



# Abu Dhabi Specification

# معايير أبوظبي الفنية



ADS 18/2017

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## Ambient Marine Water and Sediments Specifications

## معايير جودة المياه والرواسب البحرية المحيطة



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## About the Abu Dhabi Quality and Conformity Council

The Abu Dhabi Quality and Conformity Council (QCC) was established by law No. 3 of 2009, issued by His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE.

QCC is responsible for the development of Abu Dhabi Emirate's quality infrastructure, which enables industry and regulators to ensure that products, systems and personnel can be tested and certified to UAE and international standards.

Products certified by QCC receive the Abu Dhabi Trustmark. The Trustmark is designed to communicate that a product or system conforms to various safety and performance standards that are set by Abu Dhabi regulators.

### 1. Foreword

The QCC Ambient Marine Quality working group was established in April 2016 with a view to reviewing all the existing standards related to the subject with the object of harmonizing the required standard to be agreed by all the relevant entities at the level of Abu Dhabi Emirate. Abu Dhabi Specifications (ADS) will be developed on subjects that have no specifications or local legislation and will then be put forward to ESMA as proposed UAE Standards, and in alignment with Federal Laws and Regulations and Cabinet Decisions.

### 2. Purpose

The objective of the project is to recommend relevant and appropriate ambient marine water and sediment quality specifications to be considered as limits based on best international practices for the long-term protection of marine life and human health, and taking into consideration available data at the Environment Agency-Abu Dhabi (EAD). The specifications recommend ambient water quality limits for eutrophic indicators, organic chemicals, trace metals, and microbiological parameters; and ambient sediment quality limits for organic chemicals and trace metals. EAD will consider recommending limits for nutrients in the future and once reliable data are collected.

The waters within the Marine Protected Areas (MPAs) are of high quality, which helps to support the unique and diverse ecosystems and aquatic life in the MPAs. Therefore, the proposed specifications recommend a “Protected Area” designated use that aims to protect the high water quality as well as a “General Use” to maintain water quality conditions that support the current uses of waters outside of protected areas.

Whilst only two designated uses are currently defined, EAD reserves the right to create, in the future, other designated uses with defined ambient marine water and sediment specifications.

### 3. Acknowledgement

QCC would like to thank the members of the Working Group listed below.

Name	Entity
1. Eng. Wael Suleiman (Chairman)	Environment Agency - Abu Dhabi (EAD)
2. David Brown	Abu Dhabi Urban Planning Council (UPC)
3. Eng. Khaled Aljunadi	Abu Dhabi City Municipality (ADM)
4. Dr.Ammar Jarrar	Abu Dhabi City Municipality (ADM)
5. Eng. Abdulla Al-Jaberi	Abu Dhabi City Municipality (ADM)
6. Eng.Mazen Elgaali	Regulation & Supervision Bureau - Abu Dhabi (RSB)
7. Eng.Tansel Derya	Regulation & Supervision Bureau - Abu Dhabi (RSB)
8. Eng. Khawaja Hassan	Industrial Development Bureau-Department of Economic (IDB-DED)
9. Eng.Ghuwaya AlNuaimi	Al Ain City Municipality (AAM)
10. Dr.Vijay Bhasker Reddy	Abu Dhabi Company for Onshore Oil Operations Ltd (ADCO)
11. Eng.Lubna Al Ameri	Abu Dhabi Company for Onshore Oil Operations Ltd (ADCO)
12. Dr.Jens Thomsen	Health Authority –Abu Dhabi (HAAD)
13. Areej AL-Haj	Health Authority –Abu Dhabi (HAAD)
14. Dr.Hamda AlThani	Abu Dhabi Water and Electricity Authority (ADWEA)
15. Dr.udayan Banerjee	The Centre of Waste Management - Abu Dhabi (Tadweer)
16. Eng. Fatima Al Suwaidi	MASDAR
17. Dr.Munjed Maraqa	United Arab Emirate University (UAEU)

#### 4. Scope

These specifications apply to ambient marine water and sediment which includes all waters and sediment measured from the baseline, and extending seaward a distance of twelve nautical miles.

The specifications do not apply within approved mixing zones. EAD designates site-specific mixing zones on a case-by-case basis of discharges to the marine environment (as part of the EIA and/or permitting process). Mixing zone boundaries are stated in the relevant discharge permission issued by EAD.

However, for oil and gas sector in the Emirate, the Supreme Petroleum Council (SPC)/Abu Dhabi National Oil Company (ADNOC) is the authority regulating and managing petroleum affairs independently (Law No.1 of 1988 Constitution of the SPC).

#### 5. Terms and Definitions

TERM	DEFINITION
Accredited Laboratory	A testing facility accredited to ISO/IEC 17025 or equivalent requirements for the competence of testing and calibration laboratories, or any other laboratory approved by QCC
Ambient Marine Waters and Sediments	Waters and sediments within Abu Dhabi's territorial seas, which is the belt of the sea measured from the baseline, as determined in accordance with the 1982 United Nations Convention on the Territorial Sea and the Contiguous Zone, and extending seaward a distance of twelve (12) nautical miles
Competent Authority	The Environment Agency – Abu Dhabi (EAD) is the competent authority for the Emirate of Abu Dhabi responsible for environmental affairs
Discharge	Any liquid leakage, spill, emission or drainage of polluting substances or the disposal of such substances into the marine environment
Designated Uses	The two categories of use as identified in these specifications, reflecting how ambient marine environment is used by humans or aquatic life
Emirate	The Emirate of Abu Dhabi
General Use Areas	All ambient marine waters and sediments not located within a marine protected use area. The general use description includes recreational (swimming and boating), drinking water supplies, industrial, conservation of fish, wildlife and other beneficial aquatic life



TERM	DEFINITION
Marine Protected Use Areas	A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values
Mixing Zone	A limited area or volume of water where initial dilution of discharge occurs in the immediate vicinity of a point source outfall and, as a result, the receiving environment may not meet ambient water and sediment quality limits but the designated use of the water body as a whole is maintained
Point Source	Any single identifiable source of discharge, such as a pipe, channel, tunnel, or outfall that is discharged into the marine environment
Regulatory Authority	A government agency within the Emirate of Abu Dhabi responsible for regulating and/or permitting the generation, treatment, transportation, or discharges of emissions to the marine environment

## 6. General Requirements

- These specifications cover two designated uses of ambient marine environments:
  - Marine Protected Use: This use includes high quality and pristine waters that require more stringent limits as well as restrictions on activities.
  - General Use: With the exception of marine protected use, this use supports all other uses, including but not limited to, recreation, fishing, industrial, transportation, agriculture, navigation, and sources of drinking water.
- These specifications shall be taken into consideration by the regulatory authorities for all permitting process of discharges to the marine environment and for dredging and filling activities.
- EAD issues maps from time to time to indicate the location of the marine protected use areas. On these maps EAD may at its own discretion, and in close consultation with ADNOC as per the Memorandum of Understanding signed between EAD and ADNOC in May 2012, indicate what activities are restricted in order to achieve the purpose of the Marine Protected Areas.
- EAD designates site-specific mixing zones on a case-by-case basis in accordance with the permitting process, provided that it will not significantly impair the designated use of the receiving body of water. In case of ADNOC Group Companies



and area located in ADNOC concession area, ADNOC will define the mixing zone based on ADNOC requirements.

- EAD shall check compliance of the marine quality with requirements of these specifications on regular basis. Marine water and sediment quality tests shall be conducted by an accredited laboratory.
- EAD may analyze for contaminants other than these mentioned in the specifications in special cases for the protection of public health and the environment.
- In case marine environment is to be used for purposes other than these designated in this specifications, the user shall submit to the competent authority detailed technical studies for approvals. Such studies shall take into consideration potential health and environmental impacts of the proposed use.

## 7. Technical Requirements

- The marine water quality concentrations listed in Table (1) apply to both designated uses.
- The marine sediment quality concentrations listed in Table (2) apply to both designated uses.
- All ambient marine waters and sediment shall be free of:
  - Materials in concentrations that cause acute toxicity to aquatic life or present an unacceptable risk to human health;
  - Materials in concentrations that settle to form objectionable deposits;
  - Floating debris, oil, grease, scum, foam and other matter in concentrations that create a visible film or sheen, or other nuisance that could harm aquatic life or human being; and
  - Substances in concentration that produce objectionable color, odor, taste, or turbidity.
- Contaminants in discharges must not impair existing designated use.

- EAD shall conduct an investigation for any pollutant found to not meet the criteria mentioned in Tables (1) and (2). The investigation shall include:
  - Assessment of all data collected pursuant to EAD's ambient marine quality monitoring program;
  - Additional sampling and analysis to determine the zone of impacted ambient marine waters and sediments and source of nonattainment;
  - Assessment of monitoring data collected by point sources and relevant regulatory authorities at non-approved locations; and
  - Review of discharge data submitted by point sources to relevant regulatory authorities.
- If EAD concludes that discharges from point sources are contributing to nonattainment, then it will work with the appropriate regulatory authority to minimize discharge of pollutants so that receiving waters can attain requirements of these specifications.

Table (1): Maximum allowable concentrations for ambient marine water

Parameter	Unit	General Use Areas	Marine Protected Use Areas
Cadmium (Cd)	µg/l	0.7	0.3
Chromium (Cr VI)	µg/l	0.2	0.2
Copper (Cu)	µg/l	3.0	3.0
Lead (Pb)	µg/l	2.2	2.2
Mercury (Hg)	µg/l	0.1	0.1
Nickel (Ni)	µg/l	7.0	3.0
Zinc (Zn)	µg/l	15.0	15.0
Total Petroleum Hydrocarbons (TPH)	µg/l	7.0	7.0
Total Polychlorinated Biphenyls (PCBs)	µg/l	0.03	0.03



Chlorophyll (a)	µg/l	1.0	0.7
DO*	mg/l	4.0	4.0
Enterococci	CFU or MPN/100 ml	35	35

Note: µg/l: micrograms per liter; mg/l: milligram per liter; CFU: Colony Forming Unit; MPN: Most Probable Number; \*: minimum allowable concentration

Table (2): Maximum allowable concentrations for ambient marine sediments

Parameter	Unit (DW)	General Use Areas	Marine Protected Use Areas
Arsenic (As)	mg/kg	7.0	7.0
Cadmium (Cd)	mg/kg	0.7	0.2
Chromium (Cr)	mg/kg	52	11
Copper (Cu)	mg/kg	20.0	20.0
Lead (Pb)	mg/kg	30.0	5.0
Mercury (Hg)	mg/kg	0.2	0.2
Nickel (Ni)	mg/kg	16.0	7.0
Zinc (Zn)	mg/kg	125.0	70.0
Total Polychlorinated Biphenyls (PCBs)	µg/kg	22.0	22.0
Total Polycyclic Aromatic Hydrocarbons (PAHs)	mg/kg	1.7	1.7

Note: mg/kg: milligram per kilogram; µg/kg: micrograms per kilogram; DW: Dry Weight

## 8. Quality Control

- Collection and preservation of marine water and sediment samples shall be conducted in accordance with the “Manual of Oceanographic Observations and Pollutant Analyses Methods MOOPAM”, or the standard operating procedures issued by the competent authority, or any equivalent sampling procedures approved by the competent authority.



- Testing shall be conducted as per the testing procedures of the Standard Methods for the Examination of Water and Wastewater (APHA) or any equivalent testing procedures approved by EAD and/or QCC.
- Testing shall be conducted by accredited laboratories as per (ISO 17025) standards or by laboratories certified by QCC.
- The arithmetic mean of the test results is used to assess the compliance of marine water and sediment quality with requirements of these specifications, except for (Enterococci) where the geometric mean is applied.
- A parameter is deemed to exceed its maximum allowable limit if (1) two consecutive samples taken at the same location exceed the limit for the same parameter; or (2) ten percent of samples taken from the same location within a rolling two-year period exceed the limit for the same parameter.



## 9. Abbreviations and Acronyms

ADNOC	Abu Dhabi National Oil Company
ADS	Abu Dhabi Specifications
EAD	Environment Agency–Abu Dhabi
EIA	Environmental Impact Assessment
ESMA	Emirates Authority for Standardization and Metrology
ISO	International Organization for Standardization
MOOPAM	Manual of Oceanographic Observations and Pollutant Analyses Methods
MPAs	Marine Protected Areas
QCC	Abu Dhabi Quality and Conformity Council
SPC	Supreme Petroleum Council
UAE	United Arab Emirates



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