

SOIL ANALYSIS REPORT

Nº. 2110061001

Name of the ordering party: **ENVICO d.o.o.**
Address: **Vardarska 19/IV**
Place: **11000 Belgrade**
Contract number: **U-154/XII-20 of 04.12.2020.**

Belgrade, 25.12.2021. year.

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1. INTRODUCTION

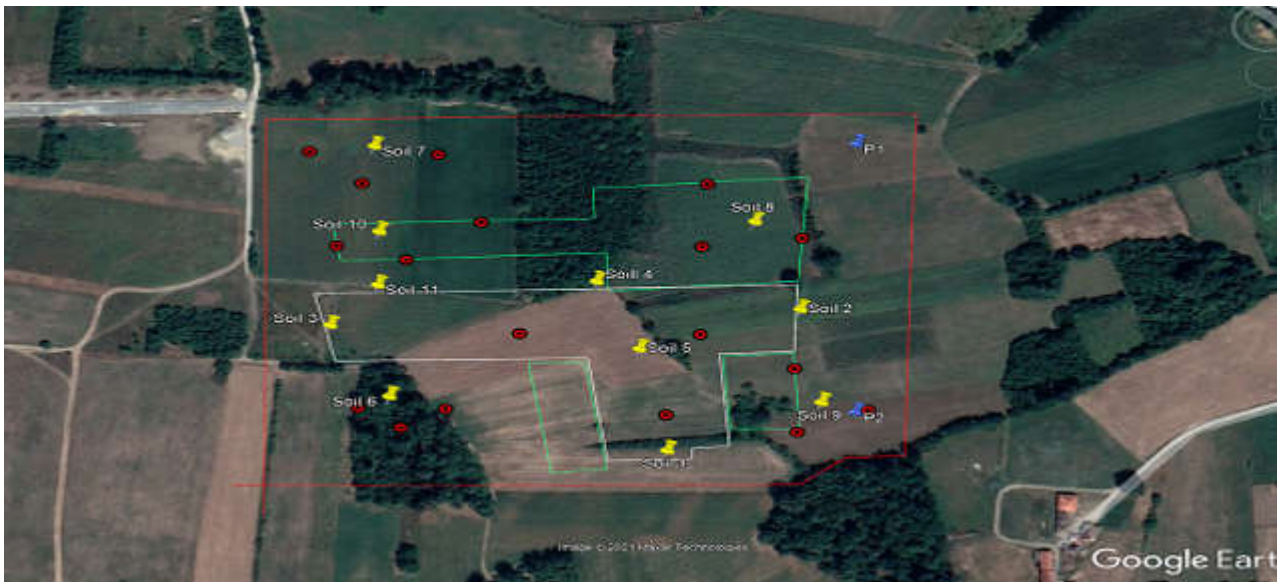
Pursuant to Contract no. U-154 / XII-20 of 04.12.2020. with the company ENVICO DOO BELGRADE, laboratory Anahem is 29.11.2021. year, performed soil sampling, and then physical-chemical and chemical testing of the same to assess the quality, in the vicinity of Valjevo, Popucke.

2. GENERAL INFORMATION

The subject tests were performed in Valjevo, Popucke settlement, for the needs of the Hansgrohe project, on the project plot at two locations in order to determine the initial (zero) state of soil quality.

3. TIME AND LOCATION OF SAMPLING

The soil was sampled on November 29, 2021. in the settlement of Popucke, Valjevo. A total of 11 soil samples were sampled at a depth of 0-0.3 m, of which 6 composite and 5 individual.



View the location from which the sampling was performed



In Table 1 shows the sample marks and descriptions of the locations from which the sampling was performed

Table 1. Sample designations and locations from which samples were taken

No.	Sample mark internal	Sampling location	GPS
1	2110061001	POINT 9	N 44° 17' 01,47" E 19° 57' 45,51" N 44° 16' 59,74" E 19° 57' 46,03" N 44° 17' 00,58" E 19° 57' 47,78"
2	2110061002	POINT 2	N 44° 17' 02,87" E 19° 57' 45,19"
3	2110061003	POINT 8	N 44° 17' 04,53" E 19° 57' 42,09" N 44° 17' 06,30" E 19° 57' 41,78" N 44° 17' 05,16" E 19° 57' 44,77"
4	2110061004	POINT 4	N 44° 17' 02,89" E 19° 57' 39,41"
5	2110061005	POINT 5	N 44° 16' 59,68" E 19° 57' 42,33" N 44° 17' 02,03" E 19° 57' 42,65" N 44° 17' 01,39" E 19° 57' 37,79"
6	2110061006	POINT 1	N 44° 16' 58,44" E 19° 57' 42,59"
7	2110061007	POINT 6	N 44° 16' 58,80" E 19° 57' 33,96" N 44° 16' 59,08" E 19° 57' 36,34" N 44° 16' 58,41" E 19° 57' 35,29"
8	2110061008	POINT 3	N 44° 17' 00,67" E 19° 57' 32,51"
9	2110061009	POINT 11	N 44° 17' 01,97" E 19° 57' 33,50"
10	2110061010	POINT 10	N 44° 17' 03,18" E 19° 57' 32,08" N 44° 17' 03,05" E 19° 57' 34,09"



			N 44° 17' 04,37" E 19° 57' 35,85"
11	2110061011	POINT 7	N 44° 17' 05,74" E 19° 57' 30,60" N 44° 17' 06,13" E 19° 57' 34,16" N 44° 17' 05,04" E 19° 57' 32,28"

4. MEASURING PROCEDURES AND STANDARDS APPLIED

The overall testing procedure consisted of site observation, familiarization with the previous technological process, drilling, sampling, transport of samples to the Anahem laboratory, preparation of chemical analyzes and processing of experimental data. During sampling and testing, standard or validated accredited methods were used. Soil sampling was performed according to the ISO 18400 method, and laboratory tests were performed according to the methods given in the following table:

Table 2. Parameters and methods of soil testing

	Parameter	Method
1.	Mineral oils, mg/kg	BS EN ISO 16703:2011
2.	pH value	SRPS ISO 10390:2007
3.	Moisture percentage, %	SRPS ISO 11465:2002
4.	Organic matter content by loss of annealing, %	EN TC WI:2003
5.	Metal content, mg/kg	
	Antimony (Sb)	EPA 3051A:2007/EPA 6010c:2007
	Arsenic (As)	EPA 3051A:2007/EPA 6010c:2007
	Copper (Cu)	EPA 3051A:2007/EPA 6010c:2007
	Barium (Ba)	EPA 3051A:2007/EPA 6010c:2007
	Beryllium (Be)	EPA 3051A:2007/EPA 6010c:2007
	Zinc (Zn)	EPA 3051A:2007/EPA 6010c:2007
	Chromium (Cr)	EPA 3051A:2007/EPA 6010c:2007
	Cadmium (Cd)	EPA 3051A:2007/EPA 6010c:2007
	Tin (Sn)	EPA 3051A:2007/EPA 6010c:2007
	Cobalt (Co)	EPA 3051A:2007/EPA 6010c:2007

	Nickel (Ni)	EPA 3051A:2007/EPA 6010c:2007
	Molybdenum (Mo)	EPA 3051A:2007/EPA 6010c:2007
	Lead (Pb)	EPA 3051A:2007/EPA 6010c:2007
	Selenium (Se)	EPA 3051A:2007/EPA 6010c:2007
	Silver (Ag)	EPA 3051A:2007/EPA 6010c:2007
	Thallium (Th)	EPA 3051A:2007/EPA 6010c:2007
	Tellurium (Te)	EPA 3051A:2007/EPA 6010c:2007
	Vanadium (V)	EPA 3051A:2007/EPA 6010c:2007
	Mercury (Hg)	EPA 7473:2007
	Bor (B)	EPA 3051A:2007/EPA 6010c:2007
6.	Polycyclic aromatic hydrocarbons, mg/kg	
	Anthracene	ISO 18287:2006
	Benzo(a)anthracene	ISO 18287:2006
	Benzo(k)fluoranthene	ISO 18287:2006
	Benzo(a)pyrene	ISO 18287:2006
	Chrysen	ISO 18287:2006
	Phenanthrene	ISO 18287:2006
	Indeno (1,2,3-cd)pyrene	ISO 18287:2006
	Fluoranthene	ISO 18287:2006
	Naphtalene	ISO 18287:2006
	Benzo (g,h,i) perylene	ISO 18287:2006
	Acenaphtene	ISO 18287:2006
	Acenaphtylene	ISO 18287:2006
	Benzo(b)fluoranthene	ISO 18287:2006
	Pyrene	ISO 18287:2006
	Dibenzo(a,h)anthracene	ISO 18287:2006
	Fluorene	ISO 18287:2006
	PAH (total)	ISO 18287:2006
7.	Polychlorinated biphenyls content, mg/kg:	
	PCB 28	ISO 10382:2002
	PCB 52	ISO 10382:2002
	PCB 101	ISO 10382:2002
	PCB 118	ISO 10382:2002
	PCB 138	ISO 10382:2002
	PCB 153	ISO 10382:2002
	PCB 180	ISO 10382:2002
	PCBs (total)	ISO 10382:2002
8.	Easily volatile organic compounds, mg/kg:	

	Benzene	EPA 5021A:2014
	Toluene	EPA 5021A:2014
	Ethylbenzene	EPA 5021A:2014
	Styrene	EPA 5021A:2014
	Xylene	EPA 5021A:2014
	BTEX (total), mg/kg	EPA 5021A:2014
9.	Granulometric composition, %	ISO 11277:2020
10	Carbonate content (CaCO ₃), mg/kg	SRPS ISO 10693:2005
11	Acidity, mmol/100g zemlje	SRPS ISO 10390:2007
12	Degree of base saturation, %	Handbook18 page 160
13	CEC (capacity of exchangeable cations), cmol+/kg	SRPS EN ISO 11260:2018*
14	Free cyanide content, mg/kg	SRPS EN ISO 17380:2014
15	Pesticides, mg/kg	
	DDT/DDD/DDE total	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Drins (sum of aldrin, dieldrin, endrin)	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Aldrin	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Dieldrin	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Endrin	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	α -HCH	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	β -HCH	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	γ -HCH	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	HCH total	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Atrazine	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Carbaryl	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Carbofuran	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Chlordane	EPA 8270D/2007, 3550C/2007, 3540C: 2014

	Endosulfan	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Heptachlor	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Heptachlor epoxid	EPA 8270D/2007, 3550C/2007, 3540C: 2014
	Azinphos-methyl	EPA 8270D/2007, 3550C/2007, 3540C: 2014

* The method is outside the scope of accreditation

5. TEST RESULTS

Table 3. Results * of soil sample analysis

	2110061001			2110061002			2110061003			2110061004		
Parameter	Result	*MDK		Result	*MDK		Result	*MDK		Result	*MDK	
		1	2		1	2		1	2		1	2
Moisture percentage, %	22,5	-	-	27,6	-	-	27,7	-	-	26,7	-	-
Organic matter content by loss of annealing, %	8,1	-	-	10,5	-	-	10	-	-	7,4	-	-
Mineral oils, mg/kg	<10	40,5	4050	<10	52,5	5250	<10	50	5000	<10	37	3700
pH value	6,39	-	-	5,91	-	-	5,95	-	-	6,02	-	-
Metal content, mg/kg:												
Antimony (Sb)	<1,2	3,0	15	<1,2	3,0	15	<1,2	3,0	15	<1,2	3,0	15
Arsenic (As)	5,6	27	51	4,5	34	64	5,2	36	68	5,7	33	62
Copper (Cu)	21	33	174	20	43	226	18	47	246	17	42	220
Barium (Ba)	86	144	563	110	217	847	110	251	982	110	222	869
Beryllium (Be)	0,65	1,0	27	0,64	1,5	40	0,77	1,7	46	0,78	1,5	41
Zinc (Zn)	44	128	658	45	174	894	39	193	993	45	172	887
Chromium (Cr)	48	94	356	36	122	464	28	135	515	32	124	472
Cadmium (Cd)	<0,1	0,74	11	<0,1	0,89	13	<0,1	0,93	14	<0,1	0,83	13
Tin (Sn)	<1,2	-	812	<1,2	-	1213	<1,2	-	1403	<1,2	-	1244
Cobalt (Co)	14	8,1	217	16	12	322	8,4	14	372	9,9	12	330
Nickel (Ni)	83	32	191	75	46	276	42	53	316	37	47	283
Molybdenum (Mo)	<0,2	3,0	200	<0,2	3,0	200	<0,2	3,0	200	<0,2	3,0	200
Lead (Pb)	22	80	499	22	96	602	22	103	640	23	95	589
Selenium (Se)	<2,3	0,70	100	<2,3	0,70	100	<2,3	0,70	100	<2,3	0,70	100
Silver (Ag)	<1,0	-	-	<1,0	-	-	<1,0	-	-	<1,0	-	-
Thallium (Th)	<1,6	1,0	15	<1,6	1,0	15	<1,6	1,0	15	<1,6	1,0	15
Tellurium (Te)	<1,0	-	600	<1,0	-	600	<1,0	-	600	<1,0	-	600



Vanadium (V)	16	38	228	13	55	329	13	63	376	13	57	336
Mercury (Hg)	0,081	0,29	9,5	0,076	0,34	11	0,081	0,36	12	0,089	0,34	11
Bor (B)	0,44	-	-	0,38	-	-	<0,3	-	-	<0,3	-	-
Polychlorinated biphenyls content (PCBs), mg/kg:												
PCB 28	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 52	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 101	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 118	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 138	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 153	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 180	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB (total)	<0,02	0,02	1,0	<0,02	0,02	1,0	<0,02	0,02	1,0	<0,02	0,02	1,0
Polycyclic aromatic hydrocarbons (PAHs), mg/kg:												
Anthracene	<0,001	-	-	0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo(a)anthracene	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
Benzo(k)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-	<0,02	-	-
Benzo(a)pyrene	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
Chrysen	<0,09	-	-	<0,09	-	-	<0,09	-	-	<0,09	-	-
Phenanthrene	0,003	-	-	0,011	-	-	<0,005	-	-	<0,005	-	-
Indeno (1,2,3-cd)pyrene	<0,06	-	-	<0,06	-	-	<0,06	-	-	<0,06	-	-
Fluoranthene	<0,03	-	-	0,006	-	-	<0,03	-	-	<0,03	-	-
Naphtalene	<0,001	-	-	<0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo (g,h,i) perylene	<0,08	-	-	<0,08	-	-	<0,08	-	-	<0,08	-	-
Acenaphthene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
Acenaphthylene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
Benzo(b)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-	<0,02	-	-
Pyrene	<0,01	-	-	0,005	-	-	<0,01	-	-	<0,01	-	-
Dibenzo(a,h)anthracene	<0,08	-	-	<0,08	-	-	<0,08	-	-	<0,08	-	-
Fluorene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
PAH (total)	0,003	1,0	40	0,023	1,0	40	<0,5	1,0	40	<0,5	1,0	40



Easily volatile organic compounds (BTEX), mg/kg												
Benzene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Toluene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Ethylbenzene	<0,03	0,03	-	<0,03	0,03	-	<0,03	0,03	-	<0,03	0,03	-
Styrene	<0,3	0,3	-	<0,3	0,3	-	<0,3	0,3	-	<0,3	0,3	-
Xylene	<0,1	0,1	-	<0,1	0,1	-	<0,1	0,1	-	<0,1	0,1	-
BTEX (total), mg/kg	<1,0	-	-	<1,0	-	-	<1,0	-	-	<1,0	-	-
Granulometric composition, %	21,9	-	-	36,0	-	-	42,7	-	-	38,1	-	-
Carbonate content (CaCO ₃), mg/kg	<50	-	-	<50	-	-	<50	-	-	<50	-	-
Acidity, mmol/100g zemlje	11,4	-	-	19,8	-	-	16,7	-	-	13,7	-	-
Degree of base saturation, %	94,7	-	-	88,9	-	-	90,9	-	-	92,2	-	-
CEC (capacity of exchangeable cations), cmol+/kg	21,0	-	-	18,9	-	-	23,1	-	-	20,4	-	-
Free cyanide content, mg/kg	<0,02	1,0	20	<0,02	1,0	20	<0,02	1,0	20	<0,02	1,0	20
Pesticides, mg/kg												
DDT/DDD/DDE total	<0,01	0,01	4	<0,01	0,01	4	<0,01	0,01	4	<0,01	0,01	4
Drins (sum of aldrin, dieldrin, endrin)	<0,005	0,005	4	<0,005	0,005	4	<0,005	0,005	4	<0,005	0,005	4
Aldrin	<0,00006	0,00006	-	<0,00006	0,00006	-	<0,00006	0,00006	-	<0,00006	0,00006	-
Dieldrin	<0,0005	0,0005	-	<0,0005	0,0005	-	<0,0005	0,0005	-	<0,0005	0,0005	-
Endrin	<0,0004	0,0004	-	<0,0004	0,0004	-	<0,0004	0,0004	-	<0,0004	0,0004	-
α –HCH	<0,003	0,003	-	<0,003	0,003	-	<0,003	0,003	-	<0,003	0,003	-
β –HCH	<0,009	0,009	-	<0,009	0,009	-	<0,009	0,009	-	<0,009	0,009	-
γ –HCH	<0,00005	0,00005	-	<0,00005	0,00005	-	<0,00005	0,00005	-	<0,00005	0,00005	-
HCH total	<0,01	0,01	2	<0,01	0,01	2	<0,01	0,01	2	<0,01	0,01	2
Atrazine	<0,0002	0,0002	6	<0,0002	0,0002	6	<0,0002	0,0002	6	<0,0002	0,0002	6
Carbaryl	<0,00003	0,00003	5	<0,00003	0,00003	5	<0,00003	0,00003	5	<0,00003	0,00003	5
Carbofuran	<0,00002	0,00002	2	<0,00002	0,00002	2	<0,00002	0,00002	2	<0,00002	0,00002	2
Chlordane	<0,00003	0,00003	4	<0,00003	0,00003	4	<0,00003	0,00003	4	<0,00003	0,00003	4
Endosulfan	<0,00001	0,00001	4	<0,00001	0,00001	4	<0,00001	0,00001	4	<0,00001	0,00001	4
Heptachlor	<0,0007	0,0007	4	<0,0007	0,0007	4	<0,0007	0,0007	4	<0,0007	0,0007	4

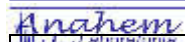


Heptachlor epoxid	<0,0000002	0,0000 002	4	<0,0000002	0,0000 002	4	<0,0000002	0,0000 002	4	<0,0000002	0,0000 002	4
Azinphos-methyl	<0,0000005	0,0000 05	2	<0,0000005	0,0000 05	2	<0,0000005	0,0000 05	2	<0,0000005	0,0000 05	2

* - The result refers to the clay fraction in the analyzed sample

Table 4. Results * of soil sample analysis

	2110061005			2110061006			2110061007			2110061008		
Parameter	Result	*MDK		Result	*MDK		Result	*MDK		Result	*MDK	
		1	2		1	2		1	2		1	2
Moisture percentage, %	26,3	-	-	23,6	-	-	23,8	-	-	24,5	-	-
Organic matter content by loss of annealing, %	10,1	-	-	8,7	-	-	8,9	-	-	8,2	-	-
Mineral oils, mg/kg	<10	50,5	5050	<10	43,5	4350	<10	44,5	4450	<10	41	4100
pH value	6,23	-	-	6,20	-	-	6,17	-	-	6,23	-	-
Metal content, mg/kg:												
Antimony (Sb)	<1,2	3,0	15	<1,2	3,0	15	<1,2	3,0	15	<1,2	3,0	15
Arsenic (As)	3,8	32	61	5,0	28	53	5,0	25	48	4,8	24	45
Copper (Cu)	19	41	217	20	34	180	20	31	161	20	28	149
Barium (Ba)	110	203	794	69	151	589	69	119	464	64	103	401
Beryllium (Be)	0,71	1,4	37	0,60	1,0	28	0,53	0,84	23	0,55	0,74	20
Zinc (Zn)	43	165	850	41	133	682	44	114	588	42	104	535
Chromium (Cr)	31	117	444	33	96	366	38	84	319	35	78	296
Cadmium (Cd)	<0,1	0,86	13	<0,1	0,76	11	<0,1	0,72	11	<0,1	0,68	10
Tin (Sn)	3,1	-	1139	<1,2	-	849	<1,2	-	673	<1,2	-	585
Cobalt (Co)	9,1	11	303	11	8,5	227	10	6,8	180	10	5,9	157
Nickel (Ni)	48	43	260	57	33	199	66	27	162	59	24	143
Molybdenum (Mo)	<0,2	3,0	200	<0,2	3,0	200	<0,2	3,0	200	<0,2	3,0	200
Lead (Pb)	19	94	583	22	82	511	21	76	473	20	72	450



Selenium (Se)	<2,3	0,70	100	<2,3	0,70	100	<2,3	0,70	100	<2,3	0,70	100
Silver (Ag)	<1,0	-	-	<1,0	-	-	<1,0	-	-	<1,0	-	-
Thallium (Th)	<1,6	1,0	15	<1,6	1,0	15	<1,6	1,0	15	<1,6	1,0	15
Tellurium (Te)	<1,0	-	600	<1,0	-	600	<1,0	-	600	<1,0	-	600
Vanadium (V)	11	52	310	13	40	237	14	32	193	13	29	171
Mercury (Hg)	0,082	0,33	11	0,095	0,29	9,7	0,11	0,27	9,0	0,086	0,26	8,6
Bor (B)	0,37	-	-	1,2	-	-	<0,3	-	-	0,39	-	-
Polychlorinated biphenyls content (PCBs), mg/kg:												
PCB 28	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 52	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 101	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 118	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 138	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 153	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 180	<0,002	-	-	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB (ukupno)	<0,02	0,02	1,0	<0,02	0,02	1,0	<0,02	0,02	1,0	<0,02	0,02	1,0
Polycyclic aromatic hydrocarbons (PAHs), mg/kg:												
Anthracene	<0,001	-	-	<0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo(a)anthracene	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
Benzo(k)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-	<0,02	-	-
Benzo(a)pyrene	<0,003	-	-	<0,003	-	-	<0,003	-	-	<0,003	-	-
Chrysen	<0,09	-	-	<0,09	-	-	<0,09	-	-	<0,09	-	-
Phenanthrene	<0,005	-	-	<0,005	-	-	<0,005	-	-	<0,005	-	-
Indeno (1,2,3-cd)pyrene	<0,06	-	-	<0,06	-	-	<0,06	-	-	<0,06	-	-
Fluoranthene	<0,03	-	-	<0,03	-	-	<0,03	-	-	<0,03	-	-
Naphtalene	<0,001	-	-	<0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo (g,h,i) perylene	<0,08	-	-	<0,08	-	-	<0,08	-	-	<0,08	-	-
Acenaphthene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
Acenaphthylene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
Benzo(b)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-	<0,02	-	-



Pyrene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
Dibenzo(a,h)anthracene	<0,08	-	-	<0,08	-	-	<0,08	-	-	<0,08	-	-
Fluorene	<0,01	-	-	<0,01	-	-	<0,01	-	-	<0,01	-	-
PAH (total)	<0,5	1,0	40	<0,5	1,0	40	<0,5	1,0	40	<0,5	1,0	40
Easily volatile organic compounds (BTEX), mg/kg												
Benzene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Toluene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Ethylbenzene	<0,03	0,03	-	<0,03	0,03	-	<0,03	0,03	-	<0,03	0,03	-
Styrene	<0,3	0,3	-	<0,3	0,3	-	<0,3	0,3	-	<0,3	0,3	-
Xylene	<0,1	0,1	-	<0,1	0,1	-	<0,1	0,1	-	<0,1	0,1	-
BTEX (total), mg/kg	<1,0	-	-	<1,0	-	-	<1,0	-	-	<1,0	-	-
Granulometric composition, %	33,4	-	-	23,2	-	-	17,0	-	-	13,9	-	-
Carbonate content (CaCO ₃), mg/kg	<50	-	-	<50	-	-	<50	-	-	<50	-	-
Acidity, mmol/100g zemlje	7,6	-	-	12,9	-	-	24,3	-	-	21,3	-	-
Degree of base saturation, %	95,9	-	-	93,5	-	-	87,1	-	-	88,9	-	-
CEC (capacity of exchangeable cations), cmol+/kg	22,8	-	-	18,5	-	-	17,2	-	-	16,7	-	-
Free cyanide content, mg/kg	<0,02	1,0	20	<0,02	1,0	20	<0,02	1,0	20	<0,02	1,0	20
Pesticides, mg/kg												
DDT/DDD/DDE total	<0,01	0,01	4	<0,01	0,01	4	<0,01	0,01	4	<0,01	0,01	4
Drins (sum of aldrin, dieldrin, endrin)	<0,005	0,005	4	<0,005	0,005	4	<0,005	0,005	4	<0,005	0,005	4
Aldrin	<0,00006	0,00006	-	<0,00006	0,00006	-	<0,00006	0,00006	-	<0,00006	0,00006	-
Dieldrin	<0,0005	0,0005	-	<0,0005	0,0005	-	<0,0005	0,0005	-	<0,0005	0,0005	-
Endrin	<0,0004	0,0004	-	<0,0004	0,0004	-	<0,0004	0,0004	-	<0,0004	0,0004	-
α –HCH	<0,003	0,003	-	<0,003	0,003	-	<0,003	0,003	-	<0,003	0,003	-
β –HCH	<0,009	0,009	-	<0,009	0,009	-	<0,009	0,009	-	<0,009	0,009	-
γ –HCH	<0,00005	0,00005	-	<0,00005	0,00005	-	<0,00005	0,00005	-	<0,00005	0,00005	-
HCH total	<0,01	0,01	2	<0,01	0,01	2	<0,01	0,01	2	<0,01	0,01	2
Atrazine	<0,0002	0,0002	6	<0,0002	0,0002	6	<0,0002	0,0002	6	<0,0002	0,0002	6



Carbaryl	<0,00003	0,00003	5	<0,00003	0,00003	5	<0,00003	0,00003	5	<0,00003	0,00003	5
Carbofuran	<0,00002	0,00002	2	<0,00002	0,00002	2	<0,00002	0,00002	2	<0,00002	0,00002	2
Chlordane	<0,00003	0,00003	4	<0,00003	0,00003	4	<0,00003	0,00003	4	<0,00003	0,00003	4
Endosulfan	<0,00001	0,00001	4	<0,00001	0,00001	4	<0,00001	0,00001	4	<0,00001	0,00001	4
Heptachlor	<0,0007	0,0007	4	<0,0007	0,0007	4	<0,0007	0,0007	4	<0,0007	0,0007	4
Heptachlor epoxid	<0,0000002	0,0000002	4	<0,0000002	0,0000002	4	<0,0000002	0,0000002	4	<0,0000002	0,0000002	4
Azinphos-methyl	<0,000005	0,000005	2	<0,000005	0,000005	2	<0,000005	0,000005	2	<0,000005	0,000005	2

*- The result refers to the clay fraction in the analyzed sample

Table 5. Results * of soil sample analysis

	2110061009			2110061010			2110061011		
Parameter	Result	*MDK		Result	*MDK		Result	*MDK	
		1	2		1	2		1	2
Moisture percentage, %	21	-	-	21,1	-	-	22,5	-	-
Organic matter content by loss of annealing, %	7,1	-	-	7,1	-	-	7,8	-	-
Mineral oils, mg/kg	<10	35,5	3550	<10	35,5	3550	<10	39	3900
pH value	5,81	-	-	5,66	-	-	6,06	-	-
Metal content, mg/kg:									
Antimony (Sb)	<1,2	3,0	15	<1,2	3,0	15	<1,2	3,0	15
Arsenic (As)	4,9	28	52	5,7	27	52	5,4	28	52
Copper (Cu)	20	34	178	21	33	177	21	34	180
Barium (Ba)	65	156	609	79	153	599	81	154	603
Beryllium (Be)	0,59	1,1	29	0,63	1,1	29	0,60	1,1	29
Zinc (Zn)	40	133	685	44	132	678	46	133	686
Chromium (Cr)	31	98	374	37	97	370	34	98	372
Cadmium (Cd)	<0,1	0,73	11	<0,1	0,73	11	<0,1	0,75	11
Tin (Sn)	<1,2	-	877	<1,2	-	863	<1,2	-	869
Cobalt (Co)	14	8,8	234	14	8,6	230	14	8,7	232
Nickel (Ni)	52	34	205	61	34	202	58	34	203
Molybdenum (Mo)	<0,2	3,0	200	<0,2	3,0	200	<0,2	3,0	200
Lead (Pb)	21	81	507	22	81	504	22	82	509

Selenium (Se)	<2,3	0,70	100	<2,3	0,70	100	<2,3	0,70	100
Silver (Ag)	<1,0	-	-	<1,0	-	-	<1,0	-	-
Thallium (Th)	<1,6	1,0	15	<1,6	1,0	15	<1,6	1,0	15
Tellurium (Te)	<1,0	-	600	<1,0	-	600	<1,0	-	600
Vanadium (V)	12	41	244	14	40	241	14	41	242
Mercury (Hg)	0,085	0,29	9,7	0,079	0,29	9,7	0,087	0,29	9,8
Bor (B)	<0,3	-	-	0,57	-	-	0,42	-	-
Polychlorinated biphenyls content (PCBs), mg/kg:									
PCB 28	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 52	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 101	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 118	<0,003	-	-	<0,003	-	-	<0,003	-	-
PCB 138	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 153	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB 180	<0,002	-	-	<0,002	-	-	<0,002	-	-
PCB (ukupno)	<0,02	0,02	1,0	<0,02	0,02	1,0	<0,02	0,02	1,0
Polycyclic aromatic hydrocarbons (PAHs), mg/kg:									
Anthracene	<0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo(a)anthracene	<0,003	-	-	<0,003	-	-	<0,003	-	-
Benzo(k)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-
Benzo(a)pyrene	<0,003	-	-	<0,003	-	-	<0,003	-	-
Chrysen	<0,09	-	-	<0,09	-	-	<0,09	-	-
Phenanthrene	<0,005	-	-	<0,005	-	-	<0,005	-	-
Indeno (1,2,3-cd)pyrene	<0,06	-	-	<0,06	-	-	<0,06	-	-
Fluoranthene	<0,03	-	-	<0,03	-	-	<0,03	-	-
Naphtalene	<0,001	-	-	<0,001	-	-	<0,001	-	-
Benzo (g,h,i) perylene	<0,08	-	-	<0,08	-	-	<0,08	-	-
Acenaphtene	<0,01	-	-	<0,01	-	-	<0,01	-	-
Acenaphtylene	<0,01	-	-	<0,01	-	-	<0,01	-	-
Benzo(b)fluoranthene	<0,02	-	-	<0,02	-	-	<0,02	-	-
Pyrene	<0,01	-	-	<0,01	-	-	<0,01	-	-
Dibenzo(a,h)anthrachene	<0,08	-	-	<0,08	-	-	<0,08	-	-
Fluorene	<0,01	-	-	<0,01	-	-	<0,01	-	-
PAH (total)	<0,5	1,0	40	<0,5	1,0	40	<0,5	1,0	40
Easily volatile organic compounds (BTEX), mg/kg									
Benzene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Toluene	<0,01	0,01	-	<0,01	0,01	-	<0,01	0,01	-
Ethylbenzene	<0,03	0,03	-	<0,03	0,03	-	<0,03	0,03	-
Styrene	<0,3	0,3	-	<0,3	0,3	-	<0,3	0,3	-

Xylene	<0,1	0,1	-	<0,1	0,1	-	<0,1	0,1	-
BTEX (total), mg/kg	<1,0	-	-	<1,0	-	-	<1,0	-	-
Granulometric composition, %	24,2	-	-	23,7	-	-	23,9	-	-
Carbonate content (CaCO ₃), mg/kg	<50	-	-	<50	-	-	<50	-	-
Acidity, mmol/100g zemlje	15,2	-	-	26,6	-	-	23,6	-	-
Degree of base saturation, %	92,4	-	-	84,7	-	-	87,9	-	-
CEC (capacity of exchangeable cations), cmol+/kg	11,3	-	-	11,2	-	-	12,1	-	-
Free cyanide content, mg/kg	<0,02	1,0	20	<0,02	1,0	20	<0,02	1,0	20
Pesticides, mg/kg									
DDT/DDD/DDE total	<0,01	0,01	4	<0,01	0,01	4	<0,01	0,01	4
Drins (sum of aldrin, dieldrin, endrin)	<0,005	0,005	4	<0,005	0,005	4	<0,005	0,005	4
Aldrin	<0,00006	0,00006	-	<0,00006	0,00006	-	<0,00006	0,00006	-
Dieldrin	<0,0005	0,0005	-	<0,0005	0,0005	-	<0,0005	0,0005	-
Endrin	<0,0004	0,0004	-	<0,0004	0,0004	-	<0,0004	0,0004	-
α –HCH	<0,003	0,003	-	<0,003	0,003	-	<0,003	0,003	-
β –HCH	<0,009	0,009	-	<0,009	0,009	-	<0,009	0,009	-
γ –HCH	<0,00005	0,00005	-	<0,00005	0,00005	-	<0,00005	0,00005	-
HCH total	<0,01	0,01	2	<0,01	0,01	2	<0,01	0,01	2
Atrazine	<0,0002	0,0002	6	<0,0002	0,0002	6	<0,0002	0,0002	6
Carbaryl	<0,00003	0,00003	5	<0,00003	0,00003	5	<0,00003	0,00003	5
Carbofuran	<0,00002	0,00002	2	<0,00002	0,00002	2	<0,00002	0,00002	2
Chlordane	<0,00003	0,00003	4	<0,00003	0,00003	4	<0,00003	0,00003	4
Endosulfan	<0,00001	0,00001	4	<0,00001	0,00001	4	<0,00001	0,00001	4
Heptachlor	<0,0007	0,0007	4	<0,0007	0,0007	4	<0,0007	0,0007	4
Heptachlor epoxid	<0,0000002	0,0000002	4	<0,0000002	0,0000002	4	<0,0000002	0,0000002	4
Azinphos-methyl	<0,000005	0,000005	2	<0,000005	0,000005	2	<0,000005	0,000005	2

*- The result refers to the clay fraction in the analyzed sample

*Decree on Limit Values of Pollutants, Harmful and Hazardous Substances in Soil (Official Gazette of the RS No. 30/2018 and 64/2019), Annex 1 (1-limit value, 2-remediation value of hazardous and harmful substances and values that can indicate significant soil contamination). Limit maximum and remediation values were calculated on the content of clay and organic matter

6. ANALYSIS OF RESULTS AND CONCLUSIONS

According to the Decree on Limit Values of Pollutants, Harmful and Dangerous Substances in Soil (Official Gazette of RS, Nos. 30/2018 and 64/2019), Annex 1, and based on the obtained results of soil testing, it can be concluded that in all 11 analyzed soil samples measured concentrations of mineral oils, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, easily volatile organic substances and pesticides do not exceed the limit values.

Measured concentrations above the limit values were detected in the following metals (Co, Ni).

- Co exceeds the limit values in the samples: 2110061001, 02, 06, 07, 08, 09, 10 i 11.
- Ni exceeds the limit values in the samples: 2110061001, 02, 05, 06, 07, 08, 09, 10 i 11.

Report prepared:

Miloš Kuzmanović, M.Sc.

Head of Laboratory for testing of waste and soil:

Nemanja Bojković, master in environmental safety

7. ATTACHMENTS

7.1. Certificate of accreditation



Акредитационо тело Србије 01944
Accreditation Body of Serbia

Београд
Belgrade

додељује
awards

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Date of issue
25.03.2021.

Акредитација важи до
Date of expiry
24.03.2025.

ВД ДИРЕКТОРА
проф. др. Ацо Јанићијевић
Acting Director
prof. Aco Janicijevic, PhD

Акредитационо тело Србије је потписник Мултилатералног споразума о признавању еквивалентности система акредитације Европске организације за акредитацију (EA MLA) и ILAC MRA споразума у овој области. / ATS is a signatory of the EA MLA and ILAC MRA in this field.

7.2. Photographs of soil samples



Sampling location 2110061001



Sampling location 2110061002





Sampling location 2110061003



Sampling location 2110061004



Sampling location 2110061005



Sampling location 2110061006



Sampling location 2110061007



Sampling location 2110061008



Sampling location 2110061009



Sampling location 2110061010





Sampling location 2110061011