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KOM OMBO 200MW PV PROJECT
ACWA Power

Baseline Survey – Soil Investigations

5capitals

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I. METHODOLOGY

Ten soil samples were collected throughout the project site (Figure 1). Eight of these sampled top soil for a depth of about 10 cm, and two sampled subsurface sediments at a depth of about 50 cm. The soil sampling locations were selected to represent the following settings

- Areas near the road but not frequently crossed by vehicles (Samples 1 and 2)
- Vegetated areas (Samples 3 and 5)
- Barren areas with no signs of frequent crossing by vehicles (Samples 4, 9 and 10)
- Barren areas extensively crossed by cars and other construction equipment, near the contractor's buildings (Samples 6, 7 and 8)

Soil pH, total dissolved solids (TDS) and electric conductivity (EC) were measured in 1:1 soil to bi-distilled water ratio using HANNA (HI93300) combined electrode (Hanna Instruments, Italy).

Four sediment samples (Samples 1, 3, 4 and 6) were analyzed for a set of potential soil contaminants. The selection of the sampling sites was intended to assess potential soil contamination as a result of different levels of human-induced disturbance of the site, if any. The following is a brief description if the present conditions of the sampling sites:

- Sample 1: An area at the north-western corner of the site, about 75 meters south the Faris road and about an equal distance north of the old, Faris desert track. The location is at the edge of a large stand of desert plants. Old car tracks are the only signs of previous human activity in the area
- Sample 3: An area of natural vegetation near the center of the site. No signs of previous human activities in the area.
- Sample 4: A barren area near the center of the site. No signs of previous human activities in the area.
- Sample 6: An area southeast of the contractors' buildings. Signs of extensive disturbance of surface sediments as a result of movement of vehicles and possibly heavy construction equipment.

Soil samples were examined for ten trace elements (Arsenic, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Iron and Zinc) and a number of other physiochemical parameters. All analysis was carried out at the Central Soils Laboratory of the Ministry of Agriculture and Land Reclamation (Soil, Water and Environment Analysis and Studies Unit, Soil, water and environment Research Institute, Agricultural Research Centerm Cairo, Egypt).

Egypt's environmental legislations do not have official standards for soil contamination. Some tentative standards, based on some international standards are in current use by the Egyptian Environmental Affairs Agency (EEAA), are unofficially used to guide decision regarding soil contamination levels. Until incorporated into relevant laws, these (or other standards) are not legally enforceable. These tentative standards are used to bench mark results of our soil analysis.

In addition, soil contamination level with trace elements was assessed using the contamination factor (CF) developed by Hökanson (1980) based on the equation

$$CF = Cs/Cb$$

Where Cs is the concentration of metal in the study samples and Cb is the widely used, baseline concentration of elements in the Earth crust (Turekian and Wedepohl, 1961). Based on CF value, level of contamination is defined as low (CF<1), moderate (CF 1 - <3), high (CF 3 - <6) or very high (CF > 6) (Hökanson, 1980).

Contamination degree (CD) in different samples was calculated according to Hökanson (1980) as the total sum of all CF values for each sample according to the formula

$$CD = \sum_{n}^{1} CF$$

where n is the number of elements detectable in the sample. Degree of contamination is ranked as low (CD < n), moderate (CD n - < 2n), high (CD 2n - <4n) or very high (CD >4n).

Ecological risk (ER) of each individual, heavy metals was calculated based on the formula

$$ER = Tr \times CF$$

where Tr is the toxic-response factor for a given metals. We used the standard Tr values of heavy metals suggested by Håkanson (1980). Potential ecological risk index (PERI) for all heavy metals in each soil sample was then calculated as the sum of all its ER values using the formula

$$PERI = \sum_{n}^{1} ER$$

PERI was rated according to the standards set by Hökanson (1980) as low (PERI<150), moderate (PERI 150 - < 300), high (PERI 300 - < 600) or very high (PERI > 600).

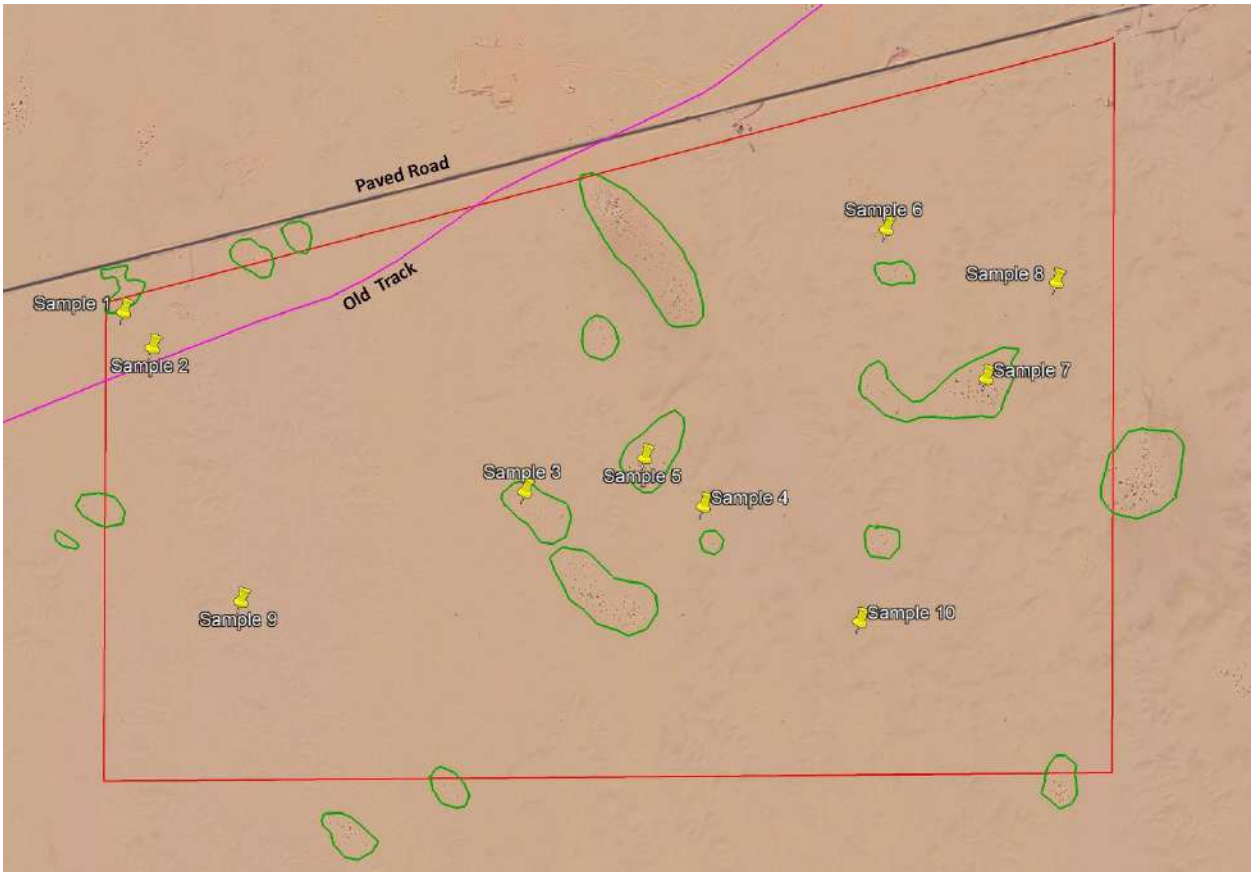


Figure 1. Locations of soil samples taken throughout the ACWA Power site. Samples 1 - 8 are surface samples and samples 9 and 10 are subsurface samples. Areas with green perimeters are vegetated.

Figure 2. Location of soil Sample 1 looking south from the Faris northern road and east from the western boundary of the Project Site.

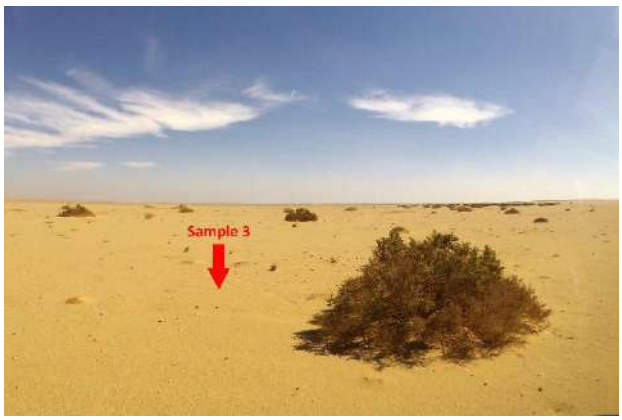


Figure 3. Location of soil sample 3.

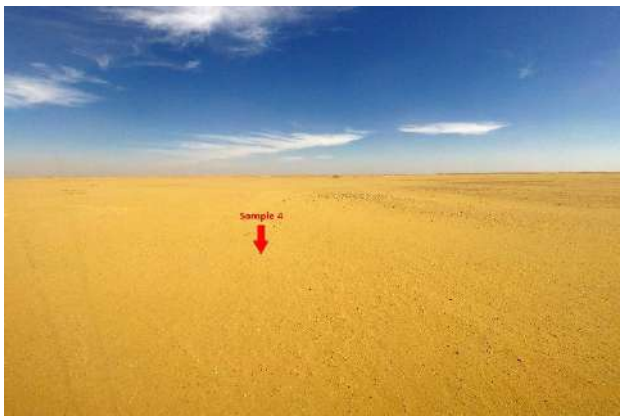


Figure 4. Location of soil sample 4.

Figure 5. Location of soil sample 6.

II. RESULTS

GRANULOMETRIC COMPOSITION

Surface sediments of the project site are predominantly sandy with variable quantities of gravel. All surface samples appeared poorly sorted, with medium to coarse grain sand constituting 35.7 and 36.8% of the sample on the average respectively. Considerable variations are found among samples with percentage of medium and coarse sand ranging from 8.8 to 51.1 and 21.3 to 63.3 respectively. Finer sand and silt constitute small percentages of the surface sediments but is particularly high in areas where plants grow. Sub-surface sediments are well sorted, with gravel and coarse grain sand forming most of the sediments. Table 1 and Figure 2 show the results of the granulometric analysis of the sediment samples.

Table 1. Grain size composition of surface sediments (samples 1-8) and subsurface (samples 9-10) in the ACWA Power project site.

Sample		No.	Location	Grain Size						
				4 mm	2 mm	500 µm	250 µm	125 µm	63 µm	<63 µm
Sediment Type	Surface	1	24° 36' 59.20" N, 32° 46' 52.71" E	61.0	75.2	504.8	533.6	168.9	30.5	3.7
				44%	5.5%	36.6%	38.7%	12.3%	2.2%	0.3%
		2	24° 36' 55.90" N, 32° 46' 55.61" E	270.1	42.2	284.9	471.8	149.2	28.1	2.6
				21.6%	3.4%	22.8%	37.8%	11.9%	2.3%	0.2%
		3	24° 36' 42.61" N, 32° 47' 33.49" E	4.7	10.4	553.1	588.3	262.1	87	9.8
				0.3%	0.7%	36.5%	38.8%	17.3%	5.7%	0.7%
		4	24° 36' 41.27" N, 32° 47' 51.64" E	399.8	75.5	485.8	365.3	104.9	14.9	1.3
				27.6%	5.2%	33.6%	25.2%	7.3%	1%	0.1%
		5	24° 36' 45.73" N, 32° 47' 45.67" E	33.3	47.6	381.3	599.2	80.1	28.4	4.0
				2.8%	4.1%	32.5%	51.1%	6.8%	2.4%	0.3%
		6	24° 37' 06.83" N, 32° 48' 10.20" E	91.7	104.9	1026	236.9	132.5	27.6	1.7
				5.6%	6.5%	63.3%	14.6%	8.2%	1.7%	0.1%
		7	24° 36' 53.05" N, 32° 48' 20.35" E	23.7	22.2	322.6	403.2	70.4	32.9	3.1
				2.7%	2.5%	36.7%	45.9%	8%	3.8%	0.4%
		8	24° 37' 01.95" N, 32° 48' 27.50" E	115.2	85	455.5	471.2	220.5	46.8	4.9
				8.2%	6.1%	32.6%	33.7%	15.7%	3.3%	0.4%
		Average		124.9	57.9	501.8	458.7	148.6	37.0	3.9
				14.1%	4.3%	36.8%	35.7%	10.9%	2.8%	0.3%
	Sub-surface	9	24° 36' 32.49" N, 32° 47' 04.61" E	464.3	449.5	377.5	233.2	183.4	52.3	10.1
				26.2%	25.4%	21.3%	13.2%	10.3%	3%	0.6%
		10	24° 36' 30.65" N, 32° 48' 7.56" E	163.3	615.8	380.2	129.2	118.7	49.7	11.4
				11.1%	41.9%	25.9%	8.8%	8.1%	3.4%	0.8%
		Average		313.8	532.7	378.9	181.2	151.1	51.0	10.8
				18.7%	33.7%	23.6%	11.0%	9.2%	3.2%	0.7%

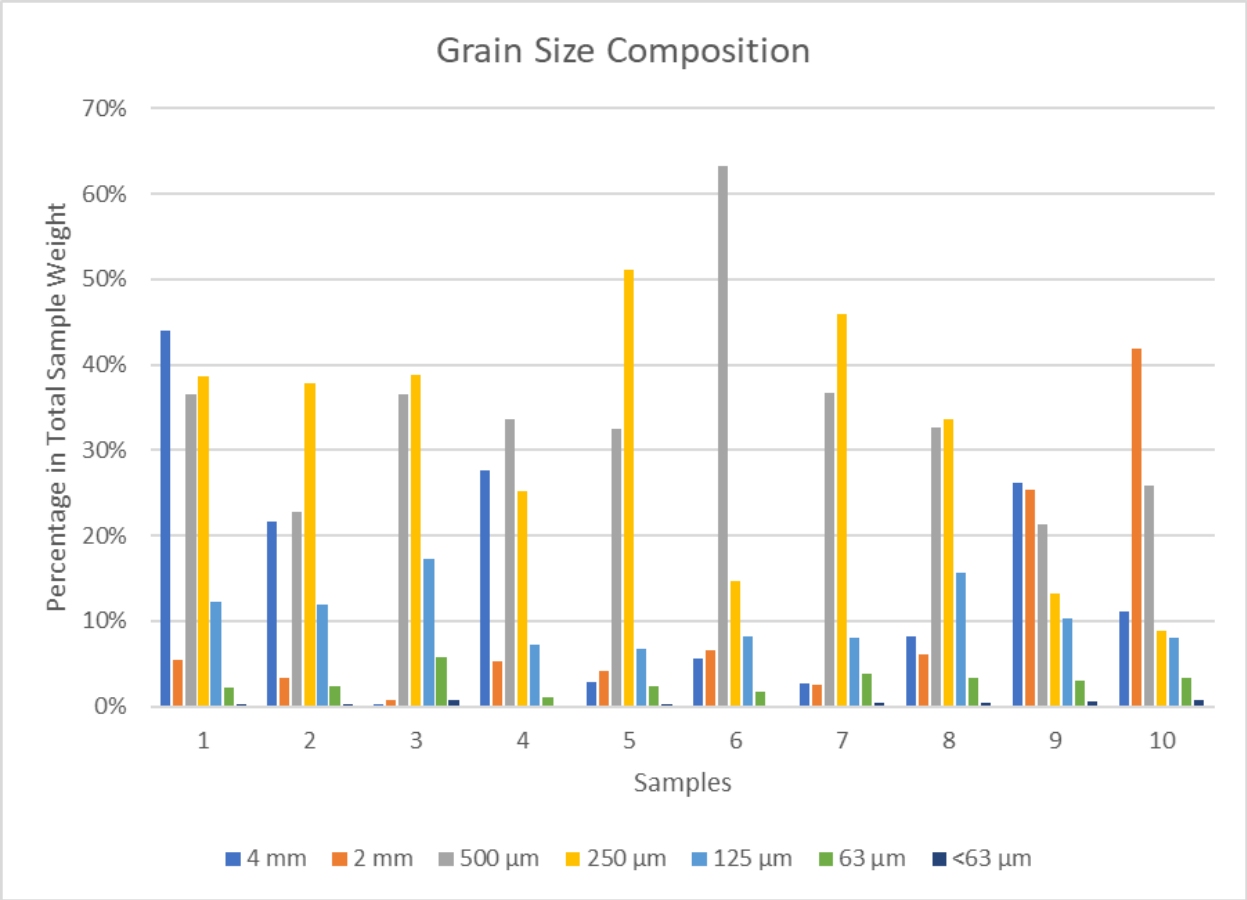


Figure 6. Grain size composition of surface sediments (samples 1-8) and subsurface sediments (samples 9-10) in the ACWA Power project site.

PHYSICOCHEMICAL PROPERTIES

Table 2 shows some physical properties of ten soil samples taken at different location within the project site (Fig. 1). All surface sediments samples were moderately alkaline in reaction, with an average pH of 8.25 and ranging from 8.25 for sample 7 and 8.74 for sample 1. Salinity was generally low with total dissolved solids averaging 248.5 ppm and ranging between 71 and 753 ppm in samples 1 and 4 respectively. Electrical conductivity values reflect these variations in TDS. It is not clear what causes these variations in salinity. It may be that the high TDS of some locations is the result of collection and subsequent evaporation of run-off water after either recent or ancient rains. However, the two sub-surface samples showed considerably lower salinity, averaging only 2.2 TDS ppm and 4.39 micro siemens/cm and were less alkaline than surface samples. This strongly suggests that the increased surface salinity is caused by modern time, rather than ancient rains.

Table 2. Physical properties of ten soil samples taken at the project site.

Sample		No.	Location	TDS (ppm)	EC (µs)	pH
Sediment Type	Surface	1	24° 36' 59.20" N, 32° 46' 52.71" E	71	140.6	8.74
		2	24° 36' 55.90" N, 32° 46' 55.61" E	206	415	8.74
		3	24° 36' 42.61" N, 32° 47' 33.49" E	161	322	8.54
		4	24° 36' 41.27" N, 32° 47' 51.64" E	753	1500	8.61
		5	24° 36' 45.73" N, 32° 47' 45.67" E	257	496	8.63
		6	24° 37' 06.83" N, 32° 48' 10.20" E	157	311	8.64
		7	24° 36' 53.05" N, 32° 48' 20.35" E	250	501	8.25
		8	24° 37' 01.95" N, 32° 48' 27.50" E	133	261	8.46
		Average		**248.5**	**493.3**	**8.58**
	Sub-surface	9	24° 36' 32.49" N, 32° 47' 04.61" E	2.75	5.42	8.1
		10	24° 36' 22.66" N, 32° 46' 52.97" E	1.64	3.35	8.33
		Average		**2.2**	**4.39**	**8.22**

ENVIRONMENTAL CONTAMINATION WITH POTENTIALLY TOXIC ELEMENTS (PTE) AND SOIL CHARACTERISTICS

Table 3 and Figure 7 show the results of chemical analysis of four top soil samples taken throughout the site. All four samples were moderately alkaline in reaction, with an average pH of 8.6 and ranging from 8.54 to 8.74. TDS and electrical conductivity were generally low, averaging 285.5 ppm and 568.4 µs respectively.

Three of the four sediment samples of the site (1, 4 and 6) show moderately high level of total petroleum hydrocarbons (TPH). There are different ways to explain this unexpected TPH level.

- The most likely explanation is the movement of vehicles on and off the Fasris northern road, particularly during the construction of the contractor's building. Both sample 1 and sample 6 are close to the road and the contractors' building. It may also be caused by vehicles and other construction equipment in the area immediately to the east of the site where construction work is currently underway. Sample 6 comes from an area that appeared highly disturbed by vehicular movement.
- Another possible explanation is related to the use of the old, dirt road that once connected Faris to the Luxor – Aswan road prior to building the present paved road north of the site (around 2007) This old track still exists (and is visible on Google satellite imageries of the site) runs across the site. In fact, sample 1 and 2 come from an area very close to that road. It is almost certain

that this route was travelled by many vehicles prior to construction of the present road. It is also a common practice for vehicle using desert tracks to leave the track as it gradually becomes rough as a result of years of use.

- There several oil production facilities throughout the desert near the site. Three of such facilities that are currently pumping oil, are less than 4 km from the project site. In addition, the area was mostly likely covered extensively by many vehicles during the oil exploration and subsequent production activities.

Table 4 shows a comparison of our chemical analysis data of soil samples from the ACWA Power site with the standards currently used by the Egyptian Environmental Affairs Agency (EEAA) for assessing level of land contamination. The table also shows the widely accepted baseline concentration of elements in the Earth crust given by Turekian and Wedepohl (1961). The table shows that cadmium, chromium and cobalt in some samples have slightly to moderately higher concentrations than these two standards.

Table 3. Results of chemical analysis of four top soil samples taken at the project site.

Parameter	Sample				Standards[1]	Standards in Earth Crust[2]
	1	3	4	6		
pH	8.74	8.54	8.61	8.64	-	-
Electrical Conductivity (µs)	140.6	322	1500	311	-	-
Total Dissolved Solids (ppm)	71	161	753	157	-	-
Potassium (mg/kg)	168	228	92	243	-	10700
Aluminium (mg/kg)	57	53	67	59	-	250000
Arsenic (mg/kg)	8.6	6.9	5.8	8.3	17	13
Cadmium (mg/kg)	0.86	0.28	0.32	0.33	1	0.3
Chromium (mg/kg)	69	104	67	54	71	90
Cobalt (mg/kg)	30.7	15.4	13.8	22.1	21	19
Copper (mg/kg)	1.32	0.62	0.95	0.62	85	20
Lead (mg/kg)	0.86	0.28	0.32	0.33	120	20
Mercury (mg/kg)	0.132	0.19	0.08	0.165	0.23	0.4
Nickel (mg/kg)	0.16	0.20	0.19	0.15	43	68
Iron (mg/kg)	3.28	0.15	0.28	0.08	-	47200
Zinc (mg/kg)	0.156	0.202	0.19	0.152	160	16
Nitrate (mg/kg)	59.0	60.0	68.0	72.0	-	-
Total Phosphorous (mg/kg)	31	22.5	14.0	55.2	-	-
Total Petroleum Hydrocarbons (mg/kg)	29.4	44.6	17.3	30.9	-	-

[2]Informally adopted land contamination standards, (EEAA)

[2]EL-Bady and Metwally, (2019)

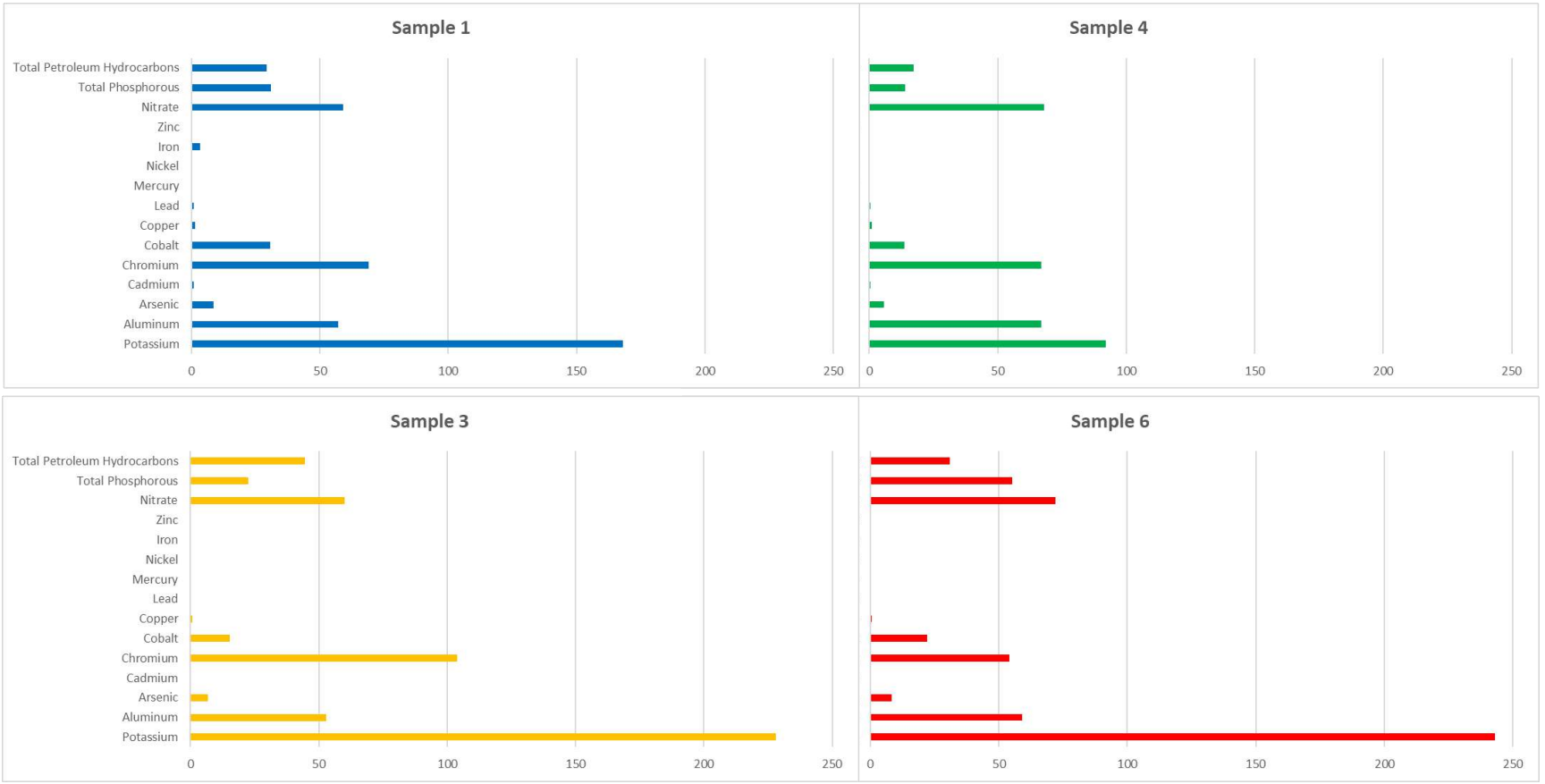


Figure 7. Results of the analysis of 10 trace elements in four surface sediments in the ACWA Power Project Site, Com Ombo, Egypt.

Comparing levels of Potentially toxic element (PTE) in soil samples of the ACWA Power site with similar measurements in other areas in Egypt (Table 5), it is clear that the ACWA Power site has an overall lower levels of contamination in comparison with other areas in Egypt reflecting its condition as a green field site.

Arsenic is a common element in the earth crust and is known for its toxicity to biological systems. Its natural level in the earth crust ranges between 0.1 and 55 mg/kg in uncontaminated soil (Badawy et al., 2017). The average content of arsenic in the ACWA Power site is 7.4 mg/kg and ranges between 5.8 and 8.6 mg/kg. These values are within the range of uncontaminated soil based on the current EEAA limit for soil contamination and is considerably lower than those measured elsewhere in Egypt (Table 5).

Cadmium concentration in the ACWA Power samples was generally lower than the EEAA tentative limit for uncontaminated soil, with an average of 0.4 mg/kg and a range of 0.28 to 0.86 mg/kg. These values are lower than those recorded from soils in other parts in the country (Table 5).

The average chromium content in the ACWA Power samples is 73.5 mg/kg and ranging from 54 to 104 mg/kg. three of the samples had chromium concentrations within the limit of uncontaminated soils (EEAA tentative standards), sample 3 showed a level about 50% higher than that level, but slightly above the global average of the Earth crust (Turekian and Wedepohl, 1961). The average chromium content of the site, however, is only slightly higher than the level of uncontaminated soil (EEAA).

Cobalt content in Earth crust is highly variable, ranging from 1 to 40 mg/kg (Turekian and Wedepohl, 1961; Badawy et al., 2017). In other sandy desert areas in Egypt, it ranges from 10.4 to 30.7 mg/kg with an average value of 20.4 mg/kg. At the ACWA Power site, cobalt content averages 20.5 mg/kg and ranges from 13.8 to 30.7 mg/kg. With the exception of sample 1, which shows a level slightly above the upper limit of uncontaminated soil (EEAA), the other three samples as well as the site's average fall within the limit of uncontaminated soil for cobalt. In general, cobalt level of the site is moderately higher than that of northern Egypt but very similar to those reported from other areas in the country (Table 5).

Copper level in the ACWA Power site is also very low in comparison with other areas in Egypt or with the maximum level standards adopted by the EEAA for uncontaminated soil. Lead level in all four ACWA Power samples was very low averaging only 0.45 mg/kg and ranging from 0.8 to 0.86 mg/kg. These levels are much lower than those recorded from other areas throughout Egypt and are considerably lower than the maximum accepted level for uncontaminated soil. Similarly, mercury level on all ACWA Power samples were very low and within the accepted range of uncontaminated soil according to EEAA adopted standards. Nickel content at the ACWA Power site averages 0.18 mg/kg and ranges between 0.15 and 0.2 mg/kg. These values are considerably lower that the upper limit for nickel contamination adopted by the EEAA. These values are also lower than values recorded from soils from differ parts of Egypt (Table 5).

Iron is a very common element in the Earth crust. Its level in the ACWA Power site is extremely low. Typical background content of zinc ranges between 10 to 100 mg/kg. ACWA Power samples showed a very low level of zinc, ranging from 0.152 to 0.202 mg/kg. This is very low in comparison with zinc levels in other areas in Egypt (Table 5), or the limit adopted by the EEAA for uncontaminated soil.

Table 4. Concentration of potentially toxic elements (PTE) in four samples from the ACWA Power site, in comparison with published levels in different areas in Egypt and the tentative upper limit for uncontaminated soil as adopted by the Egyptian Environmental Affairs Agency (EEAA).

Element	Kom Ombo Samples				Aswan[1]	Middle[1] Egypt	El- Tebbin[3]	Helwan	Giza[4]	Damietta – Cairo[5]	Maximum Limit	Level in Earth Crust[6]
	1	3	4	6								
Potassium	168	228	92	243	-	-	-	-	-	-	-	26,600
Aluminium	57	53	67	59	-	-	-	-	-	-	-	80,000
Arsenic	8.6	6.9	5.8	8.3	-	20.5	-	-	142.8	-	17	13
Cadmium	0.86	0.28	0.32	0.33	8.3 - 28.3	2.4	0.9	0 - 13	1.7	0.8	1	0.3
Chromium	69	104	67	54	60-218.2	154.6	32.6	21 - 44	209.1	114.3	71	90
Cobalt	30.7	15.4	13.8	22.1	16.6 - 54.9	39.9	286.3	6.5-611	-	15.0	21	19
Copper	1.32	0.62	0.95	0.62	20.2-77.5	35.4	42	14 - 404	-	27.2	85	20
Lead	0.86	0.28	0.32	0.33	15.9-42.7	38.5	75.2	4 - 432	123.5	5.01	120	20
Mercury	0.132	0.19	0.08	0.165	-	-	-	-	-	-	0.23	0.4
Nickel	0.16	0.2	0.19	0.15	23.1 - 98.4	92.4	77.1	8.5 - 144	-	30.7	43	68
Iron	3.28	0.15	0.28	0.08	-	29041	-	-	-	2504.3	-	47,200
Zinc	0.156	0.202	0.19	0.152	628 - 2224	134.2	210.4	27-3000	-	49.4	160	16

[1]Darwish, and Pöllmann (2015).

[2]Badawy et al. (2017)

[3]Ibrahim et al. (2019)

[4]Salman et al. (2018)

[5]EL-Bady and Metwally (2019)

[6]Turekianand Wedepohl (1961)

Contamination factors

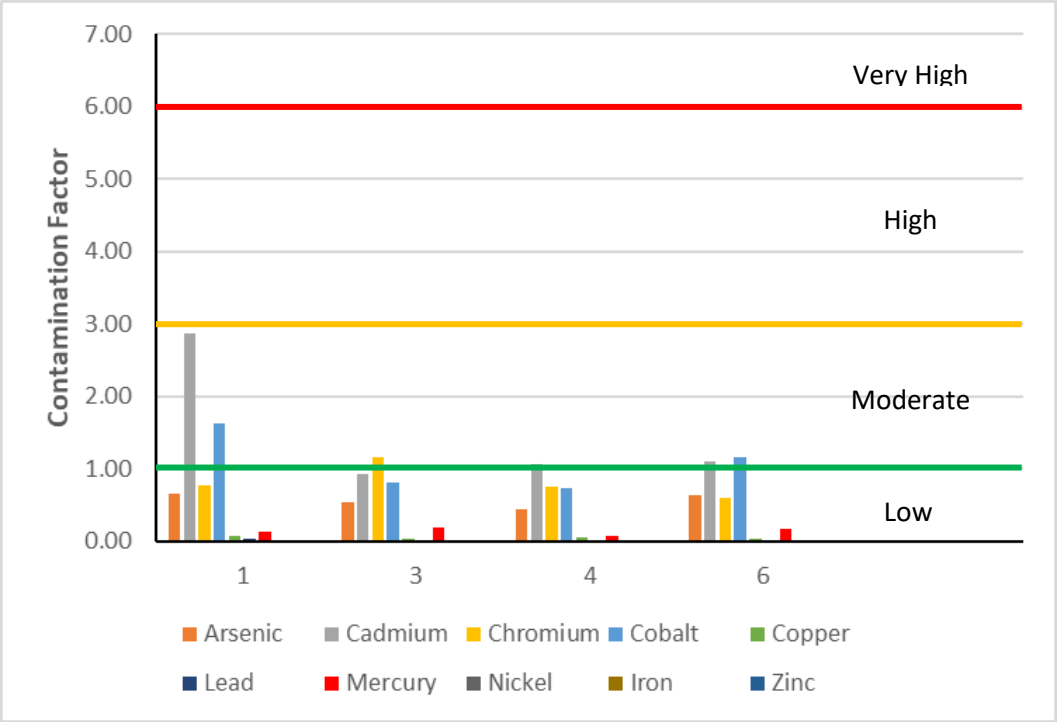
Table 6 and Figure 8 show contamination factors of different PTEs in in the four samples from the ACWA Power site. Based on CF values, the ACWA Power site showed mostly low level of contamination (CF <1) in most elements and in all samples (CD< 10). Moderate contamination levels (CF < 3) occur in two of the samples and in relation to Cd, Cr, and Co. The overall degree of contamination of all samples and the site is low (CD = 4.18).

Table 5. Contamination factor (Cf) for different PTE measured at the ACWA Power site.

Parameter	Baseline Concentration, mg/kg (Cb)*	Sample Contamination Factor (CF)					Contamination Level**
		1	3	4	6	Mean	
Arsenic	13	0.66	0.53	0.45	0.64	**0.57**	Low
Cadmium	0.3	**2.87**	0.93	**1.07**	**1.10**	**1.49**	Moderate
Chromium	90	0.77	**1.16**	0.74	0.60	**0.82**	Low
Cobalt	19	**1.62**	0.81	0.73	**1.16**	**1.08**	Moderate
Copper	20	0.07	0.03	0.05	0.03	**0.04**	Low
Lead	20	0.04	0.01	0.02	0.02	**0.02**	Low
Mercury	0.4	0.132	0.19	0.08	0.165	**0.14**	Low
Nickel	68	0.00	0.00	0.00	0.00	**0.00**	Low
Iron	47200	0.00	0.00	0.00	0.00	**0.00**	Low
Zinc	16	0.01	0.01	0.01	0.01	**0.01**	Low
Overall Contamination Degree (CD)		**6.16**	**3.68**	**3.14**	**3.73**	**4.18**	**Low**

* according to baseline concentration of elements in the Earth crust (Turekian and Wedepohl 1961).
** according to the scale developed by Hökanson (1980).

Figure 8.



Contamination factors (CF) of different PTEs at the ACWA Power site and their calculated Contamination Levels (CI).

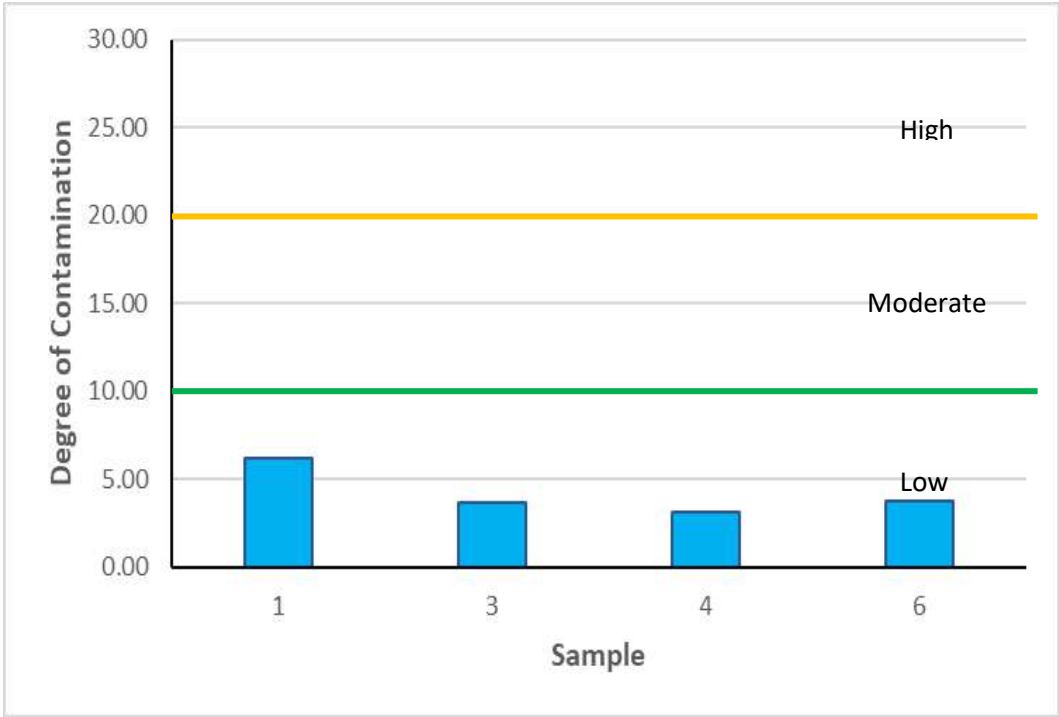


Figure 9. Degree of contamination (Cd) of four surface soil samples from the ACWA Power site.

Ecological risk due to different PTEs is shown in Table 6 and Figure 10. The table shows that ERs of the levels of all potentially toxic elements on the four soil samples are low. Similarly, potential ecological risk index (PERI) is low for all samples and hence for the ACWA Power site in general (Table 6 and Figure 11).

Table 6. Ecological risk ER of four surface soil samples at the ACWA Power sit.

Parameter	Toxic Response*	Sample Ecological Risk (ER)					Ecological Risk Level (ER)**
		1	3	4	6	Mean	
Arsenic	13	6.62	5.31	4.46	6.38	**5.69**	Low
Cadmium	0.3	86.00	28.00	32.00	33.00	**44.75**	Low
Chromium	90	1.53	2.31	1.49	1.20	**1.63**	Low
Cobalt	19	8.08	4.05	3.63	5.82	**5.39**	Low
Copper	20	0.33	0.16	0.24	0.16	**0.22**	Low
Lead	20	0.22	0.07	0.08	0.08	**0.11**	Low
Mercury	0.4	5.28	7.60	3.20	6.60	**5.67**	Low
Nickel	68	0.01	0.01	0.01	0.01	**0.01**	Low
Iron	47200	0.00	0.00	0.00	0.00	**0.00**	Low
Zinc	16	0.01	0.01	0.01	0.01	**0.01**	Low
Potential Ecological Risk Index		**108**	**48**	**45**	**53**	**63.49**	Low

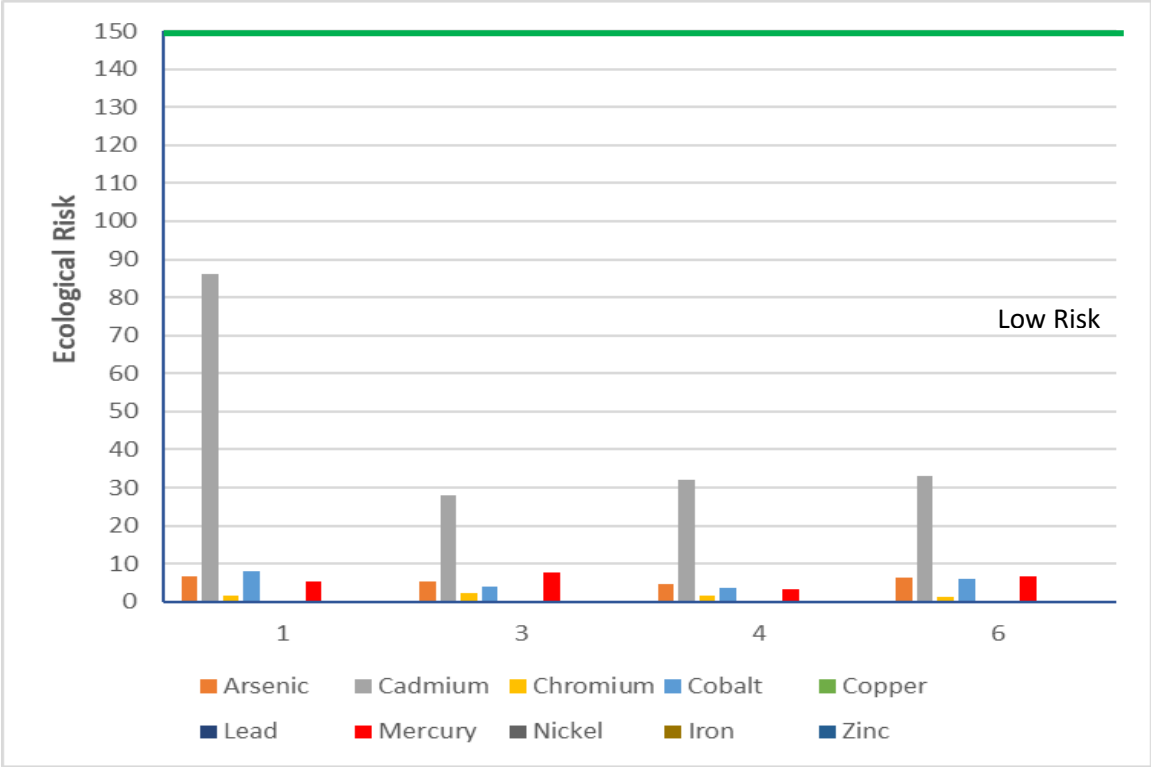


Figure 10. Ecological risk due to soil contamination with PTE for four surface soil samples from the ACWA Power site.

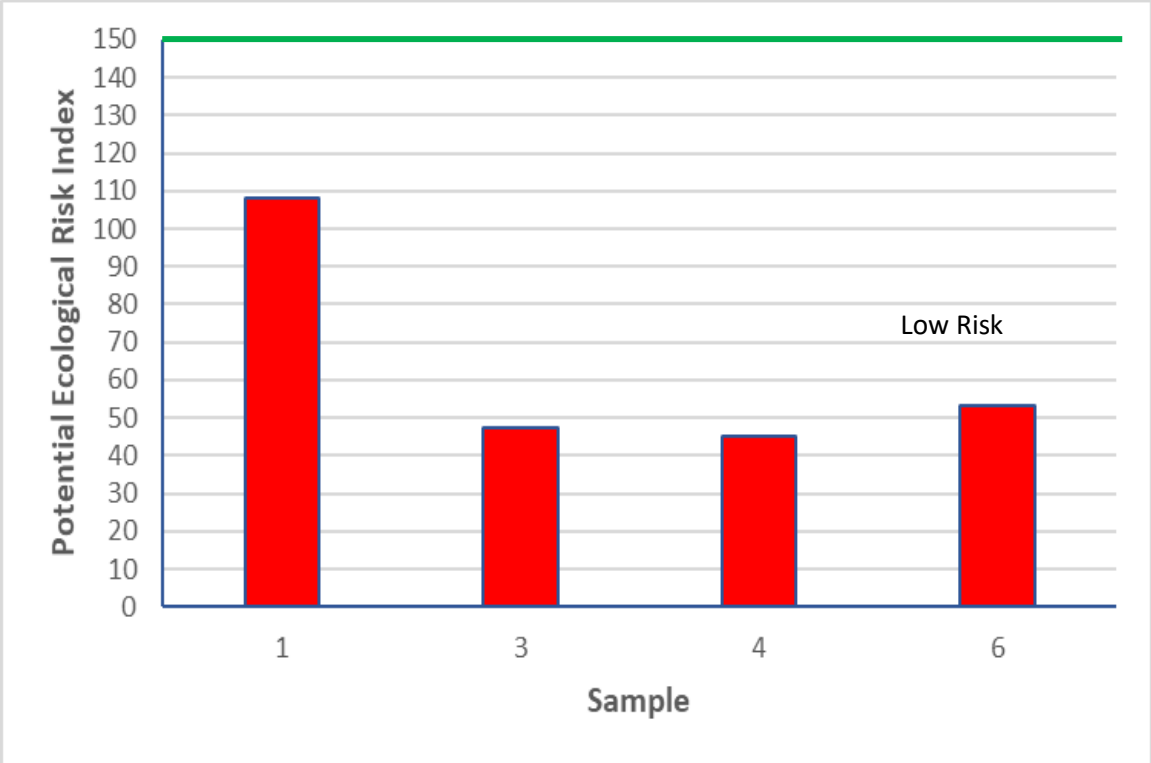


Figure 11. Potential ecological risk index for four surface soil samples from the ACWA Power site.

III. CONCLUSIONS

Soils of the ACWA Power project site in Kom Ombo is typical of those of green field sites in Egypt showing typically low level of contamination. Standard measures of soil contamination with potentially toxic elements (PTEs) in the four tested soil samples, namely Contamination Degree (CD), Potential Ecological Risk Index (PERI) support the conclusion that the surface soil of the project site have low levels of contamination and do not constitute any potential ecological risk.

Individual PTEs mostly show concentration below standards adopted by the Egyptian Environmental Affairs Agency (EEAA) and the baseline concentration in the Earth crust. Most elements also show low Contamination Factors (CF) that fall within the range of uncontaminated soil.

Cadmium and cobalt concentration and contamination factors were moderately high in two of the soil samples, while chromium concentration in one sample was higher than the standards. However, contamination degree and ecological risks associated with these elements in the samples were low, typical of uncontaminated soil in Egypt.

Soil samples from areas near the road, or those disturbed by recent movement of vehicles and construction equipment at the site's eastern margin, showed a moderately high level of total petroleum hydrocarbons.

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V. LABORATORY REPO

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Ministry of Agriculture & Land Reclamation
مركز البحوث الزراعية
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تحية طيبة .. وبعد

فيما يلى نتائج تقدير بعض العناصر الكبرى والصغرى والثقيلة الميسرة وكذلك تقدير الفوسفور الكلى والهيدروكربون لعدد (٤) عينات تربةواردة بمعرفتكم علما بأن كل عينة لا تمثل إلا نفسها .....

جدول :- تقدير العناصر الكبرى والصغرى والثقيلة الميسرة والفوسفور الكلى والهيدروكربون لعينات التربة.

رقم العينة	التركيز (ملجم /كجم تربة)									T Hydrocarbon mg/kg
	النيتروجين النتراتي	بوتاسيوم	فوسفور كلي	نحاس	حديد	زنك	رصاص	كادميوم	النيكل	
١	٥٩.٠	١٦٨.٠	٣١.٠	١.٣٢	٣.٢٨	..١٥٦	..٨٦	..٨٦	..١٦	٢٩.٤
٢	٦٠.٠	٢٢٨.٠	٢٢.٥	..٦٢	..١٥	..٢٠٢	..٢٨	..٢٨	..٢٠	٤٤.٦
٣	٦٨.٠	٩٢.٠	١٤.٠	..٩٥	..٢٨	..١٩	..٣٢	..٣٢	..١٩	١٧.٣
٤	٧٢.٠	٢٤٣.٠	٥٥.٢	..٦٢	...٨	..١٥٢	..٣٣	..٣٣	..١٥	٣.٩

برجاء الإحاطة وشكراً ....

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فاكس : ٠٢٣٥٧٢٠٦٠٨