June 30, 2025

Mr. JohnDavid Nance
Hazardous Waste Bureau Chief
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Ms. Leigh Barr
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
leighp.barr@state.nm.us

Re: Submittal of the 2025 Facility-Wide Groundwater Monitoring Work Plan for the HF Sinclair Navajo Refining LLC, Artesia Refinery RCRA Permit No. NMD048918817; Discharge Permit GW-028

Dear Mr. Nance and Ms. Barr:

Enclosed is the annual update to the Facility-Wide Groundwater Monitoring Work Plan (FWGMWP) for the HF Sinclair Navajo Refining LLC (HFSNR) Artesia Refinery. This update has been prepared and is being submitted according to the requirements of the Post-Closure Care (PCC) Permit issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau. The FWGMWP also incorporates the requirements of the GW-028 Discharge Permit (GW-028) issued by the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD). The updated FWGMWP is being submitted in both hard copy and electronic format to NMED, and electronic format only to OCD.

No substantial changes to the current facility-wide groundwater monitoring program have been proposed in the FWGMWP. Cation (calcium, potassium, and sodium) analysis is proposed to be removed from all wells based on stable concentration trends, lack of critical groundwater screening levels (CGWSLs), and lack of PCC Permit or GW-028 requirements for such analysis. The frequency of anion (chloride, fluoride, sulfate, nitrate, and nitrite) and total dissolved solids (TDS) analysis is proposed to be reduced to annual, except in wells that are a part of the Stage 2 Abatement Plan (AP) for the former Reverse Osmosis (RO) Reject Fields (MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW-140 through MW-144, MW-162, MW-163, and RW-18). This proposed change is based on stable concentration trends of anions and TDS over at least 10 years of semi-annual monitoring events.

If you should have any questions or comments regarding this report, please feel free to contact Teresa Alba at (575) 746-5391 or Michael Holder at (575) 308-1115.

Sincerely,

Case Hinkins
Environmental Manager
HF Sinclair Navajo Refining LLC

cc: OCD: R. Romero
NMED: N. Dhawan, L. Tsinnajinnie, M. Suzuki
HFSNR: T. Alba
HF Sinclair: M. Holder
TRC: J. Speer, D. Helbert

2025 Facility-Wide Groundwater Monitoring Work Plan

June 2025

HF Sinclair Navajo Refining LLC

Artesia Refinery
NMD048918817 and DP GW-028

Prepared For:

HF Sinclair Navajo Refining LLC
501 E Main Street
Artesia, NM 88210

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Case Hinkins

Environmental Manager, HF Sinclair Navajo Refining LLC

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Table of Contents

Page

ABBREVIATION AND ACRONYM LIST III

EXECUTIVE SUMMARY V

1.0 INTRODUCTION 1

2.0 SITE BACKGROUND 3

3.0 SITE CONDITIONS 5

3.1 Surface Conditions 5

3.1.1 Topography 5

3.1.2 Surface Water Drainage 5

3.1.3 Area Land Uses 6

3.2 Subsurface Conditions 6

3.2.1 Surficial Soils 6

3.2.2 Geology 6

3.3 Hydrogeology 7

3.3.1 Shallow Saturated Zone 7

3.3.2 Valley Fill Zone 8

3.3.3 Deep Artesian Aquifer 9

4.0 MODIFICATIONS TO THE GROUNDWATER MONITORING NETWORK 10

4.1 New Monitoring Wells 10

4.2 Well Abandonment 10

4.3 Well Repairs and Modifications 11

5.0 MONITORING PROGRAM SCOPE OF SERVICES 12

5.1 Scheduling and Notification 14

5.2 Gauging Requirements 14

5.3 Sampling Requirements 14

5.3.1 1,4-Dioxane Analysis at Select Wells 15

5.3.2 1,2-Dibromomethane (EDB) Analysis at Select Wells 16

6.0 GROUNDWATER MONITORING PROCEDURES 18

6.1 Field Documentation 18
6.2 Well Inspection 18
6.3 Well Gauging 19
6.3.1 Fluid Level Gauging Procedures 19
6.3.2 Total Depth Gauging 19
6.4 Groundwater Sampling 20
6.5 Handling of Samples for Laboratory Analysis 21
6.6 Quality Assurance/Quality Control Sampling 21
6.7 PSH Sample Collection 22
6.8 Decontamination 22
6.9 Investigation-Derived Waste Disposal 22
7.0 ANNUAL GROUNDWATER MONITORING REPORT 24
8.0 SCHEDULE 26
9.0 REFERENCES 27

TABLES

Table 1: 2025 Facility-Wide Groundwater Monitoring Program and Schedule

Table 2: Schedule for 1,4-Dioxane and 1,2-Dibromomethane Analysis

FIGURES

Figure 1: Site Location Map

Figure 2: Well Location Map

Figure 3: Facility-Wide Groundwater Sampling Plan

APPENDIX (PROVIDED ON COMPACT DISC)

Appendix A: Trend Summary and Plots of Facility-Wide Cation, Anion, and TDS Concentrations

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Abbreviation and Acronym List

%	percent
°C	degrees Celsius
AOC	Area of Concern
AP	Abatement Plan
bgs	below ground surface
city	City of Artesia
CGWSL	Critical groundwater screening level
COC	Constituent of Concern
DO	Dissolved Oxygen
DRO	Diesel Range Organics
EDB	1,2-Dibromomethane
EDC	1,2-Dichloroethane
EP	Evaporation Ponds
EPA	Environmental Protection Agency
FWGMWP	Facility-Wide Groundwater Monitoring Work Plan
GRO	Gasoline Range Organics
HFSNR	HF Sinclair Navajo Refining LLC
HSWA	Hazardous and Solid Waste Amendment
HWB	Hazardous Waste Bureau
IDW	Investigation-Derived Waste
mg/L	Milligrams per liter
mL	Milliliter
MTBE	Methyl Tert-Butyl Ether
NCL	North Colony Landfarm
NMAC	New Mexico Administrative Code

NMED	New Mexico Environment Department
OCD	New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division
ORP	Oxidation-Reduction Potential
PCC Permit	Post-Closure Care Permit
PIANO	Paraffins, Isoparaffins, Aromatics, Naphthenes, and Olefins
PSH	Phase-Separated Hydrocarbons
PTU	Pretreatment Unit
QA/QC	Quality Assurance/Quality Control
Refinery	HF Sinclair Navajo Refining LLC Artesia Refinery
RCRA	Resource Conservation and Recovery Act
RDU	Renewable Diesel Unit
RFI	RCRA Facility Investigation
RO	Reverse Osmosis
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Units
TBA	Tert-Butyl Alcohol
TDS	Total Dissolved Solids
TEL	Tetra Ethyl Lead
TMD	Three Mile Ditch
TOC	Top of Casing
TRC	TRC Environmental Corporation
VOCs	Volatile Organic Compounds
WQCC	Water Quality Control Commission

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Executive Summary

This *2025 Facility-Wide Groundwater Monitoring Work Plan* (2025 FWGMWP) details the proposed groundwater monitoring program to be implemented at the HF Sinclair Navajo Refining LLC (HFSNR) Artesia Refinery (Refinery) located at 501 East Main Street in Artesia, New Mexico.

The Refinery is subject to (1) a Post-Closure Care Permit (PCC Permit) issued by the New Mexico Environment Department (NMED) in October 2003 and later modified in December 2010; and (2) the renewed Discharge Permit GW-028 issued by New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) on August 16, 2022. Both the PCC Permit and Discharge Permit require HFSNR to conduct facility-wide groundwater monitoring to evaluate the presence, nature, and extent of groundwater impacts. This 2025 FWGMWP details all groundwater monitoring activities that will be conducted to satisfy both the NMED PCC Permit and the OCD Discharge Permit upon approval by NMED and OCD.

This 2025 FWGMWP serves as the annual update to the facility-wide groundwater monitoring program required by Section 4.7.6.a of the modified PCC Permit. The groundwater monitoring program covers the following Refinery areas:

- The closed Tetra Ethyl Lead (TEL) Impoundment;
- The closed North Colony Landfarm (NCL);
- The inactive Evaporation Ponds (EPs);
- Three Mile Ditch (TMD); and
- The vadose zone located beneath the Refinery.

This 2025 FWGMWP describes the procedures to be followed during routine groundwater monitoring activities across the Refinery areas, including well gauging, groundwater sampling, investigation-derived waste (IDW) management, decontamination, analytical requirements, and quality assurance/quality control (QA/QC) requirements.

No substantial changes to the current facility-wide monitoring program are proposed in this 2025 FWGMWP. Cation (calcium, potassium, and sodium) analysis is proposed to be removed from all wells based on stable concentration trends, lack of critical groundwater screening levels (CGWSLs), and lack of PCC Permit or Discharge Permit requirements for such analysis. The frequency of anion (chloride, fluoride, sulfate, nitrate, and nitrite) and total dissolved solids (TDS) analysis is proposed to be reduced to annual, except in wells that are a part of the Stage 2 Abatement Plan (AP) for the former Reverse Osmosis (RO) Reject Fields (MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW-140 through MW-144, MW-162,

MW-163, and RW-18). This proposed change is based on stable concentration trends of anions and TDS over at least 10 years of semi-annual monitoring events.

1.0 Introduction

This *2025 Facility-Wide Groundwater Monitoring Work Plan* (2025 FWGMWP) details the proposed groundwater monitoring program to be implemented at the HF Sinclair Navajo Refining LLC (HFSNR) Artesia Refinery (Refinery) located at 501 East Main Street in Artesia, New Mexico. The location of the Refinery is shown on Figure 1. The Refinery is subject to (1) a Post-Closure Care Permit (PCC Permit) issued by the New Mexico Environment Department (NMED) in October 2003 (NMED 2003) and later modified in December 2010 (NMED 2010); and (2) the renewed Discharge Permit GW-028 issued by New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) on August 16, 2022 (OCD 2022a). The PCC Permit authorizes and requires HFSNR (the Permittee) to conduct facility-wide groundwater monitoring, with the purpose of evaluating the presence, nature, and extent of hazardous and regulated constituents pursuant to Section 20.4.1.500 of the New Mexico Administrative Code (NMAC) and the Water Quality Control Commission (WQCC) standards included in 20.6.2 NMAC. The Discharge Permit also requires the Permittee to conduct facility-wide groundwater monitoring.

This 2025 FWGMWP serves as the annual update to the facility-wide groundwater monitoring program required by Section 4.7.6.a of the modified PCC Permit. The previous annual FWGMWP, the *2024 Facility-Wide Groundwater Monitoring Work Plan* (2024 FWGMWP), was submitted to NMED and OCD in June 2024 (TRC 2024) and approved by OCD on July 2, 2024, and approved with modifications by NMED on April 3, 2025 (NMED 2025). This 2025 FWGMWP details all groundwater monitoring activities that will be conducted to satisfy the requirements of both the NMED PCC Permit and the OCD Discharge Permit upon approval by NMED and OCD. This 2025 FWGMWP describes the procedures to be followed during routine groundwater monitoring activities, including well gauging, groundwater sampling, managing investigation-derived waste (IDW), decontamination, laboratory analysis, and quality assurance/quality control (QA/QC). The format of this 2025 FWGMWP follows the general outline specified for an investigation work plan in Appendix E.2 of the PCC Permit, while incorporating the requirements of Section C.a of the Discharge Permit.

The groundwater monitoring program covers the following Refinery areas:

- The closed Tetra Ethyl Lead (TEL) Impoundment, an approximately 0.9-acre land treatment unit located along the northern portion of the Refinery to the south and east of Eagle Creek (or Eagle Draw);
- The closed North Colony Landfarm (NCL), an approximately 4.25-acre land treatment unit located near the northwestern corner of the Refinery;

- The inactive Evaporation Ponds (EPs), located approximately three miles east of the active Refinery and immediately south/west of the Pecos River;
- The inactive Three Mile Ditch (TMD), an approximately 3-mile long former open wastewater conveyance ditch located between the northern portion of the active Refinery and the inactive EPs; and
- The vadose zone located beneath the Refinery, which includes the areas referred to as North Refinery, South Refinery, Field East of Refinery, North Reverse Osmosis (RO) Reject Field, South RO Reject Field, Cross-Gradient of Refinery, and Up-Gradient of Refinery.

The locations of these areas and the monitoring wells, recovery wells, and irrigation wells included in the facility-wide groundwater monitoring program are provided on Figure 2.

2.0 Site Background

HFSNR owns and operates the Refinery, which is an active petroleum refinery located in Artesia, New Mexico. The Refinery has been in operation since the 1920s and can process heavy, sour, light, and sweet crude oils into petroleum products for wholesale markets. The Refinery runs a predominant slate of Permian Basin crudes that are gathered in west Texas and southeast New Mexico and can also source a variety of crude oils from Cushing, Oklahoma, including Canadian crudes. The Refinery serves markets in the southwestern United States and northern Mexico. A site location map is provided as Figure 1. A facility-wide site plan is provided as Figure 2 and shows the locations of wells included in the facility-wide groundwater monitoring program.

The Refinery is regulated under the Resource Conservation and Recovery Act (RCRA) with Environmental Protection Agency (EPA) ID Number NMD 048918817. The NMED issued a Hazardous Waste Facility Permit to HFSNR effective August 21, 1989 (NMED 1989), part of which included a Hazardous and Solid Waste Amendment (HSWA) Permit issued by the EPA. The HSWA permit required HFSNR to identify all historical and current non-hazardous solid waste management units (SWMUs) and investigate those that had the potential to pose a threat to human health or the environment. RCRA Facility Investigations (RFIs) were conducted at the TMD and EP areas in 1990 (Mariah Associates, Inc. 1990) and from 1991 through 1993 (K.W. Brown Environmental Services 1993). Corrective actions were recommended for soil (K.W. Brown Environmental Services 1996) and groundwater (Foster Wheeler 1997) at the TMD and EPs based on the RFI results. RFI activities were conducted at the NCL area from 1994 through 1997 (Covenant Technical Associates, Inc. 1997) and RFI results indicated groundwater impacts associated with historical operations were present at the NCL.

At the request of NMED, HFSNR submitted a PCC Permit Application in June 1998 and revisions to the application in 2001 (Navajo 2001). The original intent of this application was to address only closure and post-closure activities at the EPs and TMD, but the application was expanded to include a complete RCRA Permit renewal application. The NMED issued a PCC Permit to HFSNR effective October 5, 2003 (NMED 2003). The PCC Permit was modified in December 2010 (NMED 2010). The PCC Permit authorizes and requires the Permittee to monitor the groundwater, maintain all groundwater monitoring wells, and comply with applicable regulations of 20.4.1.500 NMAC during the post-closure period. Specific groundwater monitoring requirements are included in the PCC Permit for the areas of the TMD, NCL, EPs, and other areas identified through implementation of the investigations of various SWMUs.

The Refinery previously applied reject fluids from the RO system to the Refinery North and South RO Reject Fields under Discharge Permit GW-028. The OCD originally issued the Discharge Permit to HFSNR on October 21, 1991, and most recently issued a renewal on August 16, 2022

(OCD 2022a). The Discharge Permit requires the Permittee to conduct facility-wide groundwater monitoring. In 2018, HFSNR installed a Class I injection well (WDW-4) as an alternative disposal method for the RO reject fluids and the well became operational in January 2019. Land application of RO reject water to the North and South RO Reject Fields ceased on January 22, 2019. HFSNR submitted a *Stage 1 Abatement Plan for the Reverse Osmosis Reject Discharge Fields* (Stage 1 Abatement Plan) to OCD on March 21, 2019 (Wood 2019a), and an amendment of the Stage 1 Abatement Plan on May 24, 2019 (Wood 2019b), which was approved by OCD in an email on June 7, 2019. HFSNR characterized the North and South RO Reject Fields in accordance with the amended Stage 1 Abatement Plan and documented the activities and results in the *Reverse Osmosis Reject Discharge Fields Stage 1 Abatement – Final Report* (Stage 1 AP Report) on November 19, 2020 (Wood 2020). The OCD approved the Stage 1 AP Report with comments on August 22, 2022 (OCD 2022b). HFSNR submitted the *Stage 2 Abatement Plan* (Stage 2 AP) on October 19, 2022 (WSP 2022b), and revised versions based on OCD comments on January 4, 2023 (WSP 2023), and April 16, 2024 (WSP 2024). The OCD approved the April 2024 amended Stage 2 AP on July 11, 2024 (OCD 2024).

In 2006, HFSNR submitted a Groundwater Monitoring Work Plan that combined the requirements of the two permits into a comprehensive facility-wide groundwater monitoring program (Navajo 2006). This 2025 FWGMWP comprises the annual update of the work plan, as required by Section 4.7.6.a of the PCC Permit.

3.0 Site Conditions

This section describes the current surface and subsurface conditions at the Refinery.

3.1 Surface Conditions

The surface conditions at the Refinery are described below.

3.1.1 Topography

The Refinery is located on the east side of the City of Artesia (city) in the broad Pecos River Valley of Eastern New Mexico. The topography at and surrounding the Refinery is shown on Figure 1. The average elevation of the city is 3,380 feet above mean sea level. The plain on which the city is located slopes eastward at about 30 feet per mile.

3.1.2 Surface Water Drainage

Surface drainage in the region is dominated by minor ephemeral creeks and arroyos that flow eastward to the Pecos River, located approximately three miles east of the city. The major drainage feature in the immediate area of the Refinery is Eagle Creek, which runs southwest to northeast adjacent to the northern process area of the Refinery and then eastward to the Pecos River. Eagle Creek is an ephemeral watercourse that primarily flows only following rain events. Upstream of the Refinery, Eagle Creek functions as a major stormwater conveyance for the city. Eagle Creek also drains outlying areas west of the city and is periodically scoured by intense rain events.

Natural surface drainage at the Refinery is to the north and east. Stormwater within the process areas is captured and routed to the Refinery wastewater treatment system. Stormwater from non-process areas is contained within the Refinery property inside stormwater berms and routed to stormwater retention basins. Stormwater from within the Refinery boundary is not allowed to discharge to Eagle Creek.

The elevation of Eagle Creek is 3,360 feet at its entrance to the Refinery and decreases to approximately 3,305 feet at its confluence with the Pecos River. Eagle Creek was channelized from west of the city of Artesia to the Pecos River to help control and minimize flood events. In the vicinity of the Refinery, the Eagle Creek channel was cemented to provide further protection during flood events. A check dam was also constructed west of the city along Eagle Creek. Federal floodplain maps indicate that most of the city and the Refinery have been effectively removed from the 100-year floodplain.

3.1.3 Area Land Uses

The areas north, south, and east of the Refinery are sparsely populated and used primarily for agricultural purposes. The primary business and residential areas of the city are located to the west, southwest, and northwest of the Refinery. There are commercial/industrial businesses present south of the Refinery along Highway 82, including an oil-field pipe company located at the southeast corner of the Refinery. HFSNR owns a majority of the land bounded by Hermosa Drive to the south, East Richey Avenue to the north, the railroad easement that parallels Highway 285 (or Freeman Avenue on the south side of Highway 82) to the west, and Bolton Road to the east. A majority of the land located east of the Refinery between Bolton Road and Haldeman Road is cultivated as pecan orchards or used for other agricultural purposes.

The Refinery constructed a Renewable Diesel Unit (RDU) in the North Plant Process Area of the Refinery and the 13,000 barrel per day Pretreatment Unit (PTU) on property owned by HFSNR directly south of Highway 82 and the Refinery; both capital projects came online in July 2022. The PTU is used to process plant- and animal-based oils and fats and convert them to a feedstock that will be used at the RDU and is permitted under a separate OCD Discharge Permit (GW-405). The PTU area is shown on Figure 1.

The active Refinery and much of the surrounding property owned by HFSNR is fenced and guarded with controlled entry points.

3.2 Subsurface Conditions

The subsurface conditions at the Refinery are described below.

3.2.1 Surficial Soils

Surficial soil at the Refinery is predominantly comprised of approximately 60 percent (%) Pima series and 40% Karro series. The Pima and Karro series both consist of deep, well drained soils that formed in alluvial settings. They are both calcareous and have slow to medium runoff.

3.2.2 Geology

The City of Artesia is located on the northwest shelf of the Permian Basin. In this region, the deposits comprise of approximately 250 to 300 feet of Quaternary alluvium uncomformably overlying approximately 2,000 feet of Permian clastic and carbonate rocks. These Permian deposits uncomformably overlie Precambrian syenite, gneiss, and diabase crystalline rocks.

3.2.2.1 Quaternary Alluvium

The Quaternary alluvium in the Refinery area is dominantly comprised of clays, silts, sands, and gravels deposited in the Pecos River Valley. These “valley fill” deposits extend in a north-south belt approximately 20 miles wide, generally west of the Pecos River. The thickness of the valley fill varies from a thin veneer on the western margins of the Pecos River valley to a maximum of 300 feet in depressions, one of which is located beneath the Refinery. These depressions have resulted from dissolution of the underlying Permian carbonates and evaporites.

3.2.2.2 Permian Artesian Group

The Permian Artesian Group is comprised of the following five formations from shallowest to deepest: the Tansill, Yates, Seven Rivers, Queen, and Grayburg Formations. The Tansill and Yates Formations outcrop at the surface east of the Pecos River and are not present in the vicinity of the Refinery. The Seven Rivers Formation is present at an approximate depth of 300 feet in the area between the Pecos River and the Refinery. However, the Seven Rivers Formation thins and pinches to the west and it is not evident based on boring logs that this formation has been encountered beneath the Refinery process areas.

In the area of the Refinery, the Queen and Grayburg Formations have been mapped as a single unit consisting of approximately 700 feet of interbedded dolomite and calcareous dolomite, gypsum, fine-grained sandstone, carbonates, siltstone and mudstone. In locations where the Seven Rivers Formation is absent, the upper portion of the Queen Formation acts as a confining bed between the deep artesian aquifer and the valley fill aquifer.

3.2.2.3 San Andres Formation

The San Andres Formation lies beneath the Grayburg and Queen Formations and immediately above the Precambrian crystalline basement rocks. The San Andres Formation is greater than 700 feet thick and composed mainly of limestone and dolomite with irregular and erratic solution cavities ranging up to several feet in diameter. The upper portion of the formation is composed of oolitic dolomite with some anhydrite cement.

3.3 Hydrogeology

The principal aquifers in the Artesia area are within the San Andres Formation and the valley fill alluvium. There are two distinct water-bearing zones within the valley fill alluvium in the vicinity of the Refinery and are referred to as the “shallow saturated zone” and the “valley fill zone”. The deeper carbonate aquifer within the San Andres Formation is referred to as the “deep artesian aquifer”.

3.3.1 Shallow Saturated Zone

The shallow saturated zone occurs in fractured caliche and interbedded sand and gravel channels at 10 to 30 feet below ground surface (bgs). Groundwater in this zone is under confined conditions for some or most of the year, with static water levels measured in groundwater monitoring wells 3 to 5 feet above the shallow saturated zone. The general direction of flow in this shallow saturated zone is to the east toward the Pecos River. Groundwater flow direction and gradient in the shallow saturated zone have remained generally consistent over time, as documented in previous annual groundwater monitoring reports.

Major sources of water in the shallow saturated zone are likely to be recharged from Eagle Creek and lawn watering runoff from the grass-covered urban park that occupies the Eagle Creek Channel immediately upstream of the Refinery. The water in the shallow saturated zone is highly variable in quality, volume, areal extent, and saturated thickness. Concentrations of total dissolved solids (TDS) exceeding 4,000 milligrams per liter (mg/L) and sulfate exceeding 2,000 mg/L have been recorded in most of the wells located west and northwest (up-gradient) of the Refinery, which significantly exceed the WQCC standards of 1,000 mg/L for TDS and 600 mg/L for sulfate.

The shallow saturated zone contains phase-separated hydrocarbon (PSH) and dissolved-phase hydrocarbon constituents, as reported in the *2024 Annual Groundwater Monitoring Report* (TRC 2025). With a few exceptions, concentrations of dissolved-phase hydrocarbon constituents in the shallow saturated zone are stable within the historical range of concentrations.

3.3.2 Valley Fill Zone

The valley fill zone underlies the shallow saturated zone and occurs in Quaternary alluvial deposits of sand, silt, clay, and gravel. These sediments are about 300 feet thick near the Refinery.

Irrigation and water production wells completed in the valley fill zone are typically screened across one to five water-producing intervals ranging in thickness of 20 to 170 feet, with a majority of the thicknesses being closer to 20 feet. Production intervals are non-continuous, consist principally of sand and gravel, and are separated by less permeable lenses of silt and clay of varying thickness. Based on logs of wells located immediately to the north and east of the Refinery, the thicknesses of silt and clay deposits range from 20 to 160 feet and are interspersed with thin zones of gravels in the upper 100 feet. Monitoring wells in the valley fill zone range from 40 to 60 feet bgs and irrigation wells screened in this zone in the vicinity of the Refinery are typically screened between 240 to 320 feet bgs (e.g., irrigation wells RA-3723 and RA-4196R). The valley fill zone yields water containing TDS ranging from 1,500 to more than 7,000 mg/L.

The valley fill zone contains dissolved-phase hydrocarbon constituents, as reported in the *2024 Annual Groundwater Monitoring Report* (TRC 2025). With a few exceptions, concentrations of dissolved-phase hydrocarbon constituents in the valley fill zone are stable within the historical range of concentrations.

The valley fill zone and the underlying San Andres aquifer are hydraulically connected in some areas.

3.3.3 Deep Artesian Aquifer

The deep artesian aquifer is closely related to the Permian San Andres Limestone and generally consists of one or more water-producing intervals of variable permeability located in the upper portion of the formation. However, in the Artesia area, the water-producing interval rises stratigraphically and includes the lower sections of the overlying Grayburg and Queen Formations. Near the Refinery, the depth to the top of the water-producing interval is estimated to be about 440 feet bgs. The Seven Rivers Formation and the other members of the Artesia Group are generally considered confining beds although some pumpage occurs locally from fractures and secondary porosity in the lower Grayburg and Queen members.

The deep artesian aquifer has been extensively developed for industrial, municipal, and agricultural use. TDS in this aquifer ranges from 500 mg/L to more than 5,000 mg/L depending on location. In the Artesia area, water from this aquifer is generally produced from depths ranging from 850 feet to 1,250 feet bgs. The aquifer recharges in the Sacramento Mountains to the west of Artesia. Extensive use of this aquifer in recent decades has lowered the potentiometric head in the aquifer in some locations from 50 to 80 feet bgs, although extensive rainfall in some years may bring the water levels in some wells close to ground surface.

Available well completion records for former irrigation well RA-4798 indicate that it was screened in the deep artesian aquifer from 840 to 850 feet bgs, but the well was potentially partially plugged and modified to be screened in the valley fill zone as described in the October 2022 *Irrigation Well Inspection Status Report* (WSP 2022a) that NMED approved on July 18, 2023 (NMED 2023). Methyl tert-butyl ether (MTBE) was detected in former irrigation wells RA-4196 and RA-4798 at levels below the WQCC standard and the source of these detections is being investigated. MTBE has not been detected in Refinery irrigation well RA-313 that is screened in the deep artesian aquifer from 904 to 1,157 feet bgs.

4.0 Modifications to the Groundwater Monitoring Network

The following modifications to the facility-wide groundwater monitoring network have occurred since submittal of the 2024 FWGMWP:

- Monitoring wells MW-151 to MW-163 were added to the facility-wide network. The locations of these monitoring wells are shown on Figures 2 and 3.

Well installation, repairs, and/or modifications made to the existing wells are described below.

4.1 New Monitoring Wells

In 2024, HFSNR installed 13 monitoring wells, MW-151 through MW-163, and the wells were included in the second semi-annual monitoring event of 2024. Boring logs and well completion information were included in the *2024 Annual Groundwater Monitoring Report* (TRC 2025).

Wells MW-151 to MW-161 were installed in May and June 2024 to further investigate the presence and distribution of MTBE in the shallow saturated zone and valley fill zone. Wells MW-151 through MW-156 were installed in the shallow saturated zone, in the Field East of the Refinery (MW-151) and near TMD (MW-152 through MW-156). Wells MW-157 through MW-161 were installed in the valley fill zone, in the North Refinery Area (MW-157), the South Refinery Area (MW-158 and MW-159), and the Field East of the Refinery (MW-160 and MW-161).

Wells MW-162 and MW-163 were installed in August 2024 as part of Stage 2 AP activities at the RO Reject fields. Wells MW-162 and MW-163 were installed in the shallow saturated zone in the North RO Reject Field and South RO Reject Field, respectively.

The proposed sampling frequency and analytical suite for the new wells are shown on Table 1. The locations of the new network wells are shown on Figures 2 and 3.

4.2 Well Abandonment

No wells were plugged and abandoned by HFSNR since submittal of the 2024 FWGMWP.

During the April 2025 semi-annual sampling event, it was discovered that monitoring well MW-16 had been inadvertently plugged and abandoned by a contractor working for the City of Artesia, unbeknownst to HFSNR. This well is located on property owned by the City of Artesia. HFSNR is working with the City of Artesia to replace the well in 2025.

4.3 Well Repairs and Modifications

The following well maintenance and repairs were performed on existing wells since submittal of the 2024 FWGMWP:

- Locking well J-plugs and locks were replaced on various monitoring wells as required.

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5.0 Monitoring Program Scope of Services

The proposed groundwater monitoring program consists of semi-annual gauging of select wells; semi-annual, annual, or biennial groundwater sampling of select wells; and annual reporting.

In June 2024, HFSNR submitted a separate request to the OCD for the reduction of dissolved metals analysis at all wells except those specified in the November 2020 Stage 1 AP Report and April 2024 Stage 2 AP (MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW 140 through MW-144, MW-162, MW-163, and RW-18). The OCD approved this request on July 2, 2024. The NMED acknowledged the changes in their approval with modifications letter on April 3, 2025. Dissolved metals, except at those select wells referenced above, have been removed from the routine groundwater monitoring program, as shown on Table 1.

The NMED approved the 2024 FWGMWP with modifications on April 3, 2025. Modifications are listed below and shown on Table 1.

- Total cadmium, cobalt, cyanide, mercury, nickel, and vanadium are to be sampled at select wells every five years. Samples from select wells will be collected for this analysis during the March/April event every five calendar years starting in 2025 (then 2029, 2034, 2039, etc.), and is designated as quinquennial (Q) on Table 1. If there are exceedances of a critical groundwater screening level (CGWSL) for these analytes, HFSNR will sample the respective analyte from the respective well semi-annually for two years to demonstrate that there are no increasing trends.

Additionally, in the April 3, 2025 approval with modifications letter, the NMED acknowledged or approved the following updates to the monitoring program that were proposed in the 2024 FWGMWP:

- Samples collected from the following wells will be submitted for dissolved analysis of arsenic, boron, iron, manganese, and uranium on a semi-annual basis in accordance with the Stage 2 AP: MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW-140 through MW-144, MW-162, MW-163, and RW-18. This sampling schedule is shown on Table 1.
- Wells MW-40 and RW-18 will be sampled on a semi-annual basis, instead of annual, in accordance with the Stage 2 AP. This sampling schedule is shown on Table 1.
- Groundwater samples collected from MW-97 and RW-2R will be analyzed for Semi-Volatile Organic Compounds (SVOCs) for two events, in accordance with the December 28, 2018, submittal letter of *SWMU/AOC Group 3 Additional Corrective Action Investigation Report – Revision 2* (SWMU/AOC Group 3 Rev 2 transmittal letter [Wood

TRC

2018]), and NMED's subsequent response letter dated March 22, 2019 (NMED 2019). Groundwater samples have not yet been collected from MW-97 for the two required events due the well not being located (MW-97 covered or obstructed by Refinery activities). HFSNR will attempt to locate and uncover MW-97 prior to the next monitoring event (second semi-annual event of 2025). The two required rounds of SVOC analysis had not been performed at RW-2R at the time of the 2024 FWGMWP submittal but has since been completed (during the second 2023 semi-annual event and the first 2025 semi-annual event).

- As discussed in Sections 5.3.1 and 5.3.2, groundwater samples will be analyzed for 1,4-dioxane (Method 8270) and 1,2-Dibromomethane (EDB) (Method 8011), respectively, at select wells that have not been sampled due to the presence of PSH, the well being dry, or inability to access the well due to construction activities. This sampling schedule is shown on Table 2.
- Tert-butyl alcohol (TBA) will be added to the Volatile Organic Compounds (VOC) list.

No substantial changes to the previous facility-wide monitoring program are proposed in this 2025 FWGMWP. The following modifications to the groundwater monitoring program are proposed based on the rationale provided:

- Cations (calcium, potassium, sodium) are proposed to be eliminated from analysis at all wells. Cation analysis is not required by either the PCC Permit or the GW-028 Discharge Permit. There are also no established CGWSLs for these cations (i.e., there are no WQCC standards under 20.6.2.3103 NMAC, USEPA Maximum Contaminant Levels [MCLs], NMED groundwater screening levels, or USEPA Tap Water Regional Screening Levels [RSLs]). Further, concentrations of these cations have overall been stable to decreasing throughout all Refinery areas, based on monitoring data collected since at least 2015 (i.e., at least 10 years of semi-annual groundwater monitoring events). Graphs presenting cation concentrations in all Refinery wells over time, and a summary of facility-wide concentration trends since 2015 for each cation, are provided in Appendix A.
- Analysis of TDS and anions (chloride, fluoride, sulfate, nitrate, and nitrite) is proposed to be reduced to no more than an annual basis in all wells, except the RO Reject Field wells specified in the Stage 2 AP (MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW 140 through MW-144, MW-162, MW-163, and RW-18). Any other wells that were previously sampled on a semi-annual basis for TDS and anions, are proposed to be sampled on an annual basis. There is no change proposed for wells that were not previously sampled for TDS or anions. These analytes are not considered target

constituents of concern (COCs) for the facility-wide monitoring program, and concentrations of these analytes are overall stable to decreasing throughout all Refinery areas, based on monitoring data collected since at least 2015 (i.e., at least 10 years of semi-annual groundwater monitoring events). Graphs presenting anion concentrations in all Refinery wells over time, and a summary of facility-wide concentration trends since 2015 for each anion, are provided in Appendix A.

5.1 Scheduling and Notification

The schedule of the semi-annual groundwater monitoring events is dependent on the flood irrigation season of the pecan orchard located east of the Refinery, which is typically conducted between April and October. The first semi-annual event is typically conducted before the start of the flood irrigation (in March or April of each calendar year) and the second semi-annual event will be conducted after completion of the flood irrigation season (in October or November of each calendar year).

Wells that will be sampled on an annual or biennial basis will be sampled during the first semi-annual monitoring event (i.e., the annual event). Biennial events will be completed during the first semi-annual event of odd-numbered calendar years. The NMED and OCD will be notified of the monitoring schedule prior to each monitoring event. The sampling frequency for each well is provided on Table 1, Table 2, and Figure 3.

5.2 Gauging Requirements

Synoptic fluid level gauging will be completed semi-annually at all active and accessible monitoring and recovery wells. Wells will be gauged for depth to PSH, if present, depth to water, and total depth. Dedicated tubing and pumps (if present) will remain in the wells during gauging to minimize disturbance to the water column, if possible. All synoptic well gauging will be completed in as short a time-period as possible, typically within 48 hours. Each monitoring well will also be gauged immediately prior to commencing purging/sampling activities.

5.3 Sampling Requirements

Sampling frequency and target analytes for each well were selected based on historical data, dissolved-phase concentration trends, and well location relative to the Refinery and area boundaries. Select groundwater samples will be analyzed for VOCs, SVOCs, diesel range organics (DRO), gasoline range organics (GRO), total metals, anions (chloride, fluoride, nitrate, nitrite, and sulfate), TDS, and/or cyanide. Dissolved metals are proposed to be analyzed only at wells specified in the Stage 2 AP. Select groundwater samples will be analyzed for 1,4-dioxane and EDB in accordance with the NMED May 7, 2021 letter (NMED 2021), as described in Sections 5.3.1 and 5.3.2.

Wells that contain PSH at measured thicknesses of 0.03 feet or greater will not be sampled during any event. The required sample analytical parameters and sampling frequency for each well are summarized in Table 1 and Table 2.

5.3.1 1,4-Dioxane Analysis at Select Wells

In accordance with NMED's May 7, 2021, comments letter on the September 2019 report titled *Evaluation of Methyl Tert-Butyl Ether (MTBE) in Groundwater* (MTBE Groundwater Report [Wood 2019c]), the 2021 FWGMWP proposed that groundwater samples collected from wells with any historical detection of chlorinated solvents since 2010 will be sampled for 1,4-dioxane by Method 8270 for two consecutive sampling events.

The completion date of the first required 1,4-dioxane sampling event for each well was based on the sampling frequency of the well as follows:

- Semi-annual: second semi-annual monitoring event of 2021.
- Annual: first semi-annual monitoring event of 2022.
- Biennial: first semi-annual monitoring event of 2023.

1,4-Dioxane analytical results through the 2024 semi-annual events were presented in in Appendix B of the *2024 Annual Groundwater Monitoring Report* (TRC 2025). 1,4-Dioxane was not detected above the CGWSL in any well during sampling events conducted between 2021 and 2024. Groundwater samples were also collected for 1,4-dioxane analysis during the first semi-annual event of 2025.

To date (i.e., through the first semi-annual sampling event of 2025), the required two rounds of 1,4-dioxane sample collection have been completed at the following wells: KWB-2R, KWB-11A, KWB-11B, MW-3, MW-4A, MW-6A, MW-21, MW-22A, MW-29, MW-45, MW-49, MW-50, MW-53R, MW-54A, MW-54B, MW-61, MW-62, MW-71, MW-74, MW-76, MW-78, MW-90, MW-101, MW-102, MW-104, MW-106, MW-108, MW-109, MW-110, MW-113, MW-114, MW-117, MW-120, MW-121, MW-122, MW-123, MW-126B, MW-134, MW-135, MW-139, NCL-31, NCL-49, NP-1, OCD-3, OCD-6, RA-313, RA-4196, RA-4798, RW-2R, RW-9, RW-13R, RW-16, TEL-4, and UG-1.

Due to the presence of PSH at thicknesses of 0.03 feet or greater, the well being dry, or inability to access the well due to construction activities, two rounds of groundwater samples for 1,4-dioxane analysis have not yet been collected from the following wells: KWB-6, KWB-10R, MW-23, MW-28, MW-39, MW-40, MW-41, MW-42, MW-43, MW-60, MW-67, MW-91, MW-92, MW-93, MW-94, MW-111, MW-127, MW-128, MW-138, RW-1R, RW-8R, RW-10, and RW-17. Groundwater samples will be collected for 1,4-dioxane analysis from these wells at the frequency listed on Table 2 in order to satisfy the required two rounds of 1,4-dioxane sample collection.

Wells to be analyzed for 1,4-dioxane during future events are listed below by the sampling frequency and are summarized in Table 2.

- Semi-annual (16 wells): KWB-6, KWB-10R, MW-23, MW-28, MW-39, MW-40, MW-43, MW-60, MW-67, MW-91, MW-92, MW-94, MW-111, MW-127, MW-128, and MW-138.
- Annual (7 wells): MW-41, MW-42, MW-93, RW-1R, RW-8R, RW-10, and RW-17.

No groundwater sample will be collected if PSH is present at a thickness of 0.03 feet or greater, and the required 1,4-dioxane sampling will be completed during subsequent monitoring events. An evaluation of 1,4-dioxane results and recommendations for inclusion of 1,4-dioxane to the facility-wide groundwater monitoring program will be made in a future FWGMWP update, after completion of two required sampling events in all wells.

5.3.2 1,2-Dibromomethane (EDB) Analysis at Select Wells

In accordance with NMED's May 7, 2021, comments letter on the September 2019 MTBE Groundwater Report, the 2021 FWGMWP proposed that groundwater samples collected from wells with any historical detection of 1,2-dichloroethane (EDC) since 2010 will be sampled for EDB by Method 8011 for two consecutive sampling events.

The completion date of the first required EDB sampling event for each well was based on the sampling frequency of the well as follows:

- Semi-annual: second semi-annual monitoring event of 2021.
- Annual: first semi-annual monitoring event of 2022.
- Biennial: first semi-annual monitoring event of 2023.

EDB analytical results through the second 2023 semi-annual events were presented in Appendix B of the *2023 Annual Groundwater Monitoring Report* (TRC 2024). EDB was not detected in any well above the method detection limit in the sampling events conducted between 2021 and 2024. Groundwater samples were also collected for EDB analysis during the first semi-annual event of 2025.

To date (i.e., through the first semi-annual sampling event of 2025), the required two rounds of EDB sample collection have been completed at the following wells: KWB-11A, KWB-11B, MW-50, MW-62, MW-71, MW-102, MW-108, MW-113, MW-114, MW-126B, NP-1, RW-9, RA-4196, RA-4798, and RW-13R.

Due to the presence of PSH at thicknesses of 0.03 feet or greater, two rounds of groundwater samples for EDB have not yet been collected from the following wells: KWB-6, MW-60, MW-111, MW-127, and RW-8R. EDB was not analyzed from the sample collected from biennial well MW-54B due to an oversight during the first 2023 monitoring event; EDB was analyzed from the sample collected from this well in April 2025.

EDC detections were re-evaluated in 2025 to identify any additional wells that should be analyzed for EDB by Method 8011. Between 2022 and the first 2025 semi-annual event, EDC was detected at low concentrations at least an order of magnitude below the CGWSL, in seven wells that were not included in the initial EDB sampling schedule. Samples will be collected for EDB analysis by Method 8011 for two consecutive sampling events from the following wells: MW-8, MW-21, MW-29, MW-42, MW-158, MW-161, and NP-6.

Groundwater samples will be collected for EDB analysis from these wells at the frequency listed on Table 2 in order to satisfy the required two rounds of EDB sample collection. Wells to be analyzed for EDB during future sampling events are listed below by the sampling frequency and are summarized in Table 2.

- Semi-annual (8 wells): KWB-6, MW-21, MW-29, MW-60, MW-111, MW-127, MW-158, and MW-161.
- Annual (3 wells): MW-8, MW-42, and RW-8R.
- Biennial (2 wells): MW-54B and NP-6.

No groundwater sample will be collected if PSH is present at a thickness of 0.03 feet or greater, and the required EDB sampling will be completed during subsequent monitoring events. An evaluation of EDB results and recommendations for inclusion of EDB to the facility-wide groundwater monitoring program will be made in a future FWGMWP update, after completion of two required sampling events in all wells.

6.0 Groundwater Monitoring Procedures

Monitoring activities will consist of the following tasks: field documentation, well inspection, well gauging, groundwater purging and sampling, handling of samples for laboratory analysis, QA/QC sampling, and managing IDW. The procedures that will be used to complete each task are described in detail below.

6.1 Field Documentation

Documentation of field activities associated with groundwater monitoring events will be recorded each day in a bound field logbook, on an electronic tablet, and/or associated field sampling forms. Each page of the logbook and field sampling forms will be signed by the person(s) making entries on that page. The following information will be collected during groundwater sampling activities:

- Sampling and oversight personnel identification
- Instrument calibrations
- Well conditions
- Monitoring well measurements including static water level depth and total well depth
- Depth to PSH, if present
- Weather conditions at the time of sample collection and throughout the sampling event
- Well purging procedures including equipment, purge volume, rate, and elapsed time
- Water quality parameters recorded during purging including appearance, odor, turbidity, pH, temperature, conductivity, TDS, oxidation-reduction potential (ORP), and dissolved oxygen (DO)
- Sample collection dates and times
- Reasons for deviating from the sampling and analysis plan (if applicable)

6.2 Well Inspection

During each gauging and sampling event, all monitoring and recovery wells will be inspected for well integrity. The information will be recorded on the groundwater gauging form. Each inspection will include:

- Identification of the well
- Inspection of the well pad for deterioration or damage

- Inspection of the protective casing and well casing for deterioration or damage
- Inspection of the presence or absence and condition of the padlock and well J-plug
- Measurement of the total depth of the well

6.3 Well Gauging

The depth to PSH, if present, and groundwater will be gauged at each monitoring well prior to sampling. The wells that are to be gauged are presented in Table 1 and well locations are depicted on Figure 2. Prior to gauging, each well cap will be removed to allow groundwater to equilibrate with atmospheric pressure. Fluid level measurements will be collected using an oil/water interface probe to an accuracy of 0.01 feet. Measurements will be made from a marked survey datum at the top of casing (TOC). Data will be recorded on a paper or electronic tablet field gauging form. The oil/water interface probe will be decontaminated before use and between wells following the procedures outlined in Section 6.8.

6.3.1 Fluid Level Gauging Procedures

The following procedure will be used to measure the depths to PSH and groundwater:

- The probe will be lowered into the well slowly until the probe alarm sounds or light illuminates, then the tape will be raised and lowered again slowly until the alarm is again audible or the light again illuminates. The depth to fluid on the tape will be recorded to within 0.01 feet. To ensure accuracy, the measurement will be repeated.
- Well identification, date, time, depth to water, depth to PSH (if applicable), and other pertinent observations will be recorded on the field gauging form.

6.3.2 Total Depth Gauging

Total well depth will be measured to detect the amount of silt accumulation in a well. This measurement will be collected during sampling events and well inspections. The following procedures will be followed to determine the total depth of the well:

- The oil/water interface probe will be slowly lowered until the bottom of the well is detected.
- The total well depth will be measured when the tape becomes slack for hard bottoms.
- The point of "pick-up" (where the weight of the probe is felt when reeling up the probe) will be used to determine the total depth in the case of soft sediment bottoms.
- The hardness of the bottom of the well will be documented in the field logbook.

6.4 Groundwater Sampling

Groundwater will be purged and sampled from monitoring and recovery wells using low-flow methods in accordance with the NMED Hazardous Waste Bureau (HWB) Position Paper *Use of Low-Flow and Other Non-Traditional Sampling Techniques for Compliance Groundwater Monitoring* (NMED 2001). Groundwater will be purged and sampled from irrigation wells using standard procedures described below. Data collected during the purging and sampling of each well will be recorded on a paper or electronic tablet groundwater sampling form.

Groundwater will be purged and sampled from monitoring and recovery wells using either a peristaltic pump (for sampling depths of approximately 25 feet bgs or less) or a dedicated, stainless steel submersible or bladder pump (for sampling depth greater than 25 feet bgs). The locations of monitoring and recovery wells to be purged and sampled are provided on Figure 3. An oil/water interface probe will be lowered into the monitoring well to record the depth to water.

Groundwater will be purged and sampled from irrigation wells by attaching a decontaminated or dedicated hose barb to the available spigot. The spigot will be located at a point before the water supply is introduced into any storage tanks or treatment units. The groundwater will be purged from the spigot so that any stagnant water from the well casing and surface piping is removed.

A multi-parameter water quality meter with flow-through cell and hand-held turbidity meter will be used during the purging process to monitor for field water quality parameters (pH, temperature, conductivity, TDS, ORP, DO, and turbidity) and demonstrate stabilization. Water quality parameters will be recorded approximately every three minutes during purging. Water quality meters used to measure field parameters will be calibrated each day according to the manufacturer's specifications. The make, model, calibration fluids, and calibration results for the water quality meters will be recorded in the field logbook. The turbidity meter test cell will be triple rinsed with groundwater from the next sample aliquot prior to each reading. The water quality parameters and depth to water (in non-irrigation wells only) will be recorded on the Groundwater Sampling Form. A description of the water quality (e.g., turbidity, sheen, odor) will be recorded during the purging process.

The purging process will be considered complete and groundwater sampling will commence when at least four of the seven water quality parameters achieve stabilization within ten percent for three consecutive readings.

If the well goes dry during purging, a sample will be collected as soon after the water level recovers to a level from which a sample can be collected. The samples will be collected in clean, labeled laboratory-supplied containers prepared with the appropriate amount and type of preservative. The groundwater samples will be submitted for laboratory analysis following the schedule in Table 1 and Table 2.

Samples submitted for dissolved metals analysis will be filtered in the field using a new 0.45-micron filter. Filtering methods will be documented on the groundwater sampling form, field logbook, and chain-of-custody.

6.5 Handling of Samples for Laboratory Analysis

Neoprene or nitrile gloves will be worn during sample collection and while handling sample containers. New disposable gloves will be used to collect each sample. The sample containers will be labeled, secured with bubble wrap, placed in a resealable plastic bag, and immediately placed on ice in a cooler and stored below 4 degrees Celsius (°C). The sample labels will include the Permittee name (HFSNR), site name (Artesia Refinery), unique sample identification, sample collection time and date, preservatives, and the name(s) of the sampler(s). The samples will be secured with packing material and kept below 4°C with wet ice in accordance with laboratory cooler shipping guidelines. The cooler will be secured with packing tape, and a signed and dated custody seal will be placed over the cooler lid and secured with tape. The samples and a completed chain-of-custody documentation will be shipped via priority overnight delivery to the analytical laboratory. The chain-of-custody forms are to be maintained as a record of sample collection, transfer, shipment, and receipt by the laboratory. At a minimum, all samples will be submitted to the laboratory within 48 hours after collection. The laboratory will be informed that samples are being submitted for analysis and it will be confirmed that the samples were received the following day. If samples are shipped on Friday for Saturday delivery, the receiving laboratory will be contacted so provisions can be made for laboratory sample receipt.

6.6 Quality Assurance/Quality Control Sampling

Field QA/QC samples for groundwater will be collected as follows:

- Duplicates: Collected at a frequency of ten percent at the same time and from the same location as the original sample.
- Equipment blanks: Collected from non-dedicated, decontaminated equipment at a frequency of five percent by pouring distilled water over the equipment and collecting the sample in the appropriate laboratory containers.
- Trip blanks: One included in each cooler shipped to the laboratory that contains samples for VOC analyses. The trip blank consists of two 40-milliliter (mL) vials of reagent water provided by the laboratory that were stored in the sample cooler at all times.

Laboratory QA/QC samples will be performed according to test methodologies specified for each analytical method. The laboratory QA/QC samples may include reagent or method blanks, surrogates, matrix spike/matrix spike duplicates, blank spike/blank spike duplicates and/or laboratory duplicates, as appropriate for each method. The laboratory QA/QC samples will be run at the frequency specified by each method.

6.7 PSH Sample Collection

In the event that PSH is present in any of the monitoring or recovery wells that have not historically contained PSH, samples may be collected when sufficient volume (80 mL) is present for collection and analysis. The desired analyses for evaluation of PSH include paraffins, isoparaffins, aromatics, naphthenes, and olefins (PIANO) as well as specific gravity and simulated distillation. HFSNR will notify the NMED within seven calendar days if PSH is present in wells where PSH has not previously be encountered, as required by the PCC Permit.

PSH samples will be collected using a disposable, non-dedicated hand bailer. The bailer will be lowered into the well slightly into the PSH and water column. The bailer will be slowly removed and groundwater decanted from the bottom of the bailer. The PSH remaining in the bailer will then be placed into the sample container, and the container will be sealed and properly labeled for shipment. Excess groundwater and PSH will be managed per methods discussed in Section 6.9.

6.8 Decontamination

The interface probe and other non-dedicated equipment coming into contact with groundwater will be decontaminated by the following procedures:

1. PSH, if present, will be removed with an absorbent pad.
2. Any solids will be removed to the degree possible with a brush and tap or distilled water.
3. Equipment will be washed with a brush, laboratory-grade non-phosphate detergent (e.g., Liquinox, Alconox), and potable tap water. Excess soap will be allowed to drain off the equipment when finished.
4. Equipment will be double rinsed with distilled water.

All decontamination fluids will be managed per methods discussed in Section 6.9.

6.9 Investigation-Derived Waste Disposal

The IDW (e.g., purge water, decontamination water) generated during monitoring activities will be collected and disposed of in the Refinery wastewater treatment system, upstream of the oil/water separator. Miscellaneous IDW (e.g., gloves, bailers) in contact with investigative material deemed to have no or de minimis contamination will be disposed of in a general refuse container. Any IDW deemed to have greater than de minimis contamination will be stored in labeled drums and disposed appropriately on a per case basis.

7.0 Annual Groundwater Monitoring Report

Groundwater monitoring from each calendar year will be documented in an *Annual Groundwater Monitoring Report*, in accordance with both the PCC Permit and the Discharge Permit. The *Annual Groundwater Monitoring Report* will follow the general report format provided in Appendix E of the PCC Permit and incorporate the requirements of Section 2.K of the Discharge Permit. At a minimum, the *Annual Groundwater Monitoring Report* will include the following:

- Description of groundwater monitoring and remediation activities conducted throughout the reporting period, including sample collection procedures, decontamination procedures, sample handling procedures, and management of wastes;
- Summary table of semi-annual groundwater and PSH gauging data, with corrected water table elevation for all wells containing PSH;
- Summary table of groundwater quality parameters recorded in the field (purge parameters);
- Summary of laboratory analytical data with comparison to screening levels;
- Summary of QA/QC data review and validation;
- Groundwater contour maps depicting the groundwater gradient for each semi-annual monitoring event of the reporting period, including site features and the direction and magnitude of the hydraulic gradient;
- PSH thickness isopleths maps for each semi-annual monitoring event during the reporting period;
- Isoconcentration maps for major COCs;
- Plots of static water elevation versus time in key wells, specifically those that contain PSH;
- Plots of target COC groundwater concentrations versus time in wells that have historically exceeded screening levels;
- Tabulation of the monthly and cumulative volume of PSH removed from recovery wells or monitoring wells throughout the reporting period; and
- Recommendations, including any recommended changes to the groundwater monitoring program.

The *Annual Groundwater Monitoring Report* will be submitted to NMED by February 28 of the calendar year following sample collection and to OCD by June 15 of the calendar year following sample collection as part of the GW-028 Annual Discharge Report.

8.0 Schedule

The groundwater monitoring program is conducted on a semi-annual basis. The first semi-annual event is scheduled to occur no more than 30 days prior to the start of the pecan orchard flood irrigation season but no later than April 30 of each year. Typically, the first semi-annual event will occur in March or April of each calendar year. The second semi-annual event will occur no later than 30 days after the conclusion of the pecan orchard flood irrigation season or November 15 each year. Typically, the second semi-annual event will occur in October or November of each calendar year.

The wells that are sampled on an annual basis will be sampled during the first semi-annual event of each calendar year. The wells that are sampled biennially will be sampled every other year. Biennial sampling at the Refinery began in the first semi-annual event of 2011. As such, these wells will be sampled during the first semi-annual event of each odd numbered year.

HFSNR will notify both NMED and OCD prior to the initiation of each semi-annual sampling event.

The *Annual Groundwater Monitoring Report* will be submitted to NMED no later than February 28 of the calendar year following sample collection and to OCD no later than June 15 of the calendar year following sample collection as part of the GW-028 Annual Discharge Report.

9.0 References

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Tables

Table 1. 2025 Facility-Wide Groundwater Monitoring Program and Schedule

HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

			Well Construction [a]					Analytical Suite and Frequency [c, d]											
													Total Metals						
Well ID	Well Type	Associated Area	Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone	Historic PSH? [b]	Gauging Frequency	Purge Parameters	DRO	GRO	VOCs	SVOCs	As, Ba, Cr, Fe, Pb, Mn, Se	B, U	Cd, Co, Hg, Ni, V	Stage 2 AP Dissolved Metals	Cyanide	Anions	Total Dissolved Solids
KWB-13	Monitoring	Cross-gradient	2		Shallow		SA	A	A	-	A	-	A	A	Q	-	Q	A	A
MW-136	Monitoring	Cross-gradient	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-149	Monitoring	Cross-gradient	2	20 to 35	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
MW-150	Monitoring	Cross-gradient	2	15 to 35	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NP-5	Monitoring	Cross-gradient	2	10.25 to 20	Shallow		SA	B	B	-	B	-	B	-	-	-	-	B	B
MW-1R	Monitoring	EP	2	8 to 23	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-2A	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-2B	Monitoring	EP	2	38.5 to 48	Valley Fill		SA	No samples to be collected											
MW-3	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-4A	Monitoring	EP	4		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-4B	Monitoring	EP	4	60.25 to 70	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-5A	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-5B	Monitoring	EP	2	41.5 to 50.5	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-5C	Monitoring	EP	2	59.25 to 68.75	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-6A	Monitoring	EP	2		Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-6B	Monitoring	EP	2	39.5 to 49	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-7A	Monitoring	EP	2		Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-7B	Monitoring	EP	4	39.5 to 49	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-10	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-11A	Monitoring	EP	4	5.5 to 20	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-11B	Monitoring	EP	2	35.5 to 45	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-12	Monitoring	EP	4	6.5 to 16	Shallow		SA	No samples to be collected											
MW-13	Monitoring	EP	4	9.5 to 19	Shallow		SA	No samples to be collected											
MW-14	Monitoring	EP	4	5.5 to 20	Shallow		SA	No samples to be collected											
MW-15	Monitoring	EP	4	9 to 19	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-18A	Monitoring	EP	4	10 to 20	Shallow		SA	SA	SA	-	A	-	SA	SA	Q	-	Q	A	A
MW-18B	Monitoring	EP	2	37 to 47	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-18T	Monitoring	EP	4	37 to 47	Valley Fill		SA	No samples to be collected											
MW-22A	Monitoring	EP	4	5.5 to 20.5	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-22B	Monitoring	EP	2	42.3 to 52	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-24	Monitoring	EP	6	15 to 20	Shallow		SA	No samples to be collected											
MW-69	Monitoring	EP	2	5 to 20	Shallow		SA	No samples to be collected											
MW-70	Monitoring	EP	4	5 to 20	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-72	Monitoring	EP	4	2 to 12	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-73	Monitoring	EP	4	2 to 17	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-74	Monitoring	EP	4	2 to 17	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-75	Monitoring	EP	4	3 to 18	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-76	Monitoring	EP	4	3 to 18	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-77	Monitoring	EP	4	3 to 18	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-78	Monitoring	EP	4	2 to 17	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-79	Monitoring	EP	4	2 to 17	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-80	Monitoring	EP	4	2 to 17	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-81	Monitoring	EP	4	2 to 17	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-82	Monitoring	EP	4	2 to 17	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-83	Monitoring	EP	4	2 to 17	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-84	Monitoring	EP	4	2 to 17	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-85	Monitoring	EP	4	3 to 18	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-86	Monitoring	EP	4	2 to 17	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-87	Monitoring	EP	4	2 to 17	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-88	Monitoring	EP	4	3 to 18	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-120	Monitoring	EP	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-121	Monitoring	EP	2	10 to 25	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-122	Monitoring	EP	2	10 to 20	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-123	Monitoring	EP	2	10 to 25	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
MW-124	Monitoring	EP	2	5 to 20	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-1R	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-2A	Monitoring	EP	2	8.5 to 23.5	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-2B	Monitoring	EP	2	38.5 to 48	Valley Fill		SA	No samples to be collected											
OCD-3	Monitoring	EP	2	6.5 to 21.5	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-4	Monitoring	EP	2	6.5 to 21.5	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-5	Monitoring	EP	2		Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A

Table 1. 2025 Facility-Wide Groundwater Monitoring Program and Schedule

HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

			Well Construction[a]					Analytical Suite and Frequency[c, d]											
													Total Metals						
Well ID	Well Type	Associated Area	Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone	Historic PSH?[b]	Gauging Frequency	Purge Parameters	DRO	GRO	VOCs	SVOCs	As, Ba, Cr, Fe, Pb, Mn, Se	B, U	Cd, Co, Hg, Ni, V	Stage 2 AP Dissolved Metals	Cyanide	Anions	Total Dissolved Solids
OCD-6	Monitoring	EP	2	8 to 23	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-7AR	Monitoring	EP	4	5.5 to 19.5	Shallow		SA	SA	SA	SA	A	-	SA	-	-	-	-	A	A
OCD-7B	Monitoring	EP	2	43.5 to 52.5	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
OCD-7C	Monitoring	EP	2	60.25 to 69.75	Valley Fill		SA	No samples to be collected											
OCD-8A	Monitoring	EP	2	3 to 18	Shallow		SA	SA	SA	SA	A	-	SA	SA	Q	-	Q	A	A
OCD-8B	Monitoring	EP	2	43.5 to 53	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
KWB-1A	Monitoring	Field E of Refinery	2	18 to 32	Shallow	Y	SA	SA	SA	-	SA	-	SA	SA	Q	-	Q	A	A
KWB-1B	Monitoring	Field E of Refinery	4	18 to 32	Shallow	Y	A	No samples to be collected											
KWB-1C	Monitoring	Field E of Refinery	4	30.5 to 49.5	Valley Fill		SA	B	B	-	B	-	B	-	-	-	-	B	B
KWB-3AR	Monitoring	Field E of Refinery	2	17 to 33	Shallow		SA[f]	SA[f]	SA[f]	-	SA[f]	-	SA[f]	SA[f]	Q[f]	-	Q[f]	A[f]	A[f]
KWB-5	Monitoring	Field E of Refinery	2	24.7 to 38.7	Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
KWB-6	Monitoring	Field E of Refinery	2	17.5 to 36.5	Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
KWB-7	Monitoring	Field E of Refinery	2	18 to 32	Shallow	Y	SA	SA	SA	-	SA	-	SA	SA	Q	-	Q	A	A
KWB-8	Monitoring	Field E of Refinery	2	15 to 34	Shallow	Y	SA	SA	SA	-	SA	-	SA	SA	Q	-	Q	A	A
KWB-9	Monitoring	Field E of Refinery	2	20 to 34	Shallow		SA[f]	A[f]	A[f]	-	A[f]	-	A[f]	A[f]	Q[f]	-	Q[f]	A[f]	A[f]
KWB-10R	Monitoring	Field E of Refinery	4	9 to 29	Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
KWB-11A	Monitoring	Field E of Refinery	4	30 to 39.5	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
KWB-11B	Monitoring	Field E of Refinery	4	50 to 69.5	Valley Fill		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
KWB-12A	Monitoring	Field E of Refinery	4	15.5 to 24.5	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
KWB-12B	Monitoring	Field E of Refinery	4	25.5 to 39.5	Valley Fill		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
KWB-P4	Monitoring	Field E of Refinery	2		Shallow		B	B	B	-	B	-	-	-	-	-	-	-	-
MW-57	Monitoring	Field E of Refinery	2	10 to 30	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-58	Monitoring	Field E of Refinery	4	13 to 28	Shallow	Y	SA	SA	SA	-	SA	-	SA	SA	Q	-	Q	A	A
MW-111	Monitoring	Field E of Refinery	2	25 to 40	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-112	Monitoring	Field E of Refinery	2	25 to 35	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-113	Monitoring	Field E of Refinery	2	20 to 35	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-125	Monitoring	Field E of Refinery	2	15 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-126A	Monitoring	Field E of Refinery	2	19 to 34	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-126B	Monitoring	Field E of Refinery	2	40 to 50	Valley Fill		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-127	Monitoring	Field E of Refinery	2	20 to 50	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-128	Monitoring	Field E of Refinery	2	15 to 35	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-129	Monitoring	Field E of Refinery	2	20 to 50	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-131	Monitoring	Field E of Refinery	2	20 to 50	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-132	Monitoring	Field E of Refinery	2	15 to 40	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-133	Monitoring	Field E of Refinery	2	15 to 35	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-134	Monitoring	Field E of Refinery	2	20 to 30	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	-	-	A	A
MW-135	Monitoring	Field E of Refinery	2	35 to 65	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-145	Monitoring	Field E of Refinery	2	9 to 29	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-146	Monitoring	Field E of Refinery	2	10 to 30	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-147	Monitoring	Field E of Refinery	2	20 to 40	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-148	Monitoring	Field E of Refinery	2	20 to 40	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-151	Monitoring	Field E of Refinery	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-160	Monitoring	Field E of Refinery	2	45 to 60	Valley Fill		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-161	Monitoring	Field E of Refinery	2	45 to 60	Valley Fill		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
RA-1227	Irrigation	Field E of Refinery	10 / 8	194 to 246	Artesian		NA	A[f]	-	-	A[f]	-	-	-	-	-	-	A[f]	A[f]
RA-3156	Irrigation	Field E of Refinery	4	182 to unknown	Artesian		NA	A	-	-	A	-	-	-	-	-	-	A	A
RA-4196R[h]	Irrigation	Field E of Refinery	8	255 to 295	Artesian		NA	SA	-	-	SA	-	-	-	-	-	-	A	A
RW-12R[g]	Recovery	Field E of Refinery	12	15 to 35	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-13R[g]	Recovery	Field E of Refinery	12	15 to 35	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-14R[g]	Recovery	Field E of Refinery	12	15 to 35	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-18[e]	Recovery	Field E of Refinery	36		Shallow		SA	SA	-	-	SA	-	SA	SA	Q	SA	-	SA	SA
RW-20	Recovery	Field E of Refinery	4		Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-22	Recovery	Field E of Refinery	12	11.5 to 39	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-23	Monitoring	N Refinery	6	15 to 20	Shallow	Y	SA	SA	SA	SA	SA	SA	SA	-	-	-	-	A	A
MW-29	Monitoring	N Refinery	2	9.75 to 19.25	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-30	Monitoring	N Refinery	8		Shallow		SA	No samples to be collected											
MW-39	Monitoring	N Refinery	2	14 to 24	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-40	Monitoring	N Refinery	2		Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-41	Monitoring	N Refinery	2	14 to 19	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-42	Monitoring	N Refinery	2		Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A

Table 1. 2025 Facility-Wide Groundwater Monitoring Program and Schedule
HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Associated Area	Well Construction [a]			Historic PSH? [b]	Gauging Frequency	Analytical Suite and Frequency [c, d]											
													Total Metals						
			Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone			Purge Parameters	DRO	GRO	VOCs	SVOCs	As, Ba, Cr, Fe, Pb, Mn, Se	B, U	Cd, Co, Hg, Ni, V	Stage 2 AP Dissolved Metals	Cyanide	Anions	Total Dissolved Solids
MW-43	Monitoring	N Refinery	6	15.5 to 20.5	Shallow	Y	SA	SA	SA	SA	SA	SA	SA	SA	Q	-	Q	A	A
MW-59	Monitoring	N Refinery	2	15 to 30	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-60	Monitoring	N Refinery	2	15 to 30	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-61	Monitoring	N Refinery	4	14 to 29	Shallow		SA	SA	SA	SA	SA	SA	SA	-	-	-	-	A	A
MW-62	Monitoring	N Refinery	4	14 to 29	Shallow	Y	SA	SA	SA	SA	SA	SA	SA	-	-	-	-	A	A
MW-62R	Monitoring	N Refinery	4	5 to 25	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-67	Monitoring	N Refinery	4	12 to 27	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-90	Monitoring	N Refinery	4	5 to 20	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-91	Monitoring	N Refinery	4	7 to 22	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-92	Monitoring	N Refinery	4	5 to 20	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-93	Monitoring	N Refinery	4	5 to 20	Shallow	Y	SA	A	A	A	A	A	A	-	-	-	-	A	A
MW-94	Monitoring	N Refinery	4	5 to 20	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-95	Monitoring	N Refinery	4	7 to 22	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-96	Monitoring	N Refinery	4	7 to 22	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-97	Monitoring	N Refinery	4	8 to 23	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-98	Monitoring	N Refinery	4	13 to 23	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-137	Monitoring	N Refinery	2	10 to 30	Shallow	Y	SA	SA	SA	SA	SA	SA	SA	SA	Q	-	Q	A	A
MW-137A	Monitoring	N Refinery	2	5.5 to 15.5	Shallow	Y	SA	A	A	A	A	-	A	A	Q	-	Q	A	A
MW-138	Monitoring	N Refinery	2	10 to 25	Shallow	Y	SA	SA	SA	SA	SA	SA	SA	SA	Q	-	Q	A	A
MW-138A	Monitoring	N Refinery	2	5.5 to 15.5	Shallow	Y	SA	A	A	A	A	-	A	A	Q	-	Q	A	A
MW-157	Monitoring	N Refinery	2	45 to 60	Valley Fill		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
RW-1R [g]	Recovery	N Refinery	12	15 to 35	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
RW-2R [g]	Recovery	N Refinery	12	14.5 to 34.5	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
RW-7R [g]	Recovery	N Refinery	12	14.5 to 34.5	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
RW-8R [g]	Recovery	N Refinery	12	14.5 to 34.5	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-9	Recovery	N Refinery	36		Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
RW-10	Recovery	N Refinery	36		Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
RW-16 [e]	Recovery	N Refinery	36		Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-17 [e]	Recovery	N Refinery	36		Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-117	Monitoring	N RO Reject Field	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-118	Monitoring	N RO Reject Field	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-119	Monitoring	N RO Reject Field	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-140	Monitoring	N RO Reject Field	2	10 to 30	Shallow		SA	SA	-	-	-	-	SA	SA	Q	SA	-	SA	SA
MW-141	Monitoring	N RO Reject Field	2	10 to 30	Shallow		SA	SA	-	-	-	-	SA	SA	Q	SA	-	SA	SA
MW-142	Monitoring	N RO Reject Field	2	10 to 30	Shallow		SA	SA	-	-	-	-	SA	SA	Q	SA	-	SA	SA
MW-143	Monitoring	N RO Reject Field	2	10 to 30	Shallow		SA	SA	-	-	-	-	SA	SA	Q	SA	-	SA	SA
MW-162	Monitoring	N RO Reject Field	2	10 to 30	Shallow		-	-	-	-	-	-	-	-	-	SA	-	SA	SA
MW-18	Monitoring	NCL	8	15 to 19	Shallow		SA	A	A	-	A	-	A	A	Q	-	Q	A	A
MW-19	Monitoring	NCL	2		Shallow		A	No samples to be collected											
MW-45	Monitoring	NCL	2	10.5 to 15.5	Shallow		SA	SA	SA	-	SA	-	SA	SA	Q	-	Q	A	A
MW-53R	Monitoring	NCL	2	14 to 24	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-54A	Monitoring	NCL	2	12.7 to 27.7	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
MW-54B	Monitoring	NCL	2	33.8 to 43.8	Valley Fill		SA	B	B	B	B	-	B	-	-	-	-	B	B
MW-55	Monitoring	NCL	2	13.7 to 23.7	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	Q	SA	SA
MW-56	Monitoring	NCL	2	13.4 to 23.4	Shallow		SA	A	A	-	A	-	SA	SA	Q	SA	-	SA	SA
MW-108	Monitoring	NCL	4	9 to 24	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-31	Monitoring	NCL	2	13 to 18	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-32	Monitoring	NCL	2	17 to 22	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-33	Monitoring	NCL	2	13 to 18	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-34A	Monitoring	NCL	2	16 to 21	Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-44	Monitoring	NCL	2		Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
NCL-49	Monitoring	NCL	2	16.8 to 17.8	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A

Table 1. 2025 Facility-Wide Groundwater Monitoring Program and Schedule

HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Associated Area	Well Construction [a]			Historic PSH? [b]	Gauging Frequency	Analytical Suite and Frequency [c, d]					Total Metals						
			Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone			Purge Parameters	DRO	GRO	VOCs	SVOCs	As, Ba, Cr, Fe, Pb, Mn, Se	B, U	Cd, Co, Hg, Ni, V	Stage 2 AP Dissolved Metals	Cyanide	Anions	Total Dissolved Solids
KWB-2R	Monitoring	S Refinery	2		Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
KWB-4	Monitoring	S Refinery	2	20 to 39	Shallow	Y	SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
MW-28	Monitoring	S Refinery	6	25 to 30	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-48	Monitoring	S Refinery	2	19 to 34	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-50	Monitoring	S Refinery	2	12 to 27	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
MW-52	Monitoring	S Refinery	2	19 to 34	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-64	Monitoring	S Refinery	4	15 to 30	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-65	Monitoring	S Refinery	4	14.5 to 29.5	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-66	Monitoring	S Refinery	4	14.6 to 29.6	Shallow	Y	SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
MW-99	Monitoring	S Refinery	4	12 to 27	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-101	Monitoring	S Refinery	4	8 to 23	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-102	Monitoring	S Refinery	4	12 to 27	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-103	Monitoring	S Refinery	4	7 to 22	Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-104	Monitoring	S Refinery	4	3 to 18	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-105	Monitoring	S Refinery	4	8 to 18	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-106	Monitoring	S Refinery	4	11 to 26	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-107	Monitoring	S Refinery	4	12 to 22	Shallow	Y	SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-109	Monitoring	S Refinery	2	15 to 29.5	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-110	Monitoring	S Refinery	2	15 to 29.5	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-130	Monitoring	S Refinery	2	30 to 45	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-139	Monitoring	S Refinery	2	10 to 30	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-158	Monitoring	S Refinery	2	45 to 60	Valley Fill		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-159	Monitoring	S Refinery	2	45 to 60	Valley Fill		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
RA-313	Irrigation	S Refinery	10	904 to 1157	Artesian		NA	A	-	-	A	-	-	-	-	-	-	A	A
RW-4R [g]	Recovery	S Refinery	12	14.5 to 34.5	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-5R [g]	Recovery	S Refinery	12	13 to 33	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-6R [g]	Recovery	S Refinery	12	14.5 to 34.5	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-11 [e]	Recovery	S Refinery	36		Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-15 [e]	Recovery	S Refinery	36		Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
RW-19	Recovery	S Refinery	12	11 to 46	Shallow	Y	SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-114	Monitoring	S RO Reject Field	2	20 to 35	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-115	Monitoring	S RO Reject Field	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-116	Monitoring	S RO Reject Field	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	SA	-	SA	SA
MW-144	Monitoring	S RO Reject Field	2	10 to 30	Shallow		SA	SA	-	-	-	-	SA	SA	Q	SA	-	SA	SA
MW-163	Monitoring	S RO Reject Field	2	10 to 30	Shallow		-	-	-	-	-	-	-	-	-	SA	-	SA	SA
MW-49	Monitoring	TEL	2	19 to 34	Shallow		SA	SA	SA	SA	SA	-	SA	SA	Q	-	Q	A	A
TEL-1	Monitoring	TEL	2	13 to 23	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
TEL-2	Monitoring	TEL	2	13 to 23	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
TEL-3	Monitoring	TEL	2	13 to 23	Shallow	Y	SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
TEL-4	Monitoring	TEL	2	13 to 23	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-8	Monitoring	TMD	2		Shallow		SA	A	A	A	A	-	A	-	-	-	-	A	A
MW-9	Monitoring	TMD	2		Shallow		SA	No samples to be collected											
MW-16	Monitoring	TMD	4	8.5 to 19	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-20	Monitoring	TMD	4	9.5 to 23.5	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-21	Monitoring	TMD	4	7.5 to 22	Shallow		SA	SA	SA	SA	SA	-	SA	-	-	-	-	A	A
MW-25	Monitoring	TMD	2	15.75 to 25.25	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-26	Monitoring	TMD	2	15.25 to 24.25	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-27	Monitoring	TMD	2	18.25 to 27.75	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-46R	Monitoring	TMD	2	3.5 to 18.5	Shallow		SA	SA	SA	-	SA	-	SA	-	-	-	-	A	A
MW-68	Monitoring	TMD	2	14.75 to 24.5	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-71	Monitoring	TMD	2	9.75 to 19.5	Shallow		SA	A	A	-	A	-	A	A	Q	-	Q	A	A
MW-89	Monitoring	TMD	4	2 to 17	Shallow		SA	A	A	-	A	-	A	-	-	-	-	A	A
MW-152	Monitoring	TMD	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-153	Monitoring	TMD	2	15 to 30	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-154	Monitoring	TMD	2	15 to 30	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-155	Monitoring	TMD	2	15 to 30	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
MW-156	Monitoring	TMD	2	10 to 25	Shallow		SA	SA	SA	SA	SA	-	-	-	-	-	-	-	-
NP-1	Monitoring	TMD	2	9.5 to 19	Shallow		SA	SA	-	-	SA	-	-	-	-	-	-	A	A
NP-2	Monitoring	TMD	2	9.5 to 18.5	Shallow		SA	No samples to be collected											
NP-3	Monitoring	TMD	2	9.5 to 18.5	Shallow		SA	No samples to be collected											
NP-4	Monitoring	TMD	2	24.5 to 33.5	Shallow		SA	No samples to be collected											
NP-6	Monitoring	TMD	2	8.75 to 18.75	Shallow		SA	B	-	-	B	-	-		-		-	-	-
NP-8	Monitoring	TMD	2		Shallow		SA	No samples to be collected											
NP-9	Monitoring	TMD	2		Shallow		SA	No samples to be collected											

Table 1. 2025 Facility-Wide Groundwater Monitoring Program and Schedule

HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

			Well Construction [a]					Analytical Suite and Frequency [c, d]											
													Total Metals						
Well ID	Well Type	Associated Area	Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone	Historic PSH? [b]	Gauging Frequency	Purge Parameters	DRO	GRO	VOCs	SVOCs	As, Ba, Cr, Fe, Pb, Mn, Se	B, U	Cd, Co, Hg, Ni, V	Stage 2 AP Dissolved Metals	Cyanide	Anions	Total Dissolved Solids
UG-1	Monitoring	Up-gradient	4	8 to 23	Shallow		A	A	A	A	A	-	A	A	Q	-	Q	A	A
UG-2	Monitoring	Up-gradient	4	15 to 30	Shallow		A	A	A	A	A	-	A	A	Q	-	Q	A	A
UG-3R	Monitoring	Up-gradient	4	17 to 37	Shallow		A	A	A	A	A	-	A	A	Q	-	Q	A	A
UG-4	Monitoring	Up-gradient	2	19.5 to 39.5	Shallow		A	A	A	A	A	-	A	A	Q	-	Q	A	A

Note: Blank cells indicate that information is not available or applicable.

Abbreviations:

A = Annual (March/April event)
B = Biennial (March/April event in odd calendar years)
DRO = Diesel Range Organics
E = East
EP = Evaporation Ponds
ft bgs = feet below ground surface
GRO = Gasoline Range Organics
N = North
NA = Not accessible
NCL = North Colony Landfarm
OCD = Oil Conservation Division
Q = Quinquennial (March/April event every 5 calendar years [i.e., 2029, 2034, 2039, etc.])
S = South
SA = Semi-annual (March/April and September/October events)
Stage 2 AP Dissolved Metals = dissolved arsenic, boron, iron, manganese, and uranium
TEL = Tetra Ethyl Lead Impoundment
TMD = Three Mile Ditch
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Compounds
Y = Yes

Footnotes:

[a] Available well construction information provided.

[b] PSH was present during previous groundwater monitoring events or a recovery pump is in place. Recovery wells are gauged at least monthly.

[c] Analytical Suite to include the following:

1. Purge parameters pH, temperature, specific conductivity, dissolved oxygen, oxygen-reduction potential, and turbidity will be measured and recorded in the field.
2. Diesel Range Organics (DRO) by Method 8010Mod.
3. Gasoline Range Organics (GRO) by Method 8010Mod.
4. Volatile organic compounds (VOCs) by Method 8260, to include methyl tert butyl ether (MTBE), naphthalene, and tert-butyl alcohol (TBA).
5. Semi-volatile organic compounds (SVOCs) by Method 8270.
6. Total metals by Method 6010/6020 and/or 7470. Specific metals shown in table heading (symbols from periodic chart).
7. Stage 2 AP Dissolved Metals = Samples collected from MW-29, MW-40, MW-55, MW-56, MW-114 through MW-119, MW-125, MW-140 through MW-144, MW-162, MW-163, and RW-18 will be analyzed for dissolved arsenic, boron, iron, manganese, and uranium semi-annually in accordance with the April 2024 Reverse Osmosis Reject Discharge Fields Stage 2 Abatement Plan.
8. Anions to include Chloride, Fluoride, Nitrate, Nitrite, and Sulfate by Method 300 or 9056.
9. Total Dissolved Solids by Method 2540C.

"-" indicates parameter not required.

Note - samples will not be collected from any well where PSH is measured to be 0.03 feet thick or greater.

[d] Groundwater will be purged and sampled from wells as indicated using either a peristaltic pump (for sampling depths of approximately 25 feet bgs or less) or a dedicated, stainless steel submersible or bladder pump (for sampling depth greater than 25 feet bgs).

[e] Recovery trenches 11, 15, 16, 17, and 18 have multiple "wells". Gauging and sampling points are as follows: RW #11-0, RW #15C, RW #16B, RW #17A, and RW #18A.

[f] Wells will be gauged and/or sampled only if the landowner grants access.

[g] Recovery well RW-1, RW-2, RW-4, RW-5, RW-6, RW-7, RW-8, RW-12, RW-13, and RW-14 will be sampled instead if a recovery pump is installed in associated recovery well RW-1R, RW-2R, RW-4R, RW-5R, RW-6R, RW-7R, RW-8R, RW-12R, RW-13R, and RW-14R.

[h] Previous irrigation well RA-4196 was plugged in April 2023. Replacement irrigation well RA-4196R was installed in June 2022, and the well construction details are provided in this table.

Table 2. Schedule for 1,4-Dioxane and 1,2-Dibromomethane Analysis

HF Sinclair Navajo Refining LLC - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Associated Area	Well Construction [a]			Historic PSH? [b]	Analytical Suite and Frequency [c, d]		
			Well Diameter (inch)	Screen Interval (ft bgs)	Water Bearing Zone		Sample Frequency [e]	1,4-dioxane	EDB
KWB-10R	Monitoring	Field E of Refinery	4	9 to 29	Shallow	Y	SA	2SA25, 1SA26	--
KWB-6	Monitoring	Field E of Refinery	2	17.5 to 36.5	Shallow	Y	SA	2SA25, 1SA26	2SA25, 1SA26
MW-111	Monitoring	Field E of Refinery	2	25 to 40	Shallow	Y	SA	2SA25, 1SA26	2SA25, 1SA26
MW-127	Monitoring	Field E of Refinery	2	20 to 50	Shallow	Y	SA	2SA25, 1SA26	2SA25, 1SA26
MW-128	Monitoring	Field E of Refinery	2	15 to 35	Shallow	Y	SA	2SA25, 1SA26	--
MW-161	Monitoring	Field E of Refinery	2	45 to 60	Valley Fill		SA	--	2SA25, 1SA26
MW-138	Monitoring	N Refinery	2	10 to 25	Shallow	Y	SA	2SA25, 1SA26	--
MW-23	Monitoring	N Refinery	6	15 to 20	Shallow	Y	SA	2SA25, 1SA26	--
MW-29	Monitoring	N Refinery	2	9.75 to 19.25	Shallow		SA	--	2SA25, 1SA26
MW-39	Monitoring	N Refinery	2	14 to 24	Shallow	Y	SA	2SA25, 1SA26	--
MW-40	Monitoring	N Refinery	2		Shallow	Y	SA	2SA25, 1SA26	--
MW-41	Monitoring	N Refinery	2	14 to 19	Shallow	Y	A	1SA26, 1SA27	--
MW-42	Monitoring	N Refinery	2		Shallow	Y	A	1SA26	1SA26, 1SA27
MW-43	Monitoring	N Refinery	6	15.5 to 20.5	Shallow	Y	SA	2SA25, 1SA26	--
MW-60	Monitoring	N Refinery	2	15 to 30	Shallow	Y	SA	2SA25, 1SA26	2SA25, 1SA26
MW-67	Monitoring	N Refinery	4	12 to 27	Shallow	Y	SA	2SA25, 1SA26	--
MW-91	Monitoring	N Refinery	4	7 to 22	Shallow	Y	SA	2SA25, 1SA26	--
MW-92	Monitoring	N Refinery	4	5 to 20	Shallow	Y	SA	2SA25, 1SA26	--
MW-93	Monitoring	N Refinery	4	5 to 20	Shallow	Y	A	1SA26, 1SA27	--
MW-94	Monitoring	N Refinery	4	5 to 20	Shallow	Y	SA	2SA25, 1SA26	--
RW-8R [f]	Recovery	N Refinery	12	14.5 to 34.5	Shallow	Y	A	1SA26, 1SA27	1SA26, 1SA27
RW-10	Recovery	N Refinery	36		Shallow	Y	A	1SA26, 1SA27	--
RW-17 [g]	Recovery	N Refinery	36		Shallow	Y	A	1SA26	--
RW-1R [f]	Recovery	N Refinery	12	15 to 35	Shallow	Y	A	1SA26, 1SA27	--
MW-54B	Monitoring	NCL	2	33.8 to 43.8	Valley Fill		B	--	1SA27
MW-158	Monitoring	S Refinery	2	45 to 60	Valley Fill		SA	--	2SA25, 1SA26
MW-28	Monitoring	S Refinery	6	25 to 30	Shallow	Y	SA	2SA25, 1SA26	--
MW-21	Monitoring	TMD	4	7.5 to 22	Shallow		SA	--	2SA25, 1SA26
MW-8	Monitoring	TMD	2		Shallow		A	--	1SA26, 1SA27
NP-6	Monitoring	TMD	2	8.75 to 18.75	Shallow		B	--	1SA27, 1SA29

Note: Blank cells indicate that information is not available or applicable.

Abbreviations:

A = Annual (March/April event)
B = Biennial (March/April event in odd calendar years)
E = East
EDB = 1,2-Dibromomethane or ethylene dibromide
ft bgs = feet below ground surface
N = North
NCL = North Colony Landfarm
OCD = Oil Conservation Division
S = South
SA = Semi-annual (March/April and September/October events)
Y = Yes
2SA25= Second semi-annual monitoring event of 2025
1SA26 = First semi-annual monitoring event of 2026
1SA27 = First semi-annual monitoring event of 2027
1SA29 = First semi-annual monitoring event of 2029

Footnotes:

[a] Available well construction information provided.

[b] PSH was present during previous groundwater monitoring events or a recovery pump is in place. Recovery wells are gauged at least monthly.

[c] Analytical Suite to include the following:

1. Purge parameters pH, temperature, specific conductivity, dissolved oxygen, oxygen-reduction potential, and turbidity will be measured and recorded in the field.
2. 1,4-Dioxane by Method 8270.
3. 1,2-Dibromomethane (EDB) by Method 8011.

"-" indicates parameter not required or required analysis completed.

Note - samples will not be collected from any well where PSH is measured to be 0.03 feet thick or greater.

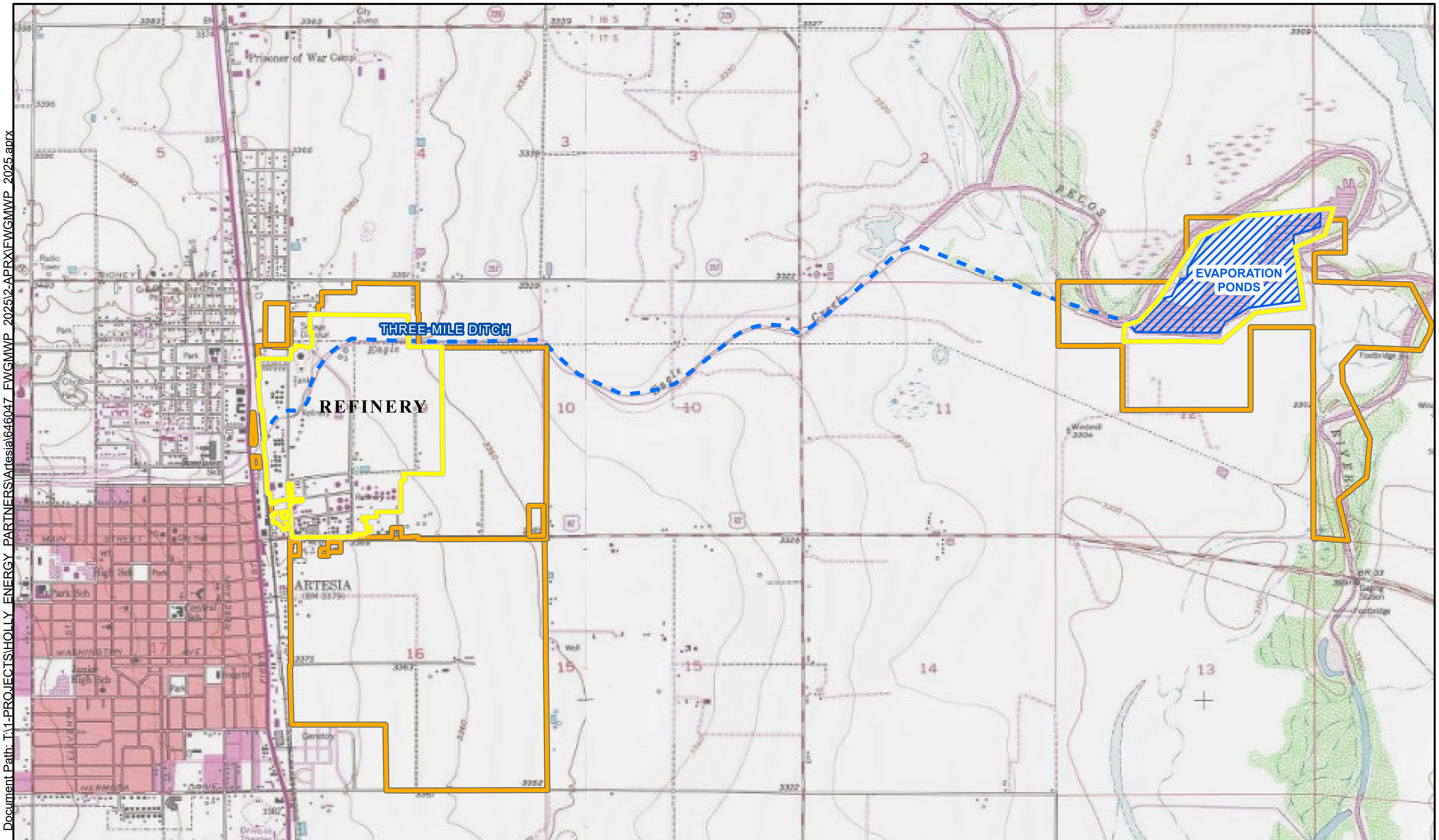
[d] Groundwater will be purged and sampled from wells as indicated using either a peristaltic pump (for sampling depths of approximately 25 feet bgs or less) or a dedicated, stainless steel submersible pump (for sampling depth greater than 25 feet bgs).

[e] Sample frequency consistent with frequency of volatile organic compounds (VOCs) shown on Table 1.

[f] Recovery wells RW1 or RW-8 will be sampled instead if a recovery pump is installed in associated recovery wells RW-1R or RW-8R.

[g] Recovery trench 17 has multiple "wells". Gauging and sampling points are as follows: RW #17A.

Figures



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LEGEND

- FENCELINE
- HFSNR PROPERTY BOUNDARY (FENCELINE SHOWN WHERE COINCIDENT)
- THREE-MILE DITCH
- EVAPORATION PONDS

SOURCE: BASE MAP USGS 7.5 MINUTE SERIES QUADS, ARTESIA AND SPRINGLAKE QUADRANGLES, 1955, PHOTOREVISED 1983.

N

0 1,500 3,000
Feet

SITE LOCATION MAP

HF SINCLAIR NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

PROJECT NUMBER: 646047	FILE NAME: FWGMWP_2025
AUTHOR: MJAGOE	DATE: 6/9/2025

TRC

505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 1

LEGEND

- IRRIGATION WELL
- MONITORING WELL
- RECOVERY WELL
- FENCELINE
- HFSNR PROPERTY BOUNDARY (FENCELINE SHOWN WHERE COINCIDENT)

N / E / S / W

0 800 1,600
Feet

1:9,600

AERIAL IMAGERY SOURCE: ESRI WORLD IMAGERY (7/2/23)

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WELL LOCATION MAP

HF SINCLAIR NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

AUTHOR: MJAGOE	SAVED: 6/10/2025	MXD: FWGMWP_2025

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE
2

LEGEND

- IRRIGATION WELL NOT INCLUDED IN SAMPLING PLAN
- MONITORING WELL NOT INCLUDED IN SAMPLING PLAN
- RECOVERY WELL NOT INCLUDED IN SAMPLING PLAN
- WELL TO BE SAMPLED ON A SEMI-ANNUAL BASIS
- WELL TO BE SAMPLED ON AN ANNUAL BASIS
- WELL TO BE SAMPLED ON A BIENNIAL BASIS
- HFSNR PROPERTY BOUNDARY (FENCELINE SHOWN WHERE COINCIDENT)
- FENCELINE

0 800 1,600
Feet

1:9,600

NEW MEXICO

AERIAL IMAGERY SOURCE: ESRI WORLD IMAGERY (7/2/23)

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FACILITY-WIDE GROUNDWATER SAMPLING PLAN

HF SINCLAIR NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

AUTHOR: MJAGOE	SAVED: 6/9/2025	MXD: FWGMWP_2025

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 3

Appendix A

(Provided on Compact Disc)

Summary of Facility-Wide Groundwater Concentration Trends
Cations, Anions, and TDS

HF Sinclair Navajo Refining LLC, Artesia Refinery

Analyte	Total Well Count	Wells with Stable to Declining Concentrations[1]	
		Well Count	%
TDS	188	171	91%
Anions			
Chloride	188	161	86%
Fluoride	185	162	88%
Nitrate [2]	131	113	86%
Nitrite	*Insufficient detections to evaluate* [3]		
Sulfate	189	172	91%
Cations			
Calcium	188	171	91%
Potassium	187	171	91%
Sodium	188	166	88%

Notes:

[1] Concentration trends from 2015 and onward were statistically evaluated using the Mann-Kendall Test with a calculated 95% confidence interval. Non-detects were omitted from the evaluation.

[2] Includes results of combined nitrate-nitrate analysis conducted prior to 2023. In March 2023, the facility-wide groundwater monitoring program changed to separate nitrate and nitrite analysis in order to compare each anion to their respective Water Quality Control Commission (WQCC) standard.

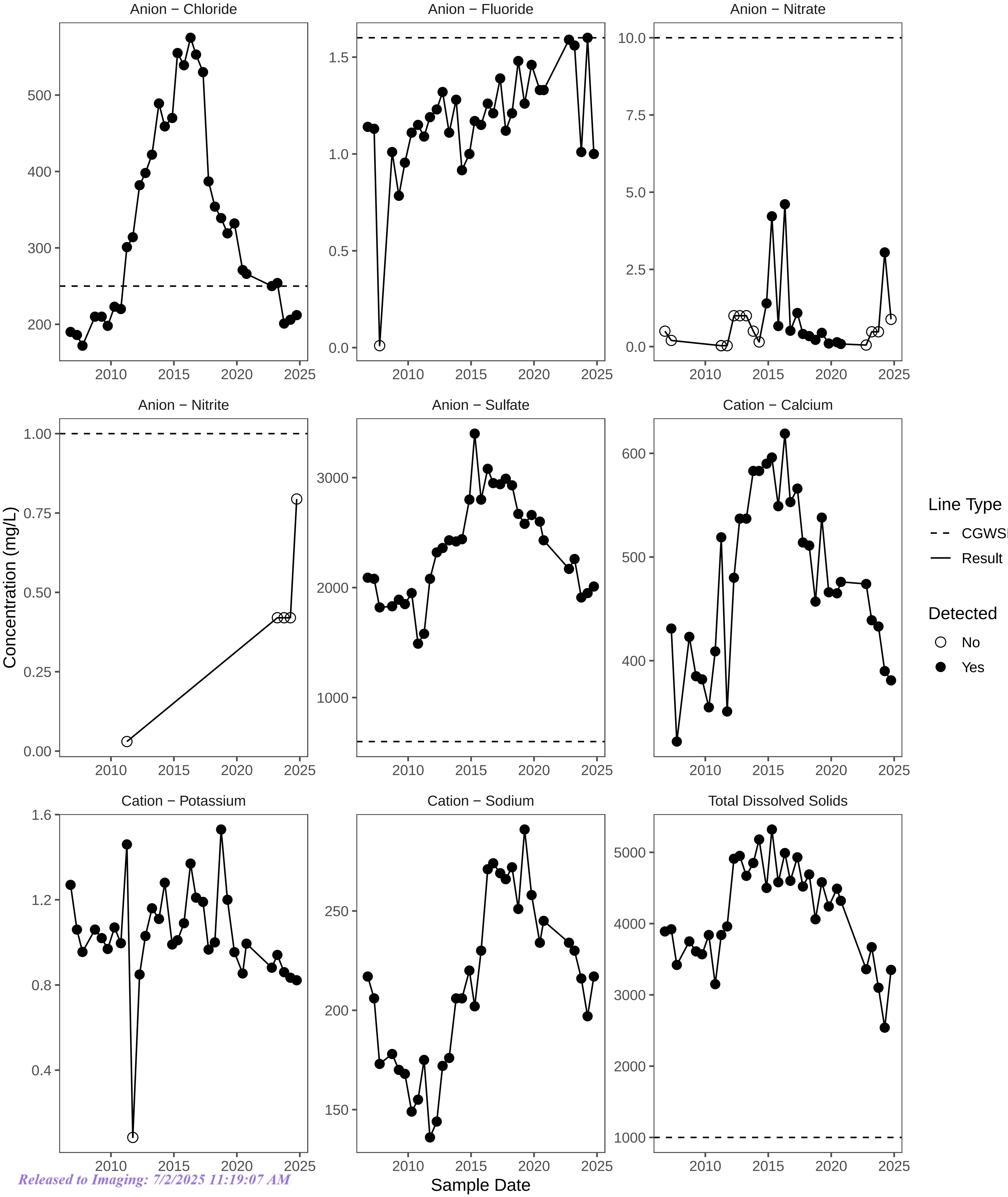
[3] Fewer than three nitrite detections in each well since analysis started in March 2023. Nitrite has not been detected in a majority of wells.

Definitions:

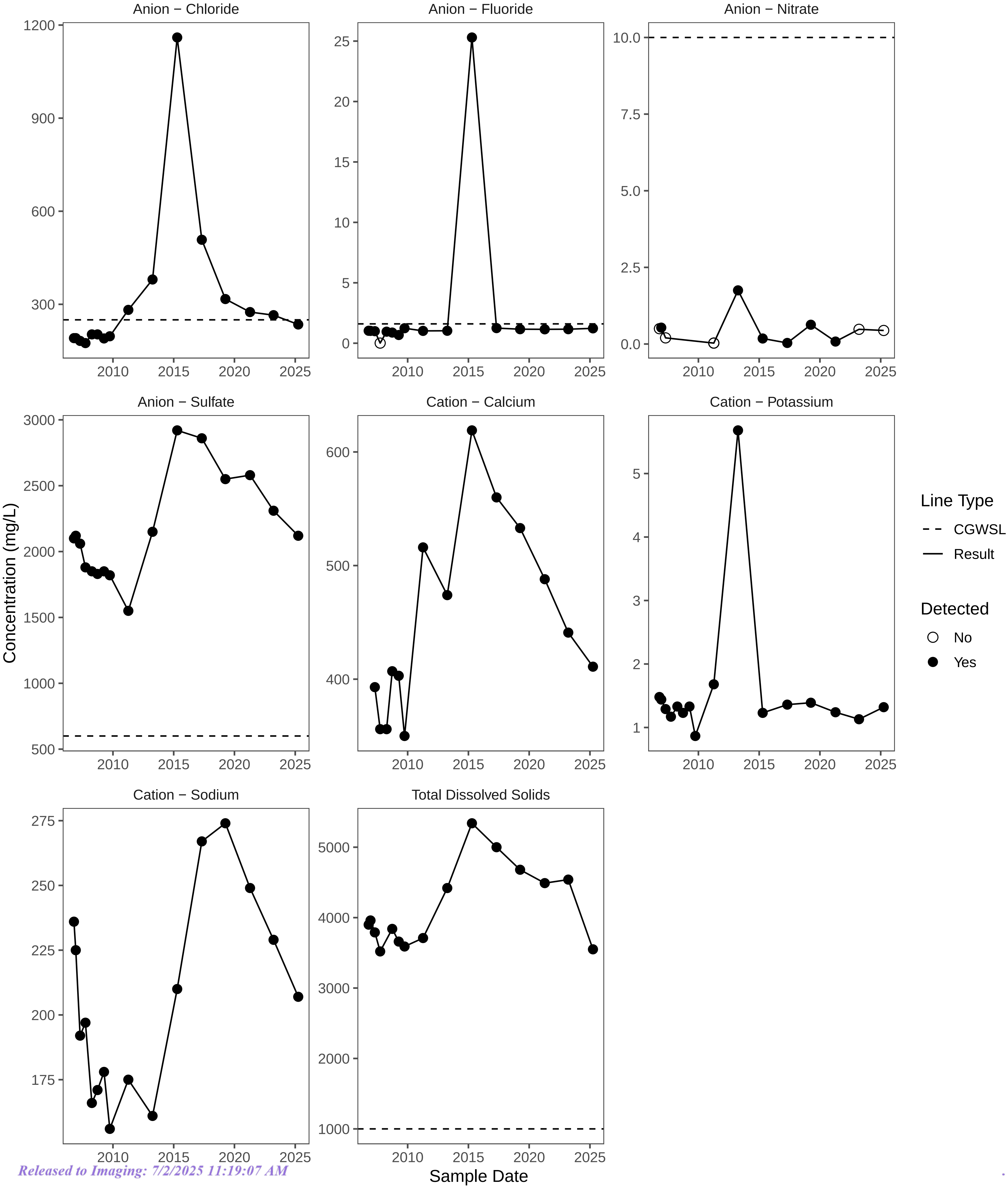
% = percent

TDS = Total Dissolved Solids

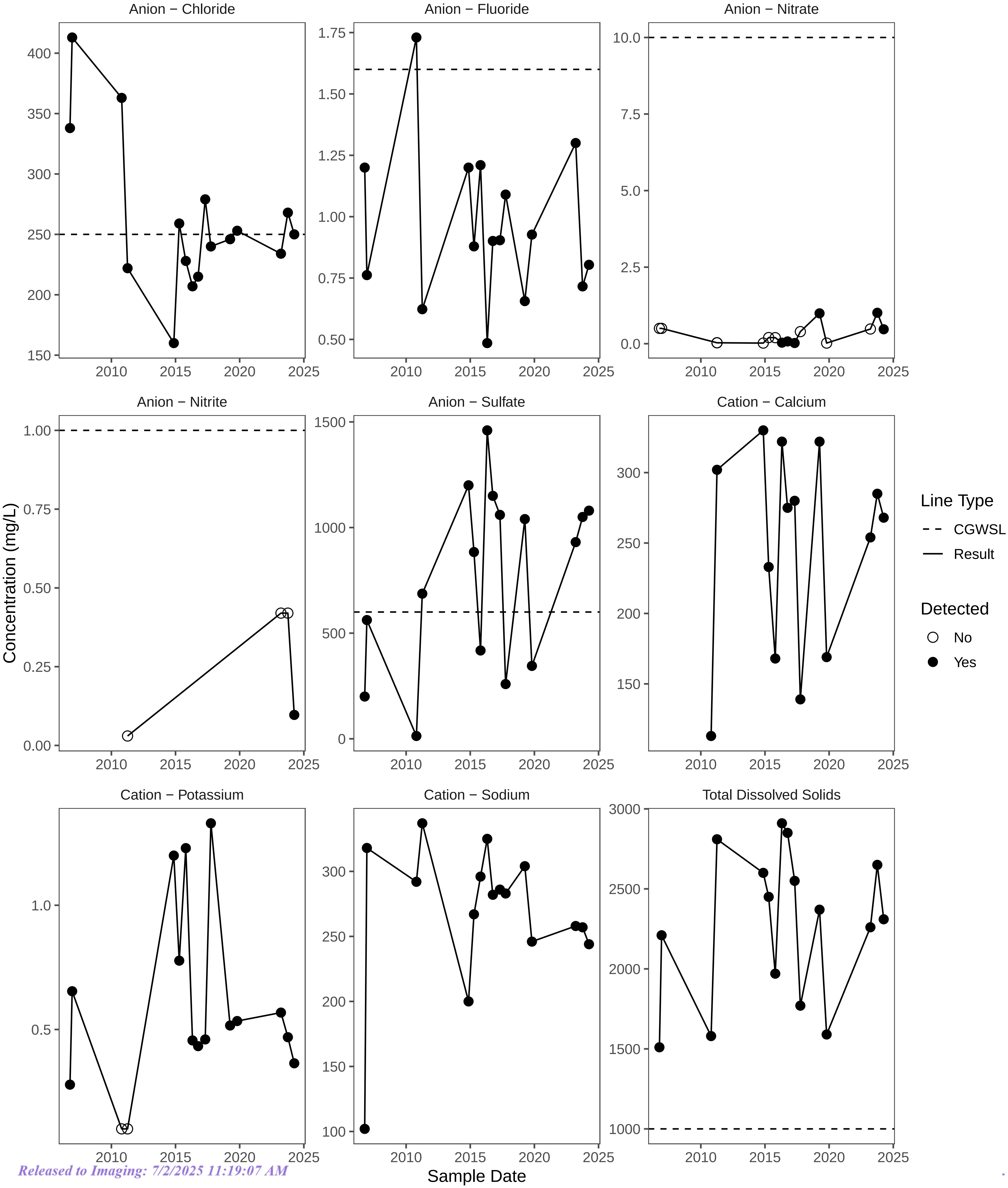
KWB−1A


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

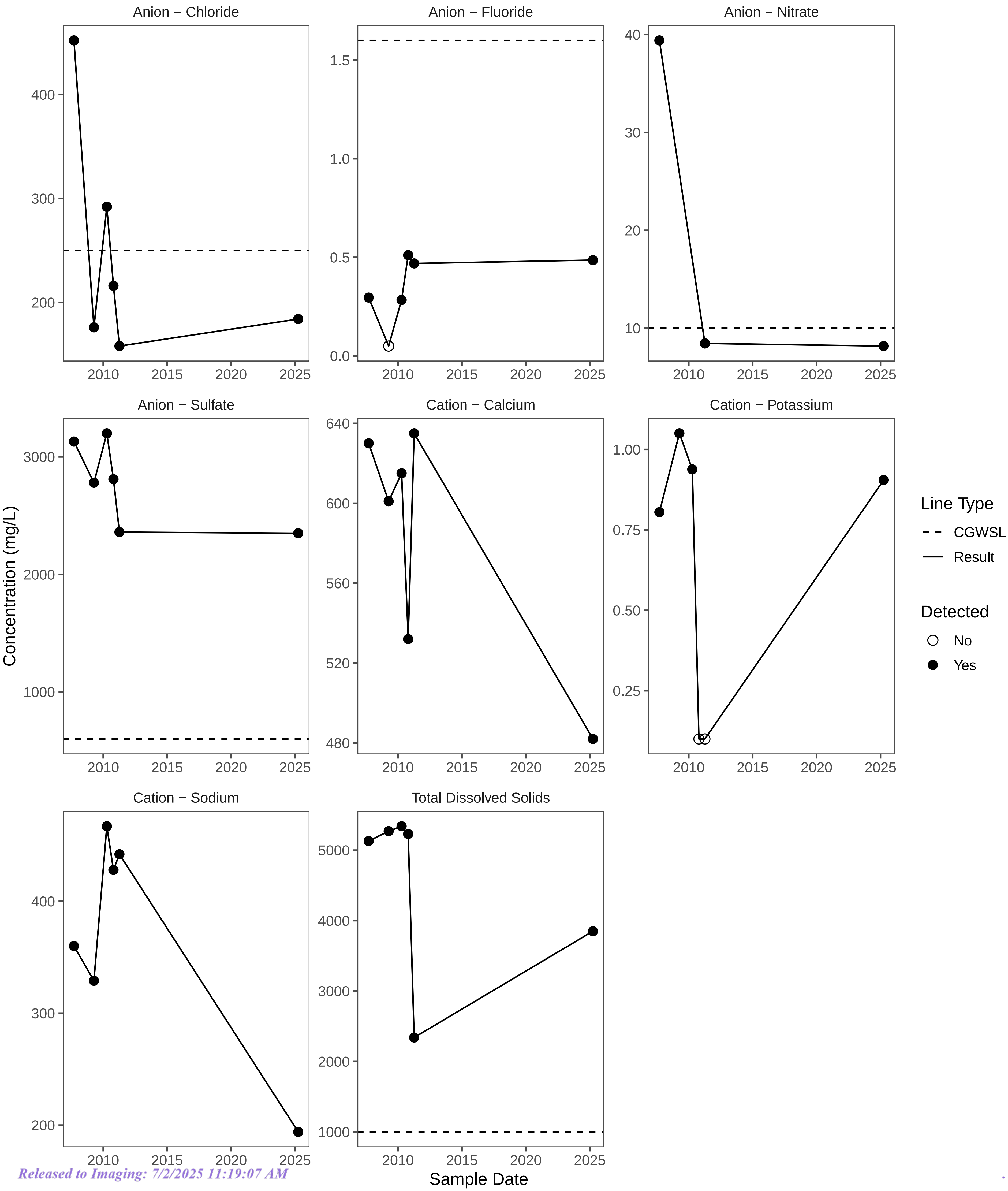
KWB-1C


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

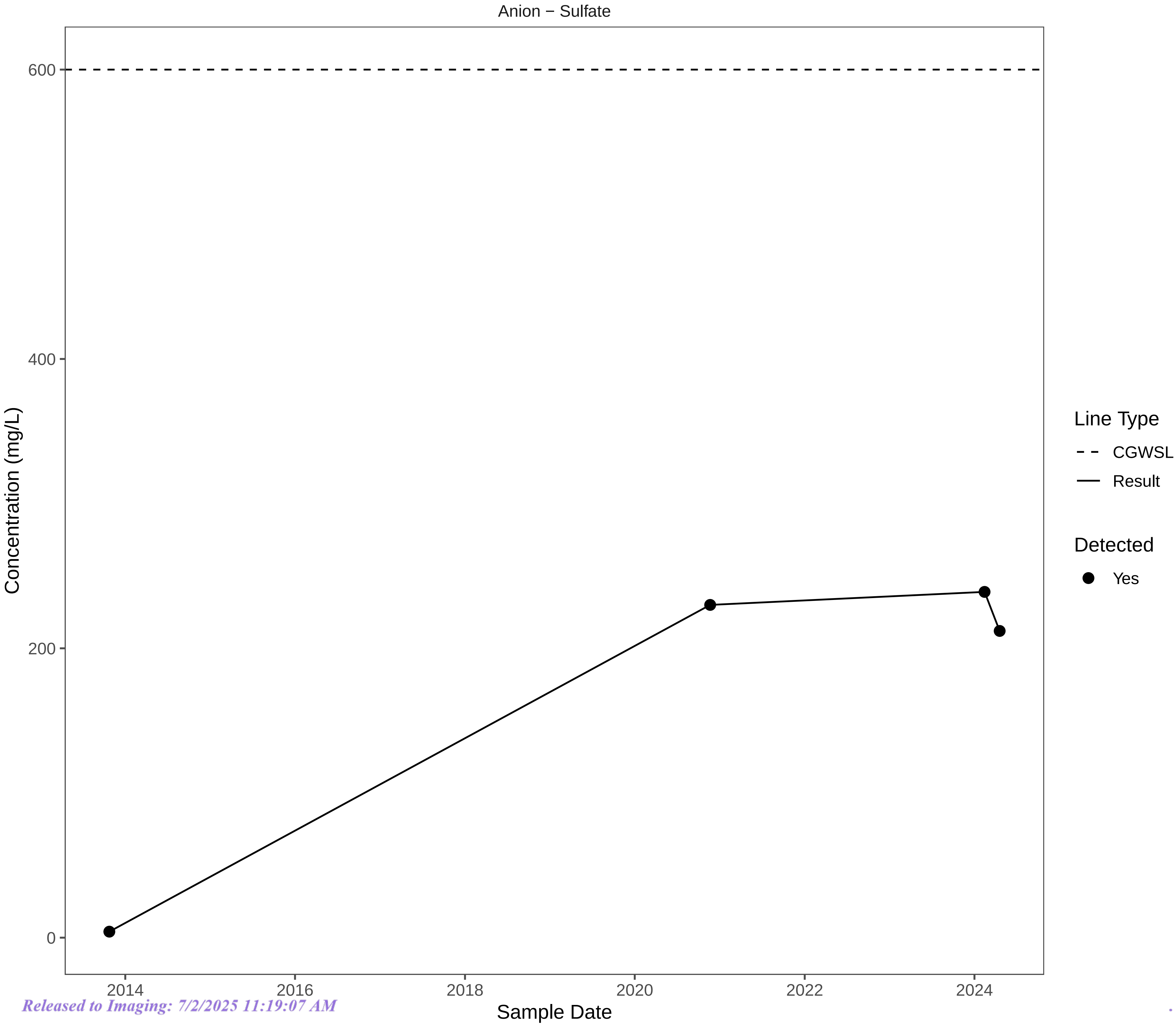
KWB-2R

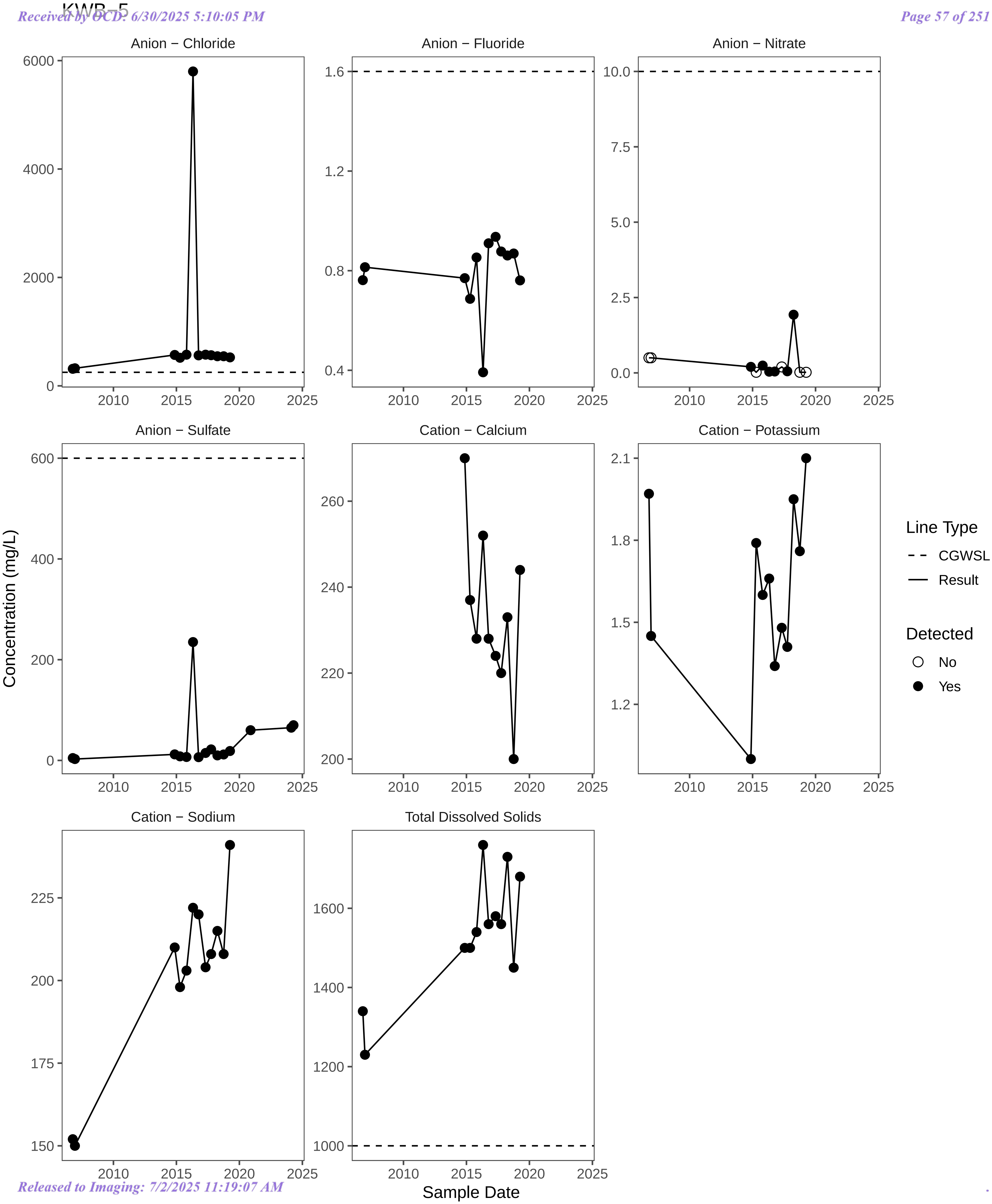

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

KWB−3AR

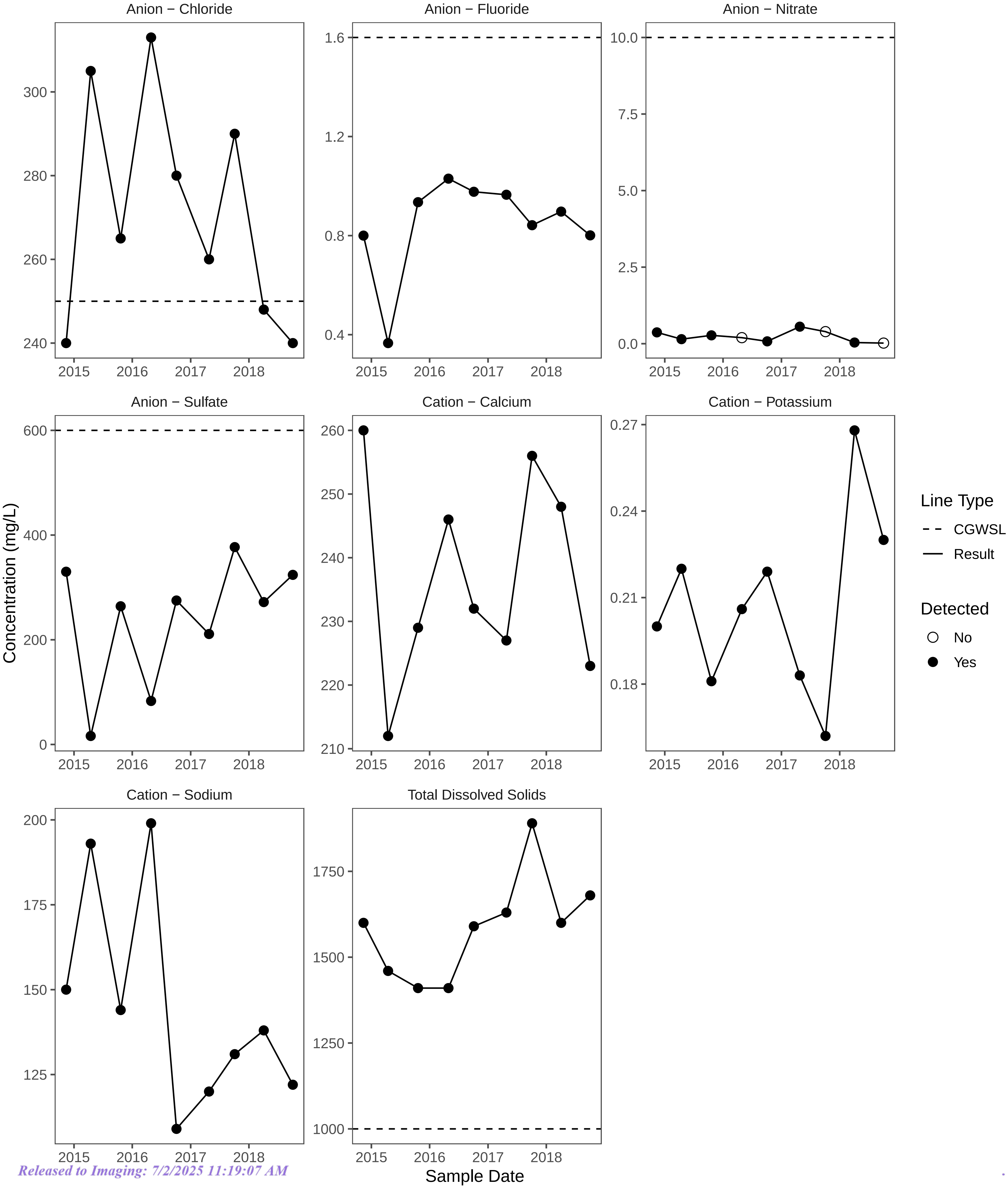

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

KWB−4

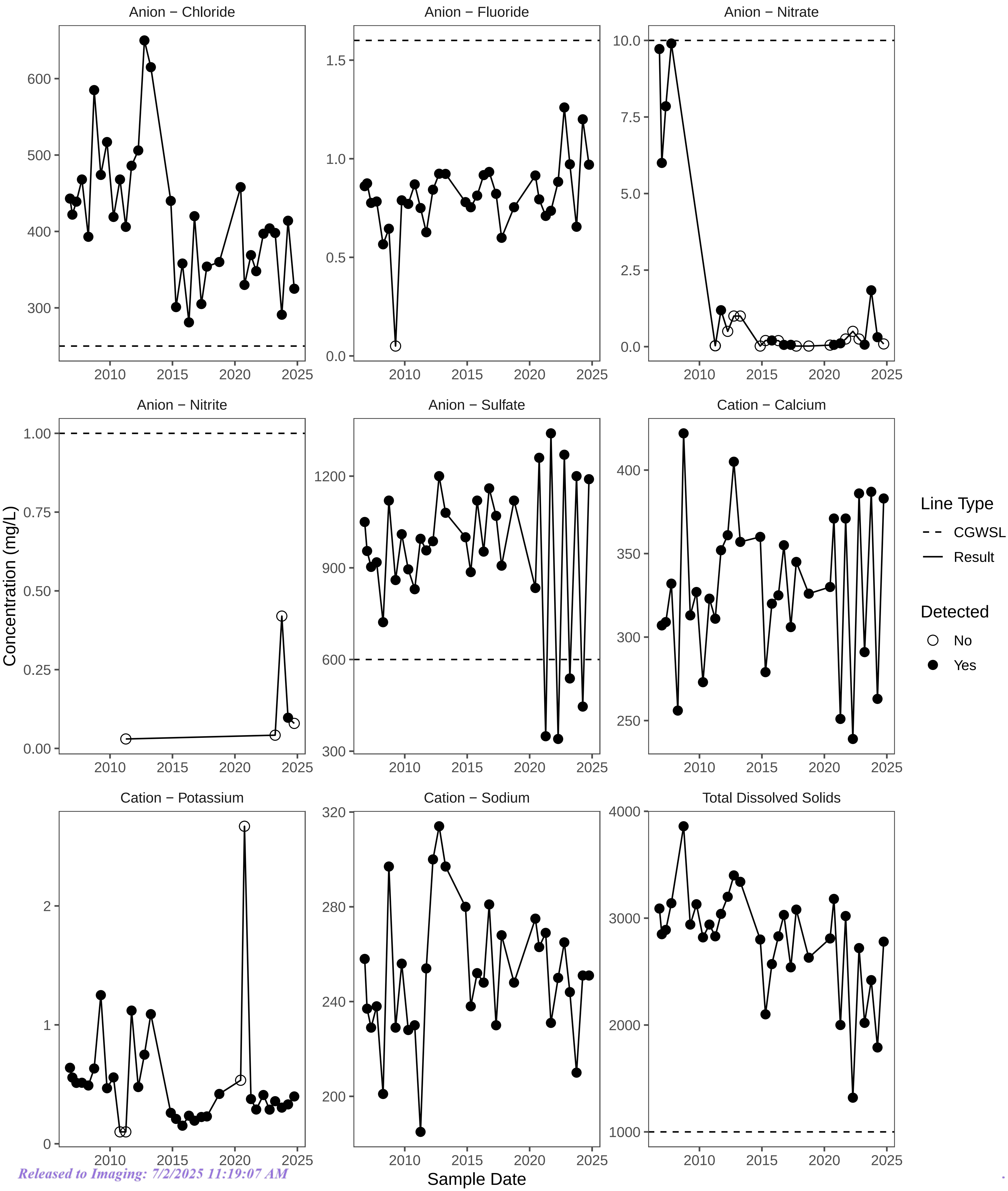

Anion − Sulfate
600
400
200
0
Concentration (mg/L)
2014
2016
2018
2020
2022
2024
Sample Date
Line Type
CGWSL
Result
Detected
Yes

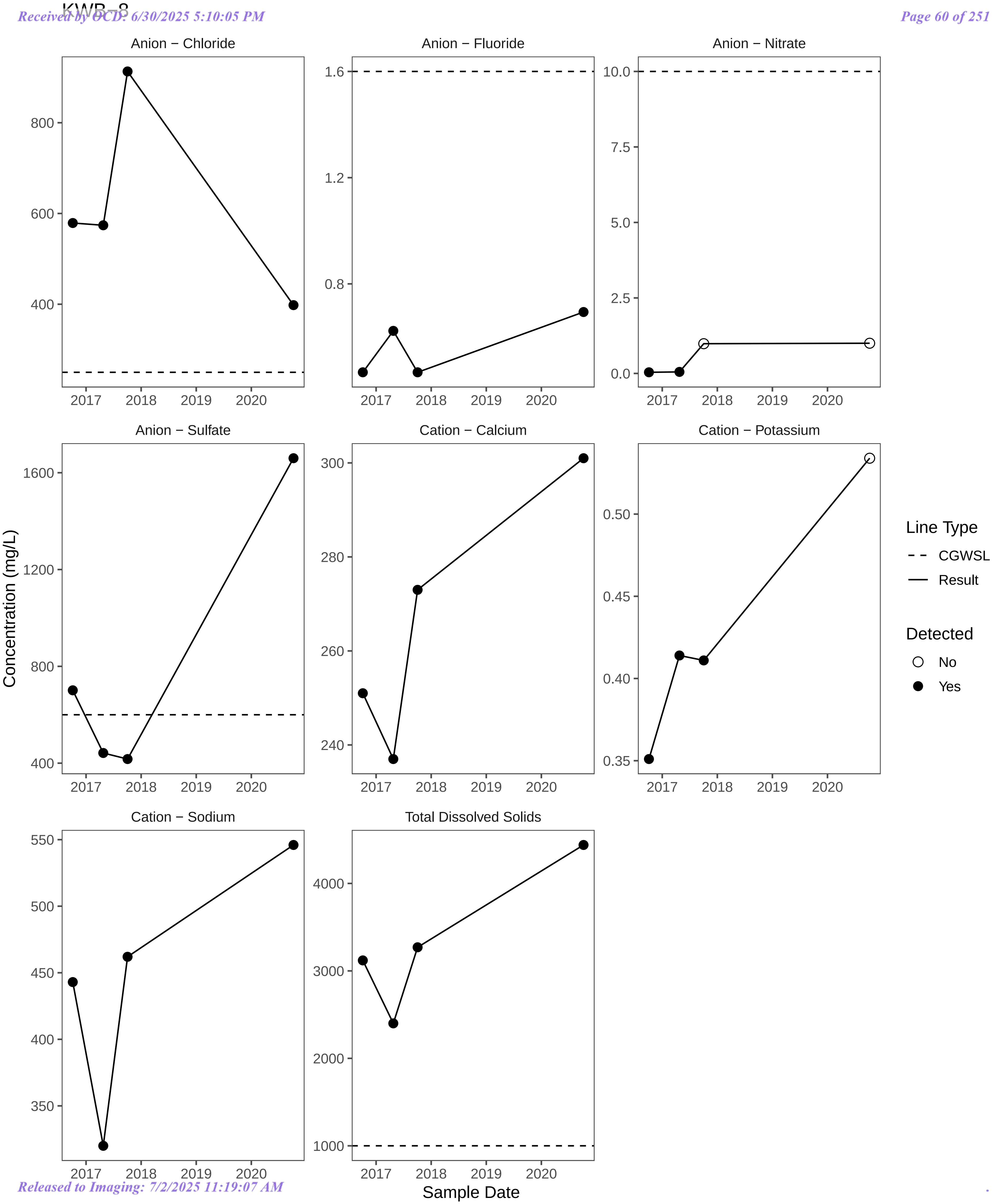

KWB–5
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

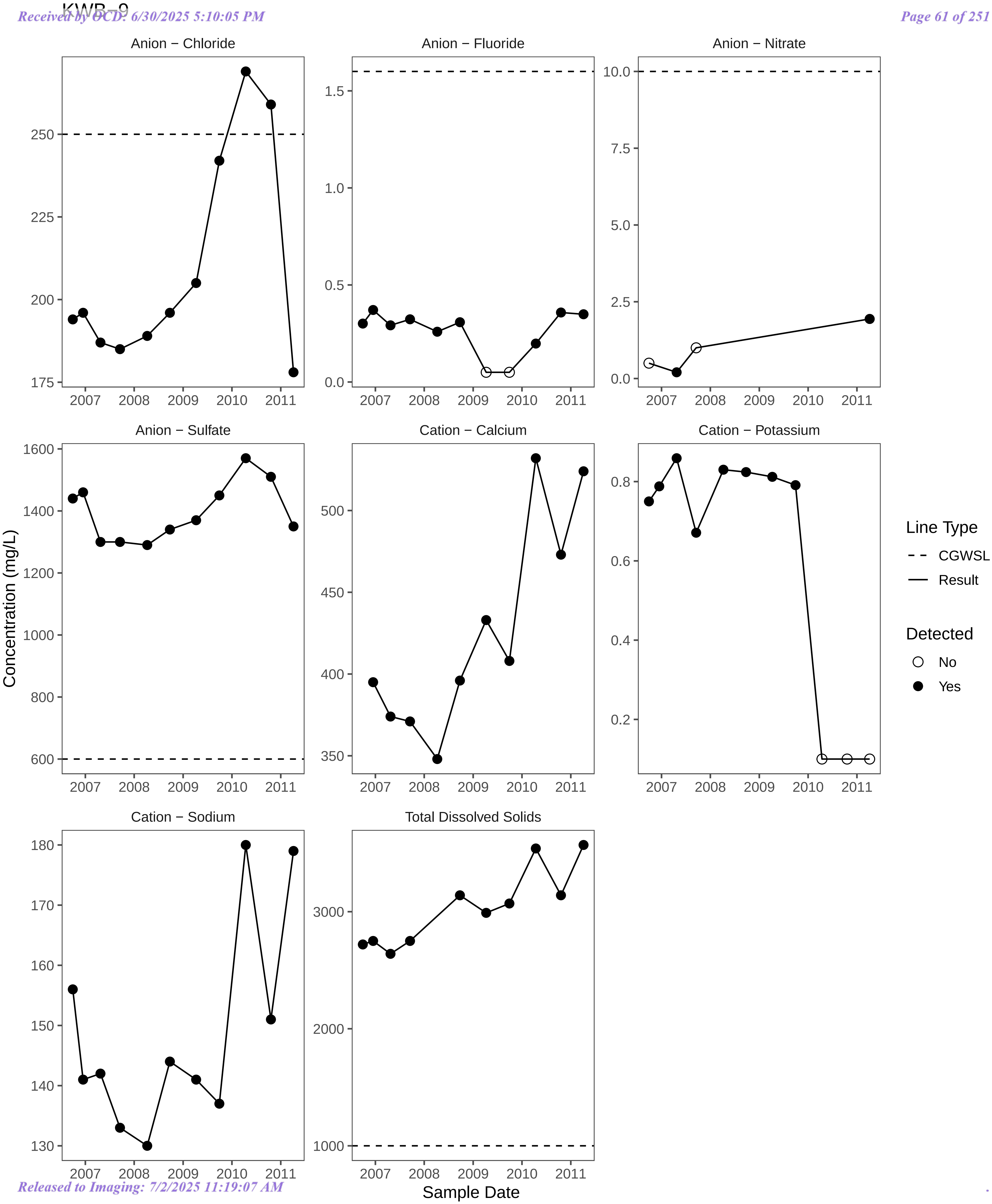
KWB–6


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2016
2017
2018
Line Type
CGWSL
Result
Detected
No
Yes

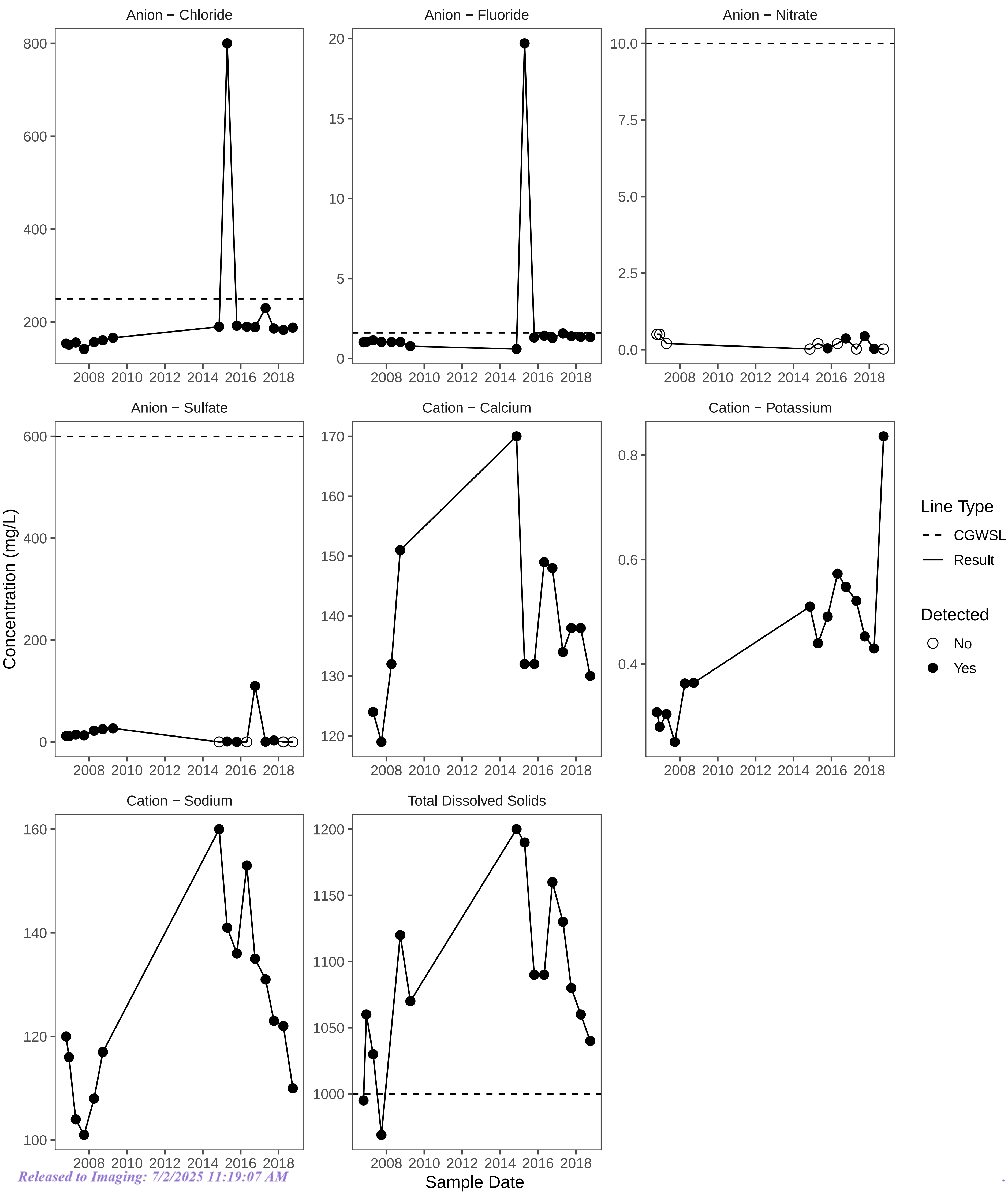
KWB-7


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

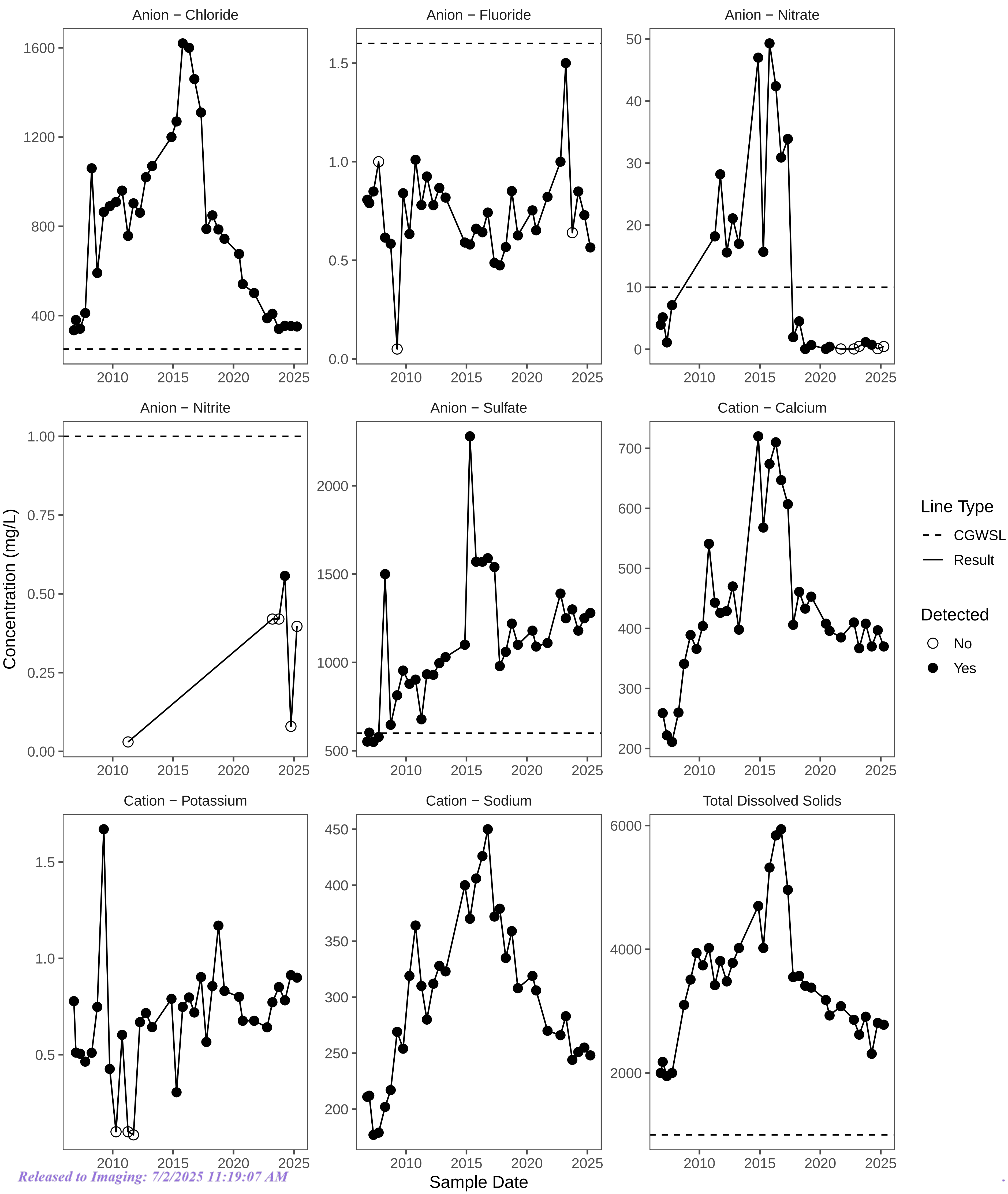

KWB_8
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2017
2018
2019
2020
Line Type
CGWSL
Result
Detected
No
Yes


KWB_9
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2007
2008
2009
2010
2011
Line Type
CGWSL
Result
Detected
No
Yes

KWB−10/KWB−10R

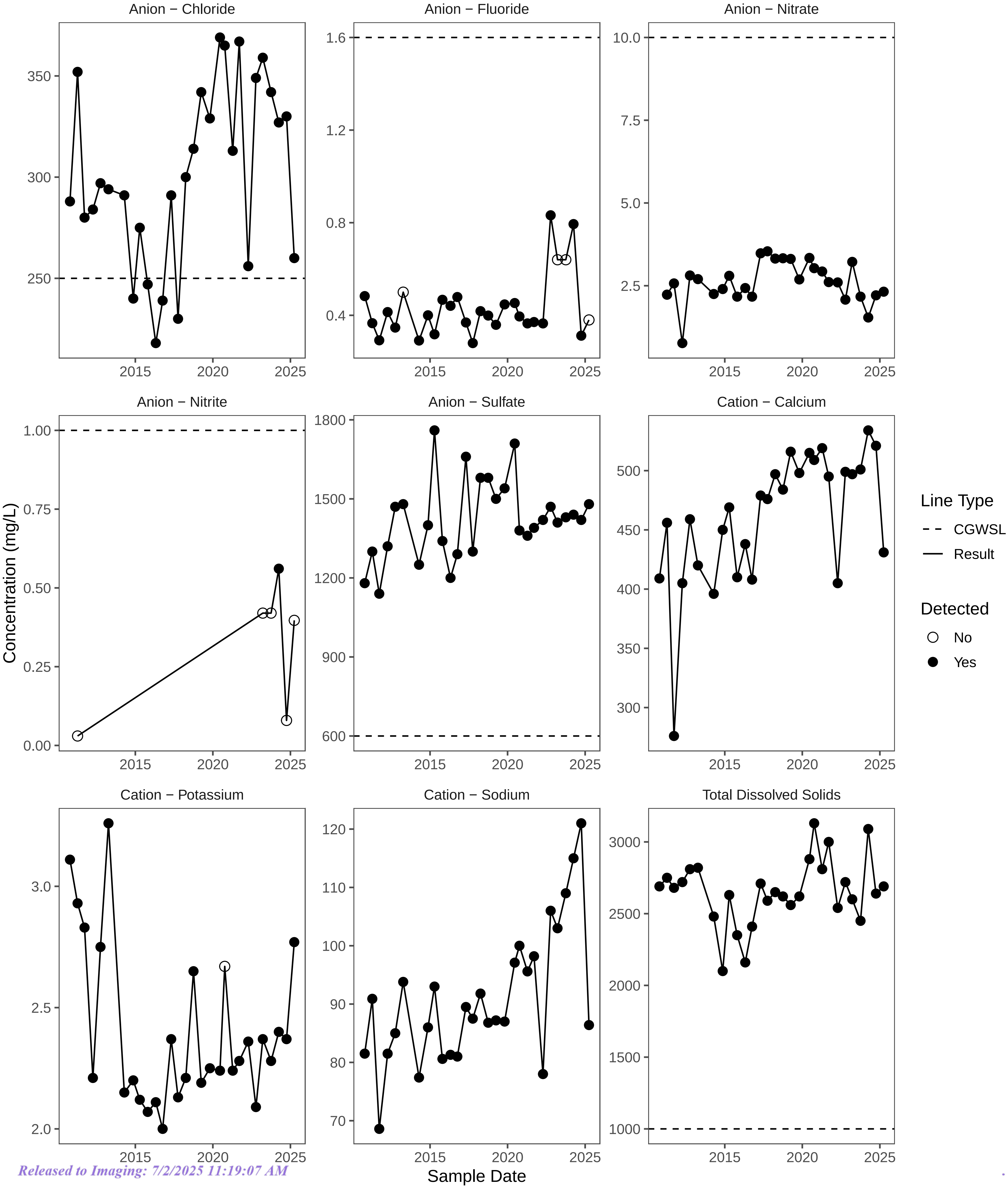


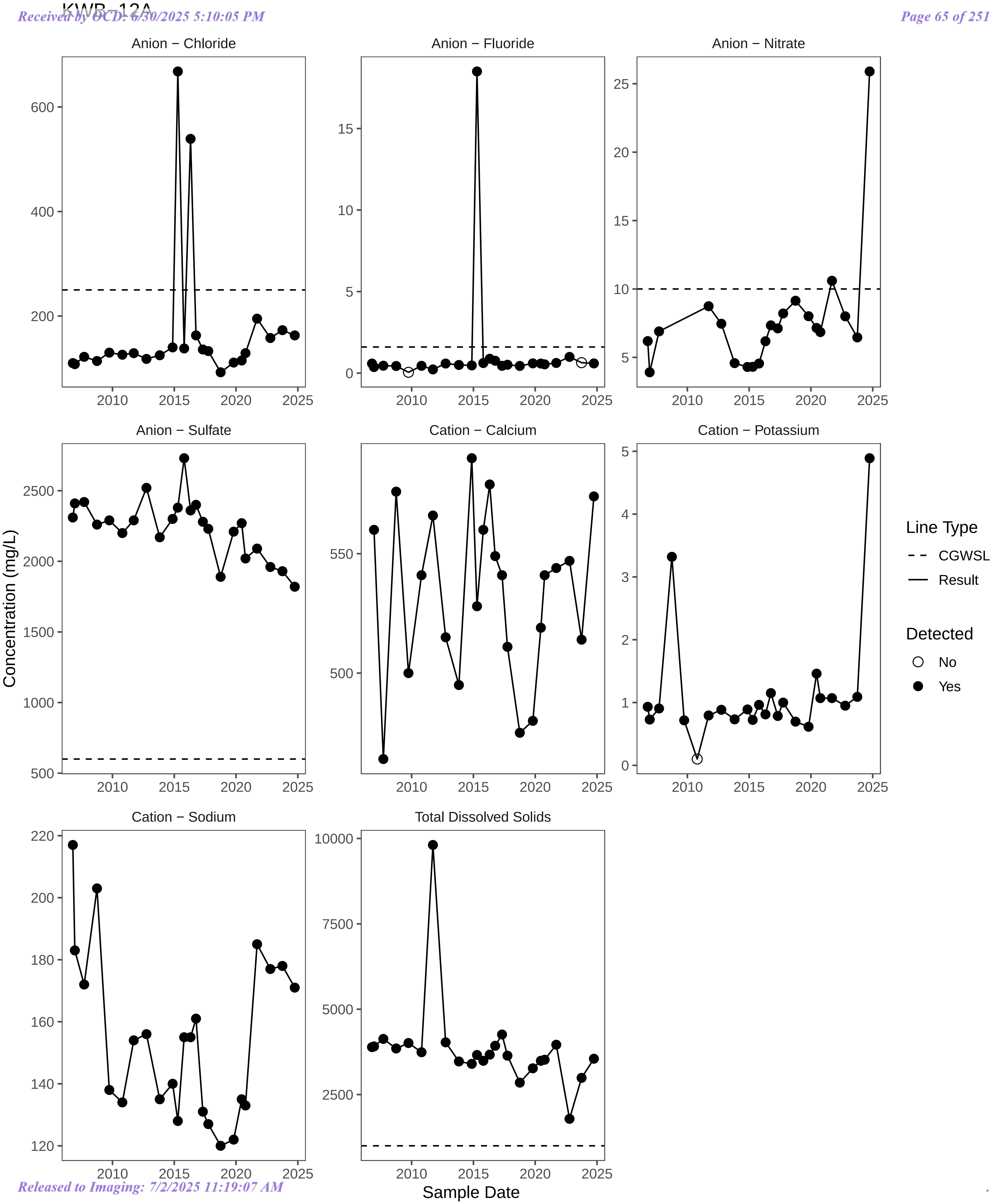
KWB_11A

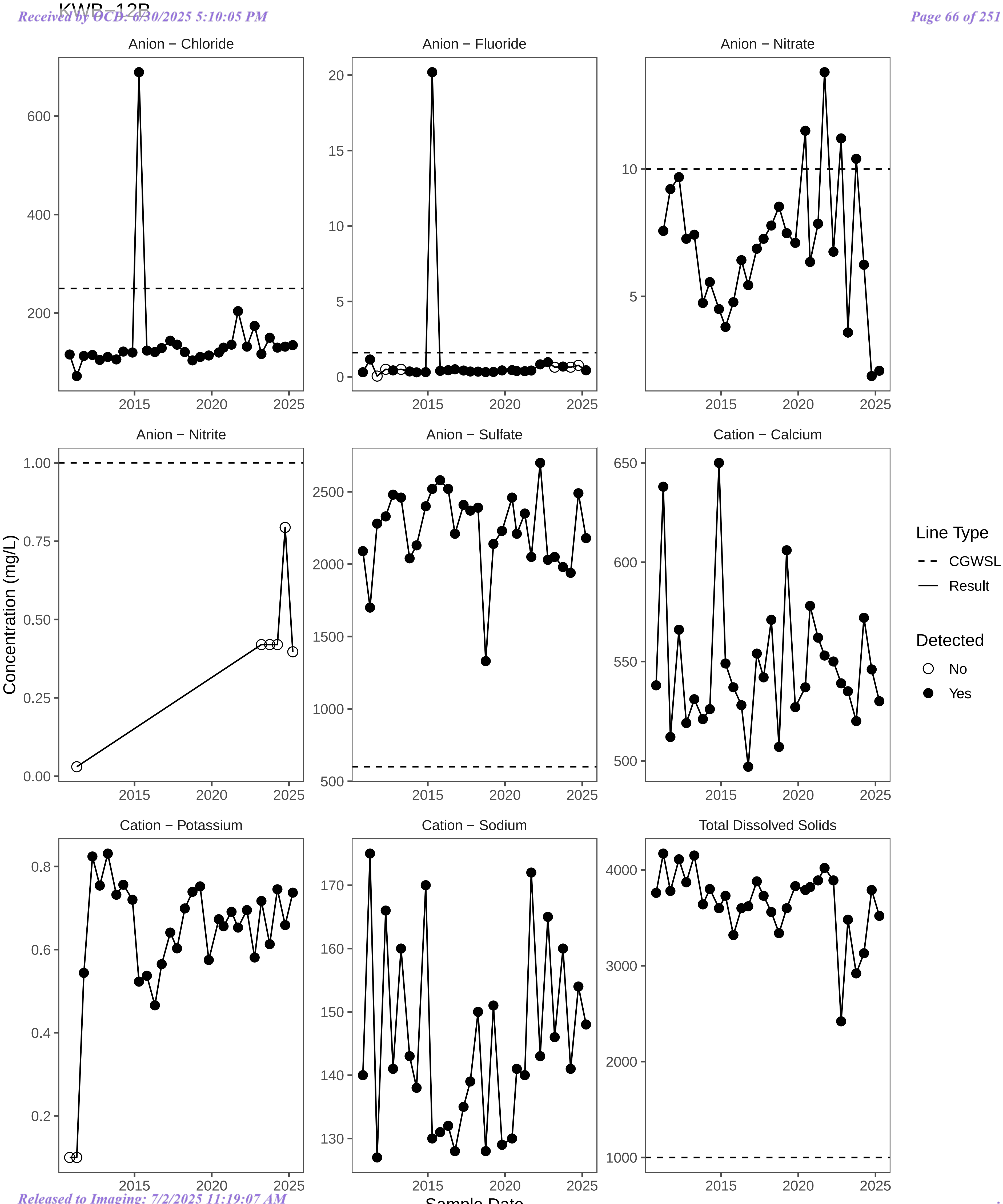


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

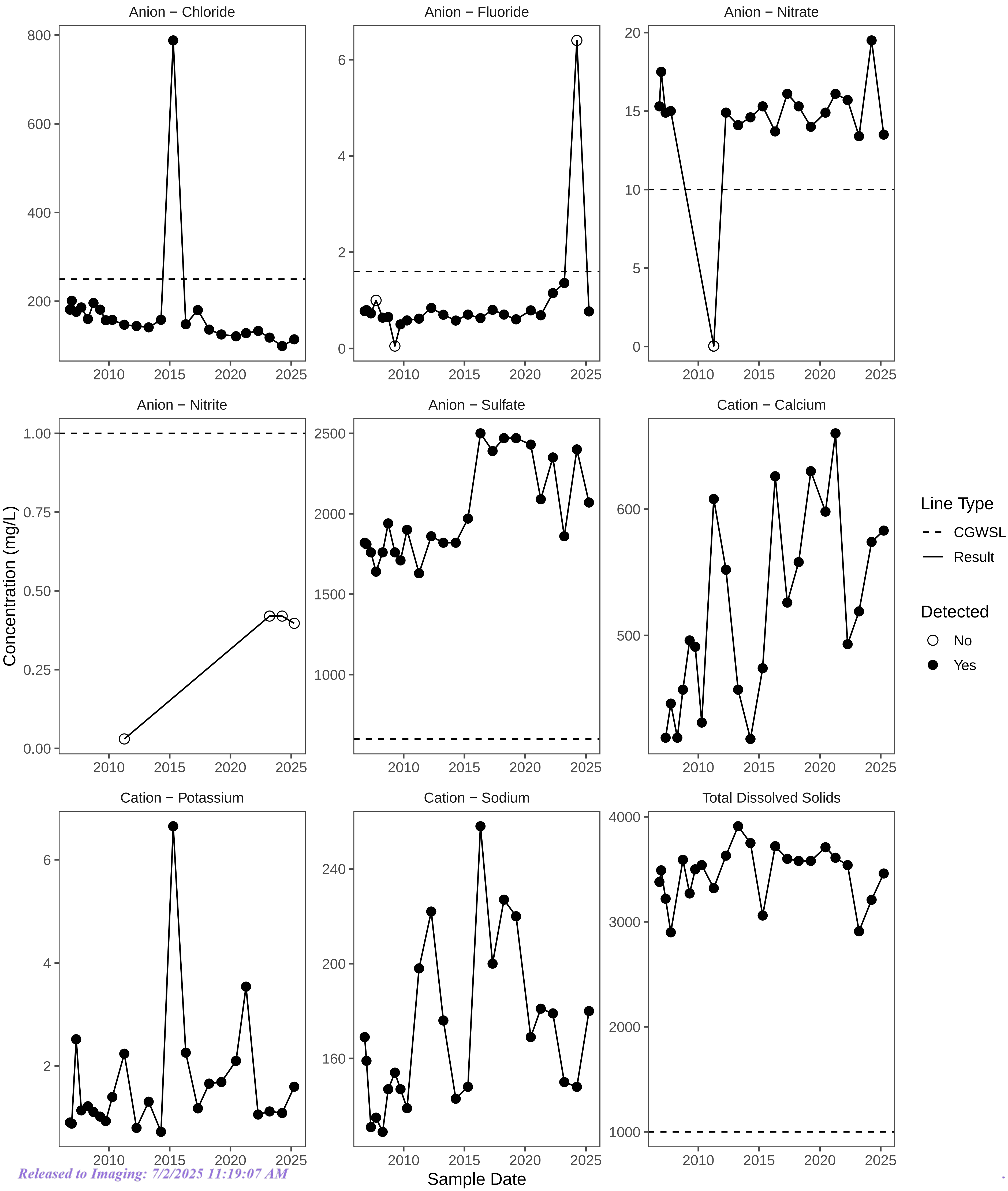
KWB−11B

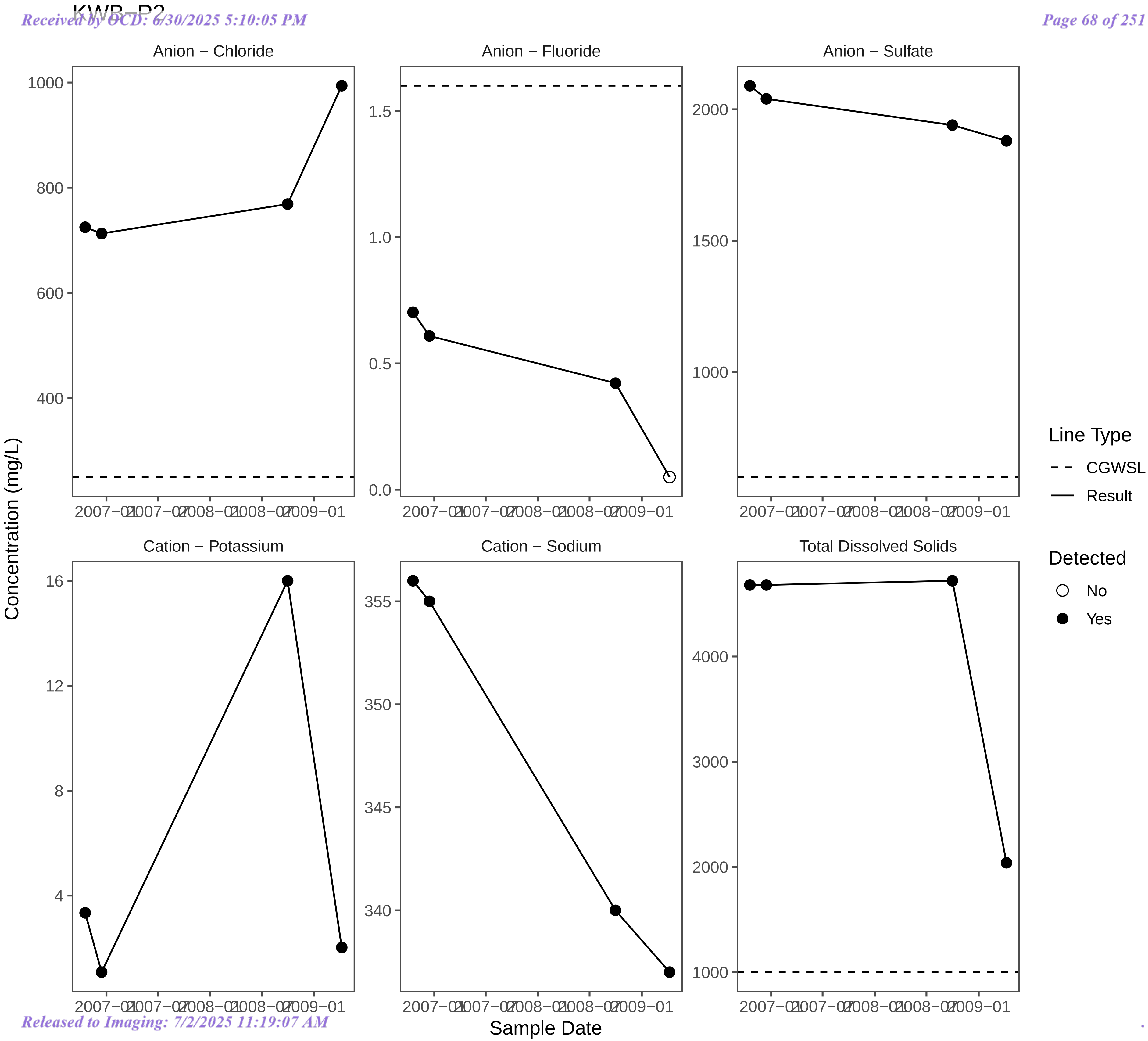

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


KWB−12A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

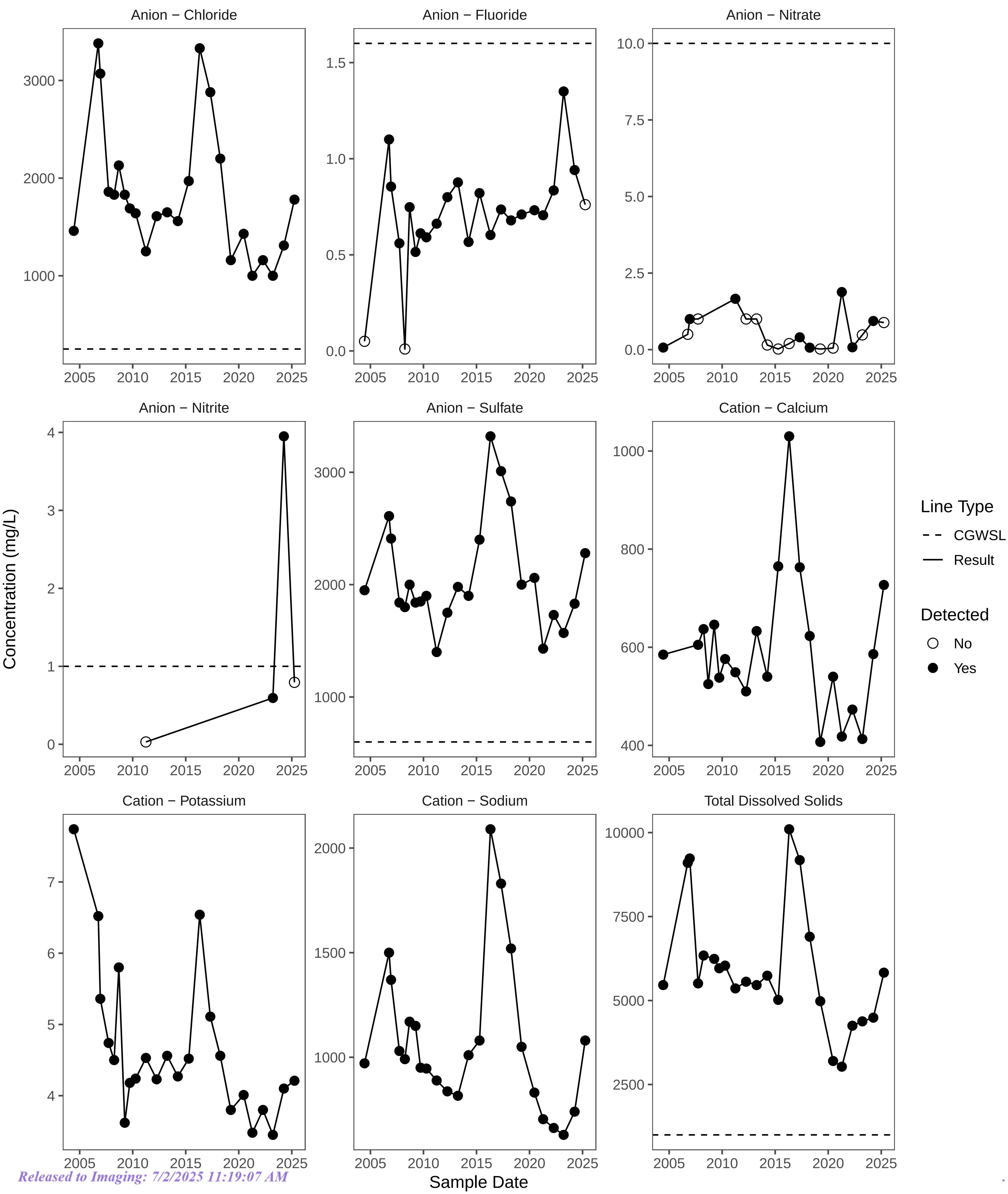

KWB−12B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

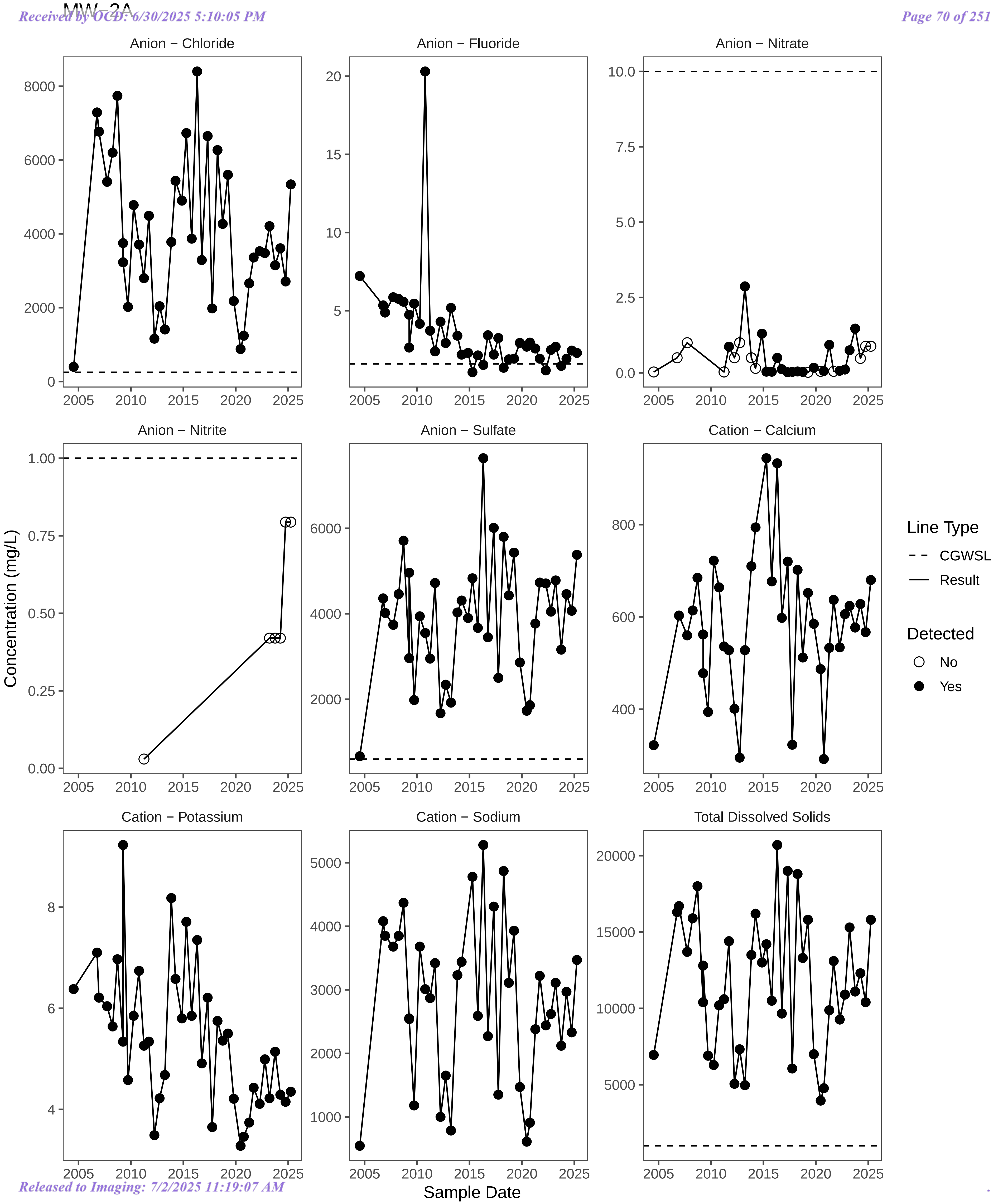
KWB-13

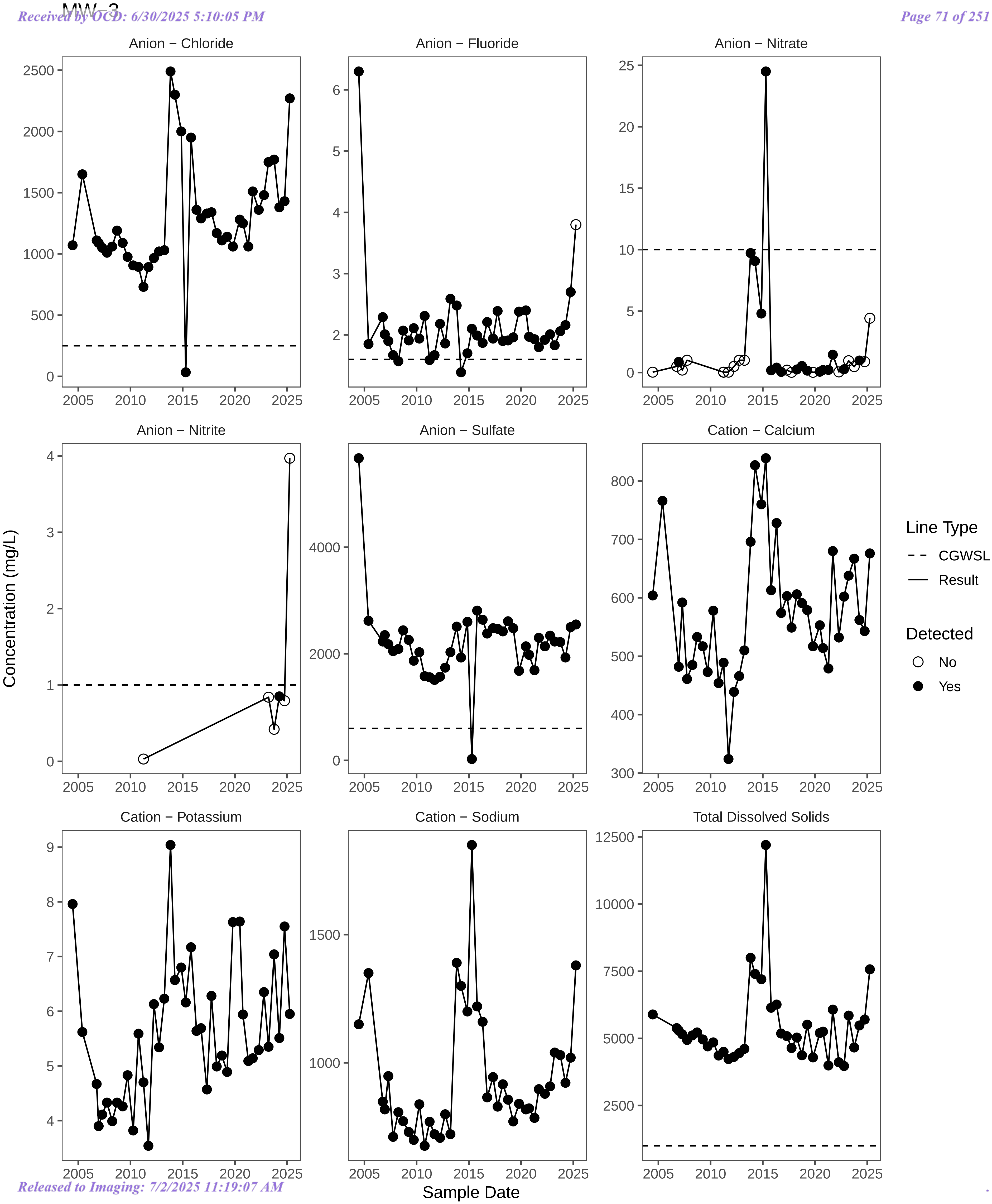

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

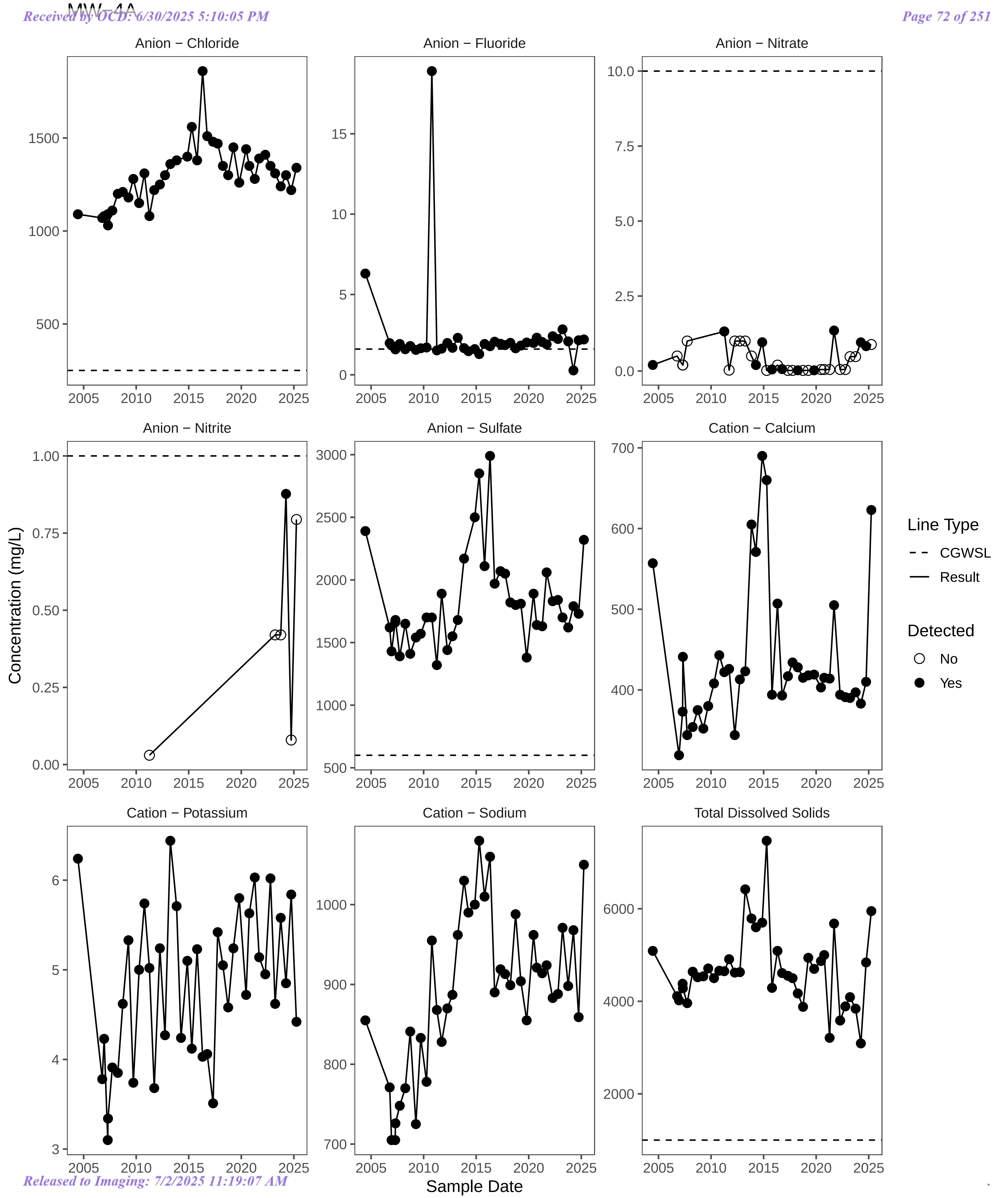

KWB−P2
Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2007−01
2007−07
2008−01
2008−07
2009−01
Line Type
CGWSL
Result
Detected
No
Yes

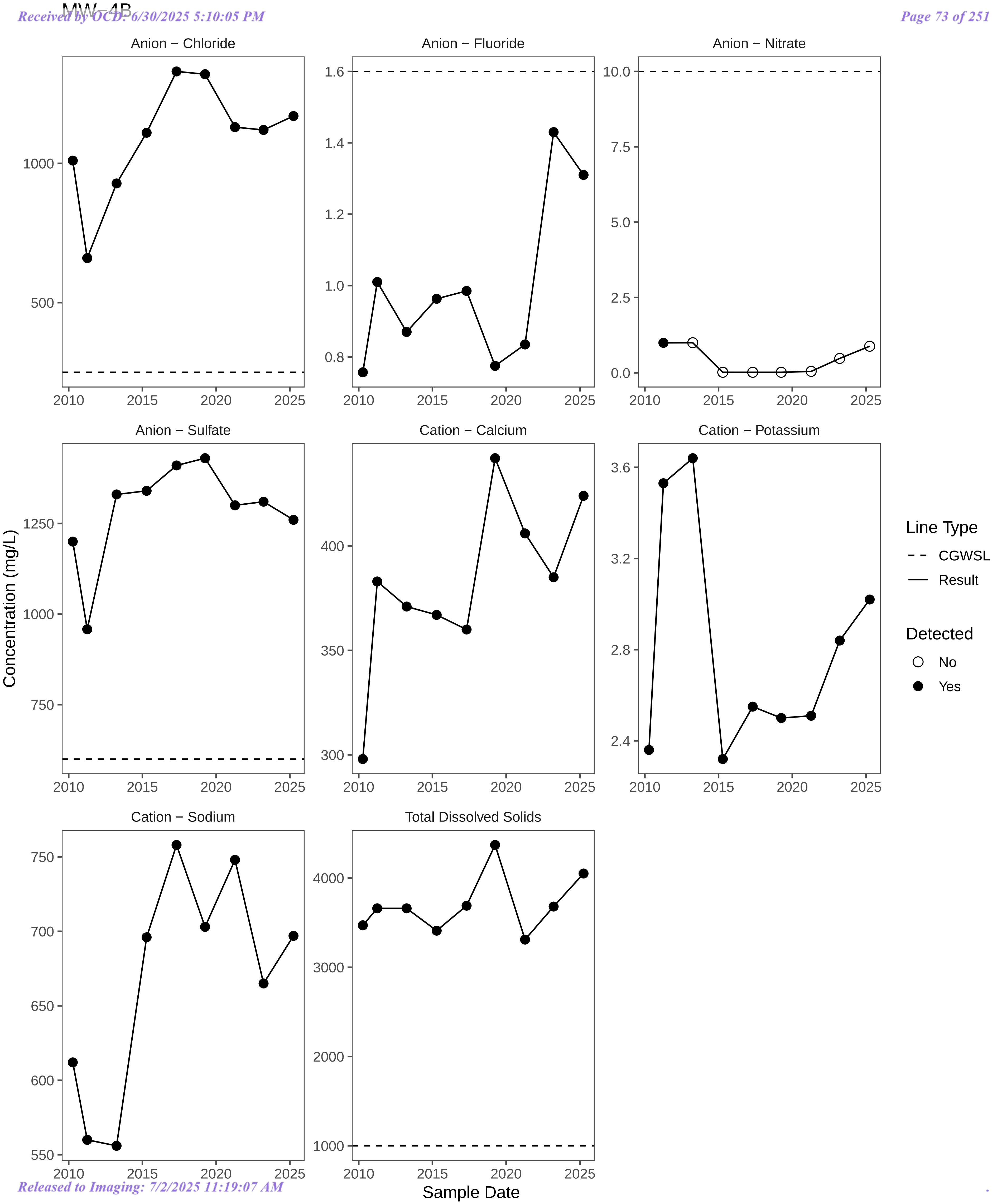
MW-1R


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

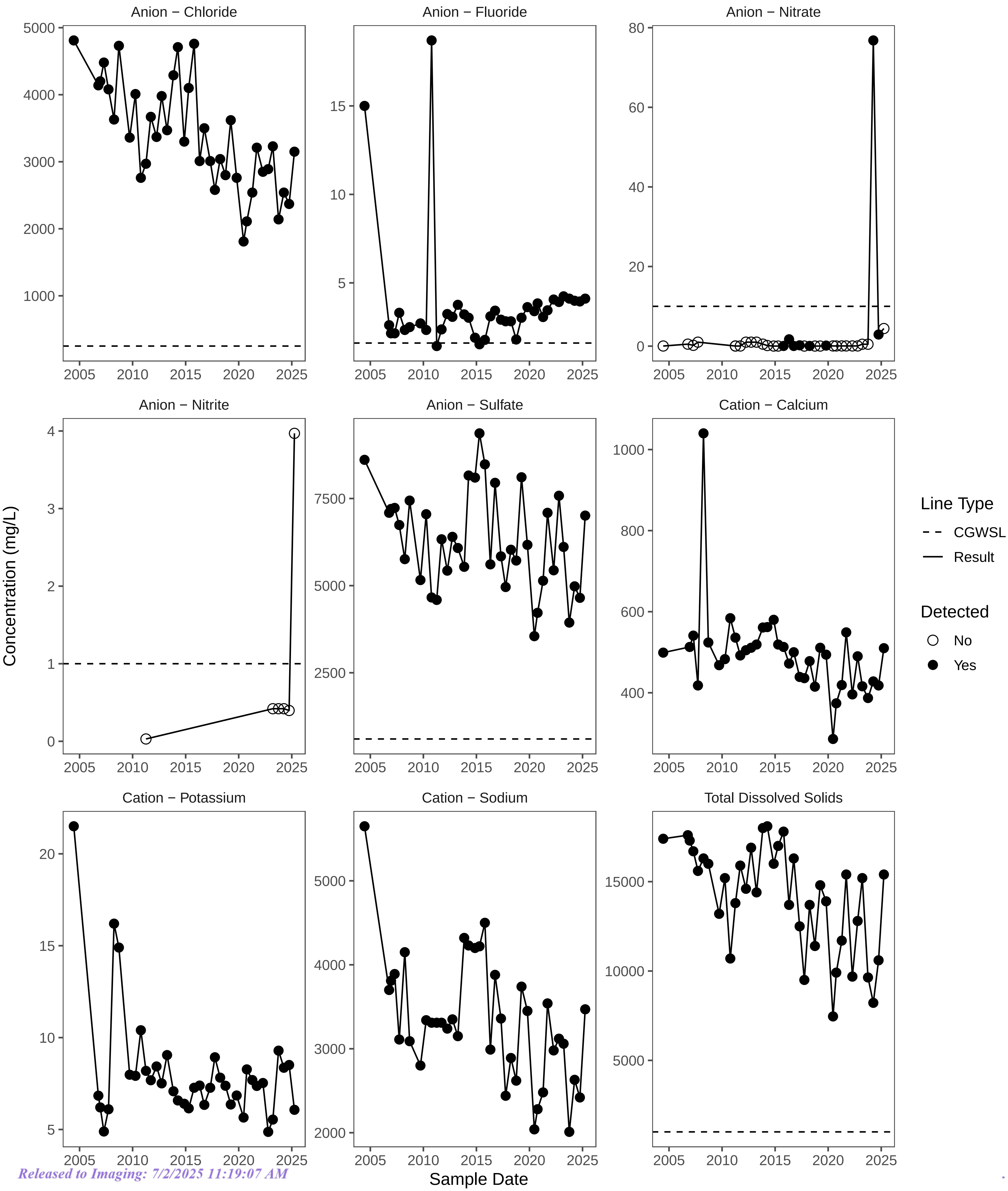

MW_2A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

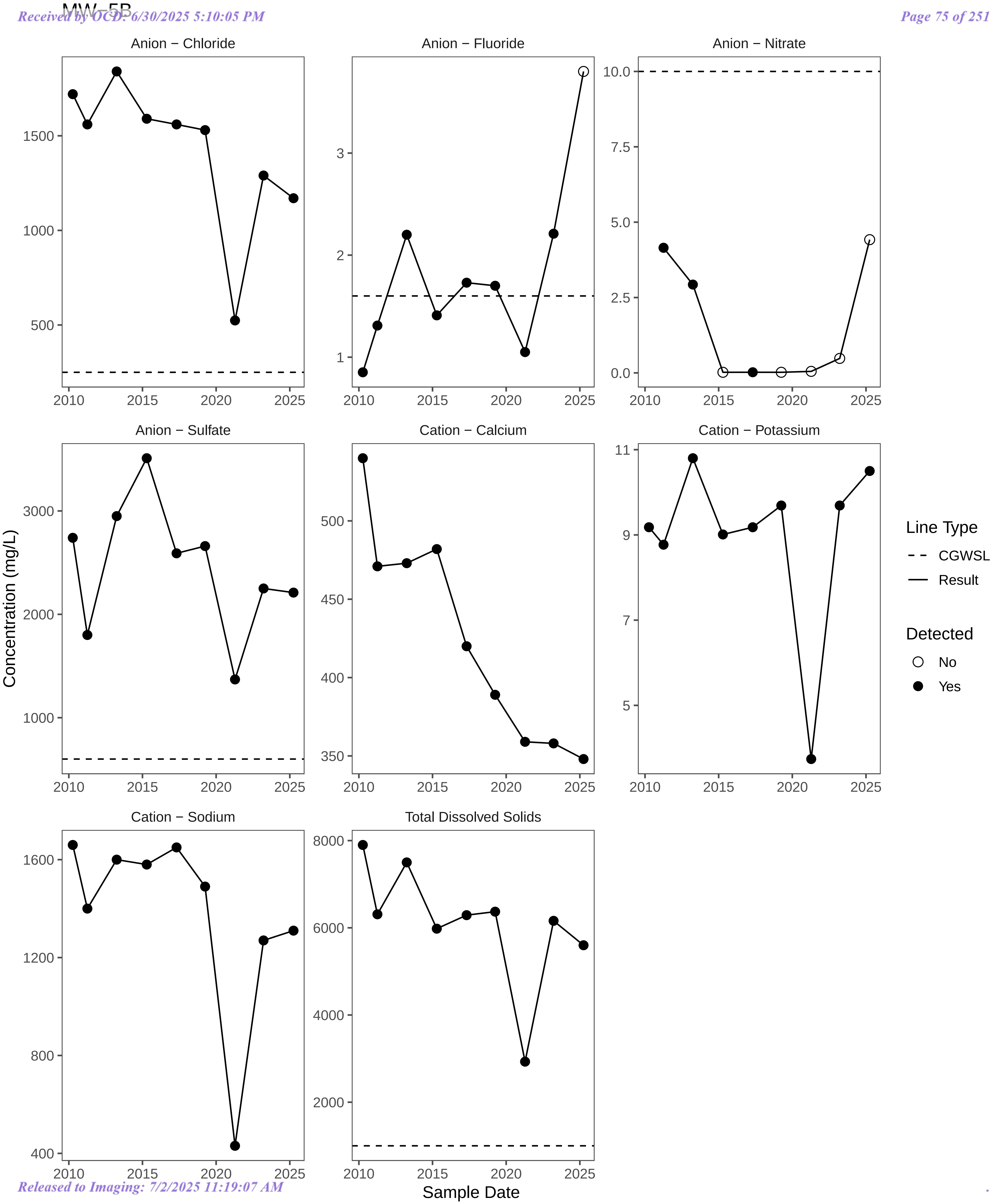

MW-3
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW-4A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

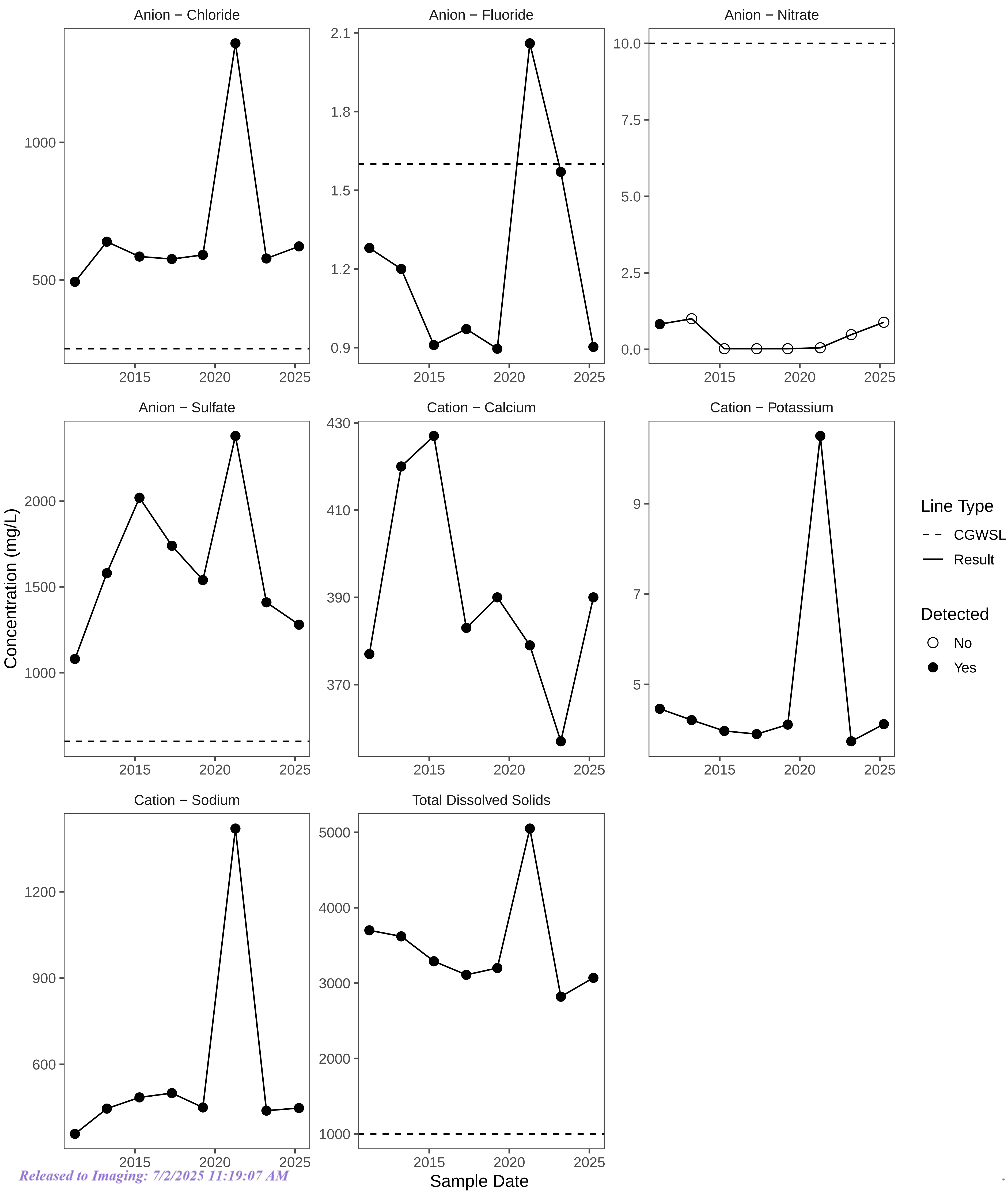

MW−4B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

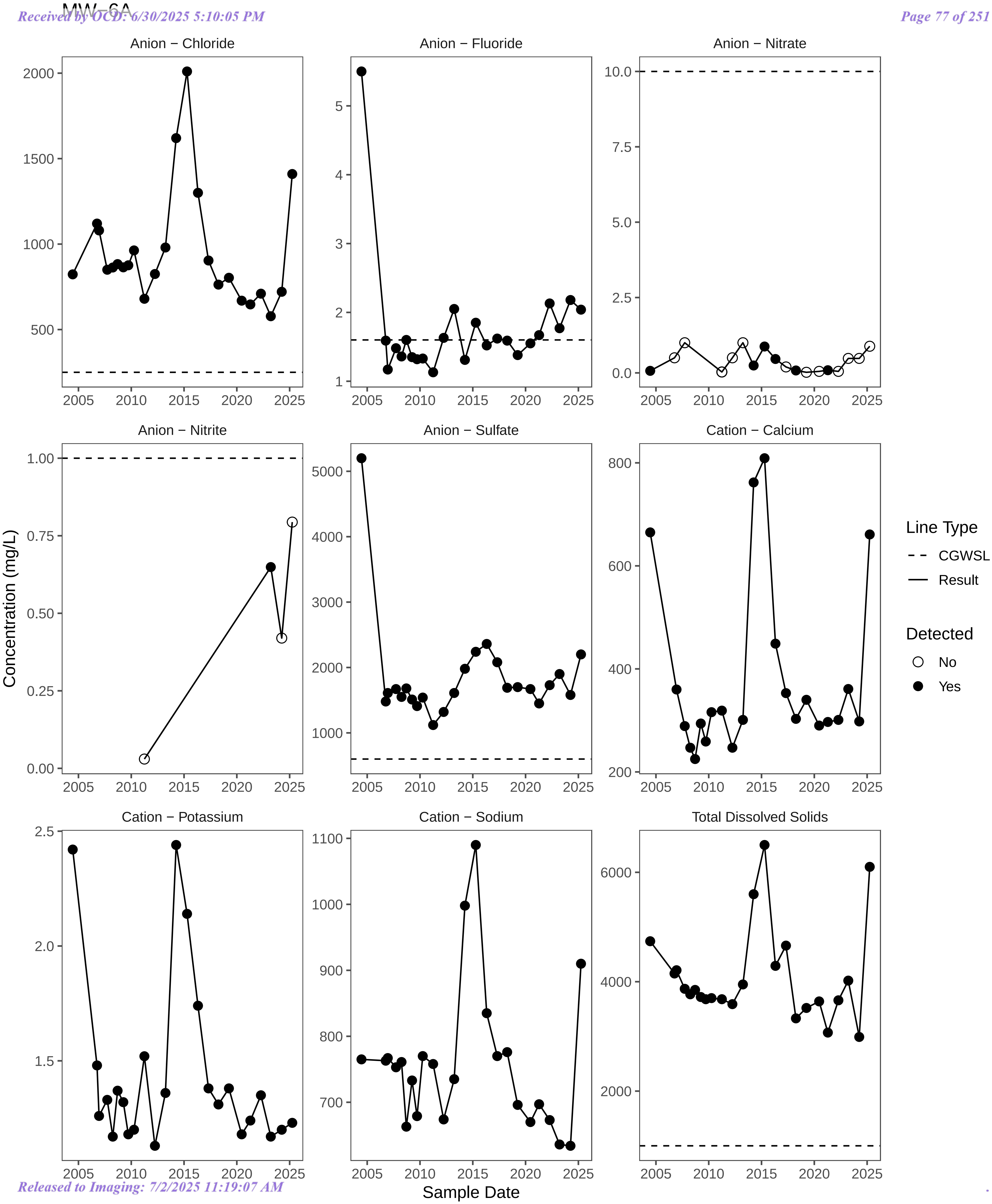
MW-5A


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

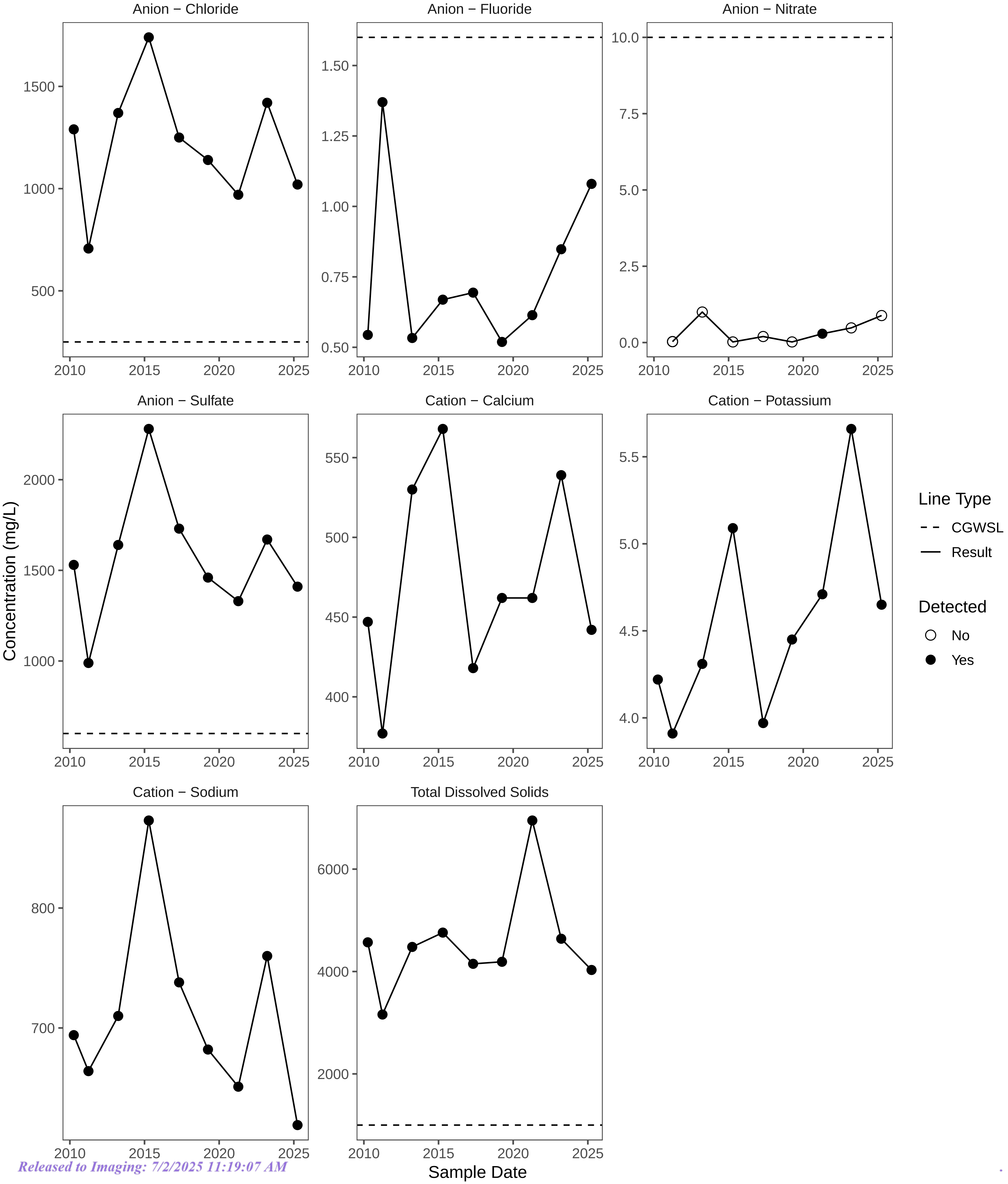

MW−5B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

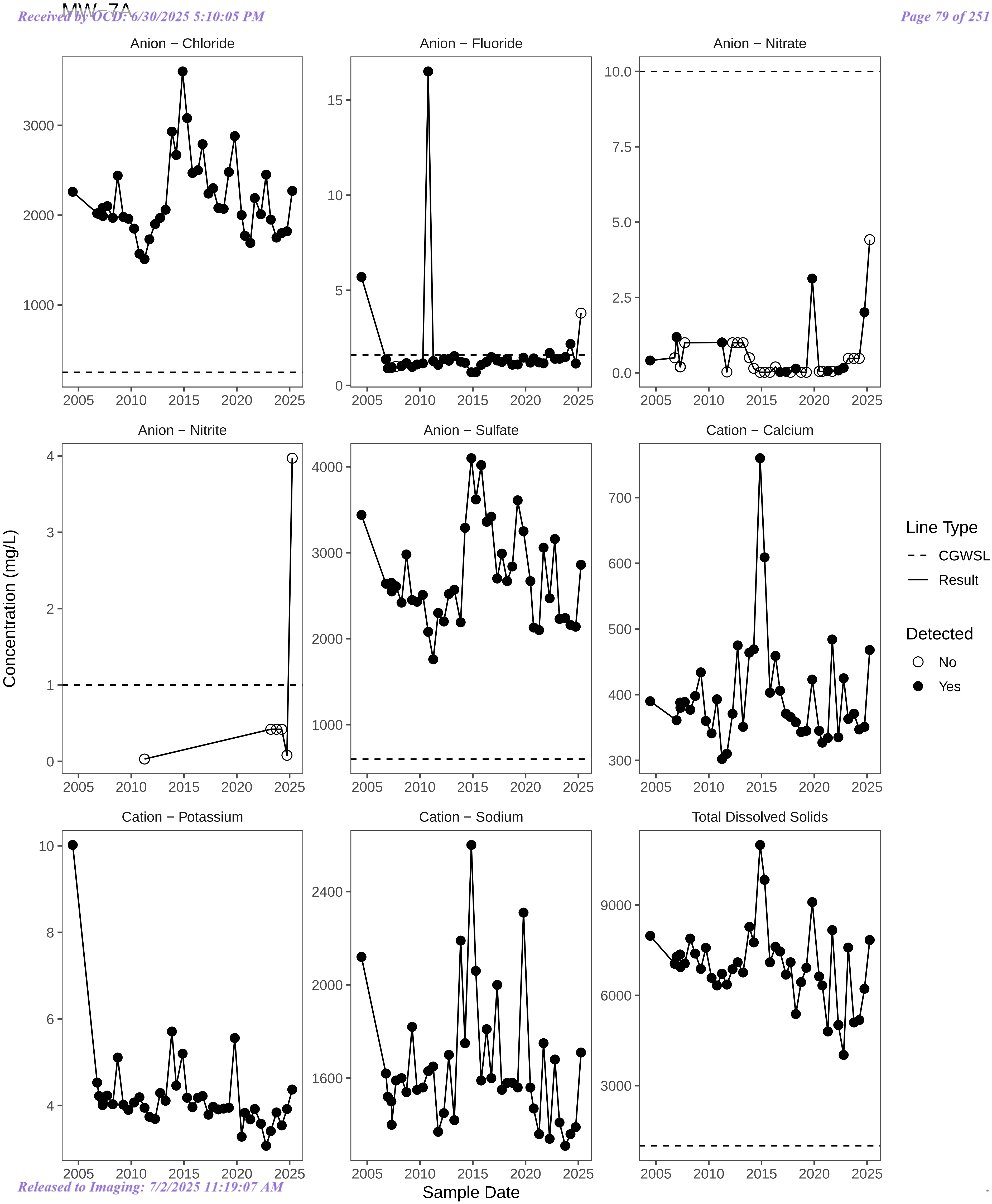
MW-5C


Anion − Chloride
1000
500
2015
2020
2025
Anion − Fluoride
2.1
1.8
1.5
1.2
0.9
Anion − Nitrate
10.0
7.5
5.0
2.5
0.0
Anion − Sulfate
2000
1500
1000
Cation − Calcium
430
410
390
370
Cation − Potassium
9
7
5
Cation − Sodium
1200
900
600
Total Dissolved Solids
5000
4000
3000
2000
1000
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW_6A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

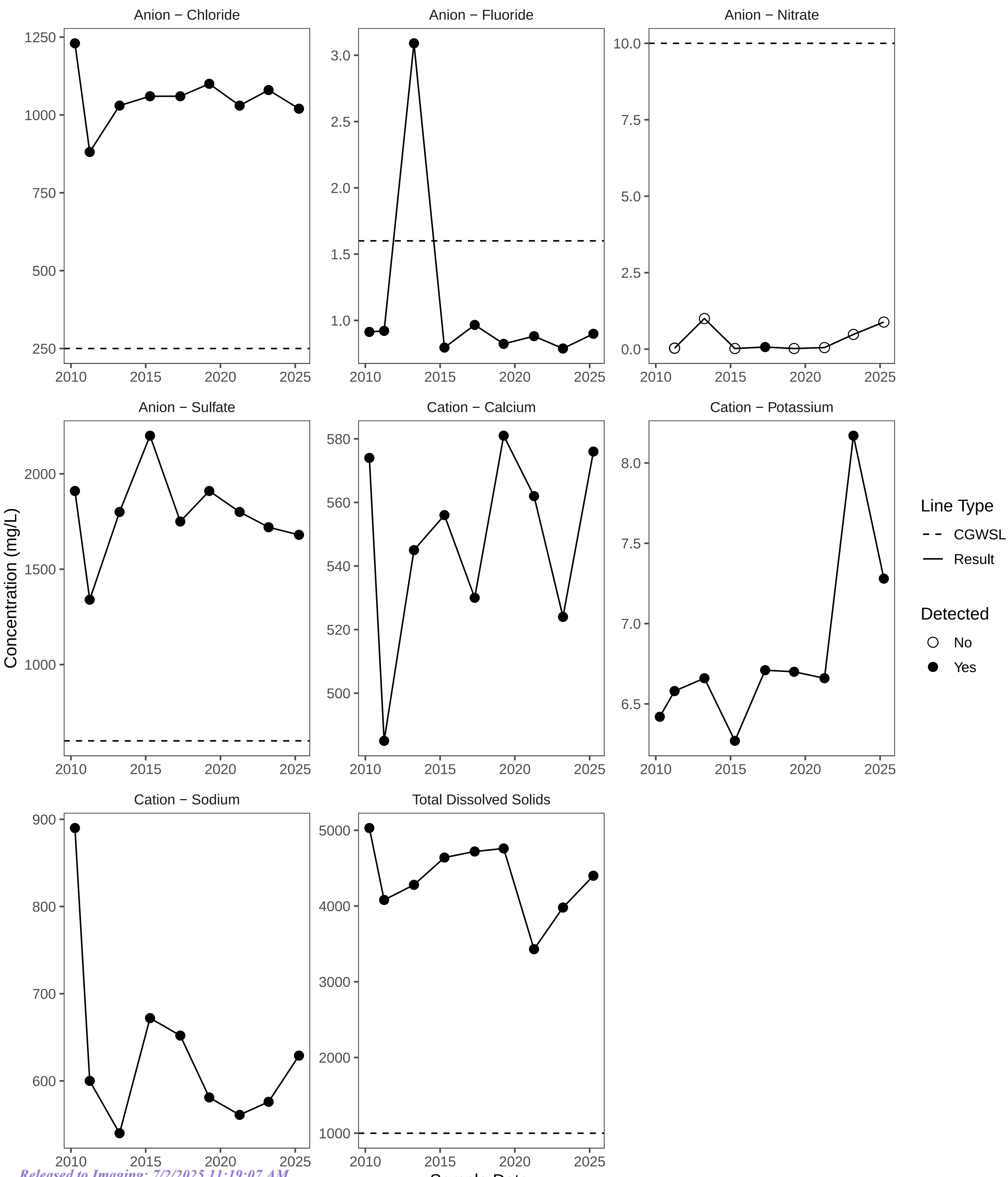
MW-6B


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes
500
1000
1500
0.50
0.75
1.00
1.25
1.50
0.0
2.5
5.0
7.5
10.0
2000
400
450
500
550
4.0
4.5
5.0
5.5
700
800
4000
6000
2010
2015
2020
2025

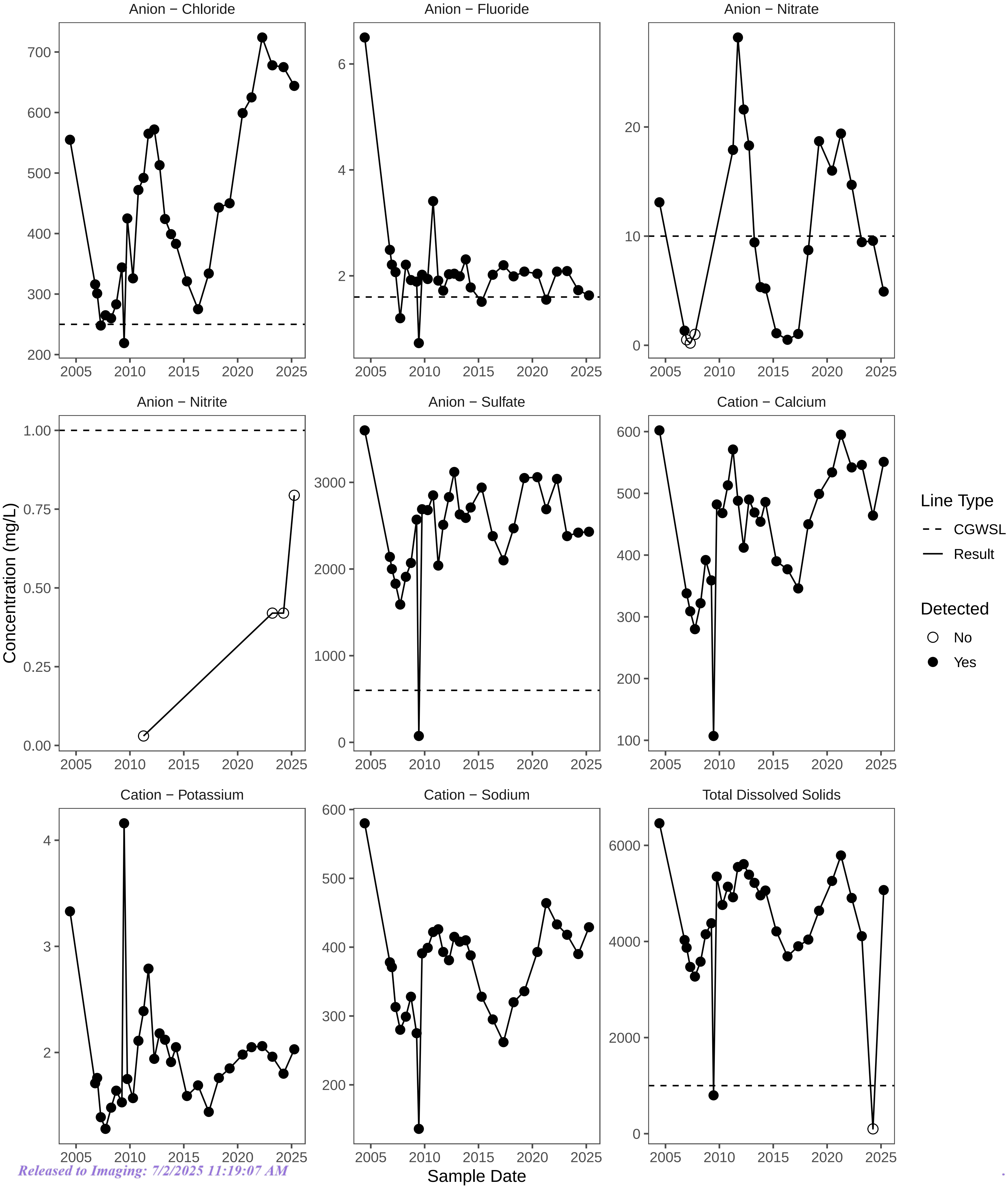


MW_7A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2005
2010
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

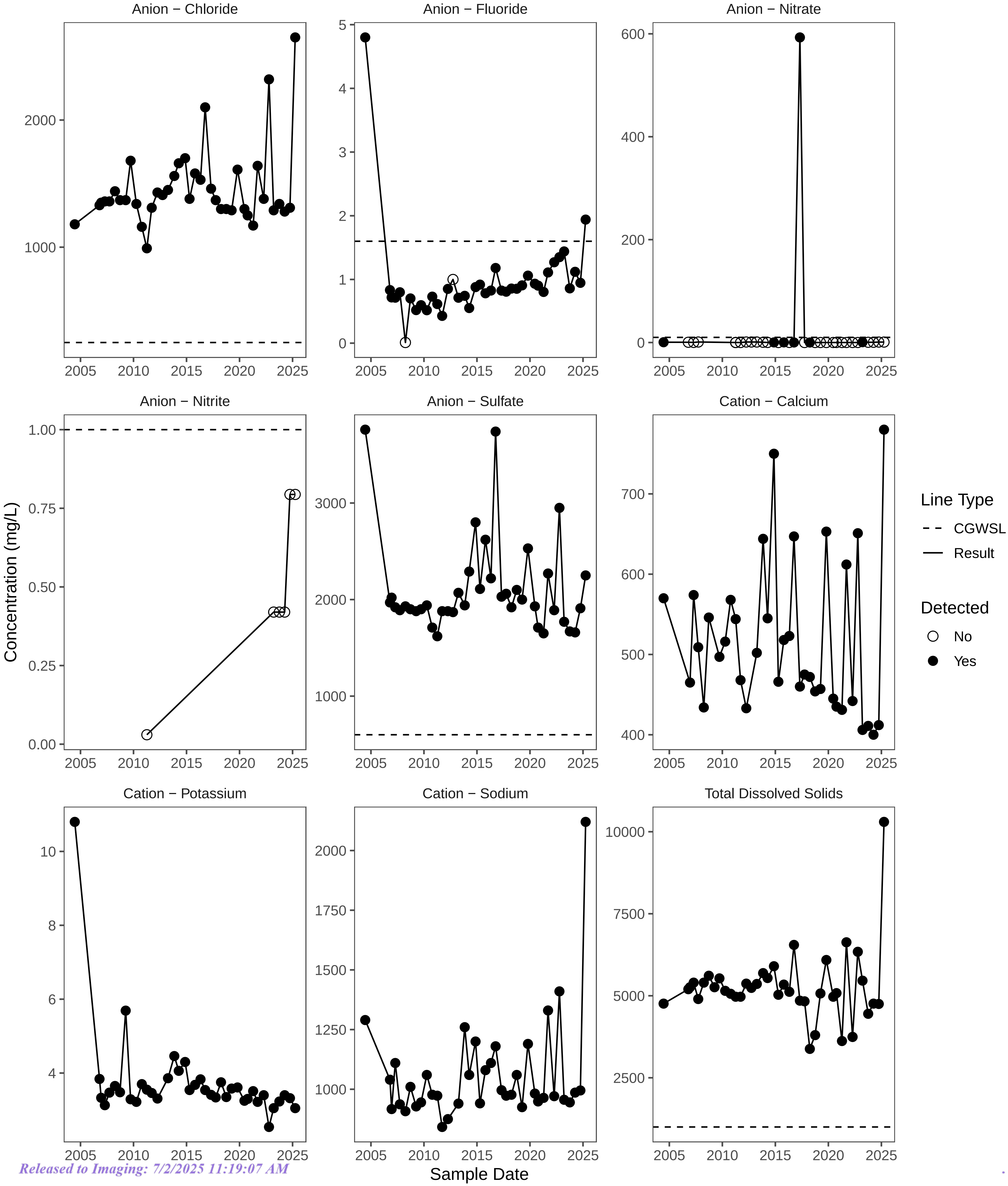
MW–7B


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

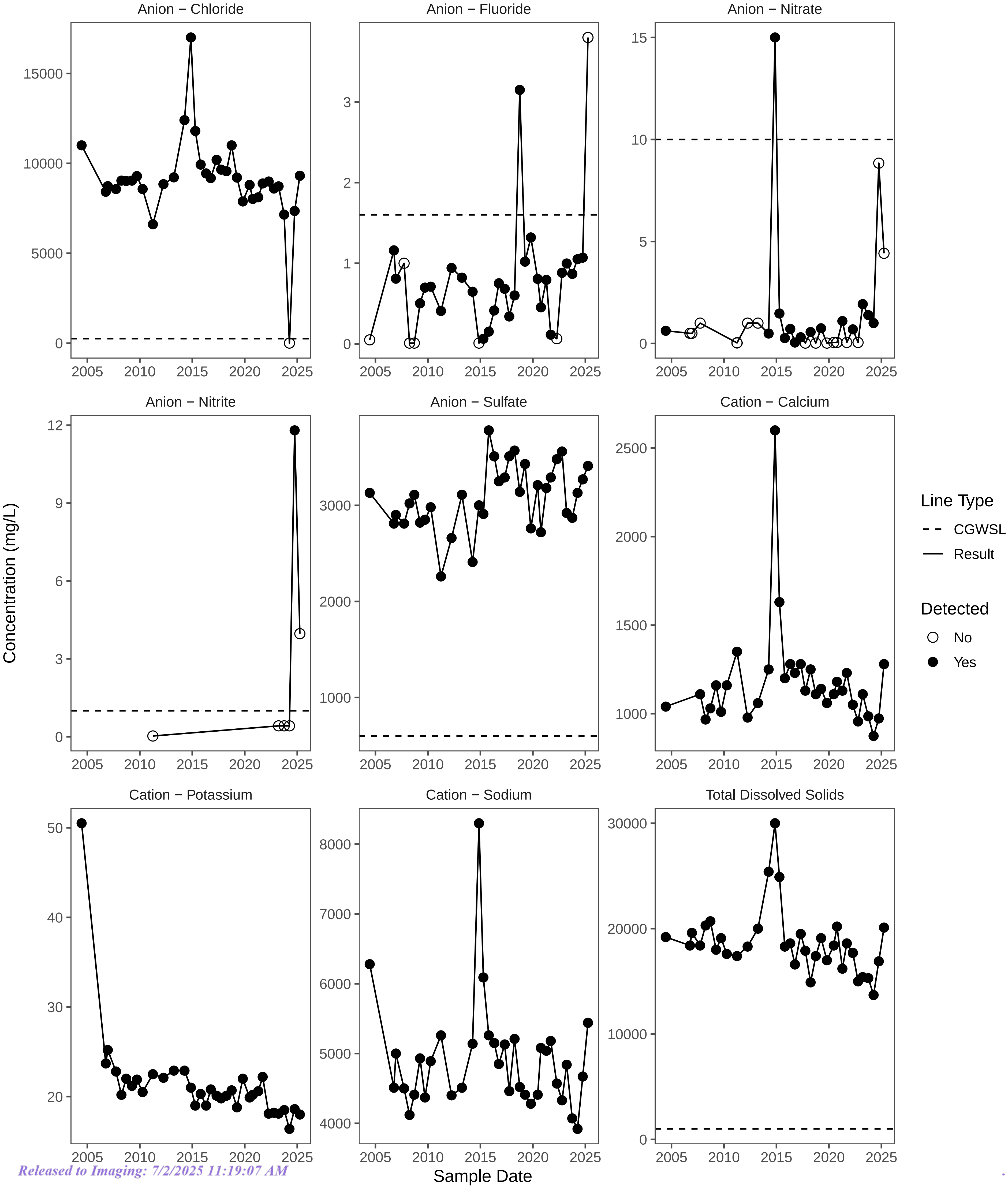
MW−8

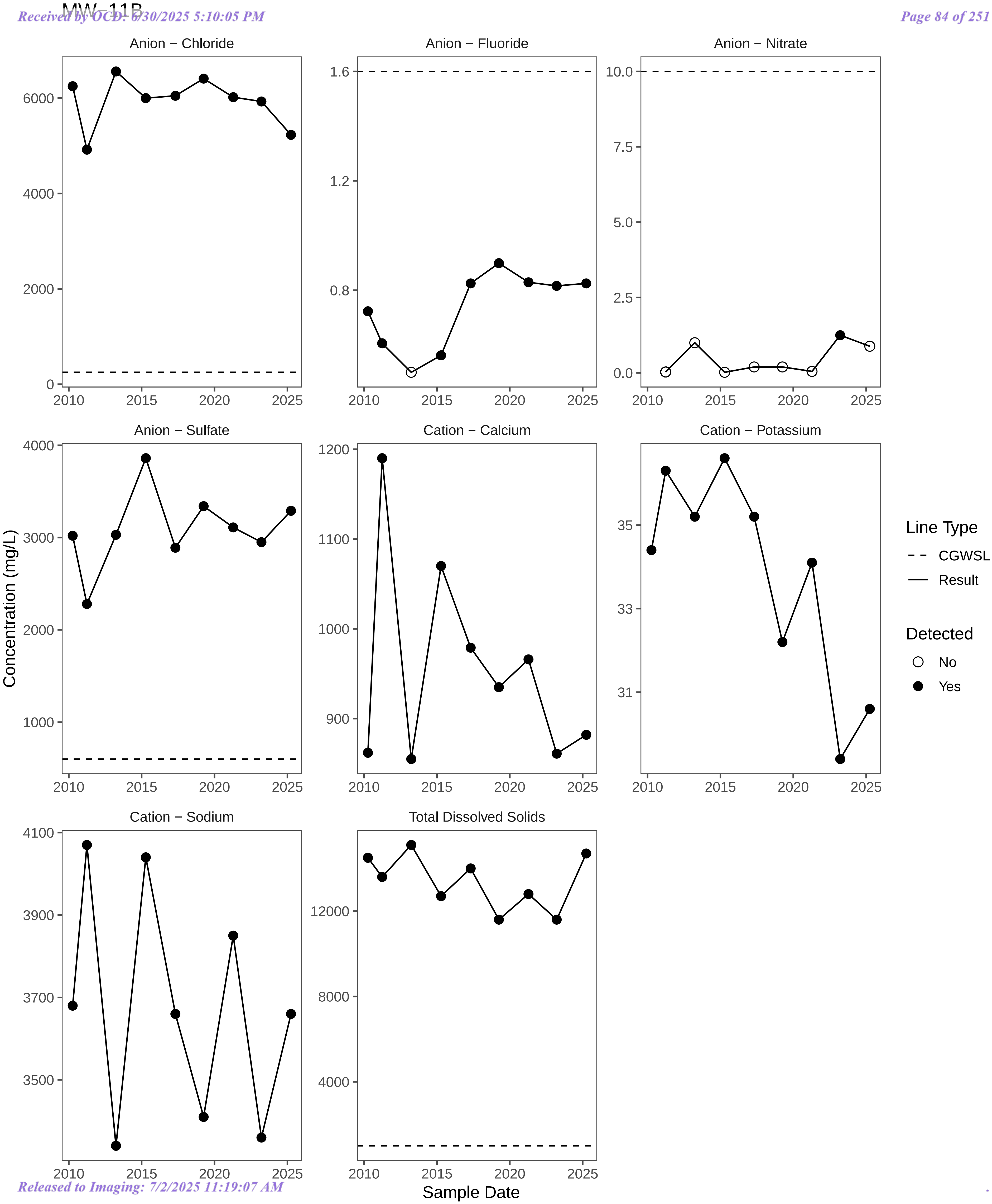

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−10

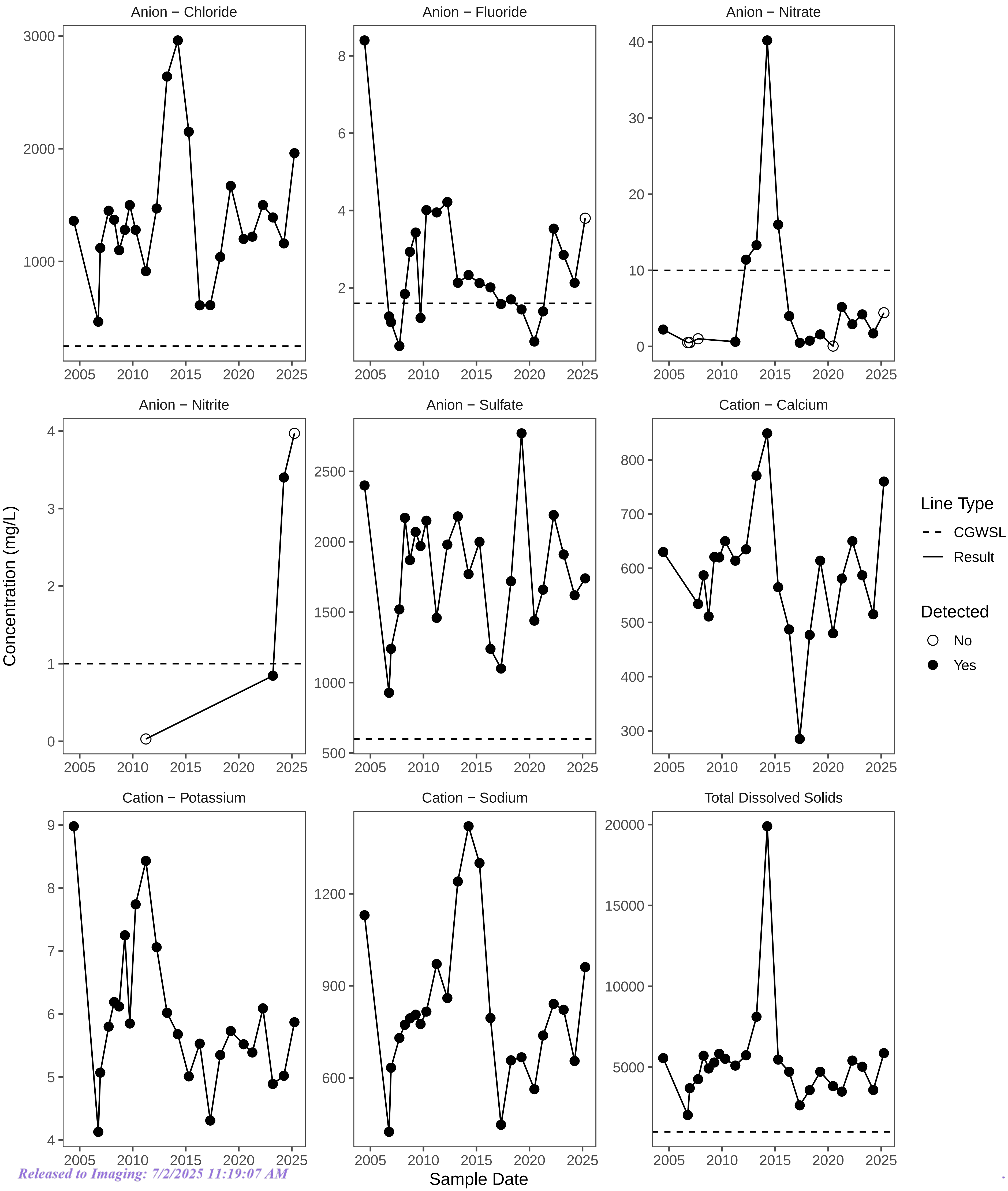

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-11A

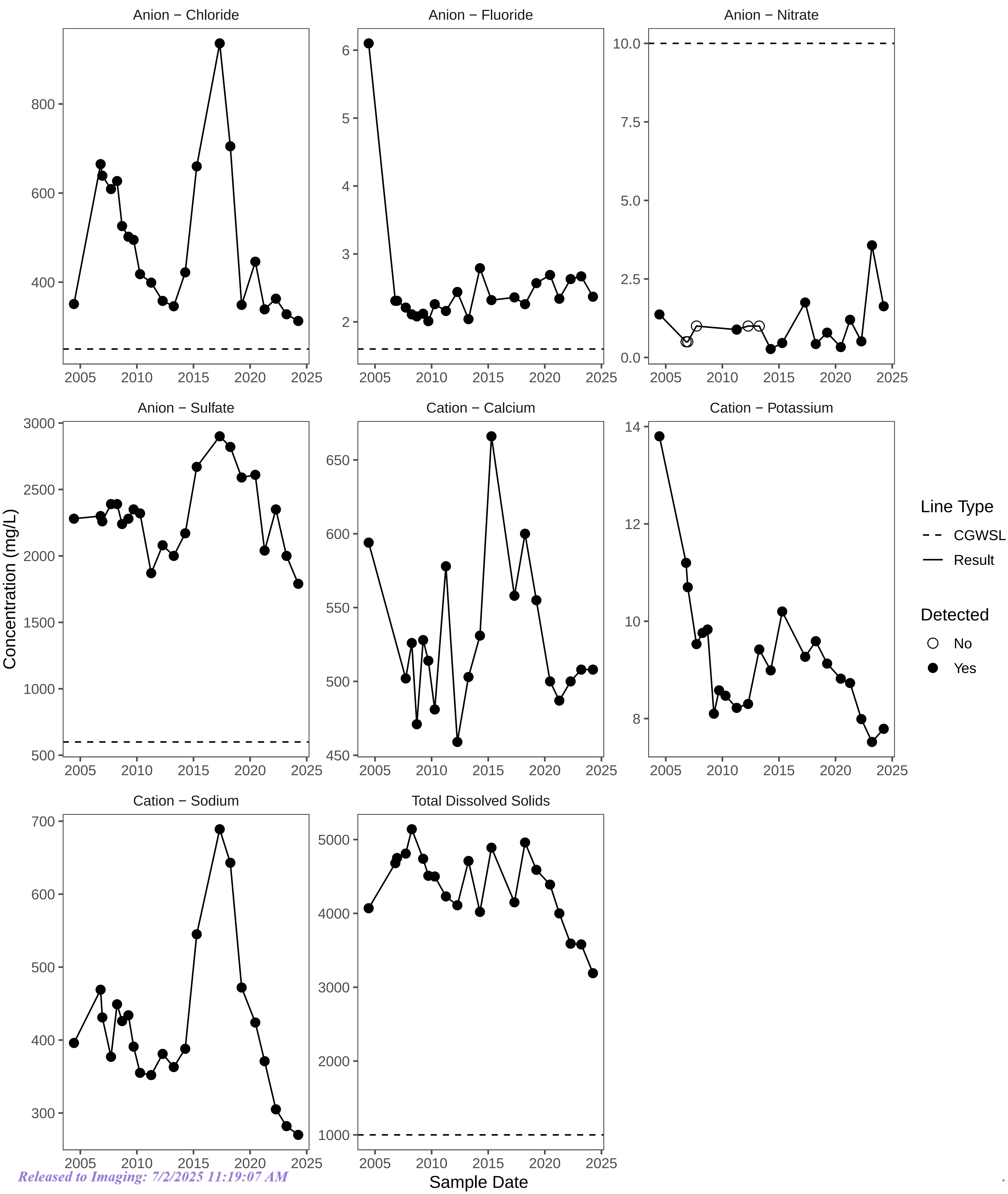

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−11B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes
6000
4000
2000
0
1.6
1.2
0.8
10.0
7.5
5.0
2.5
0.0
3000
1000
1200
1100
1000
900
35
33
31
4100
3900
3700
3500
12000
8000
4000
2010
2015
2020
2025

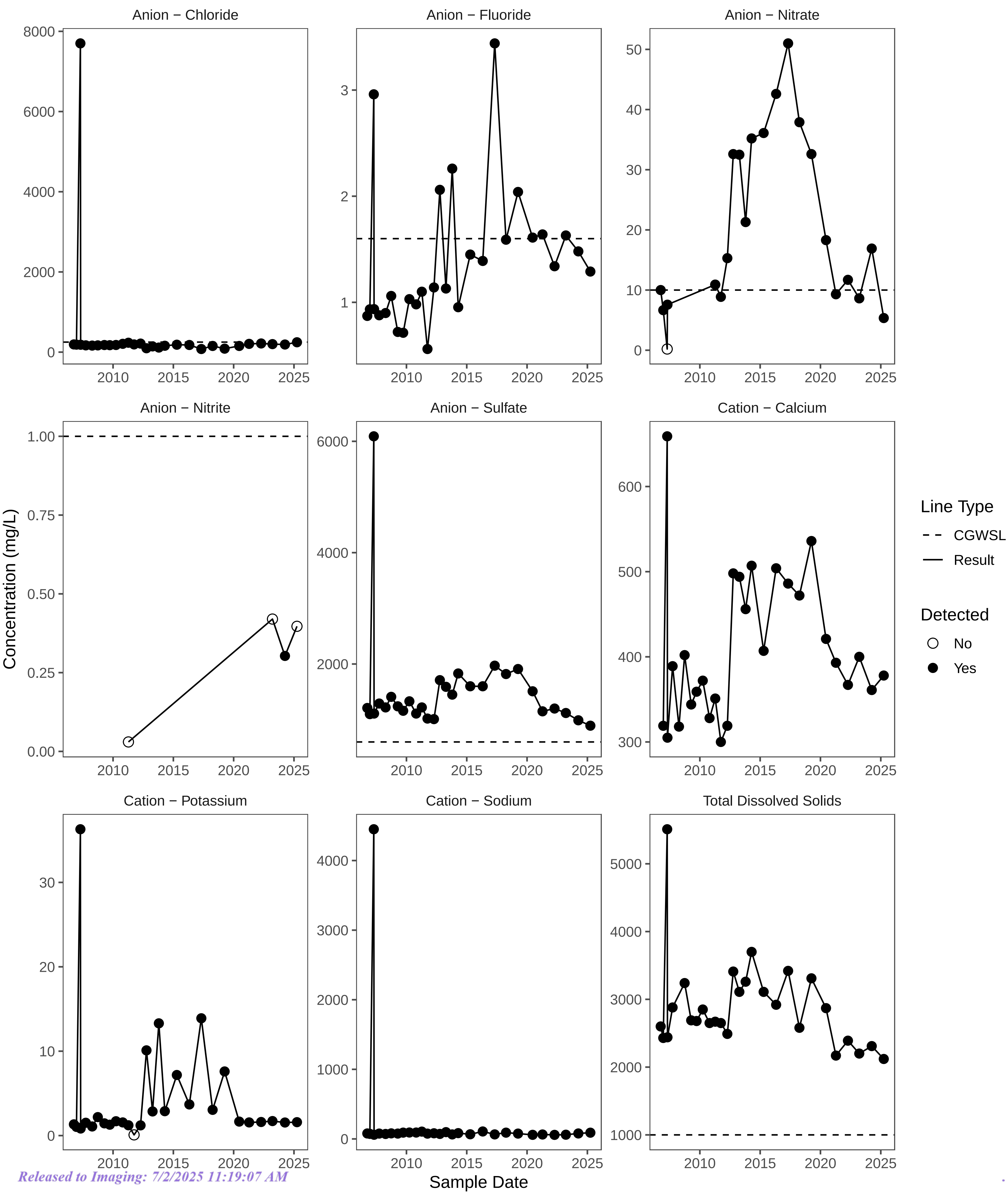
MW−15


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

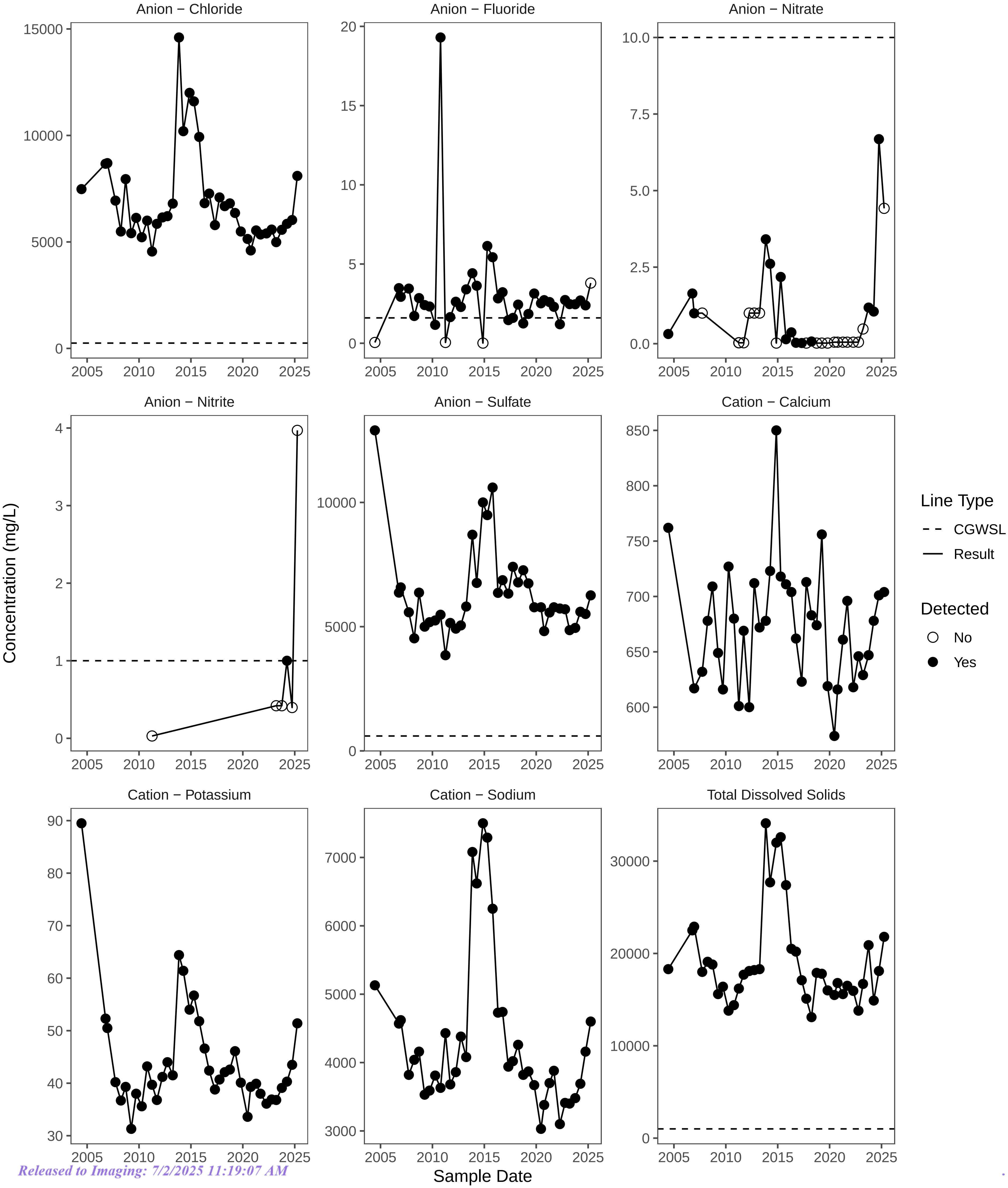
MW−16

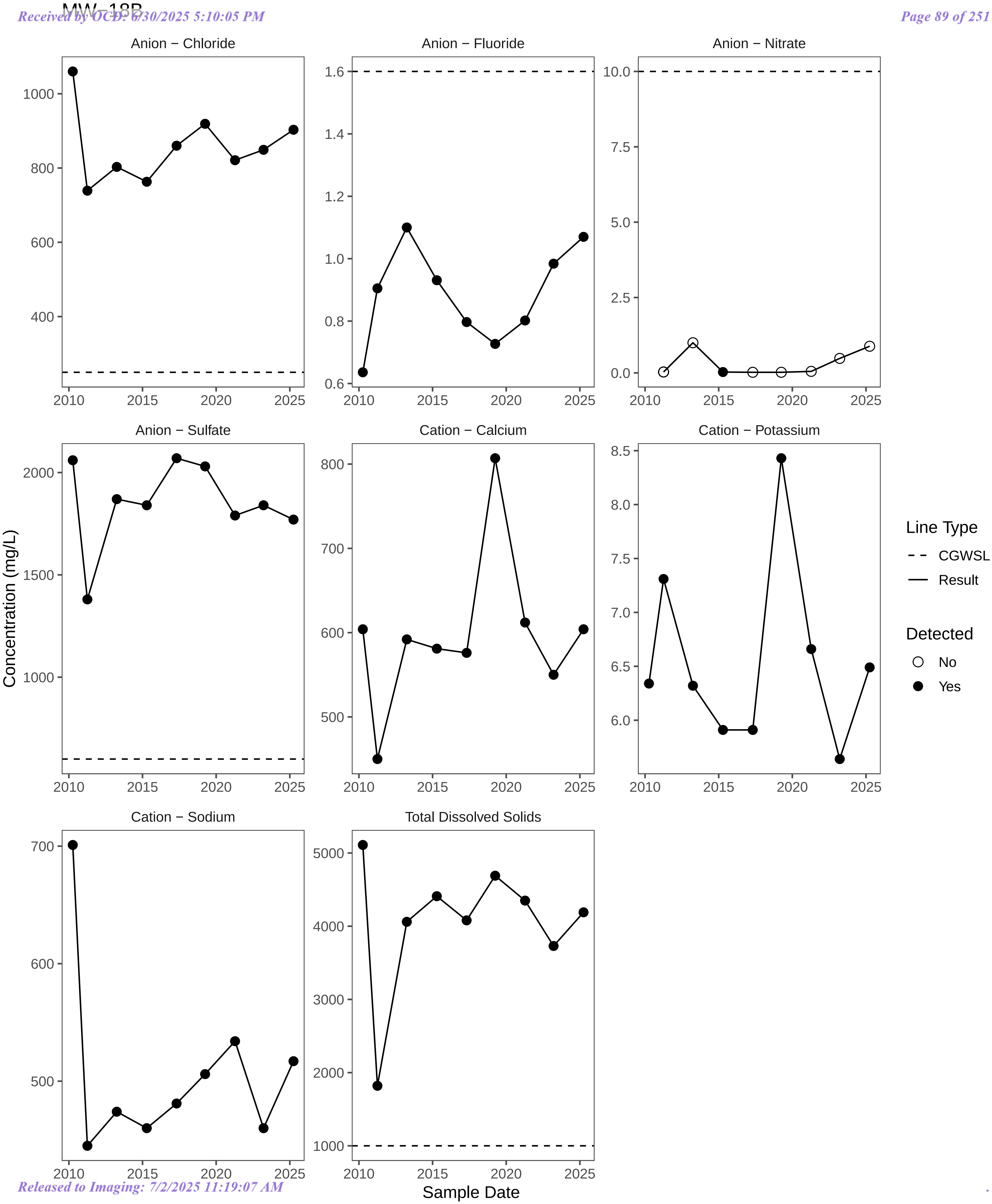

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−18

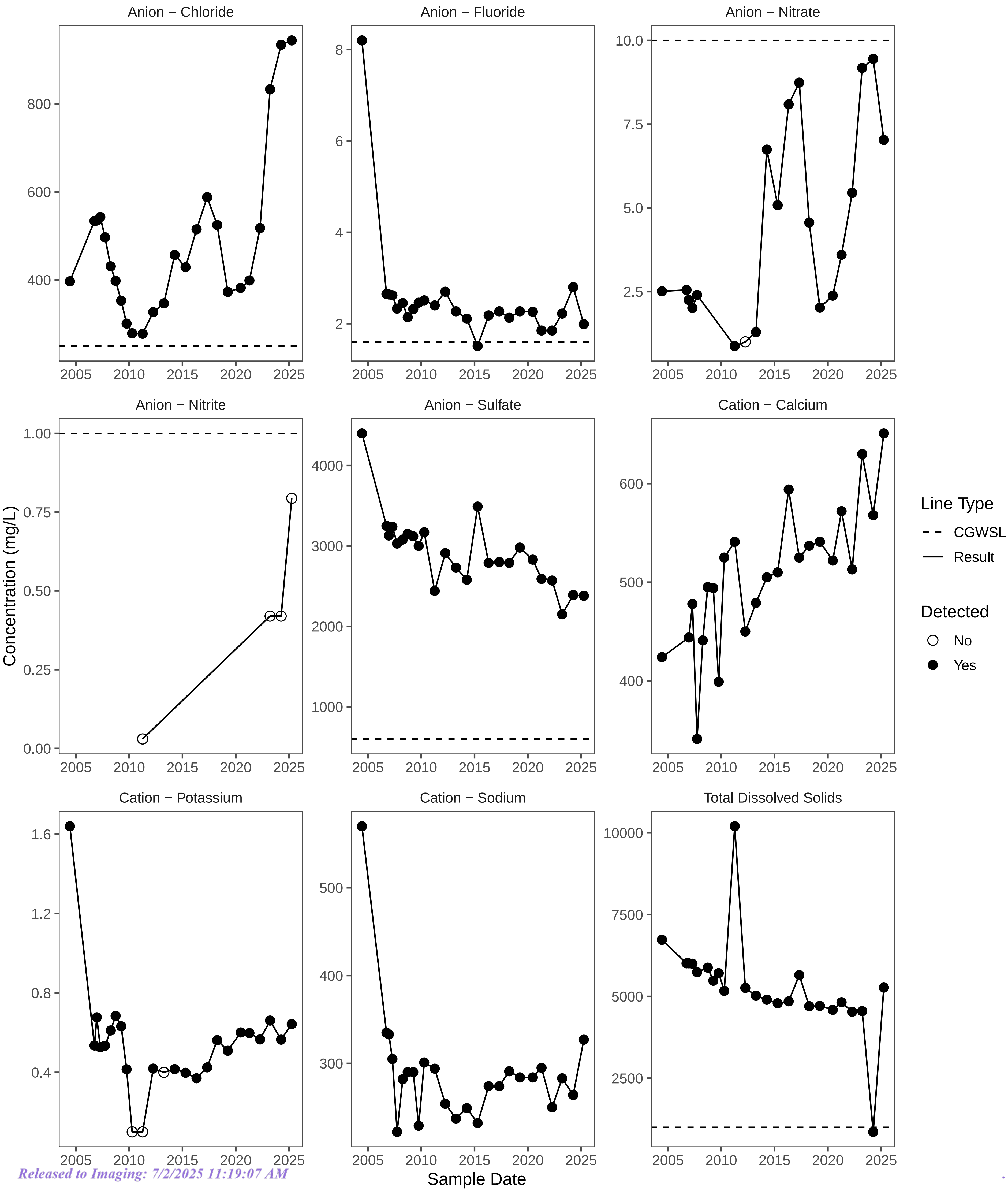

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-18A

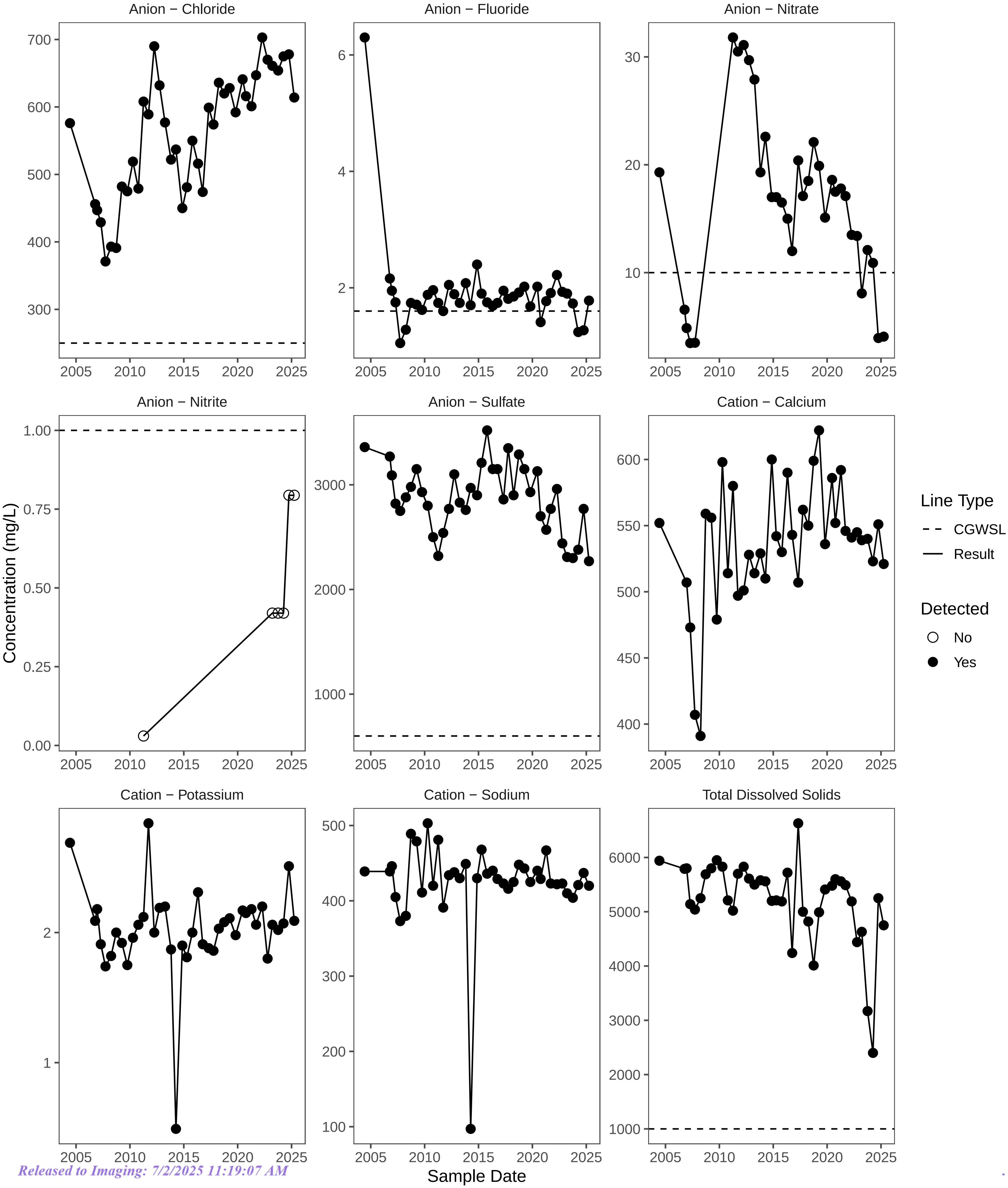

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−18B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

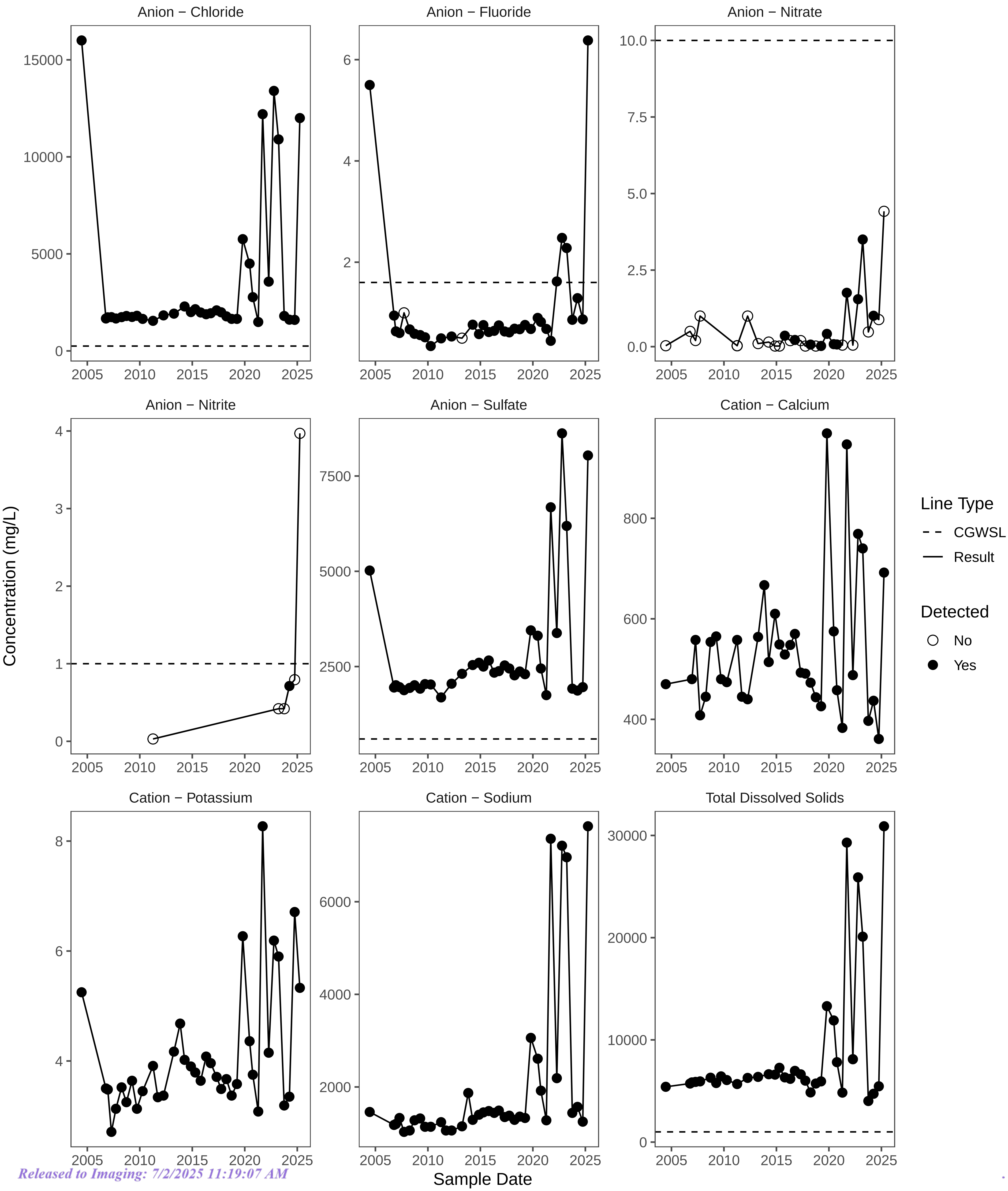
MW-20

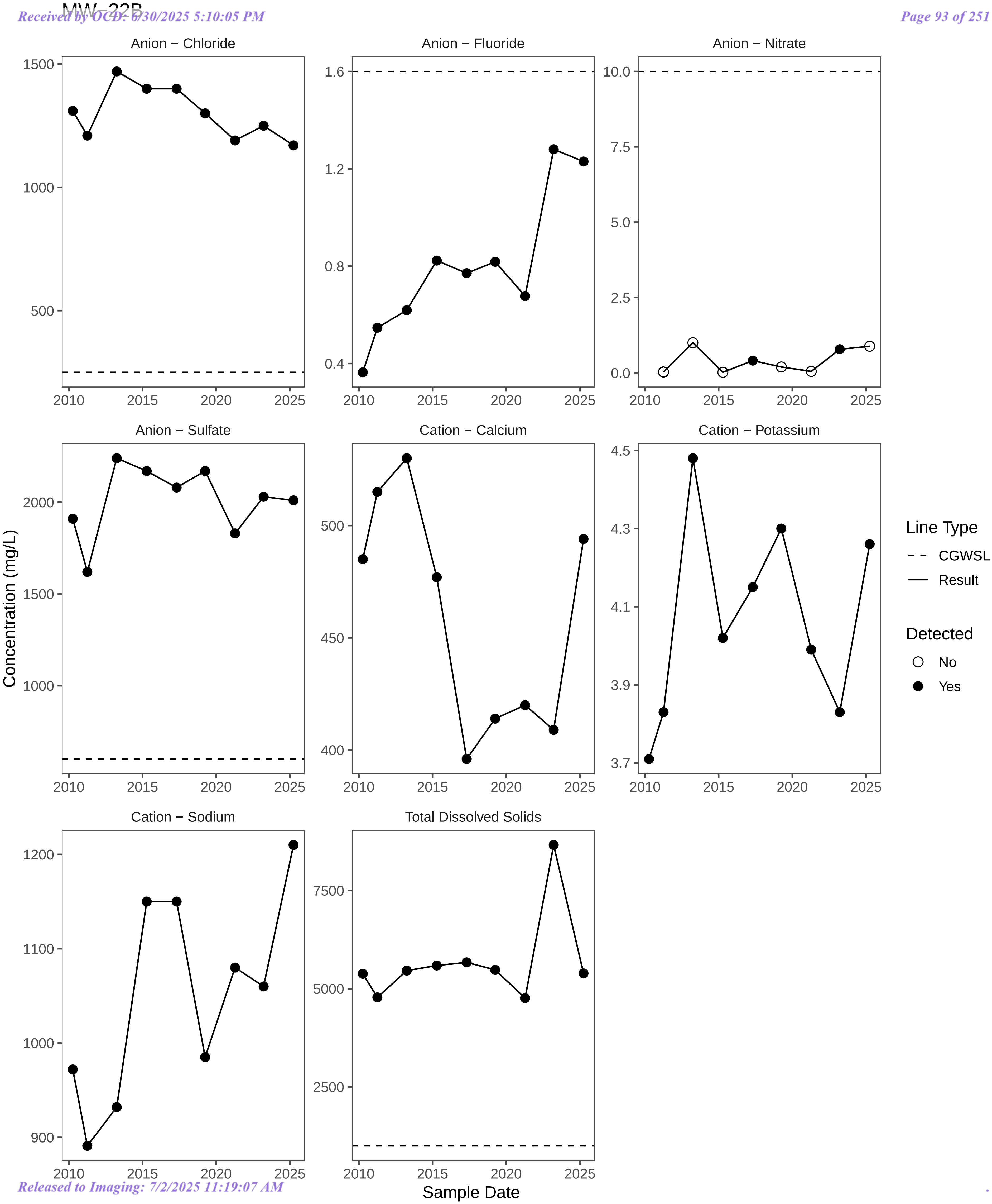

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

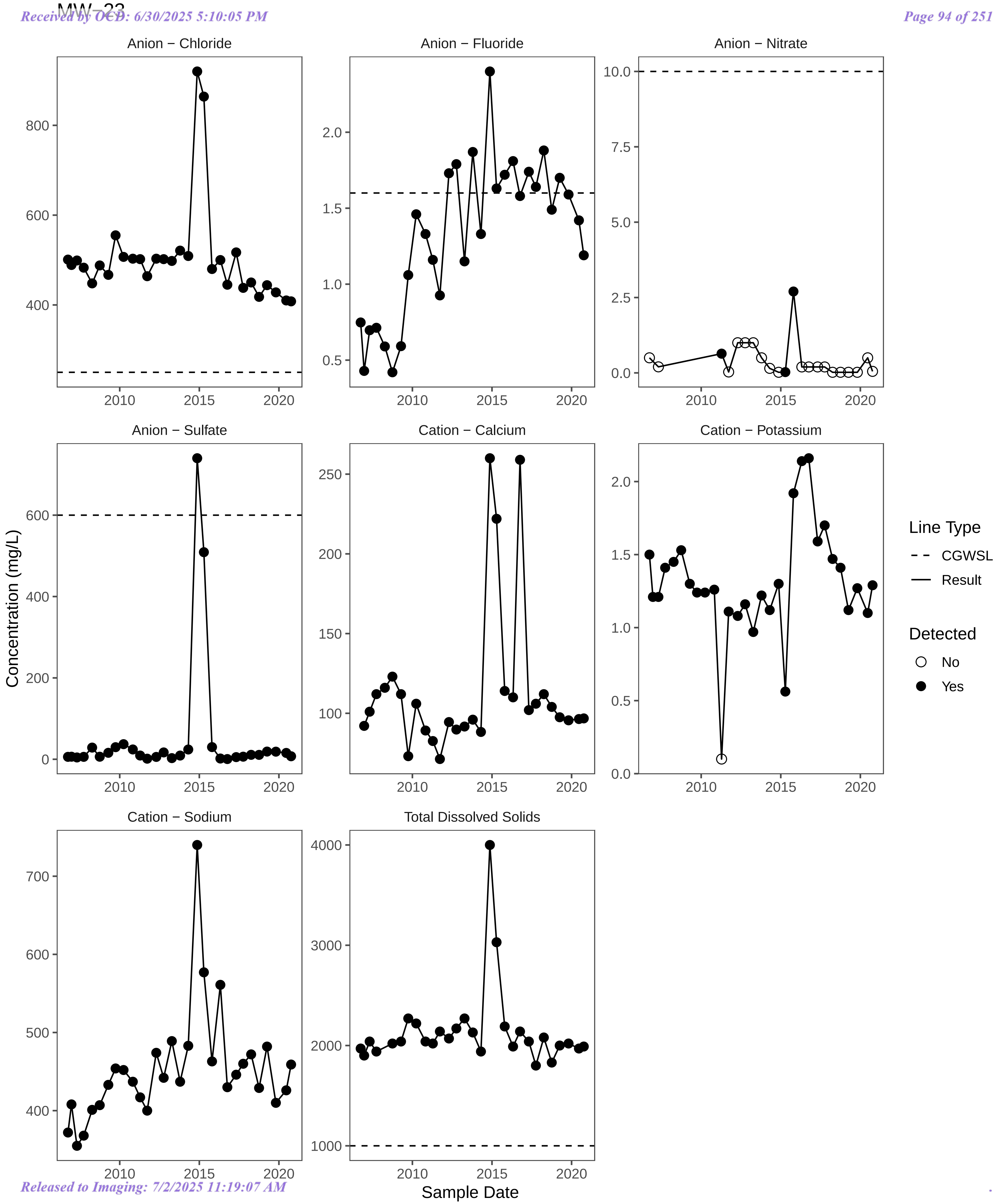
MW−21

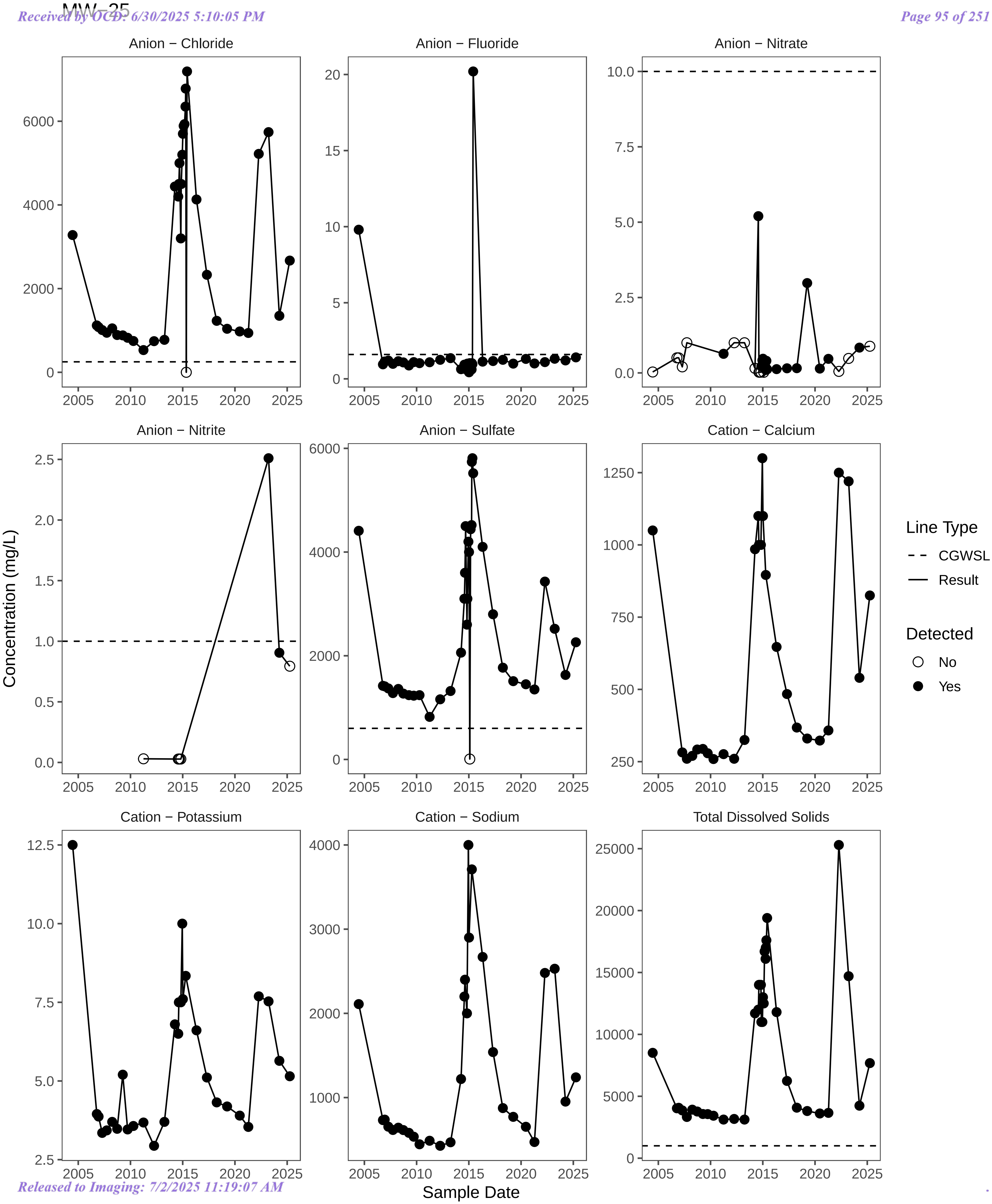

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-22A

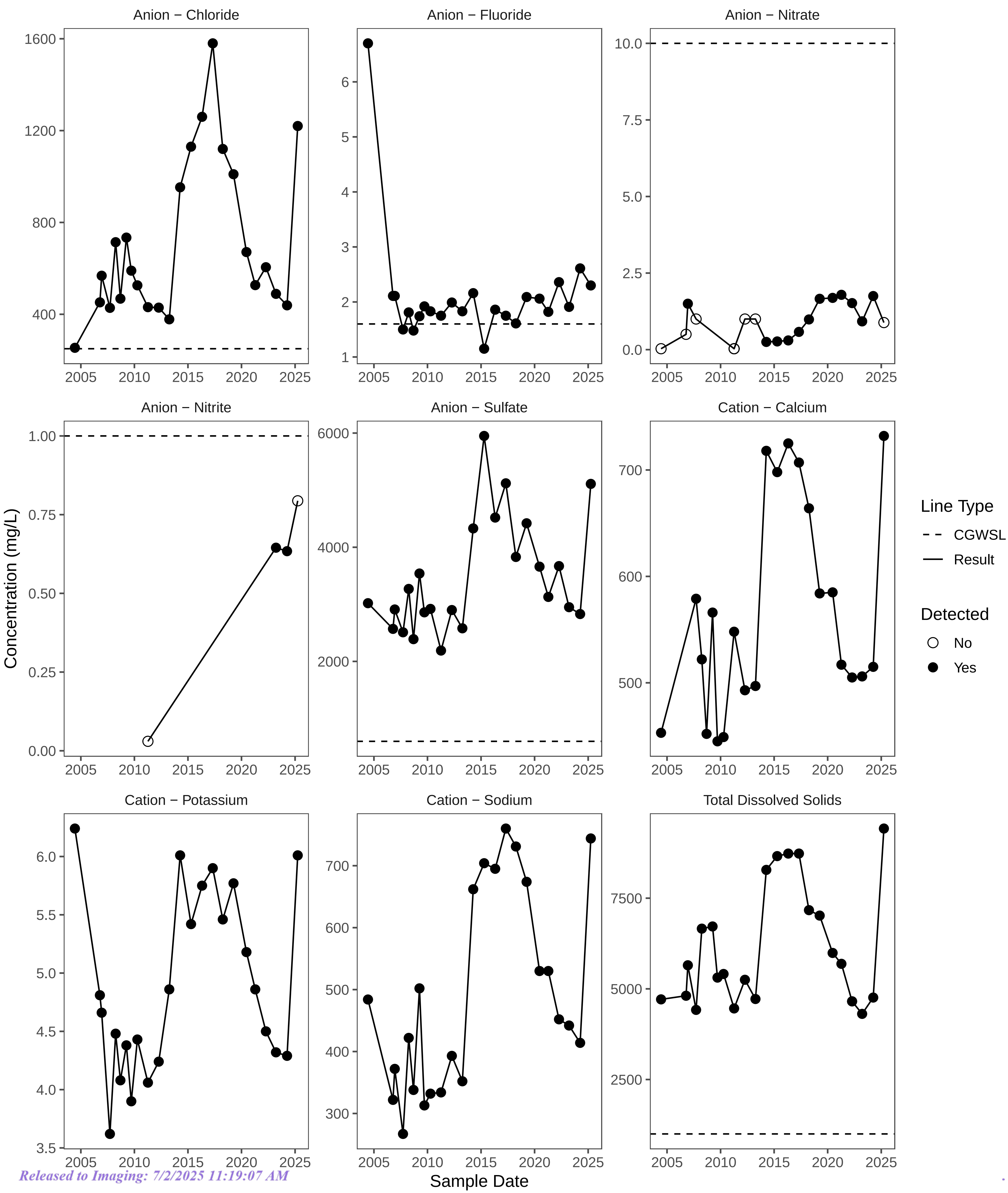

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−22B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

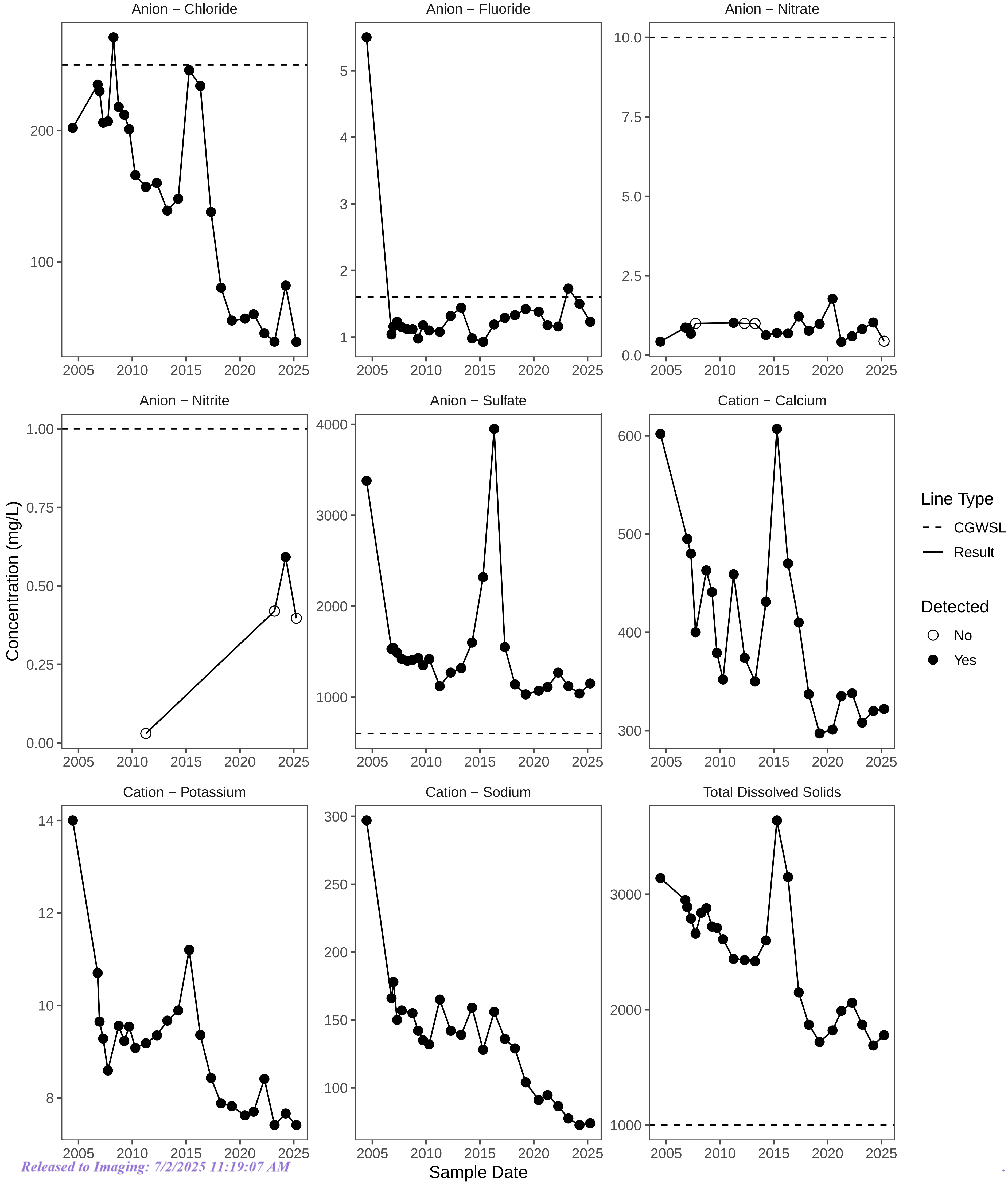

MW-23
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−25
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

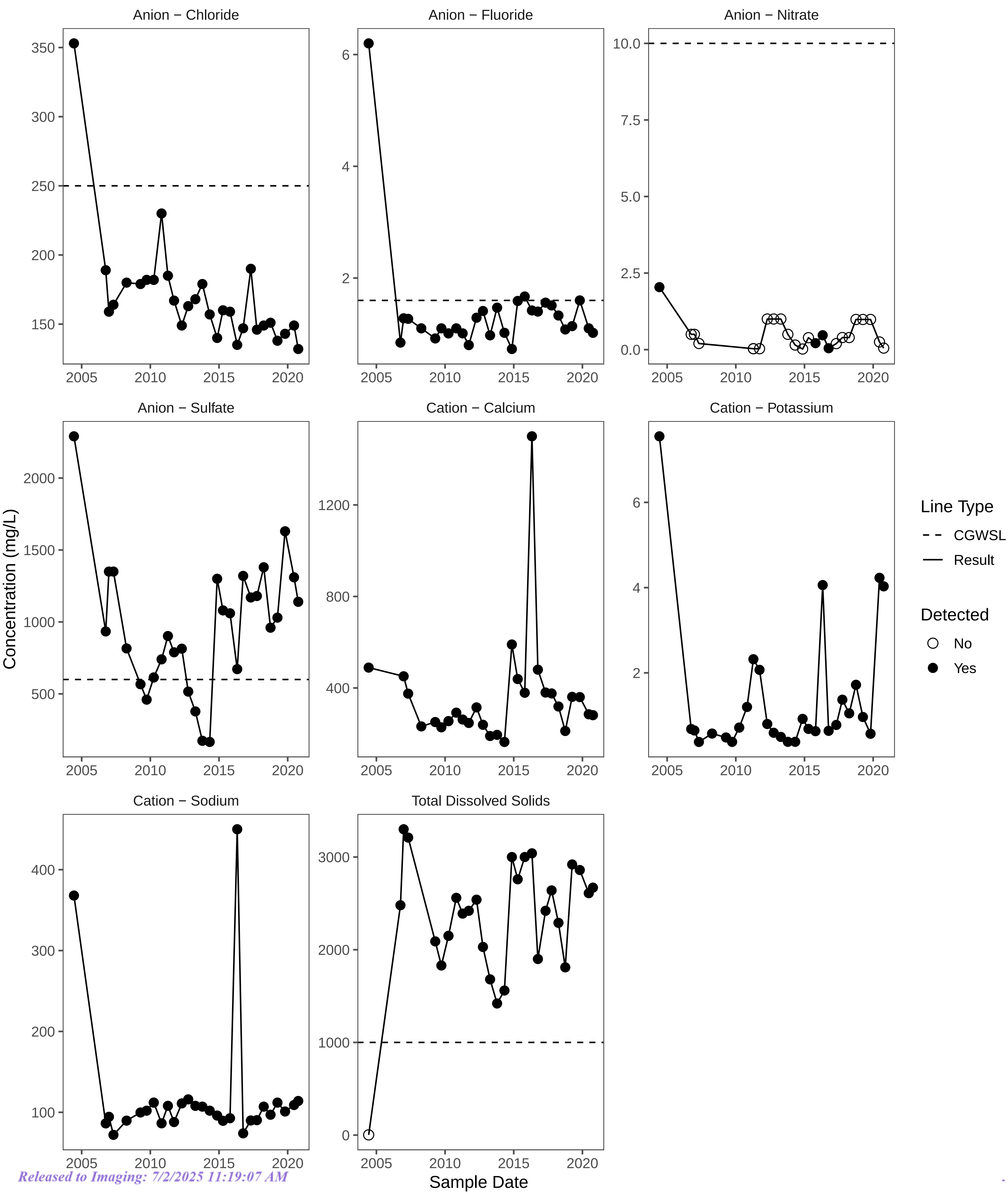
MW−26

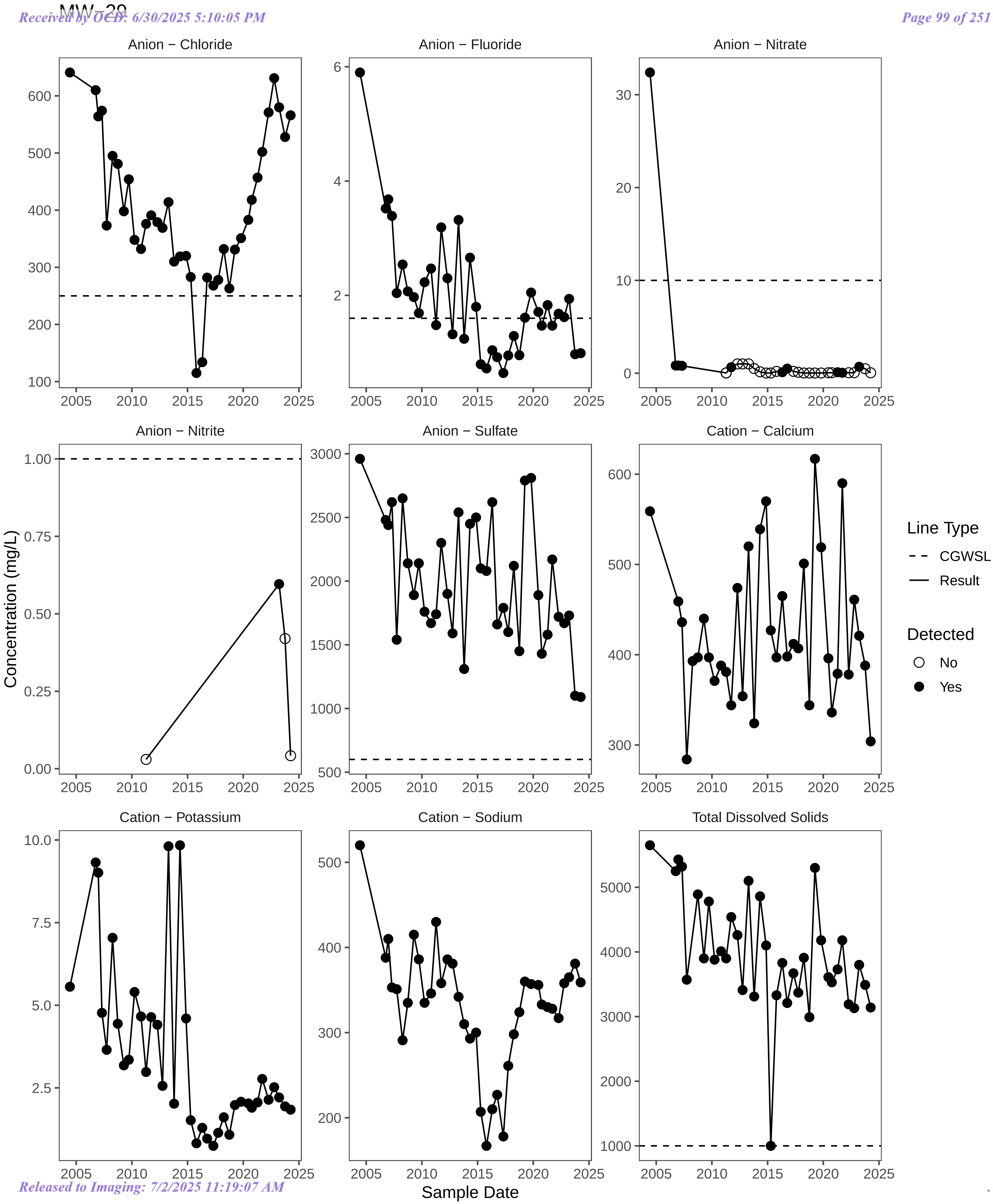

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

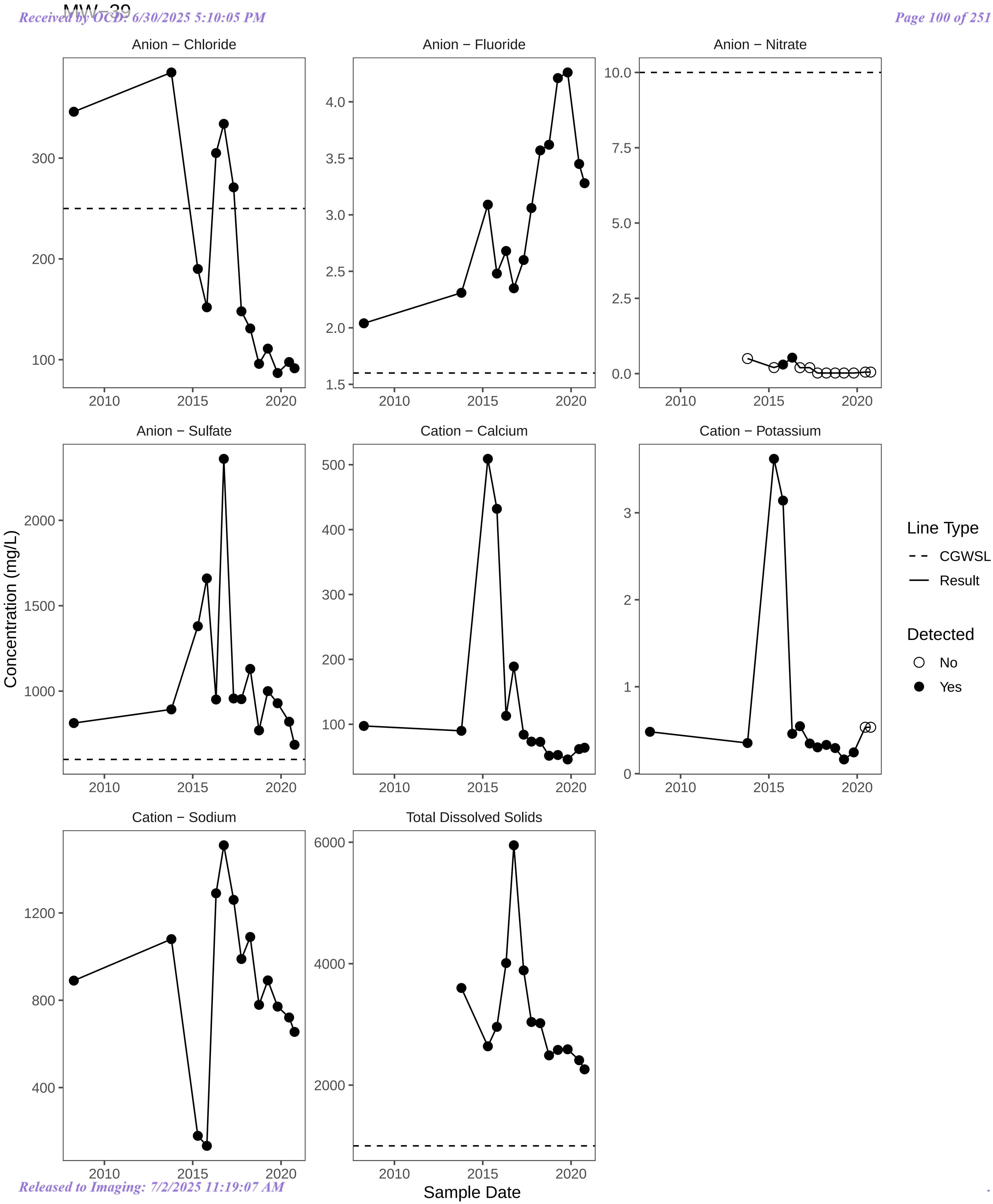
MW−27


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

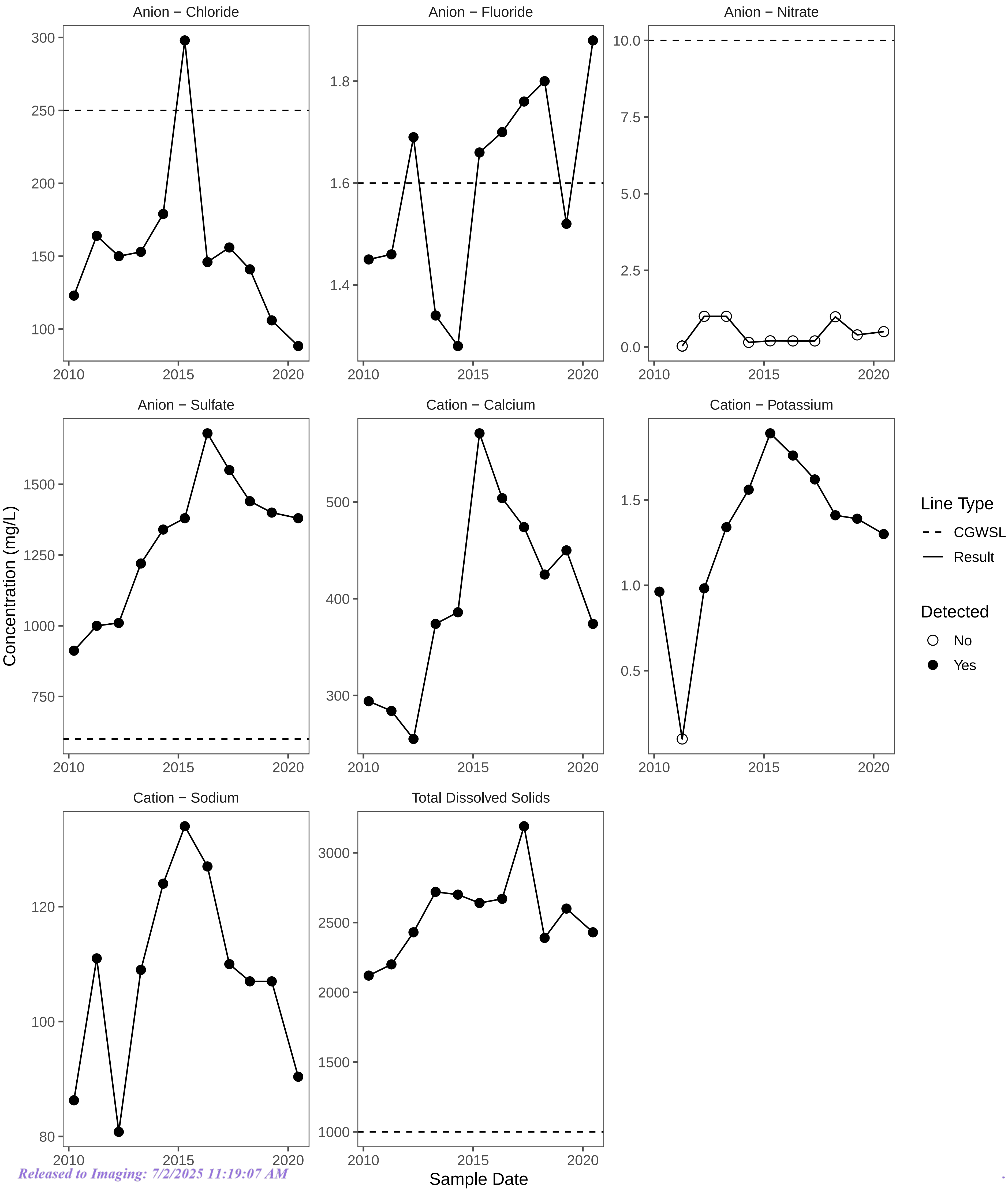
MW−28

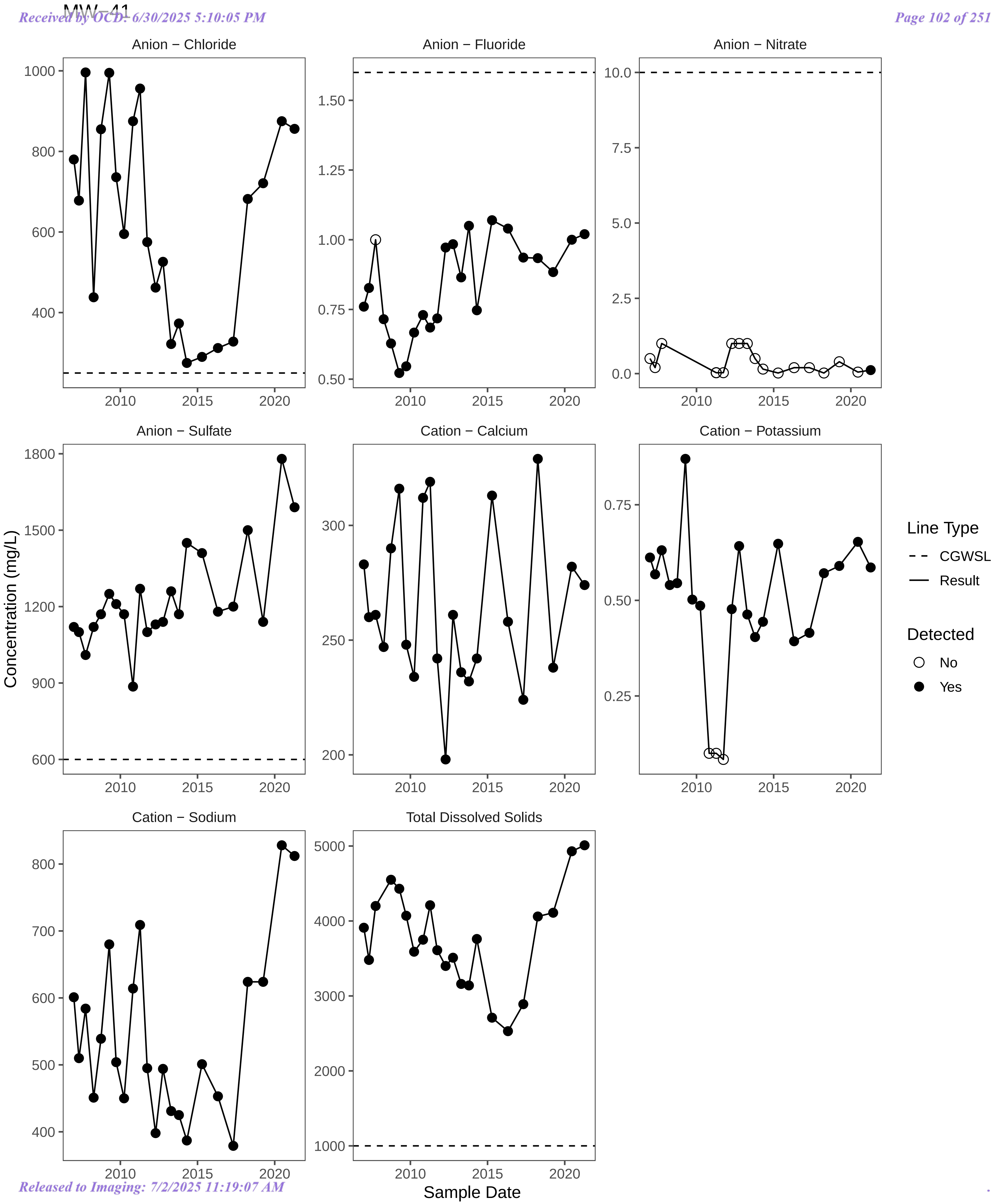

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

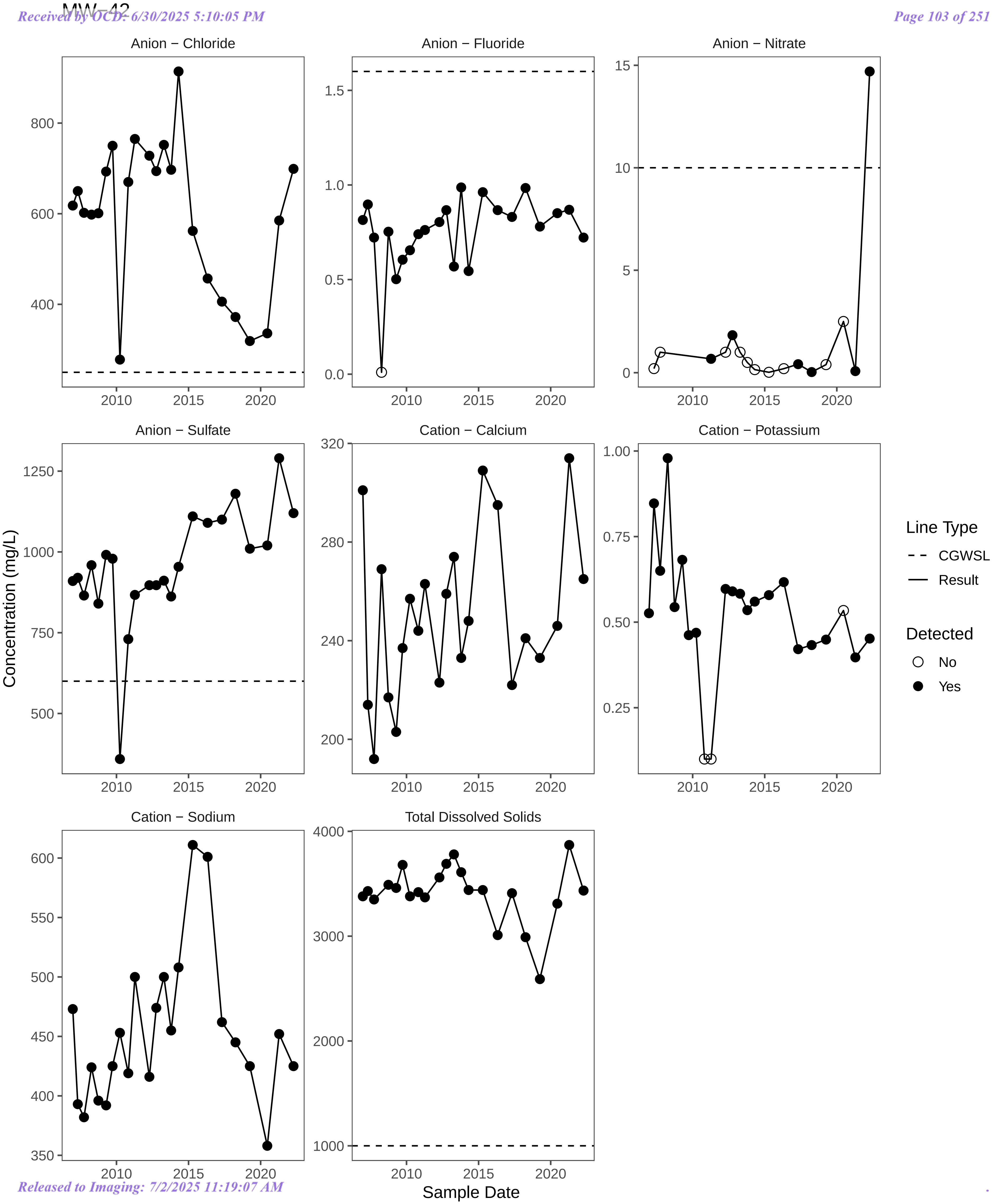

MW−29
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

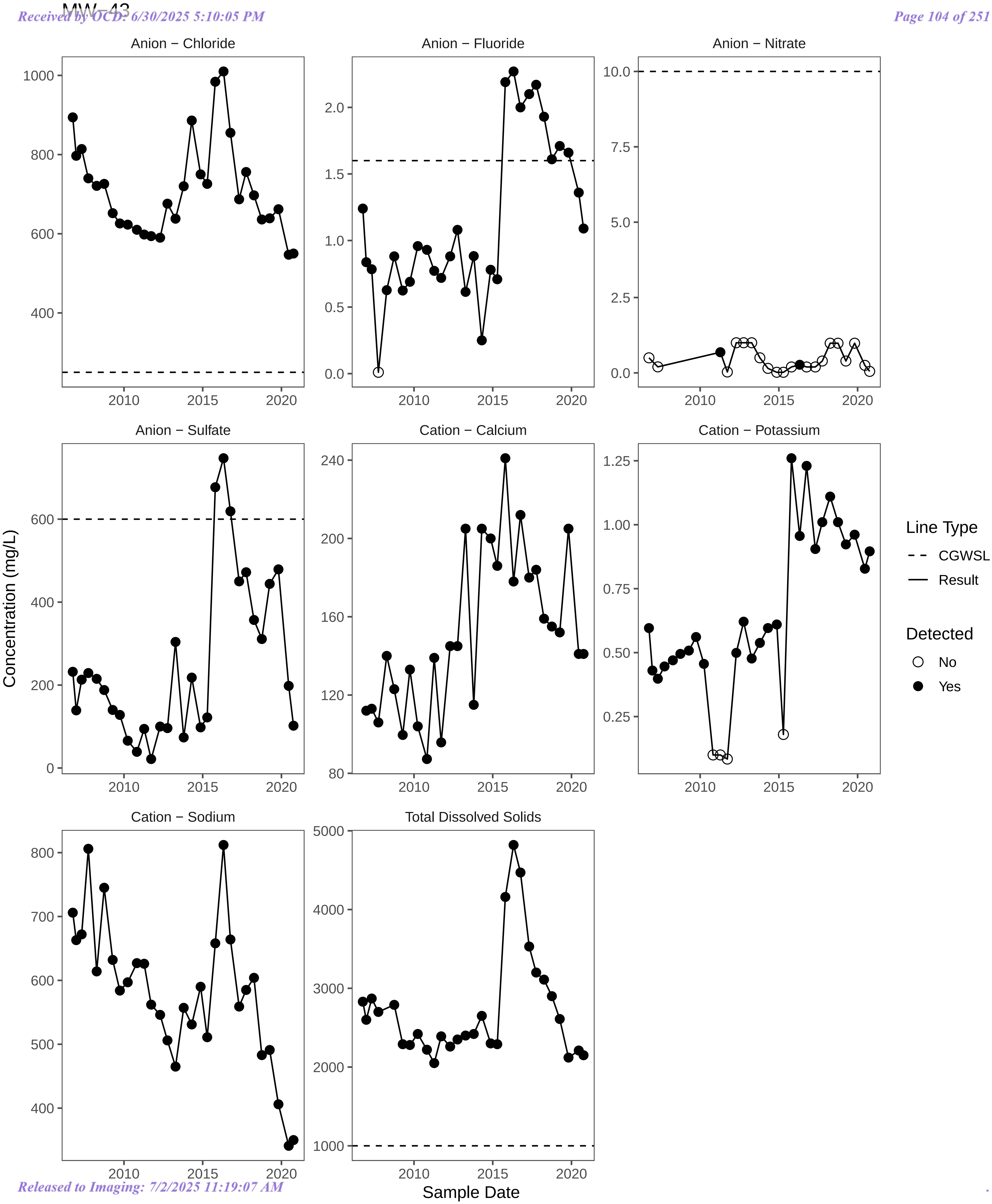

MW-39
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-40

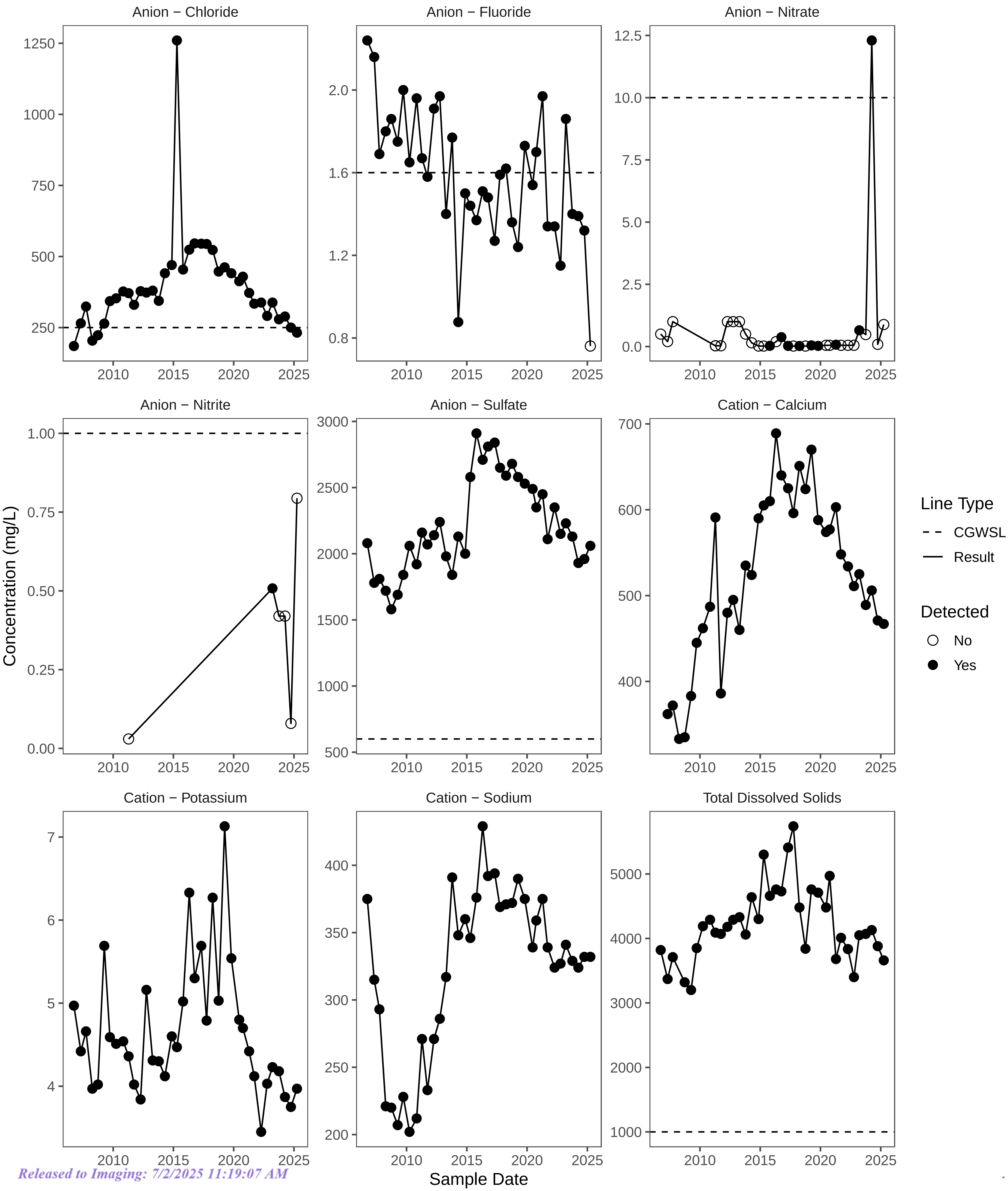

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

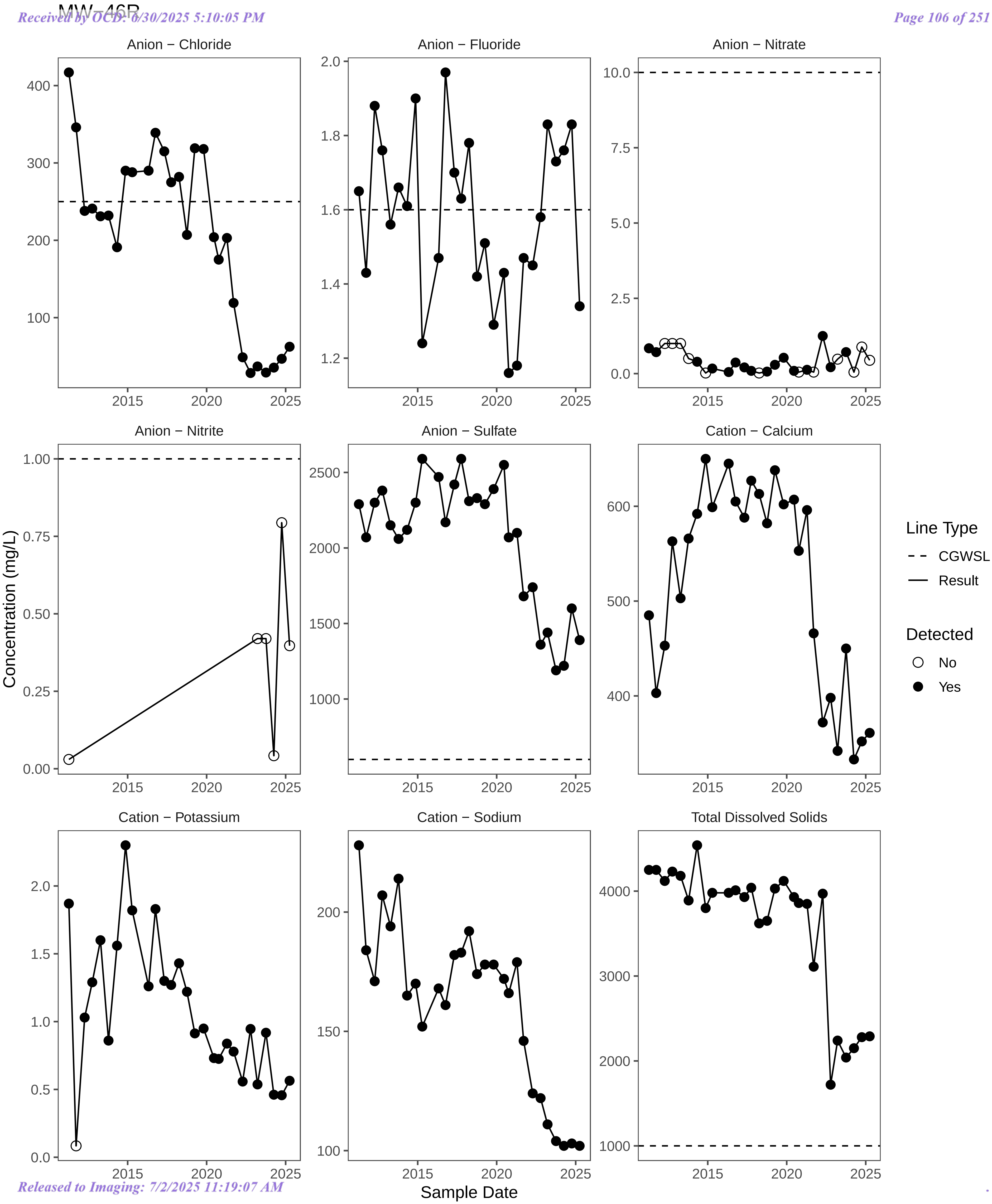

MW−41
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−42
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

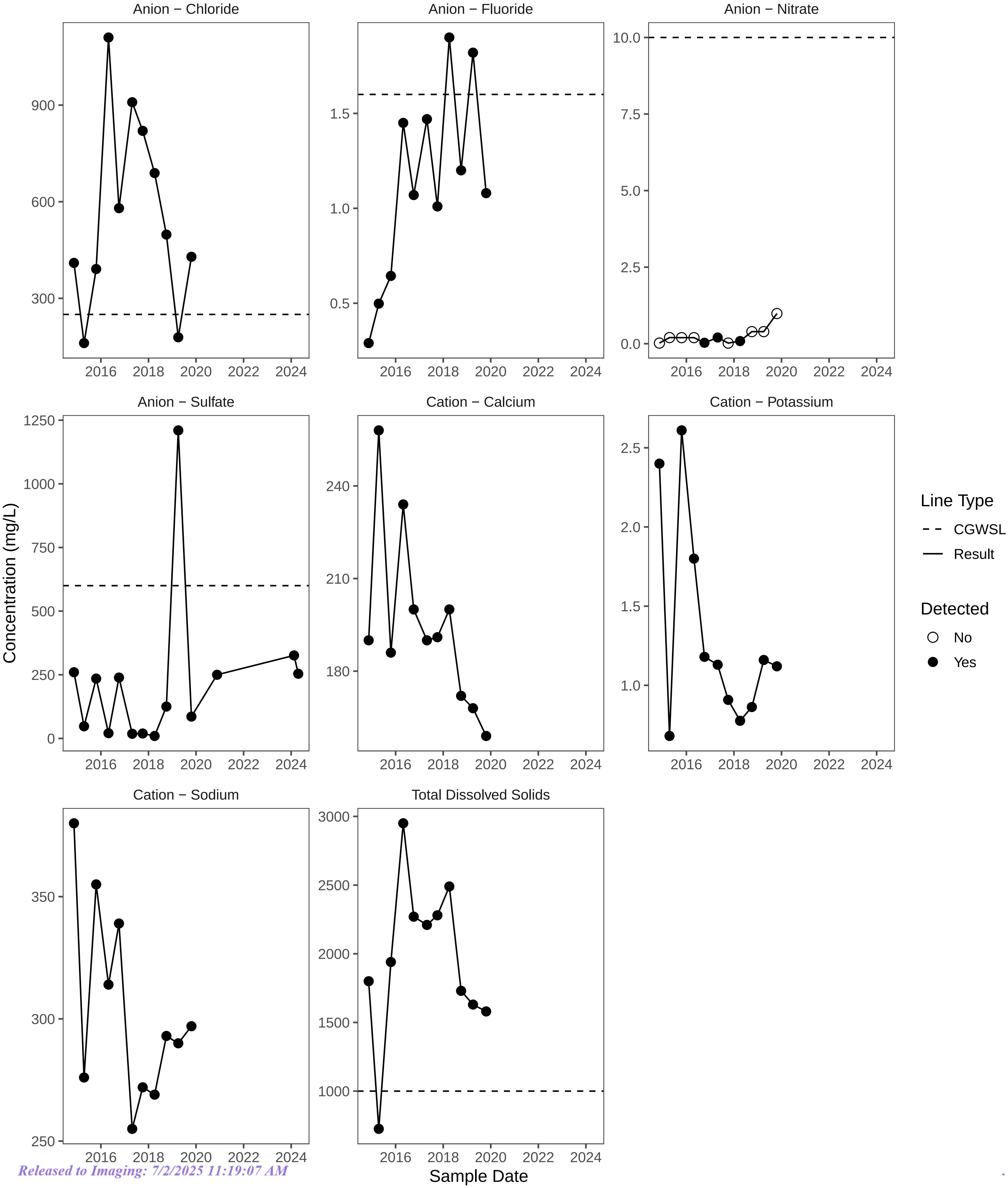

MW-43
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−45

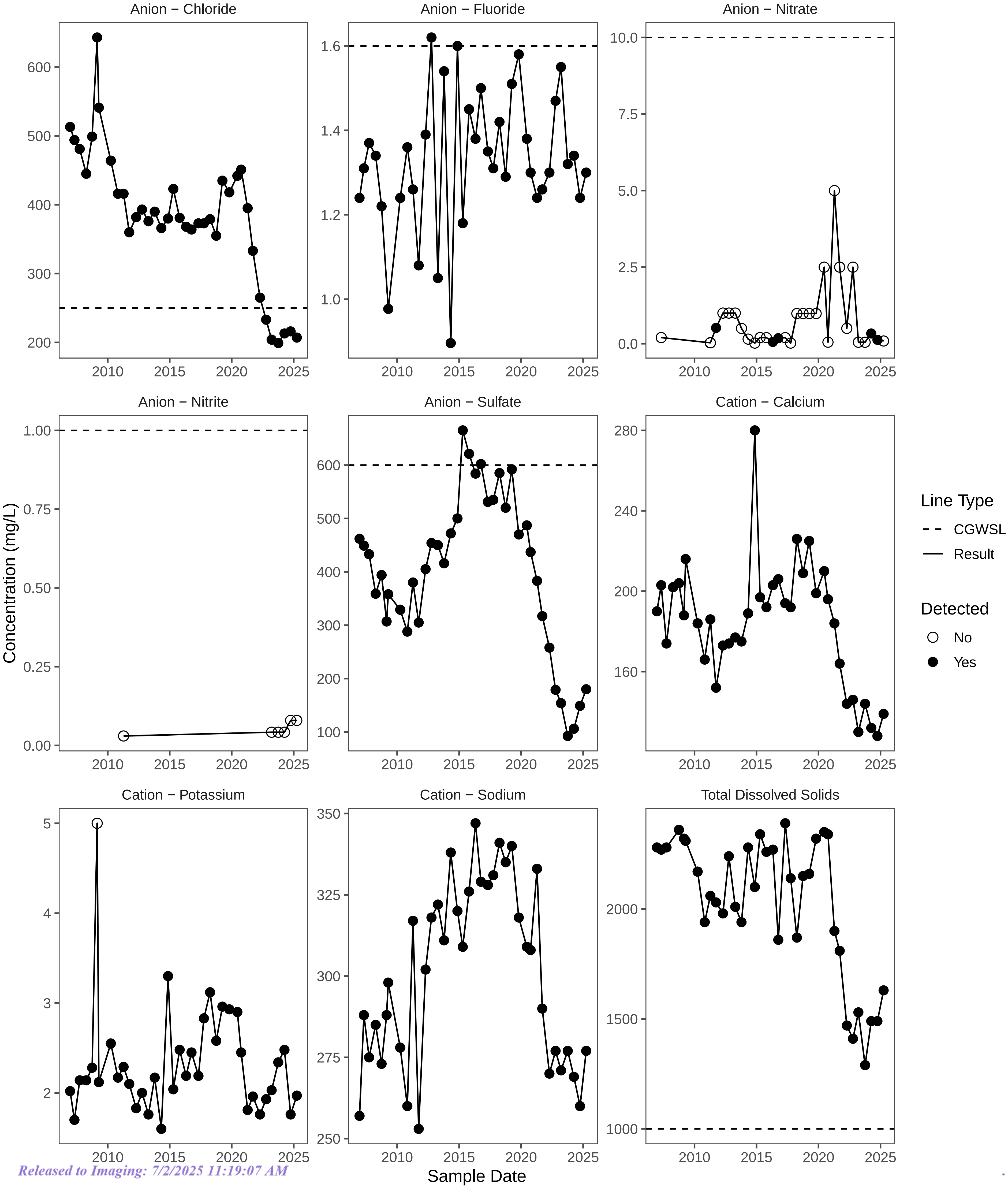

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

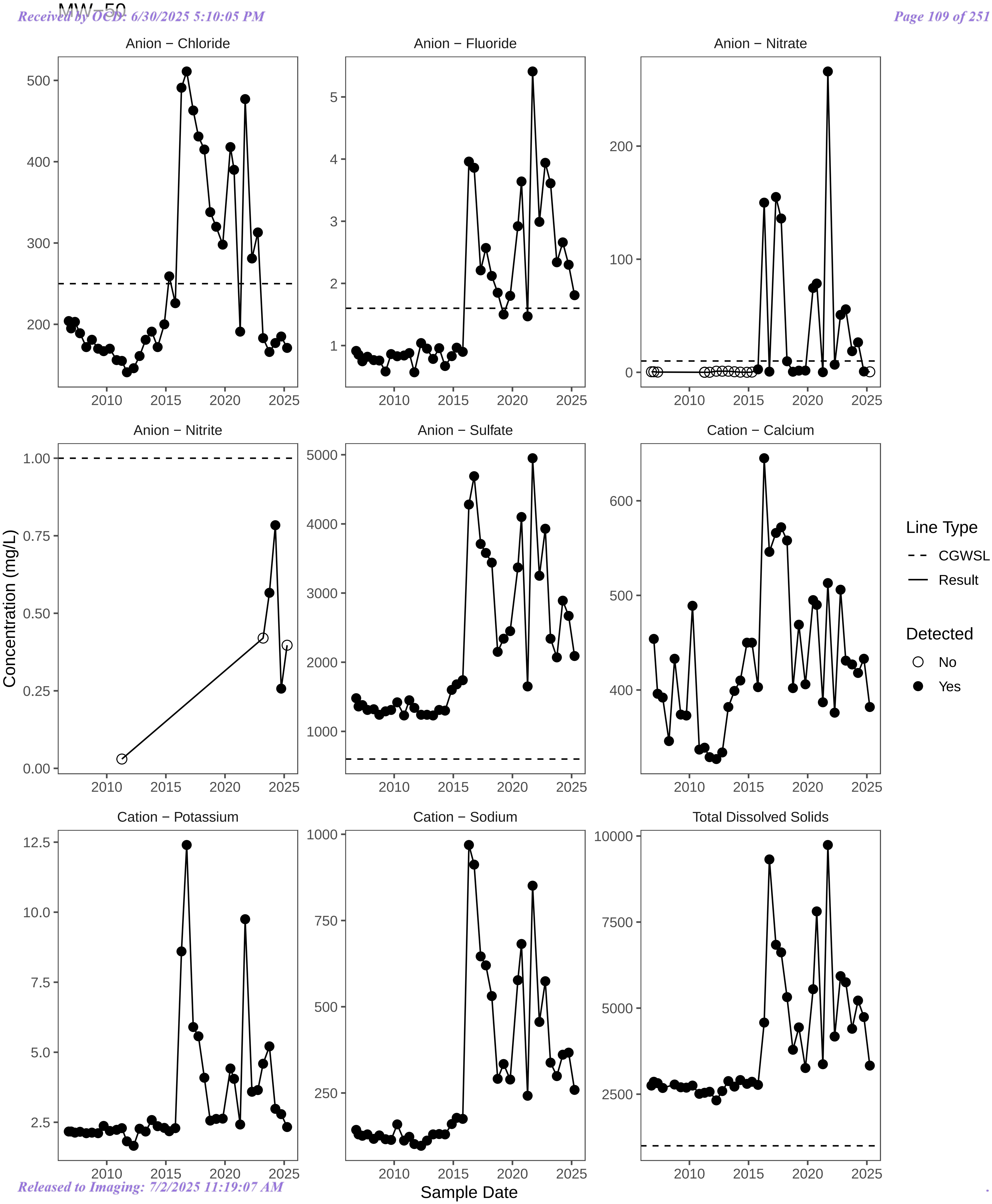

MW-46R
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

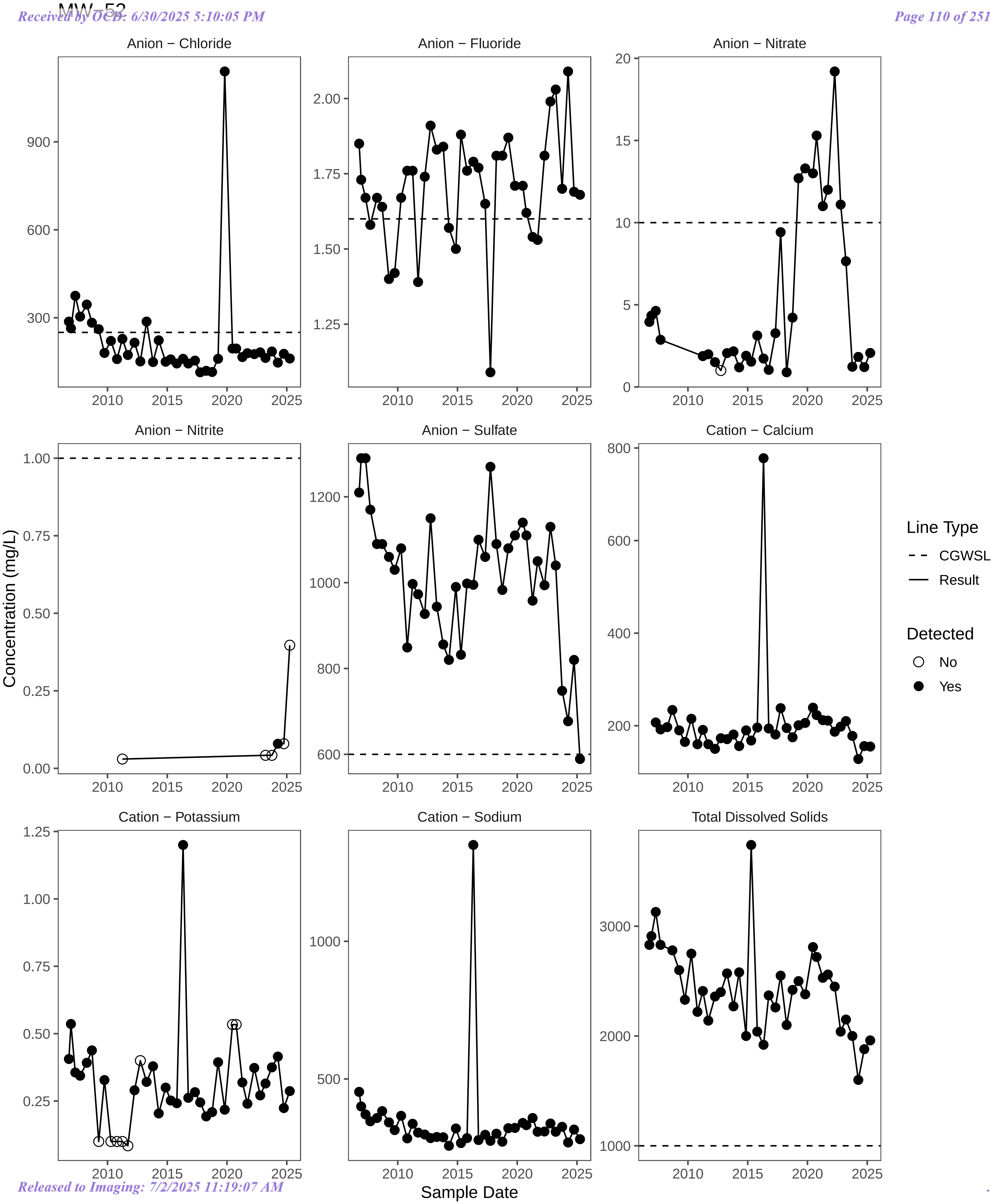
MW-48

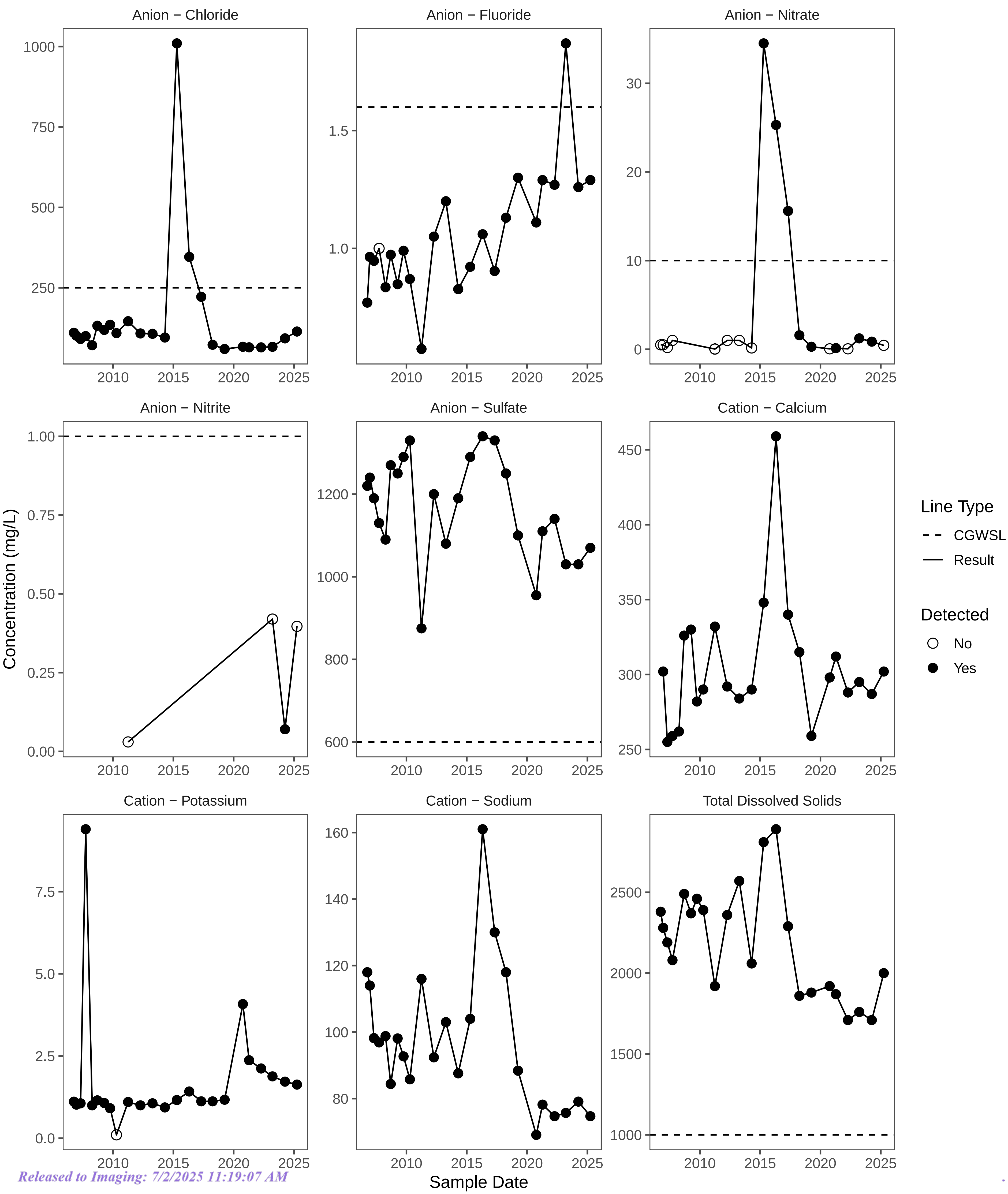

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

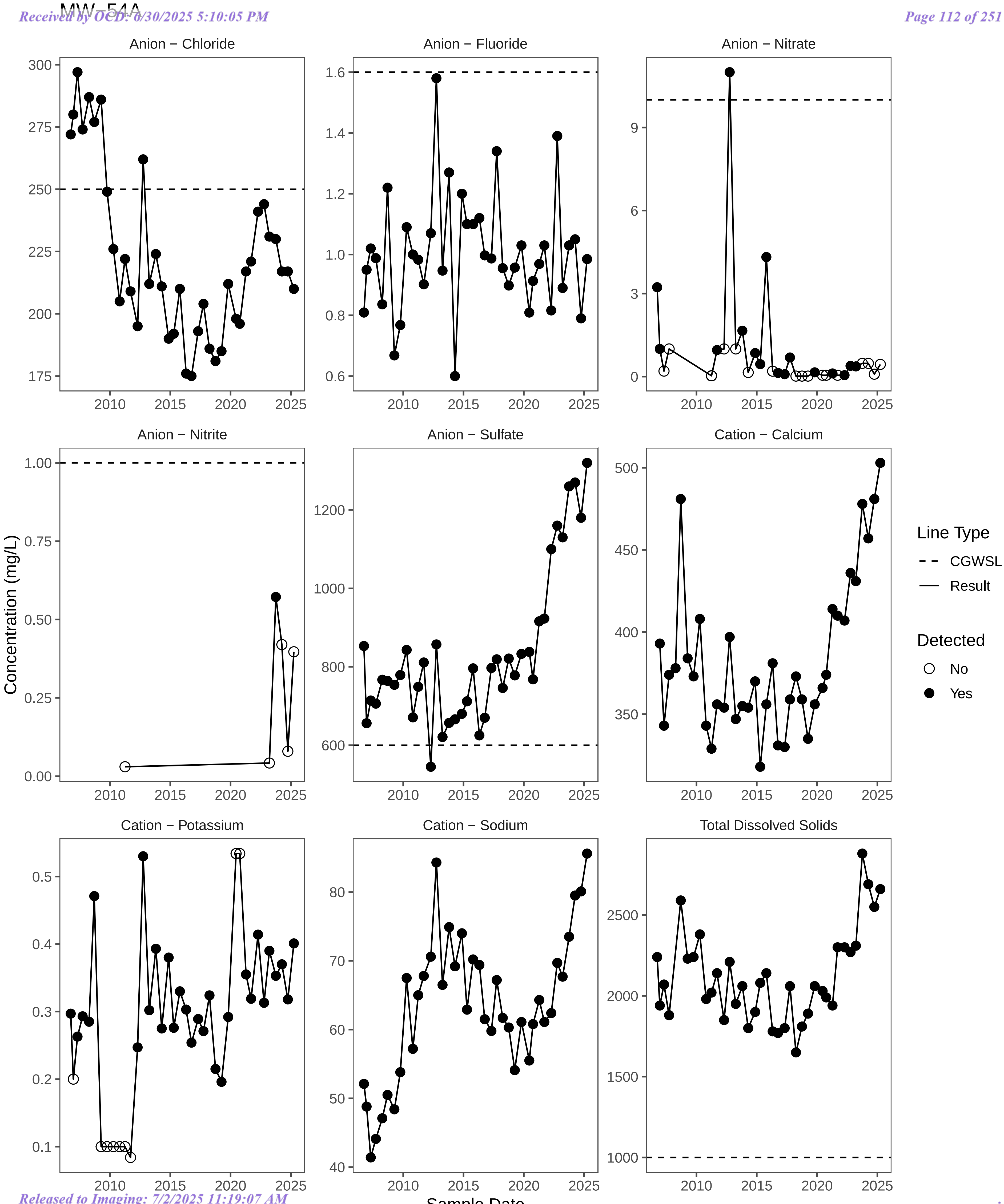
MW-49


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes
2010
2015
2020
2025

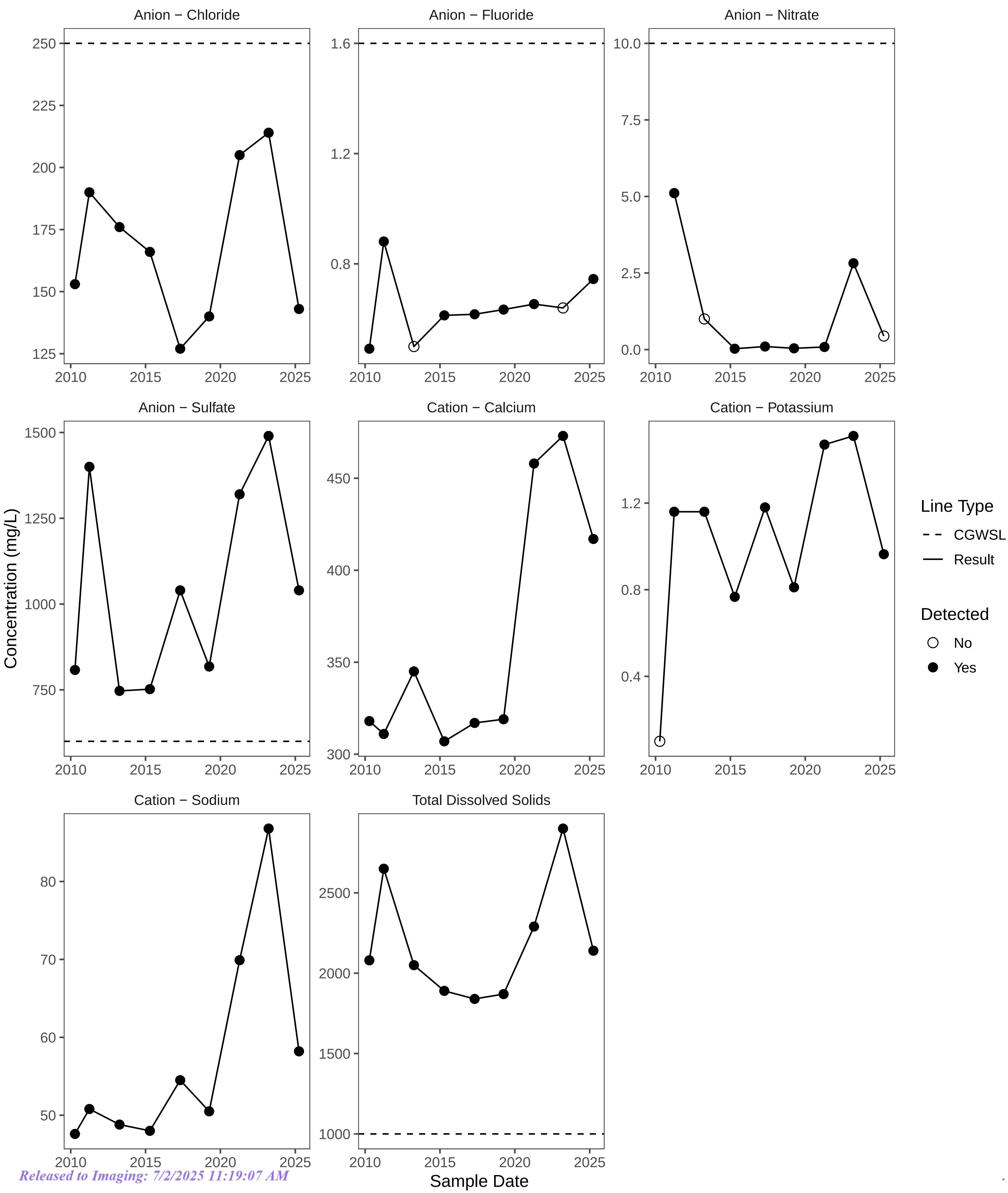

MW−50
Anion − Chloride
500
400
300
200
Anion − Fluoride
5
4
3
2
1
Anion − Nitrate
200
100
0
Anion − Nitrite
1.00
0.75
0.50
0.25
0.00
Anion − Sulfate
5000
4000
3000
2000
1000
Cation − Calcium
600
500
400
Cation − Potassium
12.5
10.0
7.5
5.0
2.5
Cation − Sodium
1000
750
500
250
Total Dissolved Solids
10000
7500
5000
2500
2010
2015
2020
2025
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−52
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

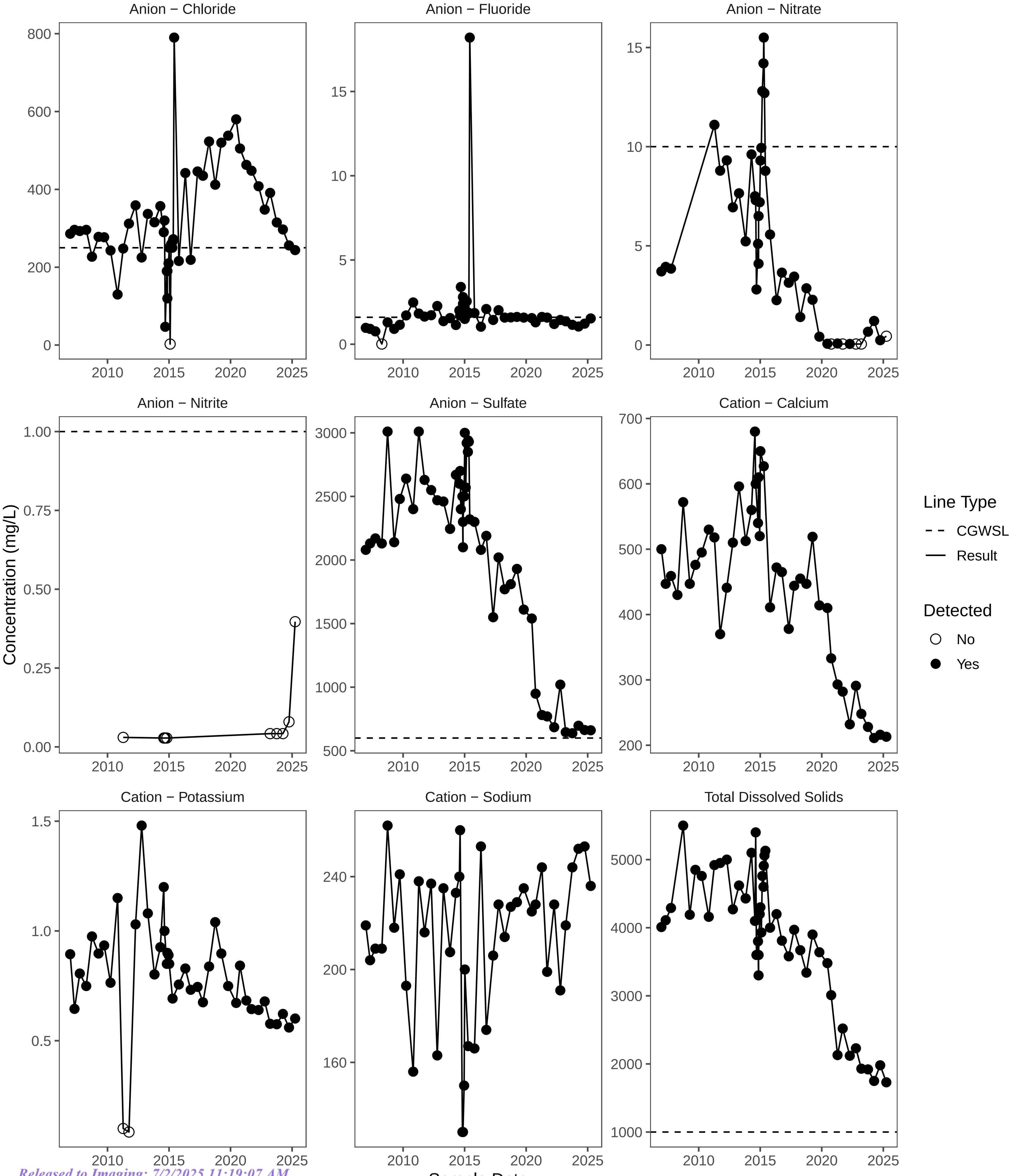

MW-53R/MW-53
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−54A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

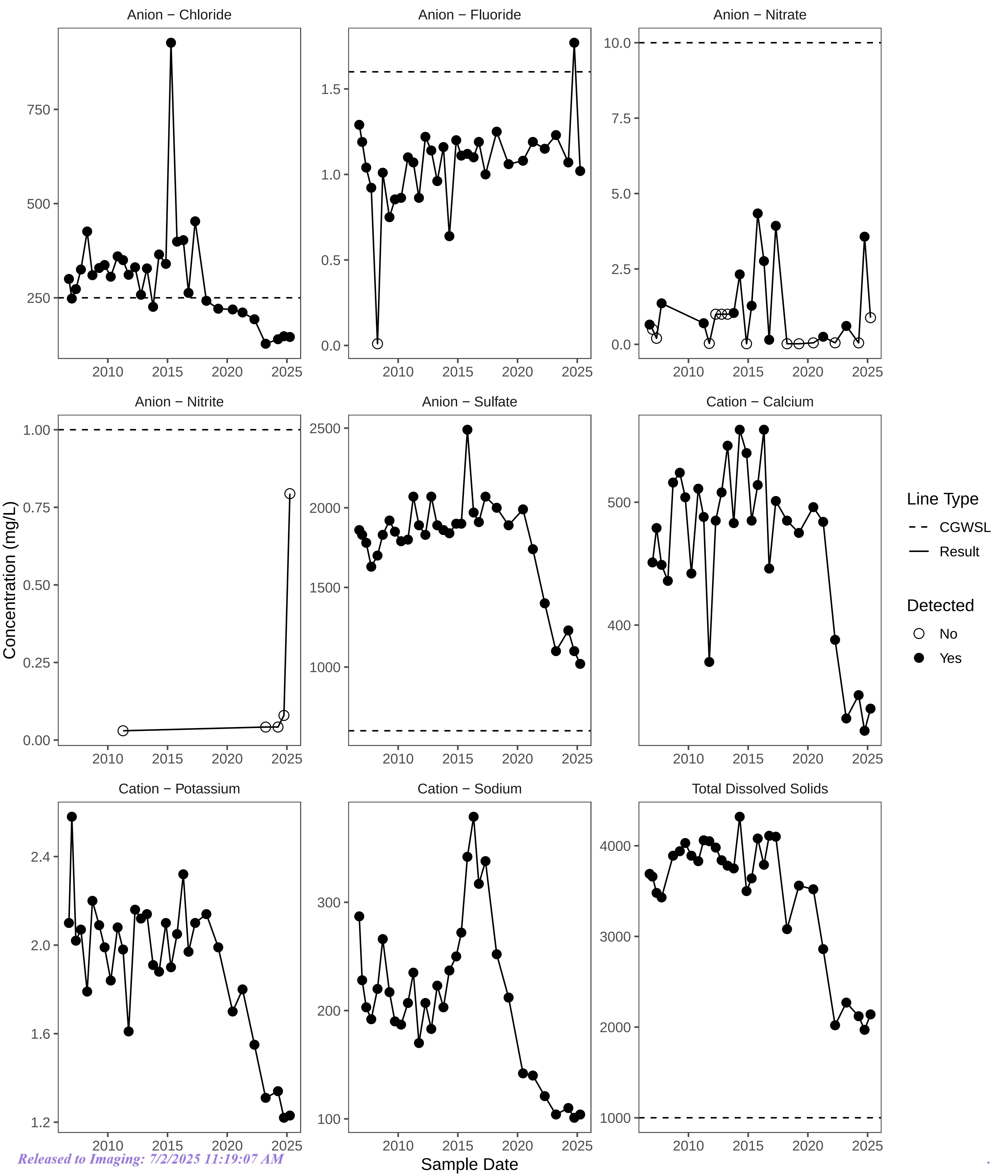
MW−54B

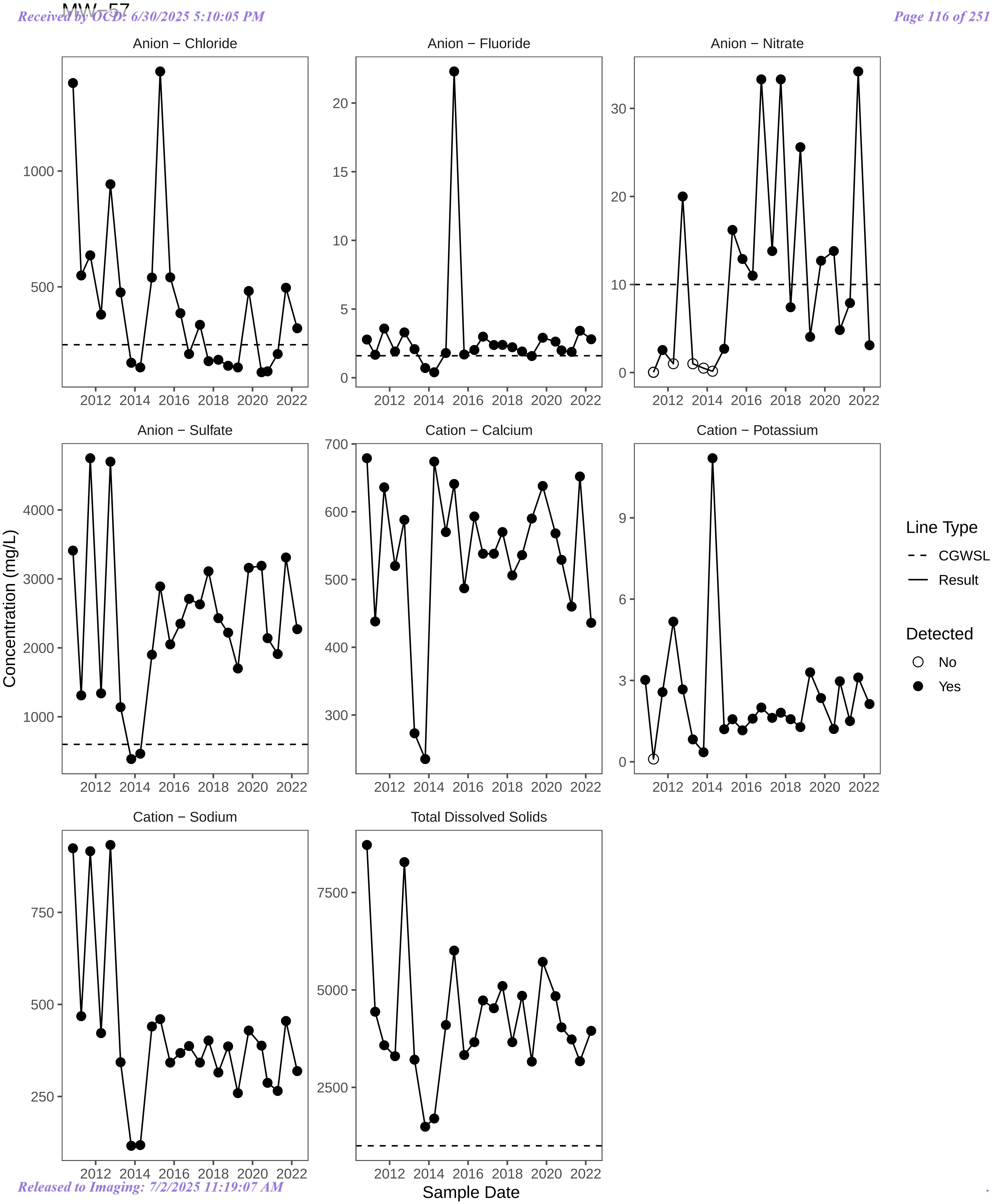

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−55

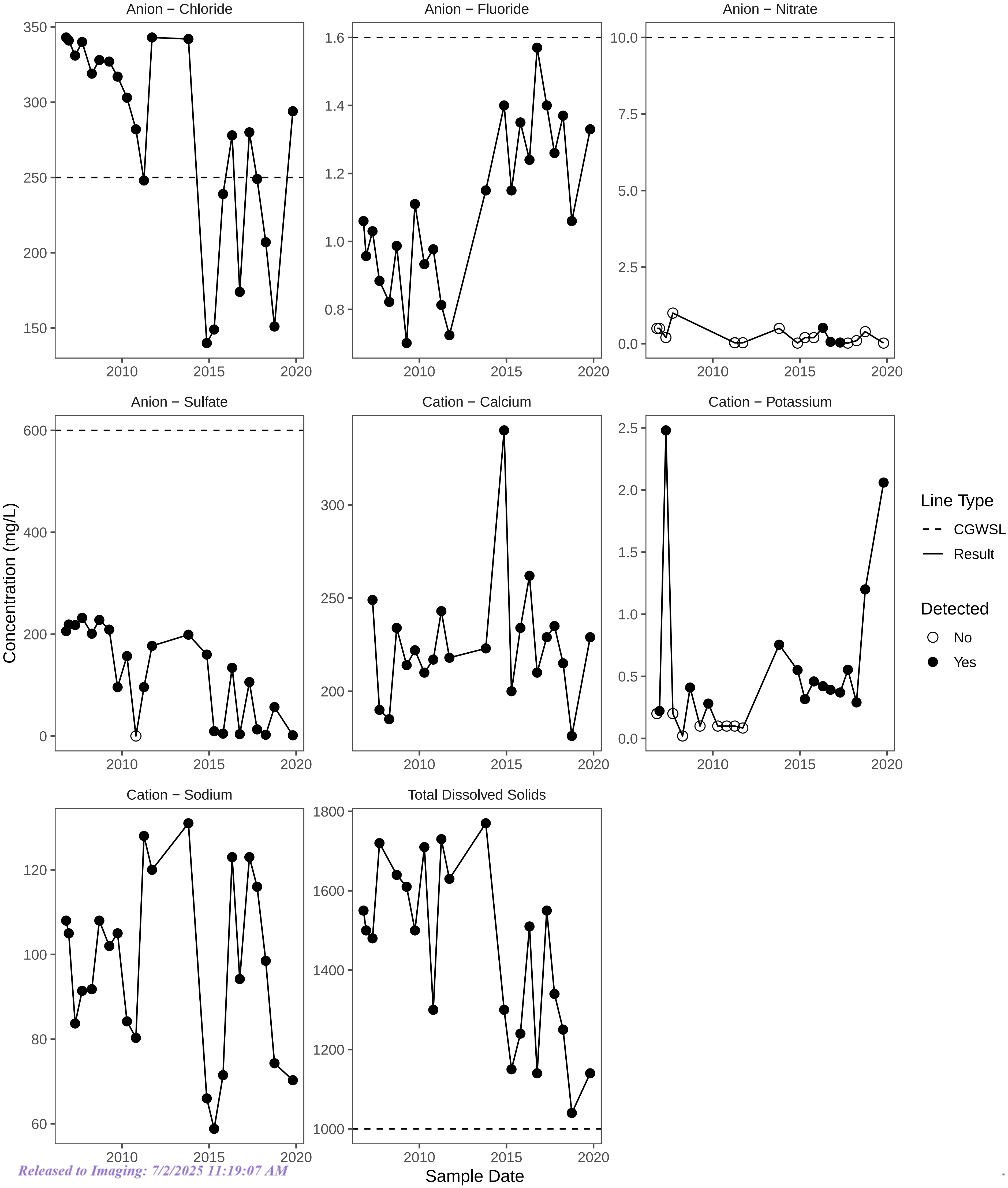

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

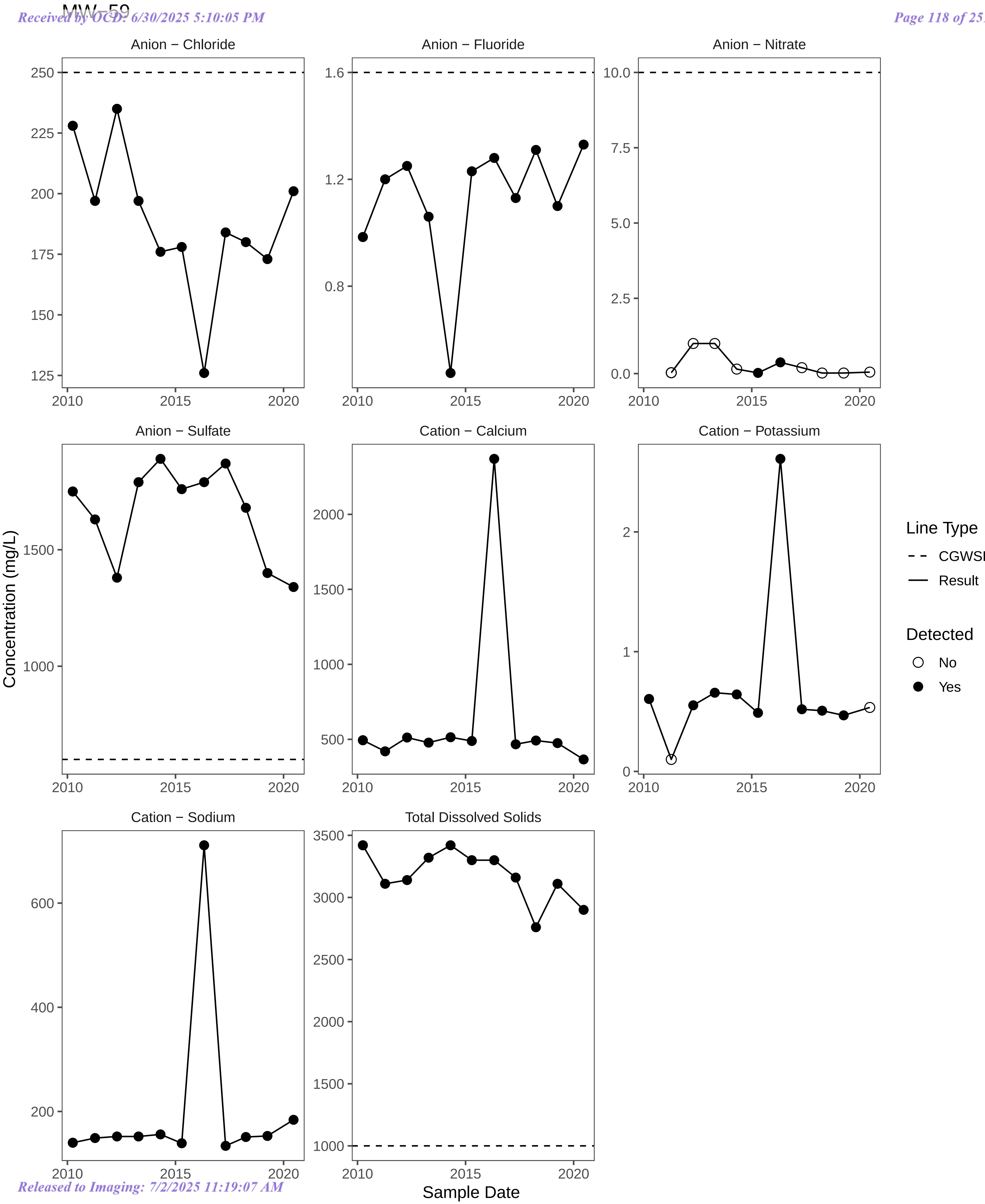
MW−56


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

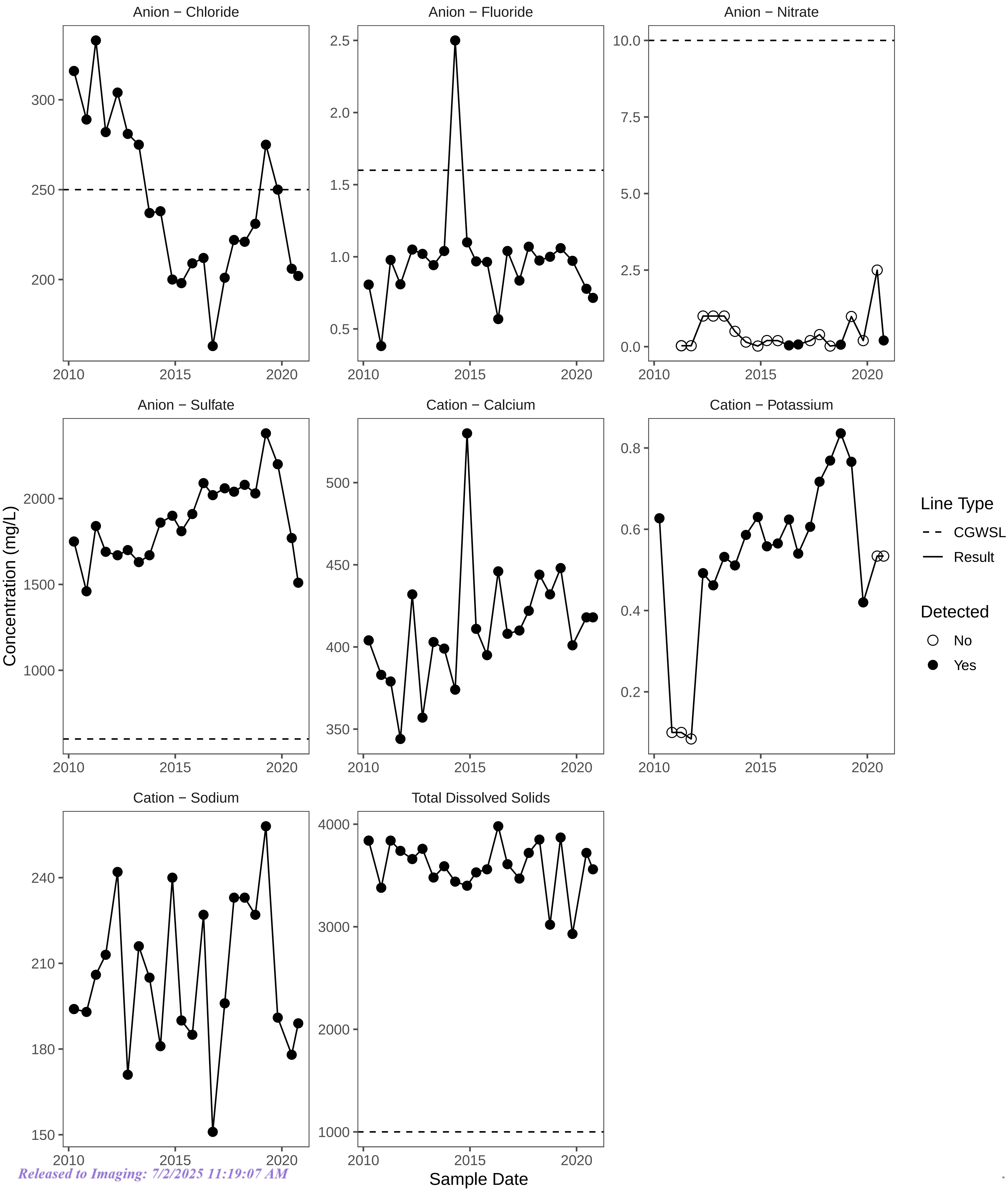

MW−57
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-58

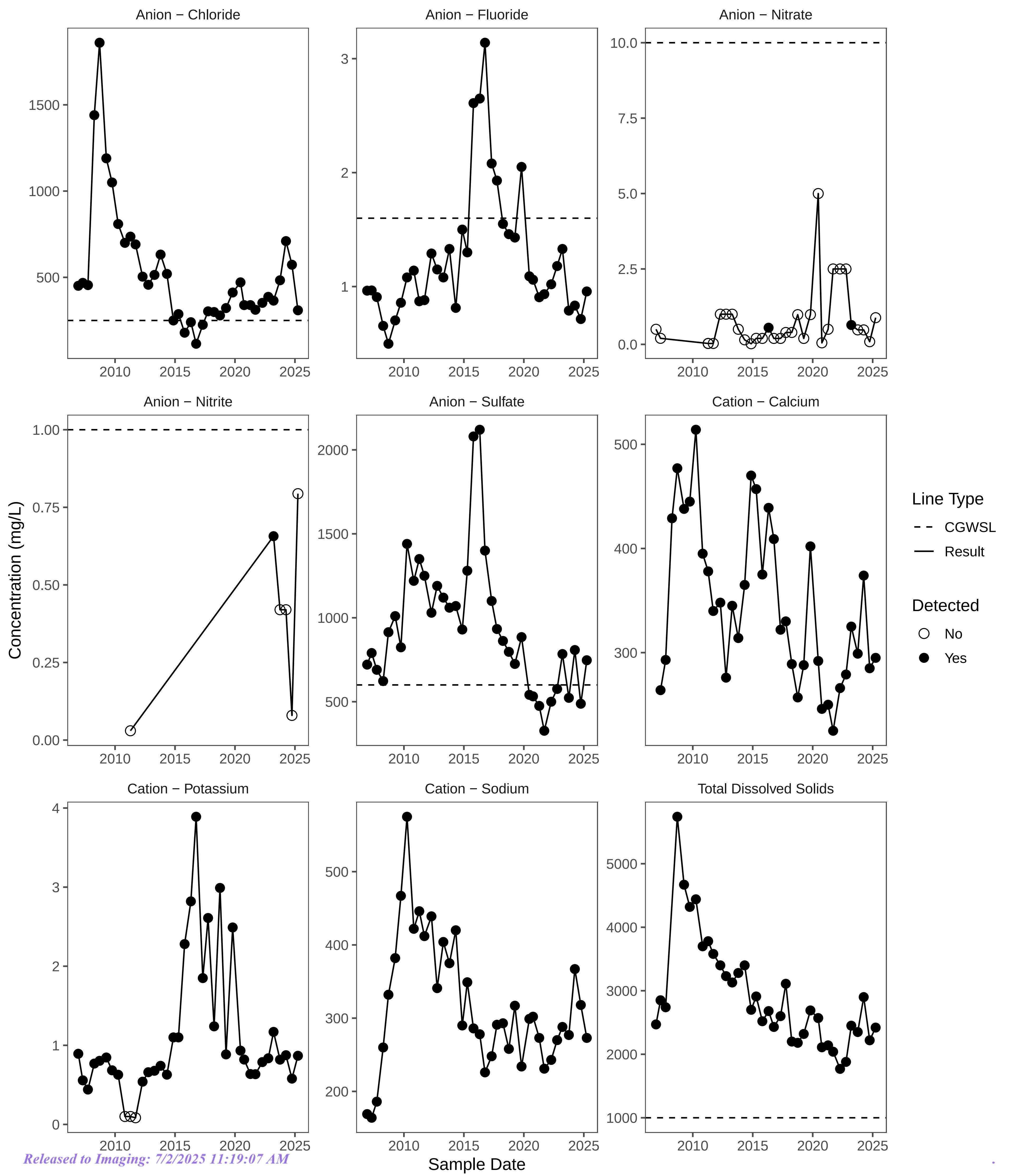

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

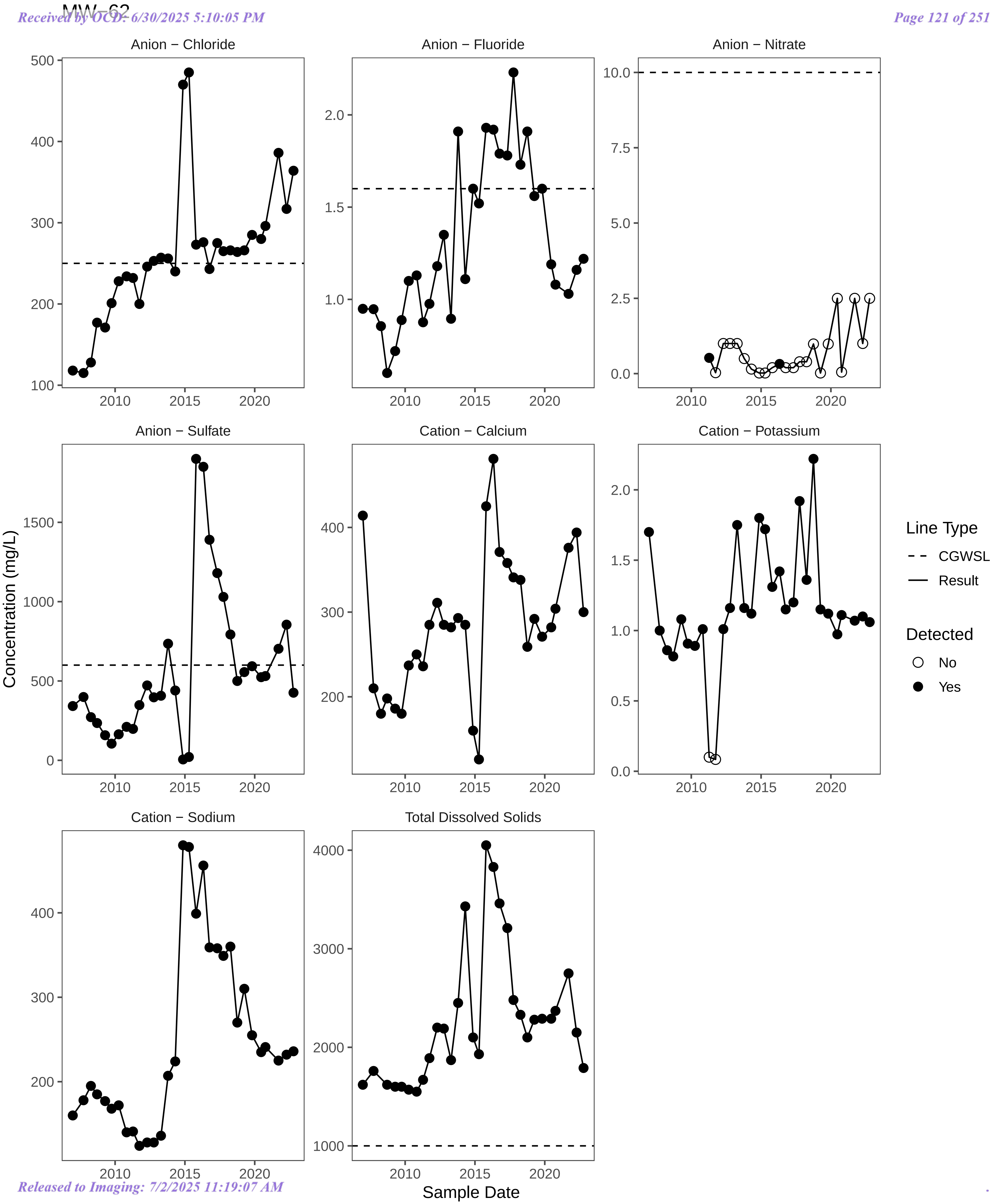

MW-59
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

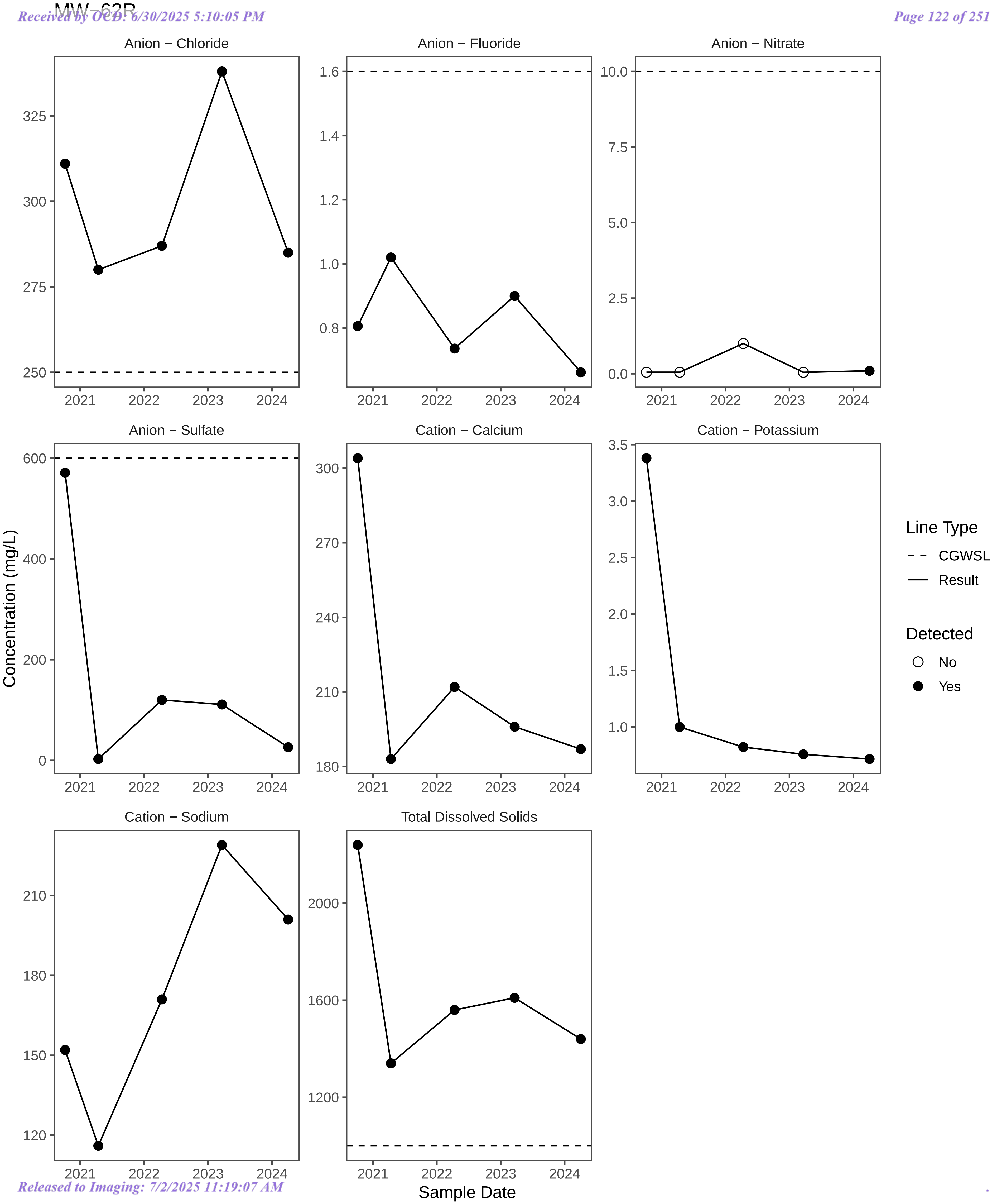
MW-60

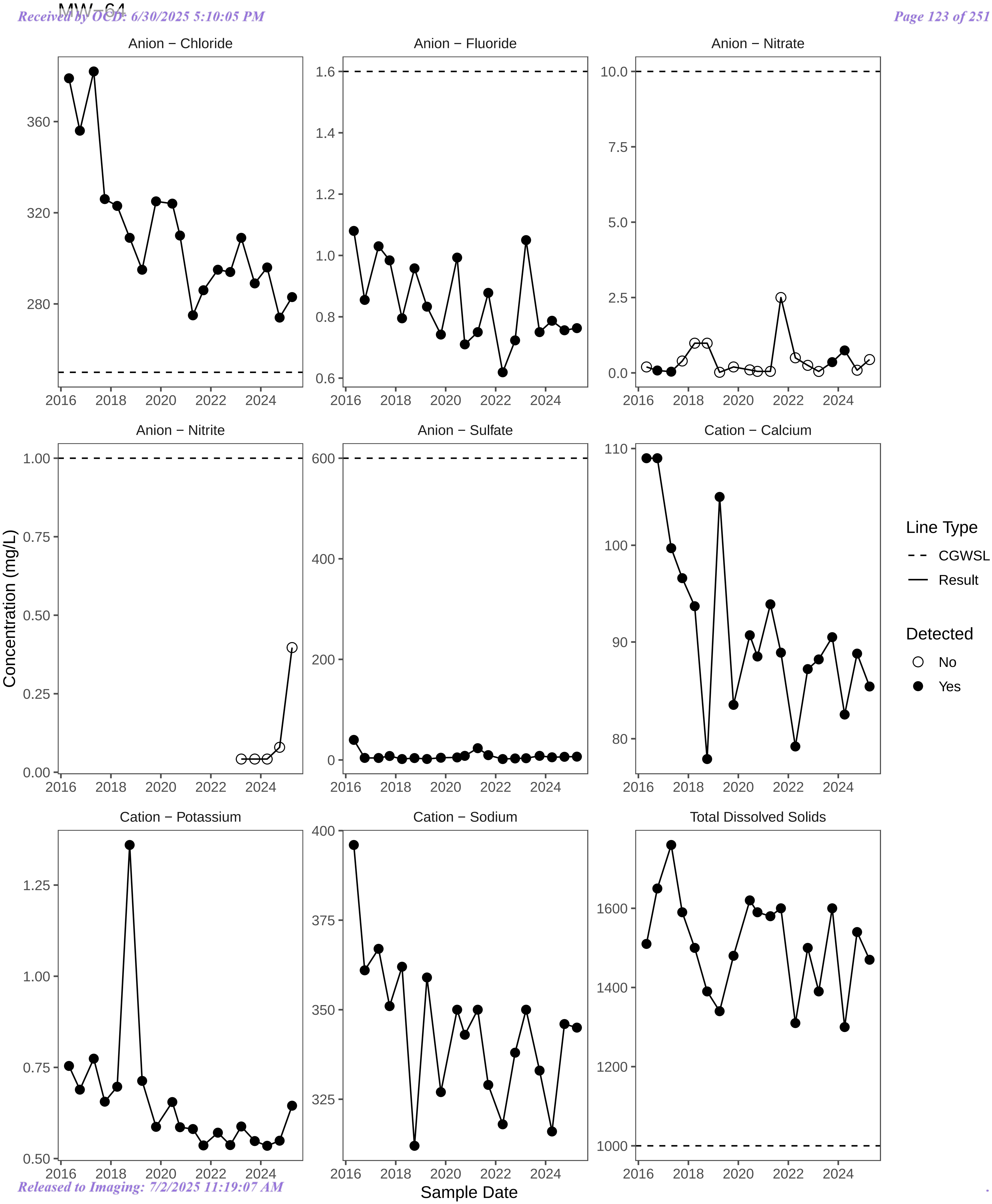

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW_61

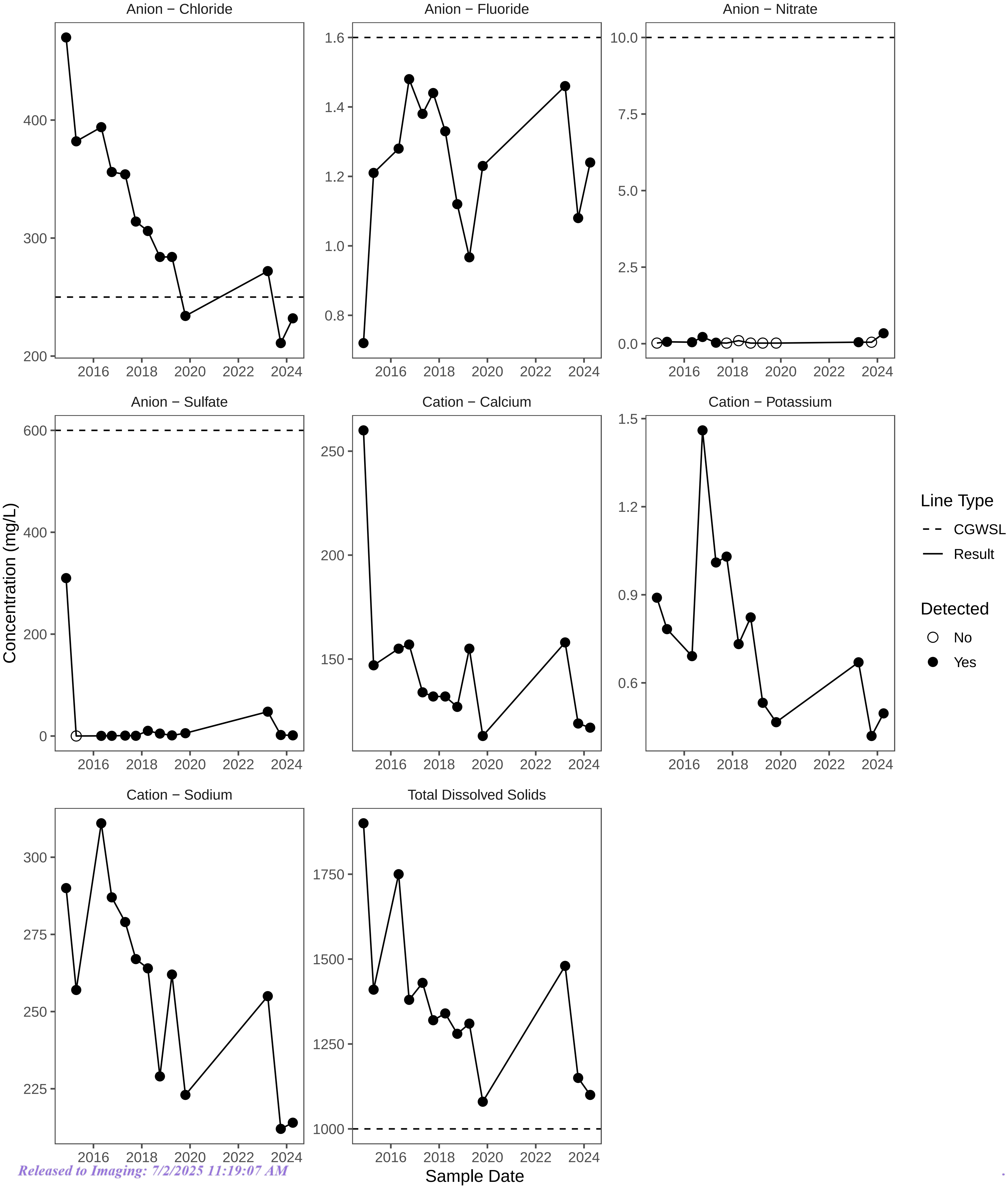

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−62
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

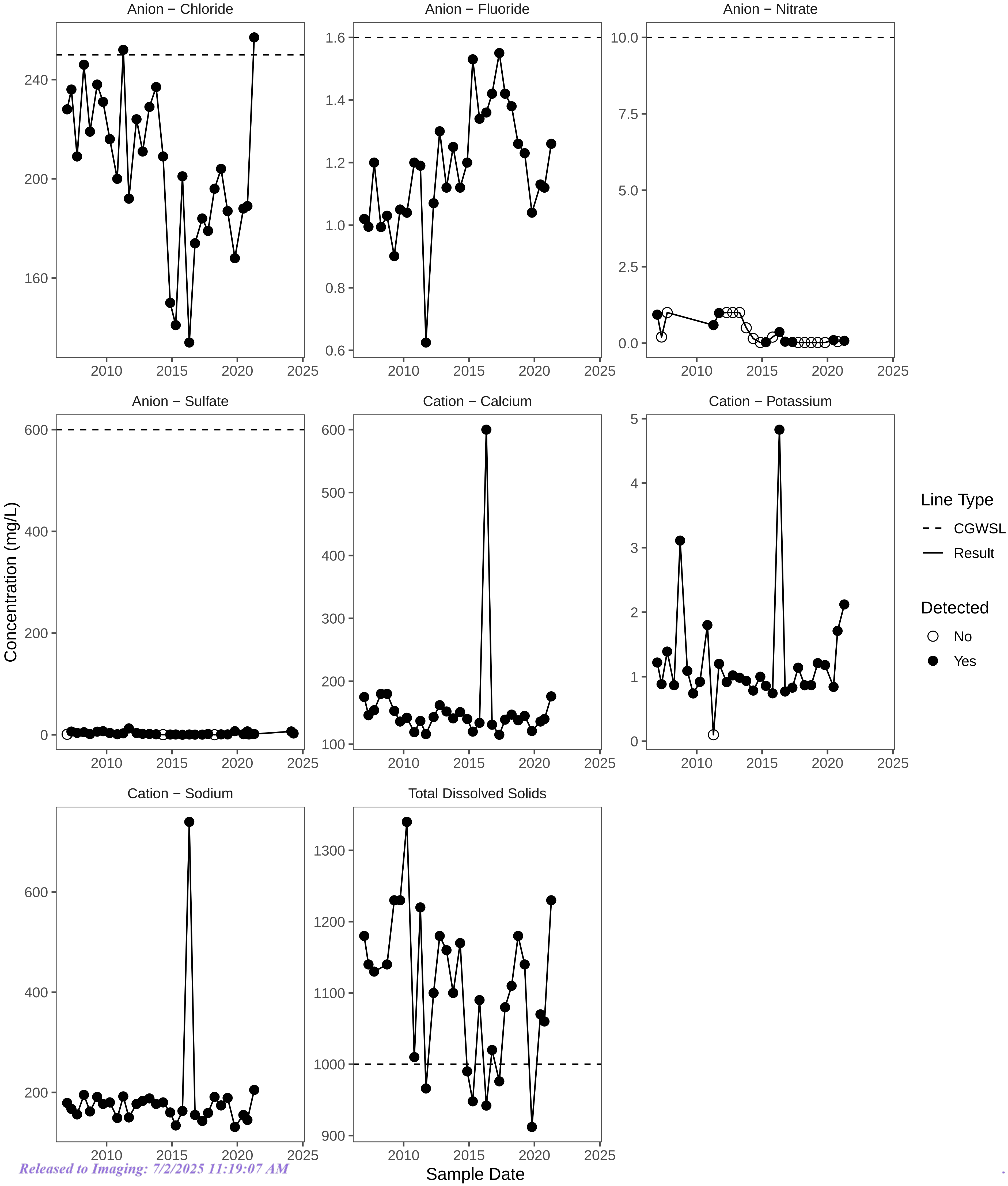

MW-62R
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−64
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2016
2018
2020
2022
2024
Line Type
CGWSL
Result
Detected
No
Yes

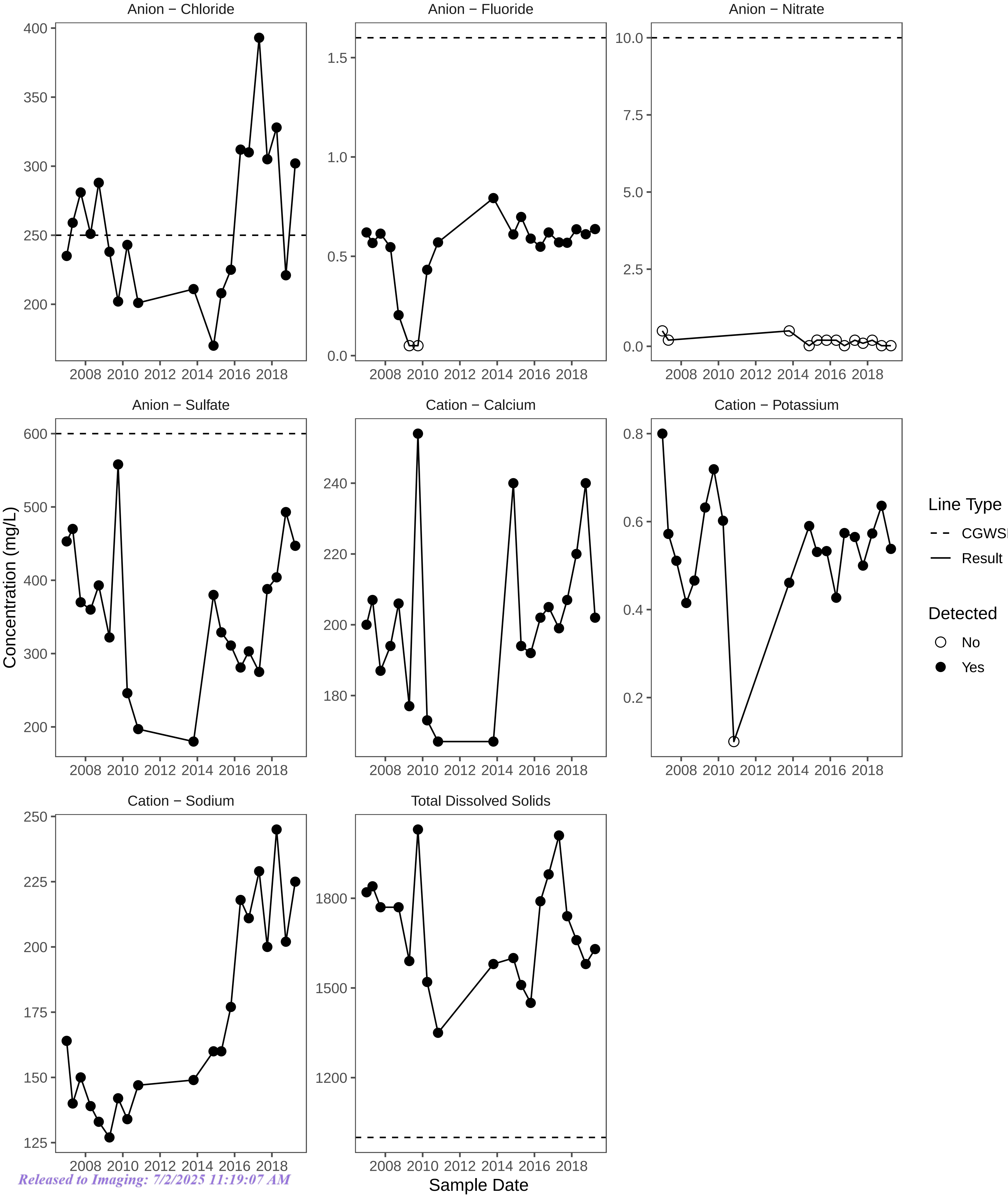
MW-65

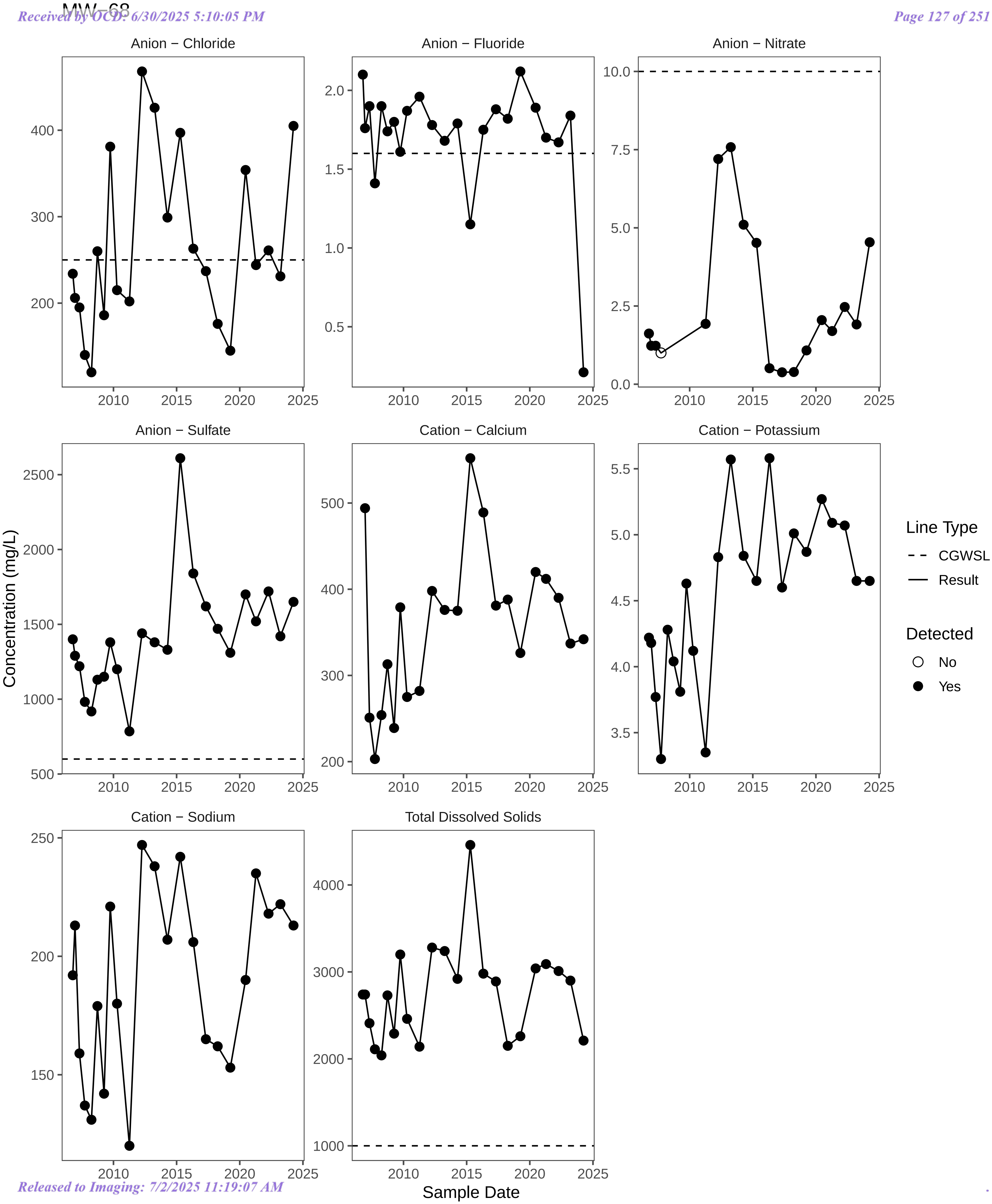

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-66

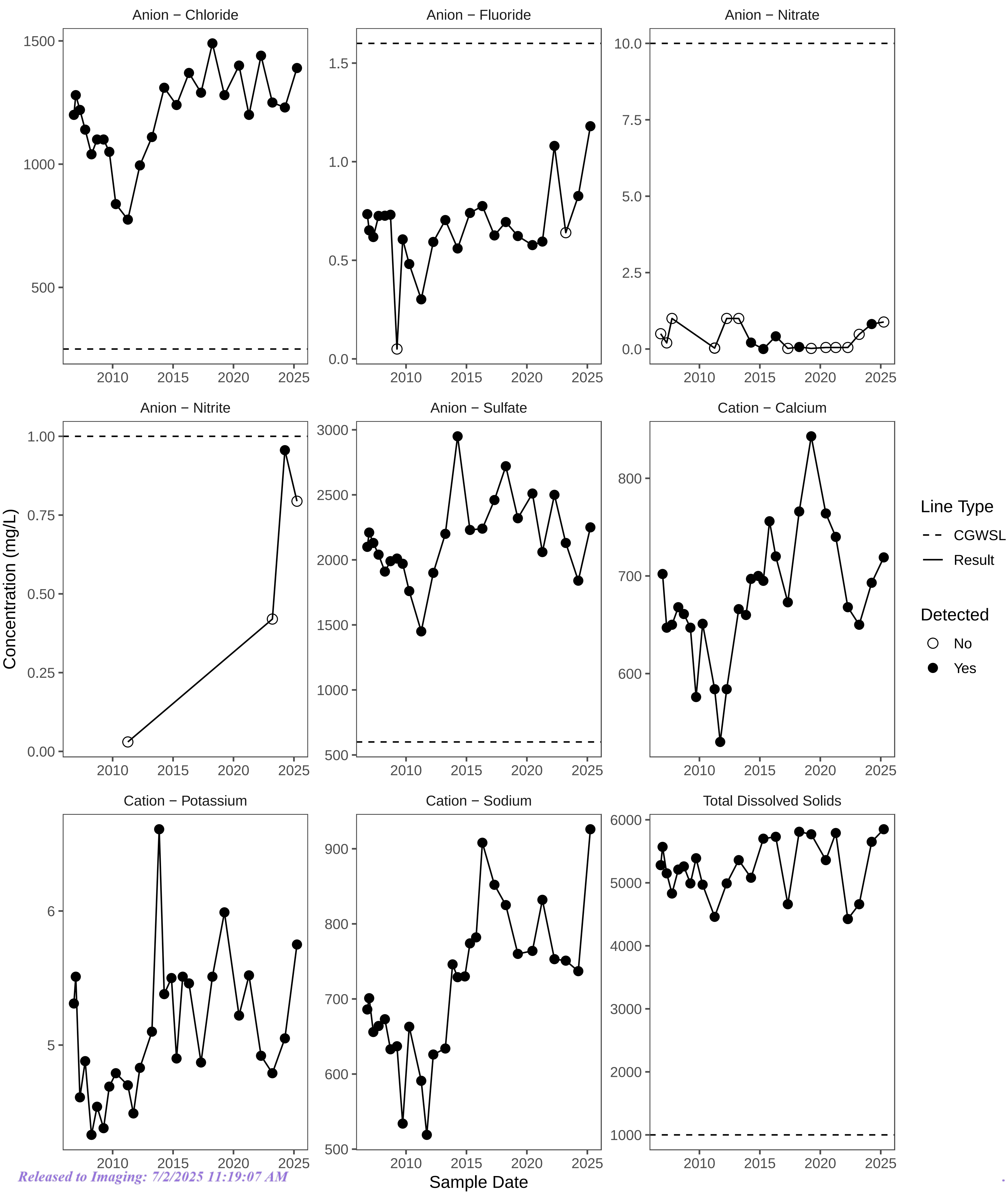

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

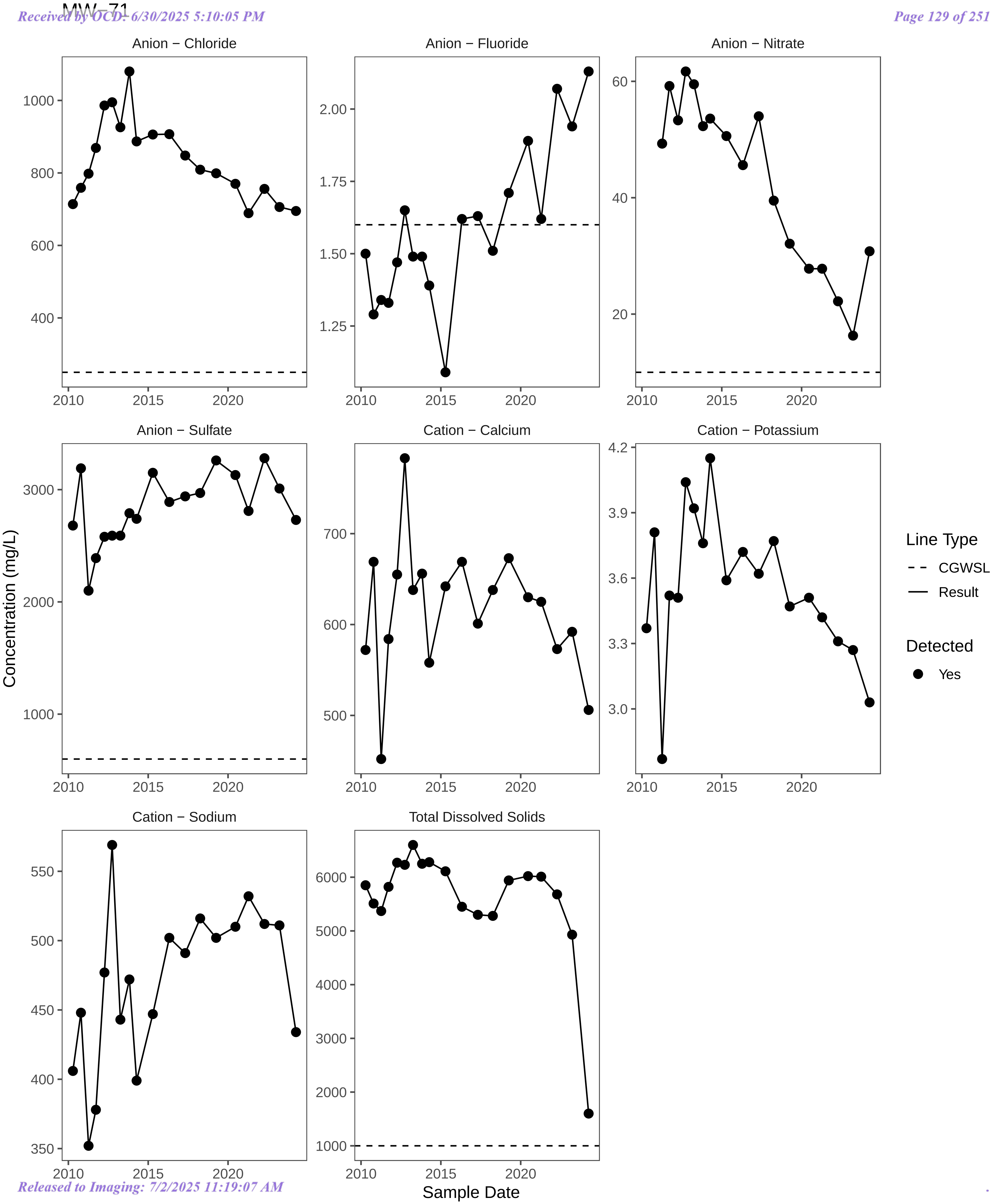
MW−67

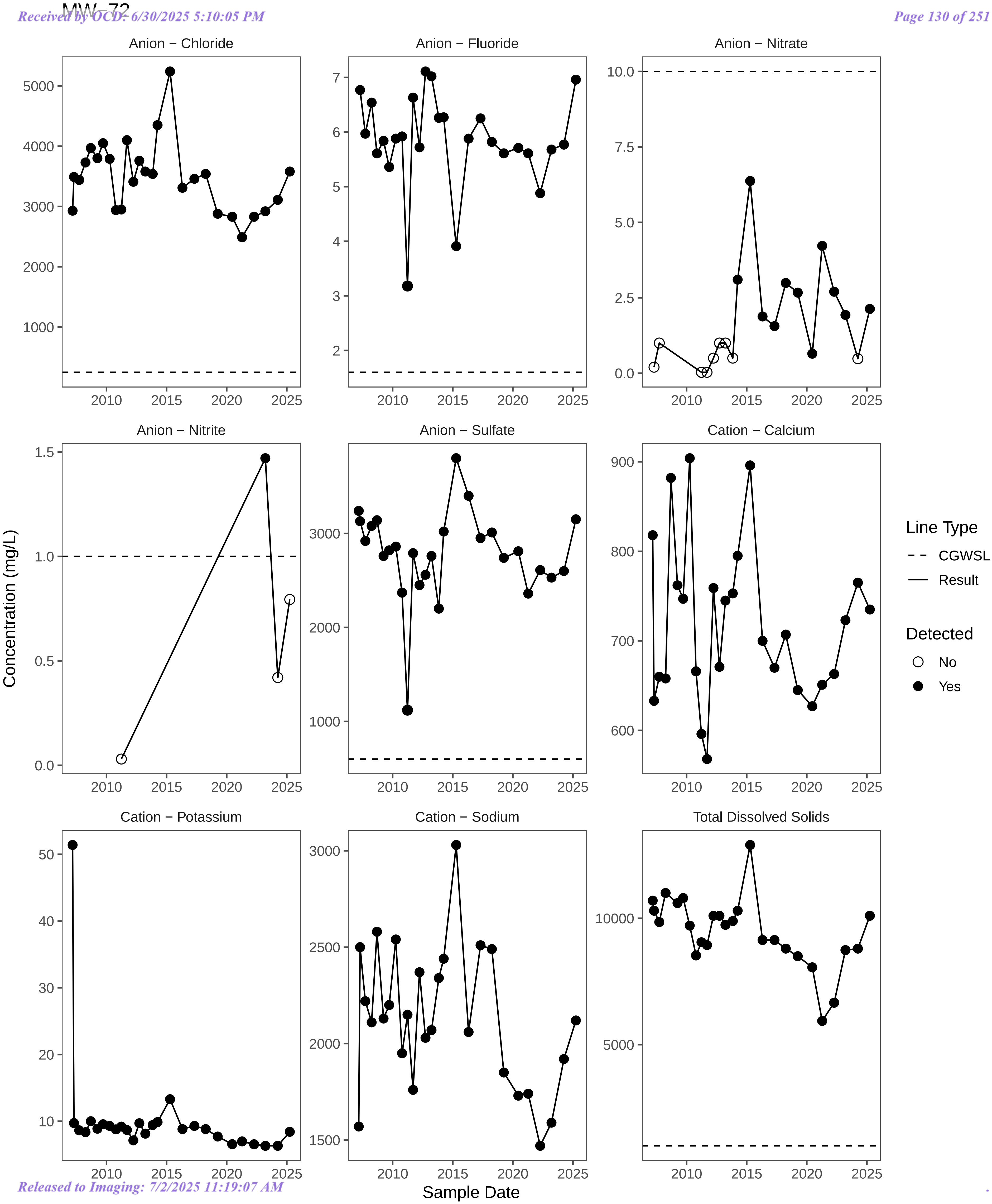

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2008 2010 2012 2014 2016 2018
Line Type
CGWSL
Result
Detected
No
Yes


MW−68
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

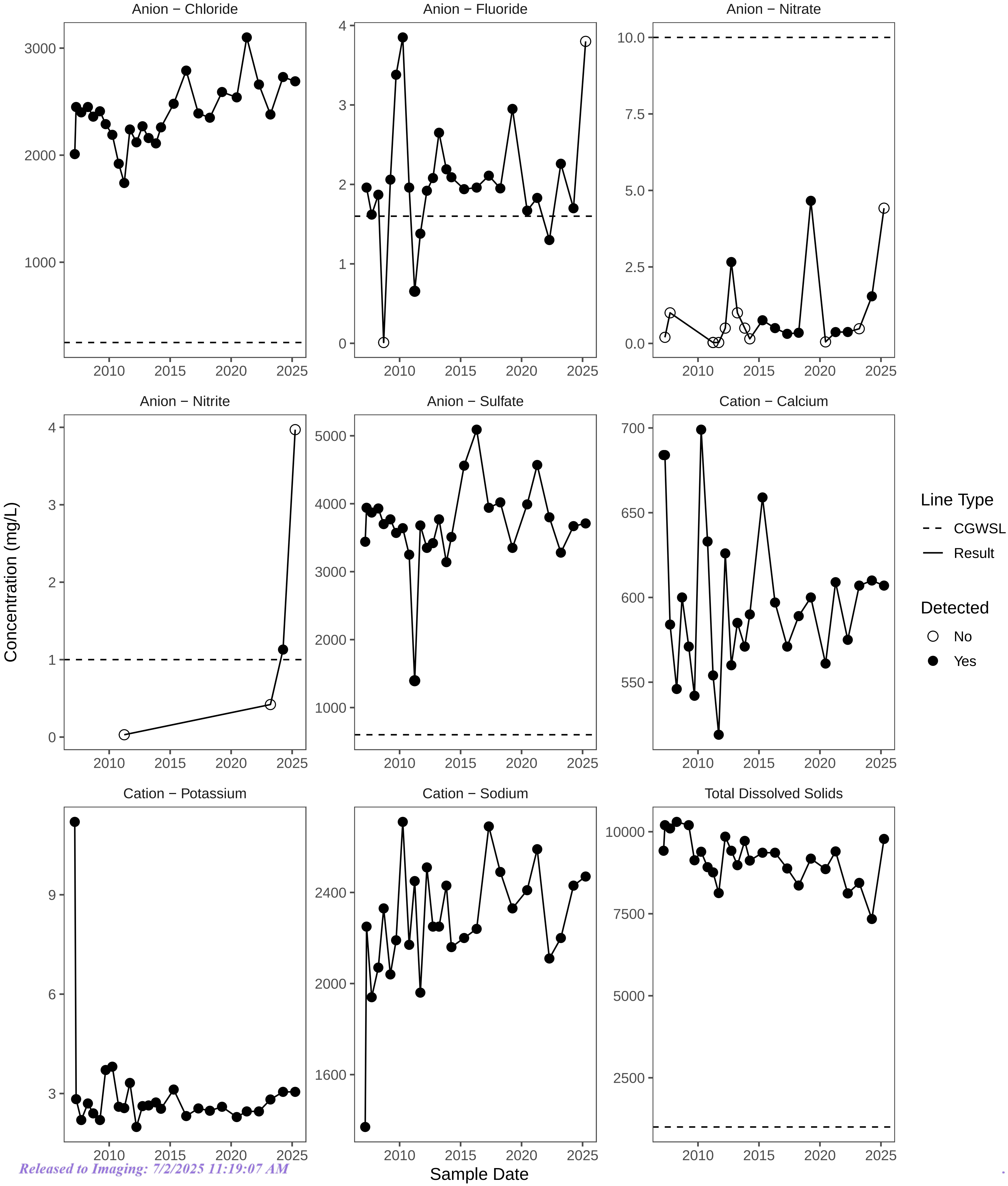
MW-70

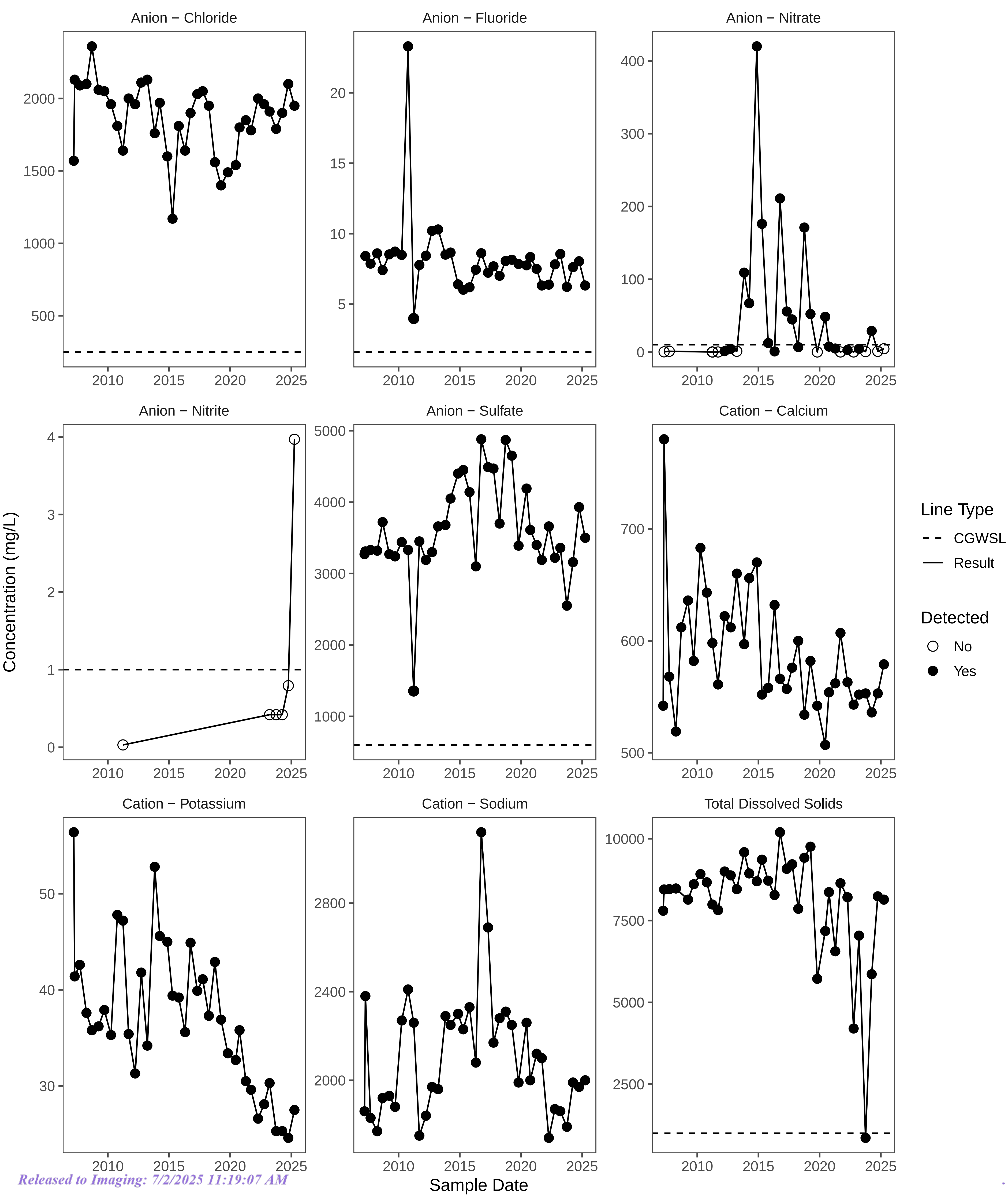

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

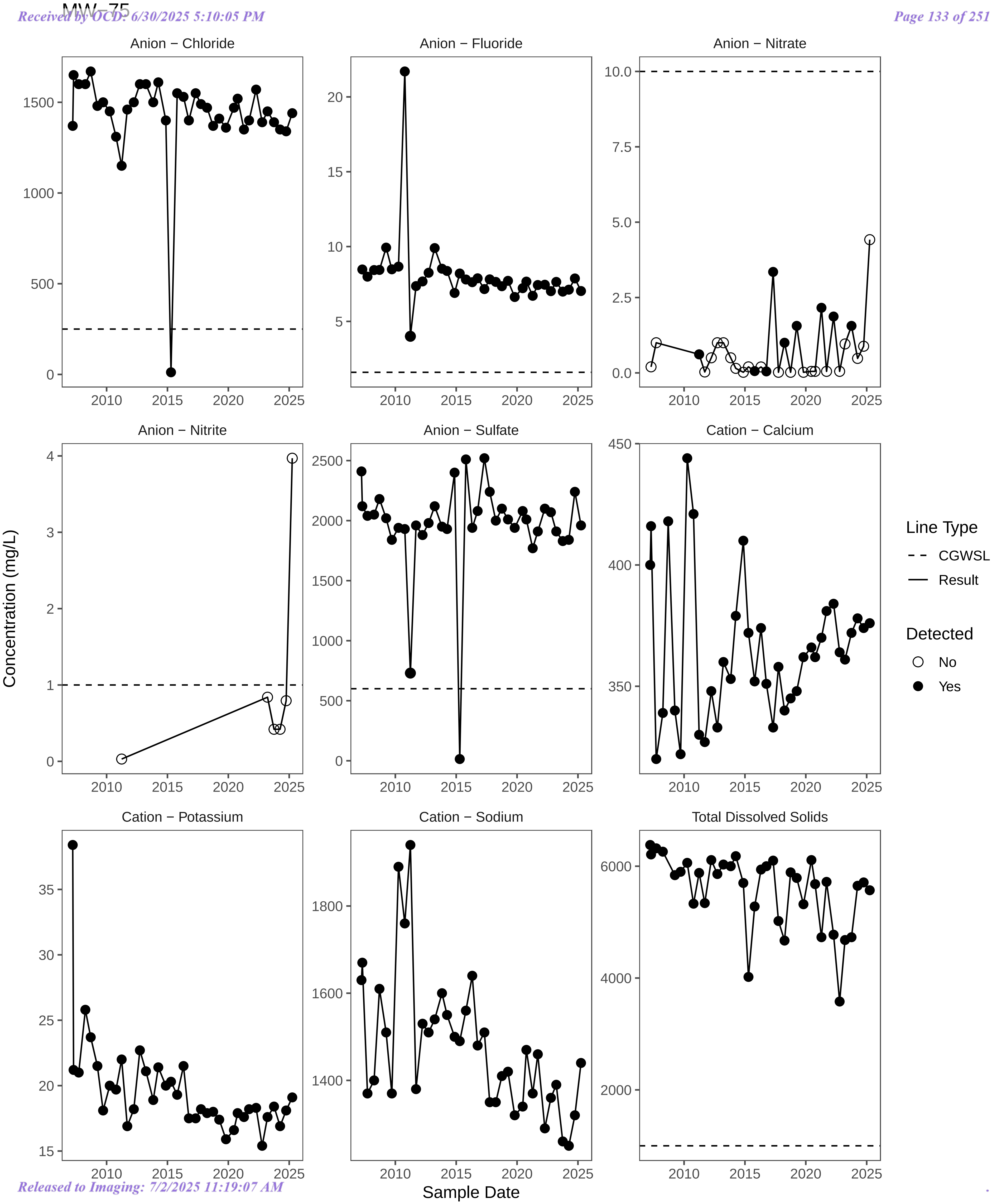

MW−71
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
Yes

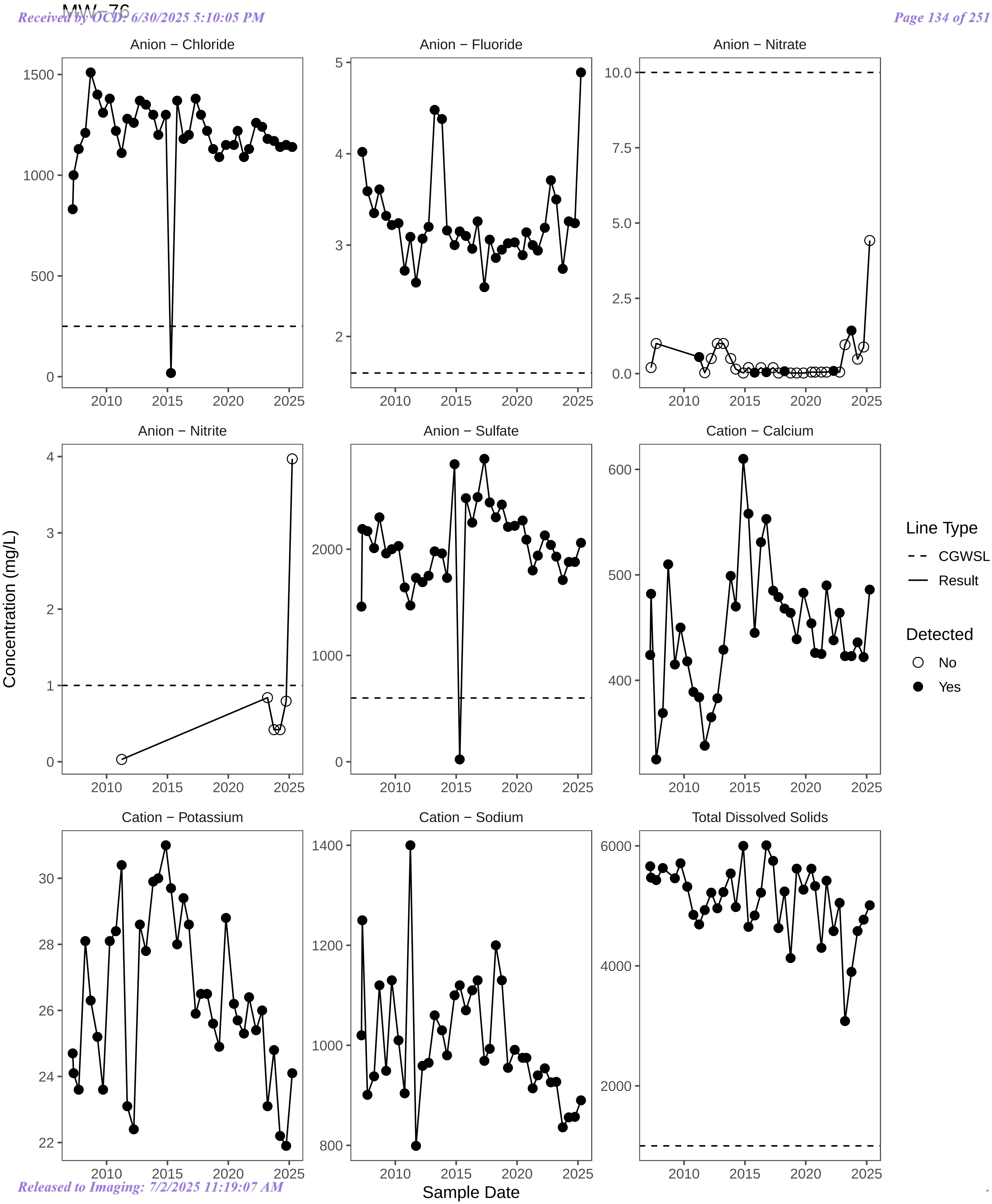

MW-72
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

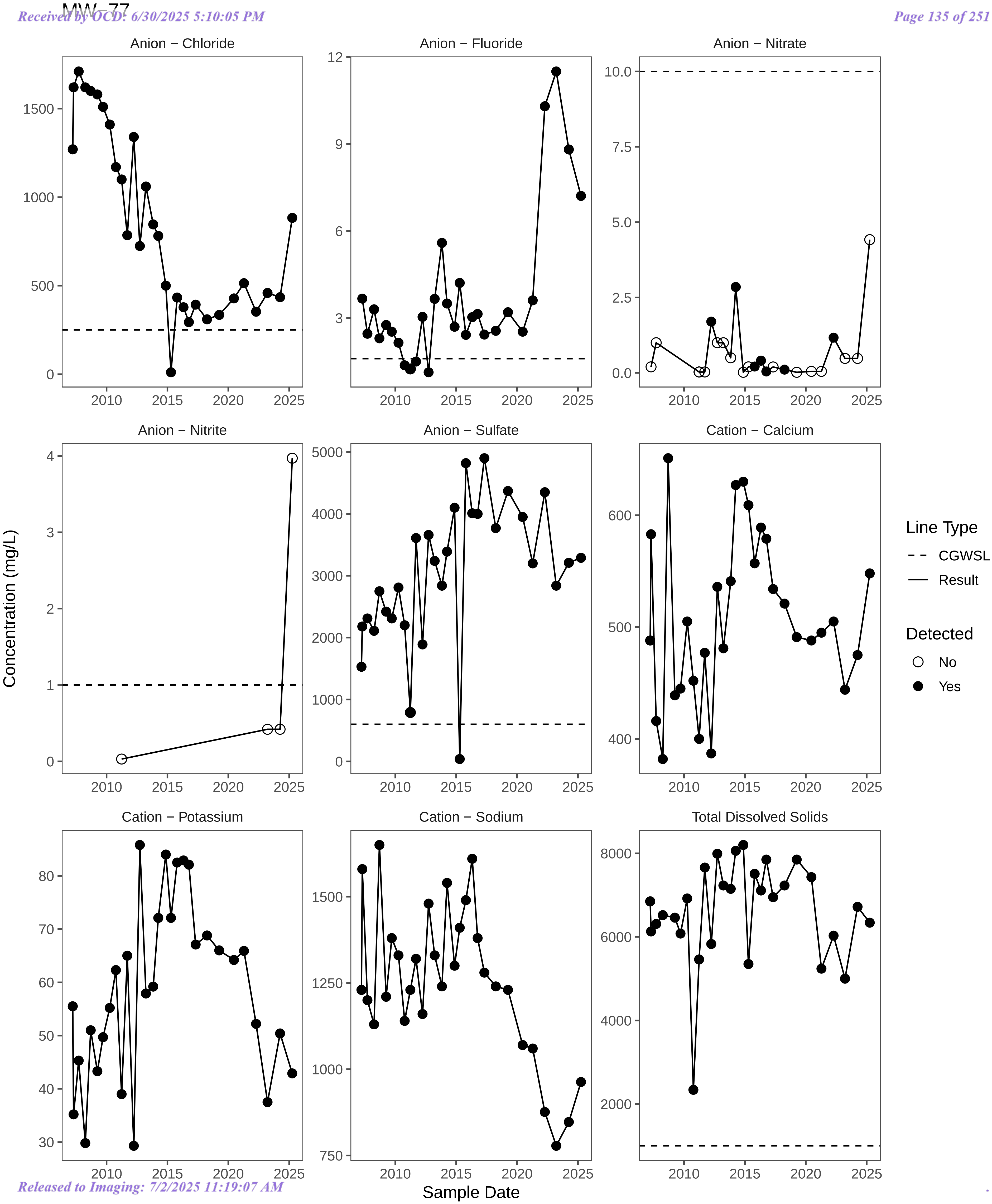
MW-73

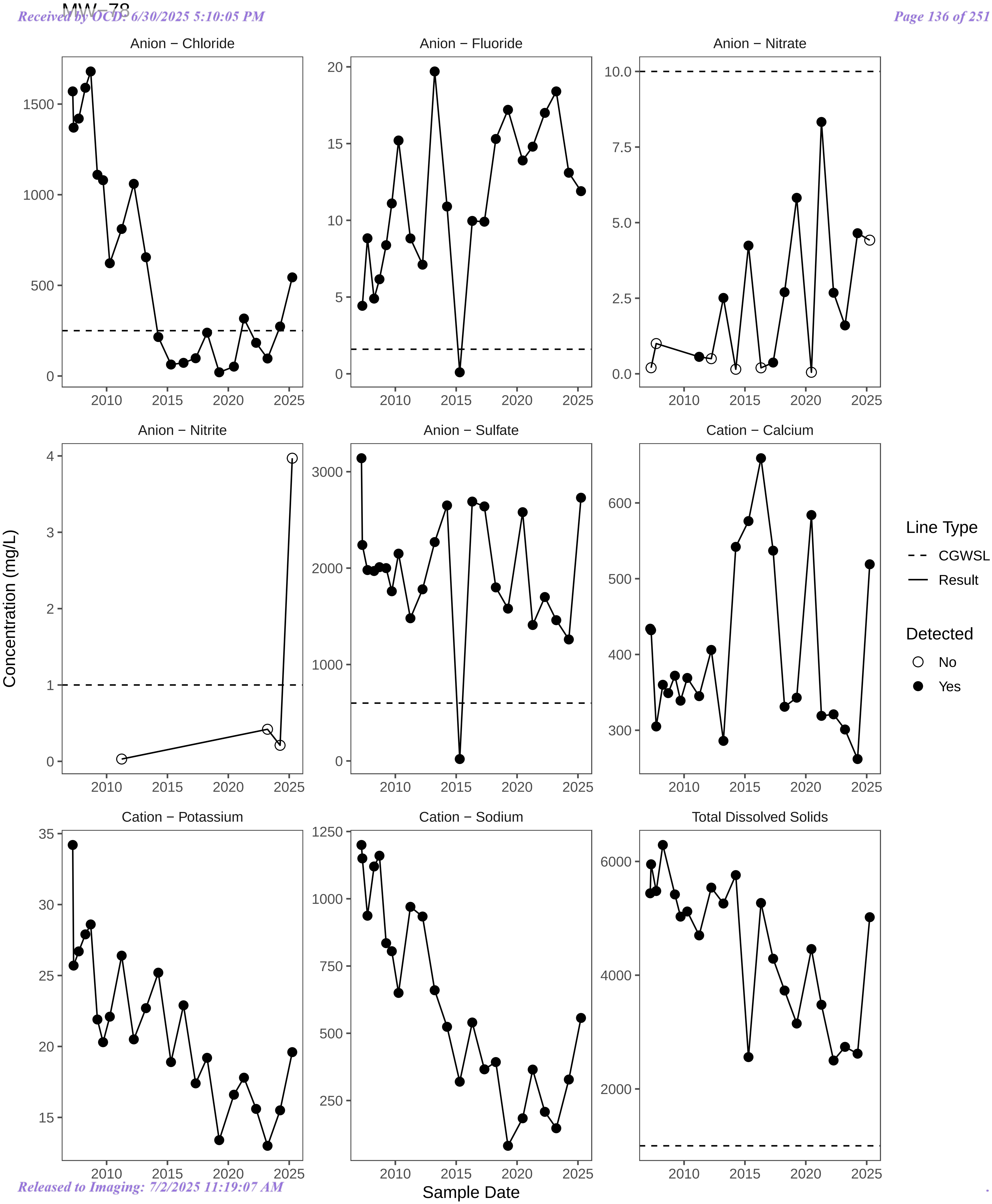

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW-74
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

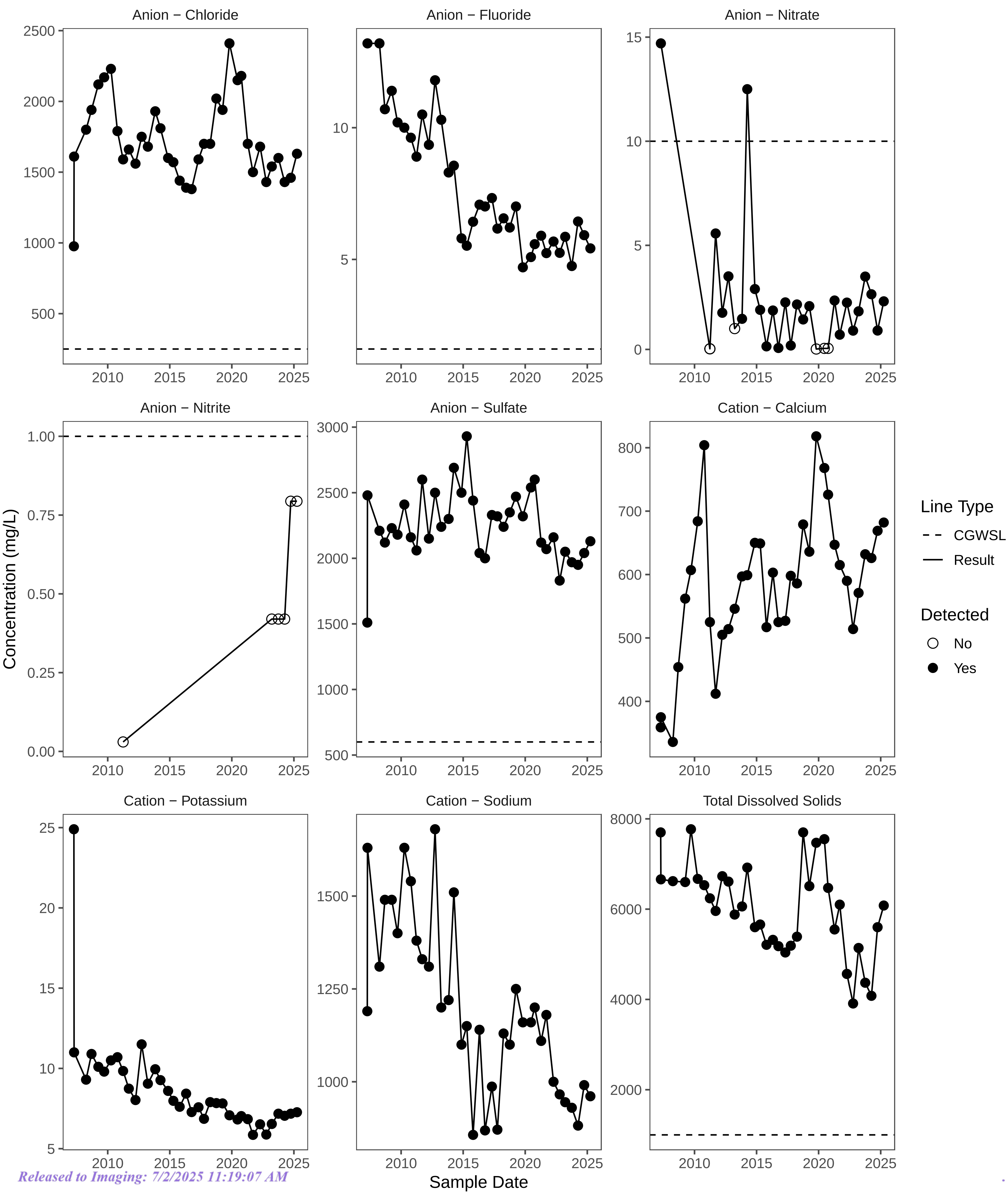

MW−75
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW-76
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

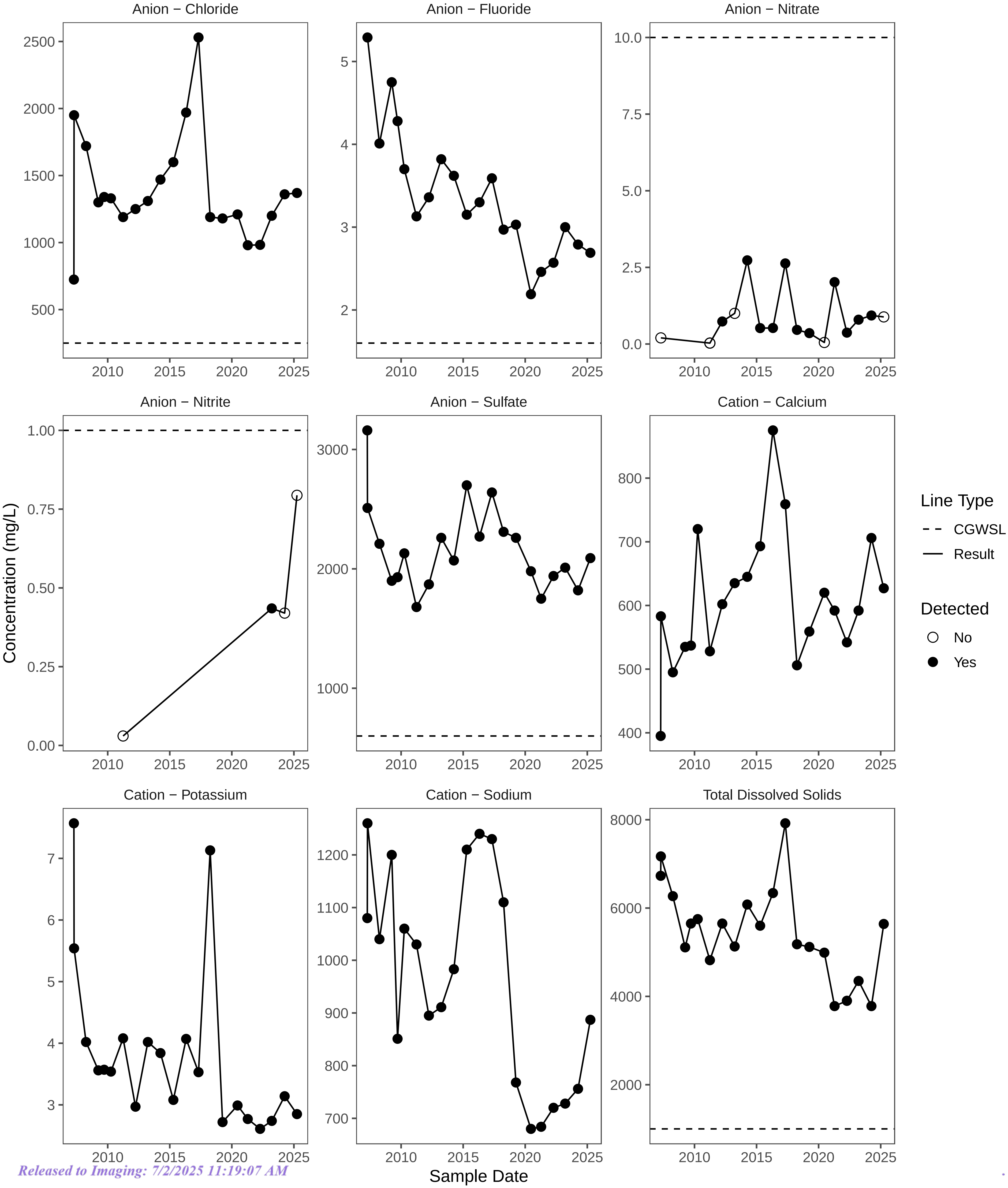

MW-77
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

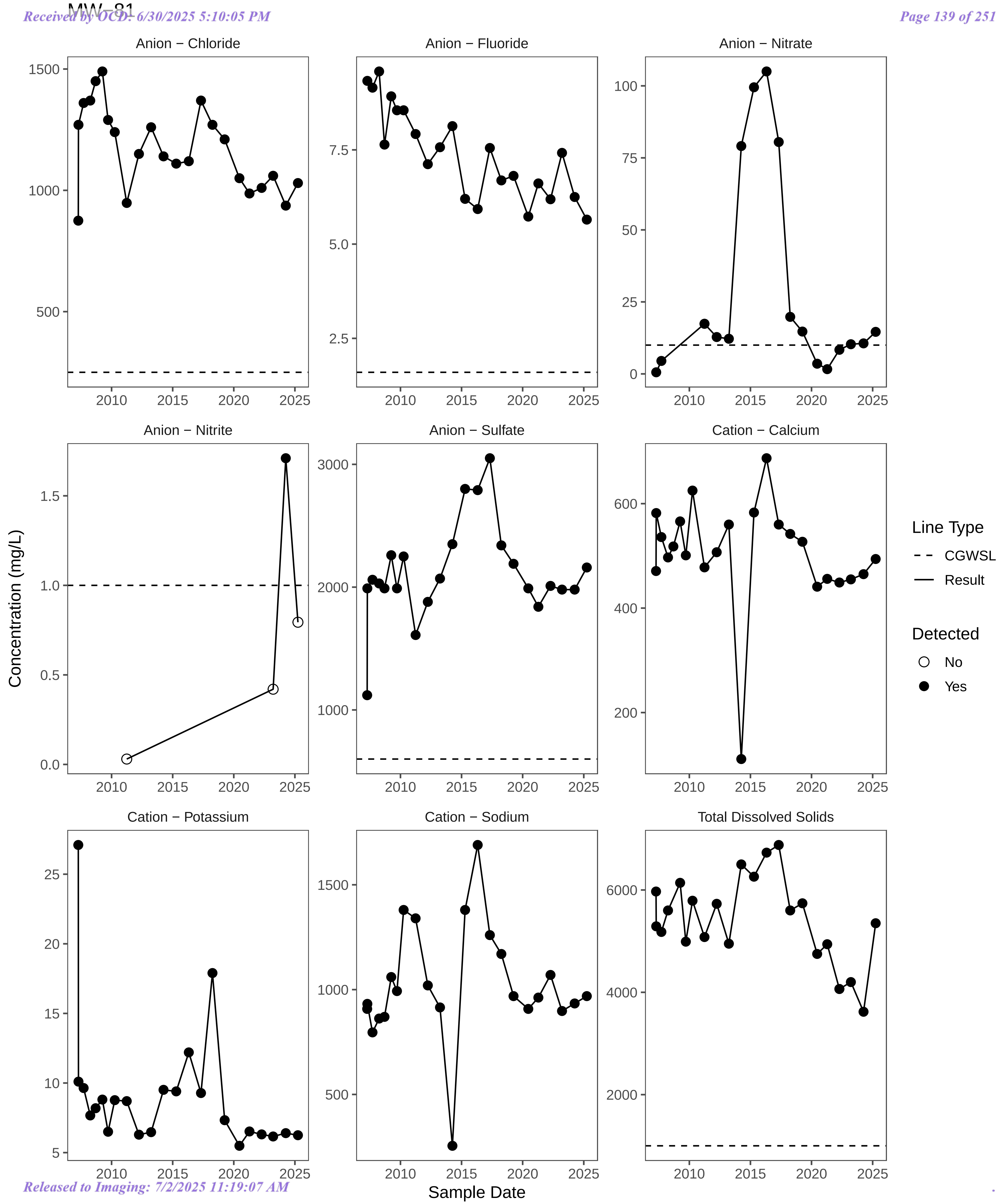

MW-78
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

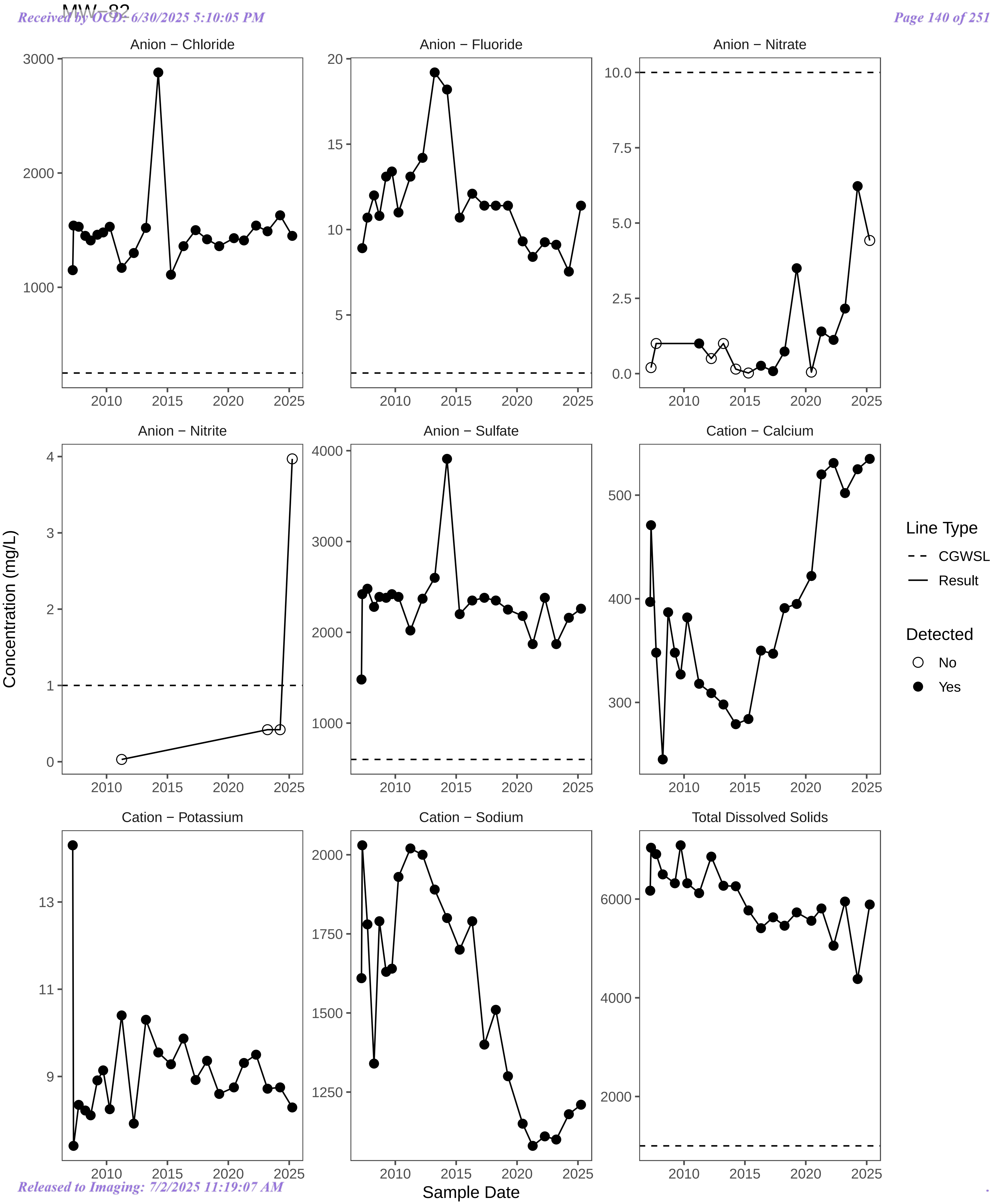
MW-79


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

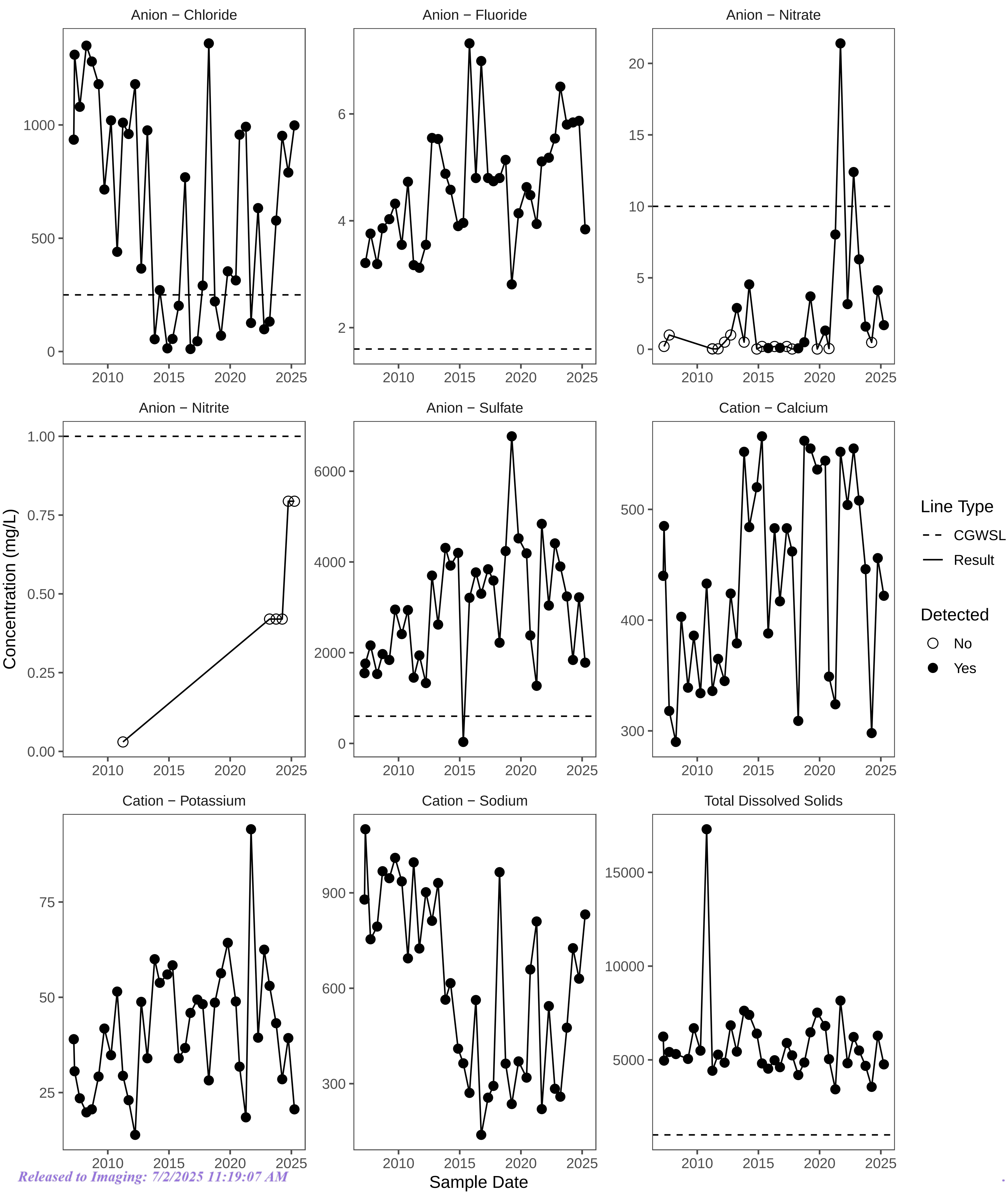
MW-80


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW-81
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

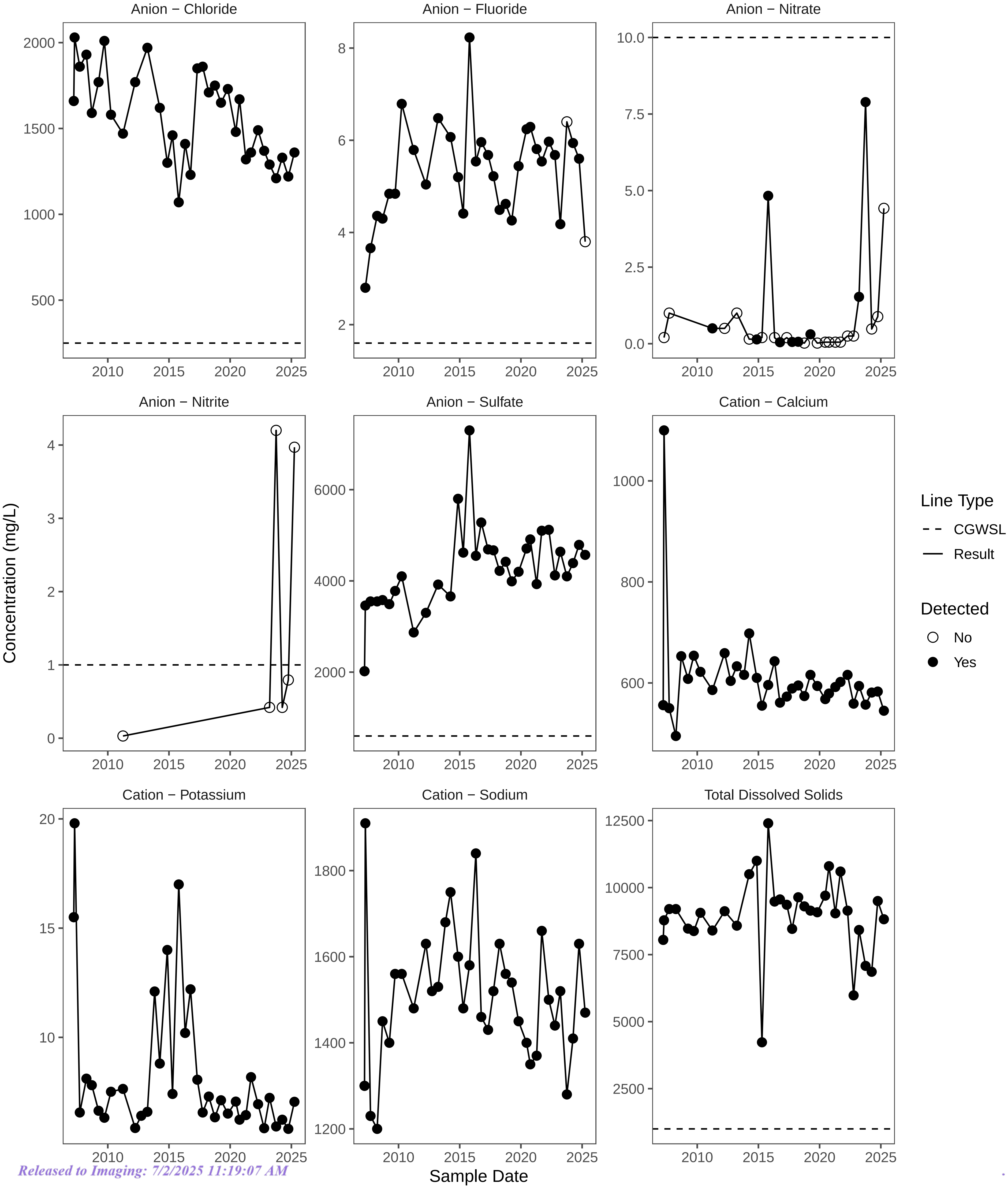

MW-82
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

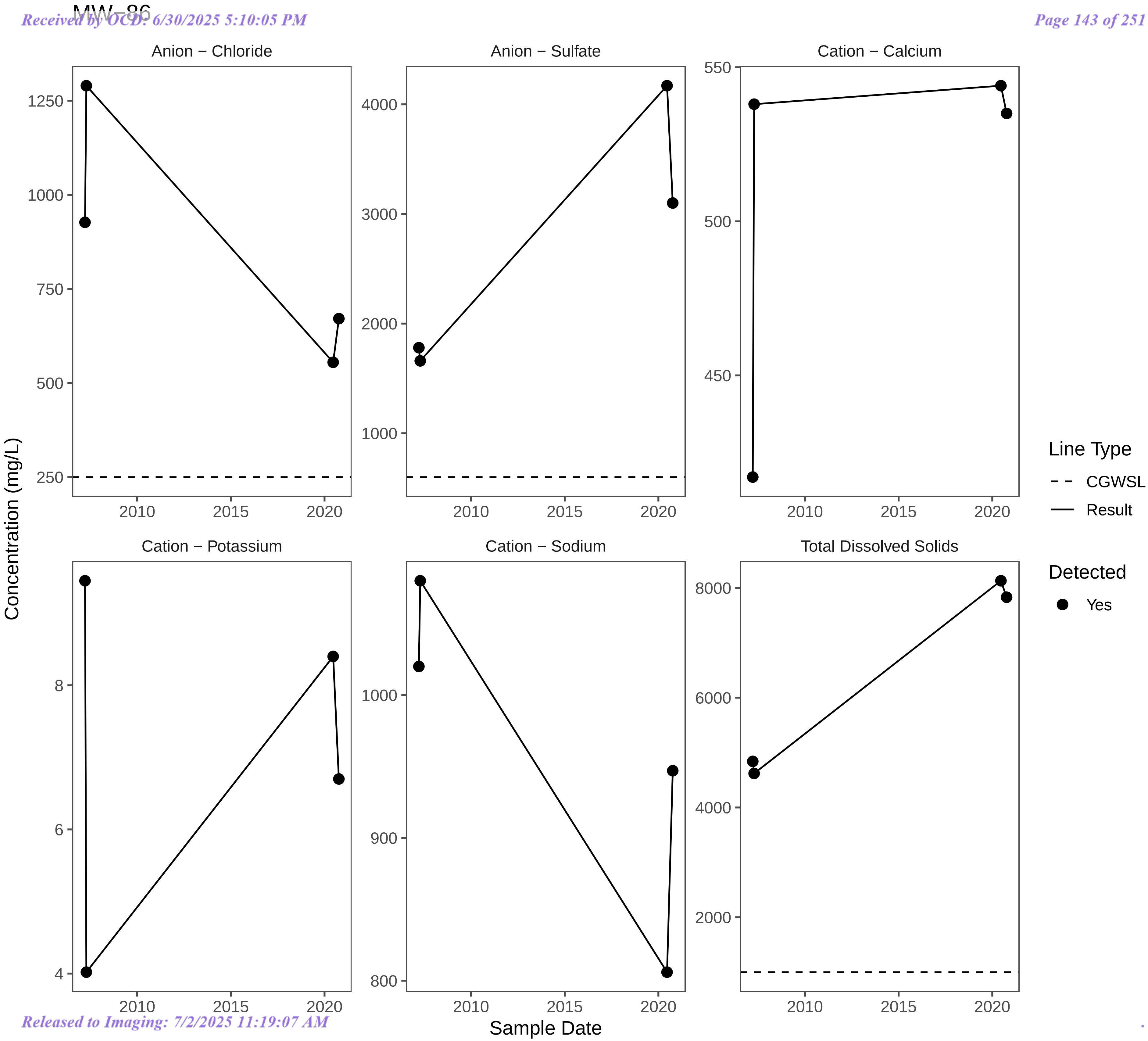
MW-83

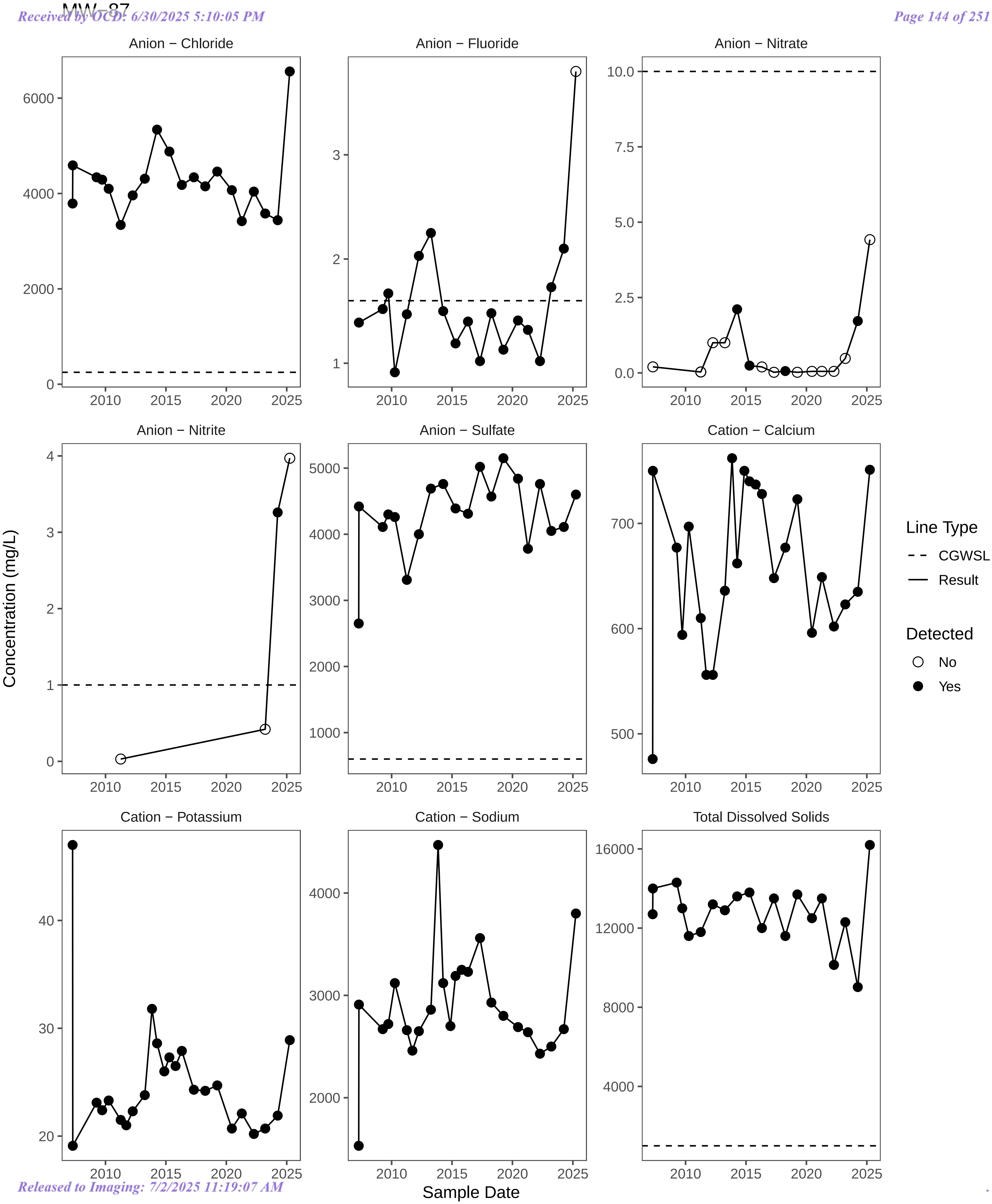


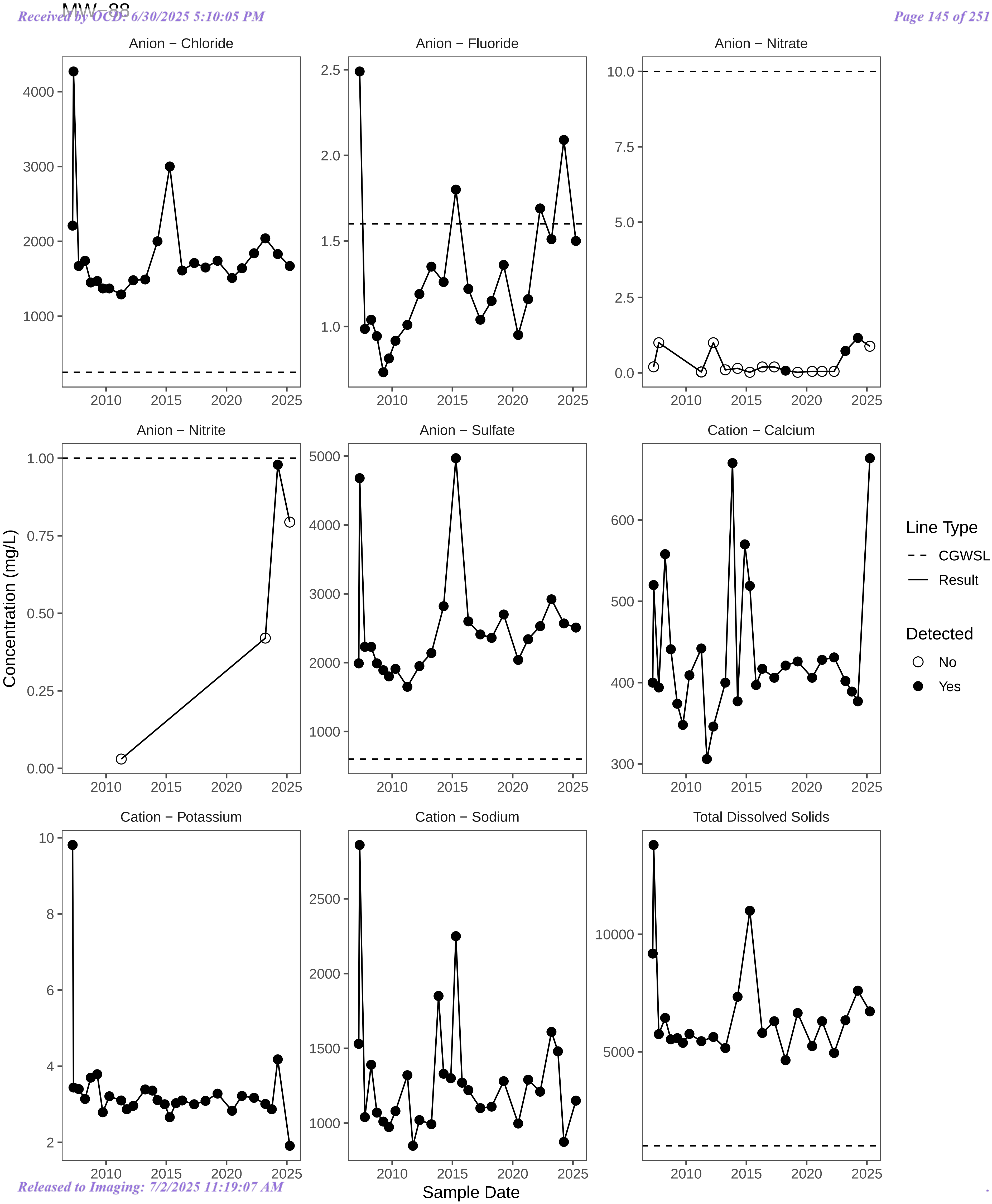
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−84

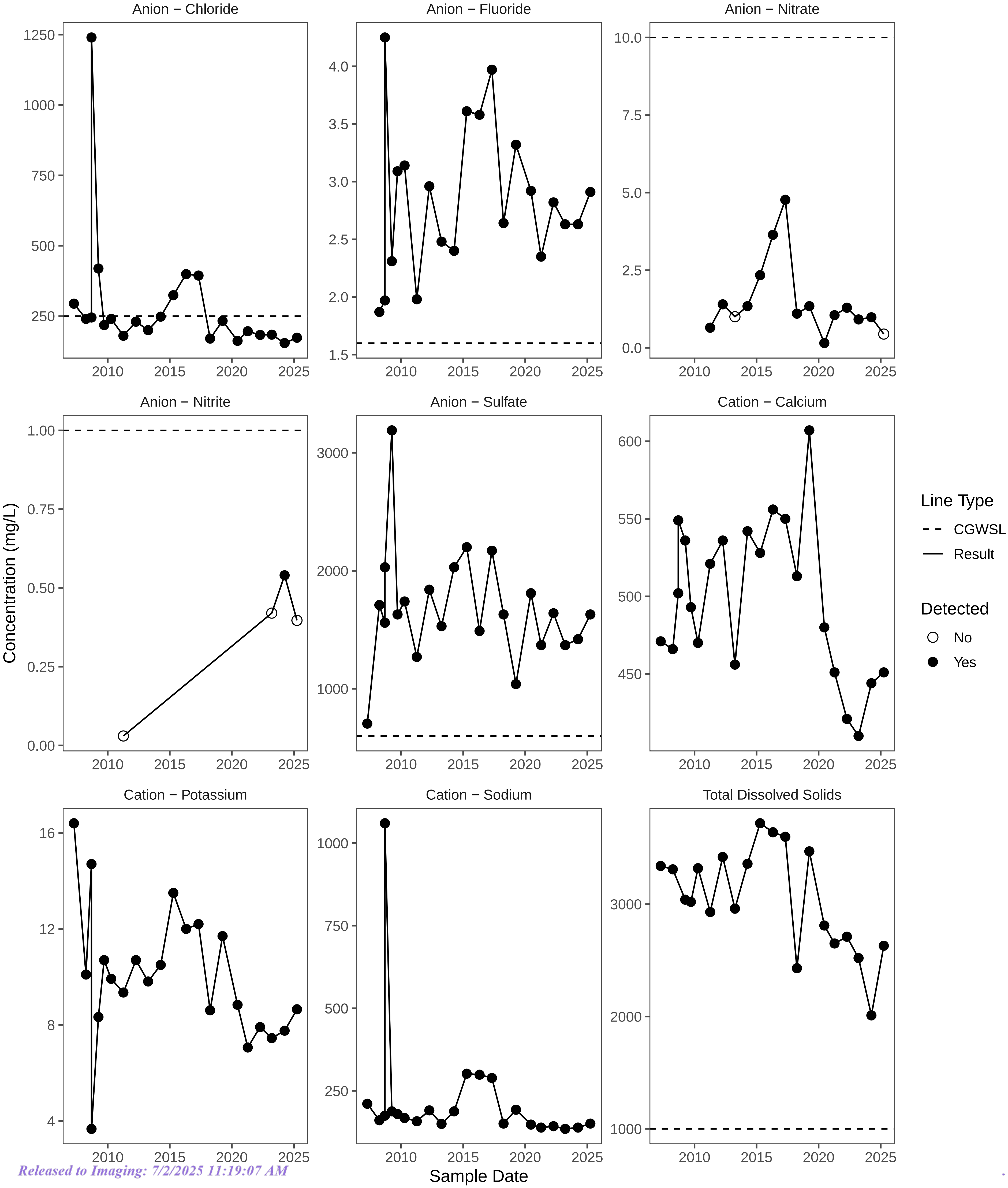

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

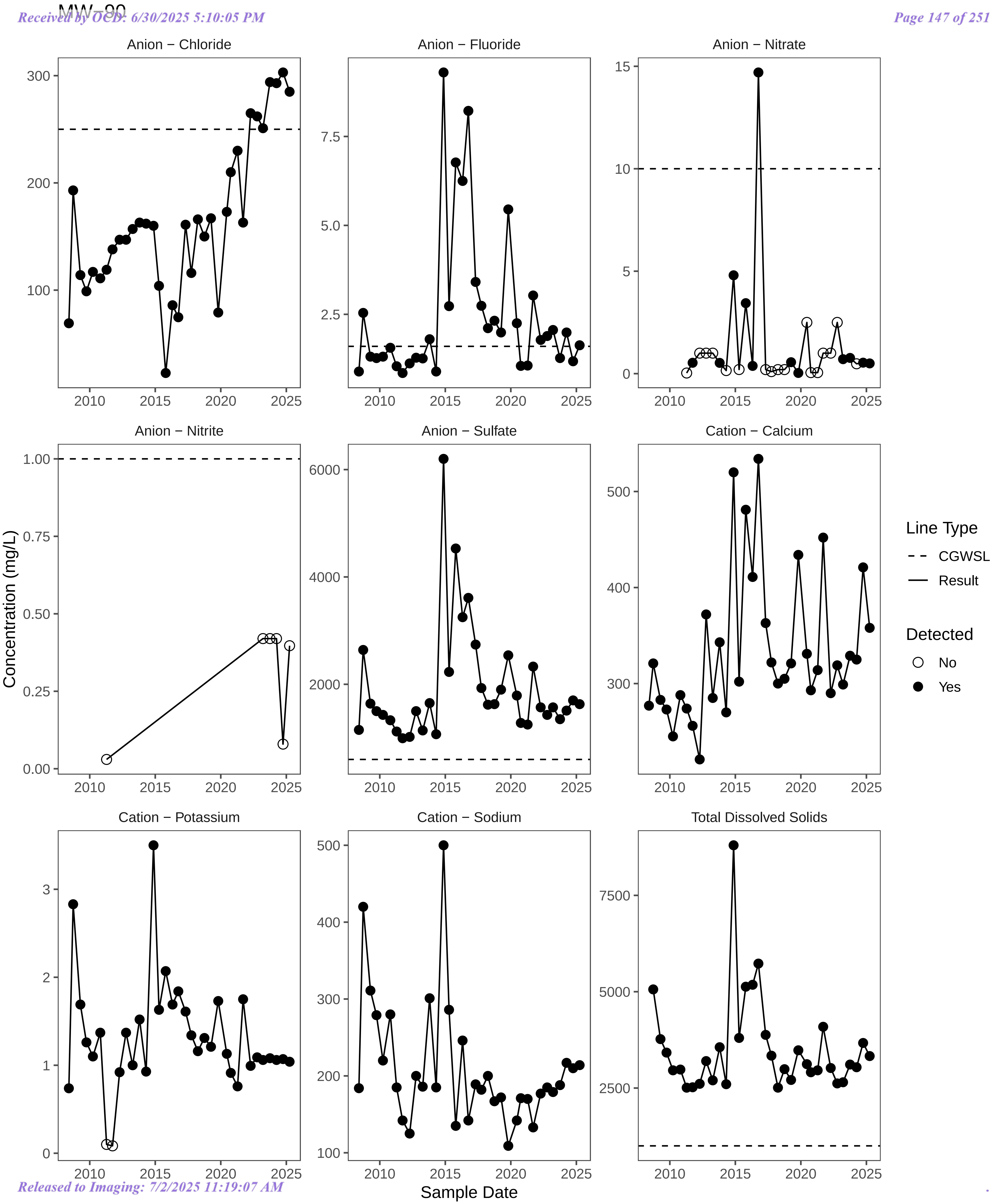

MW−86
Anion − Chloride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
Yes
2010
2015
2020


MW_87
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

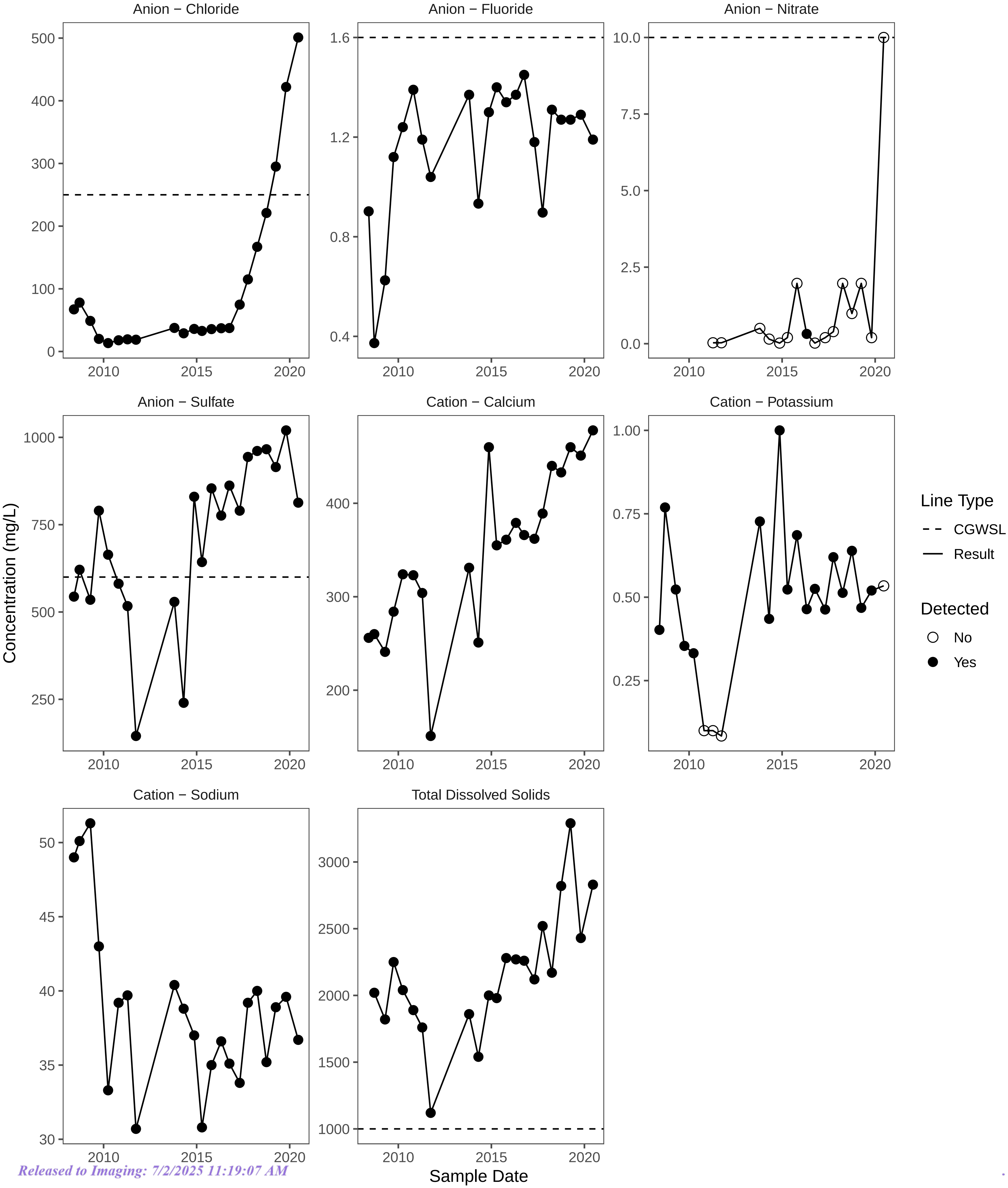

MW−88
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

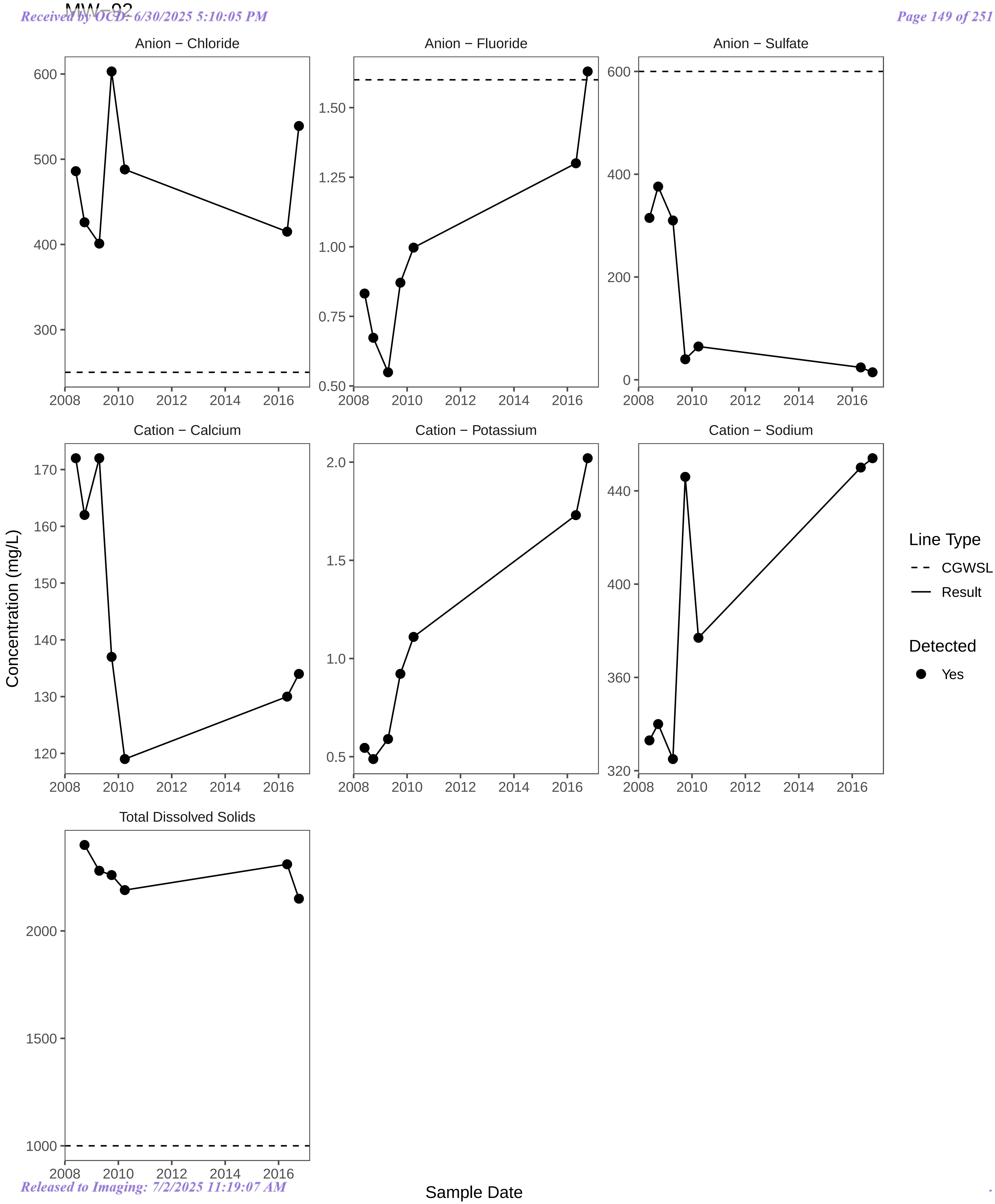
MW-89

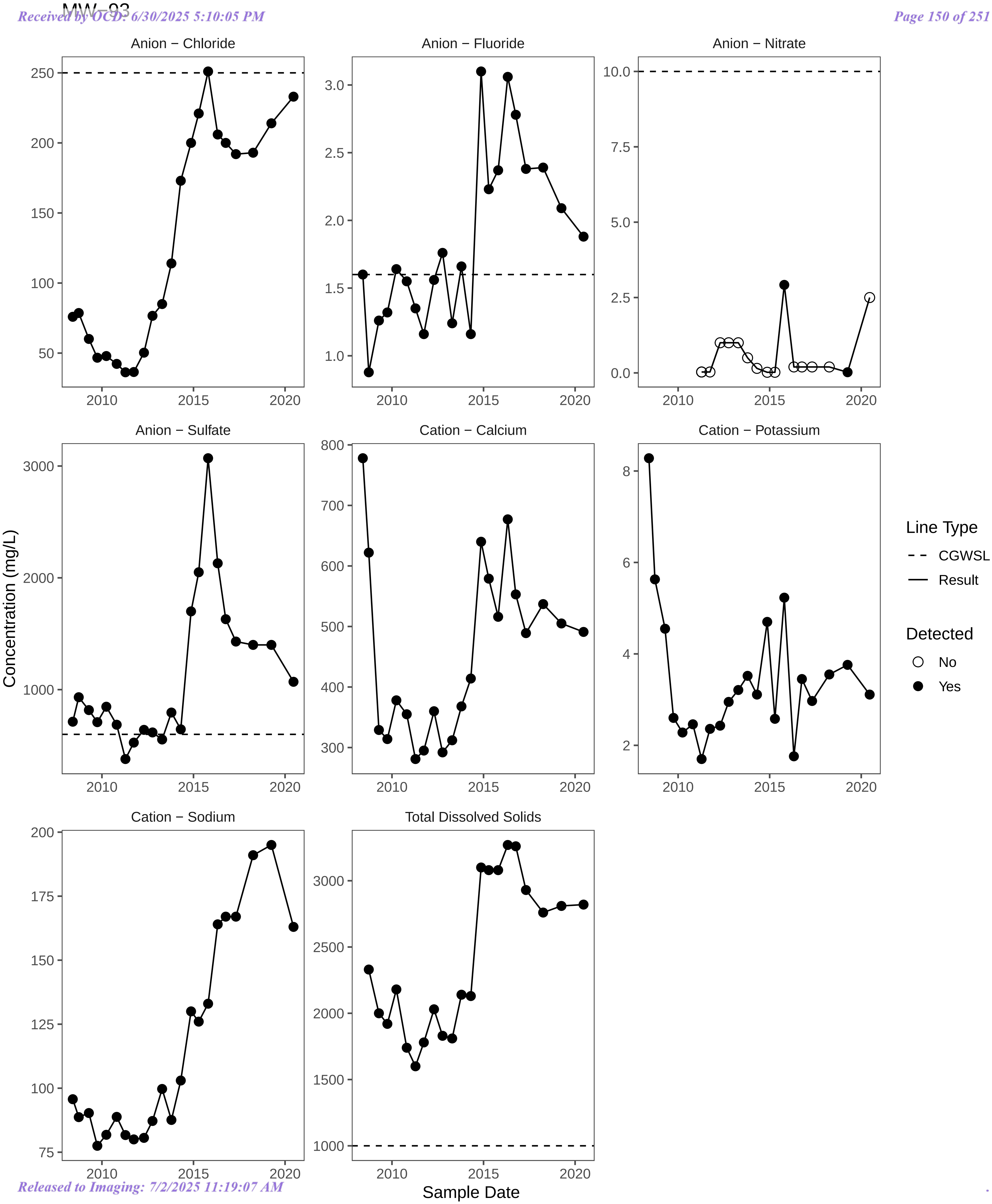

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−90
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

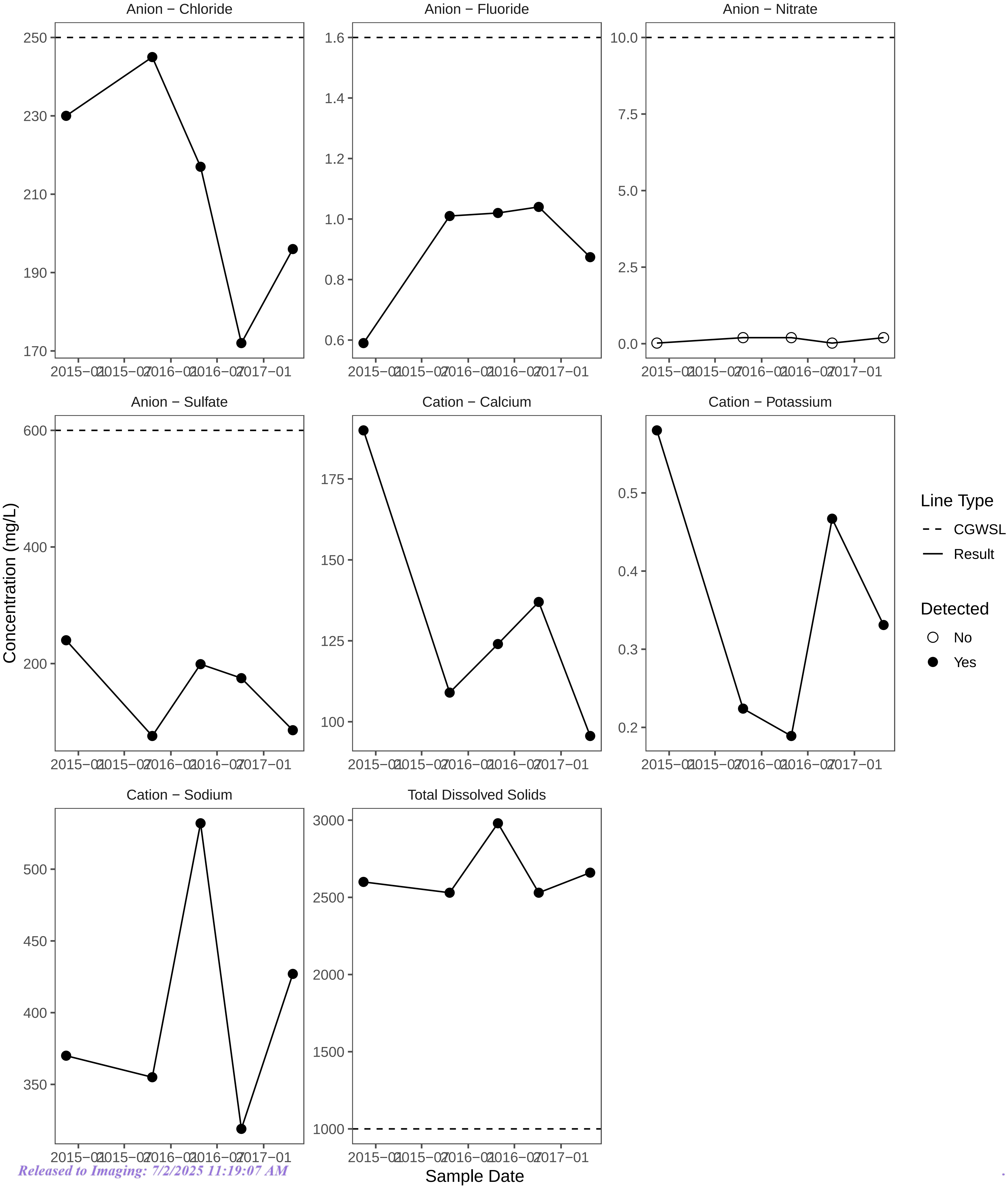
MW_91


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

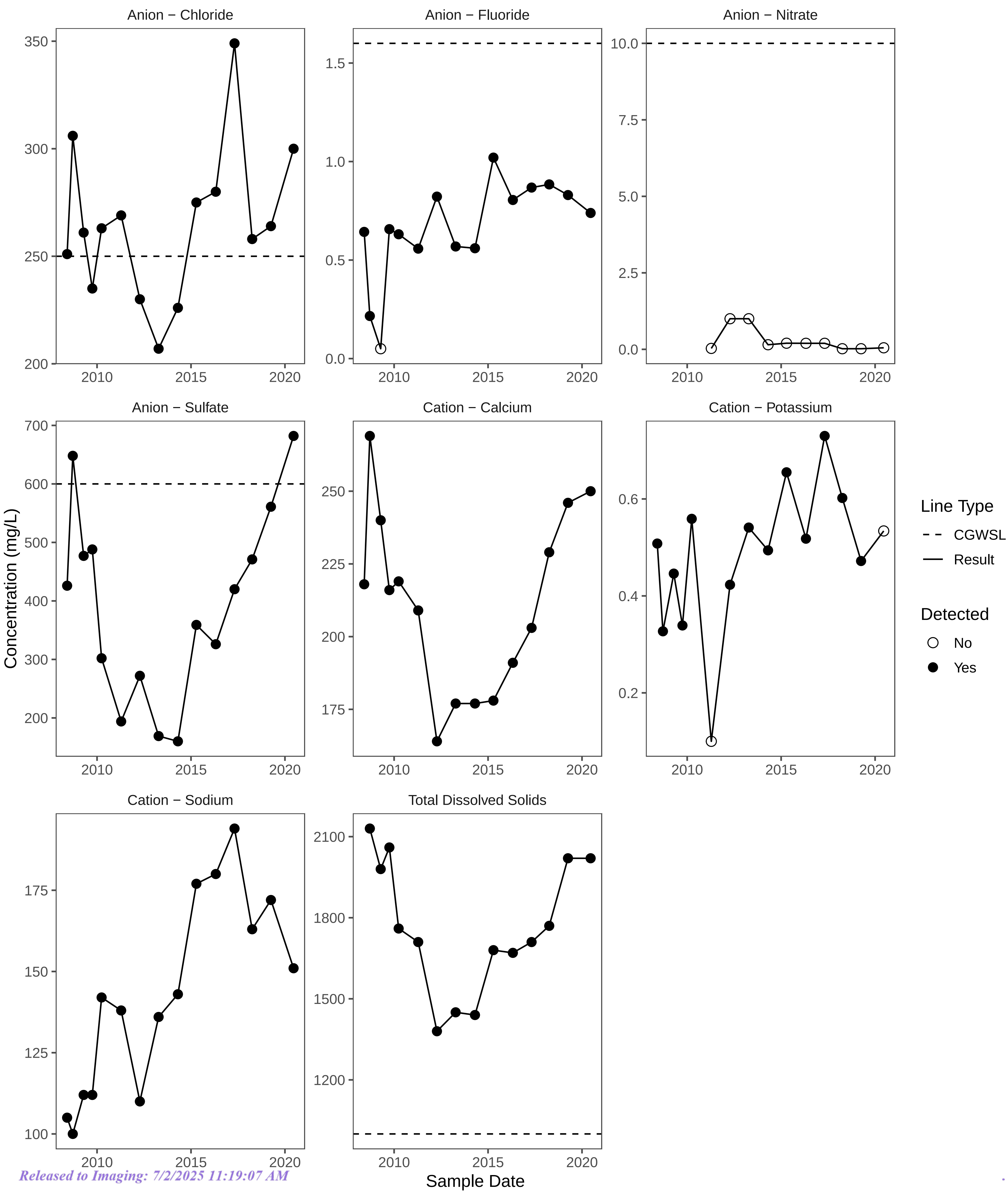

MW−92
Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
Yes


MW-93
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−94

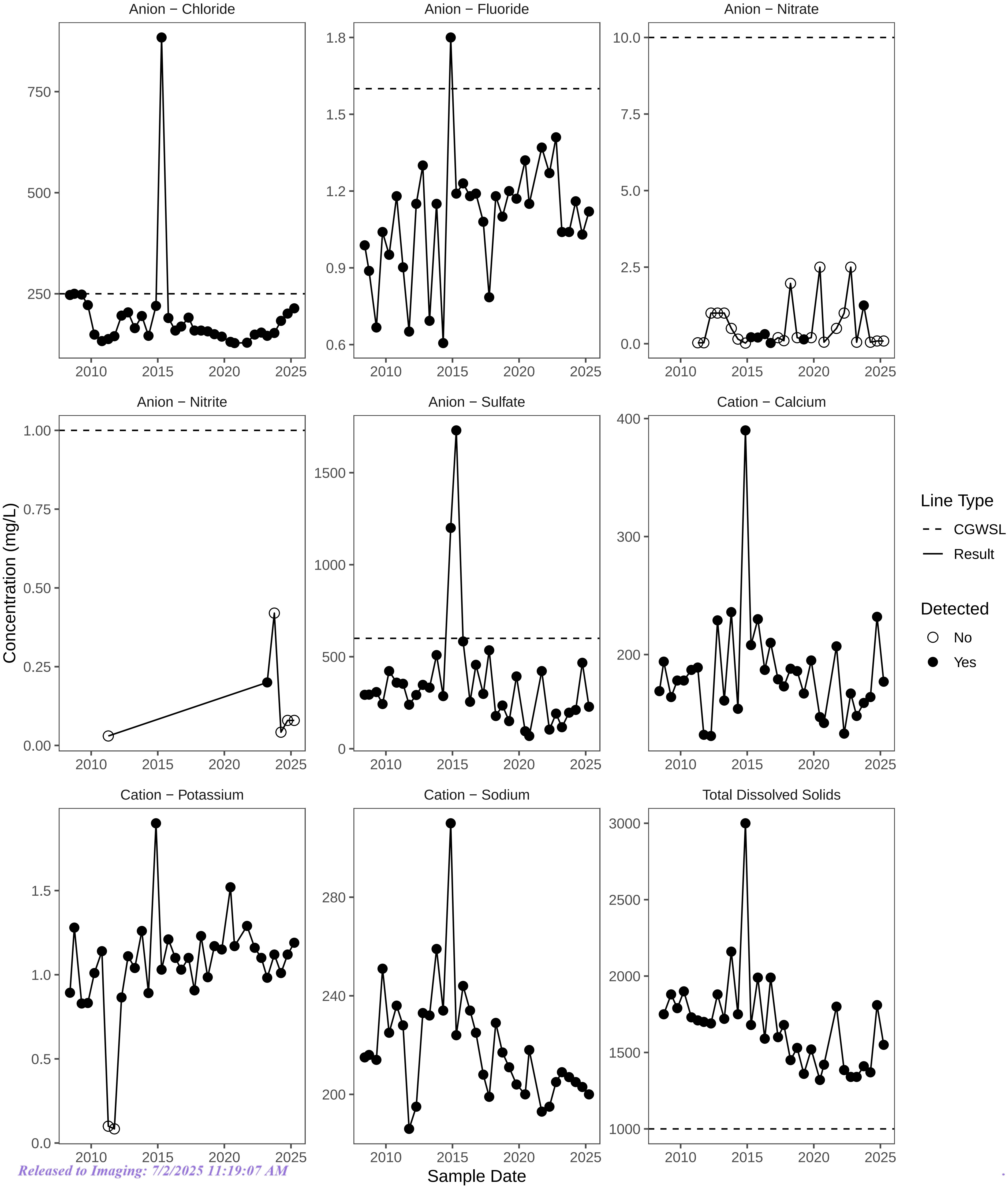

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-95

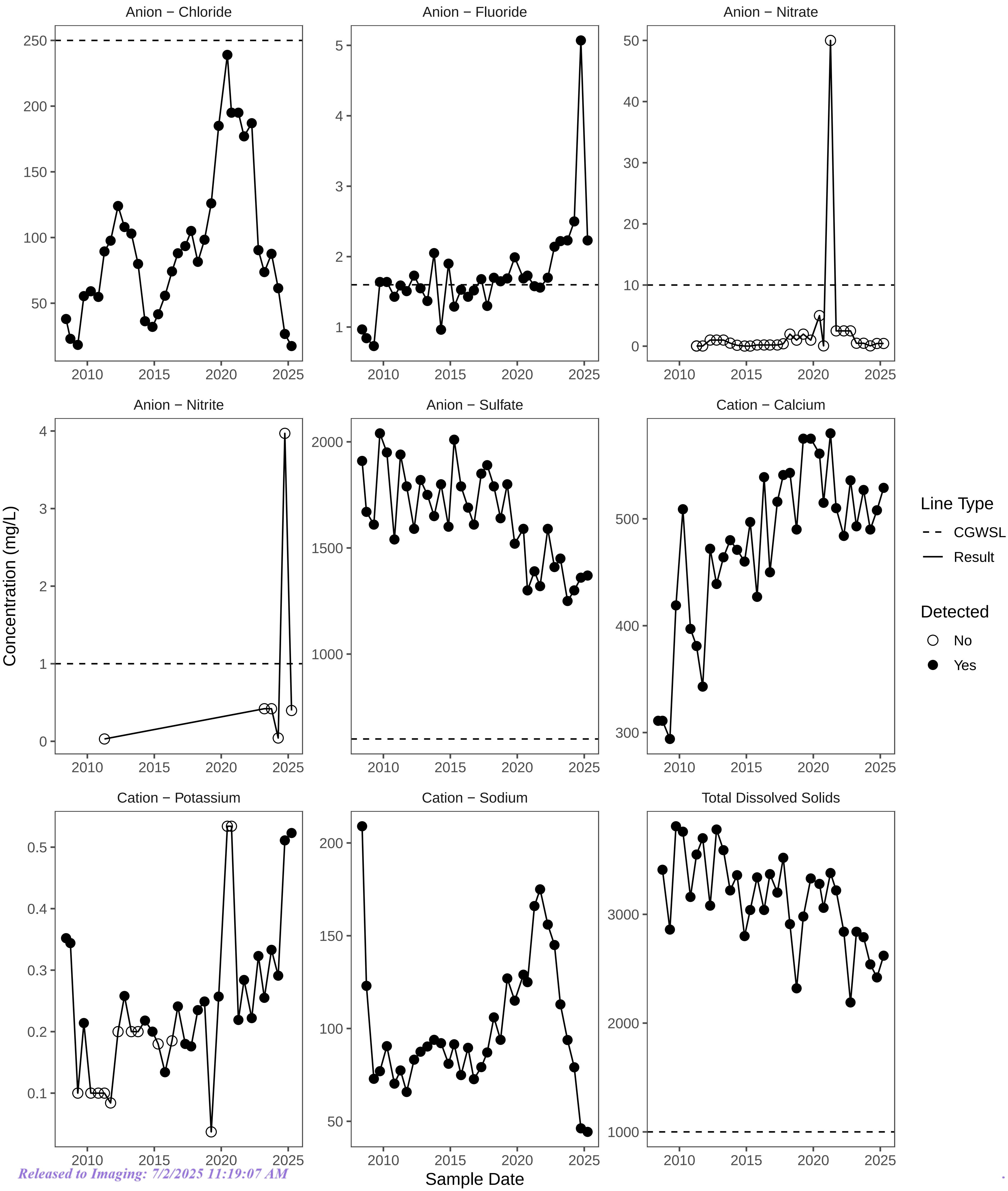


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

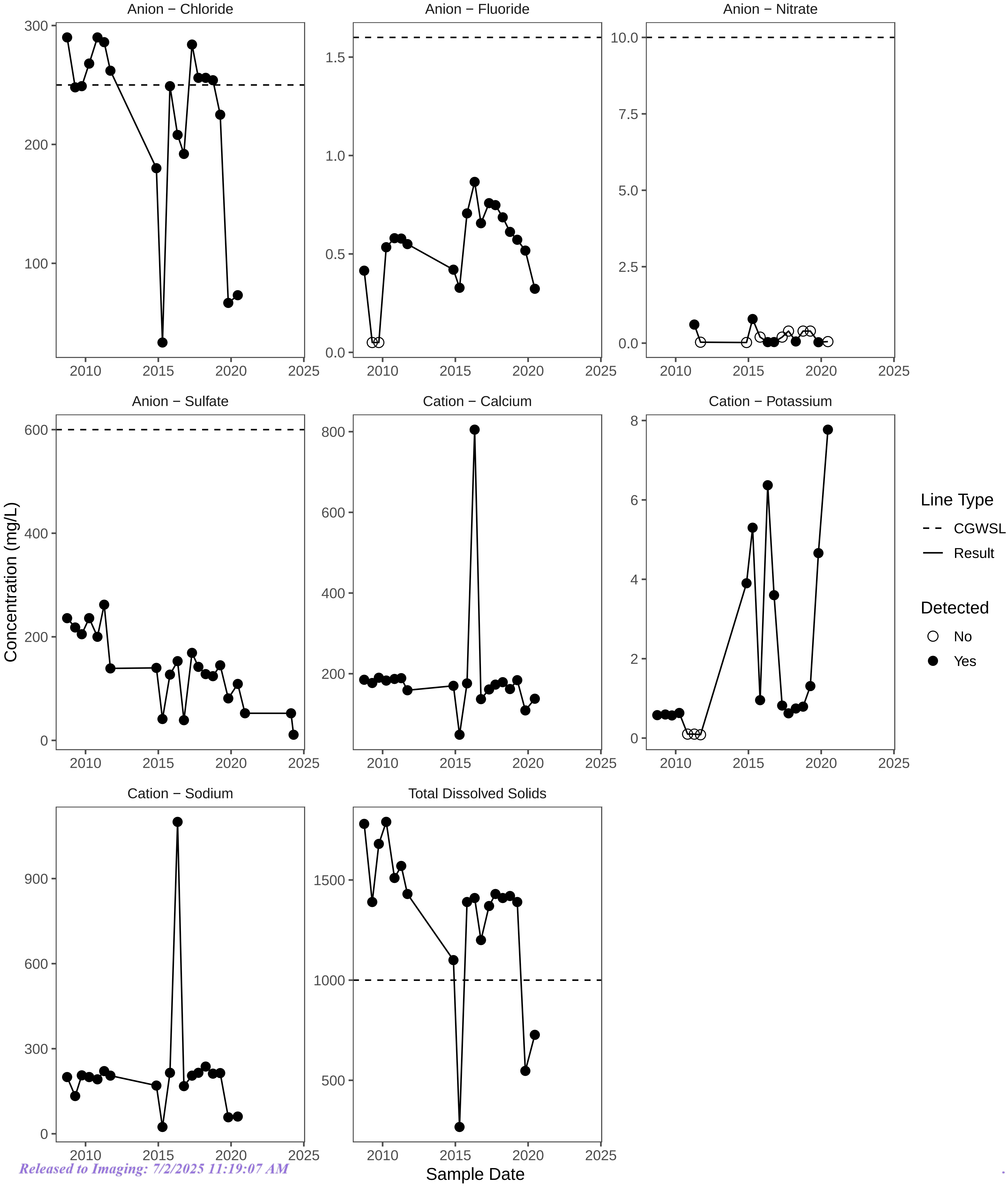
MW−96


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2010
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

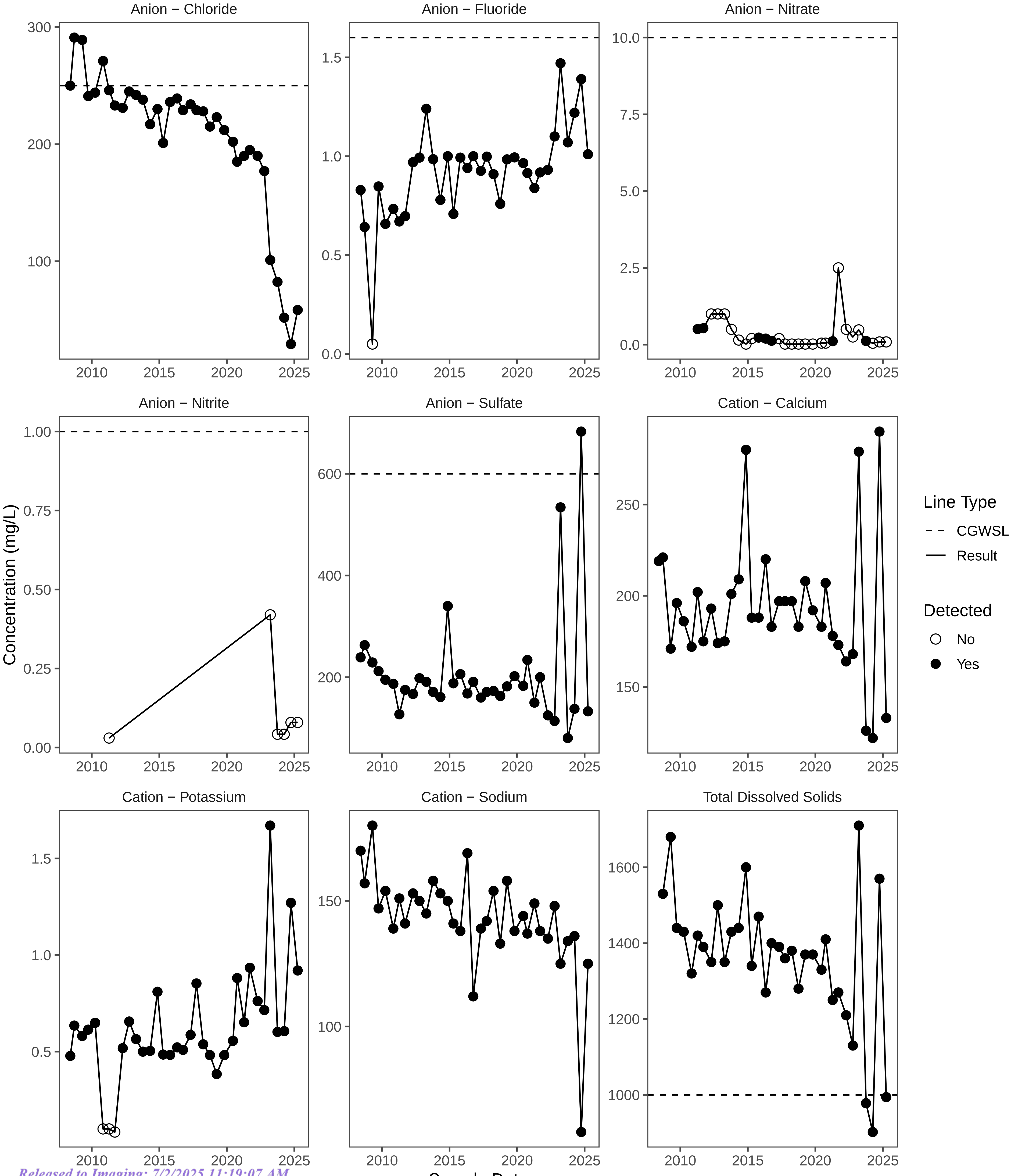
MW-98


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

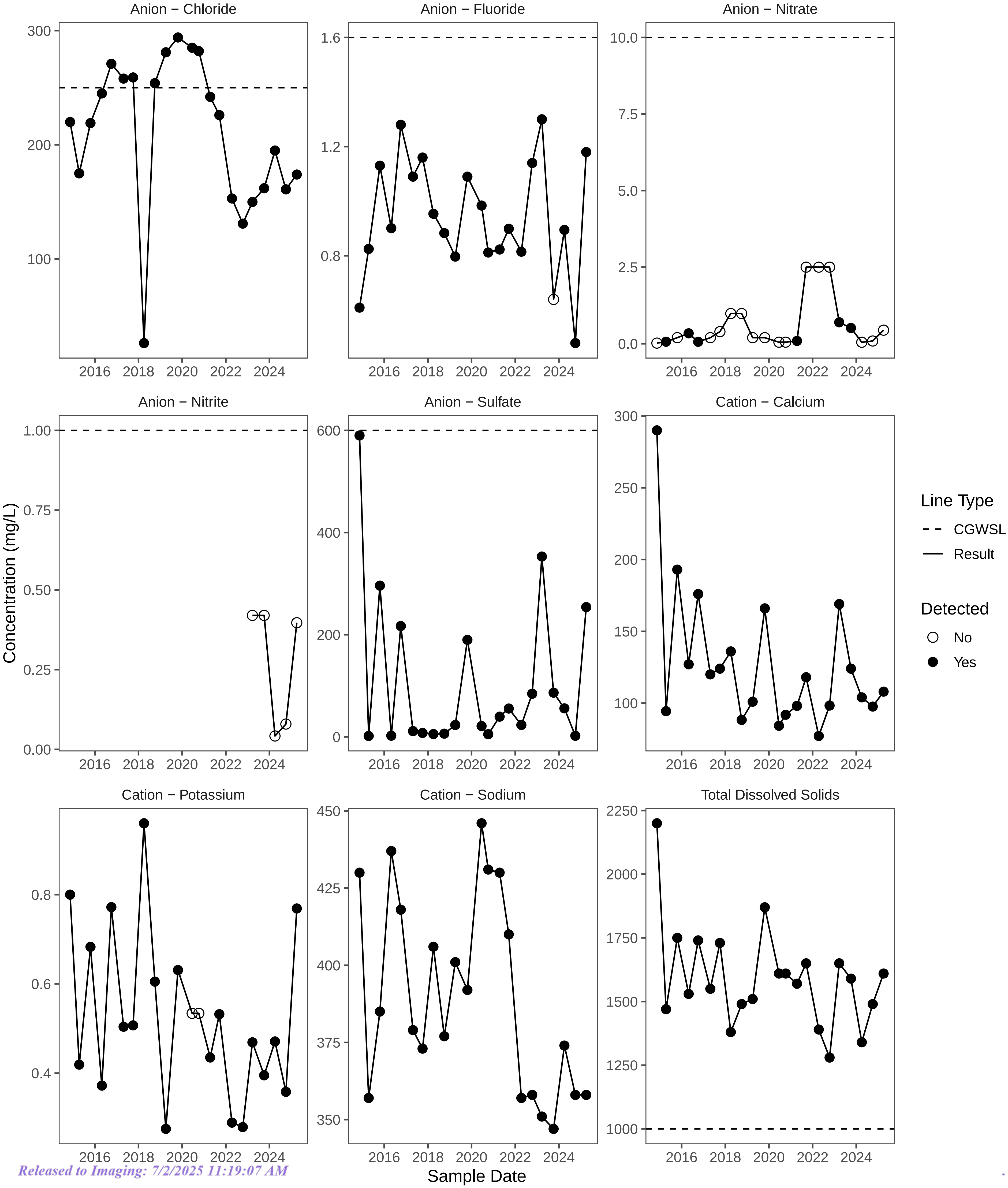
MW−99

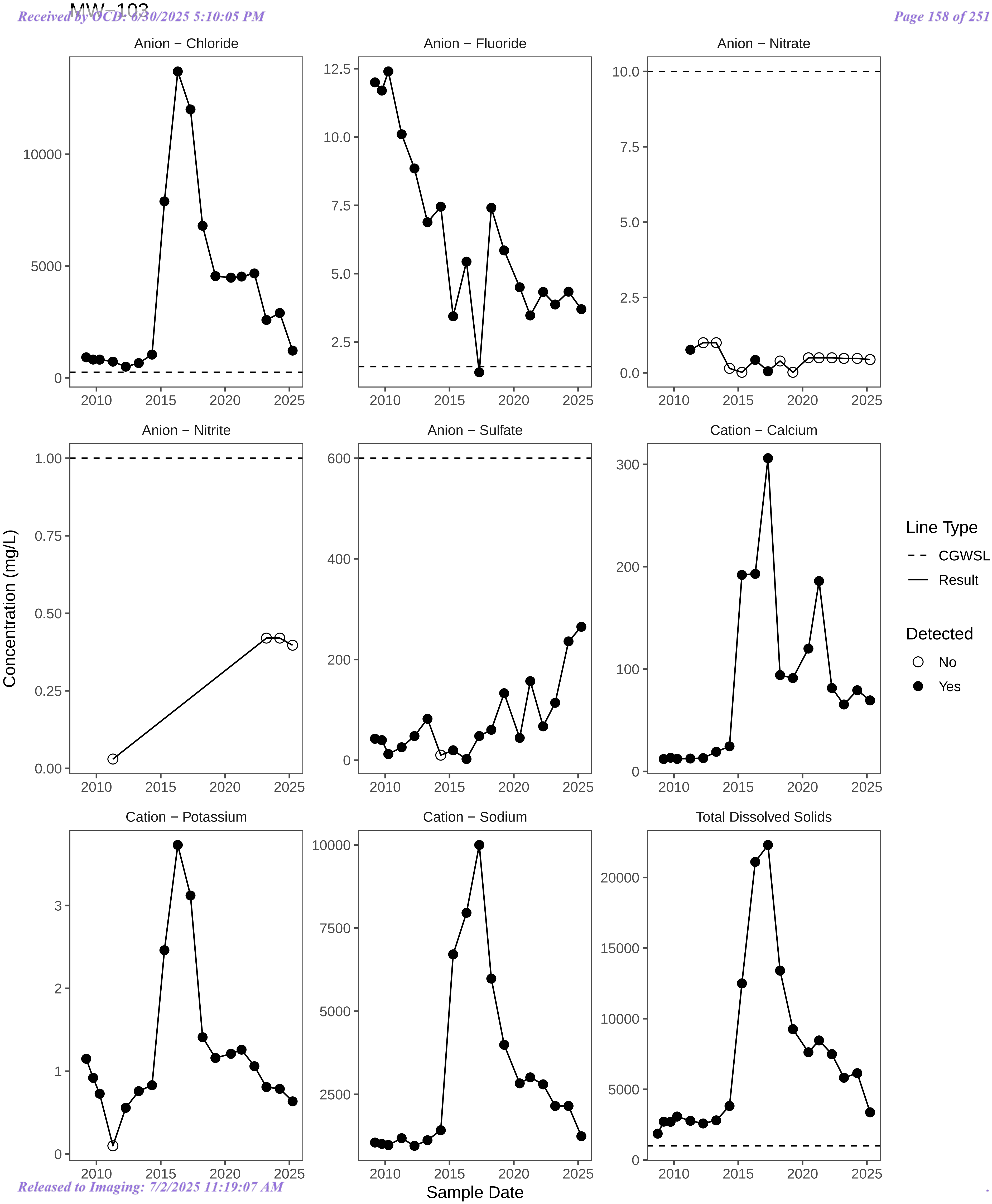

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

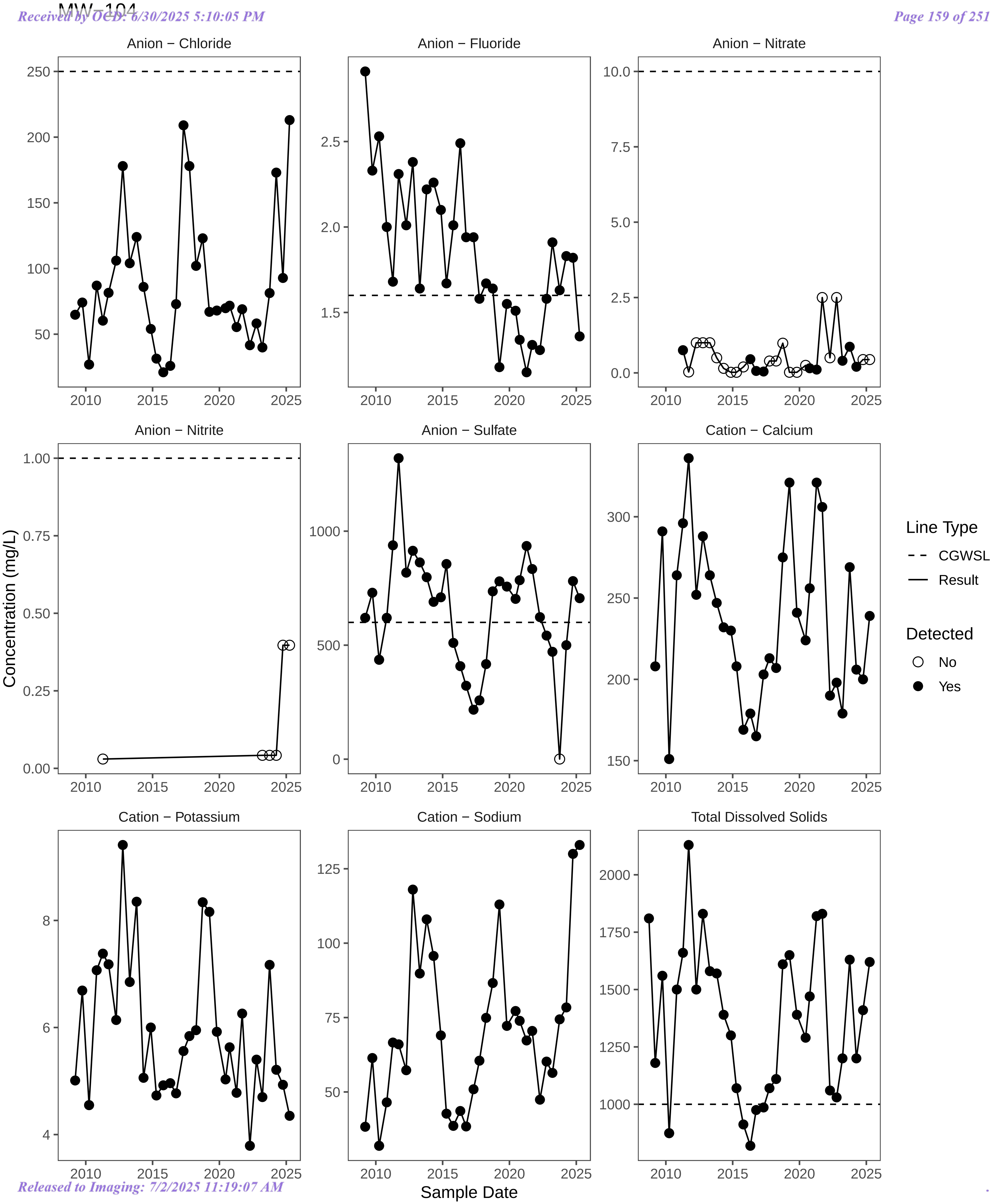
MW−101

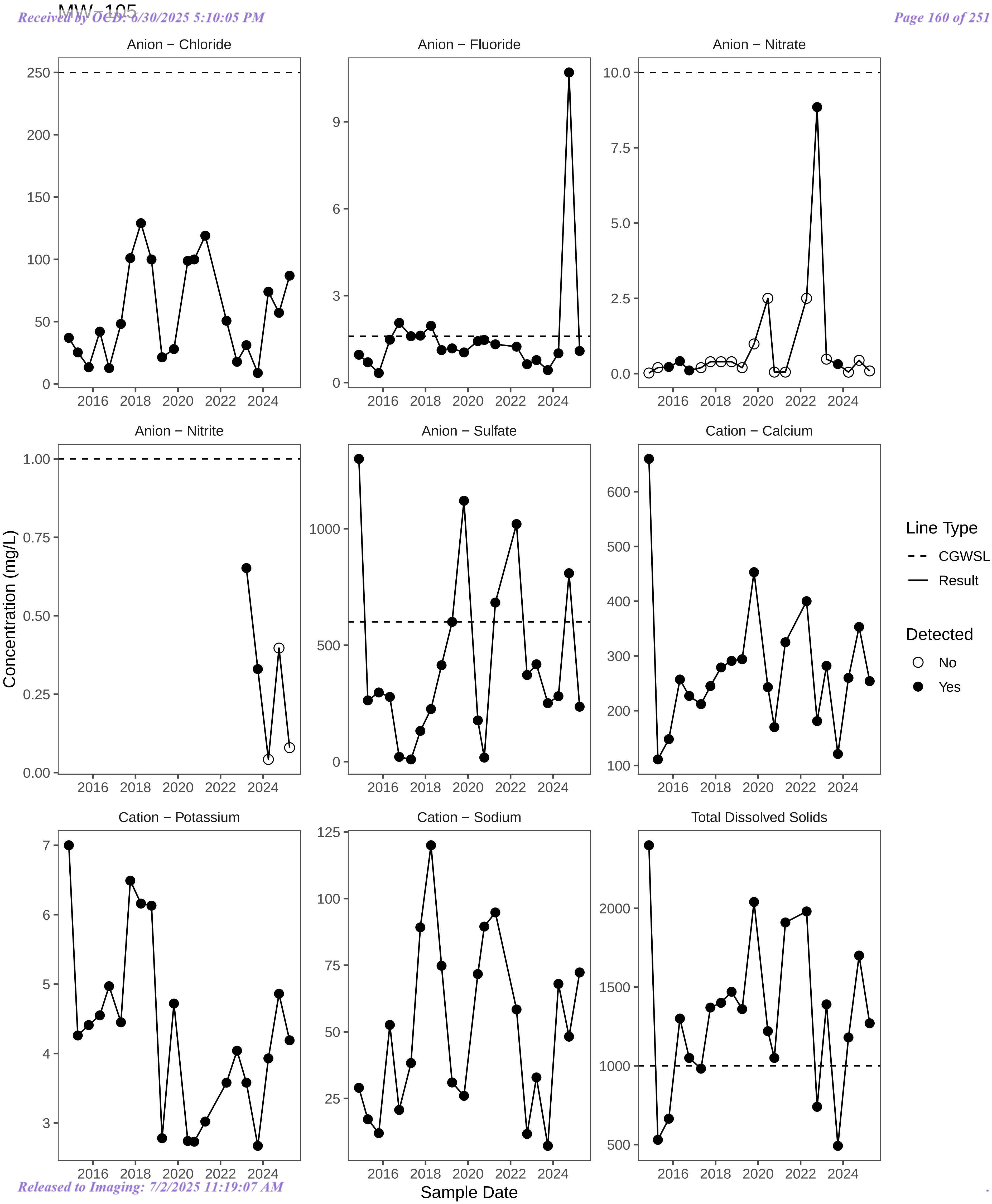

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−102

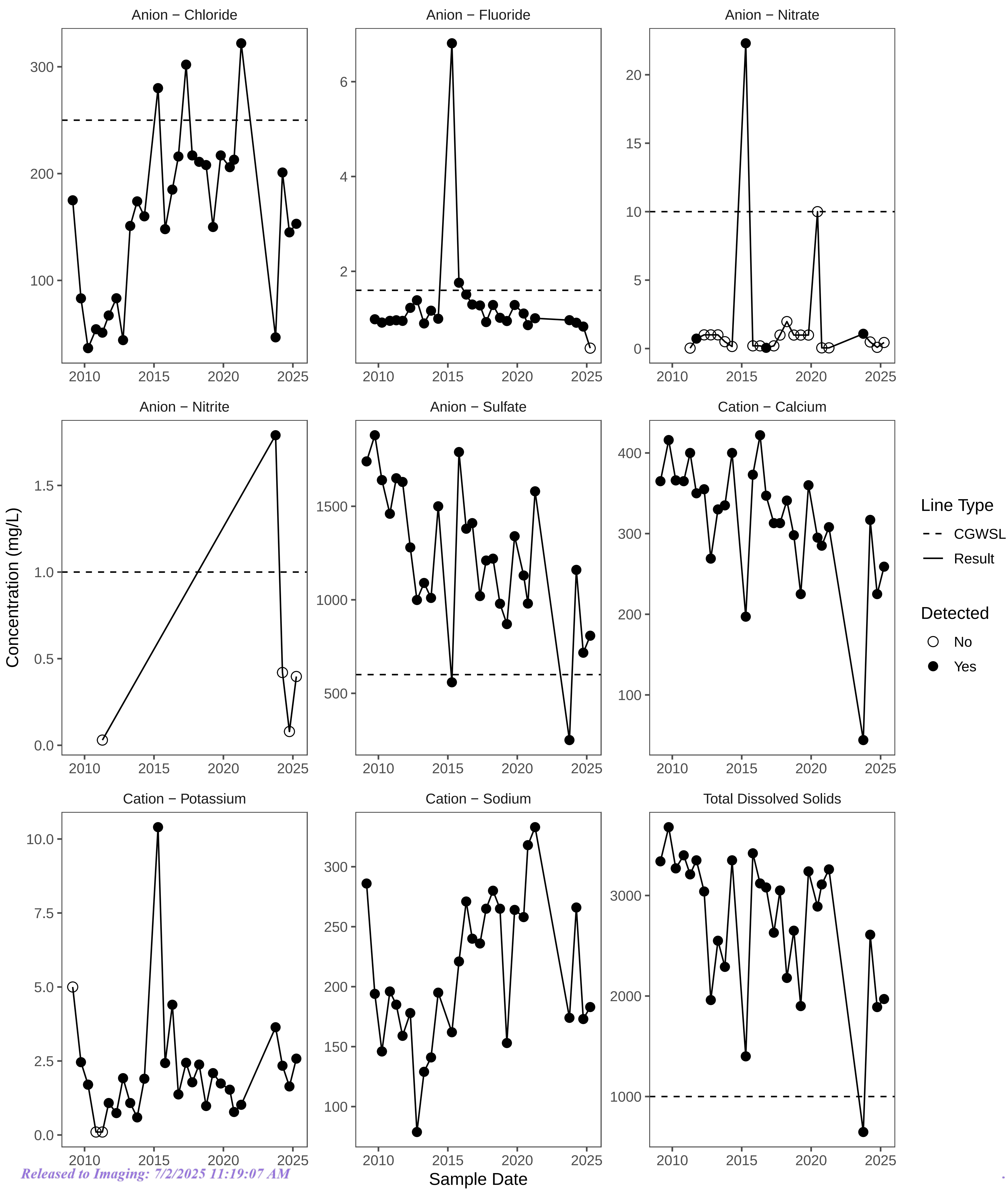

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−103
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

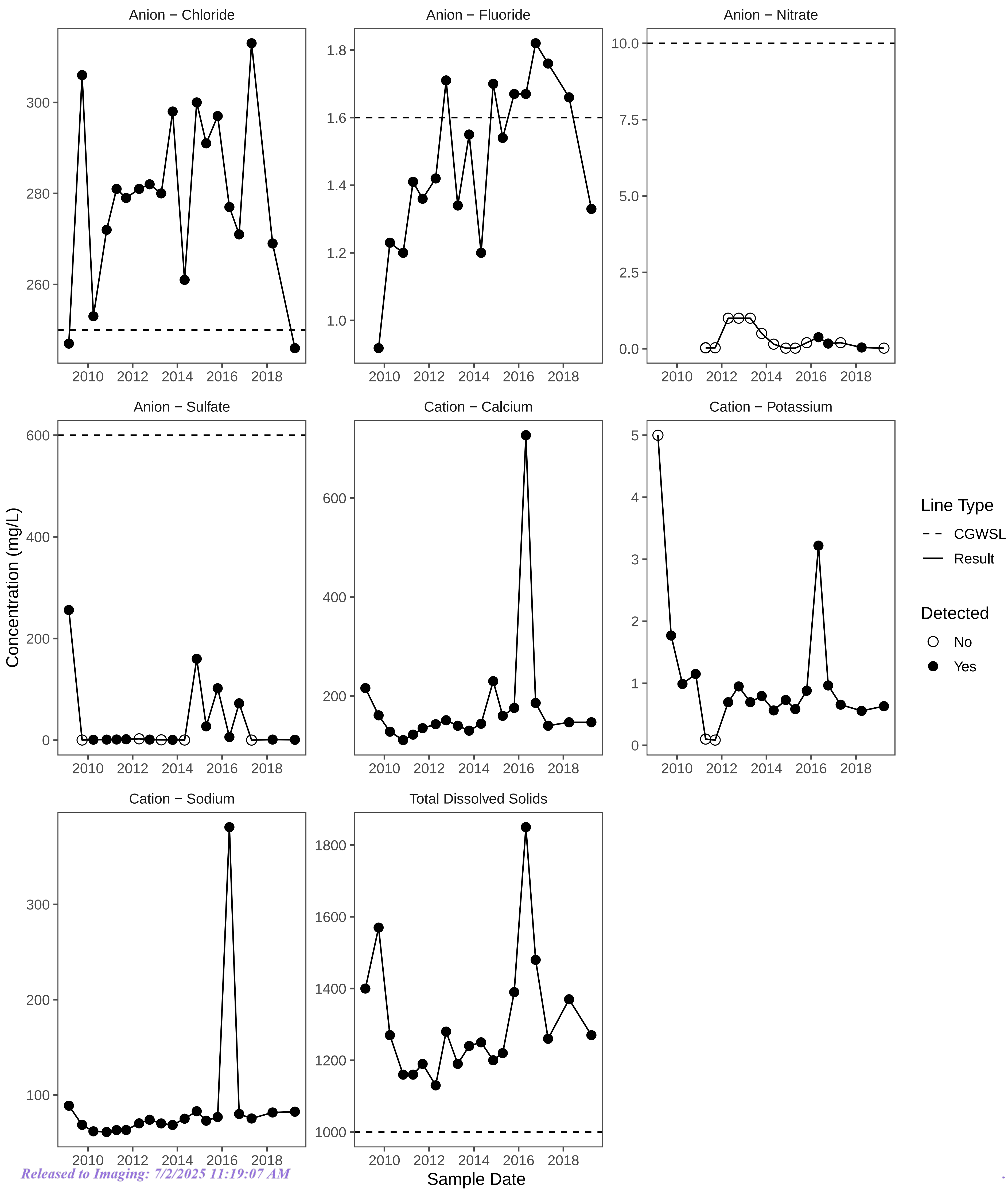

MW−104
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

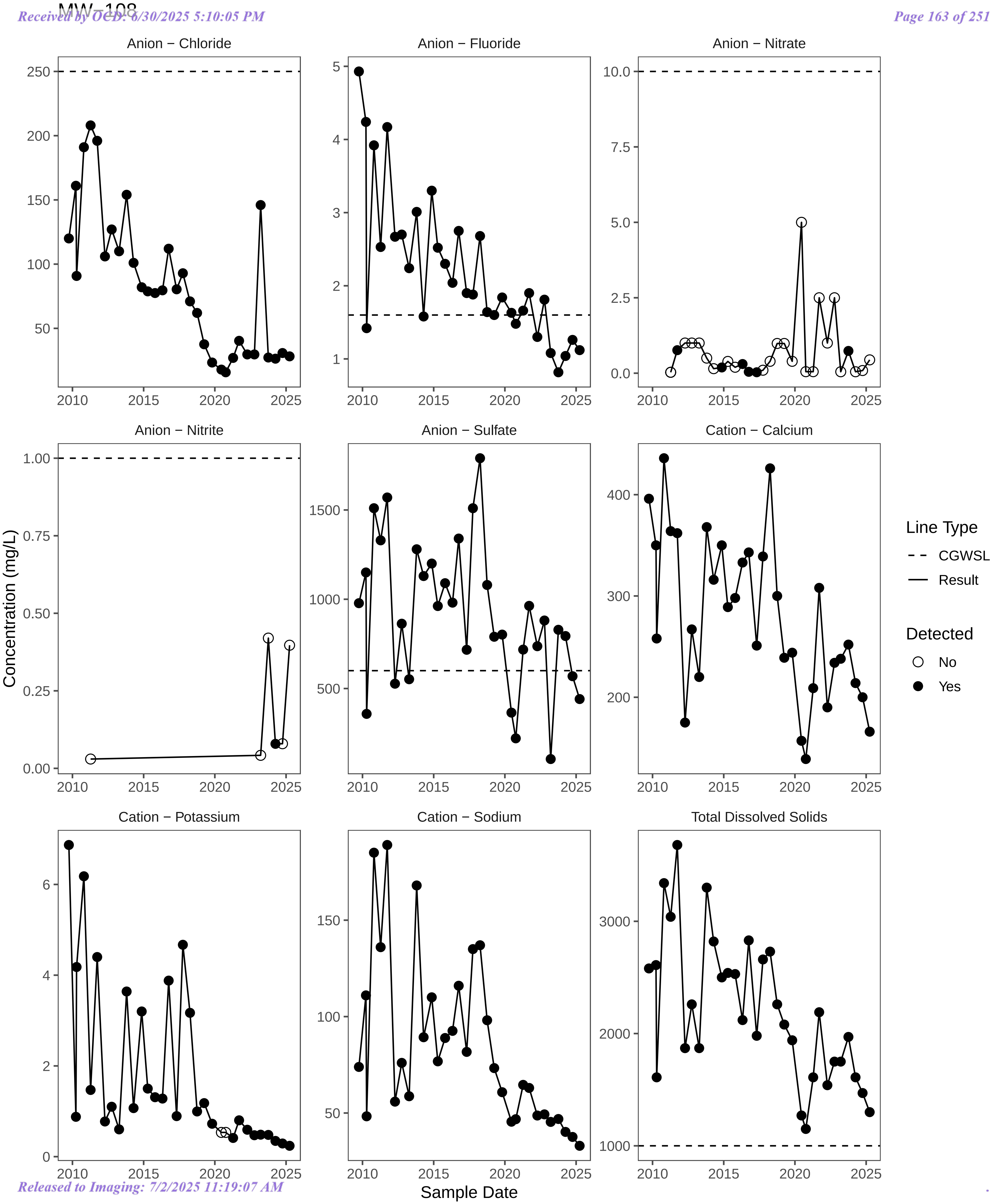

MW−105
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−106

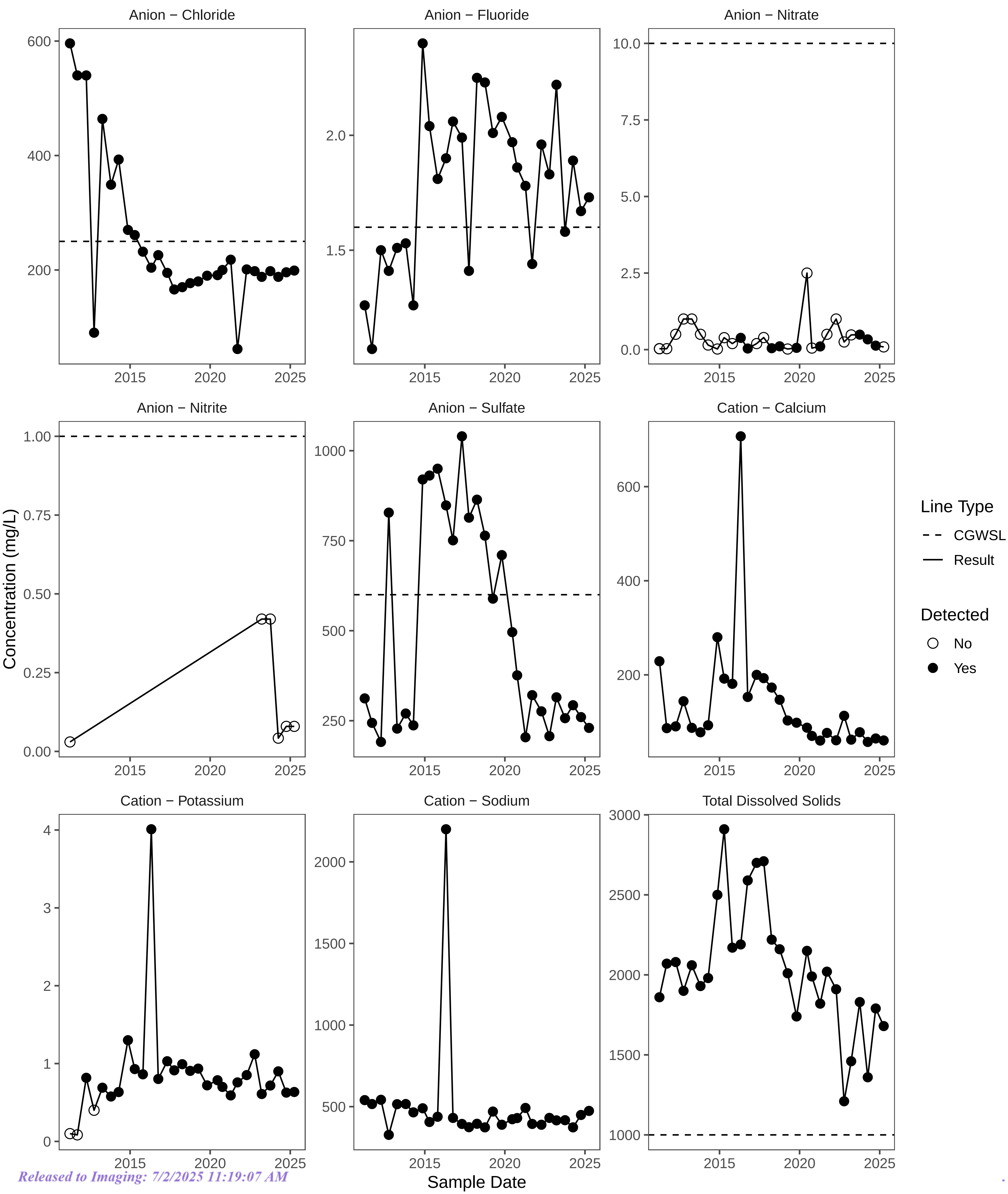

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

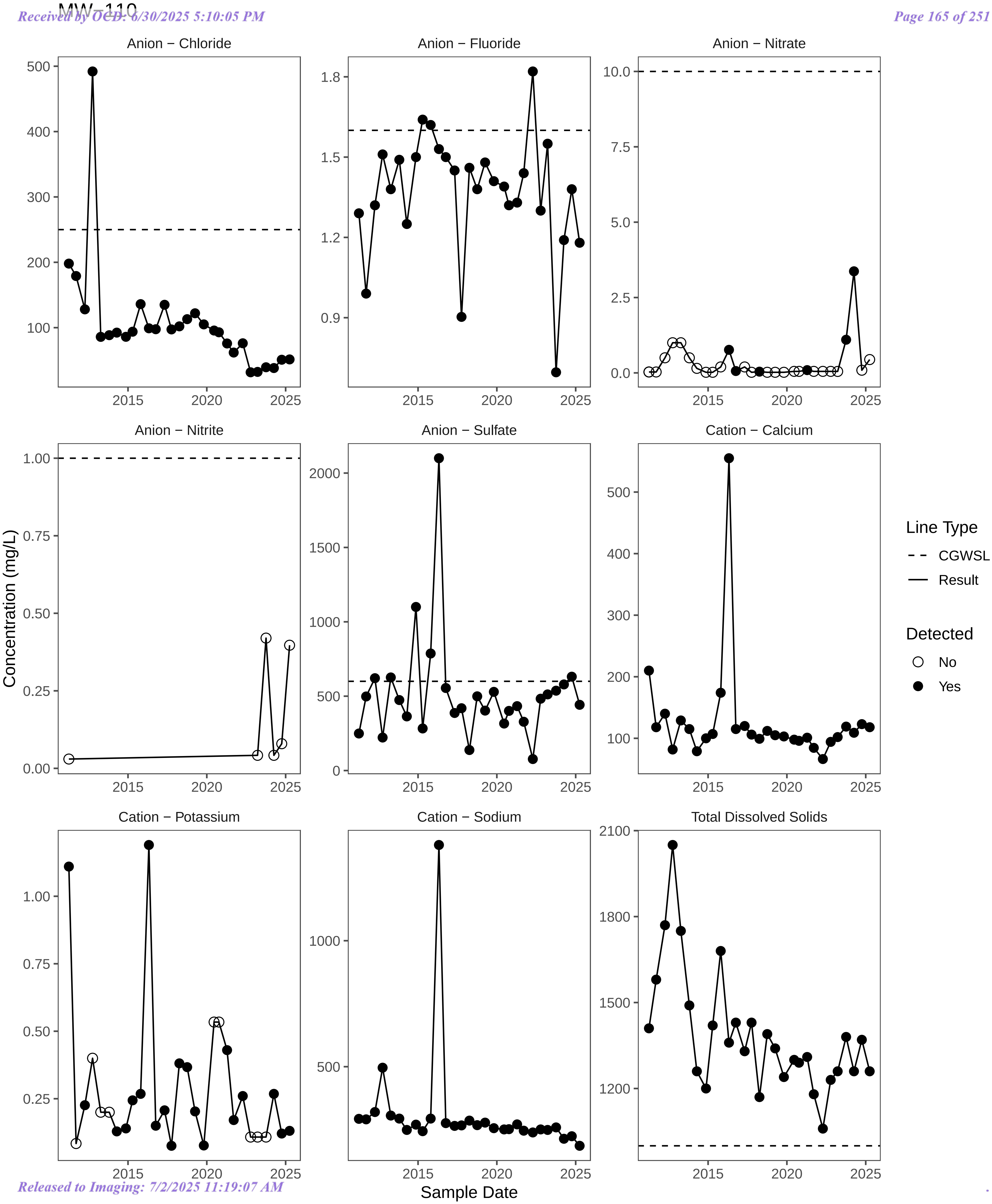
MW−107

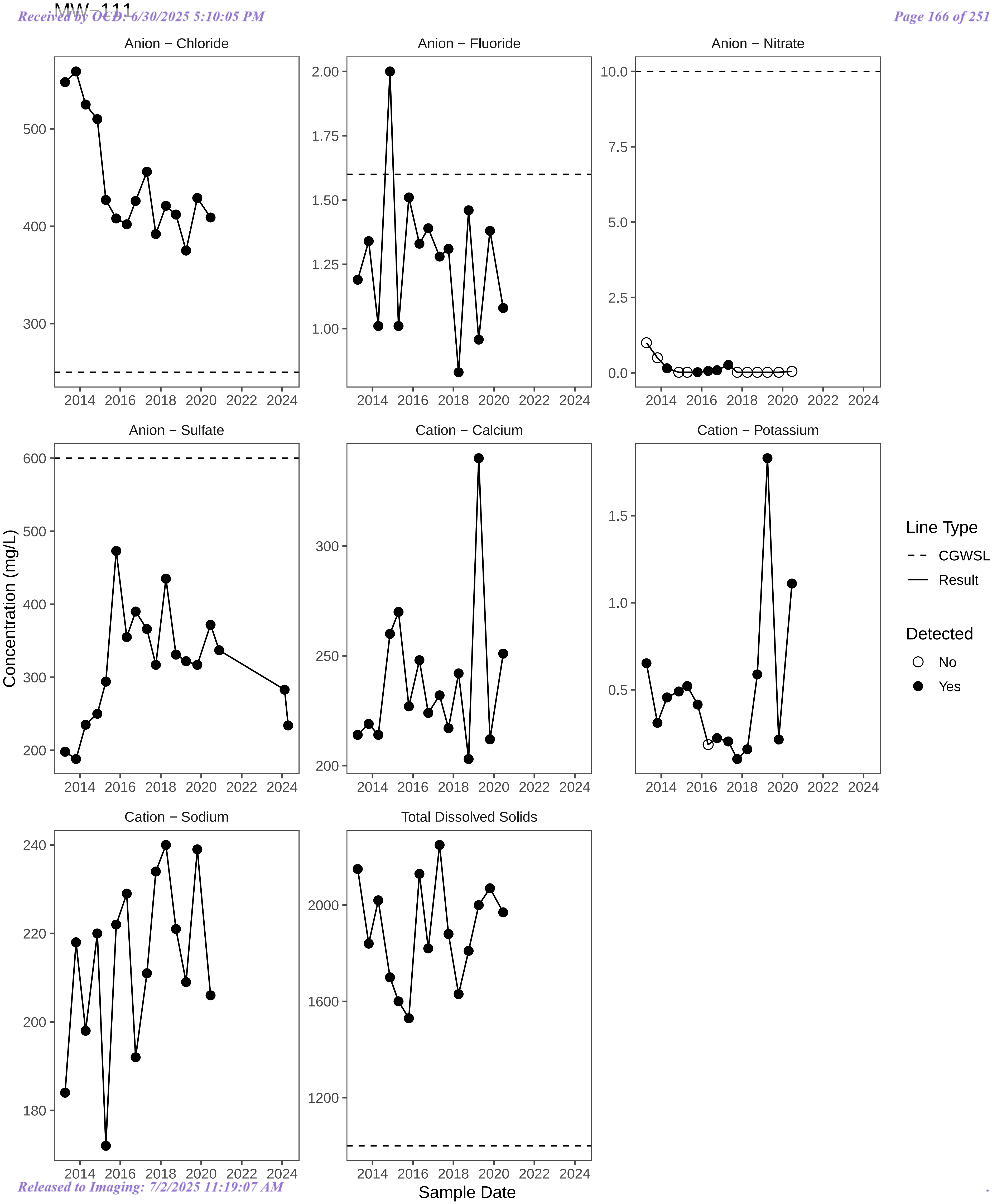

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−108
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

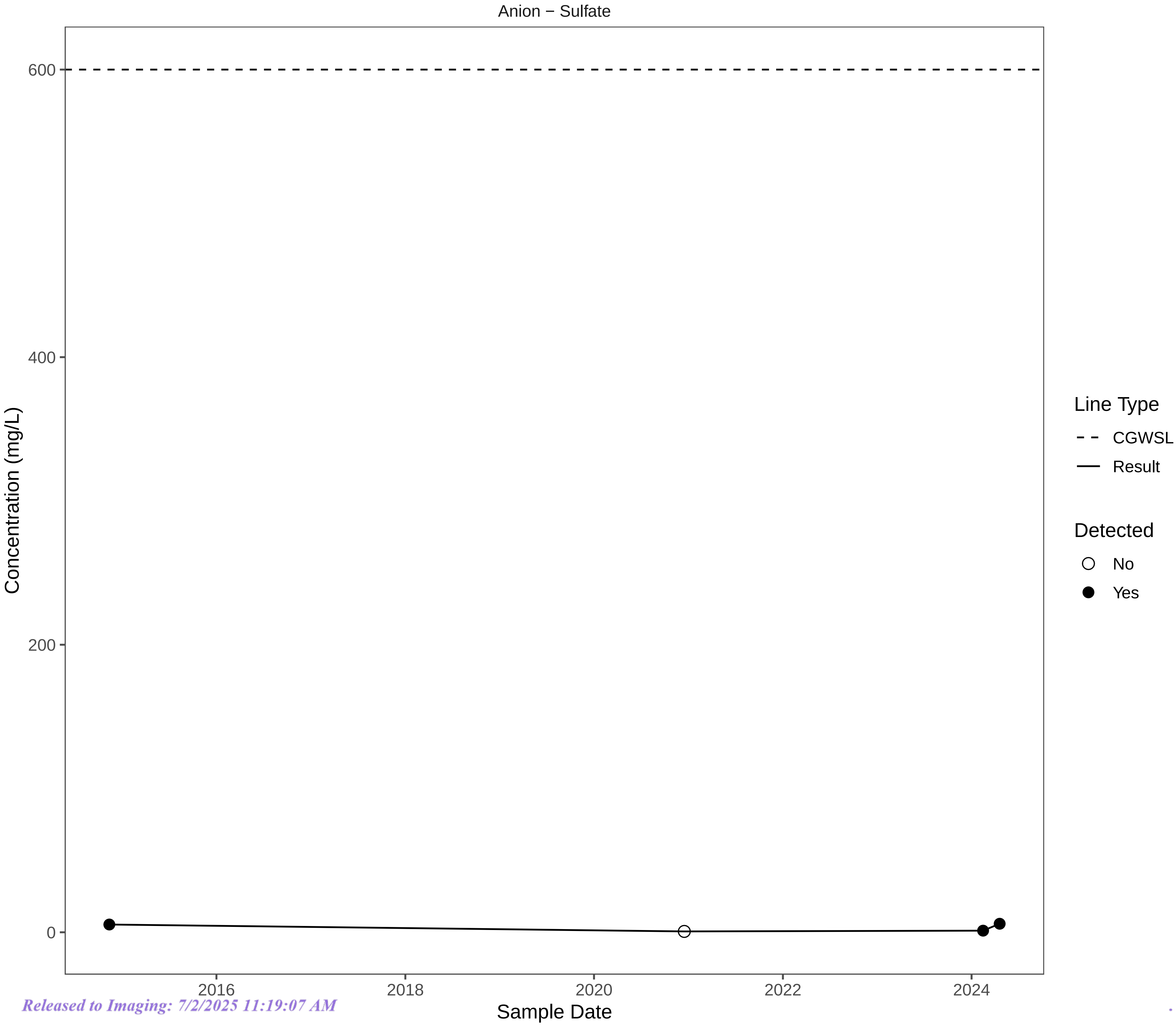
MW−109


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

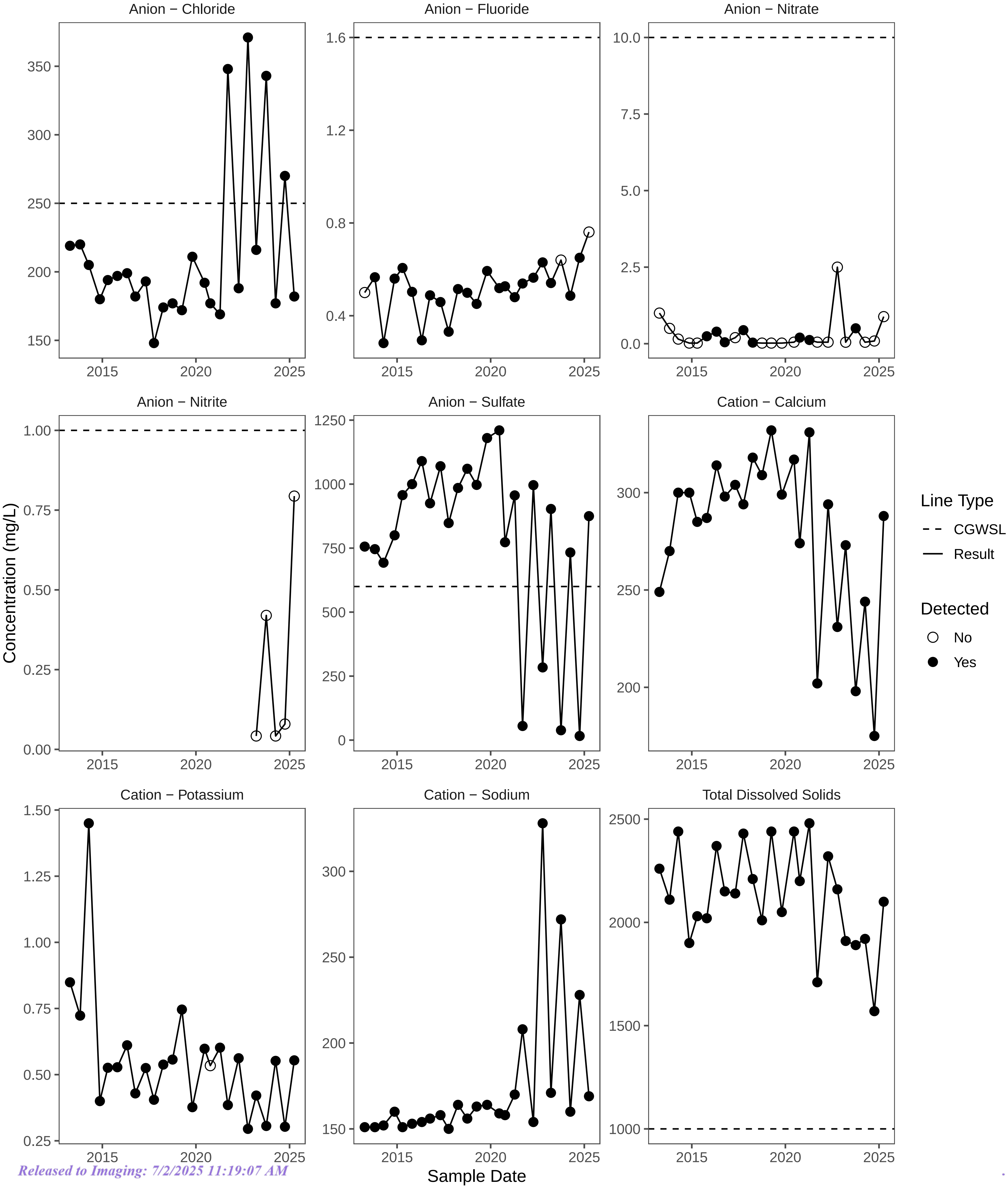

MW−110
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

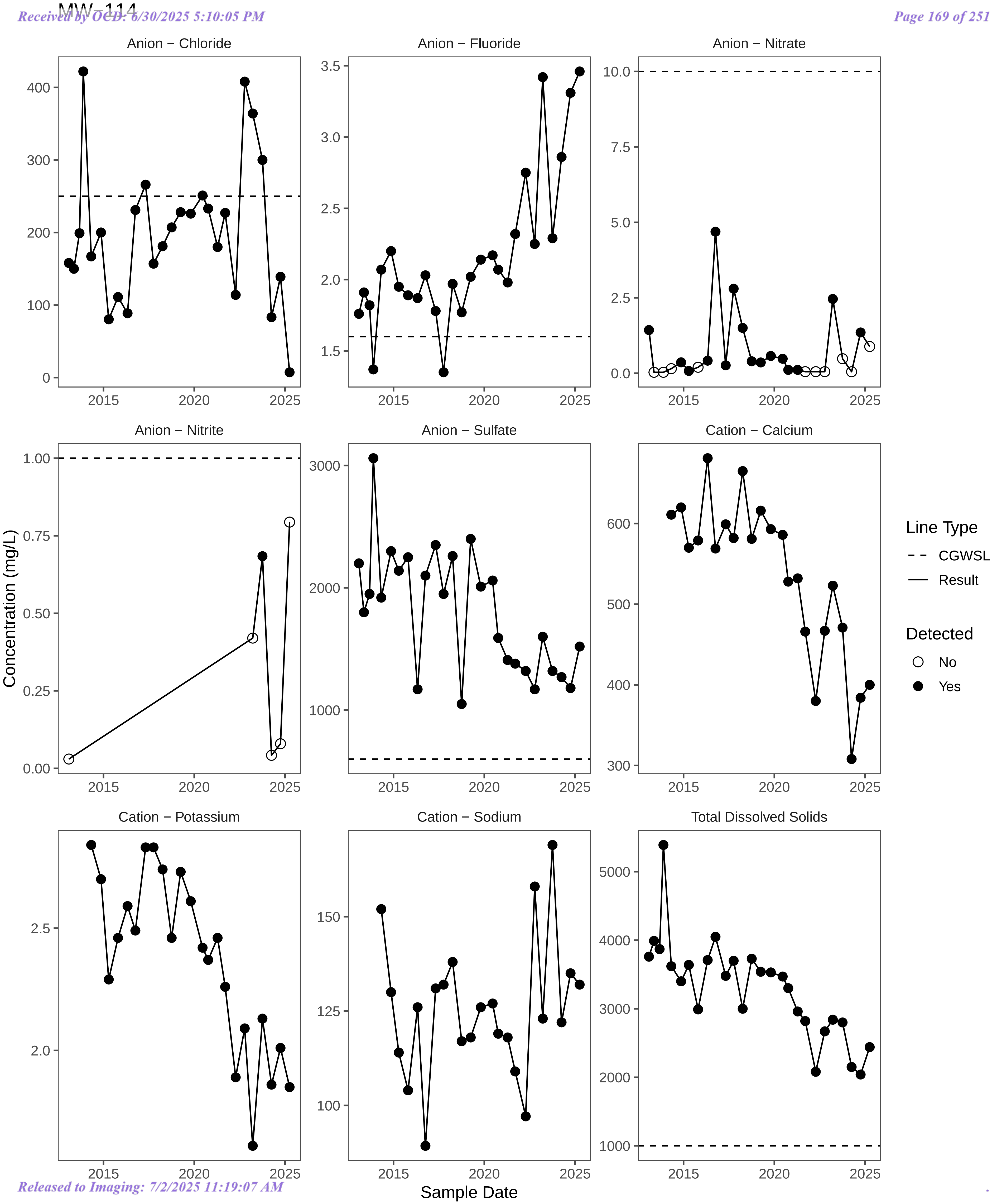

MW−111
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−112

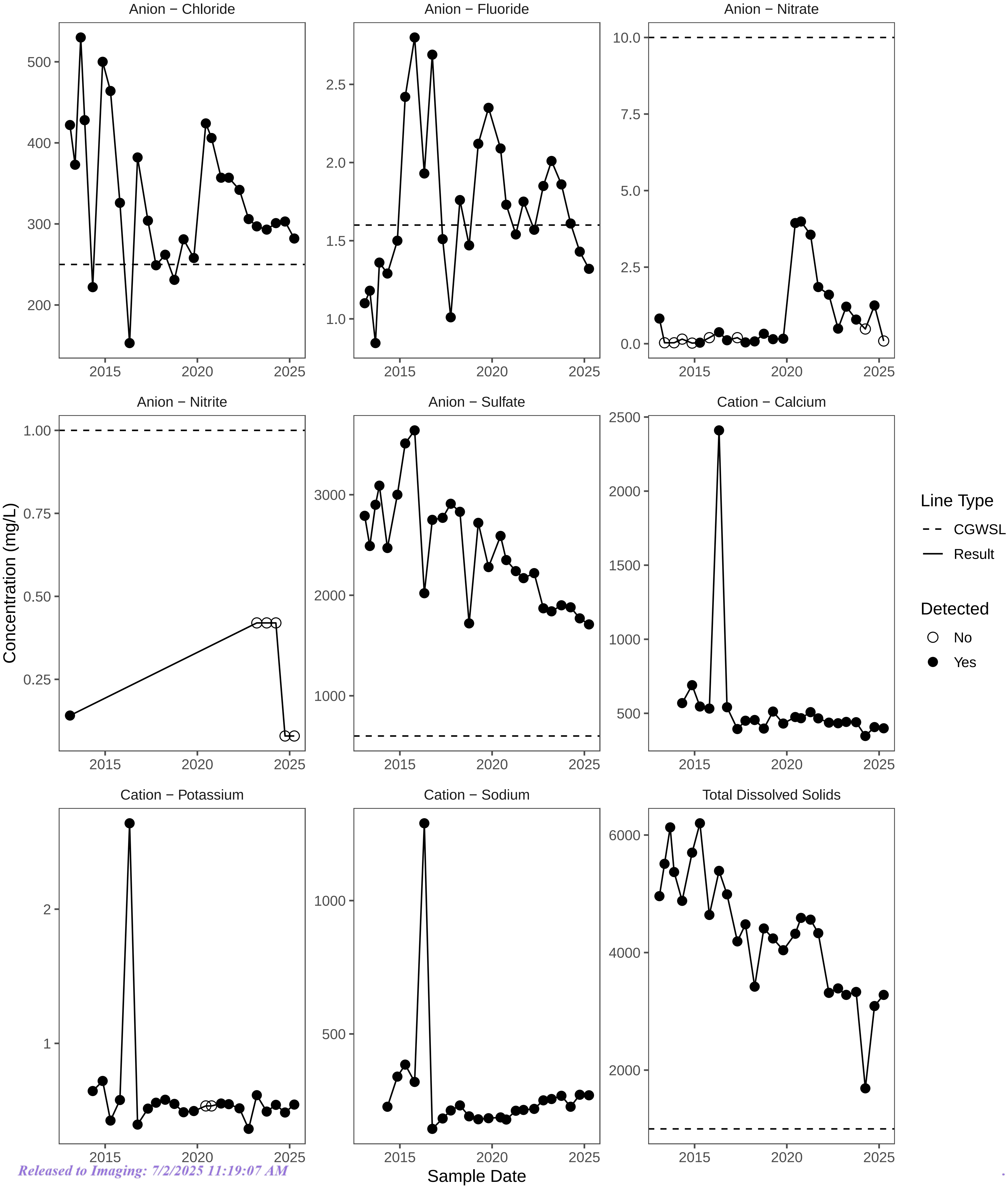

Anion − Sulfate
600
400
200
0
Concentration (mg/L)
2016
2018
2020
2022
2024
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−113

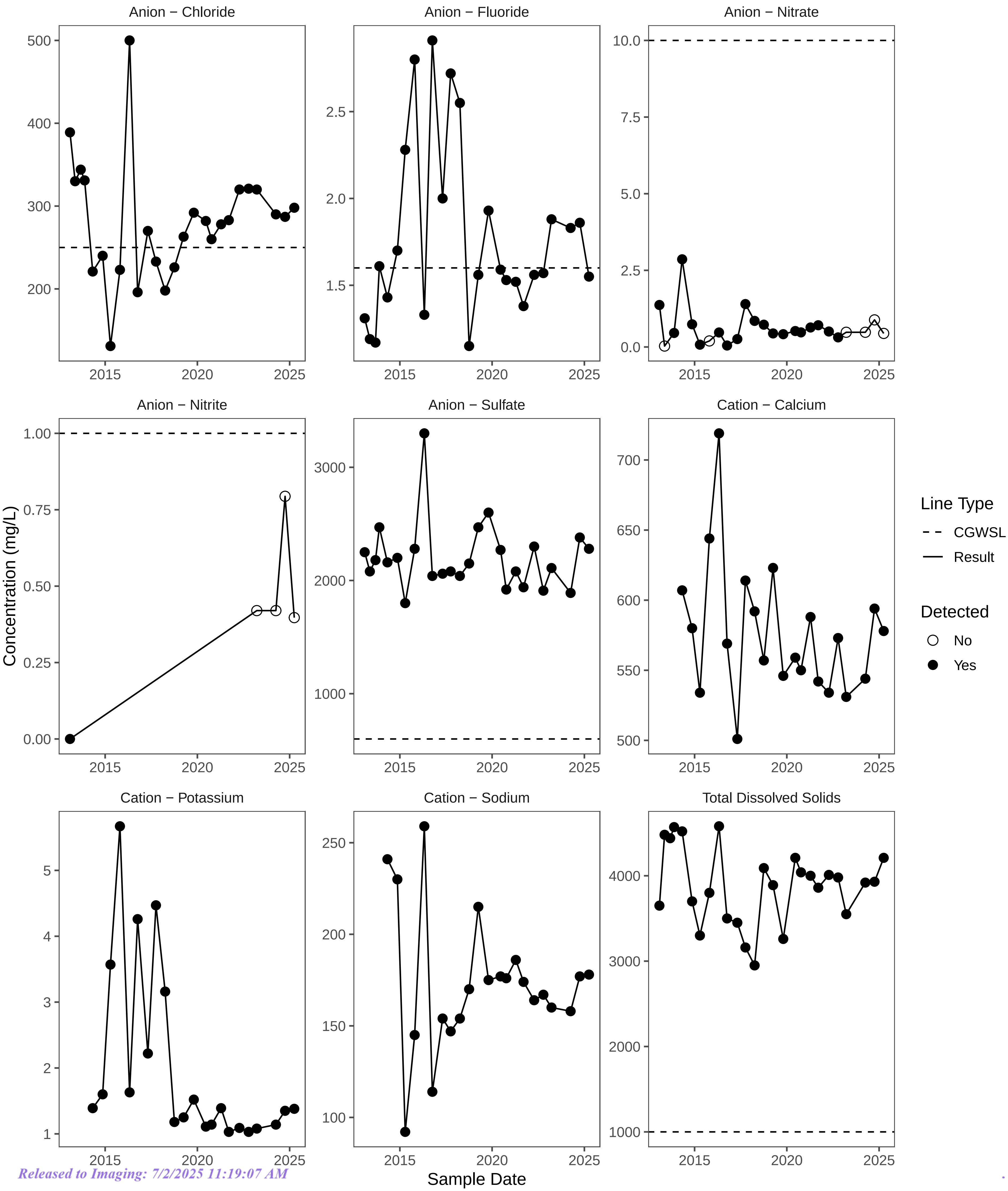

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−114
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

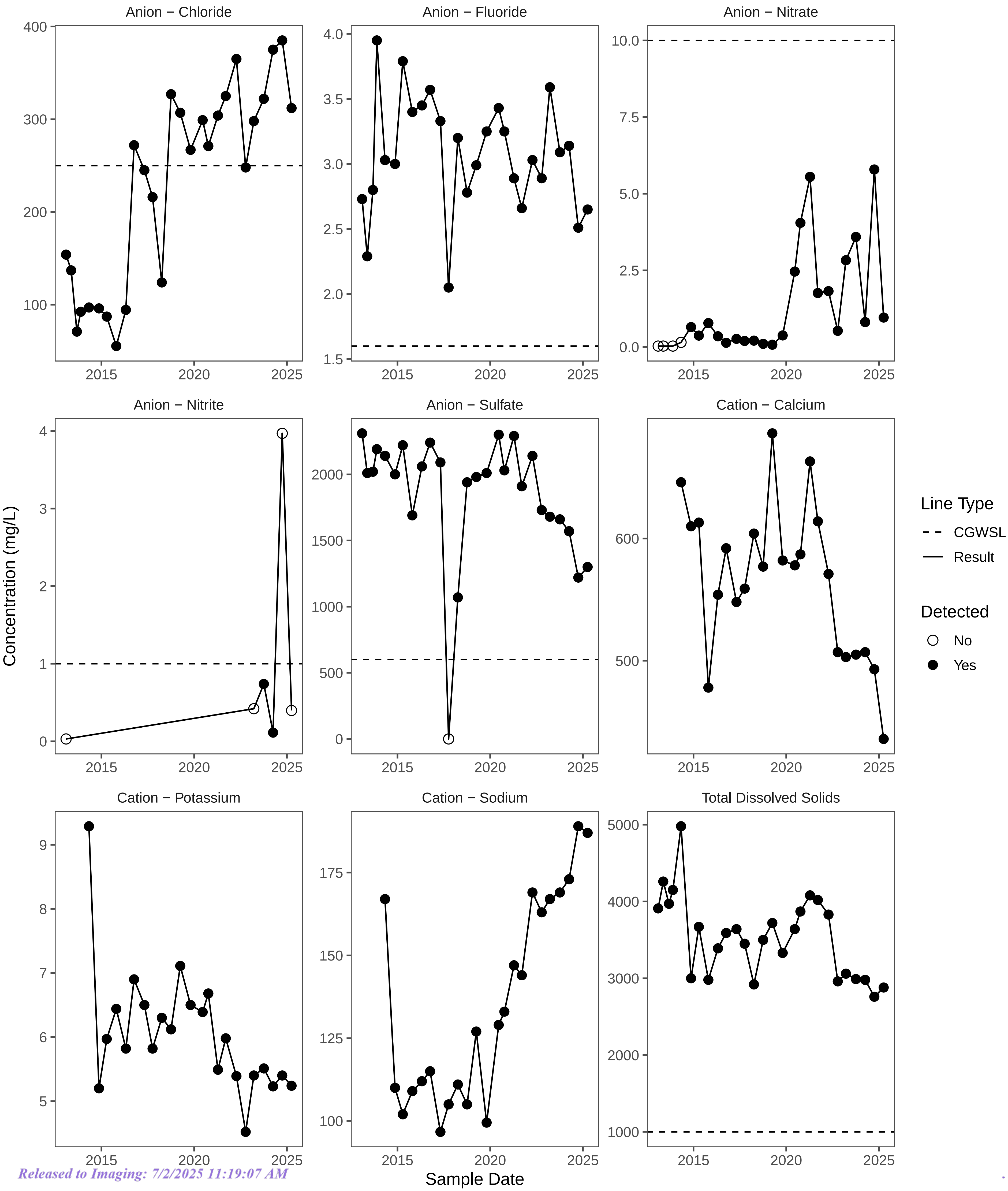
MW−115


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

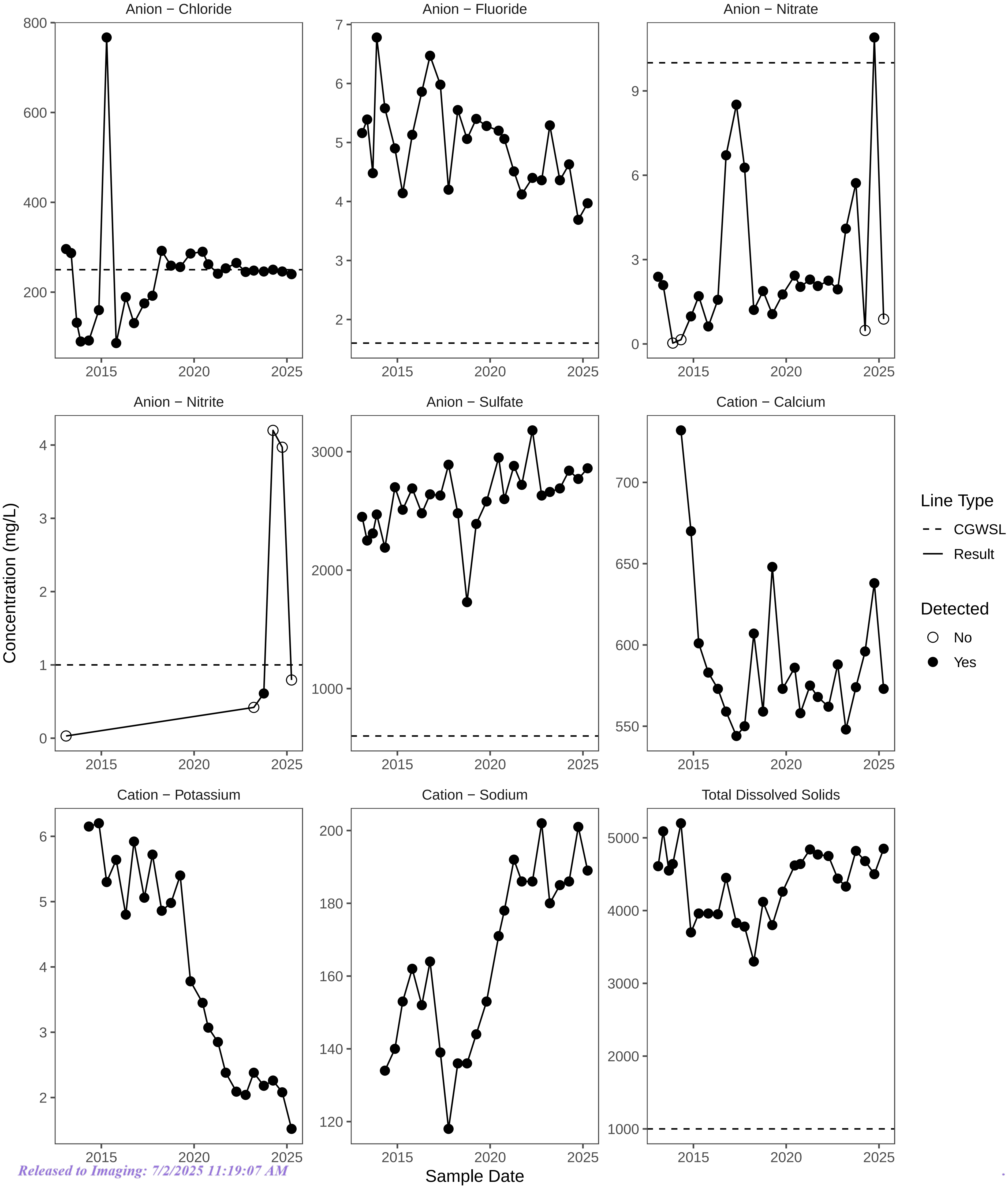
MW−116

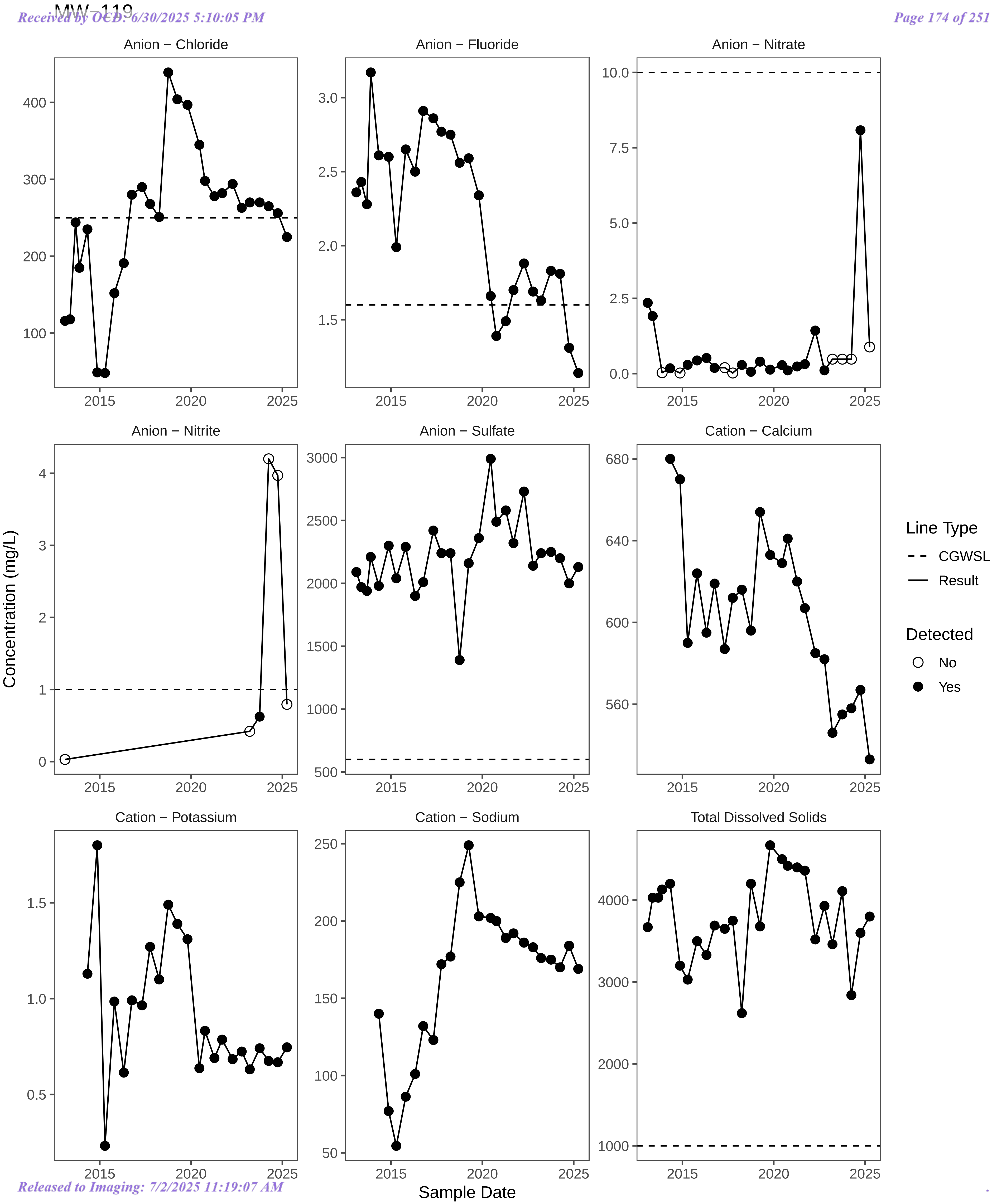

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW–117

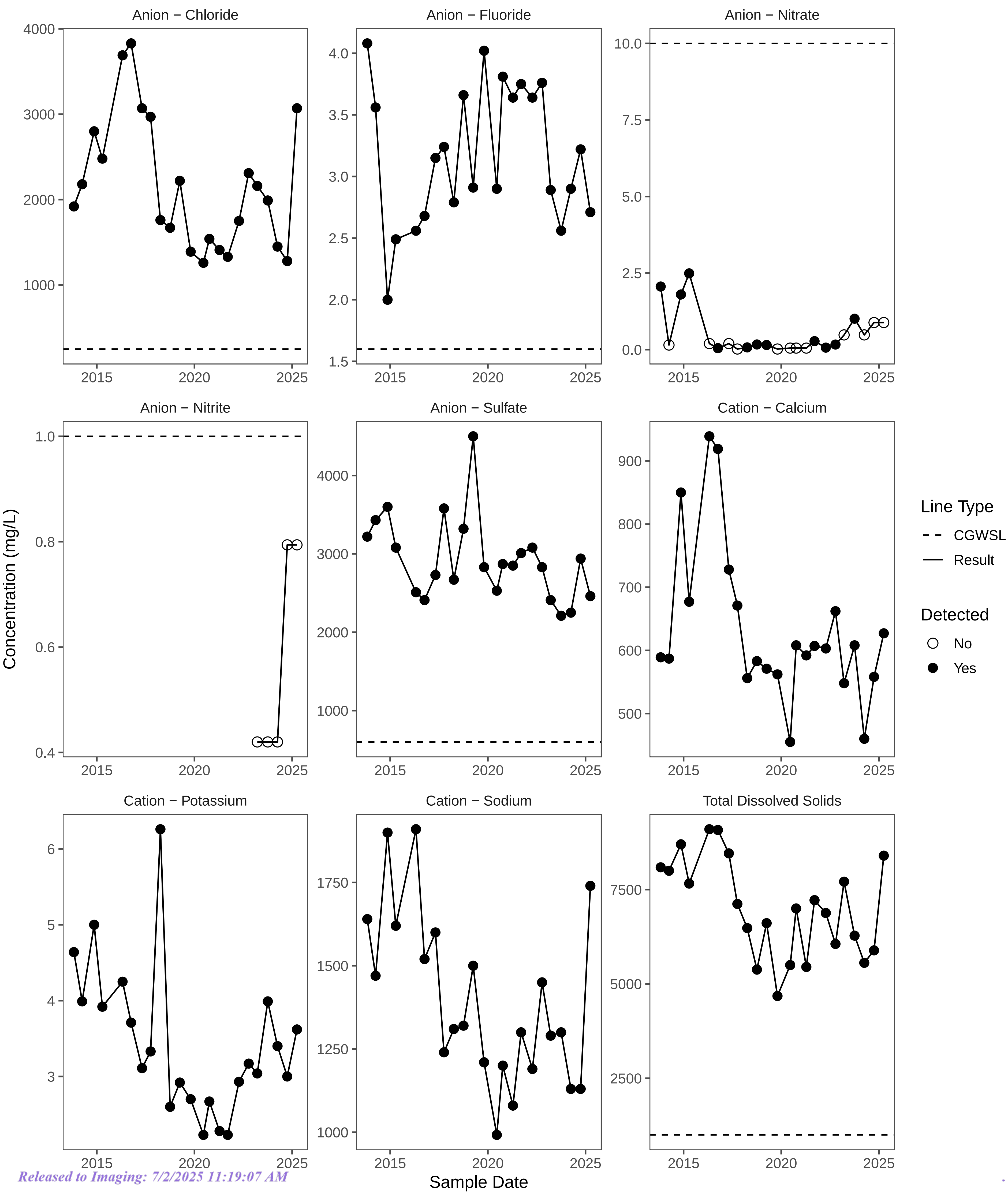

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

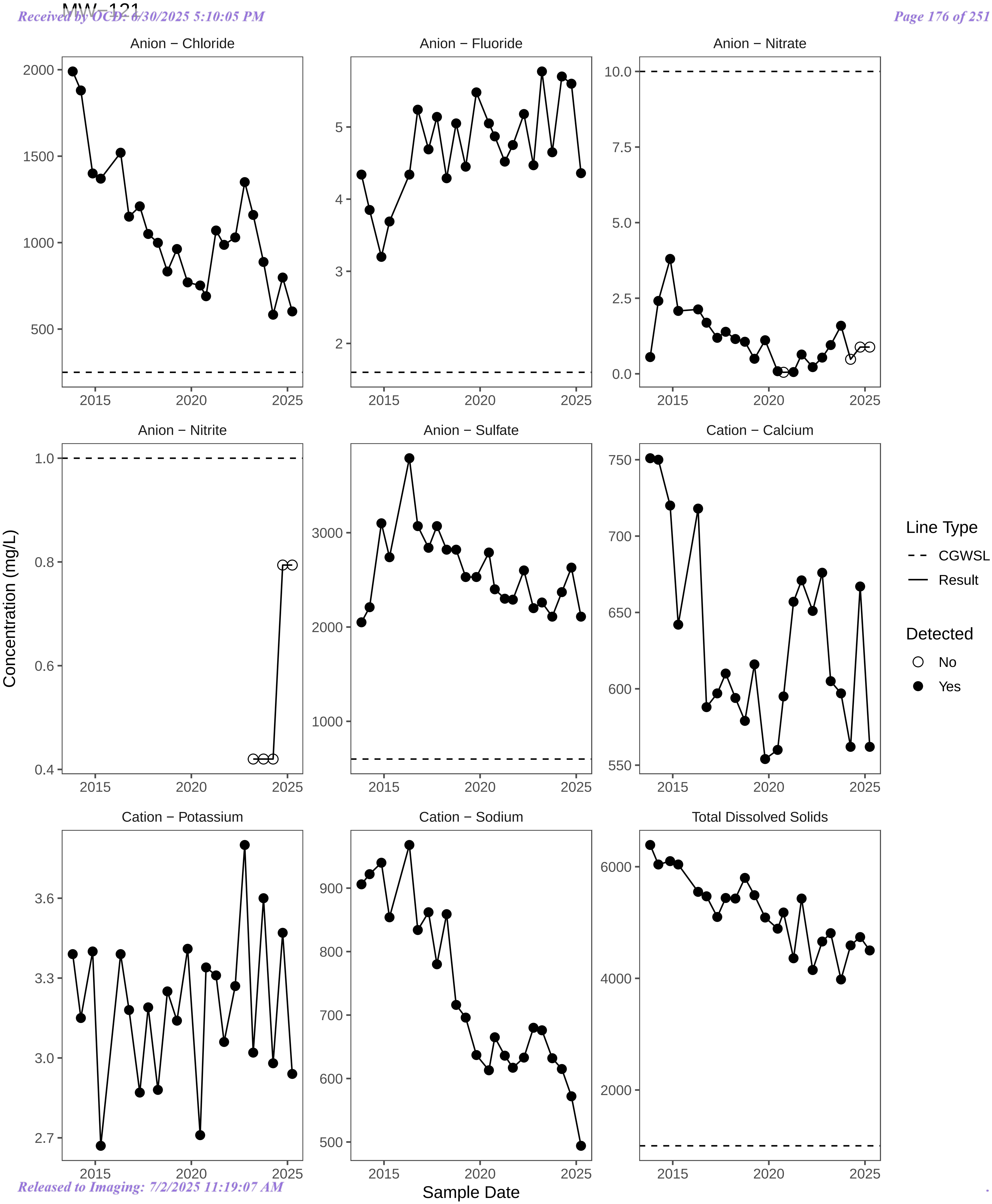
MW-118


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

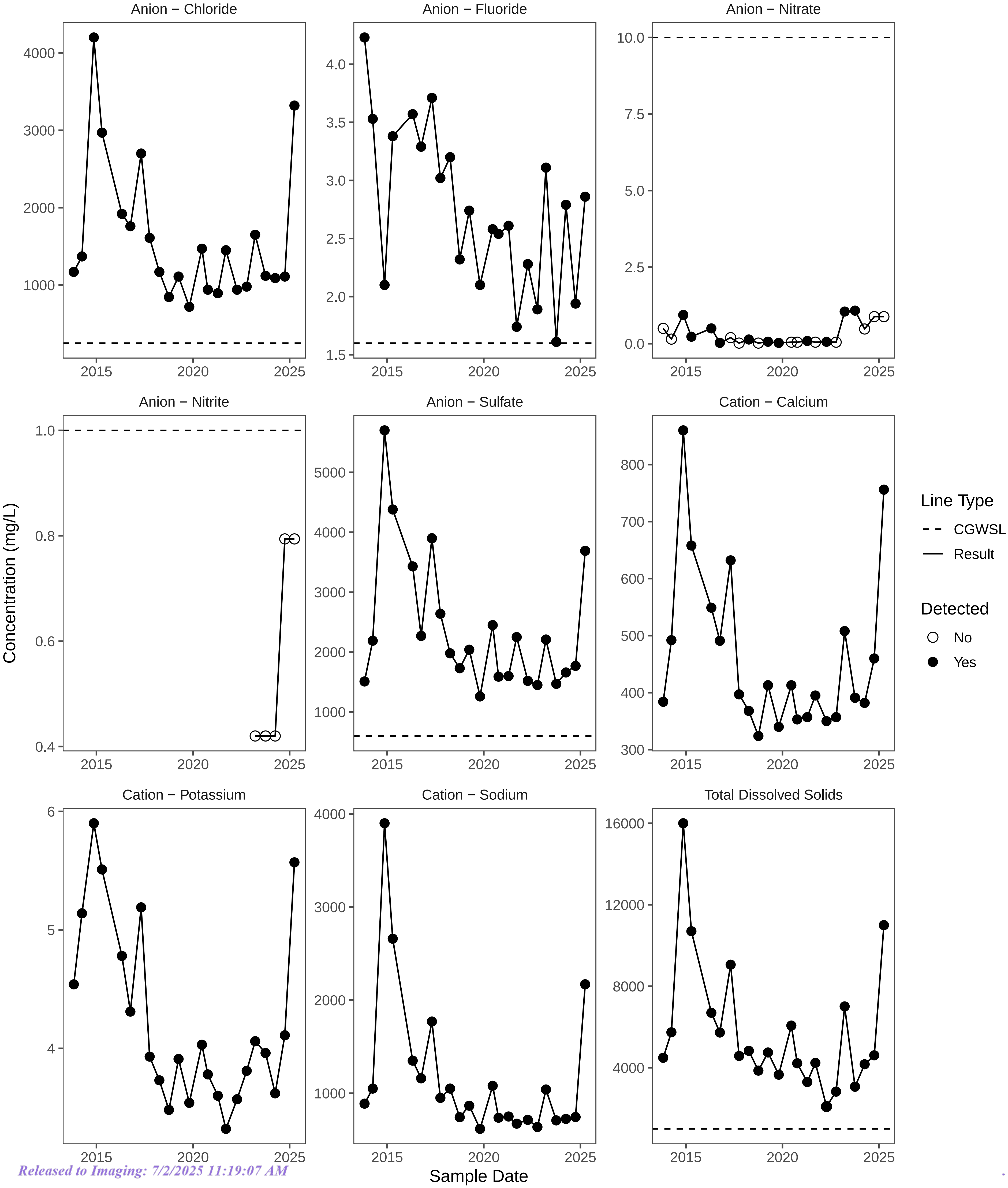

MW−119
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

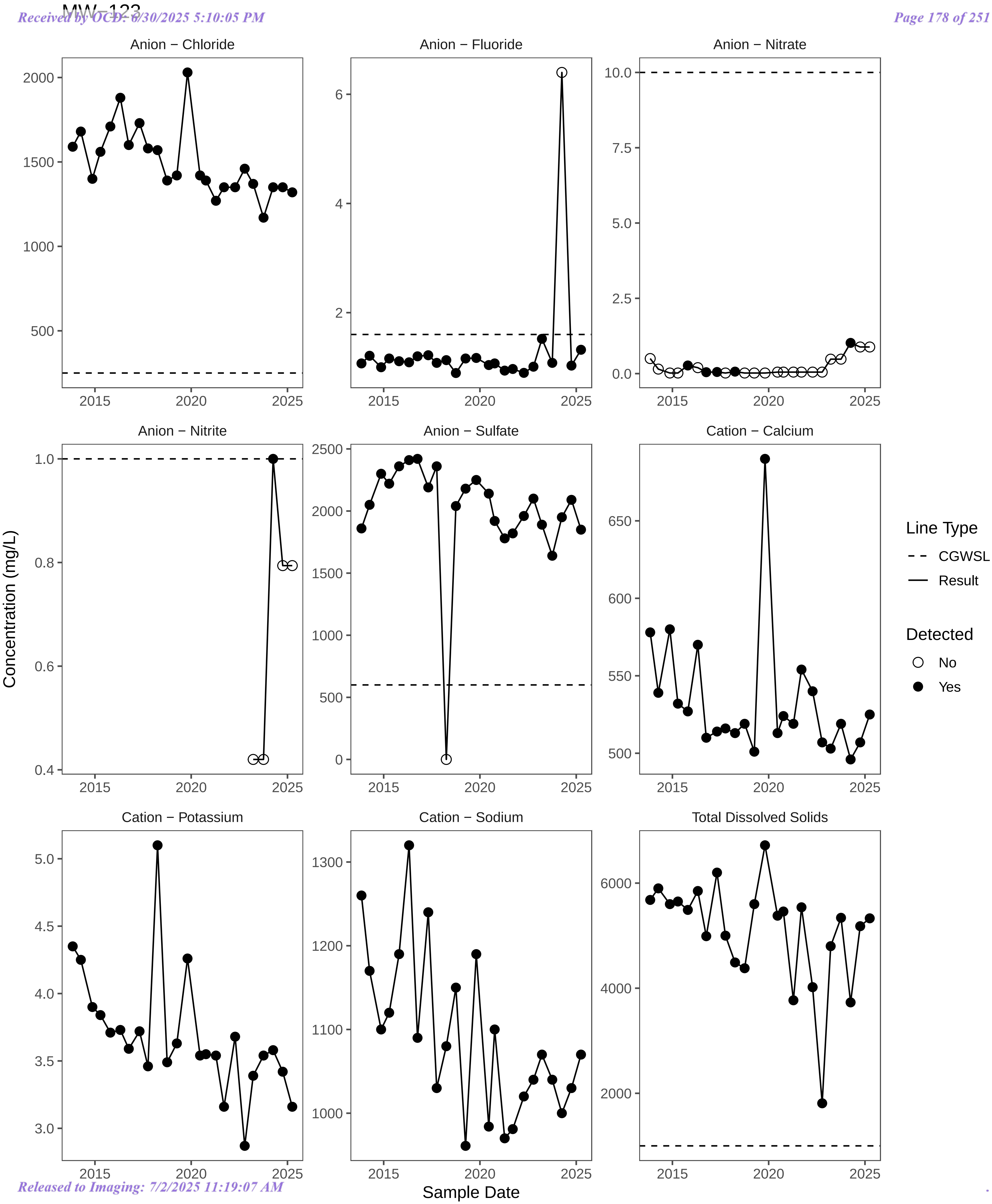
MW-120

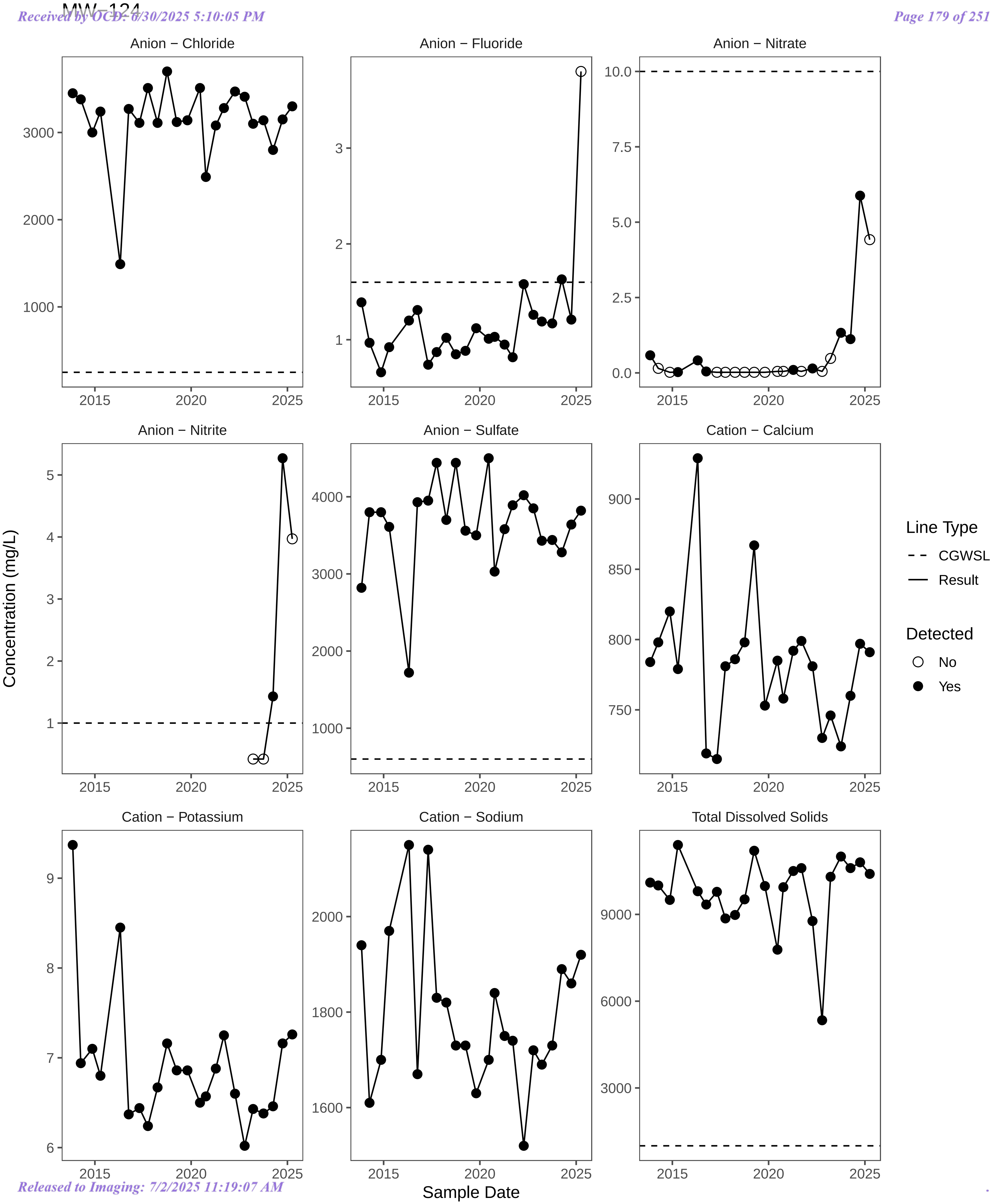

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes


MW_121
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

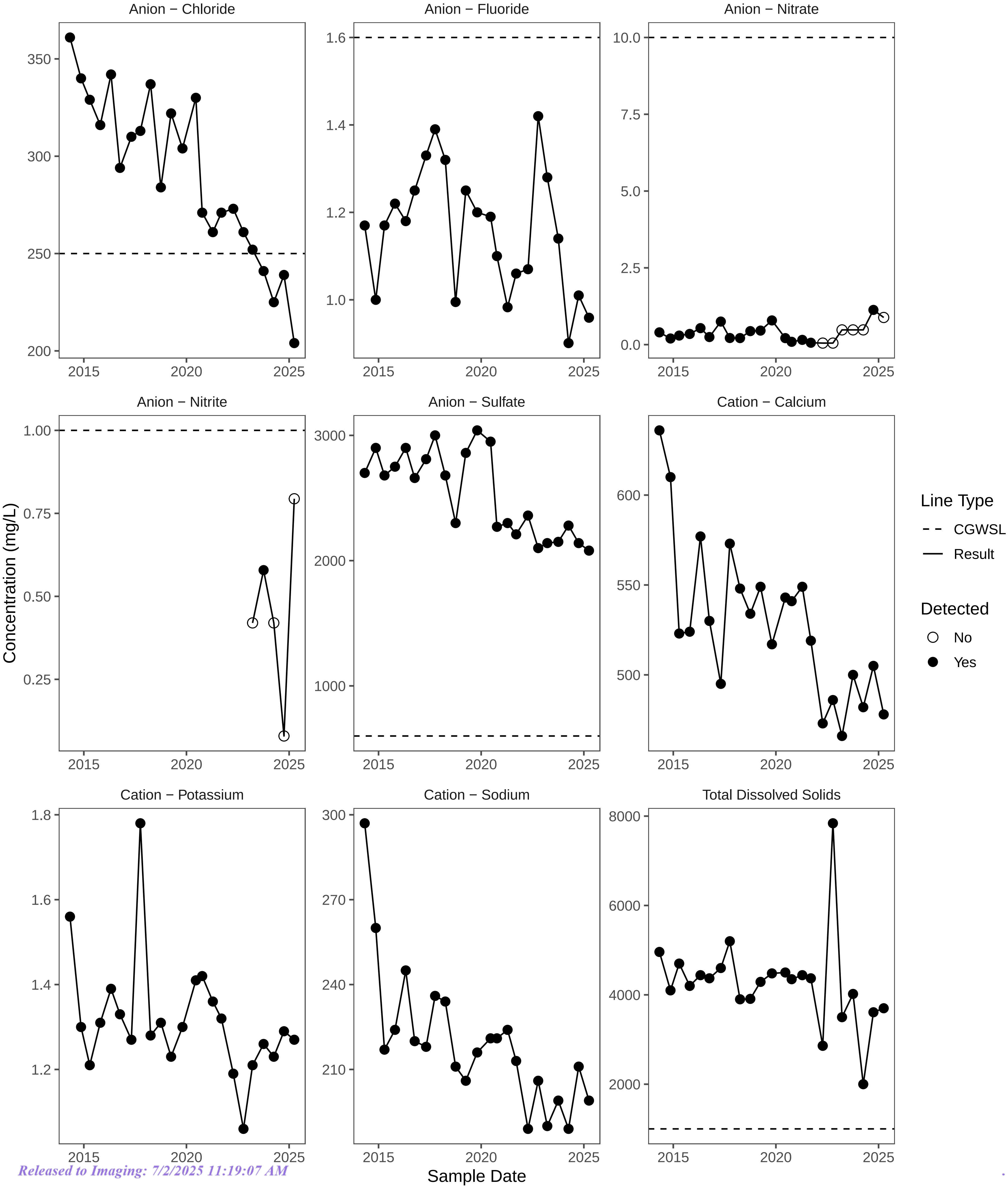
MW-122

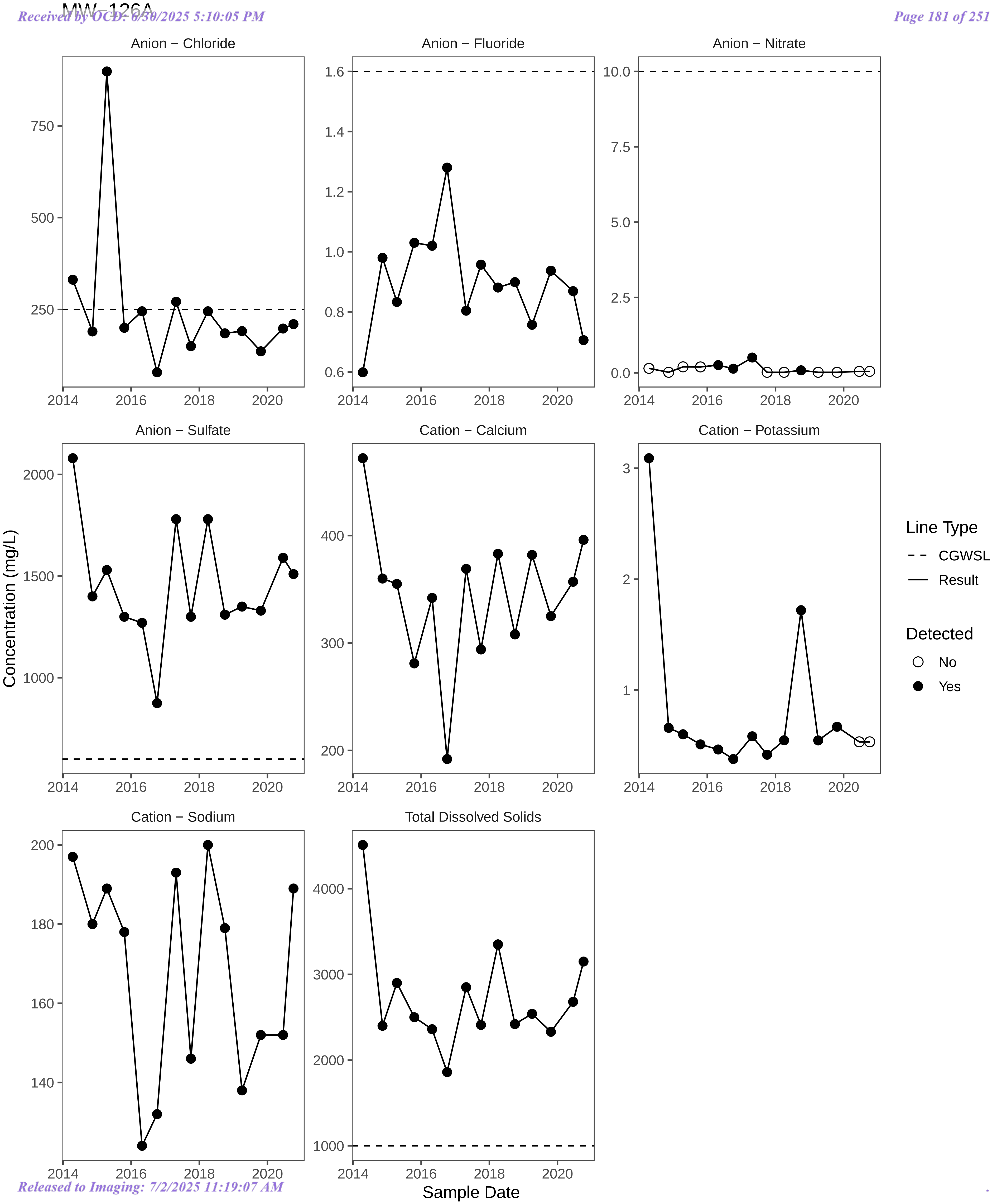

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

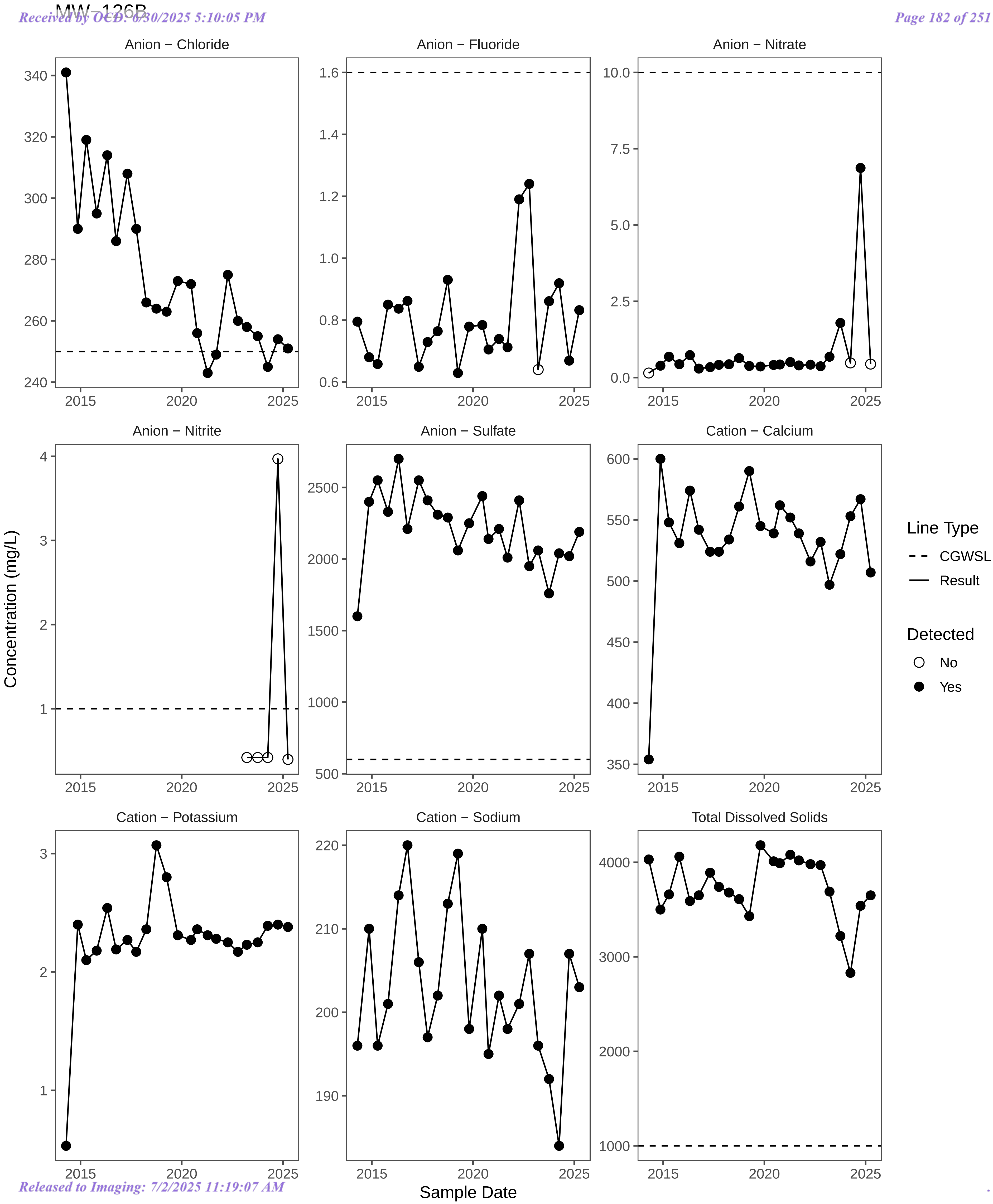

MW-123
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

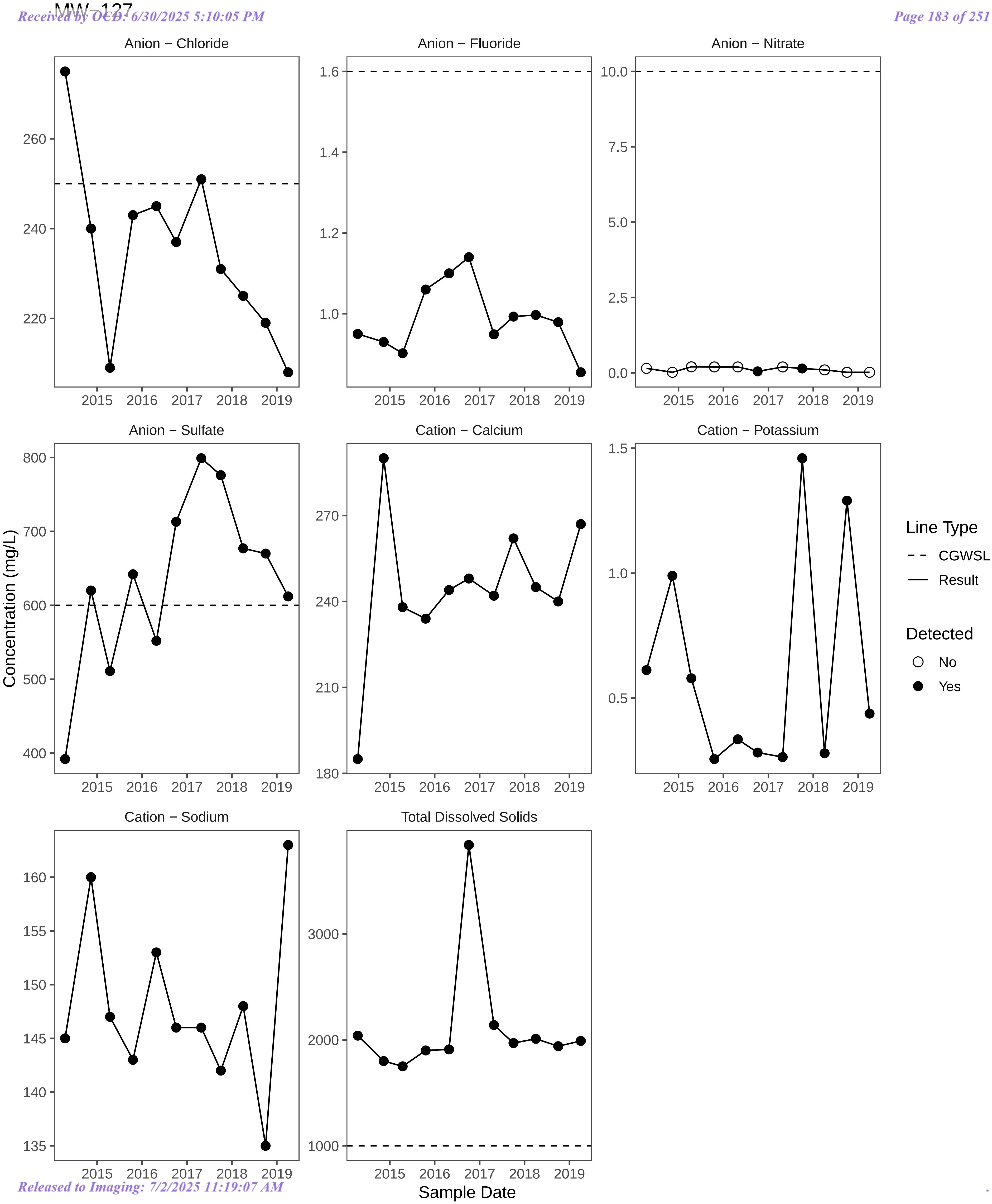

MW−124
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW-125

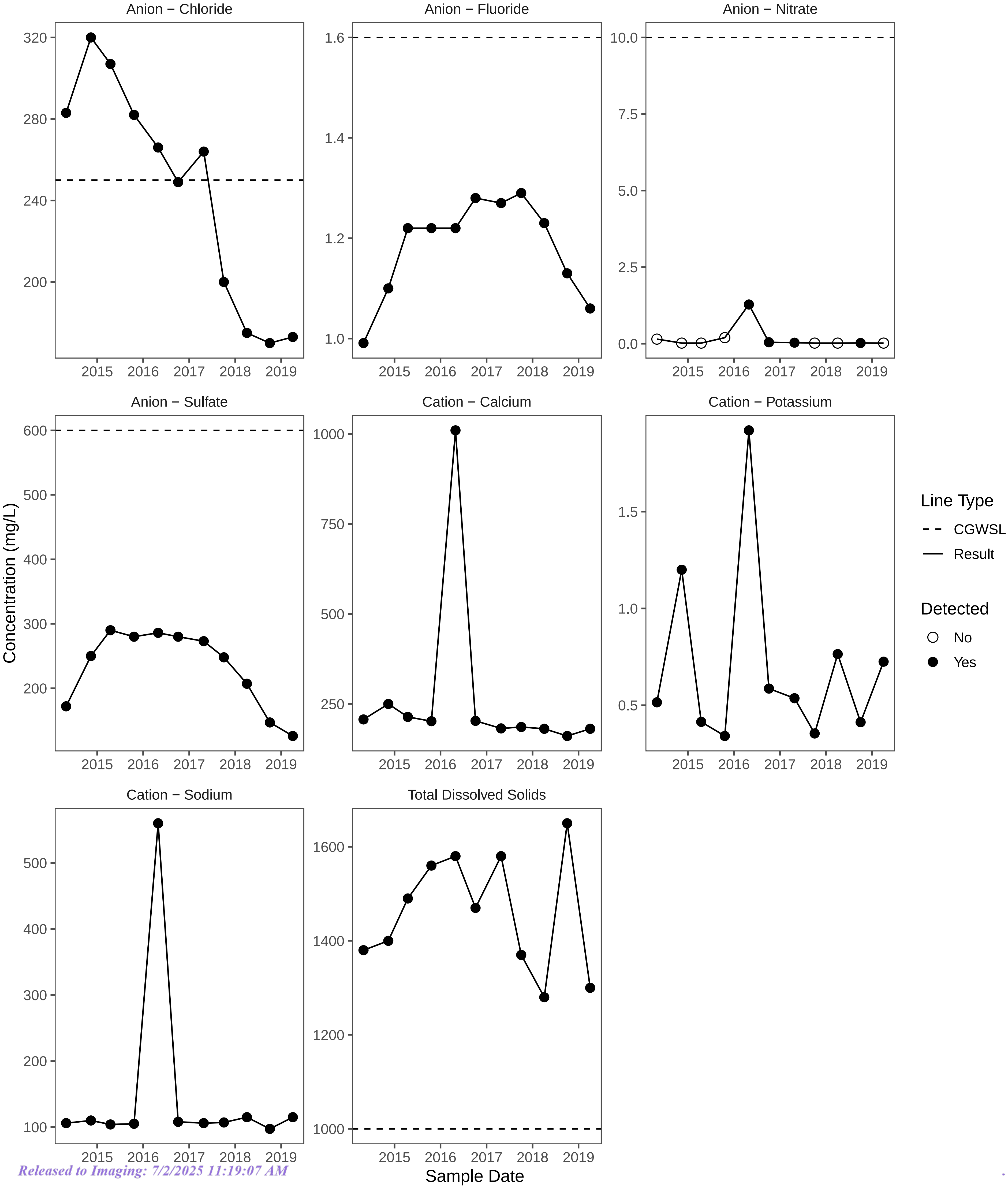

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−126A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

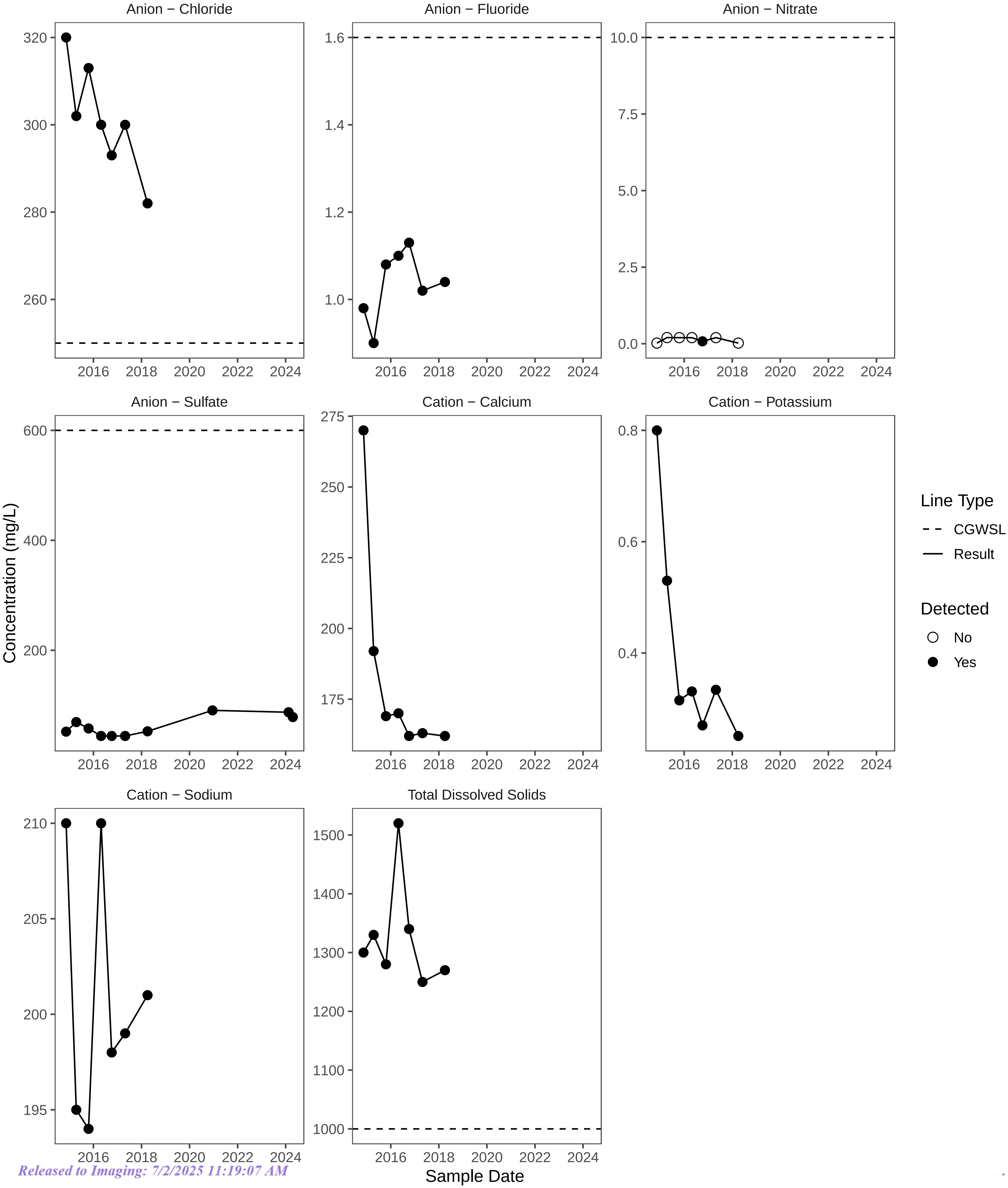

MW−126B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−127
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2016
2017
2018
2019
Line Type
CGWSL
Result
Detected
No
Yes

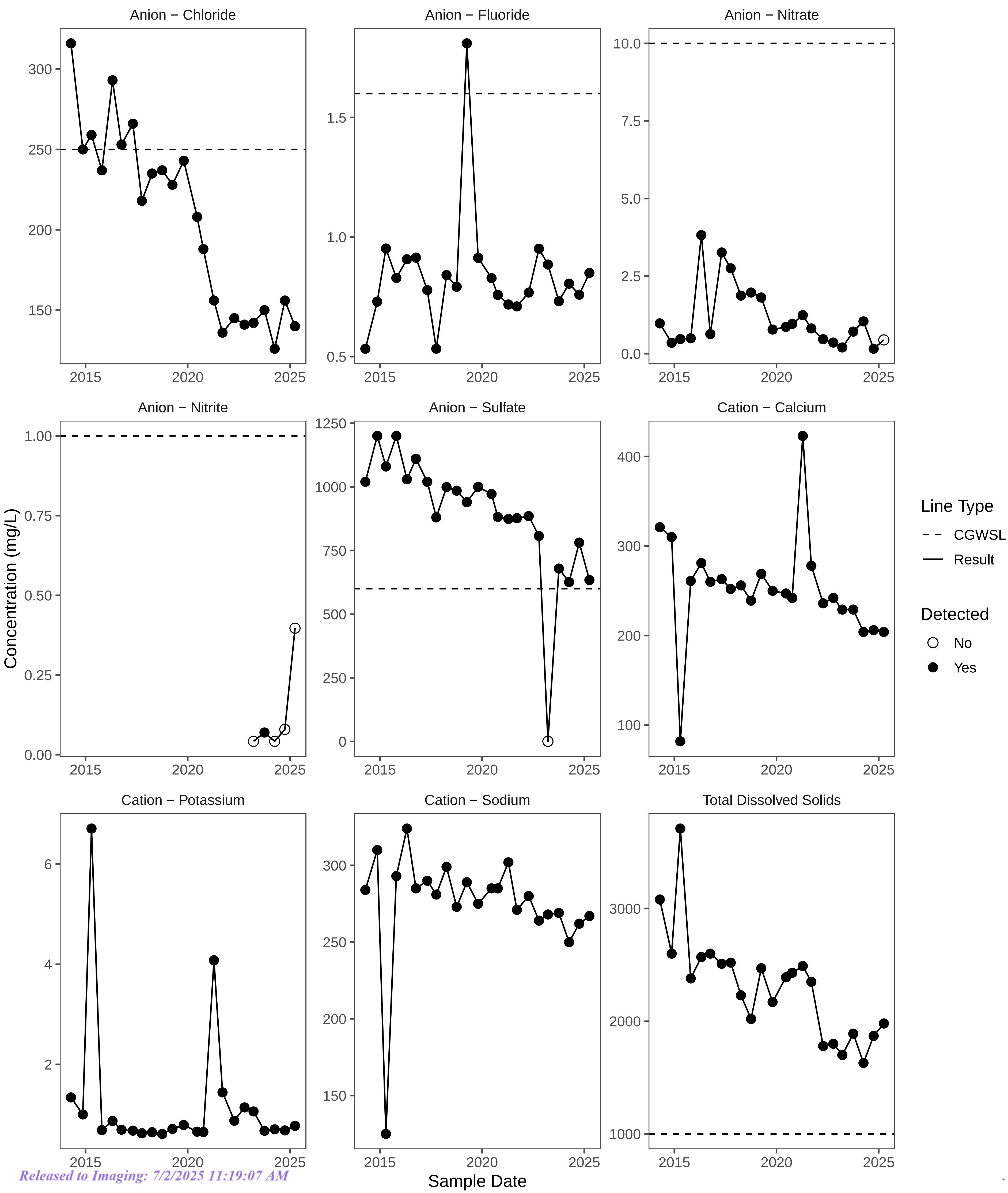
MW−128


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2016
2017
2018
2019
Line Type
CGWSL
Result
Detected
No
Yes

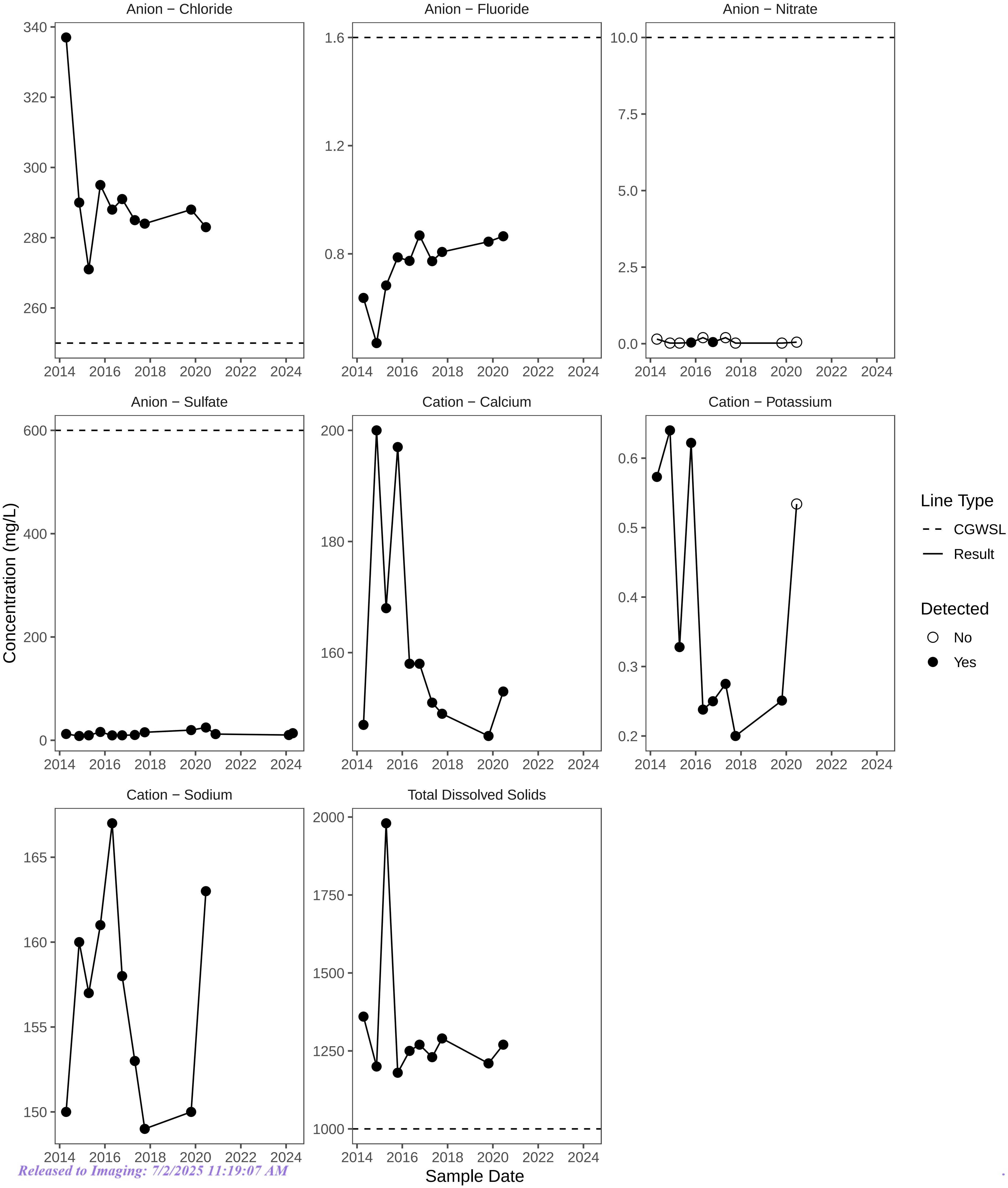
MW-129

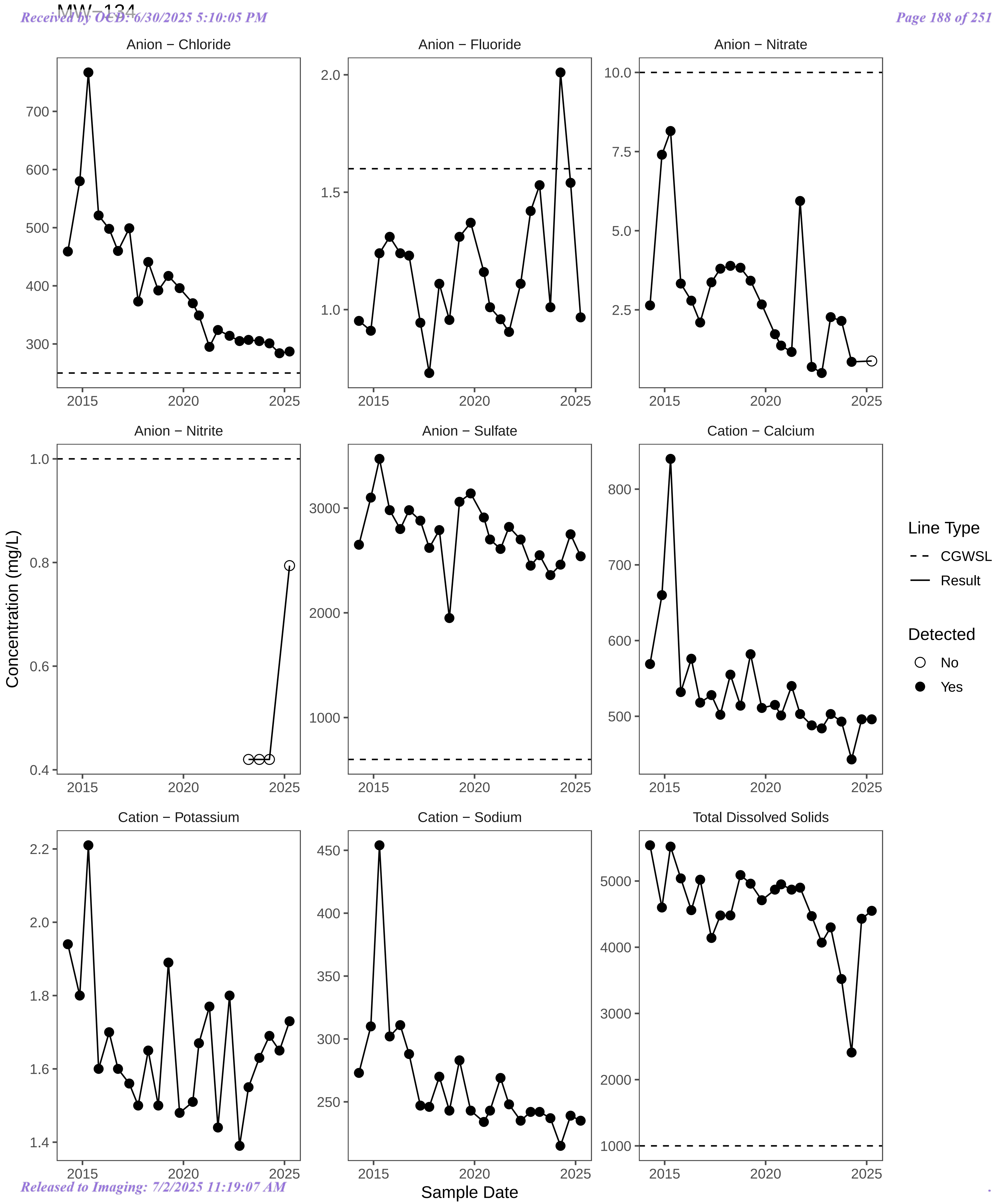

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

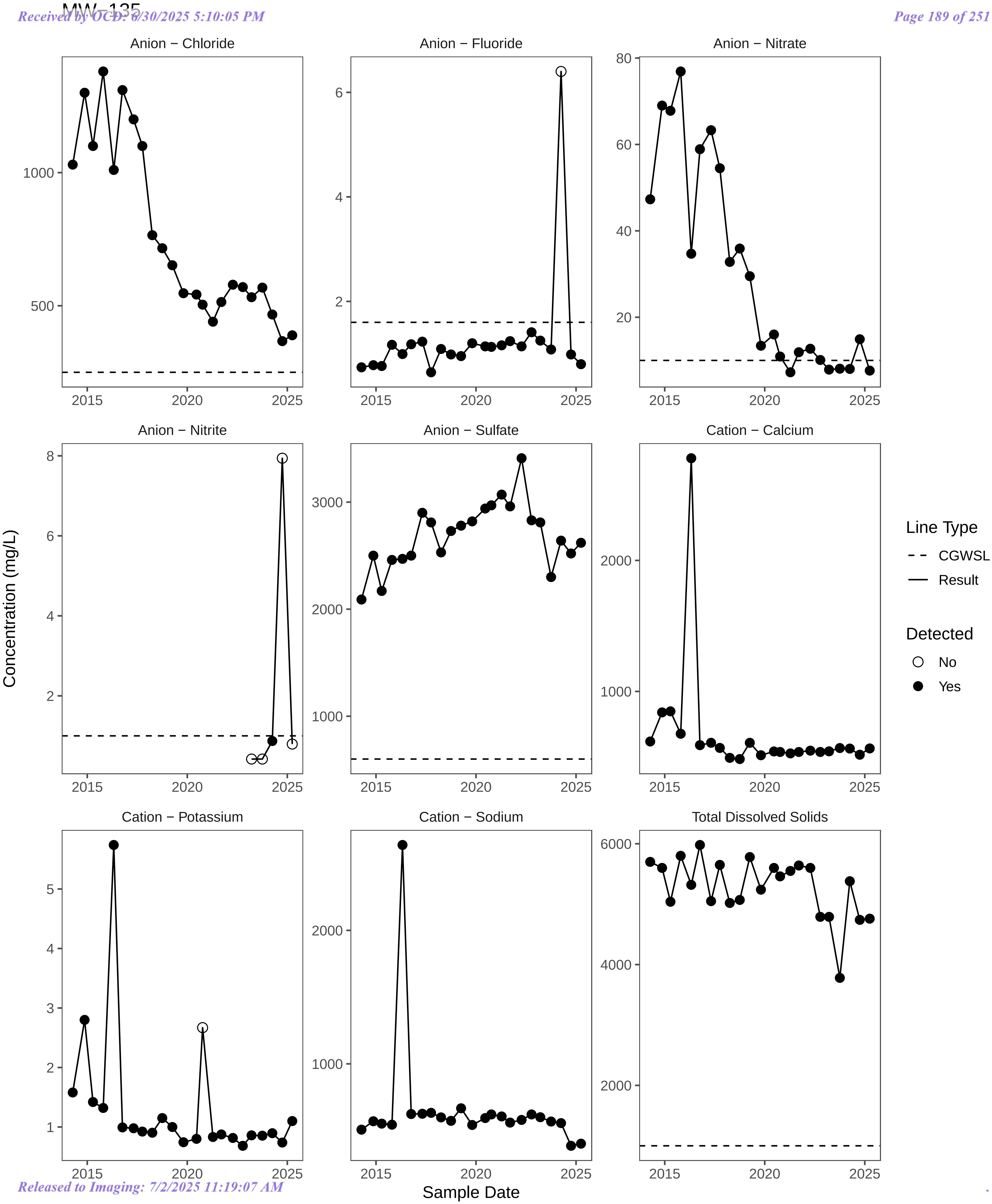
MW-130


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

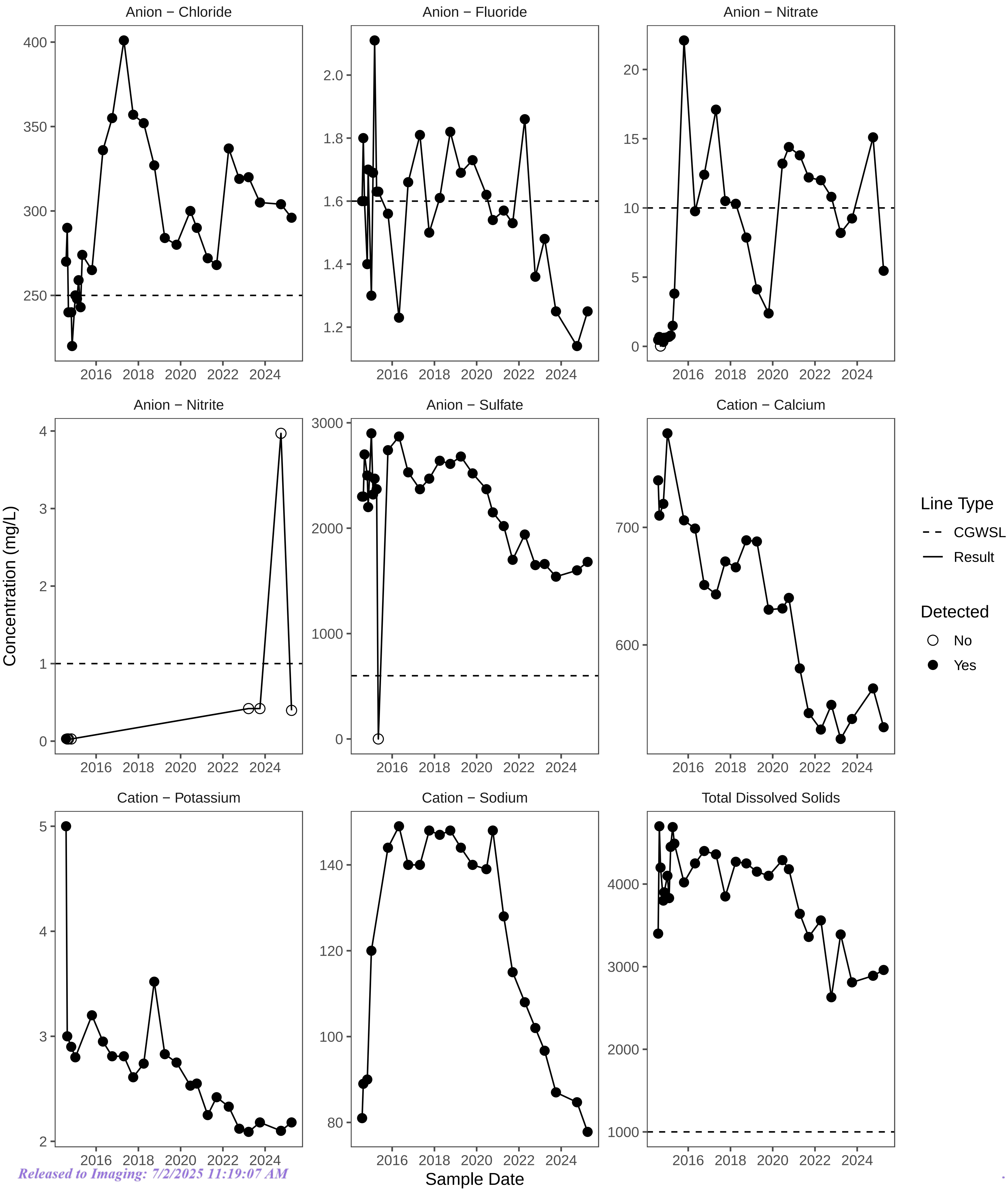
MW-131

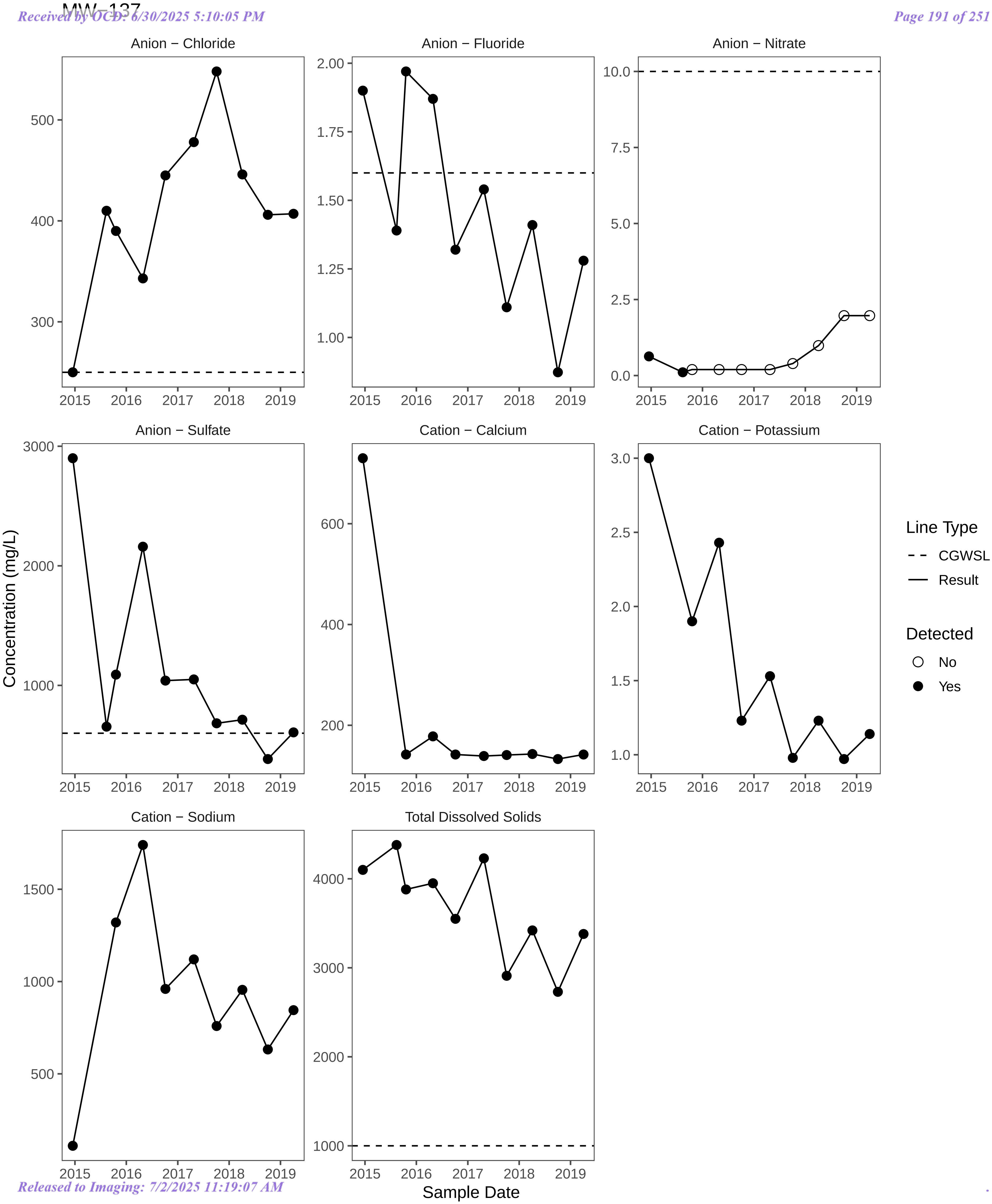

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−134
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

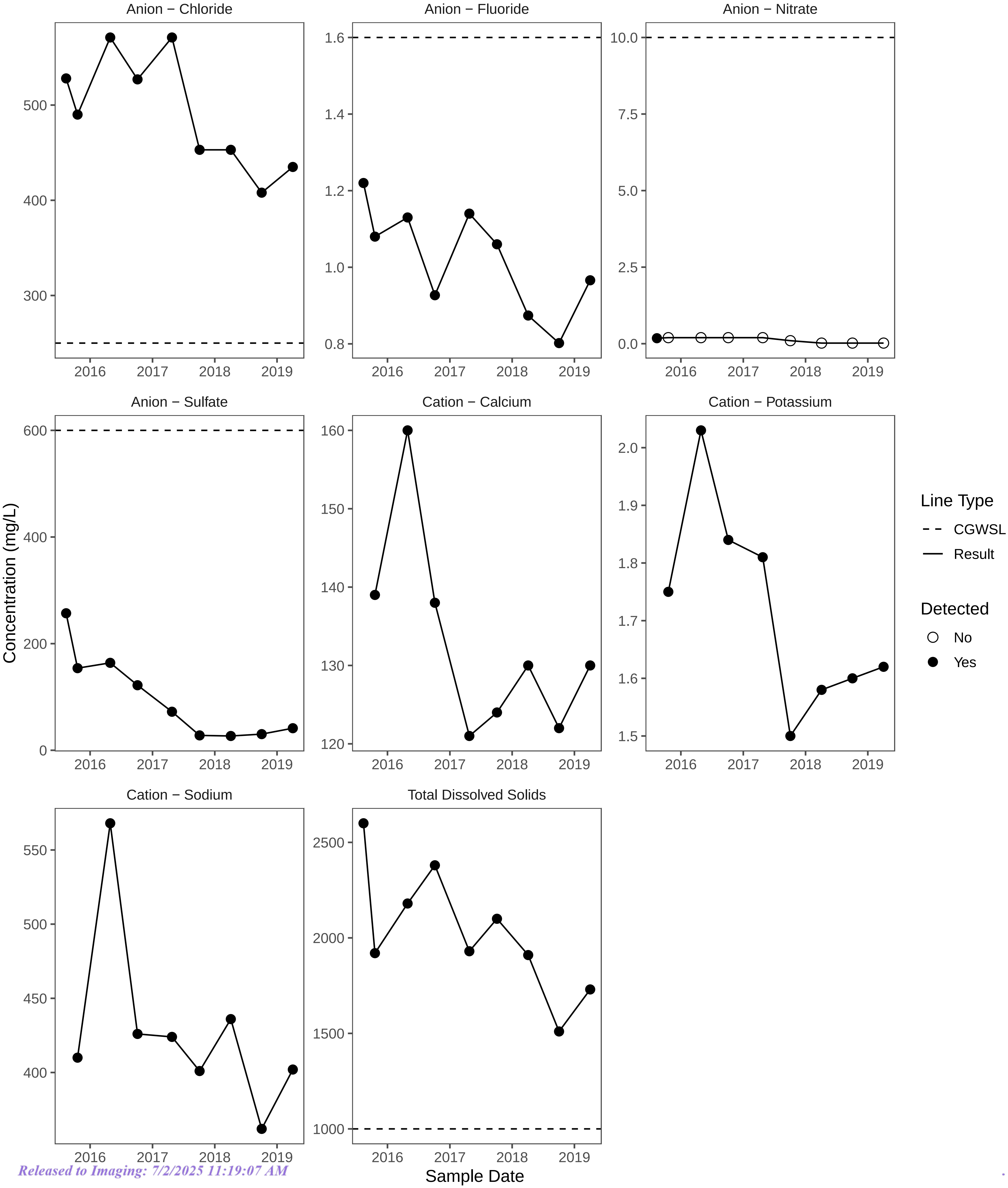

MW-135
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

MW−136

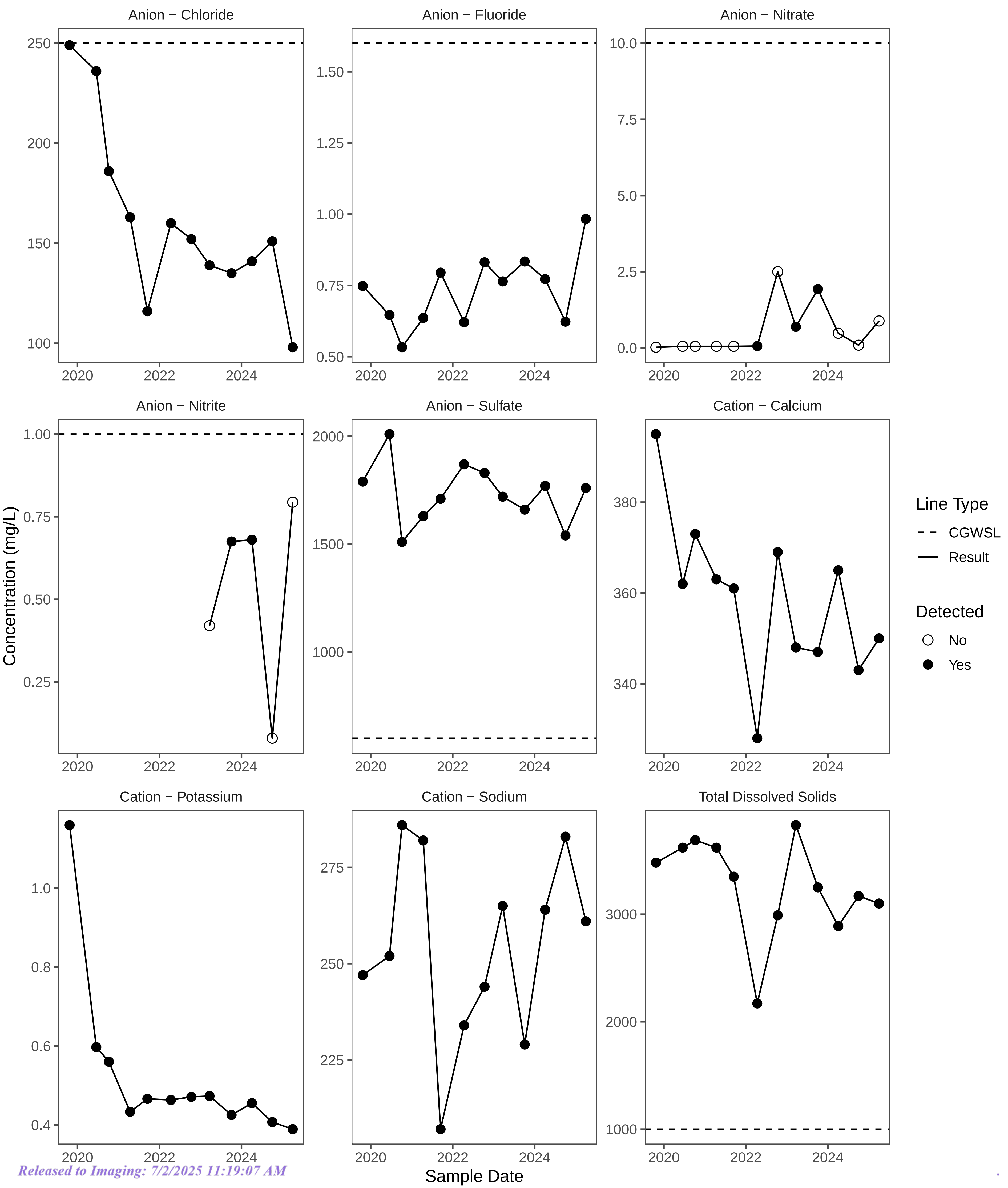

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


MW−137
Anion − Chloride
500
400
300
Anion − Fluoride
2.00
1.75
1.50
1.25
1.00
Anion − Nitrate
10.0
7.5
5.0
2.5
0.0
Anion − Sulfate
3000
2000
1000
Cation − Calcium
600
400
200
Cation − Potassium
3.0
2.5
2.0
1.5
1.0
Cation − Sodium
1500
1000
500
Total Dissolved Solids
4000
3000
2000
1000
2015
2016
2017
2018
2019
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

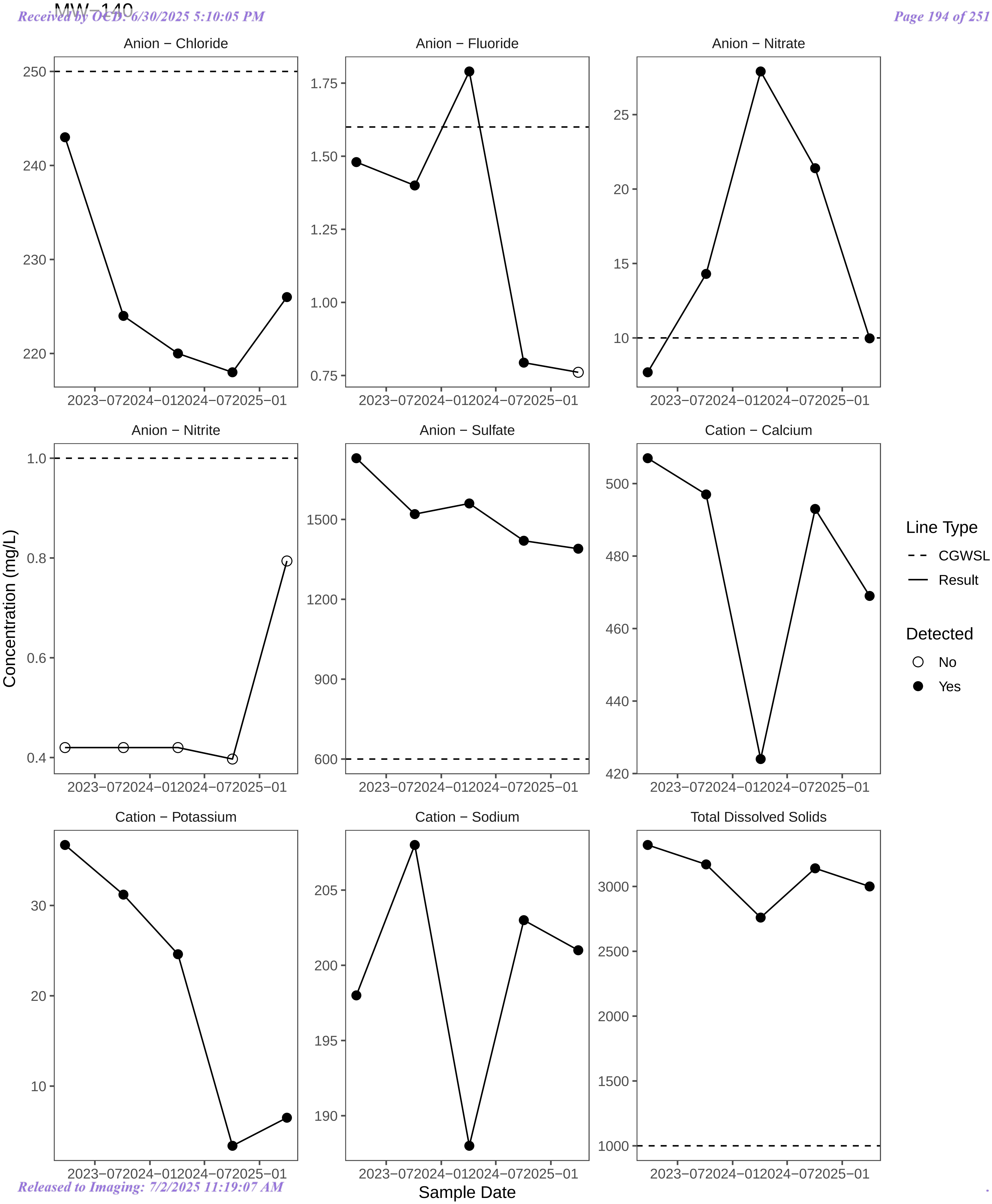
MW−138


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

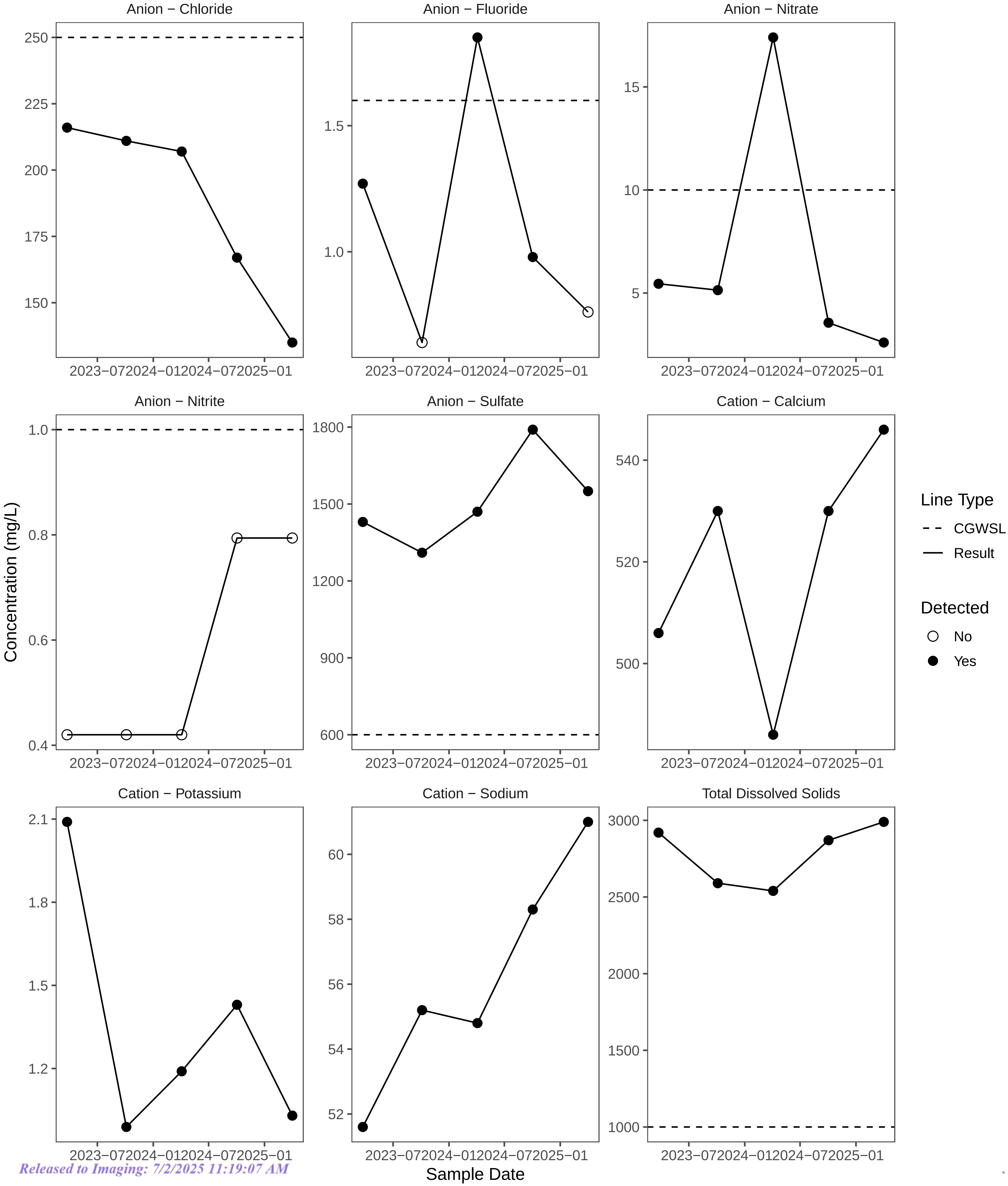
MW−139



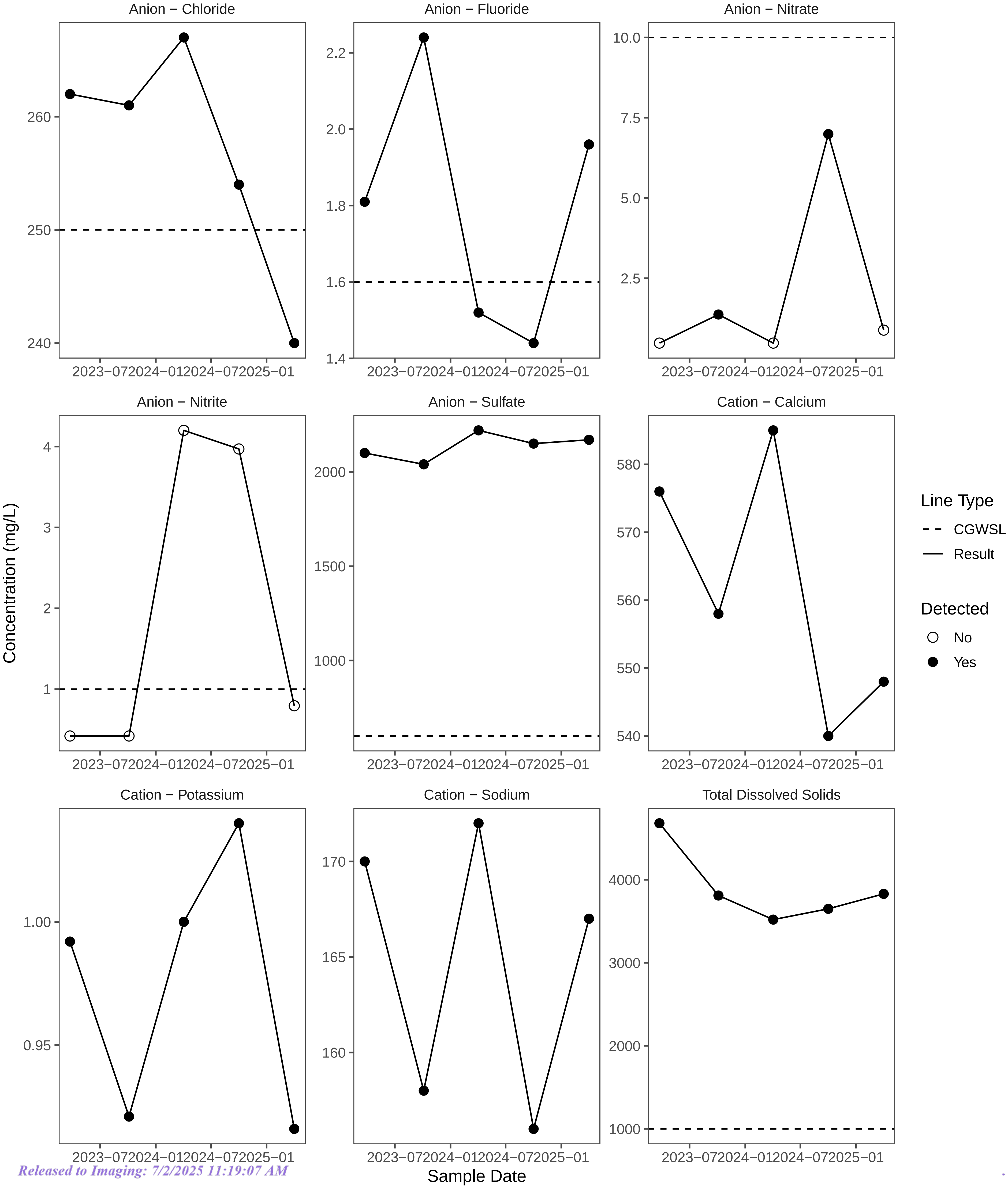
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

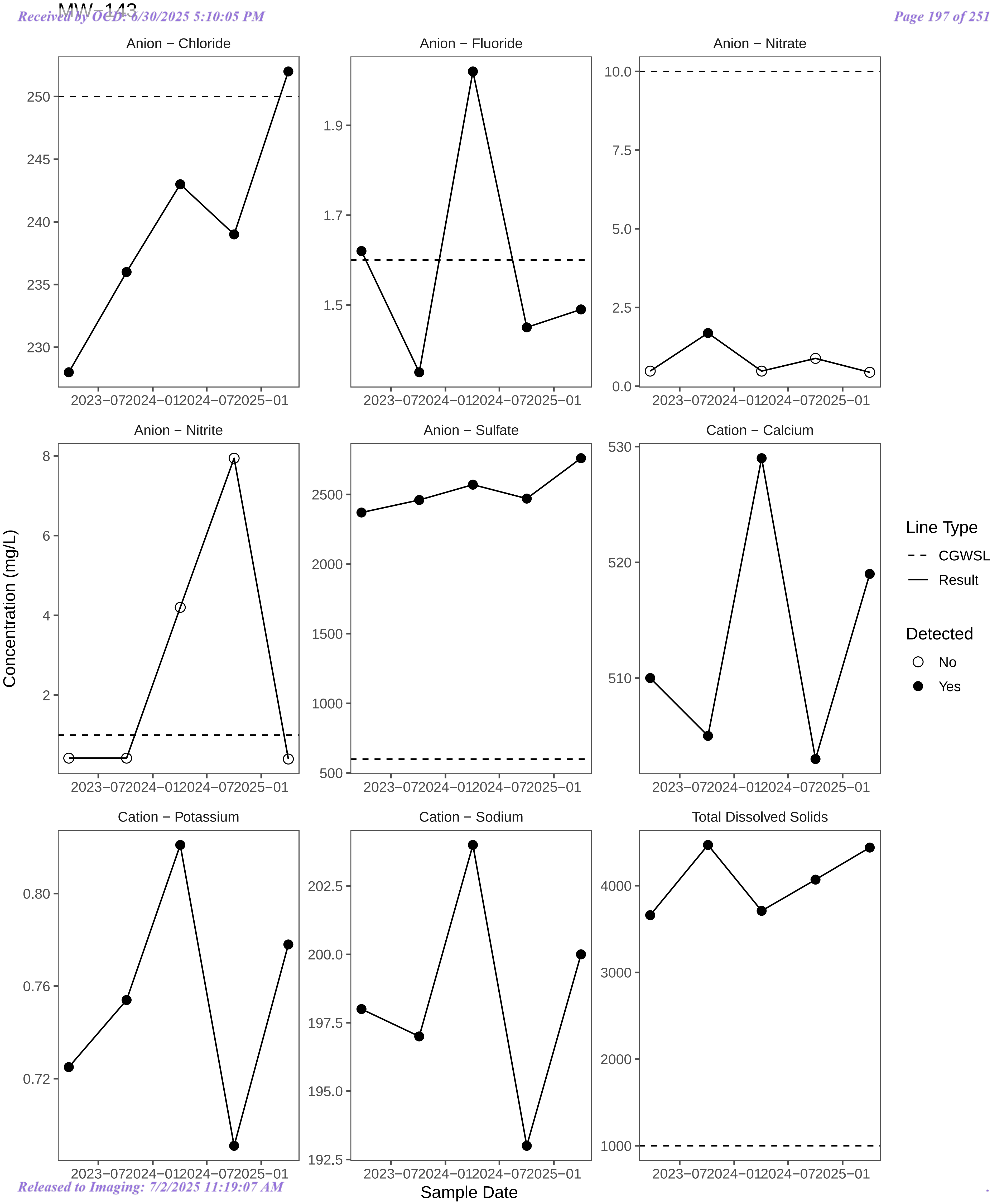

MW−140
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2023−07
2024−01
2024−07
2025−01
Line Type
CGWSL
Result
Detected
No
Yes

MW−141

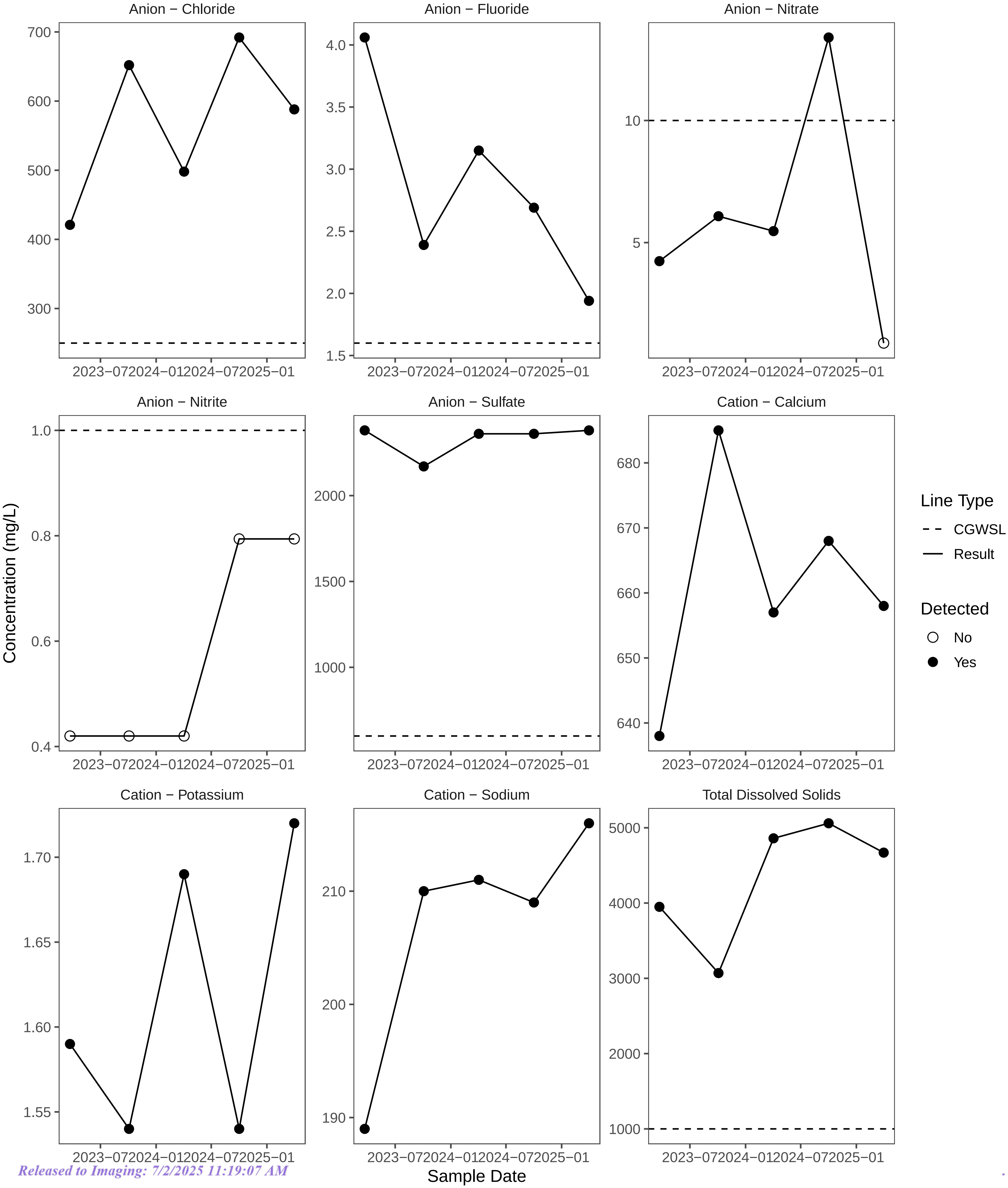

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2023−07
2024−01
2024−07
2025−01
Line Type
CGWSL
Result
Detected
No
Yes

MW−142

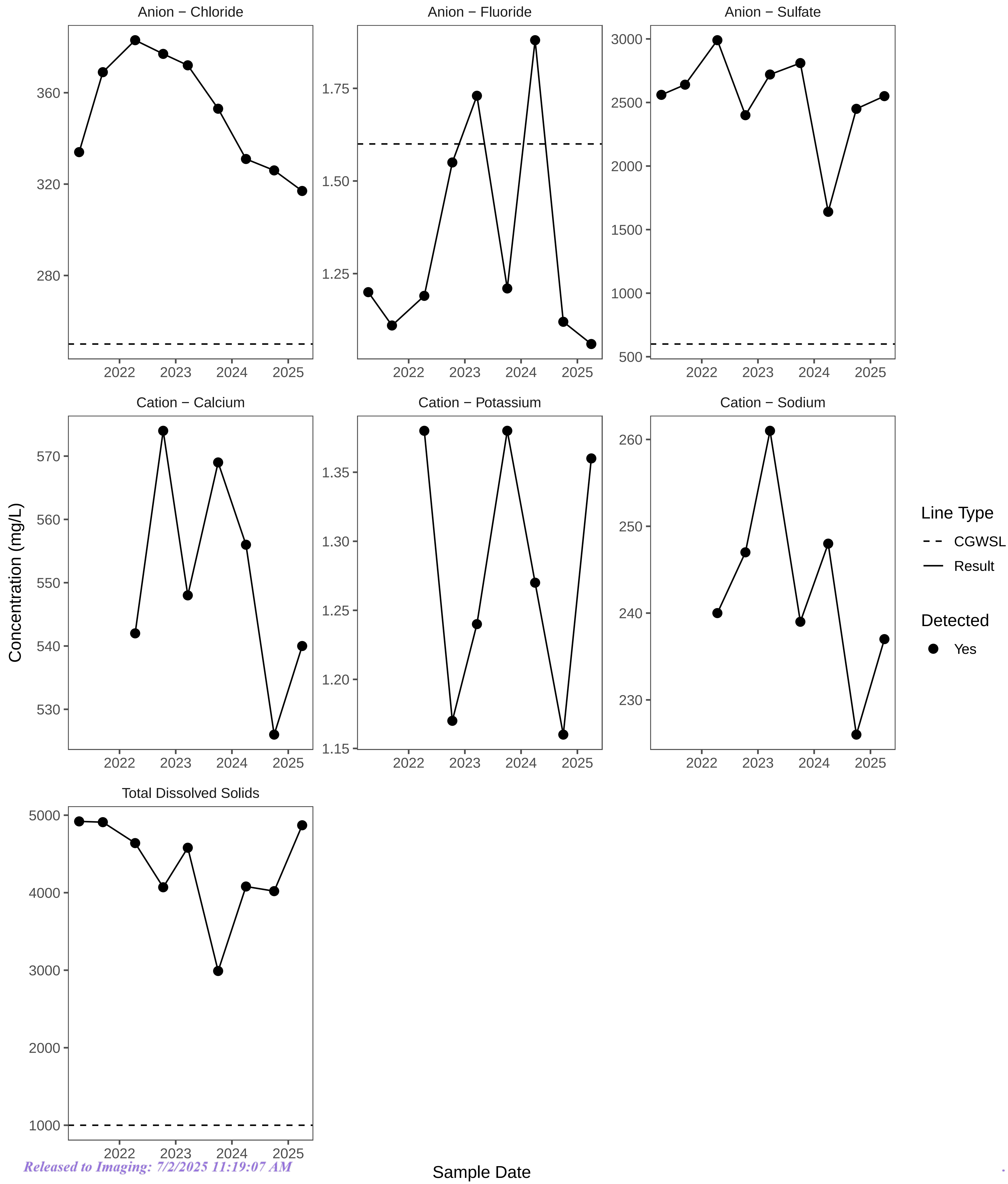

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2023−07 2024−01 2024−07 2025−01
Line Type
CGWSL
Result
Detected
No
Yes

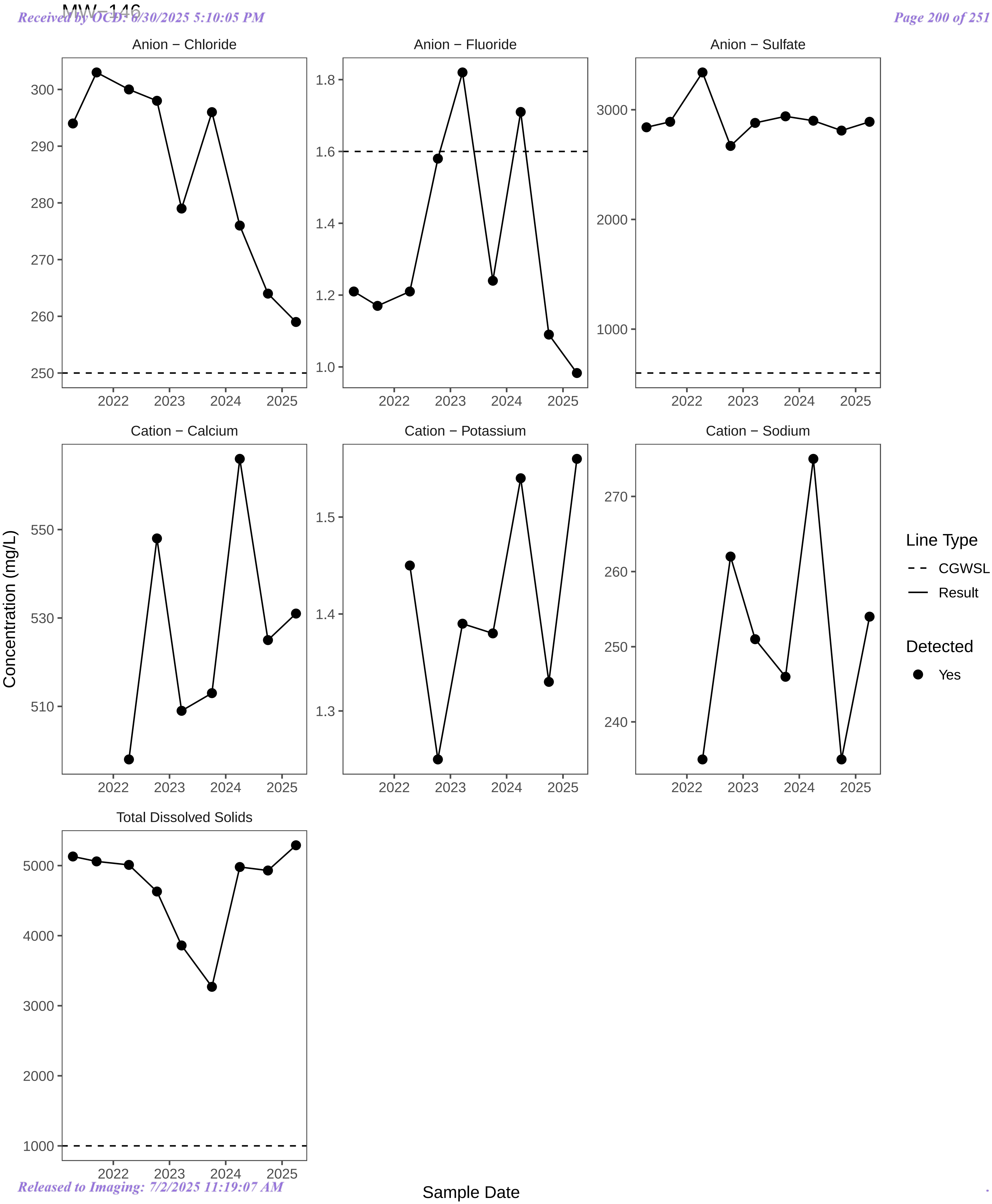

MW−143
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2023−07
2024−01
2024−07
2025−01
Line Type
CGWSL
Result
Detected
No
Yes

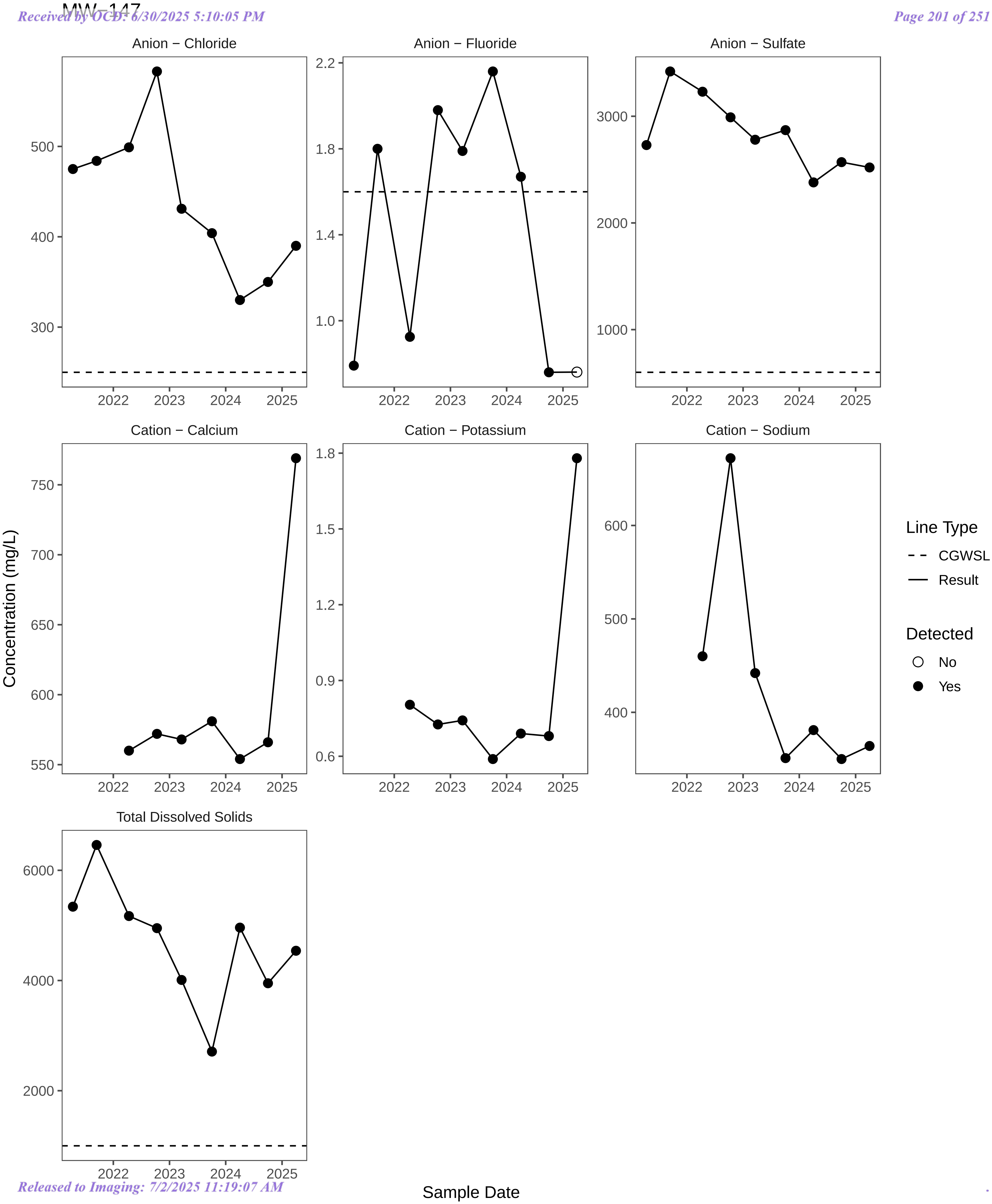
MW−144


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2023−07
2024−01
2024−07
2025−01
Line Type
CGWSL
Result
Detected
No
Yes

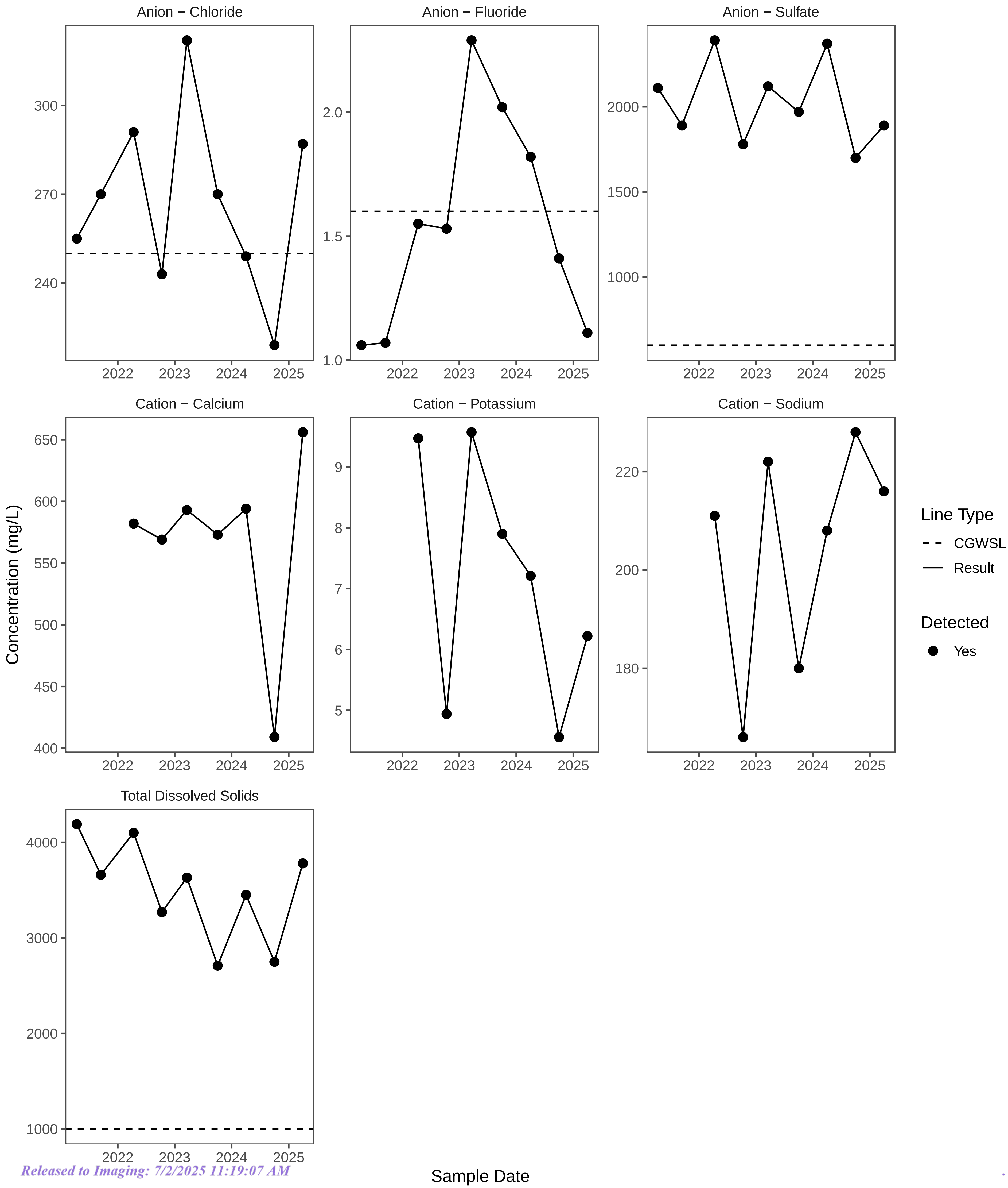
MW-145

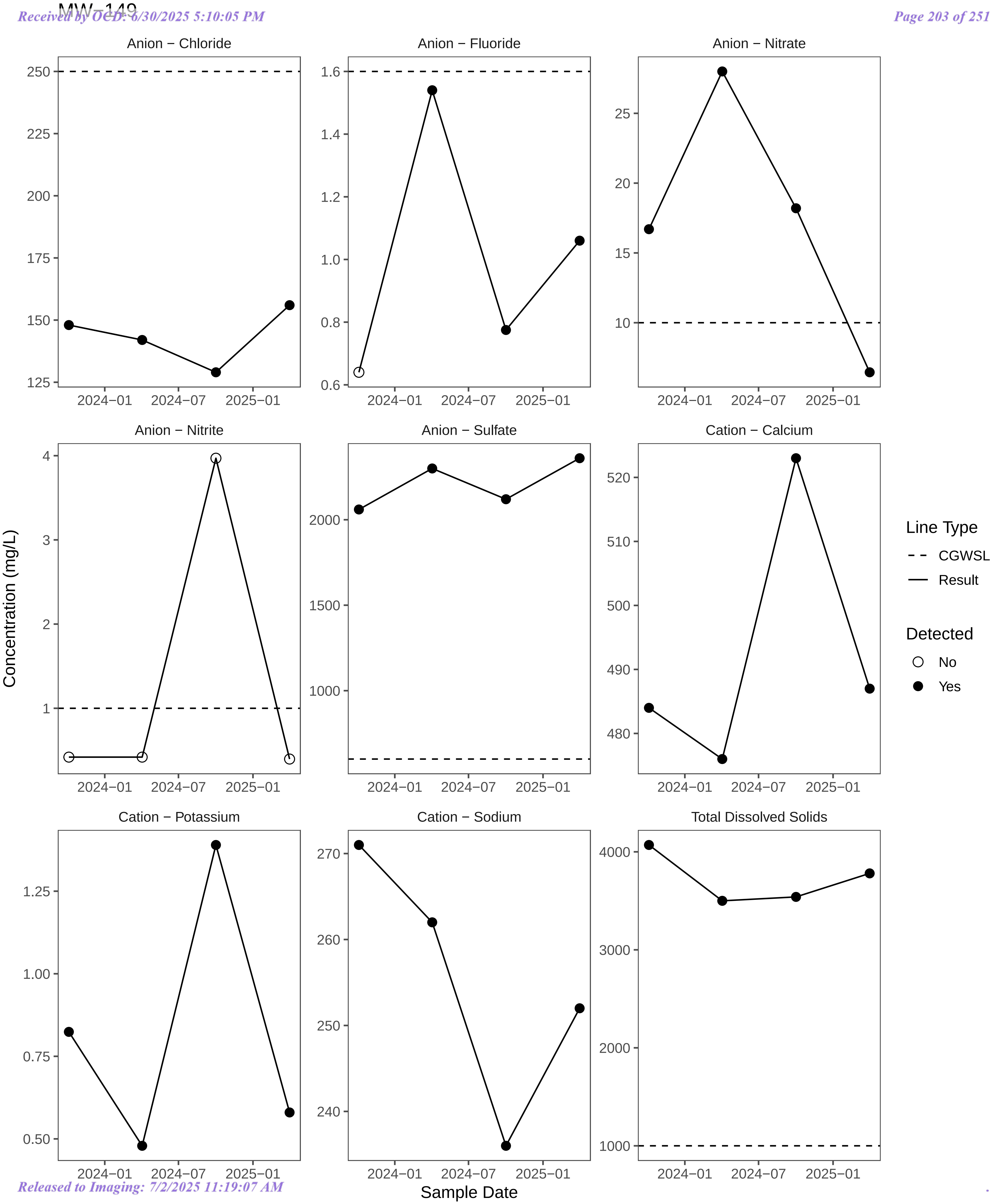

Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
Yes


MW−146
Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2022
2023
2024
2025
Line Type
CGWSL
Result
Detected
Yes

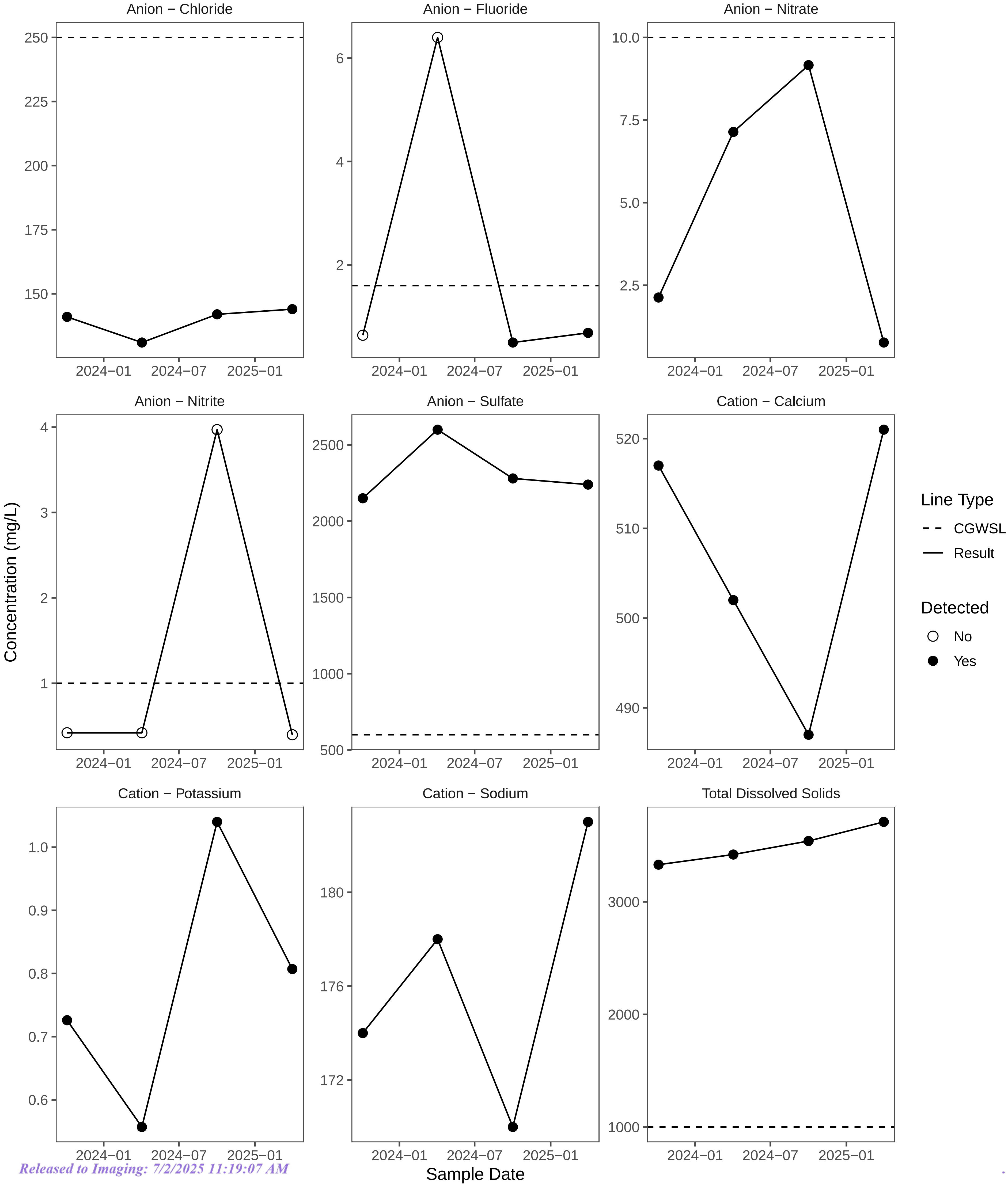

MW−147
Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

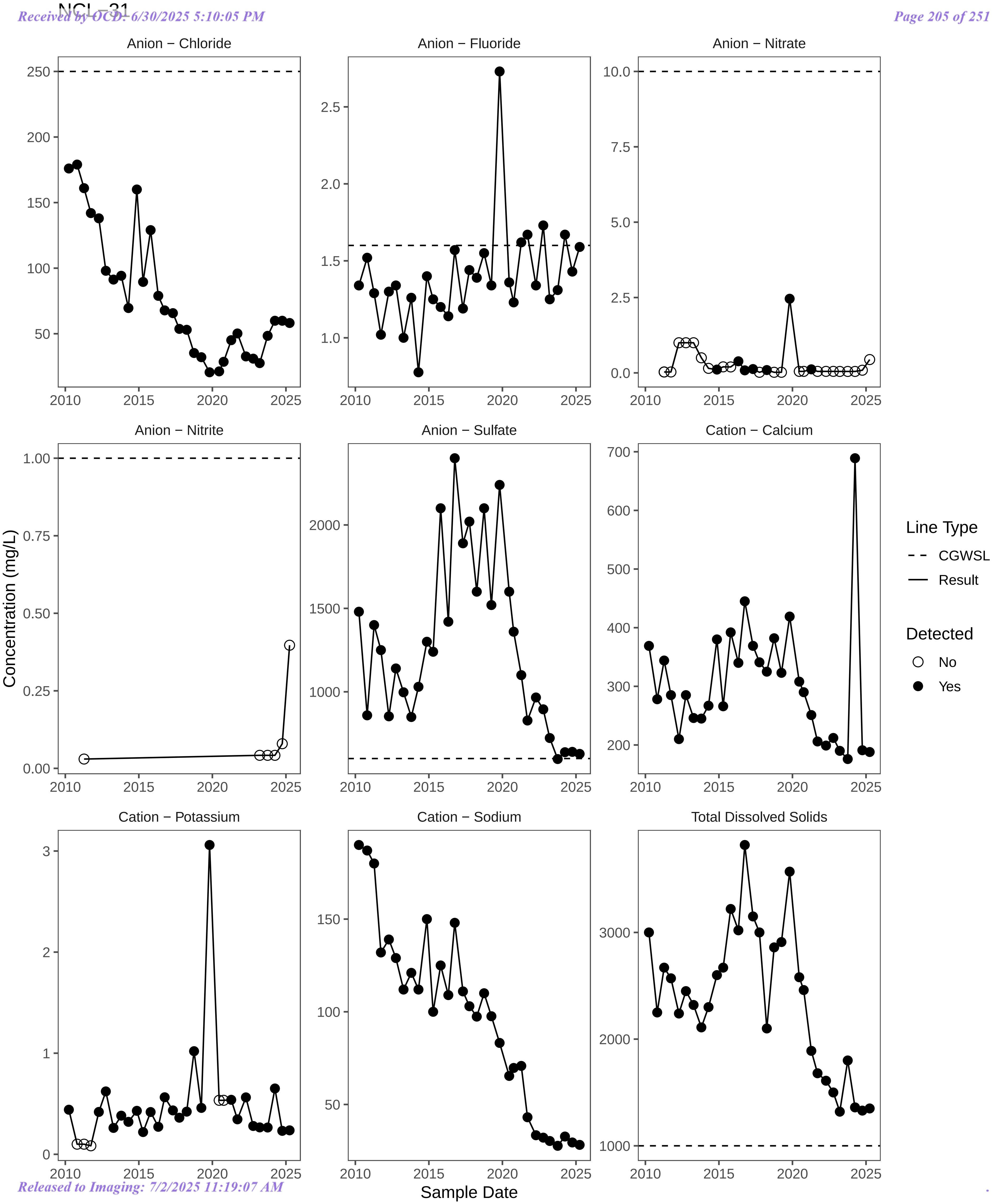
MW−148


Anion − Chloride
Anion − Fluoride
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2022
2023
2024
2025
Line Type
CGWSL
Result
Detected
Yes

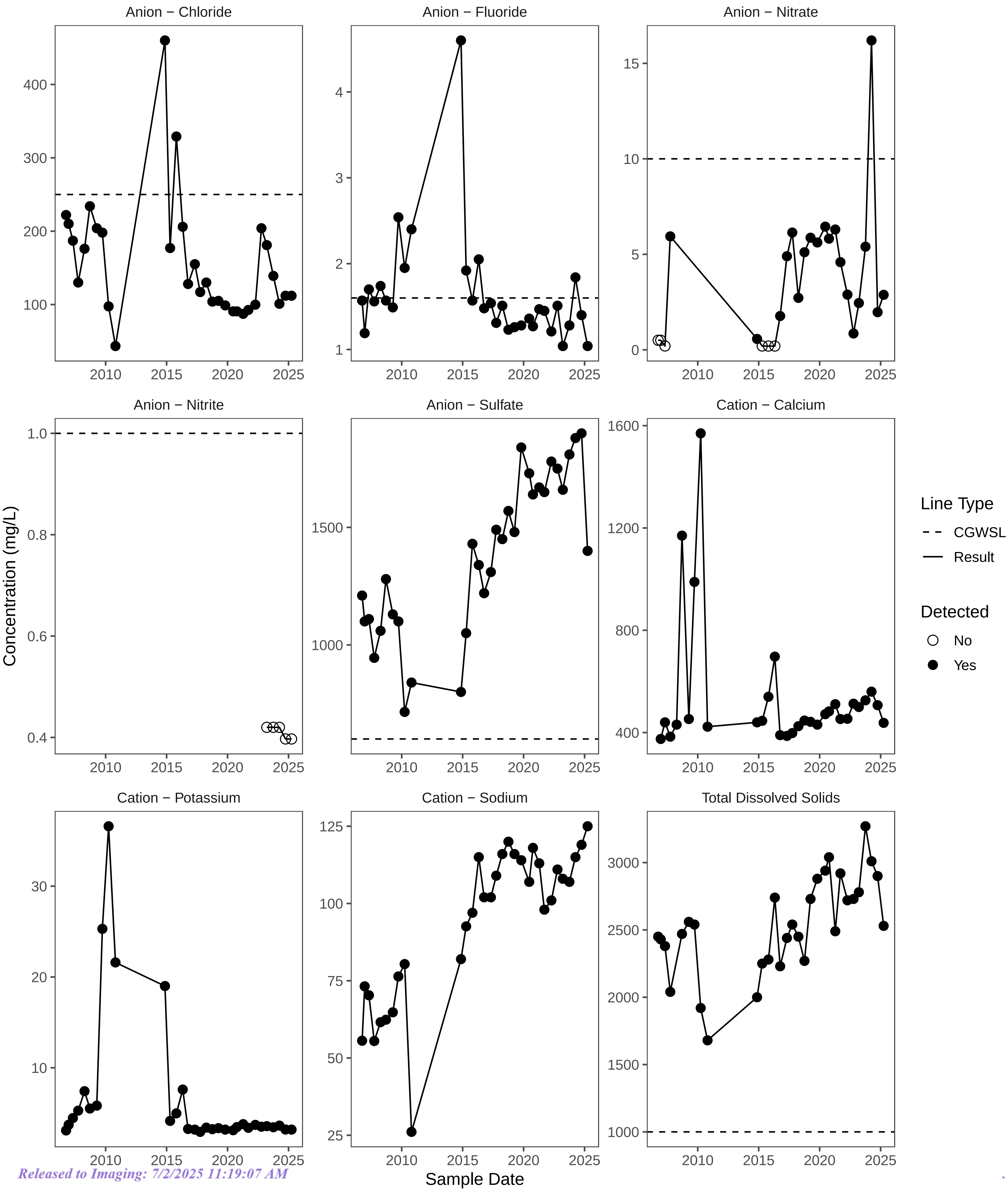

MW−149
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2024−01
2024−07
2025−01
Line Type
CGWSL
Result
Detected
No
Yes

MW−150

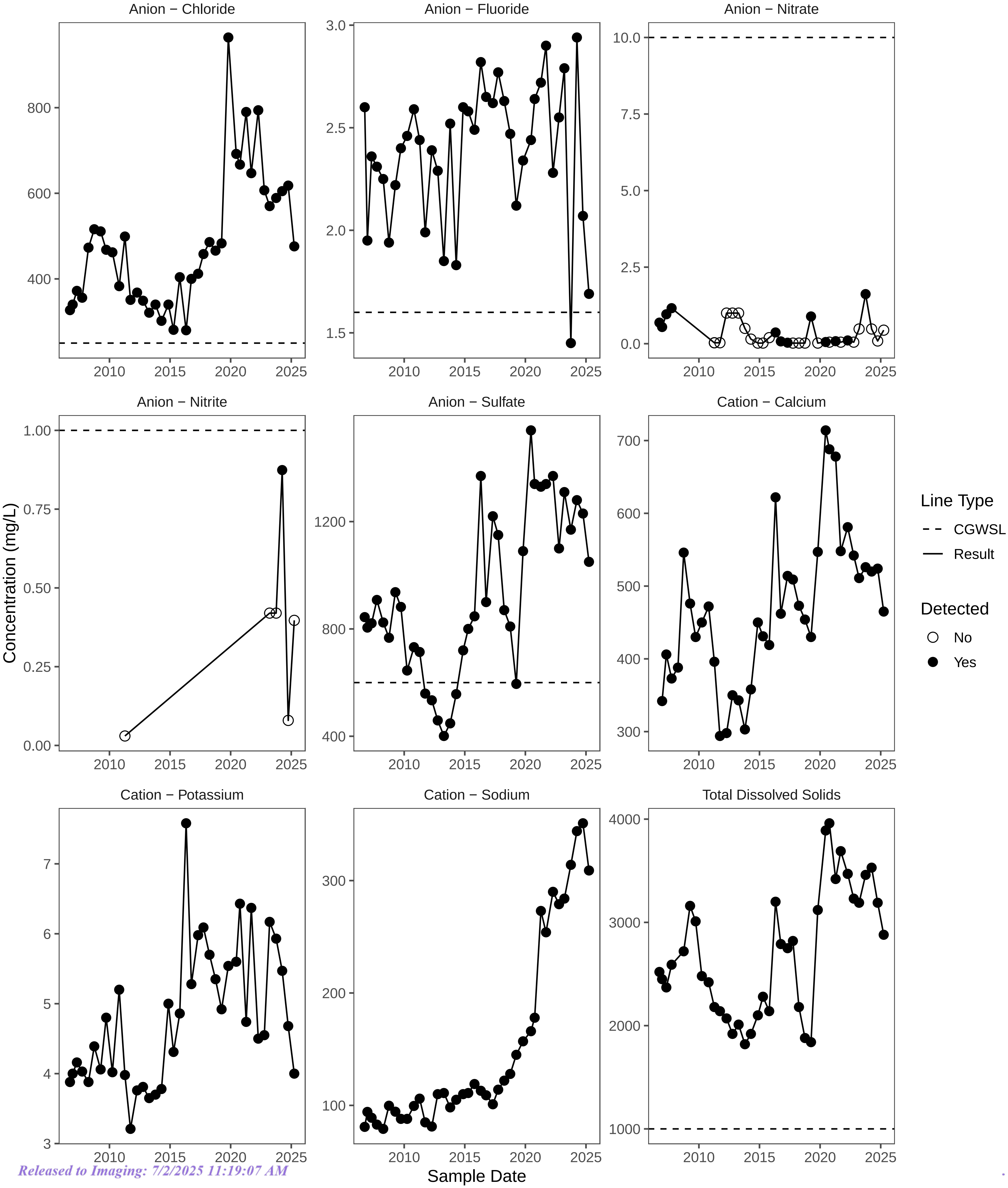

Anion − Chloride
250
225
200
175
150
Anion − Fluoride
6
4
2
Anion − Nitrate
10.0
7.5
5.0
2.5
Anion − Nitrite
4
3
2
1
Anion − Sulfate
2500
2000
1500
1000
500
Cation − Calcium
520
510
500
490
Cation − Potassium
1.0
0.9
0.8
0.7
0.6
Cation − Sodium
180
176
172
Total Dissolved Solids
3000
2000
1000
2024−01
2024−07
2025−01
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


NCL−31
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

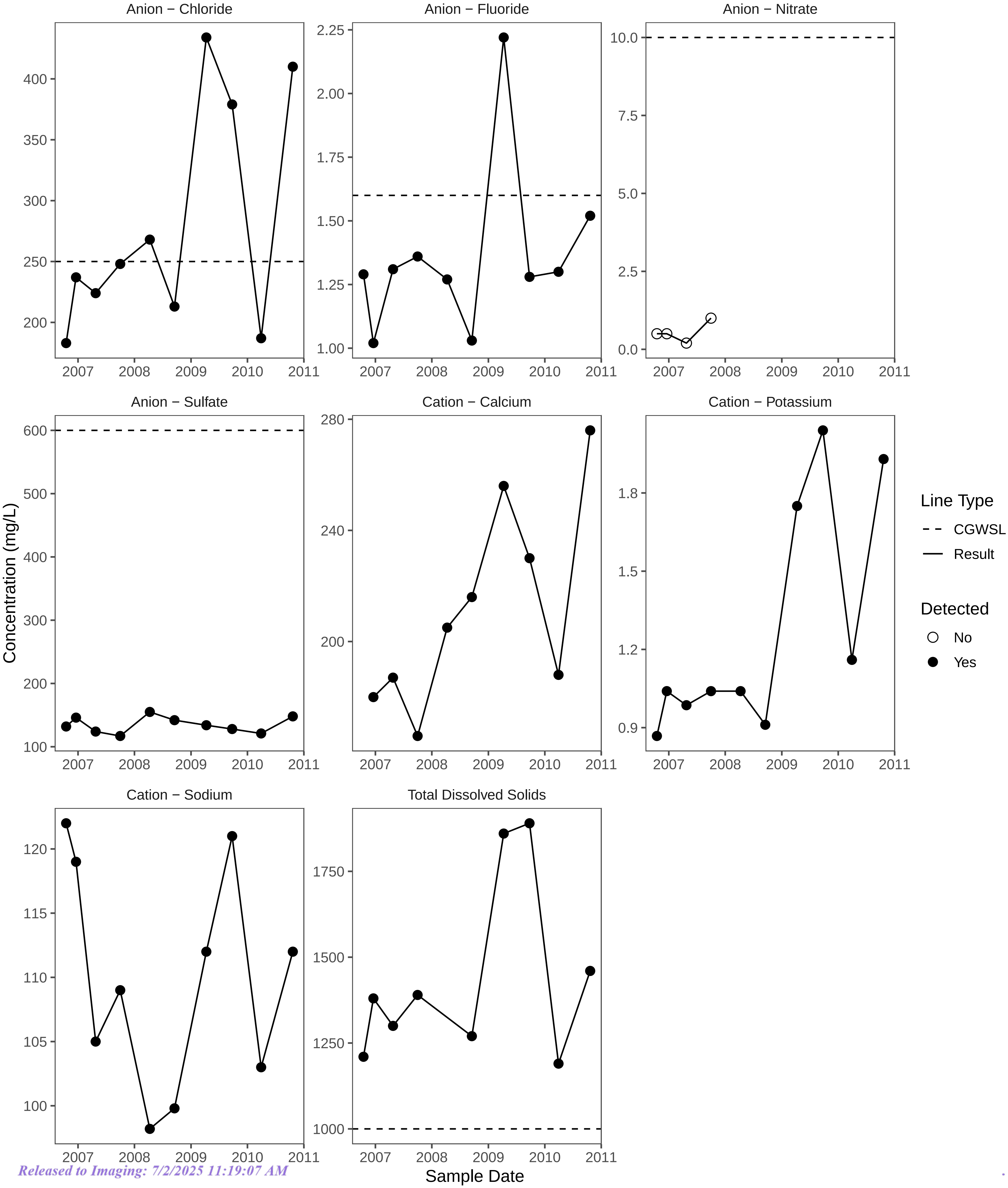
NCL−32


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2010
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

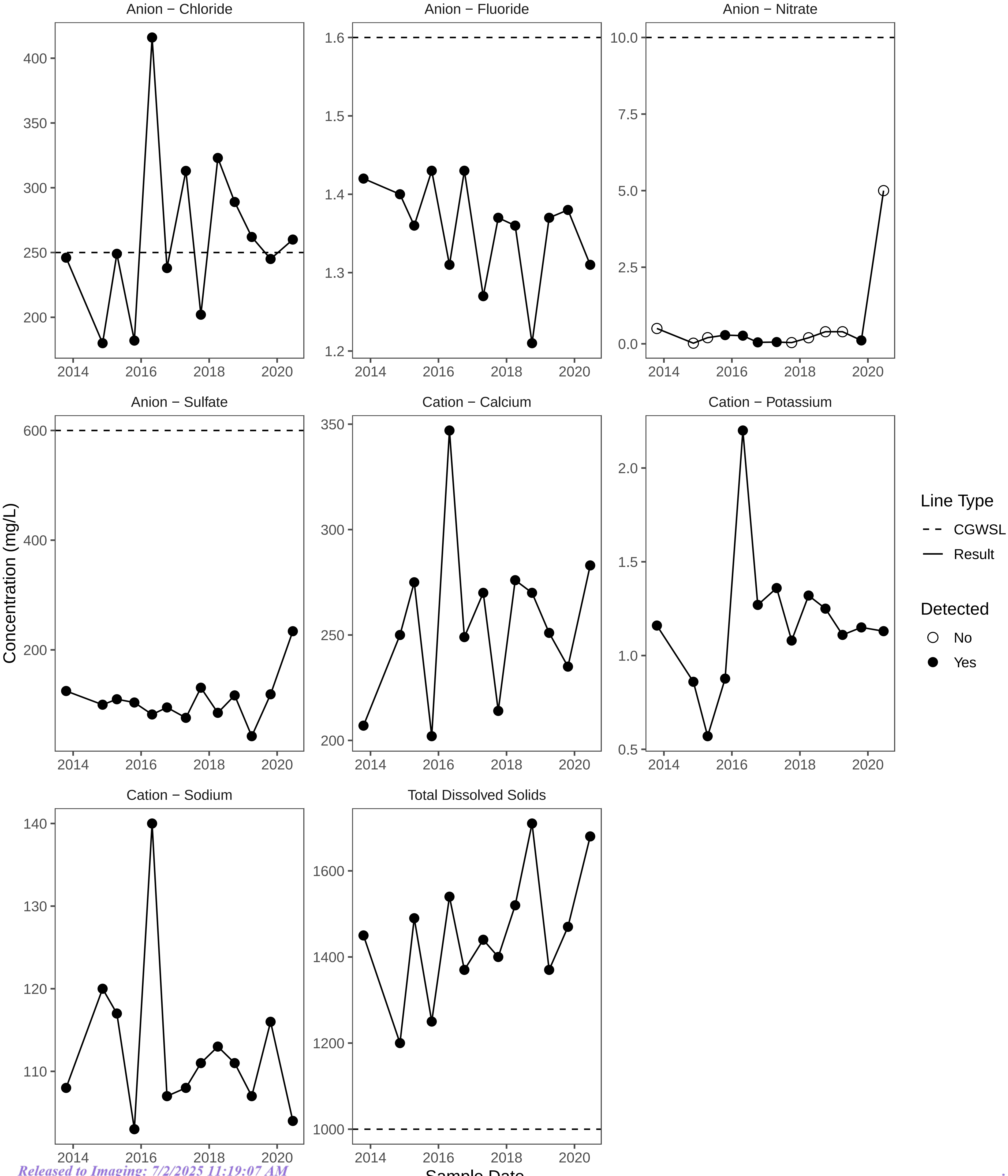
NCL−33

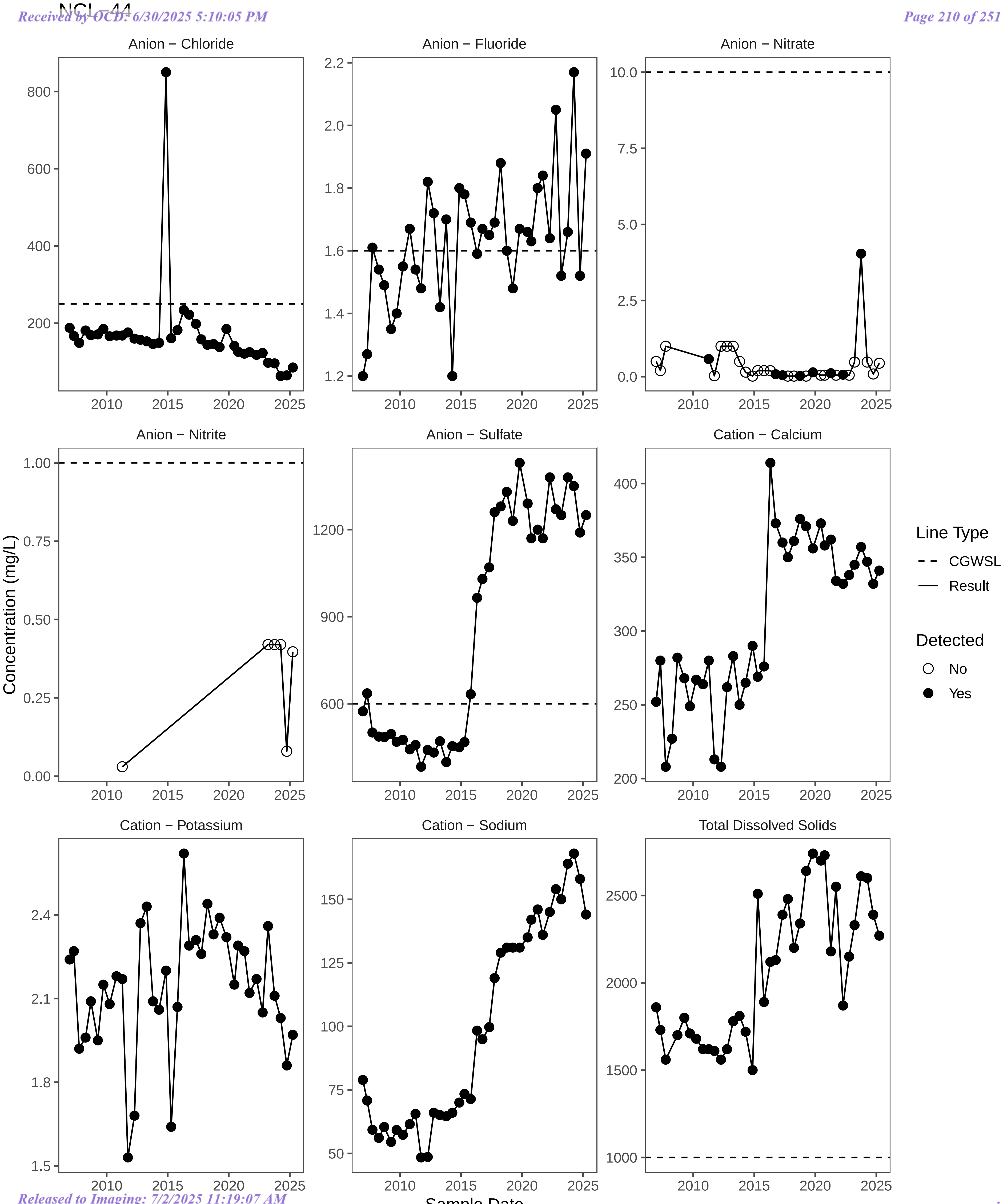

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

NCL - 34

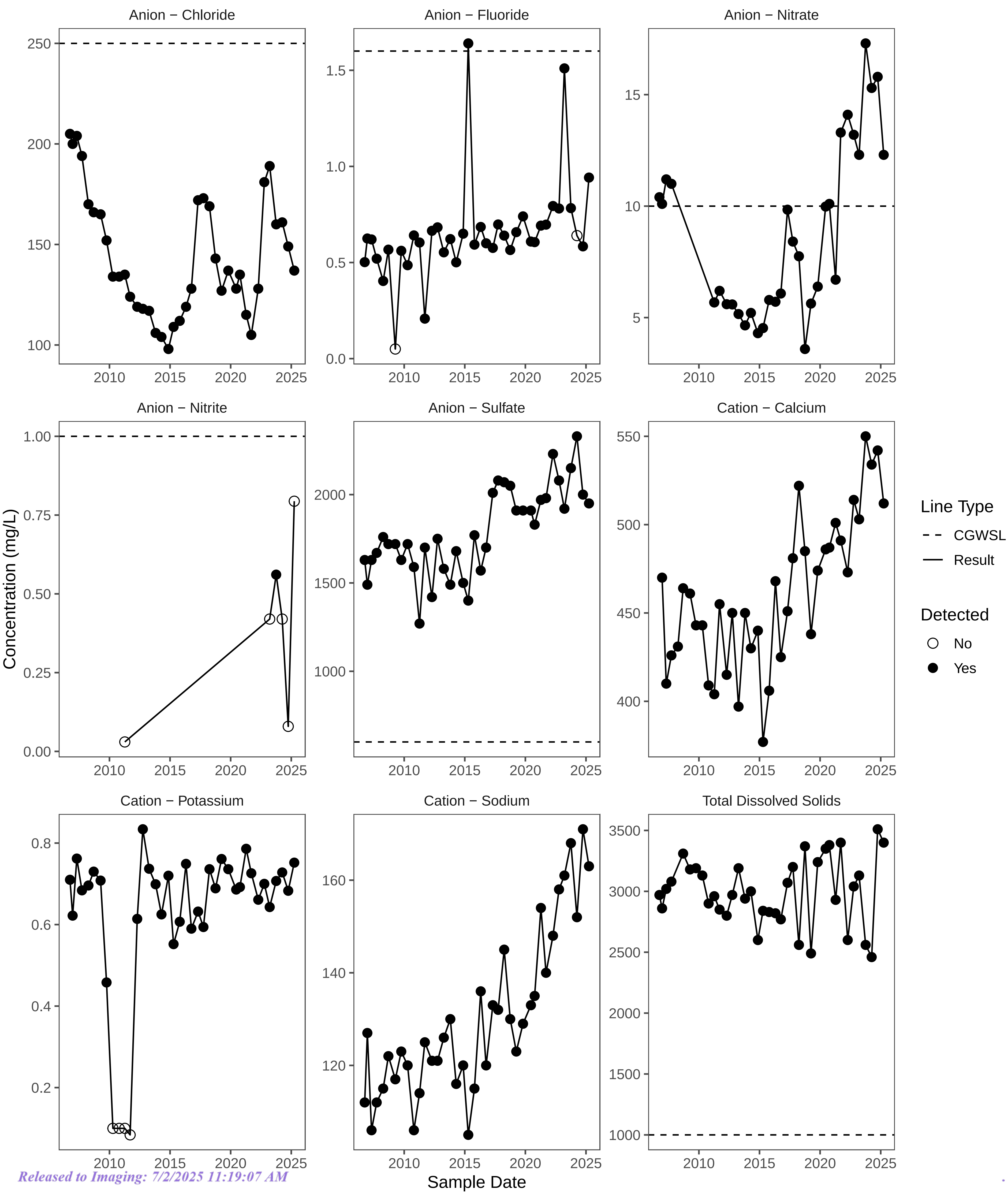

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

NCL − 34A

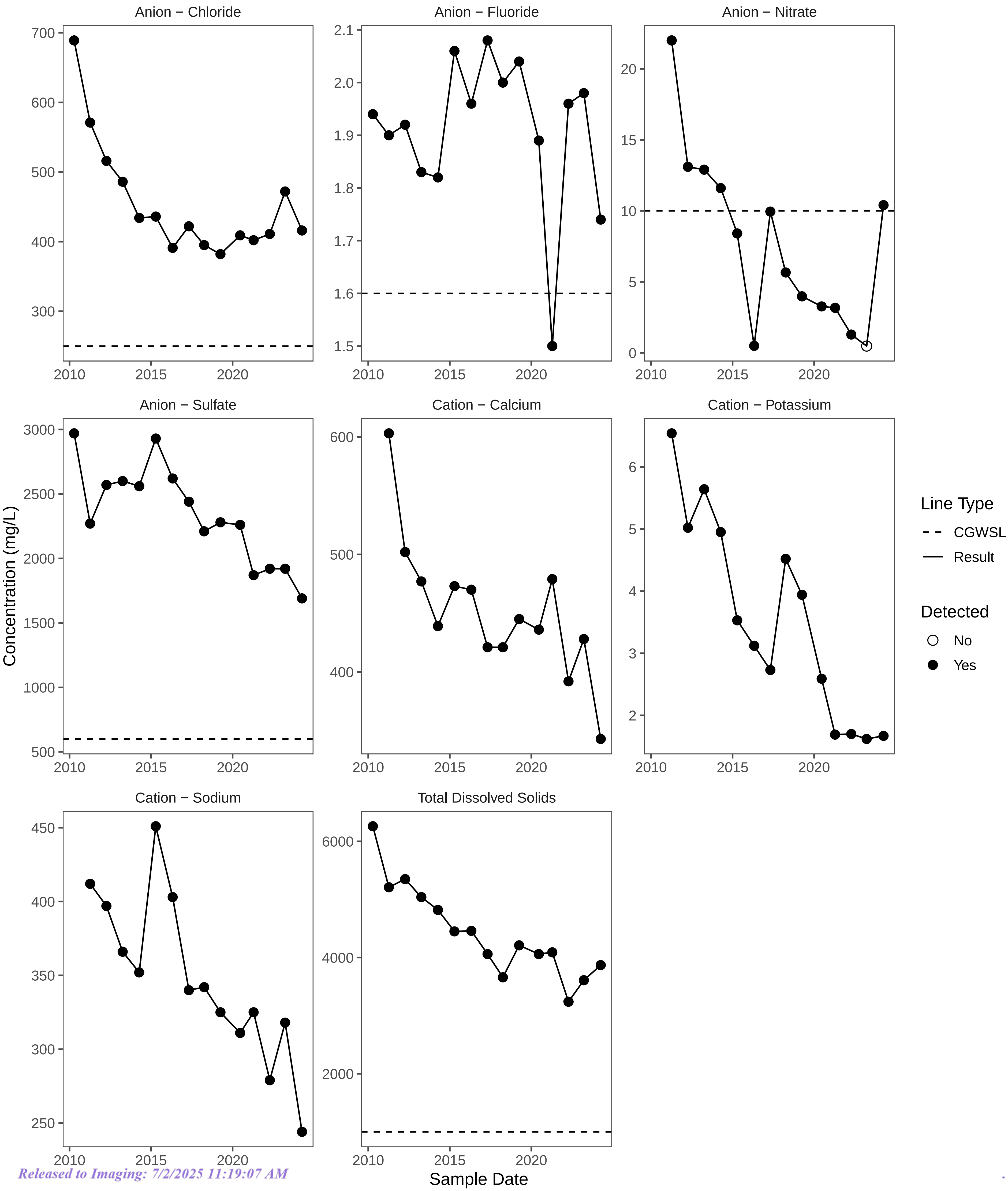

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

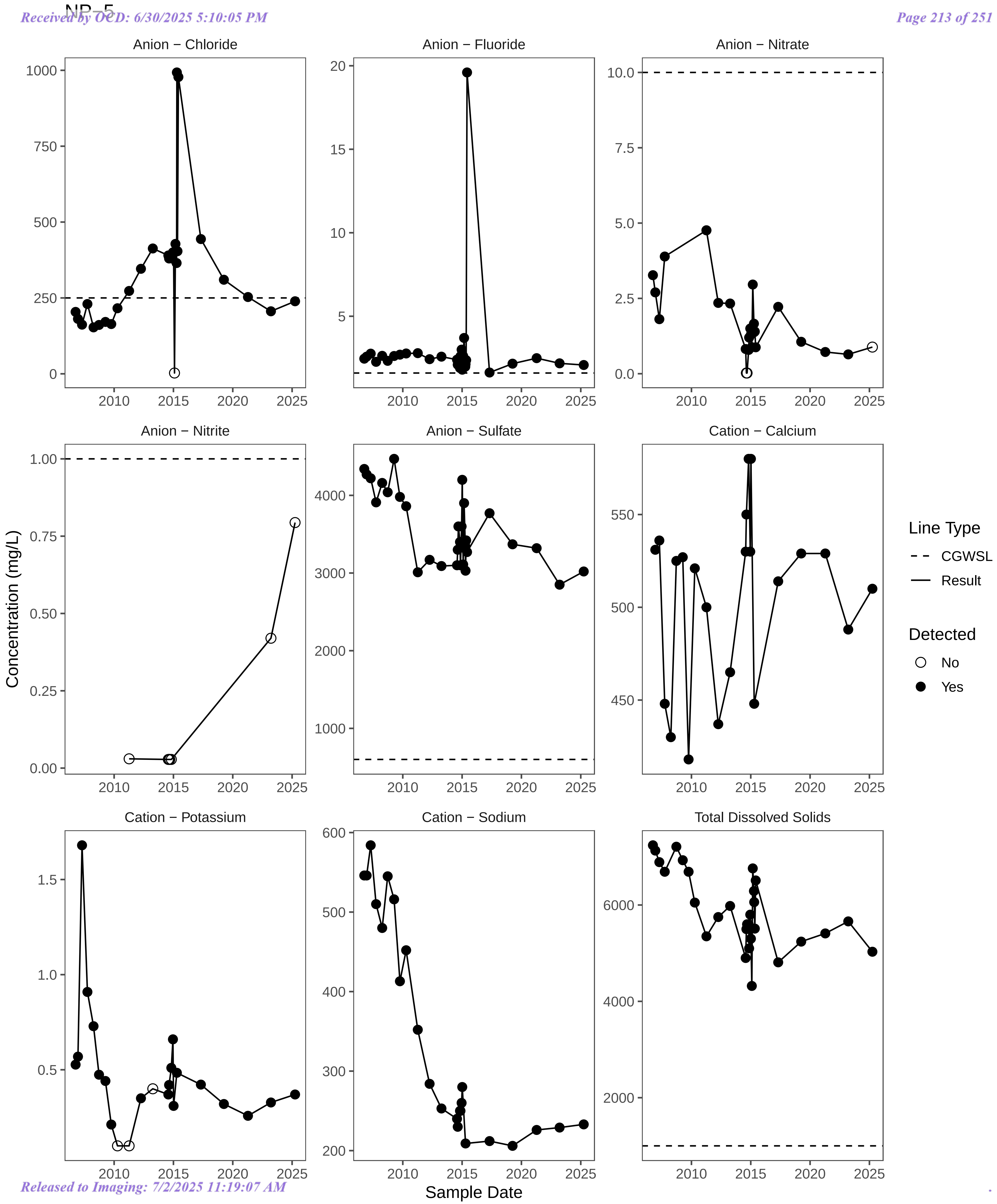

NCL-44
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

NCL-49

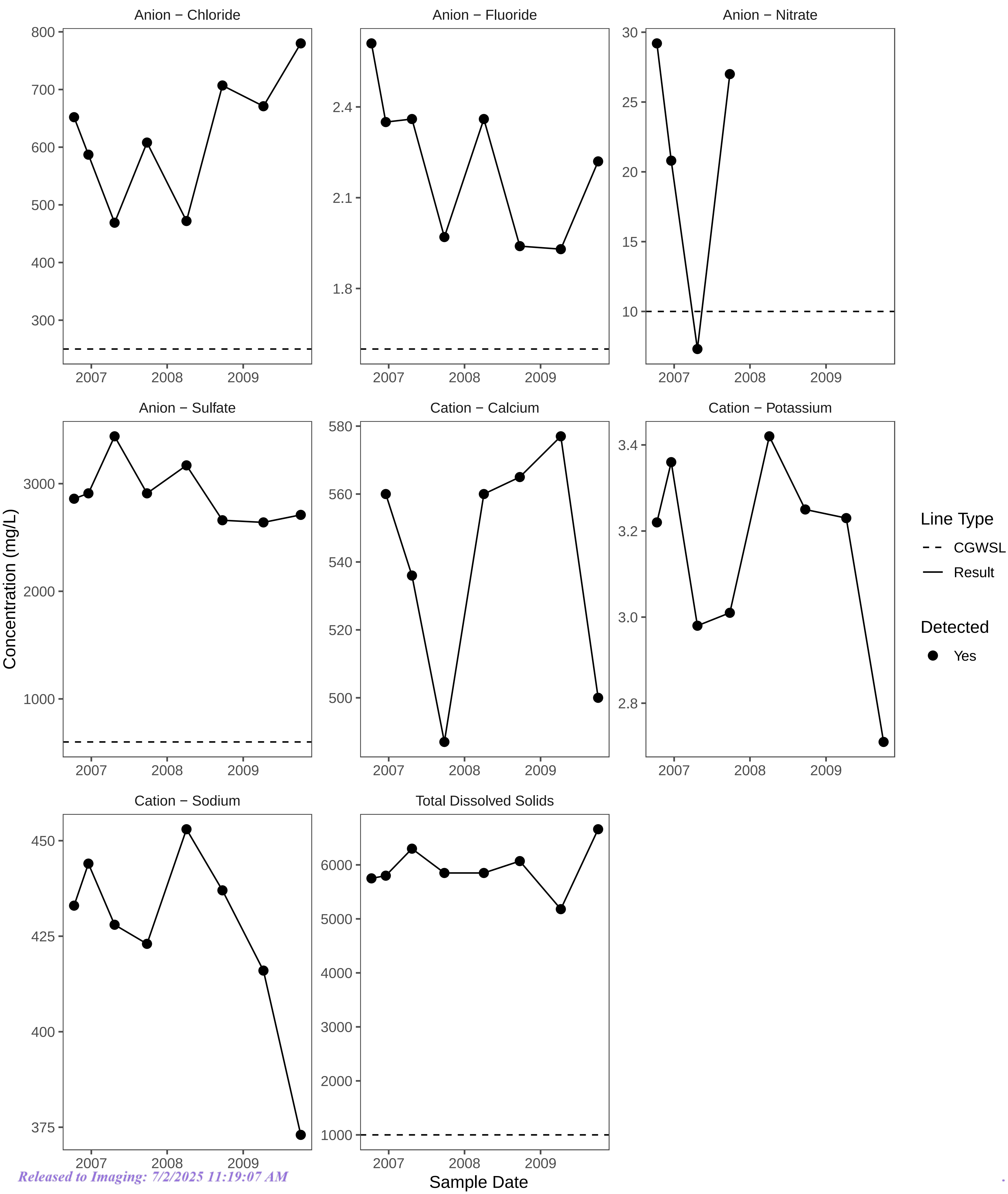

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

NP-1

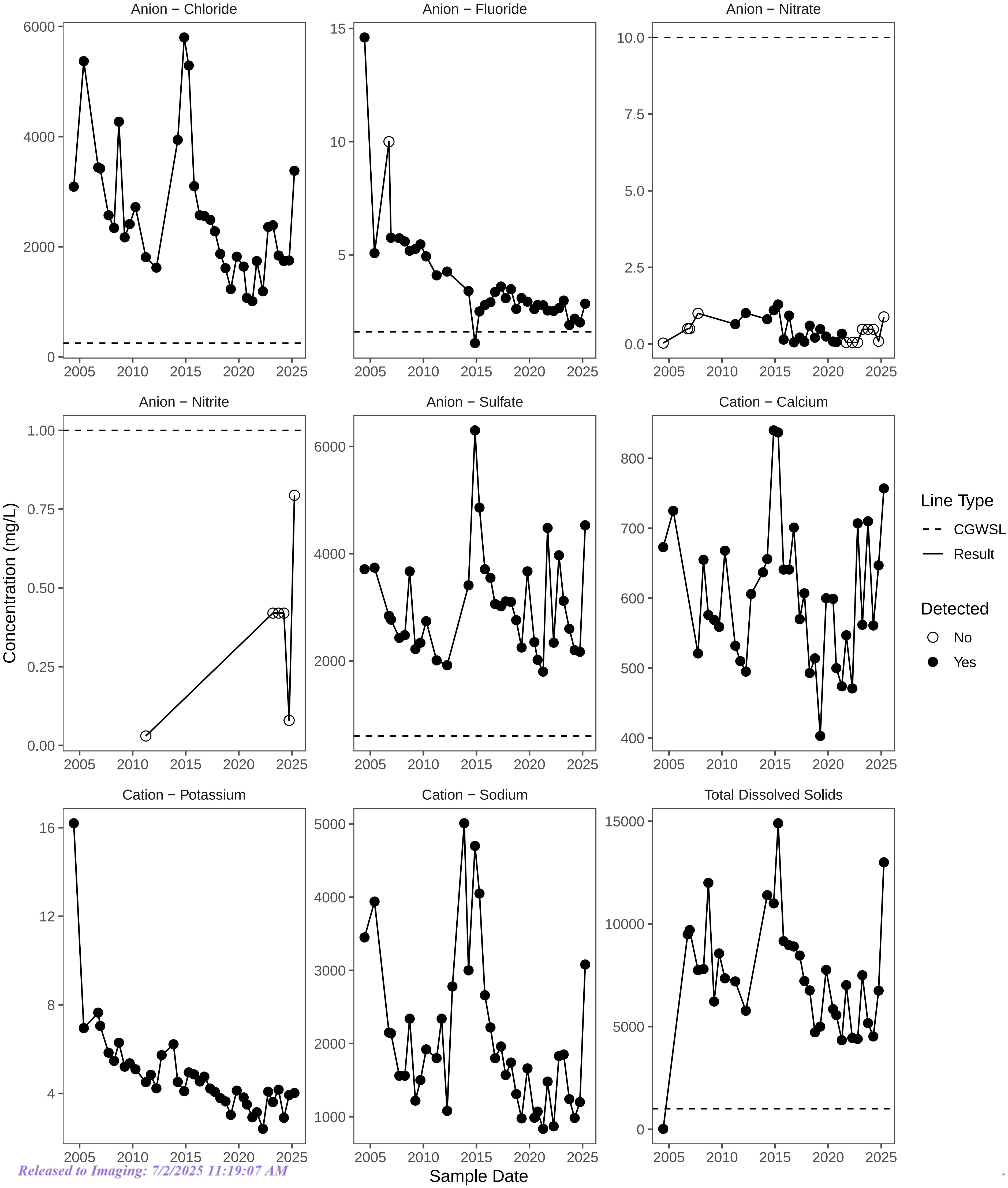

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

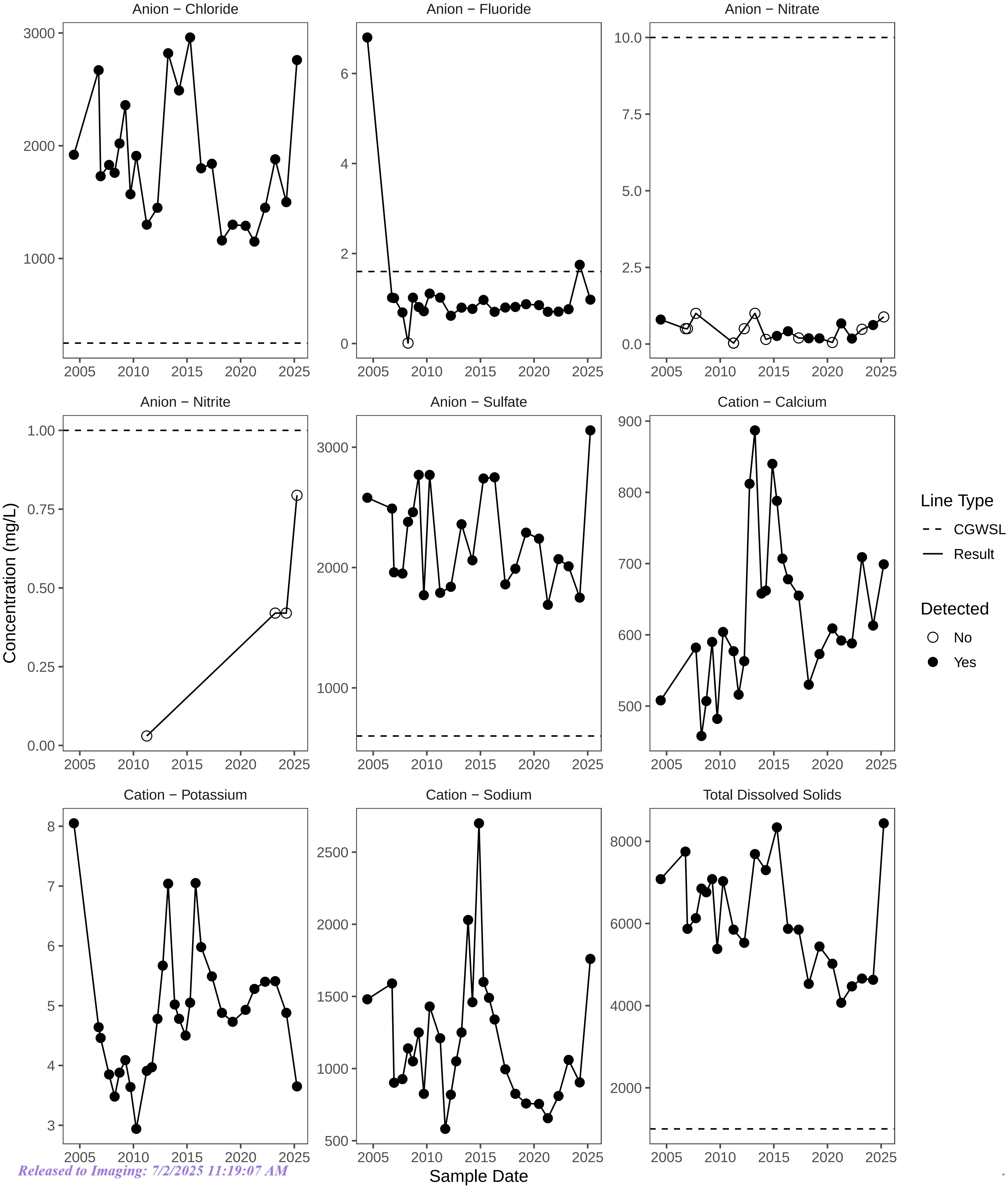

NP-5
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

NP−6

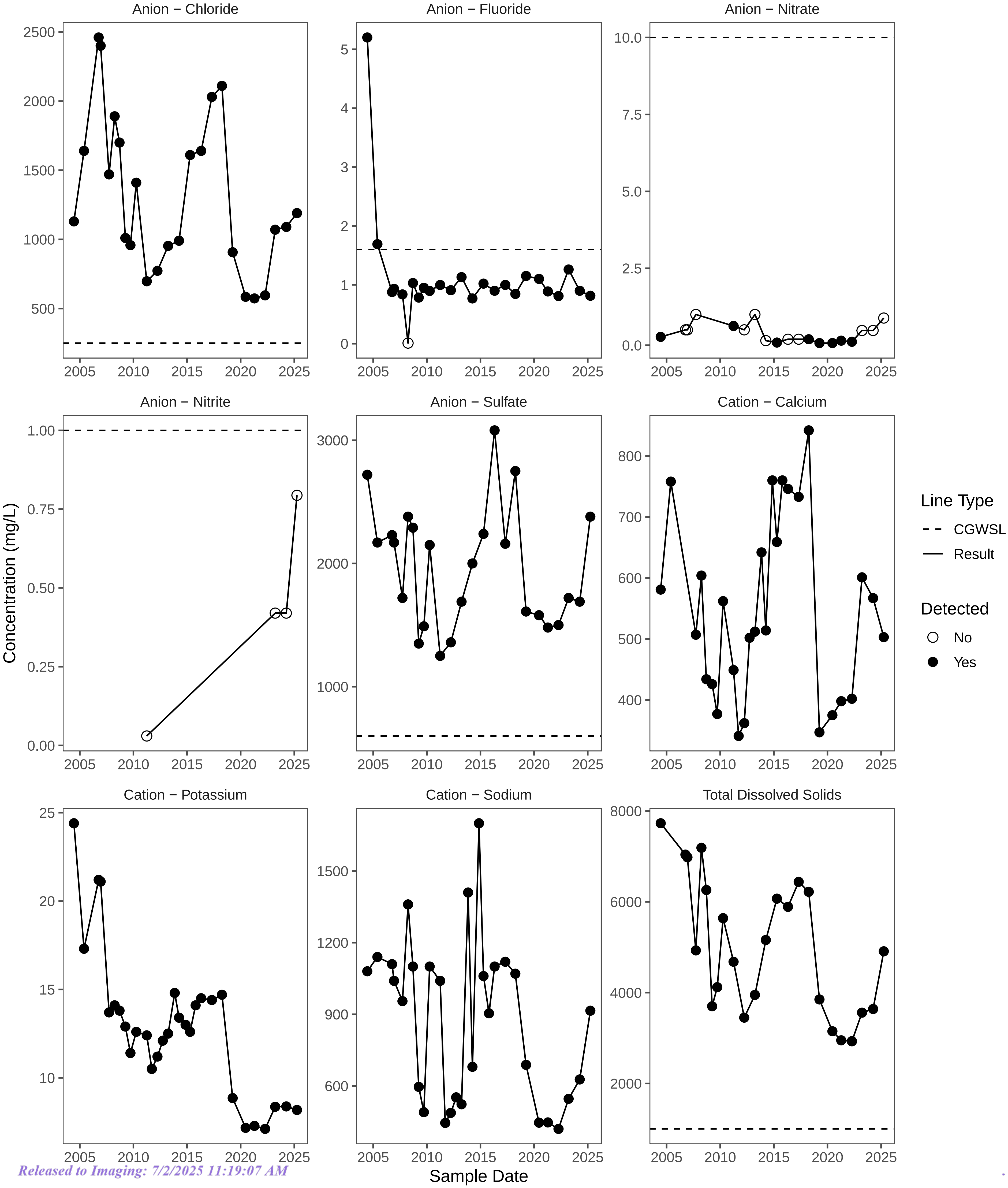

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2007
2008
2009
Line Type
CGWSL
Result
Detected
Yes

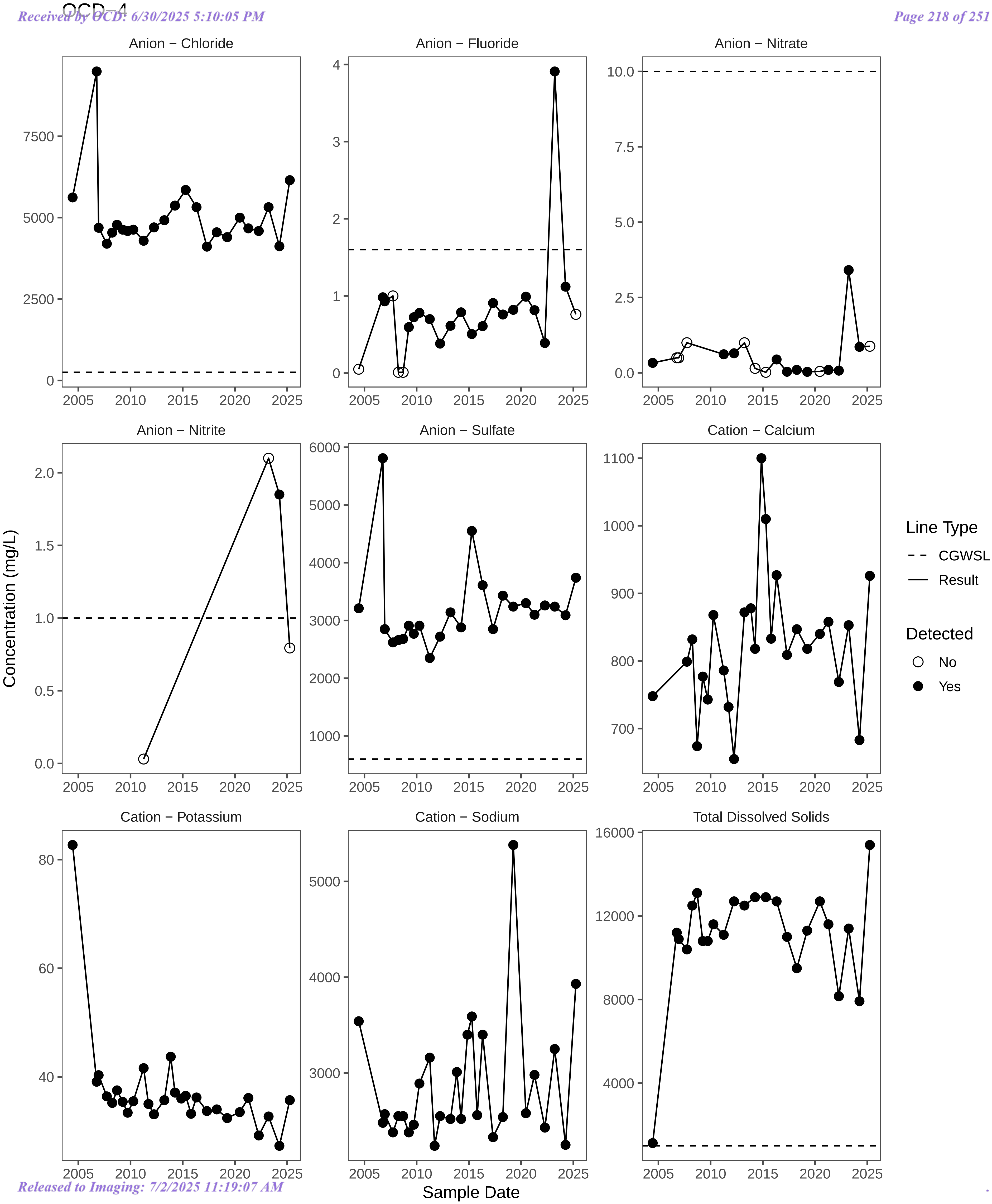
OCD-1R/OCD-1

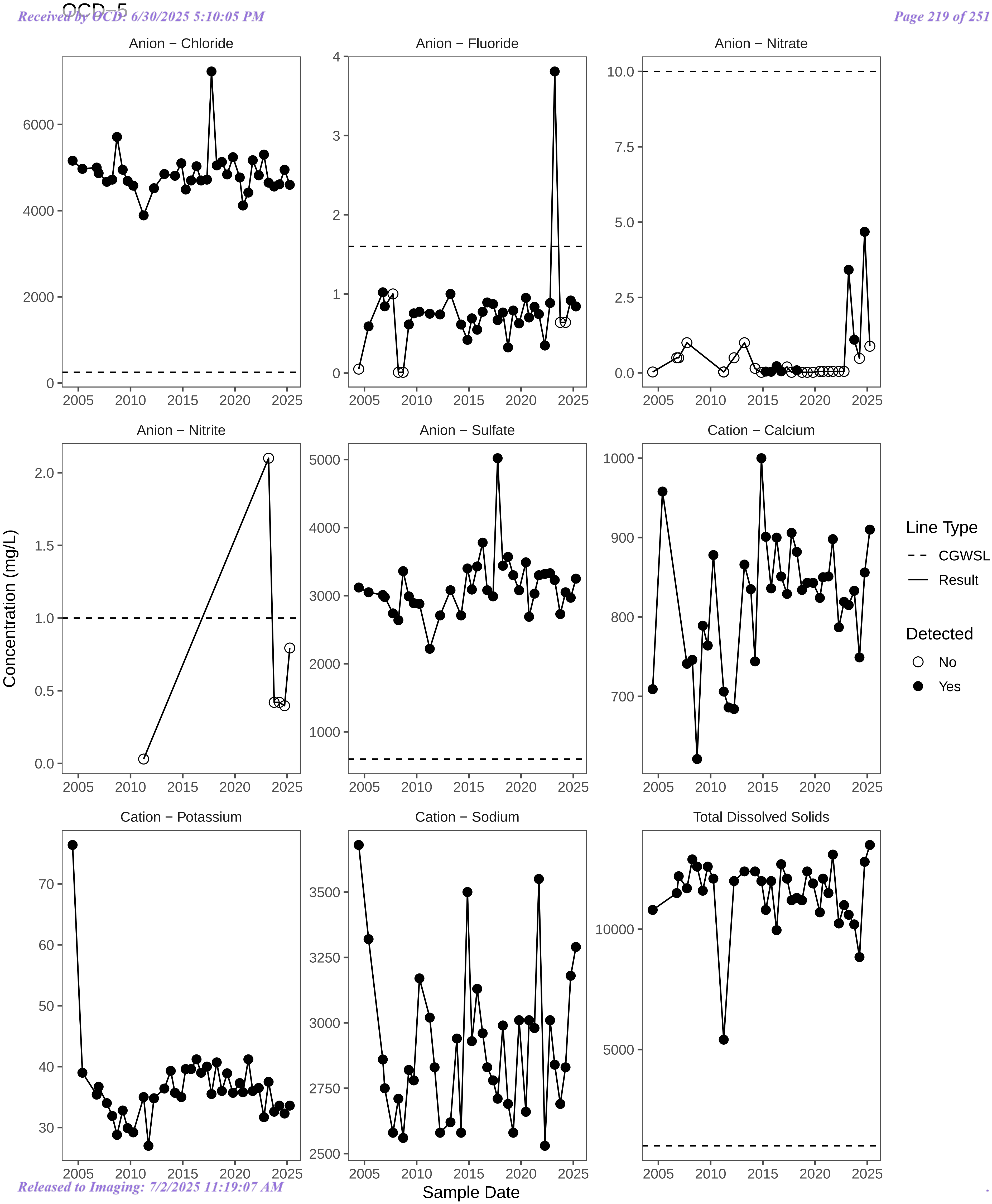

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

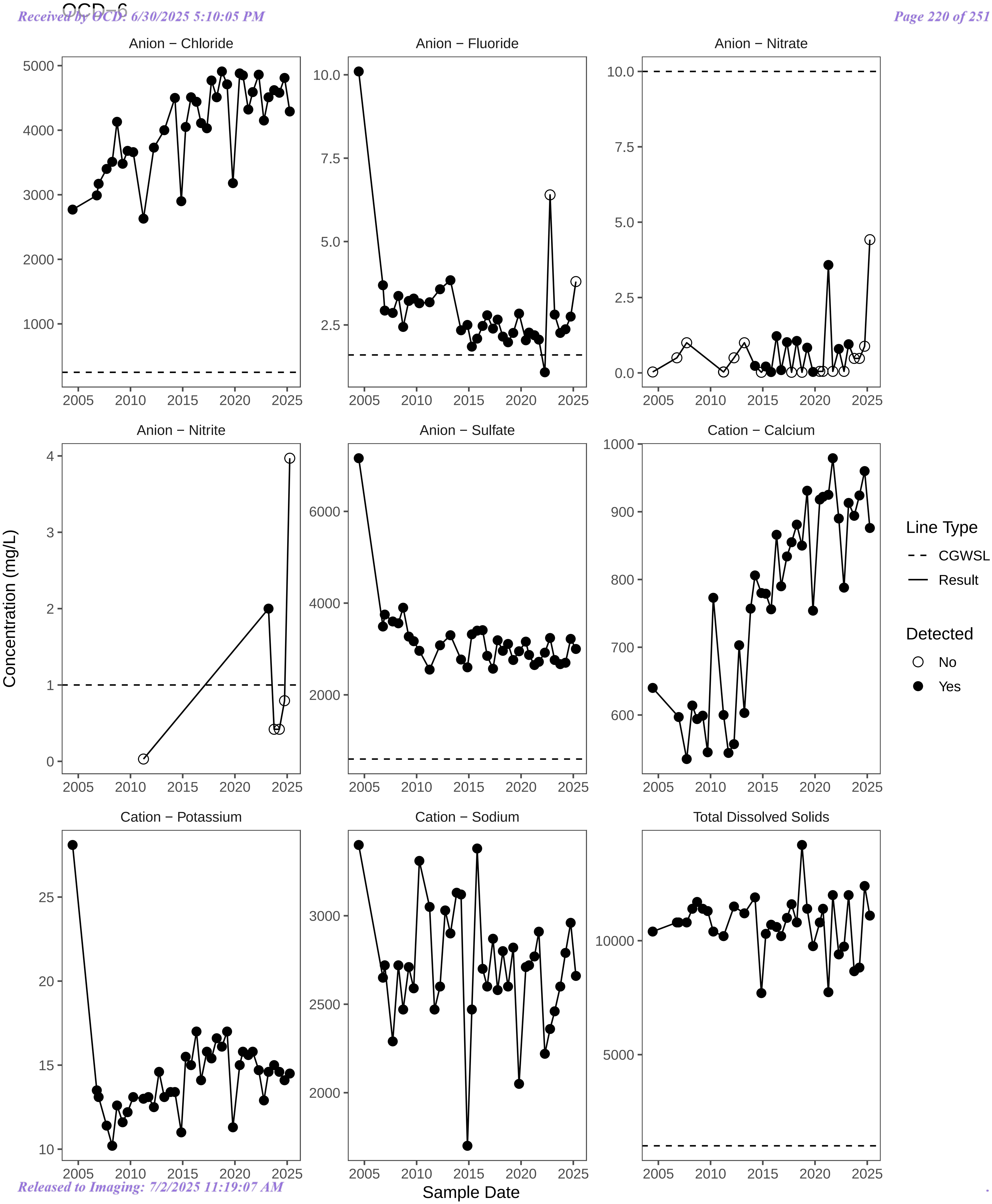

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

OCD−3

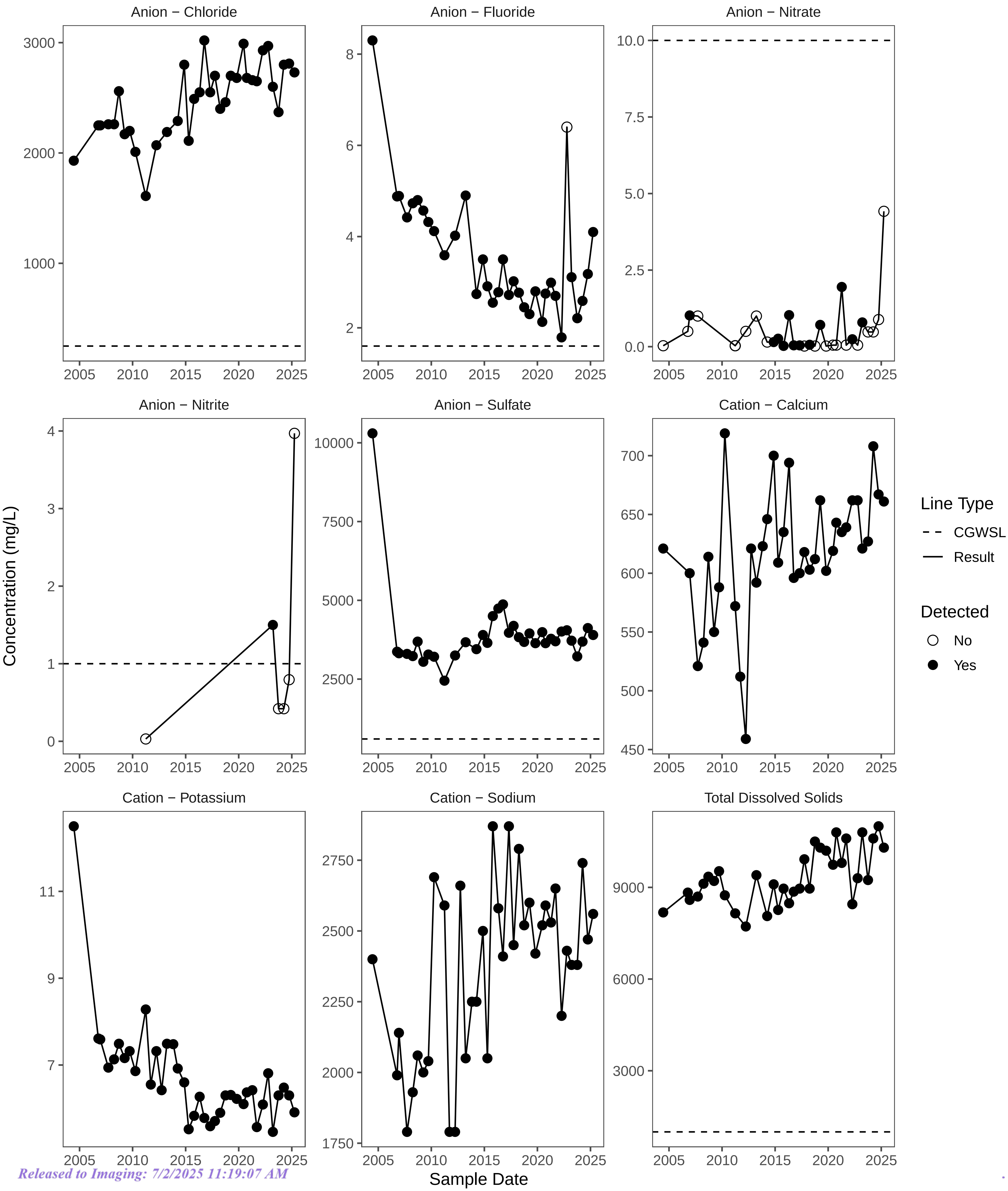

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


OCD-4
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

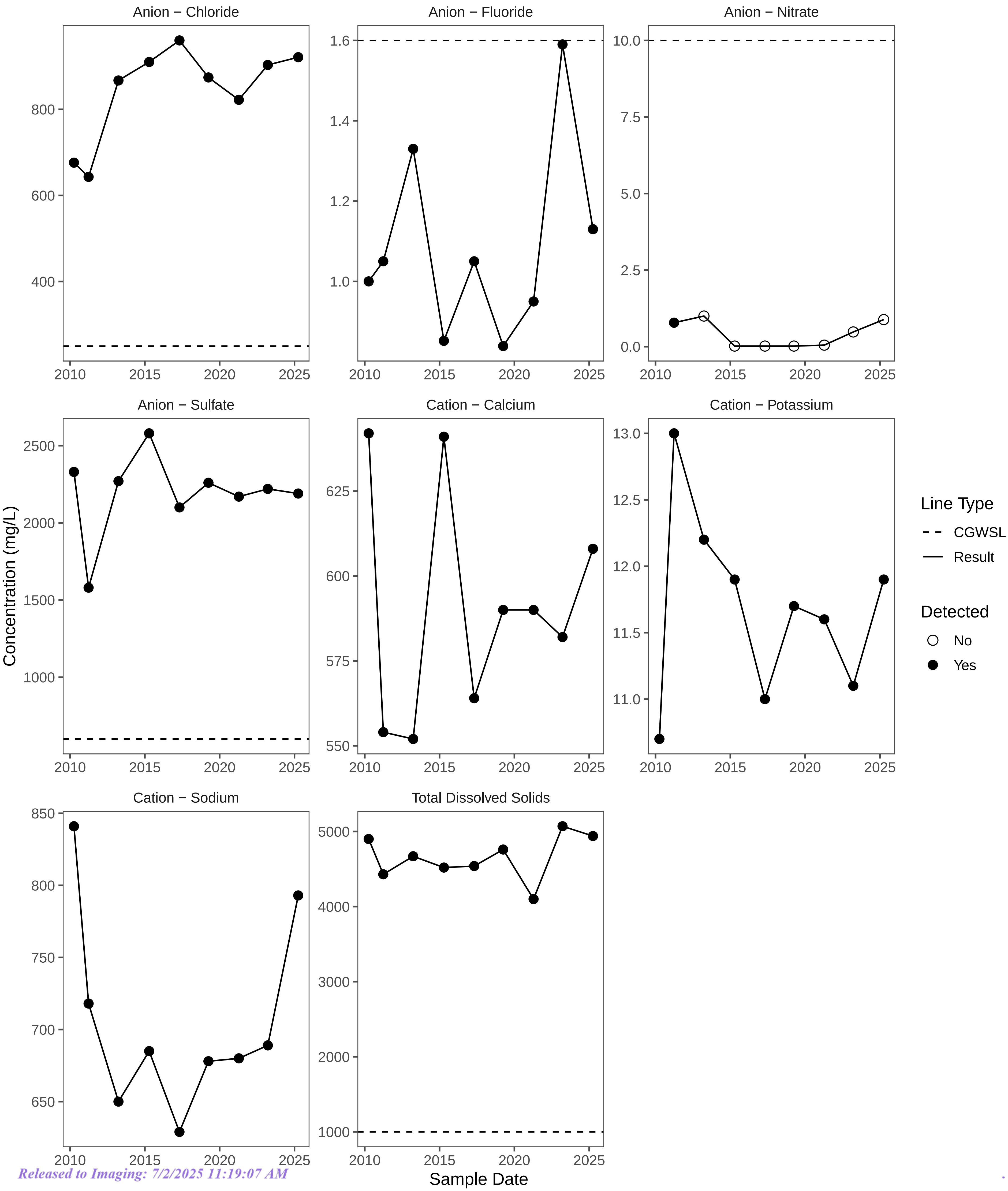

OCD−5
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


OCD-6
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

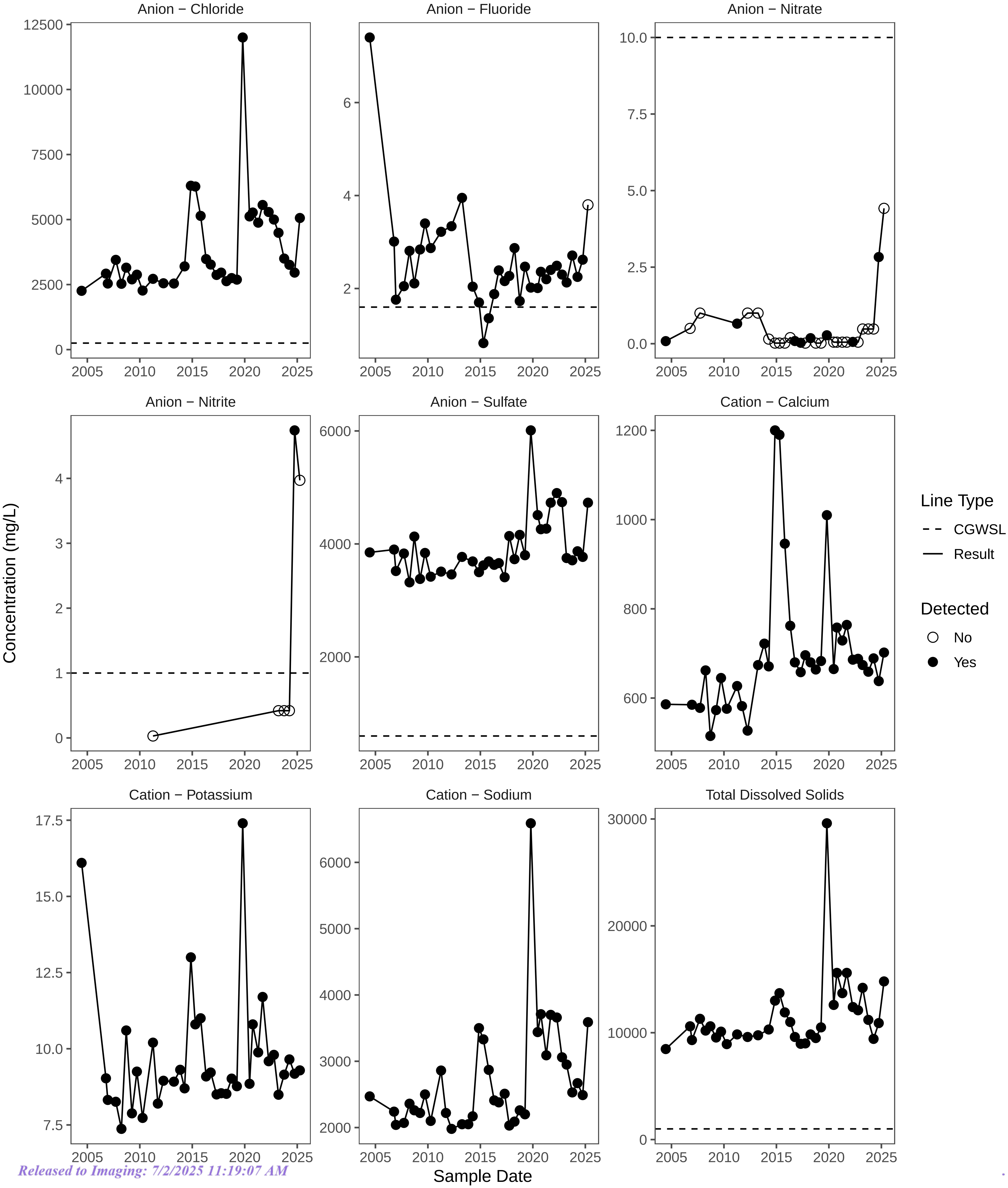
OCD−7AR/OCD−7A



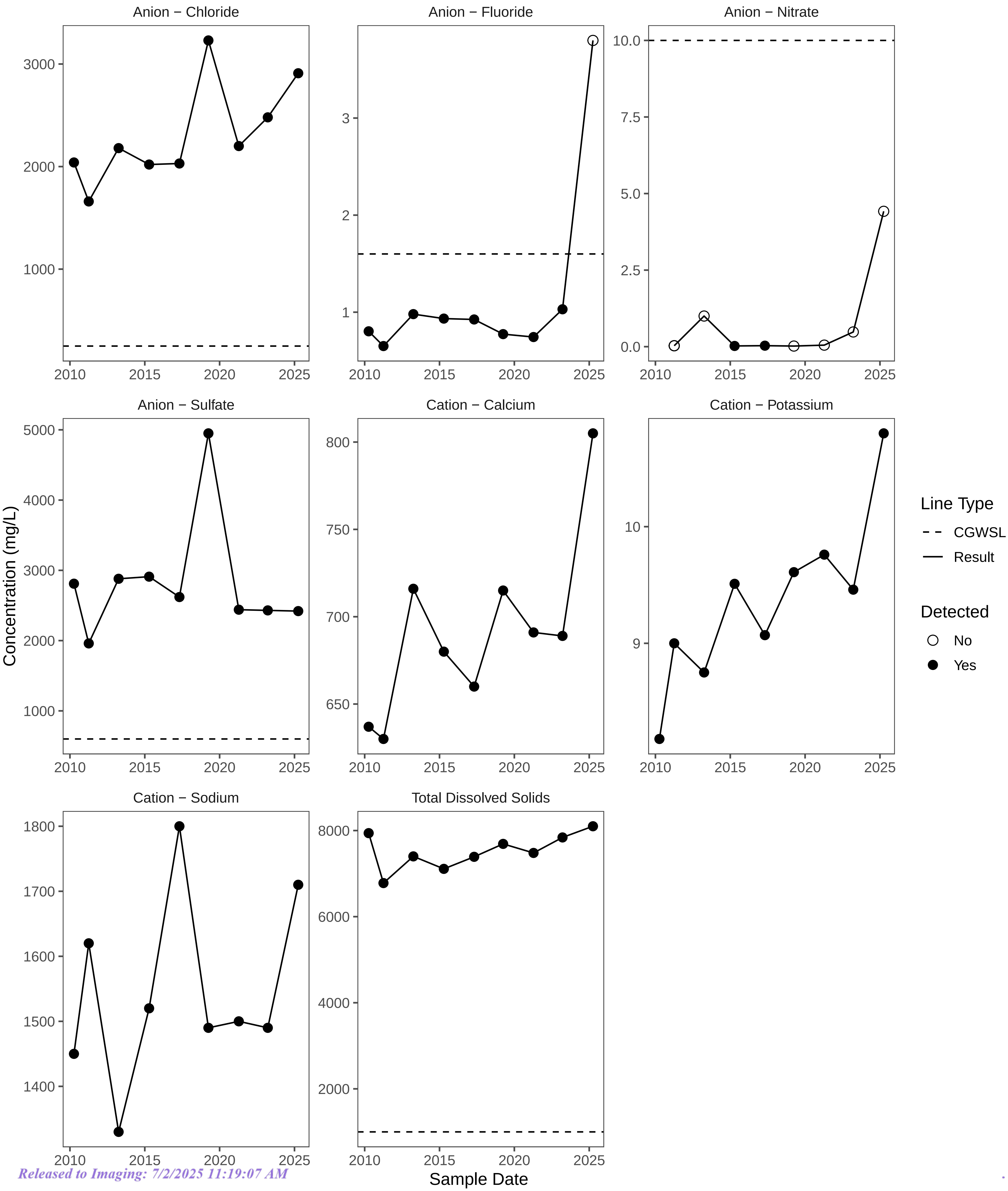
OCD-7B


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2010
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

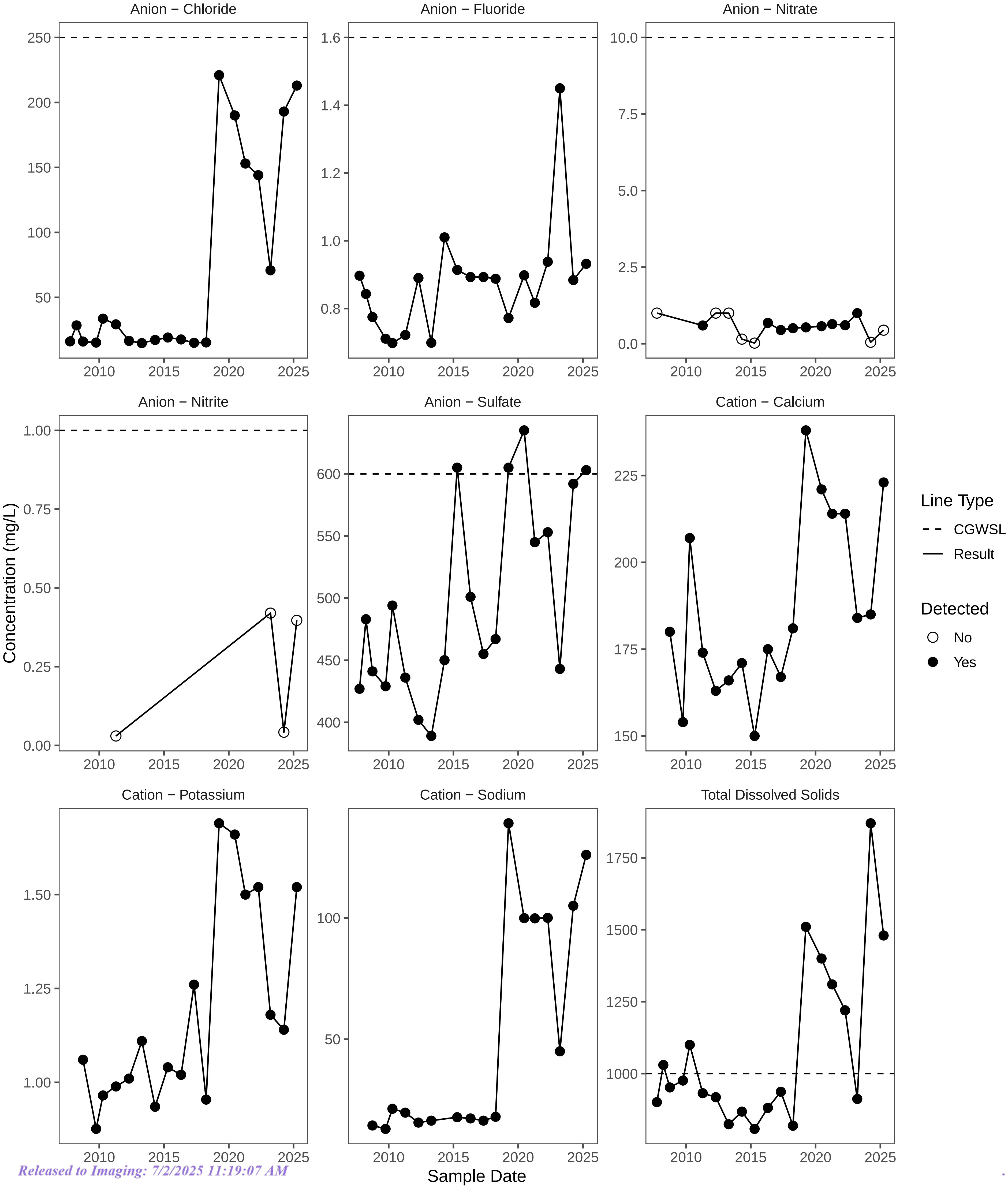
OCD−8A

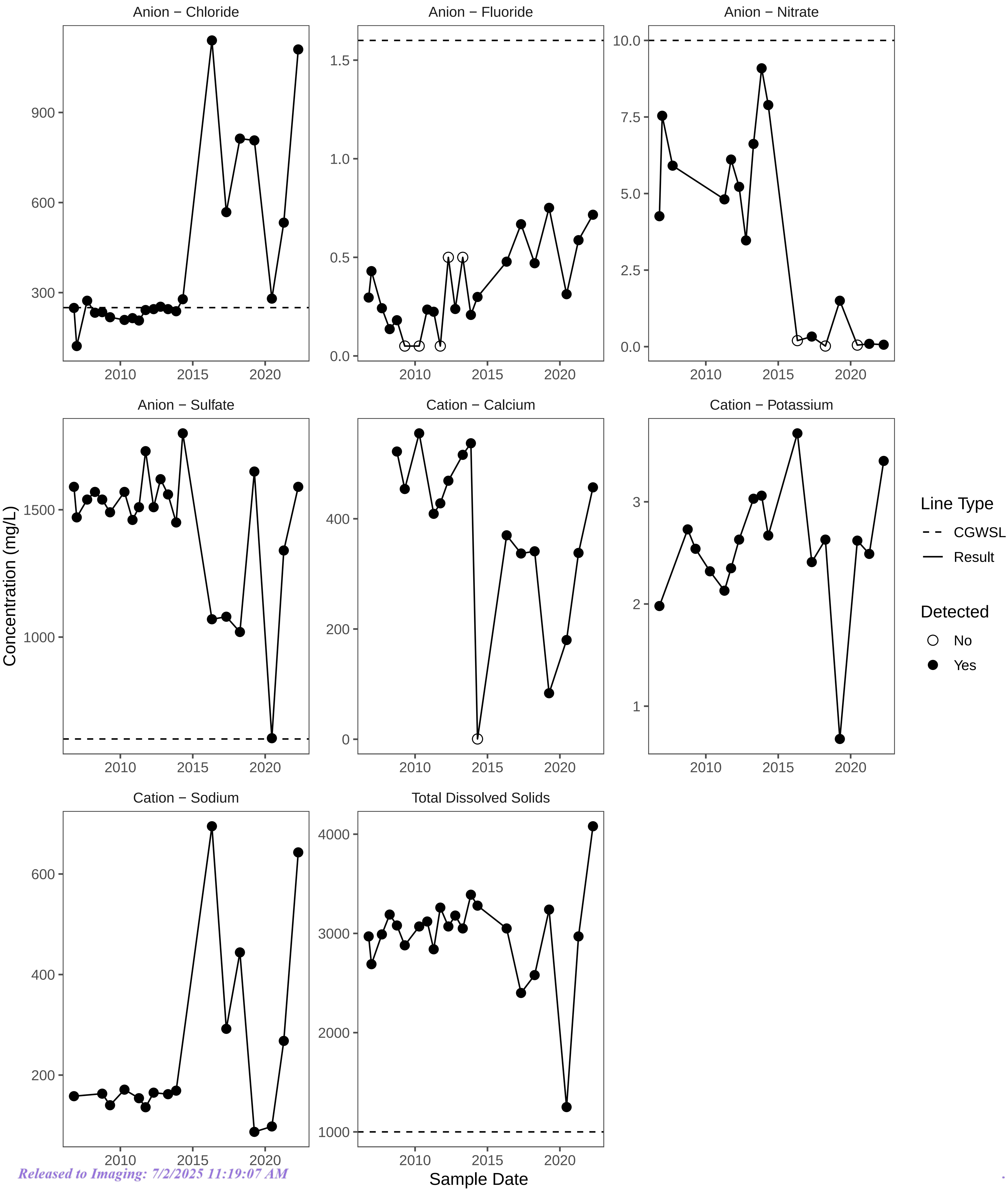

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

OCD_8B

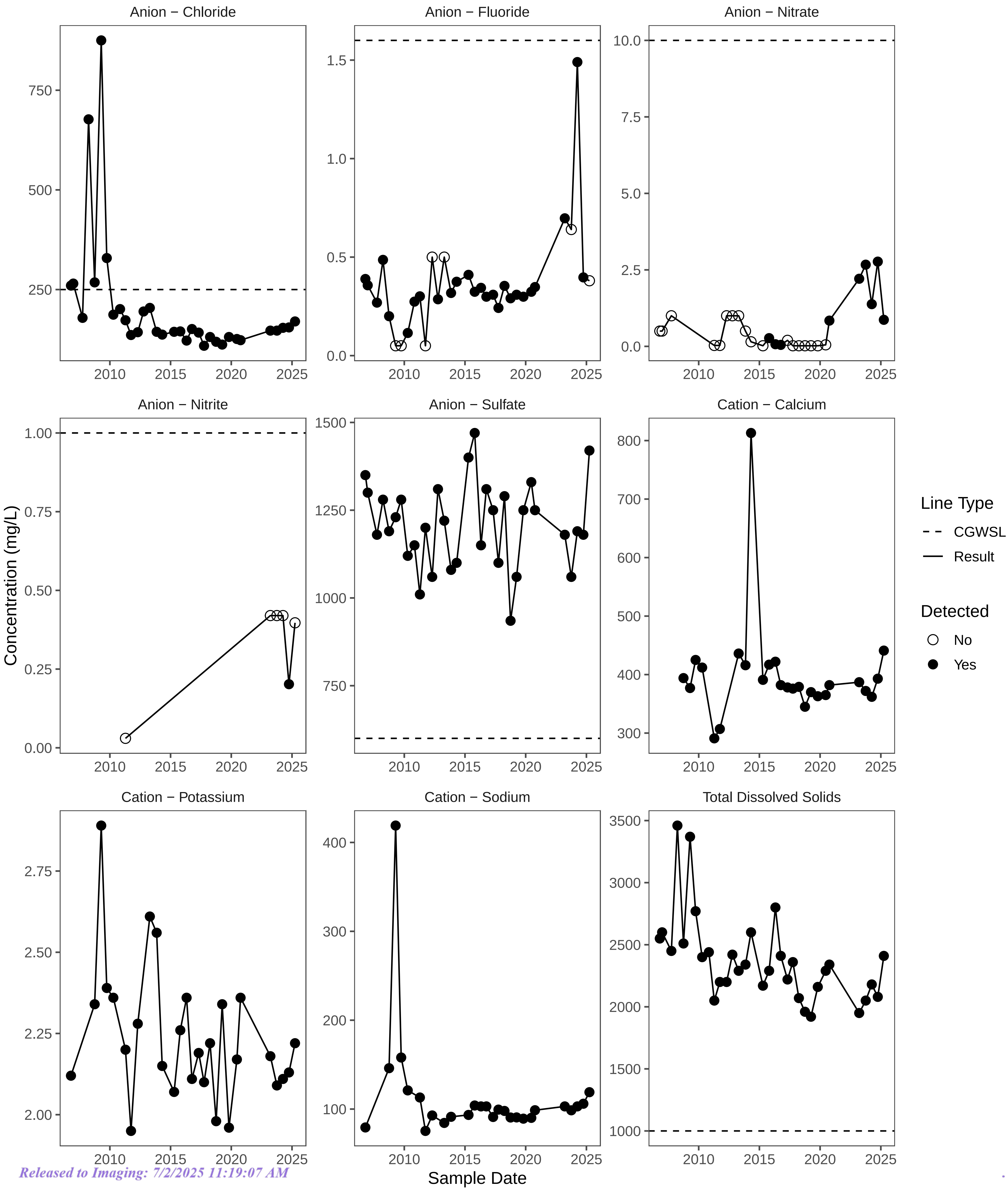

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

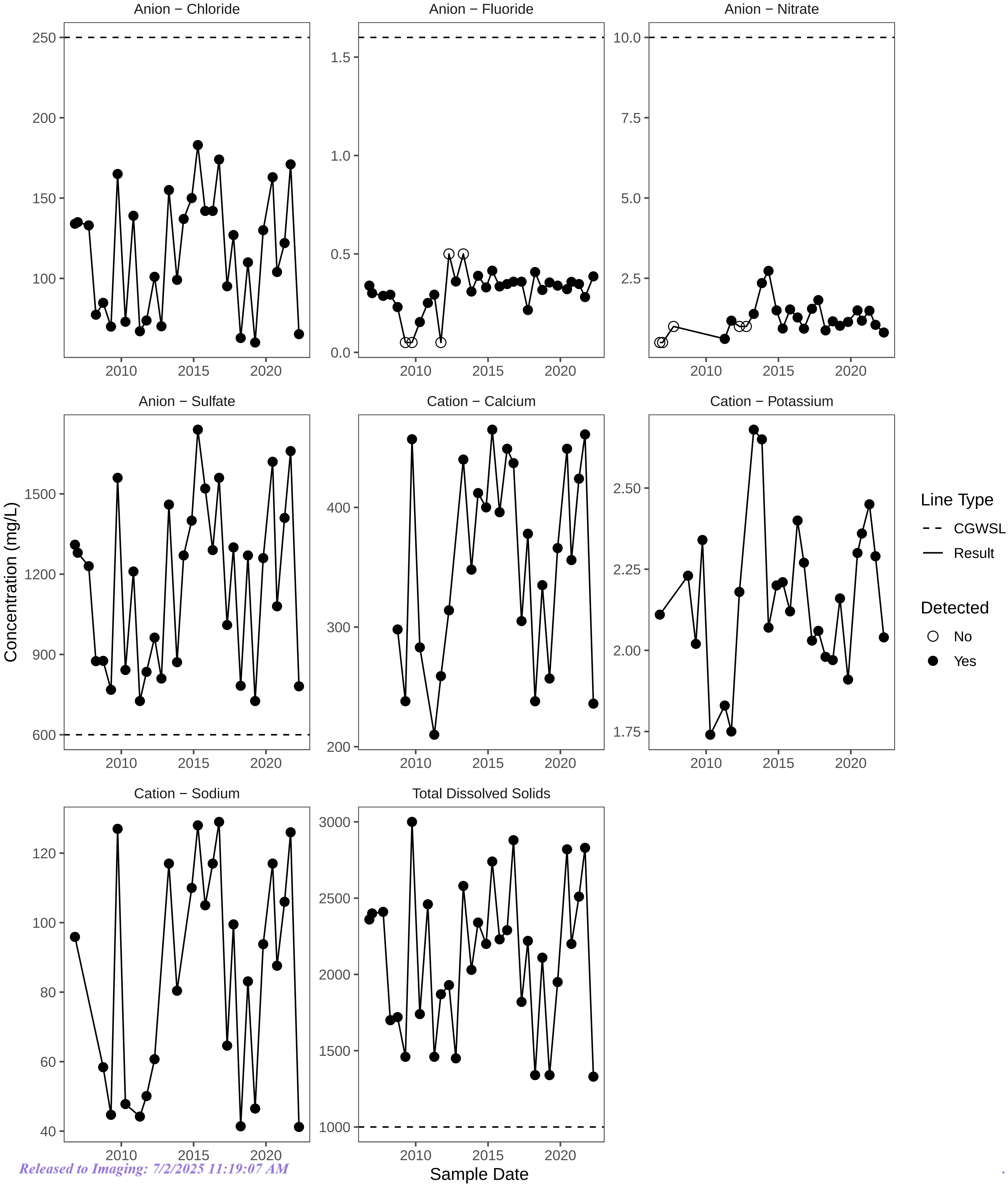
RA−313


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2010
2015
2020
2025
Line Type
CGWSL
Result
Detected
No
Yes

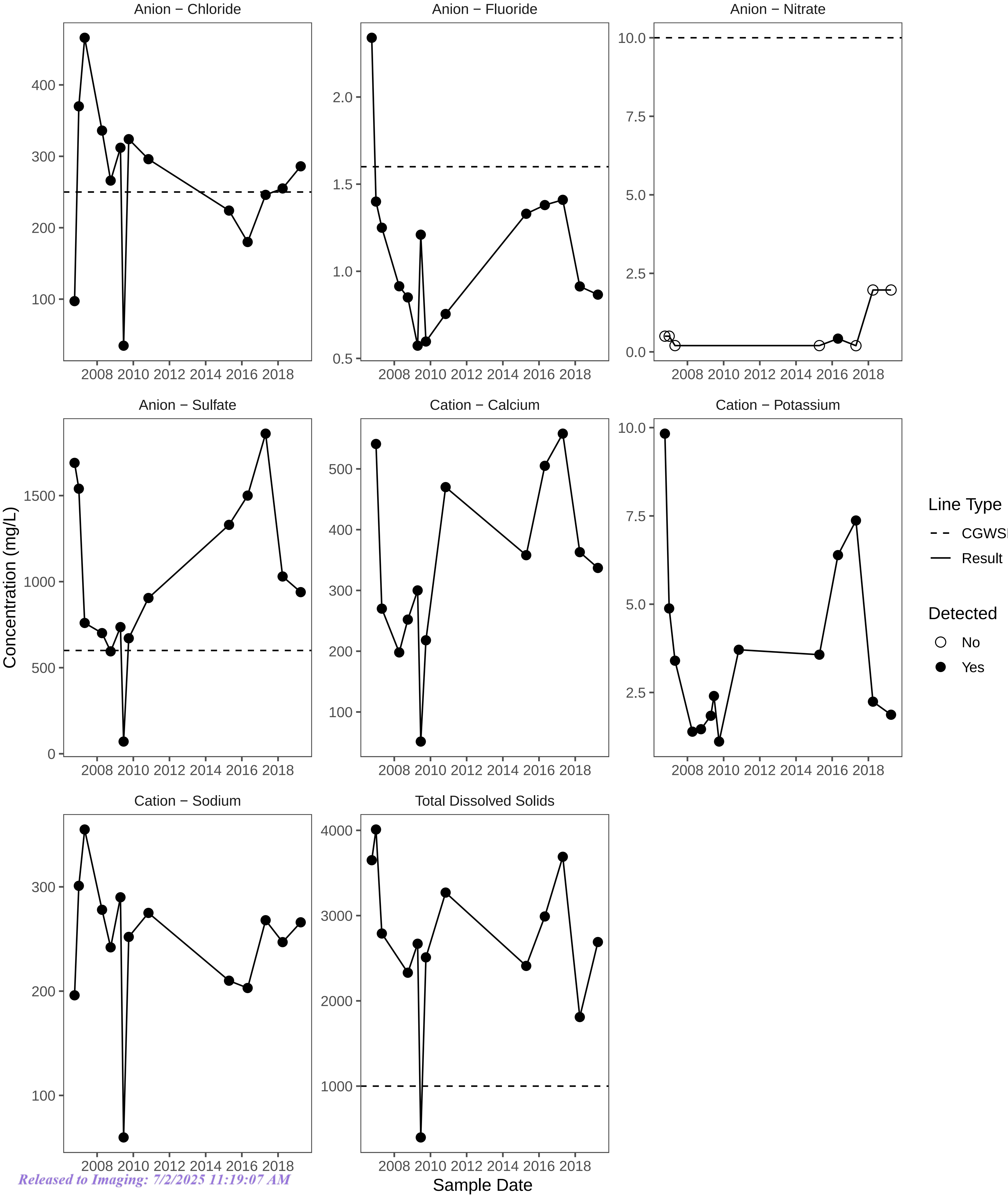

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2010
2015
2020
Line Type
CGWSL
Result
Detected
No
Yes

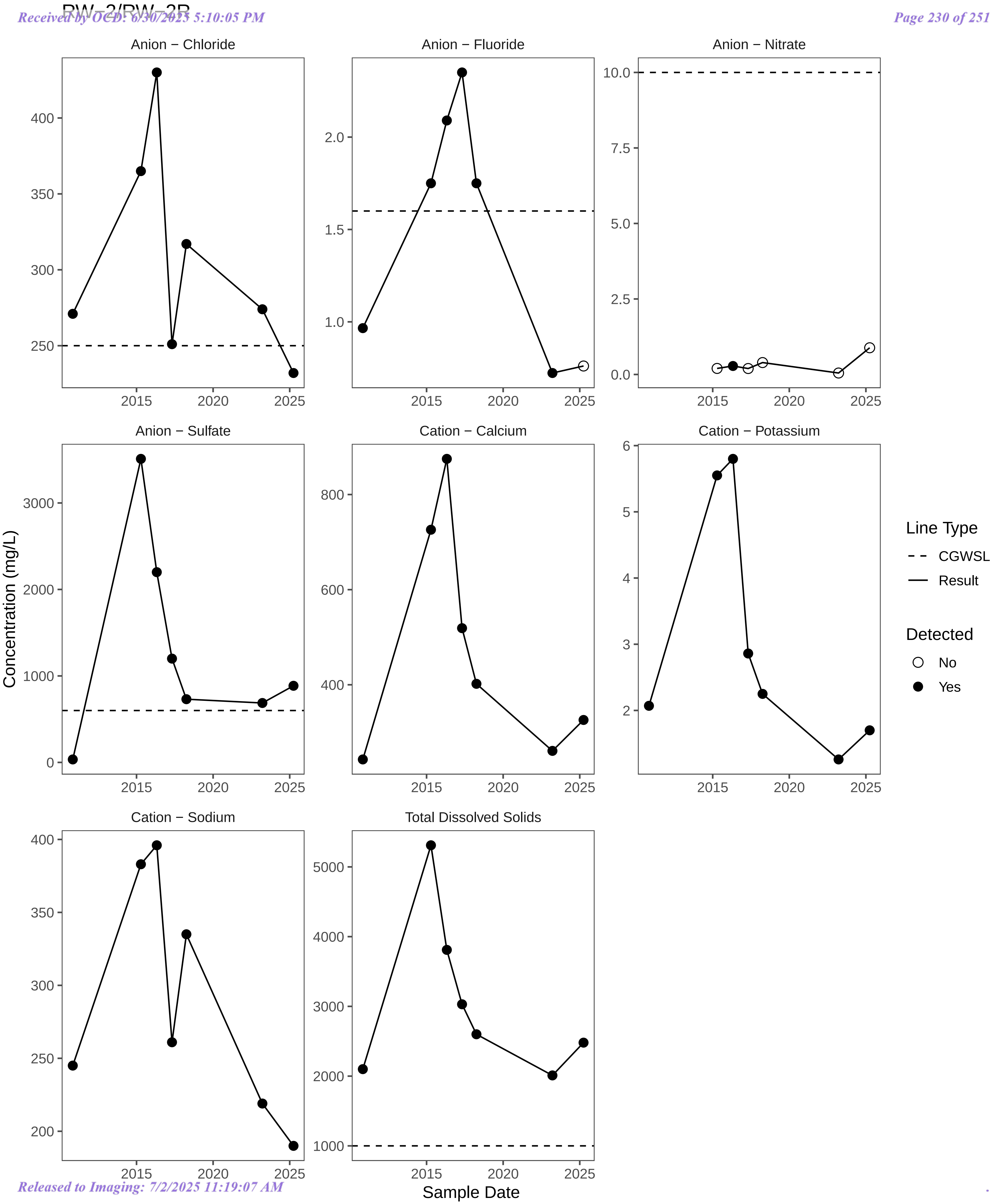
RA−4196/RA−4196R



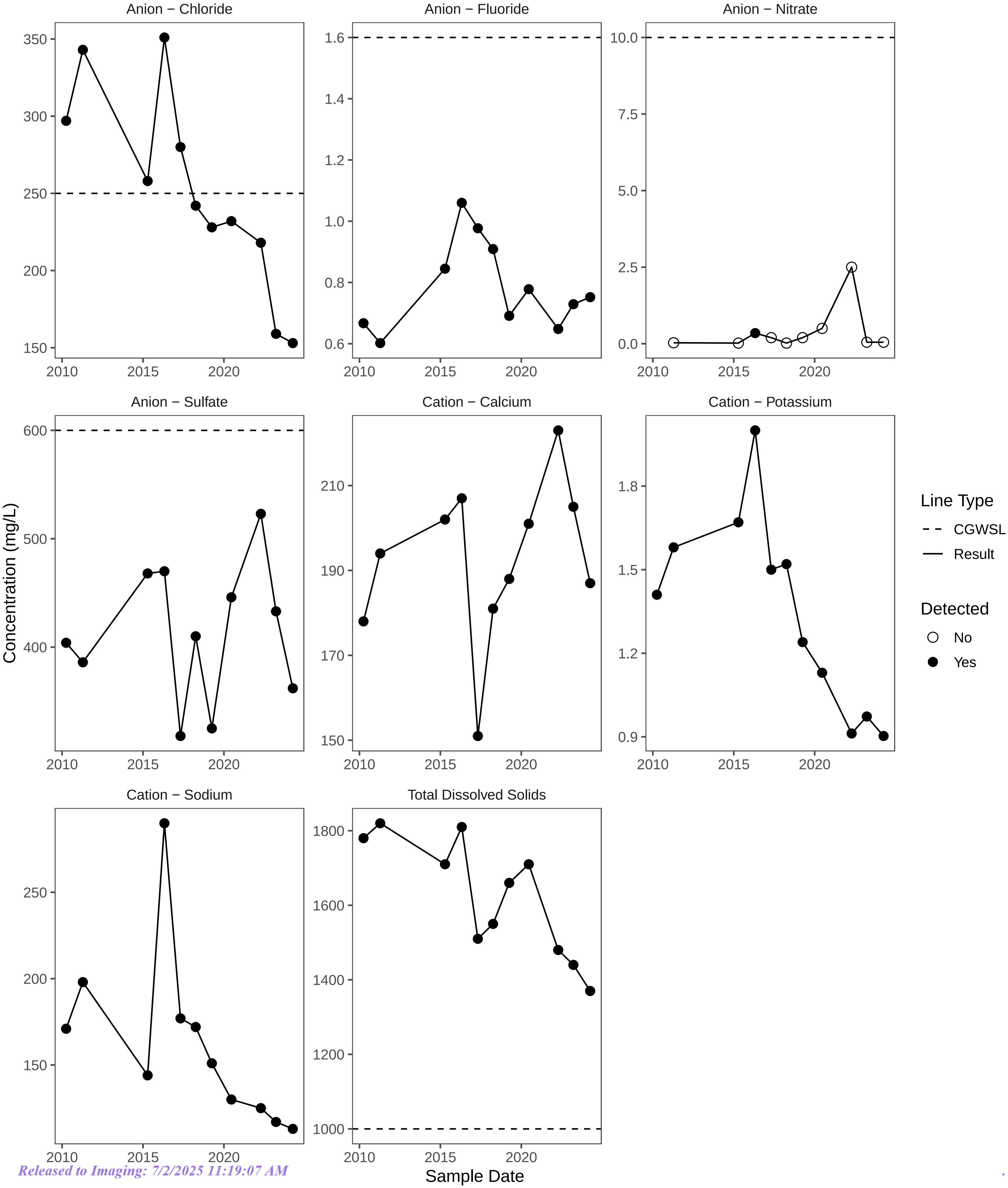

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

RW-1/RW-1B

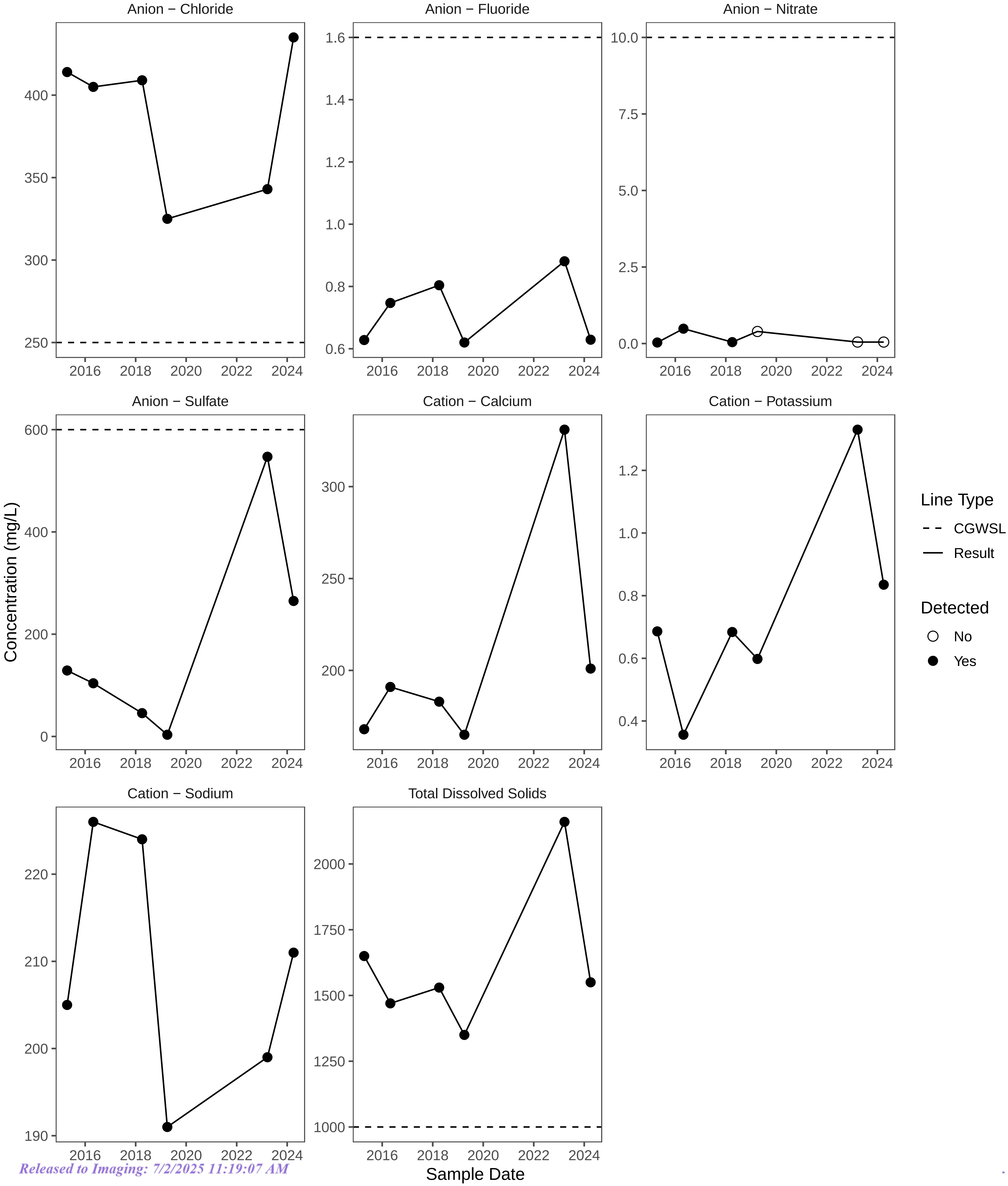

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2008 2010 2012 2014 2016 2018
Line Type
CGWSL
Result
Detected
No
Yes

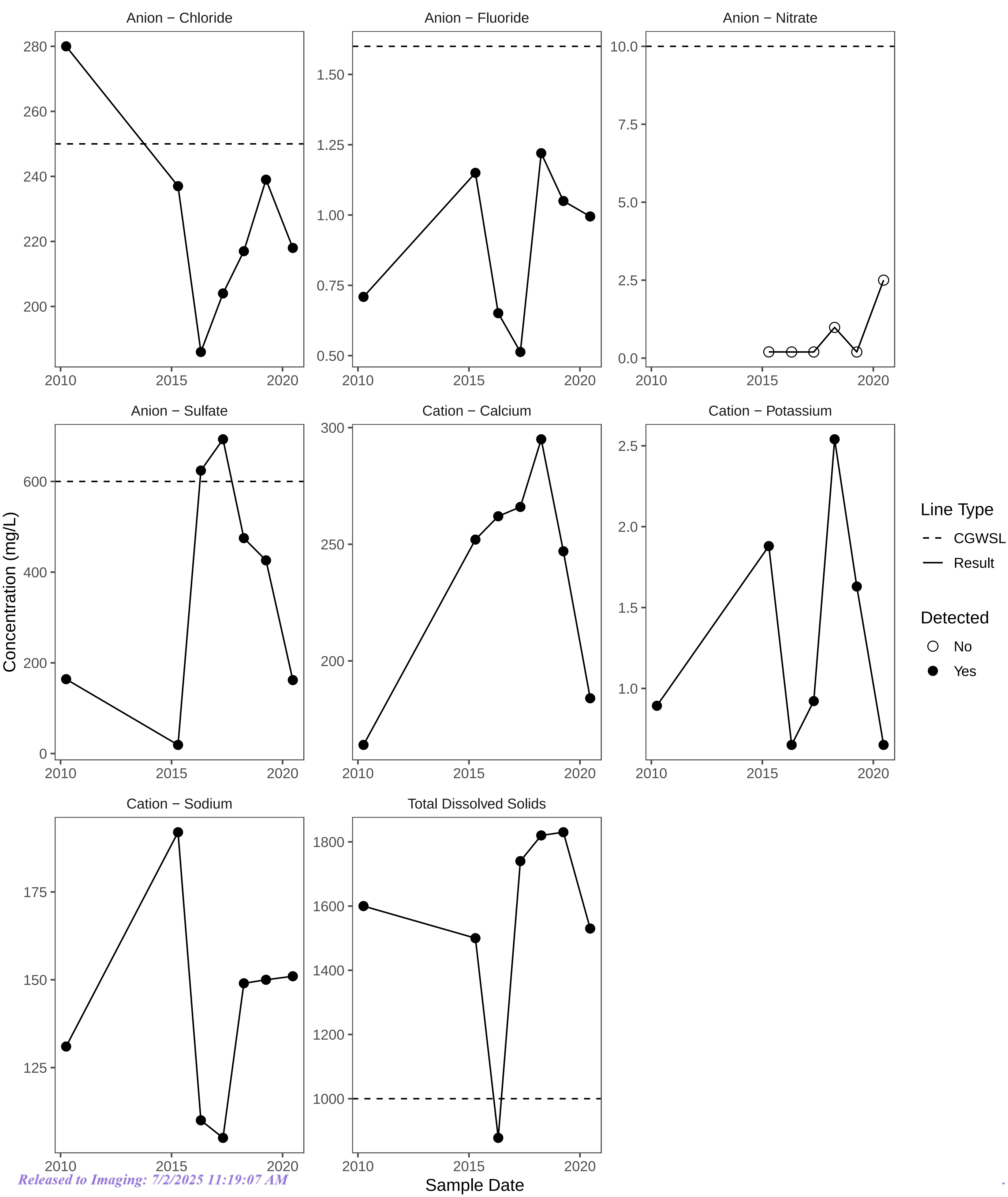

RW−2/RW−2B
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

RW-4/RW-4R

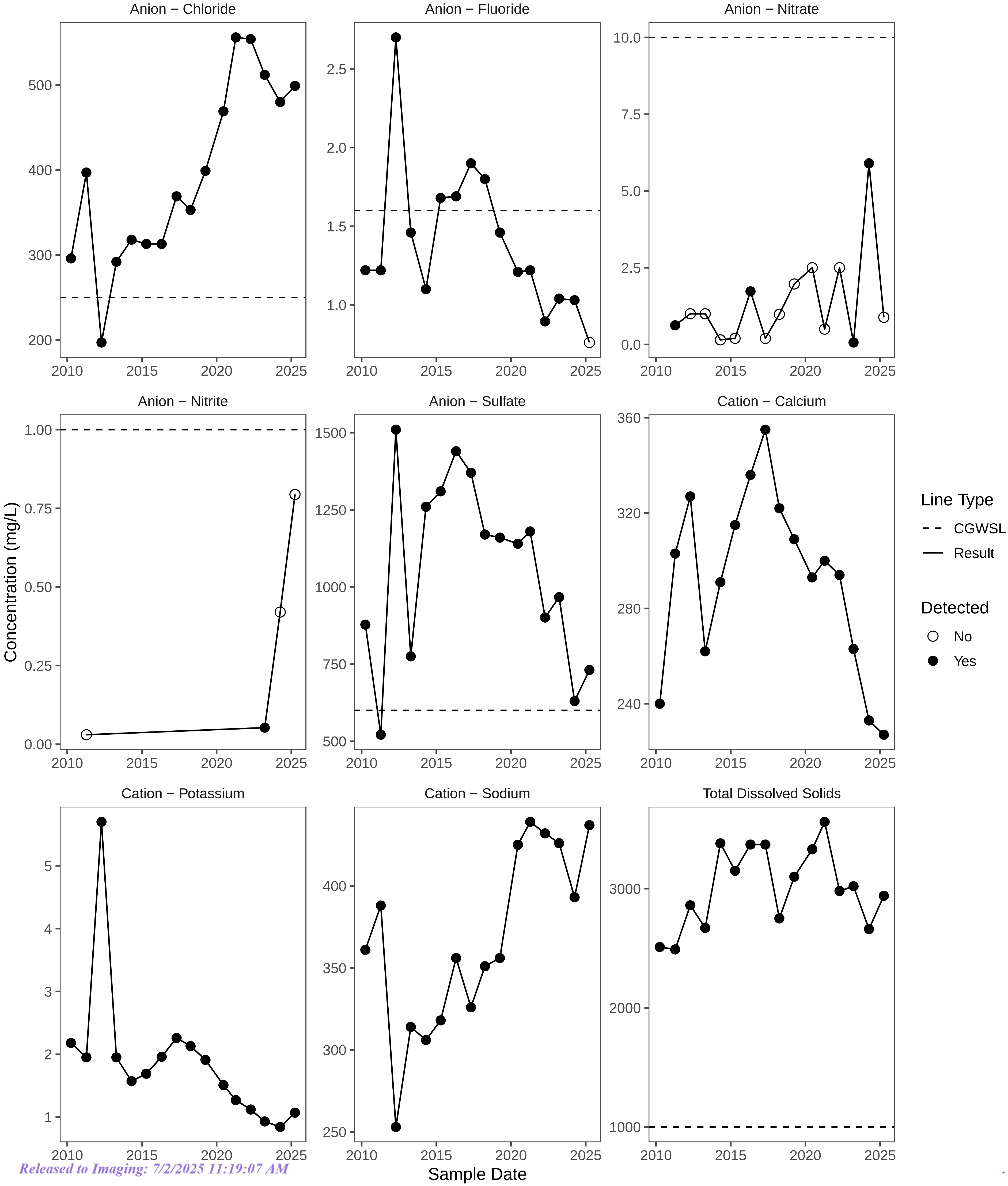

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

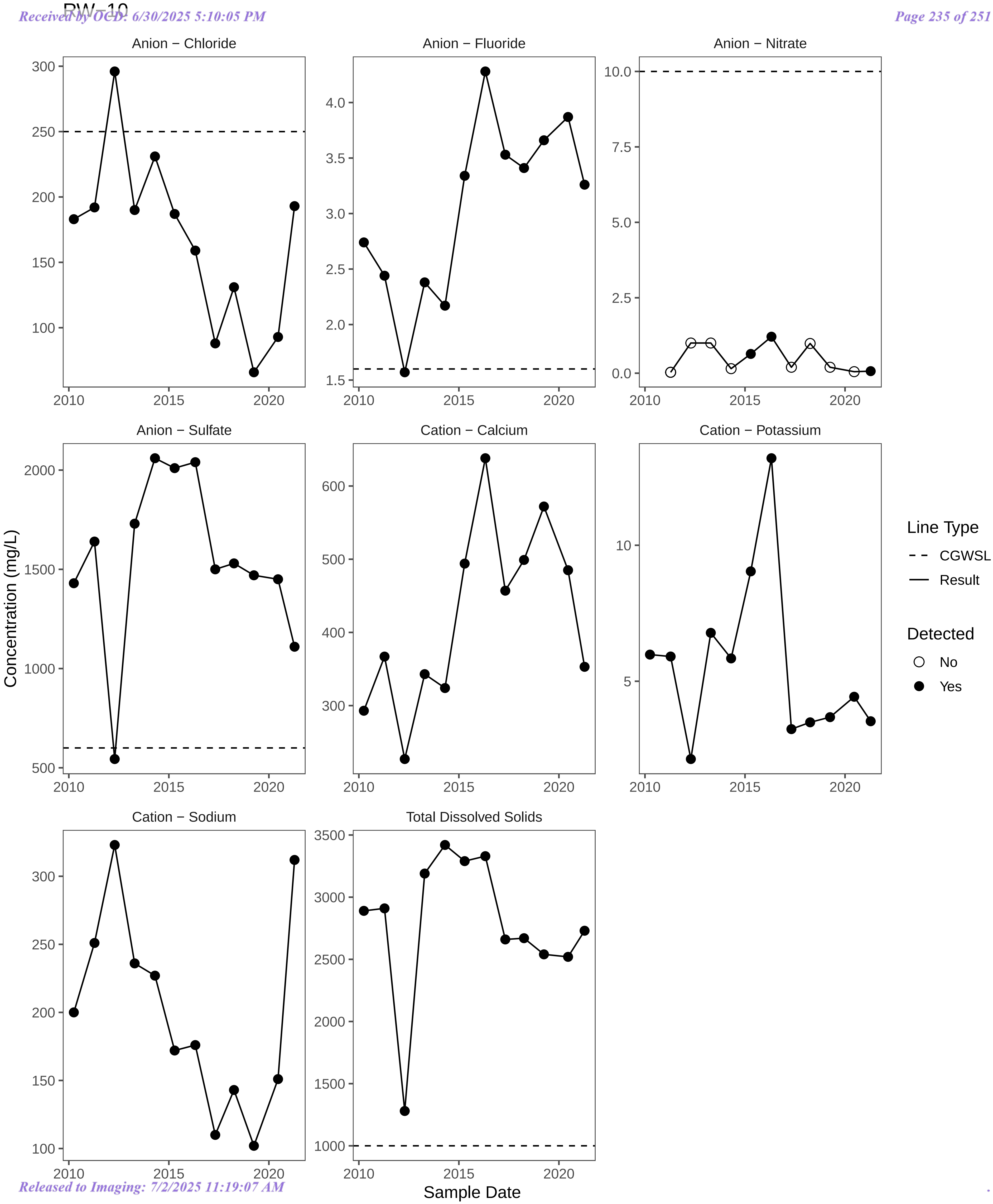
RW−6/RW−6R


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes
2016
2018
2020
2022
2024

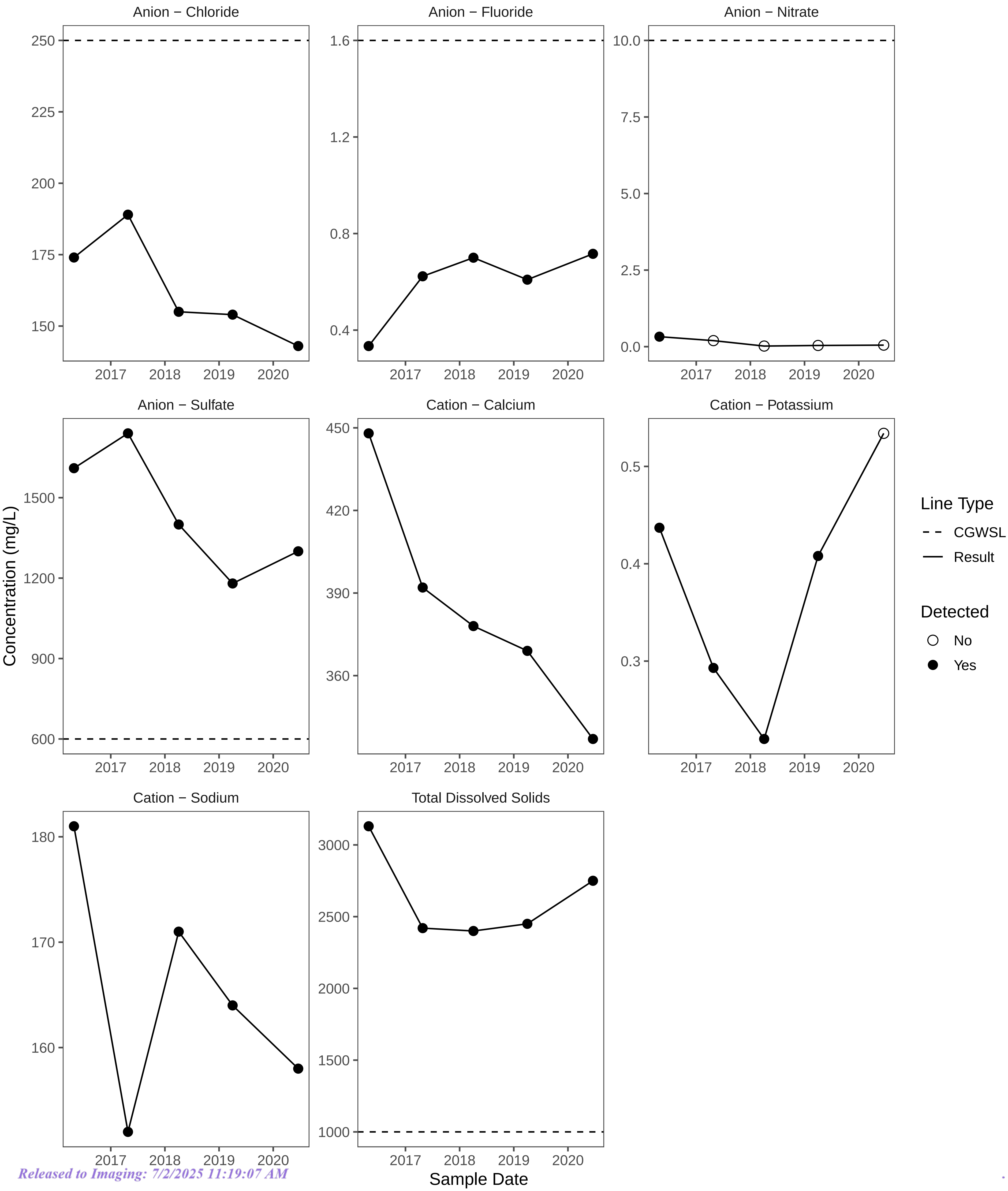

RW-7R/RW-7
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

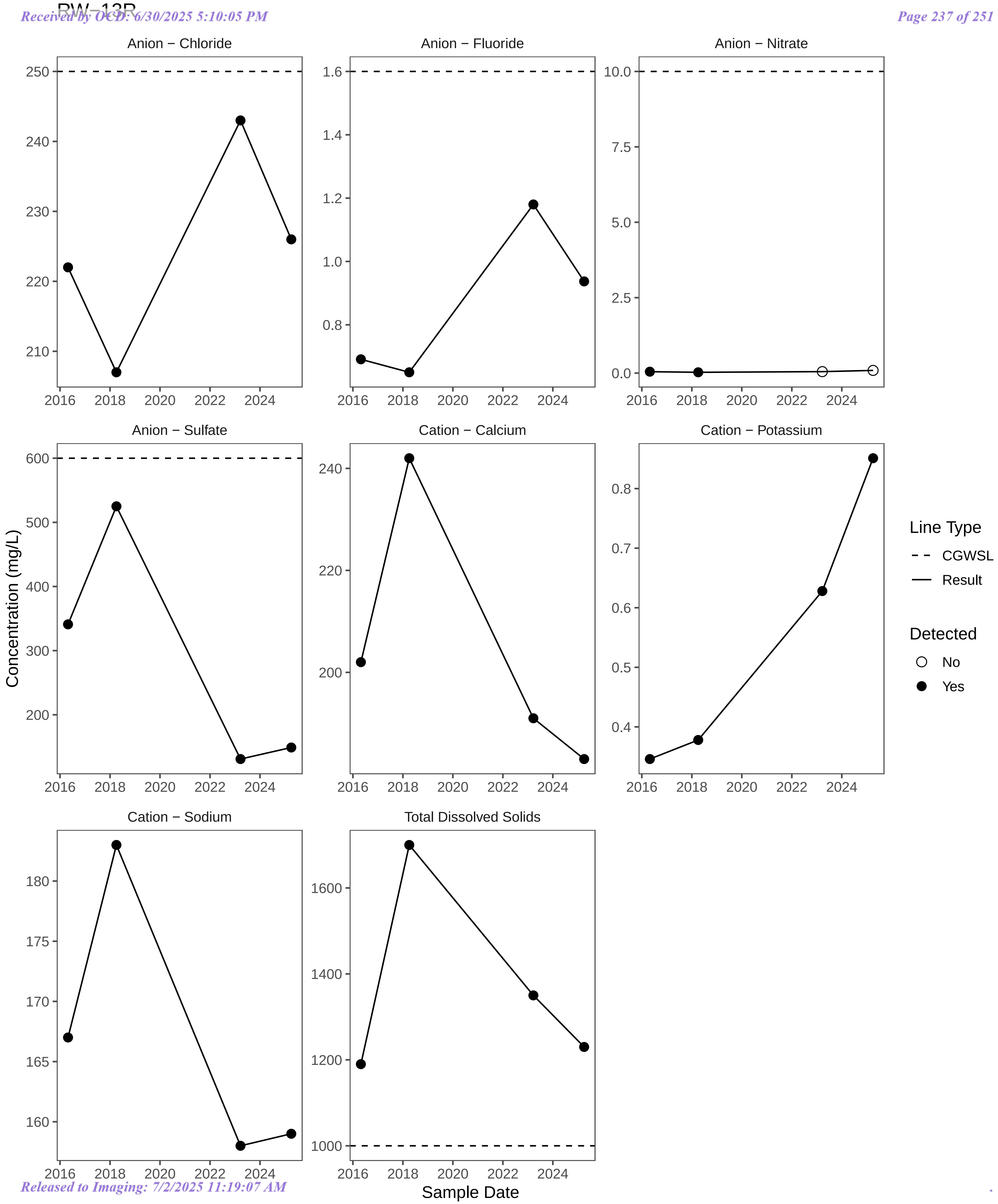
RW–9


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

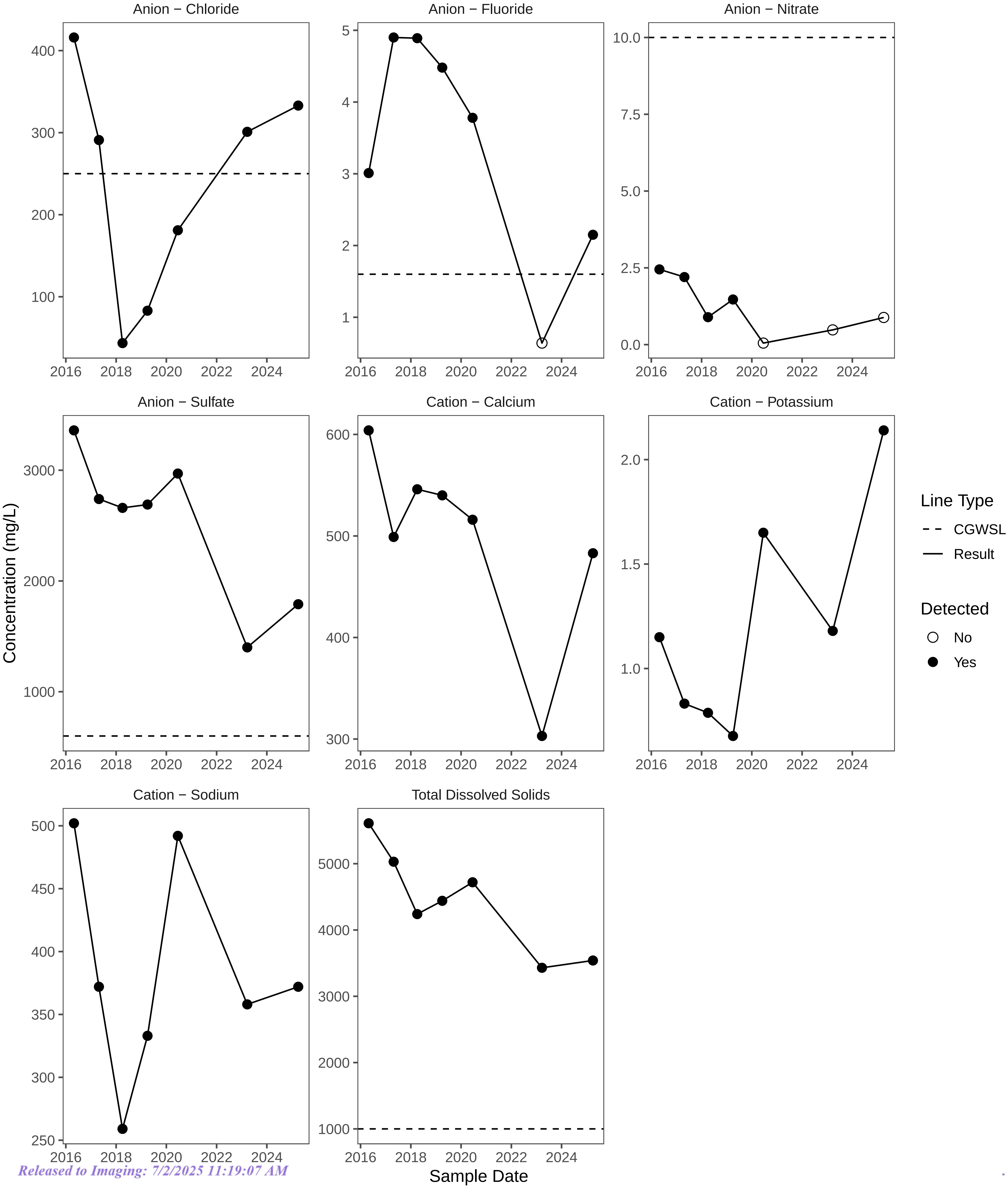

RW-10
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

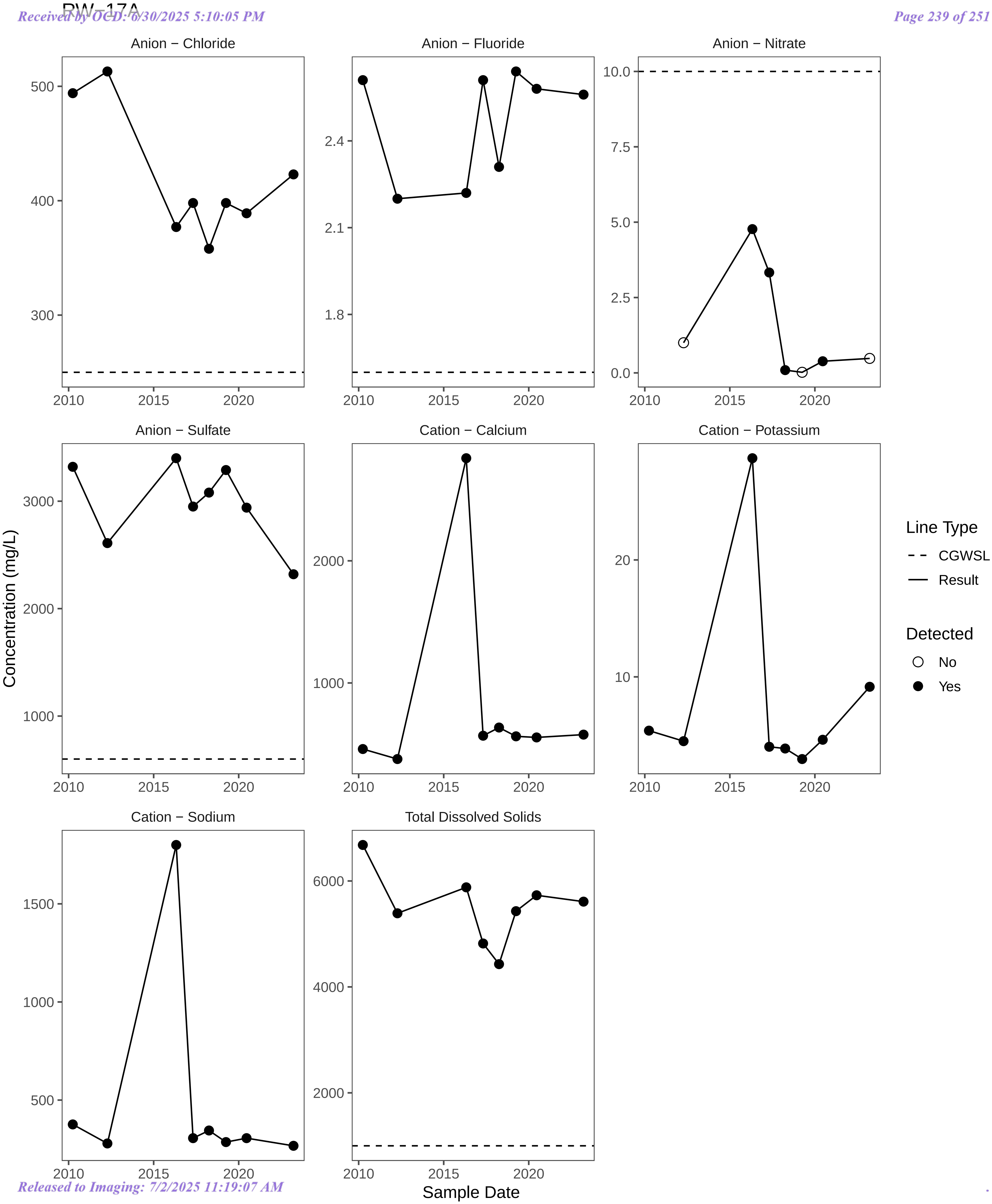
RW-12R


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
2017
2018
2019
2020
Line Type
CGWSL
Result
Detected
No
Yes

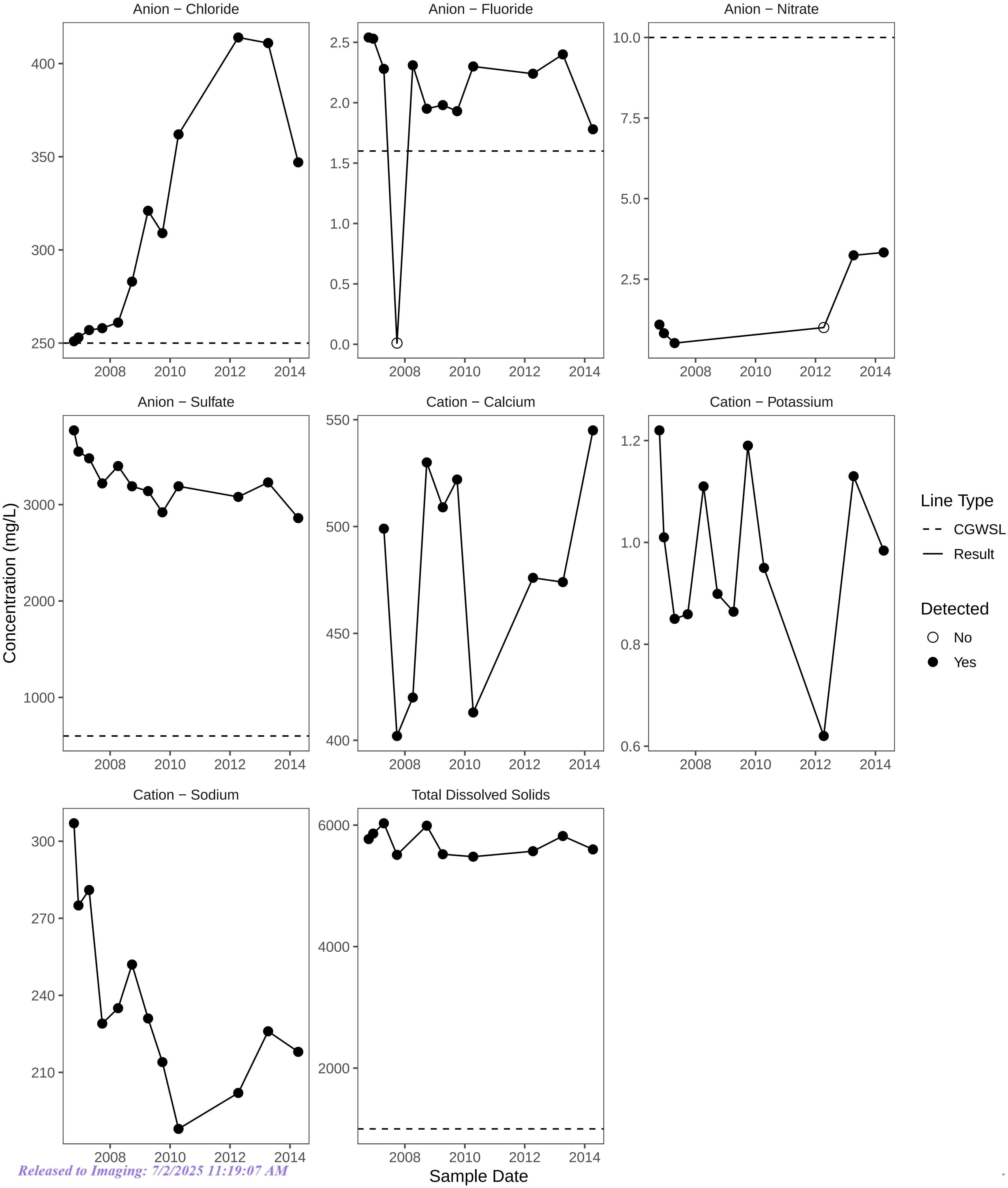

RW−13R
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

RW-16B

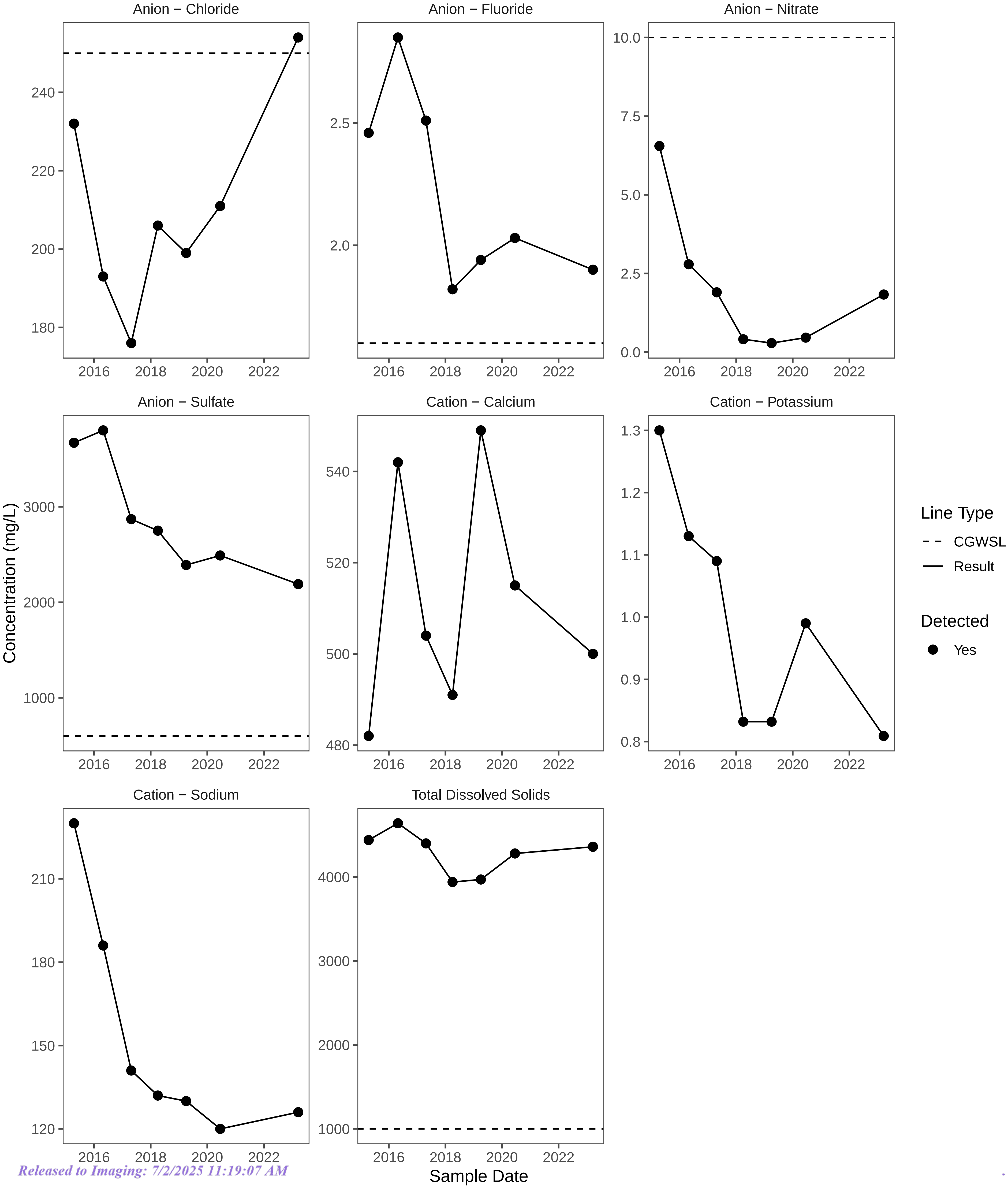

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

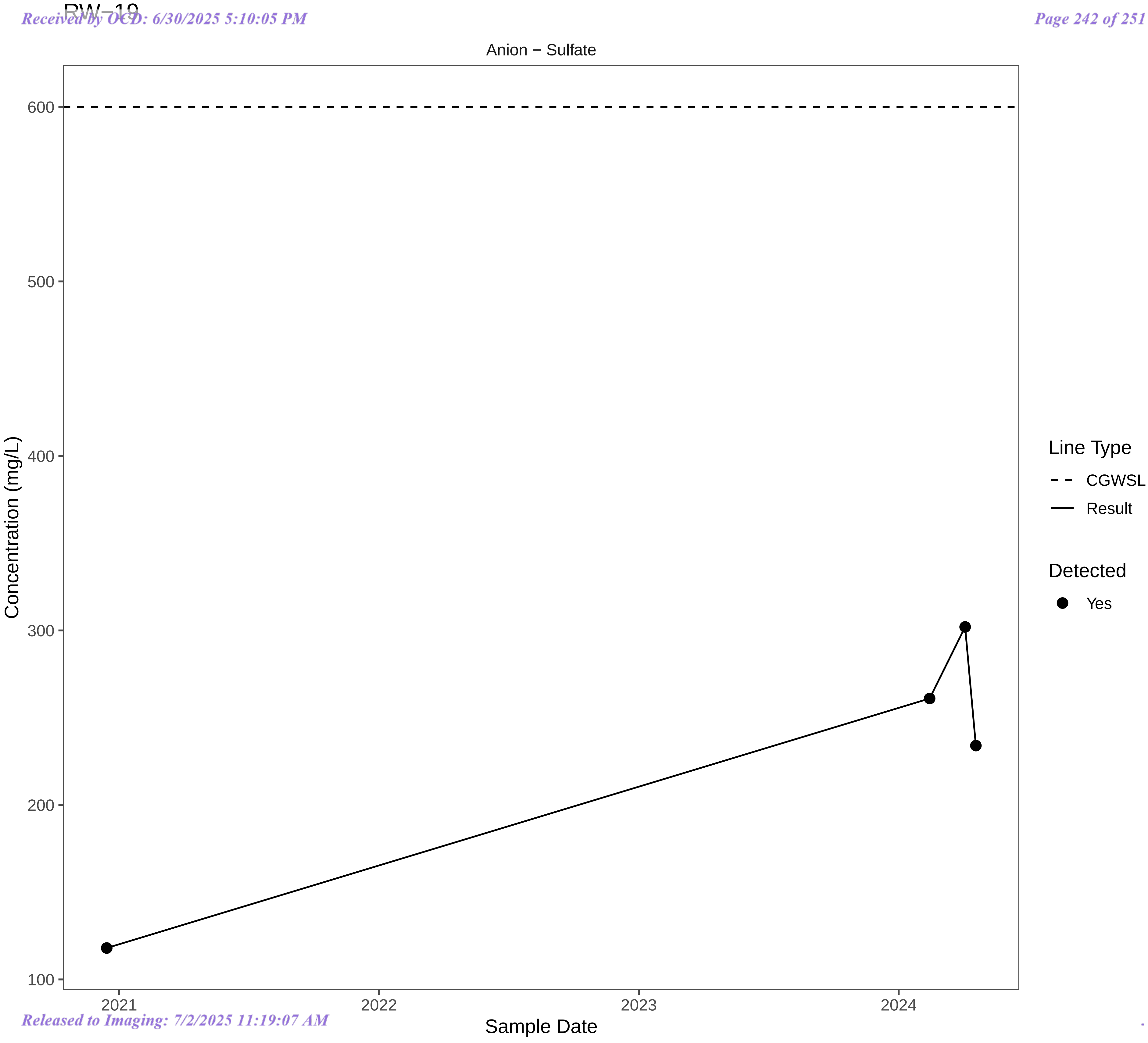

RW-17A
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

RW-18

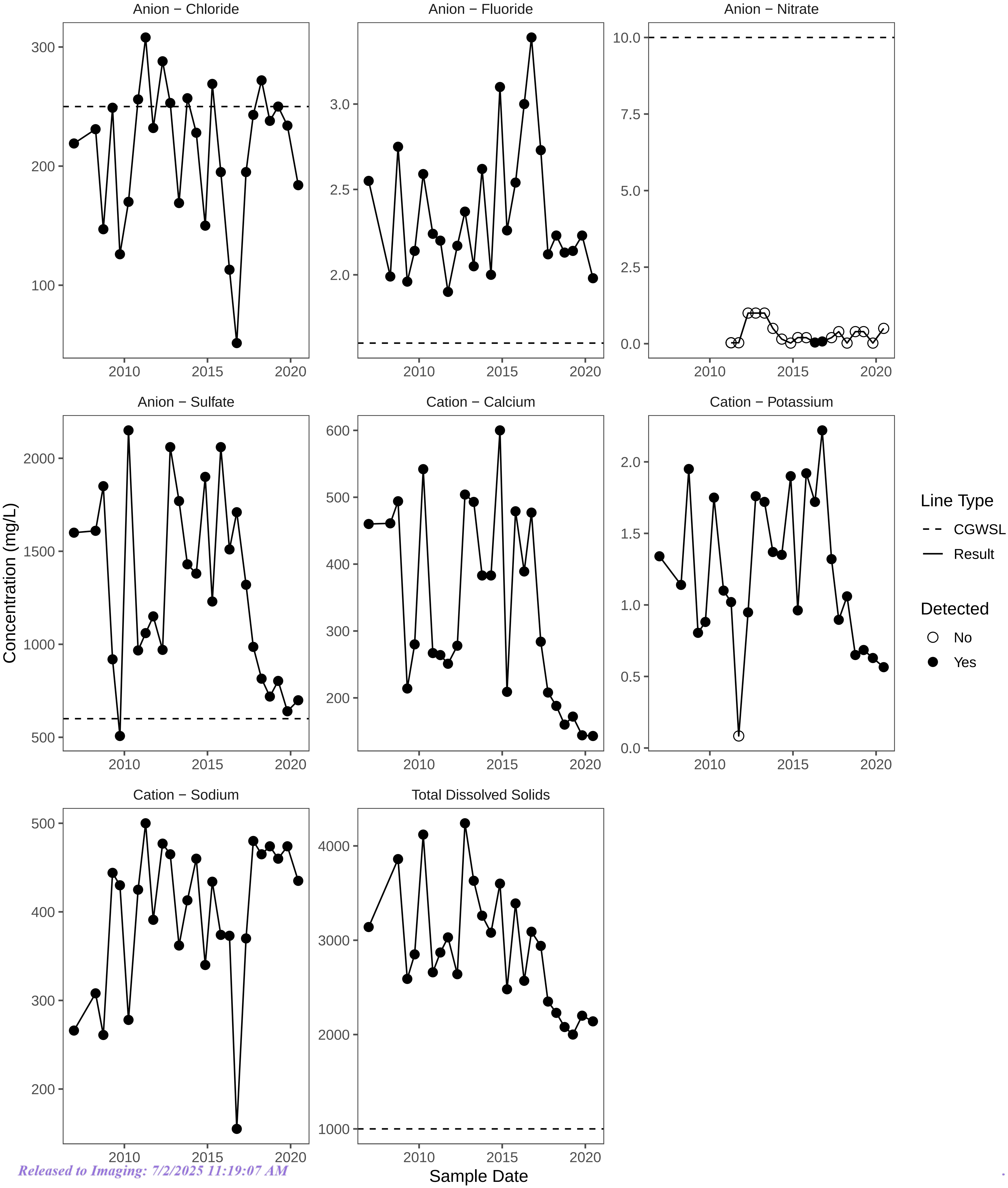

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

RW-18A

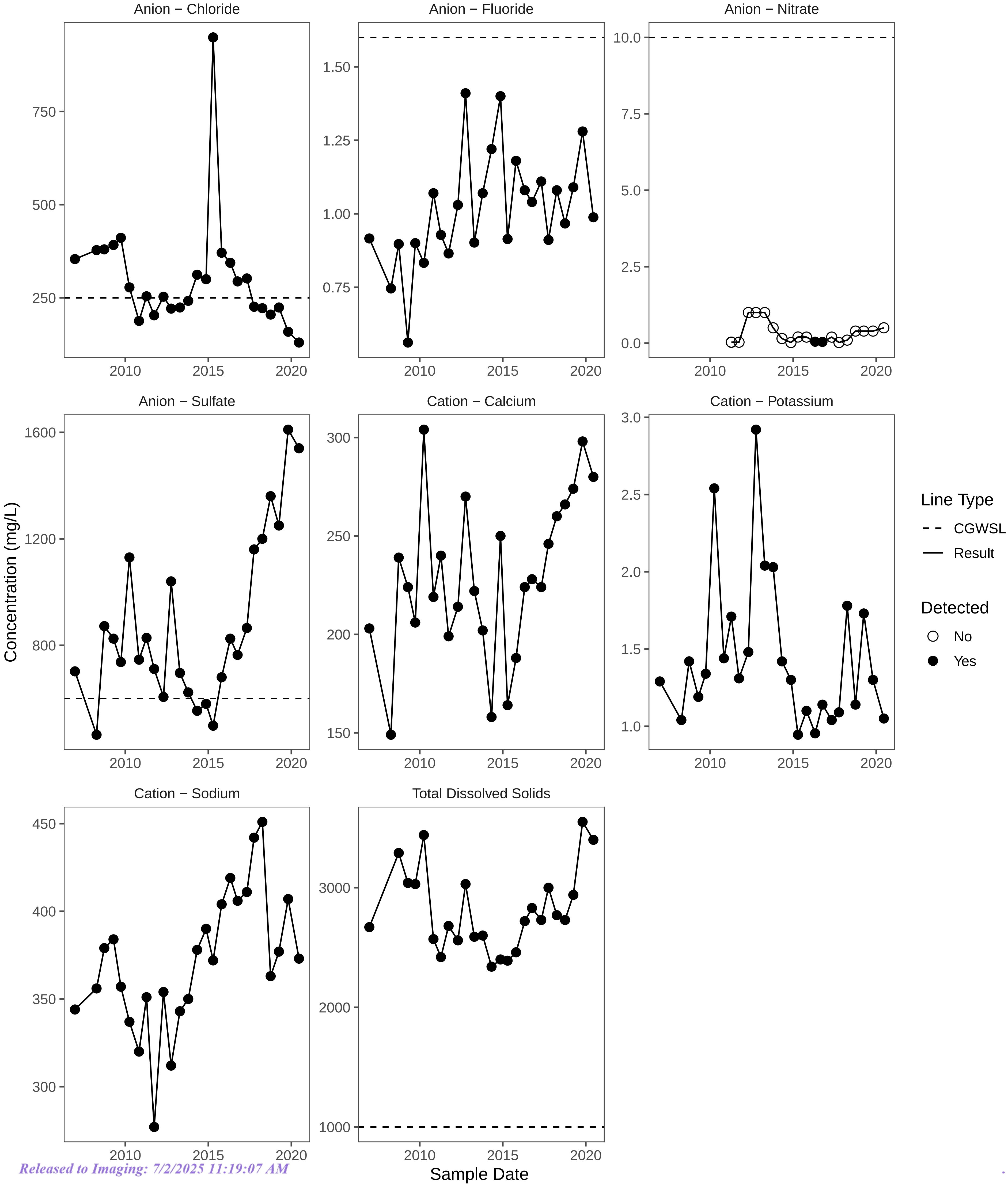

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
Yes


RW−19
Anion − Sulfate
600
500
400
300
200
100
Concentration (mg/L)
2021
2022
2023
2024
Sample Date
Line Type
CGWSL
Result
Detected
Yes

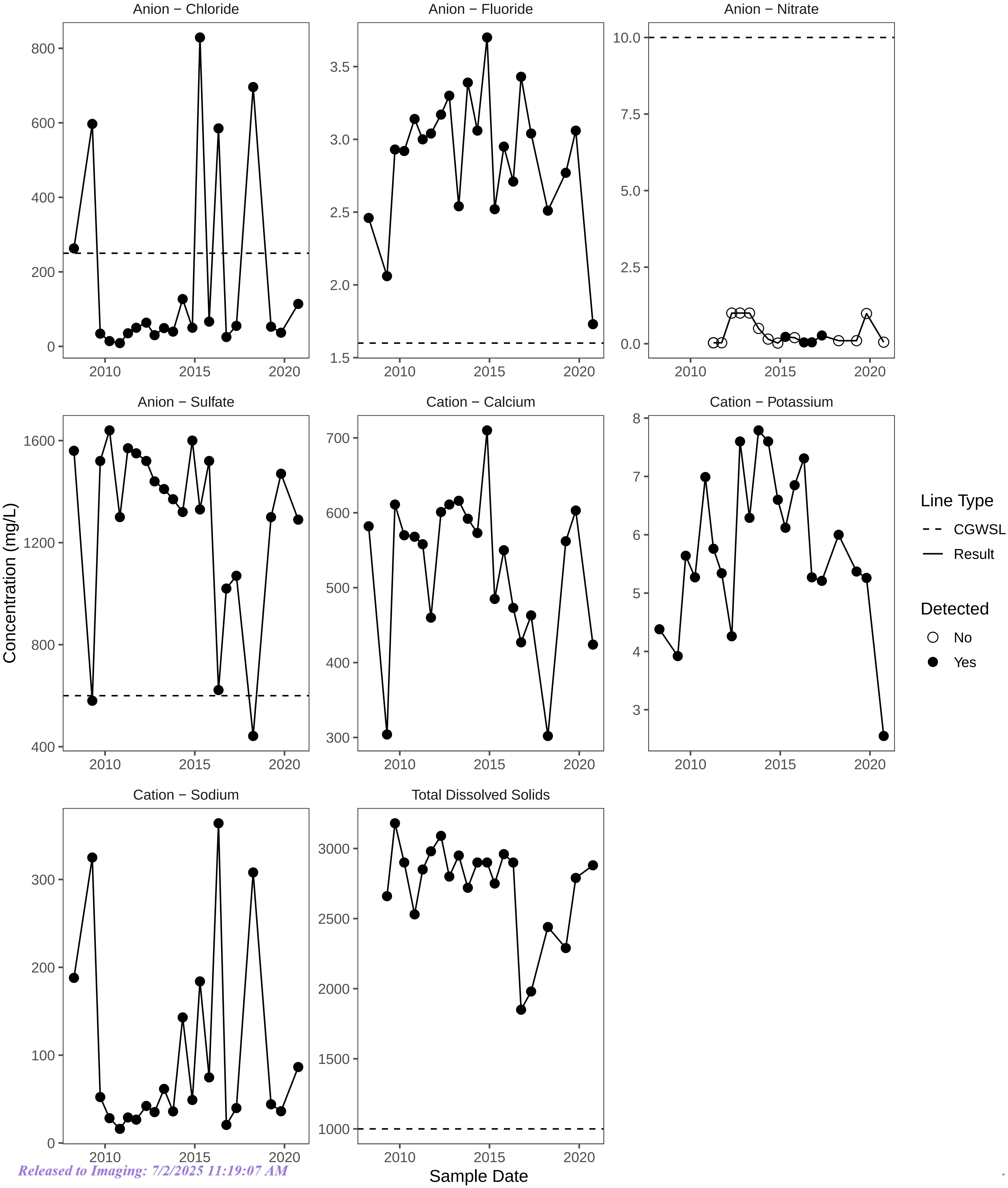
TEL-1


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

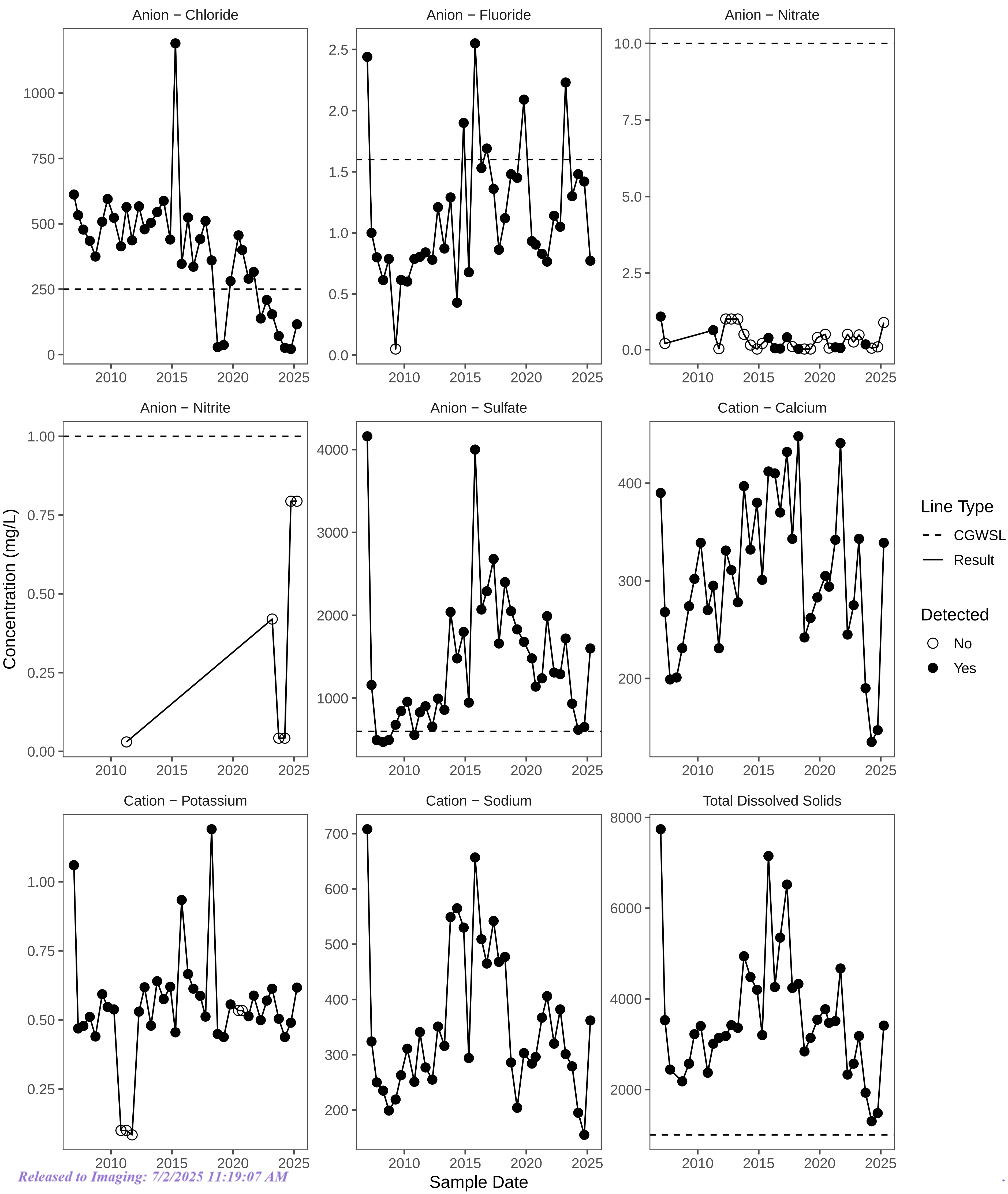
TEL-2


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

TEL-3

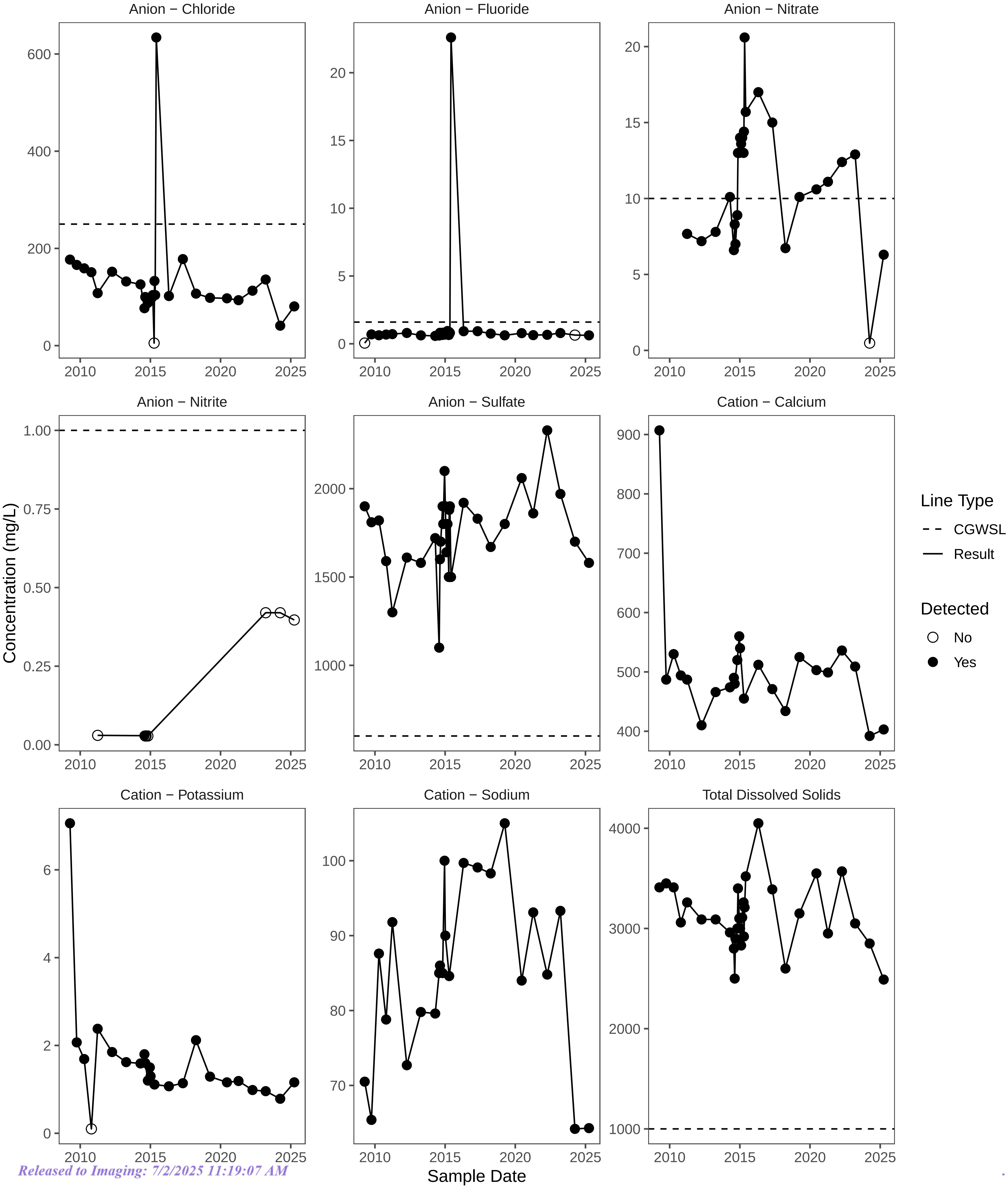

Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

TEL-4


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

Received by OCD: 6/30/2025 5:10:05 PM

UG-1



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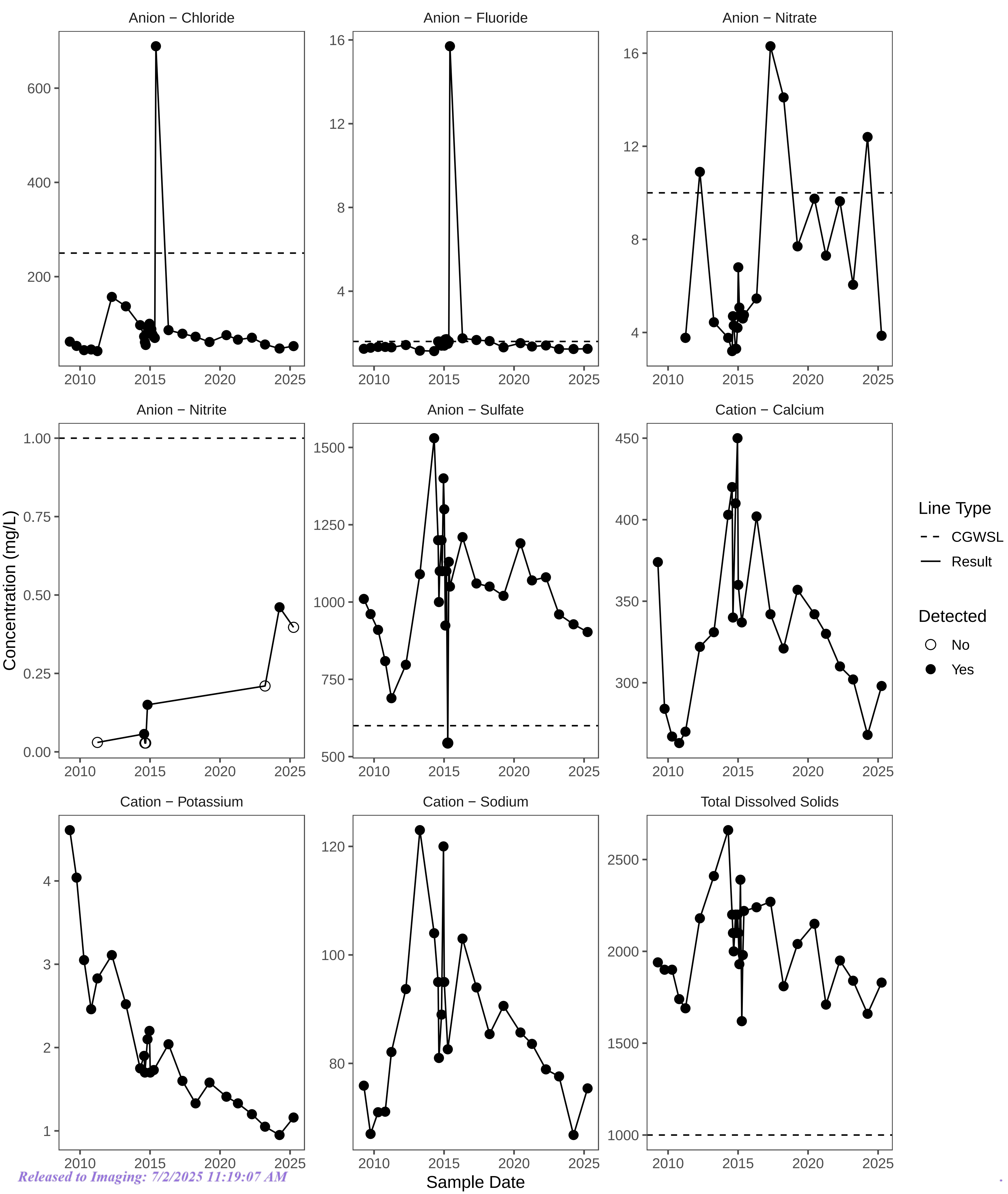
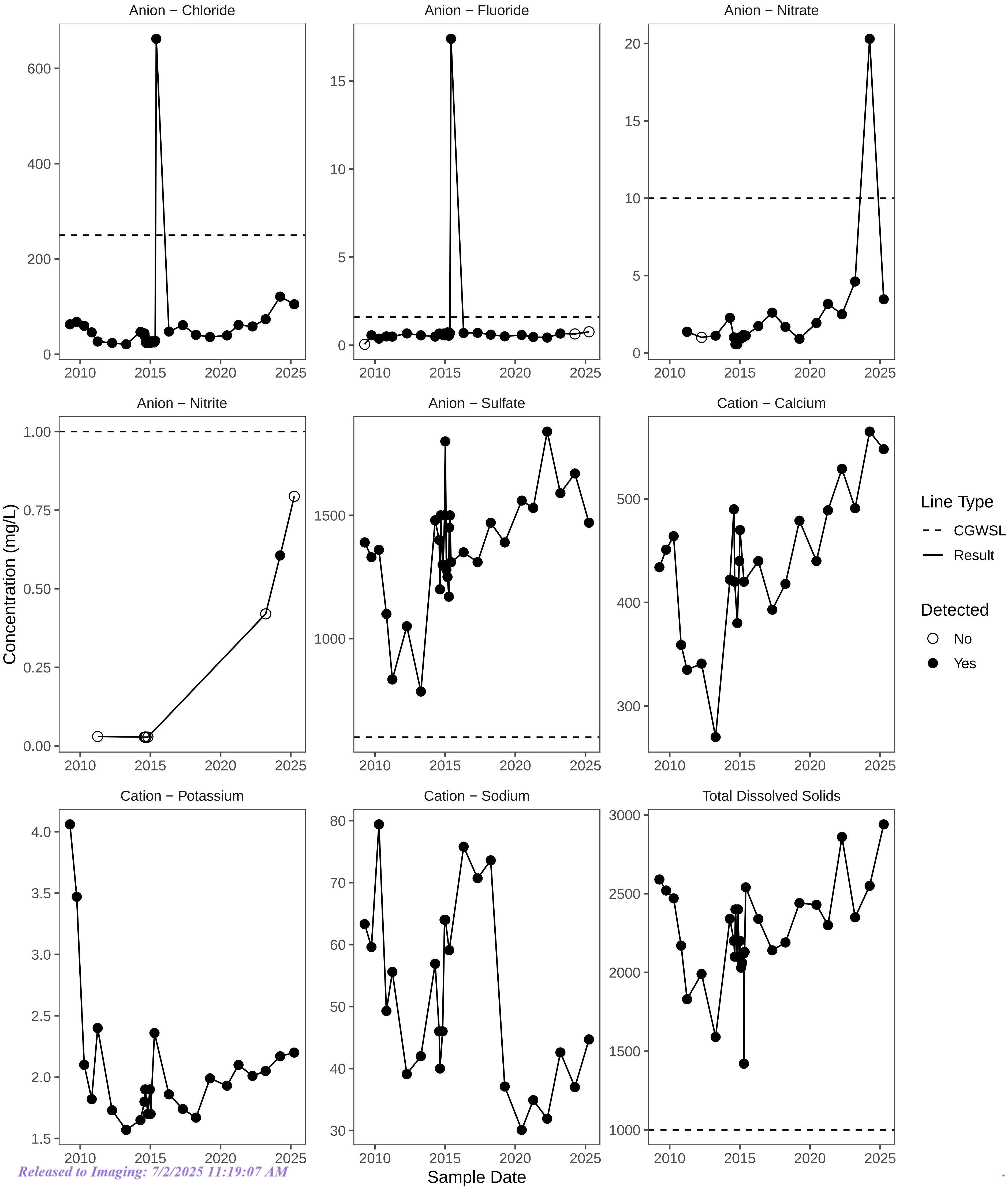
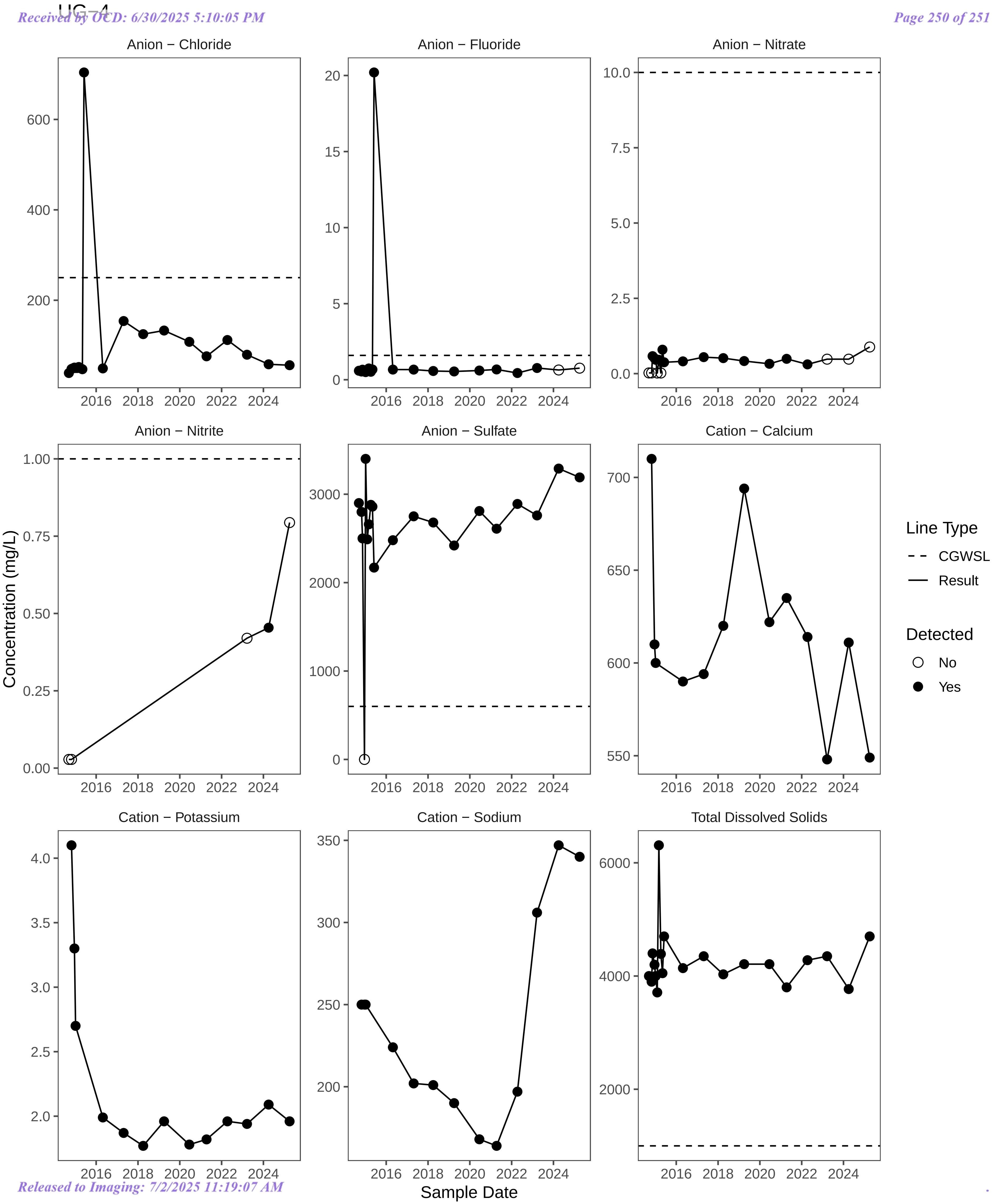

UG-2
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

UG−3R


Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes


UG-4
Anion − Chloride
Anion − Fluoride
Anion − Nitrate
Anion − Nitrite
Anion − Sulfate
Cation − Calcium
Cation − Potassium
Cation − Sodium
Total Dissolved Solids
Concentration (mg/L)
Sample Date
Line Type
CGWSL
Result
Detected
No
Yes

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 480379

CONDITIONS

Operator:	
HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 480379
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
jburdine	2025 Facility-Wide Groundwater Monitoring Work Plan for the HF Sinclair Navajo Refining LLC, Artesia Refinery approved as proposed. 1. Continue all sampling as proposed and approved in abatement plan. 2. Report semi-annually to OCD as approved and proposed.	7/2/2025