

## Guidelines: Groundwater Extraction

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## 17.1 Introduction

Groundwater is defined as the water located beneath the ground surface in soil pore spaces and in the fractures of lithologic formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated is called the water table. Groundwater is recharges from, and eventually flows to, the surface naturally.

## 17.2 Groundwater Contamination Sources

Contamination of groundwater has been observed worldwide, and it is becoming self-evident that concentrated human activity will lead to groundwater contamination. In general, it has been shown to occur wherever three main components exist; a potential source of contamination, an underlying aquifer and a pathway for transfer between the two. This pathway can be either directly through the soil or directly through man-made structures which intersect water table such as pits, wells, etc.

Sources of contamination are most often referred to as either point or diffuse sources. Point sources refer to cases where contamination is localize and often is centered on one or more identifiable structures or surface facilities. Alternatively, diffuse sources are broad scale and cannot be ascribed to a sole source, but are caused by either a widespread land use practice (e.g., use of agricultural pesticide) or by a widespread collection of small point sources (e.g., septic tanks).

## 17.3 Groundwater Wells Excavation

Excavation of groundwater wells for resource extraction is subject to the following points:

- It is prohibited to do excavation works for groundwater extraction without prior approval from PCFC - EHS;
- No Objection Certificate (NOC) for groundwater well excavation, capacity extension, maintenance or change of usage activities shall be secured;

- Only Dubai Municipality (DM) approved diggers and well excavation contractors shall be allowed to do excavation works;
- The rate of water allowed to be extracted from the well shall be defined by PCFC - EHS;
- The following details are to be disclosed during the time of application for groundwater well excavation NOC:
  - ⇒ Purpose of extracting the groundwater;
  - ⇒ Detailed description of the pump to be used during groundwater extraction;
  - ⇒ Detailed description of the meter to be fixed on the well which will be used to measure the amount of extracted water;
  - ⇒ Other fixtures, structures and/or building to be built on the well;
  - ⇒ Groundwater well's location, depth and diameter; and
  - ⇒ All other information deemed necessary by PCFC - EHS.
- Water meter shall be fixed on the groundwater well in order to monitor the amount of groundwater extracted. This meter shall be routinely inspected by Trakhees in order to assess its validity and security;
- Only Dubai Municipality approved diggers shall be allowed to be used in digging wells;
- NOC can be cancelled upon confirmation that the groundwater well excavation works started prior to the issuance of NOC;
- Prior to the issuance of NOC, the following activities shall be prohibited:

- ⇒ Using extracted groundwater for the purpose of sale or trade in cultivation of the commercial agricultural crops; and
- ⇒ Storing any hazardous materials or practicing any activity above or underground in close proximity to the ground water well sources or located inside the water docks area.
- The following activities are not allowed inside the water dock and other restricted areas:
  - ⇒ Throwing, assembling, burying any materials which can affect the chemical and natural activities of the ground water; and
  - ⇒ Building cemeteries or burying dead animals.