2.916	0.426	8.54	5.00	17.866	<0.001	0.01	0.024	0.04	0.315	0.27	0.0035	0.0457	0.0675	76
G 6-1	17.940	20.70	37.48	8.784	76.716	24.10	85.16	270.872	<0.001	9.22	0.027	0.20	0.315	2.60	0.0036	0.0647	0.0472	77
G 6-2	13.65	36.11	90.00	32.076	0.994	126.77	435.36	734.955	<0.001	14.54	0.026	0.05	1.338	7.10	0.0040	0.0975	0.0827	78
G 6-3	1.365	32.89	44.74	14.130	7.526	31.54	274.81	406.992	<0.001	7.68	0.035	<0.01	1.889	3.40	0.0033	0.0843	0.0975	79
G 6-4	0.897	13.80	13.06	3.232	9.656	34.70	38.13	113.474	<0.001	0.53	0.033	0.04	1.338	0.92	0.0026	0.1057	0.0457	80
G 6-5	1.911	11.04	15.48	7.727	5.254	40.70	50.20	132.319	<0.001	0.52	0.022	0.07	0.866	1.40	0.0031	0.0601	0.0785	81
G 7-1	1.833	16.56	37.98	18.845	0.639	40.42	210.21	326.479	<0.001	0.16	0.015	0.07	0.787	3.50	0.0026	0.0768	0.0955	82
G 7-2	0.195	6.21	8.36	5.200	8.449	28.94	22.75	80.111	<0.001	2.52	0.019	0.04	1.338	0.90	0.0049	0.0708	0.1420	83
G 7-3	2.106	8.51	8.94	3.524	7.597	33.74	18.24	82.660	<0.001	5.42	0.021	0.04	0.866	0.74	0.0033	0.1373	0.0675	84
G 7-4	0.195	10.58	20.84	9.939	17.715	16.85	91.93	168.043	<0.001	9.08	0.017	<0.01	0.551	1.90	0.0038	0.0841	0.0655	85
G 7-5	0.819	8.51	17.14	6.597	12.283	43.15	33.25	121.746	<0.001	1.92	0.017	<0.01	0.630	1.40	0.0029	0.0658	0.0752	86
G 4-1	0.078	0.32	0.30	2.248	6.532	1.25	0.73	11.460	<0.001	0.10	0.029	<0.01	0.315	0.20	0.0037	0.0707	0.0770	87

G6-20

KHOA YHLD-VSMT

LABO CHẤT LƯỢNG NƯỚC



Nguyễn xuân Tâm

Bùi Vĩnh Diên

BỘ Y TẾ
VIỆN VSDT -TN

Table G6. 13

CÔNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM ĐỘC LẬP-TU DO-HANH
PHÚC PHIÊU KIỂM NGHIỆM NƯỚC

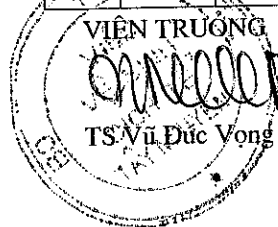
Nơi gửi mẫu : JICA

Ngày gửi mẫu : 24/05/2001

Ngày trả lời kết quả : 7/6/2001

KHM	K ⁺	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	Cl ⁻	SO ₄ ⁻	HCO ₃ ⁻	TDS	NO ₂ -N	NO ₃ ⁻ -N	NH ₄	PO ₄ ³⁻	COD	TotalFe	As	F ⁻	Mn ⁺⁺	STT
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
G 2-1	0.780	2.07	2.84	3.791	0.710	8.02	20.13	38.337	<0.001	0.97	0.037	0.05	0.236	0.21	0.0051	0.0180	0.1100	88
G 2-2	0.234	1.84	1.82	0.522	2.272	4.42	3.17	14.276	<0.001	0.52	0.022	0.04	0.315	0.35	0.0034	0.0855	0.0427	89
G 2-3	0.936	2.76	3.18	2.564	2.201	5.38	19.83	36.842	<0.001	1.19	0.014	0.08	0.157	0.20	0.0030	0.2012	0.0577	90
G 2-4	0.273	2.07	0.58	2.333	2.130	6.58	6.77	20.733	<0.001	1.09	0.046	0.04	0.630	0.17	0.0027	0.1875	0.0672	91
G 2-5	0.234	1.38	0.44	1.227	1.633	1.10	7.44	13.460	<0.001	0.14	0.040	0.09	0.630	0.53	0.0031	0.0677	0.0307	92
G 5-2	0.078	0.16	3.64	8.712	0.355	3.07	48.31	64.330	<0.001	0.11	0.061	0.05	0.787	3.77	0.0022	0.0868	0.0755	93
G 5-3	1.053	2.30	3.64	4.362	0.213	1.73	39.47	52.763	<0.001	0.11	0.044	0.12	0.866	0.72	0.0032	0.0685	0.0422	94
G 5-4	15.210	1.61	0.22	17.156	4.047	10.80	91.01	140.055	<0.001	0.02	0.385	0.04	5.193	1.86	0.0034	0.0855	0.0477	95
G 5-5	0.039	0.16	0.14	1.057	0.213	3.79	1.65	7.049	<0.001	0.02	0.030	0.04	0.315	0.10	0.0044	0.0757	0.0670	96
D 2-5	0.078	0.46	0.44	1.118	0.497	2.54	4.39	9.529	<0.001	0.04	0.018	0.04	0.472	0.06	0.0041	0.0845	0.0675	97
D 1-4	1.092	3.45	5.88	8.870	1.420	2.74	65.45	88.901	<0.001	0.10	0.018	0.13	0.236	0.15	0.0052	0.0677	0.0617	98
D 1-5	0.156	1.61	1.96	2.867	1.136	3.65	17.20	28.579	<0.001	1.67	0.025	0.13	1.338	0.37	0.0045	0.2015	0.0775	99
D 4-1	0.780	5.06	11.98	9.854	3.408	9.79	84.24	125.115	<0.001	3.42	0.042	0.04	0.551	0.28	0.0046	0.1070	0.0877	100
D 4-2	0.780	4.60	9.80	11.214	1.207	7.15	81.92	116.676	<0.001	1.98	0.033	0.11	0.472	2.44	0.0051	0.0977	0.0955	101
D 4-3	1.170	5.52	13.22	12.004	10.011	27.26	58.62	127.810	0.010	0.41	0.025	0.08	1.338	0.27	0.0042	0.0747	0.0922	102
D 4-4	1.716	6.21	16.78	13.851	7.065	16.46	112.42	174.509	0.010	0.14	0.037	0.16	1.889	0.41	0.0049	0.0777	0.0470	103
D 4-5	2.340	7.36	19.68	23.170	28.223	48.38	73.14	202.296	<0.001	2.28	0.026	0.13	0.787	0.22	0.0048	0.0875	0.0455	104
G 6	1.443	33.81	40.00	14.31	158.900	7.53	57.46	194.285	<0.001	8.96	0.085	0.05	0.787	3.20	0.0034	0.0870	0.0672	105
G 6	1.521	34.96	40.40	13.94	158.350	7.28	57.26	195.322	<0.001	9.09	0.138	0.04	0.779	3.10	0.0034	0.0870	0.0672	106

G6-21



KHOA YHLD-VSMT

Nguyễn xuân Tâm

LABO CHẤT LƯỢNG NƯỚC

Bùi Vĩnh Diên
Bùi Vĩnh Diên

Table G6.14 CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP-TU DO-HẠNH PHÚC

PHIẾU KIỂM NGHIỆM NƯỚC

Sampl. No.	Type	Temp. (°C)	pH	Ec (µ S/cm)	DO (mg/l)	TDS (mg/l)	Ca ²⁺ (mg/l)	Mg ²⁺ (mg/l)	Na ⁺ (mg/l)	K ⁺ (mg/l)	HCO ₃ ⁻ (mg/l)	Cl ⁻ (mg/l)	SO ₄ ²⁻ (mg/l)	Total Fe (mg/l)	NO ₂ -N (mg/l)	NO ₃ -N (mg/l)	NH ₄ ⁺ (mg/l)	PO ₄ ³⁻ (mg/l)	COD/KMnO ₄ (mg/l)	F (mg/l)	As (mg/l)	Mn ²⁺ (mg/l)	Coliform* (MPN/100ml)
K-1-0	Drilling Well	26.8	7.25	183.6	2.23	151.457	16.20	7.557	9.89	2.028	111.75	0.142	3.897	3.55	<0.001	0.01	0.028	0.09	0.315	0.0300	0.0010	0.1000	11
K-2-0	Drilling Well	24.1	7.23	178.7	1.75	151.873	16.28	8.432	9.66	1.950	112.61	1.985	0.96	2.64	<0.001	0.01	0.031	0.07	0.157	0.0100	0.0010	0.0650	17
K-3-0	Drilling Well	24.7	7.19	864	1.17	597.608	151.38	10.753	6.44	0.663	184.71	0.496	243.18	3.49	0.005	0.03	0.046	0.04	0.630	1.3200	0.0050	0.1211	33
K-4-0	River	26.7	7.13	66.6	3.15	50.979	5.12	3.074	2.30	1.833	36.66	0.071	1.92	1.88	0.002	0.11	0.035	<0.01	3.226	0.2100	0.0010	0.0050	130
K-5-0	River	25.6	7.15	68.8	3.64	51.037	4.62	2.151	3.45	4.095	33.49	0.496	2.75	4.58	0.005	0.12	0.059	<0.01	7.082	0.1900	0.0010	0.0150	180
K-6-0	River	33.2	7.60	89.4	3.04	68.223	2.46	5.346	5.06	3.822	48.25	0.351	2.94	3.02	0.005	0.06	0.073	<0.01	2.518	0.0800	0.0010	0.0210	2800
G-1-0	Drilling Well	27.5	7.32	198.7	1.16	170.062	4.34	2.807	31.97	2.535	124.32	0.915	3.19	0.82	0.030	0.06	0.052	0.03	0.157	0.6600	0.0010	0.0130	33
G-2-0	Drilling Well	28.1	7.00	338	3.04	211.444	24.72	12.758	12.65	4.062	142.62	0.993	13.10	0.21	0.002	0.19	0.074	0.10	0.157	0.2900	0.0032	0.1950	0
G-3-0	Drilling Well	27.0	7.20	61.7	2.56	166.645	14.38	11.900	7.13	2.964	126.88	0.213	3.89	0.40	<0.001	0.05	0.029	0.14	0.236	0.1007	0.0040	0.0975	34
G-4-0	Drilling Well	29.2	7.59	273	5.55	225.997	10.80	13.171	22.43	4.095	155.18	0.355	19.97	0.36	0.010	0.01	0.179	0.07	0.079	0.8000	0.0022	0.1740	5
G-5-0	Drilling Well	28.6	7.29	656	2.28	568.373	24.20	20.679	94.30	17.550	410.47	0.071	1.10	0.47	0.001	0.01	0.147	0.06	0.079	0.2900	0.0026	0.0630	23
G-6-0	Drilling Well	27.3	6.98	775	1.25	195.322	40.40	13.940	34.96	1.521	57.26	158.350	7.28	3.10	<0.001	9.09	0.138	0.04	0.779	0.0870	0.0034	0.0672	46
G-7-0	Drilling Well	27.0	7.18	501	1.42	426.749	42.12	23.219	28.75	1.989	311.34	15.775	3.55	2.07	0.002	0.01	0.098	0.05	0.866	0.2200	0.0010	0.2860	43
D-1-0	Drilling Well	25.3	6.43	153.0	2.63	125.028	8.80	7.946	9.66	1.833	93.88	1.407	1.50	0.11	0.001	0.06	0.035	0.06	0.079	0.1300	0.0010	0.0111	31
D-2-0	Drilling Well	26.4	6.42	100.6	2.56	64.614	4.92	3.900	5.29	1.599	39.10	0.780	9.02	0.39	0.002	0.02	0.049	0.12	0.157	<0.0001	0.0010	0.0410	11
D-3-0	Drilling Well	26.5	7.99	553	1.77	495.166	3.98	3.159	126.50	1.443	309.88	0.284	13.92	0.12	<0.001	0.60	0.103	0.08	0.551	0.2800	0.0060	0.0120	22
D-4-0	Drilling Well	25.9	7.85	401	1.59	335.710	2.52	0.620	94.30	3.354	215.70	3.332	15.90	3.76	0.080	0.12	0.071	0.14	0.630	0.6700	0.0010	0.0390	33
D-5-0	Drilling Well	27.7	6.93	558	2.35	340.127	70.96	6.051	12.88	1.356	240.65	0.355	7.87	0.82	0.020	0.06	0.233	0.06	0.236	<0.0001	0.0040	1.1110	8
D-6-0	Drilling Well	28.0	6.23	145.6	1.92	208.916	21.60	11.676	9.20	2.652	155.37	0.213	8.21	0.65	0.010	0.02	0.072	<0.01	0.630	0.0857	0.0046	0.0755	0
D-7-0	Drilling Well	28.1	6.54	186.0	2.02	126.073	9.04	6.282	11.96	3.042	86.56	0.071	9.12	4.09	0.011	0.01	0.293	0.03	0.236	0.0500	0.0010	0.3590	43
Total	nos.	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	max	33.2	7.99	864	5.55	597.608	151.38	23.219	126.50	17.550	410.47	158.350	243.18	4.58	0.080	9.09	0.293	0.14	7.082	1.3200	0.0060	1.1110	2800
	min	24.1	6.23	61.7	1.16	50.979	2.46	0.620	2.30	0.663	33.49	0.071	0.96	0.11	<0.001	0.01	0.028	<0.01	0.079	<0.0001	0.0010	0.0050	0
	average	27.2	7.13	318	2.35	236.570	23.94	8.771	26.94	3.219	149.83	9.333	18.66	1.83	0.009	0.53	0.092	0.059	0.940	0.2752	0.0023	0.1436	175
Standard 505 of MOH		-	-			1,000						250	400	0.5	0	10	3.0			1.5	0.05	0.1	

*tests were conducted in the first field survey and F/S.

Tay Nguyen Institute of Hygiene and Epidemiology
 Department of Microbiology - Water Laboratory

Table G6. 15(1) Microbiological Result (Total coliforms)

131 water samples
 from JICA

Method: MPN - Medium: Mac Conkey

Analyst: Nguyen The Vinh

Answer date: July 10th 2001

No	Sample	MPN / 100ml	No	Sample	MPN / 100ml
1	D-6-1	17	31	K-4-3	280
2	D-6-2	13	32	K-4-4	180
3	D-6-3	920	33	K-4-5	140
4	D-6-4	23	34	K-3-1	2,400
5	D-6-5	00	35	K-3-2	1,600
6	D-2-1	540	36	K-3-3	3,500
7	D-2-2	5,400	37	K-3-4	920
8	D-2-3	02	38	K-3-5	540
9	D-2-4	33	39	K-2-1	920
10	G-5-1	00	40	K-2-2	540
11	D-5-1	00	41	K-2-3	1,600
12	D-5-2	1,600	42	K-2-4	1,600
13	D-5-3	540	43	K-2-5	920
14	D-5-4	46	44	G-3 (date: May 11 th)	920
15	D-3-1	94	45	K-1-1	5,400
16	D-1-1	00	46	K-1-2	920
17	D-1-2	920	47	K-1-3	920
18	D-1-3	23	48	K-1-4	280
19	D-3-2	350	49	K-1-5	1,600
20	D-3-3	180	50	G6 (date: May 23 rd)	250
21	D-3-4	540	51	D-4-1	541
22	D-3-5	540	52	D-4-2	920
23	D-5-5	350	53	D-4-3	220
24	D-7-1	00	54	D-4-4	180
25	D-7-2	00	55	D-4-5	350
26	D-7-3	00	56	G-4-1	170
27	D-7-4	07	57	G-4-2	3,500
28	D-7-5	240	58	G-4-3	16,000
29	K-4-1	350	59	G-4-4	3,500
30	K-4-2	220	60	G-4-5	16,000

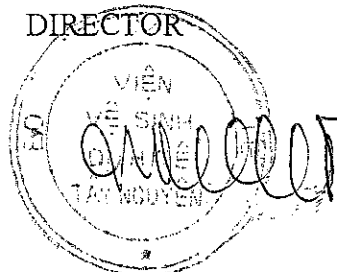
Table G6. 15(2) Microbiological Result (Total coliforms)

No	Sample	MPN / 100ml	No	Sample	MPN / 100ml
61	G-1-1	9,200	97	K-6-5	240
62	G-1-2	3,500	98	K-5-1	920
63	G-1-3	1,600	99	K-5-2	280
64	G-1-4	260	100	K-5-3	540
65	G-1-5	5,400	101	K-5-4	920
66	G-7-1	1,800	102	K-5-5	540
67	G-7-2	1,100	103	D-1-0	1,600
68	G-7-3	1,300	104	D-6-0	920
69	G-7-4	2,200	105	G-1-0	350
70	G-7-5	2,800	106	K-4-0	5,400
71	G-6-1	790	107	K-6-0	2,800
72	G-6-2	920	108	K-5-0	16,000
73	G-6-3	1,600	109	G-7-0	2,800
74	G-6-4	540	110	D-3-0	540
75	G-6-5	1,700	111	K-1-0	540
76	G-5-2	490	112	D-7-0	70
77	G-5-3	140	113	K-2-0	920
78	G-5-4	280	114	D-5-0	240
79	G-5-5	350	115	D-2-0	49
80	G-3-1	170	116	D-4-0	130
81	G-3-2	920	117	K-3-0	13
82	G-3-3	110	118	D-7-0	70
83	G-3-4	27	119	D-3-0	49
84	G-3-5	280	120	D-1-0	33
85	G-2-1	49	121	D-5-0	1,600
86	G-2-2	140	122	D-6-0	140
87	G-2-3	220	123	G-3-0	920
88	G-2-4	920	124	K-2-0	33
89	G-2-5	240	125	G-1-0	240
90	D-1-5	1,600	126	K-1-0	33
91	D-2-5	340	127	G-2-0	00
92	D-1-4	330	128	G-4-0	05
93	K-6-1	920	129	G-7-0	17
94	K-6-2	540	130	G-5-0	23
95	K-6-3	240	131	G-6-0	110
96	K-6-4	920	Total: 131 samples		

DIRECTOR

HEAD OF DEPARTMENT

CHIEF OF LABORATORY



TS. BS. VŨ ĐỨC VỌNG

TS. Đào Xuân Vinh

Nguyễn Thế Vinh

Table G6.16(1) Result of Water Quality Analysis for Existing Water

Sampl. No.	Type	Temp. (°C)	pH	Ec (µ S/cm)	DO (mg/l)	TDS (mg/l)	Ca ²⁺ (mg/l)	Mg ²⁺ (mg/l)	Na ⁺ (mg/l)	K ⁺ (mg/l)	HCO ₃ ⁻ (mg/l)	Cl ⁻ (mg/l)	SO ₄ ²⁻ (mg/l)	Total Fe (mg/l)	NO ₂ N (mg/l)	NO ₃ N (mg/l)	NH ₄ ⁺ (mg/l)	PO ₄ ³⁻ (mg/l)	COD/KMnO ₄ (mg/l)	F (mg/l)	As (mg/l)	Mn ²⁺ (mg/l)	Coliform (MPN/100ml)
Water Quality Standard (TCXD 233 : 1999)	Class A		6.8-7.5 (6.5-8.5)									<25 (<25)	<25 (<25)	<0.3 (<0.3)	0 (<0.1)	0 (<0)	0 (<0.2)	0 (0)		0.5-1.0 (0.5-1.0)	0 (0)	<0.05 (<0.2)	0 (<20)
	Class B		6.0-8.0 (6.0-9.0)									<200 (<200)	<250 (<250)	<10 (<1)	<0.1 (<1)	<6 (<6)	<3 (<3)	<1.5 (<1.5)		0-0.5or1.0-1.5 (<1.5)	<0.050 (<0.050)	<2 (<0.5)	<20 (<100)
	Class C		4.5-8.5 (>9 or <6)									<400 (<400)	<400 (<400)	<50 (<2)	<2 (<2)	<10 (<10)	<30 (<1)	<2 (<2)		<2 (<2)	<0.100 (<0.100)	<3 (<1)	<100 (<200)
	Exceeding Class C		>8.5 or <4.5																			>3 (>1)	>100 (>200)
WHO Guideline		-	-			1,000						250	250	0.3	3	50	1.5			1.5	0.01	0.5, 0.1	0
K-1-1	Gravity Flow System	24.7	8.23	126.8	2.38	73.795	8.38	6.500	2.07	0.546	52.03	0.426	3.84	0.45	<0.001	0.01	0.058	0.05	3.230	0.0707	0.0050	0.1411	5,400
K-1-2	Gravity Flow System	23.6	6.59	42.1	3.32	38.800	3.10	2.940	1.15	2.418	25.50	0.142	3.55	0.53	<0.001	0.03	0.044	<0.01	3.390	0.1808	0.0037	0.0302	920
K-1-3	Gravity Flow System	24.2	8.17	126.9	3.59	111.850	13.14	8.080	2.76	1.053	83.51	0.284	3.02	0.16	<0.001	0.02	0.050	<0.01	1.260	0.0659	0.0029	0.0350	920
K-1-4	Dug Well	24.6	5.32	84.6	2.69	33.465	2.82	0.571	3.68	5.460	1.28	3.621	16.03	0.68	<0.001	5.82	0.040	<0.01	1.180	0.1373	0.0033	0.0375	280
K-1-5	Dug Well	24.7	6.79	168.4	2.06	123.957	17.84	2.685	3.68	11.310	81.80	0.497	6.14	0.52	0.010	0.19	0.070	0.05	0.551	0.2081	0.0026	0.0735	1,600
K-2-1	Dug Well	25.4	5.35	13.14	2.65	7.374	0.86	0.401	0.46	0.195	0.85	0.284	4.32	0.15	<0.001	0.09	0.066	<0.01	0.708	0.0420	0.0039	0.0375	920
K-2-2	Dug Well	24.8	6.07	61.1	3.37	50.219	8.38	1.057	1.61	1.326	30.20	0.355	7.30	0.14	<0.001	0.18	0.062	<0.01	0.315	0.1006	0.0035	0.0424	340
K-2-3	Dug Well	23.7	5.27	23.5	2.56	15.988	1.88	1.276	0.46	1.131	2.99	0.284	7.97	0.13	<0.001	0.34	0.006	<0.01	0.787	0.0601	0.0035	0.0326	1,600
K-2-4	Dug Well	24.2	4.93	18.94	2.97	9.029	0.78	0.753	0.69	0.273	0.61	0.355	5.57	0.16	<0.001	1.02	0.081	<0.01	0.236	0.0768	0.0028	0.2201	1,600
K-2-5	Dug Well	24.3	5.30	47.0	2.77	13.874	1.88	0.389	1.61	0.624	0.73	1.775	6.86	0.29	0.010	2.43	0.065	<0.01	0.472	0.0870	0.0036	0.0318	920
K-3-1	Stream	24.4	7.59	132.2	3.85	119.951	14.88	7.679	4.83	1.209	84.18	0.213	6.96	0.28	<0.001	0.02	0.070	<0.01	1.259	0.0851	0.0033	0.0427	2,400
K-3-2	Dug Well	25.4	5.57	45.3	1.58	23.230	2.90	0.437	2.07	1.053	11.59	0.284	4.90	0.14	<0.001	0.16	0.060	<0.01	0.551	0.0658	0.0026	0.1505	1,600
K-3-3	Gravity Flow System	24.1	7.59	142.3	3.78	125.694	13.88	8.602	3.68	1.911	91.74	0.213	5.66	1.05	<0.001	0.02	0.031	0.09	1.810	0.0677	0.0031	0.0455	1,600
K-3-4	Dug Well	25.3	5.72	50.9	2.21	30.987	2.74	0.486	4.37	2.340	12.75	3.550	4.75	0.22	<0.001	0.35	0.045	<0.01	0.630	0.0843	0.0034	0.0375	920
K-3-5	Dug Well	25.3	5.88	68.0	2.95	48.309	2.16	4.398	2.76	1.755	30.93	0.213	6.10	0.21	<0.001	0.74	0.044	<0.01	0.551	0.0647	0.0033	0.0377	340
K-4-1	Dug Well	24.4	5.54	24.3	2.55	14.997	0.80	0.656	1.61	1.170	6.41	0.852	3.50	0.99	<0.001	0.71	0.064	<0.01	0.393	0.0905	0.0037	0.0305	350
K-4-2	Dug Well	26.7	5.38	22.0	3.14	10.432	1.44	0.437	0.92	0.195	0.79	0.071	6.58	0.44	<0.001	0.32	0.061	<0.01	0.393	0.0452	0.0036	0.0375	220
K-4-3	Dug Well	25.8	5.19	20.3	3.26	12.371	1.38	0.571	0.92	0.468	0.98	0.568	7.49	0.18	<0.001	1.11	0.110	<0.01	0.787	0.0707	0.0039	0.0425	260
K-4-4	Dug Well	25.3	5.46	33.7	2.65	28.419	5.42	0.705	0.46	1.053	17.69	0.355	2.74	0.29	<0.001	0.20	0.042	<0.01	0.551	0.0608	0.0035	0.0427	180
K-4-5	Dug Well	25.0	4.55	13.10	3.15	3.981	0.22	0.267	0.23	0.195	0.67	0.142	2.26	0.21	<0.001	0.22	0.041	<0.01	0.236	0.1000	0.0039	0.0529	140
K-5-1	Dug Well	25.6	4.95	23.3	2.58	9.824	0.44	0.255	1.61	0.624	0.73	0.355	5.81	0.64	<0.001	8.22	0.072	0.04	0.551	0.1007	0.0036	0.0975	920
K-5-2	Dug Well	25.9	5.99	108.8	2.42	62.496	8.10	2.454	3.91	2.964	40.20	0.213	4.66	0.28	<0.001	9.36	0.017	0.06	0.315	0.0847	0.0040	0.0577	280
K-5-3	Dug Well	25.3	5.20	53.8	2.27	24.241	2.16	0.535	4.37	1.365	0.73	4.615	10.46	0.58	<0.001	8.44	0.036	0.04	0.630	0.0905	0.0037	0.0545	540
K-5-4	Dug Well	25.6	4.67	84.9	1.65	34.972	1.88	1.361	6.44	1.131	0.85	11.786	11.52	0.71	<0.001	9.58	0.018	0.04	0.472	0.0452	0.0040	0.0427	920
K-5-5	Dug Well	25.9	5.09	78.2	2.55	62.517	8.10	2.491	3.45	6.630	23.61	8.591	9.65	0.20	0.010	9.22	0.025	0.04	0.866	0.0705	0.0048	0.1070	540
K-6-1	Dug Well	25.8	5.82	80.8	2.79	12.600	0.86	0.158	0.69	3.198	0.67	4.047	2.98	0.37	<0.001	9.56	0.014	0.04	0.708	0.0707	0.0044	0.1100	920
K-6-2	Dug Well	25.3	5.98	105.0	3.46	74.431	6.58	2.892	8.97	3.354	35.81	1.420	15.41	0.27	<0.001	9.36	0.012	0.18	0.708	0.1808	0.0042	0.1171	340
K-6-3	Dug Well	25.2	5.99	254	2.00	147.258	23.26	3.596	14.72	7.410	40.26	27.868	30.14	0.25	0.080	8.66	0.017	0.04	0.787	0.0768	0.0041	0.1177	240
K-6-4	Spring	25.0	6.12	56.7	3.39	30.623	2.16	2.479	1.43	3.354	6.16	0.355	14.69	0.27	0.020	4.34	0.020	0.04	0.391	0.0853	0.0038	0.0375	920
K-6-5	Dug Well	25.5	6.27	209	1.75	171.641	24.06	4.787	11.96	3.666	115.29	1.846	10.03	0.30	0.010	1.74	0.017	0.04	0.787	0.1888	0.0082	0.4070	240
G-1-1	Dug Well	25.1	5.65	11.33	2.57	15.506	0.88	1.932	0.69	0.273	3.97	0.710	7.06	0.23	<0.001	0.11	0.149	<0.01	0.236	0.1077	0.0041	0.0987	9,200
G-1-2	Dug Well	25.4	5.30	13.32	3.12	13.923	1.38	1.543	0.46	0.117	1.40	0.284	8.74	0.18	<0.001	0.52	0.033	0.04	0.315	0.0475	0.0039	0.0427	3,500
G-1-3	Dug Well	25.5	4.86	24.8	2.83	10.299	1.58	0.413	0.69	0.078	3.97	0.213	3.36	0.11	<0.001	0.30	0.042	<0.01	0.157	0.0945	0.0043	0.0777	1,600
G-1-4	Dug Well	25.5	5.22	15.80	2.88	7.983	1.30	0.134	0.69	0.078	1.34	0.071	4.37	0.07	<0.001	0.25	0.078	<0.01	0.630	0.1800	0.0030	0.2000	260
G-1-5	Dug Well	26.2	6.24	128.7	1.73	6.704	0.72	0.450	0.46	0.078	1.53	0.639	2.83	0.07	<0.001	0.02	0.035	<0.01	0.236	0.0674	0.0029	0.1750	5,400
G-2-1	Dug Well	26.9	5.89	42.0	3.17	38.337	2.84	3.791	2.07	0.780	20.13	0.710	8.02	0.21	<0.001	0.97	0.037	0.05	0.236	0.1800	0.0051	0.1100	49
G-2-2	Dug Well	26.6	5.04	26.7	2.86	14.276	1.82	0.522	1.84	0.234	3.17	2.272	4.42	0.35	<0.001	0.52	0.022	0.04	0.315	0.0855	0.0034	0.0427	140
G-2-3	Dug Well	27.0	5.83	57.2	3.02	36.842	3.18	2.564	2.76	0.936	19.83	2.201	5.38	0.20	<0.001	1.19	0.014	0.08	0.157	0.2012	0.0030	0.0577	220
G-2-4	Dug Well	27.1	5.16	33.1	2.89	20.733	0.58	2.333	2.07	0.273	6.77	2.130	6.58	0.17	<0.001	1.09	0.046	0.04	0.630	0.1875	0.0027	0.0672	920
G-2-5	Dug Well	26.3	5.46	23.3	3.13	13.460	0.44	1.227	1.38	0.234	7.44	1.633	1.10	0.53	<0.001	0.14	0.040	0.09	0.630	0.0677	0.0031	0.0307	240

Table G6.16(2) Result of Water Quality Analysis for Existing Water

Sampl. No.	Type	Temp. (°C)	pH	Ec (µ S/cm)	DO (mg/l)	TDS (mg/l)	Ca ²⁺ (mg/l)	Mg ²⁺ (mg/l)	Na ⁺ (mg/l)	K ⁺ (mg/l)	HCO ₃ ⁻ (mg/l)	Cl ⁻ (mg/l)	SO ₄ ²⁻ (mg/l)	Total Fe (mg/l)	NO ₂ -N (mg/l)	NO ₃ -N (mg/l)	NH ₄ ⁺ (mg/l)	PO ₄ ³⁻ (mg/l)	COD/KMnO ₄ (mg/l)	F (mg/l)	As (mg/l)	Mn ²⁺ (mg/l)	Coliform (MPN/100ml)
Water Quality Standard (TCXD 233 : 1999)	Class A		6.8-7.5 (6.5-8.5)									<25 (<25)	<25 (<25)	<0.3 (<0.3)	0 (<0.1)	0 (<0)	0 (<0.2)	0 (0)		0.5-1.0 (0.5-1.0)	0 (0)	<0.05 (<0.2)	0 (<0)
	Class B		6.0-8.0 (6.0-9.0)									<200 (<200)	<250 (<250)	<10 (<1)	<0.1 (<1)	<6 (<6)	<3 (<3)	<1.5 (<1.5)		0-0.5or1.0 1.5 (<1.5)	<0.050 (<0.050)	<2 (<5)	<20 (<100)
	Class C		4.5-8.5 (>9 or <6)									<400 (<400)	<400 (<400)	<50 (<2)	<2 (<2)	<10 (<10)	<30 (<1)	<2 (<2)		<2 (<2)	<0.100 (<0.100)	<3 (<1)	<100 (<200)
	Exceeding Class C		4.5 or <6																			<3 (<1)	<100 (<200)
WHO Guideline						1,000						250	250	0.3	3	50	1.5			1.5	0.01	0.5, 0.1	0
G-3-1	Drilling Well	26.3	6.08	54.1	3.91	50.286	5.06	3.997	1.15	0.897	34.77	0.284	4.13	0.25	<0.001	0.04	0.023	0.16	0.315	0.0860	0.0037	0.0355	170
G-3-2	Dug Well	25.0	5.33	13.60	1.85	7.545	0.72	0.450	0.46	0.546	0.67	0.426	4.27	0.44	<0.001	0.17	0.032	0.04	0.944	0.0841	0.0039	0.0385	920
G-3-3	Dug Well	25.9	5.80	36.2	3.12	9.889	1.38	0.522	0.46	0.195	0.55	0.639	6.14	0.29	0.010	0.11	0.022	0.04	0.472	0.1007	0.0034	0.0475	110
G-3-4	Dug Well	25.0	5.33	13.60	1.85	23.790	3.62	3.548	0.92	1.014	23.79	0.355	5.28	0.13	<0.001	0.05	0.021	0.09	0.472	0.0601	0.0047	0.0975	27
G-3-5	Tank (Drilling Well)	26.6	6.52	195.0	3.58	146.753	16.12	8.128	10.12	2.652	89.79	0.213	19.73	1.50	<0.001	<0.01	0.033	<0.01	0.866	0.1375	0.0029	0.1070	280
G-4-1	Drilling Well	25.1	5.00	13.94	3.30	11.460	0.30	2.248	0.32	0.078	0.73	6.532	1.25	0.20	<0.001	0.10	0.029	<0.01	0.315	0.0707	0.0037	0.0770	170
G-4-2	Dug Well	24.8	5.16	17.23	2.15	11.140	0.50	0.972	1.61	0.078	1.77	0.355	5.86	0.10	<0.001	0.41	0.035	<0.01	0.315	0.0677	0.0032	0.0675	3500
G-4-3	Dug Well	23.9	4.94	9.38	3.56	7.742	0.14	1.458	0.16	0.039	1.34	0.426	4.18	0.12	<0.001	0.09	0.042	0.04	0.236	0.0647	0.0037	0.0555	16,000
G-4-4	Dug Well	24.4	4.86	15.98	1.52	16.952	1.58	1.337	1.47	0.039	3.66	1.136	7.73	0.19	<0.001	0.41	0.051	0.04	0.236	0.0608	0.0038	0.0570	3500
G-4-5	Spring	26.1	5.29	7.52	2.07	17.866	0.50	2.916	0.32	0.156	5.00	0.426	8.54	0.27	<0.001	0.01	0.024	0.04	0.315	0.0457	0.0035	0.0675	16,000
G-5-1	Drilling Well	27.5	8.17	238	1.39	286.870	15.60	3.400	41.40	4.990	142.92	0.280	3.69	0.01	<0.001	0.03	0.090	0.09	0.200	0.0100	0.0037	0.0250	0
G-5-2	Dug Well	24.6	5.11	11.61	3.49	64.330	3.64	8.712	0.16	0.078	48.31	0.355	3.07	3.77	<0.001	0.11	0.061	0.05	0.787	0.0868	0.0022	0.0755	490
G-5-3	Dug Well	24.4	6.26	58.4	1.96	52.763	3.64	4.362	2.30	1.053	39.47	0.213	1.73	0.72	<0.001	0.11	0.044	0.12	0.866	0.0685	0.0032	0.0422	140
G-5-4	Drilling Well	27.0	10.39	216	1.24	140.055	0.22	17.156	1.61	15.210	91.01	4.047	10.80	1.86	<0.001	0.02	0.385	0.04	5.193	0.0855	0.0034	0.0477	280
G-5-5	Dug Well	25.2	5.44	11.63	3.37	7.049	0.14	1.057	0.16	0.039	1.65	0.213	3.79	0.10	<0.001	0.02	0.030	0.04	0.315	0.0757	0.0044	0.0670	350
G-6-1	Dug Well	26.9	7.33	670	3.02	270.872	37.48	8.784	20.70	17.940	85.16	76.716	24.10	2.60	<0.001	9.22	0.027	0.20	0.315	0.0647	0.0036	0.0472	790
G-6-2	Dug well	27.9	6.92	1,400	1.06	734.955	90.00	32.076	36.11	13.650	435.36	0.944	126.77	7.10	<0.001	14.54	0.026	0.05	1.338	0.0975	0.0040	0.0827	920
G-6-3	Dug well	27.3	7.10	902	2.02	406.992	44.74	14.130	32.89	1.365	274.81	7.526	31.54	3.40	<0.001	7.68	0.035	<0.01	1.889	0.0843	0.0033	0.0975	1,600
G-6-4	UNICEF HP Well	32.0	6.37	749	0.84	113.474	13.06	3.232	13.80	0.897	38.13	9.656	34.70	0.92	<0.001	0.53	0.033	0.04	1.338	0.1057	0.0026	0.0457	540
G-6-5	UNICEF HP Well	29.5	6.52	213	1.46	132.319	15.48	7.727	11.04	1.911	50.20	5.254	40.70	1.40	<0.001	0.52	0.022	0.07	0.866	0.0601	0.0031	0.0785	1,700
G-7-1	Drilling Well	26.1	7.29	445	3.50	326.479	37.98	18.845	16.56	1.833	210.21	0.639	40.42	3.50	<0.001	0.16	0.015	0.07	0.787	0.0768	0.0026	0.0955	1,800
G-7-2	Dug Well	26.9	6.50	139.0	3.05	80.111	8.36	5.200	6.21	0.195	22.75	8.449	28.94	0.90	<0.001	2.52	0.019	0.04	1.338	0.0708	0.0049	0.1420	1,100
G-7-3	Dug Well	28.2	6.02	159.0	2.57	82.660	8.94	3.524	8.51	2.106	18.24	7.597	33.74	0.74	<0.001	5.42	0.021	0.04	0.866	0.1373	0.0033	0.0675	1,300
G-7-4	UNICEF HP Well	26.8	6.23	276	1.88	168.043	20.84	9.939	10.58	0.195	91.93	17.715	16.85	1.90	<0.001	9.08	0.017	<0.01	0.551	0.0841	0.0038	0.0655	2,200
G-7-5	Dug Well	26.5	5.82	224	2.48	121.746	17.14	6.597	8.51	0.819	33.25	12.283	43.15	1.40	<0.001	1.92	0.017	<0.01	0.630	0.0658	0.0029	0.0752	2,800
D-1-1	Drilling Well	26.6	7.08	180.0	3.55	148.267	14.64	8.141	9.20	1.677	108.03	1.347	5.23	0.20	0.005	0.18	0.010	0.14	0.472	0.0214	0.0029	0.0020	0
D-1-2	Dug Well	25.4	6.05	59.0	3.31	43.901	5.26	3.062	2.53	0.468	25.86	1.489	5.23	0.60	0.002	0.19	0.010	0.09	0.157	0.0256	0.0027	0.0020	920
D-1-3	Dug Well	24.9	6.59	111.3	3.31	90.892	9.04	7.047	4.83	0.897	64.11	1.560	3.41	0.20	0.002	0.11	0.020	0.10	0.472	0.0657	0.0027	0.0020	23
D-1-4	Spring	25.2	6.44	112.4	2.91	88.901	5.88	8.870	3.45	1.092	65.45	1.420	2.74	0.15	<0.001	0.10	0.018	0.13	0.236	0.0677	0.0052	0.0617	330
D-1-5	Dug Well	25.8	6.02	49.2	2.09	28.579	1.96	2.867	1.61	0.156	17.20	1.136	3.65	0.37	<0.001	1.67	0.025	0.13	1.338	0.2015	0.0045	0.0775	1,600
D-2-1	Drilling Well	26.1	7.37	175.7	5.40	159.110	30.80	8.740	6.67	2.820	108.39	0.560	1.10	0.37	<0.001	0.01	0.010	0.10	0.150	0.0100	0.0017	0.0040	540
D-2-2	Dug + Drilling Well	25.7	6.89	135.1	3.67	118.320	24.80	5.220	4.83	1.560	81.31	0.490	0.10	0.09	<0.001	<0.01	0.020	0.17	0.150	0.0100	0.0024	0.0320	5,400
D-2-3	Drilling Well	25.7	6.91	112.1	3.55	94.130	20.40	5.100	3.68	1.400	61.30	1.130	1.10	0.37	<0.001	0.05	0.010	0.19	0.150	0.0100	0.0031	0.0260	2
D-2-4	Dug + Drilling Well	26.1	6.82	250	3.01	208.310	48.00	11.540	8.05	2.730	109.55	6.480	21.93	0.39	0.050	4.50	0.010	0.17	0.200	0.0100	0.0035	0.0230	33
D-2-5	Dug Well	25.3	5.26	13.84	2.95	9.529	0.44	1.118	0.46	0.078	4.39	0.497	2.54	0.06	<0.001	0.04	0.018	0.04	0.472	0.0845	0.0041	0.0675	340
D-3-1	Drilling Well	26.3	7.41	356	1.92	149.066	10.34	8.724	12.65	2.145	106.93	0.213	8.06	2.50	<0.001	0.03	0.010	0.10	0.157	0.0225	0.0025	0.0022	94
D-3-2	Dug Well	25.2	6.44	387	2.65	200.081	30.96	3.135	12.08	4.407	102.18	18.044	29.28	0.40	0.050	6.68	0.003	0.11	0.393	0.0224	0.0032	0.0130	350
D-3-3	Dug Well	26.4	6.22	412	2.97	206.346	32.88	11.057	12.65	3.627	84.12	38.782	23.23	0.20	0.010	8.84	0.010	0.21	0.236	0.1452	0.0025	0.0040	180
D-3-4	Dug Well	26.5	6.13	256	2.42	131.646	16.80	7.600	12.08	1.989	44.71	14.712	33.70	0.10	<0.001	8.16	0.007	0.05	0.157	0.0326	0.0031	0.0050	540
D-3-5	Dug Well	25.7	6.21	397	3.25	202.580	29.04	17.350	12.65	5.850	51.42	42.398	43.87	0.10	<0.001	10.00	0.009	0.11	0.079	0.0298	0.0028	0.0010	540

G6-26