

Denbury Carbon Solutions, LLC

Quality Assurance & Surveillance Plan

Draco Storage Facility, Allen, Beauregard, and Vernon Parishes, Louisiana



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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AMS	Accelerator Mass Spectrometry
AoR	Area of Review
BHP	Bottom Hole Pressure
CFR	Code of Federal Regulations
CO ₂	Carbon Dioxide
CRDS	Cavity Ring-Down Spectroscopy
DIC	Dissolved Inorganic Carbon
DO	Dissolved Oxygen
EOR	Enhanced Oil Recovery
ERRP	Emergency and Remedial Response Plan
FD	Field Duplicate
GC	Gas Chromatography
GSDT	Geologic Sequestration Data Tool
IRMS	Isotope Ratio Mass Spectrometry
LCS	Laboratory Control Sample
LSASD	Laboratory Services and Applied Science Division
MI	Mechanical Integrity
MOC	Management of Change
MRayl	Megarayl
MS	Mass Spectrometry
MSD	Matrix Spike Duplicate
P/T	Pressure and Temperature
PLC	Programmable Logic Controller
PNC	Pulsed Neutron Capture
PNL	Pulsed Neutron Logging
ppmv	Parts per million volume
psi	Pounds per Square Inch
QA	Quality Assurance
QC	Quality Control
RGA-GC	Refinery Gas Analyzer-Gas Chromatograph

RPD	Relative Percent Difference
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
SWC	Sidewall Coring
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency
USDW	Underground Source of Drinking Water
USIT	Ultrasonic Imager Tool
VMP	Vapor Monitoring Points
µL/L	Micro liters per liter

1.0 FACILITY INFORMATION

Facility Name: Draco Storage Facility

Facility Location:

Mailing Address: 5851 Legacy Circle, Suite 1200
Plano, Texas 75024

Well Location(s):

2.0 PROJECT MANAGEMENT AND SURVEILLANCE PROCESS

From conception to closure, the Draco Storage Facility will include the participation of multidisciplinary teams of operator staff, consultants, and subcontractors. Each of these teams are highly specialized and recognized in their specific areas of expertise, providing technical and economic inputs to ensure safe, successful, and efficient operations.

Subsurface characterization of the injection zone, confining zones, shallow strata and subsurface features will be performed by experienced Geoscientists and Reservoir Engineers, led by Denbury Carbon Solutions, LLC. (Denbury), applying technology in data acquisition and testing equipment in line with industry standards, as well as industry recognized software and techniques for modeling and simulations.

Surface equipment and well designs will comply with industry standards for carbon dioxide (CO₂) material selection and operating conditions to guarantee mechanical integrity (MI) of the system during the life of the project and have been prepared by qualified, specialized companies selected by Denbury.

[REDACTED]

2.1 DATA VERIFICATION AND VALIDATION

[REDACTED]

2.2 MANAGEMENT OF CHANGE


[REDACTED]

2.3 CONTRACTOR REQUIREMENTS

[REDACTED]


2.4 SPECIAL TRAINING/CERTIFICATIONS

[REDACTED]



Training of project staff will be conducted by personnel knowledgeable in project-specific sampling procedures. Training documentation will be maintained as project QA records.

2.5 DOCUMENTATION, RECORDS, AND REPORTING

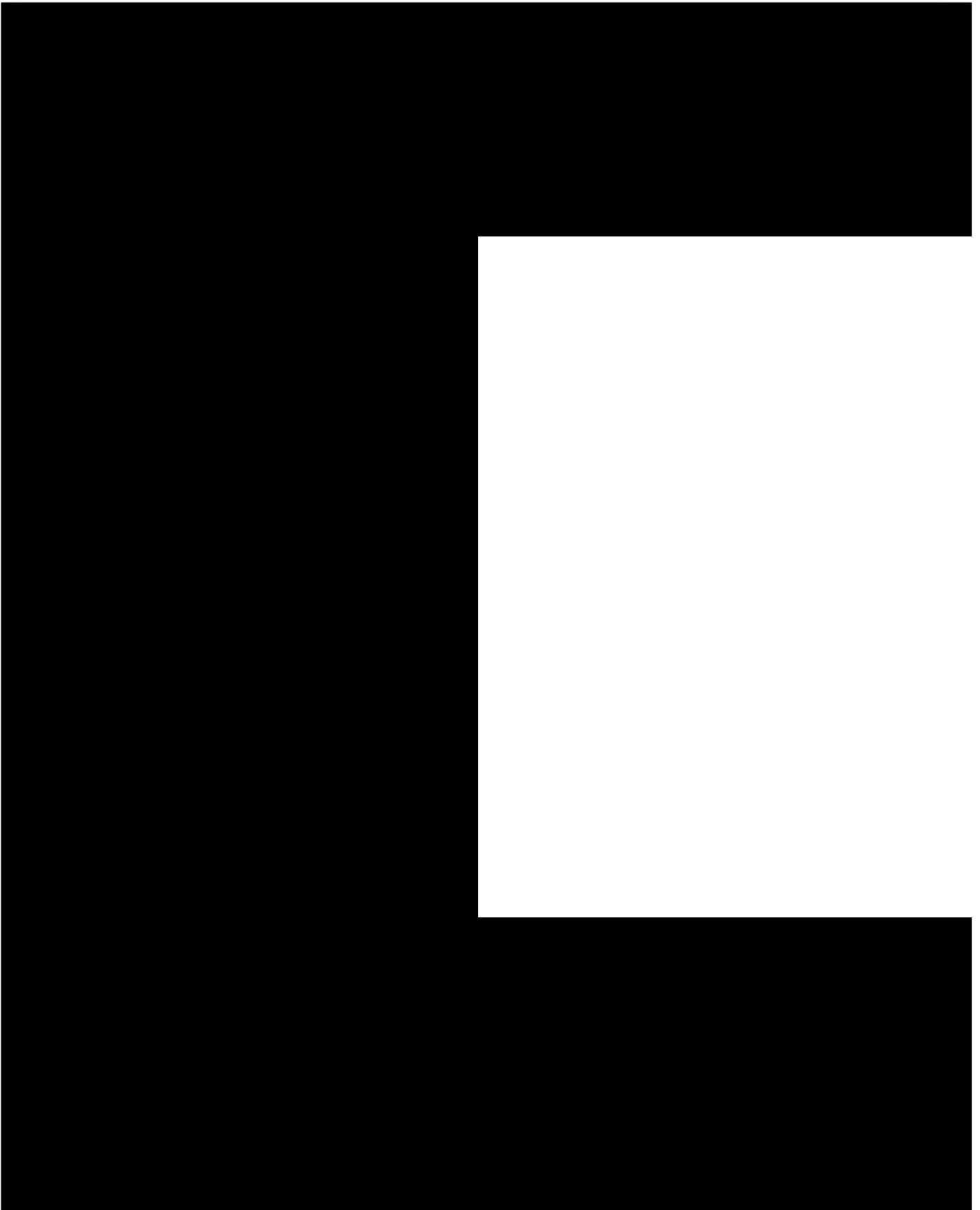


Reporting will comply with USEPA requirements under 40 CFR 146.91 or LDNR requirements under LAC: 43 XVII §3629.

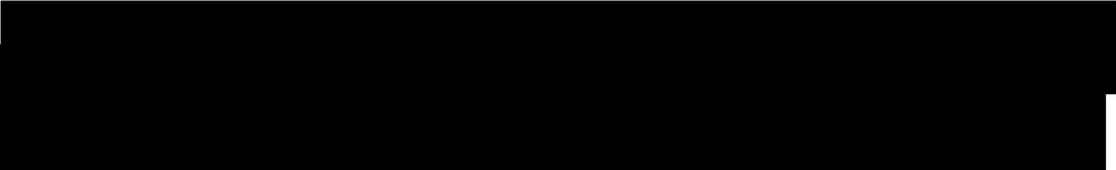
3.0 TESTING AND MONITORING TECHNIQUES QA/QC


3.1 LOGGING PROGRAM





3.2 MECHANICAL INTEGRITY TESTING

To demonstrate that each well has internal mechanical integrity, mechanical integrity of the casing-tubing annulus will be performed pre-injection and subsequently at least once every 12 months or as required by the regulatory agencies. 

To demonstrate that each well has external mechanical integrity i.e., no upward flow from the injection zone due to channeling or a poor cement job behind the casing, 

Procedures for the selected mechanical integrity procedures will be submitted to the EPA Region 6 or LDNR for approval prior to running these tests/logs and will follow best industry and service company practices.



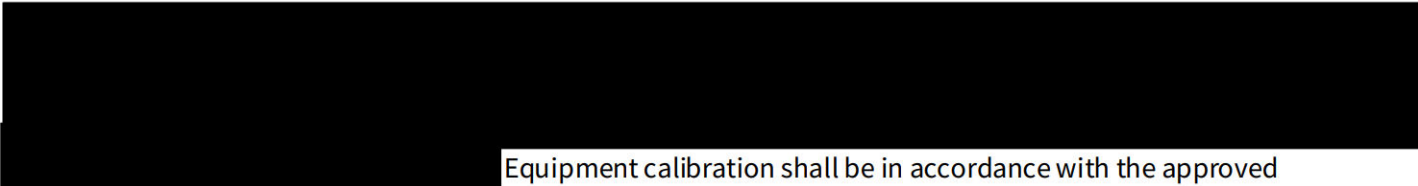
3.4 ANALYSIS OF INJECTED CO₂



3.4.1 Sampling and Custody



3.4.2 Equipment and Calibration

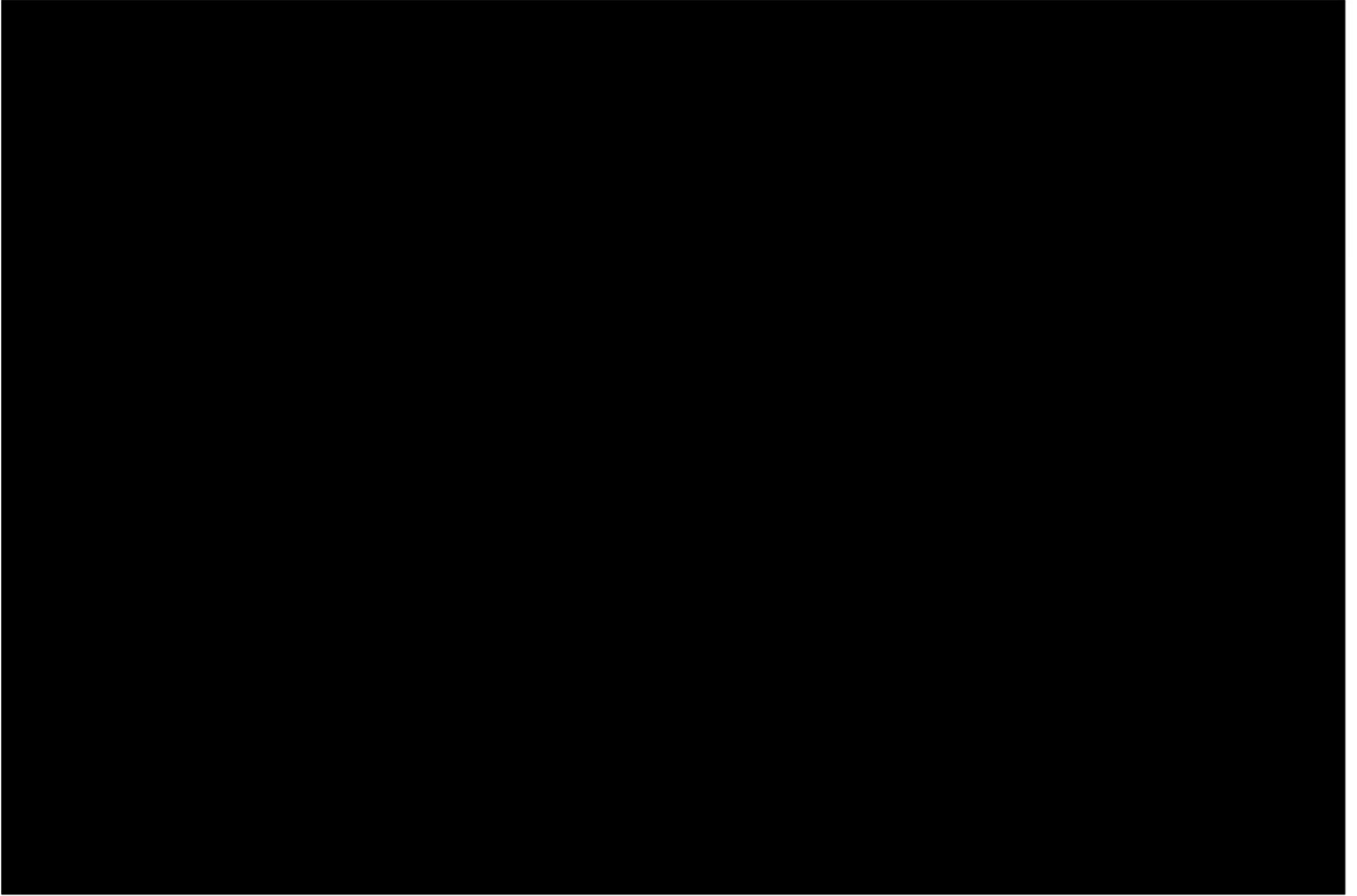


Equipment calibration shall be in accordance with the approved method-specific protocols for the analytical method and the laboratory's QA program. Calibration, testing, maintenance, and inspection will be done in accordance with LAC: 43 XVII §3629.

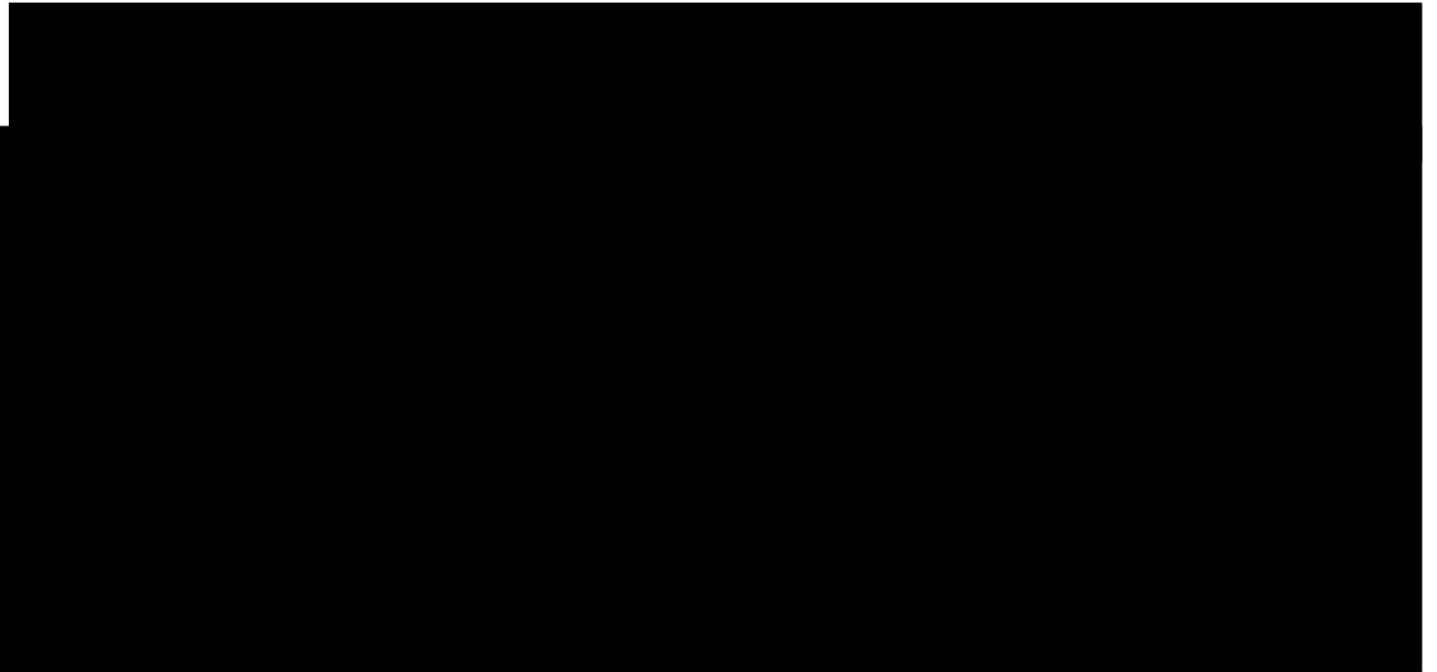
3.4.3 Personnel and Training



3.4.4 Analytical Methods

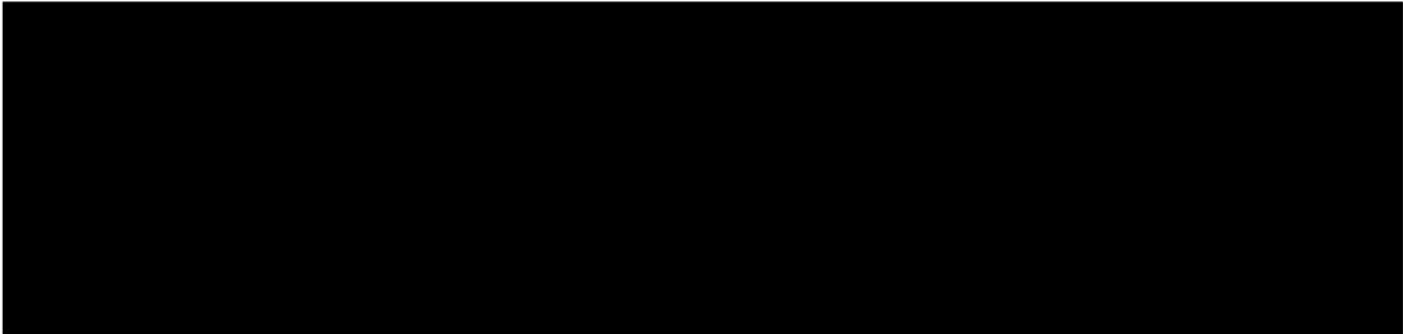


3.4.5 Quality Control

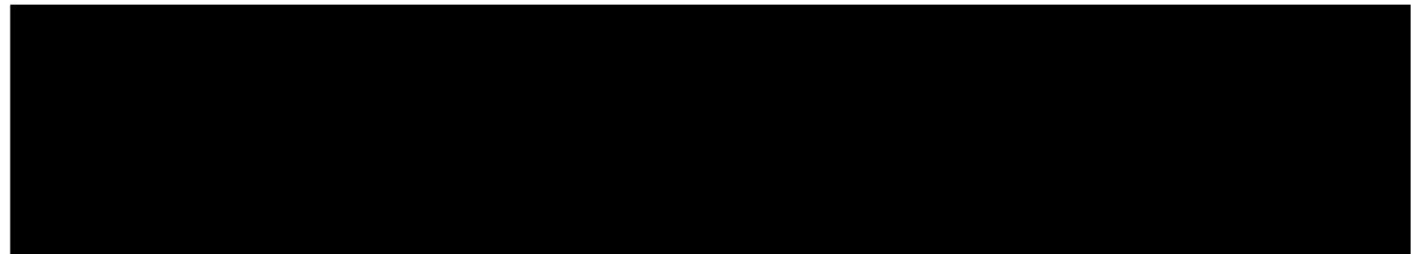




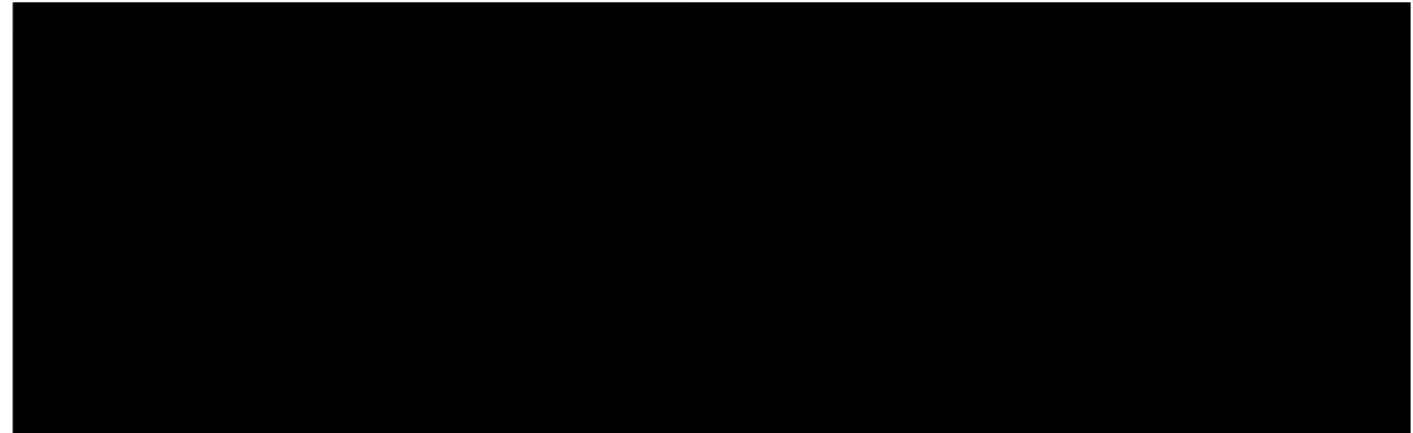
3.5.1 Sampling and Custody



3.5.2 Equipment and Calibration

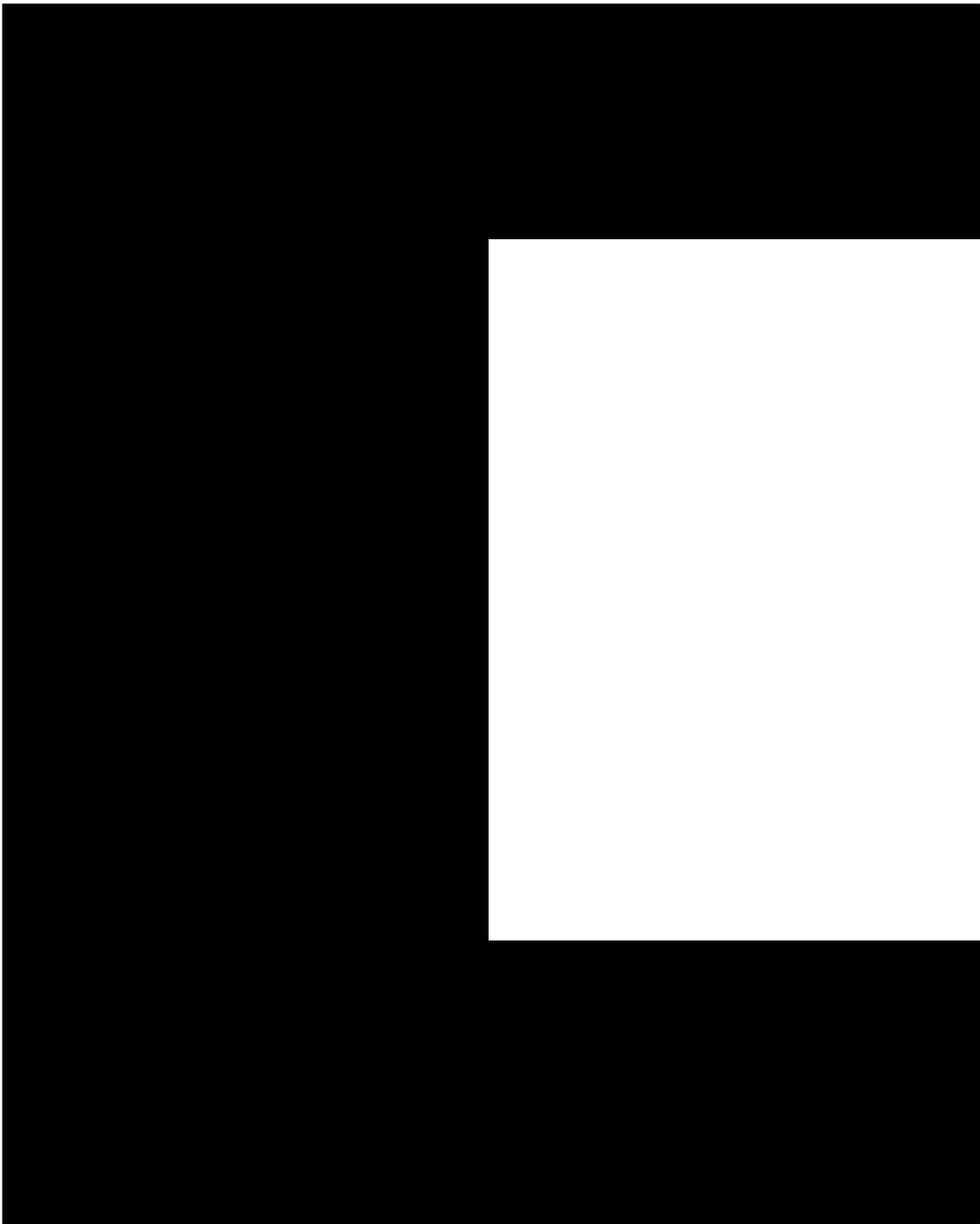


3.5.3 Analytical Method



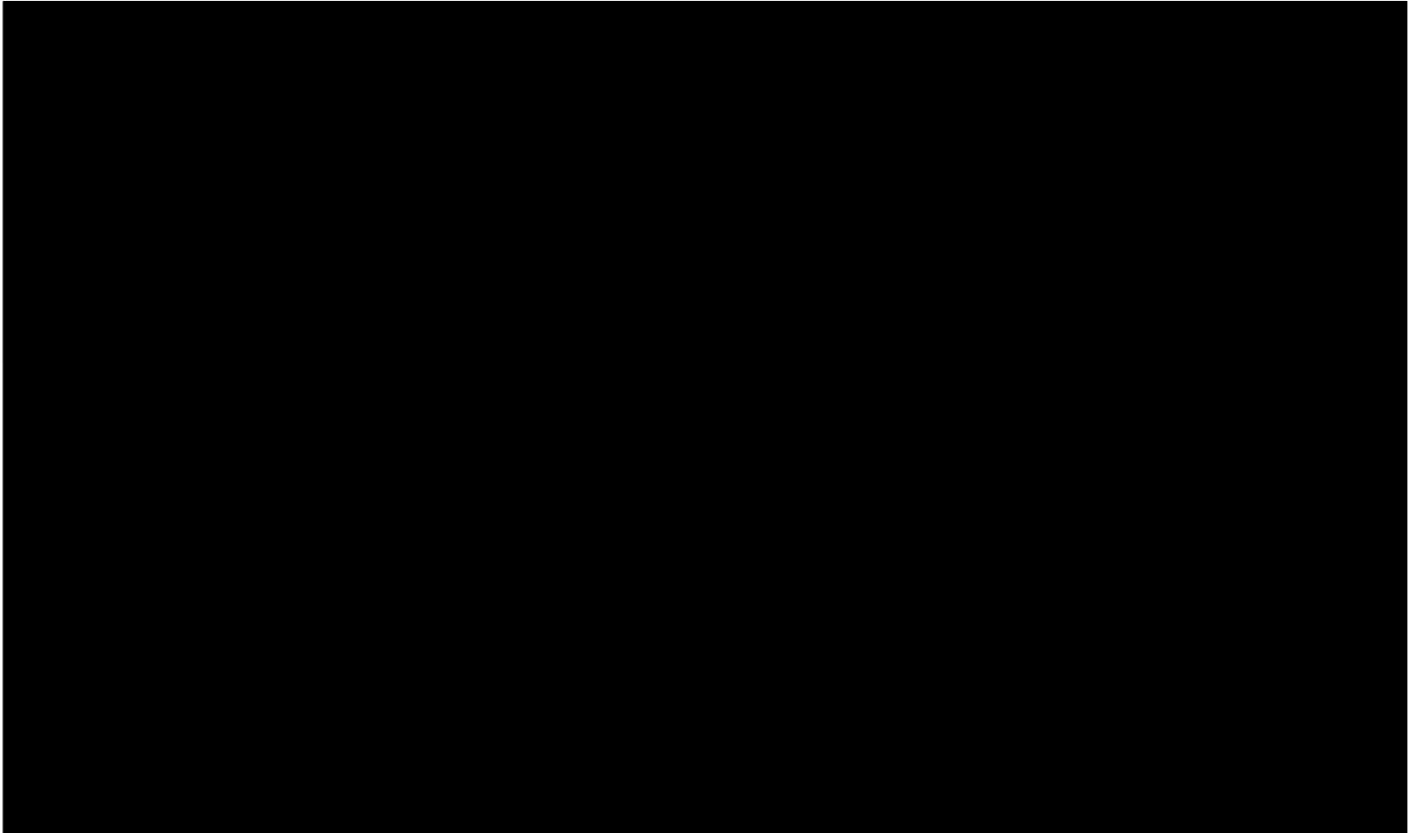
3.5.4 Quality Control



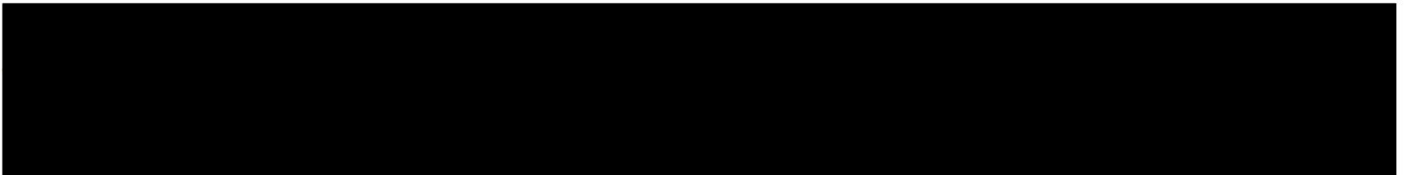




3.6.1 Sampling and Custody



3.6.2 Equipment and Calibration



3.6.3 Personnel and Training



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3.6.4 Analytical Method

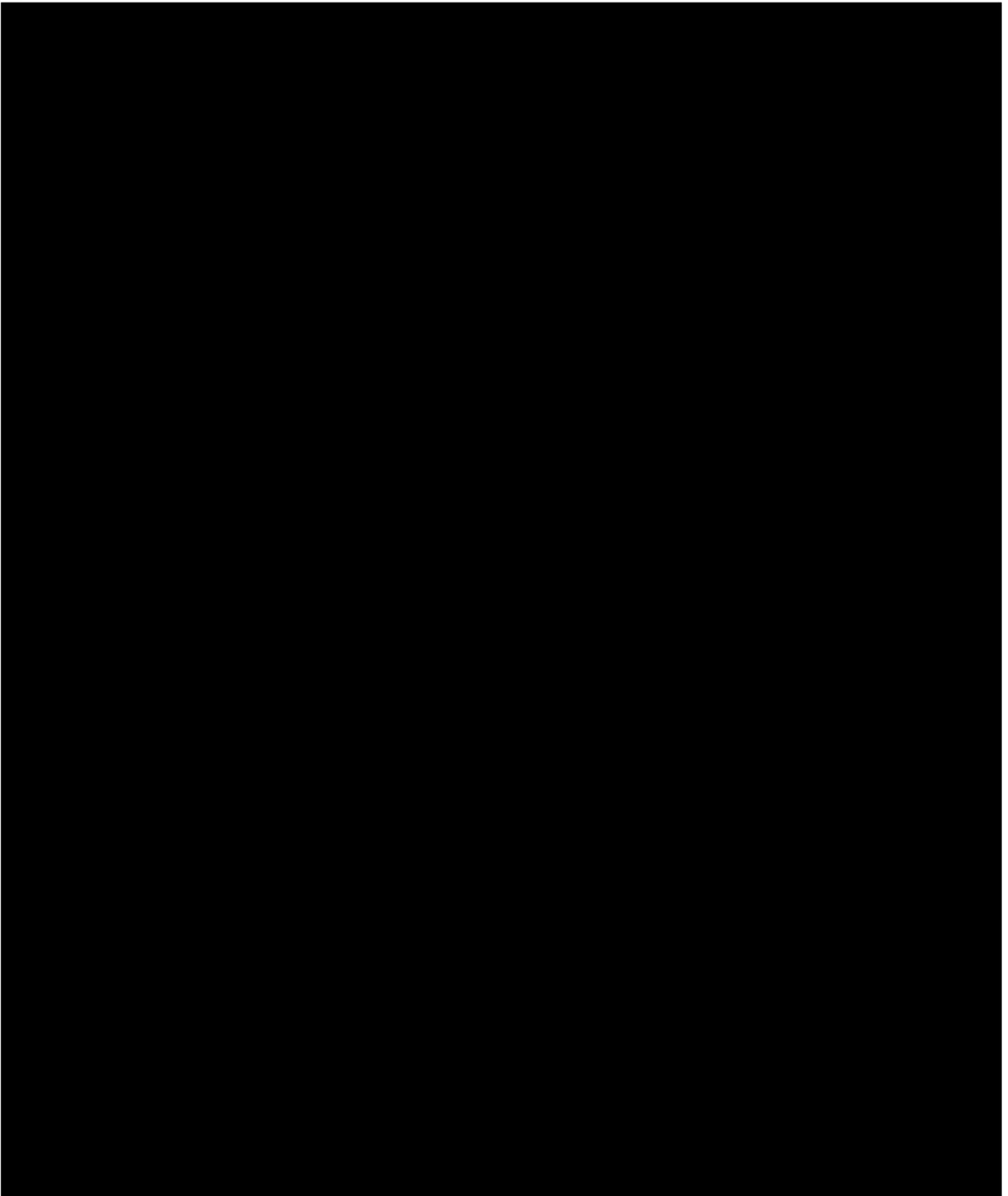
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3.6.5 Quality Control

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3.7.1 Sampling and Custody

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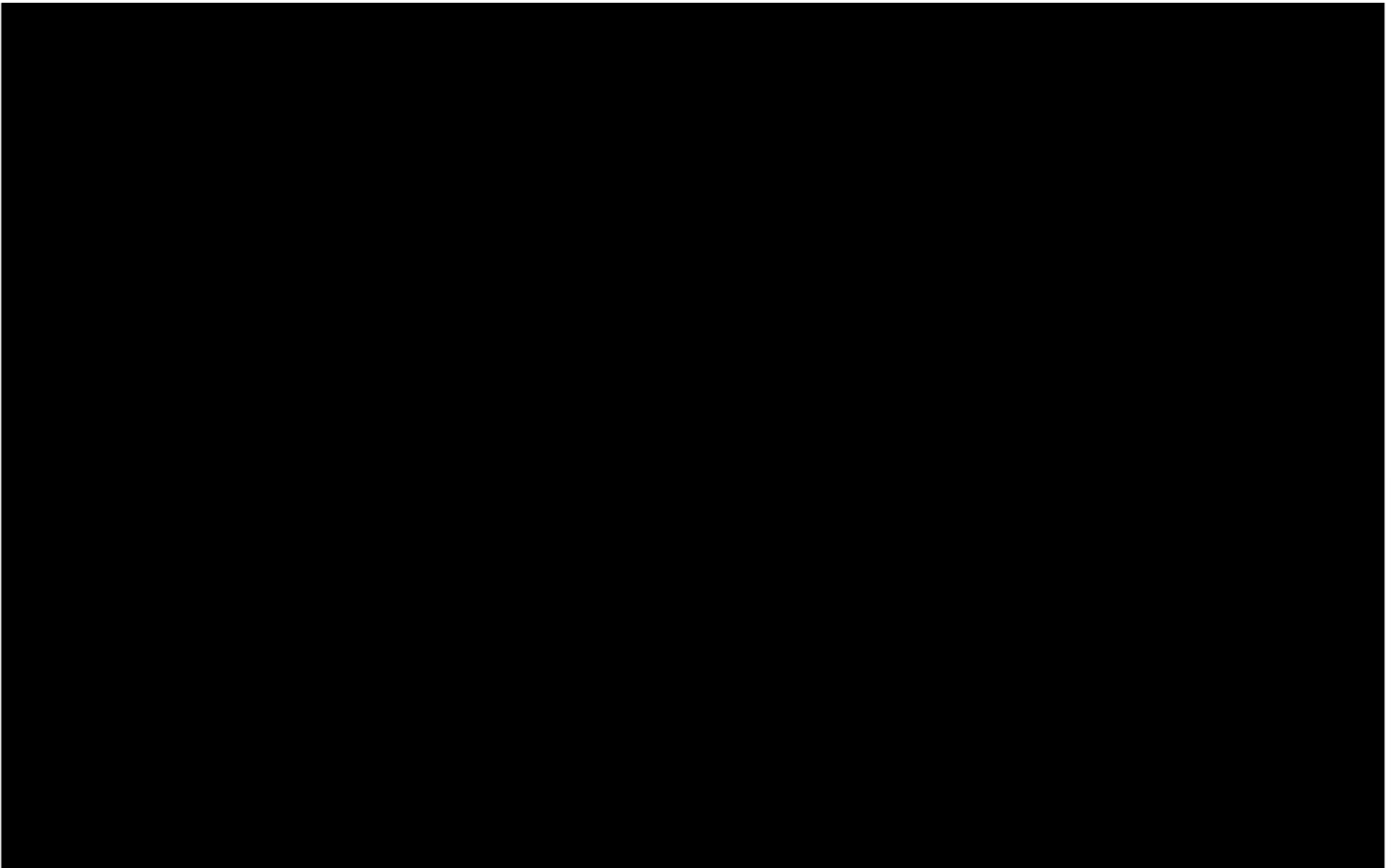
3.7.2 Equipment and Calibration

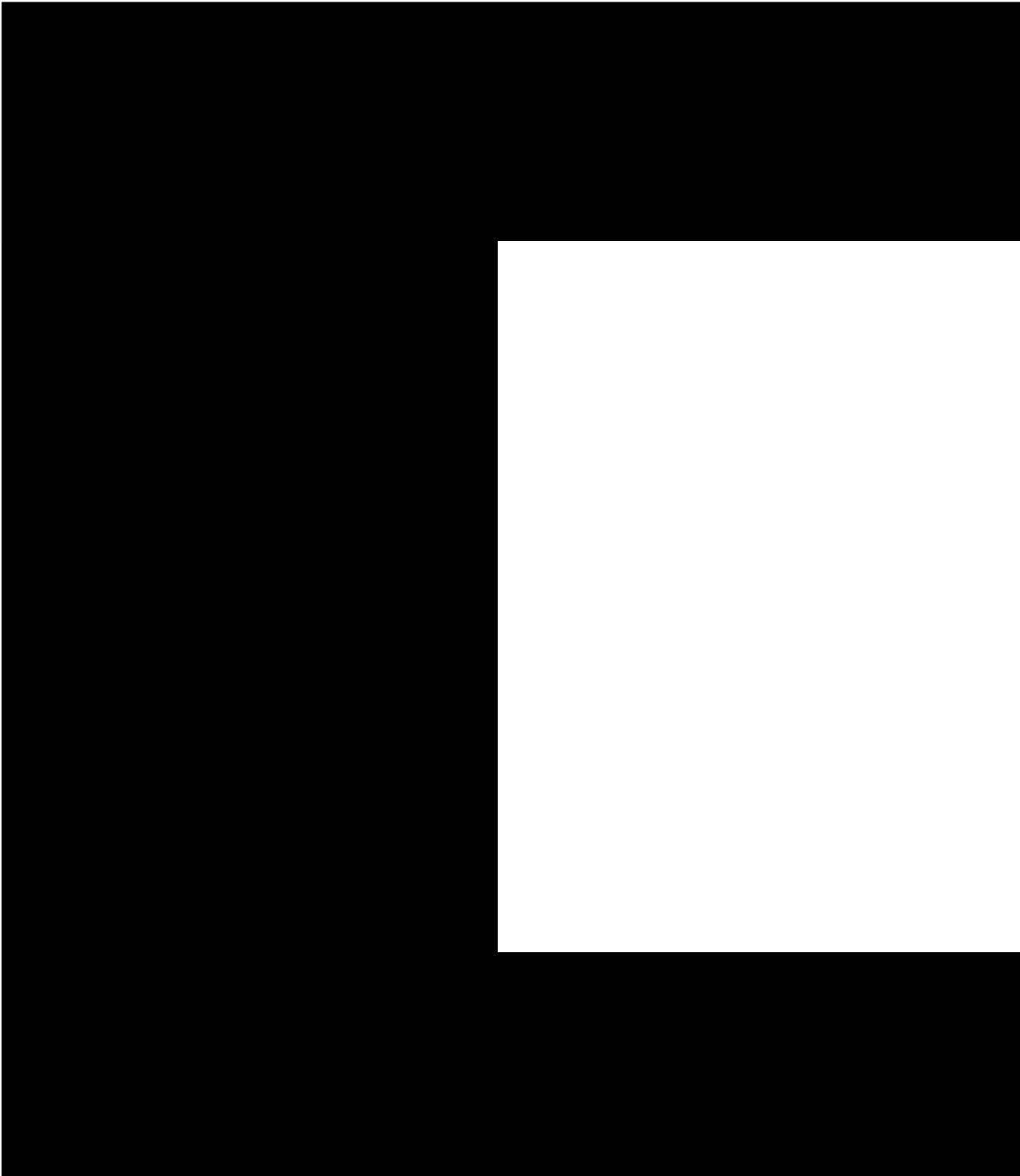


3.7.3 Personnel and Training

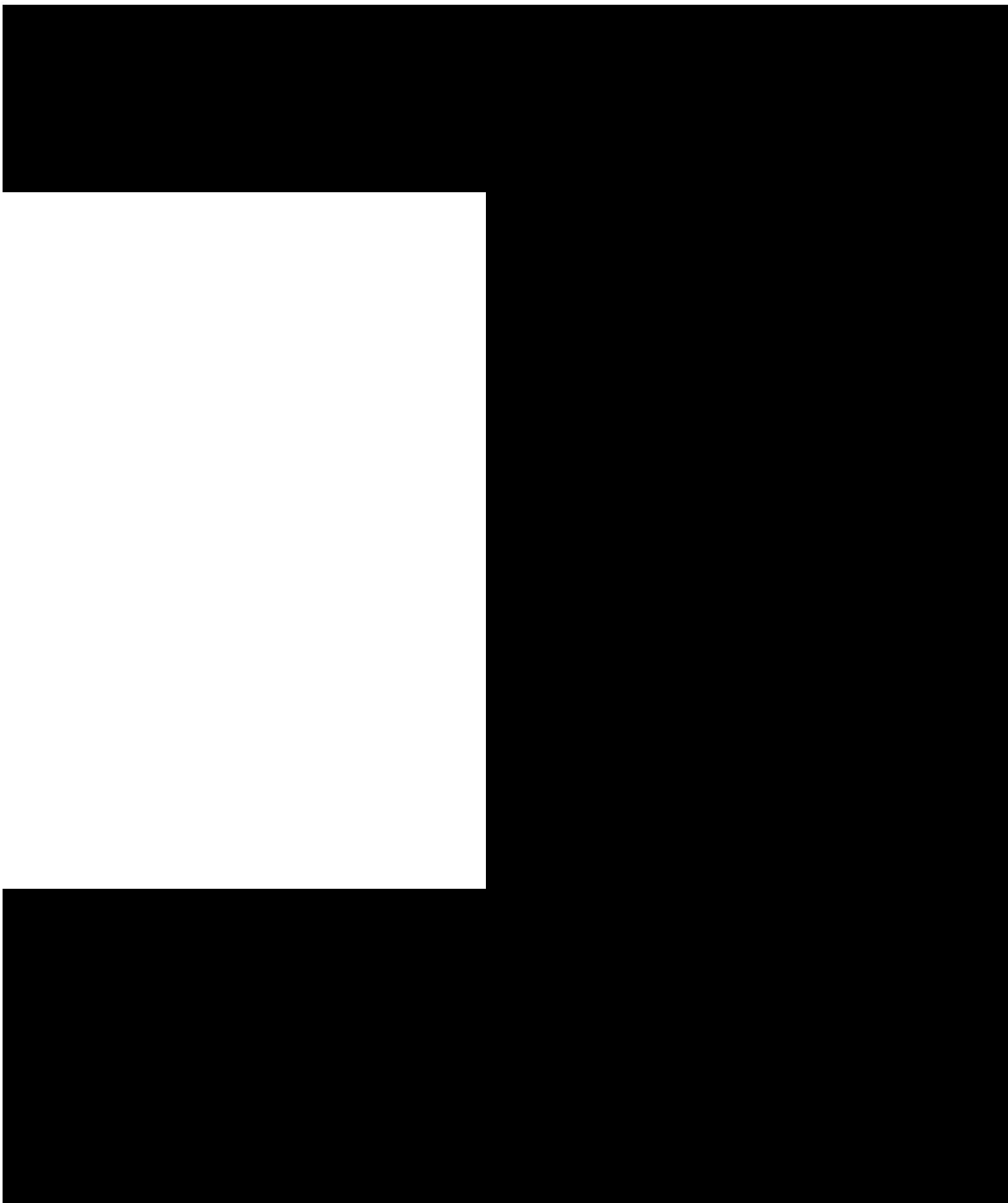


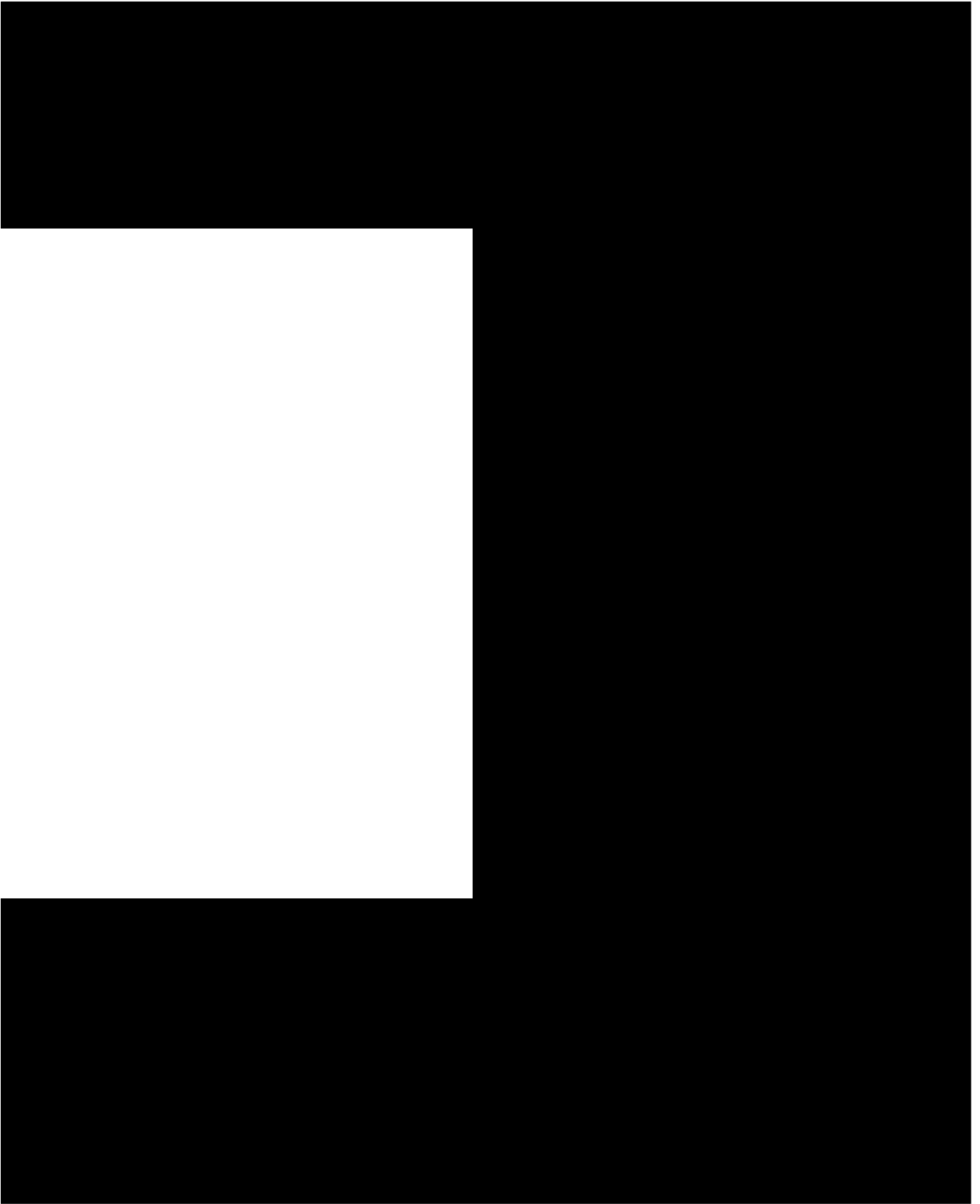
3.7.4 Analytical Method

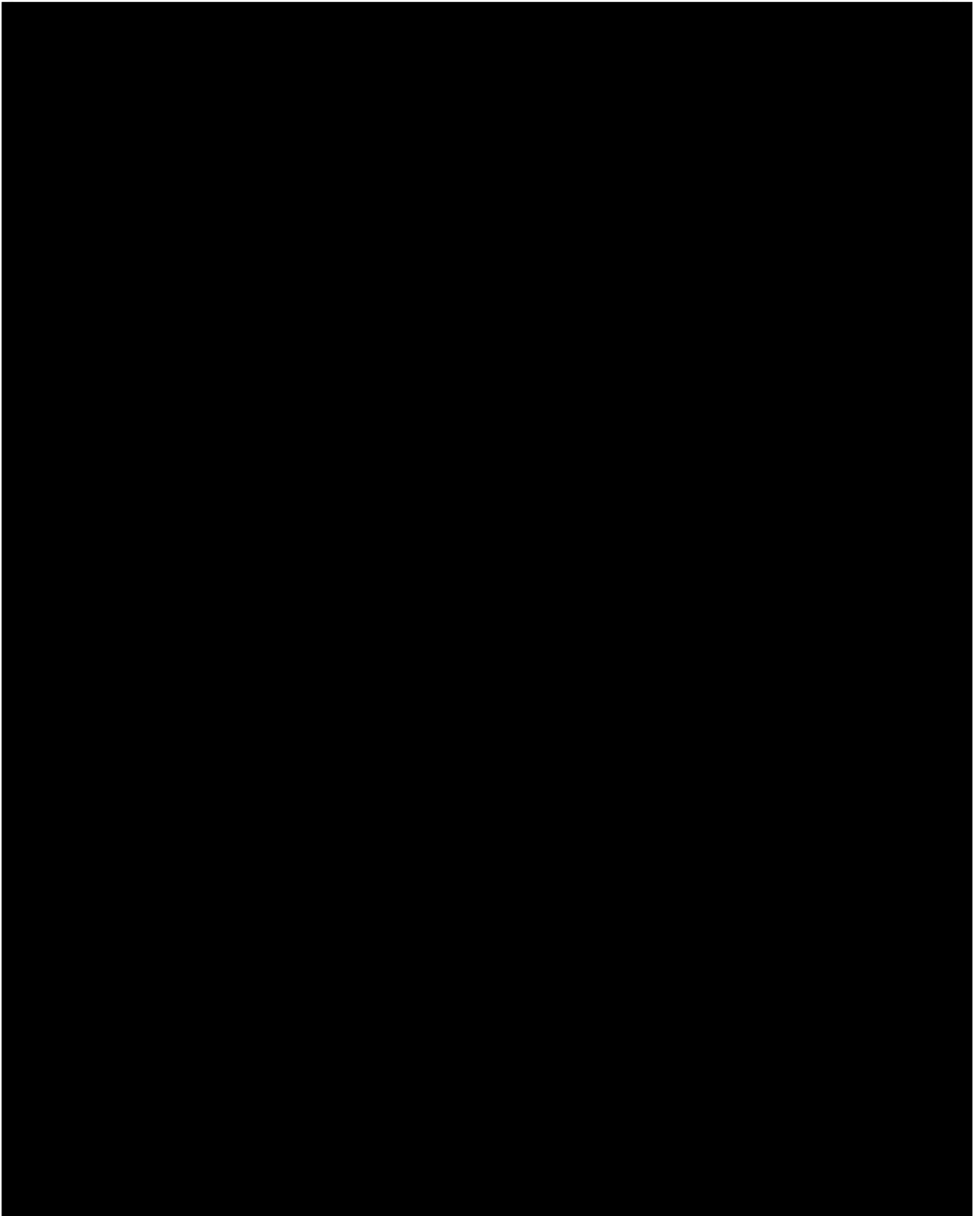


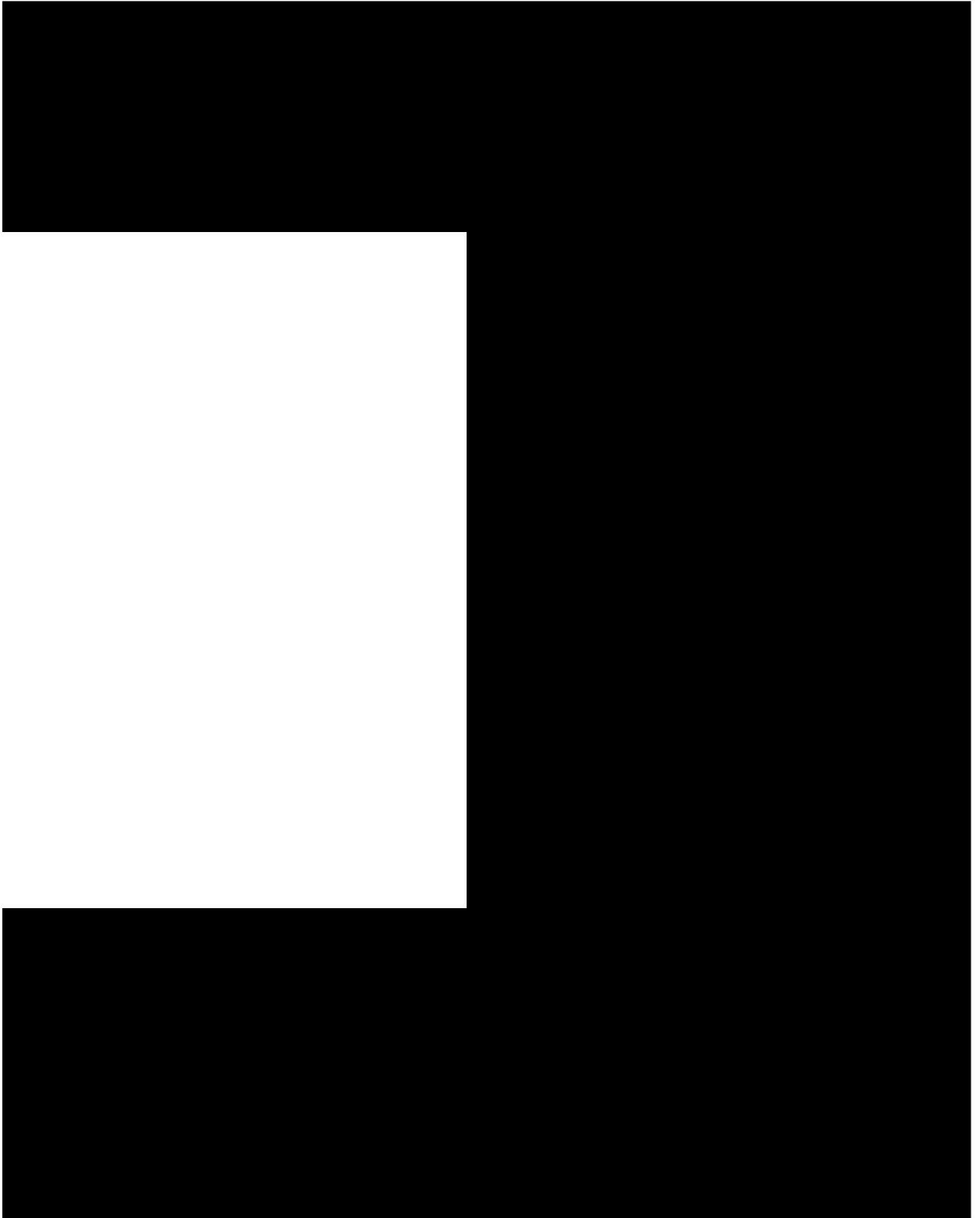


3.7.5 Quality Control









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3.10.1 Testing Method

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3.10.2 Analytical Methods

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3.10.3 Instrument/Equipment Calibration and Frequency

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