CERTIFICATE OF ACCREDITATION

5This is to attest that

CONCEPCION UNIVERSITY, CENTER EULA-CHILE

BARRIO UNIVERSITARIO S/N
CONCEPCION, 4070386, CHILE

Inspection Agency AA-838 (Type A)

has met the requirements of AC98, *IAS Accreditation Criteria for Inspection Agencies*, and has demonstrated compliance with ISO/IEC Standard 17020:2012, *Conformity assessment - Requirements for the operation of various types of bodies performing inspection*. This organization is accredited to provide the services specified in the scope of accreditation.

Expiry Date November 1, 2025
Effective Date October 27, 2024

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SCOPE OF ACCREDITATION

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CONCEPCION UNIVERSITY, CENTER EULA-CHILE

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Accredited to ISO/IEC 17020:2012 *Effective Date October 27, 2024*

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
Surface Water	
Manual Sampling	LEE MDT-507-01 v10 LEE PRO-507-01 v18 Based on: NCh411/3:2014 NCh-ISO 5667/1:2017 NCh-ISO 5667/4:2016 NCh-ISO 5667/6:2015
pH in situ	Standard Methods for the Examination of water and wastewater 24th Edition 4500-H+ B
pH in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Temperature in situ	Standard Methods for the examination of water and wastewater 24th Edition 2550 B
Temperature in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Determination of Oxygen (Dissolved) in situ	Standard Methods for the examination of water and wastewater 24th Edition 4500 O – G / 4500-O. H.
% Oxygen saturation in situ	LEE -MET-504-VAL-29 v1 Metric method Based on: Manufacturer's manual HANNA HI98494 and YSI ProQuatro Handheld
Oxygen (Dissolved) in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
% Oxygen Saturation in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Residual Free Chlorine (Free Chlorine) in situ	LEE-MET-504-VAL-36 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.)

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	POCKET Colorimeter II Test kit HACH
Total Chlorine (Residual Chlorine) In situ	LEE-MET-504-VAL-36 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.) POCKET Colorimeter II Test kit HACH
Conductivity in situ	Standard Methods for the examination of water and wastewater 24th Edition 2510 B
Conductivity in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Transparency	LEE-MET-504-VAL-100 v1 Based on EPA 440/4-91-002
Determination of primary productivity in situ measurement	LEE-MET-504-VAL-30 v1 Based on: Wetzel RG, Likens E,1990 Springer-Verlag, London, pp. 219-239
Turbidity in situ	LEE-MET-504-VAL-32 v1 Based on: Manufacturer's manual HANNA HI93703 and Standard Methods for the examination of water and wastewater 24th Edition 2130 B
Total Dissolved Solids in situ	LEE-MET-504-VAL-35 v1 Based on: potentiometric method based on manufacturer's manual HANNA HI98494
Alkalinity in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Bicarbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Carbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Salinity in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Density in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Flow Measurement	LEE-MDT-507-01 v10

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	Based on: ASTM D3858 - 95(2014) Standard Test Method for Open-Channel Flow Measurement of Water by Velocity-Area Method
	LEE-MDT-507-01 v10 Based on: ASTM D4409 – 95 (2014) Standard Test Method for Velocity Measurements of Water in Open Channels with Rotating Element Current Meters
	LEE-MDT-507-01 v10 ASTM D5389 – 93 (2019) Standard Test Method for Open-Channel Flow Measurement by Acoustic Velocity Meter Systems
Underground Water	
Manual Sampling	LEE MDT-507-01 v10 LEE PRO-507-01 v18 Based on: NCh411/3:2014 NCh411/11: 2022 NCh-ISO 5667/1:2017
pH in situ	Standard Methods for the Examination of water and wastewater 24th Edition 4500-H+ B
Temperature in situ	Standard Methods for the examination of water and wastewater 24th Edition 2550 B
Determination of Oxygen (Dissolved) in situ	Standard Methods for the examination of water and wastewater 24th Edition 4500 O – G / 4500-O. H.
% Oxygen saturation in situ	LEE -MET-504-VAL-29 v1 Metric method Based on: Manufacturer's manual HANNA HI98494 and YSI ProQuatro Handheld
Residual Free Chlorine (Free Chlorine) in situ	LEE-MET-504-VAL-36 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.) POCKET Colorimeter II Test kit HACH
Conductivity in situ	Standard Methods for the examination of water and wastewater 24th Edition 2510 B
Phreatic level	ASTM-D4750-87 (Reapproved 2001)
Turbidity in situ	LEE-MET-504-VAL-32 v1 Based on:

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	Manufacturer's manual HANNA HI93703 and Standard Methods for the examination of water and wastewater 24th Edition 2130 B
Total Dissolved Solids in situ	LEE-MET-504-VAL-35 v1 Based on: potentiometric method based on manufacturer's manual HANNA HI98494
Alkalinity in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Bicarbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Carbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Marine Water	
Manual Sampling	LEE MDT-507-01 v10 LEE PRO-507-01 v18 Based on: NCh411/3:2014 NCh411/9.Of97 NCh-ISO 5667/1:2017
pH in situ	Standard Methods for the Examination of water and wastewater 24th Edition 4500-H+ B
pH in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Temperature in situ	Standard Methods for the examination of water and wastewater 24th Edition 2550 B
Temperature in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Determination of Oxygen (Dissolved) in situ	Standard Methods for the examination of water and wastewater 24th Edition 4500 O – G / 4500-O. H.
% Oxygen saturation in situ	LEE -MET-504-VAL-29 v1 Metric method Based on: Manufacturer's manual HANNA HI98494 and YSI ProQuatro Handheld
Oxygen (Dissolved) in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
% oxygen saturation in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Residual Free Chlorine (Free Chlorine)	LEE-MET-504-VAL-36 v1 Based on:

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.) POCKET Colorimeter II Test kit HACH
Conductivity in situ	Standard Methods for the examination of water and wastewater 24th Edition 2510 B
Transparency	LEE-MET-504-VAL-100 v1 Based on EPA 440/4-91-002
Turbidity in situ	LEE-MET-504-VAL-32 v1 Based on: Manufacturer's manual HANNA HI93703 and Standard Methods for the examination of water and wastewater 24th Edition 2130 B
Total Dissolved Solids in situ	LEE-MET-504-VAL-35 v1 Based on: potentiometric method based on manufacturer's manual HANNA HI98494
Alkalinity in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Bicarbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Carbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Salinity in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Conductivity in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Density in situ	LEE-INS-505-01-(UME-51) v1 Based on manual measuring equipment CTD-O
Wastewater	
Determination of Oxygen (Dissolved) in situ	Standard Methods for the examination of water and wastewater 24th Edition 4500 O – G / 4500-O. H.
% Oxygen saturation in situ	LEE -MET-504-VAL-29 v1 Metric method Based on: Manufacturer's manual HANNA HI98494 and YSI ProQuatro Handheld
Residual Free Chlorine (Free Chlorine) in situ	LEE-MET-504-VAL-36 v1 Based on:

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.) POCKET Colorimeter II Test kit HACH
Conductivity in situ	Standard Methods for the examination of water and wastewater 24th Edition 2510 B
Turbidity in situ	LEE-MET-504-VAL-32 v1 Based on: Manufacturer's manual HANNA HI93703 and Standard Methods for the examination of water and wastewater 24th Edition 2130 B
Total chlorine (Residual chlorine) in situ	LEE-MET-504-VAL -36 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 4500 Cl-G DPD Colorimetric Method. Chlorine (Residual) Analysis methods – ME-33-2007 SISS Determination of residual chlorine by Method D.P.D. Titrimétrico Ferroso (F.A.S.) POCKET Colorimeter II Test kit HACH
Total Dissolved Solids in situ	LEE-MET-504-VAL-35 v1 Based on: potentiometric method based on manufacturer's manual HANNA HI98494
Alkalinity in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Bicarbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Carbonate in situ	LEE-MET-504-VAL-33 v1 Based on: Standard Methods for the examination of water and wastewater 24th Edition 2320 B
Manual and automatic sampling	LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on: NCh411/3.Of2014 NCh-ISO 5667/1:2017 NCh411/10.Of2005
Flow measurement	LEE-INS-505-01 v1 Based on: Manufacturer's manual ISCO auto samplers 6712 and Sigma 900 MAX and HACH AS950
pH in situ	NCh2313/1:2021

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
Temperature in situ	NCh2313/2.Of95
Drinking Water	
Temperature in situ	Standard Methods for the examination of water and wastewater 24th Edition 2550 B
Residual Free Chlorine (Free Chlorine) in situ	ME-33-2024: Part 33: Determination of residual chlorine by D.P.D. Ferrous Titrimetric (F.A.S.)
Manual Sampling	LEE-INS-507-02 v1 LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on: NCh411/3.Of2014 NCh-ISO 5667/1:2017 NCh409/2Of2004 NCh 3799:2023
pH in situ	ME-29-2024 Superintendence of Sanitation Services Manual of methods for drinking water
Turbidity in situ	ME-03-2024: Part 03: Turbidity Determination by Nephelometric Method.
Total Chlorine (Residual Chlorine) in situ	ME-33-2024: Part 33: Determination of residual chlorine by D.P.D. Ferrous Titrimetric (F.A.S.)
Monochloramine in situ	ME-23-2024: Part 23: Determination of Monochloramines by Titrimetric Method of DPD with FAS.
Odor determination in situ	ME-25-2024: Part 25: Determination of Odor by organoleptic method
Flavor determination in situ	ME-26-2024 Part 26: Determination of Flavor by Organoleptic Method.
Drinking Water Collection Sources	
Temperature in situ	Standard Methods for the examination of water and wastewater 24th Edition 2550 B
Residual Free Chlorine (Free Chlorine) in situ	ME-33-2024: Part 33: Determination of residual chlorine by D.P.D. Ferrous Titrimetric (F.A.S.)
Manual Sampling	LEE-INS-507-02 v1 LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on: NCh411/3.Of2014 NCh-ISO 5667/1:2017 NCh409/2Of2004 NCh 3799:2023

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
pH in situ	ME-29-2024 Superintendence of Sanitation Services Manual of methods for drinking water
Turbidity in situ	ME-03-2024: Part 03: Turbidity Determination by Nephelometric Method.
Total Chlorine (Residual Chlorine) in situ	ME-33-2024: Part 33: Determination of residual chlorine by D.P.D. Ferrous Titrimetric (F.A.S.)
Monochloramine in situ	ME-23-2024: Part 23: Determination of Monochloramines by Titrimetric Method of DPD with FAS.
Odor determination in situ	ME-25-2024: Part 25: Determination of Odor by organoleptic method.
Flavor determination in situ	ME-26-2024 Part 26: Determination of Flavor by Organoleptic Method.
Lacustrine Sediments	
Manual Sampling	LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on: Sediment sampling guide and methodologies. Ohio EPA - Nov.2001
Redox potential in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Temperature in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
pH in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Aquatic Sediments	
Manual Sampling	LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on Sediment sampling guide and methodologies. Ohio EPA - Nov.2001
Redox potential in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Temperature in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
pH in situ	Res. Ex. N°3612/2009, Res. Ex N°660,

Field and Range of Inspection	Regulations, Inspection Methods, Standards and/or Specifications
	Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Marine Sediments	
Manual Sampling	LEE-MDT-507-01 v10 LEE-PRO-507-01 v18 Based on Sediment sampling guide and methodologies. Ohio EPA - Nov.2001
Redox potential in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Temperature in situ	Res. Ex. N°3612/2009, Res. Ex N°660, Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
pH in situ	Res. Ex. N°3612/2009, Res. Ex N°660 Res. Ex.1508/2014 number 29 Undersecretary of Fisheries. November 2006
Soil	
Manual Sampling	LEE-MDT-507-01 v10 LEE PRO-507-01 v18 Based on “Methodological guides for sampling and chemical analysis of soils for background areas and for confirmatory research and risk assessment in soils/sites with the presence of contaminants” October 2013
Redox potential in situ	LEE-MET-504-VAL-31 v1 Based on “Methodological guides for sampling and chemical analysis of soils for background areas and for confirmatory research and risk assessment in soils/sites with the presence of contaminants” October 2013