

**PRODUCED WATER QUALITY ASSESSMENT OF
MISSA KESWAL OIL FIELD, GUJAR KHAN,
PAKISTAN**



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A thesis submitted to Bahria University, Islamabad in partial fulfillment of the requirement for the degree of BS in Environmental Sciences

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ABSTRACT

Research was conducted to analyze the physiochemical parameters (pH, conductivity, TDS, hardness, chloride, fluoride, heavy metals) of produced water of Missa Keswal (Gujar khan, Punjab, Pakistan) oil field and their impacts on surrounding soil and water. Produced water samples were collected from 5 settling tanks. Soil samples were also collected from the study area inside the oil field and also from the surrounding area of oil field. Soil samples were taken at distances about 0-15cm depth to analyze the impacts of produced water on surrounding soils. According to Pak-EPA standards pH of produced water lies within the defined limits and Cl was present in much higher amount than the permissible limits defined by Pak-EPA. Results of heavy metals were compared with Pak-EPA which showed that arsenic and manganese are within the permissible limit. High level of chromium observed in produced water tank 3 i.e. 1.26 mg/L. From the present study it is determined that produced water showed highly contamination of pollutants so it should be treated before releasing into the surrounding environment in order to avoid the impacts.

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ABBREVIATIONS

CDA	Capital Development Authority
Pak-EPA	Pakistan Environmental Protection Agency
K ₂ CrO ₄	Potassium Chromate
Mg	Magnesium
NaNO ₃	Sodium Nitrate
NEQ's	National Environmental Quality Standards
PEPC	Pakistan Environmental Protection Council
PEPA	Pakistan Environmental Protection Act
Ph	Negative Log of Hydrogen Ion Concentration
TDS	Total Dissolved Solid
TSS	Total Suspended Solids
U.V	Ultra Violet
WHO	World Health Organization
As	Arsenic
RBBC	Right Bank Branch Canal
LBBC	Left Bank Branch Canal
ASTM	American Society for Testing Materials
PEPC	Pakistan Environmental Protection Council
WWF	World wide Fund
NIH	National Institute of Health
OECC	Overseas Environmental Cooperation Centre
PAHs	Polycyclic Aromatic Hydrocarbons
MAF	Million Acre Feet
WTO	World Toilet Organization
WQI	Water Quality Index
SCEA	Strategic Country Environmental Assessment
ADB	Asian Development Bank
SOE	Standard Operating Environment
WRI	Water Resource Institute
PHED	Public Health Engineering Department
WASA	Water and Sewer Authority
CRBC	Chashma Right Bank Canal

NCS	National Conservation Strategy
NEAP	National Environmental Action Plan
TWQR	Target Water Quality Range
NTU	Nephelometric Turbidity Unit
PSI	Pakistan Standard Institution

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