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MEMORANDUM CIRCULAR
No. 2020-008

MAR 11 2020

Subject: **GUIDELINES FOR SITE CONTROL**

The Guidelines for Site Control has been developed to identify the site control options and measures for identified and confirmed contaminated sites. It aims to address the management and control of contaminated sites to reduce or eliminate receptor exposure. The Guidelines was formulated in alignment with the National Strategy for the Management of Persistent Organic Pollutants (POPs) contaminated sites, site characterization guidelines, contaminated site priority ranking and site remediation guidelines.

The Guidelines aim to serve as practical guidance that will assist regulators and owners of possible contaminated sites in identifying and validating the presence of chemical of potential concern (COPC) and the corresponding health and environmental risks associated with such sites; and provide information about management measures on how to reduce the risks associated with contaminated sites. The ultimate goal of managing contaminated sites is to be free from COPC or to reduce the COPC concentration to an acceptable level.

The main output of the Guidelines is the Site Control Action Plan (SCAP). The SCAP is the document that will be formulated prior to the implementation of site control measures. The SCAP has the following major components:

a. Review available data for site characterization;
b. Develop technology options for site control;
c. Analysis and selection of technical option;
d. Installation of Site Control Technique; and
e. Preparation of Site Control Reports

The guidelines intends for the sustainable redevelopment of contaminated site focusing on the reduction of risks to human health and environment while keeping in mind the economical land value of the rehabilitated area for employment and business opportunities to the local communities, and/or social profitability.

ENGR. WILLIAM P. CUÑADO
OIC-Director

Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Office of the Director

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Protect the environment... Protect life...

Proponent Site Engineering Controls

APPENDIX 1

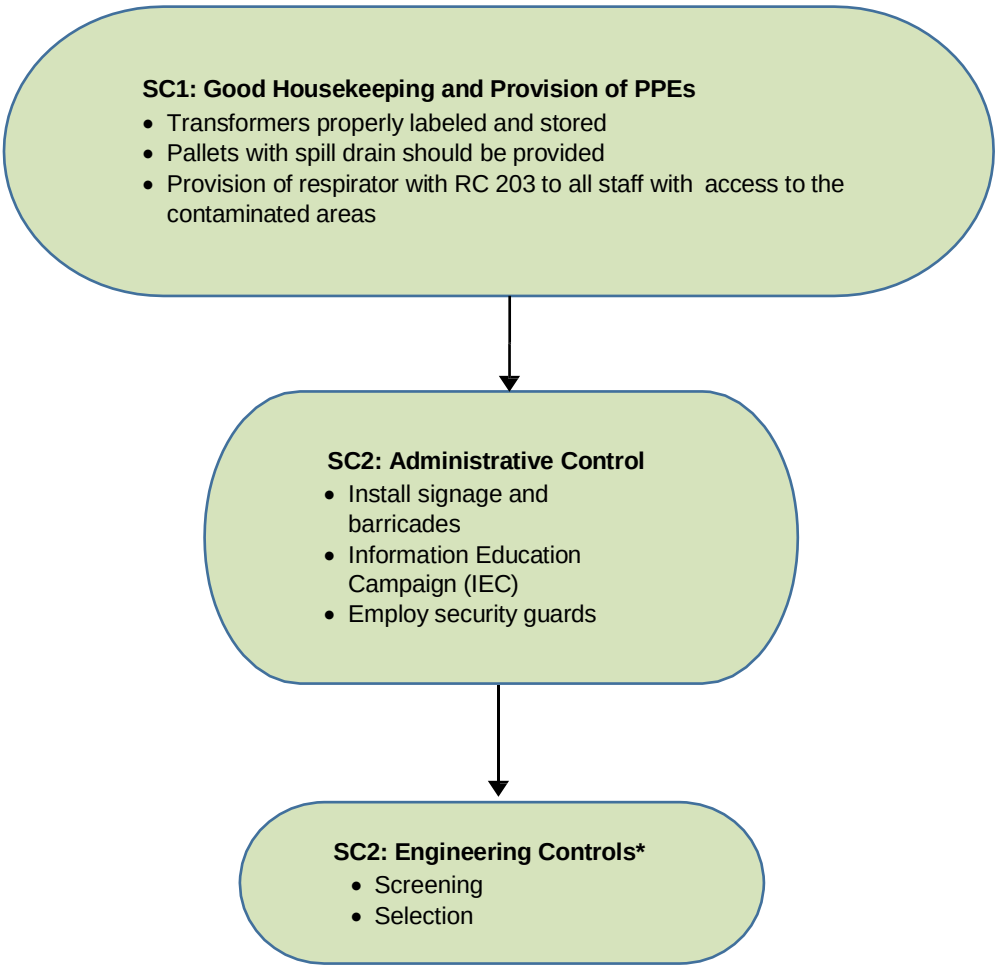
APPENDIX 1. ILLUSTRATIVE PROPONENT SITE ENGINEERING CONTROLS TO BE IMPLEMENTED

SITE DESCRIPTION: A contaminated site was a former power plant facility with stored transformers (PCB containing) and the site is currently being used as a motor pool area where change oil and other vehicle maintenance activities are being undertaken. The COPC (PCB; Aroclors and its congeners) containing transformers will be disposed-off according to the COPC management plan timelines submitted to the DENR-EMB Chemicals Division pursuant to the Phase-Out plan of the Government as commitment to the Stockholm Convention in 2019.

The Proponent or the facility has not designated a Pollution Control Officer (PCO), no inventory of the transformer stored and no submission of reports i.e. SMR; to DENR. No records of accidental spills and other environment-related activities.

SITE CONTROL IMPLEMENTATION: The different activities can be implemented. Further, it is viewed that during the site control implementation, the proponent has its own Pollution Control Officer (PCO), have registered for CCO and have submitted its COPC Management Plan.

Immediate Activities: Site Control Level 1 (SC1)



SITE CONTROL LEVEL 2: ENGINEERING CONTROLS

Step 1: Screening Procedure

Rank the control measures from highest to lowest with 1 as the highest. Choose 2 measures with highest ranking and proceed to selection process using selection criteria

Table A. Site Control: Perimeter Wall Enclosure of the Contaminated Site

Site Control Option	Technical (50%)	Environmental (25%)	Social (25%)	Total	Rank
1. Concrete wall with provision of sump pit in compliance with the CCO for PCBs		1	1	4	1st
2. Concrete wall with provision of absorbent pads	1	2	2.5	5.5	2nd
3. Cyclone wire	3	3	2.5	8.5	3rd

Option no. 1 (Concrete wall with provision of sump pit) and **Option no. 2** (Concrete wall with provision of absorbent pads) were chosen during the screening process and will proceed to the next step.

Step 2: Selection Procedure

Table B. Perimeter Wall

Parameter/Criteria	Economic	Legal	Stability	Total	Rank
1. Concrete with sump (compliance with the CCO for PCBs)	1	1.5	1	3.5	1st
2. Concrete with absorbent pad	2	1.5	2	5.5	2nd

Option no. 1 (Concrete wall with provision of sump pit) was selected as the site control technology option for the economic, legal and stability criteria.

However, it should be noted that the final selection will depend on the Proponent's decision on what technology option to implement.

Matrix of Site Control Hierarchy

APPENDIX 2

APPENDIX 2. MATRIX OF SITE CONTROL HIERARCHY APPLICATION WITH INDICATIVE COSTS

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
Provision of PPEs (Responsible Person/Entity: Proponent)					
COPC contaminated soil and groundwater	Risk of exposure to COPC	Infiltration of COPC into the soils and percolation groundwater within and at the vicinity of the contaminated area. Ingestion of COPC by freshwater organisms and consequent human ingestion of these aquatic organisms with COPC. Inhalation and skin contact with COPC by human, particularly workers assigned in the area.	**PPEs (suit, gloves, footwear, headgear, respirators and safety goggles) for the Proponent personnel who will manage the COPC wastes and other hazardous wastes in the area**	Fit test of PPEs appropriate to COPC	**5,000/person**

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
Administrative Controls (Responsible Person/Entity: Proponent)					
COPC contaminated soil and groundwater	Risk of exposure to COPC	Infiltration of COPC into the soils and percolation groundwater within and at the vicinity of the contaminated area. Ingestion of COPC by freshwater organisms and consequent human ingestion of these aquatic organisms with COPC. Inhalation and skin contact with COPC by human, particularly workers assigned in the area.	**Security provision**	Proponent shall commit for the provision of security at the contaminated site with proper PPE.	**365,000/year** @ 500/day/security guard for two (2) security.
			Signage (no entry to unauthorized personnel)	The administration of Proponent shall see to it that the signage is intact until the COPC contaminated site has been remediated.	**3,000/signage** Made of marine plywood or sheet metal with steel framing, steadfast and water proof that withstand weather
			Stakeholders awareness and engagement	An Information and Education Campaign (IEC) shall be done by Proponent to inform or warn the general public of the health risk of the COPC contamination.	**50,000** A two (2) time IEC shall be done. The IEC shall entail cost for the refreshments of the participants. The 2nd IEC shall be done after the proposed site

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
					control procedures were implemented and initial results of environmental monitoring are already available.
				Quarterly monitoring of soils and groundwater for COPC, particularly drinking water sources within and in the vicinity of affected area.	**10,000/soil sample** and **5,000/water sample** Includes auger drilling for soil sampling, purging of stagnant water in well prior to sampling, sample preparation and transportation cost.
Engineering controls (Responsible Person/Entity: Proponent). Presented below are different choices of engineering controls					
COPC contaminated soil, groundwater	Risk of Exposure to COPC	Infiltration of COPC into the soils and percolation	**Area isolation by fencing with barbed wire**	The security provision shall monitor the fence that shall be put up,	**89/m²** The height of the barbed wire fence

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
		groundwater within and at the vicinity of the contaminated area. Ingestion of COPC by freshwater organisms and consequent human ingestion of these aquatic organisms with COPC. Inhalation and skin contact with COPC by human, particularly workers assigned in the area.		the provided security shall see to it that the COPC contaminated site is out of reach of the general public until the COPC contaminated site has been remediated.	is 1.90 meters. The entrance gate with padlock is made of barbed wire in steel frame with an opening of 4 meters and height of 2.3 meters.
			Placement of cover to prevent COPC migration by rainwater	The provided security as administrative measure shall see to it that the COPC contaminated site is	**206/m²** For cover using HDPE sheet. **5,100/m²**

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
				out of reach of the general public until the COPC contaminated site has been remediated.	For facility with existing concrete enclosure competent enough to carry G.I. corrugated roof and steel truss. This option is more secured than by just placement of HDPE cover.
			Stakeholders awareness on fate of COPC through soil and water monitoring	Quarterly monitoring of soils, groundwater and surface water for COPC, particularly drinking water sources within and in the vicinity of affected area. This should be made downstream of contaminated site. If existing well/s exist in the vicinity, this can be used to reduce cost of	**10,000/soil sample** and **5,000/water sample** Includes auger drilling for soil sampling, purging of stagnant water in well prior to sampling, sample preparation and transportation cost. **150,000/monitoring well**

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	Indicative Cost (PhP)
				developing monitoring well.	Includes drilling, uPVC casing, gravel pack, cement grout well development, pumping test and well head protection and security. Borehole diameter is 150mm and casing diameter is 75mm.
Reporting (Responsible Person/Entity: Proponent)					
			Stakeholders/ Transparency	An Information and Education Campaign (IEC) shall be done by Proponent to inform the general public of the results of site control at the vicinity of the contaminated site.	**50,000** Second IEC shall be done after the proposed site control measures are implemented and initial results of environmental monitoring are already available. The IEC shall entail cost for the

Controls/Component	Risks	Environmental Impacts	Mitigating Measures	Monitoring	**Indicative Cost** (PhP)
					refreshments of the participants.

Indicative Costs for Technology Options

APPENDIX 3

APPENDIX 3. INDICATIVE COSTS FOR TECHNOLOGY OPTIONS
AN ILLUSTRATION for a PCB CONTAMINATED SITE INDICATED IN APPENDIX 1
(Costings based on September 2016 prices)

Area Isolation by Fencing

I. Concrete/ CHB Perimeter Wall

Area to be Fenced = 1.2 Hectares = 12,000 m^2

100 m

120 m

CHB:
Height above H.G.L. = 240 m
Height below H.G.L. = 0.40 m
Total Height = 2.80 m

A_{120} = 120 x 2.80 x 2 = 672 m^2
A_{100} = 100 x 2.80 x 2 = 560 m^2
Total area to be covered by CHB = 1,232 m^2
Total number of 6" CHB = 1232 x 12.5 = 15,400
Total number of columns @ 3m spacing = (33+1)2 + (40+1)2 = 68 + 82 = 150
Volume of columns = 0.30 x 0.30 x 3 x 150 = 40.5 m^3
Volume of footings = 1.00 x 1.00 x 0.25 x 150 = 37.5 m^3
Volume of base concrete = 0.20 x 0.15 x 440 = 13.2 m^3
Volume of gravel base = 0.20 x 1.00 1.00 x 150 = 30 m^3

Total volume of concrete = 40.5 + 37.5 + 13.2 = 91.2 m^3

Concrete:
Cement = 91.2 x 7.84 = 715.008 = 716 bags
Sand = 91.2 x 0.44 = 40.128 = 41 m^3
Gravel = 91.2 x 0.88 = 80.256 = 81 + 30 = 111 m^3

Plaster:
A = 2.40(120 x 2) + 2.40(100 x 2) = 576 + 480 = 1,056 m^2
V = 1,056 x 0.012 x 2 = 25.42 m^3
Cement = 25.43 x 5.50 = 139.37 = 140 bags
Sand = 25.43 x 0.90 = 22.806 = 23 m^3

Mortar:
15400 pcs x 0.0028 = 43.12 m^3
Cement = 43.12 x 12.04 = 519.16 = 520 bags
Sand = 43.12 x 0.97 = 41.83 = 42 m^3

Rebars:

Columns = 4 x 3.25 x 150 = 1,950
1,950/7.5 = 260; 260 pcs – 12 mmϕ x 750 m
260 pcs – 16 mmϕ x 7.50 m
Ties: 16 x 1.50 x 1.50 = 3,600
3,600/6 = 600; 600 pcs – 10 mmϕ x 6.00 m

Footings = 150 nos. = 8 x 2 150 x 1.20 = 2880
2880/6 = 480; 480 pcs – 16 mmϕ 6.00 m

CHB:
Vertical bars (10 mmϕ @ 0.60) = 2(120/0.06) + 2(100/0.06) = 400 + 334 = 734
Height of CHB = 3.25
734 x 3.25 = 2,385.50
2,385.50/7.5 = 318.07; 319 pcs – 10 mmϕ x 7.50 m
Horizontal bars (12 mmϕ @0.60)
6 Layers: (120 x 2) + (100 x 2) = 440 x 6 = 2,640
2,640/7.5 = 352; 352 pcs – 12 mmϕ x 7.50

Entrance/Pedestrian gate:
Cyclone wire
A = 4 x 2.30 = 9.20 m^2 = 10 m^2
G.I. pipe = 50 mmϕ x 6 m SCH 40
= (4 x3) + (4 x 2.30) = 12 + 9.2 = 21.2
= 21.2/6 = 3.53 = 4 pcs
4 pcs – 50 mmϕ x 6 m G.I. pipe SCH 40
1 pcs – 25 mmϕ x 6 m G.I. pipe SCH 40

Flat Bar = 25 mm x 5 mm x 6 m
= (2.3 x 4) + (4 x 4) = 9.2 = 16 = 25.2
= 25.2/6 = 4.2 = 5 pcs
5 pcs – 25mm x 5mm x 6m

Round Bar:
1 pc – 19 mmϕ G.I. Plain Bar
1 pc – 20 mmϕ Plain round bar

Heavy duty padlock:
1 pc

Materials Cost :

6” CHB = 15,400 pcs x ₱15.00/pc	= ₱ 231,000.00
Cement = 1,376 bags x ₱220.00/bag	= ₱ 302,720.00
Sand = 106 m^3 x ₱225.00/m^3	= ₱ 23,850.00
Gravel = 111 m^3 x ₱250.00/m^3	= ₱ 27,750.00

Rebars:
16 mmϕ x 7.50 m = 260 pcs x ₱313.00/pc = ₱ 81,380.00

16 mmϕ x 6.00 m = 480 pcs x ₱250.00/pc	= ₱ 120,000.00
12 mmϕ x 7.50 m = 612 pcs x ₱189.14/pc	= ₱ 115,753.68
10 mmϕ x 7.50 m = 319 pcs x ₱123/pc	= ₱ 39,237.00
10 mmϕ x 6.00 m = 600 pcs x ₱98/pc	= ₱ 58,800.00
Entrance/Pedestrian gate:	
Cyclone wire = 10 m^2 x ₱160.00/m^2	= ₱ 1,600.00
G.I. pipe:	
50 mmϕ x 6 m = 4 pcs x ₱942.50/pc	= ₱ 3,770.00
25 mmϕ x 6 m = 1 pcs x ₱467.00/pc	= ₱ 467.00
Flat Bar: 25 mm x 5 mm x 6 m = 5 pcs x ₱333.00/pc	= ₱ 1,665.00
Round Bar:	
19 mmϕ G.I. Plain bar = 1 pc x ₱595.00/pc	= ₱ 595.00
20 mmϕ Plain bar (round) = 1 pc x ₱662.00/pc	= ₱ 662.00
Heavy duty padlock: 1 pc x ₱1,000.00/pc	= ₱ 1,000.00
	Total = ₱1,010,249.68

Materials	= ₱1,010,249.68	= ₱1,010,249.68
Labor (30%)	= 0.30(₱1,010,249.68)	= ₱ 303,074.90
Contingency (5%)	= 0.05(₱1,010,249.68 + 303,074.90)	= ₱ 65,666.23
	Total Cost	**= ₱1,378,990.81**

Description:
Total cost of concrete/CHB perimeter wall
= ₱1,378,991.00

Unit Cost / Square Meter = ₱ 115.00

Area to be covered = 1.2 Hectares = 12,000 m^2

Height of 6" CHB wall from finish ground level (F.G.L.) = 2.40 m

Cyclone wire entrance and pedestrian gate with padlock:
Opening = 4.00 m
Height = 2.30 m

II. Cyclone wire/ CHB perimeter wall

CHB:
Height above F.G.L. = 0.40 m
Height below F.G.L. = 0.40 m
Total Height = 0.40 + 0.40 = 0.80 m
Fence Perimeter = 2(100) + 2(120) = 200 + 240 = 440 m
Total area to be covered by CHB = 0.80 x 440 = 352 m^2
Total number of 6" CHB = 352 x 12.5 = 4,400
Total number of columns @ 3 m spacing = 150
Volume of $columns_1$ = 0.30 x 0.30 x 3.00 x 6 = 1.62 m^3
Volume of $columns_2$ = 0.15 x 0.15 x 1.00 x 144 = 3.24 m^3
Total volume of columns = 1.62 + 3.24 = 4.86 m^3
Volume of $footings_1$ = 1.00 x 1.00 x 0.25 x 6 = 1.50 m^3
Volume of $footings_2$ = 0.80 x 0.80 x 0.25 x 144 = 23.04 m^3
Total volume of footings = 1.50 + 23.04 = 24.54 m^3
Volume of base concrete = 0.20 x 0.15 x 440 = 13.20 m^3
Volume of gravel $base_1$ = 0.10 x 1.00 x 1.00 x 6 = 0.60 m^3
Volume of gravel $base_2$ = 0.10 x 0.80 x 0.80 x 144 = 9.22 m^3
Total volume of gravel base = 0.60 + 9.22 = 9.82 ≈ 10.00 m^3

Total volume of concrete = 4.86 + 24.54 + 13.20 = 42.60 m^3

Concrete:
Cement = 42.60 x 7.84 = 333.98 = 334 bags
Sand = 42.60 x 0.44 = 18.74= 19 m^3
Gravel = 42.60 x 0.88 = 37.49= 38 m^3

Plaster:
A = 0.40x 440 = 176 m^2
V = 176 x 0.012 x 2 = 4.224 m^3
Cement = 4.224 x 5.50 = 23.23 = 24 bags
Sand = 4.224 x 0.90 = 3.80 = 4 m^3

Mortar:
4,400 pcs x 0.0028 = 12.32 m^3
Cement= 12.32 x 12.04= 148.33= 149 bags
Sand = 12.32 x 0.97 = 11,95= 12 m^3

Rebars:
$Columns_1$ = 4 x 3.25 x 6 = 78
78/7.5 = 10.4 = 11;
11 pcs – 12 mmϕ x 7.50 m
11 pcs – 16 mmϕ x 7.50 m

TIES: 16 x 1.50 x 6 = 144
144/6 = 24; 24 pcs – 10 mmϕ x 6.00 m

$Columns_2$ = 4 x 1.80 x 144 = 1,036.80

1,036.80/6 = 172.8 = 173; 173 pcs – 16 mmϕ x 6.00 m

TIES: 4 x 0.65 x 144 = 374.4
374.4/6 = 62.4 ; 63 pcs – 10 mmϕ x 6.00 m

$Footings_1$ = 8 x 2 x 1.20 x 6 = 115.20
115.20/6 = 19.2 = 20; 20 pcs – 16 mmϕ x 6.00 m

$Footings_2$ = 6 x 2 x 1.00 x 144 = 1,728
1728/6 = 288; 288 pcs – 16 mmϕ x 6.00 m

CHB:
Vertical Bars: (10 mmϕ @ 0.60)
= 2(120/0.60) + 2(100/0.60) = 400 + 334 = 734

Height of CHB = 0.80
734 x 0.80 = 587.20

587.20/7.5 = 78.29; 79 pcs – 10 mmϕ x 7.50 m

Horizontal Bars: (12 mmϕ @ 0.60)
2 Layers = 440 x 2 = 880
880/7.5 = 117.33; 118 pcs – 12 mmϕ x 7.50 m

Entrance/ Pedestrian gate:
Cyclone wire:
A = 4 x 2.30 = 9.20 = 10 m^2
G.I. pipe = 50 mmϕ x 6.00 m SCH 40
= (4 x 3) + (4 x 2.3) = 12 + 9.2 = 21.2
= 21.2/6 = 3.53 = 4 pcs
4 pcs – 50 mmϕ x 6.00 m G.I. pipe SCH 40
1 pc – 25 mmϕ x 6.00 m G.I. pipe SCH 40

Flat bar = 25 mm x 5 mm x 6 m
= (2.3 x 4) + (4 x 4) = 9.2 + 16 = 25.2
= 25.2/6 = 4.2 = 5 pcs
5 pcs – 25 mm x 5 mm x 6 m

Round bar:
1 pc – 19 mmϕ G.I. Plain bar
1 pc – 20 mmϕ plain round bar

Heavy duty padlock: 1 pc

Materials Cost :

6" CHB	= 4,400 pcs x ₱15.00/pc	= ₱ 66,000.00
Cement	= 507 bags x ₱220.00/bag	= ₱ 111,540.00
Sand	= 35 m^3 x ₱225.00/m^3	= ₱ 7,875.00

Gravel	= 48 m^3 x ₱250.00/m^3	= ₱ 12,000.00
Rebars:		
16 mmϕ x 7.50 m	= 11 pcs x ₱313.00/pc	= ₱ 3,443.00
16 mmϕ x 6.00 m	= 481 pcs x ₱250.00/pc	= ₱ 120,250.00
12 mmϕ x 7.50 m	= 129 pcs x ₱189.14/pc	= ₱ 24,399.06
10 mmϕ x 7.50 m	= 79 pcs x ₱123/pc	= ₱ 9,717.00
10 mmϕ x 6.00 m	= 87 pcs x ₱98/pc	= ₱ 8,526.00
Entrance/Pedestrian Gate:		
Cyclone wire	= 10 m^2 x ₱162.00/m^2	= ₱ 1,600.00
G.I. Pipe	= 50 mm x 6m – 4 pcs x ₱942.50/pc	= ₱ 3,770.00
	= 25 mm x 6m – 1 pcs x ₱467.00/pc	= ₱ 467.00
Flat Bar	= 25 mm x 5 mm x 6 m - 5 pcs x ₱333.00/pc	= ₱ 1,665.00
Round Bar	= 19 mmϕ G.I. Plain bar – 1 pc x ₱595.00/pc	= ₱ 595.00
	= 20 mmϕ Pain bar (round) – 1 pc x ₱662.00/pc	= ₱ 662.00
Heavy Duty padlock: 1 pc x ₱1,000.00/pc		= ₱ 1,000.00
Cyclone wire fence A = 836 m^2		
	= 836 m^2 x ₱160.00/m^2	= ₱ 133,760.00
G.I. pipe SCH 40: 50 mmϕ x 6m		
	= 205 pcs x ₱942.50/pc	= ₱ 193,212.50
Flat bar:	25 mmϕ x 5 mm x 6m	
	=245 pcs x ₱333.00/pc	= ₱ 81.585.00
		= ₱ 782,066.56
Materials	= ₱782,066.56	= ₱ 782,066.56
Labor (30%)	= 0.30(782,066.56)	= ₱ 234.619.97
Contingency (5%)	= 0.05(782,066.56 + 234.619.97)	= ₱ 50,834.33
	Total cost	**= ₱1,067,520.86**

Description:

Total cost of Cyclone Wire/ CHB Perimeter wall
= ₱1,067,520.86

Unit Cost / Square Meter = ₱ 1,067,521.00 / 12,000 = ₱ 89.00

Area to be covered = 1.2 hectares = 12,000 m^2
Cyclone wire fence height = 1.90 m
Height of 6” CHB wall from finish ground level (F.G.L.) = 0.40 m
Cyclone wire entrance and pedestrian gate with padlock.
Opening = 4.00 m
Height = 2.30 m

SCAP Scoping Checklist

APPENDIX \\

APPENDIX 5. SCAP SCOPING CHECKLIST

Step 1. **Is the site Contaminated ? (☐ Y ☐ N ☐ M)**

- If answer is Y (Yes), Show proof (ESA) and go to question 2.
- If answer is N (No), show proof (ESA or Environmental Sampling Results) and no site control measures are required. I no proof can be shown, conduct ESA.
- If answer is M (Maybe), conduct an ESA and Proceed to question No. 2.

Step 2. **What is/are the COPC/s and concentration/s present on site?**

a. Pesticides - Aldrin, Chlordane, Dichlorodiphenyltricloroethane (DDT), Dieldrin, Endrin, Heptachlor, Hexachlorobenzene (HCB), Mirex and Toxaphene;
b. Industrial Chemicals – HCB, Mirex and COPCs - Polychlorinated Biphenyls (209 congeners),
c. Unintended by-products - Dioxins (75 Congeners), Furans (135 Congeners) and HCB.

Suggested Matrix to be filled up

Contaminant	Concentration	Suspected Area/Location	Supporting Documents

Note: If Step 2 is sufficiently answered, Proceed to Step 3. Else, go back to Step 1.

Step 3. **Was/were the hotspot/s identified?**

- A map delineating the contaminated area within a facility should be shown or the identified hotspots based on the ESA document and validation sampling.
- Results of analysis can also be attached.

Note: If the hotspots were clearly delineated, proceed to Step 4, else validate ESA.

Step 4. **Are there receptors around the identified contaminated site? Specify and Identify.**

Human Receptors

d. Persons visiting or working at the site and its adjacent land-use;
e. Persons living near the site or temporarily living in the site;
f. Construction workers who may be involved in future construction works at the site.
g. Persons who have access to the possibly COPC contaminated areas

Environmental Receptors

- Soil within the area
- Nearest surface water

- Groundwater that may be possibly contaminated by COPC

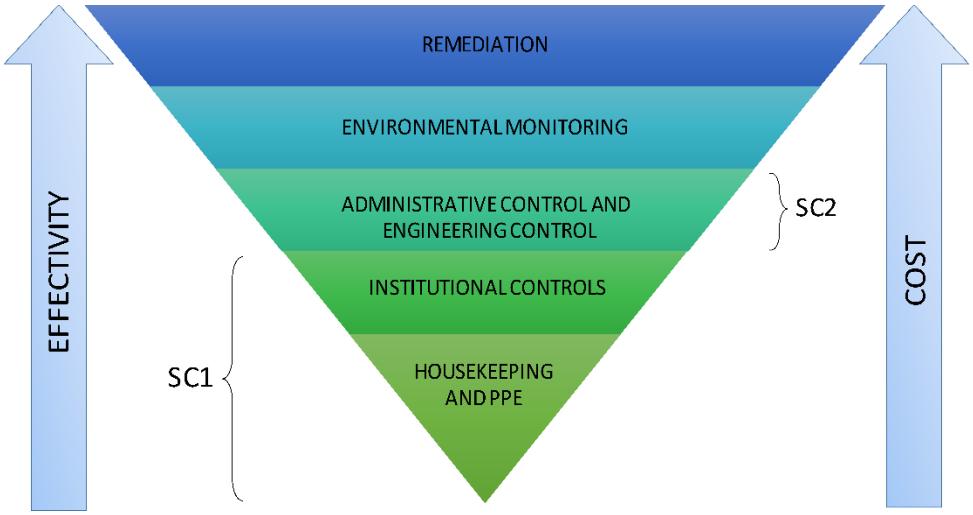
Other Receptors Information

- Receptors coordinates (based on available info) N, S, E, W or Northing /Easting
- Map identifying the receptors (nearest river, nearest communities, neighboring areas, among others)
- Attached the Conceptual Site Model (CSM) generated rom the ESA study

Note: If Step 4 is answered completely, proceed to Step 5, else validate results of ESA.

Step 5. Applicable Site Control Measures

Always consider the inverted triangle: Hierarchy of Site Control Measures of a Contaminated Site, shown below, when developing the site control options.



Proposed Site Control Measures Matrix to be filled up

Type of Site Control Measures	Description of Activities/Tasks	Concerned Receptor	Responsible Person
Site Control Level 1			
Good Housekeeping			
Provision of PPEs			
Institutional Controls (DENR EMB to fill up)			
Site Control Level 2			
Administrative Controls			
Engineering Controls			
Others			
Monitoring			