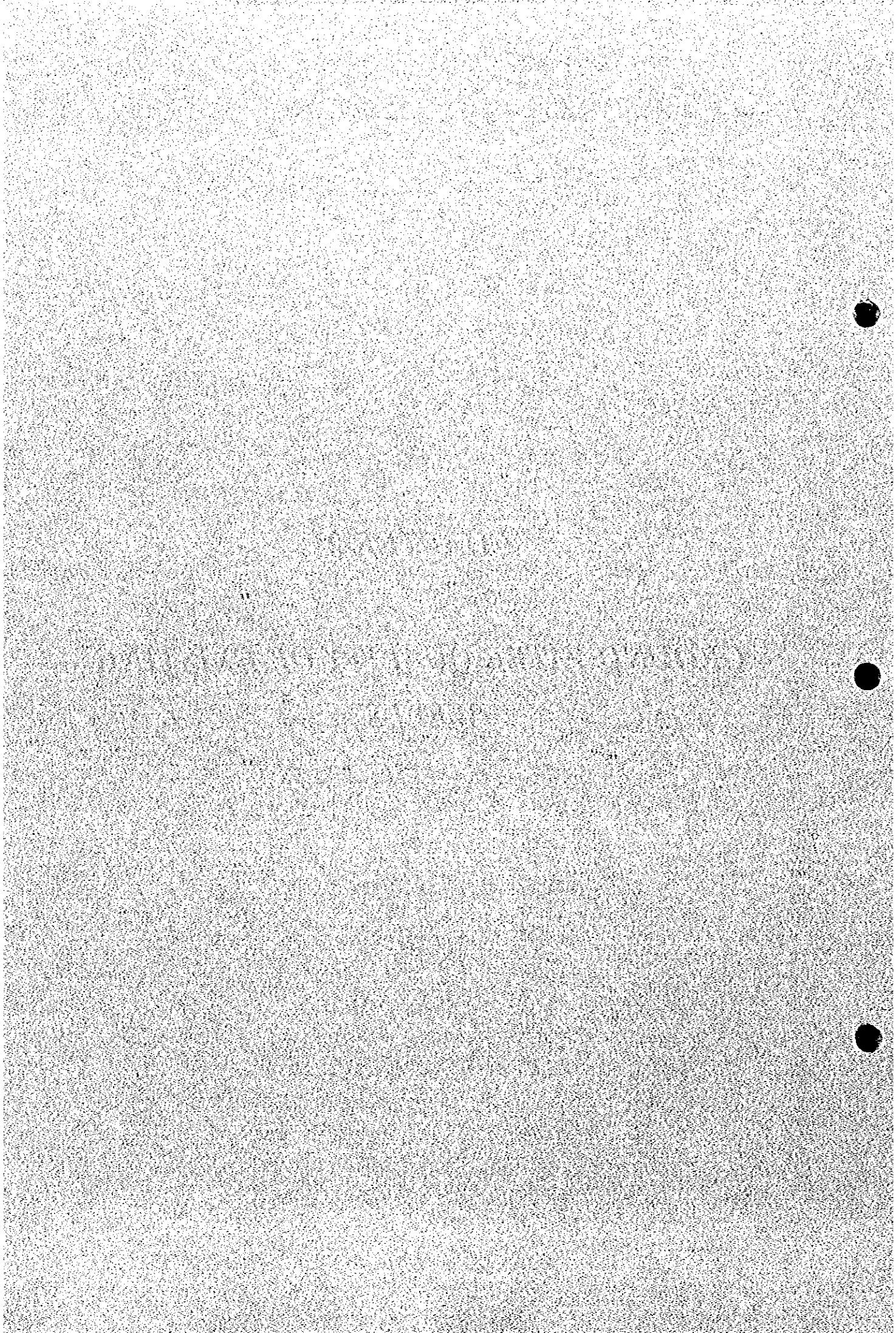


CHAPTER 2

***GROUNDWATER QUALITY OF EXISTING
WELLS***



Results of Laboratory/Chemical Analysis of Groundwater Samples from Existing Wells

Province: Thai Nguyen

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Fe ²⁺) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As ³⁺) (µg/l)	
DB-1	98/09/16 08:30	Hand Dug	7.80	1	5.24	25.7	18.9	0.52	189	162	6.28	0.194	0.008	0.078	0.033	87.36	0.048	33.73	36.60	16.0	2.88	87.14	1.12	0.032	2.43	
DB-2	98/09/16 08:45	Hand Dug	about 10.00	2	6.82	25.8	38.9	1.72	380	145	5.85	0.287	0.010	0.076	0.027	28.40	0.048	24.85	213.90	56.0	7.68	80.56	3.04	0.054	1.43	
DB-3	98/09/16 08:05	Hand Dug	about 7.00	3	5.62	25.8	20.2	0.40	202	160	4.69	0.211	0.011	0.059	0.037	28.40	0.048	37.28	36.60	12.8	1.92	31.04	1.78	0.032	0.94	
DB-4	98/09/16 09:20	Hand Dug	6.90	4	6.27	25.7	12.0	0.40	120	161	5.02	0.294	0.012	0.067	0.028	0.48	0.049	19.53	61.00	12.8	1.92	10.96	0.91	0.016	1.54	
DB-5	98/09/16 09:38	Hand Dug	6.20 (SVC=9m)	5	6.37	25.5	31.3	0.80	313	165	5.02	0.316	0.011	0.072	0.020	89.12	0.048	47.93	61.00	28.8	1.92	48.95	2.39	0.016	0.74	
DB-6	98/09/16 09:49	Hand Dug	6.30																							
DB-7	98/09/16 10:02	Hand Dug	6.60	6	6.80	25.5	31.1	1.20	311	147	4.14	0.318	0.017	0.069	0.029	57.64	0.048	19.53	91.50	32.0	9.60	16.86	5.54	0.014	0.85	
DB-8	98/09/16 10:22	Hand Dug	6.60	7	7.10	25.7	87.9	3.92	879	139	5.19	0.281	0.016	0.077	0.029	213.36	0.048	46.15	305.00	150.0	2.88	63.28	11.04	0.022	1.54	
DB-9	98/09/16 10:48	Tube	6.00	8	6.80	25.5	123.3	5.86	1234	180	5.19	0.482	0.018	0.058	0.054	234.75	0.060	42.60	256.20	124.0	6.72	59.12	37.94	0.020	1.35	
DB-10	98/09/16 11:14	Hand Dug	8.10	9	6.80	25.5	60.7	2.00	608	184	5.26	0.426	0.015	0.062	0.080	136.80	0.048	40.15	207.40	64.0	9.60	81.12	35.55	0.032	1.14	
DB-11	98/09/16 11:30	Tube	9.00	10	6.70	25.6	57.5	2.20	576	169	4.90	0.328	0.011	0.070	0.056	154.00	0.049	47.93	183.00	64.0	14.40	52.64	10.92	0.012	1.23	
DB-12	98/09/16 11:52	Hand Dug	7.26	11	7.00	25.6	66.6	2.92	617	155	4.87	0.391	0.009	0.076	0.080	81.11	0.049	40.83	335.50	64.0	31.68	59.92	4.02	0.016	1.18	
DB-13	98/09/16 12:12	Hand Dug	6.16																							
HT-1	98/09/16 13:38	Hand Dug	4.40	12	7.00	25.6	36.8	1.44	368	157	4.81	0.362	0.008	0.081	0.014	43.90	0.048	35.50	122.00	40.0	10.56	20.00	3.05	0.014	1.58	
HT-2	98/09/16 14:34	Hand Dug	4.77	13	7.20	25.5	47.9	2.20	479	145	4.73	0.364	0.008	0.054	0.011	36.62	0.048	33.73	213.50	72.0	9.60	17.76	1.80	0.013	1.25	
HT-3	98/09/16 14:38	Hand Dug	5.14	14	7.20	25.6	55.1	2.86	552	155	4.15	0.244	0.008	0.059	0.012	35.33	0.048	49.70	268.40	75.2	24.00	17.44	0.70	0.011	1.86	
HT-4	98/09/16 15:13	Hand Dug	9.80	15	7.00	25.6	61.8	2.80	588	160	3.87	0.315	0.006	0.048	0.034	111.26	0.422	55.03	244.00	72.0	19.20	55.84	9.37	0.012	1.95	
HT-5	98/09/16 15:49	Hand Dug	3.55	16	7.02	25.6	31.3	1.46	313	156	4.23	0.247	0.007	0.077	0.036	4.89	0.054	23.08	152.50	40.0	11.52	5.84	1.40	0.011	2.92	
HT-6	98/09/16 16:03	Hand Dug	10.30	17	7.30	25.7	40.5	3.00	376	163	5.22	0.186	0.007	0.076	0.028	33.24	0.080	17.75	317.20	104.0	9.60	8.24	1.34	0.010	2.44	
HT-7	98/09/16 16:28	Hand Dug	- (17.8)	18	7.70	25.7	51.0	2.98	480	140	4.00	0.184	0.008	0.070	0.045	99.90	0.080	17.75	292.80	80.0	21.12	10.08	46.14	0.011	2.80	
HT-8	98/09/16 17:00	Levee Dug	11.50	19	7.70	25.7	36.1	2.86	361	160	6.07	0.272	0.010	0.061	0.050	17.81	0.048	19.53	368.00	80.0	21.12	26.00	1.20	0.012	0.82	

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Thai Nguyen

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
HT-9	98/09/10 17:15	Hand Dug	5.45	20	7.20	25.8	118.1	4.80	1181	145	5.23	0.281	0.009	0.067	0.048	254.86	0.048	138.45	328.40	160.0	19.20	83.28	54.00	0.014	1.82	
HT-10	98/09/10 17:36	Hand Dug	4.10	21	7.00	25.5	52.0	3.40	485	165	5.06	0.394	0.009	0.070	0.046	311.29	0.082	26.63	26.63	120.0	9.60	19.20	1.45	0.010	2.28	
TD-1	98/09/17 09:26	Hand Dug	7.00	22	5.02	25.7	13.3	0.52	134	166	5.09	0.402	0.007	0.068	0.065	26.97	0.190	26.63	26.63	16.0	2.88	18.24	3.08	0.032	1.89	
TD-2	98/09/17 09:49	Hand Dug	5.15	23	5.49	25.7	14.1	0.40	142	172	5.95	0.318	0.008	0.072	0.073	85.45	0.122	37.28	37.28	12.0	2.40	54.08	3.11	0.024	2.16	
TD-3	98/09/17 10:01	Hand Dug	4.00	24	5.63	25.5	9.9	0.40	100	161	3.65	0.286	0.010	0.059	0.065	8.05	0.505	15.98	15.98	12.0	2.40	7.76	3.14	0.016	2.09	
TD-4	98/09/17 10:12	Hand Dug	5.90	25	5.39	25.5	18.7	0.40	188	162	4.75	0.374	0.009	0.088	0.076	139.86	0.080	30.18	24.40	12.0	2.40	75.36	3.41	0.024	1.81	
TD-5	98/09/17 10:23	Hand Dug	5.20	26	5.64	25.5	17.2	0.50	173	155	4.65	0.384	0.011	0.065	0.042	34.83	0.162	28.63	36.60	16.0	2.40	22.24	4.24	0.016	2.18	
TD-6	98/09/17 10:42	Hand Dug	5.95	27	5.28	25.5	2.9	0.30	29	176	6.09	0.315	0.012	0.088	0.032	13.54	0.080	12.43	18.30	6.0	2.40	7.28	0.01	0.022	2.50	
TD-7	98/09/17 10:59	Hand Dug	5.75	28	8.28	25.5	4.8	0.30	49	177	4.81	0.234	0.011	0.071	0.046	8.16	0.084	15.98	18.30	8.0	2.40	7.12	0.41	0.025	2.39	
TD-8	98/09/17 11:13	Hand Dug	7.75	29	4.97	25.6	4.2	0.30	39	182	5.41	0.402	0.013	0.074	0.040	21.39	0.085	12.43	18.30	8.0	2.40	11.28	0.21	0.023	2.43	
TD-9	98/09/17 11:32	Hand Dug	5.30	30	6.20	25.7	19.4	0.50	195	167	4.48	0.460	0.019	0.088	0.084	45.66	0.502	30.18	48.80	16.0	2.40	35.44	3.11	0.032	1.50	
TD-10	98/09/17 11:44	Hand Dug	6.20	31	4.50	25.7	39.6	1.00	397	173	4.93	0.243	0.015	0.072	0.055	159.53	0.420	83.43	24.40	24.0	9.60	85.44	14.00	0.016	3.19	
TD-11	98/09/17 13:46	Hand Dug	about 10.00	32	5.34	25.6	19.5	0.80	195	155	4.87	0.316	0.017	0.078	0.064	117.88	0.335	35.50	12.20	16.0	9.60	45.52	2.98	0.016	1.95	
TD-12	98/09/17 14:00	Hand Dug	7.05	33	4.50	25.7	70.7	1.00	707	173	4.98	1.230	0.086	0.089	0.642	89.30	0.185	184.80	24.40	24.0	9.60	98.16	45.70	0.016	1.79	
TD-13	98/09/17 14:16	Hand Dug	7.60																							
TD-14	98/09/17 14:40	Hand Dug	7.85																							
TD-15	98/09/17 15:07	Hand Dug	5.82																							
TD-16	98/09/17 15:26	Hand Dug	9.28																							
TD-17	98/09/17 15:41	Hand Dug	6.80																							
NT-1	98/09/18 09:38	Hand Dug	6.90	34	5.05	25.7	13.6	0.40	134	160	5.67	0.436	0.012	0.082	0.087	57.74	0.180	33.73	16.30	12.0	2.40	37.36	1.12	0.013	2.02	
NT-2	98/09/18 10:19	Hand Dug	6.40	35	5.90	25.7	38.9	0.80	399	147	5.50	0.265	0.013	0.048	0.046	109.86	0.162	101.18	24.40	24.0	4.80	83.52	12.00	0.025	1.87	

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Thai Nguyen

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (2 Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
NT-3	98/09/18 10:27	Manually Drilled Tube	about 10.00	36	5.92	25.7	5.2	0.40	52	148	4.68	0.159	0.010	0.051	0.059	18.06	0.102	12.43	36.00	8.0	4.80	10.28	3.10	0.020	1.96	
NT-4	98/09/18 10:30	Hand Dug	9.70	37	6.30	25.8	14.0	0.80	141	143	4.88	0.252	0.011	0.060	0.035	27.05	0.085	18.53	73.20	20.0	7.20	15.12	2.20	0.032	2.21	
NT-5	98/09/18 11:14	Hand Dug	7.94	38	5.38	25.7	20.8	0.30	208	148	5.27	0.429	0.015	0.058	0.034	73.80	0.165	53.04	24.40	8.0	2.40	62.80	3.79	0.038	1.71	
NT-6	98/09/18 11:20	Hand Dug	6.00	39	5.98	25.7	6.9	0.30	69	140	4.90	0.205	0.008	0.071	0.036	18.19	0.232	17.75	24.40	8.0	2.40	14.00	1.12	0.034	1.91	
NT-7	98/09/18 10:39	Hand Dug	5.00	40	6.20	25.7	70.3	1.00	706	138	4.93	0.710	0.009	0.063	0.043	69.74	0.082	152.65	85.40	40.0	12.00	95.20	0.49	0.025	1.97	
NT-8	98/09/18 11:13	Hand Dug	3.80	41	5.90	25.7	52.4	1.40	523	143	5.20	0.400	0.019	0.068	0.081	121.84	0.085	120.07	81.00	32.0	14.40	89.52	8.91	0.025	2.21	
NT-9	98/09/18 12:32	Hand Dug	5.75	42	5.00	25.7	23.7	0.80	238	157	5.20	0.317	0.016	0.059	0.054	132.94	0.830	53.03	24.40	20.0	2.40	78.40	2.14	0.025	1.37	
NT-10	98/09/18 13:38	Hand Dug	7.00	43	4.60	25.7	59.5	1.20	596	183	5.41	0.405	0.015	0.057	0.040	143.70	0.093	136.20	18.30	24.0	14.40	91.60	51.14	0.016	1.74	
NT-11	98/09/18 13:47	Tube	about 28.50	44	6.50	25.7	30.6	1.60	307	136	5.22	0.324	0.012	0.061	0.040	59.20	0.082	8.88	207.40	48.0	9.60	36.64	3.53	0.016	1.89	
NT-12	98/09/18 14:10	Hand Dug	3.15	45	4.80	25.8	17.4	0.40	154	148	4.82	0.291	0.014	0.078	0.085	80.70	0.082	24.85	24.40	8.0	4.80	47.84	1.03	0.025	1.67	
NT-13	98/09/18 14:23	Hand Dug	5.05																							

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Provinces: Ha Noi

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (° C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
XD-1	98/10/13 09-02	Tube	28	194	6	27.3	16.8	0.4	188	215	3.91	0.79	0.028	0.063	0.091	28.76	0.42	37.28	48.8	8	4.8	33.0	7.35	0.021	1.93
XD-2	98/10/13 09-16	Hand Dug Tube	10 23				8.2	0.5	82	212	4.24	0.32	0.007	0.068	0.124	45.05	0.924	14.2	18.3	12	4.8	12.5	3.71	0.013	1.59
XD-3	98/10/13 09-23	Tube	30	196	5.53	27.3	6.5	0.3	65	213	4.91	0.43	0.01	0.062	1.892	10.88	0.195	8.88	30.5	8	2.4	7.2	2.33	0.024	1.16
XD-4	98/10/13 09-39	Hand Dug	12	197	5.84	27	85.5	1.8	855	213	5.08	1.055	0.015	0.059	0.088	140.29	0.42	191.7	48.8	36	21.6	120.3	11.4	0.022	1.04
XD-5	98/10/13 09-31	Hand Dug	11	188	5.7	27.2	127.4	3	1271	210	5.97	0.86	0.013	0.061	0.09	350.83	0.314	252.05	146.4	56	38.4	213.7	34.3	0.01	1.34
XD-6	98/10/13 10-04	Tube	24	199	6.15	27.4	9.8	0.3	97	214	4.92	0.145	0.009	0.067	0.089	15.93	1.12	14.2	36.6	8	2.4	14.2	4.39	0.02	0.86
XD-7	98/10/13 10-15	Tube	30	200	5.48	27.4	6.5	0.4	64	213	5.12	0.192	0.007	0.059	0.092	20.43	0.88	10.65	30.5	12	2.4	7.2	4.93	0.015	1.12
XD-8	98/10/13 10-25	Tube	24	201	5.8	27.3	9.3	0.4	64	212	5.12	0.325	0.007	0.063	0.093	12.48	0.195	14.2	48.8	8	4.8	8.4	11.5	0.022	1.27
XD-9	98/10/13 10-41	Tube	20	202	5.8	27.2	13.2	0.4	132	213	5.86	0.325	0.012	0.074	0.084	3.36	0.7	26.36	48.8	8	4.8	16.1	4.46	0.02	0.78
XD-10	98/10/13 10-53	Tube	26.0	203	5.85	27.2	15	1.4	303	210	5.21	0.125	0.008	0.068	0.093	0.99	1.26	27.52	160.8	40	9.6	11.5	4.91	0.015	2.19
DN-1	98/10/13 12-17	Tube	18	204	6.9	27.2	48.9	3	487	209	5.93	0.31	0.011	0.076	0.817	23.98	0.42	14.2	329.4	96	14.4	5.3	2.74	0.016	1.25
DN-2	98/10/13 12-31	Tube	20	205	6.95	27.3	57.7	3.4	576	207	5.3	0.56	0.009	0.074	1.034	33.92	0.292	17.75	366	96	24	7.9	2.47	0.016	1.02
DN-3	98/10/13 12-44	Tube	20	206	6.9	27.3	76.8	3.4	776	208	6.12	0.312	0.009	0.081	0.429	26.2	0.588	71	366	96	24	38.7	2.47	0.013	1.31
DN-4	98/10/13 12-53	Tube	21	207	7.1	27.3	33.6	2.5	335	208	5.79	0.128	0.008	0.079	0.08	84.38	0.7	14.2	207.4	64	21.6	5.4	12.6	0.019	1.77
DN-5	98/10/13 13-13	Hand Dug	10	208	7.15	27.3	173.5	6	1730	210	5.2	0.866	0.015	0.062	0.089	357.13	0.364	190.93	500.2	160	48	120.1	13.21	0.015	1.15
DN-6	98/10/13 13-24	Hand Dug	8	209	7	27.4	135.9	4.4	1380	216	5.86	0.762	0.024	0.058	0.089	241.97	0.756	118.93	500.2	120	33.6	134.2	76.3	0.021	1.44
DN-7	98/10/13 13-40	Tube	15	210	6.5	27.3	128.6	4	1287	213	6.86	0.895	0.015	0.063	19.374	68.65	0.362	213	292.8	40	42	94.2	5.25	0.015	1.41
DN-8	98/10/13 13-49	Tube	19	211	7	27.3	74.1	4.4	736	200	5.99	0.15	0.011	0.07	0.154	64.73	0.7	37.28	461.4	120	33.6	7.6	1.69	0.019	1.28
DN-9	98/10/13 13-57	Tube	18	212	6.75	27.3	69	3.2	690	212	5.49	0.16	0.006	0.089	0.905	92.5	1.875	71	305	56	43.6	52.7	7.9	0.018	0.84
DN-10	98/10/13 14-08	Tube	18.0	213	7	27.4	56.9	3.4	567	205	6.02	0.162	0.01	0.067	3.071	34.50	0.195	21.3	366	48	52.8	8.7	5.53	0.015	1.57

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Hanoi

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
XD-1	98/10/13 09:32	Tube	26.00	194	6.00	27.3	16.8	0.40	168	215	3.91	0.790	0.028	0.065	0.091	28.76	0.420	37.28	48.80	8.0	4.80	33.80	7.35	0.021	1.93
XD-2	98/10/13 09:36	Hand Dug Tube	10.45	195	5.90	27.0	8.2	0.50	92	212	4.24	0.320	0.007	0.088	0.124	45.05	0.924	14.20	18.30	12.0	4.80	12.50	3.71	0.013	1.58
XD-3	98/10/13 09:33	Tube	30.00	196	5.53	27.3	6.5	0.30	65	213	4.91	0.430	0.010	0.062	1.882	10.88	0.195	8.98	30.50	8.0	2.40	7.20	2.33	0.024	1.16
XD-4	98/10/13 09:39	Hand Dug	11.95	197	5.84	27.0	8.5	1.80	855	213	5.08	1.055	0.015	0.059	0.086	140.29	0.420	191.70	48.80	36.0	21.00	120.30	11.40	0.022	1.04
XD-5	98/10/13 09:51	Hand Dug	10.72	198	6.70	27.2	12.74	3.00	1271	210	5.97	0.860	0.013	0.051	0.090	330.63	0.314	252.05	146.40	36.0	38.40	218.70	34.30	0.010	1.34
XD-6	98/10/13 10:04	Tube	24.00	199	6.15	27.4	9.98.0	0.30	297	214	4.92	0.145	0.009	0.067	0.089	15.83	1.120	14.20	38.80	8.0	2.40	14.20	4.39	0.020	0.80
XD-7	98/10/13 10:15	Tube	30.00	200	5.49	27.4	6.5	0.40	84	213	5.12	0.192	0.007	0.059	0.092	20.43	0.960	10.05	30.30	12.0	2.40	7.20	4.93	0.015	1.12
XD-8	98/10/13 10:25	Tube	24.00	201	5.80	27.3	9.3	0.40	64	212	5.12	0.325	0.007	0.063	0.093	12.48	0.195	14.20	48.80	8.0	4.80	8.40	11.50	0.022	1.27
XD-9	98/10/13 10:41	Tube	20.00	202	5.80	27.2	13.2	0.40	132	213	5.88	0.325	0.012	0.074	0.084	3.38	0.700	26.36	48.80	8.0	4.80	16.10	4.48	0.020	0.78
XD-10	98/10/13 10:53	Tube	26.00	203	5.85	27.2	15.0	1.40	303	210	5.21	0.125	0.008	0.068	0.093	0.96	1.260	27.52	160.30	40.0	9.60	11.30	4.91	0.015	2.18
DN-1	98/10/13 12:17	Tube	18.00	204	6.90	27.2	48.9	3.00	487	209	5.63	0.310	0.011	0.076	0.817	23.98	0.420	14.20	329.40	96.0	14.40	5.30	2.74	0.016	1.25
DN-2	98/10/13 12:31	Tube	20.00	205	6.95	27.3	57.7	3.40	578	207	5.30	0.360	0.009	0.074	1.034	33.92	0.252	17.75	388.00	96.0	24.00	7.90	2.47	0.016	1.02
DN-3	98/10/13 12:44	Tube	19.50	206	6.90	27.3	76.6	3.40	770	208	6.12	0.312	0.009	0.081	0.429	26.20	0.588	14.20	207.40	64.0	21.80	5.40	12.60	0.019	1.17
DN-4	98/10/13 12:53	Tube	21.00	207	7.10	27.3	33.6	2.50	335	208	5.79	0.128	0.008	0.079	0.080	84.38	0.700	14.20	207.40	64.0	21.80	5.40	12.60	0.019	1.17
DN-5	98/10/13 13:13	Hand Dug	10.00	208	7.15	27.3	173.5	6.00	1730	210	5.20	0.883	0.015	0.062	0.089	357.13	0.364	190.93	500.20	160.0	48.00	120.10	13.21	0.015	1.15
DN-6	98/10/13 13:24	Hand Dug	8.00	209	7.00	27.4	139.9	4.40	1360	216	5.96	0.762	0.024	0.058	0.089	241.97	0.758	118.93	500.20	120.0	33.60	134.20	76.30	0.021	1.44
DN-7	98/10/13 13:40	Tube	13.00	210	6.50	27.3	128.6	4.00	1287	213	6.98	0.695	0.015	0.063	19.374	88.65	0.362	213.00	292.80	40.0	42.00	94.20	5.25	0.015	1.47
DN-8	98/10/13 13:46	Tube	18.50	211	7.00	27.3	74.1	4.40	736	200	5.69	0.150	0.011	0.070	0.154	84.73	0.700	37.28	451.40	120.0	33.60	7.60	1.89	0.019	1.28
DN-9	98/10/13 13:57	Tube	18.00	212	6.75	27.3	69.0	3.20	690	212	5.49	0.160	0.008	0.089	0.805	92.50	1.875	71.00	305.00	56.0	43.60	52.70	7.90	0.018	0.84
DN-10	98/10/13 14:08	Tube	18.00	213	7.00	27.4	56.9	3.40	507	205	6.02	0.162	0.010	0.067	3.071	34.58	0.195	21.30	366.00	46.0	52.80	8.70	5.53	0.015	1.57

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Ninh Binh

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (C C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
YT-1	98/09/24 09-18	Hand Dug	-																							
YT-2	98/09/24 09-25	Hand Dug	3.03	46	7.80	27.1	128.4	5.00	1259	190	3.98	0.334	0.013	0.053	0.113	222.63	1.010	133.13	402.60	140.0	36.00	78.24	61.88	0.046	4.85	
YT-3	98/09/24 09-27	Hand Dug	2.65	47	6.90	27.1	201.0	9.00	2372	213	5.18	0.411	0.009	0.071	0.084	486.37	0.560	266.25	304.80	200.0	98.00	72.08	58.40	0.032	2.36	
YT-4	98/09/24 10-03	Hand Dug	2.94	48	7.27	27.0	77.0	4.25	732	209	5.12	0.421	0.010	0.069	0.062	217.31	0.335	53.25	317.20	130.0	24.00	59.60	5.31	0.016	1.30	
YT-5	98/09/24 10-15	Hand Dug	3.90																							
YT-6	98/09/24 10-28	Hand Dug	3.90	50	7.28	26.8	147.5	5.00	1463	209	3.50	0.402	0.009	0.077	0.071	103.43	0.015	205.90	402.60	140.0	36.00	76.16	48.50	0.044	1.79	
YT-7	98/09/24 10-48	Hand Dug	4.85	49	7.26	27.1	206.0	6.50	2342	149	3.64	0.316	0.011	0.082	0.079	17.28	1.800	247.35	479.50	100.0	36.00	69.00	120.00	0.025	2.97	
YT-8	98/09/24 11-04	Hand Dug	3.90																							
YT-9	98/09/24 11-19	Hand Dug	3.45	51	6.74	26.9	102.5	5.00	1025	189	4.70	0.396	0.012	0.058	0.890	318.22	0.950	131.35	213.80	120.0	48.00	76.24	20.08	0.064	1.59	
YT-10	98/09/24 11-33	Hand Dug	3.10	52	7.28	26.8	88.0	3.50	789	200	4.17	0.362	0.012	0.060	0.350	160.76	0.615	95.85	305.00	100.0	24.00	73.23	33.68	0.032	3.52	
YT-11	98/09/24 11-45	Hand Dug	5.25																							
YT-12	98/09/24 13-40	Hand Dug	5.93	53	7.13	27.1	261.0	1.00	260	245	5.18	0.415	0.014	0.063	0.032	82.51	0.280	8.88	24.40	20.0	12.00	8.08	0.70	0.016	3.46	
YT-13	98/09/24 13-55	Hand Dug	2.93	54	7.28	27.0	48.4	3.00	435	214	4.70	0.392	0.012	0.065	0.041	73.92	0.085	21.30	280.60	100.0	12.00	16.80	0.38	0.016	1.68	
YT-S-1	98/09/24 14-17	Natural Spring		55	7.18	27.0	34.0	2.50	339	207	5.05	0.381	0.011	0.061	0.032	65.42	0.085	14.20	219.60	80.0	12.00	9.08	0.46	0.025	1.51	
YT-14	98/09/24 14-28	Hand Dug	3.15																							
YT-15	98/09/24 15-24	Hand Dug	3.05	56	7.50	26.9	148.6	5.50	1482	210	4.45	0.421	0.012	0.072	0.043	177.24	1.175	234.30	317.20	120.0	60.00	78.56	42.00	0.025	2.68	
YT-16	98/09/24 15-43	Hand Dug	4.05																							
YT-17	98/09/24 15-56	Hand Dug	2.24																							
YT-18	98/09/24 16-12	Hand Dug	3.32	57	7.30	27.0	135.6	5.50	1357	220	4.49	0.428	0.009	0.078	0.058	415.88	0.615	134.90	317.20	120.0	60.00	117.40	60.00	0.025	2.07	
YT-19	98/09/24 16-35	Hand Dug	4.15	58	7.38	27.1	178.6	4.00	1764	214	4.44	0.290	0.008	0.081	0.069	184.54	0.812	259.15	329.40	100.0	36.00	160.20	50.50	0.016	1.37	
DP-1	98/09/25 08-30	Hand Dug	2.45	59	7.49	26.9	42.5	2.50	424	238	4.95	0.218	0.009	0.086	0.058	114.17	0.088	28.40	170.80	60.0	24.00	21.92	1.00	0.014	3.03	

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Ninh Binh

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (° C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Fe ²⁺) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
DP-2	98/09/25 08:50	Hand Dug	2.34	60	7.50	26.9	92.4	3.00	925	233	3.65	0.312	0.013	0.073	0.071	193.34	0.082	92.30	152.50	60.0	36.00	63.12	14.92	0.016	2.07	
DP-3	98/09/25 10:01	Hand Dug	2.43																							
DP-4	98/09/25 10:13	Hand Dug	1.95	61	7.10	27.0	64.9	4.00	619	232	4.24	0.318	0.010	0.076	0.089	121.19	0.086	40.15	366.00	90.0	42.00	41.44	0.90	0.012	1.09	
DP-5	98/09/25 10:33	Hand Dug	2.02																							
DP-6	98/09/25 10:55	Hand Dug	3.05																							
DP-7	98/09/25 11:12	Hand Dug	2.47	62	7.16	26.8	56.2	2.50	560	219	4.78	0.284	0.008	0.074	0.057	137.01	0.785	56.80	170.80	60.0	24.00	47.04	8.16	0.015	2.25	
DP-8	98/09/25 11:26	Hand Dug	3.65	63	7.05	27.0	75.3	3.00	753	203	4.78	0.316	0.014	0.079	0.034	78.41	0.700	147.33	152.50	60.0	36.00	48.24	7.27	0.015	1.11	
DP-9	98/09/25 11:47	Hand Dug	4.75	64	7.40	26.8	97.5	4.00	854	200	4.37	0.322	0.015	0.067	0.087	35.07	0.420	120.70	360.00	90.0	42.00	44.70	7.81	0.013	1.82	
DP-10	98/09/25 13:39	Hand Dug	4.70	65	7.20	26.8	60.5	3.25	804	235	4.41	0.381	0.012	0.058	0.091	192.10	0.610	58.80	183.00	60.0	42.00	47.08	1.13	0.015	2.03	
DP-11	98/09/25 13:55	Hand Dug	4.30																							
DP-12	98/09/25 14:14	Hand Dug	4.40	66	7.02	26.9	70.8	3.50	760	234	4.50	0.312	0.013	0.059	0.088	134.11	0.088	67.45	219.60	100.0	24.00	22.00	13.16	0.012	1.42	
DP-13	98/09/25 14:27	Hand Dug	2.30																							
DP-14	98/09/25 14:40	Hand Dug	5.10	67	6.83	26.7	41.3	2.00	413	219	4.26	0.294	0.008	0.061	0.093	153.13	0.170	39.05	207.40	50.0	18.00	72.24	21.43	0.010	1.23	
DP-15	98/09/25 15:00	Hand Dug	5.00																							
DP-16	98/09/25 15:18	Hand Dug	6.15	68	6.60	26.7	32.3	1.75	321	238	5.35	0.268	0.014	0.063	0.087	164.00	0.610	47.93	109.80	40.0	18.00	57.76	21.67	0.010	1.14	
DP-17	98/09/25 16:10	Hand Dug	3.90	69	7.60	27.0	52.7	3.00	326	230	5.35	0.581	0.016	0.052	0.091	195.60	0.165	31.95	280.60	80.0	24.00	70.08	20.59	0.010	1.45	
DP-18	98/09/25 16:21	Hand Dug	2.80	70	7.02	26.8	69.1	3.25	691	233	4.92	0.472	0.013	0.058	0.087	163.00	0.162	44.38	317.20	100.0	18.00	70.48	10.99	0.015	1.49	
QS-1	98/09/26 08:55	Hand Dug	9.90	71	7.02	26.8	59.6	2.75	598	234	5.38	0.512	0.017	0.070	0.095	70.72	0.162	44.38	195.20	80.0	18.00	8.88	1.46	0.014	1.41	
QS-2	98/09/26 09:24	Hand Dug	15.40	72	7.03	26.9	84.1	5.00	772	285	5.15	0.432	0.015	0.068	0.091	176.30	0.162	39.05	439.20	160.0	24.00	36.40	15.24	0.015	1.87	
QS-3	98/09/26 09:48	Hand Dug	12.90																							
QS-4	98/09/26 10:07	Hand Dug	12.50																							

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Ninh Binh

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mcq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
QS-5	98/09/26 10:16	Hand Dug	11.60	73	6.90	26.8	110.5	4.25	1164	220	4.44	0.612	0.022	0.069	0.090	74.04	0.164	102.95	280.80	140.0	18.00	6.08	10.85	0.018	1.17	
QS-6	98/09/26 10:30	Cave		74	7.40	26.7	30.0	2.25	359	223	5.04	0.513	0.016	0.057	0.086	21.73	0.164	8.88	244.00	60.0	18.00	4.72	0.47	0.015	1.30	
QS-7	98/09/26 11:04	Hand Dug	13.90	75	7.50	26.7	11.0	0.75	110	234	5.02	0.498	0.015	0.056	0.083	150.33	0.164	7.10	79.80	20.0	6.00	66.80	9.36	0.032	1.49	
QS-8	98/09/26 11:20	Hand Dug	17.80	76	7.20	26.7	42.1	2.00	421	233	3.92	0.512	0.012	0.070	0.087	105.00	0.162	26.63	219.60	60.0	12.00	56.48	3.20	0.015	1.58	
QS-9	98/09/26 12:19	Hand Dug	25.25	77	7.10	26.7	24.4	1.25	244	234	5.63	0.531	0.012	0.069	0.080	82.70	0.162	8.88	158.60	40.0	6.00	46.80	1.50	0.022	1.43	
QS-10	98/09/26 12:37	Hand Dug	4.32	78	7.30	26.8	46.1	2.25	261	235	5.22	0.473	0.014	0.058	0.097	22.54	0.162	26.63	280.60	90.0	6.00	17.28	2.67	0.032	1.14	
QS-11	98/09/26 12:54	Hand Dug	19.40	79	7.40	26.7	26.1	1.25	260	232	5.59	0.398	0.009	0.057	0.094	46.08	0.010	7.10	158.60	40.0	6.00	18.24	19.84	0.022	1.42	
QS-12	98/09/26 14:41	Hand Dug	10.50	80	7.70	26.7	25.3	2.25	253	233	5.30	0.362	0.013	0.049	0.080	85.58	0.162	7.10	170.80	40.0	30.00	2.16	4.39	0.012	1.33	
QS-13	98/09/26 14:54	Hand Dug	11.92																							
QS-14	98/09/26 15:10	Hand Dug	17.00																							
QS-15	98/09/26 15:25	Hand Dug	12.00																							
QS-16	98/09/26 15:49	Hand Dug	9.52	81	7.50	26.9	37.6	2.00	376	220	5.72	0.381	0.012	0.061	0.084	0.96	0.330	31.95	348.40	50.0	28.00	36.08	9.17	0.015	1.74	
QS-17	98/09/26 16:02	Hand Dug	14.95																							
QS-18	98/09/26 16:17	Hand Dug	10.50	82	7.30	27.0	24.7	2.75	247	223	5.76	0.412	0.014	0.052	0.085	76.69	0.450	8.60	170.80	60.0	18.00	1.16	0.25	0.015	1.72	

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Thanh Hoá

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Fe ²⁺) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
VT-1	98/10/07 09:21	Hand Dug	5.80	124	7.27	27.0	189.5	5.00	1893	243	4.87	0.394	0.012	0.083	0.070	239.84	0.475	223.85	463.80	136.0	38.40	180.20	148.10	0.015	1.40
VT-2	98/10/07 09:37	Hand Dug	9.40	125	6.75	27.0	56.0	2.20	536	245	5.04	0.384	0.011	0.081	0.064	39.36	0.365	87.45	152.50	64.0	14.40	18.10	1.29	0.015	1.12
VT-3	98/10/07 09:39	Hand Dug	9.20	126	7.36	26.9	71.1	2.50	708	242	4.92	0.316	0.013	0.079	0.089	49.85	0.420	85.20	256.20	80.0	12.00	42.90	30.00	0.021	1.21
VT-4	98/10/07 10:01	Hand Dug	10.22	127	7.05	27.1	110.2	3.20	1101	242	5.23	0.289	0.008	0.078	0.070	173.00	0.420	117.15	305.00	88.0	24.00	96.30	41.70	0.021	1.81
VT-5	98/10/07 10:15	Hand Dug	5.45	128	7.20	27.0	118.4	4.40	1181	236	3.82	0.407	0.009	0.071	0.089	162.05	0.560	127.80	386.00	120.0	33.60	76.30	30.10	0.018	1.78
VT-6	98/10/07 10:28	Hand Dug	4.78	129	7.06	27.1	70.3	3.80	687	226	4.06	0.502	0.010	0.070	0.087	167.20	0.422	31.95	427.00	100.0	28.40	94.20	3.42	0.032	1.80
VT-7	98/10/07 10:39	Hand Dug	5.90	130	7.17	27.2	93.0	3.40	928	235	4.37	0.416	0.013	0.063	0.076	85.54	0.422	106.50	329.40	100.0	21.60	62.10	26.60	0.012	1.62
VT-8	98/10/07 10:53	Hand Dug	3.80	131	6.94	27.3	83.4	3.80	832	242	4.53	0.511	0.014	0.069	0.374	82.84	0.700	67.45	386.00	100.0	26.40	39.60	27.30	0.010	1.83
VT-9	98/10/07 11:05	Hand Dug	7.05	132	6.48	27.3	52.2	2.00	523	246	4.20	0.434	0.008	0.064	0.338	18.41	0.140	85.20	152.50	40.0	24.00	26.20	2.24	0.015	1.20
VT-10	98/10/07 11:27	Hand Dug	8.05	133	6.62	27.3	62.3	2.00	621	246	4.69	0.521	0.013	0.062	0.089	17.88	0.420	78.10	195.20	64.0	9.60	27.90	29.70	0.025	1.56
VL-1	98/10/07 12:42	Tube	14.50	134	6.24	27.3	38.6	1.80	385	217	4.20	0.292	0.009	0.081	1.784	14.40	0.840	60.35	126.40	40.0	14.40	19.70	1.51	0.032	1.64
VL-2	98/10/07 13:42	Hand Dug	5.82	135	6.88	27.4	48.1	2.00	480	243	4.97	0.431	0.012	0.079	0.044	9.12	0.645	31.95	224.00	64.0	9.60	15.70	3.61	0.018	1.76
VL-3	98/10/07 14:14	Hand Dug	5.05	136	6.85	27.4	51.4	2.00	513	246	4.72	0.382	0.011	0.071	0.044	18.57	0.755	71.00	195.20	64.0	9.60	20.40	27.30	0.022	1.10
VL-4	98/10/07 14:23	Hand Dug	8.65	137	7.22	27.4	62.8	3.40	825	240	4.81	0.416	0.014	0.038	0.066	81.97	0.360	78.10	341.60	88.0	28.80	45.00	29.30	0.015	1.35
VL-5	98/10/07 14:36	Tube	28.00	138	7.05	27.5	50.6	2.60	504	206	5.25	0.342	0.010	0.069	0.089	23.81	0.660	10.65	391.60	64.0	24.00	27.60	1.34	0.013	1.60
VL-6	98/10/07 14:46	Hand Dug	5.37	139	7.11	27.4	51.3	2.80	512	197	4.15	0.298	0.012	0.079	0.073	7.20	1.820	31.95	309.20	60.0	19.20	8.10	1.78	0.025	1.23
VL-7	98/10/07 15:01	Tube	17.00	140	6.10	27.3	59.3	2.00	592	246	5.39	0.323	0.024	0.073	0.074	71.10	0.280	102.95	79.30	56.0	14.40	37.20	2.49	0.016	1.83
VL-8	98/10/07 15:10	Hand Dug	8.15	141	6.55	27.6	35.4	1.80	352	244	5.41	0.416	0.013	0.070	0.074	17.28	0.700	23.06	207.40	48.0	19.60	7.00	2.74	0.015	2.73
VL-9	98/10/07 15:17	Tube	15.00	142	6.60	27.5	32.8	2.00	321	243	5.35	0.342	0.016	0.068	0.096	42.08	0.700	28.40	152.20	40.0	24.00	2.00	3.31	0.017	1.38
VL-10	98/10/07 15:27	Hand Dug Tube	5.40 20.00	143	5.95	27.3	12.6	0.60	120	245	5.04	0.411	0.015	0.093	0.069	5.76	0.560	23.06	61.00	20.0	2.40	9.20	4.09	0.011	1.57
DT-1	98/10/08 09:14	Tube	30.00	144	6.88	27.3	35.4	2.00	353	231	3.28	0.398	0.011	0.093	1.909	10.56	0.700	35.50	189.60	40.0	24.00	7.00	2.46	0.010	1.28

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Thanh Hoá

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
DT-2	98/10/08 09-46	Hand Dug	5.90	145	6.61	27.4	35.1	1.80	350	195	4.25	0.374	0.017	0.070	0.072	21.77	0.990	44.38	134.20	40.0	14.40	14.60	2.69	0.010	1.30
DT-3	98/10/08 10-01	Hand Dug	6.95	146	7.15	27.4	45.3	2.00	451	216	5.92	0.386	0.013	0.071	0.698	104.78	0.840	44.38	195.20	14.4	59.00	10.90	30.30	0.052	1.16
DT-4	98/10/08 10-28	Tube	30.00	147	6.61	27.4	28.5	1.00	185	188	5.04	0.414	0.016	0.068	0.082	7.20	1.540	21.30	122.00	30.0	12.00	12.90	2.08	0.021	0.98
DT-5	98/10/08 10-35	Hand Dug	4.52	148	6.80	27.4	127.4	3.50	1271	235	4.55	0.392	0.021	0.082	0.064	254.95	2.300	237.85	268.40	96.0	26.40	191.40	42.50	0.040	1.07
DT-6	98/10/08 11-11	Hand Dug	4.50	149	6.92	27.4	56.6	2.00	584	236	5.30	0.421	0.022	0.071	0.068	31.85	1.120	101.18	146.40	48.0	19.20	39.90	7.06	0.021	1.08
DT-7	98/10/08 11-23	Hand Dug	5.75	150	6.58	27.4	70.4	2.60	704	238	5.46	0.513	0.015	0.090	0.057	27.85	1.120	124.25	193.00	64.0	24.00	42.00	2.11	0.018	0.98
DT-8	98/10/08 11-34	Hand Dug	5.03	151	6.45	27.3	94.1	3.20	939	238	5.33	0.382	0.014	0.090	3.217	14.12	0.615	205.90	170.80	72.0	33.60	56.00	2.32	0.018	1.14
DT-9	98/10/08 11-44	Hand Dug	5.50	152	6.66	27.3	22.1	1.00	220	241	5.23	0.424	0.011	0.058	0.093	0.96	1.510	21.30	122.00	32.0	4.80	13.40	1.79	0.025	1.07
DT-10	98/10/08 11-55	Tube	31.00	153	7.08	27.4	36.8	1.50	368	171	4.21	0.427	0.016	0.061	0.067	15.36	3.350	28.40	209.60	50.2	12.00	22.90	2.29	0.018	1.18
TH-1	98/10/09 08-19	Tube	27.00	154	7.01	27.3	35.4	1.50	330	162	4.86	0.515	0.011	0.059	0.061	14.88	2.050	15.98	209.80	50.0	12.00	14.60	3.10	0.016	1.13
TH-2	98/10/09 08-26	Hand Dug	7.00	155	6.70	27.3	83.7	2.40	834	158	5.54	0.478	0.012	0.072	0.085	23.52	2.080	193.75	244.00	60.0	21.60	96.30	41.20	0.012	1.36
TH-3	98/10/09 08-37	Hand Dug	6.80	156	6.52	27.3	65.1	2.00	653	207	5.05	0.621	0.014	0.068	0.085	28.80	0.610	204.95	219.60	60.0	12.00	99.00	68.00	0.011	1.43
TH-4	98/10/09 08-51	Hand Dug	5.95	157	6.46	27.3	54.9	2.40	548	194	4.64	0.312	0.010	0.063	0.089	4.80	1.455	201.40	185.20	68.0	19.20	80.10	13.63	0.015	1.54
TH-5	98/10/09 09-03	Hand Dug	6.80	158	6.49	27.3	53.8	1.50	467	170	5.45	0.424	0.021	0.059	0.112	61.05	9.550	60.35	122.00	32.0	16.80	49.20	3.48	0.010	0.95
TH-6	98/10/09 09-12	Hand Dug	6.70	159	6.49	27.3	68.1	2.00	680	198	5.69	0.394	0.013	0.063	0.093	81.52	1.120	92.30	158.60	60.0	12.00	64.80	3.16	0.010	1.28
TH-7	98/10/09 09-28	Hand Dug	6.67	160	7.08	27.3	91.6	3.20	913	193	5.91	0.418	0.009	0.062	0.063	186.45	0.505	37.28	329.40	104.0	14.40	60.30	51.20	0.015	1.74
TH-8	98/10/09 10-07	Hand Dug	6.80	161	6.47	27.1	76.1	2.20	761	200	4.93	0.281	0.011	0.063	0.065	259.87	0.170	32.00	122.00	60.0	16.80	63.90	43.60	0.018	2.01
TH-9	98/10/09 10-17	Hand Dug	6.05	162	6.60	27.2	99.7	2.00	996	189	5.46	0.286	0.009	0.058	0.234	320.00	0.580	43.95	183.00	40.0	24.00	108.60	86.10	0.012	1.97
TH-10	98/10/09 10-26	Hand Dug	5.60	163	7.00	27.0	171.8	4.50	1711	193	4.32	0.302	0.008	0.190	0.087	373.83	0.785	219.25	268.40	112.0	40.80	188.40	36.60	0.022	1.71
TD-1	98/10/09 13-25	Tube	25.00	164	7.32	27.2	83.8	1.90	837	101	4.32	0.318	0.012	1.238	0.082	9.12	2.100	202.05	403.60	64.0	21.60	156.60	45.60	0.054	1.68
TD-2	98/10/09 14-11	Hand Dug	7.20	165	7.00	27.4	164.2	5.40	1597	195	5.12	0.316	0.014	0.082	0.059	300.31	0.980	34.05	414.80	152.0	38.40	73.40	3.52	0.054	1.51

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Province: Thanh Hoa

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
TD-3	98/10/09 14:23	Hand Dug	7.80	108	7.20	27.5	104.2	3.40	1637	199	4.32	0.402	0.015	0.072	0.097	267.08	0.588	10.65	488.00	80.0	33.60	92.10	4.97	0.013	1.40
TD-4	98/10/09 14:35	Hand Dug	4.70	107	7.00	27.4	141.3	5.40	1411	193	4.51	0.434	0.014	0.088	0.292	314.20	0.980	32.10	380.40	110.1	57.80	81.80	6.90	0.022	1.50
TD-5	98/10/09 14:45	Hand Dug	4.25	108	6.93	27.4	155.4	4.20	1550	196	4.77	0.421	0.016	0.071	0.098	339.03	1.540	44.23	390.40	110.0	28.80	129.60	49.20	0.023	1.27
TD-6	98/10/09 14:58	Tube	33.00	109	6.85	27.4	64.8	2.00	646	148	4.81	0.382	0.013	0.088	0.092	63.65	2.940	27.53	292.80	48.0	19.20	59.90	11.59	0.015	1.18
TD-7	98/10/09 15:09	Hand Dug	5.60	170	7.05	27.2	127.5	2.20	598	195	5.25	0.412	0.011	0.059	0.084	13.39	1.120	14.20	548.00	48.0	24.00	96.00	43.10	0.016	1.18
TD-8	98/10/09 15:21	Hand Dug	3.02	171	6.80	27.3	75.1	5.40	749	184	4.49	0.391	0.014	0.063	0.070	370.24	2.800	35.40	208.40	108.0	46.80	59.40	48.00	0.015	1.58
TD-9	98/10/09 15:30	Hand Dug	2.90	172	6.98	27.2	121.2	4.00	1206	197	5.07	0.403	0.021	0.087	0.066	332.00	1.205	71.00	366.00	96.0	38.40	112.20	79.50	0.022	1.69
TD-10	98/10/09 15:38	Hand Dug	3.30	173	7.30	27.2	34.8	1.80	347	200	5.66	0.421	0.022	0.085	0.048	89.33	1.540	14.20	183.00	48.0	14.40	14.10	49.00	0.015	1.71
VT-1	98/10/10 08:34	Hand Dug	3.80	174	6.70	27.3	14.0	3.50	139	222	4.92	0.368	0.018	0.064	0.052	235.05	2.100	31.85	60.60	96.0	24.00	10.30	1.92	0.018	2.08
VT-2	98/10/10 08:55	Hand Dug	3.45	175	7.32	27.4	81.2	3.70	908	224	4.88	0.412	0.022	0.070	0.093	237.73	0.700	118.93	256.20	96.0	31.20	72.90	75.40	0.016	1.46
VT-3	98/10/10 09:11	Hand Dug	4.25	176	7.12	27.4	77.9	2.40	778	230	4.46	0.381	0.013	0.072	0.083	36.88	0.700	88.75	305.00	80.0	9.60	49.40	51.50	0.018	1.76
VT-4	98/10/10 09:35	Hand Dug	3.20	177	7.20	27.3	61.0	2.80	615	230	5.42	0.404	0.009	0.071	0.087	102.94	0.420	90.52	213.50	80.0	14.40	37.50	53.20	0.022	1.66
VT-5	98/10/10 09:51	Hand Dug	2.80	178	7.00	27.3	63.8	1.60	636	233	4.58	0.392	0.007	0.068	0.063	18.86	0.560	72.78	122.60	32.0	19.20	26.10	61.10	0.022	2.00
VT-6	98/10/10 10:06	Tube	26.00	179	6.70	27.3	23.8	2.00	636	234	5.10	0.502	0.013	0.072	0.093	99.04	3.640	14.20	122.60	40.0	24.00	9.50	2.35	0.621	2.13
VT-7	98/10/10 10:25	Hand Dug	4.25	180	7.10	27.0	143.5	4.00	1433	215	5.36	0.396	0.012	0.058	0.086	235.02	0.700	249.52	360.00	120.0	24.00	177.30	82.60	0.022	1.52
VT-8	98/10/10 10:35	Hand Dug	4.07	181	7.20	27.2	51.9	3.00	517	215	6.66	0.812	0.018	0.061	0.121	493.14	0.840	129.30	152.50	72.0	28.80	234.50	8.90	0.015	1.77
VT-9	98/10/10 10:58	Hand Dug	3.40	182	6.10	27.3	9.6	1.00	97	245	5.56	0.612	0.016	0.052	0.085	71.79	0.700	17.75	30.30	20.0	12.00	10.70	1.19	0.017	1.53
VT-10	98/10/10 11:18	Hand Dug	4.80	183	7.12	27.2	60.3	3.20	602	235	5.82	0.508	0.018	0.057	0.028	133.48	1.540	51.48	256.20	80.0	80.00	38.40	14.10	0.019	1.49
NC-1	98/10/10 14:02	Hand Dug	4.50	184	7.55	27.3	61.0	2.80	608	245	6.28	0.432	0.017	0.432	0.061	118.92	0.286	74.55	225.70	64.0	64.00	52.50	15.40	0.016	1.65
NC-2	98/10/10 14:13	Tube	27.00	185	6.40	27.3	247.0	4.00	3142	241	5.58	0.382	0.013	0.066	2.353	10.32	0.305	607.40	183.00	88.0	43.20	293.70	10.40	0.018	2.19
NC-3	98/10/10 14:23	Tube	28.00	186	7.05	27.3	247.0	5.00	3156	236	6.33	0.364	0.013	0.059	3.155	30.57	0.395	607.40	195.20	100.0	60.00	280.80	16.70	0.015	1.62

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Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (mg/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F) (mg/l)	Arsenic (As) (µg/l)
NC-4	98/10/10 14:39	Hand Dug	4.75	187	7.10	27.3	96.7	4.00	965	234	5.44	0.298	0.008	0.072	0.086	237.06	0.280	198.80	207.40	80.0	48.00	131.70	8.30	0.021	1.69
NC-5	98/10/10 14:50	Tube	24.00	188	6.50	27.4	158.9	5.50	1564	233	5.54	0.314	0.008	0.067	0.408	146.15	7.140	145.55	756.40	60.6	96.00	161.40	56.40	0.022	1.60
NC-6	98/10/10 15:02	Tube	30.00	189	7.10	27.3	417.0	8.40	6424	236	6.07	0.424	0.011	0.064	0.019	14.88	0.280	1053.75	225.70	176.0	96.00	356.10	23.60	0.019	1.73
NC-7	98/10/10 15:08	Hand Dug	3.15	190	7.25	27.3	137.2	6.00	1369	246	4.83	0.378	0.014	0.065	0.976	345.84	0.305	244.95	292.80	104.0	69.40	156.40	43.10	0.022	1.86
NC-8	98/10/10 15:25	Tube	34.00	191	7.02	27.3	180.7	3.20	1104	233	6.24	0.512	0.012	0.074	0.086	237.21	1.235	241.40	231.90	64.0	38.40	177.30	55.90	0.025	1.35
NC-9	98/10/10 15:35	Hand Dug	5.27	192	7.20	27.3	78.0	5.00	779	237	5.95	0.431	0.011	0.076	0.762	92.09	0.390	60.35	244.00	96.0	62.40	43.50	17.80	0.022	1.18
NC-10	98/10/10 15:44	Tube	32.00	193	6.70	27.3	57.7	4.40	576	239	5.84	0.392	0.018	0.069	0.097	690.57	0.390	110.30	183.00	56.0	72.00	233.00	60.70	0.018	1.59

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: Ha Tinh

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (°C)	EC (mS/m)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)
TL-1	98/10/02 08:46	Tube Hand Dug	24.00 8.00 about	103	5.90	28.8	222.0	1.50	1977	181	5.20	0.572	0.008	0.051	0.238	2.88	1.568	395.75	1.50	30.0	18.00	126.80	42.00	0.015	1.23
TL-2	98/10/02 08:59	Hand Dug	2.30	104	6.70	27.0	20.9	1.80	210	185	5.20	0.431	0.008	0.072	0.032	203.07	1.120	35.50	1.50	20.0	24.00	48.80	3.51	0.015	1.51
TL-3	98/10/02 09:11	Hand Dug	6.00	105	7.16	28.8	202.0	4.25	2674	175	5.89	0.326	0.008	0.081	0.037	219.83	0.728	333.70	152.50	80.0	54.00	166.50	23.50	0.012	1.74
TL-4	98/10/02 09:22	Hand Dug	6.80	106	7.70	28.8	58.9	2.25	599	174	3.34	0.412	0.009	0.063	0.042	118.44	1.540	67.45	305.00	50.0	24.00	65.40	28.94	0.042	1.28
TL-5	98/10/02 09:41	Hand Dug	4.35	107	6.50	28.8	133.2	8.50	1331	174	4.10	0.403	0.014	0.069	0.348	534.60	0.446	142.25	67.10	130.0	76.00	93.80	6.23	0.014	1.98
TL-6	98/10/02 09:49	Hand Dug	4.75	108	7.50	28.8	54.2	1.50	541	179	4.08	0.414	0.012	0.071	0.100	109.62	0.445	74.55	61.00	50.0	6.00	46.40	14.29	0.013	1.54
TL-7	98/10/02 10:03	Hand Dug	6.15	109	7.90	26.8	145.1	5.50	1452	178	4.58	0.316	0.008	0.053	0.043	345.90	0.280	128.05	414.80	90.1	72.00	154.60	15.00	0.032	1.53
TL-8	98/10/02 10:18	Hand Dug	5.75	110	7.03	26.8	60.8	3.50	680	160	5.92	0.398	0.009	0.062	1.003	268.10	0.840	80.03	79.30	60.0	48.00	12.20	10.11	0.012	1.41
TL-9	98/10/02 10:28	Hand Dug	7.60	111	7.37	26.8	160.4	2.50	1602	171	5.20	0.322	0.007	0.069	0.050	99.51	0.335	282.70	109.80	80.0	12.00	135.20	15.40	0.022	1.14
TL-10	98/10/02 10:43	Tube	34.00	112	6.46	26.8	204.0	1.75	2390	174	4.00	0.411	0.013	0.070	0.218	0.96	0.560	455.42	122.00	30.0	24.00	251.93	18.00	0.025	1.60
YH-1	98/10/02 13:29	Hand Dug	3.65	113	6.40	27.0	30.9	1.25	309	183	4.19	0.298	0.011	0.069	0.040	37.87	3.024	48.15	122.00	30.0	12.00	34.80	2.96	0.025	1.13
YH-2	98/10/02 13:52	Hand Dug	4.00	114	6.60	26.9	75.8	2.50	757	174	4.52	0.312	0.013	0.053	2.894	42.36	3.080	148.10	183.00	50.0	30.00	61.00	16.80	0.022	1.46
YH-3	98/10/02 14:03	Hand Dug	4.27	115	4.90	27.0	103.2	4.50	1030	187	5.04	0.280	0.009	0.061	1.952	388.71	0.840	92.55	36.60	100.0	48.00	46.20	11.29	0.025	1.61
YH-4	98/10/02 14:24	Hand Dug	4.80	116	6.30	26.6	21.7	1.25	217	156	4.14	0.411	0.011	0.054	0.070	25.99	5.095	31.95	109.80	30.0	12.00	16.80	0.43	0.015	1.41
YH-5	98/10/02 14:39	Hand Dug	4.70	117	6.60	26.6	85.4	4.00	854	170	4.25	0.386	0.009	0.052	0.186	241.83	2.912	83.28	219.60	80.0	48.00	59.20	16.00	0.012	1.68
YH-6	98/10/02 15:13	Hand Dug	3.30 about	118	6.70	26.7	55.1	2.00	551	173	5.30	0.317	0.008	0.061	0.212	112.09	0.726	99.40	122.00	40.0	24.00	53.60	28.00	0.015	1.49
YH-7	98/10/02 15:28	Hand Dug	4.55	119	6.80	26.6	37.1	1.25	372	179	6.02	0.412	0.013	0.058	0.668	84.42	0.560	98.40	36.60	20.0	18.00	60.00	1.95	0.011	1.85
YH-8	98/10/02 15:41	Hand Dug	4.55	120	6.70	26.7	109.1	3.25	1091	175	4.91	0.398	0.014	0.072	0.275	76.52	0.560	191.70	219.80	100.0	18.00	90.13	9.28	0.010	2.07
YH-9	98/10/02 15:51	Hand Dug	3.65	121	6.02	26.9	112.3	2.50	1123	184	4.40	0.596	0.017	0.081	0.594	132.41	0.762	220.43	73.20	60.0	24.00	112.40	10.98	0.015	1.57
YH-10	98/10/02 16:08	Hand Dug	5.20	122	6.50	26.6	147.3	4.25	1473	153	5.12	0.416	0.009	0.069	0.084	224.51	1.045	248.50	242.90	100.0	42.00	149.80	25.48	0.012	1.07
YH-11	98/10/02 16:41	Hand Dug	3.40	123	6.06	26.8	43.5	1.25	435	179	5.00	0.386	0.008	0.065	0.492	216.68	2.010	136.88	42.70	50.5	18.50	136.00	4.28	0.015	1.28

Results of Laboratory Chemical Analysis of Groundwater Samples from Existing Wells

Province: H₄ Tinch

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Water Sample No.	pH	Temp. (° C)	EC (mS/cm)	Hardness (meq/l)	TDS (mg/l)	Redox potential (mV)	DO (mg/l)	Nitrate (NO ₃ ⁻) (mg/l)	Nitrite (NO ₂ ⁻) (mg/l)	Ammonium (NH ₄ ⁺) (mg/l)	Manganese (Mn ²⁺) (mg/l)	Sulfate (SO ₄ ²⁻) (mg/l)	Iron (Σ Fe) (mg/l)	Chloride (Cl ⁻) (mg/l)	Bicarbonate (HCO ₃ ⁻) (mg/l)	Calcium (Ca ²⁺) (mg/l)	Magnesium (Mg ²⁺) (mg/l)	Sodium (Na ⁺) (mg/l)	Potassium (K ⁺) (mg/l)	Fluoride (F ⁻) (mg/l)	Arsenic (As) (µg/l)	
DY-1	98/10/01 09:10	Hand Dug	6.40		7.04	26.9	112.3	3.75	922	103	5.33	0.361	0.008	0.072	0.095	95.66	0.503	165.08	244.00	70.0	48.00	66.40	20.10	0.020	1.51	
DY-2	98/10/01 09:30	Hand Dug	5.19		7.60	26.8	88.3	3.25	884	179	5.13	0.616	0.021	0.069	0.075	245.21	0.700	146.05	183.00	60.0	42.00	122.10	15.60	0.016	1.44	
DY-3	98/10/01 09:52	Hand Dug	5.50		7.17	26.8	43.5	2.00	436	178	5.29	0.702	0.019	0.081	0.081	108.25	0.755	40.83	158.00	50.0	18.00	39.80	9.10	0.032	1.70	
DY-4	98/10/01 10:11	Hand Dug	5.15		6.80	26.9	26.7	1.25	267	180	4.56	0.860	0.020	0.078	0.070	55.19	0.335	28.40	109.80	30.0	12.00	22.40	14.76	0.040	1.08	
DY-5	98/10/01 10:25	Hand Dug	5.40		7.70	26.8	33.4	2.00	334	160	5.57	0.712	0.023	0.077	0.078	121.53	0.356	23.08	198.60	50.0	18.00	32.20	14.90	0.032	1.45	
DY-6	98/10/01 10:41	Hand Dug	9.56		6.70	26.8	90.3	3.00	901	167	4.53	0.632	0.014	0.065	2.035	210.02	4.815	191.70	85.40	50.0	42.00	108.60	17.70	0.018	1.38	
DY-7	98/10/01 11:12	Hand Dug	5.80		7.50	20.9	56.3	2.50	563	144	4.16	0.713	0.008	0.068	0.480	81.04	0.460	33.73	268.40	60.0	24.00	38.10	14.90	0.015	1.59	
DY-8	98/10/01 11:41	Hand Dug	6.20		6.76	26.9	131.8	3.50	1310	107	4.22	0.021	0.007	0.059	0.504	319.45	0.194	225.43	146.40	70.0	42.00	182.00	19.20	0.013	1.28	
(DY-9)	98/10/01 11:58	Hand Dug	-																							
DY-9	98/10/01 12:01	Hand Dug	6.70		7.40	26.9	180.7	5.00	1804	167	4.90	0.623	0.008	0.063	0.028	302.28	0.445	225.43	275.10	120.0	48.00	121.00	74.40	0.015	1.40	
DY-10	98/10/01 12:24	Hand Dug	4.67		7.16	26.7	52.5	3.00	528	142	4.00	0.681	0.011	0.062	0.053	338.05	1.380	85.15	195.20	50.0	42.00	149.00	6.00	0.015	1.74	
BX-1	98/10/01 14:14	Hand Dug	5.60		7.20	26.9	138.2	3.50	1382	199	4.14	0.492	0.009	0.077	0.050	5.98	0.560	294.30	366.00	70.0	42.00	122.70	15.20	0.022	1.29	
BX-2	98/10/01 14:32	Hand Dug	5.20		7.10	26.7	117.7	3.00	1174	202	5.15	0.598	0.014	0.081	0.057	45.23	0.952	254.30	292.80	70.0	30.00	184.80	18.79	0.022	1.52	
BX-3	98/10/01 14:44	Hand Dug	5.90		7.30	26.6	183.8	4.50	1832	159	4.29	0.610	0.015	0.067	0.055	19.20	0.560	302.75	390.40	100.0	58.00	124.00	37.70	0.025	1.88	
BX-4	98/10/01 14:57	Hand Dug	6.00		7.60	26.7	246.0	4.00	3040	194	4.85	0.582	0.013	0.062	0.051	11.04	0.445	361.80	525.60	80.0	48.00	199.90	95.00	0.016	1.50	
BX-5	98/10/01 15:10	Hand Dug	4.60		7.15	26.8	74.8	2.00	748	175	4.94	0.511	0.014	0.065	0.053	257.85	0.560	117.40	2.00	60.0	12.00	96.00	20.70	0.012	1.07	
BX-6	98/10/01 15:30	Hand Dug	4.90		7.05	27.0	45.0	2.00	456	181	6.39	0.496	0.012	0.069	0.055	277.44	1.260	64.05	2.00	40.0	24.00	70.90	22.20	0.015	1.54	
BX-7	98/10/01 15:44	Hand Dug	5.50		6.70	27.0	93.0	2.50	935	183	5.34	0.712	0.014	0.058	0.078	309.77	0.484	167.10	2.50	80.0	24.00	122.00	33.70	0.022	1.78	
BX-8	98/10/01 15:58	Hand Dug	5.10		7.30	26.8	49.9	2.00	497	185	5.80	0.606	0.012	0.071	0.045	273.56	0.335	67.70	2.00	40.0	24.00	67.20	21.70	0.022	1.86	
BX-9	98/10/01 16:14	Hand Dug	6.45		6.90	27.0	233.0	4.50	3200	185	4.97	0.580	0.011	0.062	0.031	161.81	0.450	472.15	4.50	120.0	30.00	130.00	80.60	0.010	1.34	
BX-10	98/10/01 16:27	Hand Dug	5.20		7.16	26.8	176.0	4.00	2812	182	5.16	0.586	0.009	0.064	0.192	558.89	0.505	258.10	4.00	80.0	48.00	234.40	28.00	0.018	1.91	