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Ramboll Environ
Emeryville, California

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2016 GROUNDWATER MONITORING OPTIMIZATION PLAN

NEVADA ENVIRONMENTAL RESPONSE TRUST SITE
HENDERSON, NEVADA

Ramboll Environ
2200 Powell Street
Suite 700
Emeryville, CA 94608
USA
www.ramboll-environ.com

RAMBOLL ENVIRON

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ACRONYMS AND ABBREVIATIONS

2016 GWMO Plan	2016 Groundwater Monitoring Optimization Plan
AMPAC	American Pacific Corporation
AOC	Administrative Order on Consent
ARP	Athens Road Piezometer
AWF	Athens Road Well Field
BMI	Black Mountain Industrial
BRC	Basic Remediation Company
CEM	Certified Environmental Manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COH	City of Henderson
COP	Continuous Optimization Program
COPC	chemical of potential concern
CSM	conceptual site model
CZE	Capture Zone Evaluation
DI	deionized
DO	dissolved oxygen
DOD	Department of Defense
DTW	depth to water
EB	equipment blank
EDD	Electronic Data Deliverable
Endeavour	Endeavour LLC
Envirogen	Envirogen Technologies, Inc.
ENVIRON	ENVIRON International Corporation
ESTCP	Environmental Security Technology Certification Program
FB	field blank
FBR	Fluidized Bed Reactor
FD	field duplicate sample
FGD	field guidance document
FS	Feasibility Study
GWETS	groundwater extraction and treatment system
GWMO	groundwater monitoring optimization
GWTP	Groundwater Treatment Plant
ITRC	Interstate Technical and Regulatory Council
IWF	Interceptor Well Field
IX	ion exchange
KMCC	Kerr-McGee Chemical Company
LDC	Laboratory Data Consultants, Inc.
LTMO	long-term monitoring optimization
µg/L	micrograms per liter
µm	micrometer
mg/L	milligrams per liter
mL/min	milliliters per minute
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDWR	Nevada Division of Water Resources

NERT	Nevada Environmental Response Trust
Northgate	Northgate Environmental Management, Inc.
NPDES	National Pollutant Discharge Elimination System
NRS	Nevada Revised Statutes
ORP	oxidation-reduction potential
PEPCON	Pacific Engineering and Production Company of Nevada
PID	photoionization detector
PM	project manager
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
Ramboll Environ	Ramboll Environ US Corporation
RAS	Remedial Alternative Studies
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
Site	Nevada Environmental Response Trust Site
SNWA	Southern Nevada Water Authority
SWF	Seep Well Field
TB	trip blank
TDS	total dissolved solids
TestAmerica	TestAmerica Laboratories, Inc.
Tetra Tech	Tetra Tech, Inc.
TIMET	Titanium Metals Corporation
TIN	total inorganic nitrogen
Tronox	Tronox LLC
Trust	Nevada Environmental Response Trust
UIC	Underground Injection Control
UMCf	Upper Muddy Creek Formation
UMCf-cg1	Upper Muddy Creek Formation, upper coarse-grained facies
UMCf-fg2	Upper Muddy Creek Formation, lower fine-grained facies
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
VSP	Visual Sample Plan Version 7.5
WBZ	water-bearing zone
WRF	Water Reclamation Facility

EXECUTIVE SUMMARY

On behalf of the Nevada Environmental Response Trust (NERT or the Trust), Ramboll Environ US Corporation (Ramboll Environ) has prepared a *2016 Groundwater Monitoring Optimization Plan* (2016 GWMO Plan) to propose changes to the groundwater monitoring program for the Nevada Environmental Response Trust Site (the Site). The proposed changes are intended to optimize the existing groundwater monitoring program, which will enhance understanding of the conceptual site model and reduce inefficiencies in data collection and interpretation. The 2016 GWMO Plan incorporates information gathered during the existing groundwater monitoring program, the Continuous Optimization Program (COP), and the Site Remedial Investigation (RI).

BACKGROUND

Groundwater investigation, remediation, and monitoring has been conducted at or in connection with the Site dating back to the mid-1980s. With each successive investigation, monitoring wells and extraction wells have been added to the Site groundwater monitoring program, such that, over time the program has become an aggregation of individual monitoring wells and well networks installed for various purposes. The existing groundwater monitoring program is generally based on Tronox LLC's (Tronox) 2008 Groundwater Sampling Plan (Tronox 2008), which was an aggregation of monitoring requirements originally set forth in the historic administrative orders and agreements between the Nevada Division of Environmental Protection (NDEP) and Kerr-McGee Chemical Company (KMCC) that governed the implementation of interim remediation measures.

Approximately 1,900 water level measurements and over 4,000 groundwater analyses are performed on approximately 1,300 groundwater samples each year as part of the existing groundwater monitoring program. The existing monitoring program includes eight monthly events, three quarterly events (performed in February, August, and November), and one expanded quarterly monitoring event that is performed in May (the "annual" monitoring event). While this data is used for various initiatives of the Trust, it is primarily used in the preparation of Annual and Semi-Annual Performance Reports for the Site.

The 2016 GWMO Plan recognizes that a final remedy has not been identified and that gaps in the characterization of the Site still exist. The 2016 GWMO Plan is not intended to result in a completely scaled-down program that would be applied to a fully-characterized site. With the RI and COP in progress, the Site is involved in a large data collection phase. The upcoming Downgradient Study Area investigation performed by AECOM will produce additional data that will be incorporated in the comprehensive RI report. Therefore, the GWMO program proposed herein, attempts to eliminate redundancies and other areas of inefficiency in the program, while still supporting the various ongoing RI data collection efforts. The proposed program is focused on those areas that are critical for providing data of sufficient quantity and quality to evaluate on-going performance of the Groundwater Extraction and Treatment System (GWETS), while also expanding the program to address known data gaps.

OBJECTIVES

The 2016 GWMO Plan provides recommendations that will result in an improved groundwater monitoring program aligned with the current needs of the Site. To reduce inefficiencies and associated costs, the program was optimized through analyses of spatial and temporal trends. In addition to providing data necessary to evaluate remedial performance using established performance metrics[1], the resulting monitoring program is expected to complement ongoing data collection and remedial decision-making efforts occurring at the Site, specifically the Site RI and the COP.

The following monitoring program objectives were used to guide the proposed changes to the monitoring program:

1. Collect groundwater data to support the operation of the GWETS.
2. Collect data necessary to evaluate performance of the GWETS using the established performance metrics[1] and to support decision-making under the COP.
3. Meet all relevant permit requirements.
4. Collect representative samples for laboratory analysis of perchlorate, chromium, TDS, and additional chemicals of potential concern (COPCs) identified as part of the in progress RI data evaluation in an effort to adequately characterize plumes over time and identify significant concentration trends[2] at the Site and in the Off-Site NERT RI Study Area[3].
5. Collect groundwater elevation data to adequately characterize hydrological conditions and identify significant hydrological trends[2] at the Site and in the Off-Site NERT RI Study Area.

As described above, the 2016 GWMO Plan is an interim step being undertaken at a time of significant data collection at the Site. Consequently, monitoring optimization should be performed periodically over the lifetime of the Site remediation to address additional/revised data needs as they arise. Further optimization of the monitoring program is anticipated to follow the completion of the RI, currently scheduled for completion in late-2018.

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[1] Performance metrics were developed as part of the 2013 GWETS Optimization Work Plan, approved by NDEP on December 3, 2013. The current performance metrics include the following: Mass Removal and Remaining Plume Mass; Capture Zone Evaluation and Estimated Mass Flux; Perchlorate Mass Loading to Las Vegas Wash; Surface Water and Groundwater Interaction Near the SWF; Environmental Footprint; GW-11's Operation as an Equalization Basin; and Analysis of Barrier Wall Performance.

[2] In general, characterizing trends in individual wells is not an objective of the monitoring program.

[3] The Off-Site NERT RI Study Area was formerly defined in the RI/FS Work Plan (ENVIRON 2014b) as the Downgradient Plume Area.

GROUNDWATER MONITORING OPTIMIZATION

Monitoring optimization was performed using an approach outlined by the USEPA combining a quantitative spatial analysis, a quantitative temporal analysis of sampling frequency, and a comprehensive qualitative analysis that incorporates site-specific knowledge. This approach is referred to as "three-tiered" monitoring optimization (Nobel and Anthony 2004, USEPA 2005).

Site-specific statistical optimizations were performed to assess the spatial distribution and the temporal frequency of sampling in the Site's existing groundwater monitoring program and the results of these analyses were reviewed using site-specific criteria to verify that the resulting monitoring program would provide useful and complete information to promote sound decisions. The dataset used in evaluating the monitoring program included data collected between January 1, 2011 and December 31, 2015.

PROPOSED GROUNDWATER MONITORING PROGRAM

The 2016 GWMO Plan recommends proposed changes to the existing monitoring program that will result in a more efficient program and a more complete understanding of COPCs at the Site. The recommendations fall under seven main categories:

- Changes to the monitoring well network, including removal of redundant monitoring wells from the program and addition of recently-installed monitoring wells to the program;
- Changes to monitoring frequency at monitoring wells;
- Adjustments to the list of monitored analytes;
- Changes to the sampling methods;
- Initiation of monitoring well inspections and maintenance;
- Changes to groundwater monitoring reporting; and
- Future groundwater monitoring optimization efforts.

Proposed Changes to Monitoring Well Network

Removal of Monitoring Wells from Program

Eight (8) wells (M-128, M-130, M-131, M-146, MC-29, MC-45, PC-68, and PC-92) were identified as spatially redundant and are recommended for removal from the groundwater monitoring program. Additionally, seven (7) wells (BEC-1, DM-4, DM-5, HSW-1, L-635, L-637, and M-29) included in the current program were unable to be sampled in recent years due to various reasons and will be removed from the monitoring program.

Addition of Monitoring Wells from Remedial Investigation

The 2016 GWMO Plan recommends the addition of the 23 wells that were constructed during the RI to the monitoring program in order to characterize groundwater conditions at these locations over time. It is proposed that these wells be sampled during the semi-annual and annual sampling events (generally in November and May, respectively). Once a baseline dataset for these 23 wells has been collected, the inclusion of these wells will be re-evaluated as part of the next groundwater monitoring optimization expected to follow the completion of the RI.

Proposed Changes to Monitoring Frequency

Based on the temporal evaluation of analytical data, monthly and quarterly analytical sampling generally can be reduced to semi-annual sampling without losing information regarding trends in the analytical data. Therefore, the 2016 GWMO Plan proposes that all wells that are currently measured at monthly or quarterly intervals be sampled for analytical data on a semi-annual schedule unless permits require otherwise. Wells that are currently sampled on an annual schedule will not change. The new semi-annual sampling event will take place during the fourth quarter of each year, ideally in mid-November. The annual sampling event will continue to take place during the second quarter of each year, ideally in mid-May.

Generally, groundwater elevations can be measured with the same frequency as analytical measurements, with the exception of wells subject to permit reporting requirements and wells in identified areas of interest critical to monitoring remedial performance. These areas include the three extraction well fields, the barrier wall, the former recharge trenches, and the Bird Viewing Ponds. Groundwater elevations in wells in these areas will be monitored either quarterly or monthly depending on the specific well.

No changes in monitoring frequency are recommended at extraction wells. Extraction wells were excluded from the analysis because the current sampling frequency is necessary for evaluation of the GWETS and for GWETS optimization being performed under the COP.

In the proposed plan, the number of wells that are sampled monthly for perchlorate and TDS will decrease from 77 to 48 and the number of wells that are measured monthly for groundwater elevations will decrease from 136 to 78. All of these monthly samples will be taken at extraction wells or wells identified as critical to monitoring barrier wall and extraction well performance. The number of wells that are sampled quarterly for total chromium, perchlorate, and TDS will decrease from 141 to 61. The number of wells that are measured quarterly for groundwater elevations will decrease from 170 to 123.

Proposed Changes to Monitored Analytes

Addition of Volatile Organic Compounds, Nitrate, and Chlorate Monitoring

The 2016 GWMO Plan recommends sampling for nitrate and chlorate at all monitoring wells during the semi-annual (fourth quarter) and annual (second quarter) sampling events. Annual sampling of VOCs is also recommended. In addition to adding the sampling and analysis of VOCs, nitrate, and chlorate at monitoring wells, chlorate and nitrate will be sampled monthly at extraction wells for the purpose of better understanding effects on GWETS performance. Sampling and analysis for VOCs is not recommended at the extraction wells at this time.

Elimination of Hexavalent Chromium Analyses

A comparison of historical hexavalent chromium and total chromium data in monitoring wells indicates that chromium and hexavalent chromium are highly correlated. As a result, the 2016 GWMO Plan recommends eliminating hexavalent chromium sampling in monitoring wells except where required by National Pollutant Discharge Elimination System (NPDES) and Underground Injection Control (UIC) permits. The 2016 GWMO Plan does not recommend eliminating hexavalent chromium sampling in extraction wells, where this sampling is used in the evaluation of GWETS performance. This recommendation will result in a net decrease of 4 hexavalent chromium samples per year.

Elimination of Sterile-Filtering for Perchlorate

For consistency with the Downgradient Study Area investigation currently being performed by AECOM, Ramboll Environ recommends the elimination of perchlorate sterile filtering for samples collected from groundwater monitoring and extraction wells.[4] Recent guidance has stated that sterile filtration of groundwater samples for the purposes of analysing perchlorate may not be necessary if containers have headspace, are agitated, and are immediately chilled (Cal EPA 2016).

Elimination of pH Laboratory Analyses

The 2016 GWMO Plan recommends the elimination of laboratory analyses of pH given they will be redundant with the pH measurements taken in the field during low-flow sampling at all monitoring wells (as proposed below). The measured field pH values will be entered into the low-flow sampling field parameters electronic data deliverable (EDD) and will be maintained in a database.

Proposed Changes to Sampling Methods

The 2016 GWMO Plan recommends that all monitoring wells be sampled using the low-flow method for purging and sampling. The switch to low-flow sampling at all wells is recommended due to 1) the greater accuracy and repeatability of analytical samples collected; 2) the greater accuracy of field-measured groundwater parameters (temperature, pH, oxidation-reduction potential [ORP], dissolved oxygen [DO], turbidity, and specific electrical conductance); and 3) the addition of VOCs to the analyte list, which can be volatilized using traditional purging.

Proposed Monitoring Well Network Maintenance

Comprehensive Monitoring Well Survey and Reconnaissance

Well construction and location information for all former and current wells in the vicinity are available in the All Wells Database, an Excel spreadsheet maintained by NDEP consultants containing well construction details provided by the Black Mountain Industrial (BMI) Complex parties (Broadbent 2014). This database currently has gaps and uncertainties regarding ground elevations, top of casing elevations, coordinates, and screened intervals, which hinder efficient interpretation of groundwater monitoring data. To address these issues, the 2016 GWMO Plan recommends a comprehensive survey of all NERT-owned monitoring wells and any additional monitoring wells owned by other BMI Complex parties that are included in the proposed monitoring network. Targeted well

[4] NDEP has previously issued guidance that perchlorate samples should be field filtered at the time of collection using a sterile surfactant free cellulose acetate 0.20 micrometer (µm) filter and sterile sample container. However, sterile filtration is not required as part of the Groundwater Sampling Plan for the Downgradient Study Area per NDEP's direction (AECOM 2016).

reconnaissance efforts, such as video logging, are also proposed at wells with uncertain or unknown screened intervals. Following this initial comprehensive effort, wells will be resurveyed on an as-needed basis.

Monitoring Well Inspection, Decommissioning, Repair, and Replacement

As part of the 2016 GWMO Plan, well inspections are recommended for all NERT-owned monitoring wells and any additional monitoring wells owned by other BMI Complex parties included in the proposed monitoring network. During well inspection, wells with known issues will be assessed and recommendations to address their defects will be developed. Recommendations could include well decommissioning, repair, or replacement, depending on the well's location and the extent of the identified issue. Should the well inspections uncover any heretofore undiscovered well defects, recommendations to appropriately repair or decommission problem wells will be made and executed. Comprehensive well inspections should reoccur at 5-year intervals to ensure that the monitoring program functions properly over the long term.

Proposed Changes to Reporting

Currently, remedial performance reporting consists of an annual report submitted at the end of October following a comprehensive annual sampling event conducted in second quarter and a semi-annual report submitted at the end of April. The 2016 GWMO Plan recommends that future semi-annual reports be replaced with a streamlined data transmittal accompanied by a management-level summary of remedial performance.

The current semi-annual reports consist of text, tables, and figures documenting groundwater conditions and remedial performance, with appendices containing laboratory data reports, data validation reports, field documentation, and EDDs. The proposed semi-annual report would include all the current appendices. The text, tables, and figures would be focused on remedial performance with respect to the performance metrics and the goals set forth in the COP. The structure of the annual reports would remain unchanged. The proposed change in semi-annual reporting will eliminate redundancy in the reporting and shift focus to the quantitative aspects of remedial performance.

Proposed Future Groundwater Monitoring Optimization

As ongoing data collection efforts proceed, and as a final remedy is developed, monitoring optimization will need to be performed at certain project milestones and periodically thereafter to maintain effectiveness of the monitoring program. Monitoring optimization will be performed again after completion of the RI and then again following the Feasibility Study (FS) to align the monitoring program to the needs of the project at these critical stages. When a final remedy has been selected, a long-term monitoring optimization (LTMO) Plan will be developed. Following approval and implementation of the LTMO Plan, the LTMO would then be reviewed every five years and revised as necessary to ensure that the monitoring program remains effective over the lifetime of the final remedy.

SUMMARY OF PROPOSED GROUNDWATER MONITORING PROGRAM

The updated groundwater monitoring program described in this 2016 GWMO Plan calls for analytical sampling and water level measurements at 108 monitoring wells during the semi-annual (4th quarter) event and at 225 monitoring wells during the annual (2nd quarter) event. Water levels will be measured in an additional 17 monitoring wells at the semi-annual event and in an additional 22 monitoring wells at the annual event.

Due to removal of redundant and damaged wells from the monitoring program and addition of wells installed for the RI to the monitoring program, the proposed well network includes eight more wells than the existing well network. Nonetheless, due to the proposed reductions in sampling frequency at monitoring wells, the proposed groundwater monitoring plan will result in the following reductions in the total number of samples per year: 129 total chromium samples, 4 hexavalent chromium samples, and 365 perchlorate and TDS samples. In addition, 538 fewer groundwater elevations will be measured each year. The proposed monitoring plan includes a significant expansion in chlorate and nitrate sampling by 884 samples per year. The addition of VOCs to the proposed monitoring program will result in 225 VOC samples per year.

ROLES AND RESPONSIBILITIES

The 2016 GWMO Plan also provides clarity on the roles and responsibilities for those involved in implementing the groundwater monitoring program for the Site as follows:

- Envirogen is responsible for conducting the groundwater monitoring and sampling activities outlined in this document. Envirogen will also prepare documents summarizing field data and field observations, as well as backup documentation for these activities. Envirogen is responsible for sample handling and sample storage prior to laboratory submittal.
- Tetra Tech will provide oversight of Envirogen's field sampling and monitoring activities to ensure that they comply with the Site's approved methods and procedures. Tetra Tech will ensure that all deliverables produced by Envirogen as part of the groundwater monitoring program, are complete, have undergone data verification and Quality Assurance/Quality Control (QA/QC) evaluations to ensure that deliverables are free of omissions and are reasonably free of errors, and approved by a Nevada Certified Environmental Manager (CEM).
- TestAmerica Laboratories, Inc. (TestAmerica) is responsible for courier sample pickup and laboratory analysis. It is the responsibility of the analytical laboratory to ensure that the hard copy data/pdf reports, electronic data, and data posted through TestAmerica's website are identical. TestAmerica will also perform in-house analytical data validation under the direction of their own QA Officer and Laboratory Project Manager (PM).
- Secondary, independent data validation will be performed by Ramboll Environ's independent contractor, Laboratory Data Consultants, Inc. (LDC). The data validator will provide an EDD with data qualifiers, reason codes, and validation level columns appended to the data results. The validated data will be applied to the results records in the project database maintained by Ramboll Environ.

- Ramboll Environ will verify the deliverables provided by TestAmerica are complete and have undergone data verification and QA/QC evaluations in order to produce deliverables that are reasonably free of errors. Ramboll Environ will also provide data management services and perform all data evaluation and reporting for the groundwater monitoring program.

METHODS AND PROCEDURES

The 2016 GWMO Plan includes methods and procedures that are to be followed during implementation of the revised groundwater monitoring program. Methods and procedures included in the plan are in the following categories:

- Well-related procedures such as surveys, inspections, maintenance, installation, development, and decommissioning.
- Sampling-related procedures such as groundwater gauging, low-flow groundwater sampling, and Quality Assurance and Quality Control (QA/QC) sampling.
- Data management procedures such as formatting for EDDs for depth to water (DTW) and field parameters.

The methods and procedures associated with sampling and analysis described in this 2016 GWMO Plan will be further detailed in a Sampling and Analysis Plan (SAP) that will be prepared upon approval of the 2016 GWMO Plan. These procedures may be modified as necessary if unforeseen conditions develop. NDEP will be notified if significant modifications are made to the procedures described in the 2016 GWMO Plan.

1. INTRODUCTION

On behalf of the Nevada Environmental Response Trust (NERT or the Trust), Ramboll Environ US Corporation (Ramboll Environ) has prepared this *2016 Groundwater Monitoring Optimization Plan* (2016 GWMO Plan) to propose changes to the groundwater monitoring program for the Nevada Environmental Response Trust Site (the Site). The proposed changes are intended to optimize the existing groundwater monitoring program, which will enhance understanding of the conceptual site model and reduce inefficiencies in data collection and interpretation. The 2016 GWMO Plan incorporates information gathered during the existing groundwater monitoring program, the Continuous Optimization Program (COP), and the Site Remedial Investigation (RI).

The existing groundwater monitoring program is based on Tronox LLC's (Tronox) 2008 Groundwater Sampling Plan (Tronox 2008), which was an aggregation of monitoring requirements originally set forth in the historic administrative orders and agreements between the Nevada Division of Environmental Protection (NDEP) and Kerr-McGee Chemical Company (KMCC) that governed the implementation of the interim remediation measures. Recognizing the need to reassess the groundwater monitoring program, in 2011 Northgate Environmental Management, Inc. (Northgate) prepared a Technical Memorandum on Long-Term Monitoring Optimization (LTMO) (Northgate 2011). The Northgate LTMO viewed the Site as having reached stable conditions under the existing interim remediation measures. It recommended removing 80 monitoring wells from the monitoring network and significantly scaling back the frequency of monitoring to include abbreviated monthly and quarterly sampling with more extensive annual and 5-year monitoring events. The 2011 Northgate LTMO was not approved by NDEP and it was decided that monitoring optimization should be postponed until the RI was underway.

The 2016 GWMO Plan differs significantly from the 2011 Northgate LTMO in its aim, methods, and results. While the Northgate LTMO assumed that Site operations were stable, this plan recognizes that a final remedy has not been identified and that gaps in the characterization of the Site still exist. Unlike the Northgate LTMO, the 2016 GWMO Plan is not intended to result in a simple, minimized program that would be applied to a mature, fully-characterized site. With the RI and COP in progress, and the investigation of the Downgradient Study Area[5] set to commence, the Site is in the midst of a large data collection phase. An interim optimization is now necessary to eliminate the redundancies in the program while providing data of sufficient quantity and quality to evaluate remedial performance, and that also expands the program where data gaps exist in order to align the program with the current needs of the Site.

1.1 Objectives

The 2016 GWMO Plan provides recommendations that will result in an improved groundwater monitoring program aligned with the current needs of the Site. To reduce

[5] The Downgradient Study Area investigation is a component of the RI for the Site that is being performed by AECOM. The data collected during the Downgradient Study Area investigation will be incorporated in the comprehensive RI report that will follow the conclusion of the RI in late-2018. The Downgradient Study Area runs south-to-north from approximately Galleria Road to just north of the northern shore of the Las Vegas Wash and west-to-east from just east of the Duck Creek Confluence Weir to wells WMW3.5N and WMW3.5S. The Off-Site NERT RI Study Area is excluded from the Downgradient Study Area.

inefficiencies and associated costs, the program was optimized through analyses of spatial and temporal trends. In addition to providing data necessary to evaluate remedial performance using established performance metrics[6] the resulting monitoring program is expected to complement ongoing data collection and remedial decision-making efforts occurring at the Site, specifically the Site RI and the COP.

In order to accomplish this goal, the specific objectives of the monitoring program have to be reassessed to make sure they are in line with current Site needs. An effective monitoring program relies on clearly-defined objectives to inform the selection of sampling locations, sampling frequency, and analytical suites. The existing monitoring program was based on objectives defined during multiple phases of investigation and interim remediation measures performed at the Site and Off-Site NERT RI Study Area, some of which are no longer relevant or necessary. It is, therefore, appropriate to redefine the monitoring objectives in the course of optimizing the existing monitoring program to provide the basis for the revised monitoring plan that is responsive to the current needs of the Site. The following monitoring objectives were used to guide the proposed changes to the monitoring program:

1. Collect groundwater data to support the operation of the groundwater extraction and treatment system (GWETS).
2. Collect data necessary to evaluate performance of the GWETS using the established performance metrics[6] and to support decision-making under the COP.
3. Meet all relevant permit requirements.
4. Collect representative samples for laboratory analysis of perchlorate, chromium, TDS, and additional chemicals of potential concern (COPCs) identified as part of the RI data evaluation in an effort to adequately characterize plumes over time and identify significant concentration trends[7] at the Site and in the Off-Site NERT RI Study Area.
5. Collect groundwater elevation data to adequately characterize hydrological conditions and identify significant hydrological trends[7] at the Site and in the Off-Site NERT RI Study Area.

As described above, the 2016 GWMO Plan is an interim step being undertaken at a time of intense data collection at the Site; therefore, the spatial and temporal optimization has been performed using methodologies and criteria consistent with a conservative approach (i.e., establish a high bar for redundancy). Further optimization of the monitoring program is anticipated to follow the completion of the RI. It is important to note that subsequent monitoring optimizations will have different objectives for the monitoring program and may use different methodologies and criteria appropriate for the needs of

[6] Performance metrics were developed as part of the 2013 GWETS Optimization Work Plan, approved by NDEP on December 3, 2013. The current performance metrics include the following: Mass Removal and Remaining Plume Mass; Capture Zone Evaluation and Estimated Mass Flux; Perchlorate Mass Loading to Las Vegas Wash; Surface Water and Groundwater Interaction Near the SWF; Environmental Footprint; GW-11's Operation as an Equalization Basin; and Analysis of Barrier Wall Performance.

[7] In general, characterizing trends in individual wells is not an objective of the monitoring program.

the Site at that time. It is not the intent of the 2016 GWMO Plan to establish a standard methodology or set of criteria for all subsequent monitoring optimizations.

1.2 Organization

This report is organized as follows:

- **Section 2** provides background information regarding the history of monitoring at the Site. It also describes current conditions at the Site and relevant local regulations.
- **Section 3** explains the methods used to optimize the monitoring program and the rationale for selecting these methods.
- **Section 4** describes proposed changes to the groundwater monitoring program and outlines the proposed monitoring program in detail.
- **Section 5** lists the responsibilities of various parties for accomplishing all components of the monitoring program.
- **Section 6** describes the procedures and methods that are required for the proposed monitoring program.
- **Section 7** contains concluding remarks.
- **Section 8** lists citations for key documents referenced in this plan.

2. RELEVANT BACKGROUND INFORMATION

2.1 History of Groundwater Monitoring and Remediation at the Site

Groundwater investigation, remediation, and monitoring has been conducted at the Site and at associated properties not owned by the Trust since the mid-1980s. With each successive investigation, monitoring wells and extraction wells have been added to the Site groundwater monitoring program, such that, over time the program has become an aggregation of individual monitoring wells and well networks installed for varied purposes. Understanding the purpose and the context of the various groundwater investigations provides insight on how the monitoring program developed and how it may be optimized. The following sections briefly describe the major groundwater investigations, which were associated with various orders and agreements to install wells for the purpose of groundwater characterization or implementation of interim remediation measures.

These sections focus only on groundwater. For a complete discussion of previous regulatory actions and Site investigations refer to the Remedial Investigation and Feasibility Study (RI/FS) Work Plan, Revision 2 (ENVIRON 2014b).

2.1.1 Overview of Regulatory Actions and Investigations: 1980 - 2005

This section provides a brief chronological summary of groundwater investigations conducted through 2005.

In July 1981, KMCC initiated a groundwater investigation to comply with federal Resource Conservation and Recovery Act (RCRA) standards associated with certain on-site impoundments. This investigation involved the installation of nine monitoring wells and identified elevated chromium concentrations in groundwater underlying the Site.

In 1986, KMCC and NDEP entered into a Consent Order, which required additional groundwater characterization activities and the implementation of removal activities to address elevated concentrations of chromium in groundwater (NDEP 1986). Pursuant to the Consent Order, KMCC installed an additional 43 monitoring wells and a groundwater Interceptor Well Field (IWF) consisting of 11 groundwater extraction wells (I-A through I-K) in the shallow water-bearing zone (WBZ) in late 1986 (ENSR 2005). The extracted groundwater was conveyed to a chromium treatment facility (called the Groundwater Treatment Plant or "GWTP"), constructed in 1986-87 along with the IWF, where hexavalent chromium was reduced to trivalent chromium and then precipitated. The treated water was subsequently re-injected through two parallel recharge trenches located approximately 250 feet downgradient (north) of the IWF line of wells.

In April 1991, KMCC was one of six past or present entities that had conducted business within the BMI Complex that entered into a Consent Agreement with NDEP (NDEP 1991) to conduct environmental studies to assess site-specific environmental conditions at individual company sites, the BMI Common Areas[8], and any off-site waste management

[8] The BMI Common Areas refers to properties in the BMI Complex owned or operated by Basic Remediation Company LLC; Basic Management, Inc. (formerly known as Basic Investments, Inc.); Basic Environmental Company LLP (formerly known as Basic Management, Inc.); and The LandWell Company (NDEP 2006).

areas that were the result of past and present industrial operations and waste disposal practices.

In April 1993, and in compliance with the 1991 Consent Agreement, KMCC submitted a Phase I Environmental Conditions Assessment report to NDEP (Kleinfelder 1993). The purpose of the report was to identify and document site-specific environmental impacts resulting from past or present industrial activities.

In 1996, KMCC and the other parties at the BMI Complex entered into a Consent Agreement with NDEP to perform a Phase II Environmental Conditions Assessment and to conduct Remedial Alternative Studies (RAS), Interim Measures, or Additional Work (NDEP 1996). KMCC collected additional data in 1996 and 1997 as part of a Phase II Environmental Conditions Assessment (ENSR 1997) for additional groundwater characterization.

In late 1997, perchlorate contamination was discovered in the Las Vegas Wash and was determined to have originated from the KMCC and former Pacific Engineering and Production Company of Nevada (PEPCON) facilities (NDEP 2011). KMCC undertook a perchlorate characterization study to determine the subsurface pathway(s) and the perchlorate concentrations in shallow groundwater downgradient from the Site to its discharge in Las Vegas Wash. Between March and June 1998, soil borings and monitoring wells were drilled and installed and the subsurface data was mapped and analyzed. The investigation results were presented in the Phase II Perchlorate Investigation Report (KMCC 1998). KMCC installed extraction wells in the Athens Road area in September 1998 to remove perchlorate-bearing shallow groundwater (KMCC 1998).

In early 1999, hydrologists with the Southern Nevada Water Authority (SNWA) discovered a perchlorate-impacted seep discharging into the Las Vegas Wash. This led to another phase of off-site monitoring well installation, sampling, and groundwater characterization between March and September 2000. These results were presented in the Seep Area Groundwater Characterization Report (KMCC 2001).

By late 1999, a water collection system and temporary ion exchange (IX) treatment process for perchlorate removal was installed at the Las Vegas Wash and began operating as a result of a 1999 Consent Agreement between KMCC and NDEP which defined initial removal requirements (NDEP 1999). Additional interceptor wells were installed in 1998 and early 1999 for continued capture of on-site groundwater for removal of hexavalent chromium (ENSR 2005). These interceptor wells, in combination with the interceptor wells installed in 1987 as a result of the 1986 Consent Order, continued to capture on-site groundwater for removal of hexavalent chromium; however, instead of re-injecting the treated groundwater, the treated water was impounded in a lined pond (GW-11, constructed in late 1998) and held for additional treatment for perchlorate. Untreated Lake Mead water was reinjected into the groundwater system via the recharge trenches (NDEP 2011).

Between 1999 and 2001, KMCC conducted a supplemental Phase II Environmental Conditions Assessment, the results of which were submitted to NDEP in April 2001 (ENSR 2001).

In 2001, an Administrative Order on Consent (AOC) (NDEP 2001) defined additional removal requirements that included a low-permeability barrier wall with an upgradient collection (interceptor) well field, the construction of the Athens Road groundwater collection well field, the construction of the seep area collection well field, and the development of a treatment process that removes chromium and perchlorate from the collected water and then discharges the water within limits set forth in an existing National Pollutant Discharge Elimination System (NPDES) permit.

In response to this order, from 2001 to 2004, the Seep Well Field (SWF) and the Athens Road Well Field (AWF) were installed to address perchlorate impacts. The on-site IWF was expanded between 1998 and 2003 to include additional extraction wells to further address perchlorate and chromium impacts. In 2001, it was modified further by the addition of a groundwater barrier wall. The barrier wall was constructed along the downgradient side of the interceptor well line to a depth of 60 feet below ground surface. During this time KMCC also constructed a biological fluidized bed reactor (FBR) treatment system designed to remove perchlorate from recovered groundwater.

In 2005, an AOC (NDEP 2005) between NDEP and KMCC established a compliance schedule for treatment of the perchlorate residues of Pond AP-5 designed to reduce the amount of perchlorate in groundwater and surface water reaching the Las Vegas Wash and Lake Mead.

Additionally, in 2005 as a follow up to the Phase I and Phase II activities completed by KMCC, a conceptual site model (CSM) report was prepared for the Site that integrated information from the previous investigations conducted to document information on Site-specific sources, release mechanisms, transport pathways, exposure routes, and potential receptors (ENSR 2005).

2.1.2 Overview of Regulatory Actions and Investigations: 2005 to Present

Site investigations conducted since the completion of the 2005 CSM (ENSR 2005) have included the Phase A and Phase B Source Area Investigations (Phase A and Phase B investigations) to further characterize the Site. Investigations conducted since 2005 have addressed some of the identified data gaps related to groundwater characterization, as described below.

2006-2007 – Upgradient Investigation Results (ENSR 2007). In March 2006, soil borings were drilled at six locations in the southern (upgradient) portion of the Site. Four of the borings were completed as 2-inch diameter monitoring wells (M-117, M-118, M-120, and M-121). The first saturated unit in this portion of the Site is the upper coarse-grained facies of the Muddy Creek Formation (UMCf-cg1). Wells M-120 and M-121 are about 100 feet deep and monitor the UMCf-cg1. Wells M-117 and M-118 are about 150 feet deep and monitor the lower fine-grained facies of the Muddy Creek Formation (UMCf-fg2).

2007-2009 – Phase A and Phase B Investigations. In conjunction with soil sampling conducted during the Phase A and Phase B investigations, groundwater samples were collected from new and existing monitoring wells during several sampling events. The objectives of the Phase A groundwater investigation were to (1) characterize Site-related chemicals in groundwater at 27 suspected source areas at the Site and (2) characterize groundwater chemistry upgradient and downgradient of the Site (ENSR 2006).

Fourteen new on-site monitoring wells were installed during the Phase B investigation and an extensive focused sampling program was conducted. The objective of the groundwater portion of the Phase B investigation was to characterize the presence of a wide variety of chemicals in specific potential source areas.

2008-2010 – Investigations in Support of Capture Zone Evaluations. In order to support an evaluation of the capture zones of the three well fields, field work consisting of well installation, geotechnical sampling, and well testing was performed in early 2008. Additional drilling of two soil borings and completion of one recovery well (I-AB) at the west end of the barrier wall was proposed, and was completed in mid-2009. In response to NDEP comments, eight deeper Upper Muddy Creek Formation (UMCf) monitoring wells were installed in September and October 2009 to evaluate the vertical extent of contaminant plumes and vertical head differences. The data collected from the new wells was incorporated into an interim evaluation of the capture zones established by operation of the IWF and the AWF (Northgate 2010a).

From April to July 2010, an additional 41 new monitoring and recovery wells and 8 replacement monitoring wells were installed at the IWF and AWF. Based on the new data, the Capture Zone Evaluation (CZE) Report provided an evaluation of the capture zones of all three well fields (Northgate 2010b). In Appendix E of the CZE Report, Northgate described a numerical groundwater flow model that was developed for use in evaluating capture zones. Although the CZE Report itself was not approved by NDEP, the initial groundwater model was approved by NDEP on April 4, 2013 for use in capture zone evaluation.

2011-present – Transfer to Trust and RI/FS Work Plan Implementation. Tronox LLC (Tronox) most recently owned and operated the Site until February 14, 2011, on which date the Trust took title to the Site in conjunction with the settlement of Tronox's bankruptcy proceeding. Investigation and cleanup activities at the Site are currently being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and the Interim Consent Agreement between NDEP and the Trust. In accordance with CERCLA, a RI/FS is being conducted to investigate the nature and extent of contamination at the Site and Off-Site NERT RI Study Area and to develop remedial action alternatives, as appropriate (ENVIRON 2014b). The RI/FS Work Plan was approved by NDEP on July 2, 2014. The RI data gap field investigation was conducted between October 21, 2014 and May 10, 2015. The RI groundwater data gap investigation was comprised of 8 on-site monitoring well installations, 15 off-site monitoring well installations, 40 grab groundwater samples, 23 slug tests, 6 soil gas probe installations and sampling (3 locations), and sampling of approximately 190 groundwater monitoring wells. Presently, a RI Data Evaluation Technical Memorandum is in preparation to summarize results of the investigation and discuss additional data gaps.

In January 2015, NDEP required the Trust to initiate the COP to optimize the performance and efficiency of the GWETS (NDEP 2015). In January 2016, the Trust submitted the

COP 2015 Annual Summary Report to NDEP (NERT 2016). Although, no wells have yet been installed in support of the COP, several major tasks were completed in 2015 including: a subsurface conditions evaluation; a hydrogeologic evaluation; an evaluation of extraction system infrastructure, capacity, and technology; and initial optimization of the AWF and SWF. Since the intent of the COP is to optimize the performance of the GWETS, the groundwater monitoring program will need to be designed to provide data to support current and future COP activities.

2.2 Existing Groundwater Monitoring Program

Approximately 1,900 water level measurements and over 4,000 groundwater analyses are performed on approximately 1,300 groundwater samples each year as part of the existing groundwater monitoring program in accordance with monitoring requirements outlined in the previous Consent Orders and AOC and in subsequent regulatory correspondence. The existing monitoring program includes eight monthly events (the “monthly” events), three quarterly events (the “quarterly” events, performed in February, August, and November), and one expanded quarterly monitoring event that is performed in May (the “annual” monitoring event). Figures 1a, 1b, and 1c show the wells sampled during the existing monthly, quarterly, and annual sampling events, respectively. Table 1 outlines each sampling event in the existing monitoring program in detail. Envirogen Technologies, Inc. (Envirogen) is responsible for performing groundwater monitoring activities under contract with the Trust. Tetra Tech, Inc (Tetra Tech) oversees Envirogen’s field sampling and monitoring activities to ensure that they comply with the Site’s approved methods and procedures. TestAmerica Laboratories, Inc. (TestAmerica) performs analytical testing and produces analytical laboratory reports. Ramboll Environ subsequently uses the field data collected by Envirogen and reviewed by Tetra Tech, as well as analytical laboratory results from TestAmerica, in the preparation of reports, evaluation of remedial performance, groundwater modeling, and other related tasks.

2.3 State and Local Well Regulations

Work that will be performed to carry out the 2016 GWMO Plan will be done in accordance with applicable statutes and regulations and will comply with applicable orders and agreements. The statutes and regulations governing underground water and wells in the state of Nevada are contained within Nevada Revised Statutes (NRS) Chapter 534. The related section of the Nevada Administrative Code (NAC) (i.e., NAC Chapter 534 Underground Water and Wells) includes the specific requirements for installation and abandonment (herein referred to as decommissioning) of wells and boreholes, as well as licensing and other requirements for well drillers. The Nevada Division of Water Resources (NDWR) is the primary agency responsible for management of Nevada’s water resources and is governed by statues and regulations from both the NRS and the NAC.

NDEP provides regulatory oversight of groundwater remediation and monitoring at the Site. Between 1986 and 2005, NDEP issued orders and entered into Consent Agreements with former Site operators (i.e., KMCC, Tronox) responsible for the subsurface impacts from historical Site operations. The most recent agreement between NDEP and the Trust is the Interim Consent Agreement which took effect on February 14, 2011. This agreement governs the remediation and monitoring activities conducted at the Site. NDEP oversees and enforces water quality standards and water pollution control measures (e.g., discharge permits, provisions governing laboratory analysis) for the state of Nevada that are contained within NAC 445A.

NDEP oversees monitoring and remediation efforts by all BMI Complex parties including Basic Remediation Company (BRC), Titanium Metals Corporation (TIMET), Olin Chlor Alkali (formerly known as Pioneer Americas LLC, Stauffer, and Montrose), and the Trust. NDEP also oversees nearby monitoring and remediation efforts by Endeavour LLC (Endeavour, formerly known as American Pacific Corporation [AMPAC]). NDEP provides guidance on technical aspects of remediation, such as risk assessment, investigation-derived waste, and remedial technologies. NDEP also provides guidance on cleanup criteria, data analysis, data qualification, and data validation for certain chemicals. NDEP requires data to be validated and submitted in addition to the submission of various progress reports about remediation activities.

3. GROUNDWATER MONITORING OPTIMIZATION

3.1 Groundwater Monitoring Optimization Rationale and Approach

Various tools and guidance exist to improve the efficiency and utility of long-term monitoring, defined by the United States Environmental Protection Agency (USEPA) as "monitoring conducted after some active, passive, or containment remedy has been selected and put in place, and is used to evaluate the degree to which the remedial measure achieves its objectives" (USEPA 2005). Although a final remedy has not yet been implemented at the Site, interim remediation measures have occurred at the Site and an extensive monitoring well network has been used to evaluate the impact of these actions. Consequently, an approach using LTMO methods adapted for this specific application was used to propose adjustments to the existing monitoring program at the Site to reduce current gaps and redundancies, with the understanding that monitoring optimization will recur periodically as discussed in Section 4.7.

LTMO often involves qualitative and quantitative analyses of monitoring programs' temporal and spatial coverage (USEPA 2005). Although qualitative approaches that rely on professional judgement have traditionally driven monitoring program design (Zhou 1996), quantitative statistical techniques can promote thorough evaluations of spatial and temporal monitoring data (USEPA 2005). An approach outlined by the USEPA and others involves combining a quantitative spatial analysis, a quantitative temporal analysis of sampling frequency, and a comprehensive qualitative analysis that incorporates site-specific knowledge: this approach is appropriately referred to as "three-tiered" monitoring optimization (Nobel and Anthony 2004, USEPA 2005).

The optimization of the Site's groundwater monitoring program followed the three-tiered approach. Statistical analyses were performed to assess the spatial distribution and the temporal frequency of sampling in the Site's existing groundwater monitoring program and the results of these quantitative analyses were reviewed qualitatively, using site-specific criteria, to verify that the resulting monitoring program would provide useful and complete information to promote sound decisions. Following the quantitative spatial and temporal analyses, qualitative evaluations of quantitative outputs verified that final recommendations accounted for less quantifiable site characteristics and project concerns. Specific qualitative factors considered in the development of this 2016 GWMO Plan included:

- Concentration and groundwater elevation trends;
- Local geology and hydrogeology;
- Site use and remediation history;
- Monitoring program history;
- On and off-site features such as surface water, extraction wells, barriers, etc.;
- On and off-site activities including extraction, injection, other remedial activities, experimental studies, etc.;
- Current permit and reporting requirements;
- Degree of plume certainty in lateral and vertical directions; and

- Degree of plume certainty over time.

These factors guided the development of the quantitative spatial and temporal analytical methods. These factors also weighed heavily in the evaluation of the results of the quantitative analyses and in the overall evaluation of the monitoring program, as described in detail in the following sections.

3.2 Dataset Used for Monitoring Optimization

The dataset used in evaluating the monitoring program included data collected between January 1, 2011 and December 31, 2015. Complete historical time-versus-concentration plots were evaluated to establish this timeframe as the appropriate dataset to be used in the analyses. This five year period provides sufficient quantity of data to provide a robust dataset, while also focusing in on a timeframe that is considered representative of current and expected conditions. This timeframe excludes early data that was collected when interim remediation measures were not yet in place or were incomplete. The majority of this timeframe follows the conclusion of interim soil removal actions in November 2011. These soil removal activities significantly changed the Site's surface topography and involved the decommissioning of onsite recharge trenches. It is also important to note that this dataset includes data from before, during, and after the significant storms of August 2012, which had considerable impact on groundwater conditions as described in remedial performance reports (ENVIRON 2013a, 2013b, 2014a, 2014e, 2015; Ramboll Environ 2015).

Generally, data for all wells in the existing monitoring program regardless of owner were included in the analyses. Extraction wells were excluded from quantitative analyses. When sufficient data was available, monitoring wells owned by the Trust that are not in the existing monitoring program were included in the analyses. Wells were included in the dataset regardless of their associated WBZ, though only Shallow WBZ wells were included in the semivariogram of near-Site wells during the analysis of spatial redundancy, as described in Section 3.4.1. When analyses required data from a single sampling event, data from the annual (2nd quarter) 2015 sampling event were used.

3.3 Spatial Analysis of Monitoring Program

Removing redundant wells from a monitoring program reduces unnecessary duplicated effort without compromising knowledge of chemical plume extent. Spatial sampling redundancies were evaluated within the existing groundwater monitoring network using an approach that combined a quantitative well clustering analysis with a qualitative evaluation of well redundancy within clusters. This approach was chosen over kriging-based methods due to the inability of kriging to accurately account for physical and hydrogeological features (e.g., barriers, paleochannels, UMCf topography) that influence the configuration of chemical plumes at the Site (Ramboll Environ 2015). Table 2, Figure 2, Appendix A, and the following subsections describe the process and results of this analysis.

3.3.1 Quantitative Evaluation

First, before wells were grouped into clusters, the range of spatial correlation in perchlorate concentrations at the Site was estimated to establish a lateral cluster distance that reflected local conditions. An anisotropic semivariogram analysis was carried out in Geostatistical Analyst in ArcGIS using second quarter 2015 perchlorate data from shallow monitoring wells on-site and near the Site (Appendix A). The minor range of the anisotropic semivariogram was 300 feet. The minor range is the distance beyond which there is no correlation between samples in the minimally-correlated direction (approximately east-west). The minor range was selected as the maximum well separation distance for grouping wells into clusters because the minor range is a conservative estimation of the extent of spatial correlation. Given that this optimization is considered an interim step and is not a true LTMO, a conservative cluster distance resulting in limited spatial thinning is appropriate at this time. It should be noted that the minor range may not be the best choice for a maximum well separation distance in future hierarchical clustering analyses, and that the determination of an appropriate maximum well separation distance should be driven by optimization goals.

Second, wells within 300 feet of each other were grouped into spatial clusters using a hierarchical clustering method, a technique commonly used to spatially optimize monitoring networks (Mei et al. 2011, Mohammad Salah et al. 2012, Kovacs et al. 2015). Once the well clusters were generated, the 300-foot maximum distance was evaluated qualitatively and it was confirmed that this distance appropriately focused clustering in areas having a high density of wells. The locations of well clusters are shown in Figure 2.

3.3.2 Qualitative Evaluation

Clustered wells were then qualitatively evaluated for redundancy. To support this evaluation, perchlorate, total chromium, total dissolved solids (TDS) and groundwater elevation data were plotted for all the wells within each cluster. Well screen elevations and UMCf elevations (when known) for all the wells within a cluster were also included in the plots for evaluation. These plots are provided in Appendix A.

The initial objective of the evaluation of trend plots was to determine whether any two wells in a cluster could be considered a redundant pair. The following criteria were used sequentially to define redundant pairs within well clusters.

- Criterion 1: Paired wells have similar screen intervals (tops of screens are within 20 feet of each other or the screen interval for one well is within that of the other well).
- Criterion 2: Paired wells are not separated by a physical barrier.
- Criterion 3: Paired wells cannot both be required for permit compliance.
- Criterion 4: At least one of two paired wells has enough data associated with it to evaluate trends and levels of concentrations for each of the two primary analytes (perchlorate and total chromium).
- Criterion 5: Paired wells have similar concentration trends and levels for each of the two primary analytes (perchlorate and total chromium). Similar concentration trends were defined as concentration ratios generally between 0.5 and 2.0 or generally low concentrations (perchlorate < 10 milligrams per liter [mg/L] and total chromium < 10 micrograms per liter [µg/L]).
- Criterion 6: Well pairs that satisfied Criteria 1-5 were evaluated against a series of factors to confirm possible pairings. The well characteristics that factored into these evaluations of well pairs included the contribution of each well to current plume

maps, well locations relative to areas requiring additional focus, and permit/RCRA compliance.

After well clusters were examined to see if they contained any spatially-redundant pairs of wells, professional judgement was used to determine which of the paired wells should be removed from the monitoring program. The well characteristics used to make these determinations included the contribution of each well to current plume maps, concentration levels and trends, the number of historical samples and sampling frequency, well location, and well screen interval.

The analysis described above was conducted for all monitoring wells owned by the Trust or listed in the existing monitoring program that have perchlorate, total chromium, and/or TDS results. The application of criteria 1-6 to identify redundant well pairs and decisions on the removal of redundant wells from the monitoring program are documented in Table 2.

3.4 Temporal Analysis of Monitoring Program

An analysis of temporal redundancies in the Site's existing monitoring program was used to identify opportunities to reduce sampling frequency and effort without compromising understanding of concentration trends and changes in plume configuration over time. Temporal sampling redundancies within the existing groundwater monitoring network were evaluated using an approach that combined a quantitative iterative thinning analysis with a qualitative site-specific evaluation of the outputs. Although a final remedy has not yet been selected for the Site, data has been collected consistently at the Site for decades. As discussed in Section 3.2, the dataset is sufficient to identify trends, enabling an analysis of sampling frequency to determine whether those trends could continue to be tracked with less frequent monitoring. Tables 3 and 4, Figures 3 and 4-1a through 4-2f, Appendix B, and the following subsections describe the process and results of the analysis of temporal sampling redundancy.

3.4.1 Quantitative Evaluation

Iterative thinning is commonly used to determine whether sampling frequency is appropriate for every analyte at every sampling location (ITRC 2013). The iterative thinning algorithm determines the minimum amount of data in a dataset that is necessary to reproduce the dataset's trend; the sampling frequency associated with this reduced dataset minimizes temporally redundant sampling. For the present application, a customized iterative thinning analysis based on the Visual Sample Plan Version 7.5 (VSP) software's algorithm was developed to provide more control over the technique's statistical parameters than was allowed by the VSP software (VSP Development Team 2016). VSP's implementation of iterative thinning also results in recommended sampling frequencies that are biased by original sampling frequencies; such a bias is not acceptable for evaluating the Site's monitoring program which includes wells that are sampled monthly, quarterly, and annually.

Iterative thinning was used to evaluate sampling frequencies for total chromium, perchlorate, TDS, and groundwater elevation in all monitoring wells in the existing groundwater monitoring program that are sampled at monthly or quarterly intervals.[9] Outlier screening was performed according to Interstate Technical and Regulatory Council (ITRC) and USEPA guidance documents (USEPA 2009, ITRC 2013), and data points identified as outliers were removed from thinning analyses. Following established protocols, wells were excluded from thinning if they are inactive or if they had fewer than 10 analytical samples during the 2011-2015 time period (Cameron and Hunter 2000, ITRC 2013). Data deemed non-representative due to known phenomena (i.e., interruptions in normal operations) were also eliminated from the analysis. For example, M-31A experienced abnormally low perchlorate, chromium, and TDS concentrations and abnormally high groundwater elevations from approximately January 1, 2013 to approximately June 1, 2014 due to a nearby water line leak; therefore, these data points were eliminated prior to analysis.

Figure 3 shows six charts (A-F) illustrating the steps of the iterative thinning process. After removing outliers from the 2011-2015 data for a single analyte at a single well (Figure 3, chart A), a smooth trendline for this data was created using penalized regression splines (Wood 2006) (Figure 3, chart B). Next, an approximate confidence band was drawn around the smoothed trendline (Figure 3, chart C). The confidence band for analytical data was defined as ±20% (a value chosen to represent analytical variability and calculated as the 95th percentile of the relative percent differences between field duplicates of chromium, perchlorate and TDS from 2011-2015) and the confidence band for groundwater elevations was defined as ±0.5 feet (a value chosen to represent the maximum tolerated error).[10]

After the confidence band was constructed around trendline of the original full dataset, a percentage of the data points was removed from the full dataset (Figure 3, chart D). Reduced datasets were required to have approximately the same number of data points removed from each calendar year so that reduced datasets were relatively similar to datasets that would be produced by data collection at regular intervals. Within each calendar year, the data points to be removed were chosen randomly. Based on the reduced dataset, a new trendline was calculated (Figure 3, chart E). Then, the trendline for the reduced dataset was compared to the confidence bands around the initial dataset (Figure 3, chart F). If at least 75% of the reduced trendline fell within the confidence band, the reduced dataset can be used to approximately reproduce the trend of the full dataset. The size of the dataset was reduced by 5% in each step of the analysis. At each step, 100 simulated reduced datasets were created and evaluated. Once more than

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[9] Iterative thinning was not performed for wells that are sampled annually in the existing monitoring program. Given the ongoing changes in remedial activities at the Site and Off-Site NERT RI Study Area, annual sampling is a useful minimum sampling frequency to ensure that sufficient data is collected to monitor trends and plume configurations and to support current reporting requirements. In future optimizations, when the Site is further along in the remediation process, it may be appropriate to consider reducing the frequency of sampling at wells that are being sampled annually.

[10] There are two situations when the confidence band was not set at these defaults. First, for analytical data, analyte-specific minimum widths for the confidence bands were included in the analysis. These minimum widths were based on analytical detection limits and prevented overly-tight confidence bands from being constructed around datasets containing very low concentrations. Second, the confidence bands were required to be at least as wide as the mean of the residuals between the data points and the smoothed function. Though this second limit had little impact on the analysis, it added some safeguard against inappropriately tight confidence bands around datasets with low concentration values and with high variance.

10 of the 100 simulated reduced trendlines did not reproduce the trend of the full dataset, the dataset had been overly thinned and the percent reduction of the previous step was reported as the maximum acceptable amount of thinning. The maximum acceptable percent reduction was converted to days and the resulting reduced sampling intervals are reported in Table 3 for total chromium, perchlorate and TDS and in Table 4 for groundwater elevation.

3.4.2 Qualitative Evaluation

The results of the iterative thinning analyses were evaluated qualitatively to determine the recommended sampling frequencies listed in the 2016 GWMO Plan. While the iterative thinning procedure is performed for individual wells, the 2016 GWMO Plan's purpose is to monitor chemical plumes over a large area. Consequently, wells were grouped spatially and bar charts were constructed to compare existing sampling intervals and reduced sampling intervals recommended by iterative thinning for wells in all areas (Figures 4a through 4l). The wells were grouped into the following categories:

- On-site wells (Figures 4a and 4g);
- Wells between Boulder Highway and the Site (Figures 4b and 4h);
- Wells near Sunset Road (Figures 4c and 4i);
- Wells near the Athens Road Piezometer (ARP) well line (Figures 4d and 4j);
- Wells near the City of Henderson (COH) Water Reclamation Facility (WRF) well line (Figures 4e and 4k); and
- Wells near the SWF (Figures 4f and 4l)

The bar chart of iterative thinning results for each area was examined individually to determine the final recommended sampling interval for wells within the area. In some cases, iterative thinning results were examined on more local transects with the help of boxplots of 2011-2015 data for each well and concentration trend plots (Appendix B).

As the bar charts demonstrate, recommended measurement frequencies for groundwater elevations (Figures 4g through 4l) showed more variability than recommended sampling frequencies for analytical data (Figures 4a through 4f). This difference is particularly notable when comparing recommendations for on-site wells (Figures 4a and 4g) and is due to the fact that groundwater elevations tend to be less stable over time than analytical data and are particularly sensitive to changes in local conditions (e.g., precipitation events, extraction, injection, other remediation activities, experimental studies, etc.). Consequently, analytical and groundwater elevation monitoring frequencies were considered independently in the qualitative analysis of iterative thinning results.

The quantitative analysis of analytical sampling frequency generally recommended sampling frequencies that were less frequent than semi-annual (i.e., sampling intervals greater than 182 days). In general, when a small percentage of wells in an area had recommended analytical sampling intervals between quarterly and semi-annual, inspection of concentration trends and distributions (Appendix B) determined that these few wells did not merit special frequent sampling since the additional data from those wells would not be useful in meeting the objectives of the monitoring program as described in Section 1.1. The decision to apply the recommended sampling interval of the majority of the wells to all wells in an area is consistent with the 2016 GWMO Plan's objective of monitoring chemical plumes rather than monitoring variations at any individual well.

This logic resulted in semi-annual sampling recommendations for all analytical analyses on Site, between Boulder Highway and the Site, near Sunset Road, near the ARP well line, and near the COH WRF well line (Figures 4a, 4b, 4c, 4d, 4e) unless permitting required more frequent sampling. Near the SWF, low concentrations biased recommended sampling intervals low because the 20% confidence band used in the thinning can be overly conservative when defining trends in the presence of low concentrations. The concentration trend plots in Appendix B were examined for the wells near the SWF, with special attention paid to the wells with low recommended sampling intervals. In all cases, it was determined that semi-annual sampling would not prevent the definition of chemical trends. The decisions regarding proposed analytical sampling frequencies are documented on a well-by-well basis in Table 3.

The results of the quantitative analysis of groundwater elevation measurement frequency were especially variable for areas of the Site which are the location of ongoing remediation activities, including wells in the vicinity of the IWF, barrier wall, Central Retention Basin, and recharge trenches. Therefore, wells in these particular areas of interest will be monitored either quarterly or monthly in order to monitor overall remedial performance. The iterative thinning results generally support increased groundwater elevation monitoring frequencies in these areas, relative to other areas of the Site. The thinning analysis for off-site groundwater elevation measurements generally resulted in recommendations for semi-annual measurements in the areas between Boulder Highway and the Site, near Sunset Road, and near the ARP well line. However, five wells within these three areas had resulting recommendations for more frequent measurements than semi-annual. Upon further review of the datasets available for these five wells (presented in Appendix B), it was determined that they did not require more frequent sampling than semi-annual given they would not provide data useful in meeting the objectives of the monitoring program. The thinning analysis for the COH WRF well line and SWF area (comprising the SWF monitoring wells and Lower Ponds well line) generally suggested quarterly measurements are necessary in these areas. These areas are also critical for evaluating surface water and groundwater interaction near the SWF, which is one of the metrics used to evaluate overall GWETS performance; therefore, wells in these areas will be monitored quarterly. The decisions regarding proposed groundwater elevation measurement frequencies are documented on a well-by-well basis in Table 4.

The program recommendations resulting from this evaluation are discussed in Section 4.2.

4. PROPOSED GROUNDWATER MONITORING PROGRAM

The 2016 GWMO Plan outlines the following proposed revisions to the monitoring well network and to groundwater monitoring activities:

- Changes to the monitoring well network, including removal of redundant monitoring wells from the program and addition of recently-installed monitoring wells to the program;
- Changes to monitoring frequency at monitoring wells;
- Adjustments to the list of monitored analytes;
- Changes to the sampling methods;
- Initiation of monitoring well inspections and maintenance;
- Changes to groundwater monitoring data evaluation and reporting; and
- Future groundwater monitoring optimization efforts.

Section 4.8 and Table 5 summarize the proposed groundwater monitoring program, listing the sampling frequencies of all analytes at each well in the proposed groundwater monitoring program. Figures 5a-d show the locations of all the wells in the proposed groundwater monitoring program. The following sections discuss individual program recommendations in detail.

4.1 Proposed Changes to Monitoring Well Network

4.1.1 Removal of Monitoring Wells from Program

Based on hierarchical clustering and visual analysis described in Section 3.4, eight wells were identified as spatially redundant and are recommended for removal from the groundwater monitoring program, as summarized in Table 2. Additionally, seven wells included in the current program were unable to be sampled in recent years due to various reasons (e.g. well could not be located, well was damaged or destroyed, well could not be accessed, etc.) and will be removed from the monitoring program, as described in Table 6.

4.1.2 Addition of Remedial Investigation Monitoring Wells

The 2016 GWMO Plan recommends the addition of the 23 wells that were constructed during the RI to the monitoring program. These wells and their relevant construction details are listed in Table 7. The RI wells will be added to the program in order to characterize groundwater conditions at these locations over time. The RI wells include 9 shallow WBZ wells in the vicinity of the AWF and Sunset Road, 6 shallow WBZ wells between the SWF and the Las Vegas Wash, 3 middle WBZ wells at the Site, and 5 shallow WBZ wells near the unit buildings at the Site. These wells will be sampled for total chromium, perchlorate, TDS, chlorate, and nitrate at the semi-annual and annual sampling events and for volatile organic compounds (VOCs) at the annual sampling event as described in Sections 4.2 and 4.3. Their groundwater elevations will also be measured during the semi-annual and annual sampling events. Once a baseline dataset for these 23 wells has been collected, the inclusion of these wells will be re-evaluated as part of the next groundwater monitoring optimization expected to follow the completion of the RI Report.

New wells are also expected to be installed during the upcoming Phase 2 RI. Once the RI data has been compiled and evaluated, the inclusion of the new Phase 2 RI wells in the monitoring program will likewise be considered.

4.2 Proposed Changes to Monitoring Frequency

Results of the iterative thinning analyses for analytical sampling are presented in Table 3 and discussed in Section 3.5. As indicated in this table, monthly and quarterly analytical sampling generally can be reduced to semi-annual sampling without losing information regarding trends in the analytical data. Therefore, the 2016 GWMO Plan proposes that all wells that are currently sampled at monthly or quarterly intervals be sampled on a semi-annual schedule unless permits require otherwise. Wells that are currently sampled on an annual schedule will not change. The new semi-annual sampling event will take place during the fourth quarter of each year, ideally in mid-November, replacing the fourth quarter event. The annual sampling event will continue to take place during the second quarter of each year, ideally in mid-May.

Results of the iterative thinning analyses for groundwater elevation measurements are presented in Table 4. These results were used as a basis for defining necessary measurement intervals and identifying potential areas of interest within the Site and Off-Site NERT RI Study Area. Results were then adjusted based on qualitative criteria as discussed in Section 3.5.2. Generally, groundwater elevations can be measured with the same frequency as analytical measurements, with the exception of wells subject to permit reporting requirements and wells in identified areas of interest critical to monitoring remedial performance. These areas include the three extraction well fields, the barrier wall, the recharge trenches, the northern mid-site area, the COH WRF well line, and the Lower Ponds well line, as described in Section 3.5.2. Groundwater elevations in wells in these areas will be monitored either quarterly or monthly.

No changes in monitoring frequency are recommended at extraction wells. Extraction wells were excluded from the iterative thinning analysis because the current sampling frequency is necessary for evaluation of the GWETS and for GWETS optimization being performed under the COP.

Several wells in the monitoring program are subject to permit requirements regarding sampling frequency. Wells M-11, M-12A, M-25, M-37, M-38, M-44, M-80, M-95, M-96, M-98, M-99, M-100, and M-101 will continue to be subject to quarterly groundwater elevation measurements to comply with the Site's Underground Injection Control (UIC) permit UNEV94218. Of those wells, M-11, M-12A, M-37, M-38, M-44, M-80, M-95, and M-100 will also be sampled quarterly for total chromium, hexavalent chromium, perchlorate, and TDS to comply with the UIC permit. Well M-10 will continue to be sampled quarterly for depth to water (DTW), total chromium, TDS, total boron, total iron, total manganese, chloride, ammonia nitrogen [for total inorganic nitrogen (TIN) analysis)], nitrate (for TIN analysis), and nitrite (for TIN analysis) to comply with the Site's NPDES permit NV0023060. Wells H-28A, M-5A, M-6A, M-7B have historically been referred to as the "RCRA wells" due to post-closure monitoring requirements from NDEP related to a landfill previously located west of the GW-11 pond (KMCC 1987).[11] The monitoring of these wells during second and third quarter sampling events for chloride, phenols, specific conductance, sulfate, total boron, total iron, total manganese, total organic carbon total organic halides (4 replicates), and total sodium will continue. Should the RCRA monitoring requirements on these wells be removed, inclusion of these wells in the program will be re-evaluated.

Upon adoption of the proposed plan, the number of wells that are sampled monthly for perchlorate and TDS will decrease from 77 to 48 and the number of wells that are measured monthly for groundwater elevations will decrease from 136 to 78. All of these monthly samples will be taken at extraction wells or wells identified as critical to monitoring barrier wall and extraction well performance. The number of wells that are sampled quarterly for total chromium, perchlorate, and TDS will decrease from 141 to 61. The number of wells that are measured quarterly for groundwater elevations will decrease from 170 to 123.

4.3 Proposed Changes to Monitored Analytes

4.3.1 Addition of Volatile Organic Compounds, Nitrate, and Chlorate Monitoring

The 2016 GWMO Plan recommends sampling for nitrate and chlorate at all monitoring wells during the semi-annual (fourth quarter) and annual (second quarter) sampling events. Annual sampling of VOCs is also recommended. The complete list of VOCs that will be analyzed is included in Table 8. Initial evaluations of RI data have indicated that these chemicals are present at detectable levels throughout the Site and the Off-Site NERT RI Study Area. This new analytical information will supplement analytical data collected during the RI and will provide temporal context for developing a Site remedy and identifying areas with COPCs in excess of the screening levels outlined in Table 8. In addition to adding the sampling and analysis of VOCs, nitrate, and chlorate at monitoring wells, chlorate and nitrate will be sampled monthly at extraction wells for the purpose of better understanding effects on GWETS performance. Sampling and analysis for VOCs is not recommended at the extraction wells at this time.

4.3.2 Elimination of Hexavalent Chromium Analyses

Hexavalent chromium is currently analyzed in all extraction wells as part of the monthly, quarterly, and annual events and in 10 monitoring wells as part of the quarterly and annual sampling events. To understand whether analysis for hexavalent chromium is redundant, a comparison of hexavalent chromium and total chromium concentrations in monitoring wells where both data are collected has been performed. Charts of hexavalent and total chromium over time in wells where both data are collected are included in Appendix C. Table 9 summarizes the average ratio of hexavalent to total chromium in these same wells. The ratios are for the most part all around 1.0 with the exception of M-10 (0.16) and M-13 (0.66), which both have relatively low chromium concentrations.

[11] The contents of the landfill were assumed to be RCRA hazardous waste although the landfill was closed prior to the advent of final RCRA rules and the contents were never evaluated analytically.

The comparison of data indicates that chromium and hexavalent chromium are highly correlated[12] and therefore redundant. As a result, the 2016 GWMO Plan recommends eliminating hexavalent chromium sampling in monitoring wells except where required by NPDES and UIC permits. The 2016 GWMO Plan does not recommend eliminating hexavalent chromium sampling in extraction wells, where this sampling is used in the evaluation of GWETS performance. This recommendation will result in a net decrease of 4 hexavalent chromium samples per year.

4.3.3 Elimination of Sterile-Filtering for Perchlorate

For consistency with the Downgradient Study Area investigation currently being performed by AECOM, Ramboll Environ recommends the elimination of perchlorate sterile filtering for samples collected from groundwater monitoring and extraction wells.[13]

Sterile filtering is intended to remove naturally-occurring perchlorate-reducing bacteria from samples. However, recent guidance has stated that field filtration of groundwater samples may not be necessary if containers have adequate headspace, are agitated, and are immediately chilled (Cal EPA 2016). These steps are designed to eliminate the anaerobic conditions required for perchlorate microbiological reduction to occur.

4.3.4 Elimination of pH Laboratory Analyses

In the existing monitoring program, laboratory analyses of pH are performed every time that samples are analyzed for perchlorate and TDS. The 2016 GWMO Plan recommends the elimination of laboratory analyses of pH given they will be redundant with the pH measurements taken in the field during low-flow sampling. In the proposed plan, low-flow sampling will occur at all monitoring wells as discussed in Sections 4.4 and 6.2.2. The measured field pH values will be entered into the low-flow sampling field parameters electronic data deliverable (EDD) provided in Appendix D and will be maintained in a database as discussed in Section 6.3.

4.4 Proposed Changes to Sampling Methods

The 2016 GWMO Plan recommends that all monitoring wells be sampled using the low-flow method for purging and sampling. While a majority of the Site's wells have historically been sampled using a traditional three-volume purge technique, this method has several disadvantages. The pumping rates are typically higher with traditional purging, putting greater hydraulic stress on the wells, which can in turn result in changes to groundwater geochemistry and analytical sample results.

The switch to low-flow sampling at all wells is recommended due to 1) the greater accuracy and repeatability of analytical samples collected; 2) the greater accuracy of field-measured groundwater parameters (temperature, pH, oxidation-reduction potential

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[12] In M-10 and M-13 where correlation was low, using total chromium data as a surrogate for hexavalent chromium data would conservatively overestimate hexavalent chromium concentrations. M-10 is also required to be analyzed for hexavalent chromium under the NPDES permit.

[13] NDEP has previously issued guidance that perchlorate samples should be field filtered at the time of collection using a sterile surfactant free cellulose acetate 0.20 micrometer (µm) filter and sterile sample container. However, sterile filtration is not required as part of the Groundwater Sampling Plan for the Downgradient Study Area per NDEP's direction (AECOM 2016).

[ORP], dissolved oxygen [DO], turbidity, and specific electrical conductance); and 3) the addition of VOCs to the analyte list, which can be volatilized using traditional purging.

4.5 Proposed Monitoring Well Network Maintenance

In order to protect the quality of data collected from the groundwater monitoring program, it is important to inspect and maintain wells that are part of the proposed monitoring network. In addition, wells owned by the Trust that are not currently in the monitoring program should be properly maintained so they can be sampled at any time should it be decided that their data would prove useful. Well inspections are recommended to confirm that all wells are in proper working order. Well reconnaissance (e.g. well video logging, well depth tagging) is recommended to fill gaps in knowledge regarding well construction details. Inspection and reconnaissance will verify that data collected by the monitoring program accurately reflect local groundwater conditions and will enable these data to be correctly interpreted.

4.5.1 Comprehensive Monitoring Well Survey and Reconnaissance

Well construction and location information for all former and current wells in the vicinity are available in the All Wells Database, an Excel spreadsheet maintained by NDEP consultants containing well construction details provided by the BMI Complex parties (Broadbent 2014). This database currently has gaps and uncertainties regarding ground elevations, top of casing elevations, coordinates, and screened intervals, which hinder efficient interpretation of groundwater monitoring data. To address these issues, the 2016 GWMO Plan recommends a comprehensive survey of all NERT-owned monitoring wells and any additional monitoring wells owned by other BMI Complex parties that are included in the proposed monitoring network. Targeted well reconnaissance efforts are also proposed to address specific uncertainties; wells with uncertain or unknown screened intervals should be video logged and wells with uncertain or unknown total depths should be tagged with a weighted line.

Although coordinates of most wells are listed in the database, source information such as survey reports and data submittals are not available to verify the database entries. Moreover, currently-listed coordinates may not all be comparable because they were collected during various surveys that have been carried out by various parties at different times, likely using different benchmarks. Additional uncertainties exist regarding the accuracy of listed ground and top-of-casing elevations in the All Wells Database, as well repair, grading, and construction in the vicinity may have altered previously surveyed elevations. Furthermore, ground and/or top-of-casing elevations are unknown for four wells in the proposed monitoring program, screened intervals are unknown for twelve wells in the proposed program, and well total depth is unknown for thirteen wells in the proposed program (Table 10). The proposed comprehensive survey, video logging, and well tagging will address these data gaps and significantly increase the reliability of data interpretation. Survey and reconnaissance efforts will proceed upon approval of the 2016 GWMO Plan; following this effort, wells will be resurveyed on an as-needed basis. See Section 6.1.1 and 6.1.2 for specific requirements and procedures.

4.5.2 Monitoring Well Inspection, Decommissioning, Repair, and Replacement

As part of the 2016 GWMO Plan, well inspections are recommended for all NERT-owned monitoring wells and any additional monitoring wells owned by other BMI Complex parties included in the proposed monitoring network. During well inspection, wells with identified uncertainties or maintenance issues (Table 10) will be assessed and recommendations to address their defects will be developed. Artesian wells, listed in Table 10, will be specifically inspected for wellhead deficiencies. Recommendations could include well decommissioning, repair, or replacement, depending on the well's location and the extent of the identified issue. Should the well inspections uncover any heretofore undiscovered well defects, recommendations to appropriately repair or decommission problem wells will be made and should be executed. Comprehensive well inspections should reoccur at 5-year intervals to promote proper functioning of the monitoring program over the long term. See Sections 6.1.2, 6.1.4, 6.1.5, and 6.1.6 for specific requirements and procedures.

4.6 Proposed Changes to Reporting

Streamlining the reporting and improving the usefulness of the reports for remedial decision-making is also a goal of monitoring optimization. Currently, remedial performance reporting consists of an annual report submitted at the end of October following a comprehensive annual sampling event conducted in second quarter and a semi-annual report submitted at the end of April. The only significant difference in the reports is that the annual report includes plume maps and a potentiometric surface map based on the expanded dataset set collected during the second quarter annual event.

Historically, separate quarterly remedial progress reports were submitted for the chromium and perchlorate remediation programs. In 2006, reporting for the two programs was combined, and since then the monitoring reports have been submitted semi-annually. In 2012 the performance metrics were developed by ENVIRON and, staring in 2013, these metrics became the primary means to evaluate and document remedial performance in the annual and semi-annual reports.

The 2016 GWMO Plan proposes that future semi-annual reports be replaced with a streamlined data transmittal accompanied by a management-level summary of remedial performance. This recommendation is informed by NDEP's proposal to delete semi-annual reporting that was made in response to Northgate's 2011 LTMO (NDEP 2012). The current semi-annual reports consist of text, tables, and figures documenting groundwater conditions and remedial performance, with appendices containing laboratory data reports, data validation reports, field documentation, and EDDs. The proposed semi-annual report would include all the current appendices. The text, tables, and figures would be focused on remedial performance with respect to the performance metrics and the goals set forth in the COP. The structure of the annual reports would remain unchanged. The proposed change in semi-annual reporting will eliminate redundancy in the reporting and will shift the focus to quantitative aspects of remedial performance.

4.7 Proposed Future Groundwater Monitoring Optimization

In order to be effective, monitoring optimization needs to be performed on a recurring basis (USEPA 2005). As discussed previously, although the Site is "mature" from a monitoring standpoint, with the RI and COP advancing in parallel, the Site is in the middle of a large data collection phase. Therefore, it is not presently appropriate to perform a true LTMO—one where monitoring is scaled back to the minimum necessary for maintaining performance and compliance. What is being proposed is an interim optimization that reduces the redundancies in the program, but also expands the program where data needs exist, i.e., aligning the program with the current needs of the project specifically as they relate to the ongoing RI and COP. As these data collection efforts proceed, and as a final remedy is developed, monitoring optimization will need to be performed at certain project milestones and periodically thereafter to maintain effectiveness of the monitoring program.

The following is the proposed plan for monitoring optimization through the RI/FS and beyond:

- Reassessment of the monitoring program will be performed on an as-needed basis as new information is learned from the initiatives to optimize GWETS performance via the COP. It is expected that the COP will continue through commencement of the final remedy for the Site.
- Monitoring optimization will be performed again after completion of the RI Report and then again following the FS to align the monitoring program to the needs of the project at these critical stages.
- When a final remedy has been selected, a LTMO Plan will be developed.
- Following approval and implementation of the LTMO Plan, the LTMO would then be reviewed every 5 years and revised as necessary to verify that the monitoring program remains effective over the lifetime of the final remedy.

4.8 Proposed Schedule

Assuming NDEP approval of the 2016 GWMO Plan is received within 60 days of submittal, it is anticipated that the comprehensive well survey, well inspections, and well reconnaissance can be completed in third quarter of 2016. Once these initial well-related procedures are complete, it is expected that the proposed groundwater monitoring program will be implemented in fourth quarter 2016.

4.9 Summary of Proposed Groundwater Monitoring Program

This 2016 GWMO Plan will result in a more efficient groundwater monitoring program and a more complete understanding of the status of COPCs at the Site. The groundwater monitoring activities to be completed include:

1. Semi-annual low-flow sampling of total chromium, perchlorate, TDS, chlorate, and nitrate and annual low-flow sampling of VOCs at an updated network of monitoring wells;
2. Monthly analytical (total chromium, hexavalent chromium, perchlorate, TDS, chlorate, and nitrate) and groundwater elevation monitoring of extraction wells to support GWETS operations;
3. Monthly and quarterly groundwater elevation monitoring at specific wells identified in areas of interest for evaluating remedial performance;
4. Semi-annual and annual groundwater elevation monitoring at an updated network of monitoring wells consistent with the proposed analytical samples;

5. A comprehensive survey of all wells in the monitoring program;
6. Regular inspections and maintenance of wells; and
7. Streamlined semi-annual reporting focused on the performance metrics and the COP.

The updated groundwater monitoring program described in this 2016 GWMO Plan calls for analytical sampling at 108 monitoring wells during the semi-annual (4th quarter) event and at 225 monitoring wells during the annual (2nd quarter) event. In addition, water level only will be measured in 17 monitoring wells at the semi-annual event and in 22 monitoring wells at the annual event. Table 5 lists in detail the proposed analytes and sampling frequencies for each well in the program.

Due to removal of redundant and damaged wells from the monitoring program and addition of wells installed for the RI to the monitoring program, the proposed well network includes eight more wells than the existing well network. Nonetheless, due to the proposed reductions in sampling frequency at monitoring wells, the proposed groundwater monitoring plan will result in the following reductions in the total number of samples per year: 129 total chromium samples, 4 hexavalent chromium samples, and 365 perchlorate and TDS samples. In addition, 538 fewer groundwater elevations will be measured each year. The proposed monitoring plan includes a significant expansion in chlorate and nitrate sampling by 884 samples per year. The addition of VOCs to the proposed monitoring program will result in 225 VOC samples per year. These changes are summarized in Table 11.

5. ROLES AND RESPONSIBILITIES

5.1 Sampling and Water Level Measurements

5.1.1 Data Collection

Envirogen is responsible for conducting the groundwater monitoring and sampling activities outlined in this document. Envirogen will also prepare documents summarizing field data and field observations, as well as backup documentation for these activities. Envirogen is responsible for sample handling and sample storage prior to laboratory submittal.

5.1.2 Data Verification

Tetra Tech will provide oversight of Envirogen's field sampling and monitoring activities to ensure that they comply with the Site's current approved methods and procedures. Tetra Tech will ensure that all deliverables produced by Envirogen as part of the groundwater monitoring program, are complete, have undergone data verification and Quality Assurance/Quality Control (QA/QC) evaluations to ensure that deliverables are free of omissions and are reasonably free of errors, and are approved by a Nevada Certified Environmental Manager (CEM). Field sampling deliverables include:

- **For Monthly Events:** Field Sheet (the hand-written field monitoring log) and updated DTW and Low-Flow Sampling Field Parameters EDDs (Section 6.3 and Appendix D).
- **For Quarterly, Semi-Annual, and Annual Events:** Quarterly Sampling Report (a compilation of purge logs for each well, equipment inspection/calibration records, issues encountered, summary tables, and additional sampling information) and updated DTW and Low-Flow Sampling Field Parameters EDDs (Section 6.3 and Appendix D).

Tetra Tech will review Envirogen's documents for consistency between hand-written field logs and the EDDs. Tetra Tech and Envirogen will work together to communicate all anticipated and unanticipated changes in the sampling program to the Trust and Ramboll Environ, as necessary. Ramboll Environ will contact Tetra Tech with any questions regarding the monitoring program or data deliverables and will also keep Tetra Tech informed of Site activities that could impact the monitoring program.

5.2 Laboratory Analyses

5.2.1 Data Collection and Analysis

TestAmerica is responsible for courier sample pickup and laboratory analysis. Analytical results are reported via hard copy/pdf report, project-specific EDDs, and TestAmerica's online data portal. TestAmerica is also responsible for providing the Site with containers and coolers for sampling events.

5.2.2 Data Verification

It is the responsibility of the analytical laboratory to ensure that the hard copy data/pdf reports, electronic data, and data posted through TestAmerica's website are identical. The data reported in EDDs and in the hard copy reports must correspond exactly, including significant digits and units. It is preferable that the hard copy and EDD are generated at approximately the same time from the same data source. Ramboll Environ will confirm that the deliverables provided by TestAmerica are complete and have undergone data verification and QA/QC evaluations in order to produce deliverables that are reasonably free of errors.

5.2.3 Data Validation

TestAmerica will perform in-house analytical data validation under the direction of their own QA Officer and the Laboratory PM. The laboratory will be responsible for assessing data quality and advising of any data rated “preliminary”, “unacceptable”, or other notations that would caution the data user of possible nonconformance. The Laboratory QA Officer will conduct a systematic review of the data for compliance with the established quality control criteria based on spike, duplicate and blank results and an evaluation of data precision, accuracy, and completeness will be performed. Secondary, independent validation will be performed by Ramboll Environ’s independent contractor, Laboratory Data Consultants, Inc. (LDC). Data validation will be consistent with NDEP and EPA guidance for data validation, as described in the QAPP prepared as part of the on-going Site RI (ENVIRON 2014d). The data validator will provide an EDD with data qualifiers, reason codes, and validation level columns appended to the data results.

5.3 Data Management

Ramboll Environ will provide data management services for the groundwater monitoring program. Ramboll Environ will continue to maintain the project database used to manage all groundwater monitoring program data, which requires the following tasks: 1) downloading and tracking data as it is generated to assess completeness; 2) coordinating with laboratory and field personnel on data generation and management issues including missing and incorrectly reported data; 3) inputting data into the database and maintaining it in an organized, transparent, and readily accessible manner and in accordance with NDEP requirements; 4) performing QA/QC on the database; 5) coordinating with LDC for data validation; and 6) corresponding with NDEP as necessary on groundwater data management issues. Ramboll Environ will also be responsible for compiling and managing new data collected from implementation of low-flow groundwater sampling, which will be provided to Ramboll Environ by Tetra Tech and Envirogen using the EDD format and definition in Appendix D.

5.4 Data Evaluation and Reporting

Ramboll Environ will use the field data collected by Envirogen and reviewed by Tetra Tech, as well as analytical laboratory results from TestAmerica, in the preparation of various reports and deliverables. Groundwater monitoring data will be compiled, reviewed, analyzed, presented, and interpreted by Ramboll Environ in order to describe the dynamic groundwater conditions at the Site and in the Off-Site NERT RI Study Area. The data reviewed will be used to comply with NDEP requirements for groundwater monitoring and reporting as well as support other tasks relying on groundwater monitoring data, including well field optimization as part of the COP, the RI Evaluation and Phase 2 RI, and groundwater model refinement and development. Remedial performance reports presenting the conclusions of these evaluations will be prepared and submitted to NDEP as outlined in Section 4.6. Ramboll Environ will also provide updates to this document as necessary if there are changes to the groundwater monitoring program.

5.5 Monitoring Well Inspection and Maintenance

Ramboll Environ will be responsible for the initial comprehensive survey and inspection of all monitoring wells in the proposed monitoring network, in addition to wells owned by the Trust that are not currently in the monitoring program. Well inspections and reconnaissance (e.g. well video logging, well depth tagging) will be conducted by Ramboll Environ and local subcontractors using the procedures described in Section 6.1.2. Based on the findings of the comprehensive well inspections, Ramboll Environ will make recommendations for and perform necessary maintenance, repair, or decommissioning of existing monitoring wells. Ramboll Environ will also oversee well installation and development activities in the event that a well needs to be installed or replaced. After the initial comprehensive survey, inspection, and maintenance work is complete, Envirogen will be responsible for notifying Ramboll Environ of any well-related maintenance issues with routinely sampled wells on an ongoing basis. Ramboll Environ will also follow-up with Envirogen if any potential well maintenance issues are identified during the course of data verification.

6. METHODS AND PROCEDURES

This methods and procedures section provides a summary of the field protocols that will be followed as part of the groundwater monitoring program. Site-specific protocols for well-related procedures are listed in field guidance documents (FGDs) submitted as Attachment A of the RI/FS Field Sampling Plan (ENVIRON 2014c) and in Appendix E of this plan. The methods and procedures associated with sampling and analysis described in this 2016 GWMO Plan will be further detailed in a Sampling and Analysis Plan (SAP) that will be prepared upon approval of the 2016 GWMO Plan by NDEP. These procedures may be modified as necessary over time. NDEP will be notified if significant modifications are made to the procedures described below.

6.1 Well-Related Procedures

6.1.1 Monitoring Well Surveys

Upon approval of the 2016 GWMO Plan, all monitoring wells in the 2016 GWMO Plan monitoring well network and any additional wells owned by the Trust will be surveyed for horizontal position and elevation by a qualified surveyor to be retained by Ramboll Environ. Horizontal position will be surveyed with an accuracy of less than one foot using differential GPS equipment, with locations referenced to the State Plane Coordinate System of 1983, Nevada East Zone (FIPS 2701). Surveyed elevations will include ground surface and top of casing for each well. Elevations will be surveyed with an accuracy of less than one inch using standard survey methods, with elevations referenced to NAD83. The results of the surveying will be tabularized and submitted in a survey report certified by the surveyor and documenting the surveyors; equipment used; methods; and a listing of all monuments, benchmarks, and other control points used.

Following this initial comprehensive survey, wells will only be surveyed on an as-needed basis. In the event that a new well is installed, it will be surveyed in accordance with this procedure. Individual wells may also be re-surveyed following the 5-year comprehensive well network inspection or following any necessary repairs to confirm accuracy of survey data.

6.1.2 Monitoring Well Inspections and Reconnaissance

A comprehensive inspection of all monitoring wells in the monitoring well network and any additional wells owned by the Trust will take place upon approval of the 2016 GWMO Plan. Measurements of the total depth of the monitoring well relative to the top of the well casing and of well stick up will be collected during the initial comprehensive monitoring well inspection. The total depth measurement will be compared to existing data, if available. In the event that the measured total depth does not accurately correspond to the historical measured total depth, the monitoring well will be video logged. If no information is available for the total depth of the well or the depths of the screened interval, the monitoring well will be video logged. Wells with unknown or uncertain screen depths and/or well total depths are listed in Table 10. The form in Appendix F will be used to document the inspections of each well during the comprehensive inspection.

During inspection, the wells with known or suspected maintenance issues will be inspected with the specific intent of identifying corrective actions. These wells are listed in Table 10. Specific attention will be paid to the artesian wells located along the western portion of the Site with the intent of developing recommendations to improve the wellheads to allow accurate measurement of the piezometric head at these wells. Other wells listed in Table 10 will also receive closer inspection to determine if replacement or decommissioning is necessary.

Follow-up comprehensive inspections of all monitoring wells will take place every five years to determine if any wells are in need of repair or decommissioning using the form included in Appendix F. The findings of the initial and follow-up comprehensive inspections and recommendations for repairs will be submitted in a letter report.

As indicated in the COP 2015 *Annual Summary Report,* follow-up annual inspections will include measurements of well depth to assess the possibility of silt accumulation to determine if well redevelopment is necessary (NERT 2016). In addition to the comprehensive initial inspection and annual inspections, informal inspections of the monitoring wells in the well network will be performed during sampling events. If a monitoring well is identified as needing repair or replacement during a sampling event, corrective actions will be proposed.

6.1.3 Monitoring Well Maintenance

Based on the findings of the comprehensive well inspection, recommendations will be made for maintenance or repair of existing monitoring wells. The general repairs may include, but are not limited to: painting the wells so they are more visible; replacing well caps and locks; replacing well box lids, bolts, and/ or rubber gaskets; installing protective posts; and cutting down the riser on wells where the metal protective cover cannot be secured due to heaving.

Wells that are known to be in need of maintenance or, potentially, decommissioning are listed in Table 10. Although these wells are not all in the proposed monitoring program, they should be inspected and maintained in case they are needed in the future. Should any of these wells that are in the proposed monitoring program prove to be permanently damaged or inaccessible, they will be removed from the monitoring program and, if necessary, replaced. Characteristics that will be used to deem wells damaged beyond repair include, but are not limited to, bentonite seals that appear to be compromised, risers that have been sheared off or bent below the ground surface and repair is infeasible, and wells that appear to be filled with sediment or debris.

6.1.4 Monitoring Well Installation

In the event that a well needs to be installed or replaced, monitoring wells will be installed in accordance with the NRS 534 and NAC 534. Any drilling activities will be performed by a Nevada-licensed driller, under the direction of an experienced geologist. During well installation, soil samples will be collected continuously and will be logged by the geologist[14]. The recovered soil samples will be classified according to the Unified Soil

[14] In the event of replacing or installing a monitoring well cluster, soil samples will not be continuously collected and logged for each monitoring well. The deepest monitoring well will be installed first and logged continuously. The subsequent shallower monitoring wells will be logged approximately every five feet with details supplemented from the deeper continuously-logged boring.

Classification System. In addition, a portion of each soil sample will be screened for total organic vapors using a photoionization detector (PID) and the headspace technique. Field documentation of the monitoring well installation will be recorded on task-specific field log forms as indicated in the FGD for groundwater monitoring well installation at the Site (Field Guidance Document No. 006: Groundwater Well Installation) that was submitted in Attachment A of the RI/FS Field Sampling Plan (ENVIRON 2014c).

New groundwater monitoring well construction details will depend on the purpose of the well, the types of impacts to the subsurface, and the surrounding lithology of the formation and/or vadose zone. The top of the screen should be above the depth of the water table. Replacement wells will be installed within 5 feet of the former monitoring well location (if possible), and the screens will be placed in the same hydrologic layer as the former monitoring well. Sand will be placed within the annular space to a minimum of 2 feet above the screen. A nominal two feet thick hydrated bentonite seal will be placed above the sand pack, and the remainder of the annulus will be grouted with a neat cement grout, which will be installed from the bottom up using a tremie pipe. If groundwater is encountered within five feet of the ground surface, the depths of the annular materials will be adjusted in accordance with NAC 534.4357.

For wells to be screened in deeper WBZs, it is important to isolate shallower WBZs. Using rotary sonic drilling, this isolation of shallower zones is accomplished by the outer drill casing. If other methods are to be used for groundwater monitoring well installation in deeper WBZs, a conductor casing will first be installed through the shallower WBZ(s) and cemented into place in order to seal off the shallow WBZ(s) and prevent cross-contamination between shallower and deeper WBZs. The installation of conductor casing requires a wider diameter drill tooling to be used for the portion of the borehole that is to be lined with conductor casing. After the installation of the conductor casing, a narrower diameter drill tooling is used to advance the well borehole through the conductor casing to the intended total depth of the well.

In non-vehicle areas, an aboveground completion consisting of a tamper-resistant steel surface casing (extending to an approximate depth of five feet) and concrete apron will be installed with the top elevation of the casing at approximately three to four feet above surrounding grade, and the concrete apron slightly above the surrounding grade. In vehicle areas such as roadways or parking lots, a flush-mounted completion consisting of a tamper-resistant, traffic-rated vault box will be installed with an elevation about ½ inch above surrounding grade, and vault boxes will be clearly marked as “Monitoring Well”. All wells will be capped with a water-tight locking cap.

6.1.5 Monitoring Well Development

Each newly installed groundwater monitoring well will be developed as soon as possible after the cement has cured, but no sooner than 24 hours after grouting. Well development will be conducted first by using a surge block and bailer to swab/surge the filter pack and remove most of the sediment from the monitoring well, followed by an electric submersible pump to purge the well of additional sediment. Development will be considered complete when a minimum of ten times the casing volume has been removed (any drilling fluids should also be removed), purge water is generally clear and free of turbidity, and groundwater field parameters are stable within approximately 10%

between three successive measurements. After wells are developed, they will be allowed to recover to 90% of the original static water level prior to sampling or aquifer testing. The FGD for groundwater monitoring well development at the Site (Field Guidance Document No. 007: Groundwater Well Development) was submitted in Attachment A of the RI/FS Field Sampling Plan (ENVIRON 2014c).

6.1.6 Monitoring Well Decommissioning

Monitoring wells will be decommissioned in accordance with NAC 534. The FGD for groundwater monitoring well decommissioning is included in Appendix E. This FGD describes procedures for decommissioning of wells by two methods: in-place decommissioning and overdrilling. The method employed will be determined on a case by case basis depending on specific characteristics of the well and the hydrogeologic setting. It should be noted that well-specific decommissioning procedures may need to be developed for some wells, e.g., artesian wells, wells with limited access, and wells containing hazardous levels of contaminants and/or located in hazardous areas.

6.2 Sampling-Related Procedures

The Site's field sampling procedures are described below and will be explained in further detail in the SAP that will be prepared upon approval of the GWMO Plan.

6.2.1 Groundwater Gauging

Groundwater gauging procedures will be outlined in the SAP that will be prepared upon approval of the GWMO Plan. In general, groundwater gauging procedures will be consistent with current practices at the Site. Before purging adjacent wells screened in the same WBZ, both wells should be gauged to prevent inconsistencies in DTW measurements from localized well drawdown. At each well, DTW measurements should be compared to historical data and atypical conditions should be noted. Ramboll Environ notes that DTW elevations in extraction wells tend to vary more than in monitoring wells.

6.2.2 Low-Flow Groundwater Sampling

This 2016 GWMO Plan recommends the use of low-flow sampling for all monitoring wells within the monitoring program. This recommendation is a point of deviation from the existing program which only includes low-flow sampling at 35 deeper, low-yielding wells that are sampled during the annual sampling event. Dedicated low-flow pumps are already installed at 30 wells. Construction information and low-flow sampling specifications for wells previously sampled using the low-flow method are provided in Table 12. Similar information will be assembled for remaining wells in the program before and during the initial low-flow sampling event.

Low-flow sampling procedures will be detailed in the SAP that will be prepared upon approval of the 2016 GWMO Plan. In general, low-flow sampling practices will be consistent with those currently in use at the 35 low-yielding wells in the existing monitoring program, with the exception of modified guidance for wells where drawdown stabilization cannot be achieved. In cases where drawdown cannot be stabilized using a purge rate of 100 milliliters per minute (mL/min), which is the lowest recommended purge rate for low-flow sampling, samples may be collected as soon as a minimum of one system volume (volume of tubing, pump, and flow cell) has been purged from the well.

The change to low-flow sampling is based on a recent review of groundwater sampling methods by the Department of Defense's (DOD) Environmental Security Technology Certification Program (ESTCP), which found that standard low-flow and small volume low-flow techniques both had lower variabilities in VOC concentrations measured over multiple sampling events when compared to alternative methods (low-flow large volume, passive no-purge [i.e., SNAP samplers], active no-purge [i.e., hydrosleeve]) (DOD ESTCP 2015).

6.2.3 Elimination of Sterile Filtering for Perchlorate Samples

For consistency with the Downgradient Study Area investigation currently being performed by AECOM, Ramboll Environ recommends the elimination of perchlorate sterile filtering for samples collected from groundwater monitoring and extraction wells[15]. Instead, filled containers should contain headspace and should be agitated and immediately chilled to 4°C.

6.2.4 Quality Assurance and Quality Control Samples

Quality control (QC) activities are those technical activities routinely performed, not to eliminate or minimize errors, but to assess/demonstrate reliability and confidence in the measurement data generated. Field QA/QC samples that will be collected include field duplicate samples (FD), field blanks (FB), equipment blanks (EB), and trip blanks (TB).

The FD is a replicate sample collected as close as possible to the same time that the primary sample is collected and from the same location, depth, or source, and is used to document analytical precision. FD samples will be processed in the same manner as primary samples. FDs will be collected at a frequency of one in every 20 primary samples and will be analyzed for the same suite of parameters as the primary sample.

FB samples are obtained by opening a laboratory-provided FB bottle set filled with reagent-grade deionized (DI) water during field sampling at a sample location. The sample then is analyzed in the same manner as the primary sample. FB samples will be collected at a frequency of one in every 20 samples and will be analyzed for the same suite of parameters as the primary sample to assess potential background contamination or errors in the sampling process.

EB samples are obtained by pouring DI water over or through decontaminated sampling equipment and then collecting and submitting these samples for analysis. EBs will be collected at a frequency of one in every 20 samples and will be analyzed for the same suite of parameters as the primary sample to assess the effectiveness of decontamination procedures.

TB samples are used to assess the potential for cross-contamination of VOCs between samples during storage and shipment. TB samples are only necessary when VOCs are being analyzed. A TB sample consists of one or more sample containers that are prepared at the analytical laboratory by filling with reagent-grade DI water. The TB

[15] Ramboll Environ is not proposing to end filtration of process-related perchlorate samples collected elsewhere within the GWETS due to the likely prevalence of perchlorate-reducing bacteria introduced during the Site's FBR treatment process.

sample is added to the sample cooler or other shipping container as soon as the first primary sample is collected. The TB sample accompanies the primary samples to the laboratory and is analyzed using the same analytical method as the primary samples. When VOCs are being analysed, one TB will be included with each shipment of groundwater samples.

The laboratory QA/QC program includes (i) performing analytical methods according to prescribed protocols and (ii) analyzing laboratory QA/QC samples to measure precision and accuracy of laboratory methods and equipment, instrument calibration and preventive maintenance. Laboratory QA/QC samples and parameters that will be analyzed include method blanks, laboratory control samples, matrix spikes, laboratory duplicates, and surrogates. The description and purpose of these samples will be further described in the SAP that will be prepared upon approval of the 2016 GWMO Plan.

6.3 Data Management Plan

All analytical and field data will be entered into an EQuIS® database system maintained by Ramboll Environ. The database will be maintained on a secure, enterprise-level database server that is backed-up regularly. Access to the database will be restricted to authorized users.

6.3.1 Analytical Electronic Data Deliverables

EDDs provided by the laboratories should be in the EQuIS 4-File EDD format as defined by the Ramboll Environ Laboratory EDD Format Specification, EQuIS Edition. The laboratories will check that their EDD submittals are consistent with lists of valid values provided by Ramboll Environ. Prior to loading into the database, EDDs will be reviewed for consistency with the file format and valid values. Data collected in the field will also be entered into the database, using EDDs described below, and will be integrated with laboratory data. The data validator will provide an EDD with data qualifiers, reason codes, and validation level columns appended to the data results. The validated data will be applied to the results records in the EQuIS® database.

Ramboll Environ will perform automated data quality checks as data is received and will contact the laboratory promptly if issues with the data are found.

6.3.2 Depth to Water Electronic Data Deliverables

DTW data is used to measure groundwater flow direction and gradient, assess hydraulic responses to pumping, understand the effects on groundwater from surface infiltration and interaction with the Las Vegas Wash, evaluate performance of the barrier wall, and to develop potentiometric surface maps. A definition and a template for the DTW EDD are included as an Excel file in Appendix D. This template is directly compatible with the Site's existing database structure.

6.3.3 Low-Flow Sampling Field Parameters Electronic Data Deliverables

The field parameters collected during low-flow sampling will be used in the interpretation of geochemical conditions in groundwater. A definition and a template for the field parameters EDD is included as an Excel file in Appendix D. This template is directly compatible with the Site's existing database structure.

7. CONCLUSIONS AND RECOMMENDATIONS

Ramboll Environ has prepared this 2016 GWMO Plan to develop an optimized groundwater monitoring program based on consideration of recently collected information and thorough quantitative and qualitative analyses of spatial and temporal trends. The optimized monitoring program will better inform the current understanding of the conceptual site model and will reduce inefficiencies in data collection and interpretation in support of the revised monitoring program objectives described in Section 1.1. This interim optimization is intended to reduce redundancies in the program, while also expanding the program where data needs exist, i.e., aligning the program with the current needs of the project specifically as they relate to the ongoing RI and COP. As these data collection efforts proceed, and as a final remedy is developed, monitoring optimization will need to be performed at certain project milestones and periodically thereafter to maintain effectiveness of the monitoring program.

The groundwater monitoring activities to be completed include: 1) semi-annual low-flow sampling of total chromium, perchlorate, TDS, chlorate, and nitrate and annual low-flow sampling of VOCs at an updated network of monitoring wells; 2) monthly analytical (total chromium, hexavalent chromium, perchlorate, TDS, chlorate, and nitrate) and groundwater elevation monitoring of extraction wells to support GWETS operations 3) monthly and quarterly groundwater elevation monitoring at specific wells identified in areas of interest for evaluating remedial performance; 4) semi-annual and annual groundwater elevation monitoring at an updated network of monitoring wells consistent with the proposed analytical samples; 5) a comprehensive survey of all wells in the monitoring program; 6) regular inspections and maintenance of wells; and 7) streamlined semi-annual reporting focused on the performance metrics and the COP.

Assuming NDEP approval of the 2016 GWMO Plan is received within 60 days of submittal, it is anticipated that the comprehensive well survey, well inspections, and well reconnaissance can be completed in third quarter of 2016. Once these initial well-related procedures are complete, it is expected that the proposed groundwater monitoring program will be implemented in fourth quarter 2016. Following this schedule, the Annual Performance Report submitted in October 2016 will be prepared using data collected through June 2016 under the existing groundwater monitoring program. The Semi-Annual Performance Report submitted in April 2017 is expected to be the first streamlined semi-annual report and will be prepared using data collected through December 2016 which is expected to include the first semi-annual event under the proposed monitoring program (fourth quarter 2016). The Annual Remedial Performance Report submitted in October 2017 will be prepared using data collected through June 2017 which is expected to include the first annual event under the proposed monitoring program (second quarter 2017).

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TABLES

TABLE 1: EXISTING GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses													Notes
							Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
AA-01	830921.12	26720238.47	1757.13	Shallow	29 - 49	Monitoring											X		X	Non-NERT well sampled by NERT
AA-11	830672.66	26725458.78	1660.05	Shallow	9 - 29	Monitoring									X		X		X	Non-NERT well sampled by NERT
ARP-1	828593.16	26728365.51	1613.32	Shallow	14 - 44	Monitoring			X	X	X		X	X	X		X		X	
ARP-2A	828722.80	26728404.34	1614.18	Shallow	23.7 - 53.7	Monitoring			X	X	X		X	X	X		X		X	
ARP-3A	828856.20	26728402.86	1614.67	Shallow	20.7 - 40.7	Monitoring			X	X	X		X	X	X		X		X	
ARP-4A	829167.89	26728411.81	1615.47	Shallow	17.7 - 32.7	Monitoring			X	X	X		X	X	X		X		X	
ARP-5A	829375.01	26728458.43	1616.10	Shallow	12.7 - 37.7	Monitoring			X	X	X		X	X	X		X		X	
ARP-6B	829520.52	26728499.92	1615.56	Shallow	27.7 - 42.7	Monitoring			X	X	X		X	X	X		X		X	
ARP-7	829668.22	26728501.08	1613.20	Shallow	14 - 39	Monitoring			X	X	X		X	X	X		X		X	
ART-1	828543.96	26728122.71	1614.47	Shallow	14 - 54	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-1A	828536.78	26728122.21	1614.40	Shallow	19 - 54	Extraction				X				X					X	Buddy well to ART-1[4]
ART-2	828625.03	26728084.71	1617.10	Shallow	19 - 54	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-2A	828618.82	26728085.56	1616.81	Shallow	21 - 56	Extraction				X				X					X	Buddy well to ART-2[4]
ART-3	828775.42	26728085.17	1617.93	Shallow	16.3 - 46.3	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-3A	828768.70	26728084.70	1617.60	Shallow	18 - 53	Extraction				X				X					X	Buddy well to ART-3[4]
ART-4	828850.69	26728085.26	1617.39	Shallow	19.4 - 44.4	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-4A	828844.49	26728084.58	1617.46	Shallow	18.4 - 43.4	Extraction				X				X					X	Buddy well to ART-4[4]
ART-6	829472.91	26728140.60	1615.19	Shallow	17.9 - 37.9	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-7A	829582.79	26728143.19	1614.78	Shallow	19.7 - 39.7	Extraction				X				X					X	Buddy well to ART-7B[4]
ART-7B	829576.16	26728151.39	1615.77	Shallow	29.8 - 44.8	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	[5]
ART-8	828697.72	26728084.10	1617.69	Shallow	18 - 48	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
ART-8A	828691.89	26728083.31	1617.10	Shallow	22 - 52	Extraction				X				X					X	Buddy well to ART-8[4]
ART-9	829525.57	26728143.32	1614.90	Shallow	23 - 43	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
BEC-1	830926.00	26721120.00	1732.04	Shallow	25 - 40	Monitoring											X		X	Non-NERT well sampled by NERT
DM-4	830802.17	26728130.60	1622.47	Shallow	8 - 23	Monitoring									X		X		X	Non-NERT well sampled by NERT
DM-5	833187.20	26728698.75	1625.48	Shallow	7 - 22	Monitoring									X		X		X	Non-NERT well sampled by NERT
H-11	826574.18	26714839.94	1868.47	Middle	93.3 - 103	Monitoring											X		X	Non-NERT well sampled by NERT
H-28A	825864.67	26721023.60	NA	NA	NA	Monitoring					X		X	X	X		X		X	Non-NERT well sampled by NERT; RCRA well; 2Q and 3Q only[6]
H-48	825658.27	26723952.95	1684.79	Shallow	32.7 - 42.7	Monitoring									X		X		X	Non-NERT well sampled by NERT
H-58A	825642.55	26723331.88	1693.43	Shallow	37 - 57	Monitoring									X		X		X	Non-NERT well sampled by NERT
HM-2	832199.20	26731069.80	1588.00	NA	NA	Monitoring											X		X	Non-NERT well sampled by NERT
HMW-13	827711.49	26731740.35	1595.51	Shallow	10 - 25	Monitoring											X		X	Non-NERT well sampled by NERT
HMW-14	827174.04	26731535.30	1599.82	Shallow	13 - 28	Monitoring											X		X	Non-NERT well sampled by NERT
HMW-15	827608.00	26729901.00	1611.97	Shallow	6 - 21	Monitoring											X		X	Non-NERT well sampled by NERT
HMW-16	827090.00	26728531.00	1621.43	Shallow	8 - 23	Monitoring											X		X	Non-NERT well sampled by NERT
HSW-1	832121.07	26730000.82	1599.40	NA	NA	Monitoring											X		X	Non-NERT well sampled by NERT
I-AA	827174.40	26719770.85	1753.93	Shallow	23.7 - 43.7	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-AB	827225.04	26719790.40	1753.89	Shallow	25 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-AC	828792.61	26719889.66	1752.76	Shallow	24.5 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-AD	828806.68	26719794.82	1755.39	Shallow	24.5 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-AR	827414.35	26719429.52	1758.35	Shallow	25 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	

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							Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
I-B	827282.89	26719808.09	1752.87	Shallow	17.8 - 42.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-C	827486.47	26719791.90	1752.77	Shallow	13.2 - 42.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-D	827582.21	26719805.21	1752.67	Shallow	16 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-E	827733.37	26719825.39	1752.36	Shallow	21.5 - 43.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-F	827879.70	26719845.58	1749.70	Shallow	11.8 - 43.3	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-G	828030.70	26719866.33	1752.50	Shallow	9.5 - 38.8	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-H	828177.55	26719887.13	1753.21	Shallow	13.6 - 43.1	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-I	828375.04	26719914.40	1745.50	Shallow	11.3 - 40.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-J	828573.94	26719940.33	1750.09	Shallow	11.2 - 40.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-K	828738.09	26719962.87	1746.04	Shallow	7 - 35.3	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-L	827352.86	26719803.23	1751.70	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-M	827669.83	26719817.42	1752.90	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-N	827802.25	26719837.85	1751.45	Shallow	7 - 37	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-O	828263.13	26719898.00	1752.79	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-P	828221.66	26719892.08	1751.66	Shallow	14 - 44.1	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-Q	827952.15	26719855.17	1753.11	Shallow	9.6 - 39.6	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-R	827316.06	26719801.85	1751.35	Shallow	9.8 - 39.8	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-S	827404.20	26719799.87	1750.03	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-T	828073.50	26719873.66	1751.66	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-U	828118.60	26719879.67	1752.17	Shallow	12 - 42.2	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-V	828326.28	26719894.97	1752.13	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-W	828245.87	26719895.87	1751.50	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-X	827840.23	26719843.08	1748.60	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-Y	827334.69	26719800.78	1751.40	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
I-Z	828467.92	26719923.37	1743.78	Shallow	15 - 35	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
L-635	828302.28	26727839.46	1620.94	Shallow	0 - 45	Monitoring			X	X	X		X	X	X		X		X	Non-NERT well sampled by NERT
L-637	828110.00	26727839.47	1621.60	Shallow	14 - 29	Monitoring			X	X	X		X	X	X		X		X	Non-NERT well sampled by NERT
M-2A	827984.75	26718769.56	1781.16	Shallow	30 - 40	Monitoring									X		X		X	
M-5A	826179.29	26719961.12	1751.80	Shallow	40 - 50	Monitoring					X		X	X	X		X		X	RCRA well; 2Q and 3Q only[6]
M-6A	825984.54	26721013.69	1733.19	Shallow	26.8 - 41.5	Monitoring					X		X	X	X		X		X	RCRA well; 2Q and 3Q only[6]
M-7B	826106.50	26720979.66	1732.83	Shallow	25.5 - 50.5	Monitoring					X		X	X	X		X		X	RCRA well; 2Q and 3Q only[6]
M-10	828536.18	26716636.63	1836.21	Shallow	43 - 63	Monitoring				X	X	X	X	X	X	X	X	X	X	NPDES Permit well[7]
M-11	828617.03	26717608.56	1815.53	Shallow	33 - 53	Monitoring				X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-12A	828178.52	26717575.29	1812.47	Shallow	40 - 50	Monitoring					X	X	X	X	X	X	X	X	X	UIC Permit well
M-13	827806.03	26717477.66	1814.89	Shallow	28 - 48	Monitoring									X		X	X	X	
M-14A	827045.36	26719382.67	1760.93	Shallow	20 - 40	Monitoring				X	X		X	X	X		X		X	
M-19	828846.19	26719350.03	1766.77	Shallow	14.5 - 34.5	Monitoring				X	X		X	X	X		X		X	
M-21	827792.86	26718359.30	1792.07	Shallow	18 - 38	Monitoring									X		X		X	
M-22A	828270.11	26719531.63	1759.46	Shallow	16 - 36	Monitoring				X	X		X	X	X		X		X	
M-23	827373.96	26721391.25	1720.54	Shallow	9.4 - 37.4	Monitoring				X	X		X	X	X		X	X	X	
M-25	827677.80	26719503.57	1759.93	Shallow	24 - 39	Monitoring				X	X		X	X	X		X	X	X	
M-29	828999.00	26717598.00	1806.60	Shallow	22 - 42	Monitoring									X		X	X	X	
M-31A	828368.37	26718289.58	1796.87	Shallow	35 - 55	Monitoring				X	X		X	X	X		X		X	

TABLE 1: EXISTING GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses: Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
M-32	828592.58	26718354.04	1795.60	Shallow	30 - 45	Monitoring									X		X		X	
M-33	828783.74	26718383.17	1795.49	Shallow	30 - 45	Monitoring									X		X		X	
M-35	828509.37	26718840.13	1772.78	Shallow	25 - 40	Monitoring				X	X		X	X	X		X		X	
M-36	828069.09	26719556.63	1759.82	Shallow	20 - 35	Monitoring				X	X	X	X	X	X	X	X	X	X	UIC Permit well; well damaged
M-37	827414.22	26719422.01	1761.06	Shallow	20 - 35	Monitoring				X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-38	827877.66	26719523.27	1759.73	Shallow	20 - 35	Monitoring				X	X	X	X	X	X	X	X		X	Substitute UIC Permit well for M-36
M-44	827005.61	26722699.15	1698.31	Shallow	5 - 35	Monitoring				X	X	X	X	X	X	X	X		X	UIC Permit well
M-48A	828294.38	26721339.07	1718.36	Shallow	19.7 - 39.7	Monitoring				X	X		X	X	X		X	X	X	
M-52	828394.48	26717985.39	1802.39	Shallow	34.5 - 44.5	Monitoring					X		X	X	X		X		X	
M-55	827683.04	26719819.36	1750.88	Shallow	14.6 - 44.6	Monitoring				X				X					X	
M-56	827980.36	26719859.52	1750.83	Shallow	15 - 40	Monitoring				X				X					X	
M-57A	826993.31	26719716.74	1753.44	Shallow	20 - 40	Monitoring				X	X		X	X	X		X		X	
M-58	828276.62	26719900.55	1751.25	Shallow	15 - 45	Monitoring				X				X					X	
M-60	828079.11	26719872.48	1750.94	Shallow	17.8 - 42.8	Monitoring				X				X					X	
M-64	827580.25	26719726.63	1749.76	Shallow	12.7 - 37.3	Monitoring				X	X		X	X	X		X		X	
M-65	827899.72	26719746.36	1753.91	Shallow	14.4 - 39	Monitoring				X	X		X	X	X		X		X	
M-66	828183.64	26719787.47	1754.24	Shallow	17.5 - 42.3	Monitoring				X	X		X	X	X		X		X	
M-67	828508.52	26719829.72	1745.91	Shallow	7.8 - 37.8	Monitoring				X	X		X	X	X		X		X	
M-68	828751.00	26719864.47	1750.23	Shallow	11.2 - 39.8	Monitoring				X	X		X	X	X		X		X	
M-69	827265.73	26719885.28	1749.75	Shallow	19.9 - 39.3	Monitoring				X	X		X	X	X		X		X	
M-70	827567.35	26719904.69	1748.25	Shallow	15.3 - 40	Monitoring				X	X		X	X	X		X		X	
M-71	827859.71	26719943.63	1747.04	Shallow	17.5 - 42	Monitoring				X	X		X	X	X		X		X	
M-72	828172.13	26719977.14	1746.49	Shallow	10.1 - 34.8	Monitoring				X	X		X	X	X		X		X	
M-73	828427.82	26720018.47	1741.14	Shallow	11 - 35.8	Monitoring				X	X		X	X	X		X		X	
M-74	828713.65	26720062.18	1745.08	Shallow	9.2 - 38.8	Monitoring				X	X		X	X	X		X		X	
M-75	827718.82	26718702.64	1784.21	Shallow	34.6 - 49.3	Monitoring				X				X	X		X		X	
M-76	827550.73	26718659.92	1785.22	Shallow	34.6 - 49.3	Monitoring				X				X	X		X		X	
M-77	828932.32	26718046.00	1801.73	Shallow	29 - 43.8	Monitoring				X				X	X		X		X	
M-78	827777.45	26719838.17	1751.50	Shallow	21.5 - 41.5	Monitoring				X				X					X	
M-79	827382.10	26720048.92	1742.53	Shallow	10.8 - 35.4	Monitoring				X	X		X	X	X		X		X	
M-80	827759.79	26720112.87	1746.04	Shallow	11.5 - 41.5	Monitoring				X	X		X	X	X		X		X	Substitute UIC Permit well for M-84
M-81A	828139.67	26720176.85	1744.16	Shallow	30 - 40	Monitoring				X	X		X	X	X		X		X	
M-83	827584.70	26720159.92	1742.02	Shallow	10.8 - 40.3	Monitoring			X	X	X		X	X	X		X		X	
M-92	827138.09	26717531.94	1800.76	Shallow	34.9 - 44.9	Monitoring				X				X	X		X		X	
M-93	827143.44	26717685.92	1797.54	Shallow	35.4 - 45.4	Monitoring				X				X	X		X		X	
M-95	827426.74	26722701.69	1694.09	Shallow	12 - 22	Monitoring				X	X	X	X	X	X	X	X		X	UIC Permit well
M-96	827626.08	26722700.30	1693.85	Shallow	10.5 - 20.5	Monitoring				X	X	X	X	X	X	X	X		X	
M-97	827492.47	26717795.18	1800.85	Shallow	35 - 45	Monitoring				X				X	X		X		X	
M-98	826873.45	26720914.14	1731.90	Shallow	19 - 29	Monitoring				X	X		X	X	X		X		X	
M-99	827309.69	26720851.72	1730.74	Shallow	16 - 31	Monitoring				X	X		X	X	X		X		X	
M-100	827659.99	26720820.26	1730.93	Shallow	19 - 29	Monitoring				X	X	X	X	X	X	X	X		X	UIC Permit well
M-101	828060.83	26720786.74	1730.81	Shallow	17 - 27	Monitoring				X	X		X	X	X		X		X	
M-103	828728.34	26715622.48	1866.91	Shallow	69.5 - 89.5	Low Flow									X		X		X	

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Nevada Environmental Response Trust Site
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Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses														Notes
							Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)						
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level		
M-115	827243.65	26718612.90	1787.64	Shallow	35 - 45	Monitoring				X				X	X		X		X		
M-117	828917.06	26715198.29	1880.31	Middle	130 - 150	Low Flow									X		X		X		
M-118	828036.40	26715068.01	1876.91	Middle	138 - 158	Low Flow									X		X		X		
M-120	828387.79	26715162.90	1878.58	Shallow	80 - 100	Low Flow									X		X		X		
M-121	827694.57	26715011.24	1875.63	Shallow	77 - 97	Low Flow									X		X		X		
M-123	826516.40	26718416.92	1785.13	Shallow	36 - 51	Monitoring									X		X		X		
M-124	827092.23	26718226.14	1787.66	Shallow	34 - 49	Monitoring									X		X		X		
M-125	826531.82	26718993.90	1771.33	Shallow	35 - 50	Monitoring									X		X		X		
M-126	826569.37	26719505.57	1759.01	Shallow	19.7 - 39.7	Monitoring									X		X		X		
M-128	827171.63	26718501.70	1783.80	Shallow	40 - 55	Monitoring									X		X		X		
M-129	828806.43	26720079.64	1747.26	Shallow	20 - 40	Monitoring									X		X		X		
M-130	828832.01	26719919.70	1749.23	Shallow	20 - 40	Monitoring									X		X		X		
M-131	827158.08	26719770.57	1754.13	Shallow	28.7 - 38.7	Monitoring					X		X	X	X		X		X		
M-132	828714.61	26720048.49	1744.49	Shallow	79.7 - 89.7	Monitoring									X		X		X		
M-133	828698.61	26720067.29	1743.62	Shallow	59.7 - 69.7	Monitoring									X		X		X		
M-134	827144.35	26719889.14	1752.14	Shallow	59.7 - 69.7	Monitoring									X		X		X		
M-135	827154.48	26719890.17	1751.85	Shallow	28.7 - 38.7	Monitoring					X		X	X	X		X		X		
M-136	827165.34	26719889.77	1751.87	Shallow	79.7 - 89.7	Monitoring									X		X		X		
M-137	827666.01	26716034.02	1847.54	Shallow	52 - 72	Monitoring									X		X		X		
M-138	827816.34	26716058.31	1846.35	Shallow	50.5 - 65.5	Monitoring									X		X		X		
M-139	829044.25	26717213.06	1813.19	Shallow	45 - 60	Monitoring									X		X		X		
M-140	827428.84	26719889.51	1748.21	Shallow	22.7 - 42.7	Monitoring									X		X		X		
M-141	828465.43	26718195.34	1797.16	Shallow	39.5 - 49.5	Monitoring									X		X		X		
M-142	827191.75	26718713.09	1773.55	Shallow	30 - 45	Monitoring									X		X		X		
M-144	827644.50	26717026.00	1813.31	Shallow	35 - 45	Monitoring									X		X		X		
M-145	829205.27	26717451.15	1812.18	Shallow	45 - 60	Monitoring									X		X		X		
M-146	827774.94	26716991.91	1812.48	Shallow	40 - 50	Monitoring									X		X		X		
M-147	828824.17	26718857.89	1781.06	Shallow	25 - 40	Monitoring									X		X		X		
M-148A	829030.35	26718357.14	1800.04	Shallow	39.7 - 49.7	Monitoring									X		X		X		
M-149	828373.09	26718285.82	1796.81	Middle	100 - 120	Low Flow									X		X		X		
M-150	828058.96	26719569.84	1758.86	Middle	125 - 145	Low Flow									X		X		X		
M-151	827642.80	26720826.93	1730.64	Middle	125 - 145	Low Flow									X		X		X		
M-152	826973.49	26722690.63	1698.50	Middle	125 - 145	Low Flow									X		X		X		
M-153	828385.63	26718288.08	1796.69	Middle	150 - 170	Low Flow									X		X		X		
M-154	828047.63	26719568.46	1758.78	Middle	175 - 195	Low Flow									X		X		X		
M-155	827635.84	26720827.51	1730.69	Middle	200 - 220	Low Flow									X		X		X		
M-156	826964.22	26722690.74	1698.38	Middle	175 - 195	Low Flow									X		X		X		
M-161	827134.13	26719889.85	1752.40	Middle	99.7 - 109.7	Low Flow									X		X		X		
M-162	827877.81	26719946.02	1747.82	Middle	99.7 - 109.7	Low Flow									X		X		X		
M-163	827873.42	26719939.04	1747.95	Shallow	79.7 - 89.7	Low Flow									X		X		X		
M-164	827870.17	26719949.61	1747.61	Shallow	59.7 - 69.7	Low Flow									X		X		X		
M-165	828701.37	26720053.24	1743.84	Middle	109.7 - 119.7	Low Flow									X		X		X		
M-166	827230.05	26719779.41	1751.09	Shallow	21.7 - 31.7	Monitoring								X					X		

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Nevada Environmental Response Trust Site
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Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses: Monthly				Monitoring Analyses: Quarterly[2] (1Q, 3Q & 4Q)				Monitoring Analyses: Annually[3] (2Q)					Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
M-167	827337.72	26719787.69	1749.95	Shallow	19.7 - 29.7	Monitoring								X					X	
M-168	827408.08	26719788.50	1748.46	Shallow	21.7 - 31.7	Monitoring								X					X	
M-169	827469.30	26719786.63	1750.22	Shallow	24.7 - 34.7	Monitoring								X					X	
M-170	827577.55	26719796.38	1750.66	Shallow	24.7 - 34.7	Monitoring								X					X	
M-172	827894.87	26719835.83	1750.58	Shallow	26.7 - 36.7	Monitoring								X					X	
M-173	828181.82	26719875.60	1749.88	Shallow	24.7 - 39.7	Monitoring								X					X	
M-174	828379.00	26719902.97	1742.29	Shallow	17.7 - 27.7	Monitoring								X					X	
M-175	828471.22	26719911.14	1742.74	Shallow	18.7 - 28.7	Monitoring								X					X	
M-176	828586.42	26719948.07	1745.35	Shallow	19.7 - 29.7	Monitoring								X					X	
M-177	828724.83	26719965.79	1743.23	Shallow	19.7 - 29.7	Monitoring								X					X	
M-181	828816.30	26719579.72	1761.76	Middle	104.7 - 114.7	Low Flow									X		X		X	
M-182	828815.50	26719588.73	1761.83	Shallow	79.7 - 89.7	Low Flow									X		X		X	
M-186	829022.55	26718356.19	1800.60	Middle	104.7 - 114.7	Low Flow									X		X		X	
MC-3	825209.50	26721410.01	1725.73	NA	NA	Monitoring											X		X	Non-NERT well sampled by NERT
MC-6	825207.92	26722160.22	1712.17	NA	NA	Monitoring											X		X	Non-NERT well sampled by NERT
MC-7	824933.20	26721865.43	1718.66	NA	NA	Monitoring											X		X	Non-NERT well sampled by NERT
MC-29	825566.39	26721514.56	1723.40	Shallow	37.5 - 50	Monitoring											X		X	Non-NERT well sampled by NERT
MC-45	825400.42	26722230.35	1710.98	Shallow	30 - 34	Monitoring											X		X	Non-NERT well sampled by NERT
MC-50	825534.87	26722076.15	1713.32	Shallow	24 - 49	Monitoring											X		X	Non-NERT well sampled by NERT
MC-51	825647.67	26721900.05	1715.88	Shallow	24 - 49	Monitoring											X		X	Non-NERT well sampled by NERT
MC-53	825942.24	26721920.01	1715.27	Shallow	20 - 40	Monitoring									X		X		X	Non-NERT well sampled by NERT
MC-65	826119.27	26722421.15	1705.43	Shallow	20 - 41	Monitoring									X		X		X	Non-NERT well sampled by NERT
MC-69	825235.63	26721806.43	1718.80	Shallow	29 - 44	Monitoring											X		X	Non-NERT well sampled by NERT
MC-93	825948.78	26721673.15	1719.26	Shallow	32 - 42	Monitoring											X		X	Non-NERT well sampled by NERT
MC-97	825838.35	26721425.66	1723.95	Shallow	31 - 41	Monitoring											X		X	Non-NERT well sampled by NERT
MW-16	826447.64	26719904.41	1754.81	Shallow	24.7 - 39.7	Monitoring									X		X		X	
MW-K4	828994.00	26728410.00	1615.70	Shallow	9.5 - 50	Monitoring			X	X	X		X	X	X		X		X	Non-NERT well sampled by NERT
MW-K5	829617.00	26730252.00	1589.30	Shallow	28.5 - 44	Monitoring			X	X	X		X	X	X		X	X	X	Non-NERT well sampled by NERT
PC-1	830925.11	26730308.65	1599.13	Shallow	14.7 - 29.7	Monitoring									X		X	X	X	
PC-2	830443.45	26730209.58	1597.07	Shallow	16.7 - 31.7	Monitoring									X		X	X	X	
PC-4	831171.80	26730353.42	1600.42	Shallow	17.7 - 42.7	Monitoring									X		X	X	X	
PC-18	828636.25	26728079.97	1618.50	Shallow	11.5 - 51.5	Monitoring			X	X	X		X	X	X		X		X	
PC-21A	829269.53	26721332.72	1724.52	Shallow	14 - 34	Monitoring									X		X	X	X	
PC-24	829524.18	26726729.82	1633.48	Shallow	15 - 30	Monitoring									X		X		X	
PC-28	828530.65	26725375.67	1650.85	Shallow	10 - 19.5	Monitoring									X		X		X	
PC-31	826781.65	26725195.83	1657.86	Shallow	14.5 - 49.5	Monitoring									X		X		X	
PC-37	826612.10	26722172.24	1707.72	Shallow	16.8 - 41.8	Monitoring				X	X		X	X	X		X		X	
PC-40	826476.78	26723971.04	1679.23	Shallow	15 - 55	Monitoring									X		X		X	
PC-50	828326.94	26726722.30	1633.46	Shallow	11.8 - 41.8	Monitoring									X		X		X	
PC-53	829941.58	26730225.29	1595.03	Shallow	13 - 32.5	Monitoring			X	X	X		X	X	X		X		X	
PC-54	828296.34	26722067.79	1704.43	Shallow	9.5 - 34.5	Monitoring				X	X		X	X	X		X		X	
PC-55	828530.49	26728056.66	1618.46	Shallow	15.3 - 55.3	Monitoring			X	X	X		X	X	X		X		X	
PC-56	830645.29	26732289.43	1576.83	Shallow	4.8 - 54.8	Monitoring			X	X	X		X	X	X		X		X	

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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses: Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
PC-58	831123.78	26732118.20	1576.79	Shallow	7.8 - 32.8	Monitoring			X	X	X		X	X	X		X		X	
PC-59	830150.30	26732452.69	1576.05	Shallow	4.8 - 34.8	Monitoring			X	X	X		X	X	X		X		X	
PC-60	830405.14	26732358.75	1576.47	Shallow	4.5 - 39.5	Monitoring			X	X	X		X	X	X		X		X	
PC-62	829764.28	26732733.52	1575.74	Shallow	7.6 - 37.6	Monitoring			X	X	X		X	X	X		X		X	
PC-64	827916.52	26723702.44	1675.29	Shallow	4 - 19	Monitoring									X		X		X	
PC-65	828386.90	26723682.74	1675.21	Shallow	4.1 - 18.7	Monitoring									X		X		X	
PC-66	828779.40	26723966.95	1673.53	Shallow	6.9 - 26.9	Monitoring									X		X		X	
PC-67	829207.80	26723846.87	1673.82	Shallow	11 - 35.6	Monitoring									X		X		X	
PC-68	829616.96	26732906.82	1576.39	Shallow	9.9 - 54.9	Monitoring			X	X	X		X	X	X		X		X	
PC-71	826805.90	26722687.72	1698.73	Shallow	13.4 - 28.4	Monitoring				X	X		X	X	X		X		X	
PC-72	826604.72	26722688.82	1699.43	Shallow	15 - 35	Monitoring				X	X		X	X	X		X		X	
PC-73	826404.90	26722694.93	1699.50	Shallow	20 - 45	Monitoring				X	X		X	X	X		X		X	
PC-74	829203.52	26734003.52	1565.34	Shallow	39.5 - 49.5	Monitoring											X		X	
PC-76	829183.79	26734006.74	1565.10	Shallow	15 - 20	Monitoring													X	
PC-77	829031.63	26733568.07	1566.90	Shallow	29.5 - 39.5	Monitoring											X		X	
PC-78	829033.25	26733560.32	1566.72	Shallow	11.5 - 21.5	Monitoring													X	
PC-79	829815.15	26733246.70	1573.11	Shallow	34.5 - 44.5	Monitoring									X		X		X	
PC-80	829823.82	26733250.46	1573.38	Shallow	19.5 - 29.5	Monitoring													X	
PC-81	829833.40	26733254.77	1573.34	Shallow	9.5 - 14.5	Monitoring													X	
PC-82	830316.93	26733194.96	1569.10	Shallow	47 - 57	Monitoring											X	X	X	
PC-83	830325.43	26733201.37	1569.28	Shallow	20.5 - 30.5	Monitoring													X	
PC-86	830826.99	26733185.76	1561.60	Shallow	17.5 - 27.5	Monitoring			X	X	X		X	X	X		X	X	X	
PC-87	830837.82	26733185.37	1561.52	Shallow	2.5 - 12.5	Monitoring													X	
PC-88	831259.41	26733178.42	1551.01	Shallow	40 - 50	Monitoring													X	
PC-90	831271.92	26733192.63	1550.46	Shallow	4.5 - 14.5	Monitoring			X	X	X		X	X	X		X	X	X	
PC-91	831729.99	26733110.85	1552.33	Shallow	26.5 - 36.5	Monitoring			X	X	X		X	X	X		X	X	X	
PC-92	831749.30	26733109.85	1552.05	Shallow	11.5 - 21.5	Monitoring									X		X		X	
PC-94	832189.05	26733122.48	1548.95	Shallow	9.5 - 19.5	Monitoring					X		X	X	X		X		X	
PC-96	830896.56	26733450.83	1552.57	Shallow	29 - 39	Monitoring											X		X	
PC-97	831565.69	26733441.54	1548.53	Shallow	23 - 33	Monitoring			X	X	X		X	X	X		X		X	
PC-98R	829522.58	26730260.53	1593.35	Shallow	20 - 35	Monitoring			X	X	X		X	X	X		X		X	
PC-99R2/R3	831258.73	26733155.42	1552.55	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-101R	828711.72	26728107.74	1618.12	Shallow	20 - 50	Monitoring			X	X	X		X	X	X		X		X	
PC-103	829110.87	26730205.73	1599.49	Shallow	9 - 29	Monitoring			X	X	X		X	X	X		X	X	X	
PC-107	827136.50	26729287.58	1616.94	Shallow	7.7 - 17.7	Monitoring											X		X	
PC-108	828526.96	26731913.05	1587.93	Shallow	9.7 - 44.7	Monitoring											X		X	
PC-110	826778.31	26731928.11	1594.56	Shallow	6.7 - 36.7	Monitoring											X		X	
PC-115R	831148.64	26733131.33	1554.71	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-116R	831348.43	26733203.15	1552.10	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-117	831422.37	26733275.94	1552.26	Shallow	11 - 51	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-118	831051.99	26733167.39	1554.53	Shallow	9 - 49	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-119	830951.29	26733188.50	1554.66	Shallow	15 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-120	830851.47	26733185.77	1554.64	Shallow	15 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	

TABLE 1: EXISTING GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses													Notes
							Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	
PC-121	830751.31	26733180.39	1554.10	Shallow	6.5 - 36.5	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-122	829675.17	26728145.17	1618.02	Shallow	23 - 38	Monitoring			X	X	X		X	X	X		X		X	
PC-123	829485.04	26727358.44	1626.44	Shallow	20 - 35	Monitoring					X		X	X	X		X		X	
PC-124	830132.95	26726741.58	1635.73	Shallow	20.3 - 35.3	Monitoring					X		X	X	X		X	X	X	
PC-125	829925.95	26726739.82	1635.06	Shallow	18.7 - 33.7	Monitoring					X		X	X	X		X		X	
PC-126	829724.72	26726737.84	1634.38	Shallow	19.5 - 34.5	Monitoring					X		X	X	X		X	X	X	
PC-127	829316.65	26726735.62	1632.42	Shallow	15 - 35	Monitoring					X		X	X	X		X		X	
PC-128	828953.97	26726732.39	1633.36	Shallow	14.8 - 34.8	Monitoring					X		X	X	X		X	X	X	
PC-129	828747.28	26726730.81	1633.99	Shallow	12.8 - 37.8	Monitoring					X		X	X	X		X		X	
PC-130	828538.19	26726729.31	1633.21	Shallow	14.8 - 49.8	Monitoring					X		X	X	X		X	X	X	
PC-131	828123.28	26726725.41	1633.58	Shallow	9.8 - 39.8	Monitoring					X		X	X	X		X		X	
PC-132	827913.94	26726723.10	1634.70	Shallow	9.8 - 39.8	Monitoring					X		X	X	X		X	X	X	
PC-133	831758.00	26733209.00	1553.00	Shallow	5 - 40	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
PC-134A	828775.80	26728143.15	1618.57	Shallow	59.7 - 69.7	Monitoring									X		X		X	
PC-135A	828767.49	26728143.03	1618.58	Shallow	30.7 - 50.7	Monitoring					X		X	X	X		X		X	
PC-136	829517.89	26728191.37	1618.04	Shallow	21.7 - 41.7	Monitoring					X		X	X	X		X		X	
PC-137	829517.57	26728198.98	1618.45	Shallow	63.3 - 73.3	Monitoring									X		X		X	
PC-142	828436.04	26728106.76	1619.64	Shallow	21.7 - 31.7	Monitoring									X		X		X	
PC-143	828698.71	26728238.64	1619.20	Shallow	29.7 - 64.7	Monitoring									X		X		X	
PC-144	828903.75	26728223.86	1618.63	Shallow	29.7 - 39.7	Monitoring				X	X		X	X	X		X		X	
PC-145	829536.07	26728324.97	1617.76	Shallow	24.7 - 44.7	Monitoring									X		X		X	
PC-146	829812.54	26728152.19	1617.67	Shallow	19.7 - 29.7	Monitoring									X		X		X	
PC-147	829767.43	26728153.17	1617.51	Shallow	21.7 - 31.7	Monitoring									X		X		X	
PC-148	829249.33	26728124.42	1617.96	Shallow	24.5 - 44.5	Monitoring					X		X	X	X		X		X	
PC-149	829117.97	26728122.90	1618.93	Shallow	24.5 - 44.5	Monitoring					X		X	X	X		X		X	
PC-150	828915.08	26728103.93	1616.42	Shallow	19.88 - 39.88	Extraction	X	X	X	X	X	X	X	X	X	X	X		X	
TR-1	826168.04	26719957.91	1752.29	Middle	281.5 - 311.5	Artesian									X		X		X	
TR-2	826156.85	26719954.57	1751.79	Middle	144.5 - 174.5	Low Flow									X		X		X	
TR-3	826342.89	26718941.61	1772.84	Middle	219.5 - 249.5	Artesian									X		X		X	
TR-4	826342.53	26718951.58	1772.55	Middle	124.5 - 144.5	Low Flow									X		X		X	
TR-5	826595.86	26717592.13	1800.27	Middle	221 - 251	Low Flow									X		X		X	
TR-6	826594.34	26717608.38	1800.36	Shallow	60 - 80	Low Flow									X		X		X	
TR-7	826724.99	26716525.47	1829.03	Middle	260 - 290	Low Flow									X		X		X	
TR-8	826722.81	26716512.15	1829.08	Shallow	63 - 93	Low Flow									X		X		X	
TR-9	827560.22	26715752.71	1854.29	Middle	230 - 250	Low Flow									X		X		X	
TR-10	827562.53	26715739.77	1854.06	Shallow	80 - 100	Low Flow									X		X		X	
TR-11	825422.57	26721918.29	1716.55	Middle	210 - 230	Artesian									X		X		X	
TR-12	825286.37	26723271.82	1696.06	Middle	272 - 292	Artesian									X		X		X	
Sample Totals							**48**	**48**	**77**	**136**	**141**	**58**	**141**	**170**	**239**	**58**	**265**	**25**	**294**	

TABLE 1: EXISTING GROUNDWATER MONITORING PROGRAM

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type	Monitoring Analyses													Notes
							Monthly				Quarterly[2] (1Q, 3Q & 4Q)				Annually[3] (2Q)					
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, pH, & TDS	Chlorate, Nitrate	Water Level	

Notes:

[1]Water-bearing zones are defined as follows:

Shallow - Top of screened interval is less than 90 feet below ground surface

Middle - Top of screened interval is between 90 and 300 feet below ground surface

[2]The quarterly sampling events take place in the middle of the first, third, and fourth quarters, replacing the monthly events in February, August, and November.

[3]The annual sampling event takes place in the middle of the second quarter, replacing the monthly event in May.

[4]Analytical sampling will be performed at the active extraction well in a set of buddy wells. Water level measurements are taken at all wells in a set of buddy wells.

[5]ART-7B began pumping in October 2014 as part of the 2013 Groundwater Extraction and Treatment System (GWETS) Optimization Project, replacing ART-7 as the primary extraction well.

[6]Well sampled under RCRA requiring the following additional analyses:

Chloride	Total Iron
Phenols	Total Manganese
Specific Conductance	Total Organic Carbon
Sulfate	Total Organic Halides (4 Replicates)
Total Boron	Total Sodium

[7]Well sampled under NPDES Permit requiring the following additional analyses:

Ammonia Nitrogen	Total Boron
Nitrate as Nitrate	Total Iron
Nitrate as Nitrogen	Total Manganese
Nitrite as Nitrogen	Chloride
Total Inorganic Nitrogen	

ft amsl = feet above mean sea level
ft bgs = feet below ground surface
NPDES = National Pollutant Discharge Elimination System
ClO_4 = Perchlorate
RCRA = Resource Conservation and Recovery Act
TDS = Total Dissolved Solids
UIC = Underground Injection Control

TABLE 2: SUMMARY OF SPATIAL REDUNDANCY ANALYSIS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure Set Number (Appendix A)	Wells in Cluster	Redundant Well Pair	Well Removed from Monitoring Program	Relevant Criteria	Rationale for Pairing and Removal Decisions
1	TR-10, TR-9	--	--	1	Top of screen elevation difference is greater than 20 feet.
2	M-137, M-138	--	--	6	Both wells are necessary for definition of perchlorate contours.
3	TR-7, TR-8	--	--	1	Top of screen elevation difference is greater than 20 feet.
4	M-144, M-146	M-144, M-146	M-146		M-144 is necessary to define perchlorate contours.
5	M-139, M-190	--	--	5	Concentration levels are different.
6	M-189, M-192	--	--	4	Few samples are available.
7	M-11, M-193	--	--	5	Concentration levels are different.
8	M-145, M-29	--	--	1	Top of screen elevation difference is greater than 20 feet.
9	TR-5, TR-6	--	--	1	Top of screen elevation difference is greater than 20 feet.
10	M-141, M-149, M-153, M-31A	--	--	1, 6	Top of screen elevation difference is greater than 20 feet; M-141 and M-31A are necessary to define perchlorate contours.
11	M-148A, M-186, M-186D	--	--	1	Top of screen elevation difference is greater than 20 feet.
12	M-32, M-33	--	--	5	Total chromium concentration trends and levels are different.
13	M-115, M-128, M-142	M-128, M-142	M-128		Concentrations at M-128 were generally similar to or lower than those at M-142. M-128 has fewer samples from 2011-2015 than M-142.
14	M-75, M-76	--	--	6	Both wells are necessary for definition of perchlorate contours.
15	M-125, TR-3, TR-4	--	--	1	Top of screen elevation difference is greater than 20 feet.
16	M-181, M-182, M-19	--	--	1	Top of screen elevation difference is greater than 20 feet.
17	M-25, M-38	--	--	5	Total chromium concentration levels are different.
18	M-150, M-154, M-22A, M-36	--	--	1, 6	Top of screen elevation difference is greater than 20 feet; M-22A is necessary to define perchlorate contours; M-36 is necessary to define vertical gradients.
19	M-140, M-64, M-70	--	--	2, 5	M-64 is separated by the IWF barrier wall. Perchlorate concentration trends and levels are different.
20	M-131, M-134, M-135, M-136, M-161, M-161D, M-69	M-131, M-135	M-131	1, 5	Top of screen elevation difference is greater than 20 feet for M-161D, M-161, M-136, and M-134. Perchlorate concentration trends and levels are different in M-69. M-131 is located near pumping well I-AA and is redundant with M-135.

TABLE 2: SUMMARY OF SPATIAL REDUNDANCY ANALYSIS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure Set Number (Appendix A)	Wells in Cluster	Redundant Well Pair	Well Removed from Monitoring Program	Relevant Criteria	Rationale for Pairing and Removal Decisions
21	M-58, M-66, M-72	--	--	2, 4	M-72 is separated by the IWF barrier wall. M-58 has few samples.
22	M-162, M-162D, M-163, M-164, M-65, M-71	--	--	1, 2	Top of screen elevation difference is greater than 20 feet for M-162D, M-162, M-163, M-164. M-65 and M-71 are separated by the IWF barrier wall.
23	M-67, M-73	--	--	2	The locations are separated by the IWF barrier wall.
24	M-5A, TR-1, TR-2	--	--	1	Top of screen elevation difference is greater than 20 feet.
25	M-129, M-130, M-132, M-133, M-165, M-68, M-74	M-129, M-130	M-130	1, 2	Top of screen elevation difference is greater than 20 feet for M-132, M-133, M-165. M-68 and M-74 are separated by the IWF barrier wall. M-129 is redundant with M-130 and is closer to TIMET injection site than M-130.
26	M-80, M-83	--	--	6	M-80 needs to be monitored quarterly to comply with the Site's UIC permit. M-83 is necessary to define perchlorate concentrations in the RI Phase 2 area of focus.
27	M-151, M-155	--	--	1	Top of screen elevation difference is greater than 20 feet.
28	M-6A, M-7B	--	--	6	M-6A and M-7B are "RCRA" wells. If RCRA monitoring requirements are eliminated, removal of M-6A from the monitoring program will be recommended.
29	MC-29, MC-97	MC-29, MC-97	MC-29		There are other monitoring wells in the direction of MC-29 from MC-97. Concentrations at MC-29 were similar to those at MC-69 which is close to the edge of the plume.
30	MC-53, MC-93	--	--	5	Perchlorate concentration trends are different.
31	MC-69, TR-11	--	--	1	Top of screen elevation difference is greater than 20 feet.
32	MC-45, MC-50	MC-45, MC-50	MC-45		Screen interval for MC-50 covers that for MC-45. Concentration levels are similar.
33	PC-72, PC-73	--	--	6	Both wells are necessary for definition of perchlorate concentrations in the COP and RI Phase 2 area of focus.
34	M-152, M-156, M-44, PC-71	--	--	1, 6	Top of screen elevation difference is greater than 20 feet for M-152 and M-156. PC-71 and M-44 are necessary to define perchlorate concentrations in the COP and RI Phase 2 area of focus.
35	M-95, M-96	--	--	3	Both M-95 and M-96 need to be monitored quarterly to comply with the Site's UIC permit.
36	PC-132, PC-153	--	--	4, 6	Few samples are available for PC-153. Both wells are necessary to define perchlorate contours.

TABLE 2: SUMMARY OF SPATIAL REDUNDANCY ANALYSIS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure Set Number (Appendix A)	Wells in Cluster	Redundant Well Pair	Well Removed from Monitoring Program	Relevant Criteria	Rationale for Pairing and Removal Decisions
37	PC-131, PC-50	--	--	5	Perchlorate and total chromium concentration levels are different.
38	PC-128, PC-129	--	--	5	Total chromium concentration trends are different.
39	PC-126, PC-24	--	--	6	Both wells are necessary to define perchlorate contours.
40	PC-124, PC-125	--	--	6	Both wells are necessary to define perchlorate contours.
41	PC-142, PC-55	--	--	5, 6	Perchlorate concentration trends are different. Both wells are necessary to define contours in an area with an uncertain plume source.
42	PC-158, PC-159	--	--	4, 6	Few samples are available. Both wells are necessary to define perchlorate concentrations in an area with an uncertain plume source.
43	PC-148, PC-149	--	--	6	Both wells are necessary to define perchlorate contours.
44	PC-101R, PC-134A, PC-135A, PC-143, PC-18	--	--	1, 5, 6	Top of screen elevation difference is greater than 20 feet for PC-134A. Perchlorate concentration trends and levels are different. PC-101R and PC-18 are necessary to define perchlorate contours in an area with an uncertain plume source.
45	PC-134D, PC-144	--	--	1	Top of screen elevation difference is greater than 20 feet.
46	PC-122, PC-136, PC-137, PC-137D, PC-145	--	--	1, 4, 5	Top of screen elevation difference is greater than 20 feet for PC-137. Few samples are available for PC-137D. Perchlorate concentration trends and levels in all other wells are different.
47	ARP-1, ARP-2A, ARP-3A	--	--	5, 6	Perchlorate concentration levels are different and all wells are necessary to define perchlorate contours in an area with an uncertain plume source.
48	ARP-4A, MW-K4	--	--	5	Perchlorate and total chromium concentration trends and levels are different.
49	ARP-5A, ARP-6B, ARP-7	--	--	5	Perchlorate and total chromium concentration trends and levels are different.
50	MW-K5, PC-98R	--	--	2	MW-K5 and PC-98R are located in separate paleochannels, so the data are spatially distinct.
51	PC-56, PC-60	--	--	5	Perchlorate concentration trends and levels are different.
52	PC-62, PC-68	PC-62, PC-68	PC-68		Concentrations at PC-68 were low, and generally similar to or lower than those at PC-62.

TABLE 2: SUMMARY OF SPATIAL REDUNDANCY ANALYSIS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure Set Number (Appendix A)	Wells in Cluster	Redundant Well Pair	Well Removed from Monitoring Program	Relevant Criteria	Rationale for Pairing and Removal Decisions
53	PC-91, PC-92	PC-91, PC-92	PC-92		Concentrations at PC-92 were low, and generally similar to or lower than those at PC-91. PC-92 was sampled less frequently than PC-91. Bottom of screen for PC-92 is shallower than that for PC-91.
54	PC-86, PC-96	--	--	4, 5	No total chromium samples at PC-96. Perchlorate concentration levels are different.
55	PC-156A, PC-156B	--	--	4	Few samples available.
56	PC-157A, PC-157B	--	--	1, 4	Top of screen elevation difference is greater than 20 feet. Few samples available.
57	PC-155A, PC-155B	--	--	1, 4	Top of screen elevation difference is greater than 20 feet. Few samples available.

List of Criteria

1. Paired wells have similar screen intervals (tops of screens are within 20 feet of each other or the screen interval for one well is within that of the other well).

2. Paired wells are not separated by a physical barrier.

3. Paired wells cannot both be required for permit compliance.

4. At least one of two paired wells has enough data associated with it to evaluate trends and levels of concentrations for each of the two primary analytes (perchlorate and total chromium).

5. Paired wells have similar concentration trends and levels for each of the two primary analytes (perchlorate and total chromium). Similar concentration trends were defined as concentration ratios generally between 0.5 and 2.0 or generally low concentrations (perchlorate < 10 milligrams per liter [mg/L] and total chromium < 10 micrograms per liter [µg/L]).

6. Well pairs that satisfied Criteria 1-5 were evaluated against a series of factors to confirm possible pairings. The well characteristics that factored into these evaluations of well pairs included the contribution of each well to current plume maps, well locations relative to areas requiring additional focus, and permit/RCRA compliance.

Notes:

-- = no redundant well pair or no well removed from monitoring program

COP = Continuous Optimization Program

IWF = Interceptor Well Field

RCRA = Resource Conservation and Recovery Act

RI = Remedial Investigation

TABLE 3: SUMMARY OF TEMPORAL REDUNDANCY ANALYSES FOR ANALYTICAL DATA
Nevada Environmental Response Trust Site
Henderson, Nevada

Area	Well	Total Chromium		Perchlorate		TDS		Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
		Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)		
On NERT Site	M-10	92	204	92	368	92	368	Quarterly	NPDES permit requires quarterly sampling
	M-11	92	368	92	368	92	368	Quarterly	UIC permit requires quarterly sampling
	M-12A	92	368	92	368	92	368	Quarterly	UIC permit requires quarterly sampling
	M-131	91	364	90	362	91	364	--	Removed from monitoring program
	M-135	91	364	90	362	91	303	Semi-annual	Reduced intervals > 182 days
	M-14A	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	M-19	92	368	92	368	92	306	Semi-annual	Reduced intervals > 182 days
	M-22A	91	366	91	303	92	306	Semi-annual	Reduced intervals > 182 days
	M-23	92	368	92	262	92	368	Semi-annual	Reduced intervals > 182 days
	M-25	91	364	91	303	90	301	Semi-annual	Reduced intervals > 182 days
	M-31A	91	260	91	260	91	260	Semi-annual	Reduced intervals > 182 days
	M-35	91	303	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	M-37	90	163	90	299	90	257	Quarterly	UIC permit requires quarterly sampling
	M-38	91	364	91	303	91	366	Quarterly	UIC permit requires quarterly sampling
	M-52	94	313	94	268	94	313	Semi-annual	Reduced intervals > 182 days
	M-57A	91	303	90	362	91	364	Semi-annual	Reduced intervals > 182 days
	M-64	92	306	92	167	92	306	Semi-annual	Reduced intervals > 182 days for chromium and TDS; nearby wells have reduced intervals >182 days for perchlorate
	M-65	91	366	91	303	90	301	Semi-annual	Reduced intervals > 182 days
	M-66	91	366	91	366	91	366	Semi-annual	Reduced intervals > 182 days
	M-67	93	309	92	306	92	370	Semi-annual	Reduced intervals > 182 days
	M-68	92	368	92	368	92	368	Semi-annual	Reduced intervals > 182 days
	M-69	91	303	91	165	91	364	Semi-annual	Reduced intervals > 182 days for chromium and TDS; nearby wells have reduced intervals >182 days for perchlorate

TABLE 3: SUMMARY OF TEMPORAL REDUNDANCY ANALYSES FOR ANALYTICAL DATA
Nevada Environmental Response Trust Site
Henderson, Nevada

Area	Well	Total Chromium		Perchlorate		TDS		Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
		Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)		
On NERT Site	M-70	91	364	90	362	90	362	Semi-annual	Reduced intervals > 182 days
	M-71	91	165	91	140	91	182	Semi-annual	Reduced interval > 182 days for TDS; nearby wells have reduced intervals >182 days for chromium and perchlorate
	M-72	91	364	91	364	92	368	Semi-annual	Reduced intervals > 182 days
	M-73	91	364	91	303	91	364	Semi-annual	Reduced intervals > 182 days
	M-74	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	M-79	91	364	90	360	90	301	Semi-annual	Reduced intervals > 182 days
	M-80	92	306	92	306	92	306	Quarterly	UIC permit requires quarterly sampling
	M-81A	92	306	92	306	92	306	Semi-annual	Reduced intervals > 182 days
	M-83	91	455	29	193	29	290	Semi-annual	Reduced intervals > 182 days
	M-99	89	148	88	92	89	197	Semi-annual	Data quality believed to be compromised; nearby wells have reduced intervals >182 days
Boulder Highway to NERT Site	M-44	91	303	91	364	91	364	Quarterly	UIC permit requires quarterly sampling
	M-48A	91	101	91	151	91	182	Semi-annual	Reduced intervals > 182 days for TDS; all other wells in Area have reduced intervals >182 days for chromium and perchlorate
	M-95	91	303	91	303	92	264	Quarterly	UIC permit requires quarterly sampling
	PC-37	91	364	91	364	91	304	Semi-annual	Reduced intervals > 182 days
	PC-54	91	303	91	303	91	364	Semi-annual	Reduced intervals > 182 days
	PC-71	91	303	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-72	92	306	91	303	91	364	Semi-annual	Reduced intervals > 182 days
	PC-73	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
Near Sunset Rd	PC-123	91	364	91	364	91	303	Semi-annual	Reduced intervals > 182 days
	PC-124	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days

TABLE 3: SUMMARY OF TEMPORAL REDUNDANCY ANALYSES FOR ANALYTICAL DATA

Nevada Environmental Response Trust Site
Henderson, Nevada

Area	Well	Total Chromium		Perchlorate		TDS		Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
		Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)		
Near Sunset Rd	PC-125	91	165	91	165	91	151	Semi-annual	All other wells in Area have reduced intervals >182 days for chromium and TDS; 8 of 9 other wells in Area have reduced intervals >182 days for perchlorate
	PC-126	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-127	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-128	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-129	91	364	91	364	91	303	Semi-annual	Reduced intervals > 182 days
	PC-130	91	364	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-131	91	303	91	364	91	364	Semi-annual	Reduced intervals > 182 days
	PC-132	91	303	91	165	91	364	Semi-annual	Reduced intervals > 182 days for chromium and TDS; 8 of 9 other wells in Area have reduced intervals >182 days for perchlorate
Near ARP Well Line	ARP-1	96	275	30	300	30	300	Semi-annual	Reduced intervals > 182 days
	ARP-2A	92	368	29	193	29	290	Semi-annual	Reduced intervals > 182 days
	ARP-3A	92	184	29	193	29	290	Semi-annual	Reduced intervals > 182 days
	ARP-4A	96	319	29	290	29	290	Semi-annual	Reduced intervals > 182 days
	ARP-5A	92	368	29	116	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; 14 of 16 other wells in Area have reduced intervals >182 days for perchlorate
	ARP-6B	92	262	29	193	29	290	Semi-annual	Reduced intervals > 182 days
	ARP-7	92	184	29	116	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; 14 of 16 other wells in Area have reduced intervals >182 days for perchlorate
	MW-K4	92	368	29	193	29	290	Semi-annual	Reduced intervals > 182 days
	PC-101R	95	237	30	300	29	193	Semi-annual	Reduced intervals > 182 days
	PC-122	93	309	29	290	29	290	Semi-annual	Reduced intervals > 182 days

TABLE 3: SUMMARY OF TEMPORAL REDUNDANCY ANALYSES FOR ANALYTICAL DATA
Nevada Environmental Response Trust Site
Henderson, Nevada

Area	Well	Total Chromium		Perchlorate		TDS		Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
		Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)		
Near ARP Well Line	PC-135A	93	132	91	202	91	303	Semi-annual	Reduced intervals > 182 days for TDS and perchlorate; 14 of 16 other wells in Area have reduced intervals >182 days for chromium
	PC-136	90	201	98	326	90	362	Semi-annual	Reduced intervals > 182 days
	PC-144	92	264	91	260	92	308	Semi-annual	Reduced intervals > 182 days
	PC-148	88	104	90	301	91	303	Semi-annual	Reduced intervals > 182 days for TDS and perchlorate; 14 of 16 other wells in Area have reduced intervals >182 days for chromium
	PC-149	90	181	91	303	91	303	Semi-annual	Reduced intervals > 182 days for TDS and perchlorate; 14 of 16 other wells in Area have reduced intervals >182 days for chromium
	PC-18	92	368	30	300	30	300	Semi-annual	Reduced intervals > 182 days
	PC-55	93	309	29	116	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; 14 of 16 other wells in Area have reduced intervals >182 days for perchlorate
Near COH WRF Well Line	MW-K5	92	184	29	290	29	290	Semi-annual	Reduced intervals > 182 days
	PC-103	97	323	29	290	29	290	Semi-annual	Reduced intervals > 182 days
	PC-53	92	184	29	145	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; all other wells in Area have reduced intervals >182 days for perchlorate
	PC-98R	91	182	29	290	29	290	Semi-annual	Reduced intervals > 182 days
Near SWF	PC-56	92	368	29	290	30	300	Semi-annual	Reduced intervals > 182 days
	PC-58	92	167	29	96	29	193	Semi-annual	Reduced intervals > 182 days for TDS; all other wells in Area have reduced intervals >182 days for chromium; low perchlorate concentrations result in overly-conservative iterative thinning
	PC-59	92	262	29	290	29	290	Semi-annual	Reduced intervals > 182 days
	PC-60	91	303	29	290	29	290	Semi-annual	Reduced intervals > 182 days

TABLE 3: SUMMARY OF TEMPORAL REDUNDANCY ANALYSES FOR ANALYTICAL DATA

Nevada Environmental Response Trust Site
Henderson, Nevada

Area	Well	Total Chromium		Perchlorate		TDS		Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
		Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)		
Near SWF	PC-62	93	309	29	48	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; low perchlorate concentrations result in overly-conservative iterative thinning
	PC-68	92	306	30	300	29	290	--	Removed from monitoring program
	PC-86	92	368	29	64	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; low perchlorate concentrations result in overly-conservative iterative thinning
	PC-90	92	264	28	80	28	280	Semi-annual	Reduced intervals > 182 days for chromium and TDS; low perchlorate concentrations result in overly-conservative iterative thinning
	PC-91	94	314	28	189	28	280	Semi-annual	Reduced intervals > 182 days
	PC-94	92	308	92	368	92	368	Semi-annual	Reduced intervals > 182 days
	PC-97	92	306	29	82	29	290	Semi-annual	Reduced intervals > 182 days for chromium and TDS; low perchlorate concentrations result in overly-conservative iterative thinning

Notes:

[1] Iterative thinning was performed with the following parameters:

Default confidence band: 20%

Minimum percentage of smoothed reduced data in confidence band: 75%

Number of simulations for each well: 100

Minimum percent of successful simulations required for a given percent reduction in the dataset: 90%

ARP = Athens Road Piezometer

COH WRF = City of Henderson Water Reclamation Facility

NPDES = National Pollutant Discharge Elimination System

SWF = Seep Well Field

TDS = total dissolved solids

UIC = Underground Injection Control

TABLE 4: SUMMARY OF TEMPORAL REDUNDANCY ANALYSIS FOR GROUNDWATER ELEVATION

Nevada Environmental Response Trust Site

Henderson, Nevada

Area	Well	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
On NERT Site	M-10	30	99	Quarterly	NPDES permit requires quarterly monitoring
	M-11	30	300	Quarterly	UIC permit requires quarterly monitoring
	M-115	30	150	Annual	Inconsistent 2012 data caused thinned interval to be artificially low; proposed sampling frequency was reduced to be consistent with nearby wells
	M-12A	92	153	Quarterly	UIC permit requires quarterly monitoring
	M-129	365	NA[2]	Quarterly	Proposed increase to quarterly monitoring due to identified area of interest (barrier wall)
	M-131	91	140	--	Removed from monitoring program
	M-135	90	181	Semi-annual	Consistent with reduced interval
	M-14A	29	116	Quarterly	Identified area of interest (northern mid-site)
	M-166	91	130	Quarterly	Identified area of interest (barrier wall)
	M-167	91	113	Monthly	Identified area of interest (barrier wall)
	M-168	91	113	Quarterly	Identified area of interest (barrier wall)
	M-169	91	113	Quarterly	Identified area of interest (barrier wall)
	M-170	91	107	Monthly	Identified area of interest (barrier wall)
	M-172	91	95	Monthly	Identified area of interest (barrier wall)
	M-173	91	182	Monthly	Identified area of interest (barrier wall)
	M-174	90	200	Quarterly	Identified area of interest (barrier wall)
	M-175	90	301	Monthly	Identified area of interest (barrier wall)
	M-176	90	200	Quarterly	Identified area of interest (barrier wall)
	M-177	90	299	Monthly	Identified area of interest (barrier wall)
	M-19	30	99	Quarterly	Identified area of interest (northern mid-site)
	M-22A	29	145	Quarterly	Identified area of interest (northern mid-site)
	M-23	29	145	Semi-annual	Consistent with reduced interval
	M-25	30	101	Quarterly	UIC permit requires quarterly monitoring
	M-31A	31	124	Semi-annual	Data from 1/1/2013 to 6/1/2014 were not included in thinning due to a nearby leak; the resulting trend line created an artificial high during this timeframe, causing the thinned interval to be biased; proposed sampling frequency was reduced to be consistent with analytical sampling
	M-35	30	85	Semi-annual	Inconsistent top of casing information in 2011 caused groundwater elevation measurements to be unreliable; proposed sampling frequency was reduced to be consistent with analytical sampling
	M-36	29	NA[3]	Quarterly	Identified area of interest (northern mid-site)
	M-37	30	120	Quarterly	UIC permit requires quarterly monitoring
	M-38	29	145	Quarterly	UIC permit requires quarterly monitoring
	M-52	92	306	Semi-annual	Consistent with analytical sampling and reduced interval

TABLE 4: SUMMARY OF TEMPORAL REDUNDANCY ANALYSIS FOR GROUNDWATER ELEVATION

Nevada Environmental Response Trust Site

Henderson, Nevada

Area	Well	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
On NERT Site	M-55	30	60	Quarterly	Identified area of interest (barrier wall)
	M-56	32	59	Quarterly	Identified area of interest (barrier wall)
	M-57A	31	315	Semi-annual	Consistent with analytical sampling and reduced interval
	M-58	31	103	Quarterly	Identified area of interest (barrier wall)
	M-60	32	72	Quarterly	Identified area of interest (barrier wall)
	M-64	29	65	Monthly	Identified area of interest (barrier wall)
	M-65	29	42	Monthly	Identified area of interest (barrier wall)
	M-66	29	118	Monthly	Identified area of interest (barrier wall)
	M-67	29	145	Monthly	Identified area of interest (barrier wall)
	M-68	30	150	Monthly	Identified area of interest (barrier wall)
	M-69	30	150	Monthly	Identified area of interest (barrier wall)
	M-70	29	116	Monthly	Identified area of interest (barrier wall)
	M-71	29	116	Monthly	Identified area of interest (barrier wall)
	M-72	29	193	Monthly	Identified area of interest (barrier wall)
	M-73	30	300	Monthly	Identified area of interest (barrier wall)
	M-74	30	75	Monthly	Identified area of interest (barrier wall)
	M-75	30	300	Annual	Consistent with reduced interval
	M-76	30	300	Annual	Consistent with reduced interval
	M-77	31	124	Annual	Inconsistent top of casing information in 2013 and 2014 caused groundwater elevation measurements to be unreliable; proposed sampling frequency was reduced to be consistent with analytical sampling
	M-78	32	81	Quarterly	Identified area of interest (barrier wall)
	M-79	30	120	Quarterly	Identified area of interest (recharge trenches)
	M-80	34	136	Quarterly	UIC permit requires quarterly monitoring
	M-81A	30	300	Quarterly	Identified area of interest (recharge trenches)
	M-83	28	140	Quarterly	Identified area of interest (recharge trenches)
	M-92	32	320	Annual	Consistent with reduced interval
	M-93	30	305	Annual	Consistent with reduced interval
	M-97	30	305	Annual	Consistent with reduced interval
	M-99	30	199	Quarterly	UIC permit requires quarterly monitoring
Between Boulder Highway and NERT Site	M-44	30	300	Quarterly	UIC permit requires quarterly monitoring
	M-48A	30	85	Semi-annual	Inconsistent 2012 data cause thinned interval to be artificially low; proposed sampling frequency was reduced to be consistent with nearby wells
	M-95	30	199	Quarterly	UIC permit requires quarterly monitoring
	M-96	33	165	Quarterly	UIC permit requires quarterly monitoring
	PC-37	30	300	Semi-annual	Consistent with analytical sampling and reduced interval

TABLE 4: SUMMARY OF TEMPORAL REDUNDANCY ANALYSIS FOR GROUNDWATER ELEVATION

Nevada Environmental Response Trust Site

Henderson, Nevada

Area	Well	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
Between Boulder Highway and NERT Site	PC-54	30	300	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-71	29	295	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-72	30	120	Semi-annual	December 2012 outlier caused thinned interval to be artificially low; proposed sampling frequency was reduced to be consistent with analytical sampling
	PC-73	30	99	Semi-annual	June 2015 outlier caused thinned interval to be artifically low; proposed sampling frequency was reduced to be consistent with analytical sampling
Near Sunset Road	PC-123	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-124	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-125	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-126	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-127	91	182	Semi-annual	Consistent with reduced interval
	PC-128	91	303	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-129	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-130	91	303	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-131	91	303	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-132	91	364	Semi-annual	Consistent with analytical sampling and reduced interval
Near ARP Well Line	ARP-1	30	199	Semi-annual	Consistent with reduced interval
	ARP-2A	29	290	Semi-annual	Consistent with analytical sampling and reduced interval
	ARP-3A	29	290	Semi-annual	Consistent with analytical sampling and reduced interval
	ARP-4A	29	290	Semi-annual	Consistent with analytical sampling and reduced interval
	ARP-5A	29	193	Semi-annual	Consistent with reduced interval
	ARP-6B	29	145	Semi-annual	Consistent with reduced interval
	ARP-7	29	193	Semi-annual	Consistent with reduced interval
	MW-K4	29	290	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-101R	30	300	Semi-annual	Consistent with analytical sampling and reduced interval
	PC-122	29	193	Monthly	Identified area of interest (AWF)
	PC-135A	91	260	Semi-annual	Consistent with reduced interval
	PC-136	91	227	Semi-annual	Consistent with reduced interval
	PC-144	34	226	Semi-annual	Consistent with reduced interval
	PC-148	91	260	Semi-annual	Consistent with reduced interval
	PC-149	91	260	Semi-annual	Consistent with reduced interval
	PC-18	30	300	Monthly	Identified area of interest (AWF)
	PC-55	29	193	Monthly	Identified area of interest (AWF)
Near COH WRF Well Line	MW-K5	29	116	Quarterly	Identified area of interest (COH WRF well line)
	PC-103	29	116	Quarterly	Identified area of interest (COH WRF well line)
	PC-53	29	145	Quarterly	Identified area of interest (COH WRF well line)
	PC-98R	29	116	Quarterly	Identified area of interest (COH WRF well line)

TABLE 4: SUMMARY OF TEMPORAL REDUNDANCY ANALYSIS FOR GROUNDWATER ELEVATION

Nevada Environmental Response Trust Site

Henderson, Nevada

Area	Well	Original Sampling Interval (days)	Reduced Sampling Interval from Iterative Thinning[1] (days)	Proposed Sampling Frequency	Rationale for Proposed Sampling Frequency
Near SWF	PC-56	29	96	Quarterly	Identified area of interest (Lower Ponds well line)
	PC-58	29	96	Quarterly	Identified area of interest (Lower Ponds well line)
	PC-59	29	116	Quarterly	Identified area of interest (Lower Ponds well line)
	PC-60	29	96	Quarterly	Identified area of interest (Lower Ponds well line)
	PC-62	29	96	Quarterly	Identified area of interest (Lower Ponds well line)
	PC-68	29	96	NA	Removed from monitoring program
	PC-86	29	116	Monthly	Identified area of interest (SWF)
	PC-90	29	116	Monthly	Identified area of interest (SWF)
	PC-91	29	145	Monthly	Identified area of interest (SWF)
	PC-94	92	204	Semi-annual	Consistent with reduced interval
	PC-97	29	145	Monthly	Identified area of interest (SWF)

Notes:

[1]Iterative thinning was performed with the following parameters:

Default confidence band: 0.5 feet

Minimum percentage of smoothed reduced data in confidence band: 75%

Number of simulations for each well: 100

Minimum percent of successful simulations required for a given percent reduction in the dataset: 90%

[2]Iterative thinning was not performed for M-129 because this well was historically measured annually. Its proposed measurement frequency has been increased due to its location near the barrier wall.

[3]M-36 has been damaged since 2013 and was therefore not included in the iterative thinning. Based on its location in the northern mid-site area, its proposed measurement frequency is quarterly.

ARP = Athens Road Piezometer

AWF = Athens Road Well Field

COH WRF = City of Henderson Water Reclamation Facility

NPDES = National Pollutant Discharge Elimination System

SWF = Seep Well Field

UIC = Underground Injection Control

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses																					Notes
							Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	
AA-01	830921.12	26720238.47	1757.13	Shallow	29 - 49	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
AA-11	830672.66	26725458.78	1660.05	Shallow	9 - 29	Monitoring																X		X	X	X	X	Non-NERT well sampled by NERT[6]
ARP-1	828593.16	26728365.51	1613.32	Shallow	14 - 44	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-2A	828722.80	26728404.34	1614.18	Shallow	23.7 - 53.7	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-3A	828856.20	26728402.86	1614.67	Shallow	20.7 - 40.7	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-4A	829167.89	26728411.81	1615.47	Shallow	17.7 - 32.7	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-5A	829375.01	26728458.43	1616.10	Shallow	12.7 - 37.7	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-6B	829520.52	26728499.92	1615.56	Shallow	27.7 - 42.7	Monitoring											X		X	X	X	X		X	X	X	X	
ARP-7	829668.22	26728501.08	1613.20	Shallow	14 - 39	Monitoring											X		X	X	X	X		X	X	X	X	
ART-1	828543.96	26728122.71	1614.47	Shallow	14 - 54	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-1A	828536.78	26728122.21	1614.40	Shallow	19 - 54	Extraction					X					X					X						X	Buddy well to ART-1[7]
ART-2	828625.03	26728084.71	1617.10	Shallow	19 - 54	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-2A	828618.82	26728085.56	1616.81	Shallow	21 - 56	Extraction					X					X					X						X	Buddy well to ART-2[7]
ART-3	828775.42	26728085.17	1617.93	Shallow	16.3 - 46.3	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-3A	828768.70	26728084.70	1617.60	Shallow	18 - 53	Extraction					X					X					X						X	Buddy well to ART-3[7]
ART-4	828850.69	26728085.26	1617.39	Shallow	19.4 - 44.4	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-4A	828844.49	26728084.58	1617.46	Shallow	18.4 - 43.4	Extraction					X					X					X						X	Buddy well to ART-4[7]
ART-6	829472.91	26728140.60	1615.19	Shallow	17.9 - 37.9	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-7A	829582.79	26728143.19	1614.78	Shallow	19.7 - 39.7	Extraction					X					X					X						X	Buddy well to ART-7B[7]
ART-7B	829576.16	26728151.39	1615.77	Shallow	29.8 - 44.8	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-8	828697.72	26728084.10	1617.69	Shallow	18 - 48	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
ART-8A	828691.89	26728083.31	1617.10	Shallow	22 - 52	Extraction					X					X					X						X	Buddy well to ART-8[7]
ART-9	829525.57	26728143.32	1614.90	Shallow	23 - 43	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
H-11	826574.18	26714839.94	1868.47	Middle	93.3 - 103	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
H-28A	825864.67	26721023.60	NA	NA	NA	Monitoring						X		X		X						X		X	X	X	X	Non-NERT well sampled by NERT; RCRA well; 2Q and 3Q only[8]
H-48	825658.27	26723952.95	1684.79	Shallow	32.7 - 42.7	Monitoring																X		X	X	X	X	Non-NERT well sampled by NERT
H-58A	825642.55	26723331.88	1693.43	Shallow	37 - 57	Monitoring																X		X	X	X	X	Non-NERT well sampled by NERT
HM-2	832199.20	26731069.80	1588.00	NA	NA	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
HMW-13	827711.49	26731740.35	1595.51	Shallow	10 - 25	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
HMW-14	827174.04	26731535.30	1599.82	Shallow	13 - 28	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
HMW-15	827608.00	26729901.00	1611.97	Shallow	6 - 21	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
HMW-16	827090.00	26728531.00	1621.43	Shallow	8 - 23	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
I-AA	827174.40	26719770.85	1753.93	Shallow	23.7 - 43.7	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-AB	827225.04	26719790.40	1753.89	Shallow	25 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-AC	828792.61	26719889.66	1752.76	Shallow	24.5 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-AD	828806.68	26719794.82	1755.39	Shallow	24.5 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-AR	827414.35	26719429.52	1758.35	Shallow	25 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-B	827282.89	26719808.09	1752.87	Shallow	17.8 - 42.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-C	827486.47	26719791.90	1752.77	Shallow	13.2 - 42.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-D	827582.21	26719805.21	1752.67	Shallow	16 - 44.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-E	827733.37	26719825.39	1752.36	Shallow	21.5 - 43.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-F	827879.70	26719845.58	1749.70	Shallow	11.8 - 43.3	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses: Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	
I-G	828030.70	26719866.33	1752.50	Shallow	9.5 - 38.8	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-H	828177.55	26719887.13	1753.21	Shallow	13.6 - 43.1	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-I	828375.04	26719914.40	1745.50	Shallow	11.3 - 40.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-J	828573.94	26719940.33	1750.09	Shallow	11.2 - 40.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-K	828738.09	26719962.87	1746.04	Shallow	7 - 35.3	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-L	827352.86	26719803.23	1751.70	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-M	827669.83	26719817.42	1752.90	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-N	827802.25	26719837.85	1751.45	Shallow	7 - 37	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-O	828263.13	26719898.00	1752.79	Shallow	9 - 39	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-P	828221.66	26719892.08	1751.66	Shallow	14 - 44.1	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-Q	827952.15	26719855.17	1753.11	Shallow	9.6 - 39.6	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-R	827316.06	26719801.85	1751.35	Shallow	9.8 - 39.8	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-S	827404.20	26719799.87	1750.03	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-T	828073.50	26719873.66	1751.66	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-U	828118.60	26719879.67	1752.17	Shallow	12 - 42.2	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-V	828326.28	26719894.97	1752.13	Shallow	12 - 42	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-W	828245.87	26719895.87	1751.50	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-X	827840.23	26719843.08	1748.60	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-Y	827334.69	26719800.78	1751.40	Shallow	20 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
I-Z	828467.92	26719923.37	1743.78	Shallow	15 - 35	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
M-2A	827984.75	26718769.56	1781.16	Shallow	30 - 40	Monitoring																X		X	X	X	X	
M-5A	826179.29	26719961.12	1751.80	Shallow	40 - 50	Monitoring						X		X		X						X		X	X	X	X	RCRA well; 2Q and 3Q only[8]
M-6A	825984.54	26721013.69	1733.19	Shallow	26.8 - 41.5	Monitoring						X		X		X						X		X	X	X	X	RCRA well; 2Q and 3Q only[8]
M-7B	826106.50	26720979.66	1732.83	Shallow	25.5 - 50.5	Monitoring						X		X		X						X		X	X	X	X	RCRA well; 2Q and 3Q only[8]
M-10	828536.18	26716636.63	1836.21	Shallow	43 - 63	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	NPDES Permit well[9]
M-11	828617.03	26717608.56	1815.53	Shallow	33 - 53	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-12A	828178.52	26717575.29	1812.47	Shallow	40 - 50	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-13	827806.03	26717477.66	1814.89	Shallow	28 - 48	Monitoring																X		X	X	X	X	
M-14A	827045.36	26719382.67	1760.93	Shallow	20 - 40	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-19	828846.19	26719350.03	1766.77	Shallow	14.5 - 34.5	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-21	827792.86	26718359.30	1792.07	Shallow	18 - 38	Monitoring																X		X	X	X	X	[6]
M-22A	828270.11	26719531.63	1759.46	Shallow	16 - 36	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-23	827373.96	26721391.25	1720.54	Shallow	9.4 - 37.4	Monitoring											X		X	X	X	X		X	X	X	X	
M-25	827677.80	26719503.57	1759.93	Shallow	24 - 39	Monitoring										X	X		X	X	X	X		X	X	X	X	UIC Permit well
M-31A	828368.37	26718289.58	1796.87	Shallow	35 - 55	Monitoring											X		X	X	X	X		X	X	X	X	
M-32	828592.58	26718354.04	1795.60	Shallow	30 - 45	Monitoring																X		X	X	X	X	
M-33	828783.74	26718383.17	1795.49	Shallow	30 - 45	Monitoring																X		X	X	X	X	
M-35	828509.37	26718840.13	1772.78	Shallow	25 - 40	Monitoring											X		X	X	X	X		X	X	X	X	
M-36	828069.09	26719556.63	1759.82	Shallow	20 - 35	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-37	827414.22	26719422.01	1761.06	Shallow	20 - 35	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-38	827877.66	26719523.27	1759.73	Shallow	20 - 35	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	Substitute UIC Permit well for M-36
M-44	827005.61	26722699.15	1698.31	Shallow	5 - 35	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-48A	828294.38	26721339.07	1718.36	Shallow	19.7 - 39.7	Monitoring											X		X	X	X	X		X	X	X	X	
M-52	828394.48	26717985.39	1802.39	Shallow	34.5 - 44.5	Monitoring											X		X	X	X	X		X	X	X	X	

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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses: Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	
M-55	827683.04	26719819.36	1750.88	Shallow	14.6 - 44.6	Monitoring										X					X						X	
M-56	827980.36	26719859.52	1750.83	Shallow	15 - 40	Monitoring										X					X						X	
M-57A	826993.31	26719716.74	1753.44	Shallow	20 - 40	Monitoring											X		X	X	X	X		X	X	X	X	
M-58	828276.62	26719900.55	1751.25	Shallow	15 - 45	Monitoring										X					X						X	
M-60	828079.11	26719872.48	1750.94	Shallow	17.8 - 42.8	Monitoring										X					X						X	
M-64	827580.25	26719726.63	1749.76	Shallow	12.7 - 37.3	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-65	827899.72	26719746.36	1753.91	Shallow	14.4 - 39	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-66	828183.64	26719787.47	1754.24	Shallow	17.5 - 42.3	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-67	828508.52	26719829.72	1745.91	Shallow	7.8 - 37.8	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-68	828751.00	26719864.47	1750.23	Shallow	11.2 - 39.8	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-69	827265.73	26719885.28	1749.75	Shallow	19.9 - 39.3	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-70	827567.35	26719904.69	1748.25	Shallow	15.3 - 40	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-71	827859.71	26719943.63	1747.04	Shallow	17.5 - 42	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-72	828172.13	26719977.14	1746.49	Shallow	10.1 - 34.8	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-73	828427.82	26720018.47	1741.14	Shallow	11 - 35.8	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-74	828713.65	26720062.18	1745.08	Shallow	9.2 - 38.8	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
M-75	827718.82	26718702.64	1784.21	Shallow	34.6 - 49.3	Monitoring																X		X	X	X	X	
M-76	827550.73	26718659.92	1785.22	Shallow	34.6 - 49.3	Monitoring																X		X	X	X	X	
M-77	828932.32	26718046.00	1801.73	Shallow	29 - 43.8	Monitoring																X		X	X	X	X	
M-78	827777.45	26719838.17	1751.50	Shallow	21.5 - 41.5	Monitoring										X					X						X	
M-79	827382.10	26720048.92	1742.53	Shallow	10.8 - 35.4	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-80	827759.79	26720112.87	1746.04	Shallow	11.5 - 41.5	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	Substitute UIC Permit well for M-84
M-81A	828139.67	26720176.85	1744.16	Shallow	30 - 40	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-83	827584.70	26720159.92	1742.02	Shallow	10.8 - 40.3	Monitoring										X	X		X	X	X	X		X	X	X	X	
M-92	827138.09	26717531.94	1800.76	Shallow	34.9 - 44.9	Monitoring																X		X	X	X	X	
M-93	827143.44	26717685.92	1797.54	Shallow	35.4 - 45.4	Monitoring																X		X	X	X	X	
M-95	827426.74	26722701.69	1694.09	Shallow	12 - 22	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well
M-96	827626.08	26722700.30	1693.85	Shallow	10.5 - 20.5	Monitoring										X	X		X	X	X	X		X	X	X	X	UIC Permit well[6]
M-97	827492.47	26717795.18	1800.85	Shallow	35 - 45	Monitoring																X		X	X	X	X	
M-98	826873.45	26720914.14	1731.90	Shallow	19 - 29	Monitoring										X	X		X	X	X	X		X	X	X	X	UIC Permit well[6]
M-99	827309.69	26720851.72	1730.74	Shallow	16 - 31	Monitoring										X	X		X	X	X	X		X	X	X	X	UIC Permit well[6]
M-100	827659.99	26720820.26	1730.93	Shallow	19 - 29	Monitoring						X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	UIC Permit well[6]
M-101	828060.83	26720786.74	1730.81	Shallow	17 - 27	Monitoring										X	X		X	X	X	X		X	X	X	X	UIC Permit well[6]
M-103	828728.34	26715622.48	1866.91	Shallow	69.5 - 89.5	Monitoring																X		X	X	X	X	[6]
M-115	827243.65	26718612.90	1787.64	Shallow	35 - 45	Monitoring																X		X	X	X	X	
M-117	828917.06	26715198.29	1880.31	Middle	130 - 150	Monitoring																X		X	X	X	X	
M-118	828036.40	26715068.01	1876.91	Middle	138 - 158	Monitoring																X		X	X	X	X	
M-120	828387.79	26715162.90	1878.58	Shallow	80 - 100	Monitoring																X		X	X	X	X	
M-121	827694.57	26715011.24	1875.63	Shallow	77 - 97	Monitoring																X		X	X	X	X	
M-123	826516.40	26718416.92	1785.13	Shallow	36 - 51	Monitoring																X		X	X	X	X	
M-124	827092.23	26718226.14	1787.66	Shallow	34 - 49	Monitoring																X		X	X	X	X	
M-125	826531.82	26718993.90	1771.33	Shallow	35 - 50	Monitoring																X		X	X	X	X	
M-126	826569.37	26719505.57	1759.01	Shallow	19.7 - 39.7	Monitoring																X		X	X	X	X	
M-129	828806.43	26720079.64	1747.26	Shallow	20 - 40	Monitoring										X					X	X		X	X	X	X	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses: Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						Notes
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	
M-132	828714.61	26720048.49	1744.49	Shallow	79.7 - 89.7	Monitoring																X		X	X	X	X	
M-133	828698.61	26720067.29	1743.62	Shallow	59.7 - 69.7	Monitoring																X		X	X	X	X	
M-134	827144.35	26719889.14	1752.14	Shallow	59.7 - 69.7	Monitoring																X		X	X	X	X	
M-135	827154.48	26719890.17	1751.85	Shallow	28.7 - 38.7	Monitoring											X		X	X	X	X		X	X	X	X	
M-136	827165.34	26719889.77	1751.87	Shallow	79.7 - 89.7	Monitoring																X		X	X	X	X	
M-137	827666.01	26716034.02	1847.54	Shallow	52 - 72	Monitoring																X		X	X	X	X	
M-138	827816.34	26716058.31	1846.35	Shallow	50.5 - 65.5	Monitoring																X		X	X	X	X	
M-139	829044.25	26717213.06	1813.19	Shallow	45 - 60	Monitoring																X		X	X	X	X	
M-140	827428.84	26719889.51	1748.21	Shallow	22.7 - 42.7	Monitoring																X		X	X	X		[10]
M-141	828465.43	26718195.34	1797.16	Shallow	39.5 - 49.5	Monitoring																X		X	X	X	X	
M-142	827191.75	26718713.09	1773.55	Shallow	30 - 45	Monitoring																X		X	X	X	X	
M-144	827644.50	26717026.00	1813.31	Shallow	35 - 45	Monitoring																X		X	X	X	X	
M-145	829205.27	26717451.15	1812.18	Shallow	45 - 60	Monitoring																X		X	X	X	X	
M-147	828824.17	26718857.89	1781.06	Shallow	25 - 40	Monitoring																X		X	X	X	X	
M-148A	829030.35	26718357.14	1800.04	Shallow	39.7 - 49.7	Monitoring																X		X	X	X	X	
M-149	828373.09	26718285.82	1796.81	Middle	100 - 120	Monitoring																X		X	X	X	X	
M-150	828058.96	26719569.84	1758.86	Middle	125 - 145	Monitoring																X		X	X	X	X	
M-151	827642.80	26720826.93	1730.64	Middle	125 - 145	Monitoring																X		X	X	X	X	
M-152	826973.49	26722690.63	1698.50	Middle	125 - 145	Monitoring																X		X	X	X	X	
M-153	828385.63	26718288.08	1796.69	Middle	150 - 170	Monitoring																X		X	X	X	X	
M-154	828047.63	26719568.46	1758.78	Middle	175 - 195	Monitoring																X		X	X	X	X	
M-155	827635.84	26720827.51	1730.69	Middle	200 - 220	Monitoring																X		X	X	X	X	
M-156	826964.22	26722690.74	1698.38	Middle	175 - 195	Monitoring																X		X	X	X	X	
M-161	827134.13	26719889.85	1752.40	Middle	99.7 - 110	Monitoring																X		X	X	X	X	
M-161D	827237.42	26719894.02	1750.26	Middle	130 - 140	Monitoring											X		X	X	X	X		X	X	X	X	
M-162	827877.81	26719946.02	1747.82	Middle	99.7 - 110	Monitoring																X		X	X	X	X	
M-162D	827774.27	26719954.74	1747.27	Middle	130 - 140	Monitoring											X		X	X	X	X		X	X	X	X	
M-163	827873.42	26719939.04	1747.95	Shallow	79.7 - 89.7	Monitoring																X		X	X	X	X	
M-164	827870.17	26719949.61	1747.61	Shallow	59.7 - 69.7	Monitoring																X		X	X	X	X	
M-165	828701.37	26720053.24	1743.84	Middle	110 - 120	Monitoring																X		X	X	X	X	
M-166	827230.05	26719779.41	1751.09	Shallow	21.7 - 31.7	Monitoring										X					X						X	
M-167	827337.72	26719787.69	1749.95	Shallow	19.7 - 29.7	Monitoring					X					X					X						X	
M-168	827408.08	26719788.50	1748.46	Shallow	21.7 - 31.7	Monitoring										X					X						X	
M-169	827469.30	26719786.63	1750.22	Shallow	24.7 - 34.7	Monitoring										X					X						X	
M-170	827577.55	26719796.38	1750.66	Shallow	24.7 - 34.7	Monitoring					X					X					X						X	
M-172	827894.87	26719835.83	1750.58	Shallow	26.7 - 36.7	Monitoring					X					X					X						X	
M-173	828181.82	26719875.60	1749.88	Shallow	24.7 - 39.7	Monitoring					X					X					X						X	
M-174	828379.00	26719902.97	1742.29	Shallow	17.7 - 27.7	Monitoring										X					X						X	
M-175	828471.22	26719911.14	1742.74	Shallow	18.7 - 28.7	Monitoring					X					X					X						X	
M-176	828586.42	26719948.07	1745.35	Shallow	19.7 - 29.7	Monitoring										X					X						X	
M-177	828724.83	26719965.79	1743.23	Shallow	19.7 - 29.7	Monitoring					X					X					X						X	
M-181	828816.30	26719579.72	1761.76	Middle	105 - 115	Monitoring																X		X	X	X	X	
M-182	828815.50	26719588.73	1761.83	Shallow	79.7 - 89.7	Monitoring																X		X	X	X	X	
M-186	829022.55	26718356.19	1800.60	Middle	105 - 115	Monitoring																X		X	X	X	X	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses																					Notes
							Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	
M-186D	829025.56	26718347.47	1800.81	Middle	153 - 173	Monitoring											X		X	X	X	X		X	X	X	X	
M-189	828371.77	26717100.95	1812.48	Shallow	34.5 - 49.5	Monitoring											X		X	X	X	X		X	X	X	X	
M-190	828816.14	26717162.05	1812.79	Shallow	35 - 50	Monitoring											X		X	X	X	X		X	X	X	X	
M-191	828087.41	26717253.71	1812.84	Shallow	35 - 50	Monitoring											X		X	X	X	X		X	X	X	X	
M-192	828394.03	26717297.48	1812.56	Shallow	35 - 50	Monitoring											X		X	X	X	X		X	X	X	X	
M-193	828805.83	26717398.50	1812.56	Shallow	35 - 50	Monitoring											X		X	X	X	X		X	X	X	X	
MC-3	825209.50	26721410.01	1725.73	NA	NA	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-6	825207.92	26722160.22	1712.17	NA	NA	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-7	824933.20	26721865.43	1718.66	NA	NA	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-50	825534.87	26722076.15	1713.32	Shallow	24 - 49	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-51	825647.67	26721900.05	1715.88	Shallow	24 - 49	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-53	825942.24	26721920.01	1715.27	Shallow	20 - 40	Monitoring																X		X	X	X	X	Non-NERT well sampled by NERT
MC-65	826119.27	26722421.15	1705.43	Shallow	20 - 41	Monitoring																X		X	X	X	X	Non-NERT well sampled by NERT
MC-69	825235.63	26721806.43	1718.80	Shallow	29 - 44	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-93	825948.78	26721673.15	1719.26	Shallow	32 - 42	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MC-97	825838.35	26721425.66	1723.95	Shallow	31 - 41	Monitoring																		X	X	X	X	Non-NERT well sampled by NERT
MW-16	826447.64	26719904.41	1754.81	Shallow	24.7 - 39.7	Monitoring																X		X	X	X	X	
MW-K4	828994.00	26728410.00	1615.70	Shallow	9.5 - 50	Monitoring											X		X	X	X	X		X	X	X	X	Non-NERT well sampled by NERT
MW-K5	829617.00	26730252.00	1589.30	Shallow	28.5 - 44	Monitoring										X	X		X	X	X	X		X	X	X	X	Non-NERT well sampled by NERT
PC-1	830925.11	26730308.65	1599.13	Shallow	14.7 - 29.7	Monitoring																X		X	X	X	X	[6]
PC-2	830443.45	26730209.58	1597.07	Shallow	16.7 - 31.7	Monitoring																X		X	X	X	X	
PC-4	831171.80	26730353.42	1600.42	Shallow	17.7 - 42.7	Monitoring																X		X	X	X	X	
PC-18	828636.25	26728079.97	1618.50	Shallow	11.5 - 51.5	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-21A	829269.53	26721332.72	1724.52	Shallow	14 - 34	Monitoring																X		X	X	X	X	
PC-24	829524.18	26726729.82	1633.48	Shallow	15 - 30	Monitoring																X		X	X	X	X	
PC-28	828530.65	26725375.67	1650.85	Shallow	10 - 19.5	Monitoring																X		X	X	X	X	
PC-31	826781.65	26725195.83	1657.86	Shallow	14.5 - 49.5	Monitoring																X		X	X	X	X	
PC-37	826612.10	26722172.24	1707.72	Shallow	16.8 - 41.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-40	826476.78	26723971.04	1679.23	Shallow	15 - 55	Monitoring																X		X	X	X	X	
PC-50	828326.94	26726722.30	1633.46	Shallow	11.8 - 41.8	Monitoring																X		X	X	X	X	
PC-53	829941.58	26730225.29	1595.03	Shallow	13 - 32.5	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-54	828296.34	26722067.79	1704.43	Shallow	9.5 - 34.5	Monitoring											X		X	X	X	X		X	X	X	X	
PC-55	828530.49	26728056.66	1618.46	Shallow	15.3 - 55.3	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-56	830645.29	26732289.43	1576.83	Shallow	4.8 - 54.8	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-58	831123.78	26732118.20	1576.79	Shallow	7.8 - 32.8	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-59	830150.30	26732452.69	1576.05	Shallow	4.8 - 34.8	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-60	830405.14	26732358.75	1576.47	Shallow	4.5 - 39.5	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-62	829764.28	26732733.52	1575.74	Shallow	7.6 - 37.6	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-64	827916.52	26723702.44	1675.29	Shallow	4 - 19	Monitoring																X		X	X	X	X	
PC-65	828386.90	26723682.74	1675.21	Shallow	4.1 - 18.7	Monitoring																X		X	X	X	X	
PC-66	828779.40	26723966.95	1673.53	Shallow	6.9 - 26.9	Monitoring																X		X	X	X	X	
PC-67	829207.80	26723846.87	1673.82	Shallow	11 - 35.6	Monitoring																X		X	X	X	X	
PC-71	826805.90	26722687.72	1698.73	Shallow	13.4 - 28.4	Monitoring											X		X	X	X	X		X	X	X	X	
PC-72	826604.72	26722688.82	1699.43	Shallow	15 - 35	Monitoring											X		X	X	X	X		X	X	X	X	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses: Monthly: Total Chromium	Monthly: Hexavalent Chromium	Monthly: ClO_4, TDS	Monthly: Chlorate, Nitrate	Monthly: Water Level	Quarterly[3] (1Q & 3Q): Total Chromium	Quarterly: Hexavalent Chromium	Quarterly: ClO_4, TDS	Quarterly: Chlorate, Nitrate	Quarterly: Water Level	Semi-Annually[4] (4Q): Total Chromium	Semi-Annually: Hexavalent Chromium	Semi-Annually: ClO_4, TDS	Semi-Annually: Chlorate, Nitrate	Semi-Annually: Water Level	Annually[5] (2Q): Total Chromium	Annually: Hexavalent Chromium	Annually: ClO_4, TDS	Annually: Chlorate, Nitrate	Annually: VOCs	Annually: Water Level	Notes
PC-73	826404.90	26722694.93	1699.50	Shallow	20 - 45	Monitoring											X		X	X	X	X		X	X	X	X	
PC-74	829203.52	26734003.52	1565.34	Shallow	39.5 - 49.5	Monitoring																		X	X	X	X	
PC-76	829183.79	26734006.74	1565.10	Shallow	15 - 20	Monitoring																					X	
PC-77	829031.63	26733568.07	1566.90	Shallow	29.5 - 39.5	Monitoring																		X	X	X	X	
PC-78	829033.25	26733560.32	1566.72	Shallow	11.5 - 21.5	Monitoring																					X	
PC-79	829815.15	26733246.70	1573.11	Shallow	34.5 - 44.5	Monitoring																X		X	X	X	X	
PC-80	829823.82	26733250.46	1573.38	Shallow	19.5 - 29.5	Monitoring																					X	
PC-81	829833.40	26733254.77	1573.34	Shallow	9.5 - 14.5	Monitoring																					X	
PC-82	830316.93	26733194.96	1569.10	Shallow	47 - 57	Monitoring																		X	X	X	X	
PC-83	830325.43	26733201.37	1569.28	Shallow	20.5 - 30.5	Monitoring																					X	
PC-86	830826.99	26733185.76	1561.60	Shallow	17.5 - 27.5	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-87	830837.82	26733185.37	1561.52	Shallow	2.5 - 12.5	Monitoring																					X	
PC-88	831259.41	26733178.42	1551.01	Shallow	40 - 50	Monitoring																					X	
PC-90	831271.92	26733192.63	1550.46	Shallow	4.5 - 14.5	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-91	831729.99	26733110.85	1552.33	Shallow	26.5 - 36.5	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-94	832189.05	26733122.48	1548.95	Shallow	9.5 - 19.5	Monitoring											X		X	X	X	X		X	X	X	X	
PC-96	830896.56	26733450.83	1552.57	Shallow	29 - 39	Monitoring																		X	X	X	X	
PC-97	831565.69	26733441.54	1548.53	Shallow	23 - 33	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-98R	829522.58	26730260.53	1593.35	Shallow	20 - 35	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-99R2/R3	831258.73	26733155.42	1552.55	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-101R	828711.72	26728107.74	1618.12	Shallow	20 - 50	Monitoring											X		X	X	X	X		X	X	X	X	
PC-103	829110.87	26730205.73	1599.49	Shallow	9 - 29	Monitoring										X	X		X	X	X	X		X	X	X	X	
PC-107	827136.50	26729287.58	1616.94	Shallow	7.7 - 17.7	Monitoring																		X	X	X	X	
PC-108	828526.96	26731913.05	1587.93	Shallow	9.7 - 44.7	Monitoring																		X	X	X	X	
PC-110	826778.31	26731928.11	1594.56	Shallow	6.7 - 36.7	Monitoring																		X	X	X	X	
PC-115R	831148.64	26733131.33	1554.71	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-116R	831348.43	26733203.15	1552.10	Shallow	10 - 50	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-117	831422.37	26733275.94	1552.26	Shallow	11 - 51	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-118	831051.99	26733167.39	1554.53	Shallow	9 - 49	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-119	830951.29	26733188.50	1554.66	Shallow	15 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-120	830851.47	26733185.77	1554.64	Shallow	15 - 45	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-121	830751.31	26733180.39	1554.10	Shallow	6.5 - 36.5	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-122	829675.17	26728145.17	1618.02	Shallow	23 - 38	Monitoring					X					X	X		X	X	X	X		X	X	X	X	
PC-123	829485.04	26727358.44	1626.44	Shallow	20 - 35	Monitoring											X		X	X	X	X		X	X	X	X	
PC-124	830132.95	26726741.58	1635.73	Shallow	20.3 - 35.3	Monitoring											X		X	X	X	X		X	X	X	X	
PC-125	829925.95	26726739.82	1635.06	Shallow	18.7 - 33.7	Monitoring											X		X	X	X	X		X	X	X	X	
PC-126	829724.72	26726737.84	1634.38	Shallow	19.5 - 34.5	Monitoring											X		X	X	X	X		X	X	X	X	
PC-127	829316.65	26726735.62	1632.42	Shallow	15 - 35	Monitoring											X		X	X	X	X		X	X	X	X	
PC-128	828953.97	26726732.39	1633.36	Shallow	14.8 - 34.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-129	828747.28	26726730.81	1633.99	Shallow	12.8 - 37.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-130	828538.19	26726729.31	1633.21	Shallow	14.8 - 49.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-131	828123.28	26726725.41	1633.58	Shallow	9.8 - 39.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-132	827913.94	26726723.10	1634.70	Shallow	9.8 - 39.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-133	831758.00	26733209.00	1553.00	Shallow	5 - 40	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses																					Notes
							Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						
							Total Chromium	Hexavalent Chromium	ClO4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO4, TDS	Chlorate, Nitrate	VOCs	Water Level	
PC-134A	828775.80	26728143.15	1618.57	Shallow	59.7 - 69.7	Monitoring																X		X	X	X	X	
PC-134D	828857.30	26728169.53	1618.39	Shallow	80 - 90	Monitoring											X		X	X	X	X		X	X	X	X	
PC-135A	828767.49	26728143.03	1618.58	Shallow	30.7 - 50.7	Monitoring											X		X	X	X	X		X	X	X	X	
PC-136	829517.89	26728191.37	1618.04	Shallow	21.7 - 41.7	Monitoring											X		X	X	X	X		X	X	X	X	
PC-137	829517.57	26728198.98	1618.45	Shallow	63.3 - 73.3	Monitoring																X		X	X	X	X	
PC-137D	829522.60	26728198.20	1618.28	Shallow	80 - 90	Monitoring											X		X	X	X	X		X	X	X	X	
PC-142	828436.04	26728106.76	1619.64	Shallow	21.7 - 31.7	Monitoring																X		X	X	X	X	
PC-143	828698.71	26728238.64	1619.20	Shallow	29.7 - 64.7	Monitoring																X		X	X	X	X	
PC-144	828903.75	26728223.86	1618.63	Shallow	29.7 - 39.7	Monitoring											X		X	X	X	X		X	X	X	X	
PC-145	829536.07	26728324.97	1617.76	Shallow	24.7 - 44.7	Monitoring																X		X	X	X	X	
PC-146	829812.54	26728152.19	1617.67	Shallow	19.7 - 29.7	Monitoring																X		X	X	X	X	[6]
PC-147	829767.43	26728153.17	1617.51	Shallow	21.7 - 31.7	Monitoring																X		X	X	X	X	[6]
PC-148	829249.33	26728124.42	1617.96	Shallow	24.5 - 44.5	Monitoring											X		X	X	X	X		X	X	X	X	
PC-149	829117.97	26728122.90	1618.93	Shallow	24.5 - 44.5	Monitoring											X		X	X	X	X		X	X	X	X	
PC-150	828915.08	26728103.93	1616.42	Shallow	19.9 - 39.9	Extraction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PC-151	826961.78	26726718.39	1638.54	Shallow	8 - 28	Monitoring											X		X	X	X	X		X	X	X	X	
PC-152	827332.72	26726722.39	1636.95	Shallow	10 - 30	Monitoring											X		X	X	X	X		X	X	X	X	
PC-153	827666.05	26726720.69	1635.78	Shallow	10 - 30	Monitoring											X		X	X	X	X		X	X	X	X	
PC-154	827203.81	26728094.86	1624.72	Shallow	8 - 23	Monitoring											X		X	X	X	X		X	X	X	X	
PC-155A	830687.23	26734079.00	1555.54	Shallow	10 - 30	Monitoring											X		X	X	X	X		X	X	X	X	
PC-155B	830681.67	26734087.57	1555.96	Shallow	38 - 48	Monitoring											X		X	X	X	X		X	X	X	X	
PC-156A	831227.78	26733839.62	1549.68	Shallow	10 - 20	Monitoring											X		X	X	X	X		X	X	X	X	
PC-156B	831220.07	26733845.94	1550.51	Shallow	25 - 45	Monitoring											X		X	X	X	X		X	X	X	X	
PC-157A	831609.81	26733942.99	1547.95	Shallow	9 - 24	Monitoring											X		X	X	X	X		X	X	X	X	
PC-157B	831603.79	26733955.90	1547.96	Shallow	30 - 40	Monitoring											X		X	X	X	X		X	X	X	X	
PC-158	827714.19	26728109.78	1620.02	Shallow	7 - 21.8	Monitoring											X		X	X	X	X		X	X	X	X	
PC-159	827903.65	26728109.31	1620.19	Shallow	10.5 - 25.3	Monitoring											X		X	X	X	X		X	X	X	X	
PC-160	828112.25	26728119.75	1619.23	Shallow	8.5 - 23.3	Monitoring											X		X	X	X	X		X	X	X	X	
TR-1	826168.04	26719957.91	1752.29	Middle	282 - 312	Monitoring																X		X	X	X	X	
TR-2	826156.85	26719954.57	1751.79	Middle	145 - 175	Monitoring																X		X	X	X	X	
TR-3	826342.89	26718941.61	1772.84	Middle	220 - 250	Monitoring																X		X	X	X	X	
TR-4	826342.53	26718951.58	1772.55	Middle	125 - 145	Monitoring																X		X	X	X	X	
TR-5	826595.86	26717592.13	1800.27	Middle	221 - 251	Monitoring																X		X	X	X	X	
TR-6	826594.34	26717608.38	1800.36	Shallow	60 - 80	Monitoring																X		X	X	X	X	
TR-7	826724.99	26716525.47	1829.03	Middle	260 - 290	Monitoring																X		X	X	X	X	
TR-8	826722.81	26716512.15	1829.08	Shallow	63 - 93	Monitoring																X		X	X	X	X	
TR-9	827560.22	26715752.71	1854.29	Middle	230 - 250	Monitoring																X		X	X	X	X	
TR-10	827562.53	26715739.77	1854.06	Shallow	80 - 100	Monitoring																X		X	X	X	X	
TR-11	825422.57	26721918.29	1716.55	Middle	210 - 230	Monitoring																X		X	X	X	X	
TR-12	825286.37	26723271.82	1696.06	Middle	272 - 292	Monitoring																X		X	X	X	X	
Sample Totals							**48**	**48**	**48**	**48**	**78**	**61**	**57**	**61**	**48**	**123**	**156**	**57**	**156**	**156**	**179**	**251**	**57**	**273**	**273**	**225**	**301**	

TABLE 5: PROPOSED GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	Top of Casing Elevation (ft amsl)	Water Bearing Zone[1]	Screened Interval (ft bgs)	Well Type[2]	Monitoring Analyses																					Notes
							Monthly					Quarterly[3] (1Q & 3Q)					Semi-Annually[4] (4Q)					Annually[5] (2Q)						
							Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	Water Level	Total Chromium	Hexavalent Chromium	ClO_4, TDS	Chlorate, Nitrate	VOCs	Water Level	

Notes:

[1]Water-bearing zones are defined as follows:

Shallow - Top of screened interval is less than 90 feet below ground surface

Middle - Top of screened interval is between 90 and 300 feet below ground surface

[2]The 2016 Groundwater Monitoring Optimization Plan proposes that all non-extraction wells be sampled using the low flow technique. Several artesian wells will need maintenance prior to successful low flow sampling.

[3]The quarterly sampling events take place in the middle of the first and third quarters, replacing the monthly events in February and August.

[4]The semi-annual sampling event takes place in the middle of the fourth quarter, replacing the monthly event in November.

[5]The annual sampling event takes place in the middle of the second quarter, replacing the monthly event in May.

[6]Recent monitoring events indicate this well is dry (i.e. groundwater elevation is below the bottom of the well screen elevation). The well will continue to be monitored as part of the Groundwater Monitoring Program, but samples will only be collected if the water level is determined to be above the bottom of the well screen.

[7]Analytical sampling will be performed at the active extraction well in a set of buddy wells. Water level measurements are taken at all wells in a set of buddy wells.

[8]Well sampled under RCRA requiring the following additional analyses:

Chloride	Total Iron
Phenols	Total Manganese
Specific Conductance	Total Organic Carbon
Sulfate	Total Organic Halides (4 Replicates)
Total Boron	Total Sodium

[9]Well sampled under NPDES Permit requiring the following additional analyses:

Ammonia Nitrogen	Total Boron
Nitrate as Nitrate	Total Iron
Nitrate as Nitrogen	Total Manganese
Nitrite as Nitrogen	Chloride
Total Inorganic Nitrogen	

[10]Water level cannot be measured due to obstruction caused by a permanently installed pump. Analytical measurements are not impacted by the obstruction and will continue to be collected.

ft amsl = feet above mean sea level
ft bgs = feet below ground surface
NPDES = National Pollutant Discharge Elimination System
ClO_4 = Perchlorate
RCRA = Resource Conservation and Recovery Act
TDS = Total Dissolved Solids
UIC = Underground Injection Control
VOCs = Volatile Organic Compounds

TABLE 6: WELLS PROPOSED FOR REMOVAL FROM GROUNDWATER MONITORING PROGRAM

Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Reason for Removal from Groundwater Monitoring Program
BEC-1	Destroyed/Not Found (last sampled on 5/4/2006)
DM-4	Destroyed/Not Found (last measured on 5/9/2013, dry 5/4/2011-5/9/2013)
DM-5	Destroyed/Not Found (last measured on 5/9/2013, dry 5/4/2011-5/9/2013)
HSW-1	Destroyed/Not Found (last sampled on 5/12/2010)
L-635	No Access due to private property (last sampled on 5/20/2010)
L-637	No Access due to private property (last sampled on 2/12/2009)
M-29	No Access due to safety hazard (last sampled on 5/12/2011)
M-128	Spatially redundant
M-130	Spatially redundant
M-131	Spatially redundant
M-146	Spatially redundant
MC-29	Spatially redundant
MC-45	Spatially redundant
PC-68	Spatially redundant
PC-92	Spatially redundant

TABLE 7: WELLS PROPOSED FOR ADDITION TO GROUNDWATER MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Easting	Northing	WBZ[1]	Screened Interval (ft bgs)	Well Type	Location
M-161D	827237.42	26719894.02	Middle	130.3-140.0	Monitoring	NERT Site
M-162D	827774.27	26719954.74	Middle	129.9-139.6	Monitoring	NERT Site
M-186D	829025.56	26718347.47	Middle	153.0-173.0	Monitoring	NERT Site
M-189	828371.77	26717100.95	Shallow	34.5-49.5	Monitoring	NERT Site
M-190	828816.14	26717162.05	Shallow	35.0-50.0	Monitoring	NERT Site
M-191	828087.41	26717253.71	Shallow	35.0-50.0	Monitoring	NERT Site
M-192	828394.03	26717297.48	Shallow	35.0-50.0	Monitoring	NERT Site
M-193	828805.83	26717398.5	Shallow	35.0-50.0	Monitoring	NERT Site
PC-134D	828857.3	26728169.53	Shallow	80.0-90.0	Monitoring	AWF/Sunset Road
PC-137D	829522.6	26728198.2	Shallow	80.0-90.0	Monitoring	AWF/Sunset Road
PC-151	826961.78	26726718.39	Shallow	8.0-28.0	Monitoring	AWF/Sunset Road
PC-152	827332.72	26726722.39	Shallow	10.0-30.0	Monitoring	AWF/Sunset Road
PC-153	827666.05	26726720.69	Shallow	10.0-30.0	Monitoring	AWF/Sunset Road
PC-154	827203.81	26728094.86	Shallow	8.0-23.0	Monitoring	AWF/Sunset Road
PC-155A	830687.23	26734079.0	Shallow	10.0-30.0	Monitoring	SWF/Las Vegas Wash
PC-155B	830681.67	26734087.57	Shallow	38.0-48.0	Monitoring	SWF/Las Vegas Wash
PC-156A	831227.78	26733839.62	Shallow	10.0-20.0	Monitoring	SWF/Las Vegas Wash
PC-156B	831220.07	26733845.94	Shallow	25.0-45.0	Monitoring	SWF/Las Vegas Wash
PC-157A	831609.81	26733942.99	Shallow	9.0-24.0	Monitoring	SWF/Las Vegas Wash
PC-157B	831603.79	26733955.9	Shallow	30.0-40.0	Monitoring	SWF/Las Vegas Wash
PC-158	827714.19	26728109.78	Shallow	7.0-21.8	Monitoring	AWF/Sunset Road
PC-159	827903.65	26728109.31	Shallow	10.5-25.3	Monitoring	AWF/Sunset Road
PC-160	828112.25	26728119.75	Shallow	8.5-23.3	Monitoring	AWF/Sunset Road

Note:
These wells are all owned by NERT. They were installed between January 1, 2014 and May 1, 2015.
[1]WBZs are defined as follows:
Shallow - Top of screened interval is less than 90 ft bgs
Middle - Top of screened interval is between 90 and 300 ft bgs

AWF = Athens Road Well Field
ft bgs = feet below ground surface
NERT = Nevada Environmental Response Trust
SWF = Seep Well Field
WBZ = water-bearing zone

TABLE 8: MONITORING PROGRAM SCREENING LEVELS
Nevada Environmental Response Trust Site
Henderson, Nevada

Chemical Group	Chemical Name	Screening Level	Unit	Screening Level Source
Inorganic Anions	Chlorate	1,000	µg/L	BCL
	Nitrate	10,000	µg/L	BCL
	Perchlorate	18	µg/L	BCL
Metals	Chromium (total)[1]	100	µg/L	BCL
VOCs	Acetone	20,500	µg/L	BCL
	t-Amyl methyl ether[2]	5,100	µg/L	BCL
	Benzene	5	µg/L	BCL
	Bromobenzene	85.2	µg/L	BCL
	Bromochloromethane	83	µg/L	RSL
	Bromodichloromethane	80	µg/L	MCL
	Bromoform	80	µg/L	MCL
	Bromomethane	8.53	µg/L	BCL
	2-Butanone	6,860	µg/L	BCL
	n-Butylbenzene	238	µg/L	BCL
	sec-Butylbenzene	238	µg/L	BCL
	Carbon tetrachloride	5	µg/L	BCL
	Chlorobenzene	100	µg/L	BCL
	Chloroethane	26.9	µg/L	BCL
	Chloroform[3]	80	µg/L	MCL
	Chloromethane	3.12	µg/L	BCL
	2-Chlorotoluene	90.2	µg/L	BCL
	4-Chlorotoluene	250	µg/L	RSL
	Cumene	667	µg/L	BCL
	p-Cymene	834	µg/L	BCL
	Dibromochloromethane	80	µg/L	MCL
	1,2-Dibromoethane	0.05	µg/L	MCL
	Dibromomethane	8.14	µg/L	BCL
	1,2-Dichlorobenzene	600	µg/L	MCL
	1,3-Dichlorobenzene	80.7	µg/L	BCL
	1,4-Dichlorobenzene	75	µg/L	MCL
	Dichlorodifluoromethane	393	µg/L	BCL
	1,1-Dichloroethane	2.79	µg/L	BCL
	1,2-Dichloroethane	5	µg/L	BCL
	1,1-Dichloroethene	7	µg/L	MCL
	cis-1,2-Dichloroethene	70	µg/L	BCL
	trans-1,2-Dichloroethene	100	µg/L	BCL
	1,2-Dichloropropane	5	µg/L	BCL
	1,3-Dichloropropane	8.24	µg/L	BCL
	2,2-Dichloropropane[4]	8.24	µg/L	BCL
	1,1-Dichloropropene[5]	40	µg/L	BCL
	cis-1,3-Dichloropropene[6]	0.501	µg/L	BCL

TABLE 8: MONITORING PROGRAM SCREENING LEVELS
Nevada Environmental Response Trust Site
Henderson, Nevada

Chemical Group	Chemical Name	Screening Level	Unit	Screening Level Source
VOCs	trans-1,3-Dichloropropene[7]	0.501	µg/L	BCL
	Diisopropyl ether	--	--	--
	Ethyl benzene	700	µg/L	MCL
	Ethyl tert-butyl ether[8]	5,100	µg/L	BCL
	2-Hexanone	62.6	µg/L	BCL
	Methyl tert-butyl ether	14.4	µg/L	BCL
	Methylene Chloride	5	µg/L	BCL
	Naphthalene	0.165	µg/L	BCL
	n-Propylbenzene	238	µg/L	BCL
	Styrene	100	µg/L	BCL
	1,1,1,2-Tetrachloroethane	0.605	µg/L	BCL
	1,1,2,2-Tetrachloroethane	0.0775	µg/L	BCL
	Tetrachloroethene	5	µg/L	BCL
	Toluene	1,000	µg/L	MCL
	1,2,3-Trichlorobenzene	7	µg/L	RSL
	1,2,4-Trichlorobenzene	70	µg/L	MCL
	1,1,1-Trichloroethane	200	µg/L	MCL
	1,1,2-Trichloroethane	5	µg/L	BCL
	Trichloroethene	5	µg/L	BCL
	Trichlorofluoromethane	1,270	µg/L	BCL
	1,2,3-Trichloropropane	0.0026	µg/L	BCL
	1,2,4-Trimethylbenzene	14.6	µg/L	BCL
	1,3,5-Trimethylbenzene	14.5	µg/L	BCL
	Vinyl chloride	2	µg/L	BCL
	m,p-Xylene[9]	1,200	µg/L	BCL
	o-Xylene	1,200	µg/L	BCL
	Xylenes (total)	10,000	µg/L	BCL
	1,2-Dibromo-3-chloropropane	0.2	µg/L	MCL
	4-Methyl-2-pentanone	1,870	µg/L	BCL
	tert Butyl alcohol	62,600	µg/L	BCL
	tert-Butylbenzene	238	µg/L	BCL
	1,1,2-Trichloro-1,2,2-trifluoroethane	58,900	µg/L	BCL

Notes:

--: Screening Level Not Available

µg/L: micrograms per liter

1. Chromium VI used as surrogate screening level for Chromium (total)
2. Methyl tert-butyl ether (noncancer endpoint) used as surrogate screening level for t-Amyl methyl ether
3. MCL is for total trihalomethanes.
4. 1,3-Dichloropropane used as surrogate screening level for 2,2-Dichloropropane
5. 1,3-Dichloropropene (noncancer endpoint) used as surrogate screening level for 1,1-Dichloropropene

TABLE 8: MONITORING PROGRAM SCREENING LEVELS
Nevada Environmental Response Trust Site
Henderson, Nevada

Chemical Group	Chemical Name	Screening Level	Unit	Screening Level Source

6. 1,3-Dichloropropene used as surrogate screening level for cis-1,3-Dichloropropene
7. 1,3-Dichloropropene used as surrogate screening level for trans-1,3-Dichloropropene
8. Methyl tert-butyl ether (noncancer endpoint) used as surrogate screening level for Ethyl tert-butyl ether
9. m-Xylene used as surrogate screening level for m,p-Xylene

Groundwater screening levels were selected according to the following hierarchy of criteria:

1. Maximum Contaminant Level (MCL): Primary United States Environmental Protection Agency (USEPA) maximum contaminant level (40 CFR Part 141).
2. Basic Contaminant Level (BCL): Residential water basic comparison levels in Nevada Division of Environmental Protection (NDEP) February 2015 BCL Table (NDEP 2015).
3. Regional Screening Level (RSL): Tap water regional screening levels in USEPA Pacific Southwest, Region 9, Regional Screening Levels Chemical Specific Parameters table, June 2015. The screening levels were selected as the minimal values of carcinogenic screening level and noncarcinogenic screening level (USEPA 2015).

Sources:

USEPA. National Primary Drinking Water Regulations. Code of Federal Regulations, 40 CFR Part 141.

NDEP, 2015. User's Guide and Background Technical Document for NDEP Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas. Revision 13, February.

USEPA, 2015. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites. November.

TABLE 9: COMPARISON OF TOTAL CHROMIUM AND HEXAVALENT CHROMIUM RESULTS
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Average Ratio of Cr(VI) to Cr(total)	Number of Data Points Compared[1]
M-2A	1.03	6
M-10	0.16	28
M-11	0.93	72
M-12A	1.07	77
M-13	0.66	4
M-31A	1.06	5
M-36	1.05	52
M-37	0.92	52
M-38	0.97	13
M-44	1.00	63
M-55	1.03	7
M-76	1.05	6
M-95	1.01	28
M-97	1.00	3
M-100	1.06	42
M-103	1.14	1
M-138	0.95	3

Notes:

Cr = chromium

Cr (VI) = hexavalent chromium

[1]Cr(VI) and Cr(total) were compared when both were measured and were detected on the same day from October 1998 to December 2015.

TABLE 10: WELLS IDENTIFIED FOR FURTHER INVESTIGATION

Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Owner	Well in Existing Monitoring Program	Well in Proposed Monitoring Program	Identified Uncertainty or Maintenance Issue	Proposed Action
AA-01	BRC	Yes	Yes	Well total depth not known	Tag well bottom with weighted line to obtain well total depth
AA-11	BRC	Yes	Yes	Well total depth not known	Tag well bottom with weighted line to obtain well total depth
H-11	Stauffer	Yes	Yes	Well cap stuck 6/3/2015; No well screen information	Inspect well and perform necessary maintenance; Video log the well to obtain screen depth
H-28A	Stauffer	Yes	Yes	Well ground elevation not known; Well top of casing elevation not known; No well screen information; Well total depth not known	Include well in survey of all wells to obtain top of casing and ground elevations; Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
H-48	Stauffer	Yes	Yes	Well cap stuck 5/27/2015; Well ground elevation not known; Well top of casing elevation not known; No well screen information; Well total depth not known	Inspect well and perform necessary maintenance; Include well in survey of all wells to obtain top of casing and ground elevations; Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
HM-2	COH	Yes	Yes	Well ground elevation not known; No well screen information; Well total depth not known	Include well in survey of all wells to obtain ground elevation; Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
HMW-13	COH	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
HMW-14	COH	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
HMW-15	COH	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
HMW-16	COH	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
M-2A	NERT	Yes	Yes	Uncertain well screen information; Uncertain well total depth	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
M-36	NERT	Yes	Yes	Well damaged since 7/23/2013	Inspect well and perform necessary maintenance
M-93	NERT	Yes	Yes	Well obstructed by stuck bailer, preventing analytical sampling after 1/31/2007	Inspect well and perform necessary maintenance
M-140	NERT	Yes	Yes	Well obstructed by pump, preventing water level measurement after 9/2/2010	Inspect well and perform necessary maintenance
M-155	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance
M-171	NERT	No	No	Well cap stuck	Inspect well and perform necessary maintenance

TABLE 10: WELLS IDENTIFIED FOR FURTHER INVESTIGATION
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Owner	Well in Existing Monitoring Program	Well in Proposed Monitoring Program	Identified Uncertainty or Maintenance Issue	Proposed Action
M-178	NERT	No	No	Well cap stuck	Inspect well and perform necessary maintenance
M-179	NERT	No	No	Well cap stuck	Inspect well and perform necessary maintenance
MC-3	Stauffer	Yes	Yes	Well ground elevation not known; No well screen information; Well total depth not known	Include well in survey of all wells to obtain ground elevation; Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
MC-6	Stauffer	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
MC-7	Stauffer	Yes	Yes	No well screen information; Well total depth not known	Video log the well to obtain screen depth; Tag well bottom with weighted line to obtain well total depth
TR-1	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance
TR-3	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance
TR-5	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance
TR-11	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance
TR-12	NERT	Yes	Yes	Artesian well requiring inspection	Inspect well and perform necessary maintenance

Notes:

BRC = Basic Remediation Company

COH = City of Henderson

NERT = Nevada Environmental Response Trust

TABLE 11: COMPARISON OF EXISTING AND PROPOSED MONITORING PROGRAMS

Nevada Environmental Response Trust Site
Henderson, Nevada

Existing Monitoring Program							
Sampling Frequency	Well Type	Total Chromium	Hexavalent Chromium	Perchlorate & TDS	Chlorate & Nitrate	VOCs	Water Level
Monthly Event (8x per year)	**Total**	**48**	**48**	**77**	**0**	**0**	**136**
	Extraction Well	48	48	48	0	0	54
	Monitoring Well	0	0	29	0	0	82
Quarterly Event (3x per year)	**Total**	**141**	**58**	**141**	**0**	**0**	**170**
	Extraction Well	48	48	48	0	0	54
	Monitoring Well	93	10	93	0	0	116
Annual Event (1x per year)	**Total**	**239**	**58**	**265**	**25**	**0**	**294**
	Extraction Well	48	48	48	0	0	54
	Monitoring Well	191	10	217	25	0	240
Total Samples per Year[1]	**Total**	**1038**	**616**	**1296**	**25**	**0**	**1884**
	Extraction Well	576	576	576	0	0	648
	Monitoring Well	462	40	720	25	0	1236
Proposed Monitoring Program							
Sampling Frequency	Well Type	Total Chromium	Hexavalent Chromium	Perchlorate & TDS	Chlorate & Nitrate	VOCs	Water Level
Monthly Event (8x per year)	**Total**	**48**	**48**	**48**	**48**	**0**	**78**
	Extraction Well	48	48	48	48	0	54
	Monitoring Well	0	0	0	0	0	24
Quarterly Event (2x per year)	**Total**	**61**	**57**	**61**	**48**	**0**	**123**
	Extraction Well	48	48	48	48	0	54
	Monitoring Well	13	9	13	0	0	69
Semi-Annual Event (1x per year)	**Total**	**156**	**57**	**156**	**156**	**0**	**179**
	Extraction Well	48	48	48	48	0	54
	Monitoring Well	108	9	108	108	0	125
Annual Event (1x per year)	**Total**	**251**	**57**	**273**	**273**	**225**	**301**
	Extraction Well	48	48	48	48	0	54
	Monitoring Well	203	9	225	225	225	247
Total Samples per Year[1]	**Total**	**909**	**612**	**931**	**909**	**225**	**1346**
	Extraction Well	576	576	576	576	0	648
	Monitoring Well	333	36	355	333	225	698
Proposed Increase in Sampling Compared to Existing Monitoring Program[2]							
Sampling Frequency	Well Type	Total Chromium	Hexavalent Chromium	Perchlorate & TDS	Chlorate & Nitrate	VOCs	Water Level
Monthly Event	**Total**	**0**	**0**	**-29**	**48**	**0**	**-58**
	Extraction Well	0	0	0	48	0	0
	Monitoring Well	0	0	-29	0	0	-58
Quarterly Event	**Total**	**-80**	**-1**	**-80**	**48**	**0**	**-47**
	Extraction Well	0	0	0	48	0	0
	Monitoring Well	-80	-1	-80	0	0	-47
Semi-Annual Event	**Total**	**156**	**57**	**156**	**156**	**0**	**179**
	Extraction Well	48	48	48	48	0	54
	Monitoring Well	108	9	108	108	0	125
Annual Event	**Total**	**12**	**-1**	**8**	**248**	**225**	**7**
	Extraction Well	0	0	0	48	0	0
	Monitoring Well	12	-1	8	200	225	7
Total Samples per Year	**Total**	**-129**	**-4**	**-365**	**884**	**225**	**-538**
	Extraction Well	0	0	0	576	0	0
	Monitoring Well	-129	-4	-365	308	225	-538

Notes:

[1]Total samples per year account for four "Resource Conservation and Recovery Act (RCRA) wells" that are only sampled in 2nd and 3rd quarters.

[2]Negative values indicate that the proposed monitoring program has fewer samples than the existing program.

TDS = total dissolved solids
VOCs = volatile organic compounds

TABLE 12: KNOWN LOW-FLOW SAMPLING INFORMATION FOR EXISTING MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Diam (in)	Material	Total Depth (ft bgs)	Screen Interval (ft bgs)	Screen Length (ft)	5/2015 DTW (ft bTOC)	Purge Method	Inkate Depth (ft bgs)	Controller Setting (psi)	Purge Rate (ml/min)
M-103	2	PVC	90	69.5 - 89.5	20	Dry	dedicated bladder pump	45	45	100
M-117	2	PVC	155	130 - 150	20	70.75	dedicated bladder pump	75	75	100
M-118	2	PVC	163	138 - 158	20	66.64	dedicated bladder pump	50	50	100
M-120	2	PVC	105	80 - 100	20	83.96	dedicated bladder pump	40	40	100
M-121	2	PVC	102	77 - 97	20	79.52	dedicated bladder pump	50	50	200
M-129	2	PVC	40	20 - 40	20	NA	dedicated bladder pump	40	40	100
M-130	2	PVC	40	20 - 40	20	NA	dedicated bladder pump	40	318	100
M-149	2	PVC	120	100 - 120	20	45.42	dedicated bladder pump	50	50	100
M-150	2	PVC	145	125 - 145	20	23.48	dedicated bladder pump	40	40	100
M-151	2	PVC	145	125 - 145	20	18.74	dedicated bladder pump	35	35	100
M-152	2	PVC	145	125 - 145	20	27.28	dedicated bladder pump	45	45	100
M-153	2	PVC	170	150 - 170	20	30.44	dedicated bladder pump	40	40	100
M-154	2	PVC	195	175 - 195	20	11.63	dedicated bladder pump	105	105	100
M-155	2	PVC	220	200 - 220	20	Artesian	non-dedicated pump[1]	105	105	100
M-156	2	PVC	195	175 - 195	20	20.46	dedicated bladder pump	40	40	100
M-161	2	PVC	110	99.7 - 109.7	10	23.75	dedicated bladder pump	55	55	100
M-162	2	PVC	110	99.7 - 109.7	10	23.36	dedicated bladder pump	60	60	100
M-163	2	PVC	90	79.7 - 89.7	10	28.12	dedicated bladder pump	50	50	100
M-164	2	PVC	70	59.7 - 69.7	10	34.97	dedicated bladder pump	40	40	100
M-165	2	PVC	120	109.7 - 119.7	10	21.91	dedicated bladder pump	60	60	100
M-181	2	PVC	115	104.7 - 114.7	10	28.50	dedicated bladder pump	60	60	100
M-182	2	PVC	90	79.7 - 89.7	10	33.83	dedicated bladder pump	60	60	100
M-186	2	PVC	115	104.7 - 114.7	10	46.35	dedicated bladder pump	65	65	100
TR-1	4	PVC	312	281.5 - 311.5	30	Artesian	non-dedicated pump[1]	TBD	TBD	100
TR-2	4	PVC	175	144.5 - 174.5	30	25.77	dedicated bladder pump	90	90	100
TR-3	4	PVC	250	219.5 - 249.5	30	Artesian	non-dedicated pump[1]	TBD	TBD	150
TR-4	4	PVC	145	124.5 - 144.5	20	35.98	dedicated bladder pump	TBD	TBD	100
TR-5	4	PVC	251.5	221 - 251	30	Artesian	dedicated bladder pump[1]	35	35	150
TR-6	4	PVC	80	60 - 80	20	36.35	dedicated bladder pump	40	40	300
TR-7	4	PVC	290.5	260 - 290	30	9.27	dedicated bladder pump	45	45	400
TR-8	4	PVC	93.5	63 - 93	30	49.80	dedicated bladder pump	50	50	200
TR-9	4	PVC	250.5	230 - 250	20	34.22	dedicated bladder pump	65	65	400
TR-10	4	PVC	100.5	80 - 100	20	63.02	dedicated bladder pump	55	55	200
TR-11	4	PVC	230.5	210 - 230	20	Artesian	self-purging[1]	TBD	TBD	0.5 gal/min

TABLE 12: KNOWN LOW-FLOW SAMPLING INFORMATION FOR EXISTING MONITORING PROGRAM
Nevada Environmental Response Trust Site
Henderson, Nevada

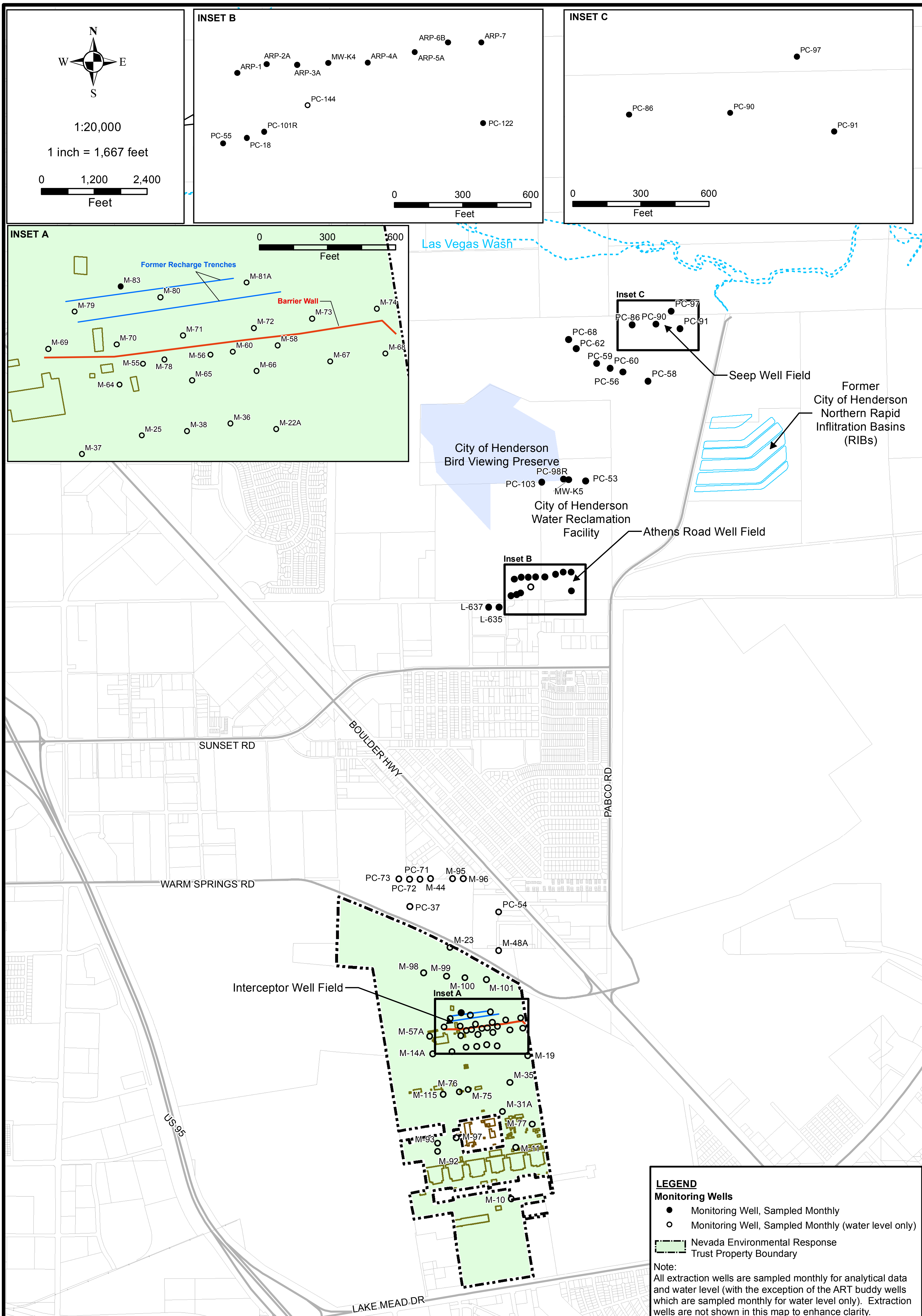
Well ID	Diam (in)	Material	Total Depth (ft bgs)	Screen Interval (ft bgs)	Screen Length (ft)	5/2015 DTW (ft bTOC)	Purge Method	Inkate Depth (ft bgs)	Controller Setting (psi)	Purge Rate (ml/min)
TR-12	4	PVC	292.5	272 - 292	20	0.30	non-dedicated pump[1]	95	95	150

Notes:
[1]Artesian well

Diam = diameter
DTW = depth to water
ft = feet
ft bgs = feet below ground surface
ft bTOC = feet below top of casing
gal/min = gallons per minute
in = inches
ml/min = milliliters per minute
NA = not available
TBD = to be determined
psi = pounds per square inch
PVC = polyvinal chloride

FIGURES

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 1A Current Monitoring Program Monthly.mxd



RAMBOLL ENVIRON

DRAFTED BY: RS

DATE: 4/19/2016

EXISTING MONITORING PROGRAM: MONTHLY SAMPLING EVENT

2016 Groundwater Monitoring Optimization Plan

Nevada Environmental Response Trust Site

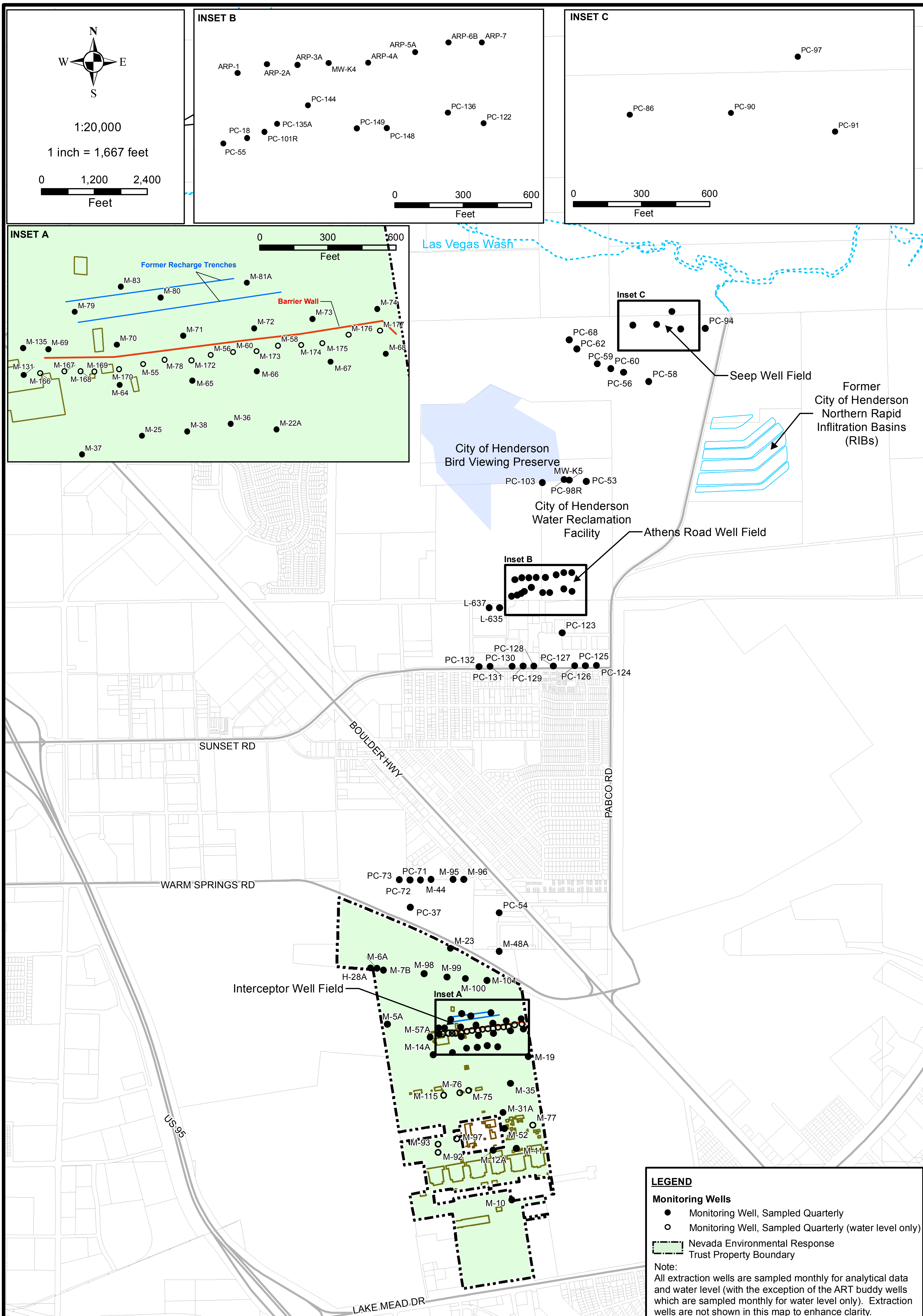
Henderson, Nevada

FIGURE

1a

21-38800A

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 1B Current Monitoring Program Quarterly.mxd



RAMBOLL ENVIRON

DRAFTED BY: RS

DATE: 4/21/2016

EXISTING MONITORING PROGRAM: QUARTERLY SAMPLING EVENT

2016 Groundwater Monitoring Optimization Plan

Nevada Environmental Response Trust Site

Henderson, Nevada

FIGURE

1b

21-38800A

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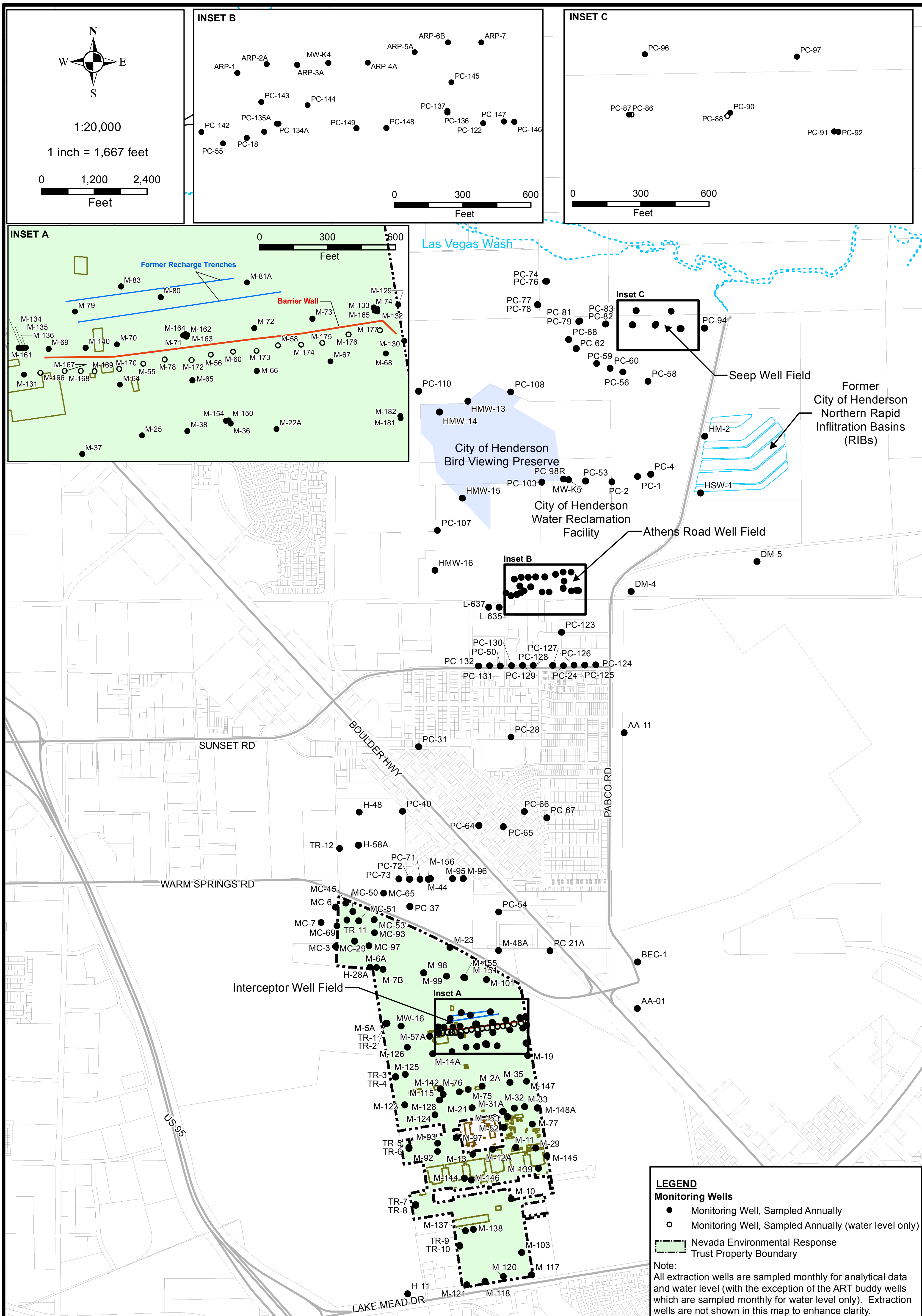

RAMBOLL ENVIRON	**EXISTING MONITORING PROGRAM: ANNUAL SAMPLING EVENT** **2016 Groundwater Monitoring Optimization Plan** Nevada Environmental Response Trust Site Henderson, Nevada	FIGURE **1c**
DRAFTED BY: RS / DATE: 4/21/2016		21-38800A

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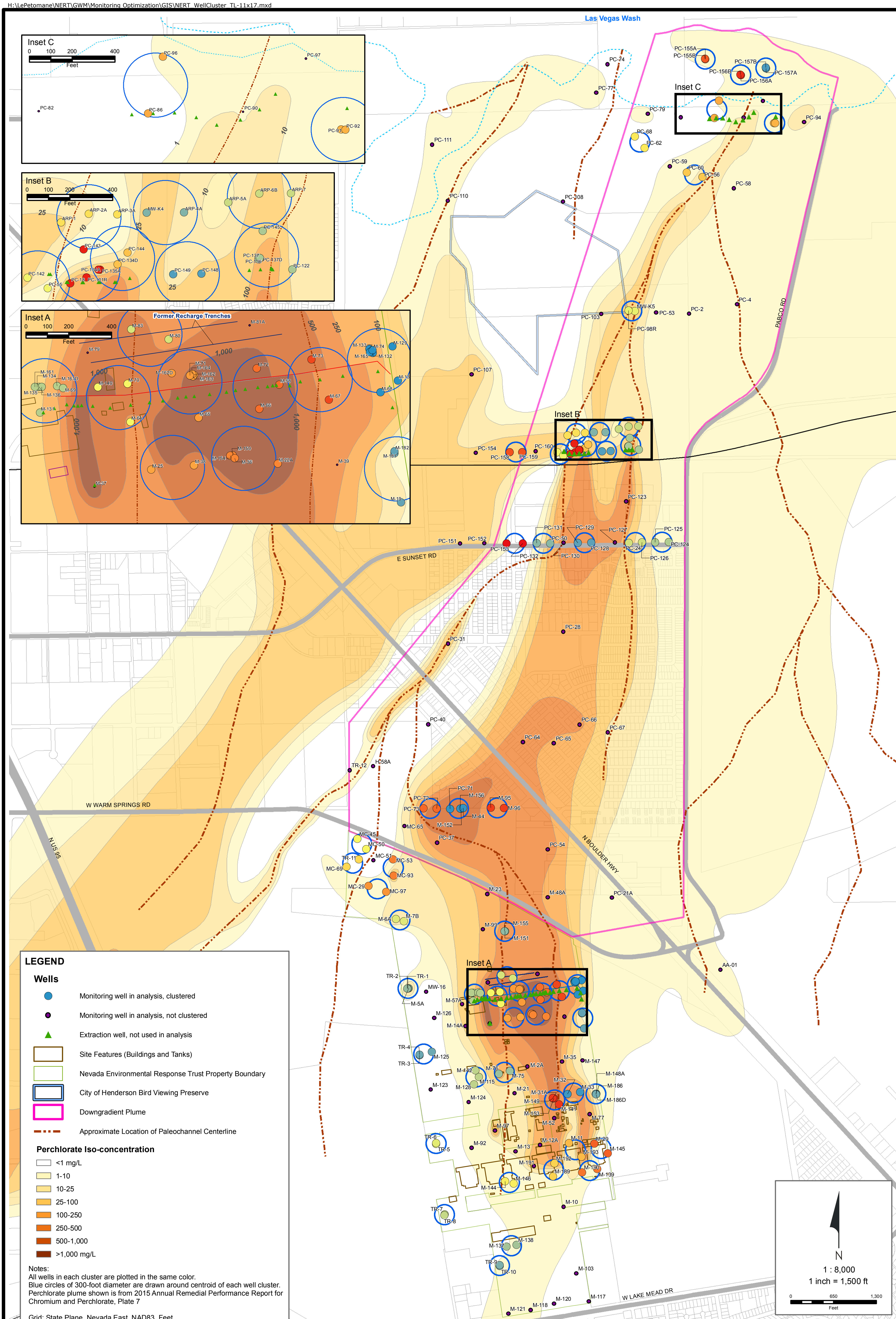


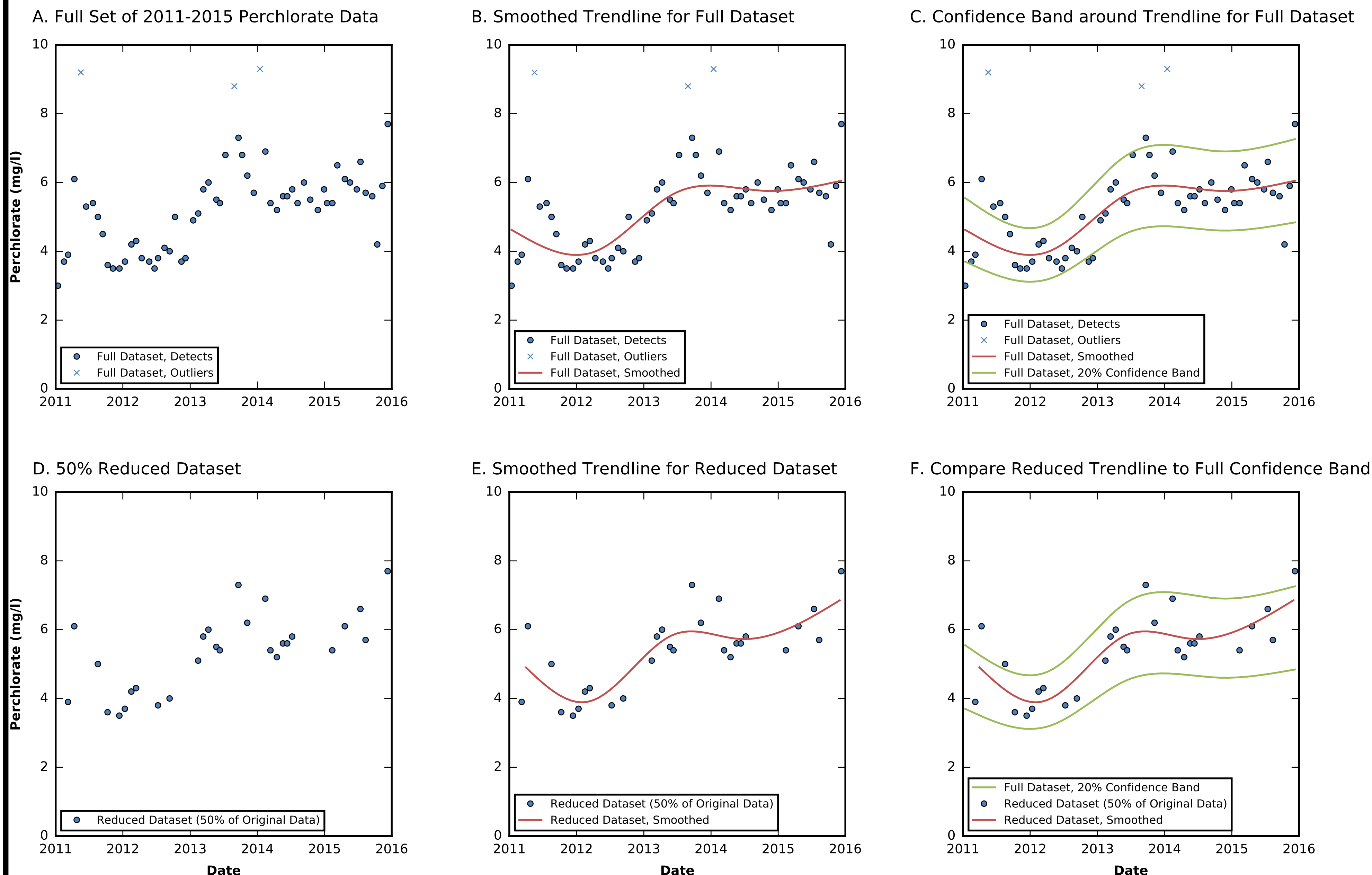
RAMBOLL ENVIRON

DRAFTED BY: RS | DATE: 4/21/2016

WELL CLUSTERS GENERATED BY SPATIAL REDUNDANCY ANALYSIS
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE
2
21-38800A

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



RAMBOLL ENVIRON

Iterative Thinning Process Example for Perchlorate in ARP-3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
3

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

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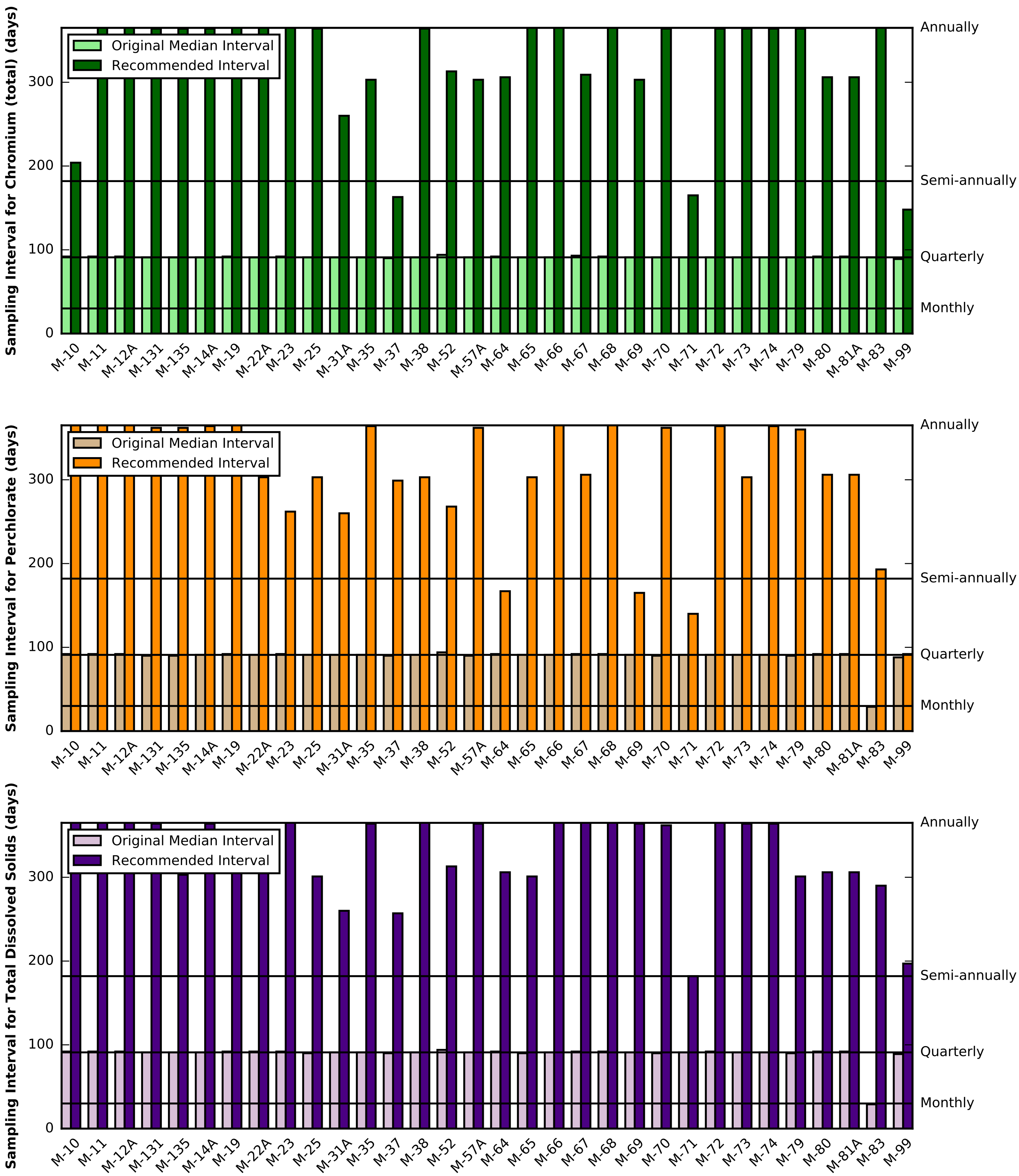

RAMBOLL ENVIRON

Iterative Thinning Results On NERT Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4a

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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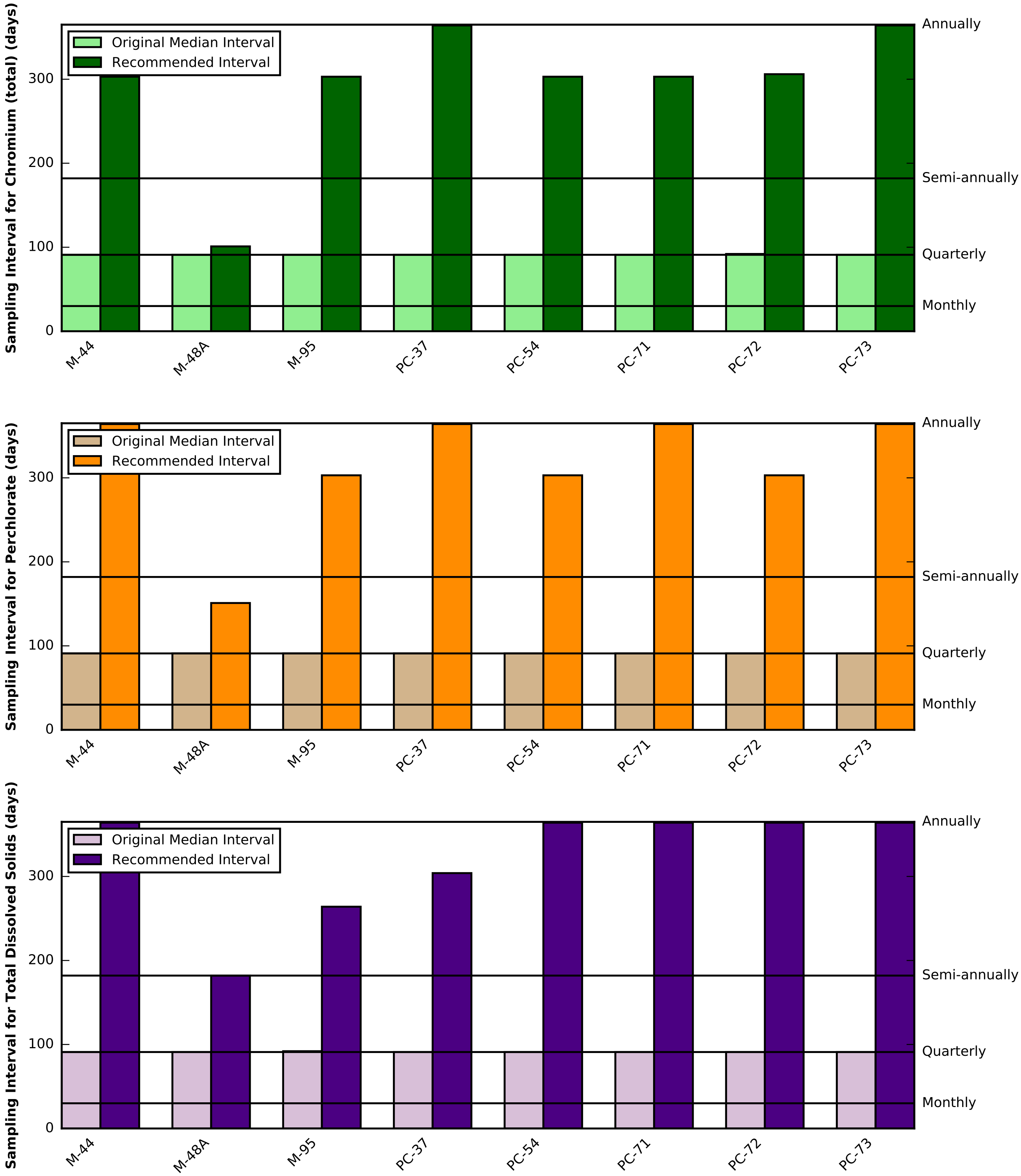

RAMBOLL ENVIRON

Iterative Thinning Results from Boulder Hwy to NERT Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4b

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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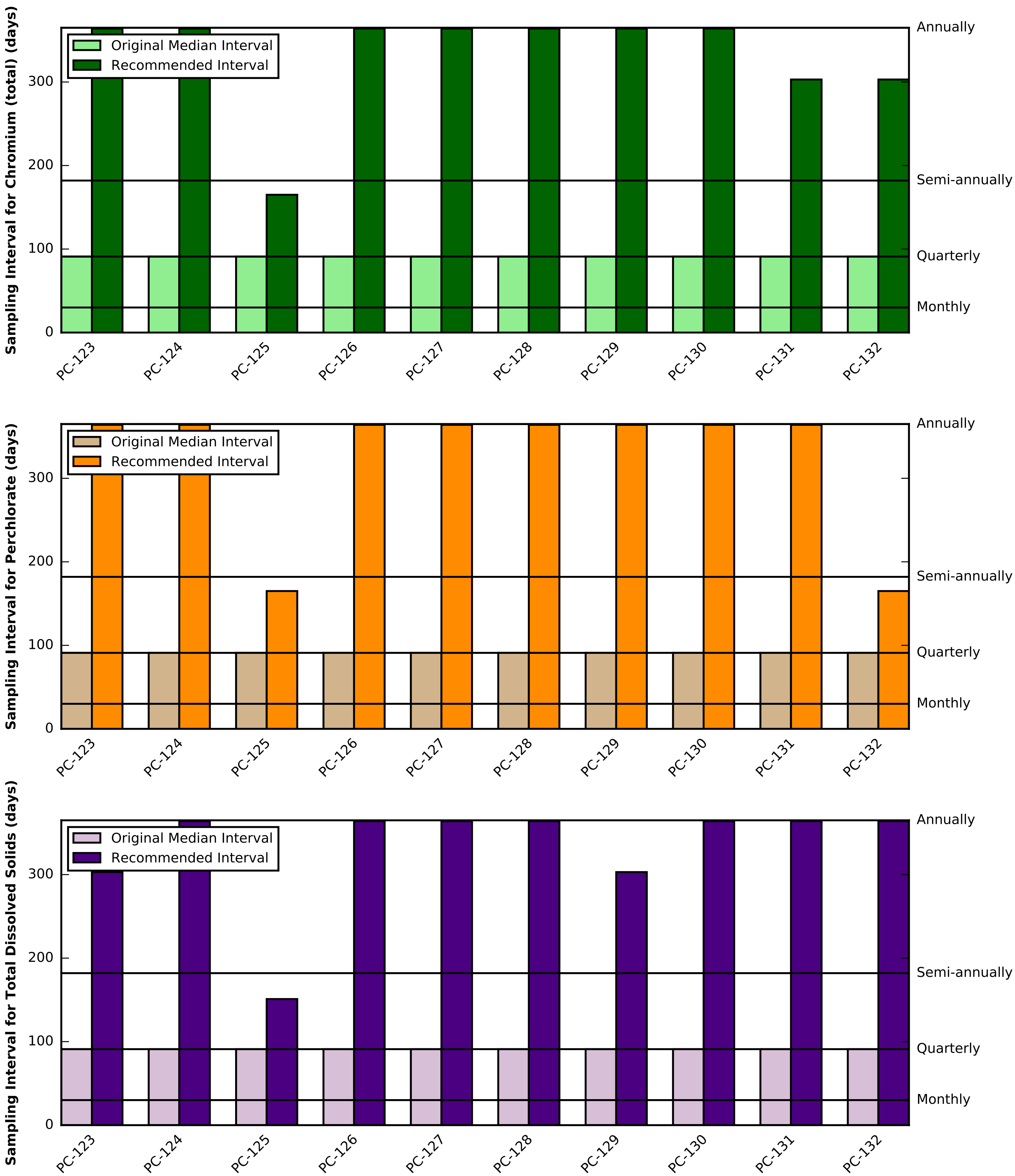

RAMBOLL ENVIRON

Iterative Thinning Results Near Sunset Road
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

4c

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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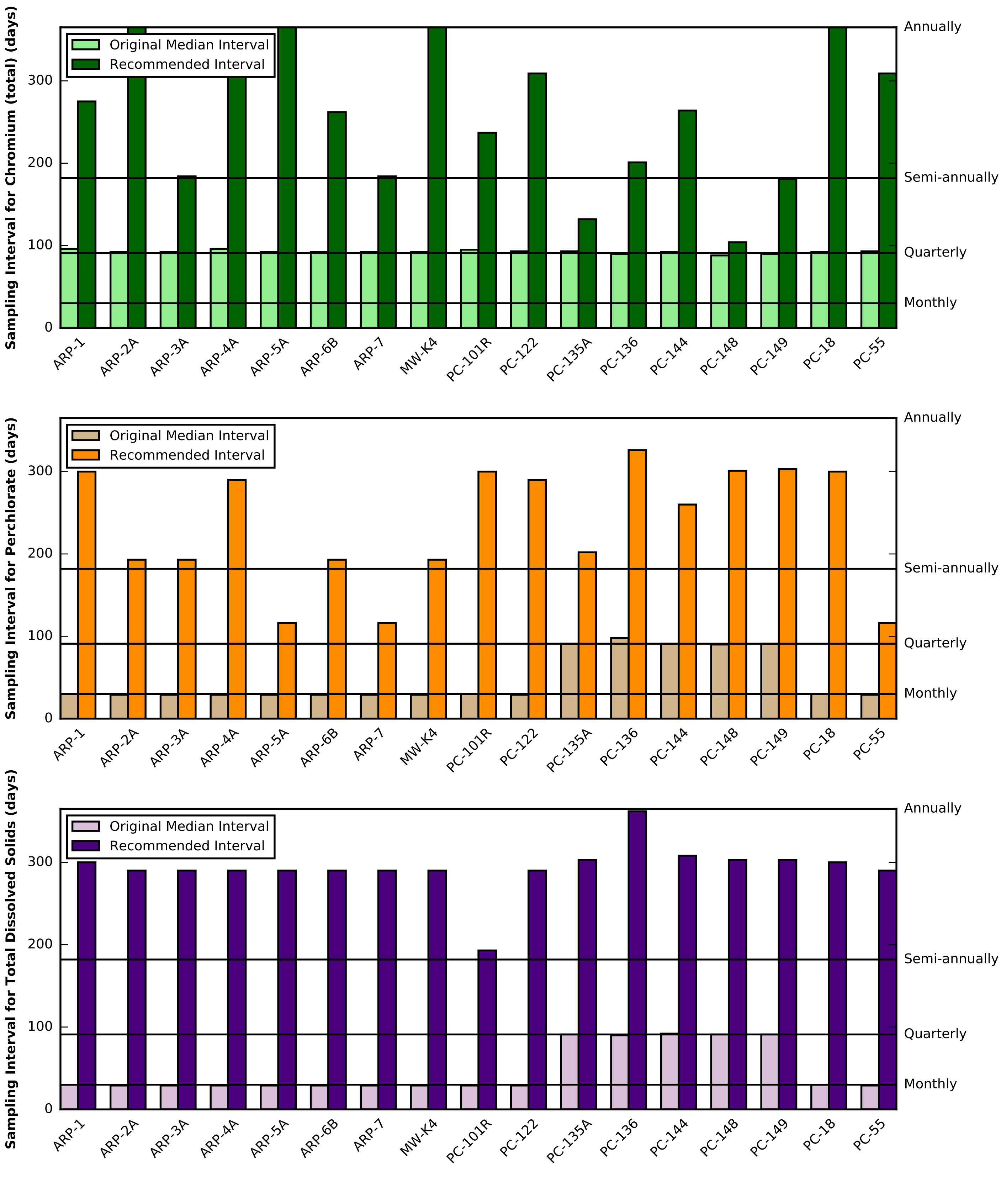

RAMBOLL ENVIRON

Iterative Thinning Results Near ARP Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4d

Drafter: ERG Date: 04/28/2016 Contract Number: 21-38800A Approved: Revised:

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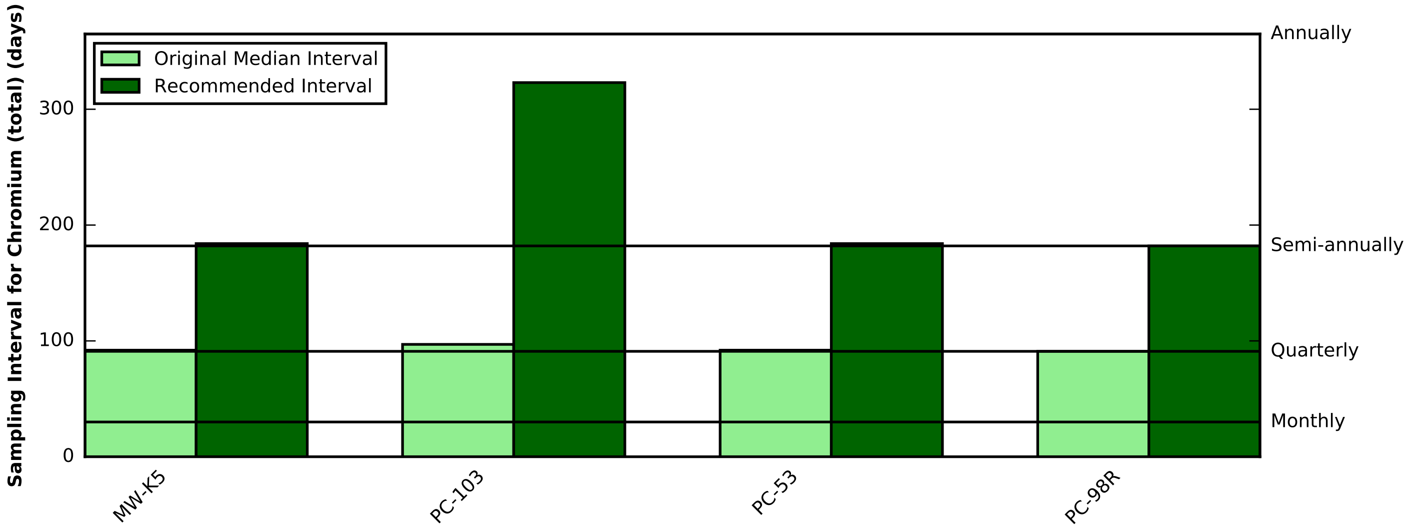

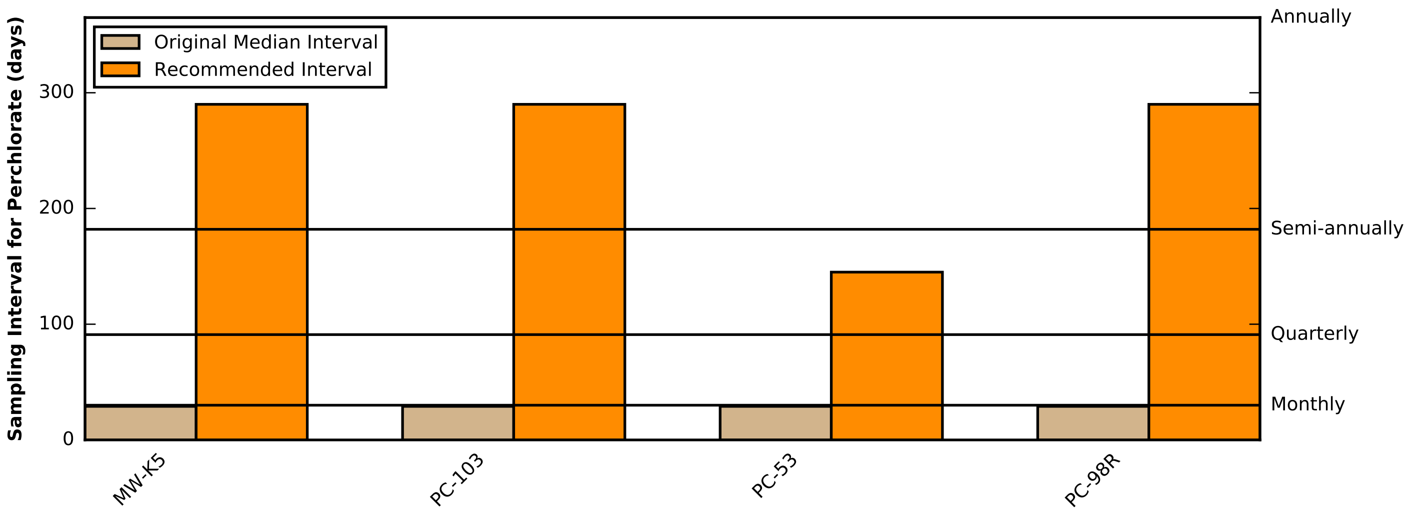

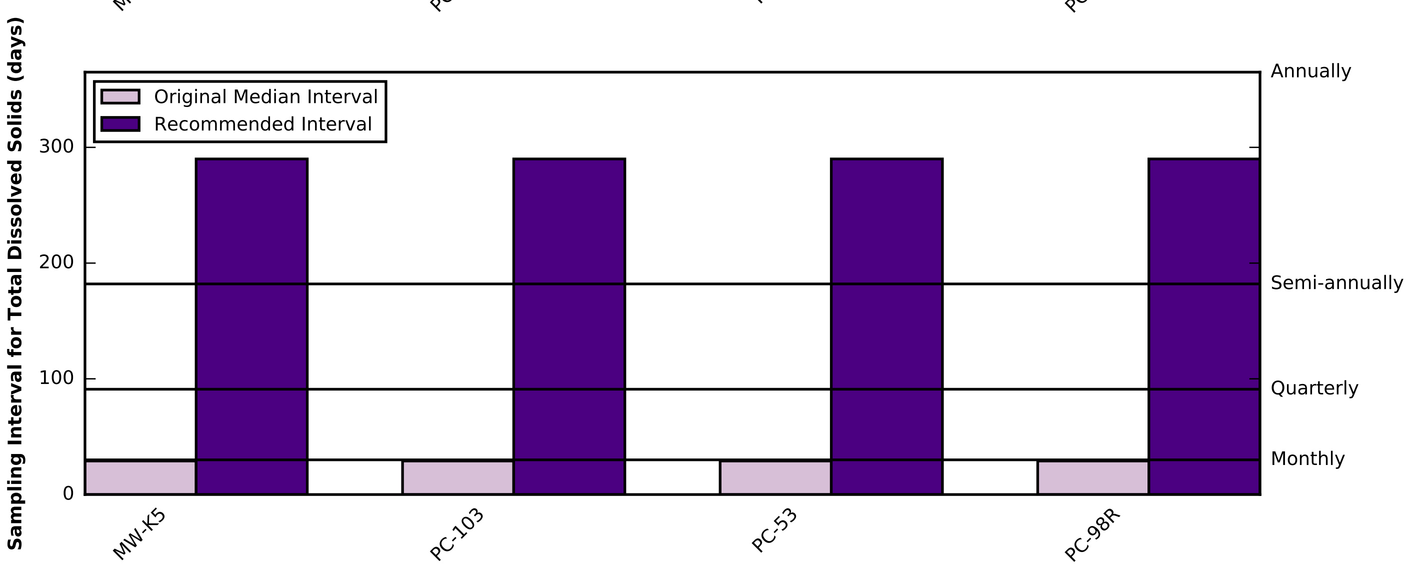

RAMBOLL ENVIRON

Iterative Thinning Results Near COH WRF Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **4e**

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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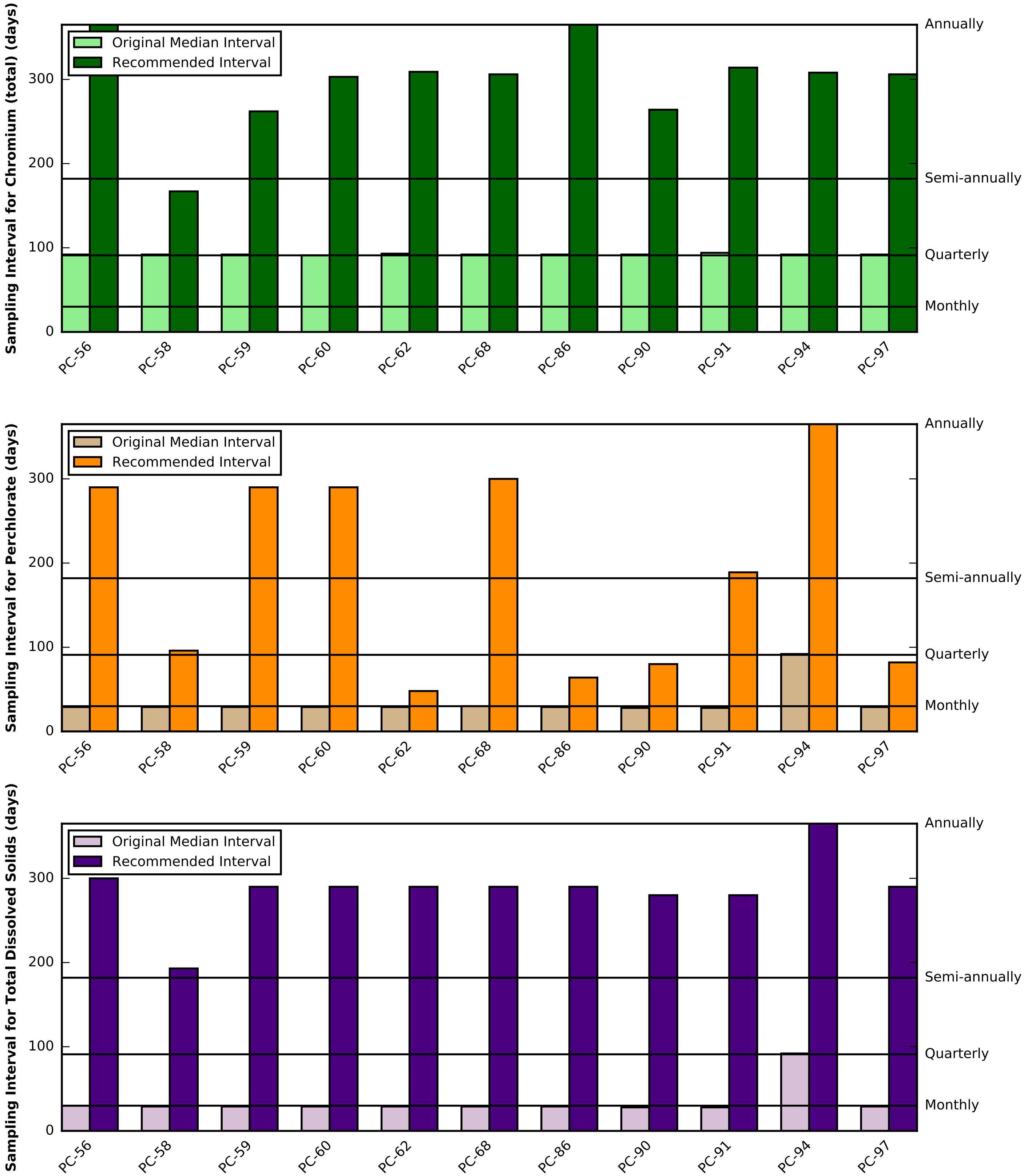

RAMBOLL ENVIRON

Iterative Thinning Results Near Seep Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **4f**

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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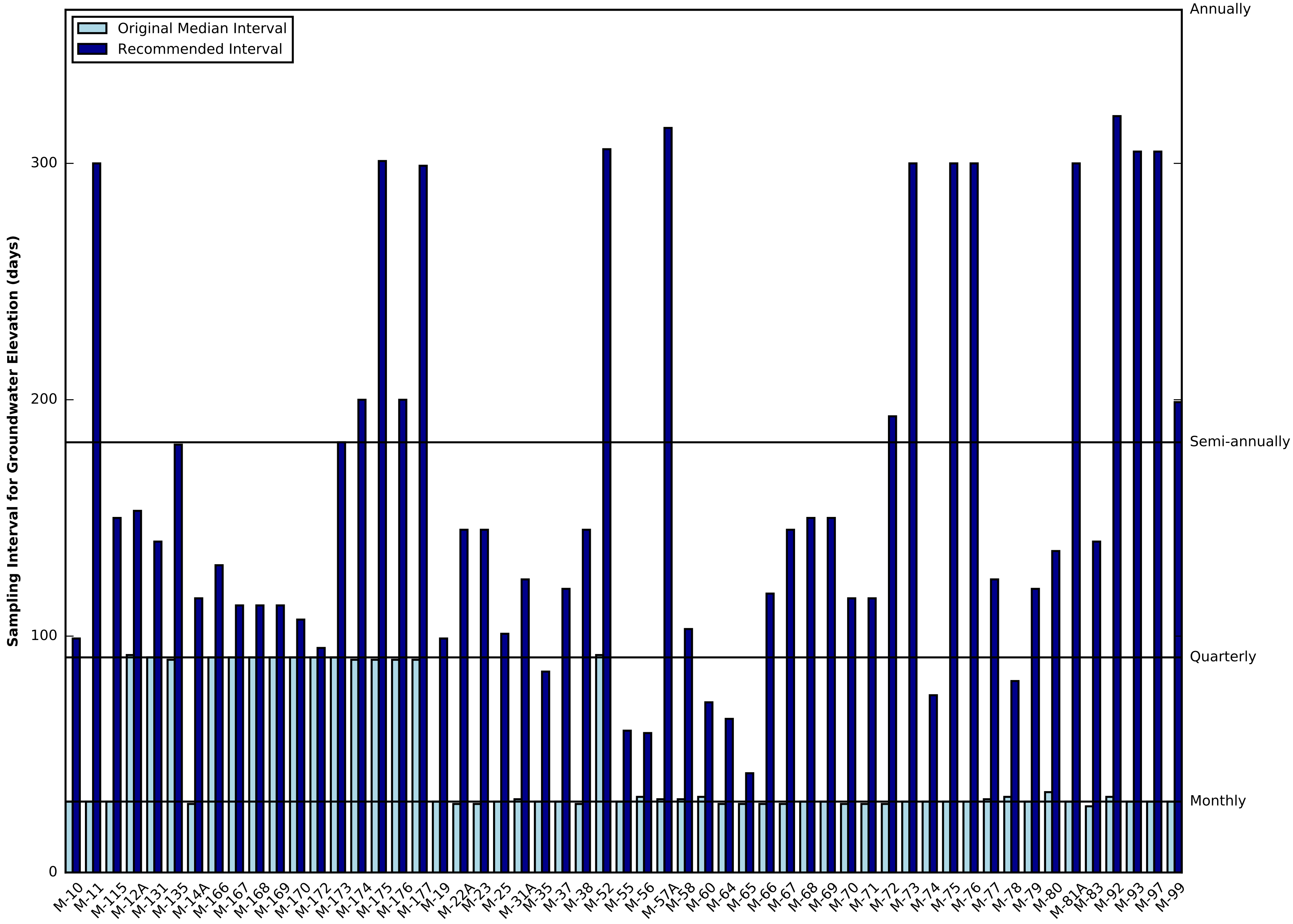

RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results On NERT Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

4g

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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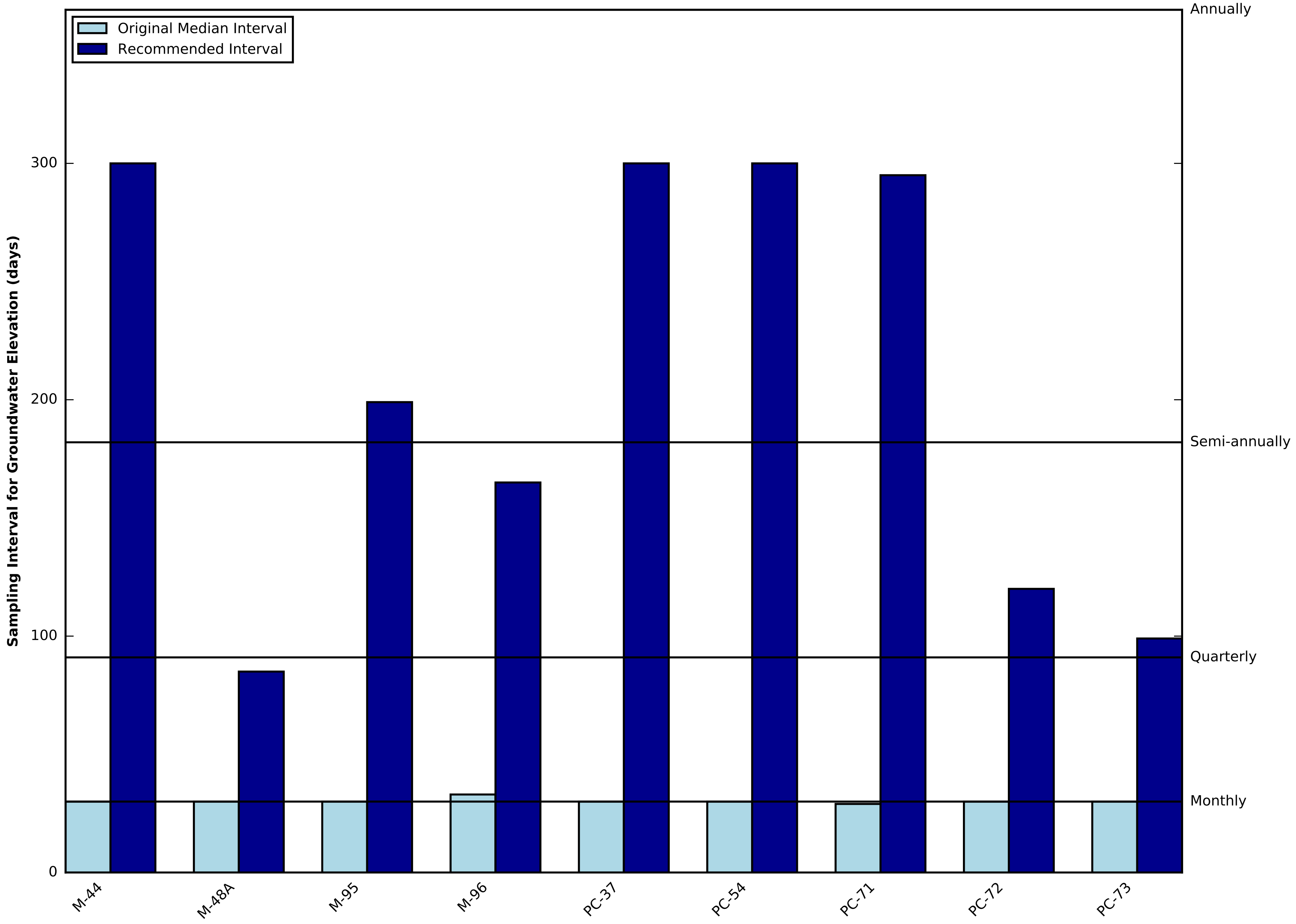

RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results from Boulder Hwy to NERT Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4h

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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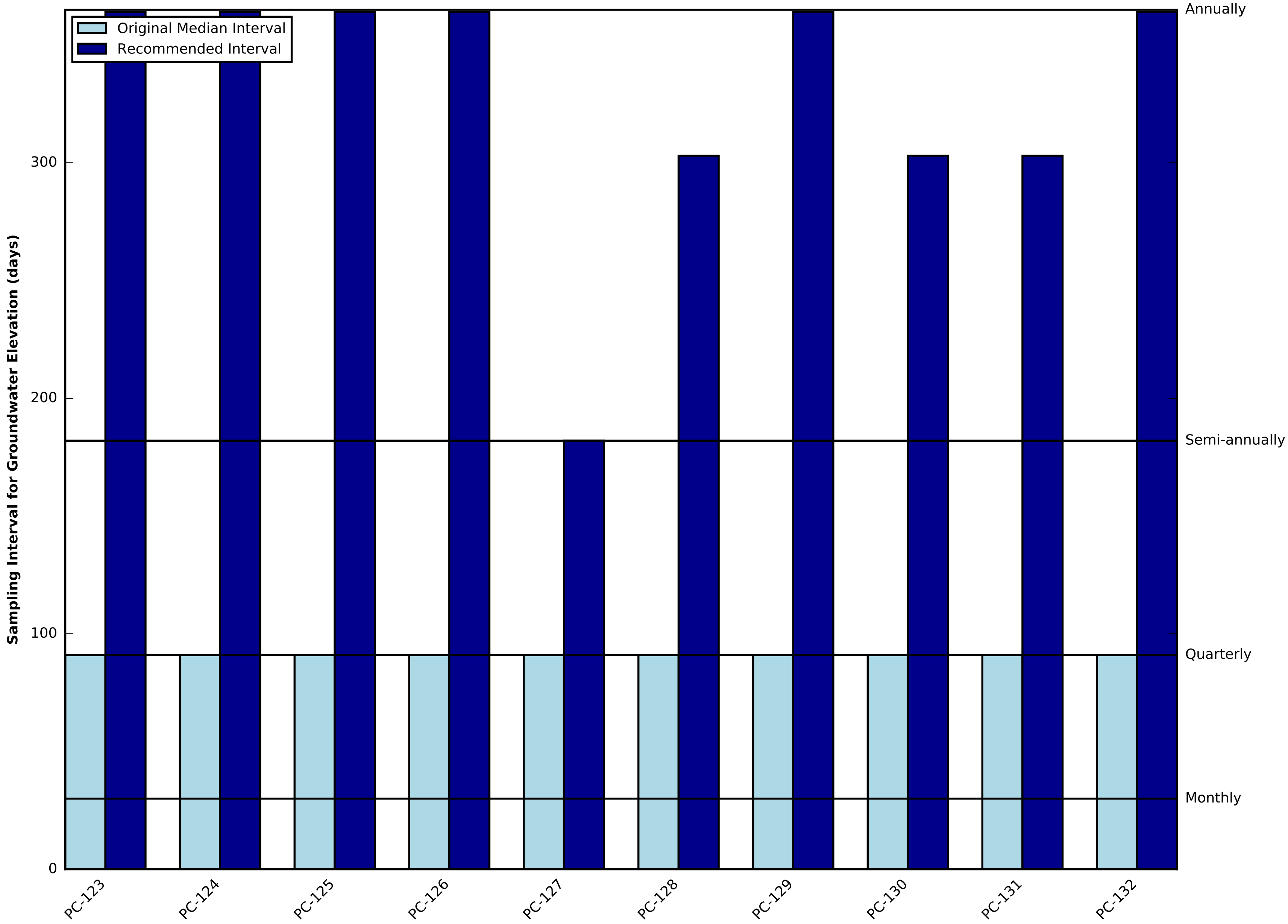

RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results Near Sunset Road
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4i

Drafter: ERG Date: 04/28/2016 Contract Number: 21-38800A Approved: Revised:

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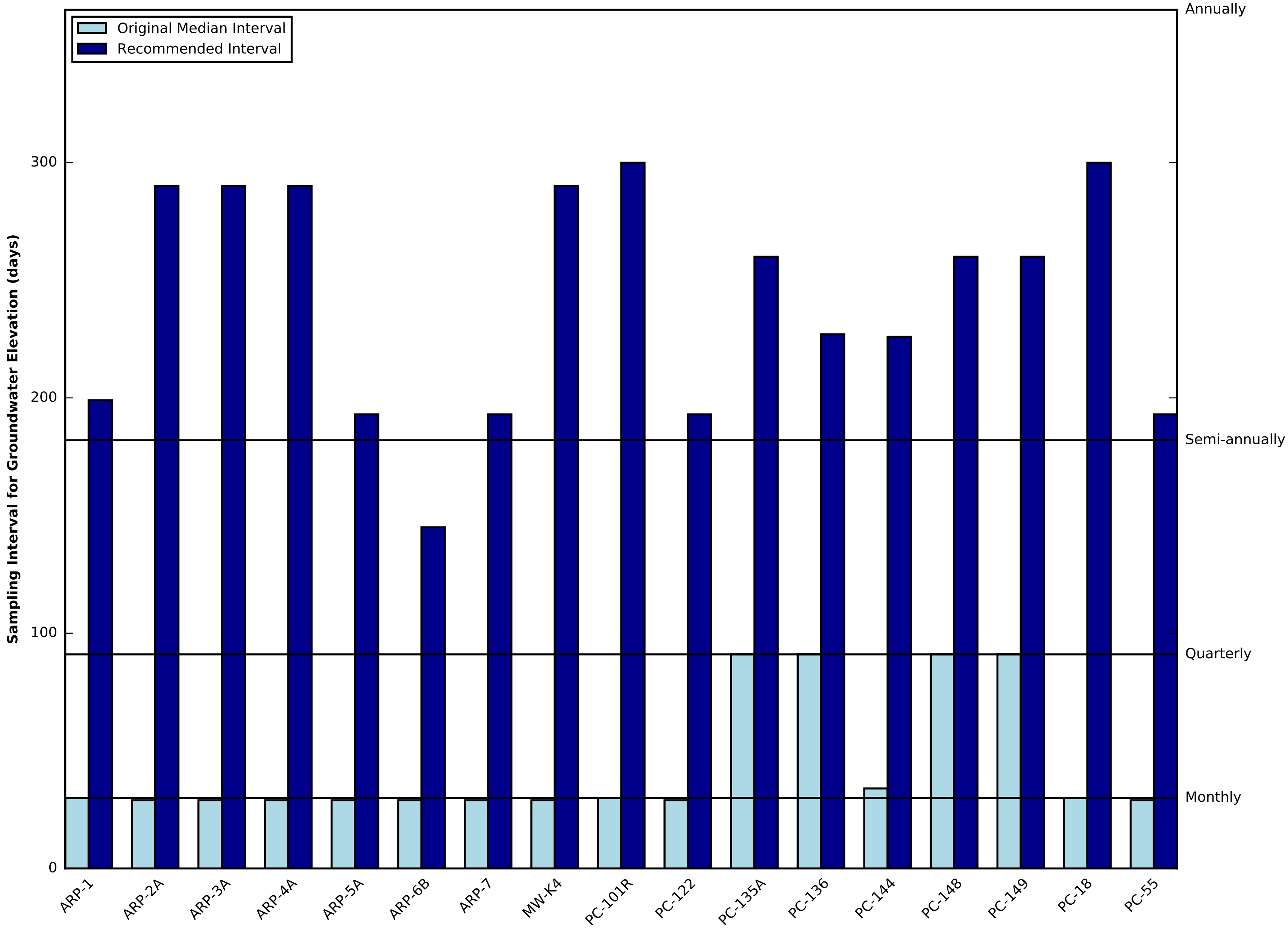

RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results Near ARP Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4j

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

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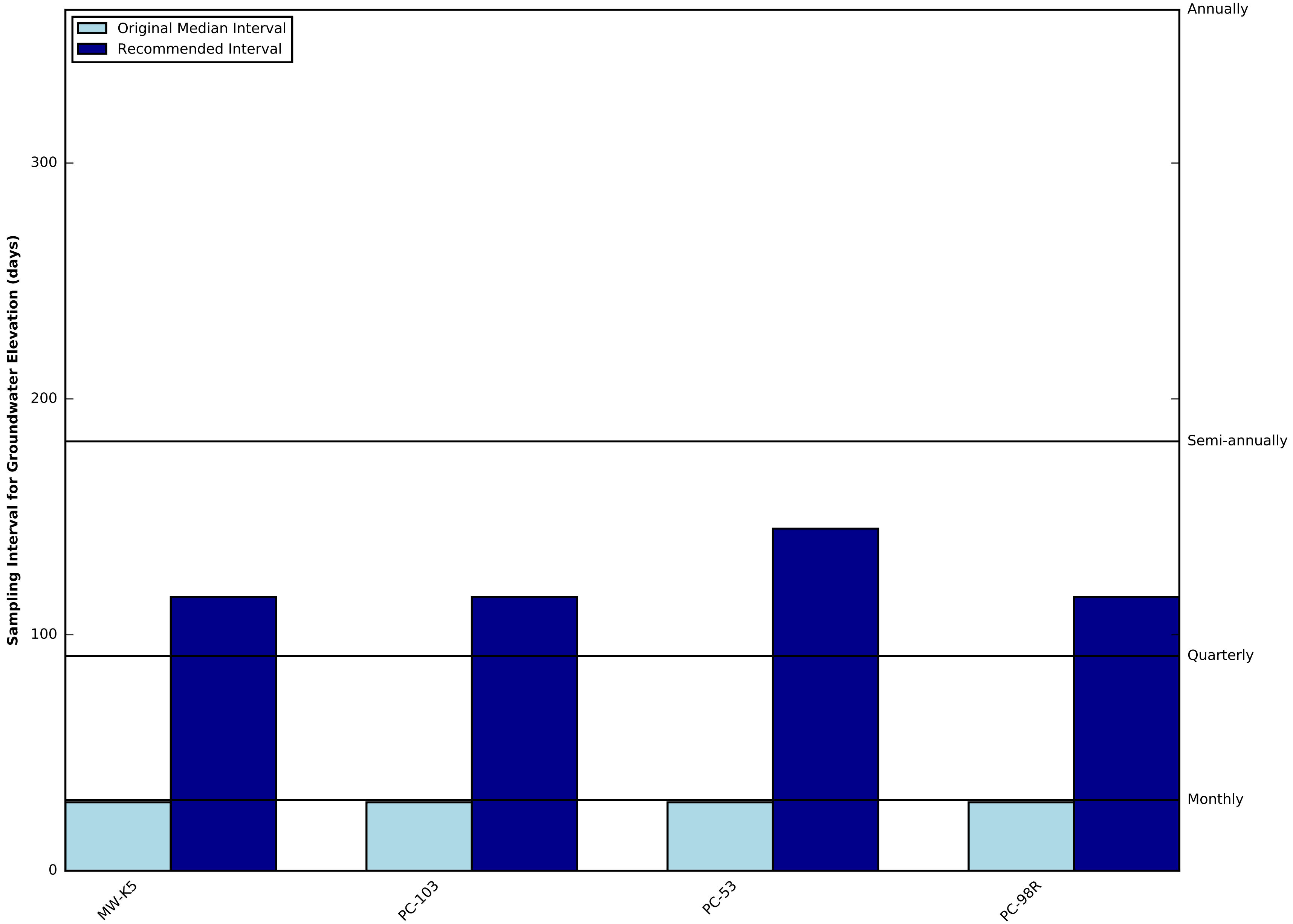


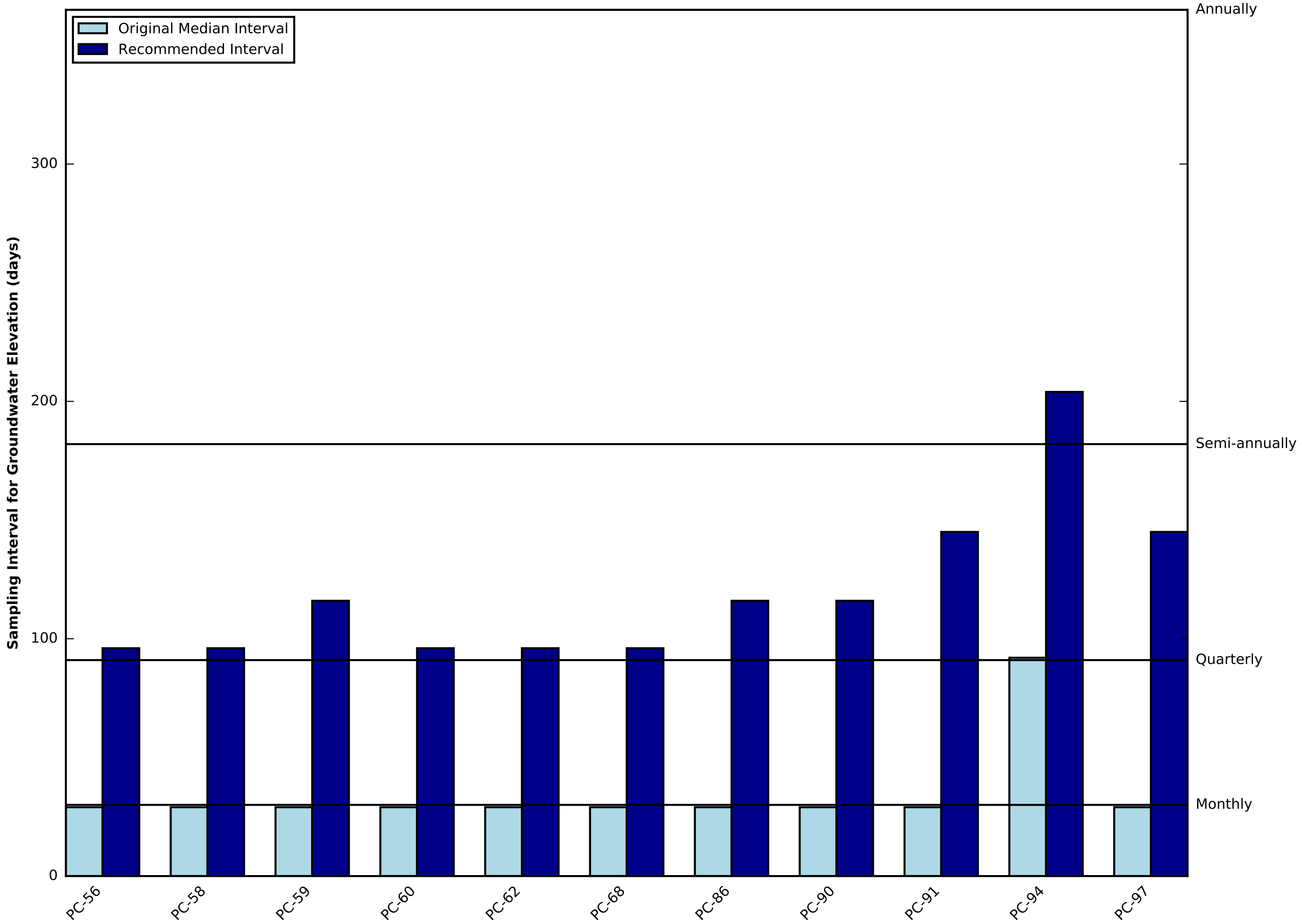
RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results Near COH WRF Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4k

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



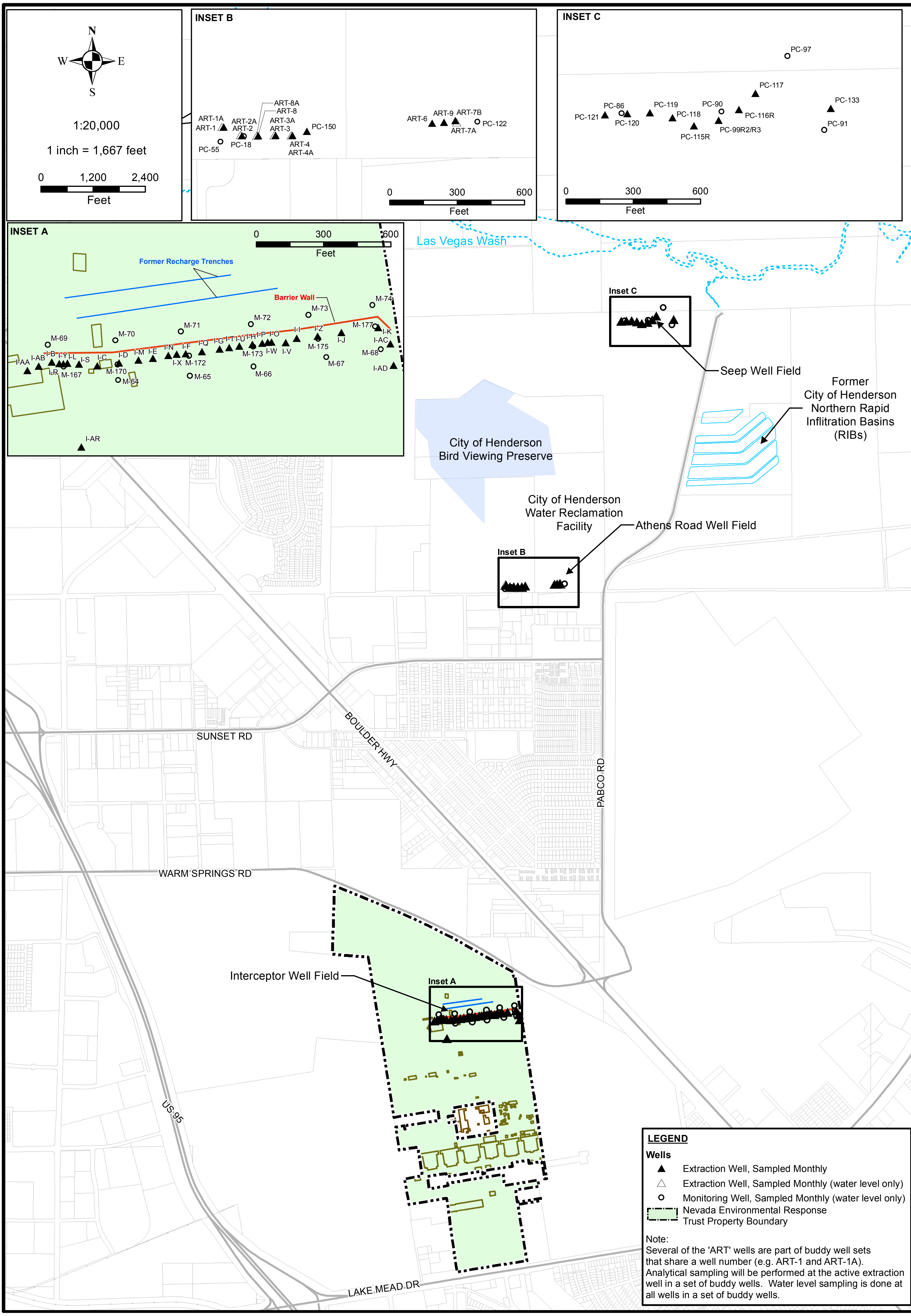
RAMBOLL ENVIRON

Groundwater Elevation Iterative Thinning Results Near Seep Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4l

Drafter: ERG | Date: 04/28/2016 | Contract Number: 21-38800A | Approved: | Revised:

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 5A Proposed Monitoring Program Monthly.mxd



RAMBOLL ENVIRON

DRAFTED BY: RS

DATE: 4/22/2016

PROPOSED MONITORING PROGRAM: MONTHLY SAMPLING EVENT

2016 Groundwater Monitoring Optimization Plan

Nevada Environmental Response Trust Site

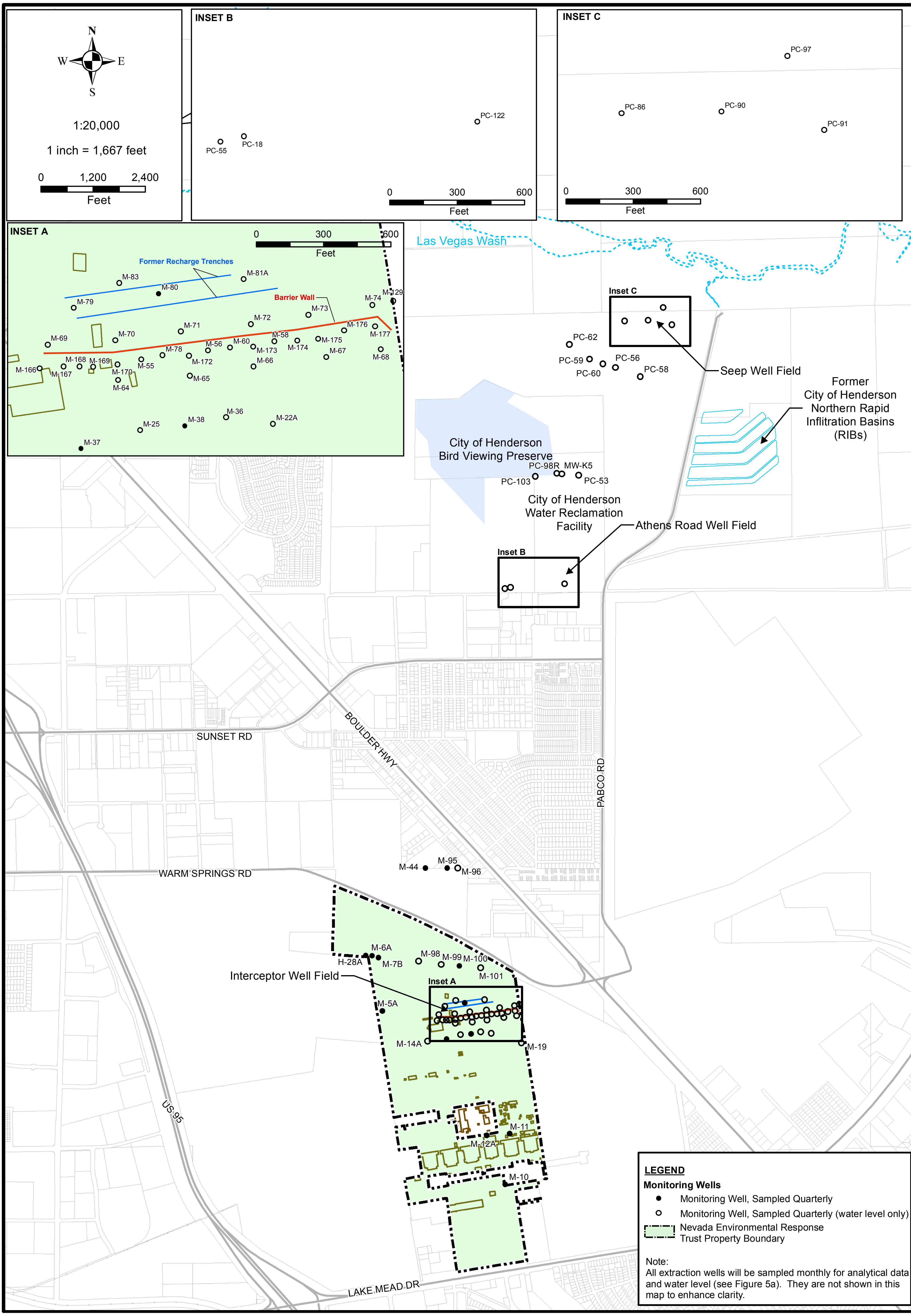
Henderson, Nevada

FIGURE

5a

21-38800A

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 5B Proposed Monitoring Program Quarterly.mxd



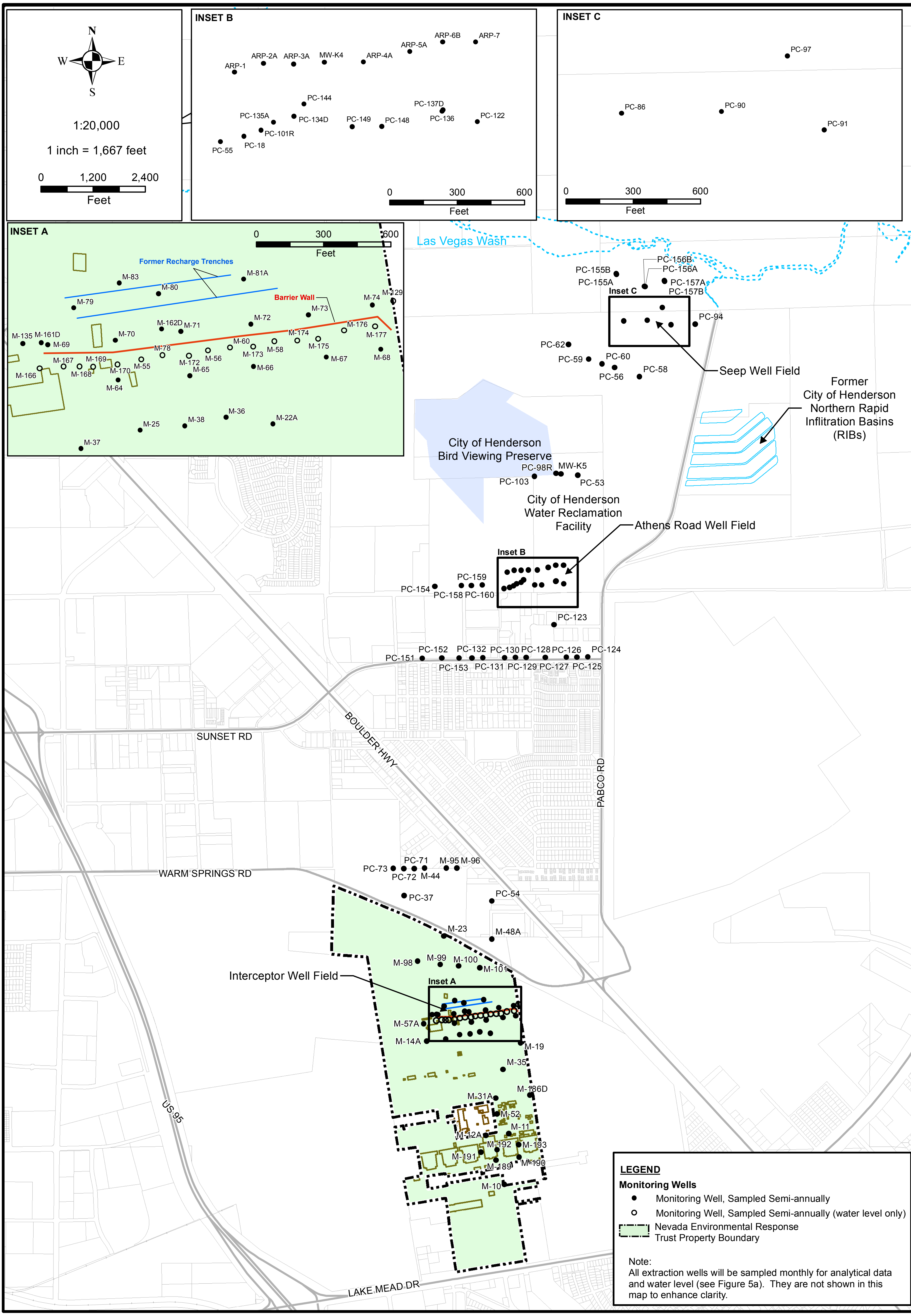
RAMBOLL ENVIRON

DRAFTED BY: RS | DATE: 4/21/2016

PROPOSED MONITORING PROGRAM: QUARTERLY SAMPLING EVENT
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE
5b
21-38800A

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 5C Proposed Monitoring Program Semiannually.mxd



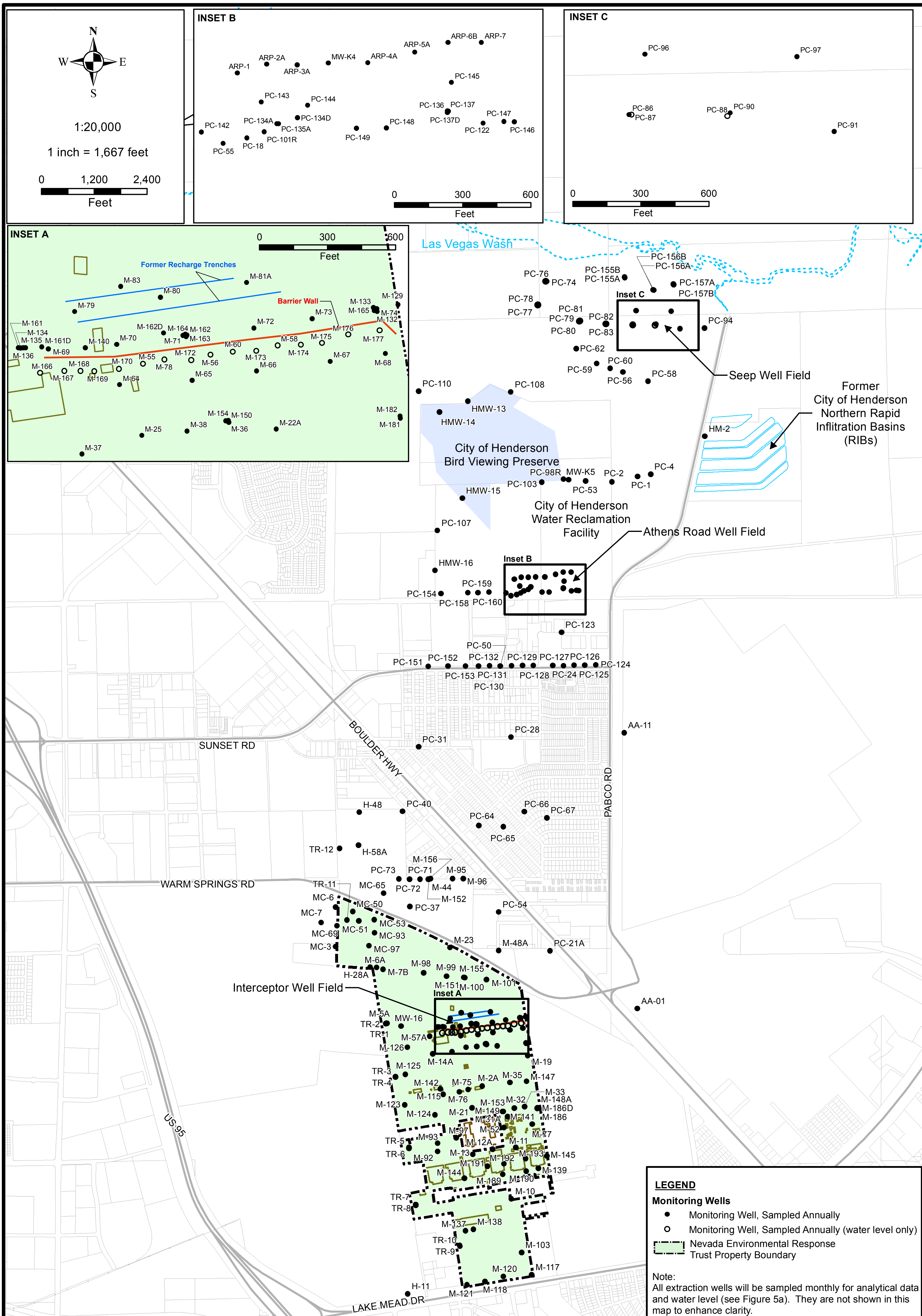
RAMBOLL ENVIRON

DRAFTED BY: RS | DATE: 4/21/2016

PROPOSED MONITORING PROGRAM: SEMI-ANNUAL SAMPLING EVENT
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE
5c
21-38800A

H:\LePetomane\NERT\GWM\Monitoring Optimization\Figures\Figure 5D Proposed Monitoring Program Annually.mxd



RAMBOLL ENVIRON	**PROPOSED MONITORING PROGRAM: ANNUAL SAMPLING EVENT** **2016 Groundwater Monitoring Optimization Plan** Nevada Environmental Response Trust Site Henderson, Nevada	FIGURE **5d**
DRAFTED BY: RS / DATE: 4/21/2016		21-38800A

APPENDIX A

SPATIAL REDUNDANCY ANALYSIS SUPPORTING INFORMATION (AVAILABLE ELECTRONICALLY ON CD)

APPENDIX A: SPATIAL REDUNDANCY ANALYSIS SUPPORTING INFORMATION

Appendix A contains:

1. A screenshot from ArcGIS Geostatistical Analyst of an optimized semivariogram for on/near-Site data (page *i*); and

2. Comparison plots of all wells within each of the 57 clusters generated by the hierarchical clustering analysis (Figures A-1a through A-57d). Each cluster has four comparison plots demonstrating 2011-2015 trends in (a) groundwater elevations, (b) perchlorate concentrations, (c) total chromium concentrations, and (d) total dissolved solids (TDS) concentrations for all wells in the cluster. In addition to groundwater elevation and concentration data, each comparison plot also displays screen elevations and Upper Muddy Creek formation (UMCf) contact elevations for all wells within the cluster.

The optimized semivariogram was used to determine the range of spatial correlation near the Site, as described in Section 3.3.1 of the report text. The data used to generate the semivariogram in ArcGIS Geostiatistical Analyst included second quarter 2015 perchlorate data from shallow monitoring wells on and near the Site. As the screenshot illustrates, the minor range of this optimized anisotropic semivariogram is 300 feet. The minor range represents a conservative estimate of spatial correlation near the Site. Consequently, 300 feet was selected as the maximum well separation distance in the hierarchical clustering analysis.

The comparison plots were used to support qualitative evaluations of well clusters to determine whether any spatially-clustered wells were redundant and, if redundancy was present, to determine which redundant well to remove from the monitoring program. This process is described in Section 3.3.2 of the report text. For each well cluster, all four comparison plots were examined in the context of the 6 sequential criteria listed in Section 3.3.2 to determine whether any two wells within the cluster could be considered redundant. In particular, these plots were used to determine whether well pairs met the following criteria for redundancy:

- *Criteria 1: Paired wells have similar screen intervals (tops of screens are within 20 feet of each other or the screen interval for one well is within that of the other well).*

  Screen elevations are plotted on all comparison plots for each cluster.

- *Criterion 4: At least one of two paired wells has enough data to evaluate trends and levels of concentrations for each of the two primary analytes (perchlorate and total chromium).*

  Plots b and c of each cluster's 4-plot set show concentration data for perchlorate and total chromium, respectively. The number of data points plotted for each clustered well was considered.

- *Criterion 5: Paired wells have similar concentration trends and levels for each of the two primary analytes (perchlorate and total chromium). Similar concentration trends were defined as concentration ratios generally between 0.5 and 2.0 or generally low concentrations (perchlorate < 10 milligrams per liter [mg/L] and total chromium < 10 micrograms per liter [µg/L]).*

  Plots b and c of each cluster's 4-plot set show concentration data for perchlorate and total chromium, respectively. The trends and levels of perchlorate and total chromium were compared using these plots.

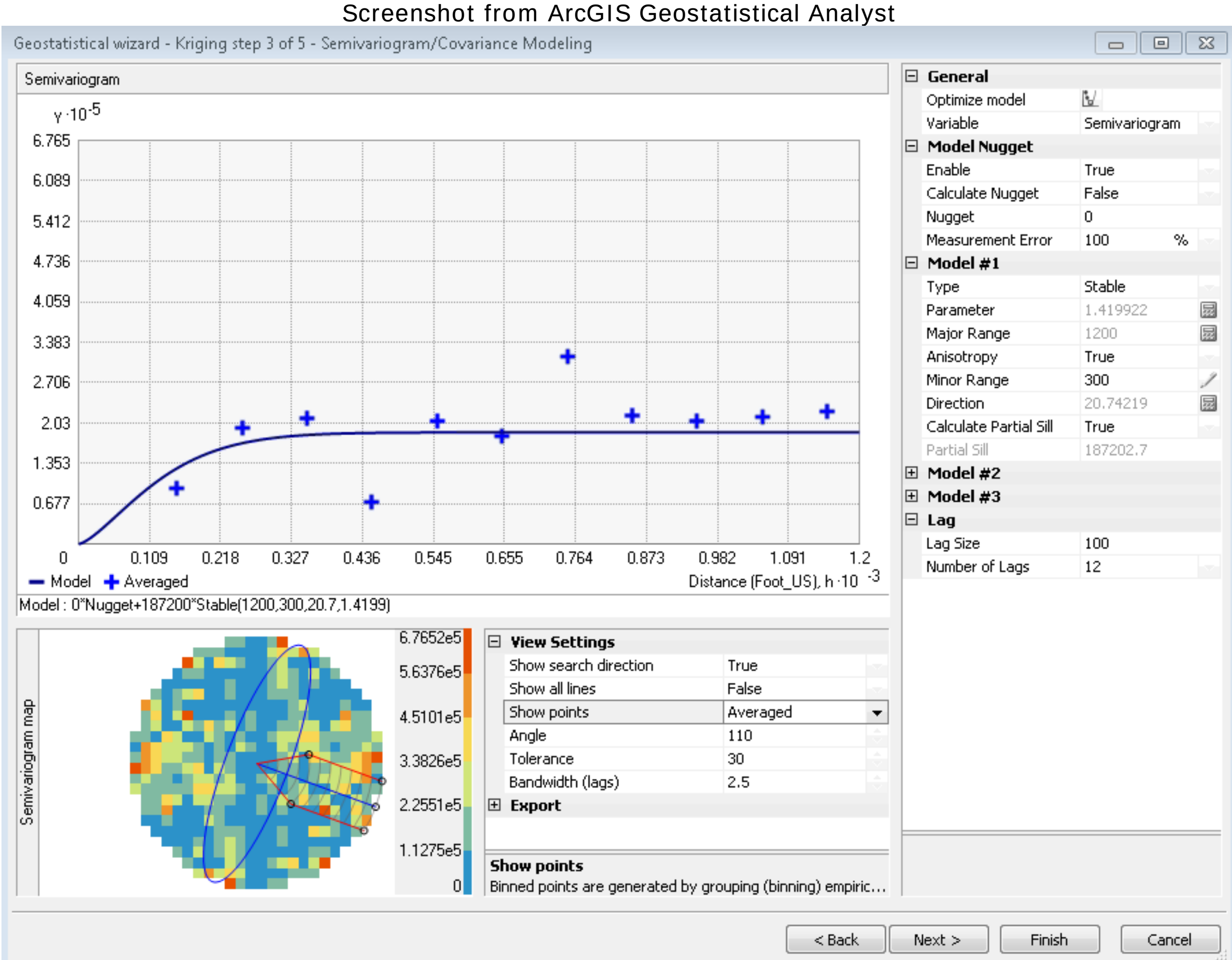
- *Criterion 6: Well pairs that satisfied Criteria 1-5 were evaluated against a series of factors to confirm possible pairings. The well characteristics that factored into these evaluations of well pairs included the contribution of each well to current plume maps, well locations relative to areas requiring additional focus, and permit/RCRA compliance.*

  Plots a and d of each cluster's 4-plot set show groundwater elevation and TDS concentration data, respectively. These plots were included in the final decisions regarding whether two clustered wells were similar enough to be considered a redundant pair.

Furthermore, when two wells within a cluster were determined to be redundant, the comparison plots were used to support decisions regarding which of the two wells would be removed from the monitoring program. Of the two paired wells, the well with a greater number of samples in 2011-2015 or with slightly higher perchlorate or total chromium concentrations in 2011-2015 was favored for retention in the monitoring program. Other factors that are not summarized in these Appendix A comparison plots were also used in the decisions regarding removal and retention of redundant wells. Table 2 summarizes the pairing of redundant wells and the removal decisions for redundant well pairs.

Optimized Semivariogram for On/Near-Site Second Quarter 2015 Perchlorate Data

Screenshot from ArcGIS Geostatistical Analyst



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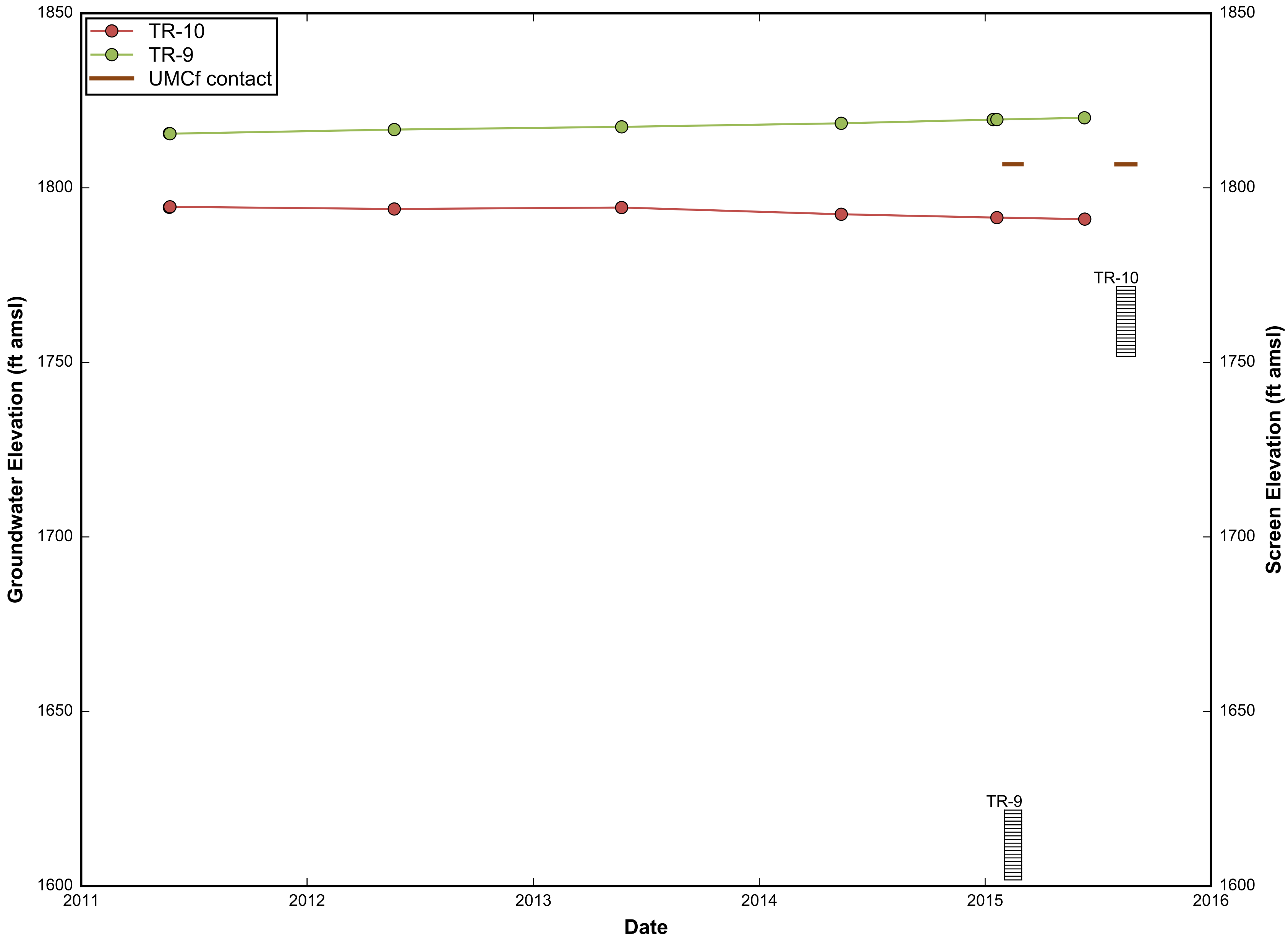


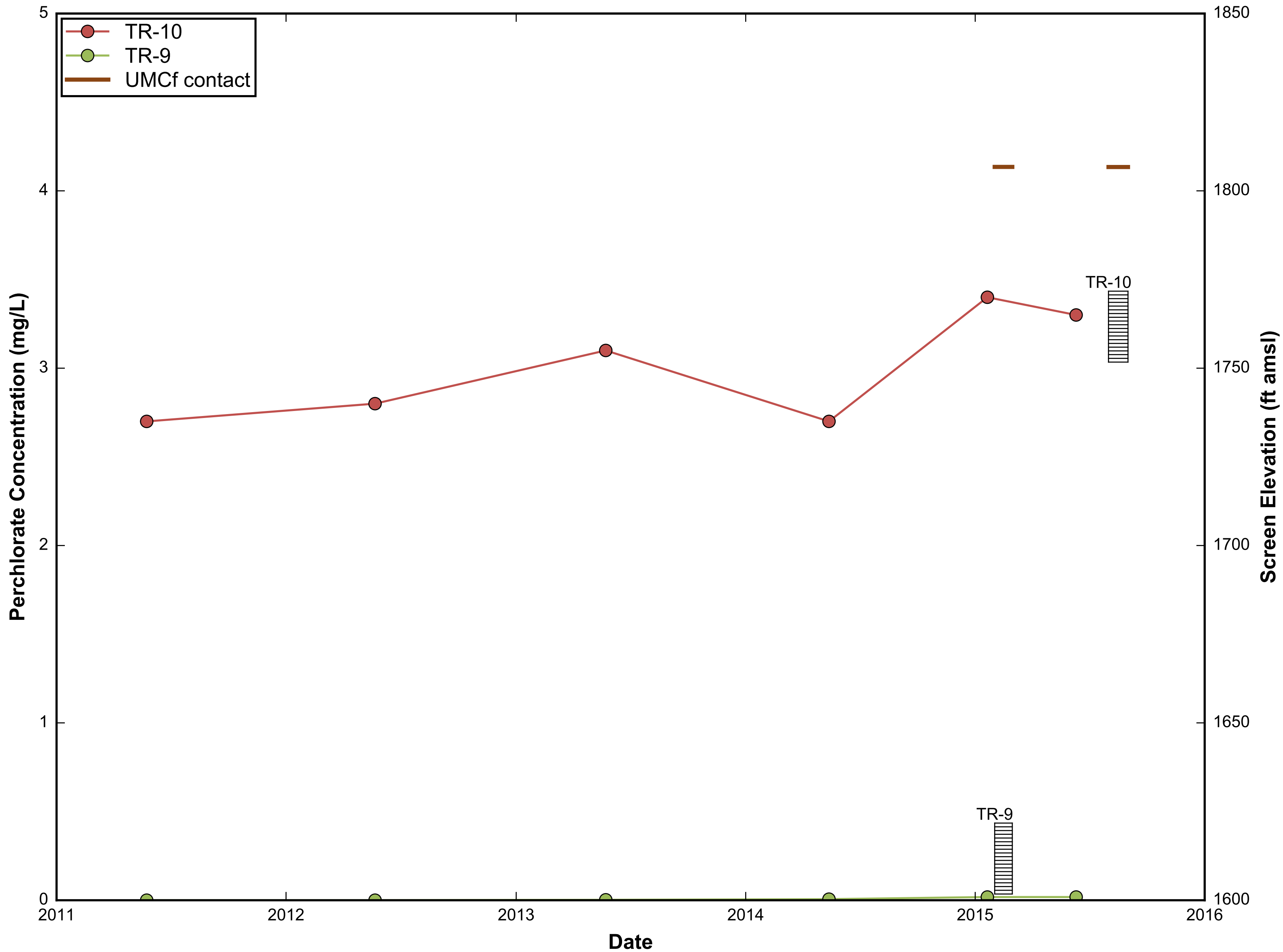
RAMBOLL ENVIRON

Cluster [TR-10,TR-9] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-1a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [TR-10,TR-9] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-1b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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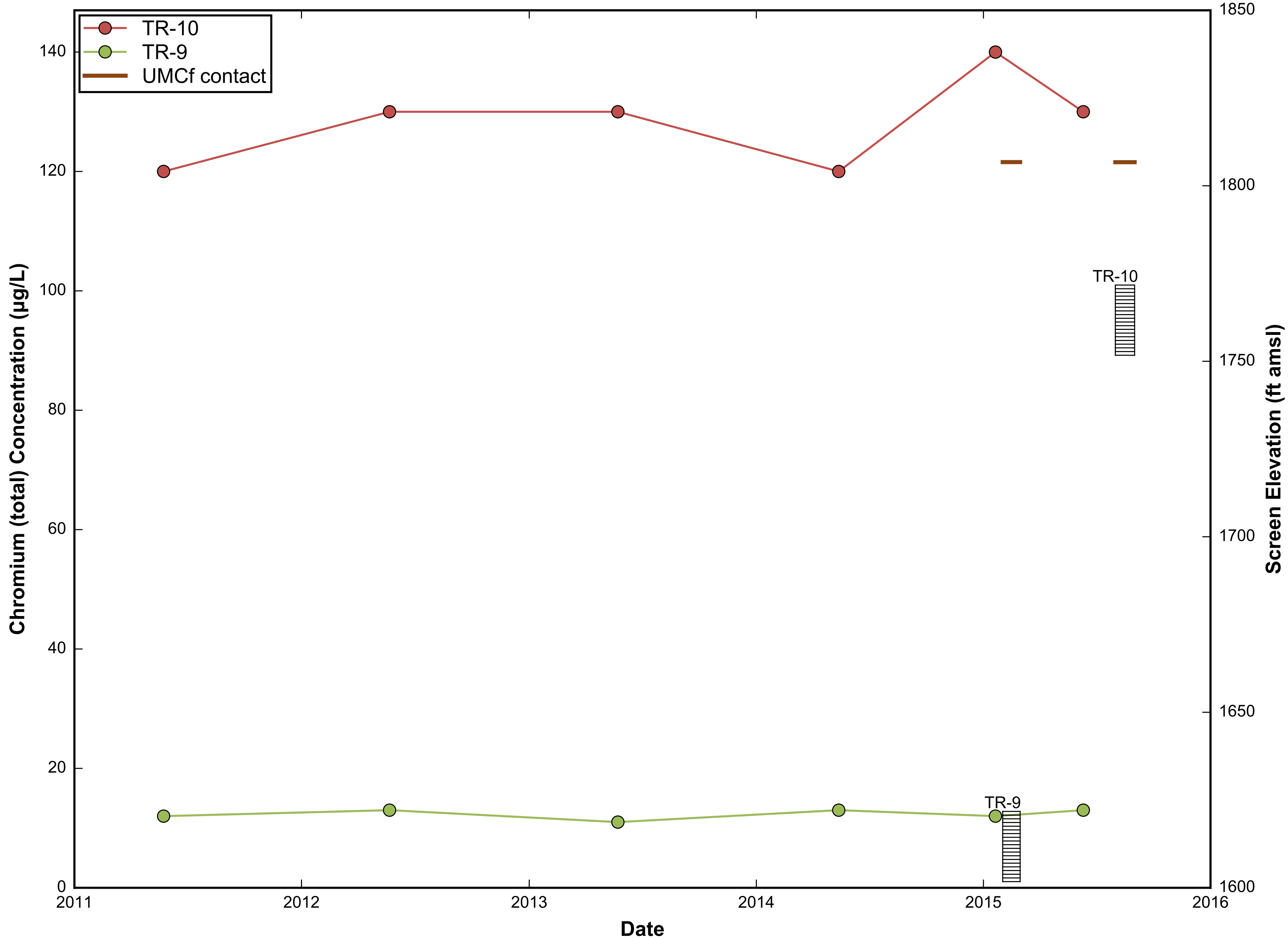


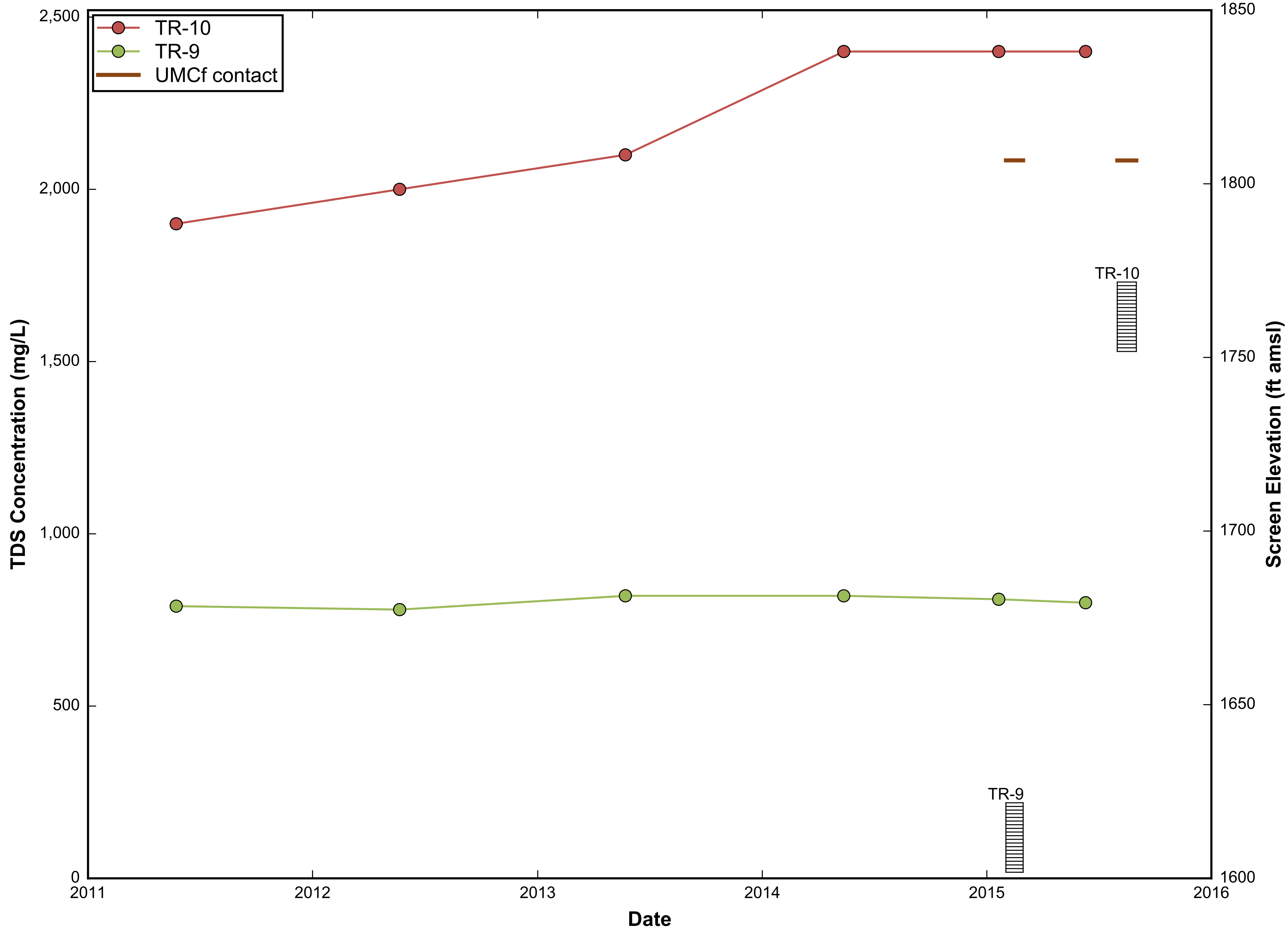
RAMBOLL ENVIRON

Cluster [TR-10,TR-9] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-1c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [TR-10,TR-9] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-1d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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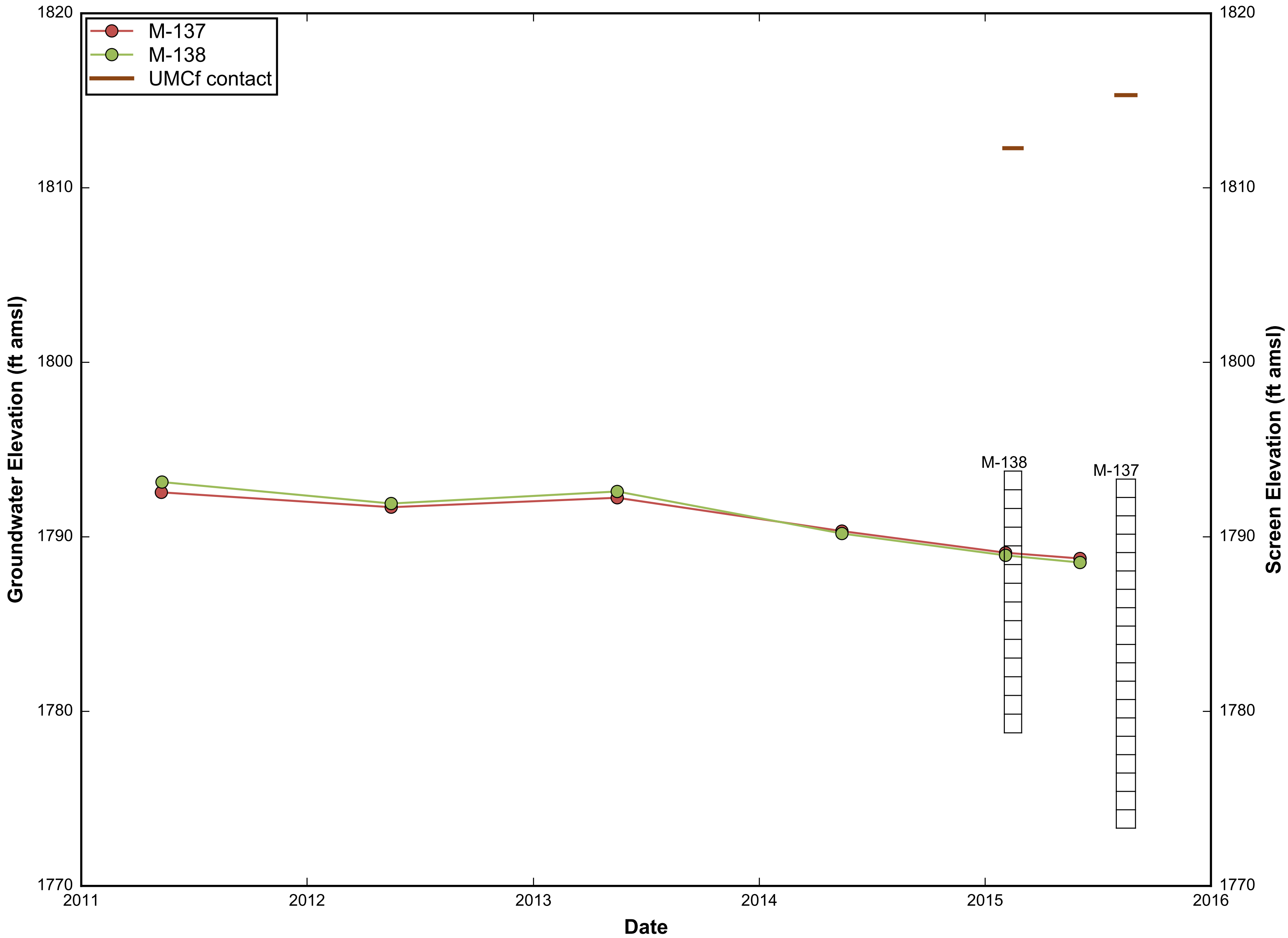

RAMBOLL ENVIRON

Cluster [M-137,M-138] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-2a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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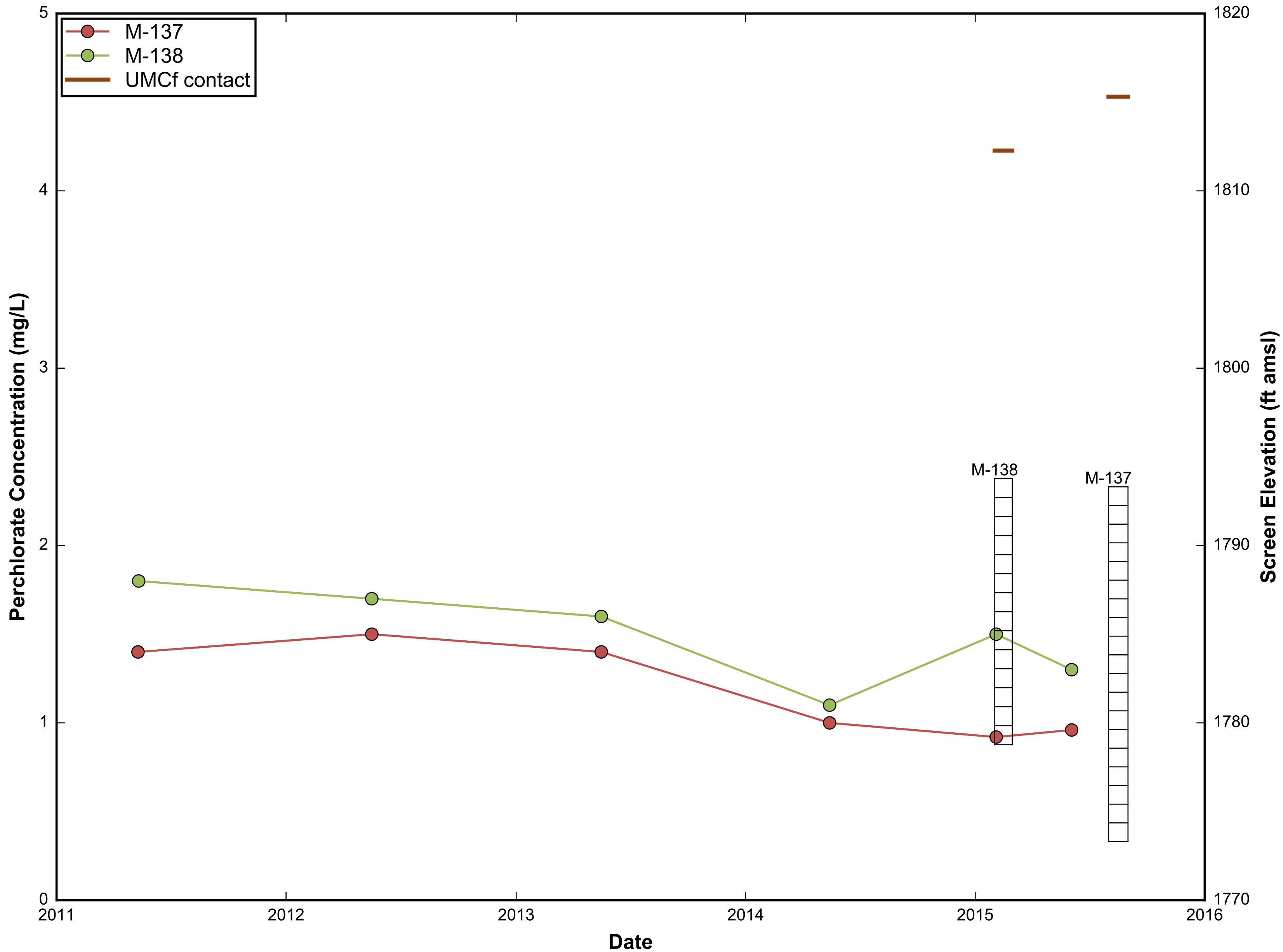


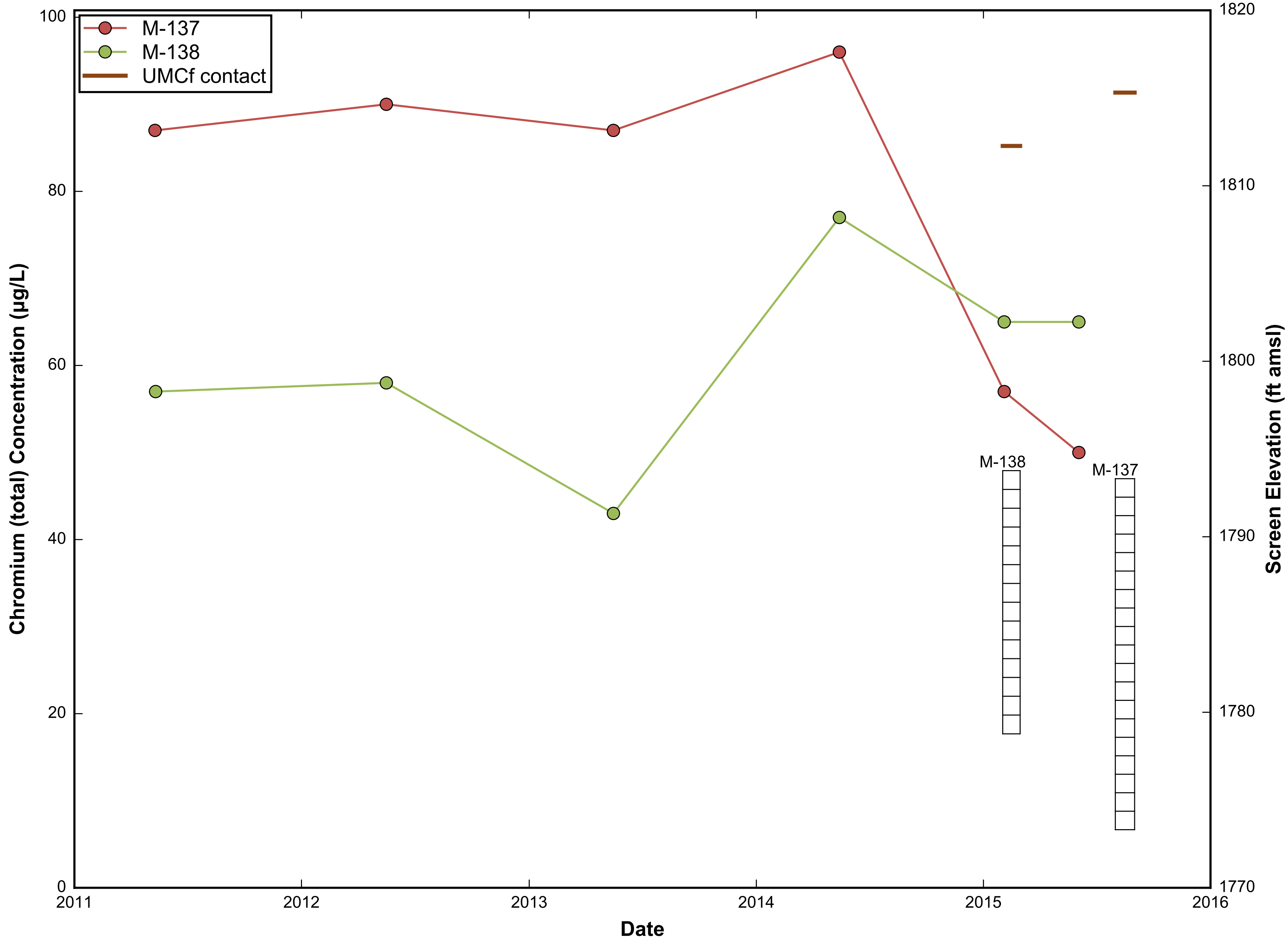
RAMBOLL ENVIRON

Cluster [M-137,M-138] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-2b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

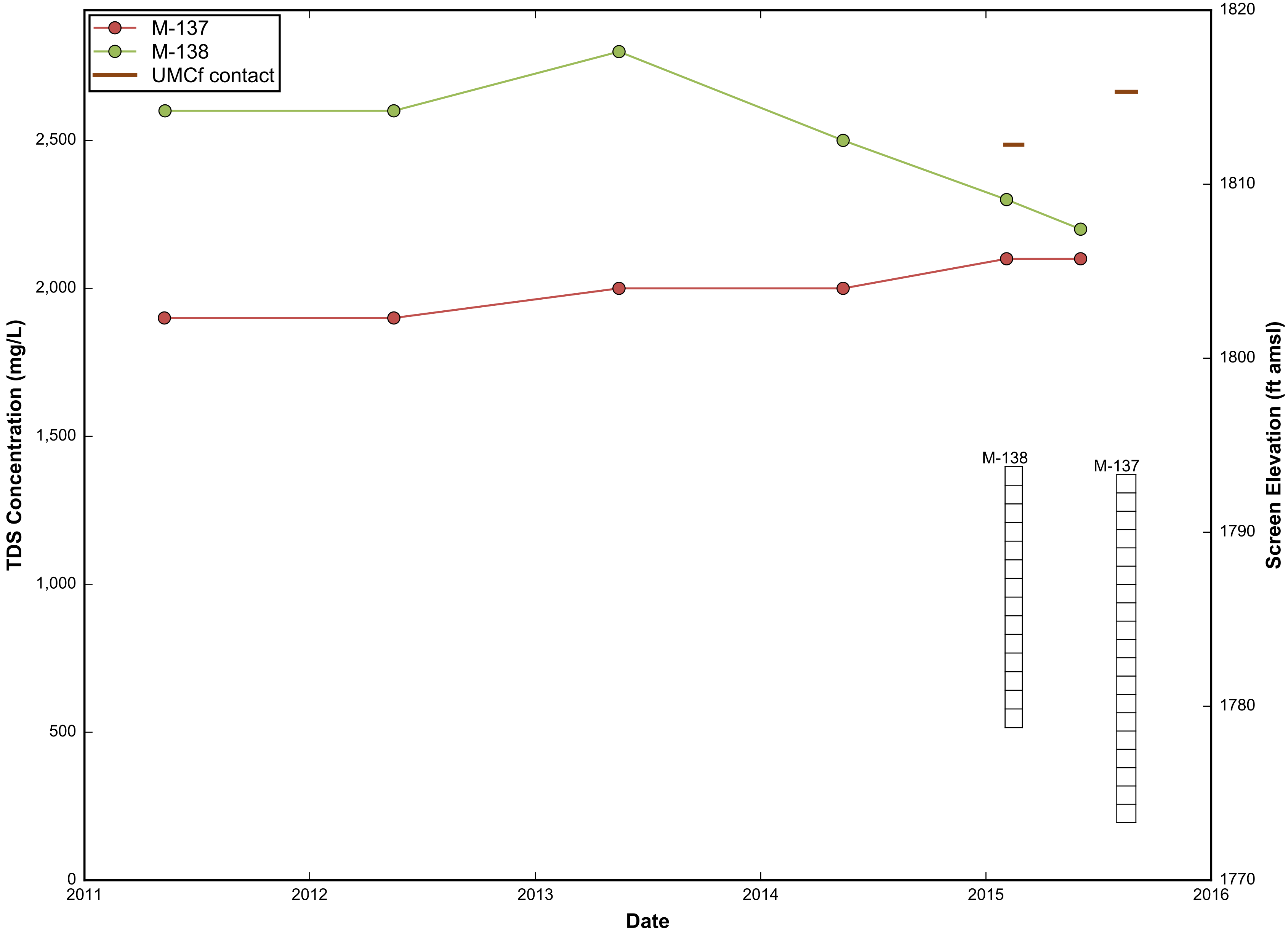


RAMBOLL ENVIRON

Cluster [M-137,M-138] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-2c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:



RAMBOLL ENVIRON

Cluster [M-137,M-138] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-2d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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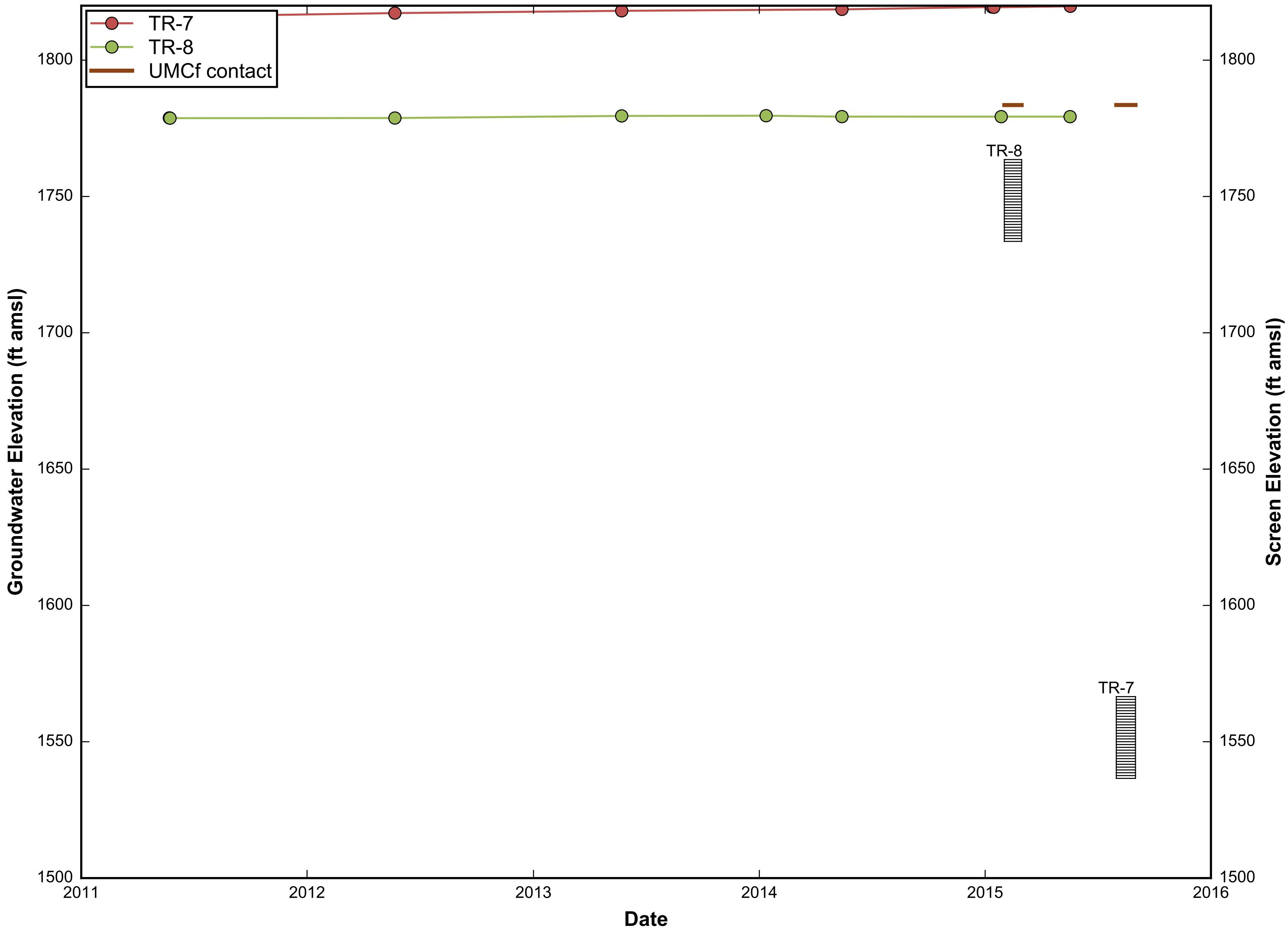

RAMBOLL ENVIRON

Cluster [TR-7,TR-8] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-3a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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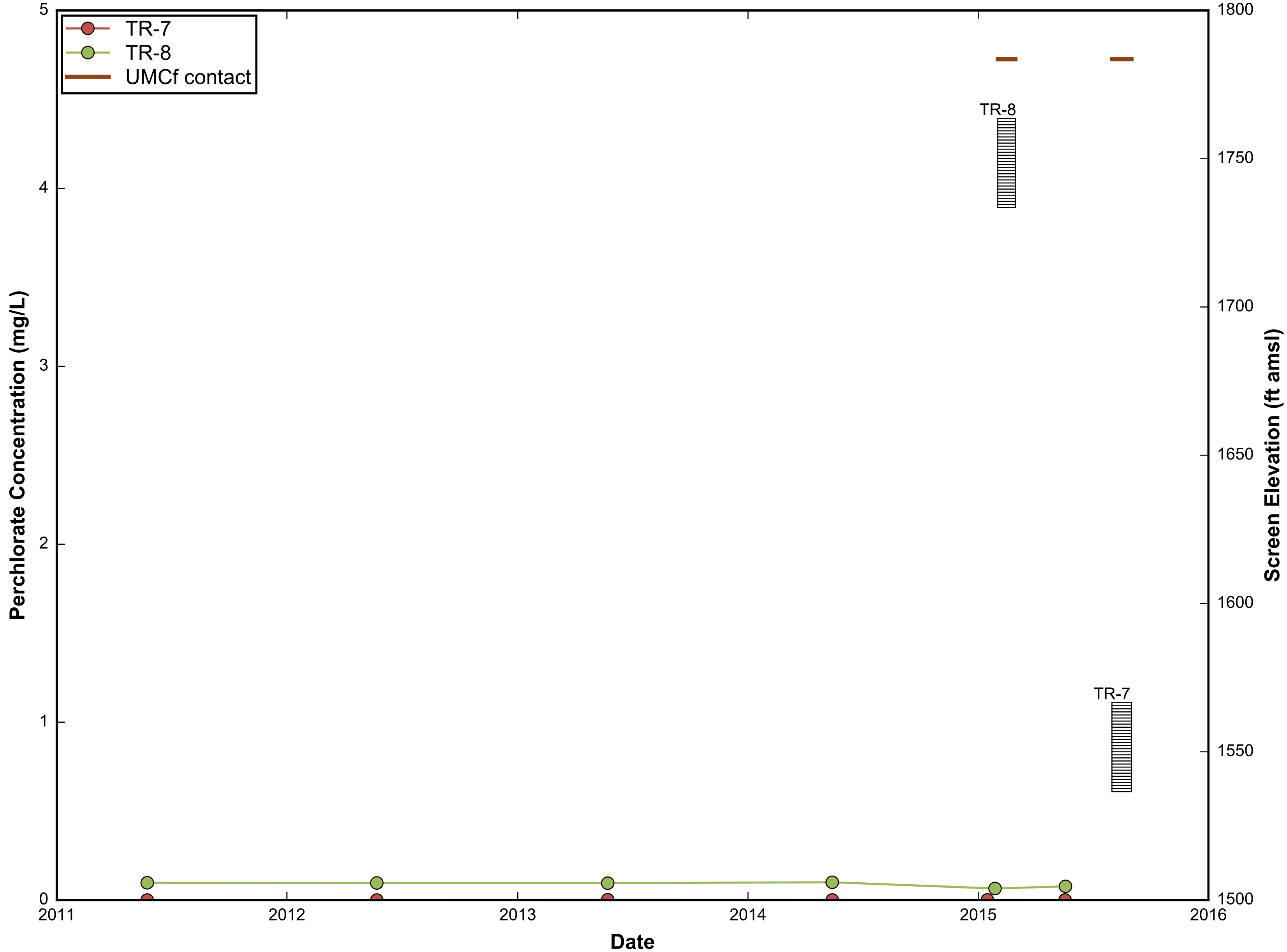

RAMBOLL ENVIRON

Cluster [TR-7,TR-8] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-3b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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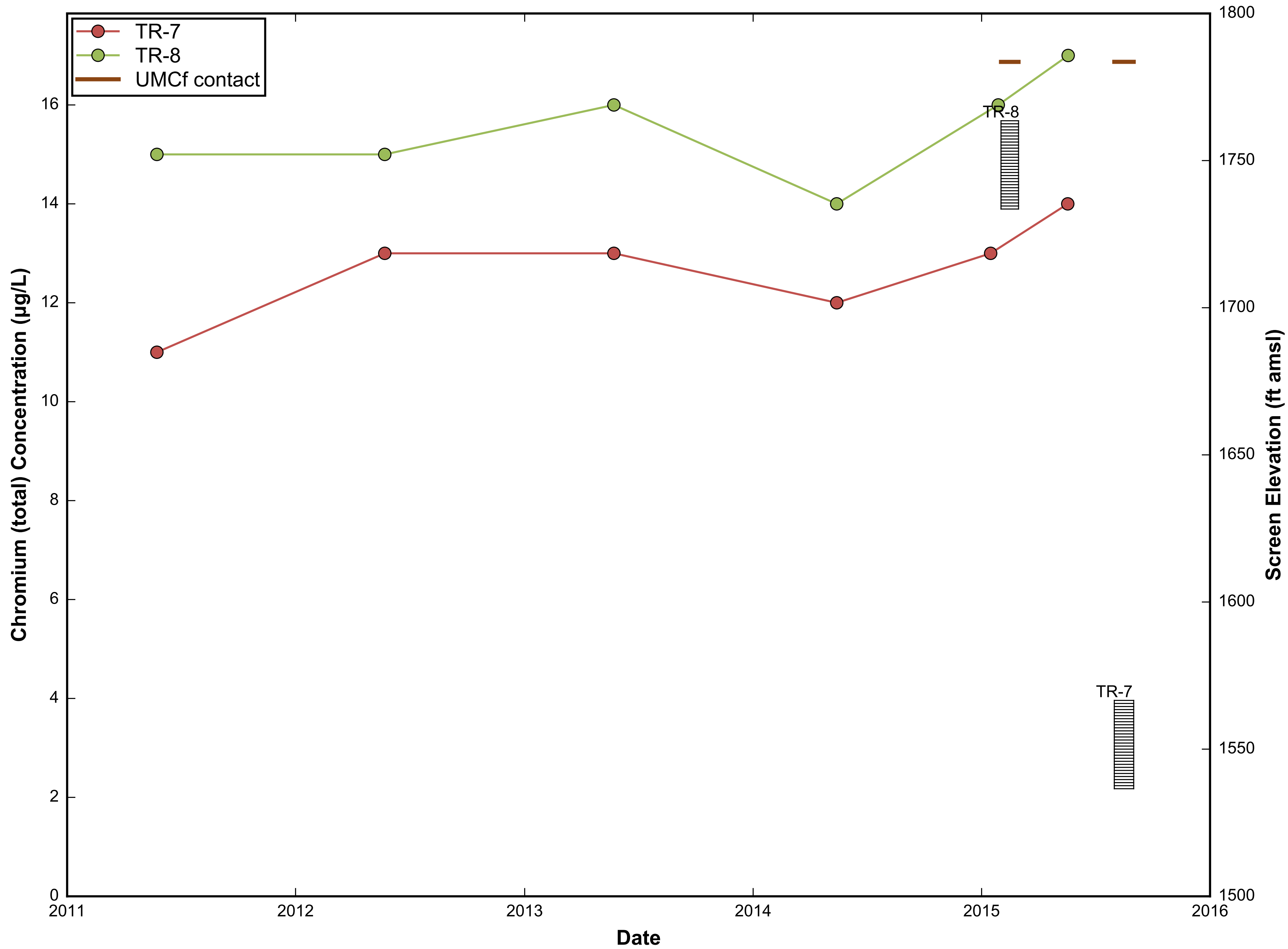

RAMBOLL ENVIRON

Cluster [TR-7,TR-8] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-3c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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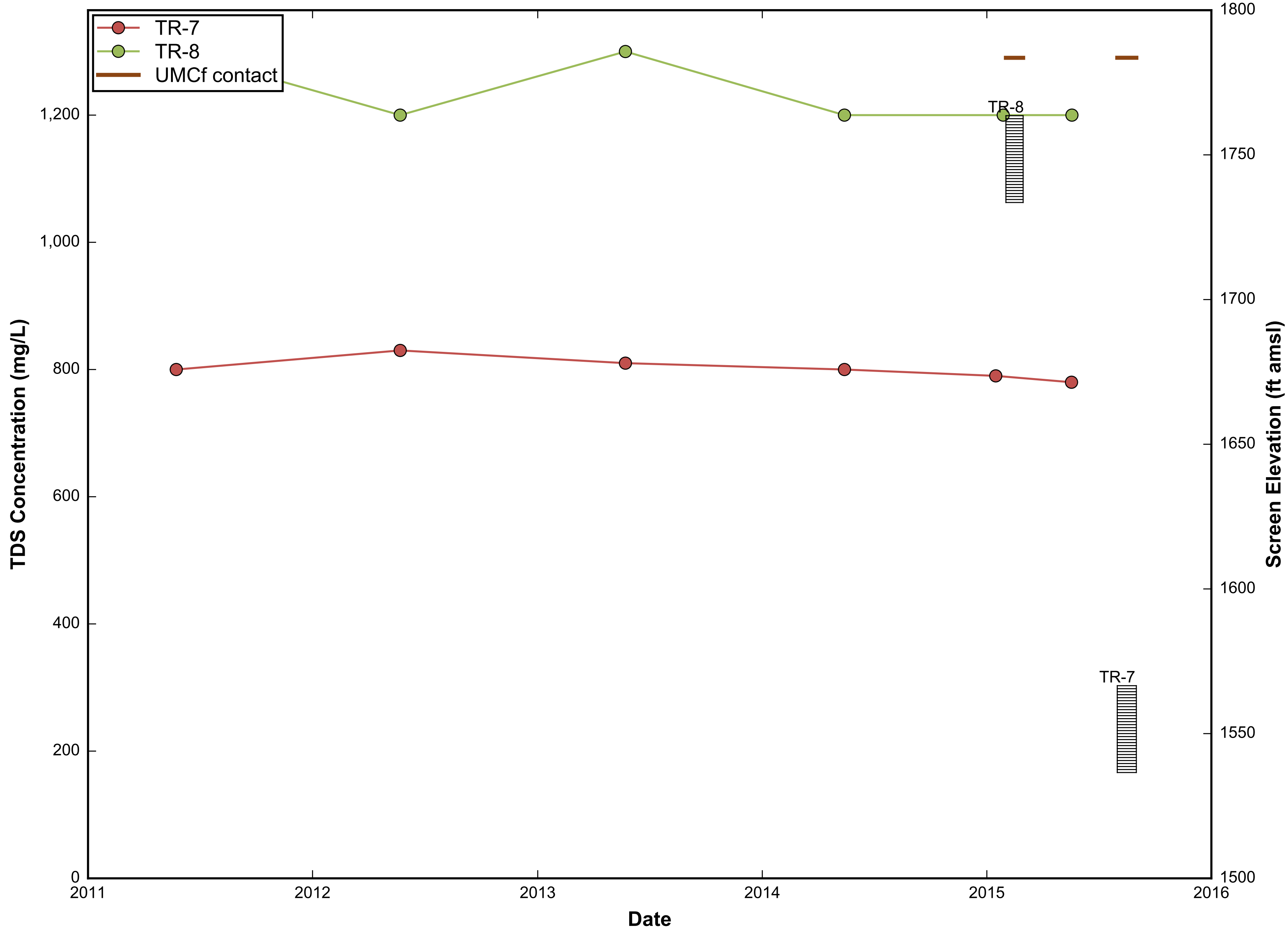

RAMBOLL ENVIRON

Cluster [TR-7,TR-8] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-3d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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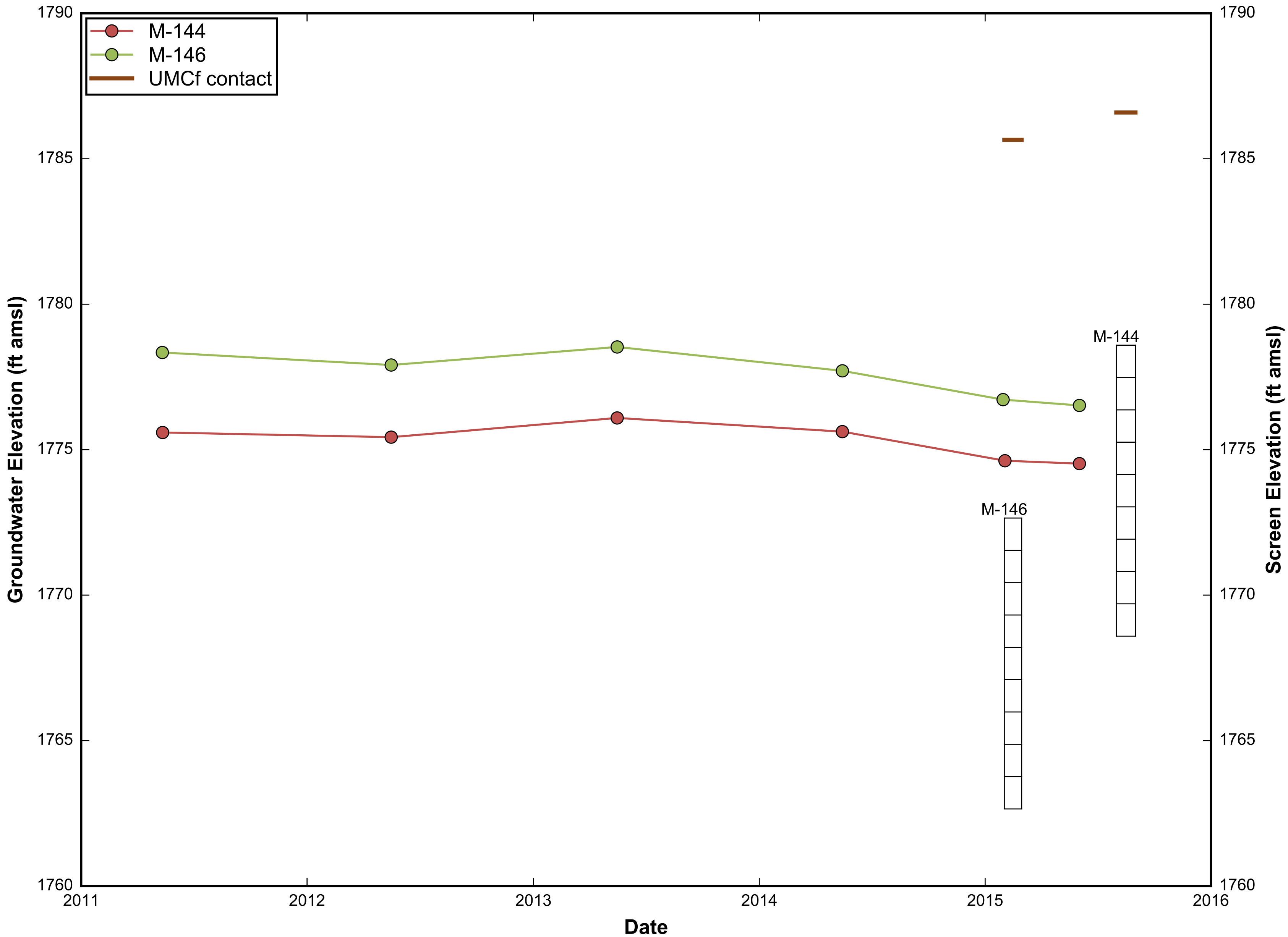

Cluster [M-144,M-146] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

RAMBOLL ENVIRON

Figure
A-4a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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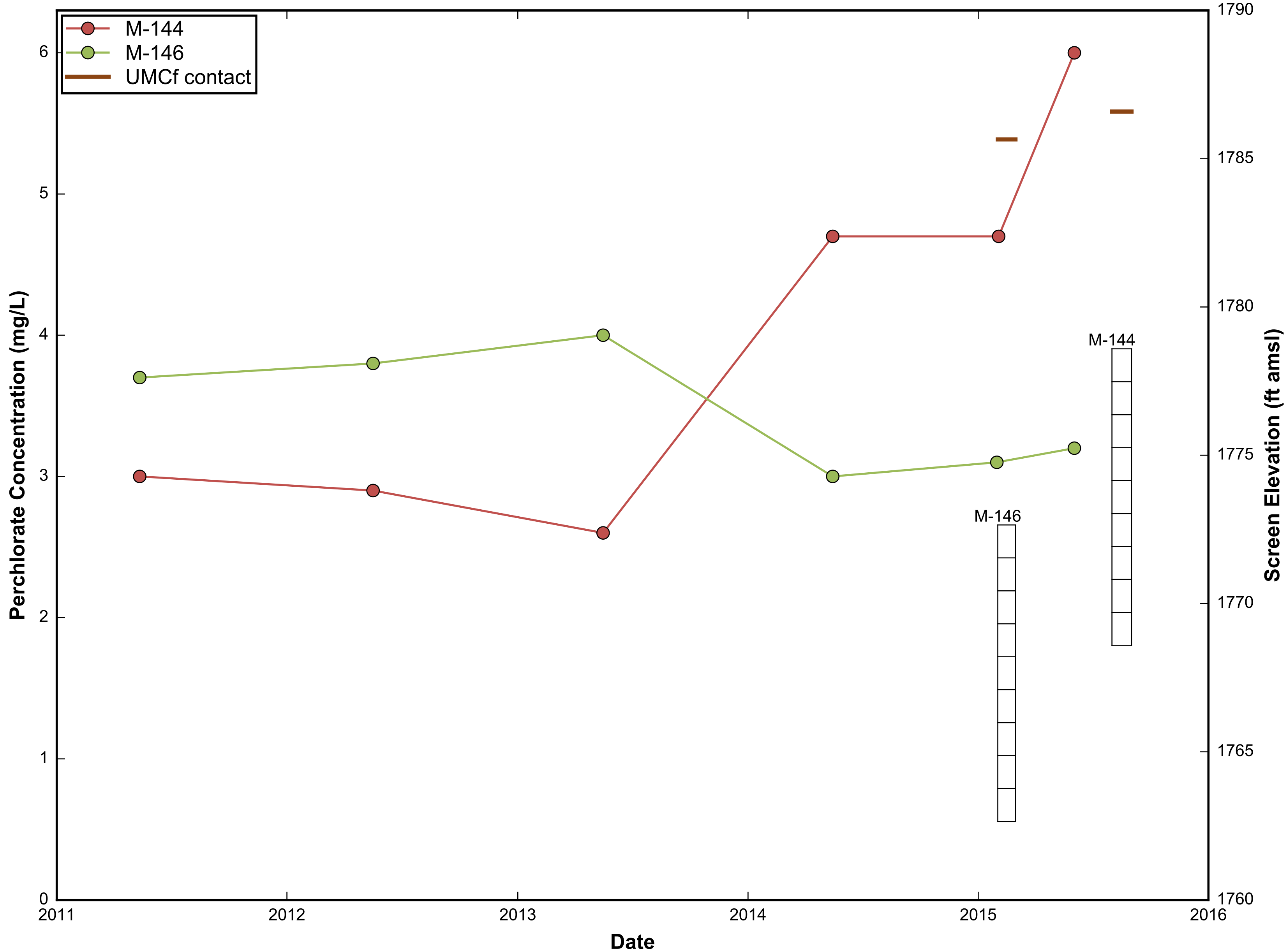


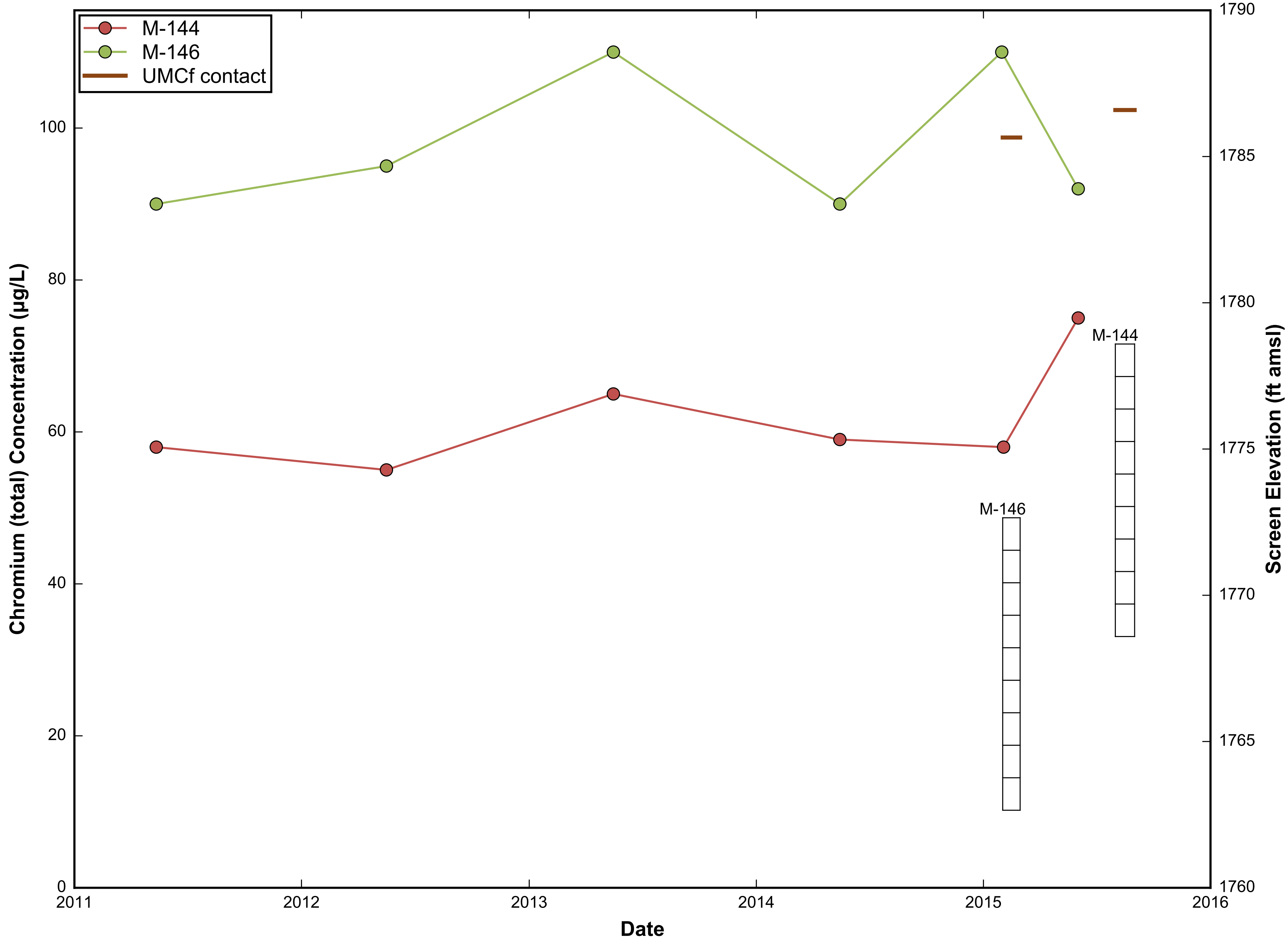
RAMBOLL ENVIRON

Cluster [M-144,M-146] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-4b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

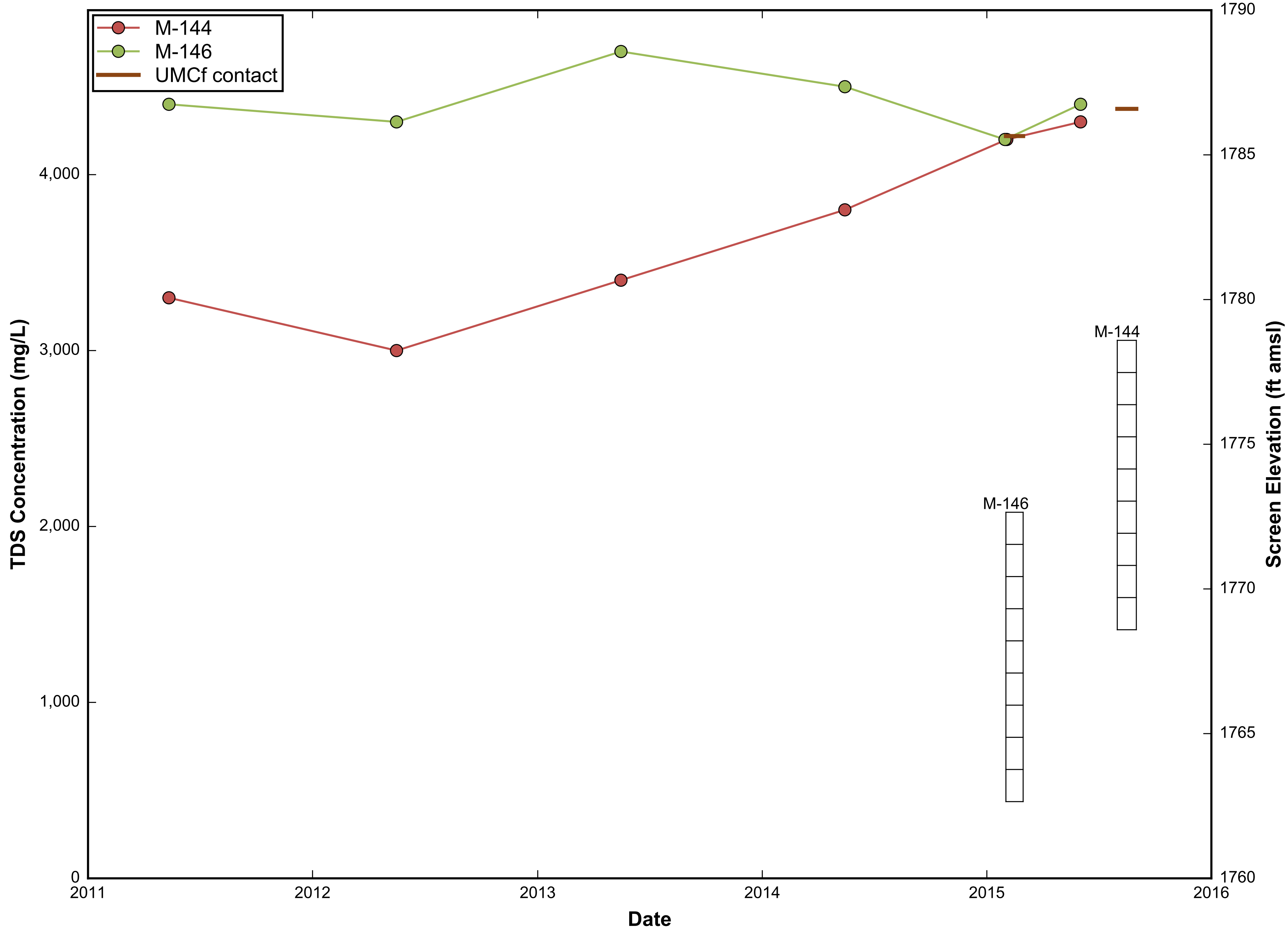


RAMBOLL ENVIRON

Cluster [M-144,M-146] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-4c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:



RAMBOLL ENVIRON

Cluster [M-144,M-146] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-4d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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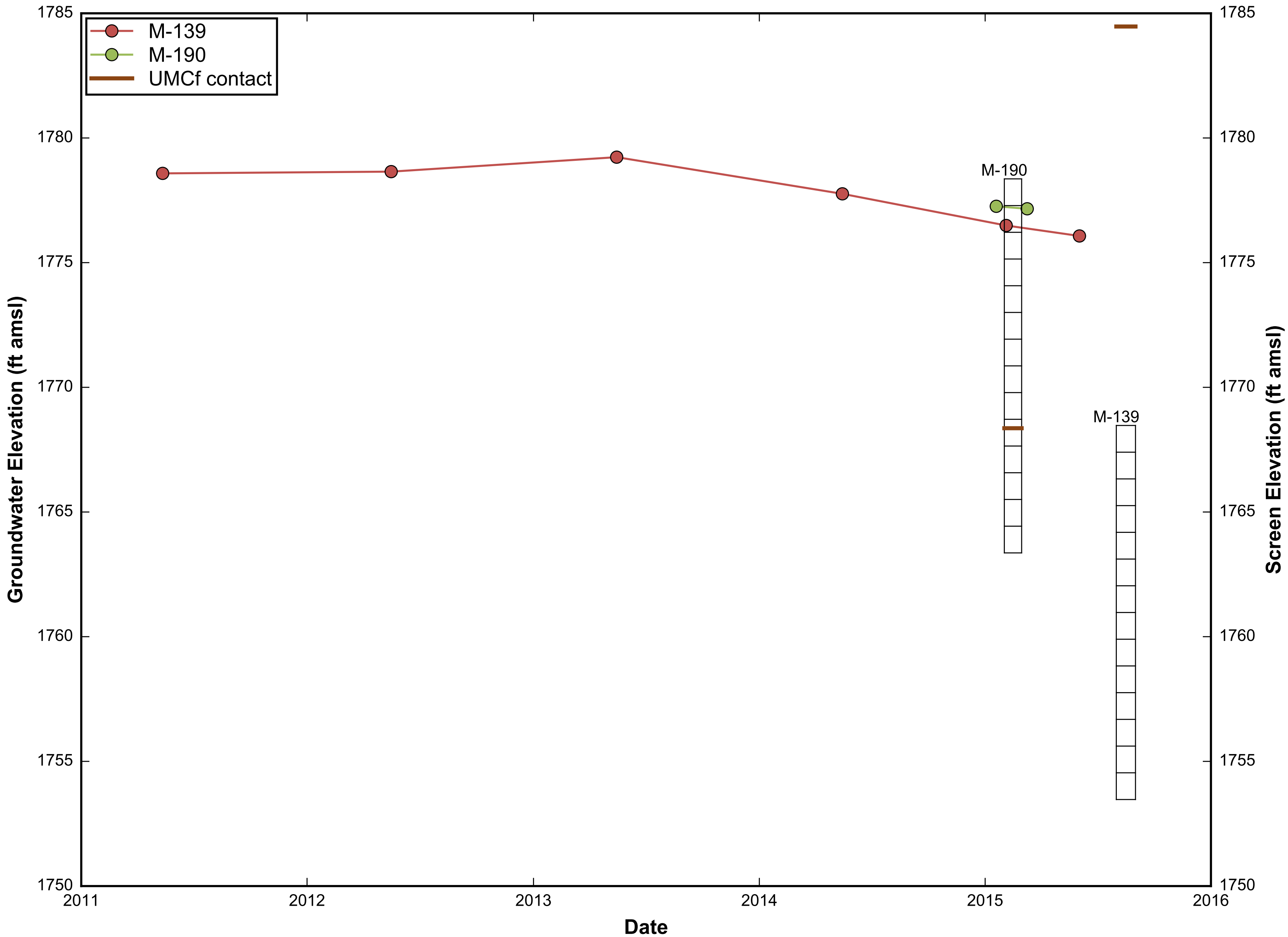

RAMBOLL ENVIRON

Cluster [M-139,M-190] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-5a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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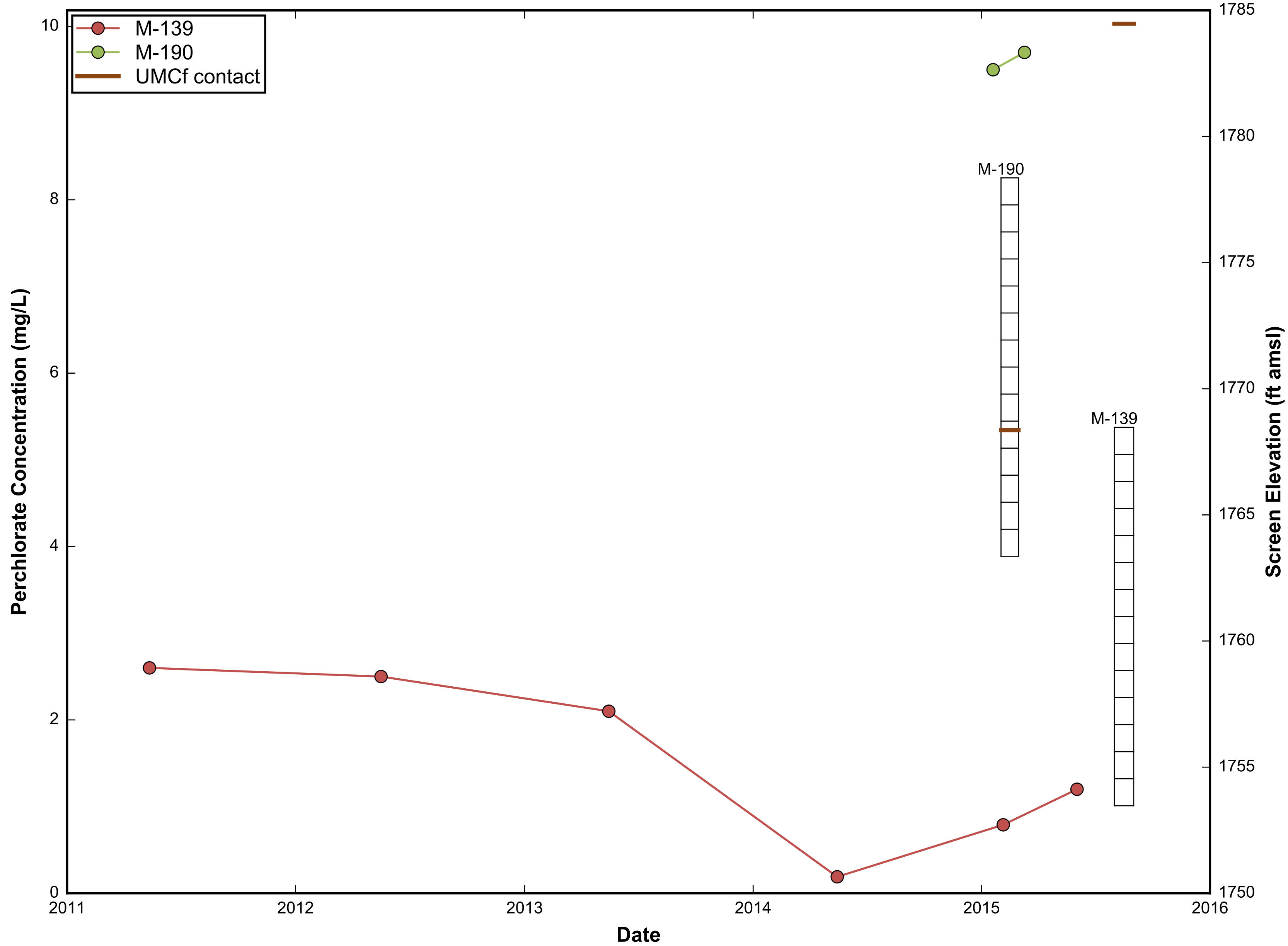

RAMBOLL ENVIRON

Cluster [M-139,M-190] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-5b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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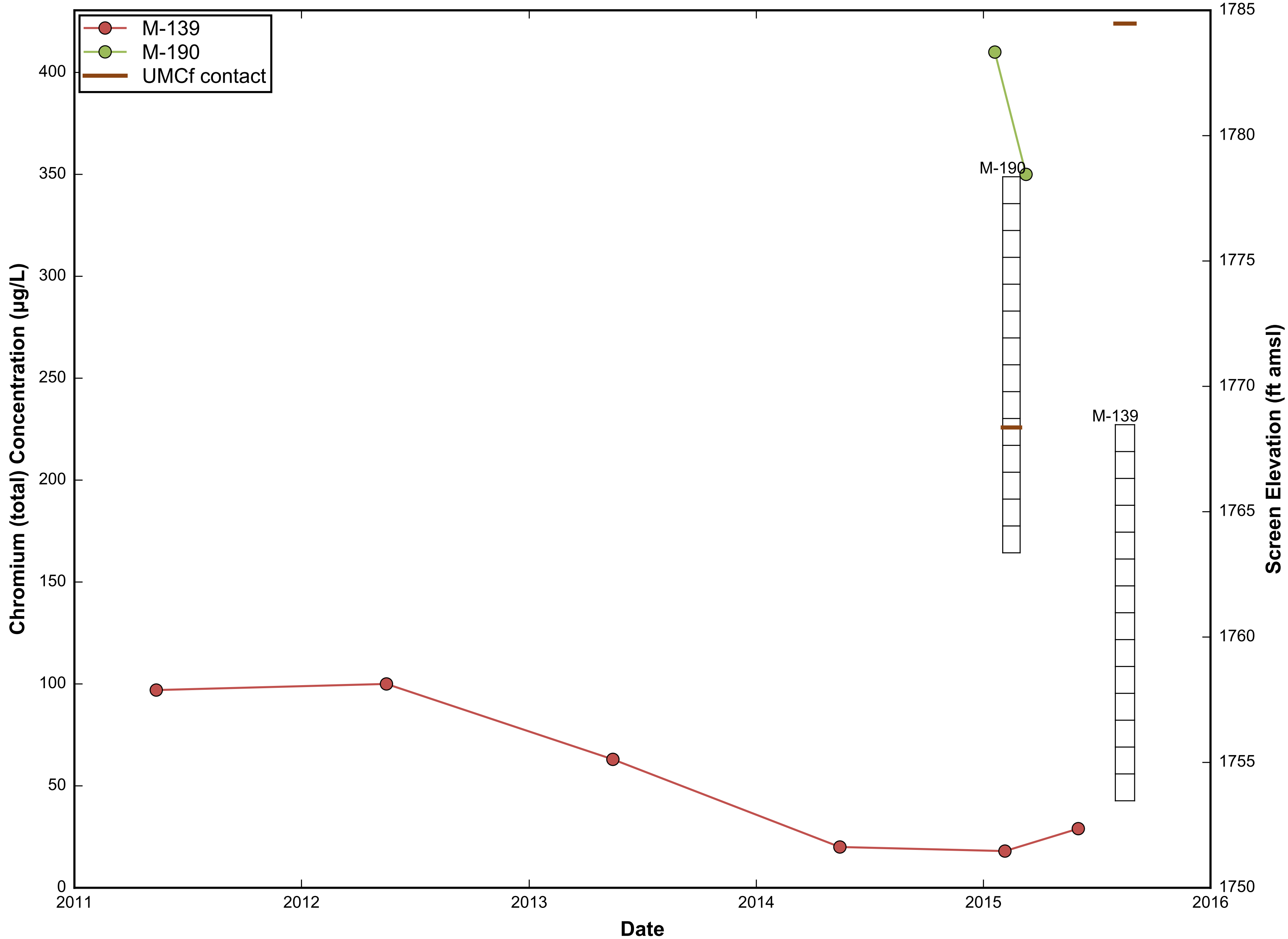

RAMBOLL ENVIRON

Cluster [M-139,M-190] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-5c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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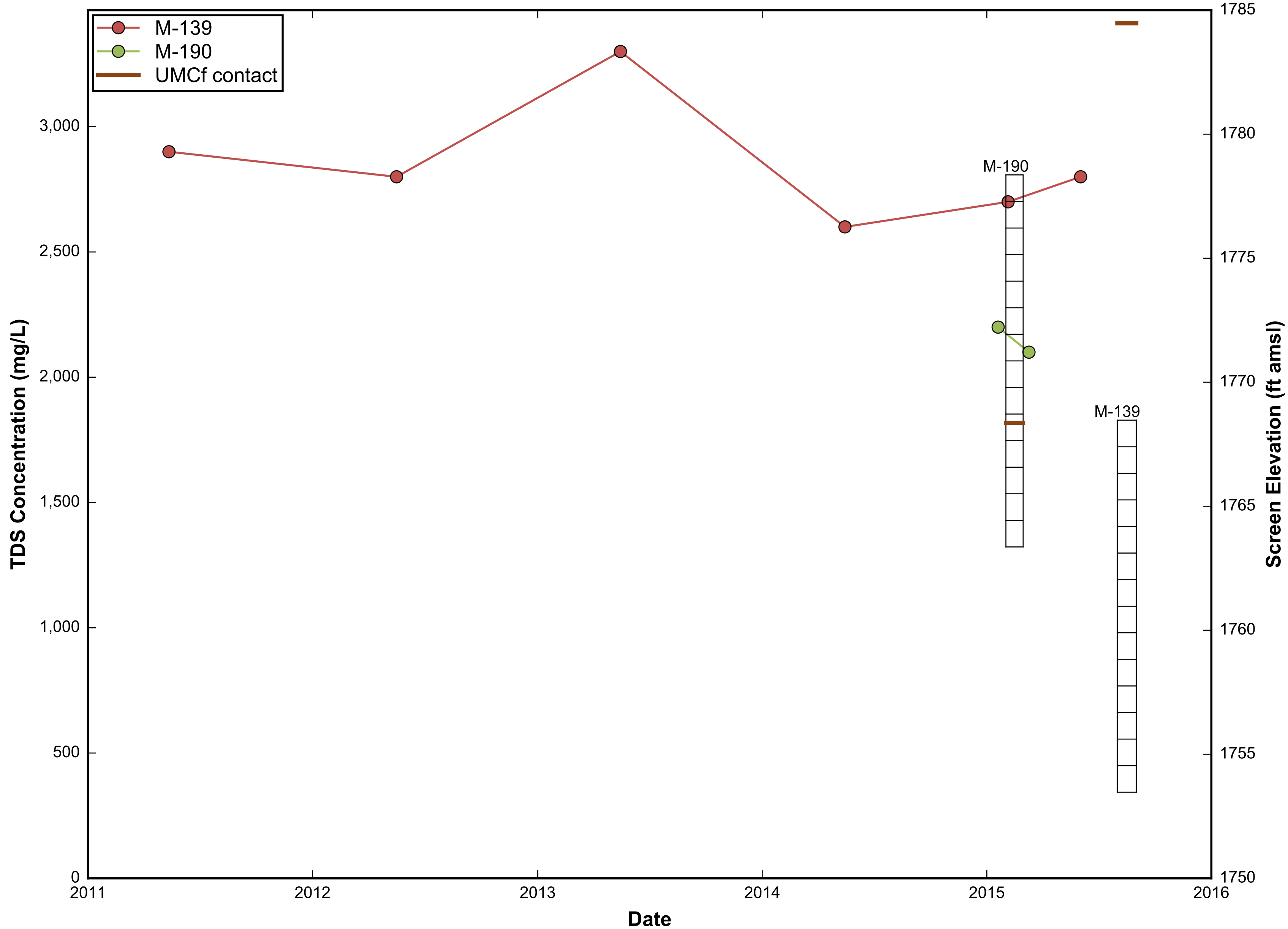

RAMBOLL ENVIRON

Cluster [M-139,M-190] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-5d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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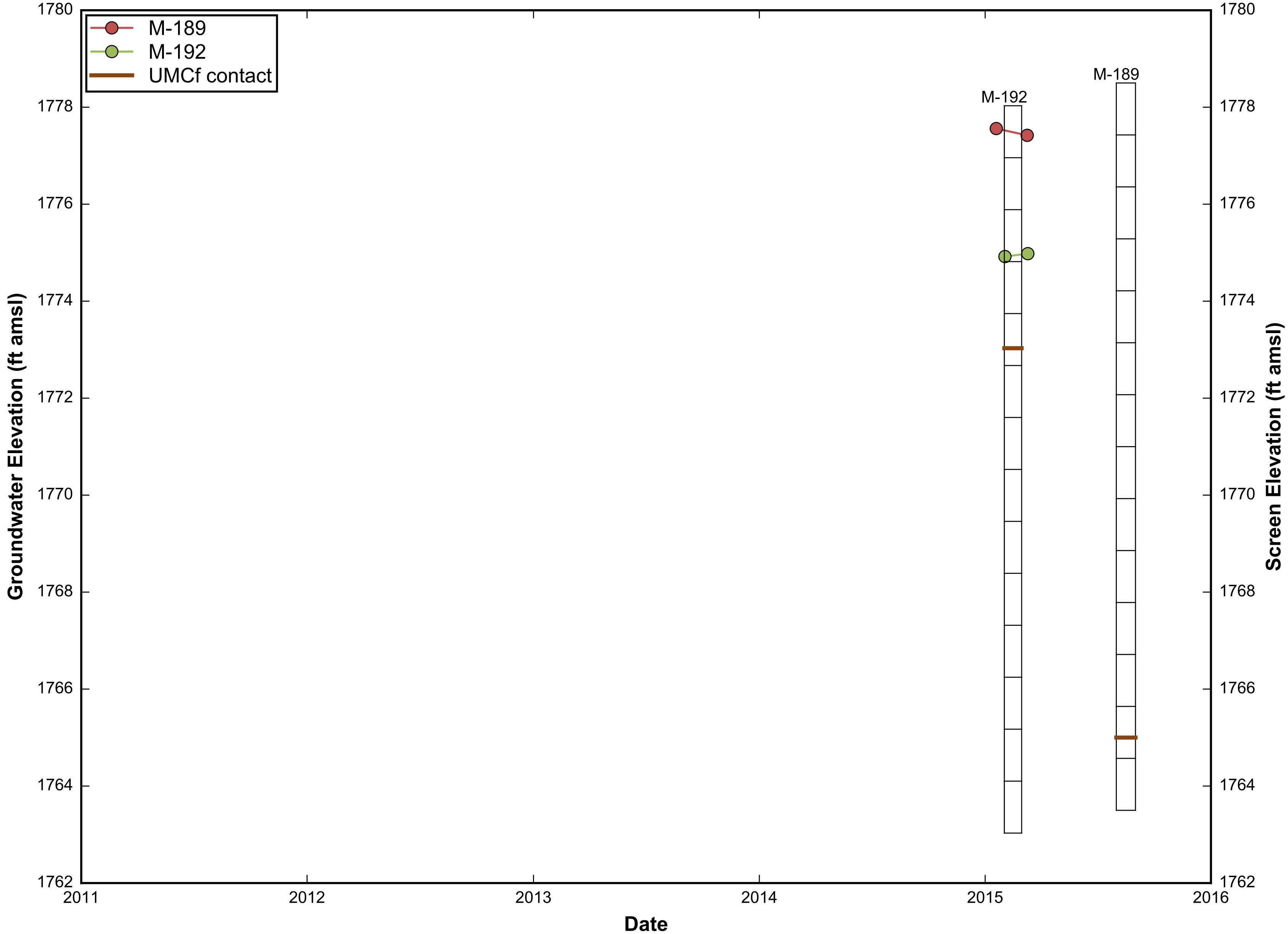

RAMBOLL ENVIRON

Cluster [M-189,M-192] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-6a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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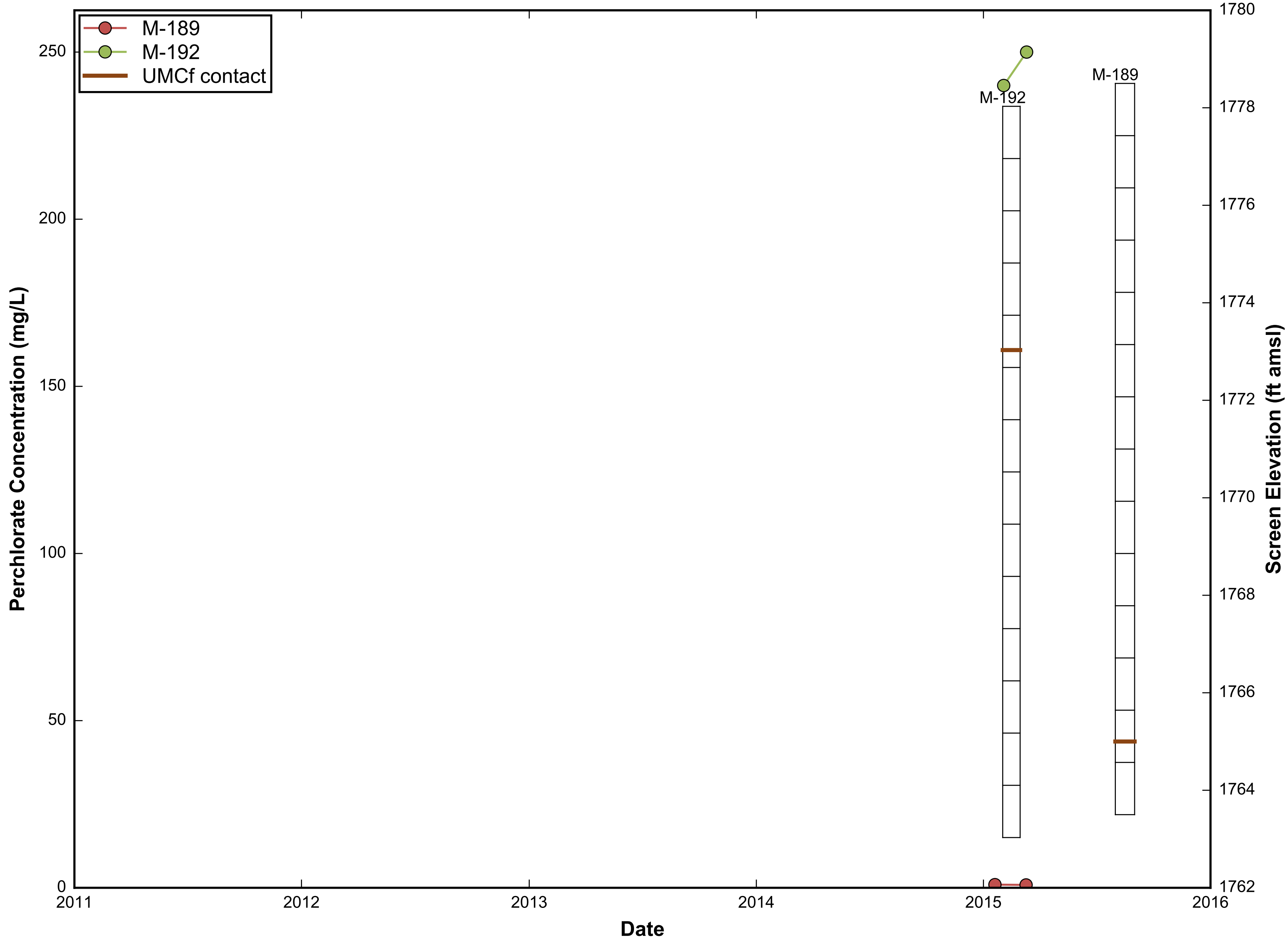


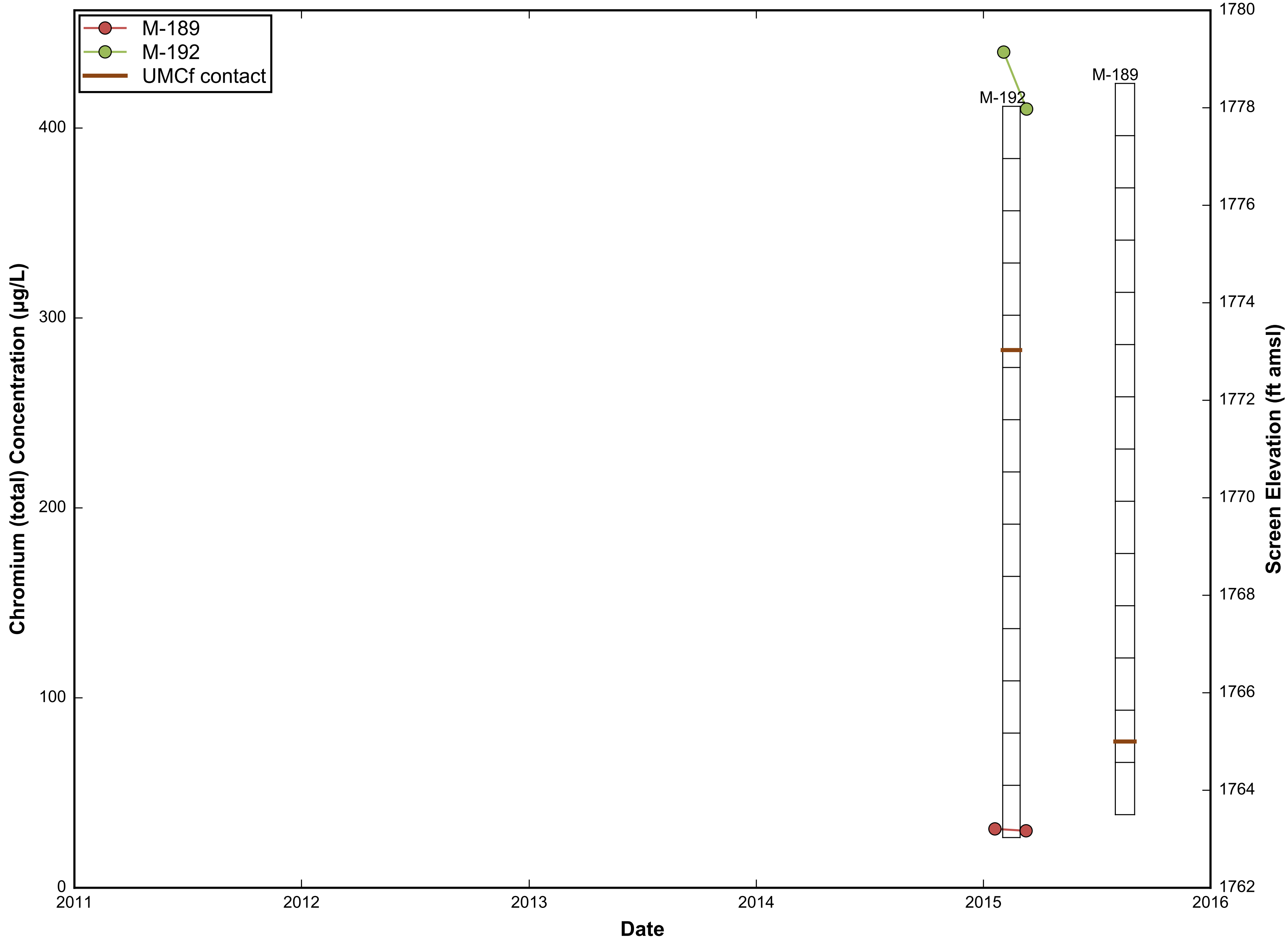
RAMBOLL ENVIRON

Cluster [M-189,M-192] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-6b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

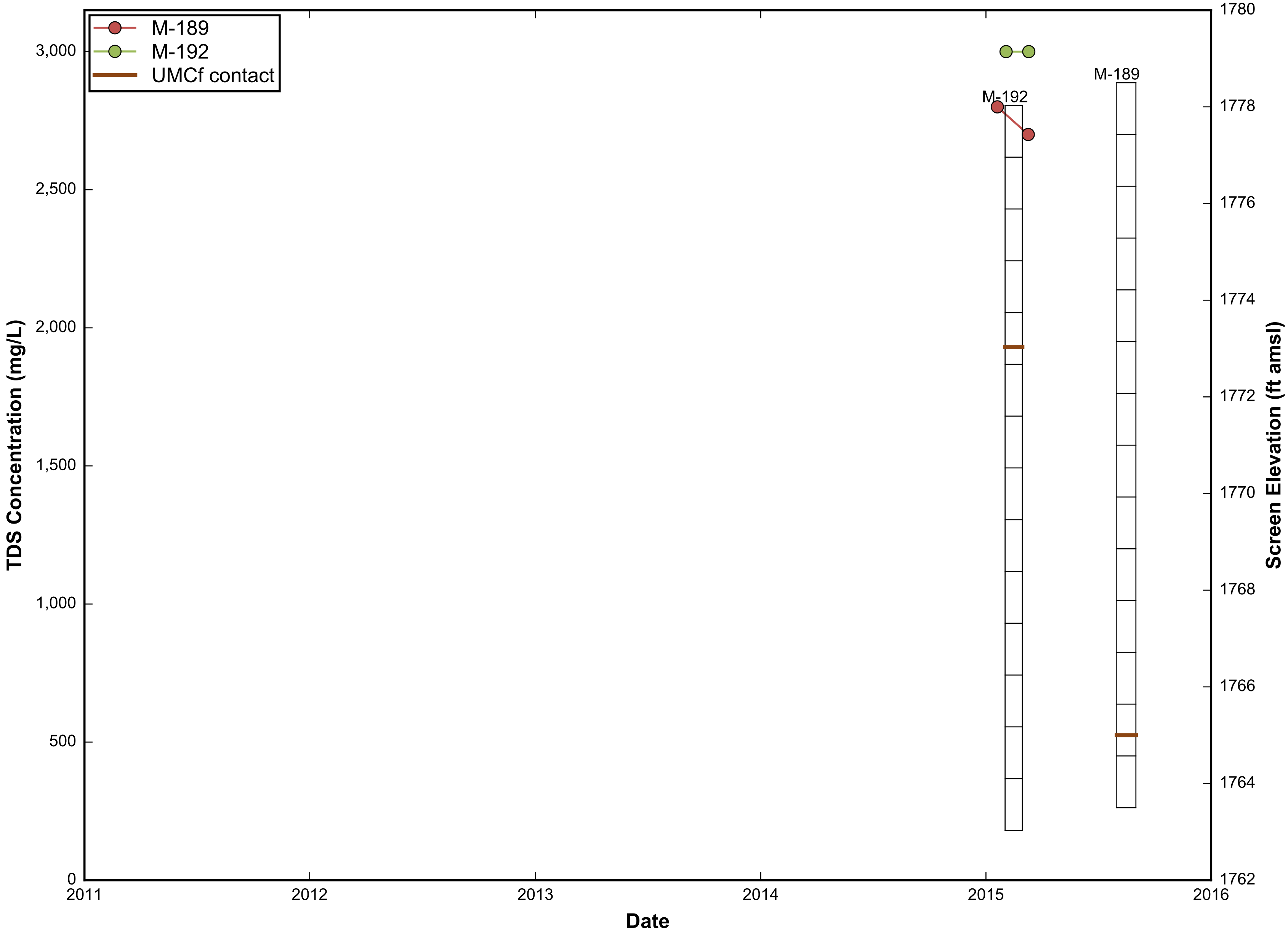


RAMBOLL ENVIRON

Cluster [M-189,M-192] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-6c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



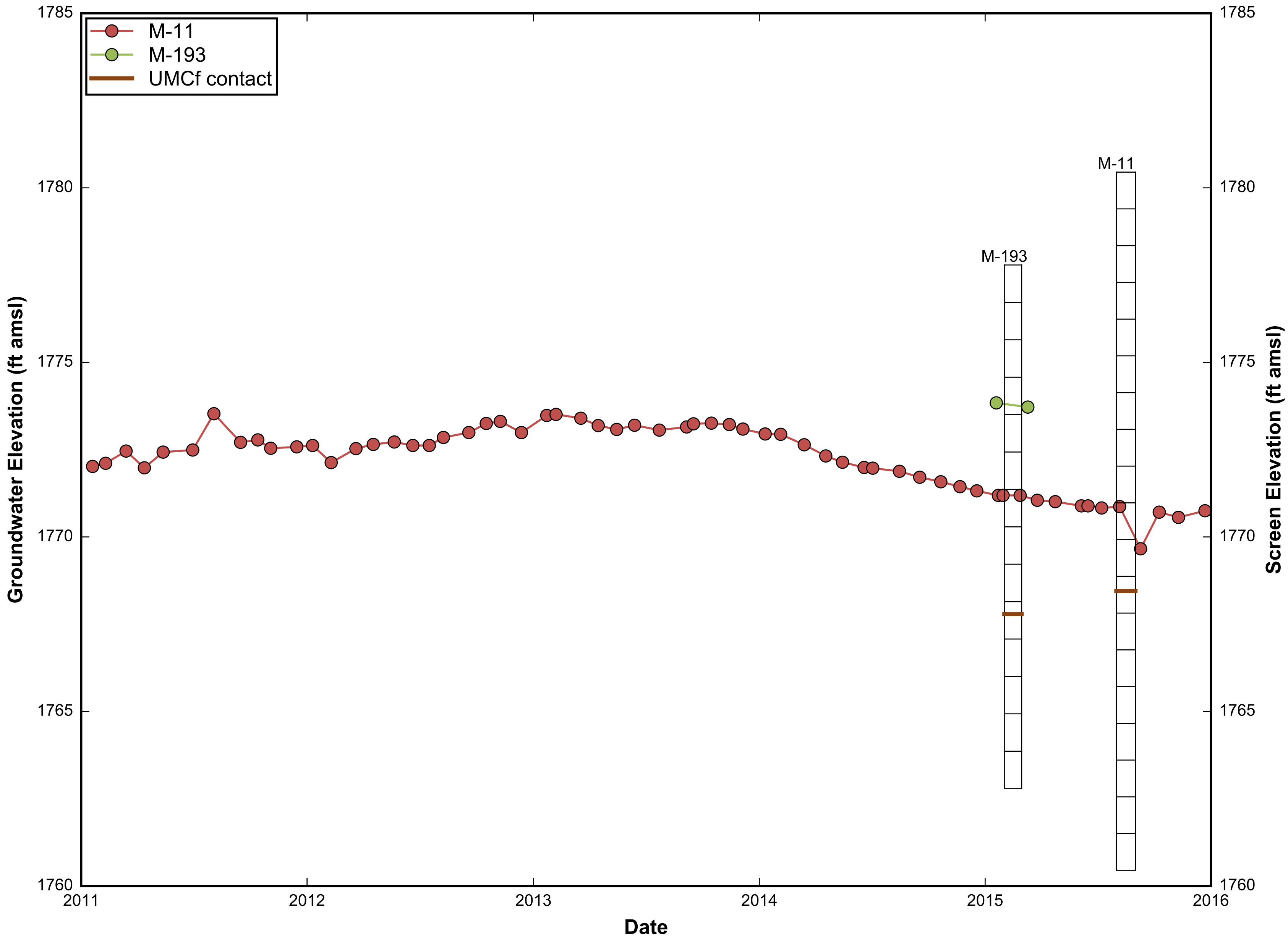
RAMBOLL ENVIRON

Cluster [M-189,M-192] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-6d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



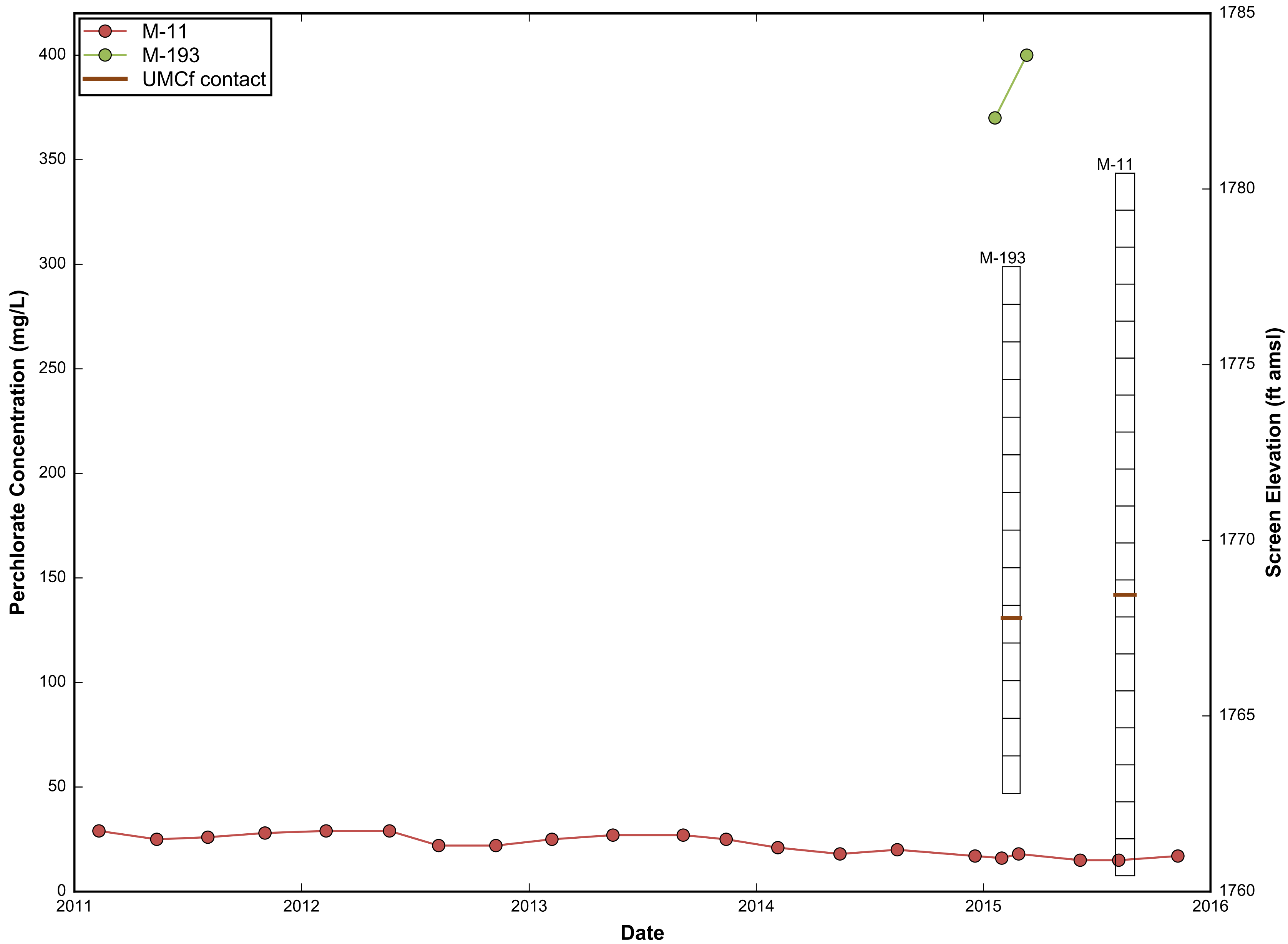
RAMBOLL ENVIRON

Cluster [M-11,M-193] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-7a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-11,M-193] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-7b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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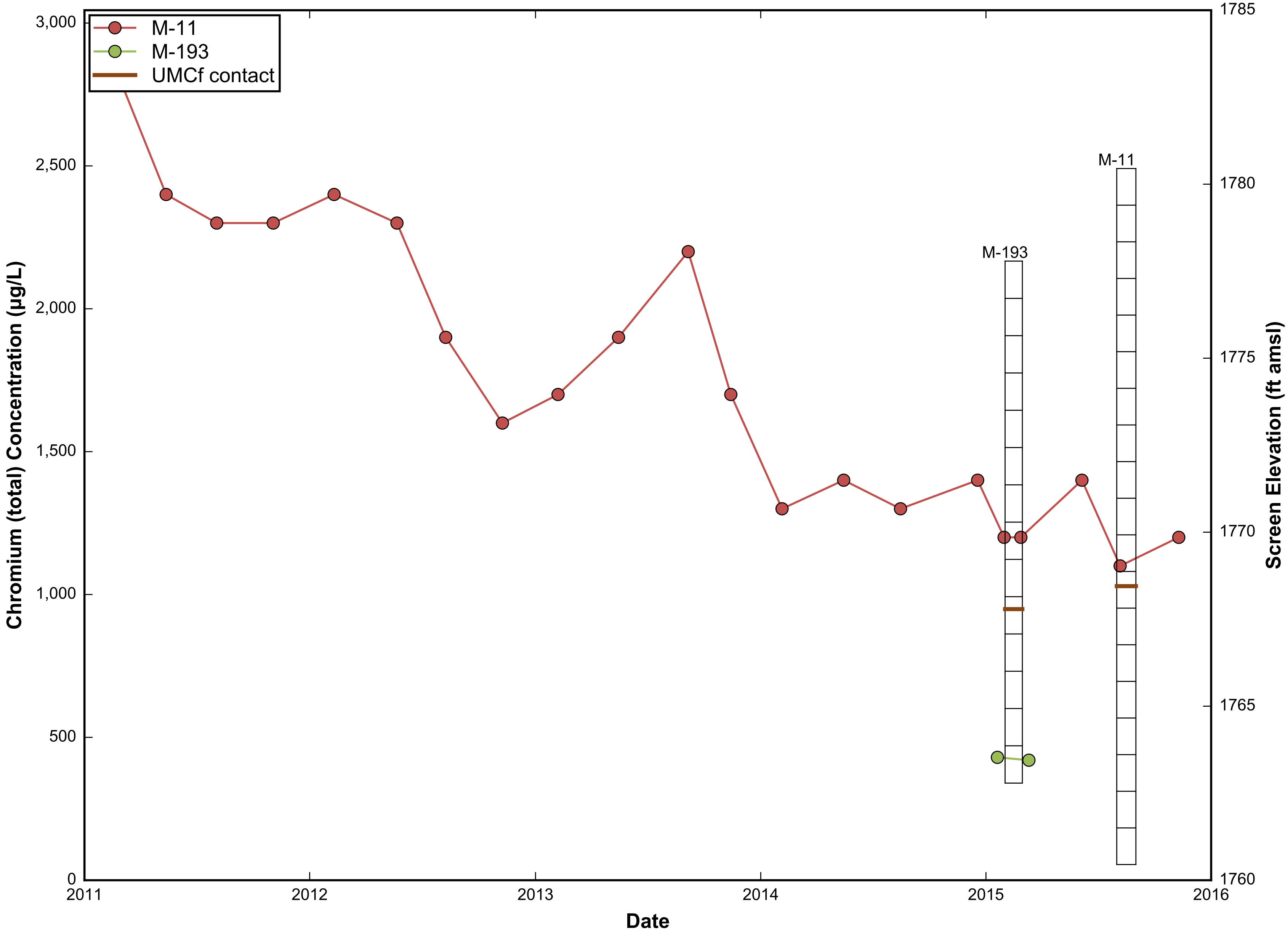

RAMBOLL ENVIRON

Cluster [M-11,M-193] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-7c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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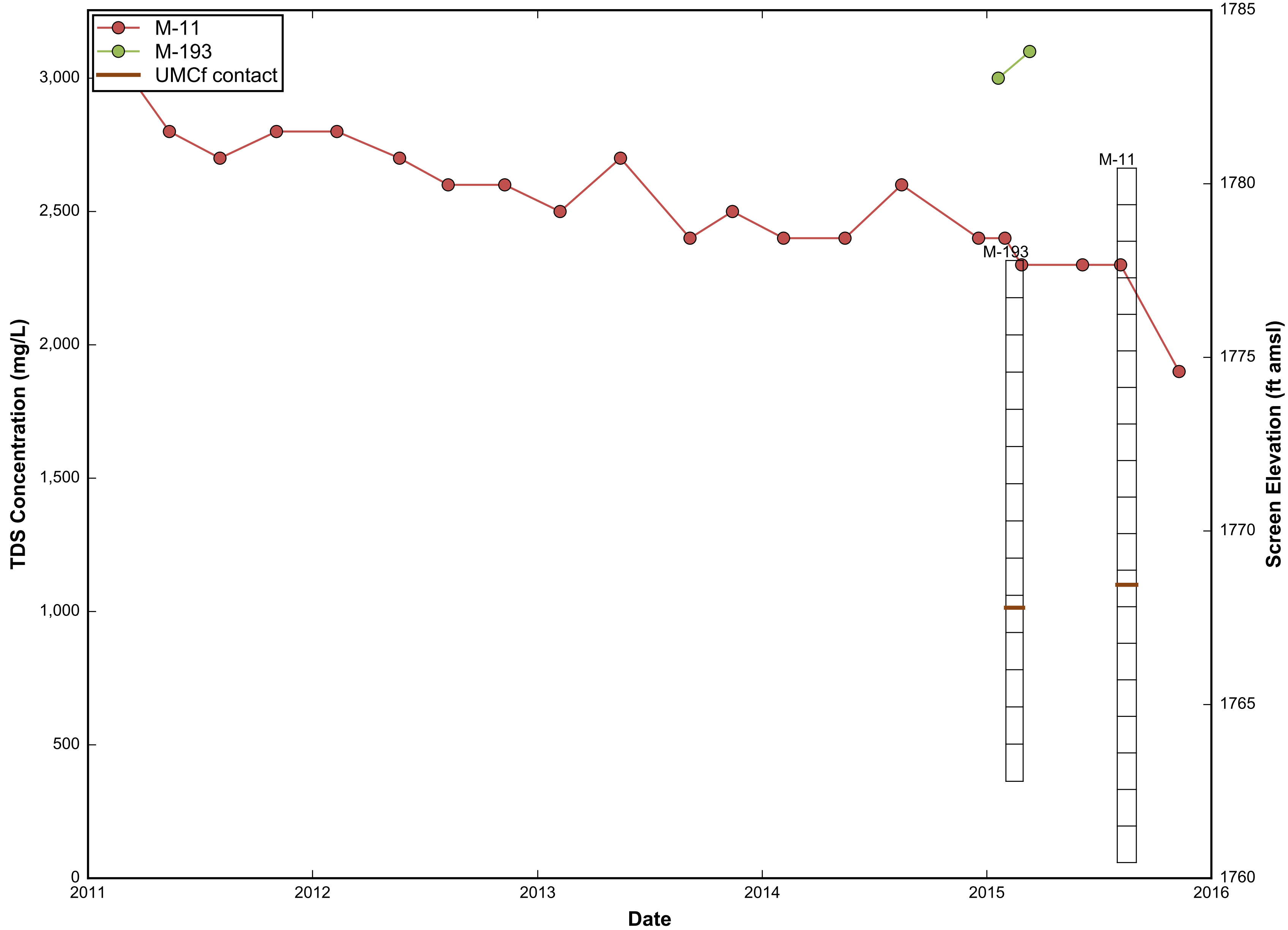

RAMBOLL ENVIRON

Cluster [M-11,M-193] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-7d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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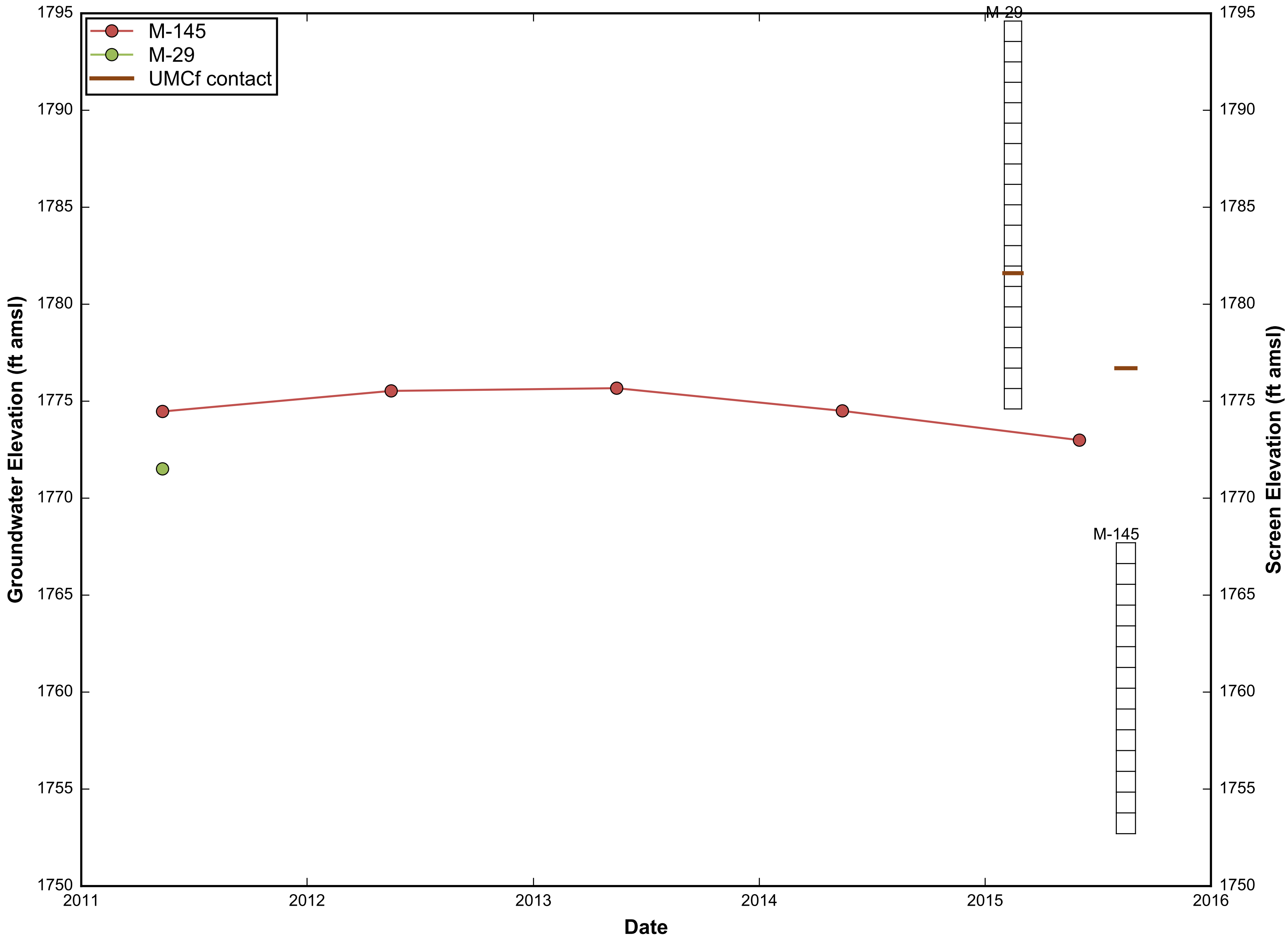

RAMBOLL ENVIRON

Cluster [M-145,M-29] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-8a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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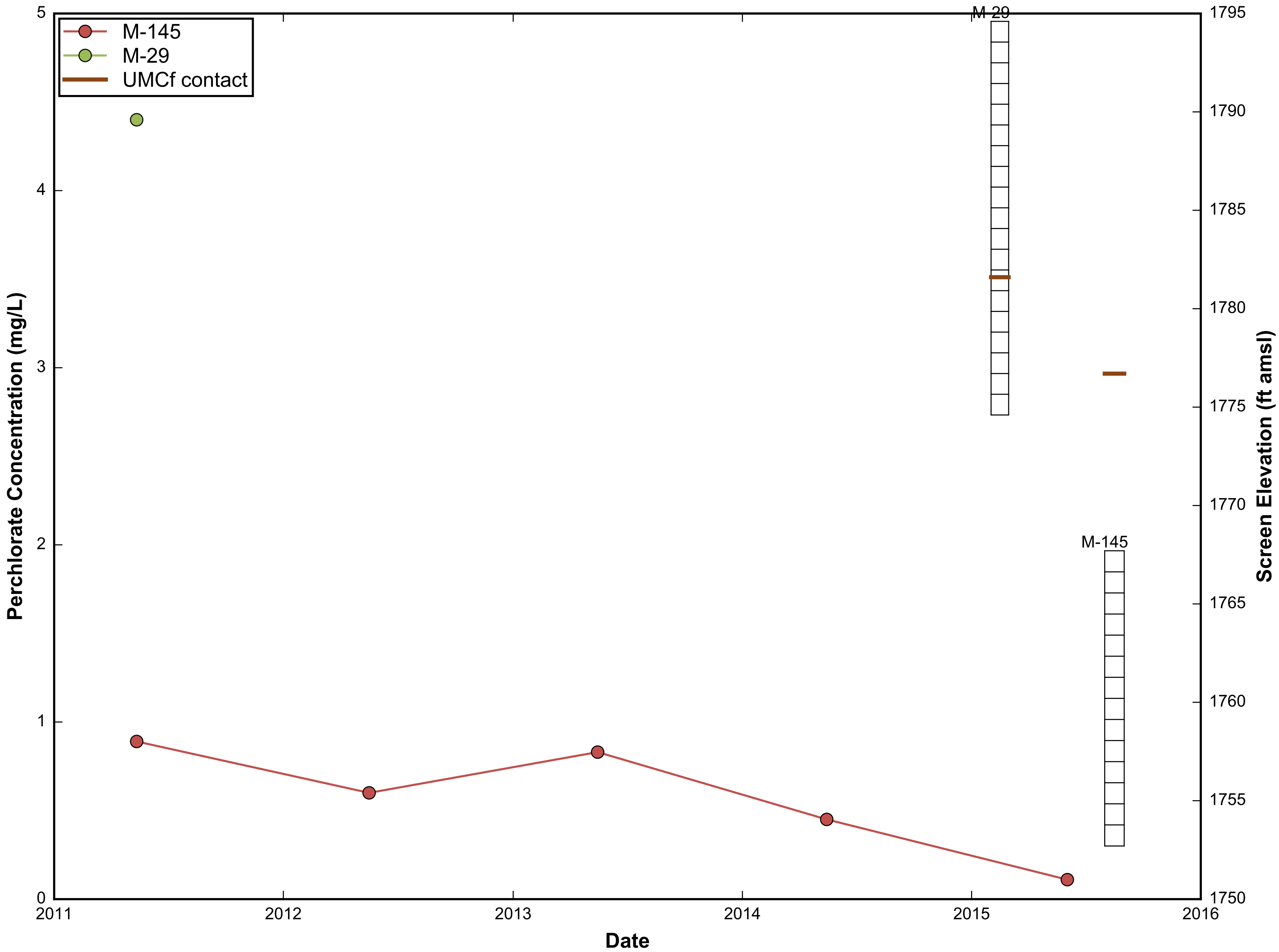

RAMBOLL ENVIRON

Cluster [M-145,M-29] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-8b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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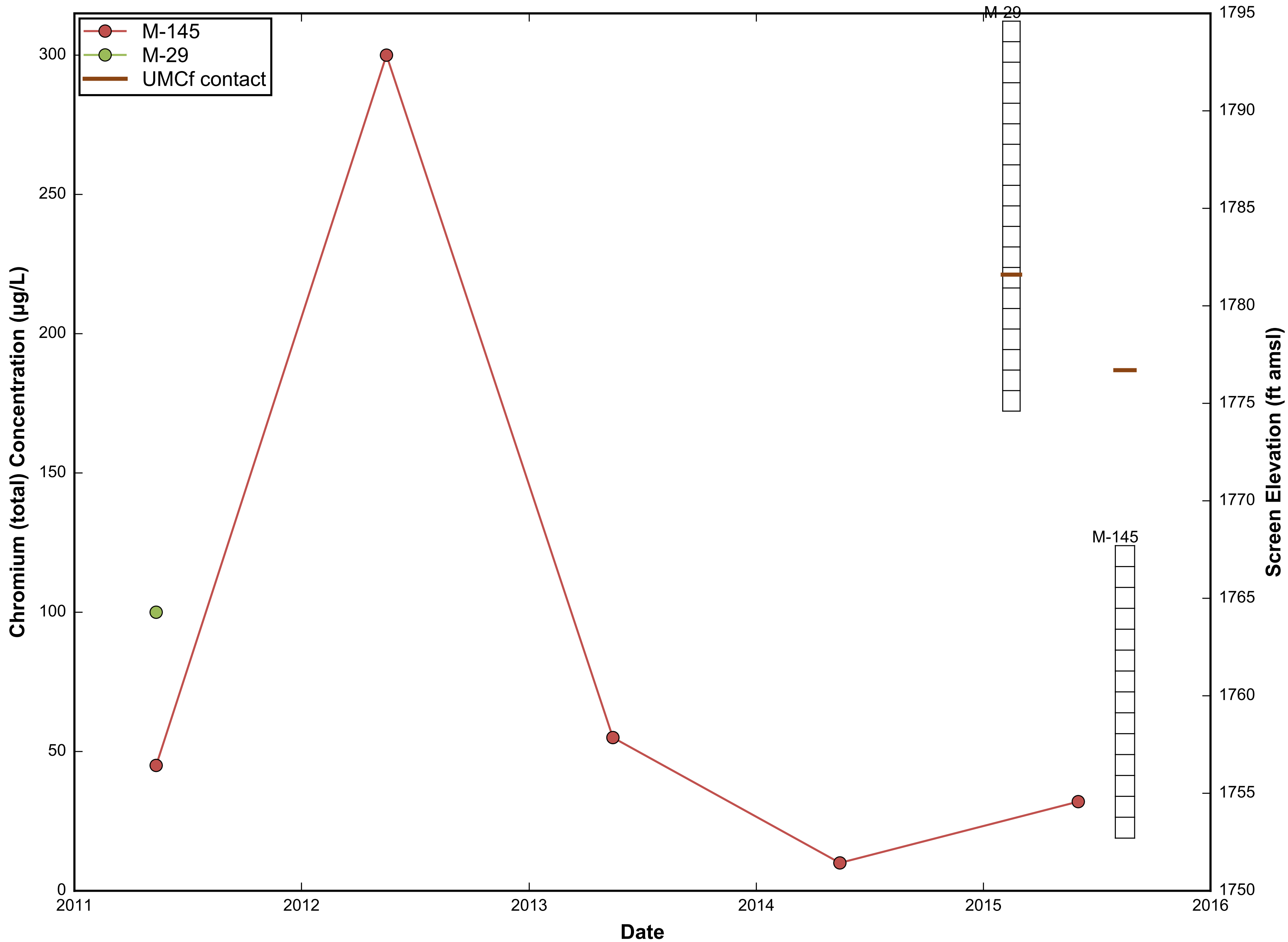

RAMBOLL ENVIRON

Cluster [M-145,M-29] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-8c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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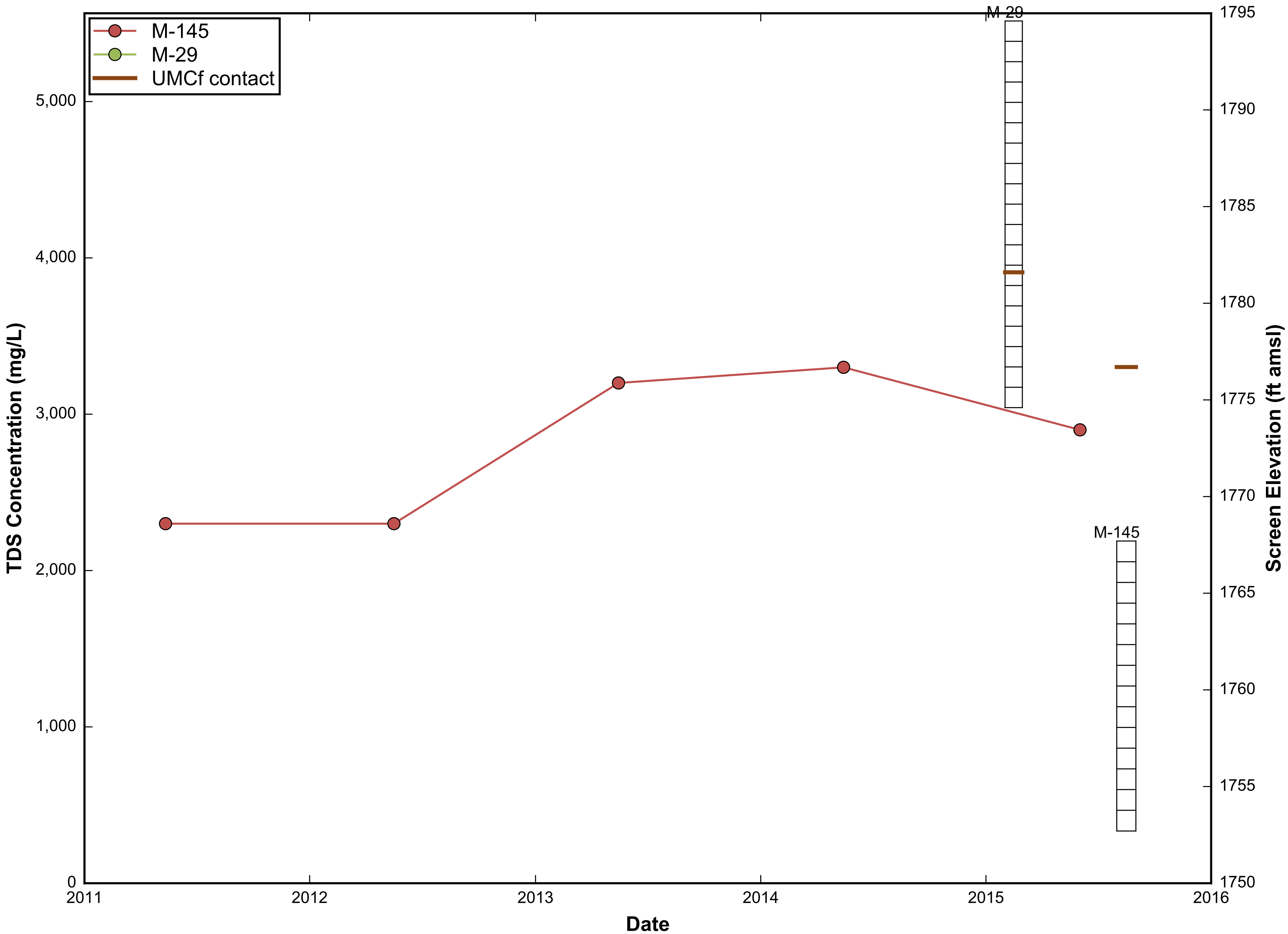

RAMBOLL ENVIRON

Cluster [M-145,M-29] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-8d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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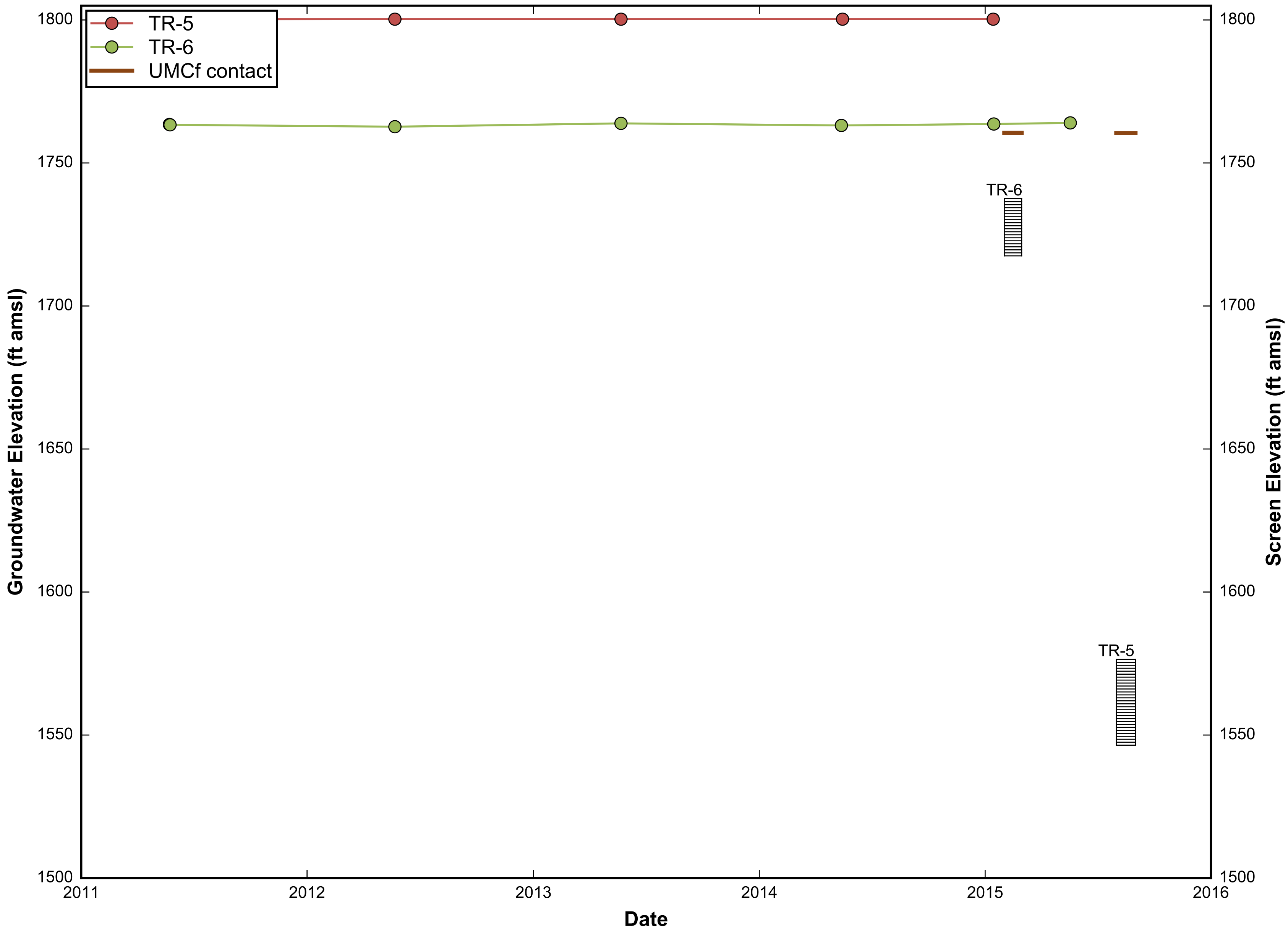

RAMBOLL ENVIRON

Cluster [TR-5,TR-6] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-9a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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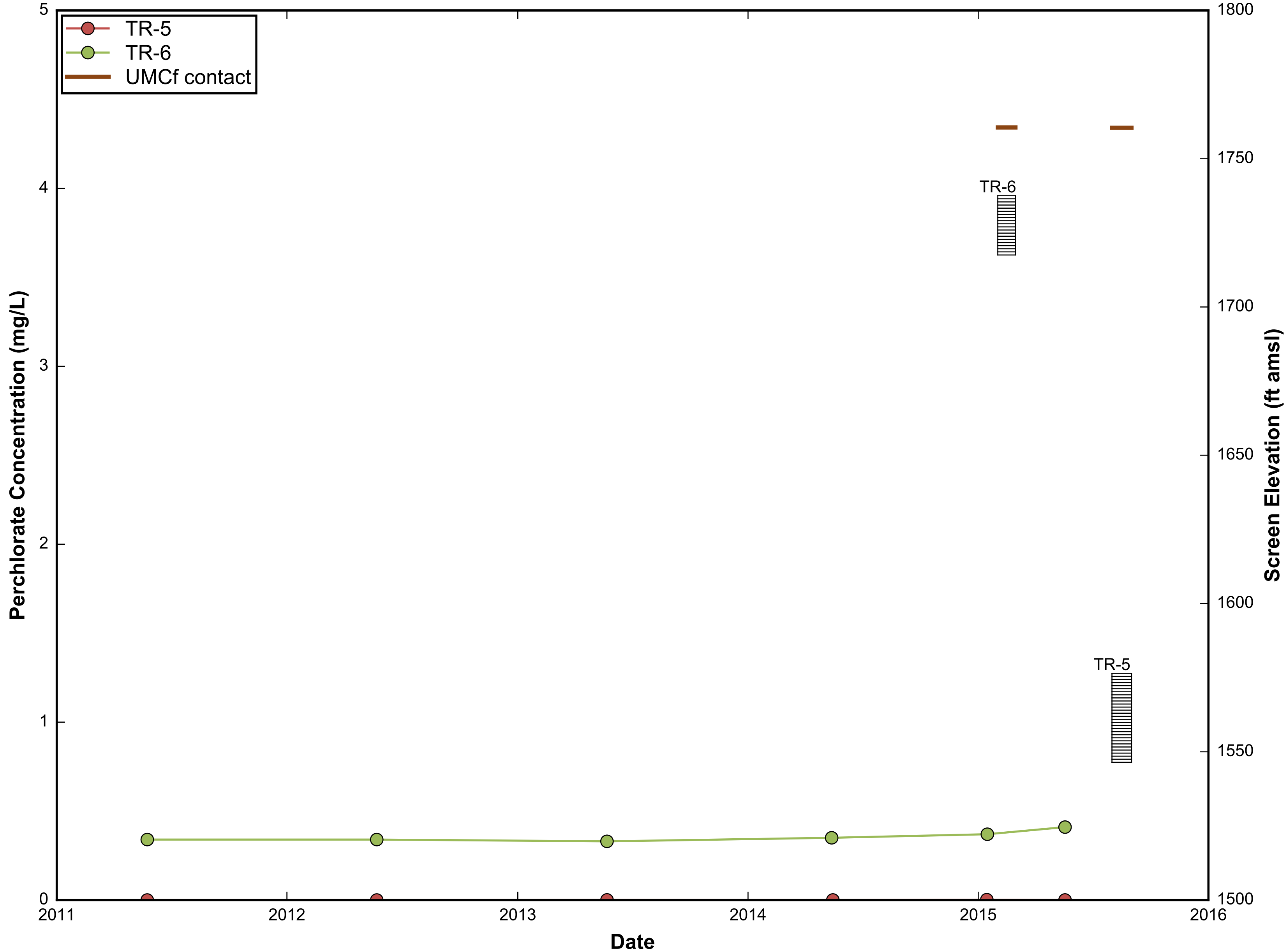
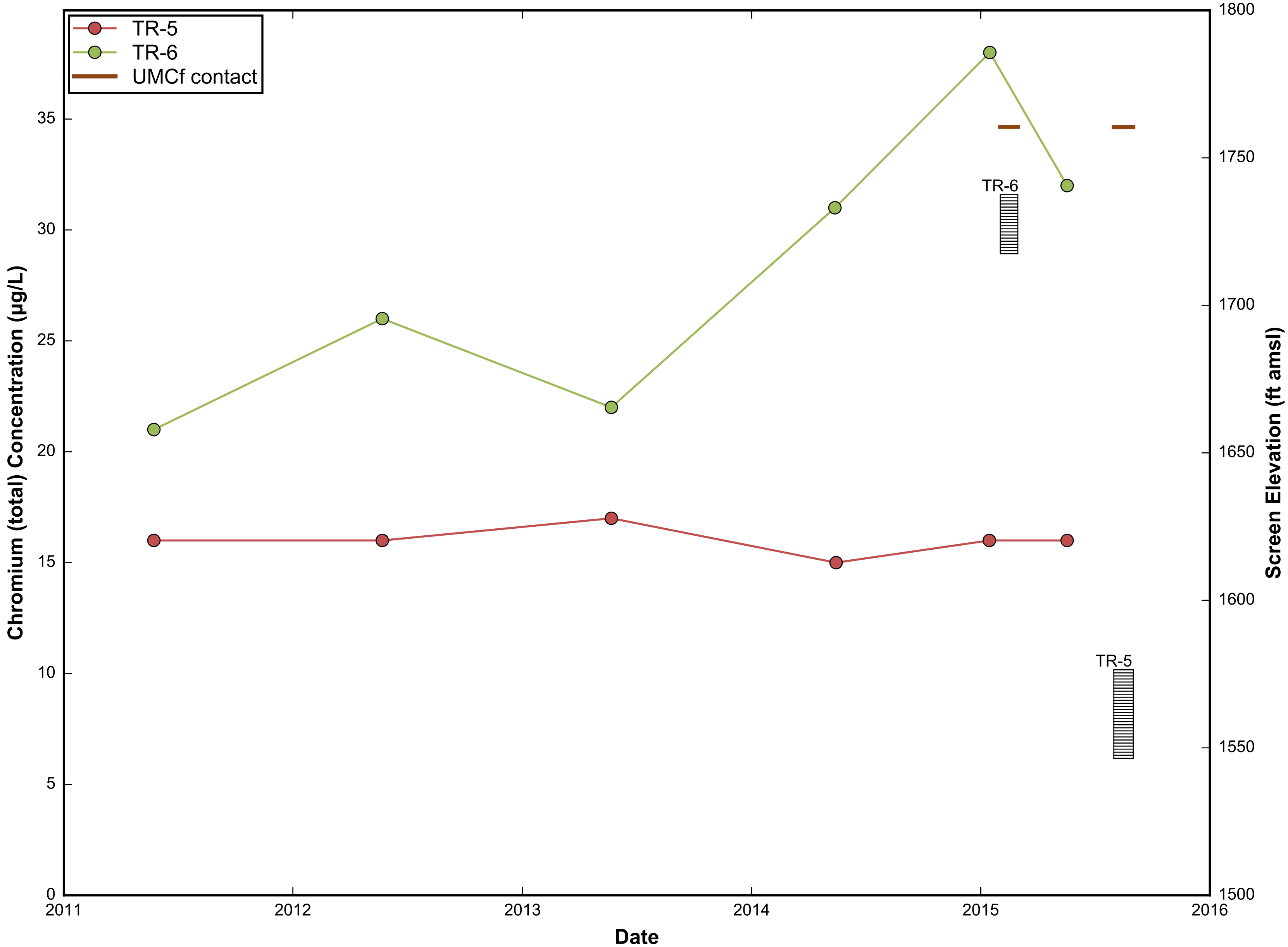


RAMBOLL ENVIRON

Cluster [TR-5,TR-6] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-9b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



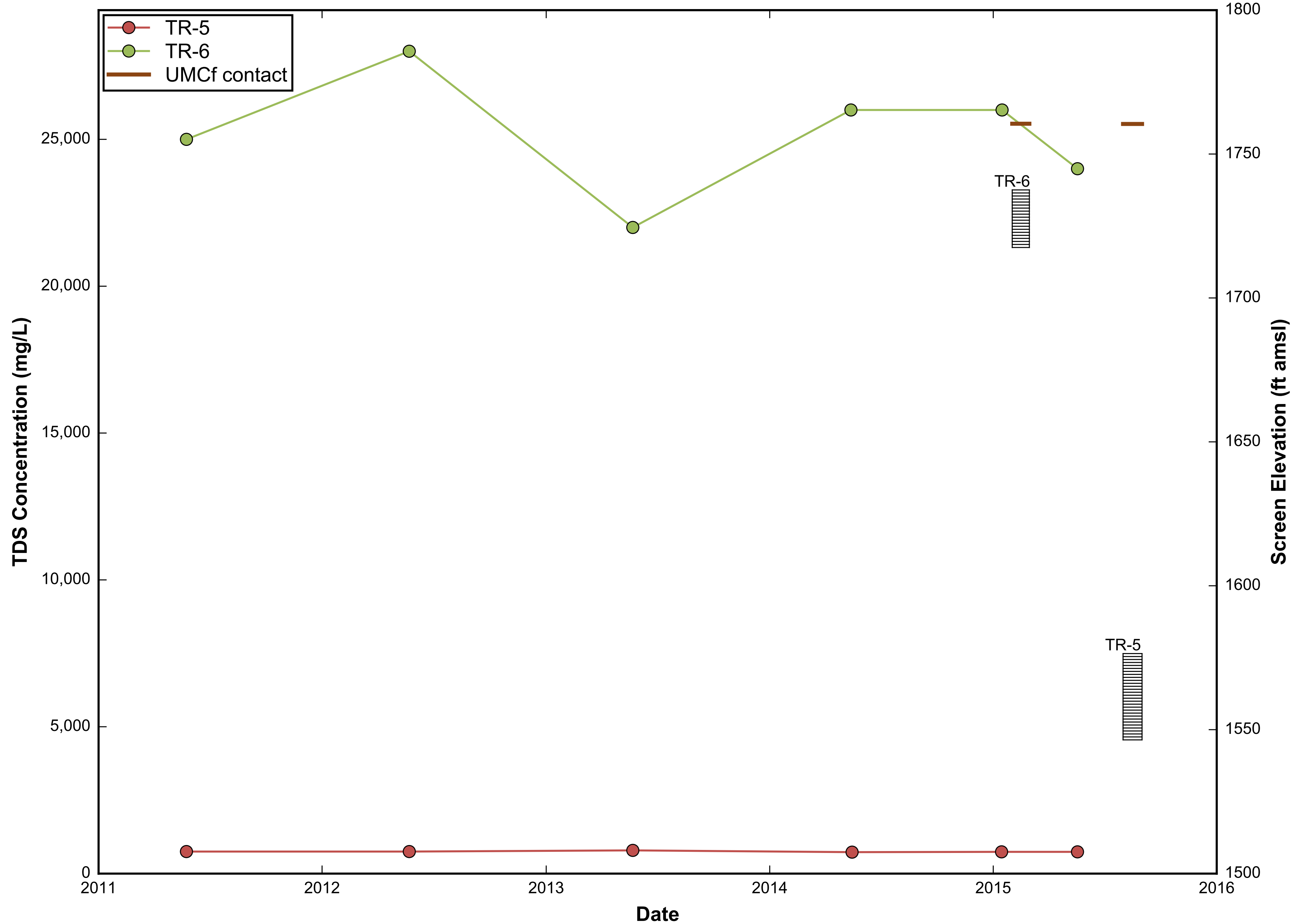
RAMBOLL ENVIRON

Cluster [TR-5,TR-6] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-9c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



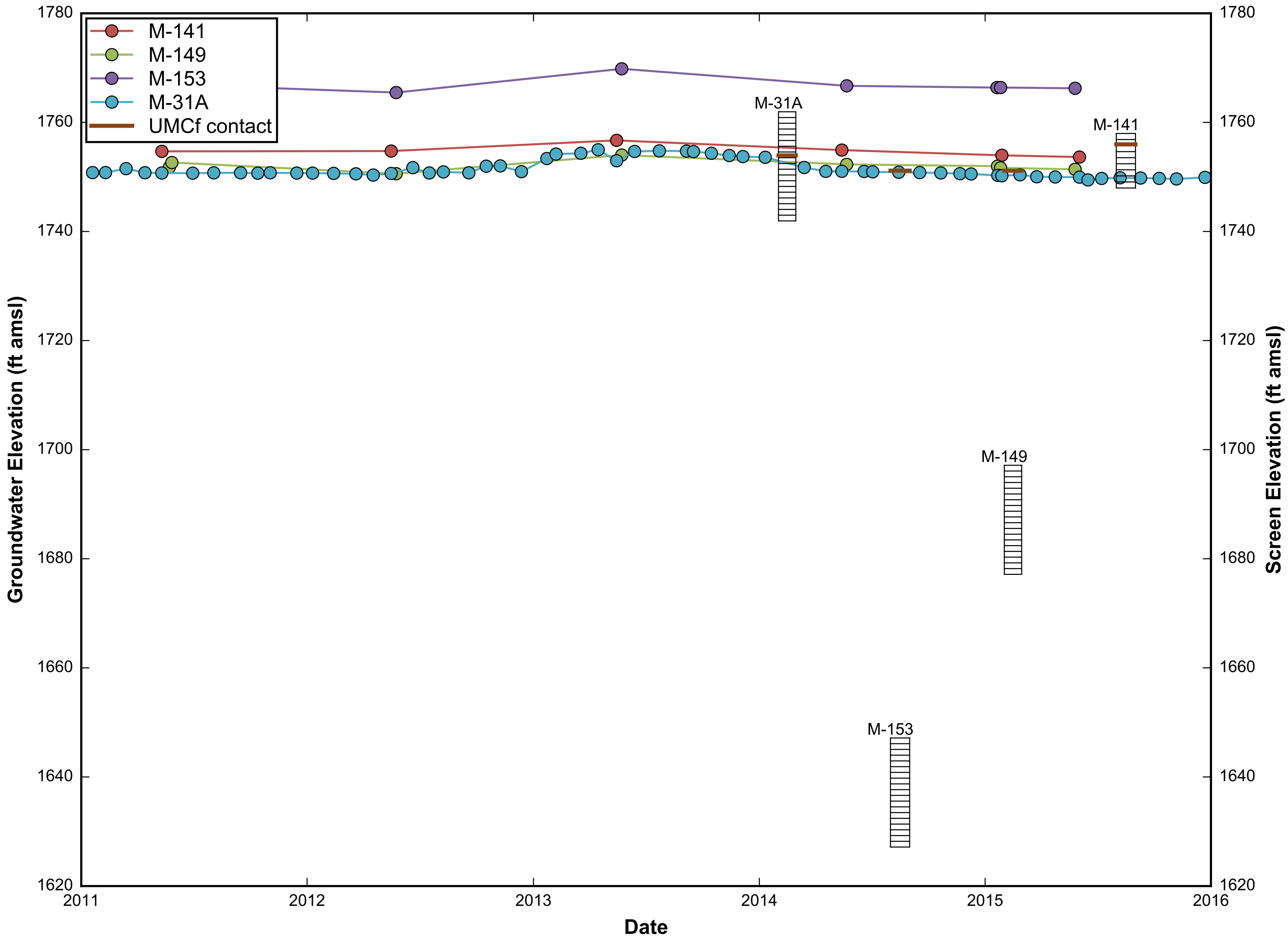
RAMBOLL ENVIRON

Cluster [TR-5,TR-6] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-9d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



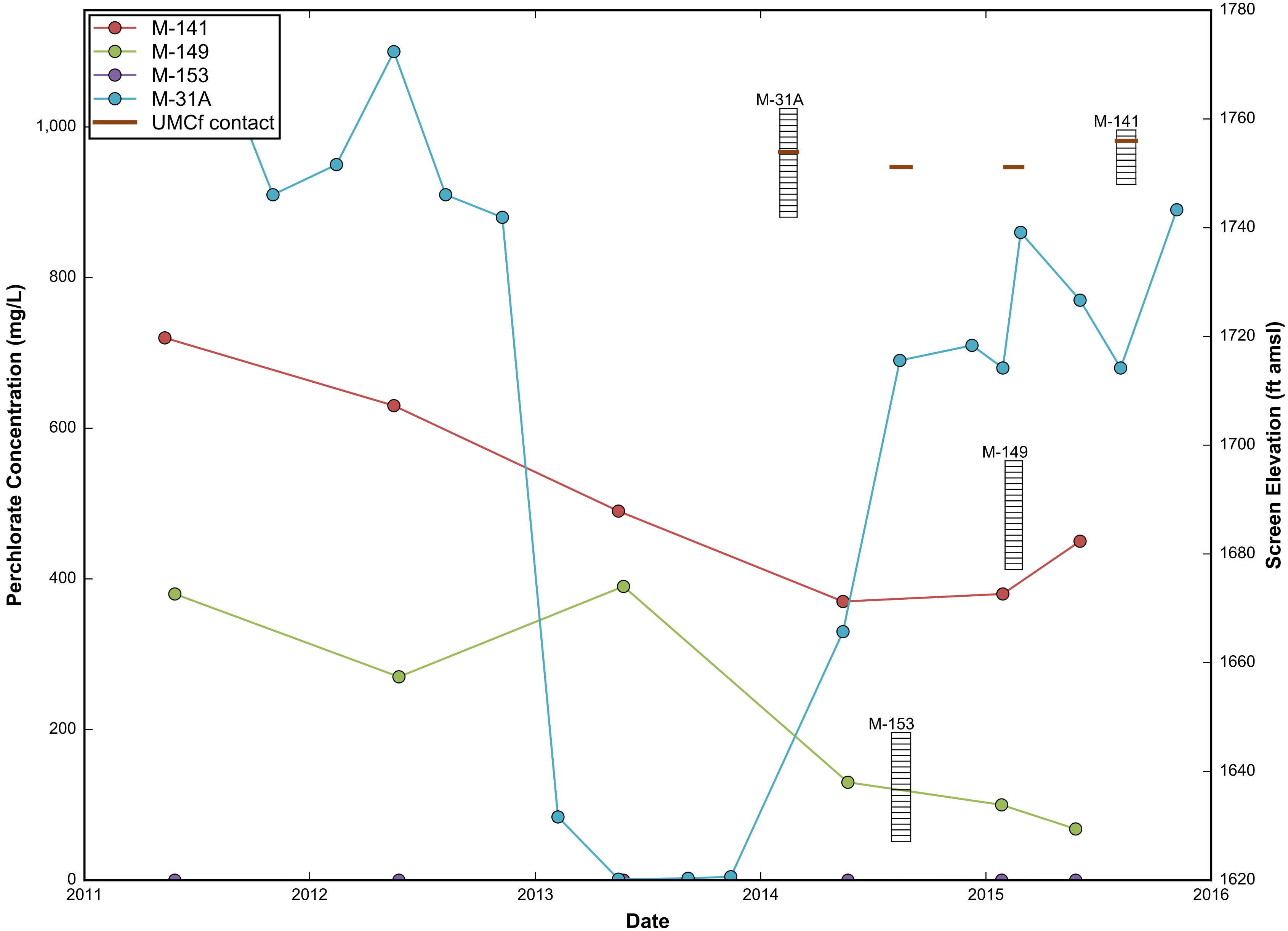
RAMBOLL ENVIRON

Cluster [M-141,M-149,M-153,M-31A] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-10a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



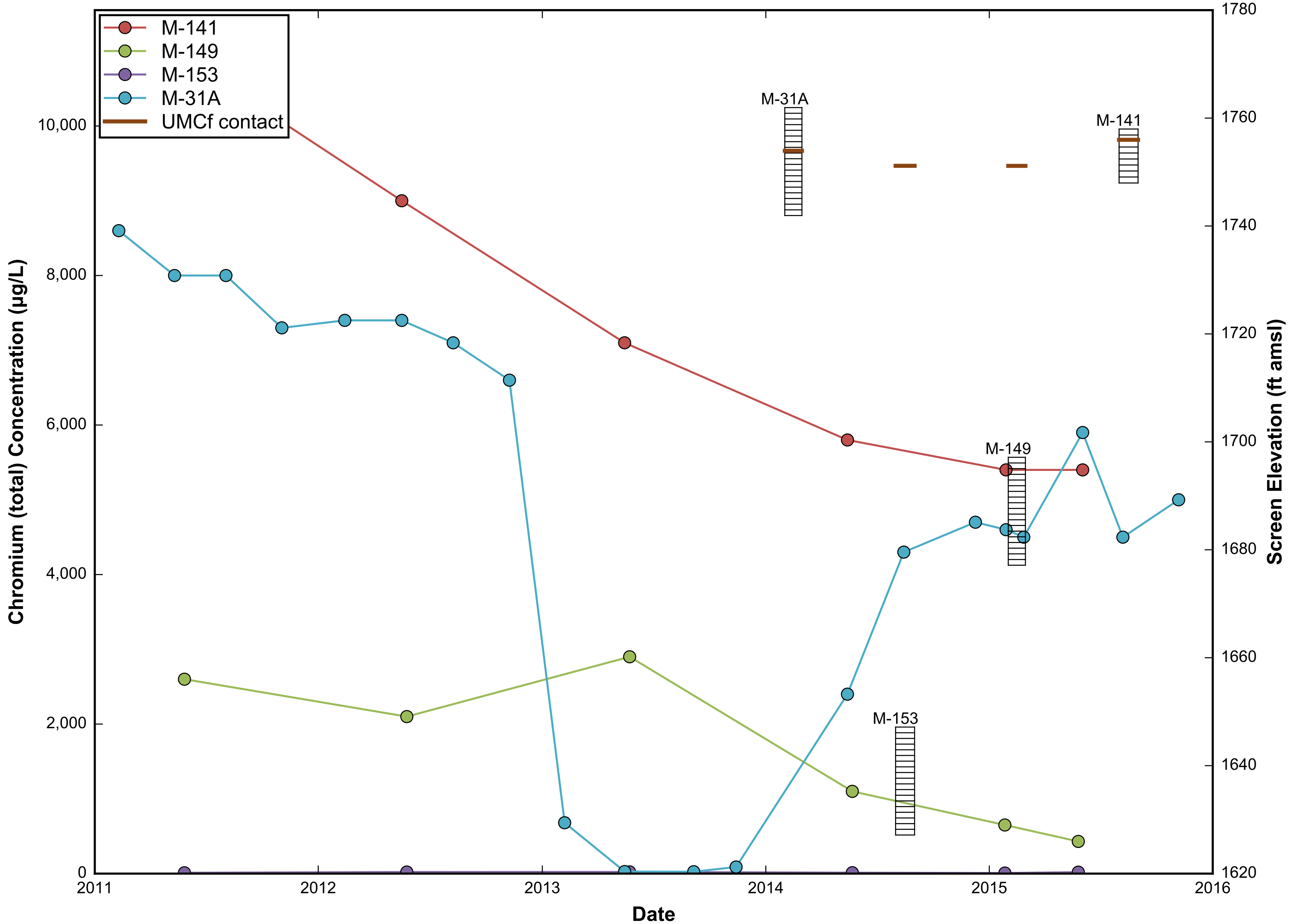
RAMBOLL ENVIRON

Cluster [M-141,M-149,M-153,M-31A] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-10b

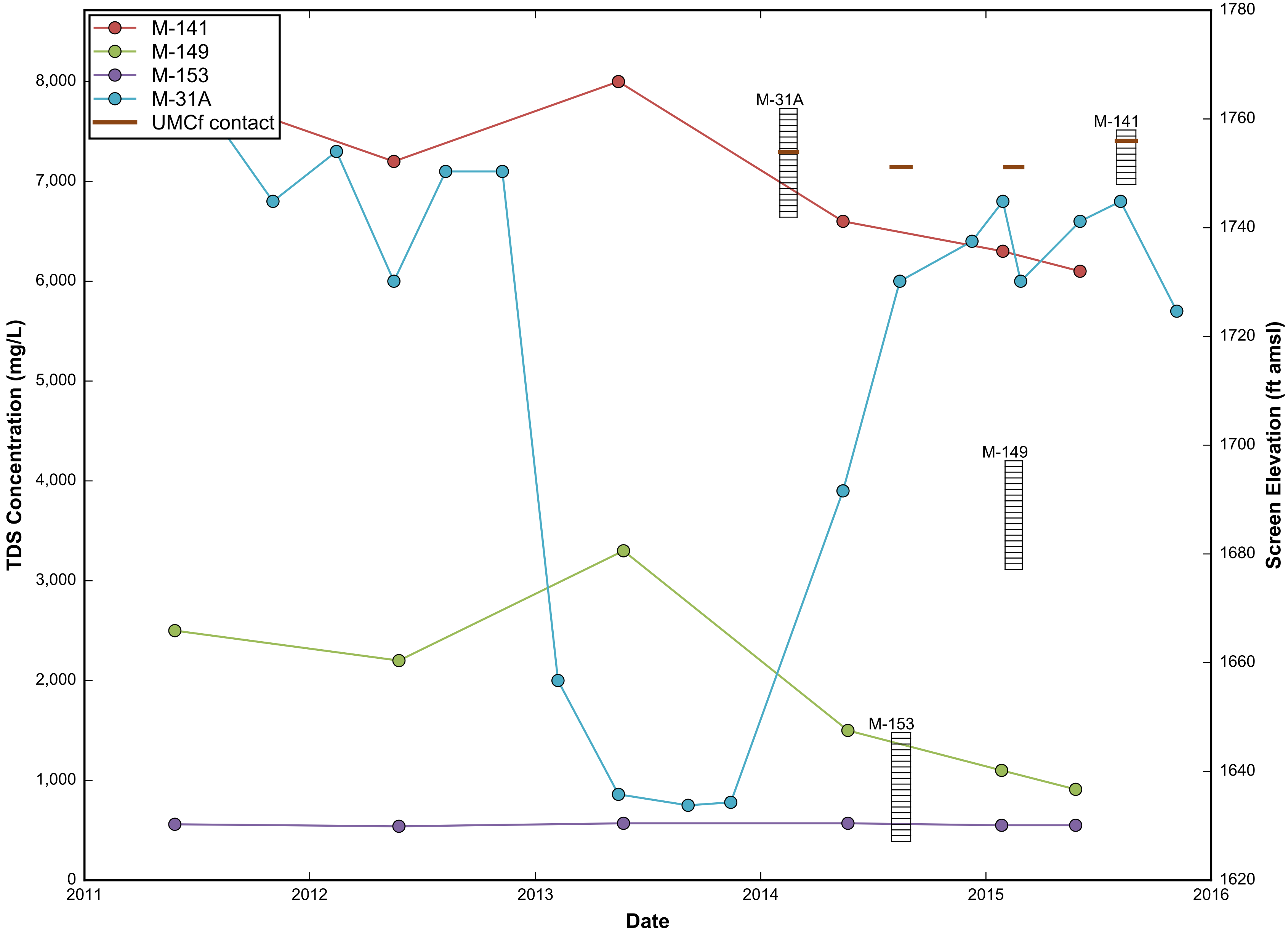
Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON	**Cluster [M-141,M-149,M-153,M-31A] - Chromium (total)** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **A-10c**
	Drafter: YZ Date: 04/29/16 Contract Number: 21-38800A Approved: Revised:	

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-141,M-149,M-153,M-31A] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-10d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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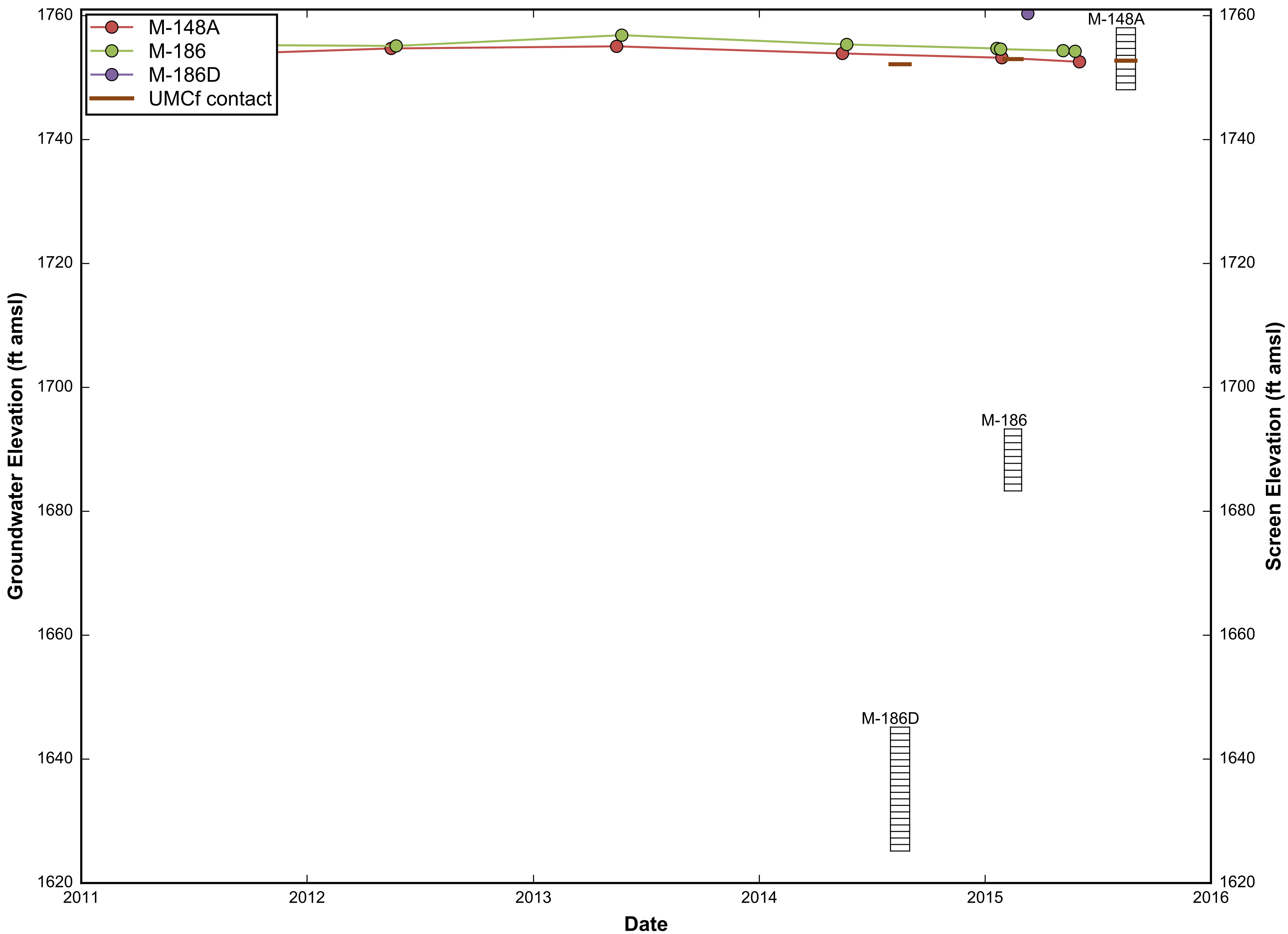


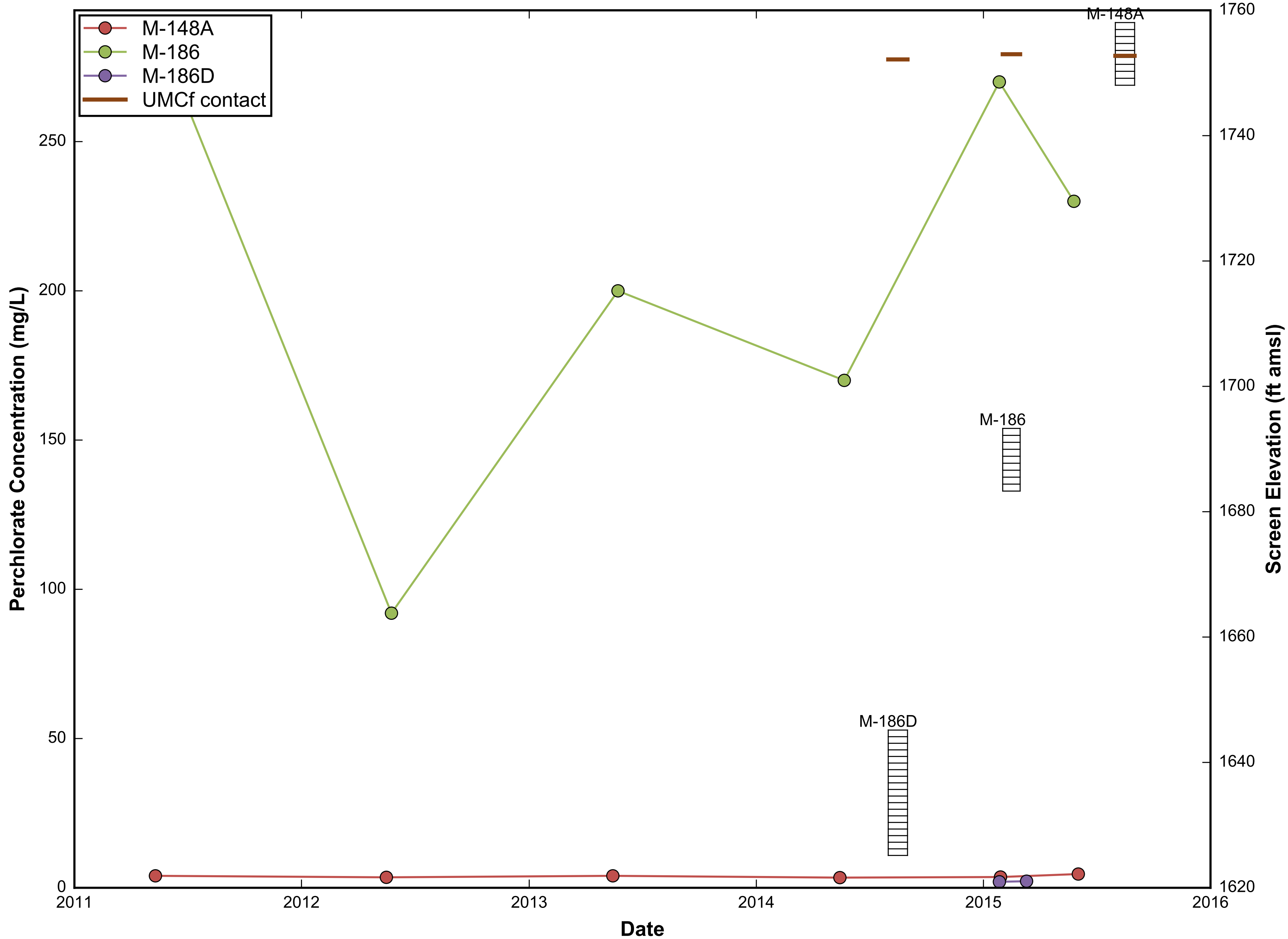
RAMBOLL ENVIRON

Cluster [M-148A,M-186,M-186D] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-11a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



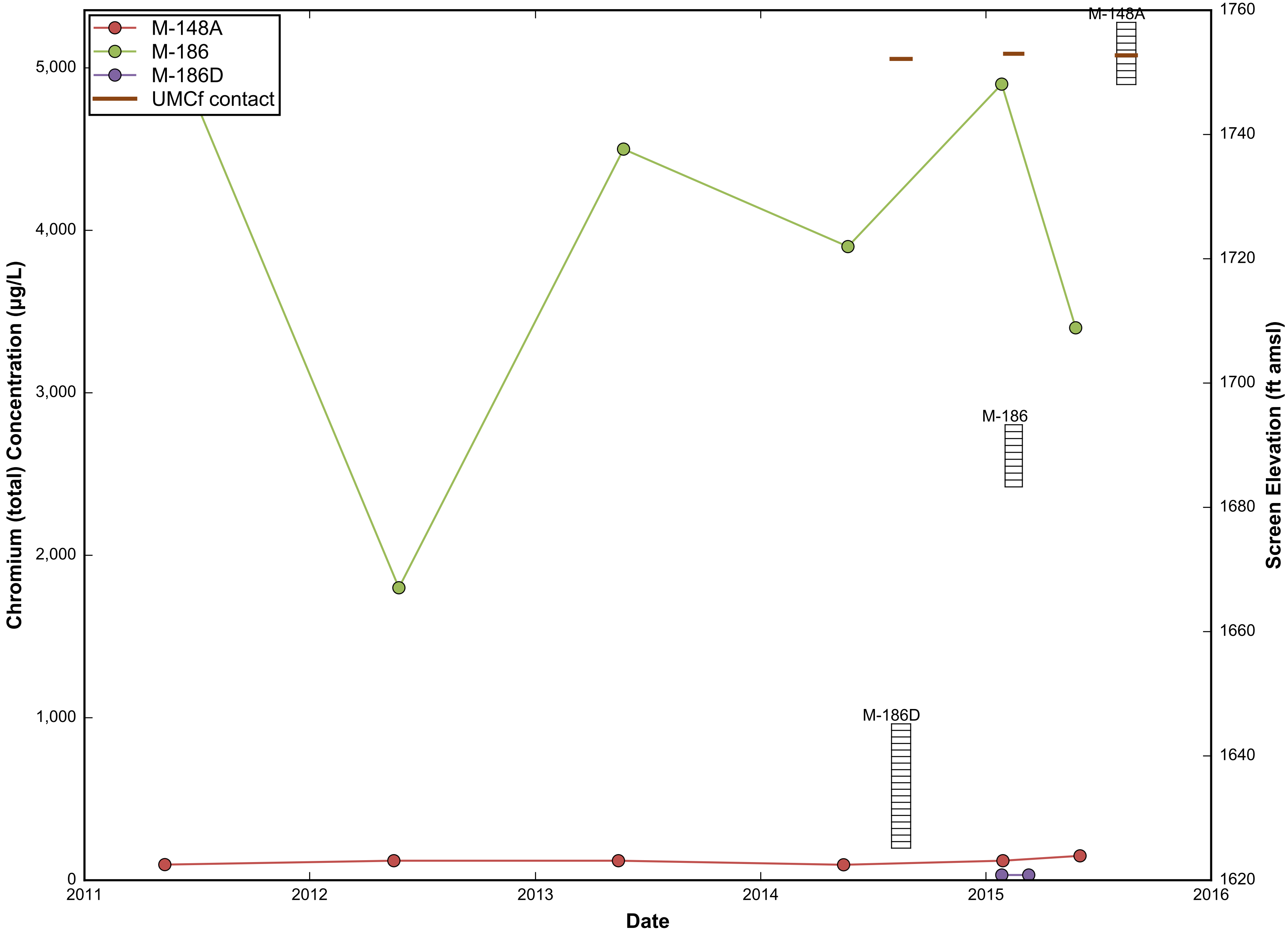
RAMBOLL ENVIRON

Cluster [M-148A,M-186,M-186D] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-11b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



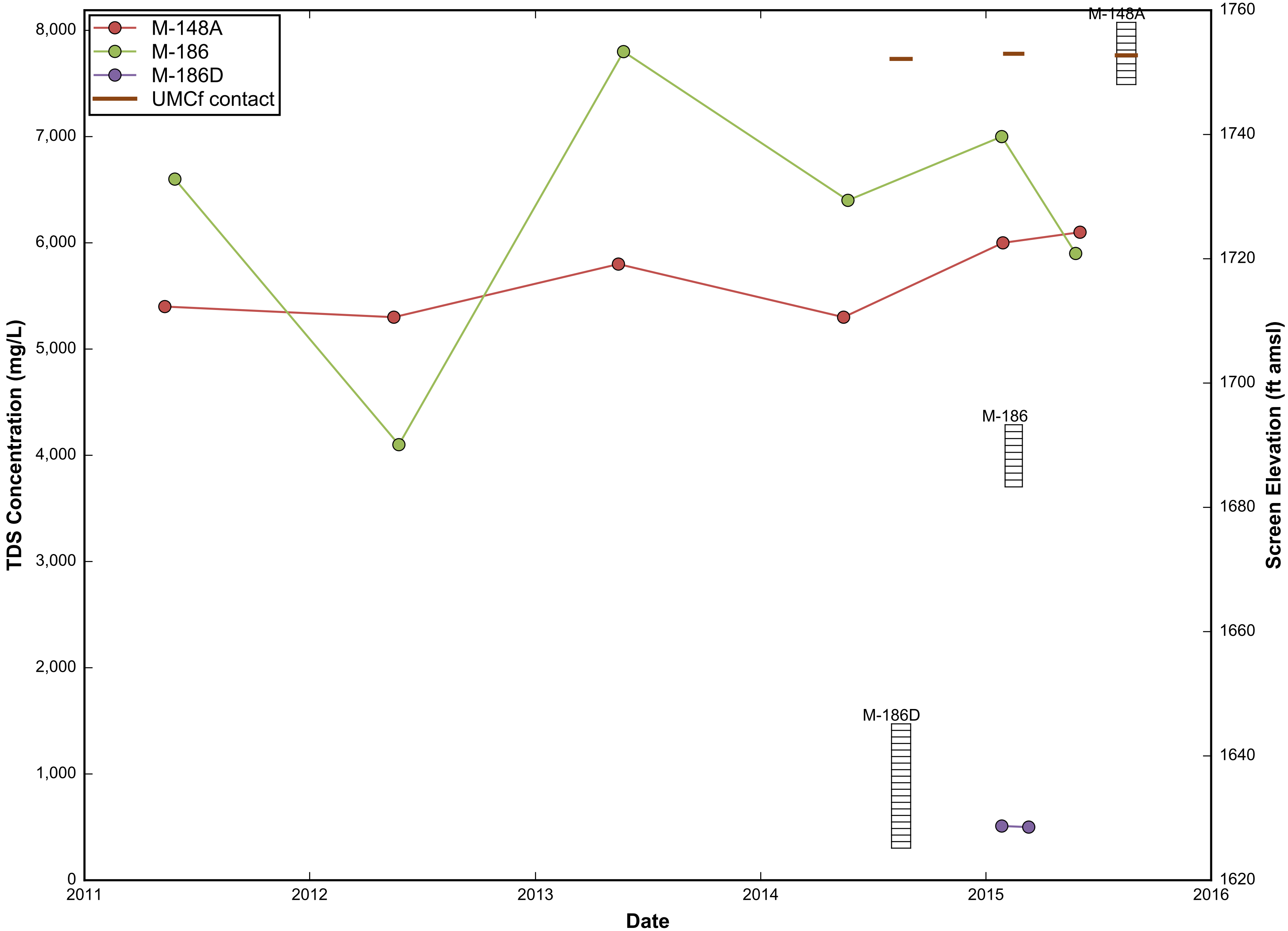
RAMBOLL ENVIRON

Cluster [M-148A,M-186,M-186D] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-11c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



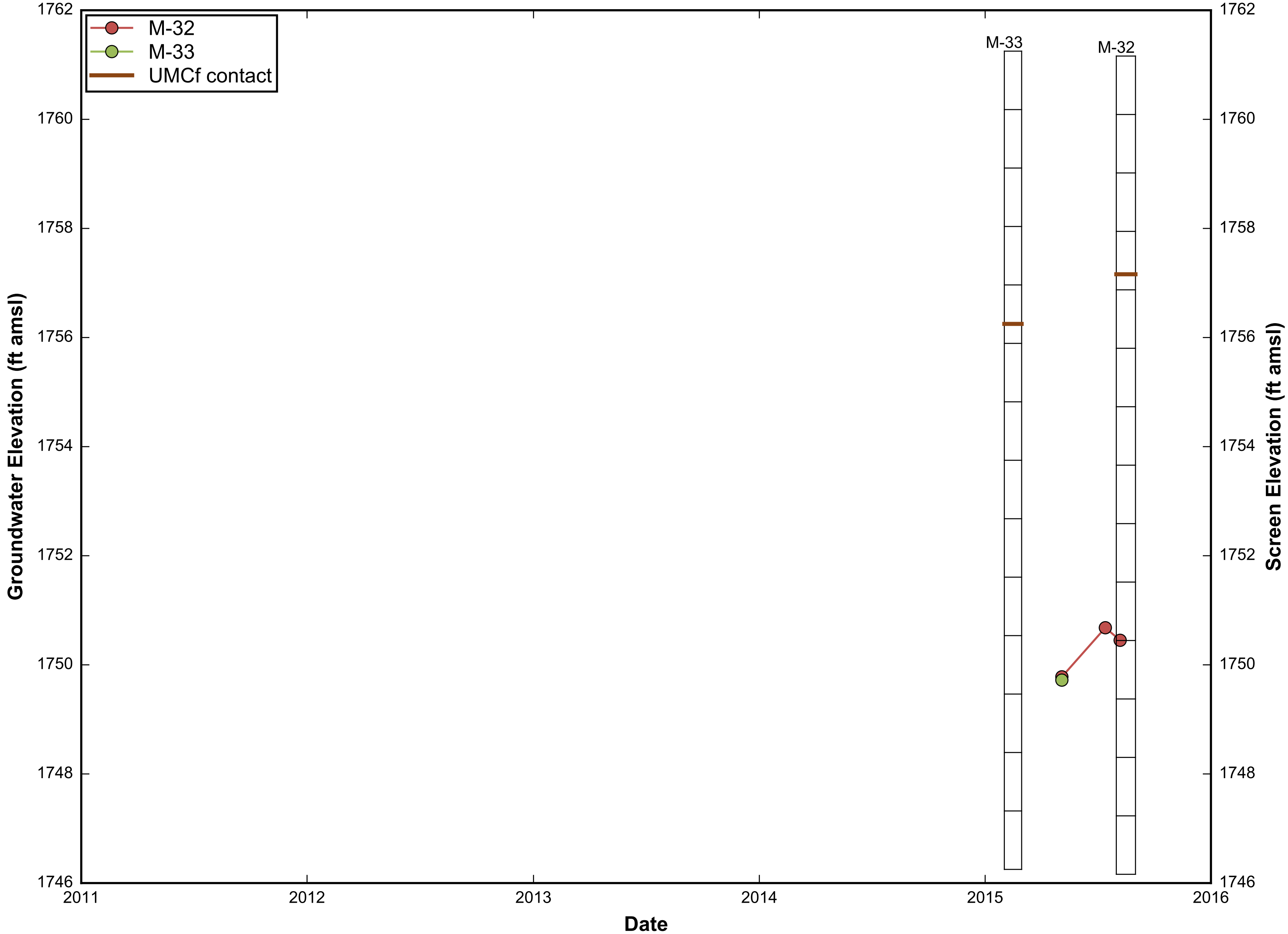
RAMBOLL ENVIRON

Cluster [M-148A,M-186,M-186D] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-11d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



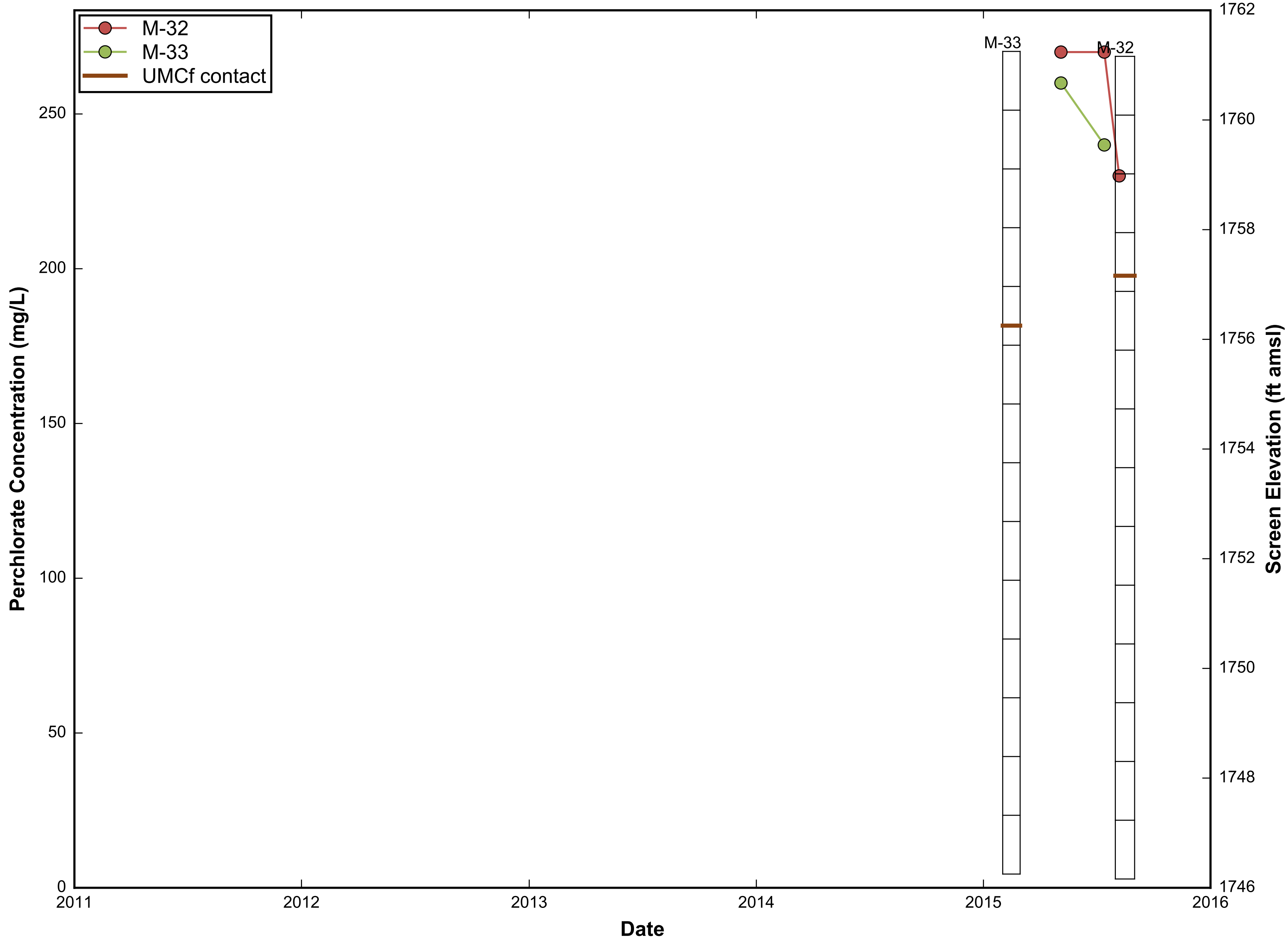
RAMBOLL ENVIRON

Cluster [M-32,M-33] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-12a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



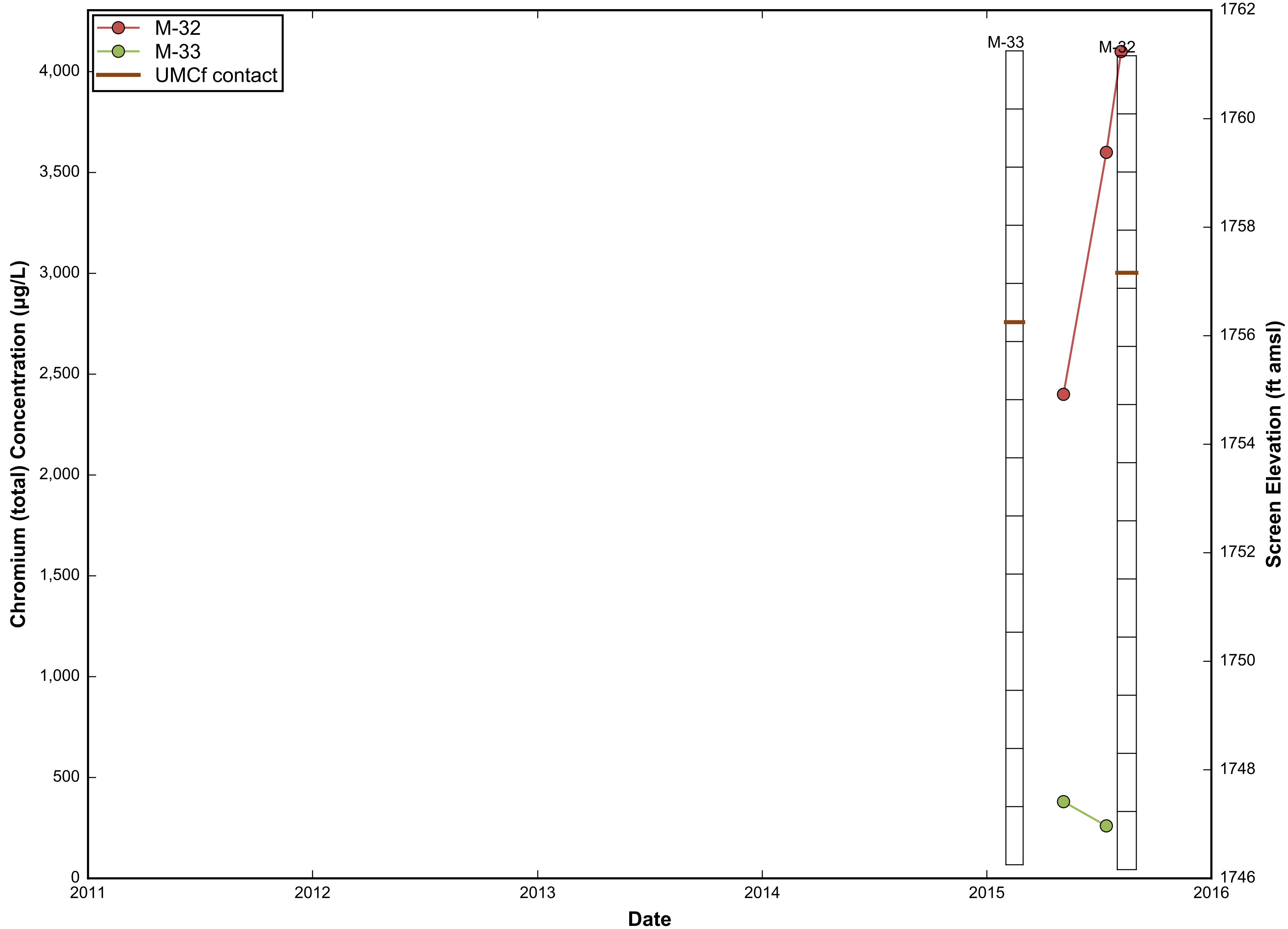
RAMBOLL ENVIRON

Cluster [M-32,M-33] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-12b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



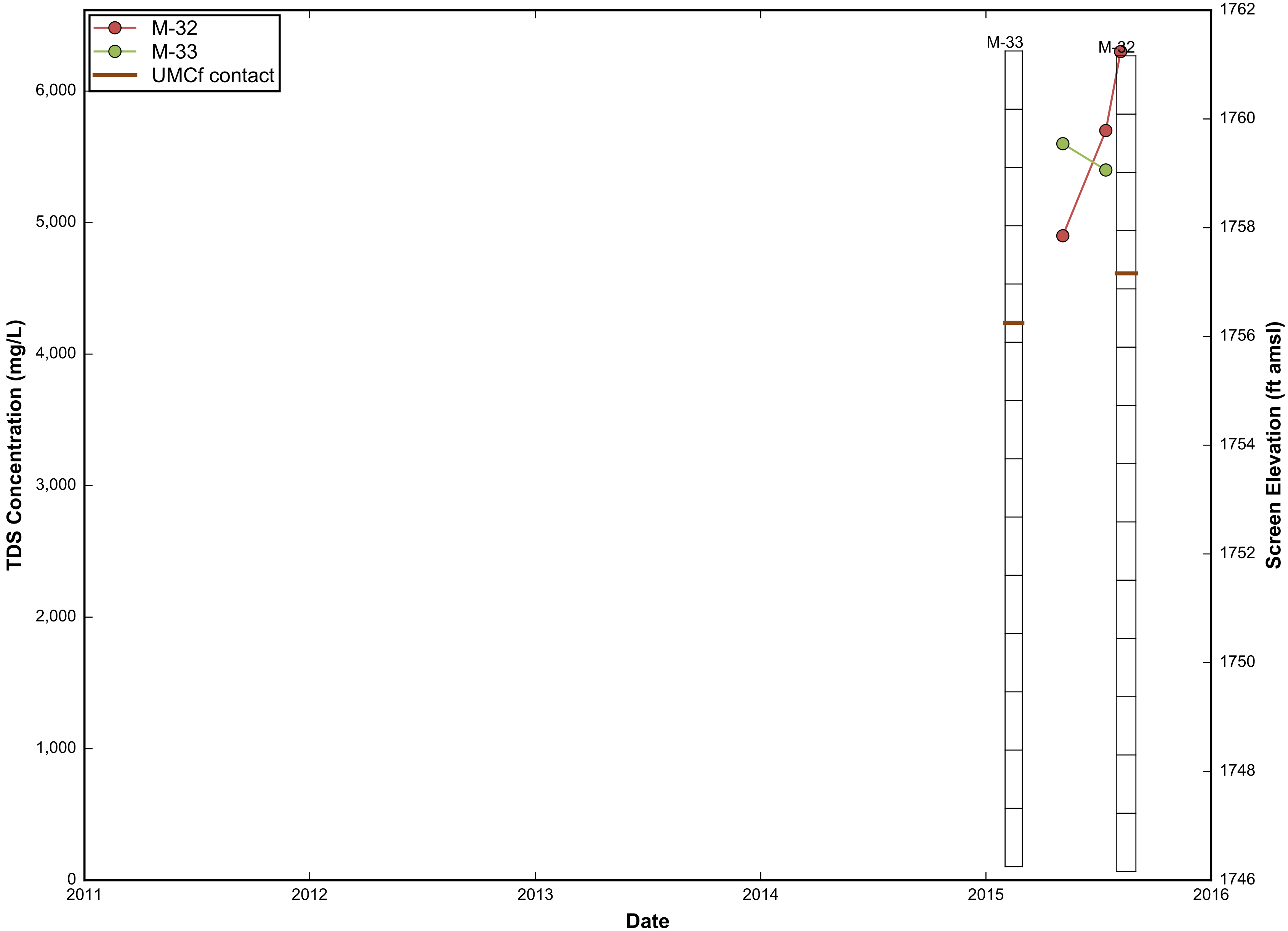
RAMBOLL ENVIRON

Cluster [M-32,M-33] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-12c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



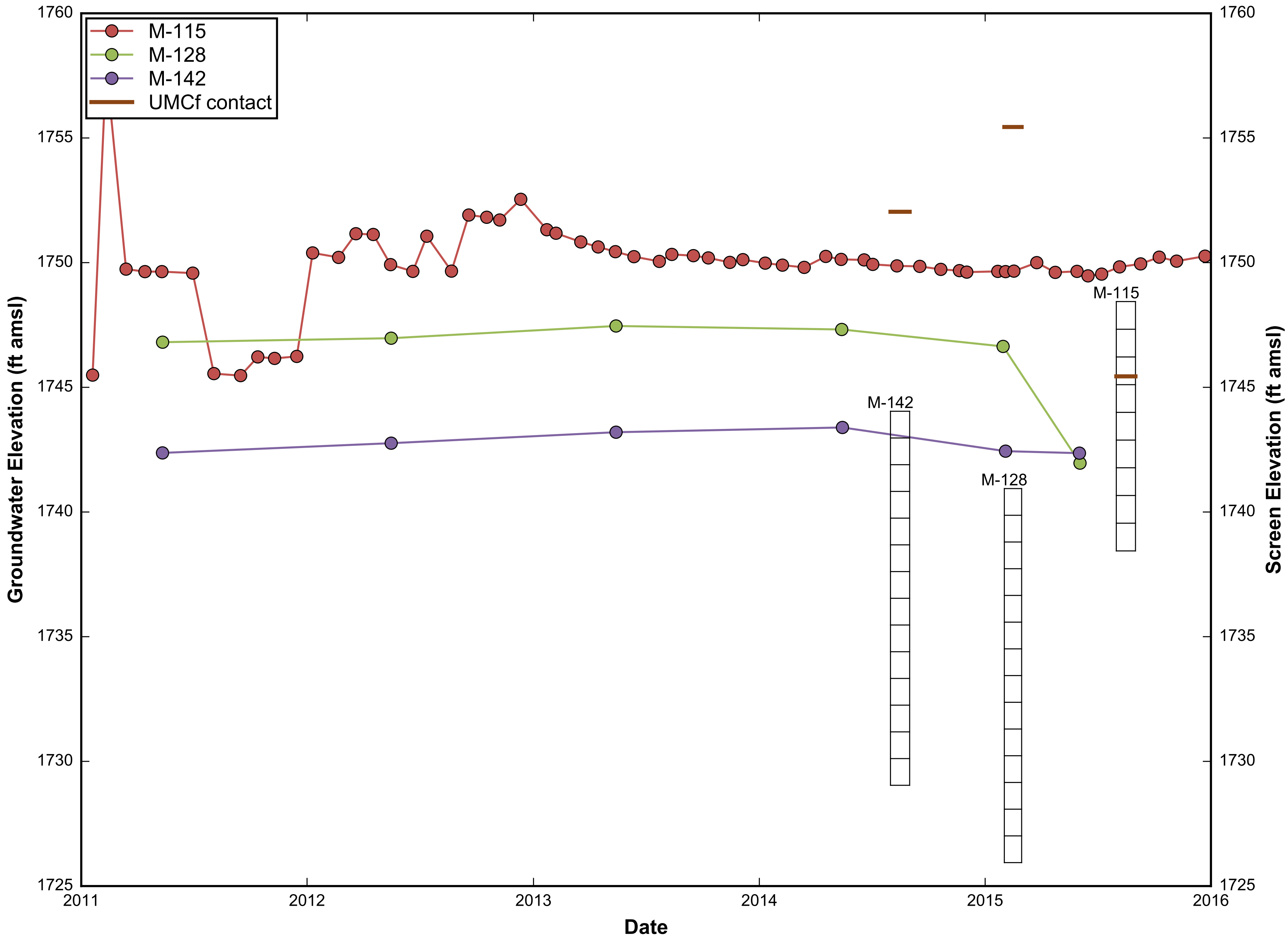
RAMBOLL ENVIRON

Cluster [M-32,M-33] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-12d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



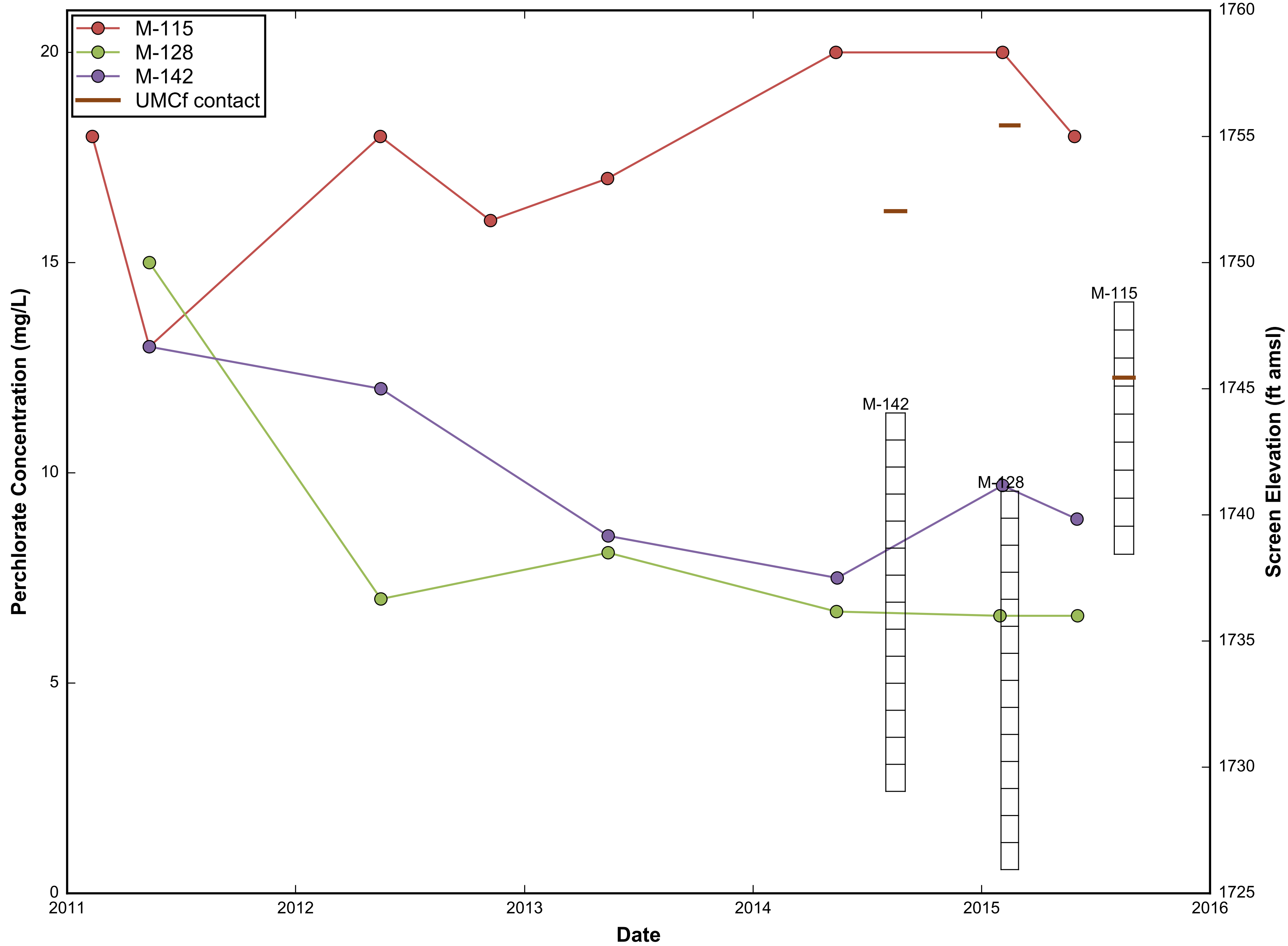
RAMBOLL ENVIRON

Cluster [M-115,M-128,M-142] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-13a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



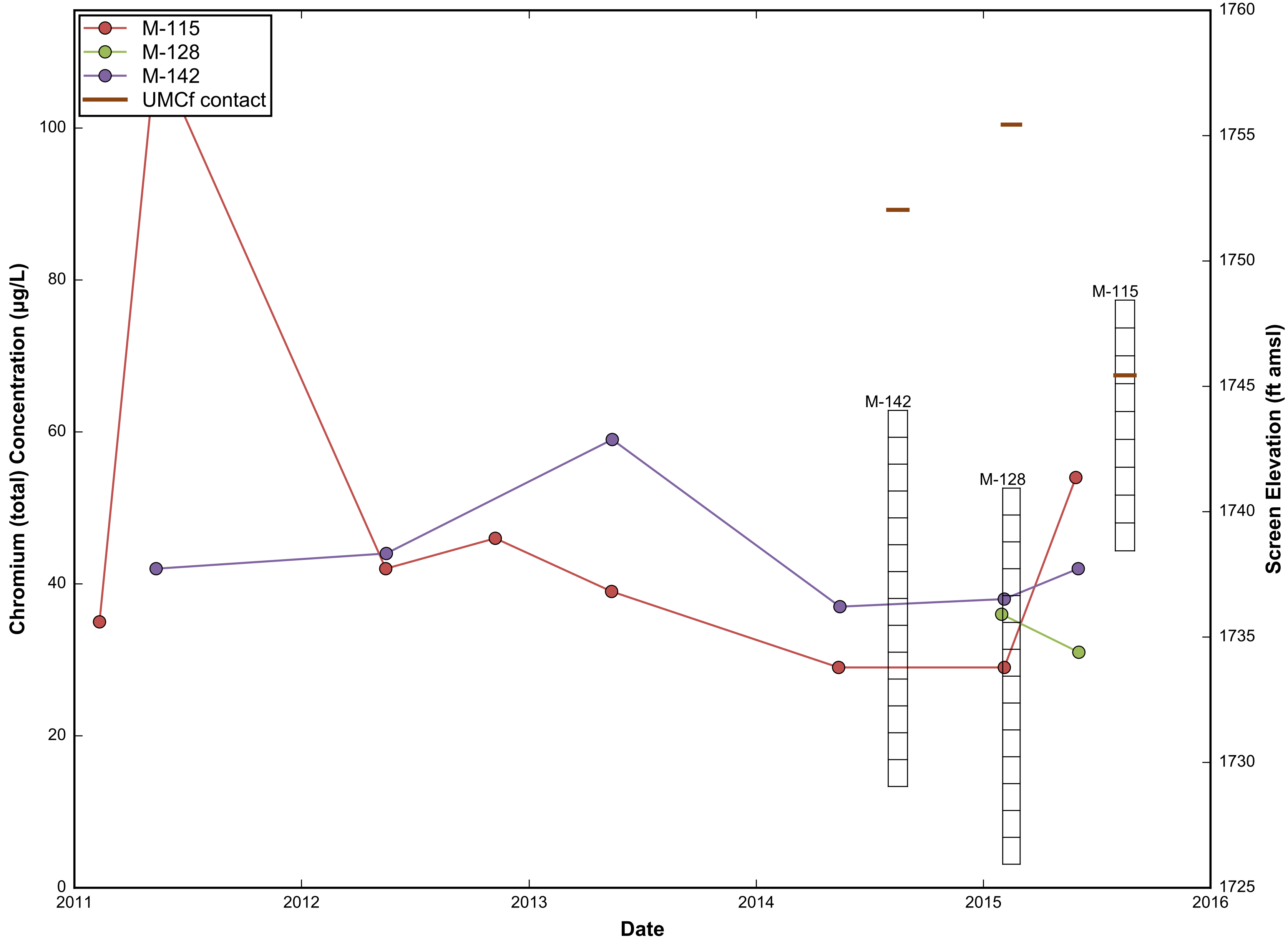
RAMBOLL ENVIRON

Cluster [M-115,M-128,M-142] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-13b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



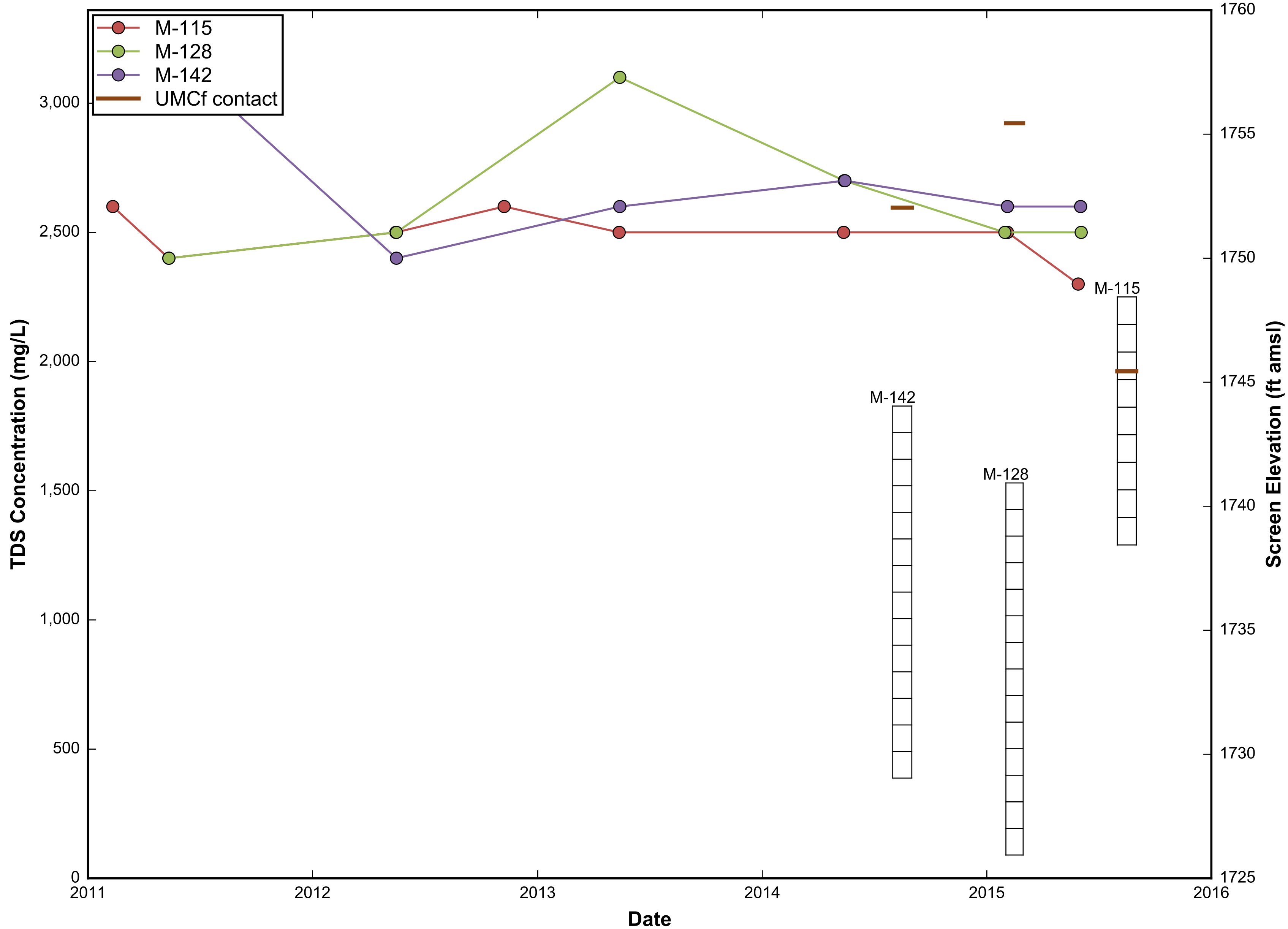
RAMBOLL ENVIRON

Cluster [M-115,M-128,M-142] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-13c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-115,M-128,M-142] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-13d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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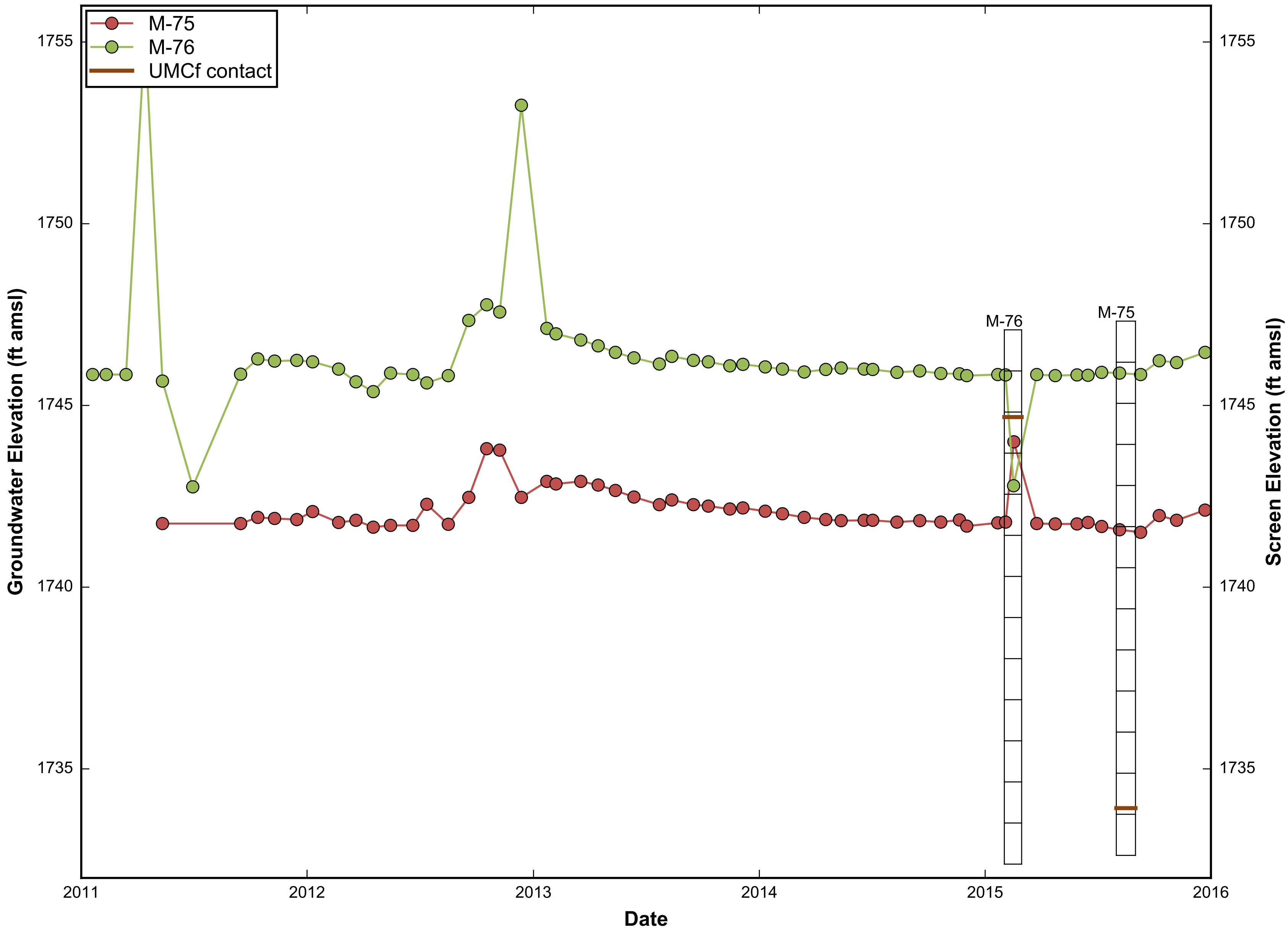


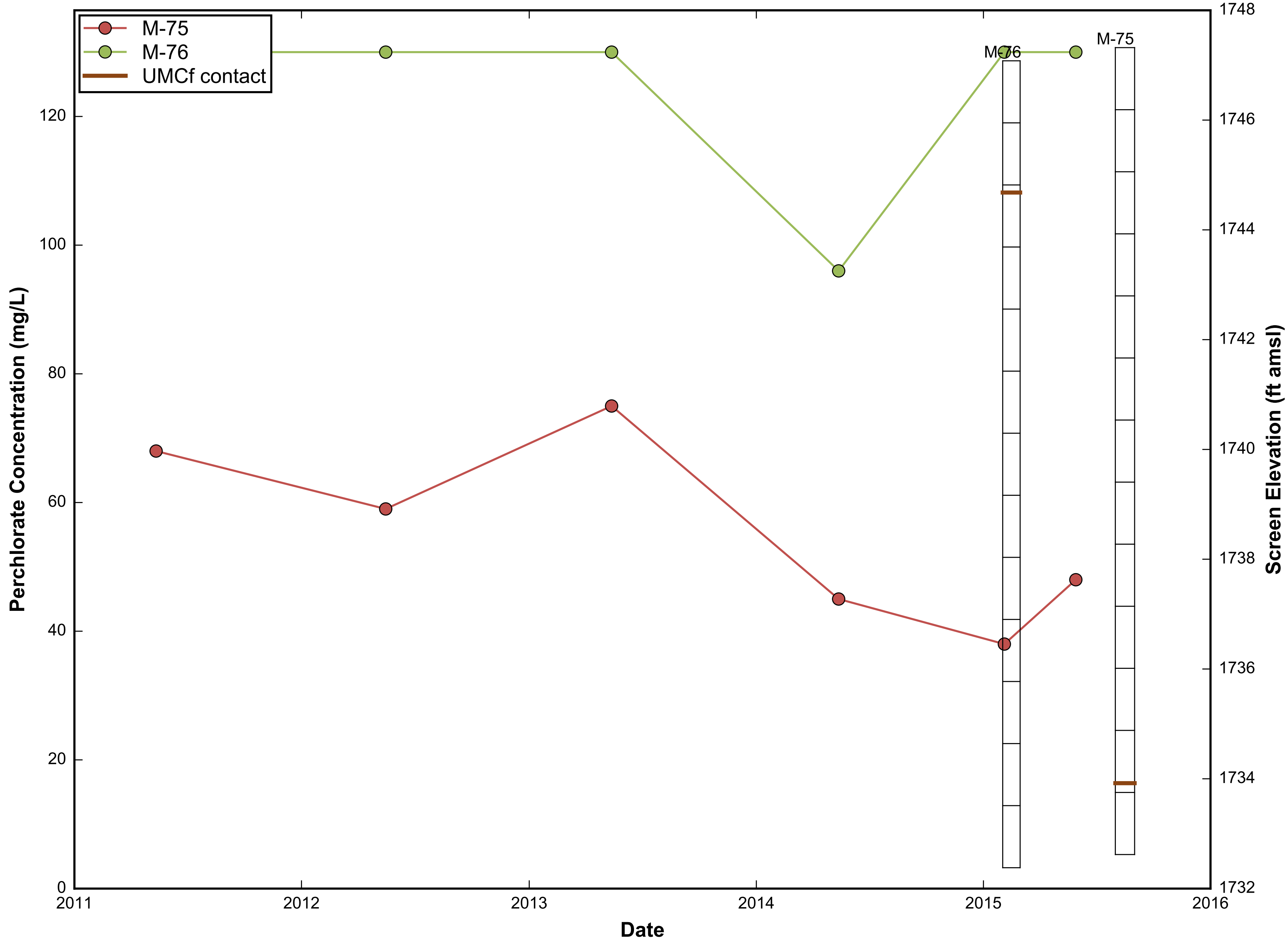
RAMBOLL ENVIRON

Cluster [M-75,M-76] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-14a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



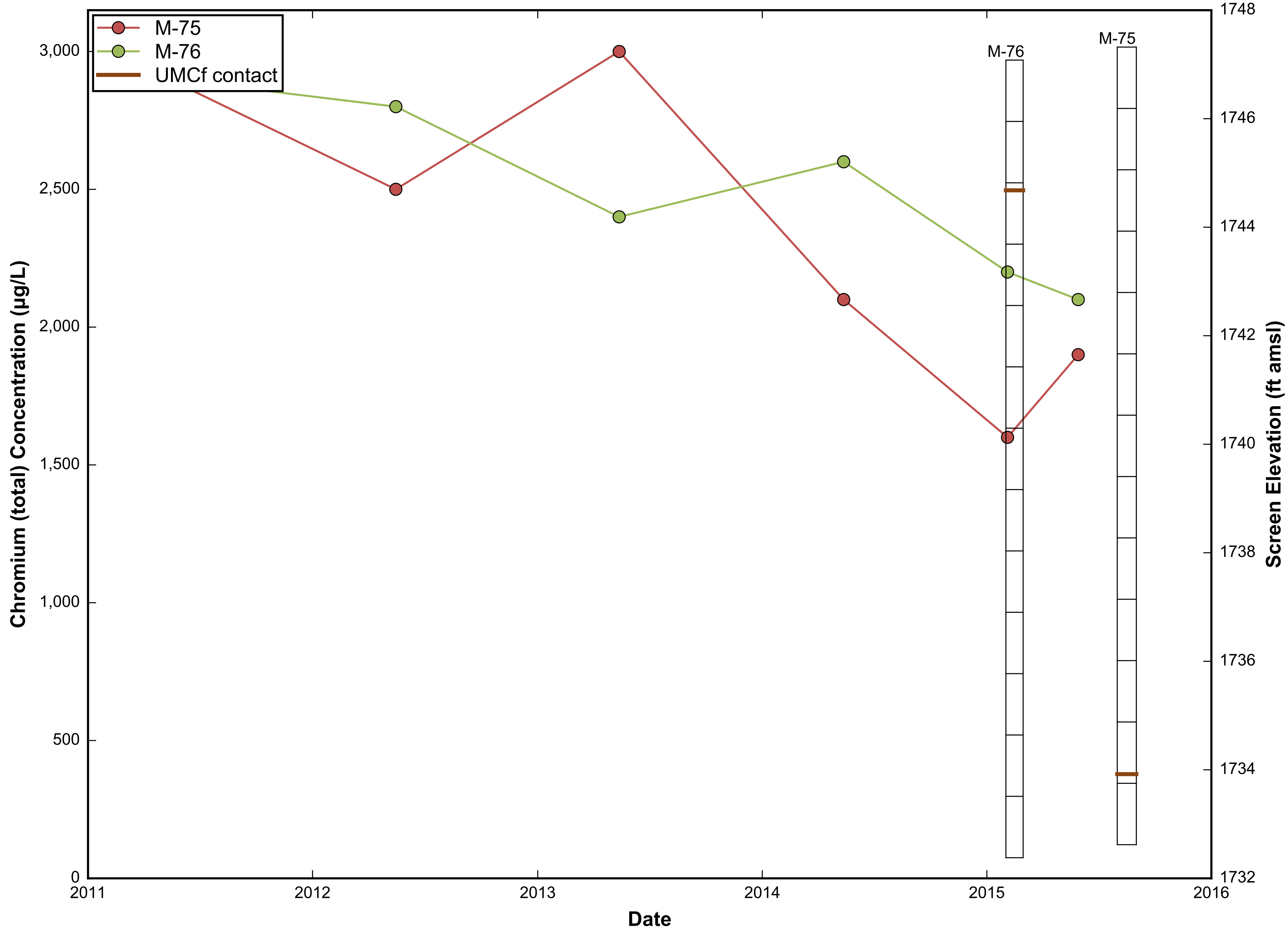
RAMBOLL ENVIRON

Cluster [M-75,M-76] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-14b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-75,M-76] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-14c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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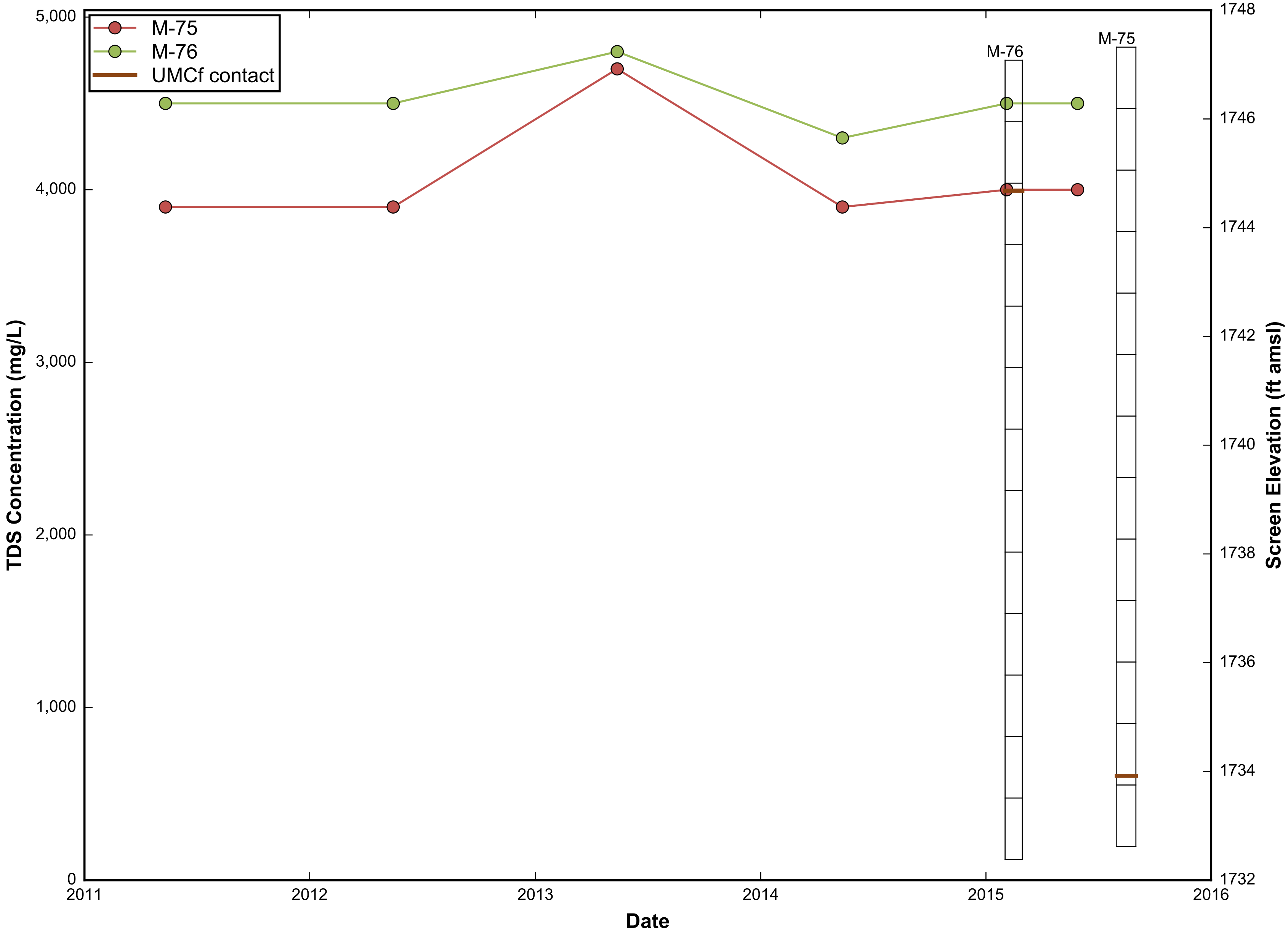

RAMBOLL ENVIRON

Cluster [M-75,M-76] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-14d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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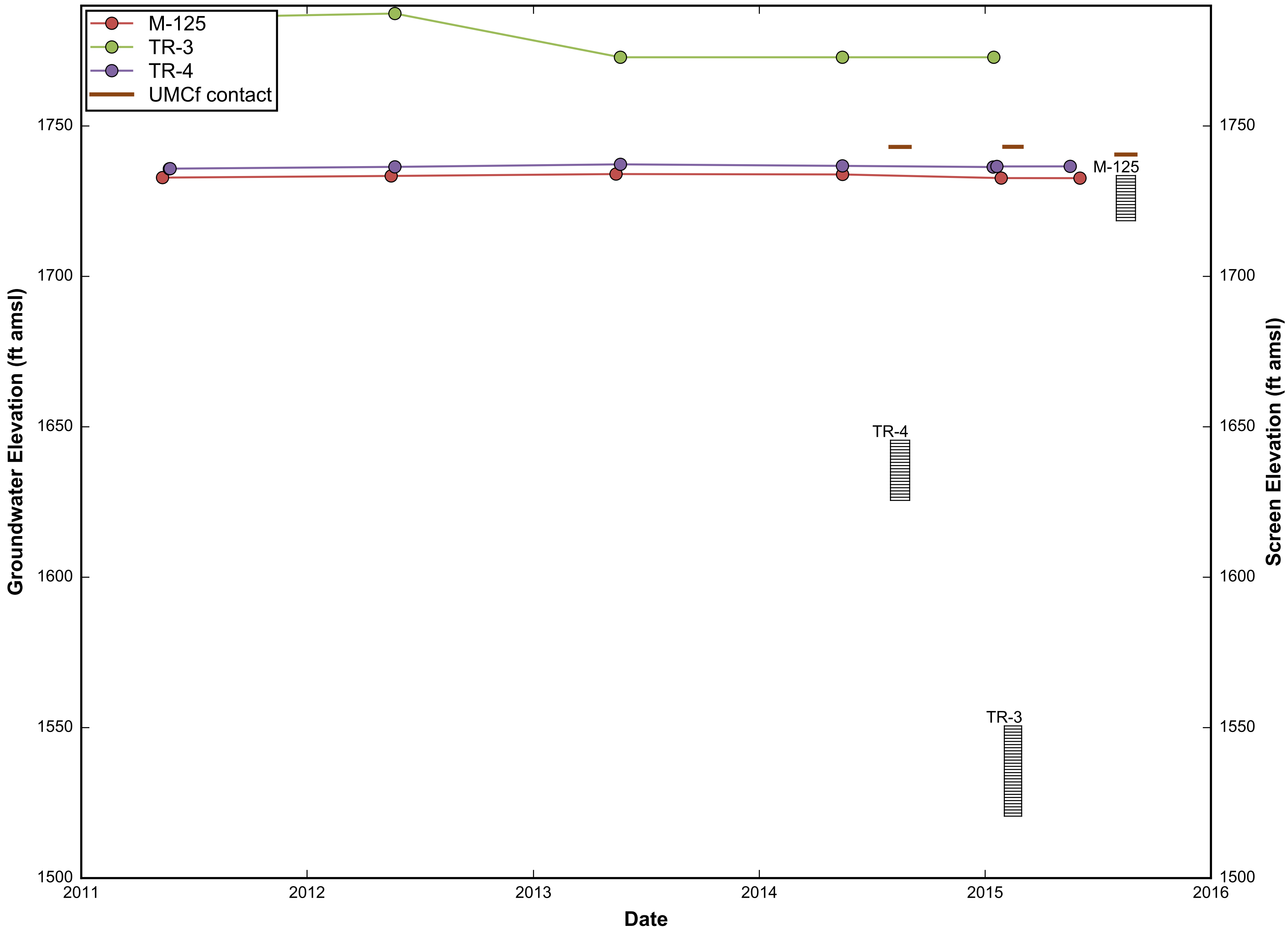


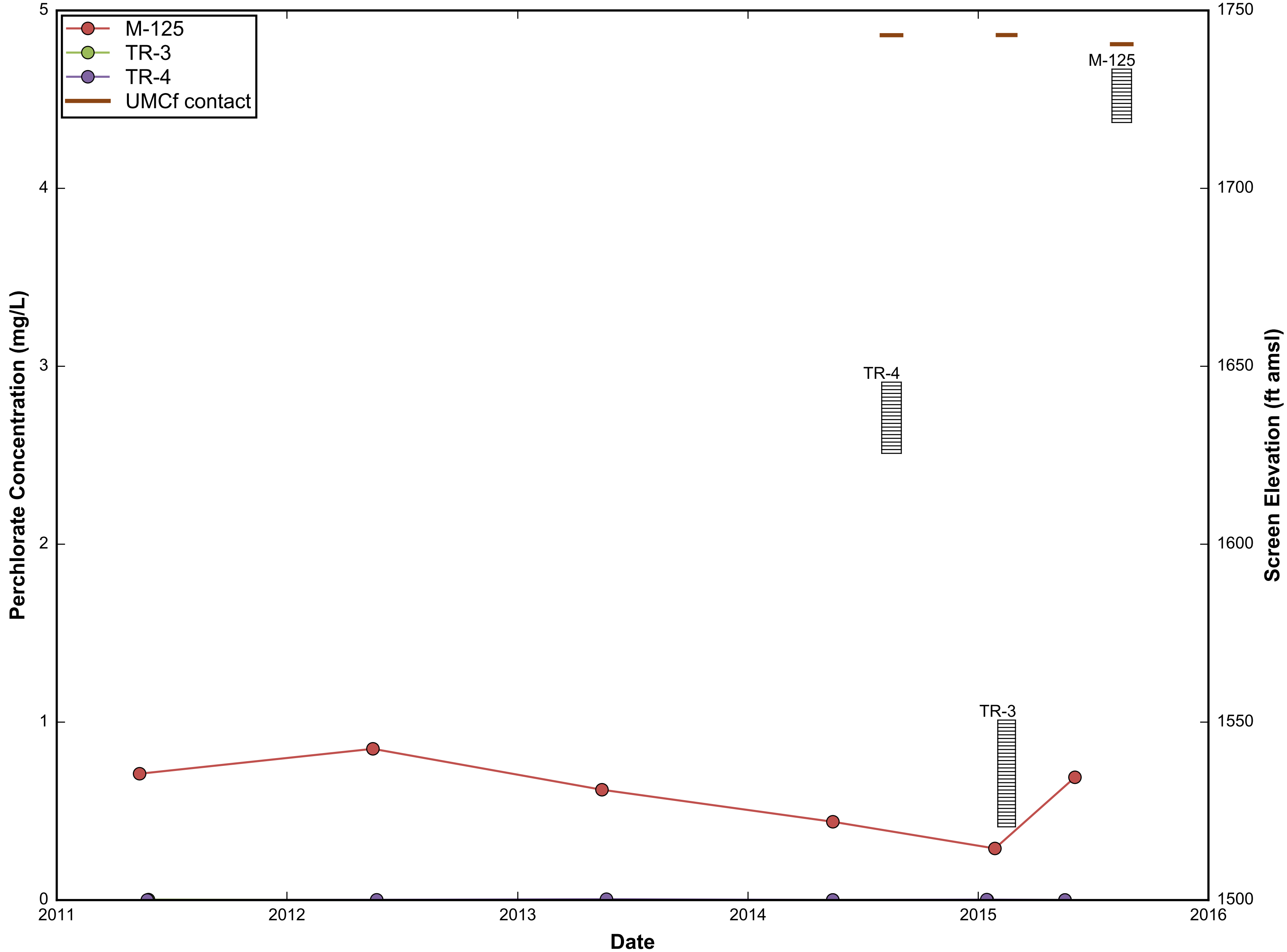
RAMBOLL ENVIRON

Cluster [M-125,TR-3,TR-4] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-15a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-125,TR-3,TR-4] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-15b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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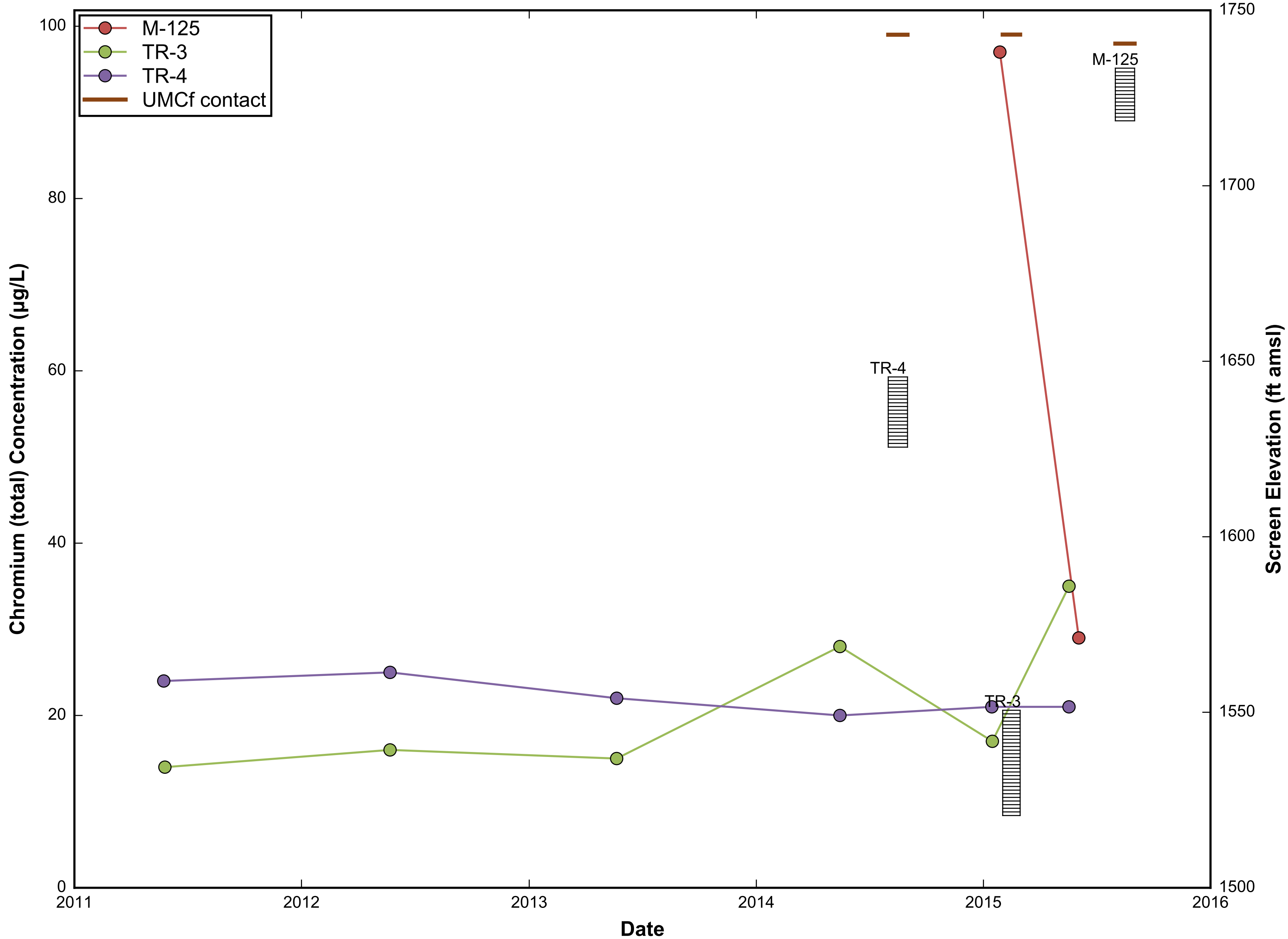
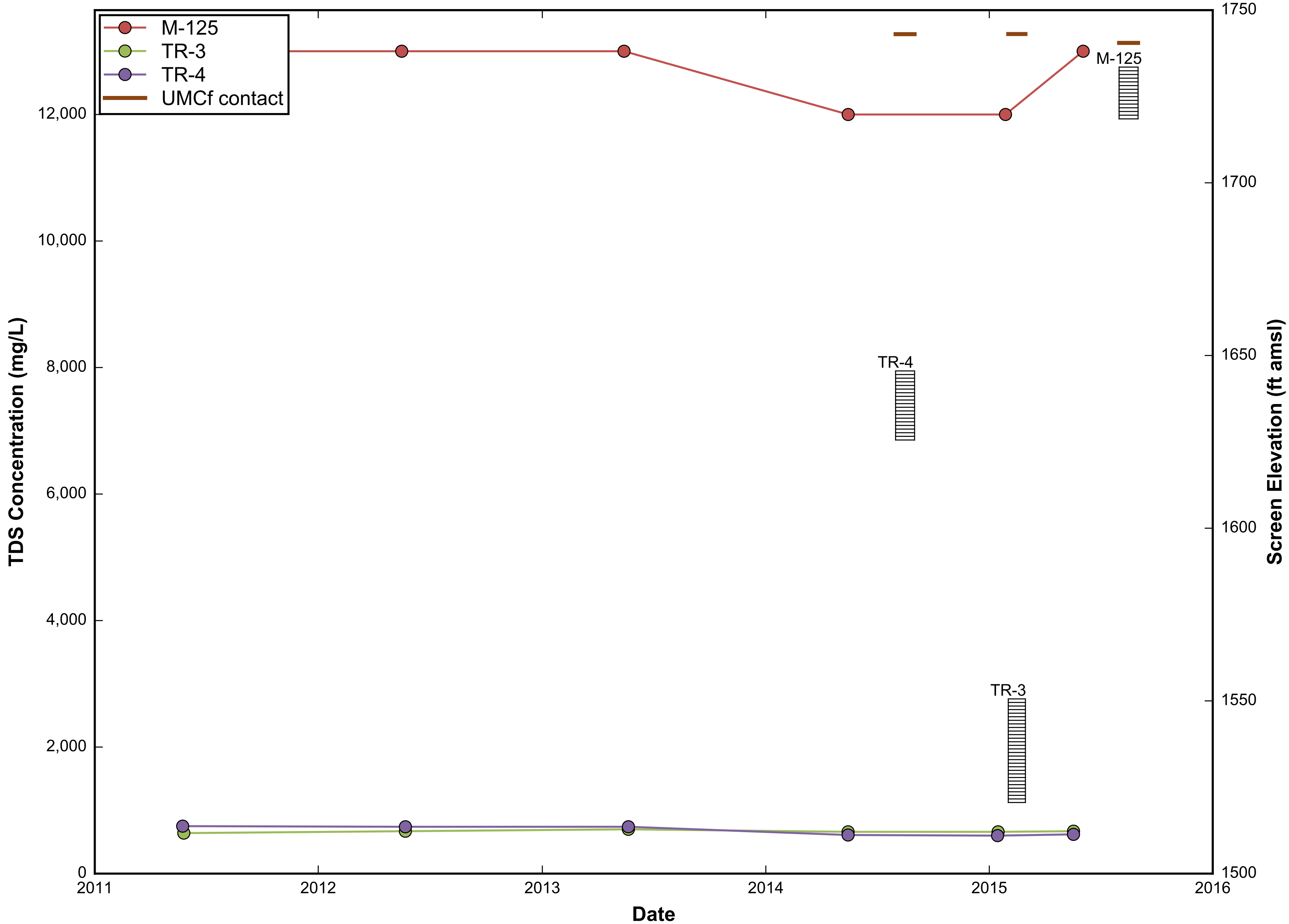


RAMBOLL ENVIRON

Cluster [M-125,TR-3,TR-4] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-15c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



RAMBOLL ENVIRON

Cluster [M-125,TR-3,TR-4] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-15d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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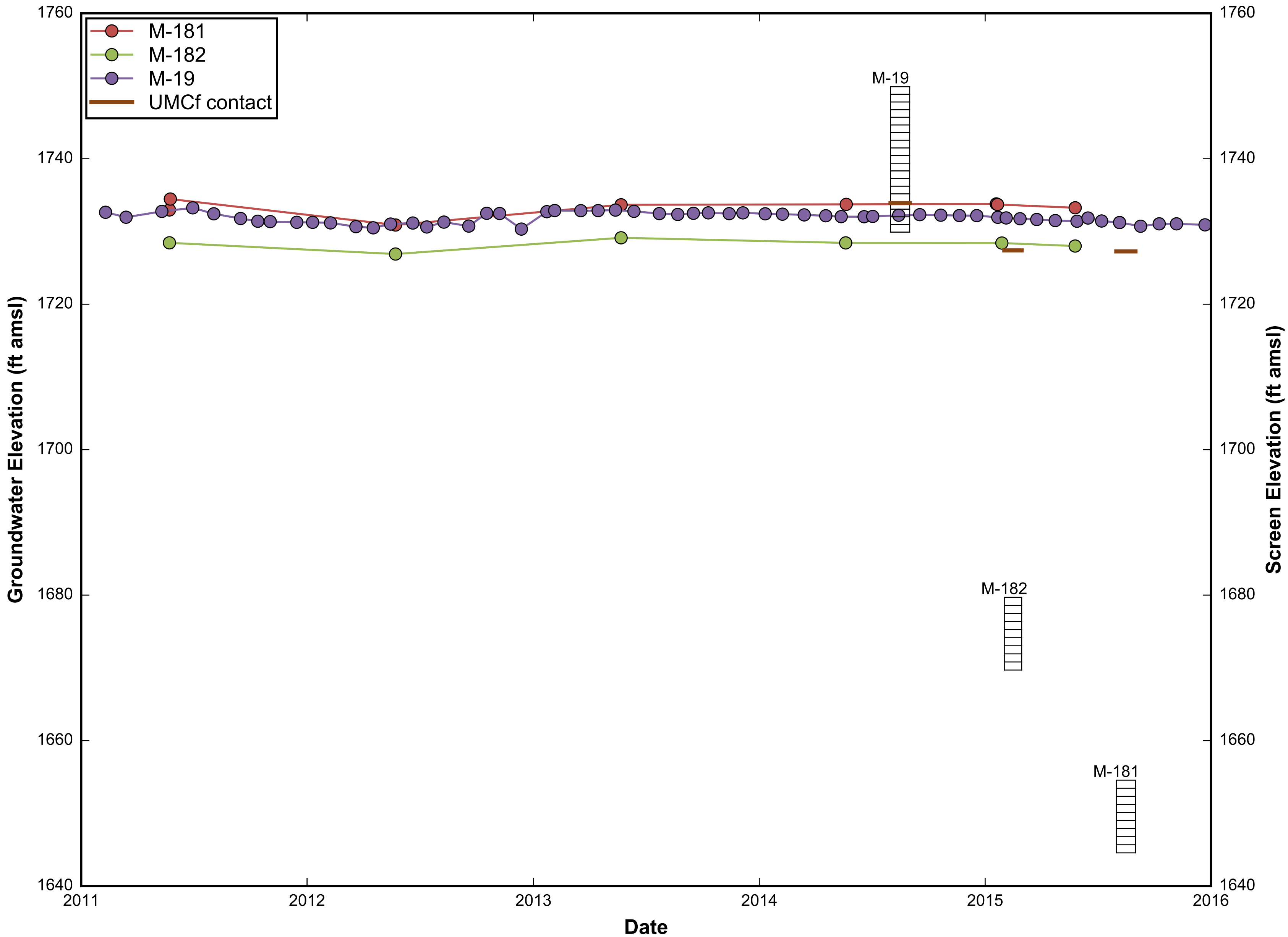

RAMBOLL ENVIRON

Cluster [M-181,M-182,M-19] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-16a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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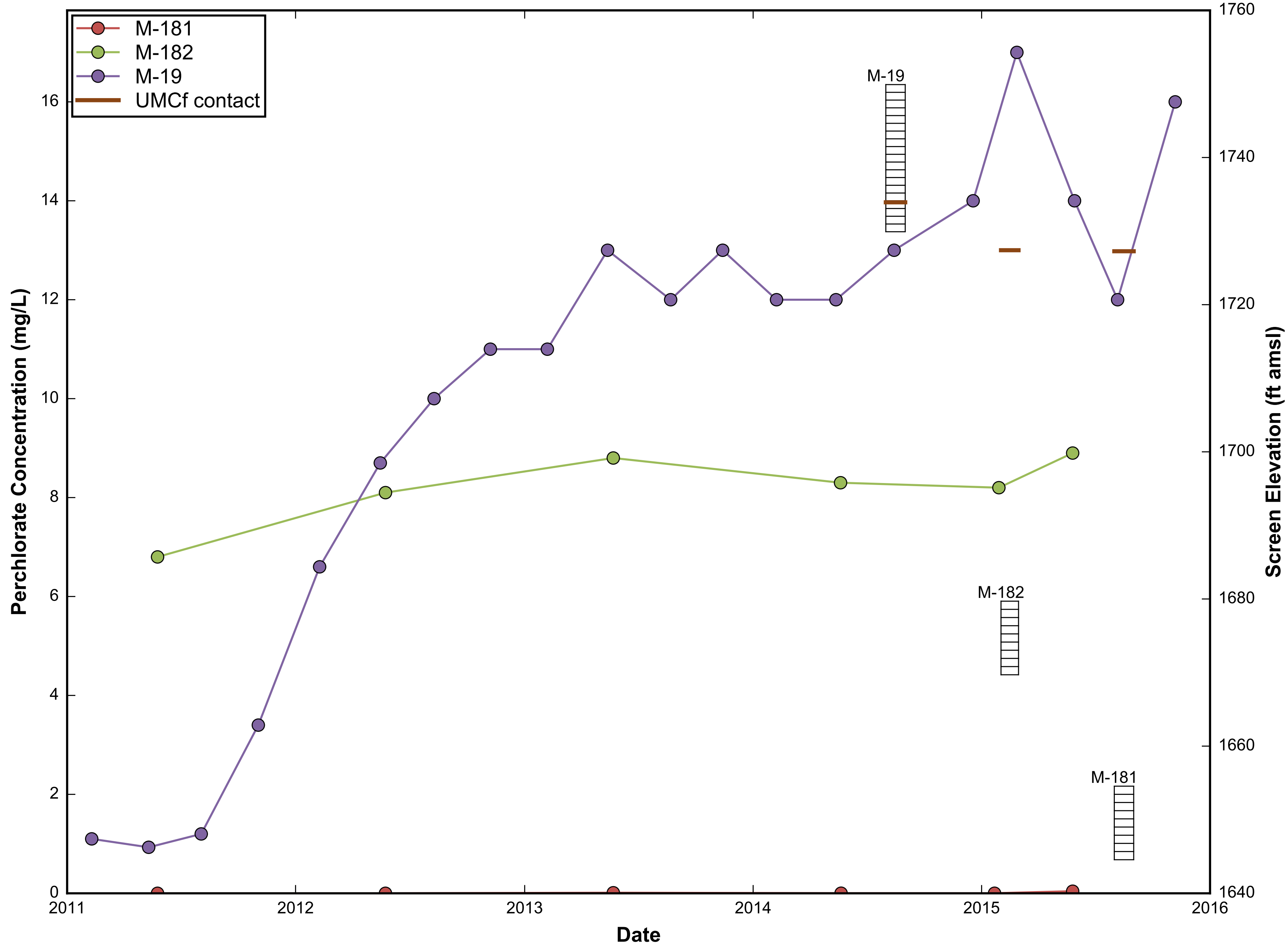

RAMBOLL ENVIRON

Cluster [M-181,M-182,M-19] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-16b

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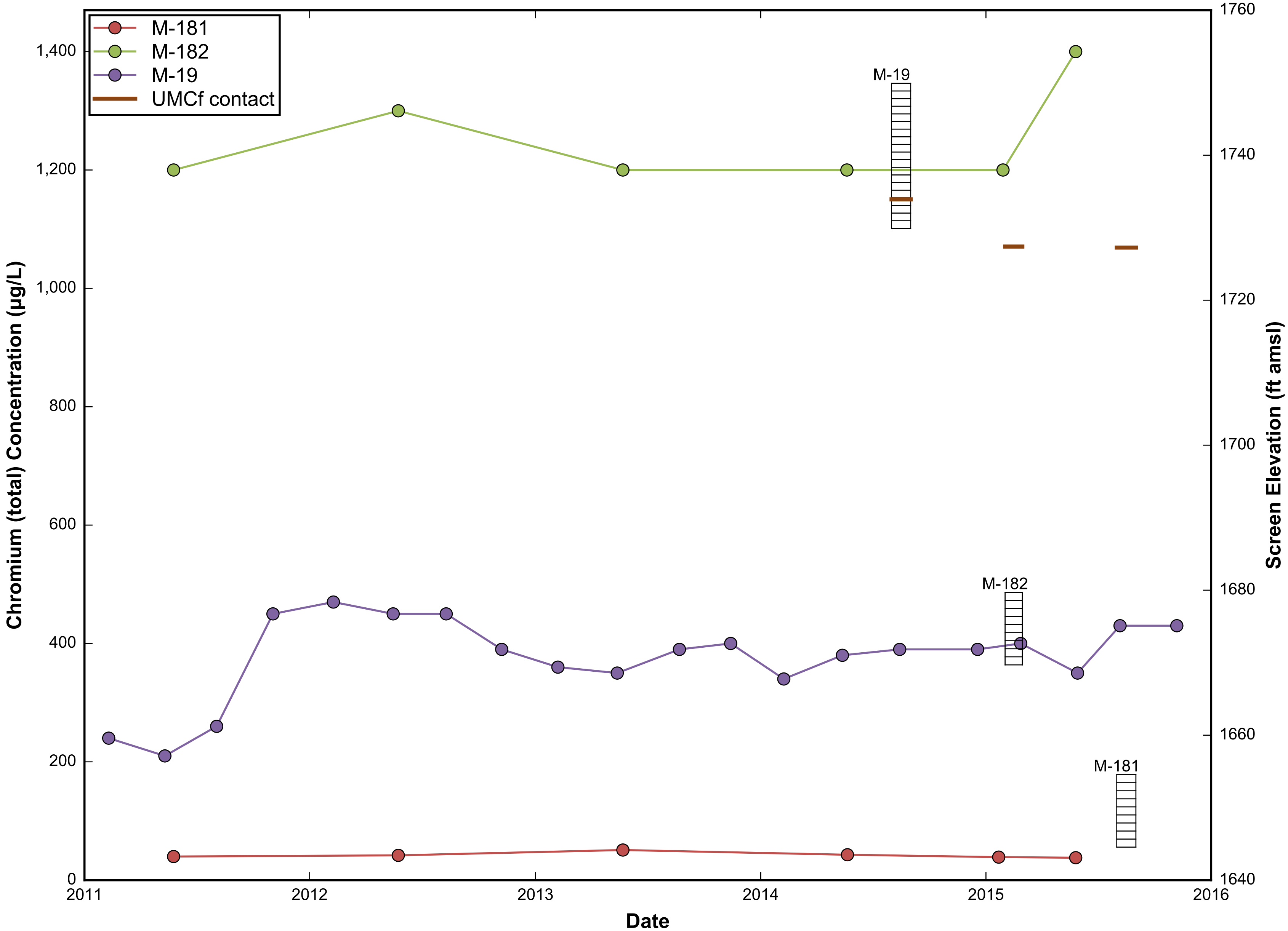

RAMBOLL ENVIRON

Cluster [M-181,M-182,M-19] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-16c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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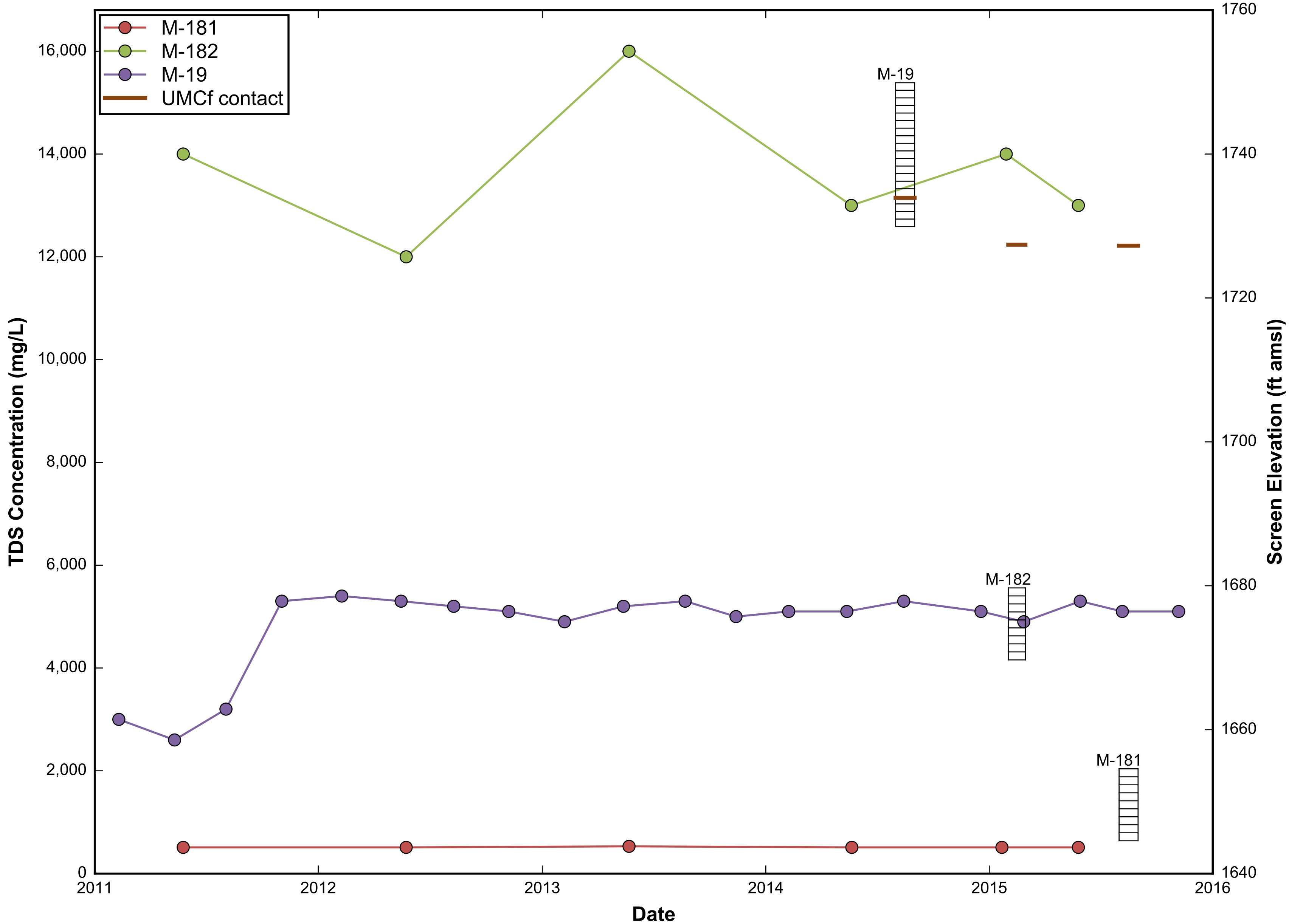

RAMBOLL ENVIRON

Cluster [M-181,M-182,M-19] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-16d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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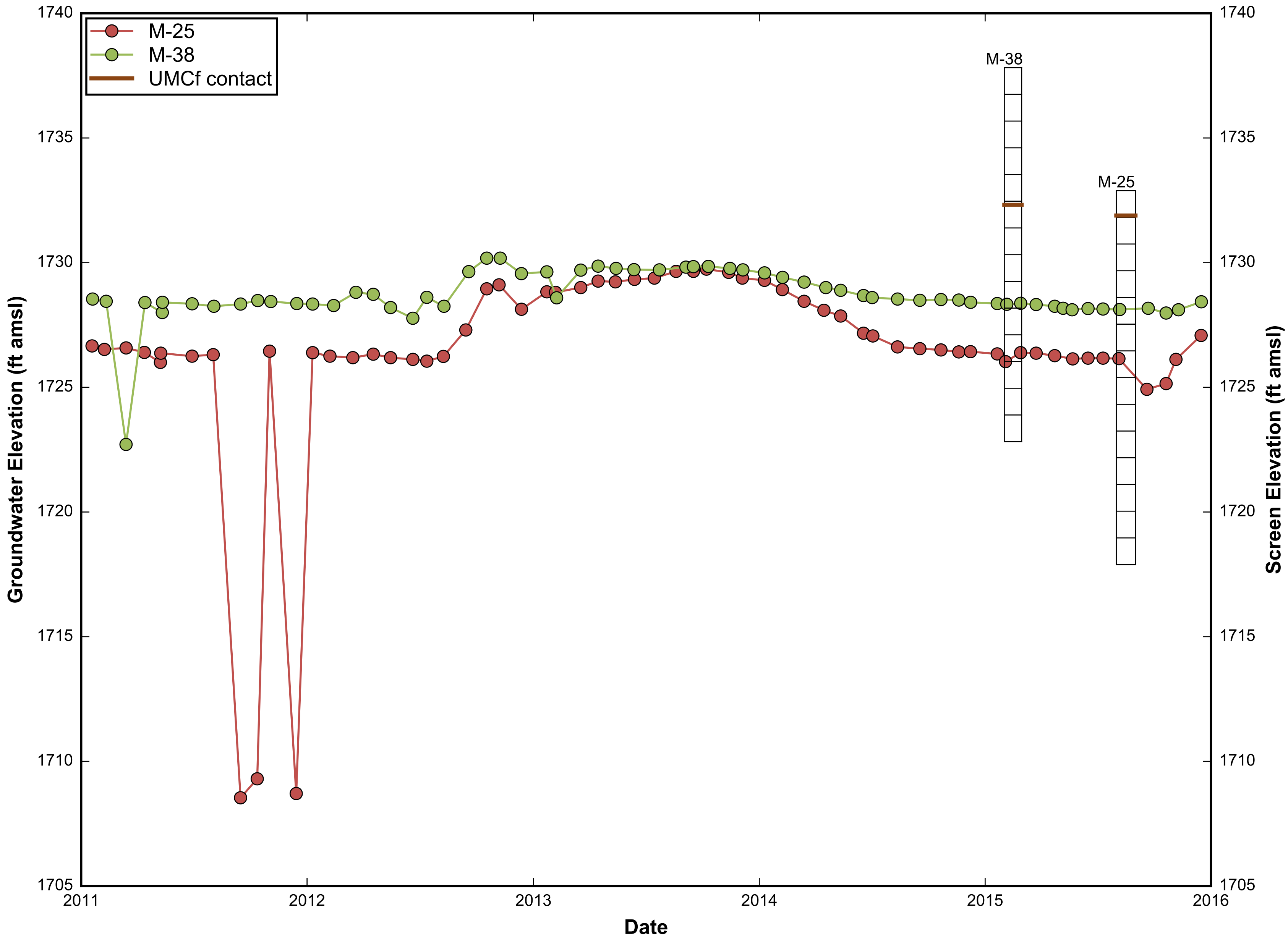


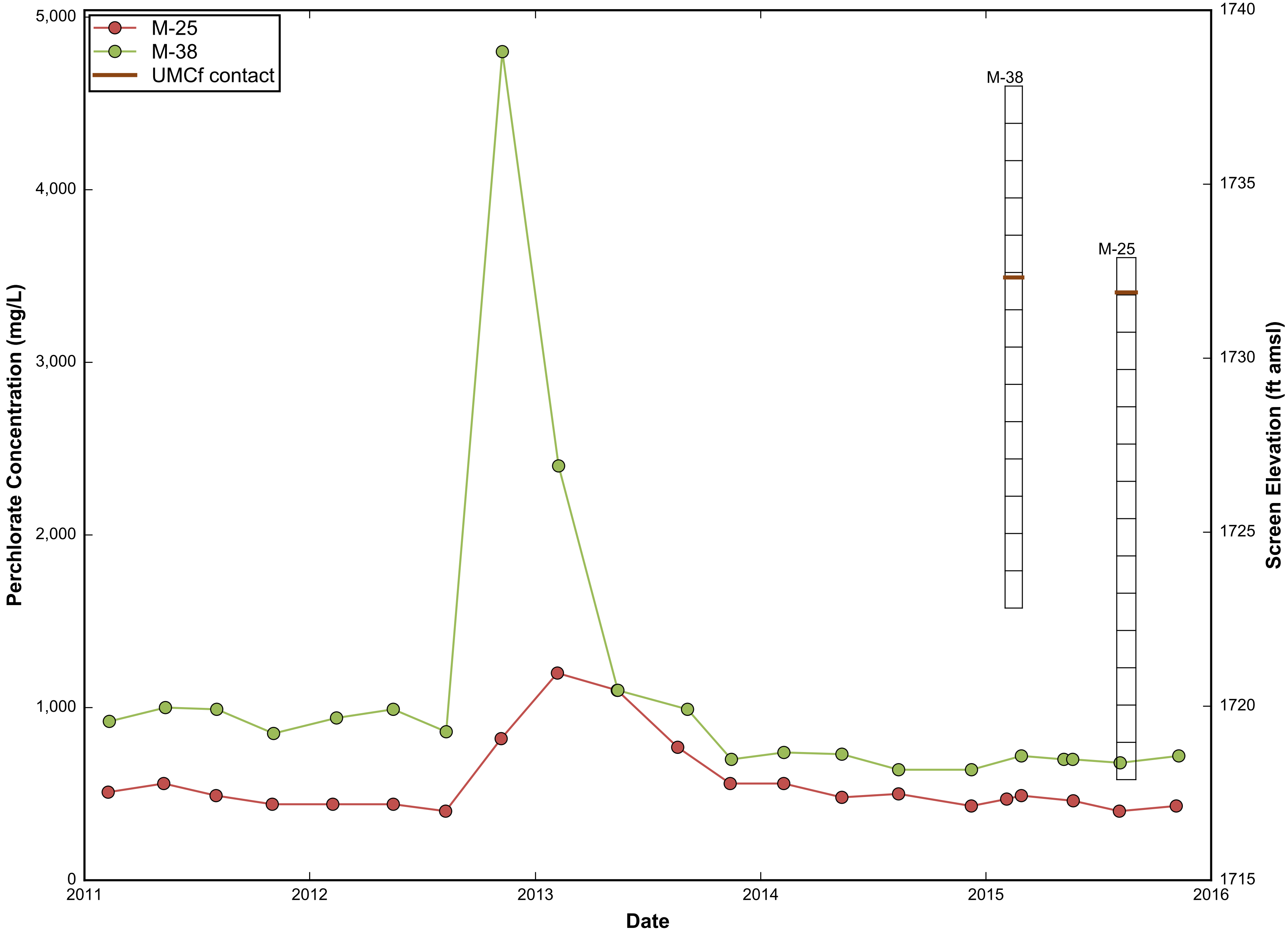
RAMBOLL ENVIRON

Cluster [M-25,M-38] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-17a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-25,M-38] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-17b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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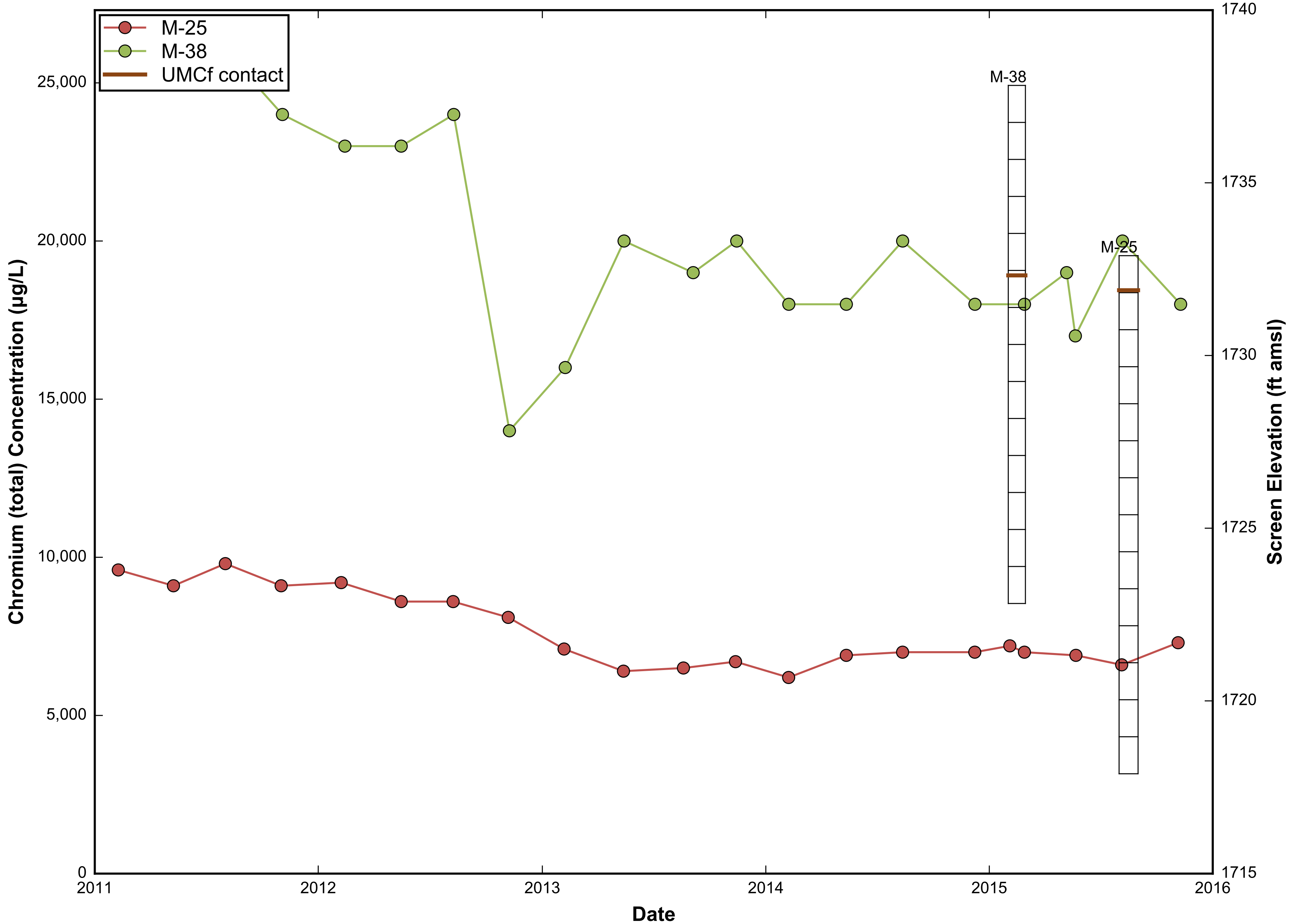


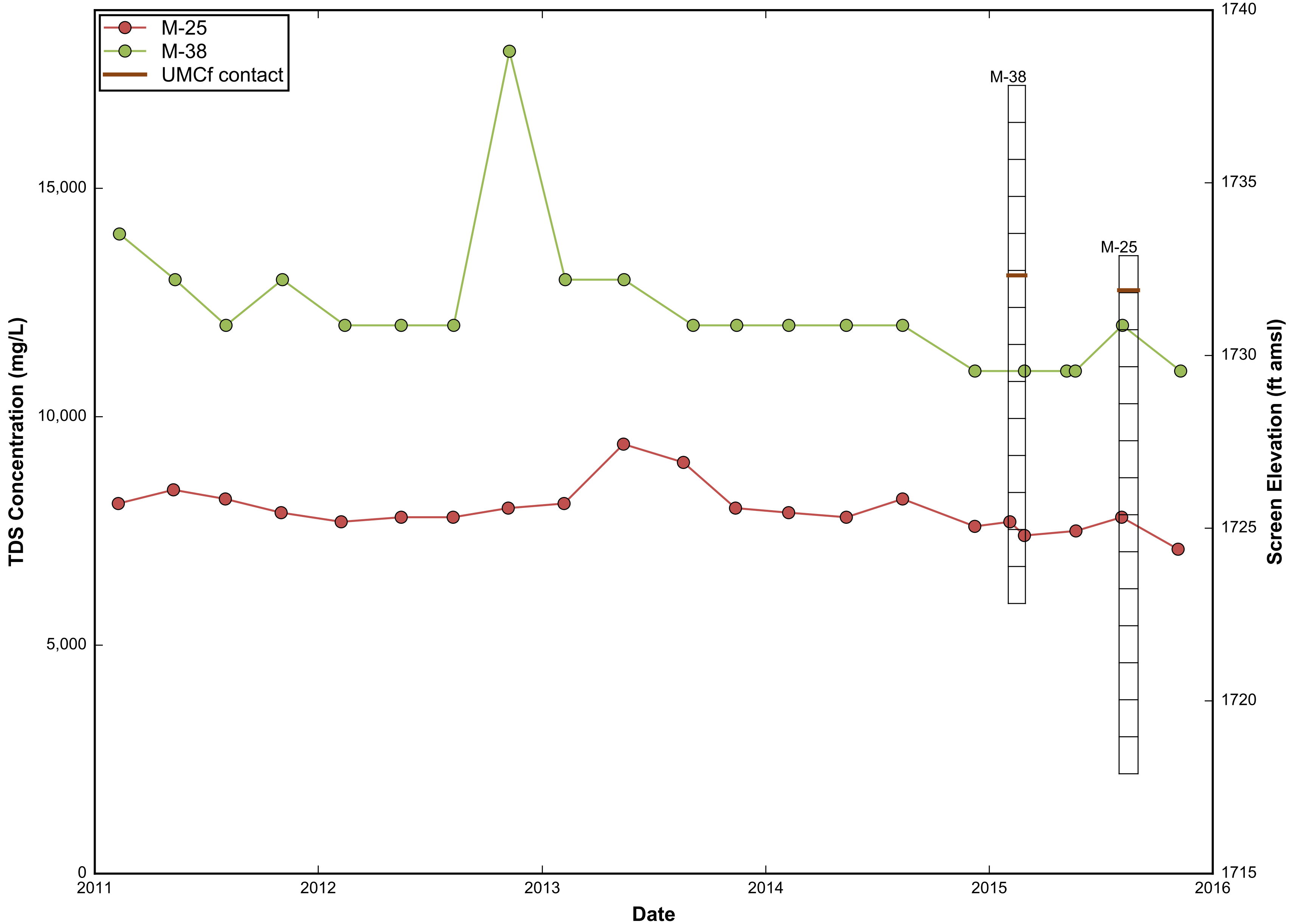
RAMBOLL ENVIRON

Cluster [M-25,M-38] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-17c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-25,M-38] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-17d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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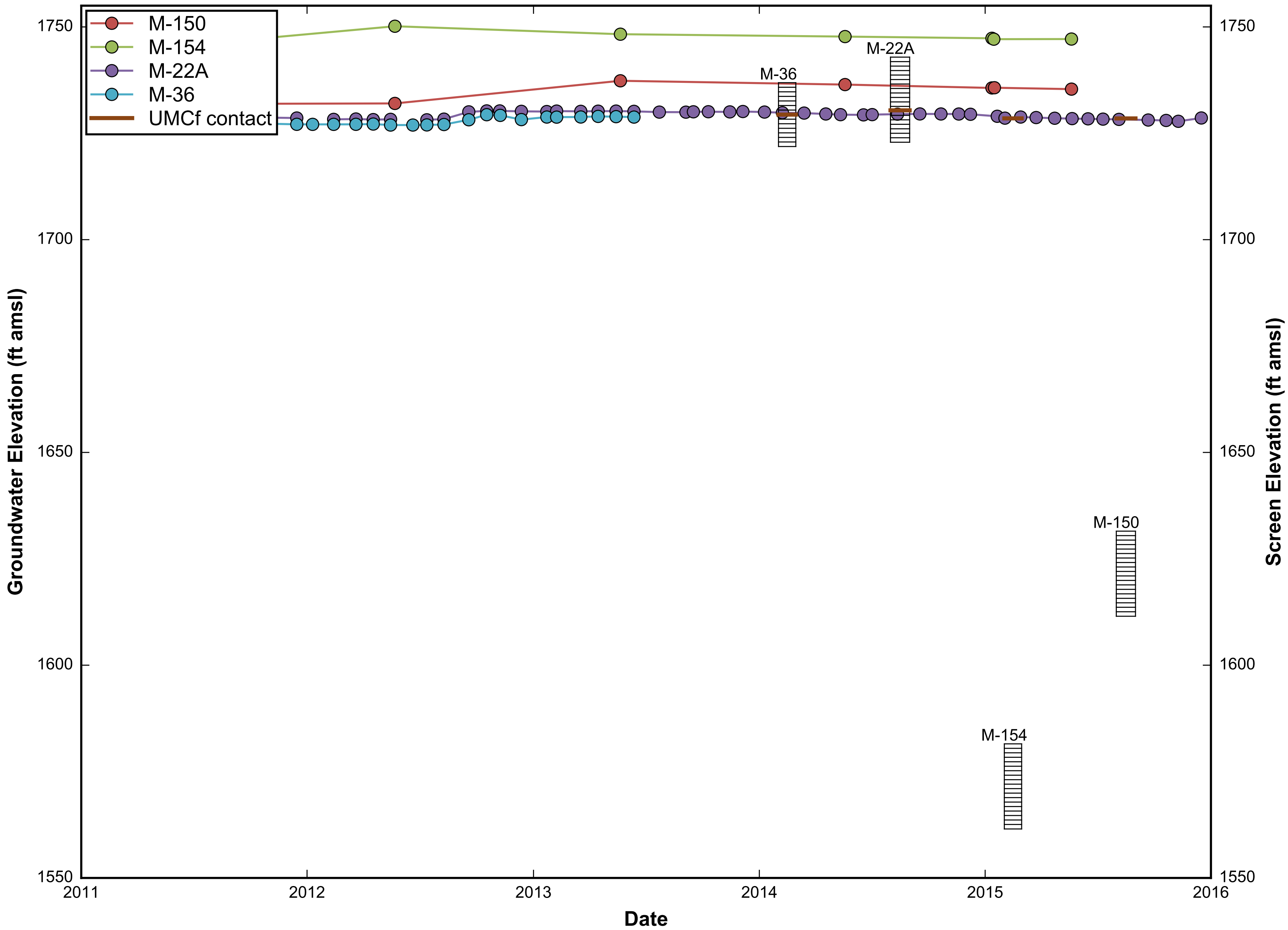


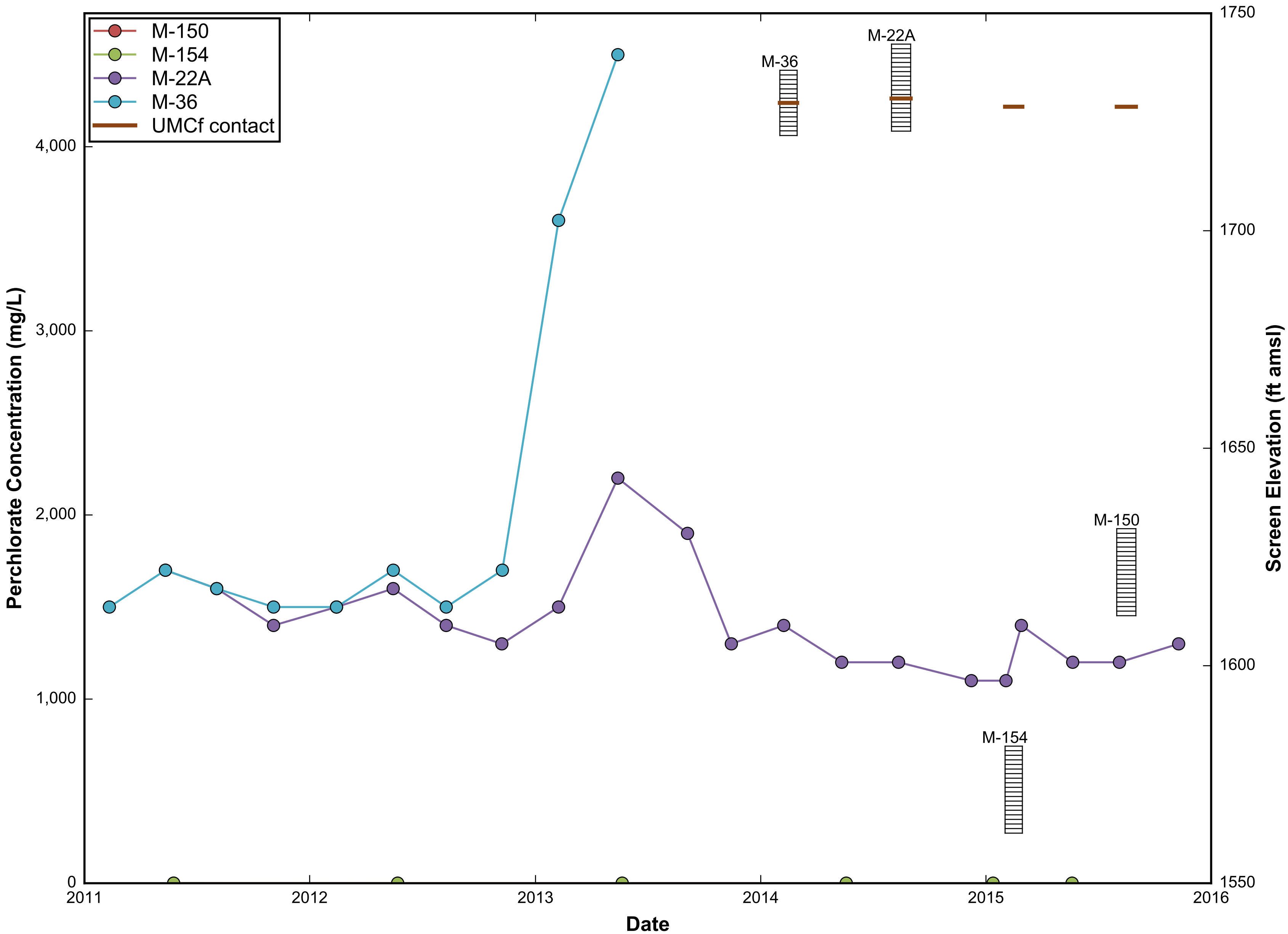
RAMBOLL ENVIRON

Cluster [M-150,M-154,M-22A,M-36] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-18a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



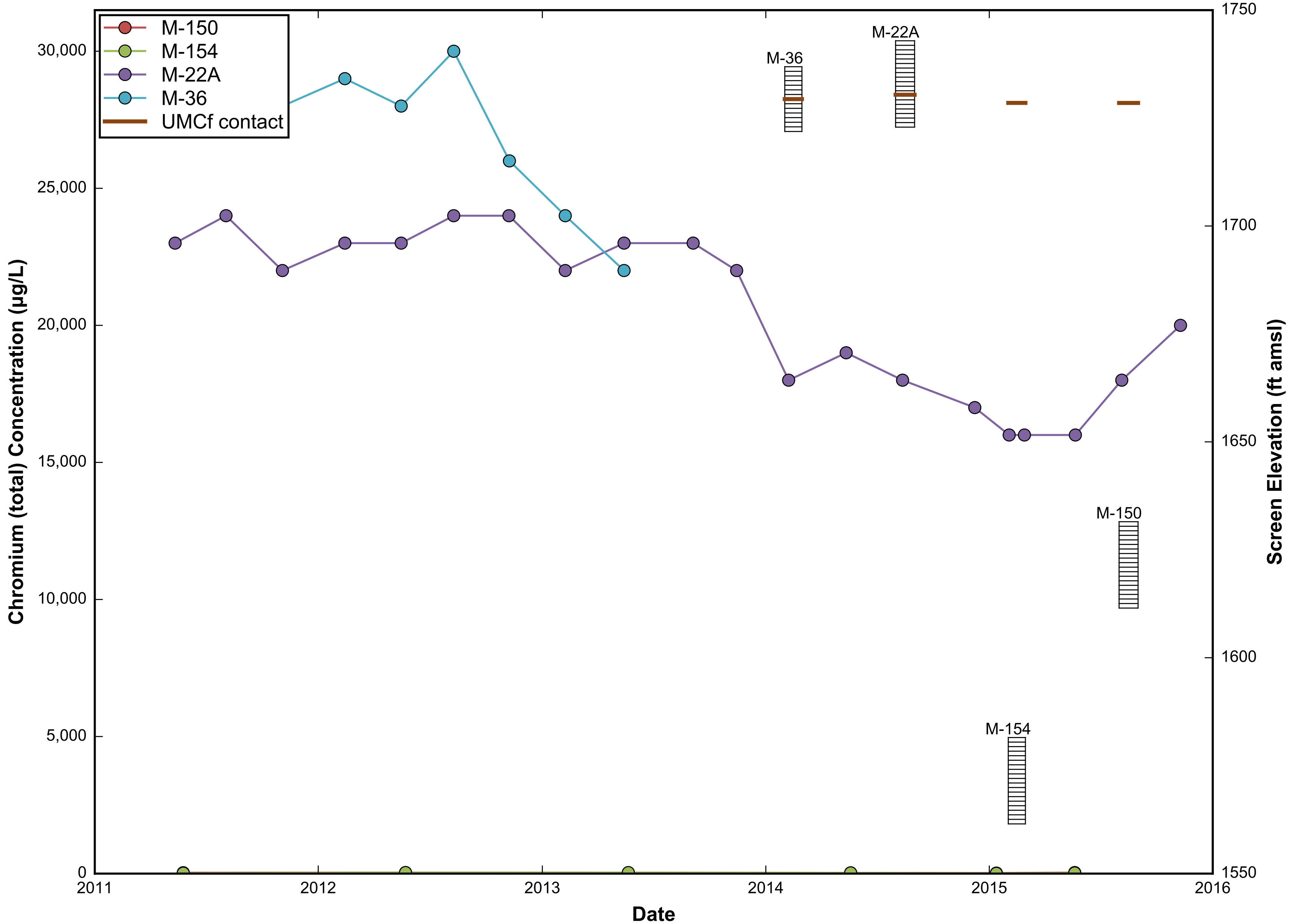
RAMBOLL ENVIRON

Cluster [M-150,M-154,M-22A,M-36] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-18b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



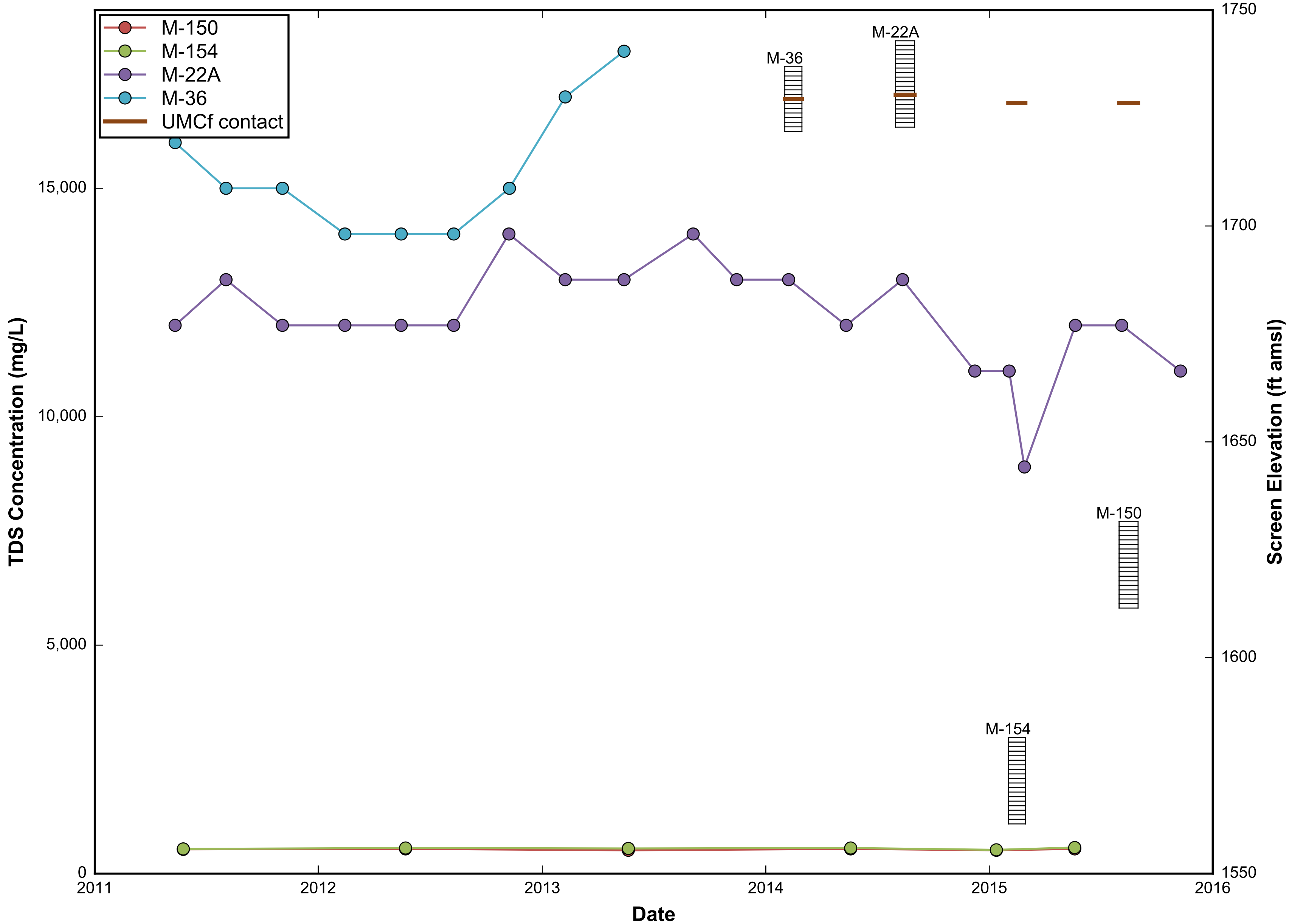
RAMBOLL ENVIRON

Cluster [M-150,M-154,M-22A,M-36] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-18c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



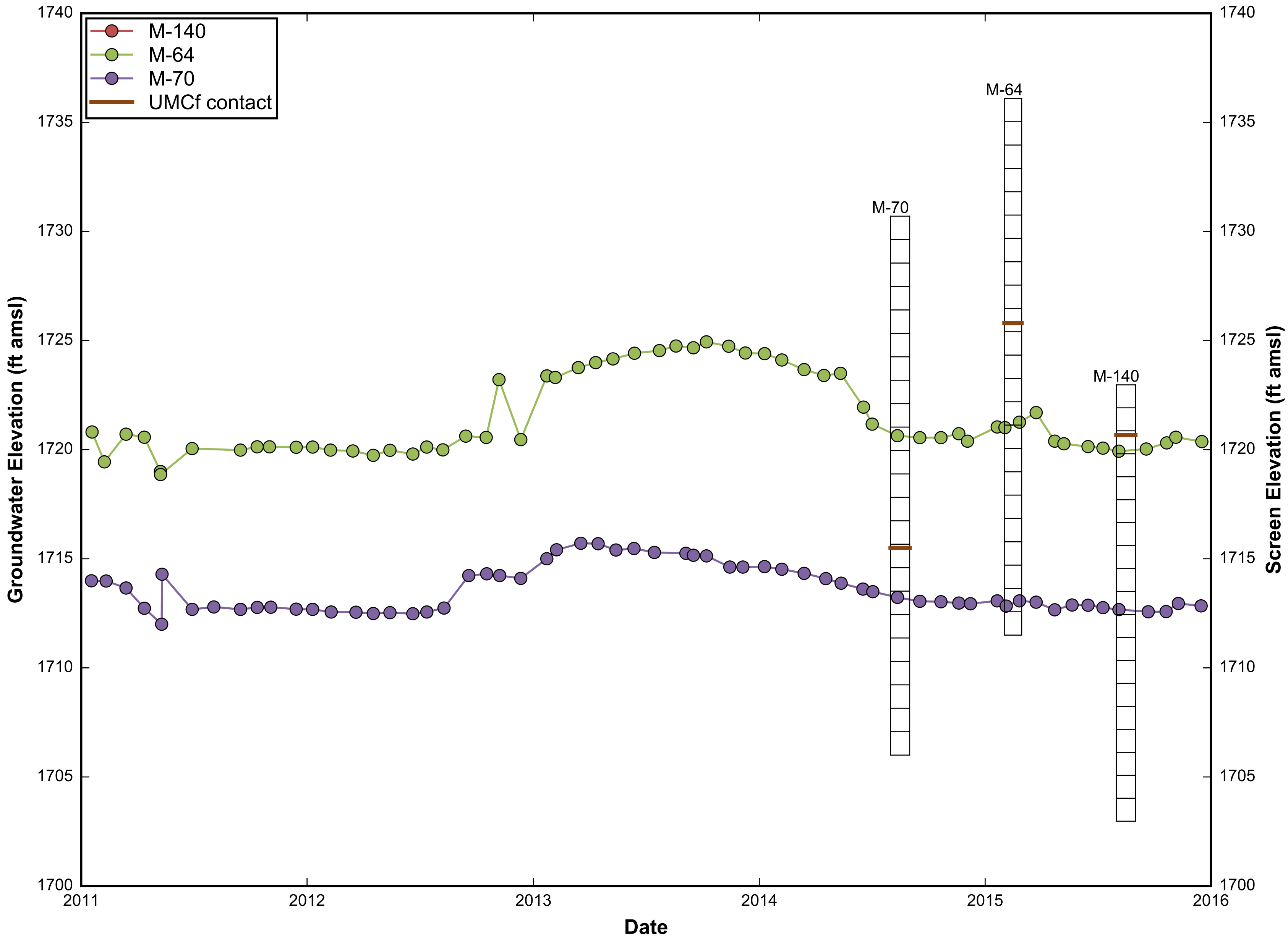
RAMBOLL ENVIRON

Cluster [M-150,M-154,M-22A,M-36] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-18d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



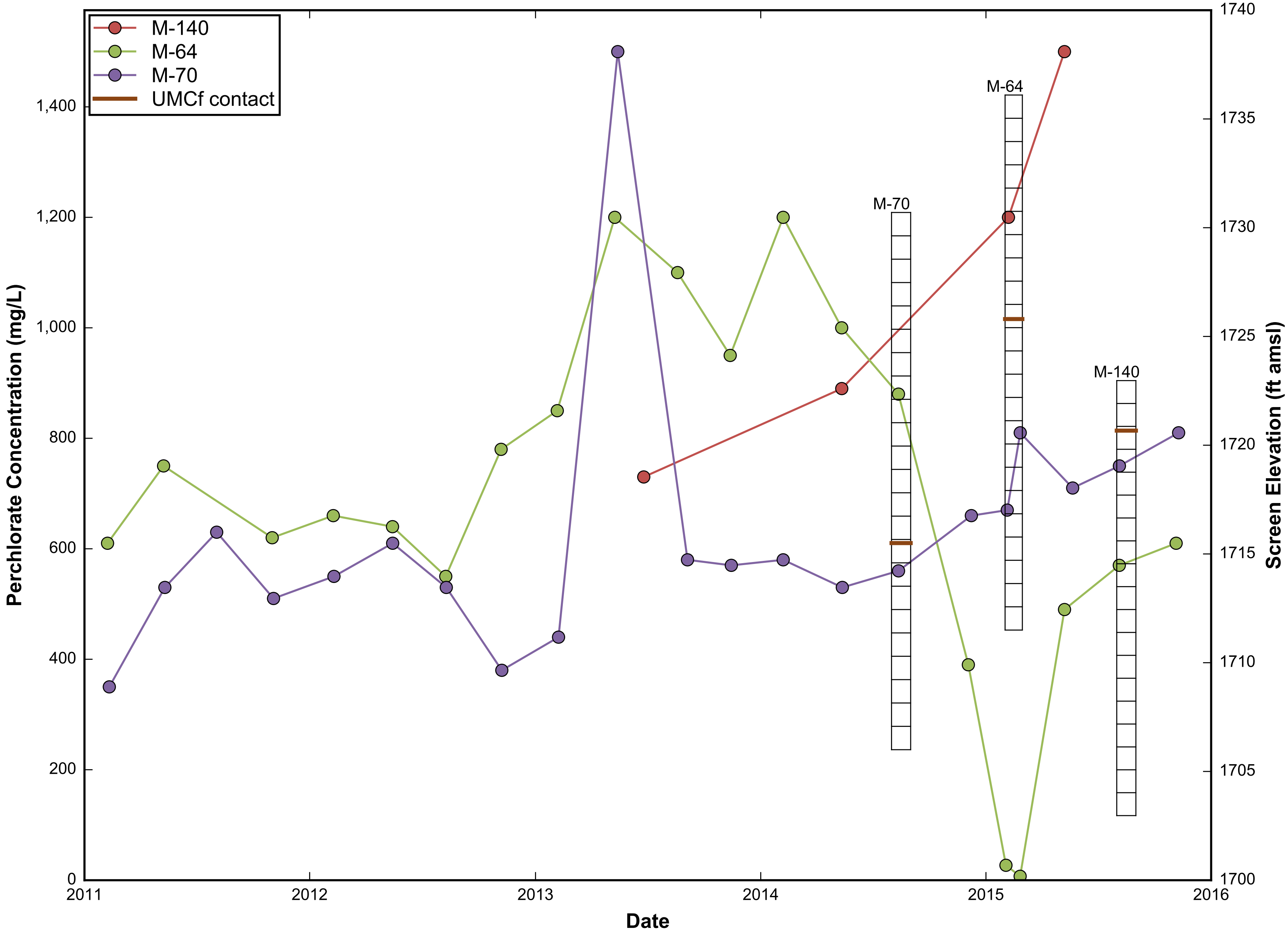
RAMBOLL ENVIRON

Cluster [M-140,M-64,M-70] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-19a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

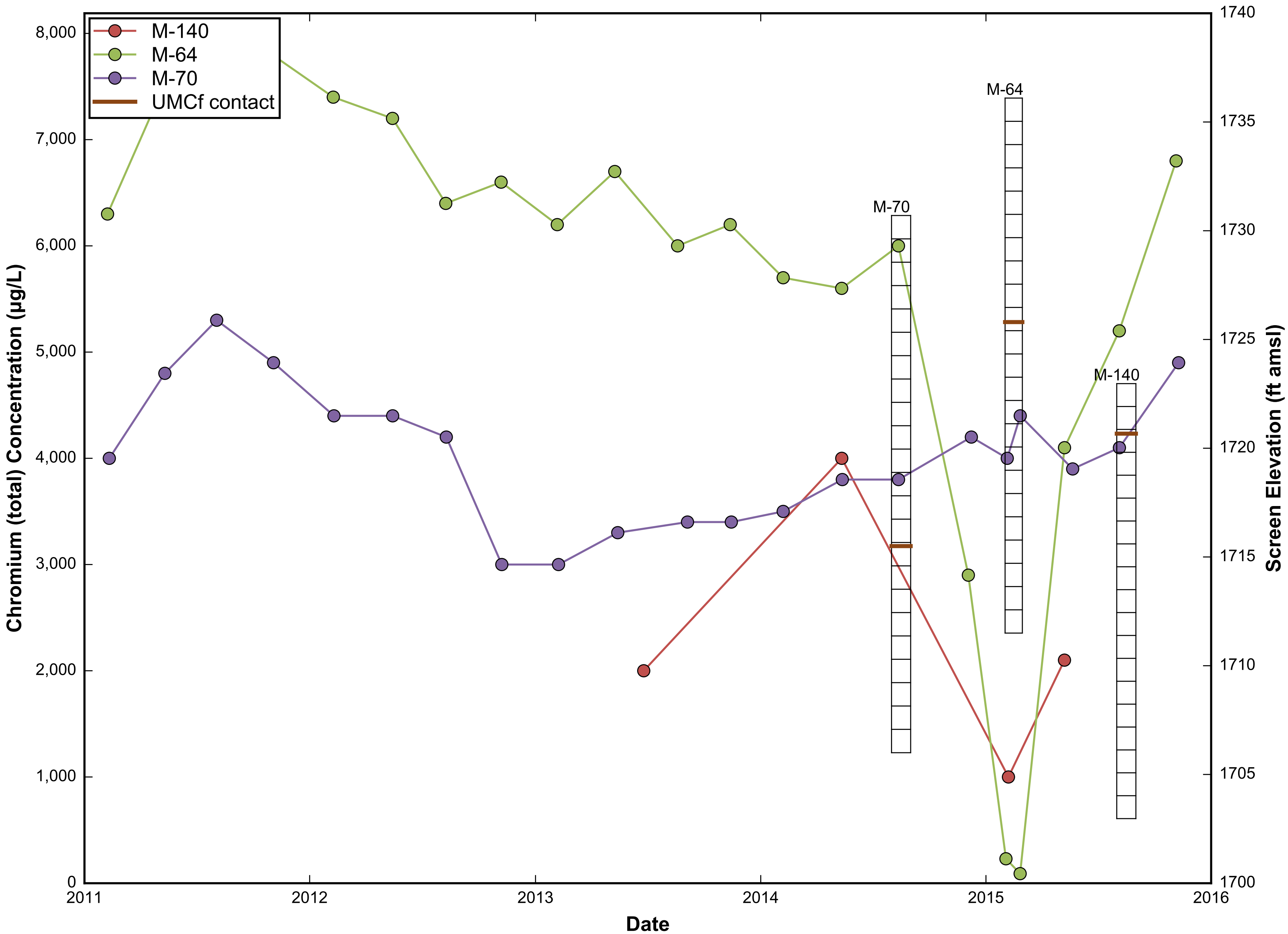


RAMBOLL ENVIRON

Cluster [M-140,M-64,M-70] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-19b

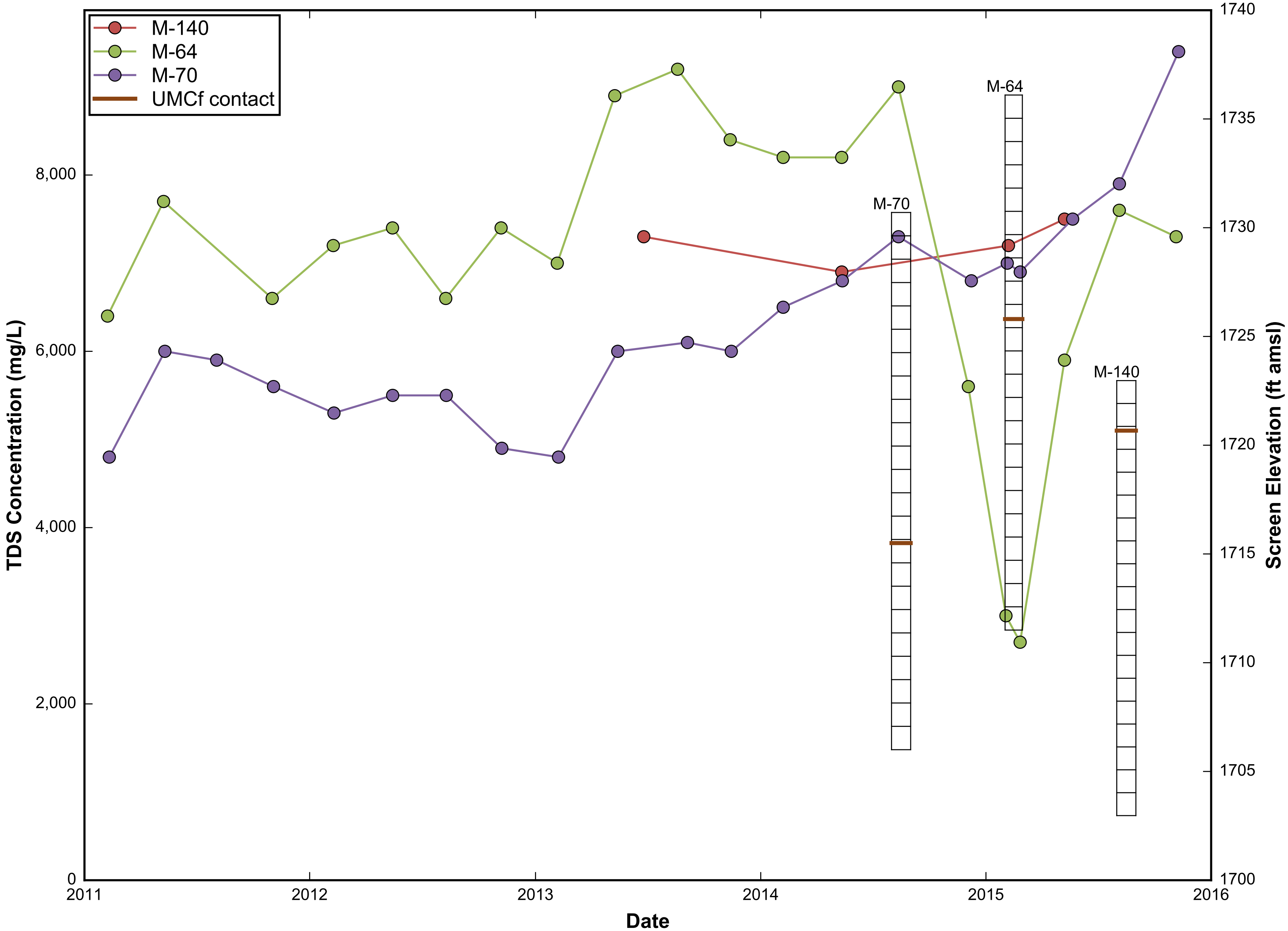
Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



RAMBOLL ENVIRON	**Cluster [M-140,M-64,M-70] - Chromium (total)** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **A-19c**

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



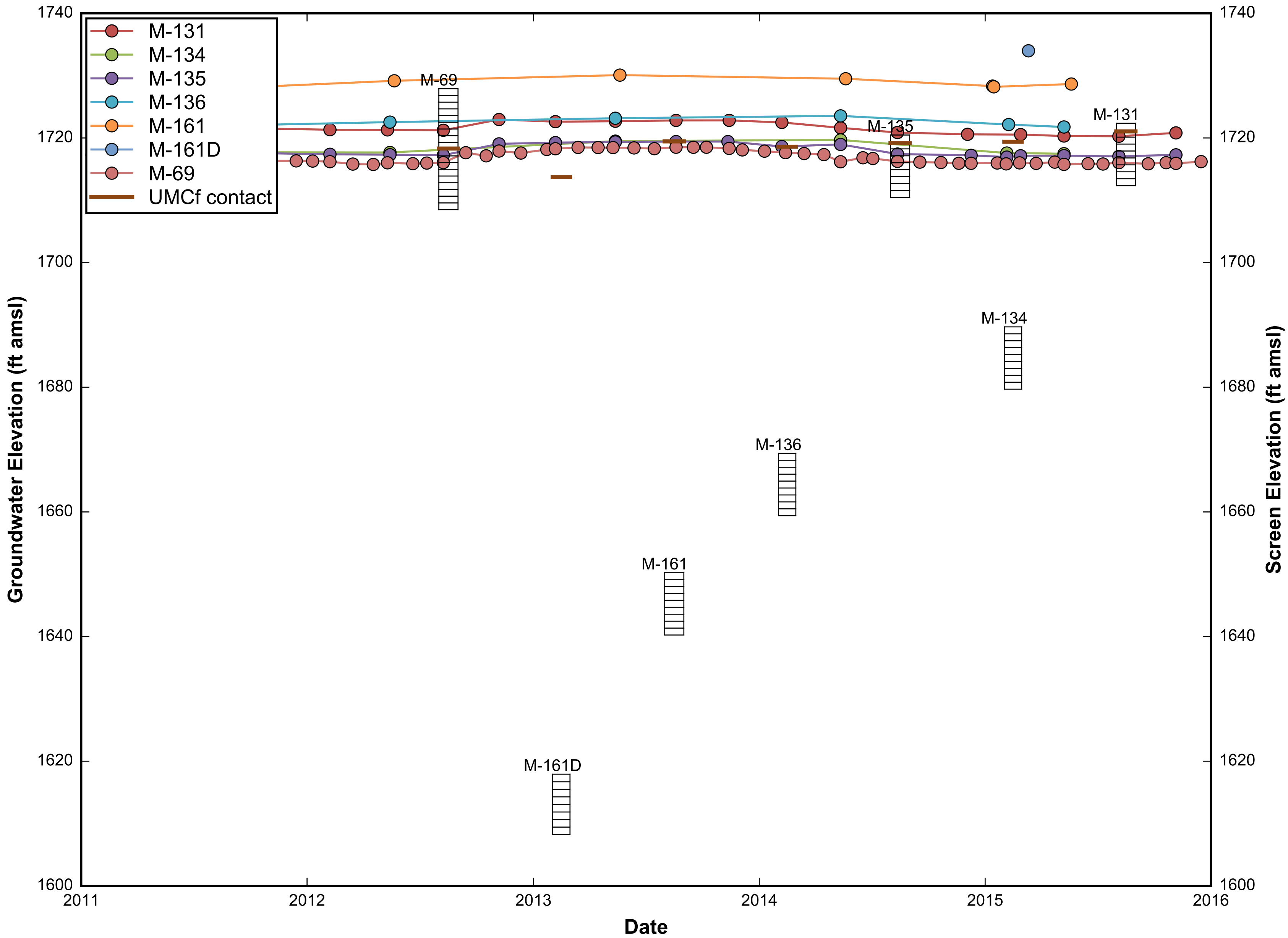
RAMBOLL ENVIRON

Cluster [M-140,M-64,M-70] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-19d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



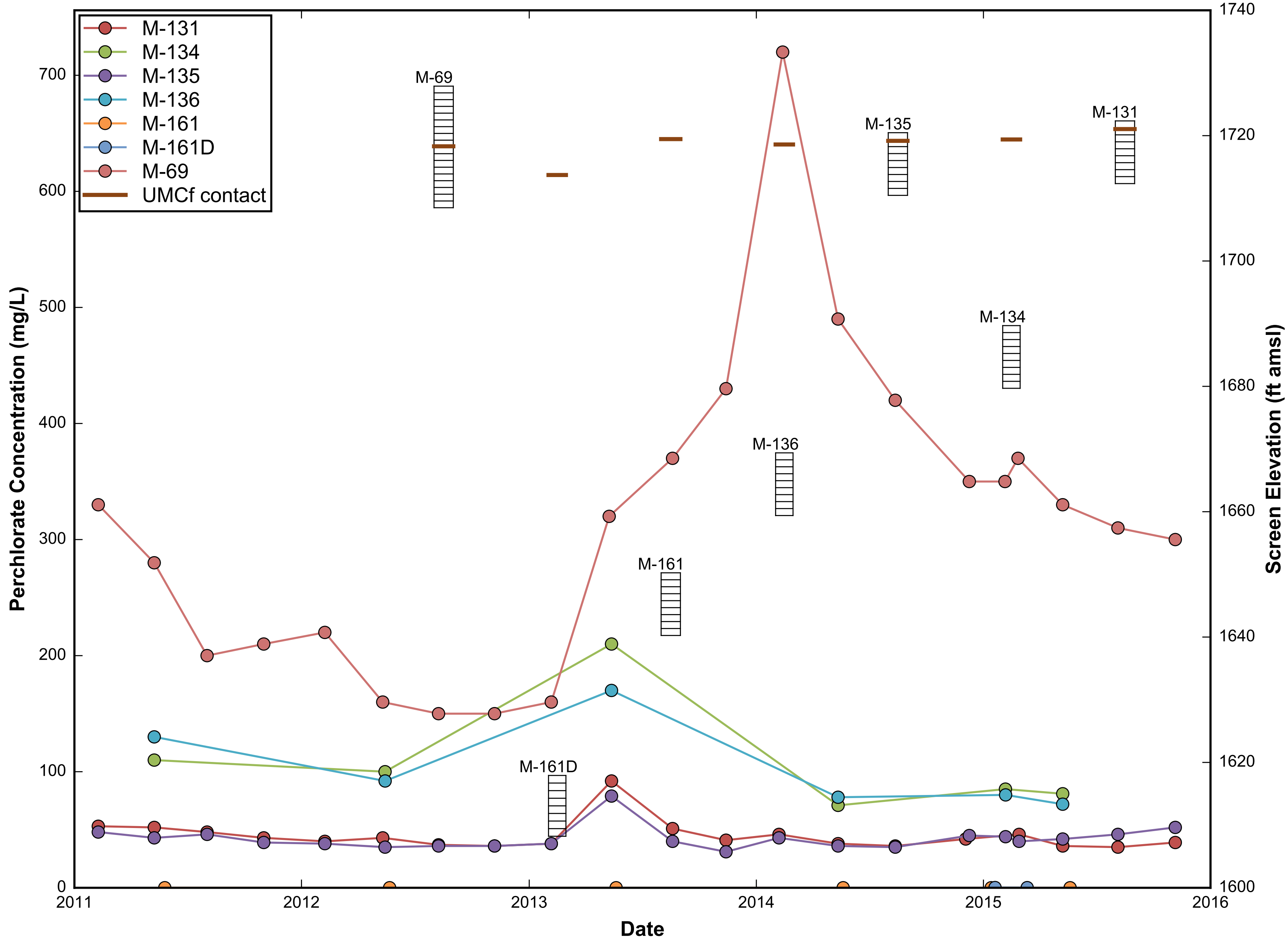
RAMBOLL ENVIRON

Cluster [M-131,M-134,M-135,M-136,M-161,M-161D,M-69] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-20a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



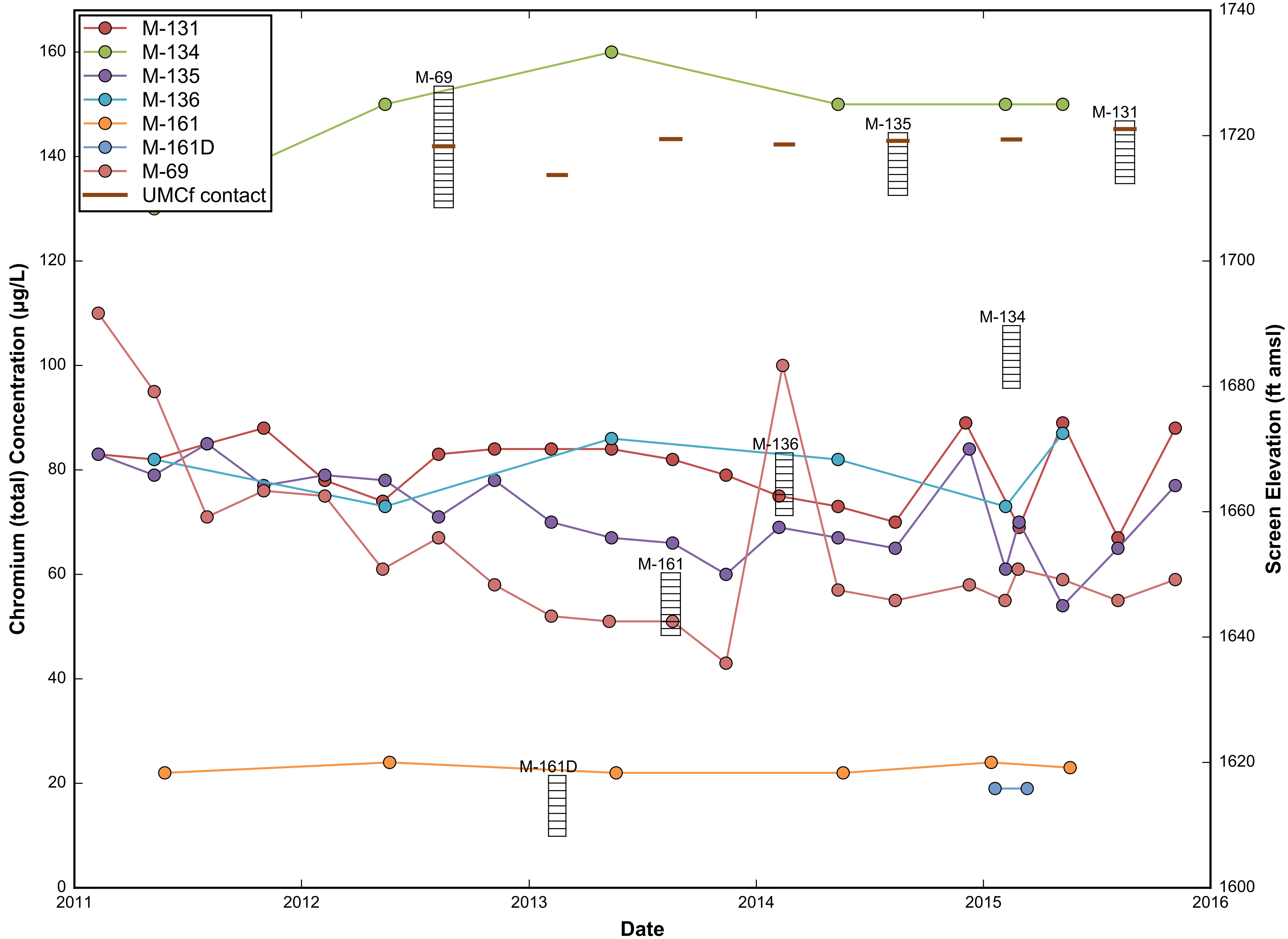
RAMBØLL ENVIRON

Cluster [M-131,M-134,M-135,M-136,M-161,M-161D,M-69] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-20b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



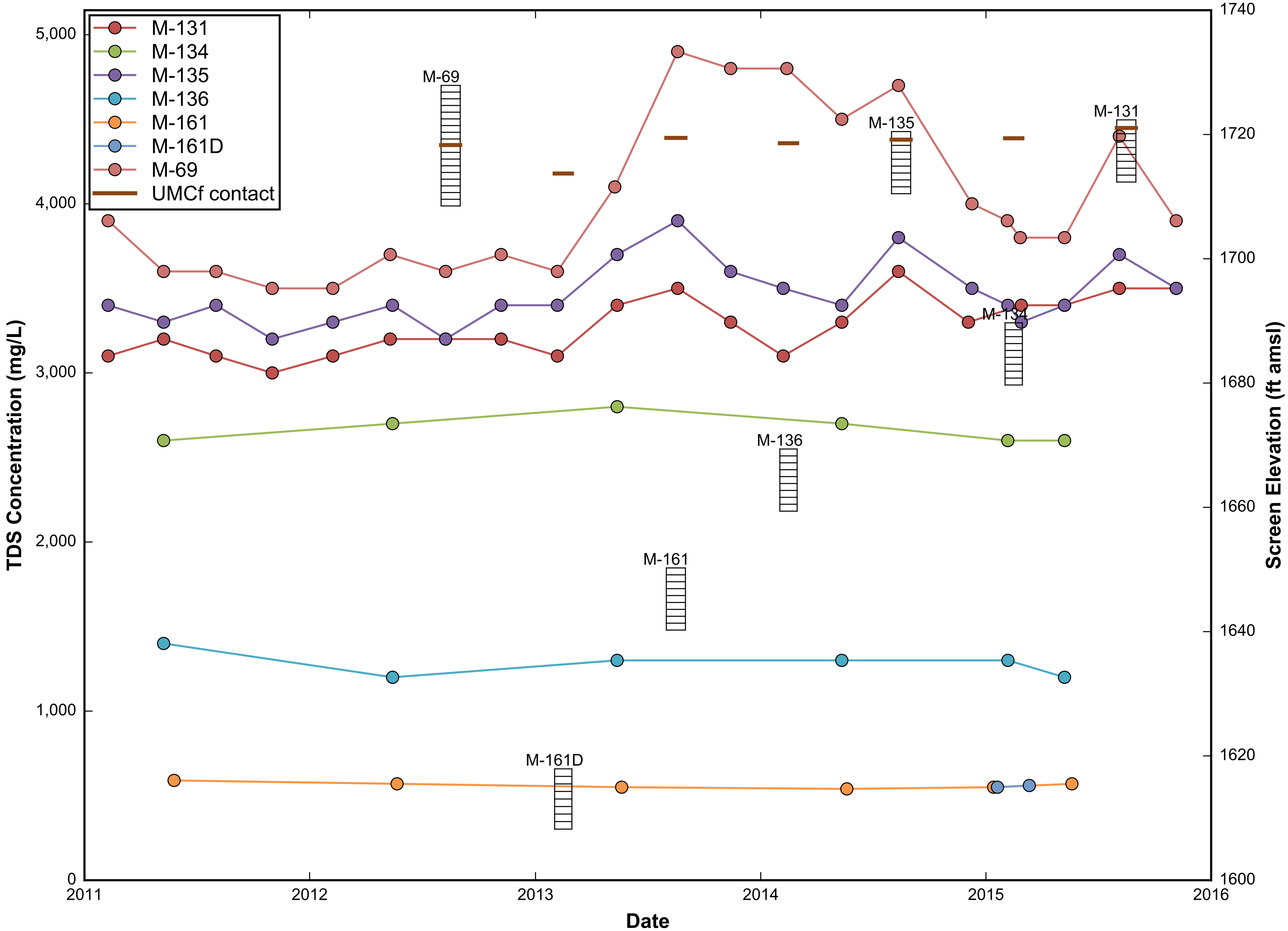
RAMBOLL ENVIRON

Cluster [M-131,M-134,M-135,M-136,M-161,M-161D,M-69] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-20c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



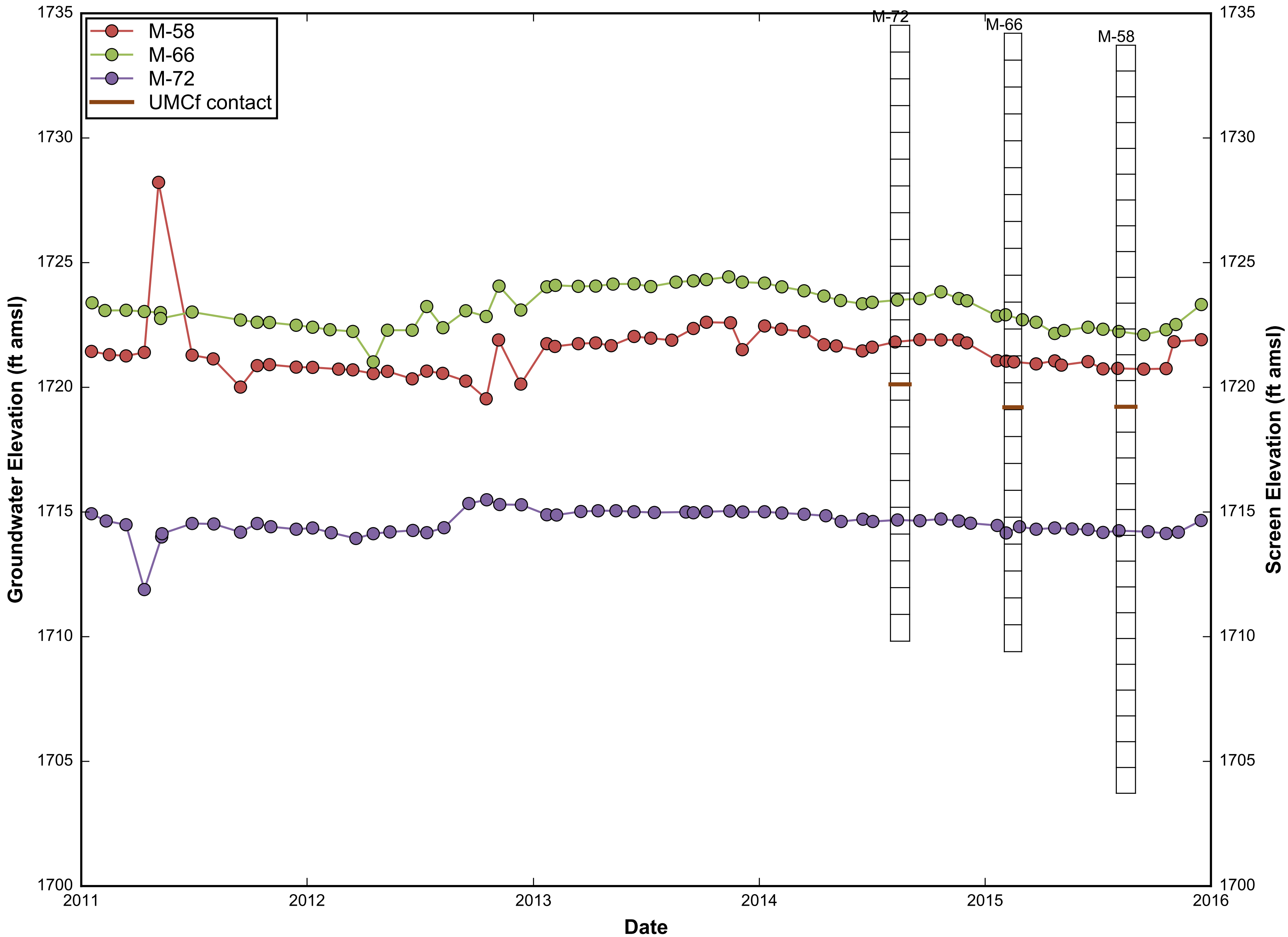
RAMBOLL ENVIRON

Cluster [M-131,M-134,M-135,M-136,M-161,M-161D,M-69] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-20d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



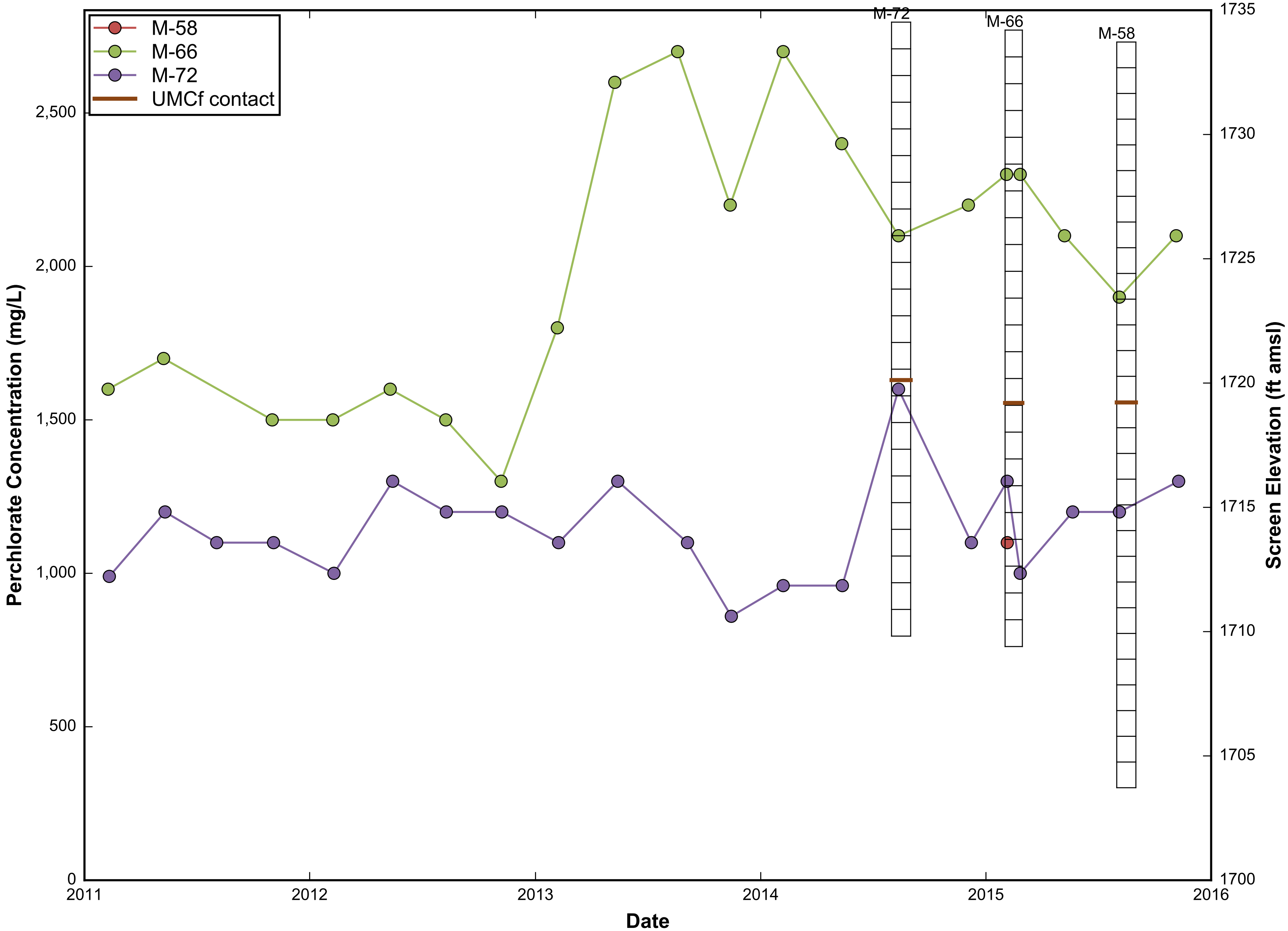
RAMBOLL ENVIRON

Cluster [M-58,M-66,M-72] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-21a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

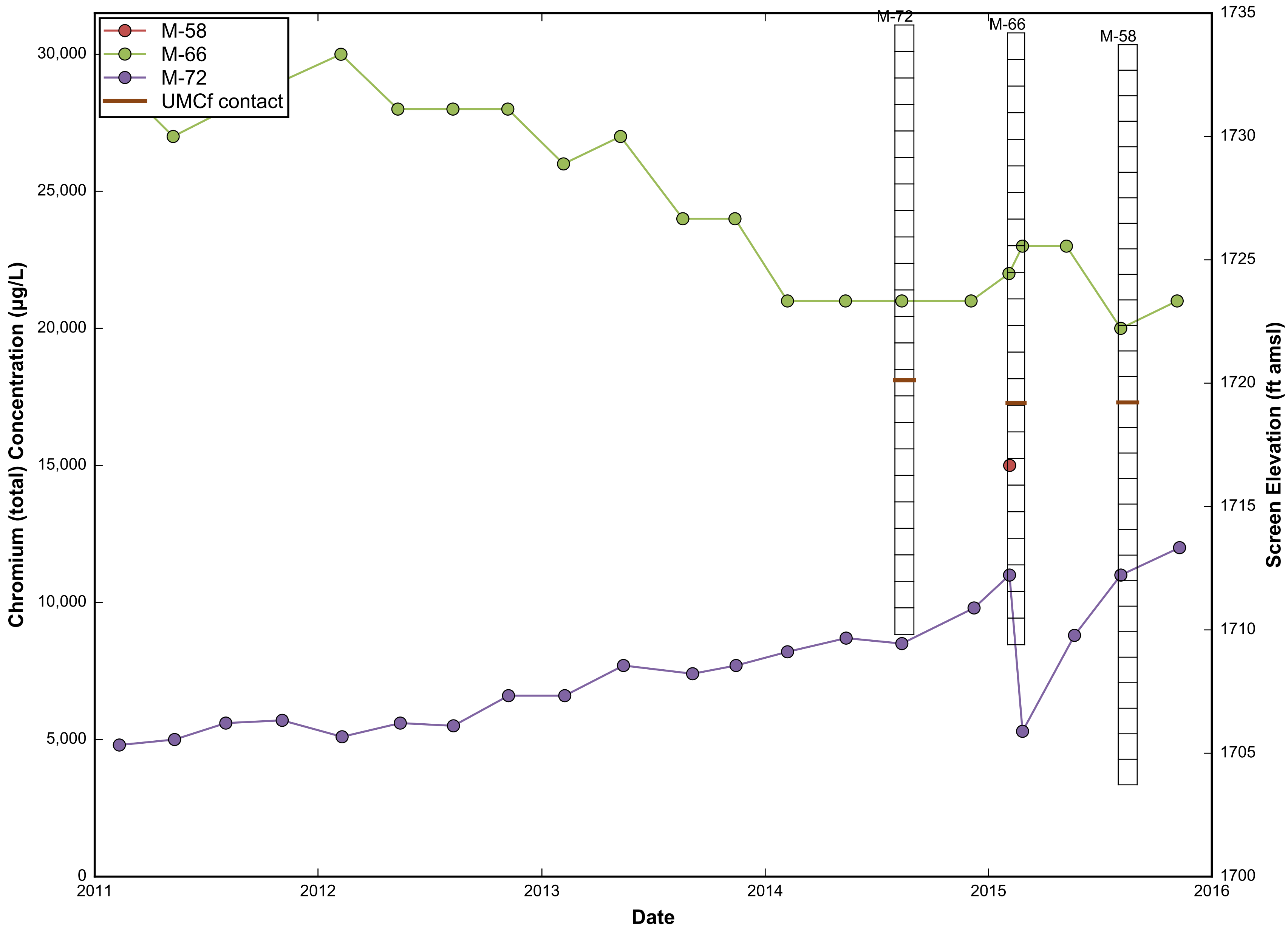


RAMBOLL ENVIRON

Cluster [M-58,M-66,M-72] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-21b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



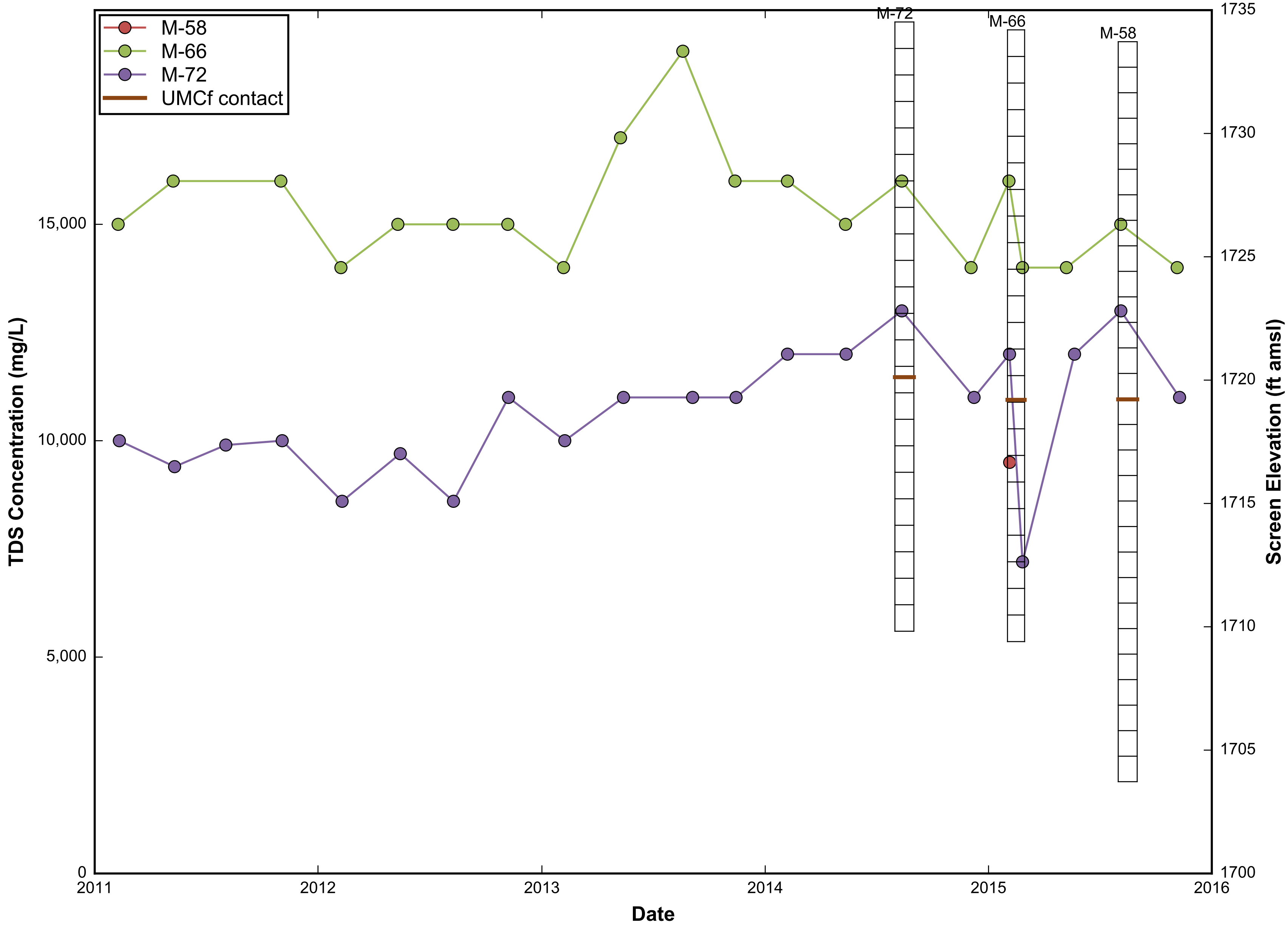
RAMBOLL ENVIRON

Cluster [M-58,M-66,M-72] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-21c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



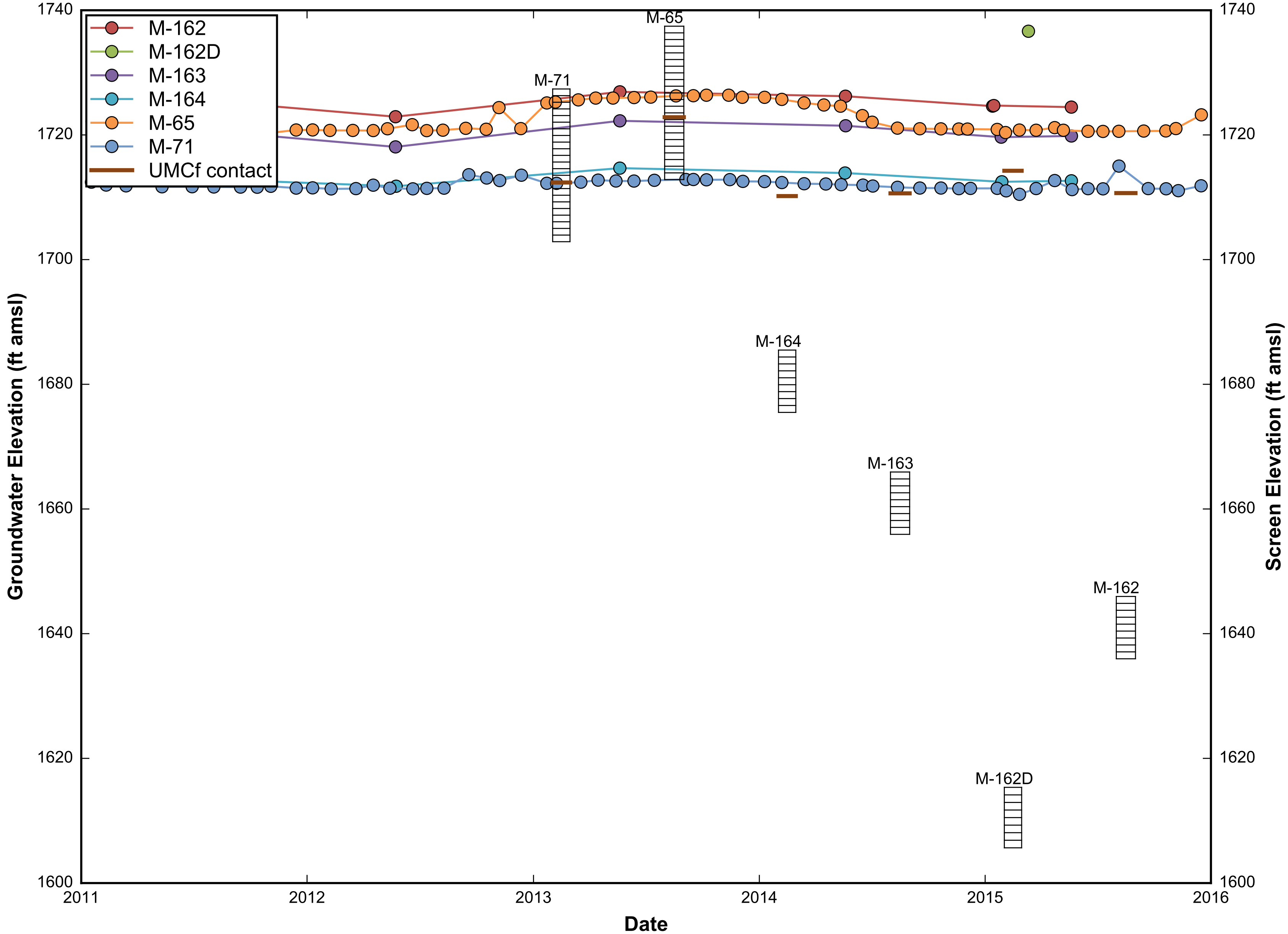
RAMBOLL ENVIRON

Cluster [M-58,M-66,M-72] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-21d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

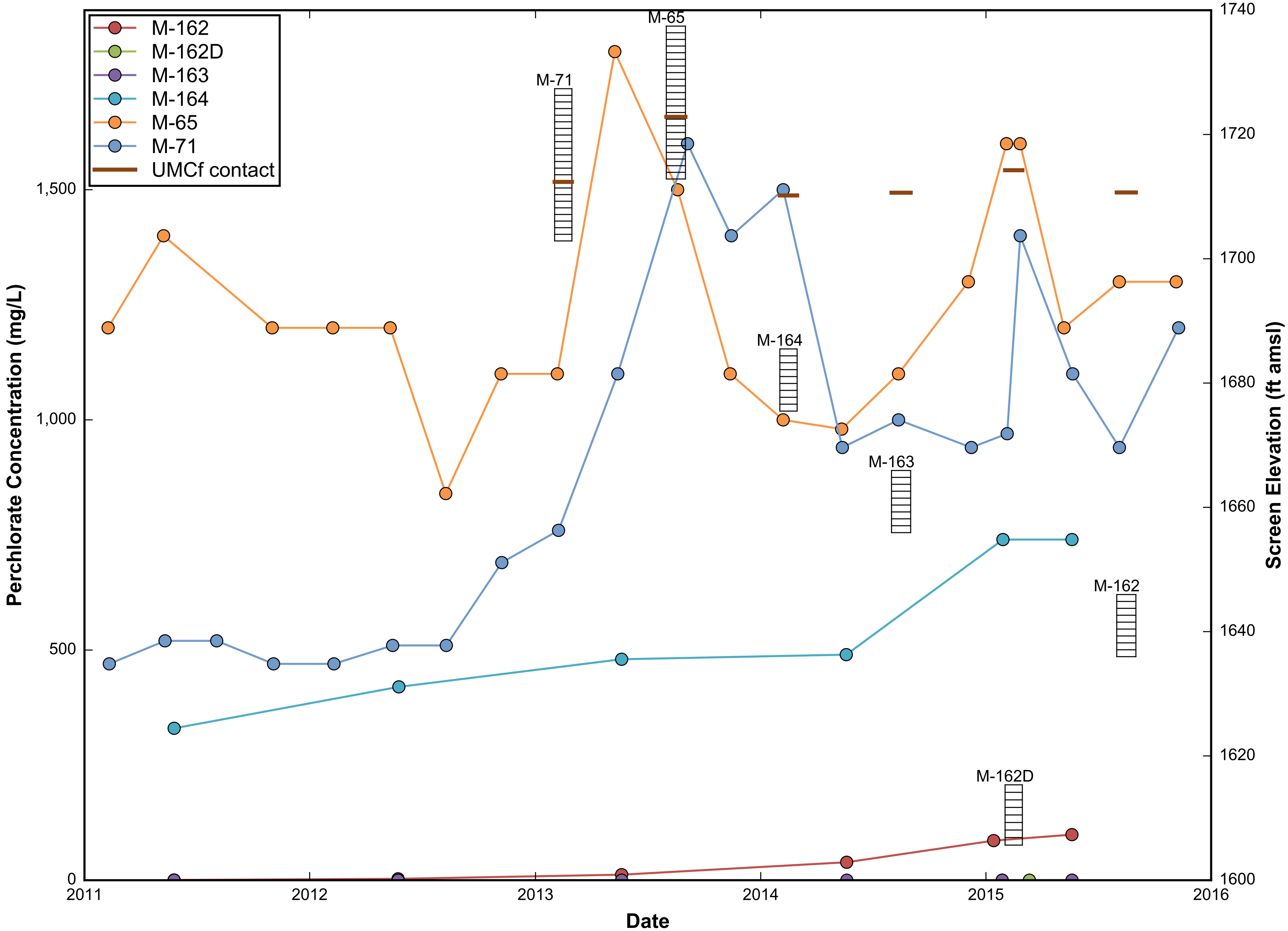


RAMBOLL ENVIRON

Cluster [M-162,M-162D,M-163,M-164,M-65,M-71] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-22a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:



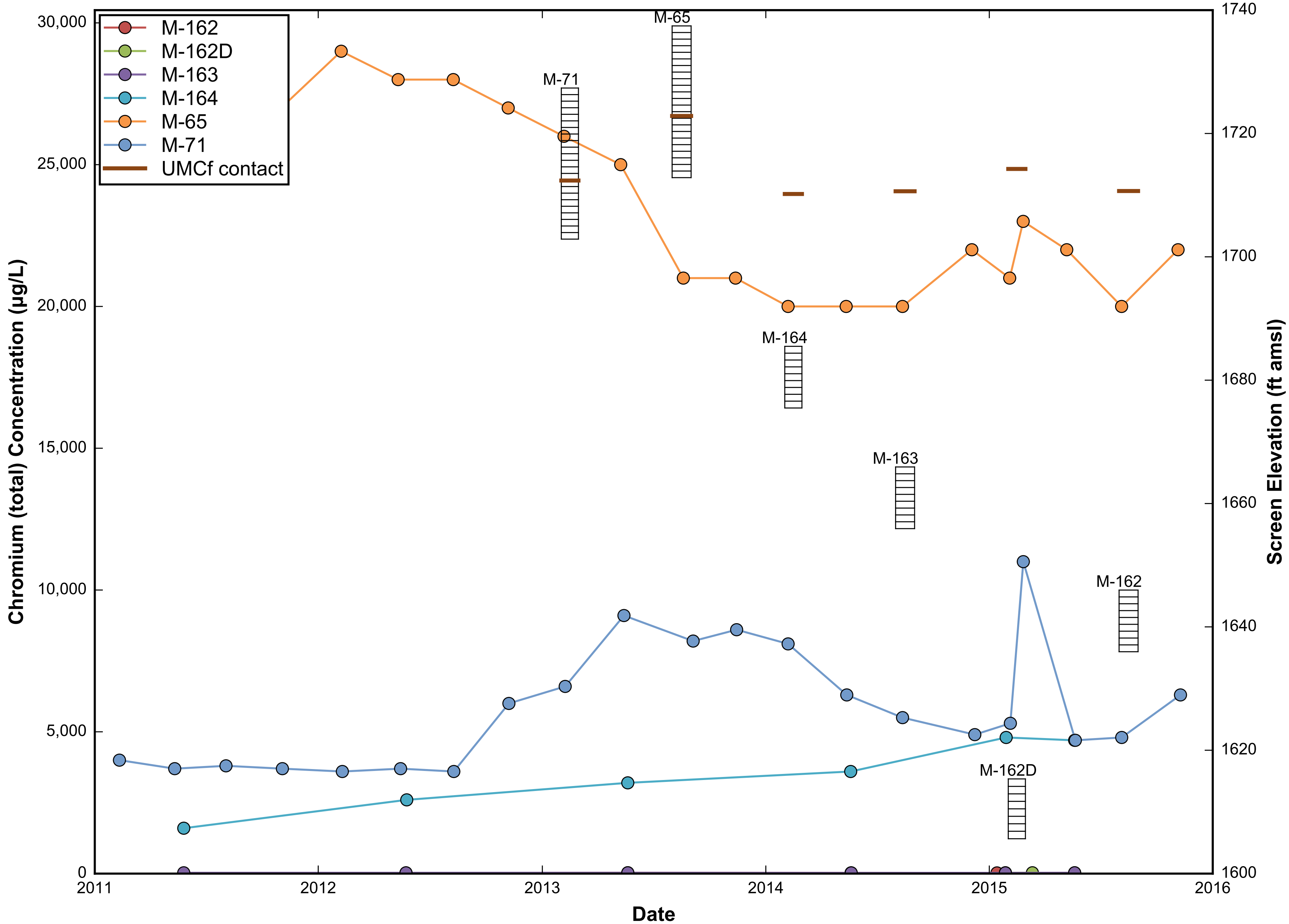
RAMBOLL ENVIRON

Cluster [M-162,M-162D,M-163,M-164,M-65,M-71] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-22b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



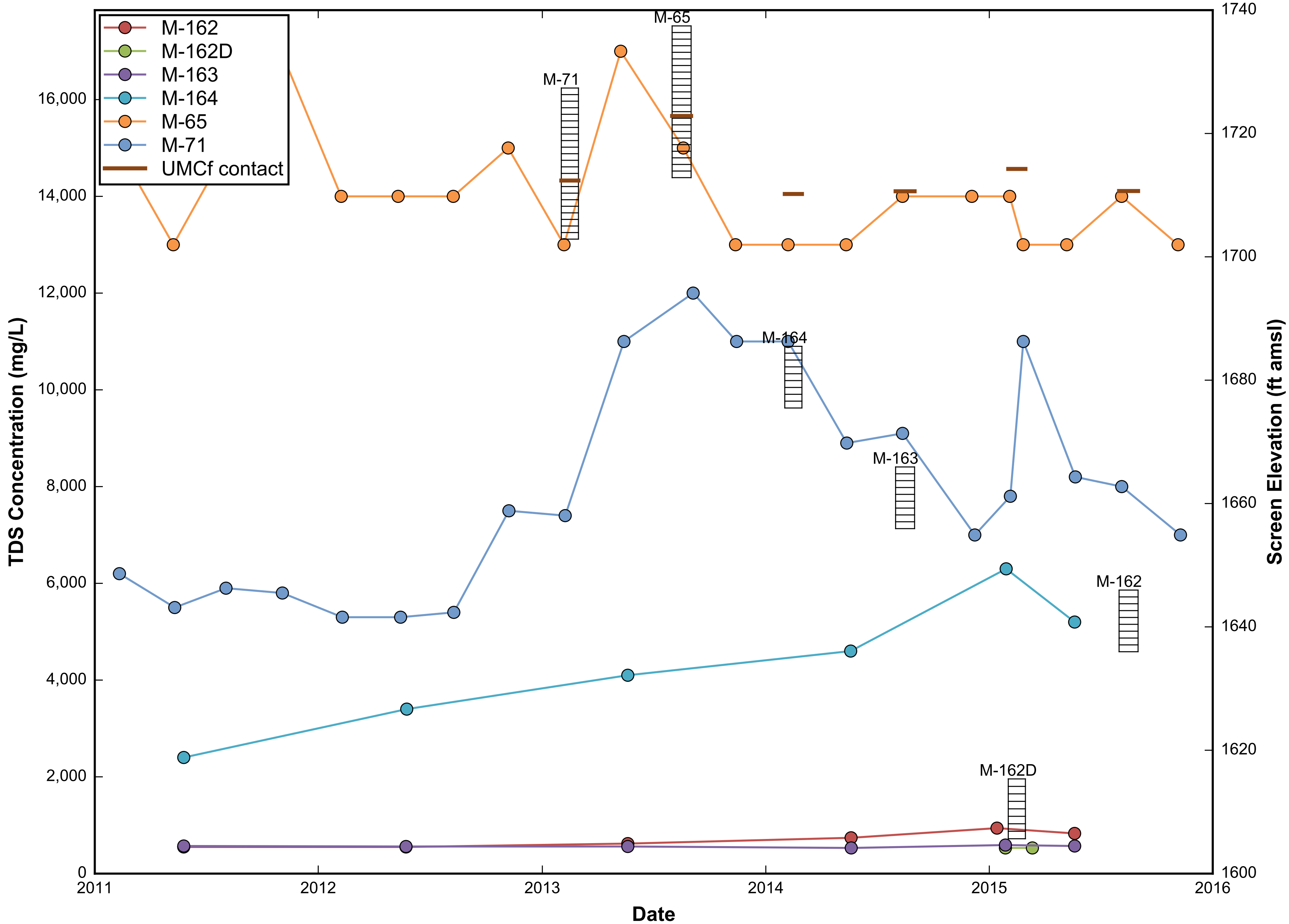
Cluster [M-162,M-162D,M-163,M-164,M-65,M-71] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

RAMBOLL ENVIRON

Figure
A-22c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



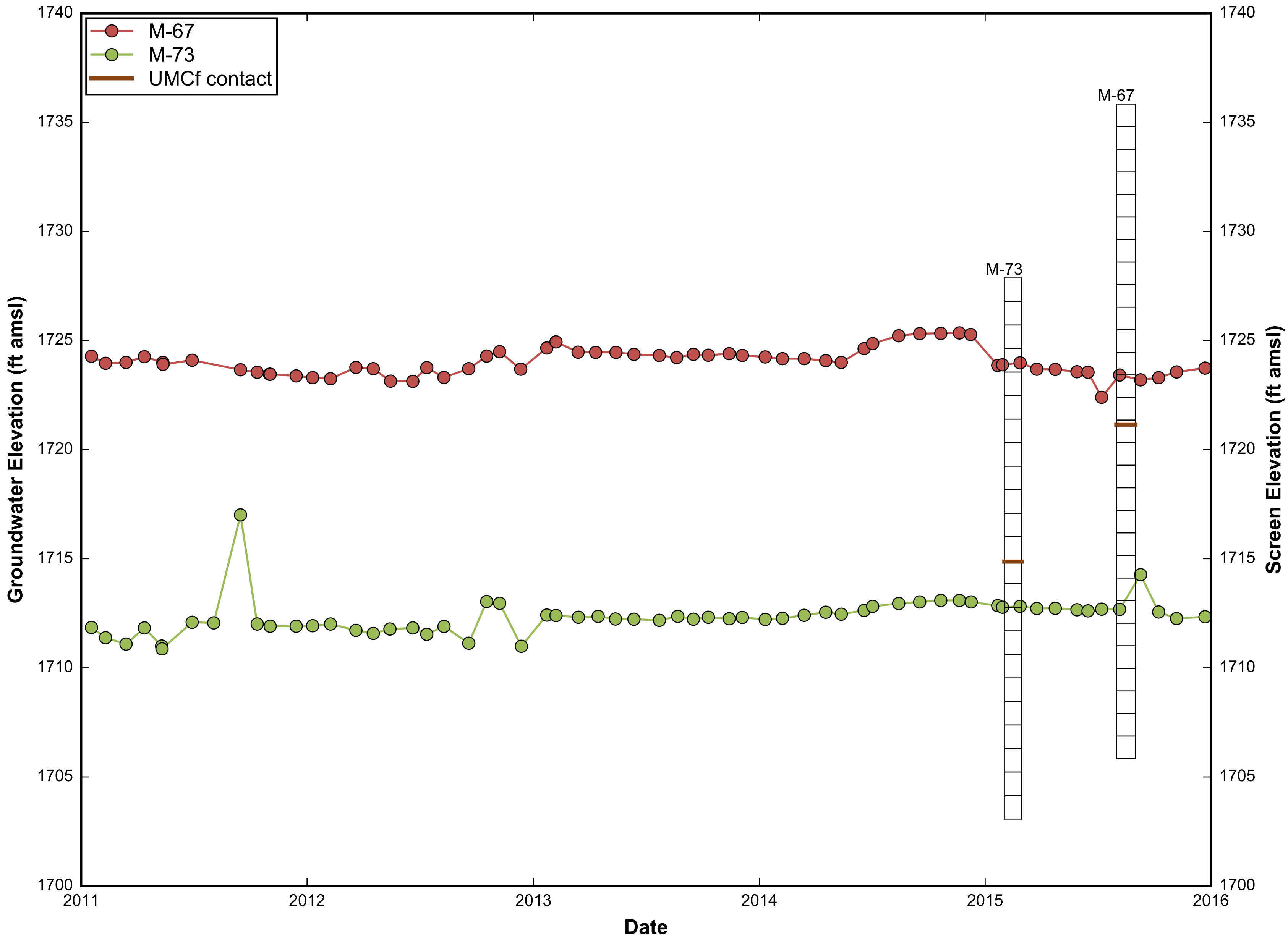
RAMBOLL ENVIRON

Cluster [M-162,M-162D,M-163,M-164,M-65,M-71] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-22d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



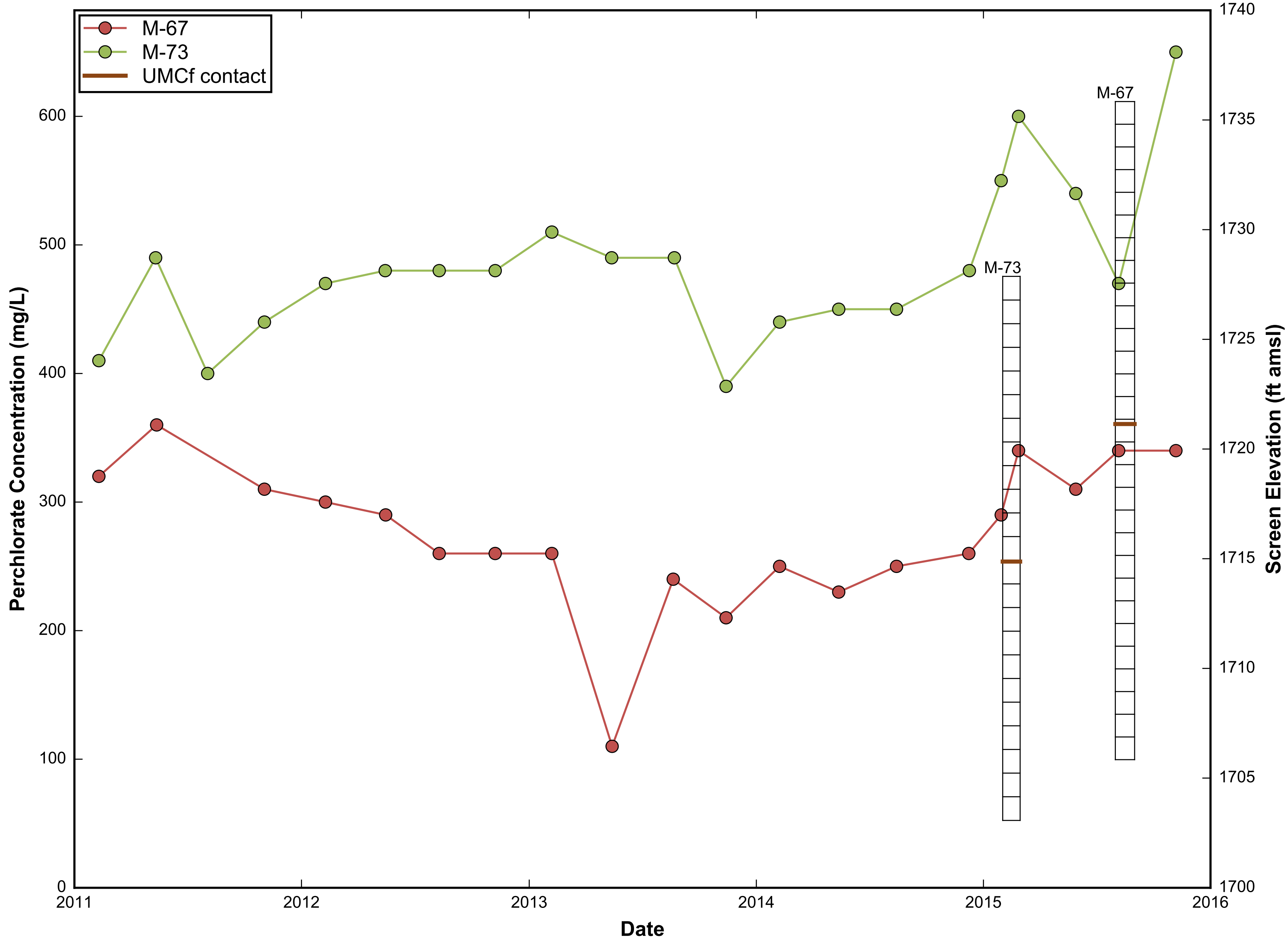
RAMBOLL ENVIRON

Cluster [M-67,M-73] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-23a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



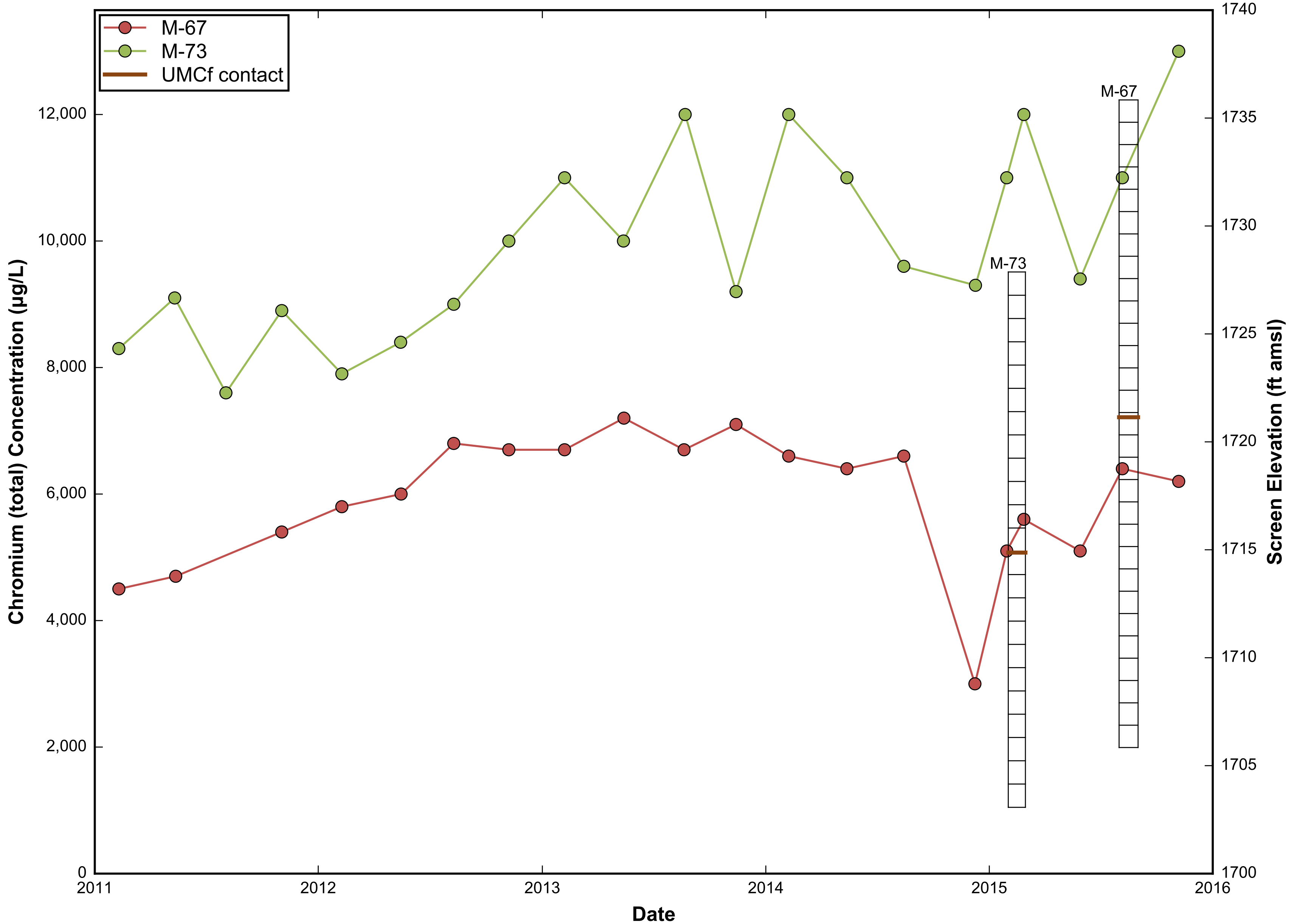
RAMBOLL ENVIRON

Cluster [M-67,M-73] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-23b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



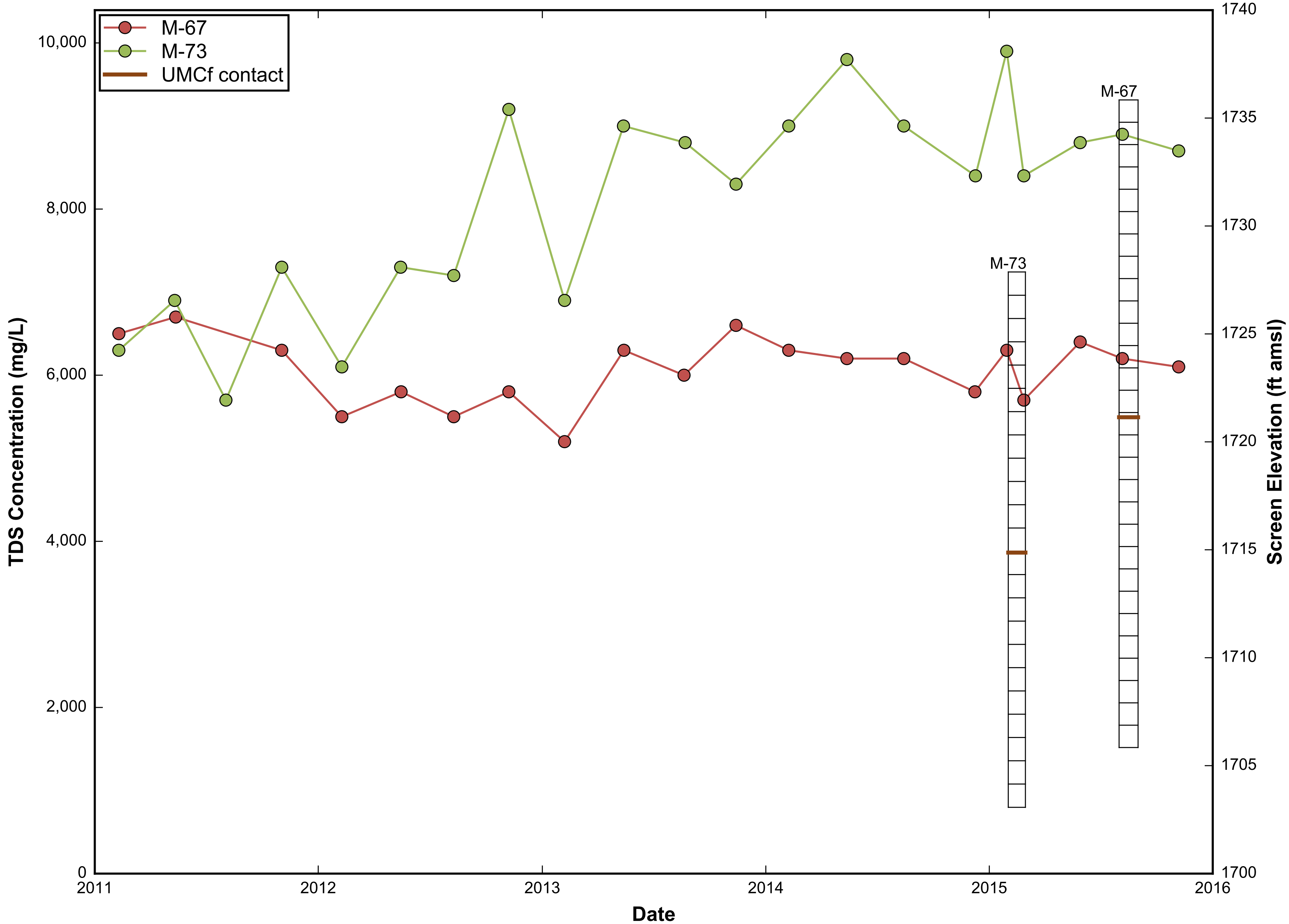
RAMBOLL ENVIRON

Cluster [M-67,M-73] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-23c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



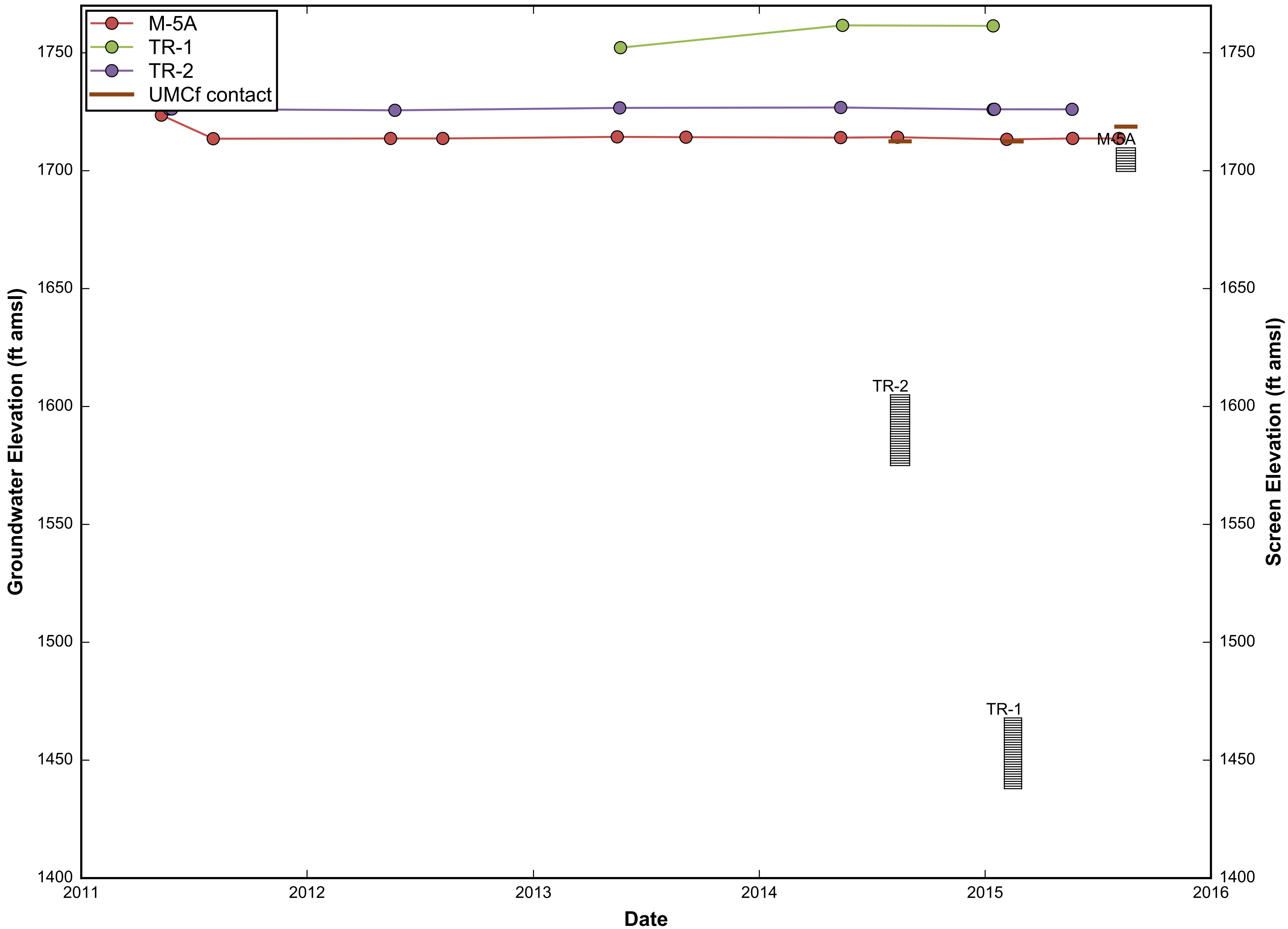
RAMBOLL ENVIRON

Cluster [M-67,M-73] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-23d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-5A,TR-1,TR-2] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-24a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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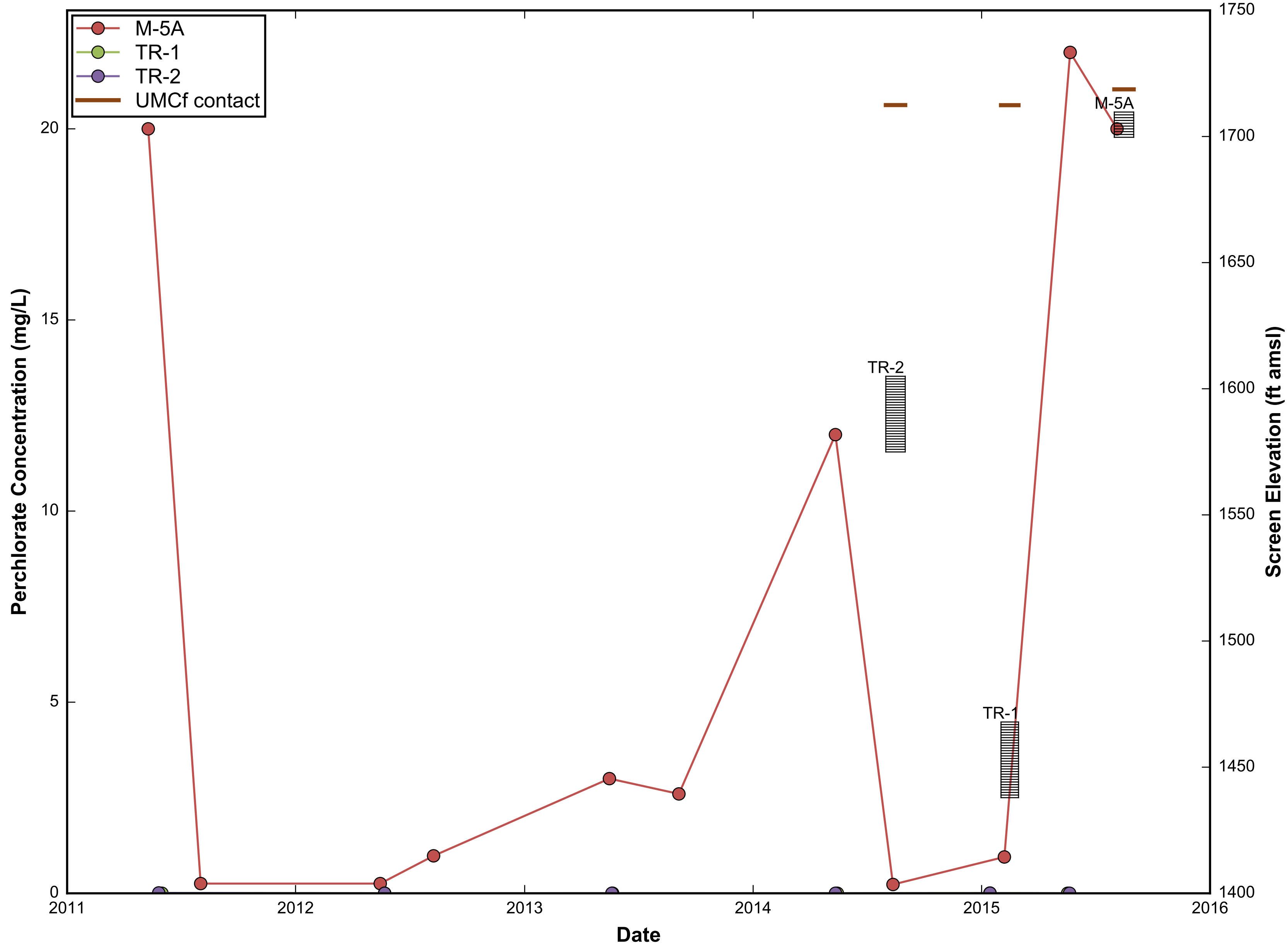


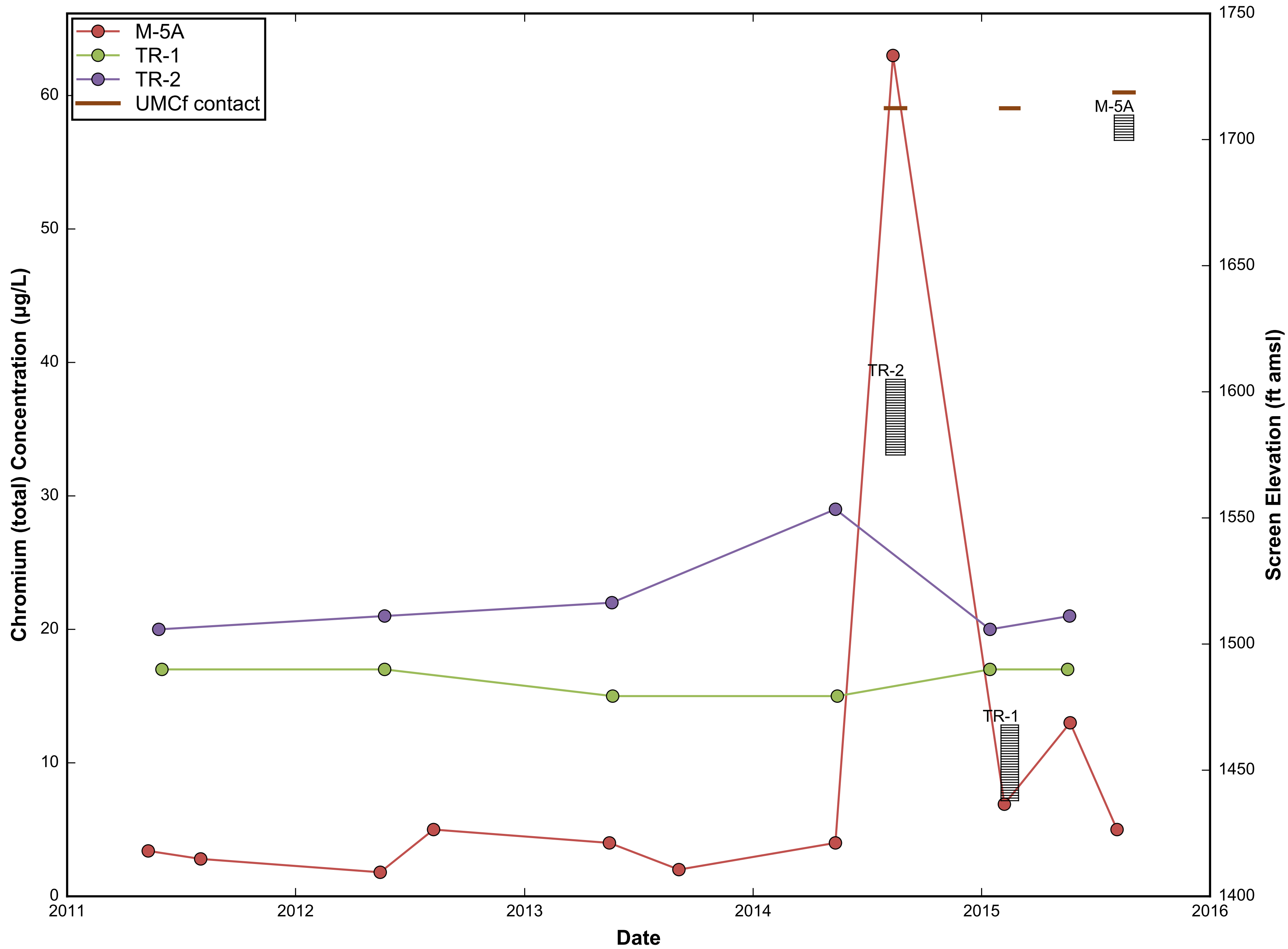
RAMBOLL ENVIRON

Cluster [M-5A,TR-1,TR-2] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-24b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



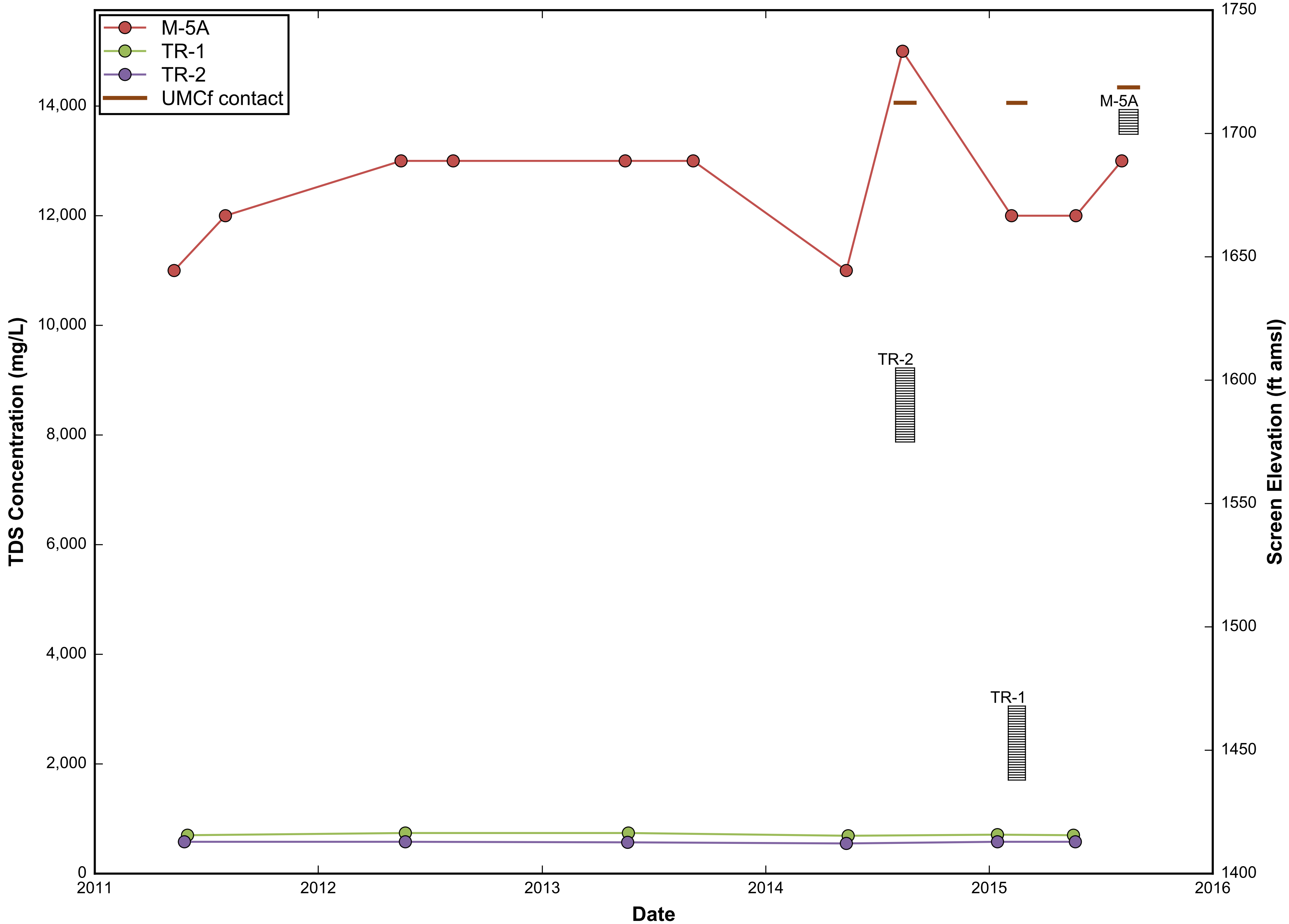
RAMBOLL ENVIRON

Cluster [M-5A,TR-1,TR-2] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-24c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



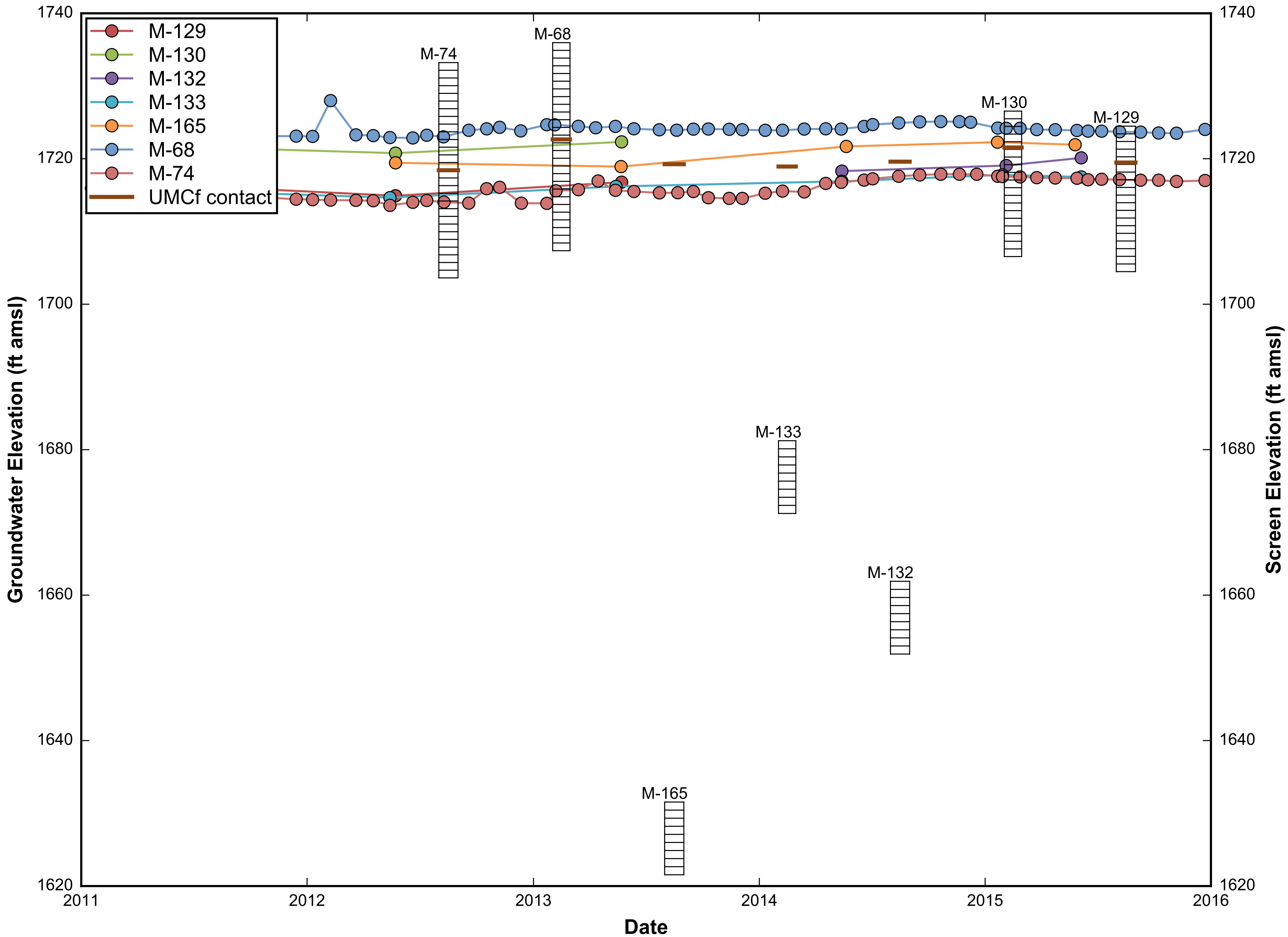
RAMBOLL ENVIRON

Cluster [M-5A,TR-1,TR-2] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-24d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



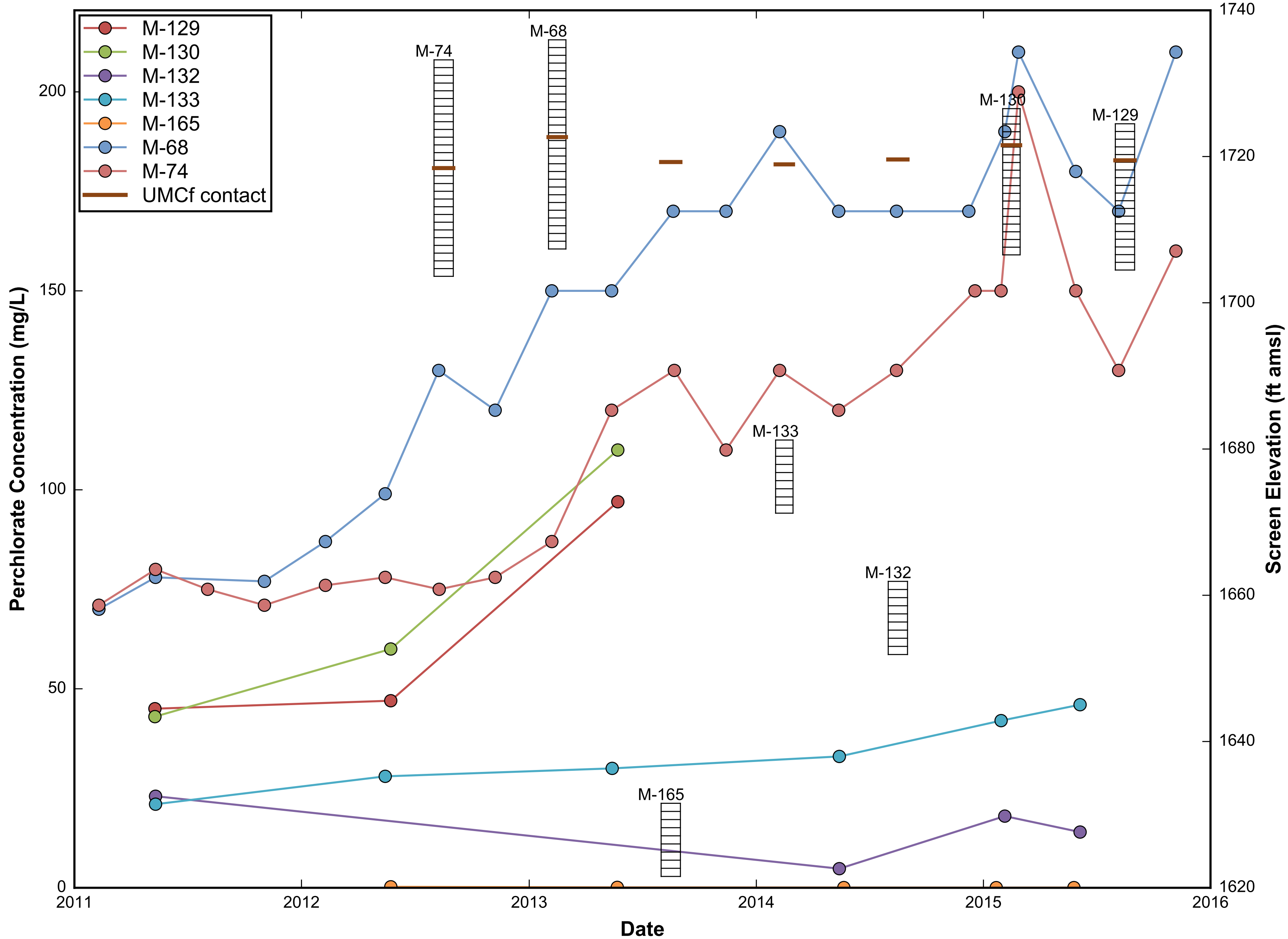
RAMBOLL ENVIRON

Cluster [M-129,M-130,M-132,M-133,M-165,M-68,M-74] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-25a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-129,M-130,M-132,M-133,M-165,M-68,M-74] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-25b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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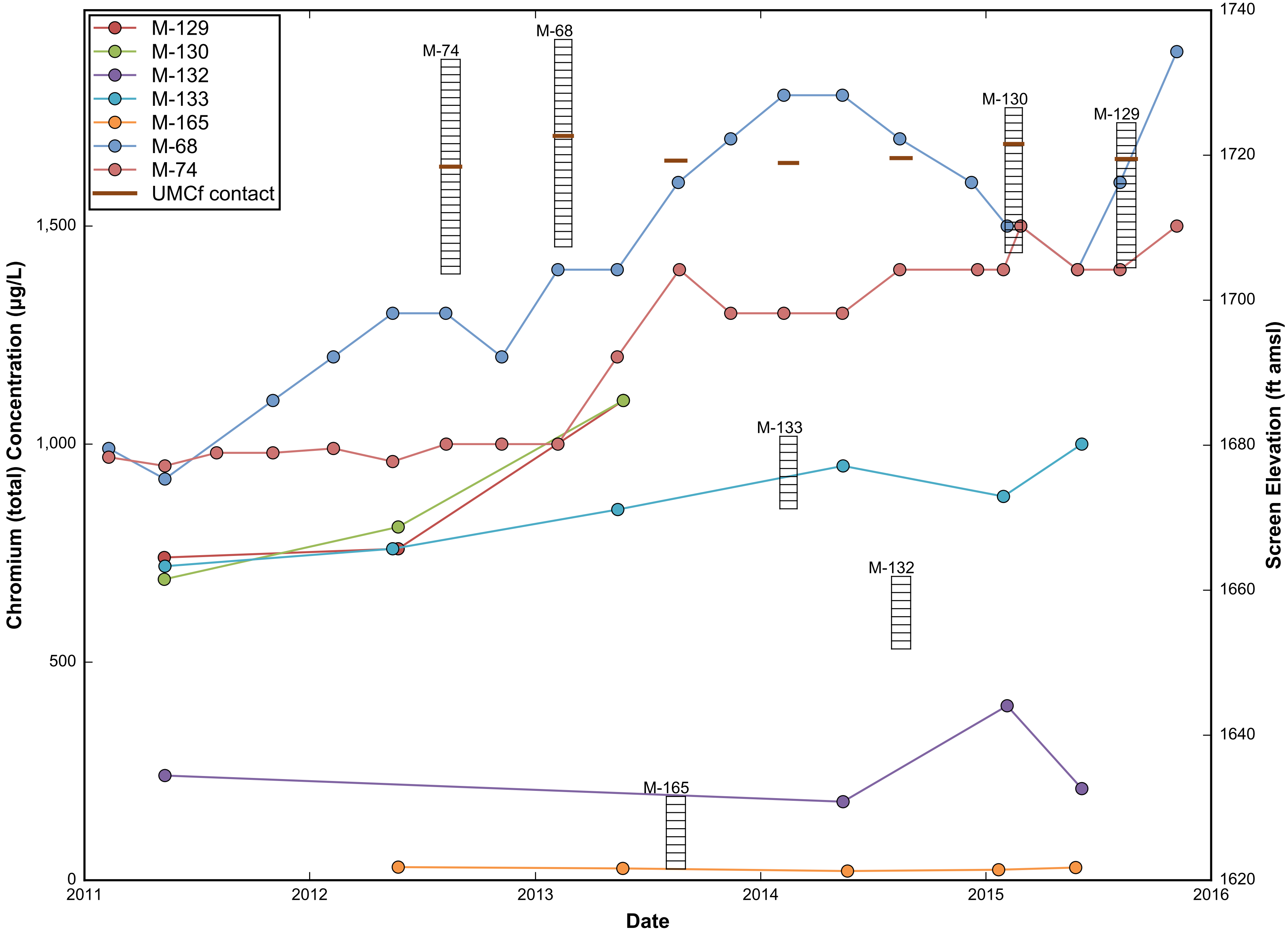


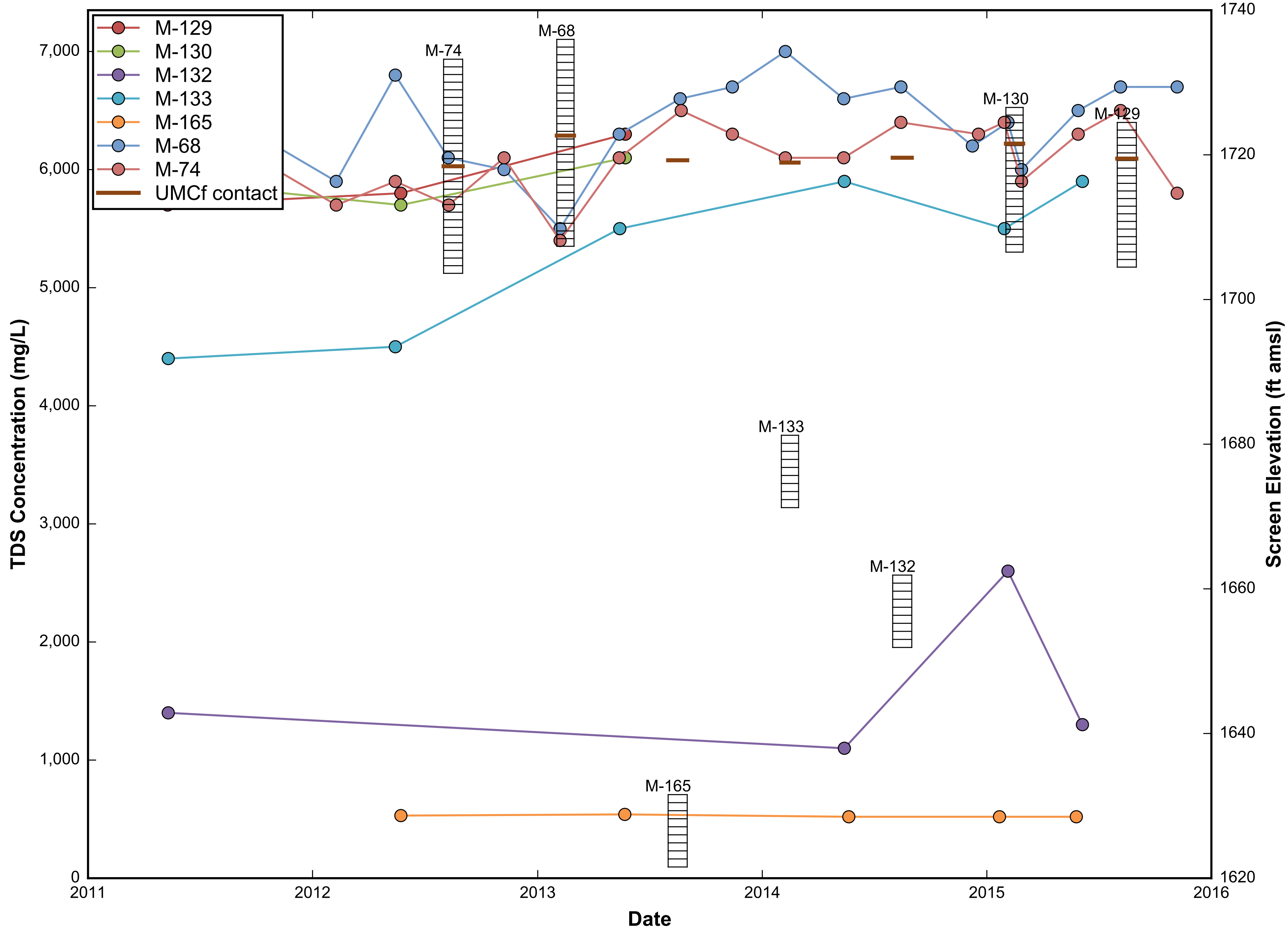
RAMBOLL ENVIRON

Cluster [M-129,M-130,M-132,M-133,M-165,M-68,M-74] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-25c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [M-129,M-130,M-132,M-133,M-165,M-68,M-74] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-25d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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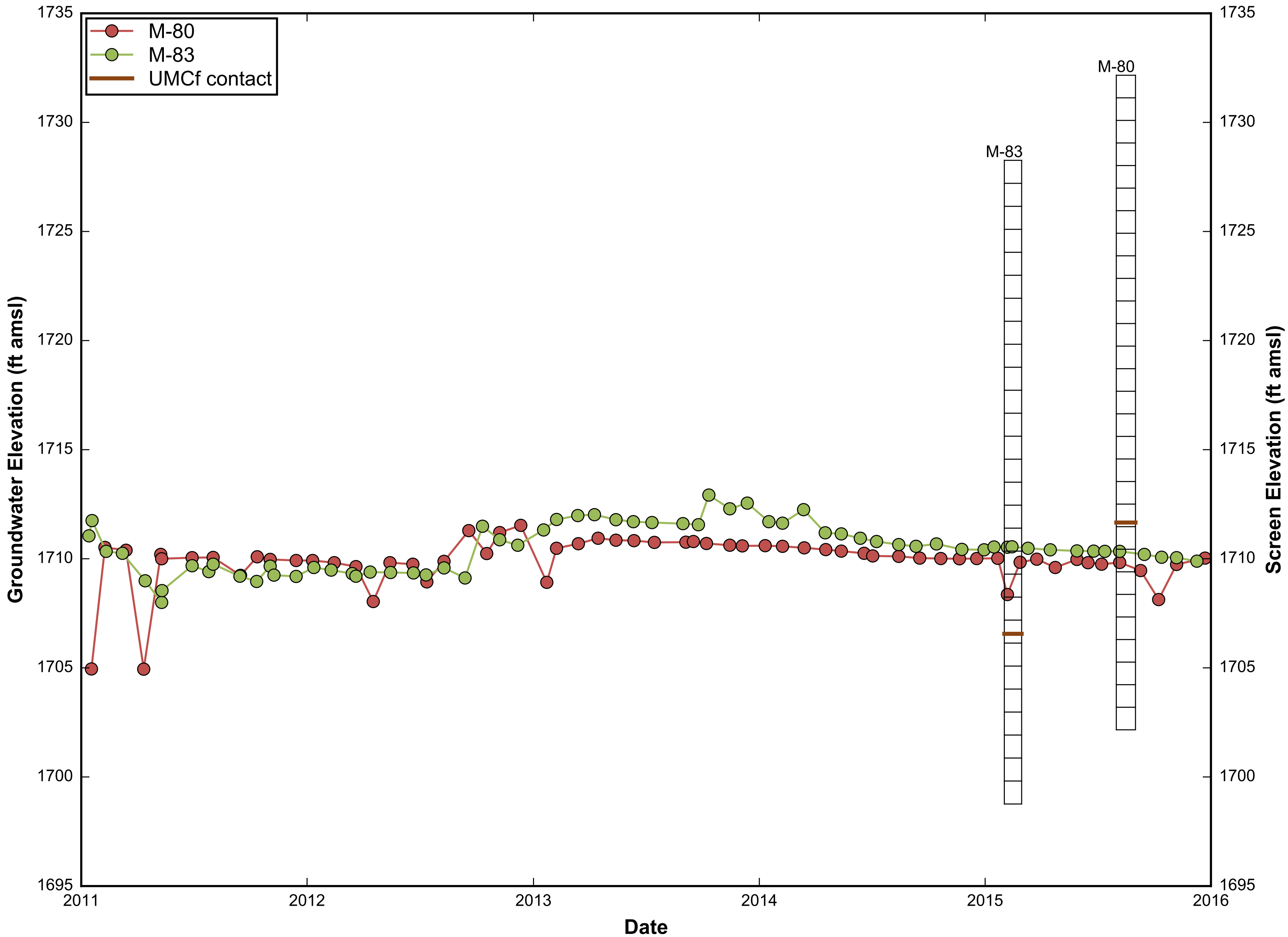


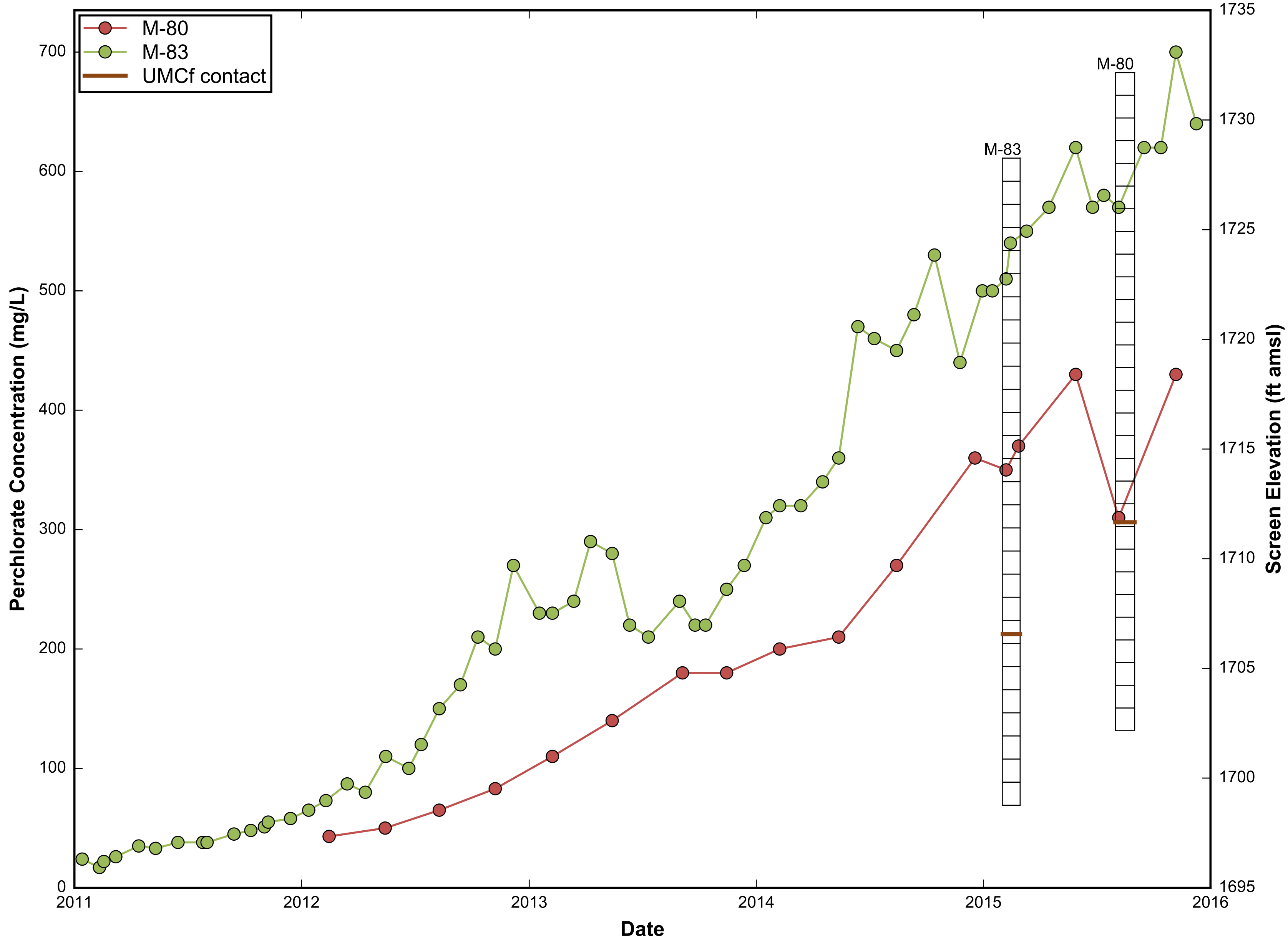
RAMBOLL ENVIRON

Cluster [M-80,M-83] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-26a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



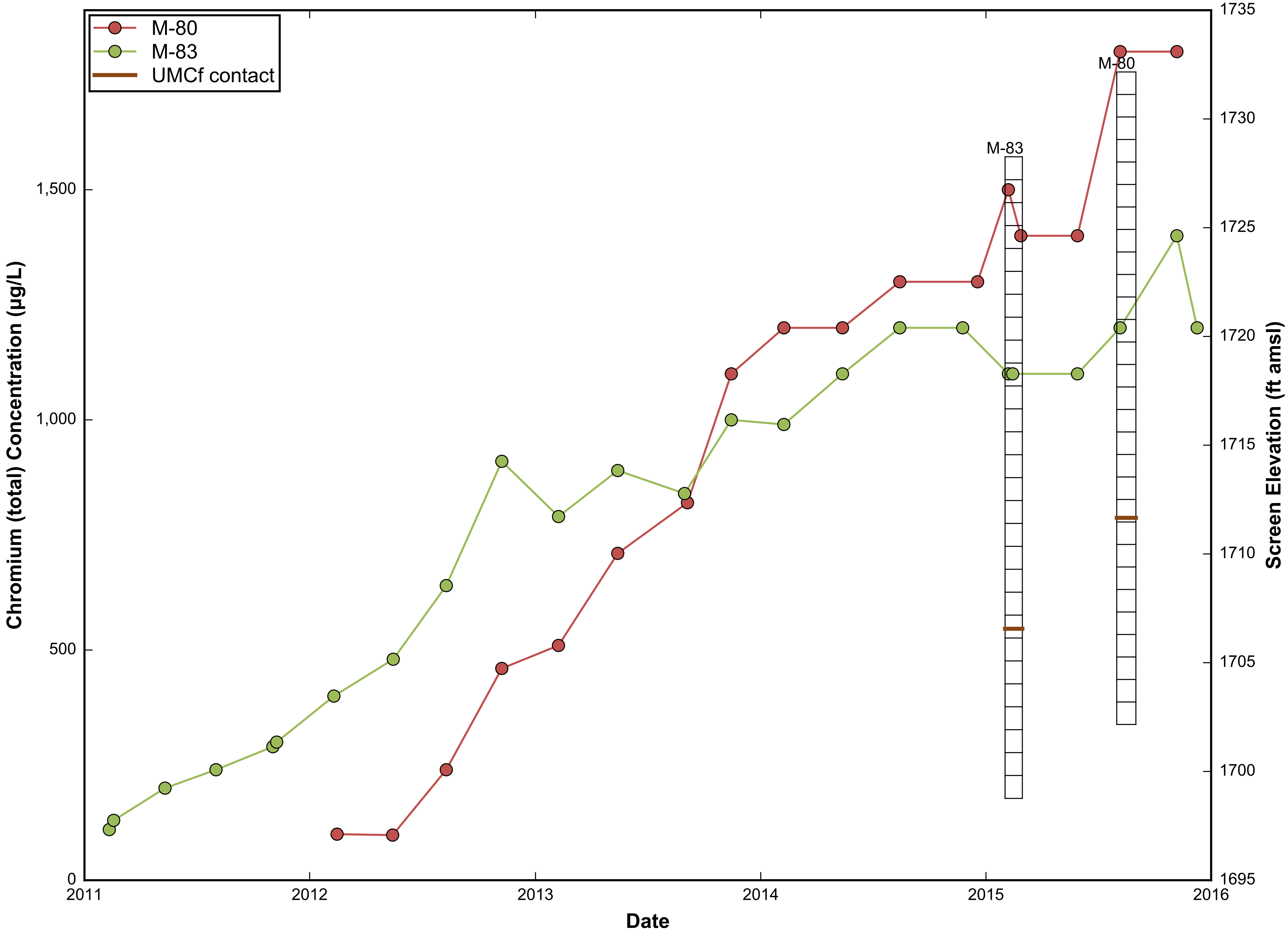
RAMBOLL ENVIRON

Cluster [M-80,M-83] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-26b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



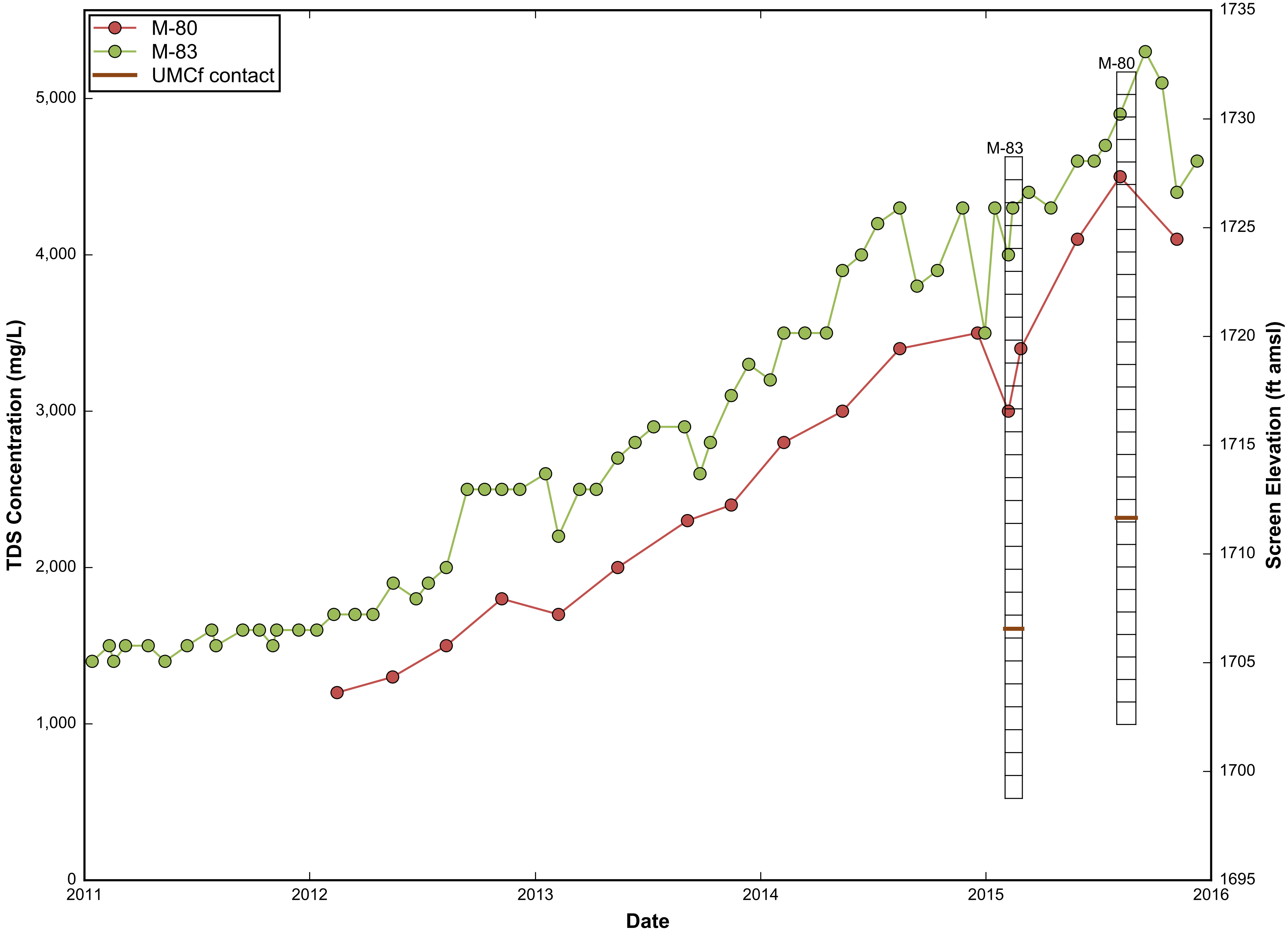
RAMBOLL ENVIRON

Cluster [M-80,M-83] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-26c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



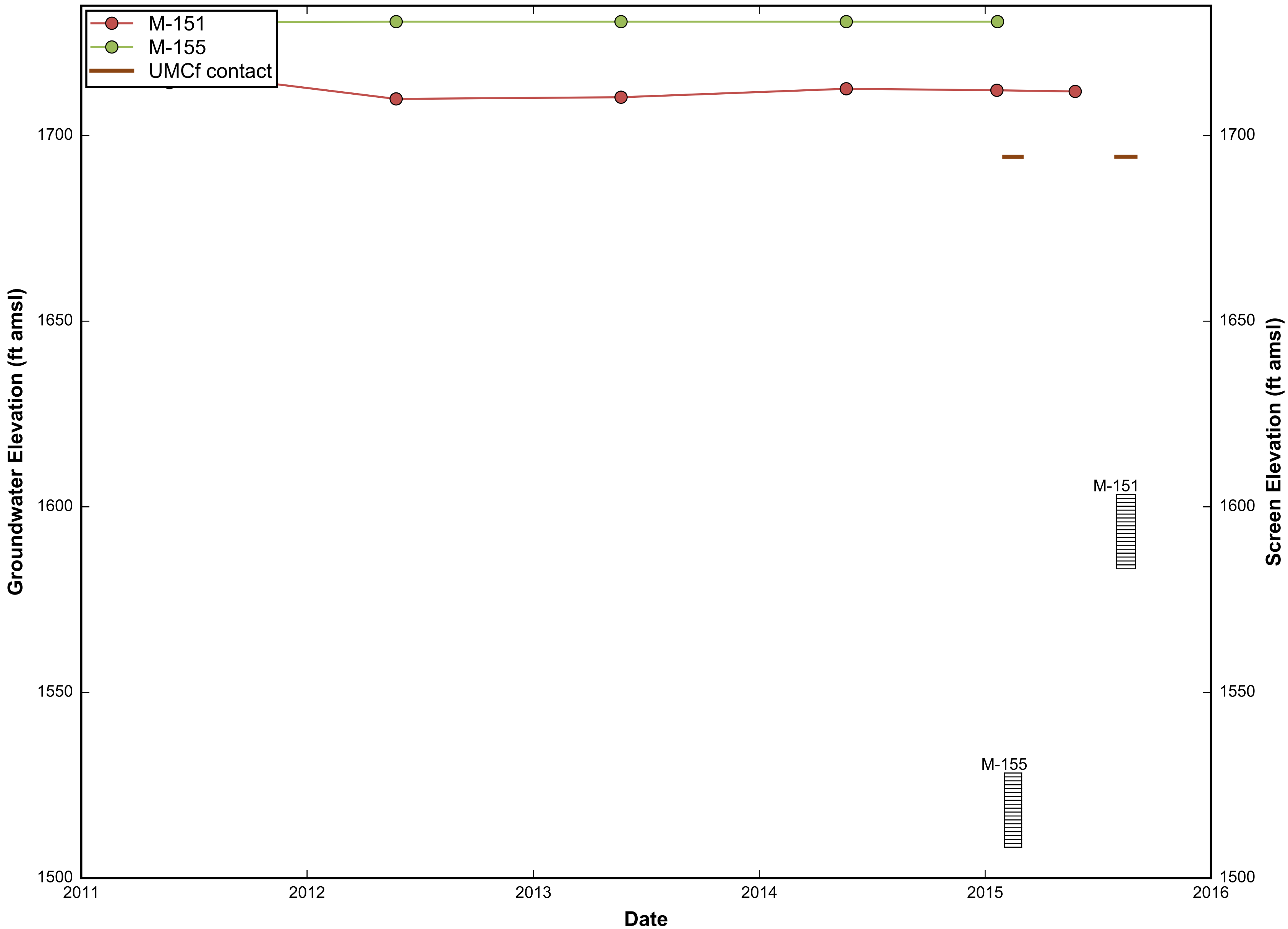
RAMBOLL ENVIRON

Cluster [M-80,M-83] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-26d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



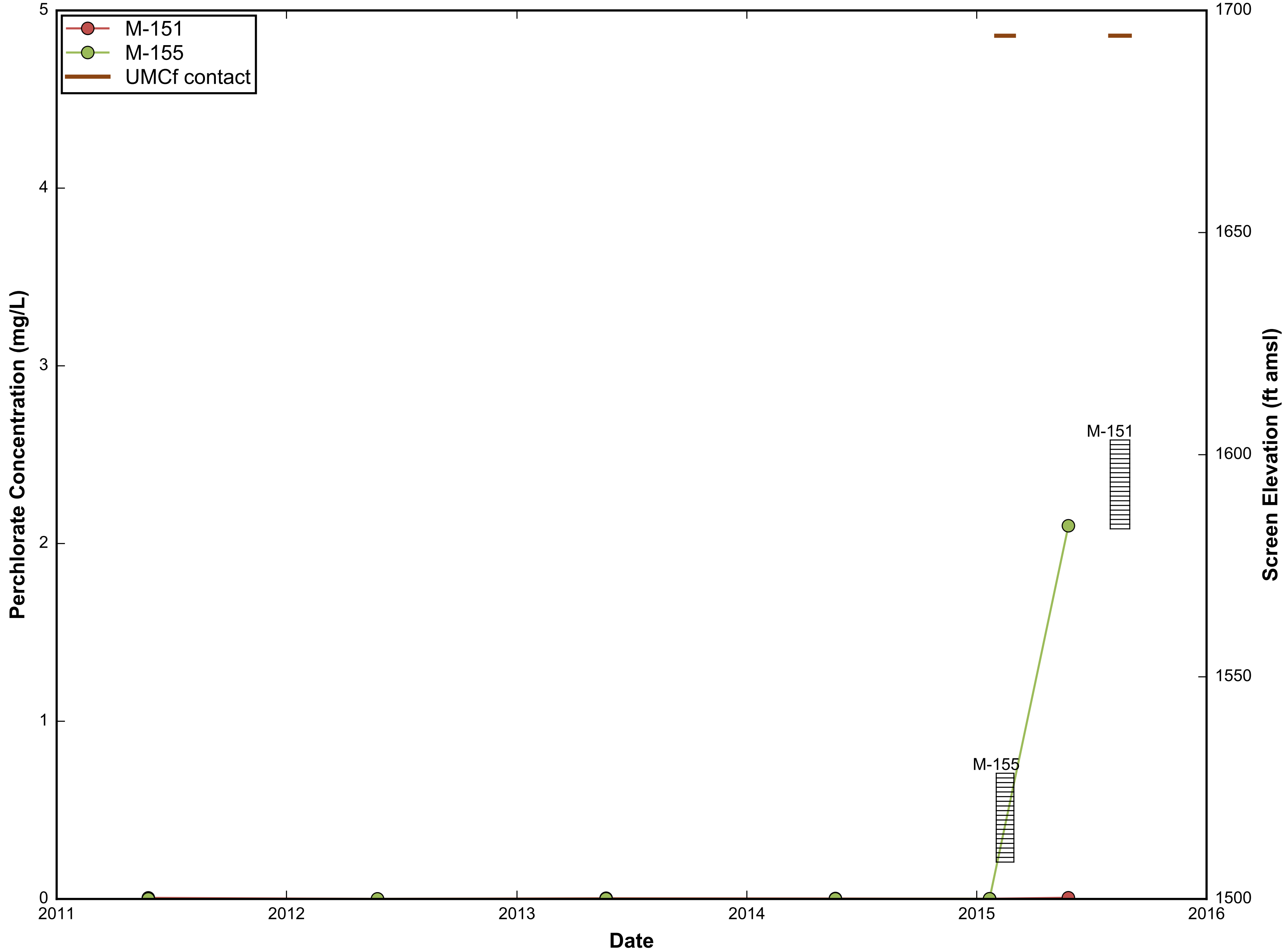
RAMBOLL ENVIRON

Cluster [M-151,M-155] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-27a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



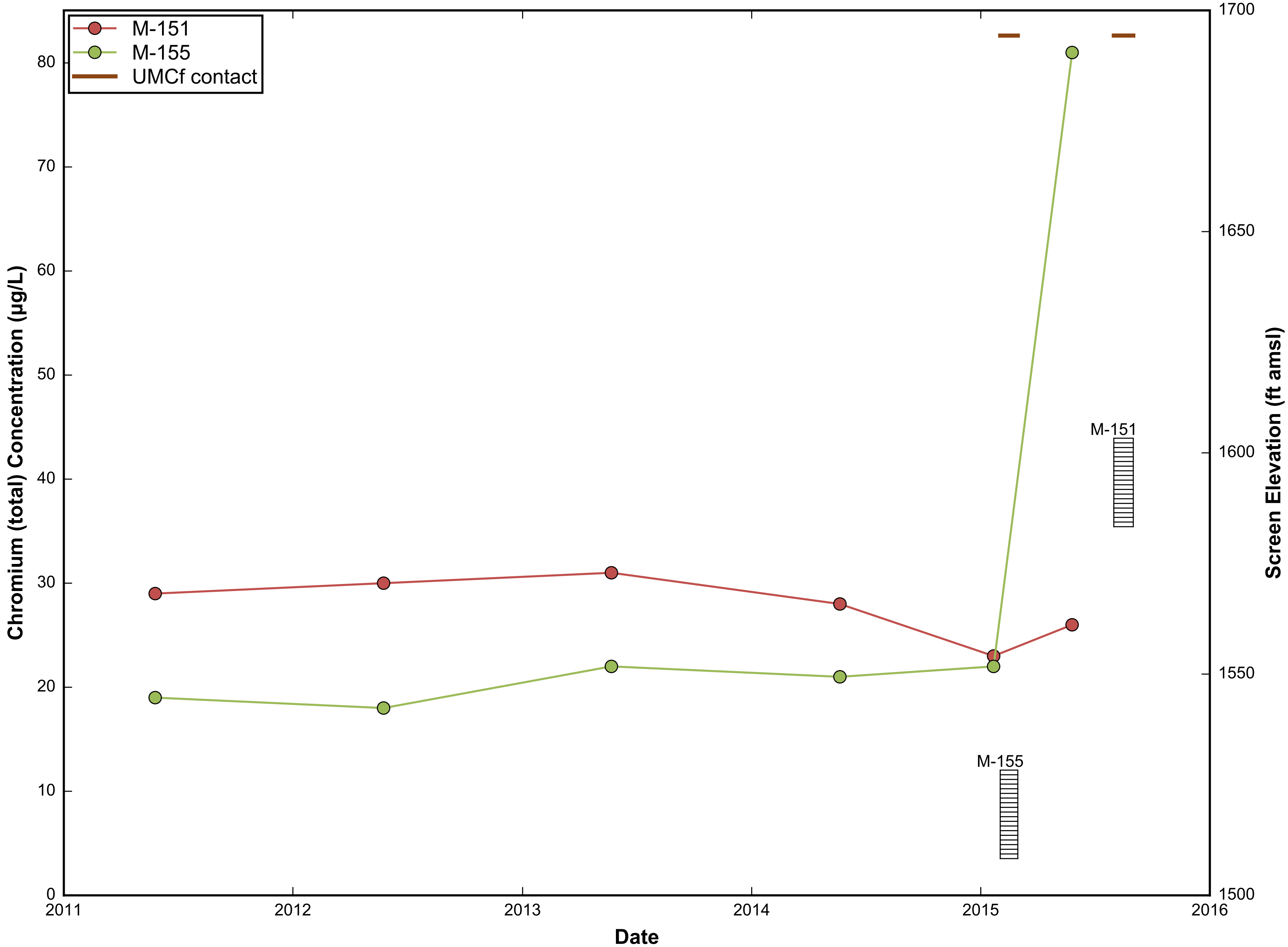
RAMBOLL ENVIRON

Cluster [M-151,M-155] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-27b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



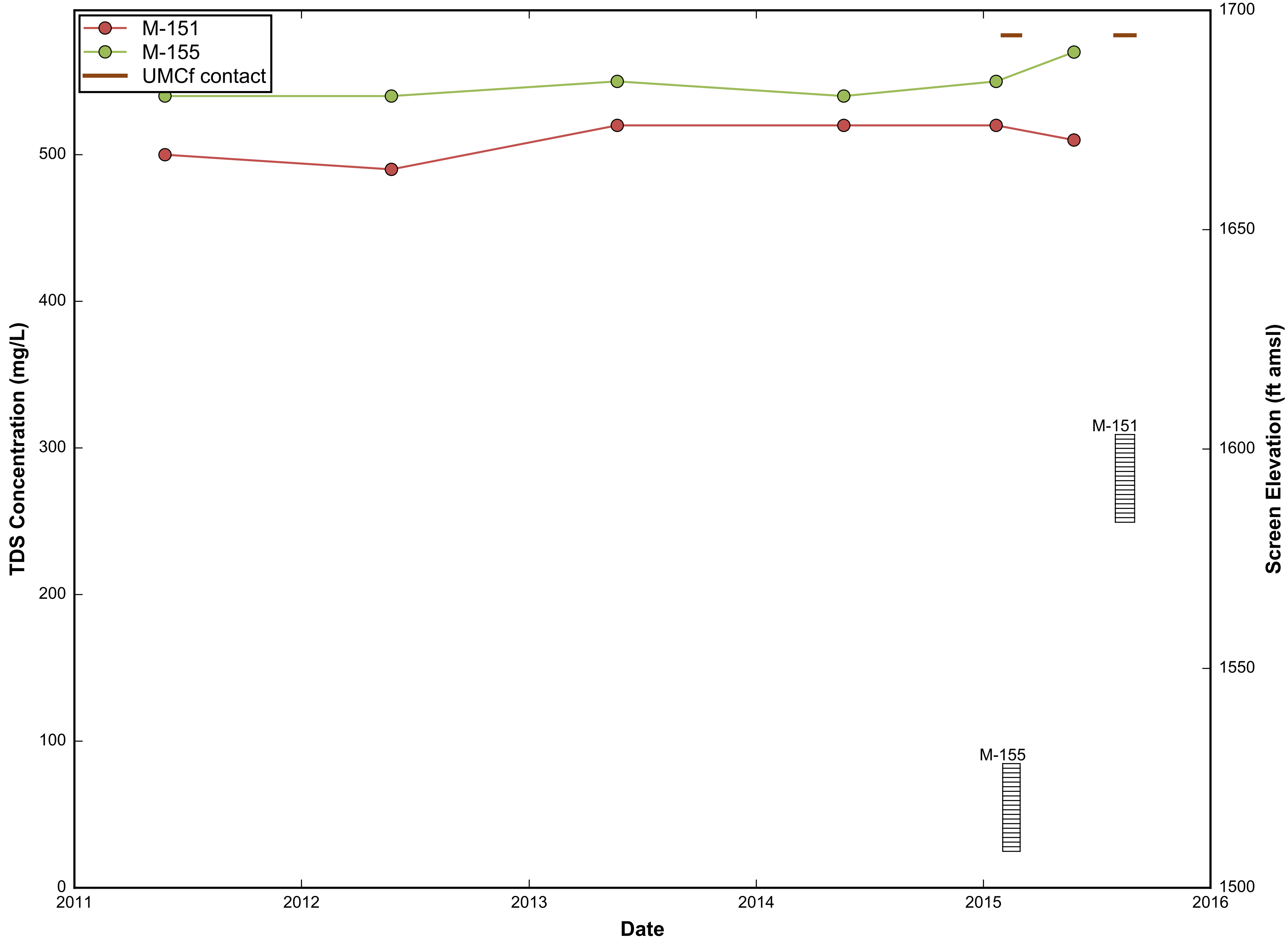
RAMBOLL ENVIRON

Cluster [M-151,M-155] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-27c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



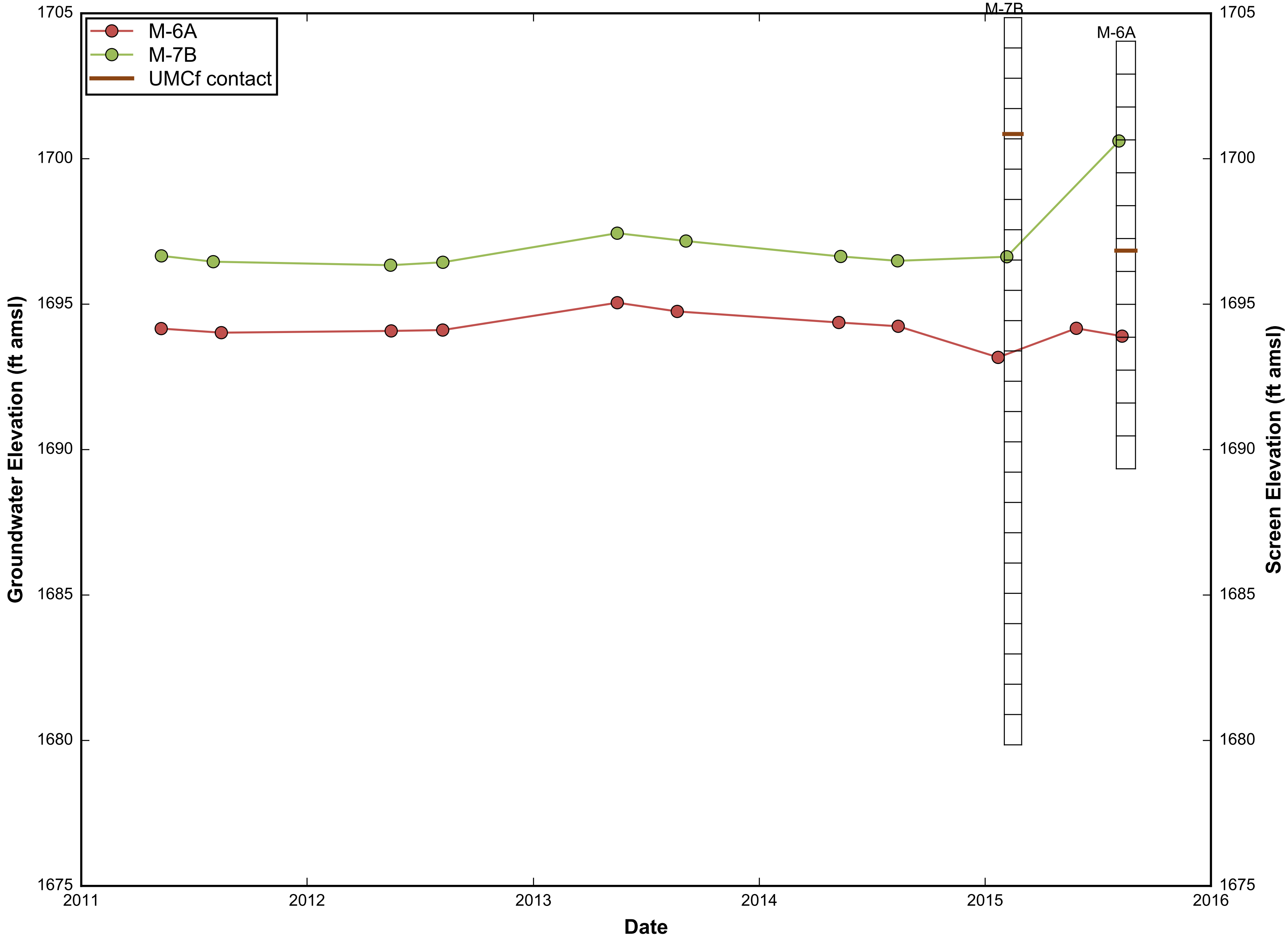
RAMBOLL ENVIRON

Cluster [M-151,M-155] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-27d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



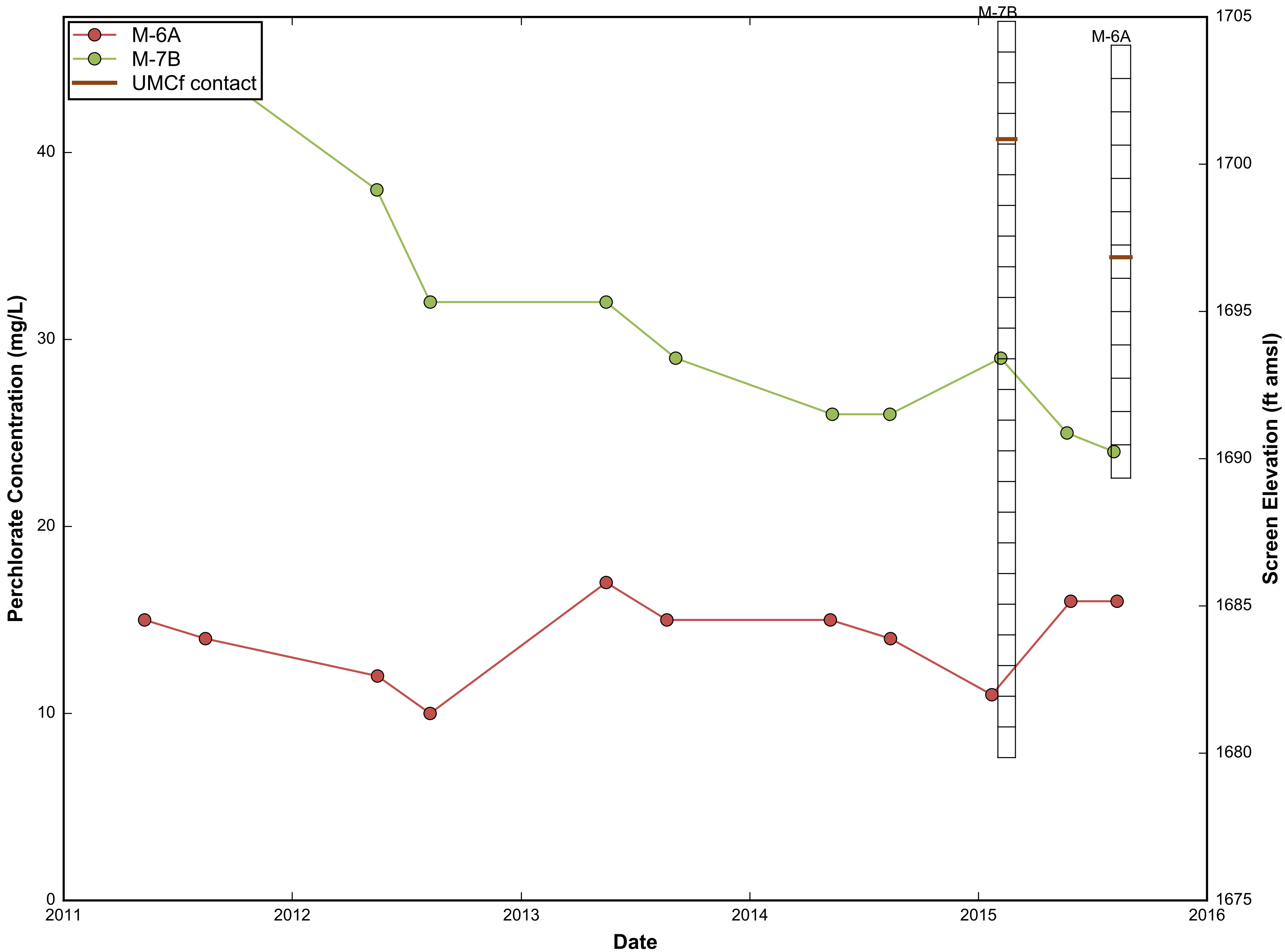
Cluster [M-6A,M-7B] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

RAMBOLL ENVIRON

Figure
A-28a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



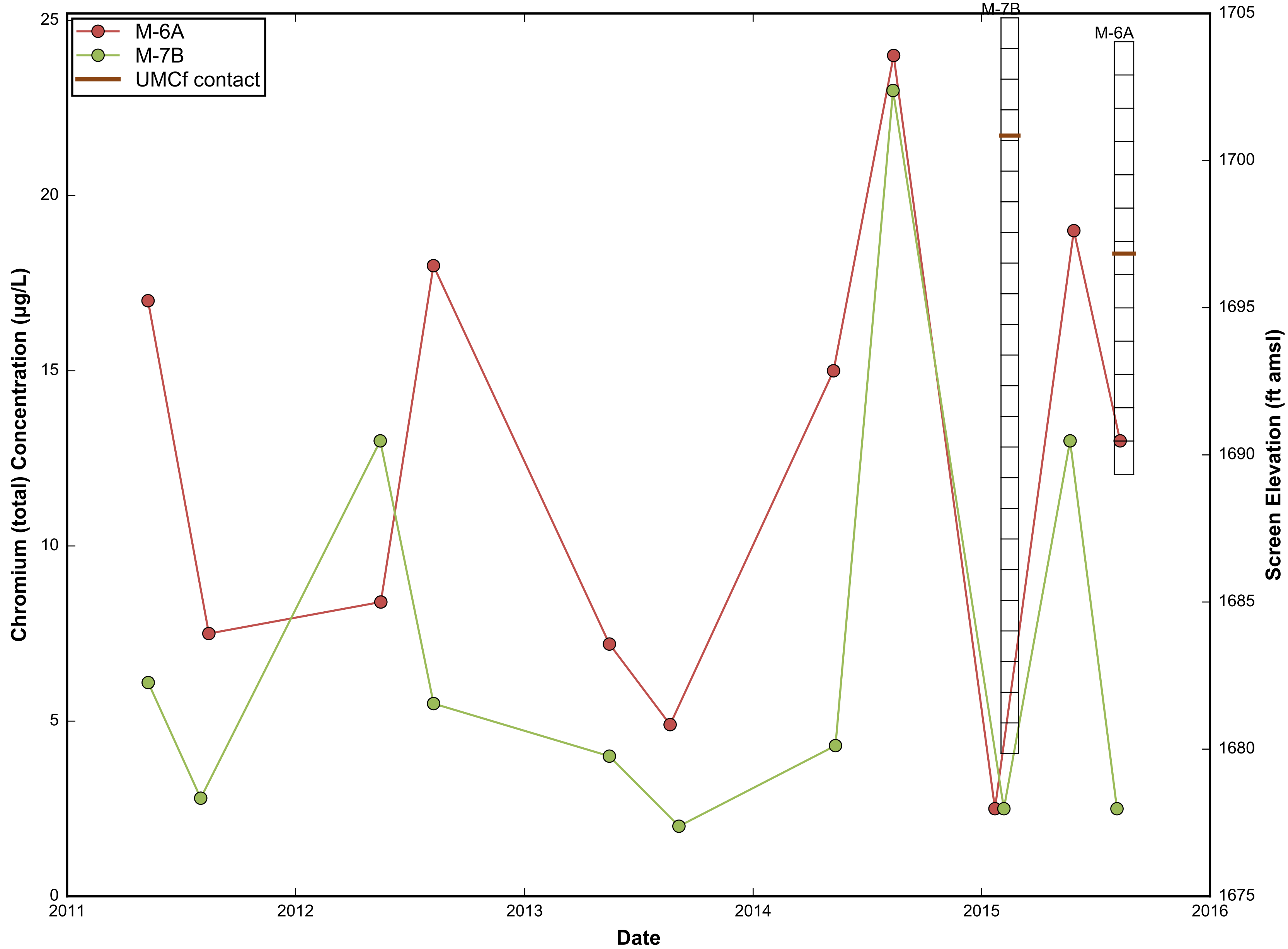
RAMBOLL ENVIRON

Cluster [M-6A,M-7B] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-28b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



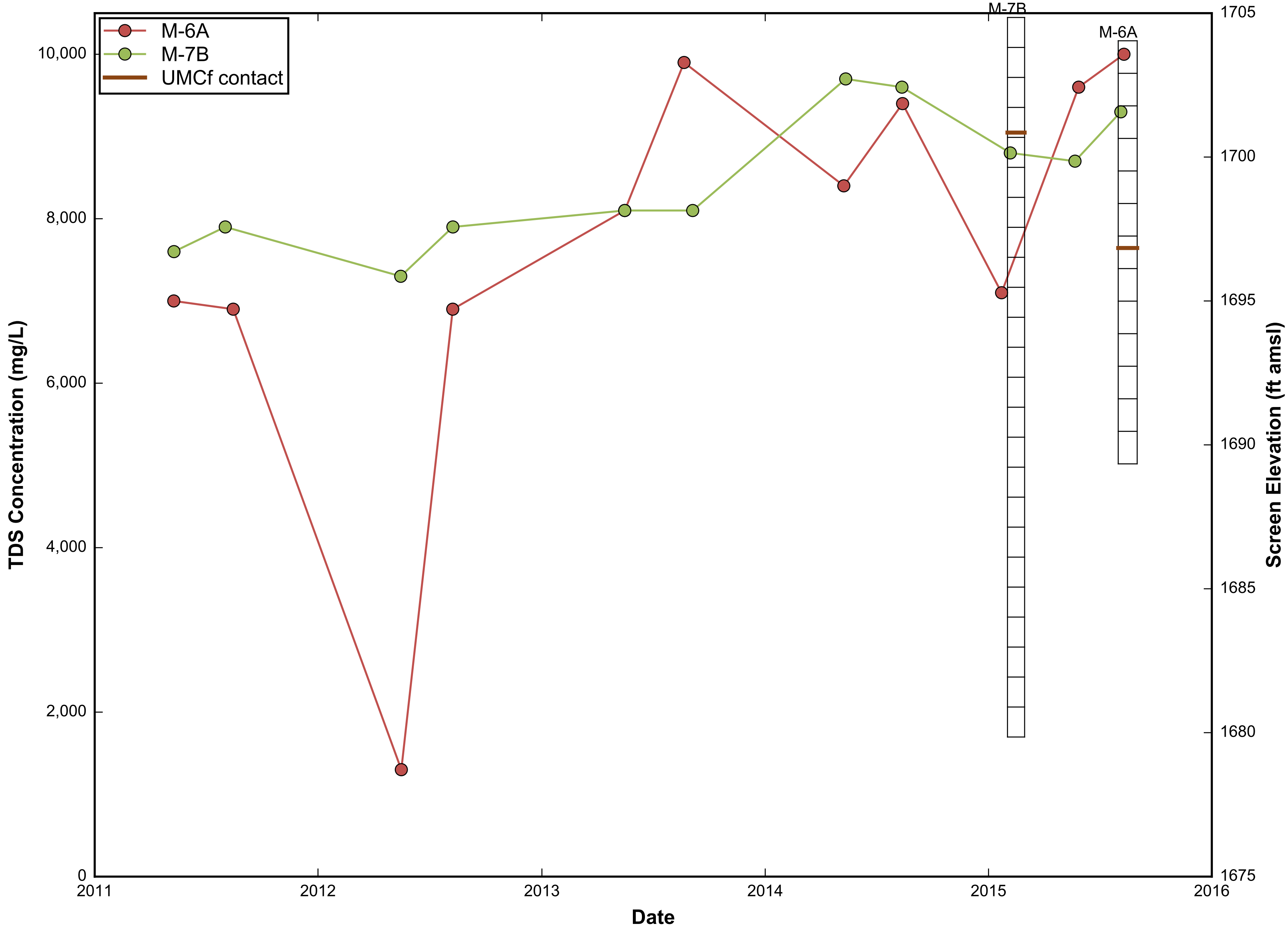
RAMBOLL ENVIRON

Cluster [M-6A,M-7B] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-28c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



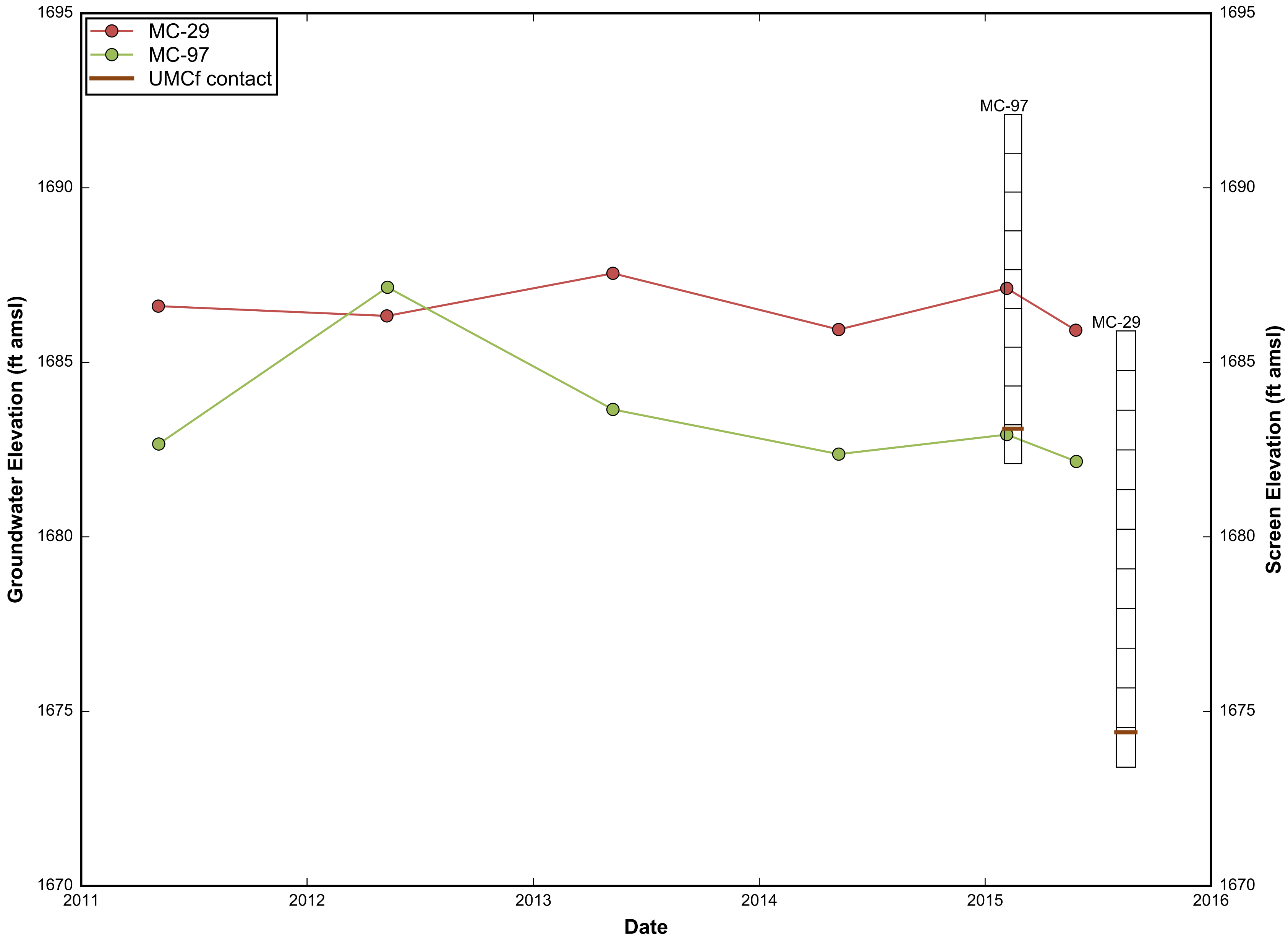
RAMBOLL ENVIRON

Cluster [M-6A,M-7B] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-28d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



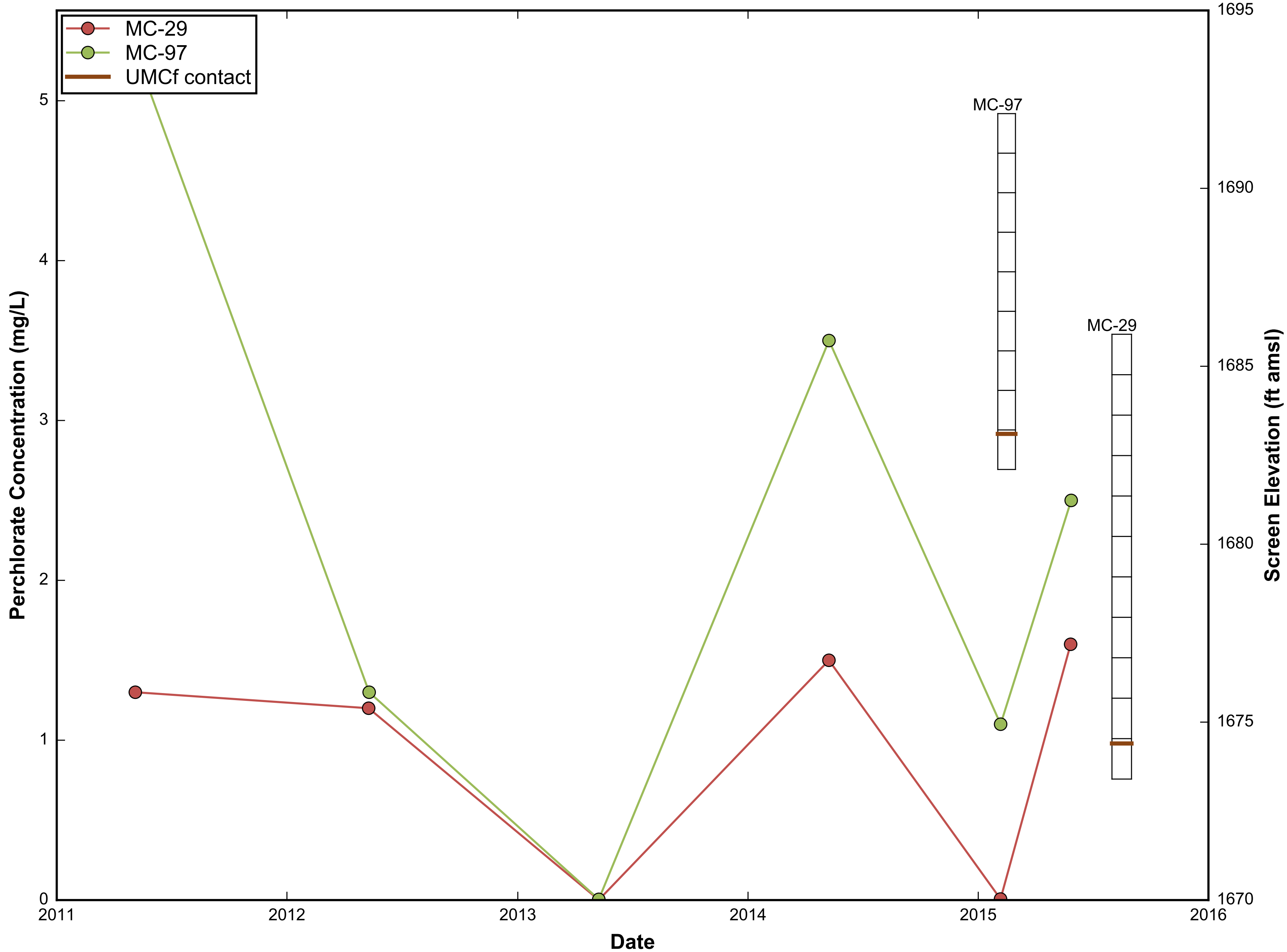
RAMBOLL ENVIRON

Cluster [MC-29,MC-97] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-29a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



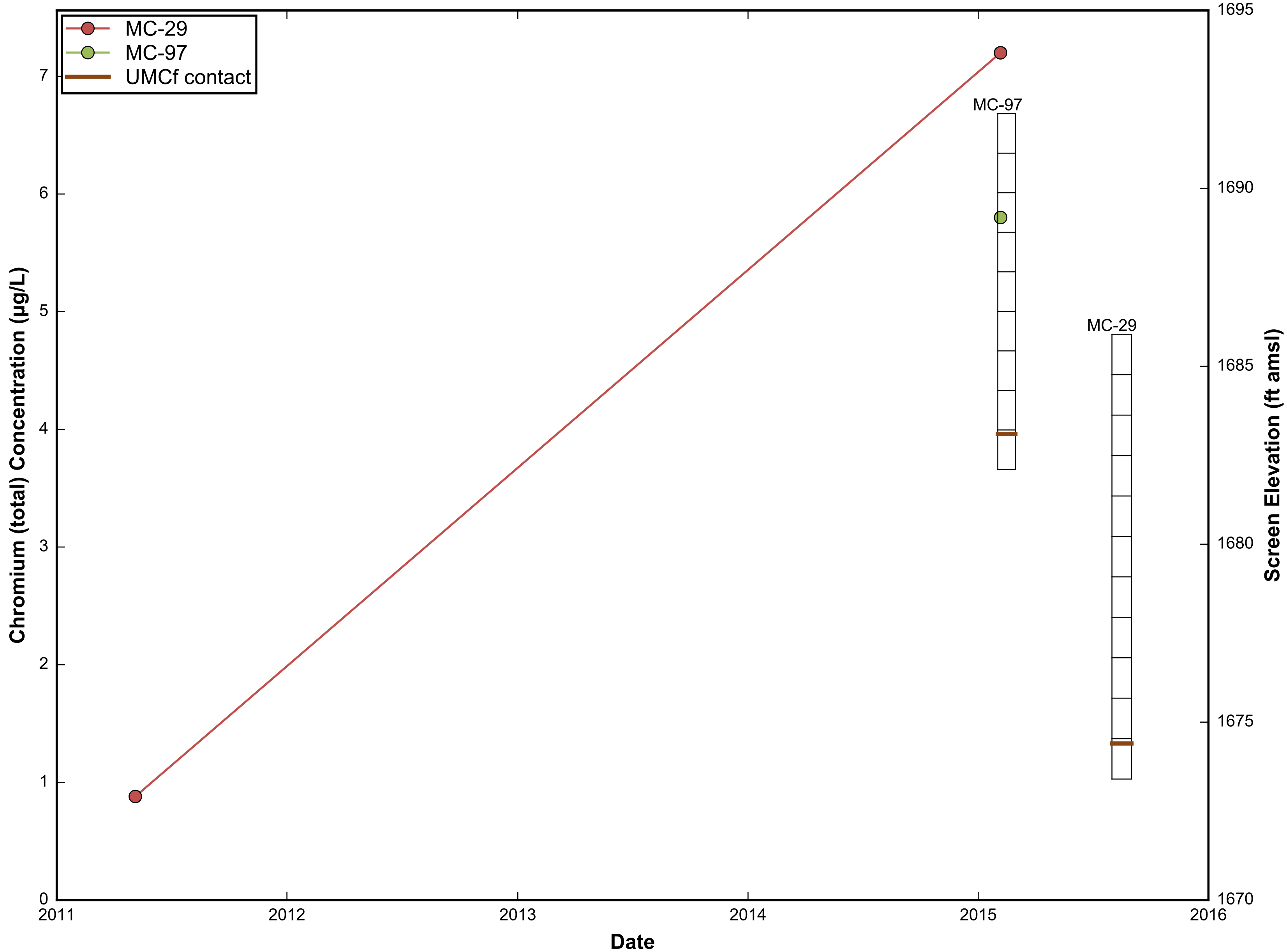
RAMBOLL ENVIRON

Cluster [MC-29,MC-97] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-29b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



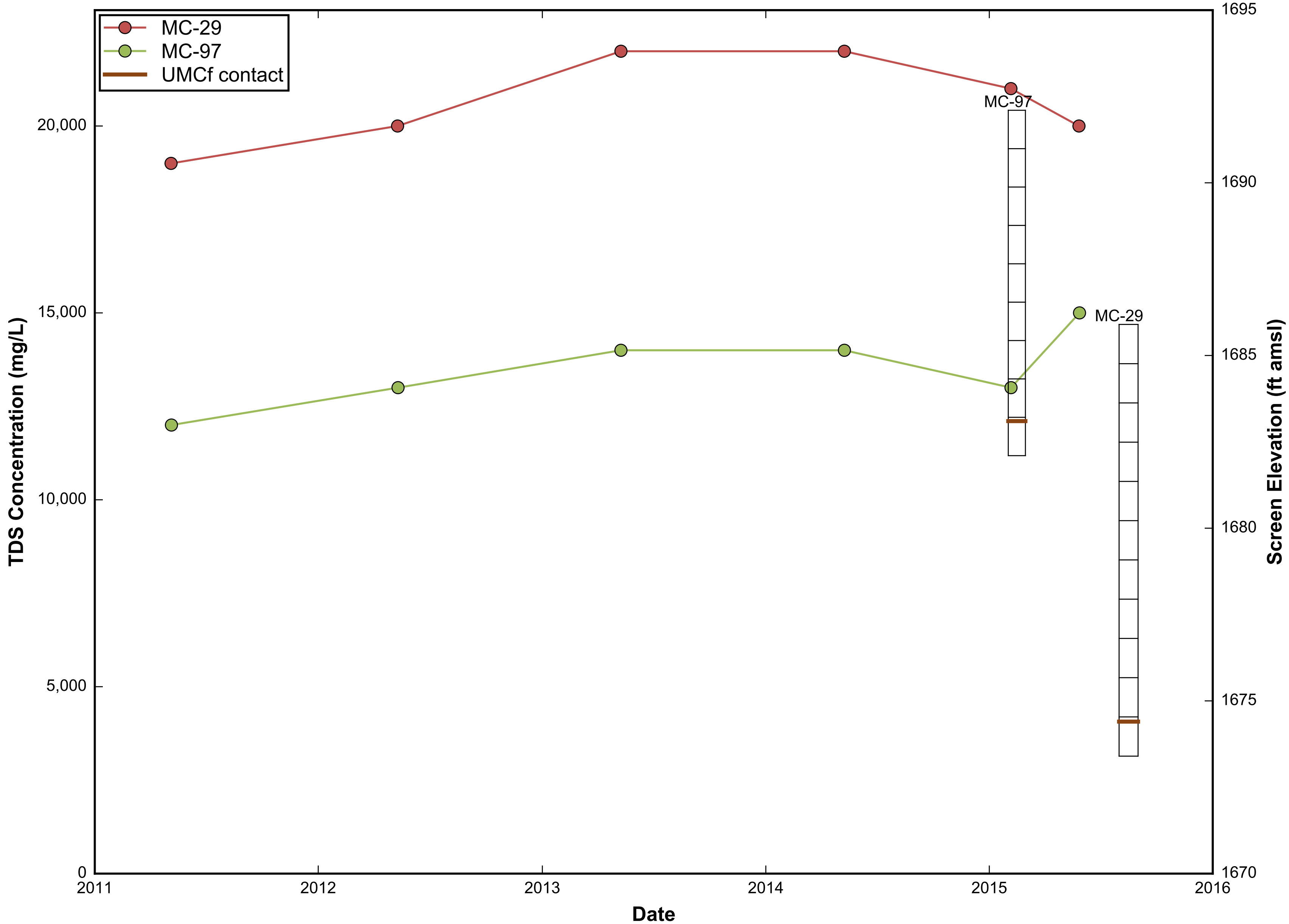
RAMBOLL ENVIRON

Cluster [MC-29,MC-97] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-29c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



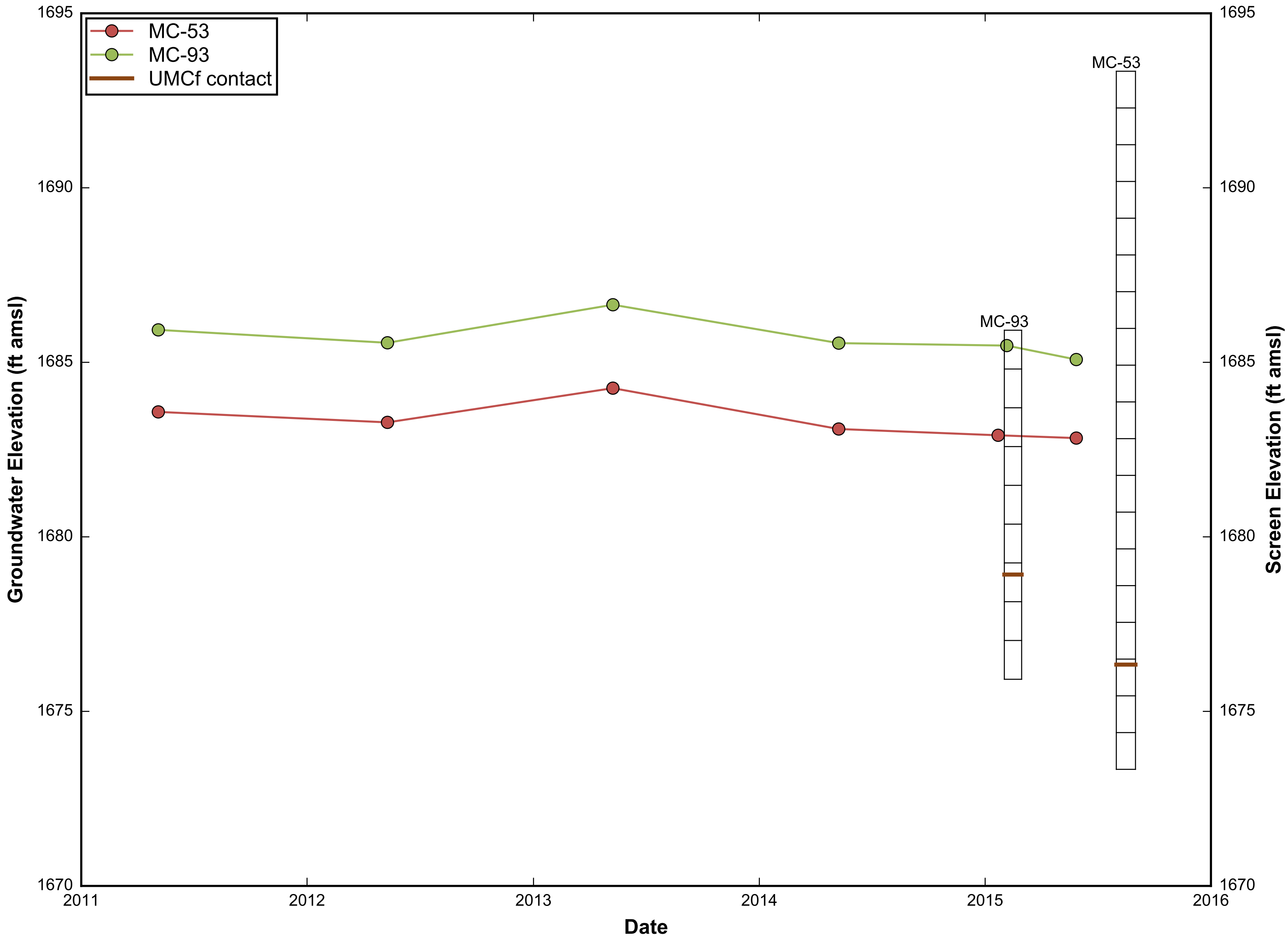
RAMBOLL ENVIRON

Cluster [MC-29,MC-97] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-29d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



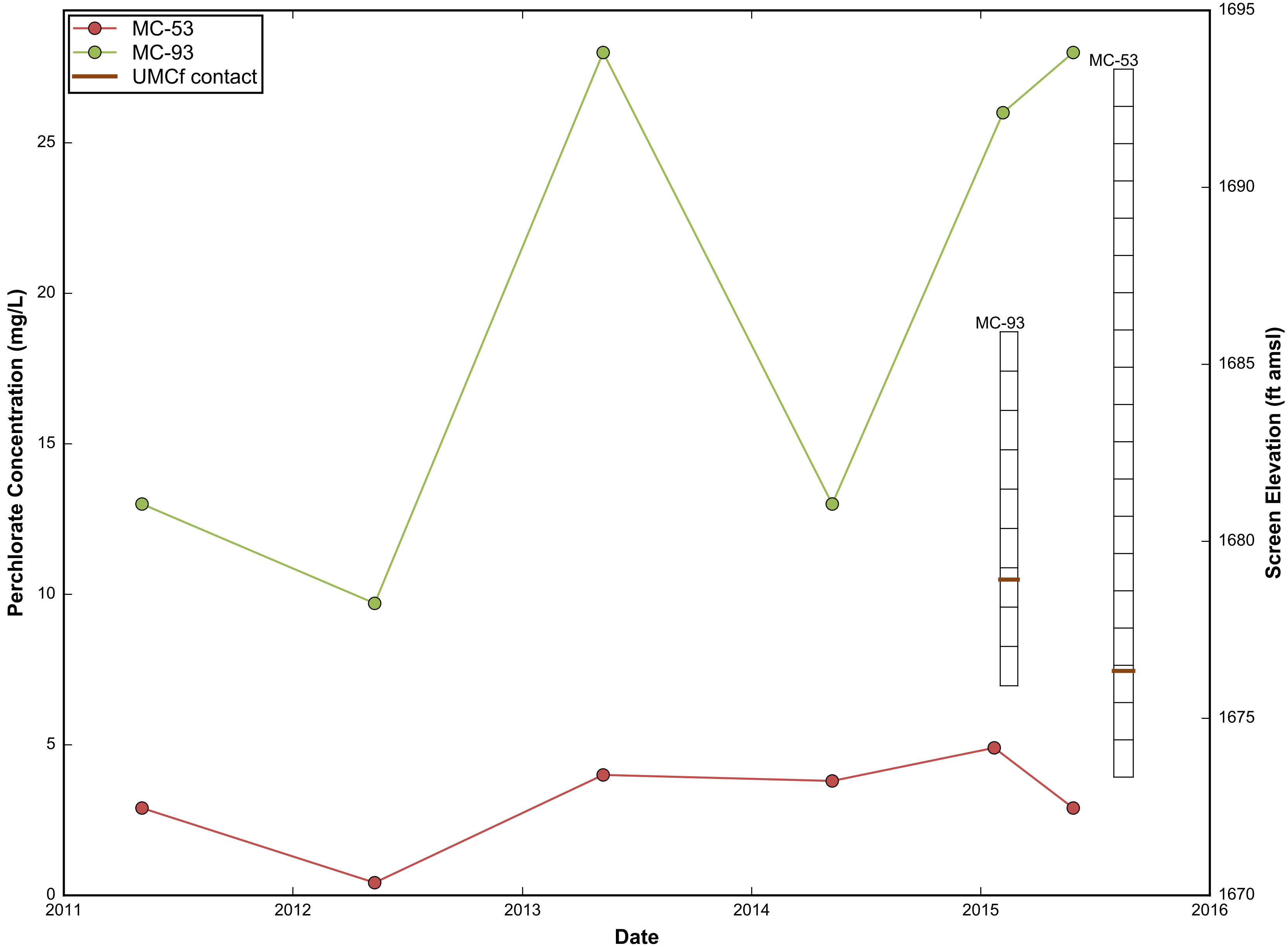
RAMBOLL ENVIRON

Cluster [MC-53,MC-93] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-30a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



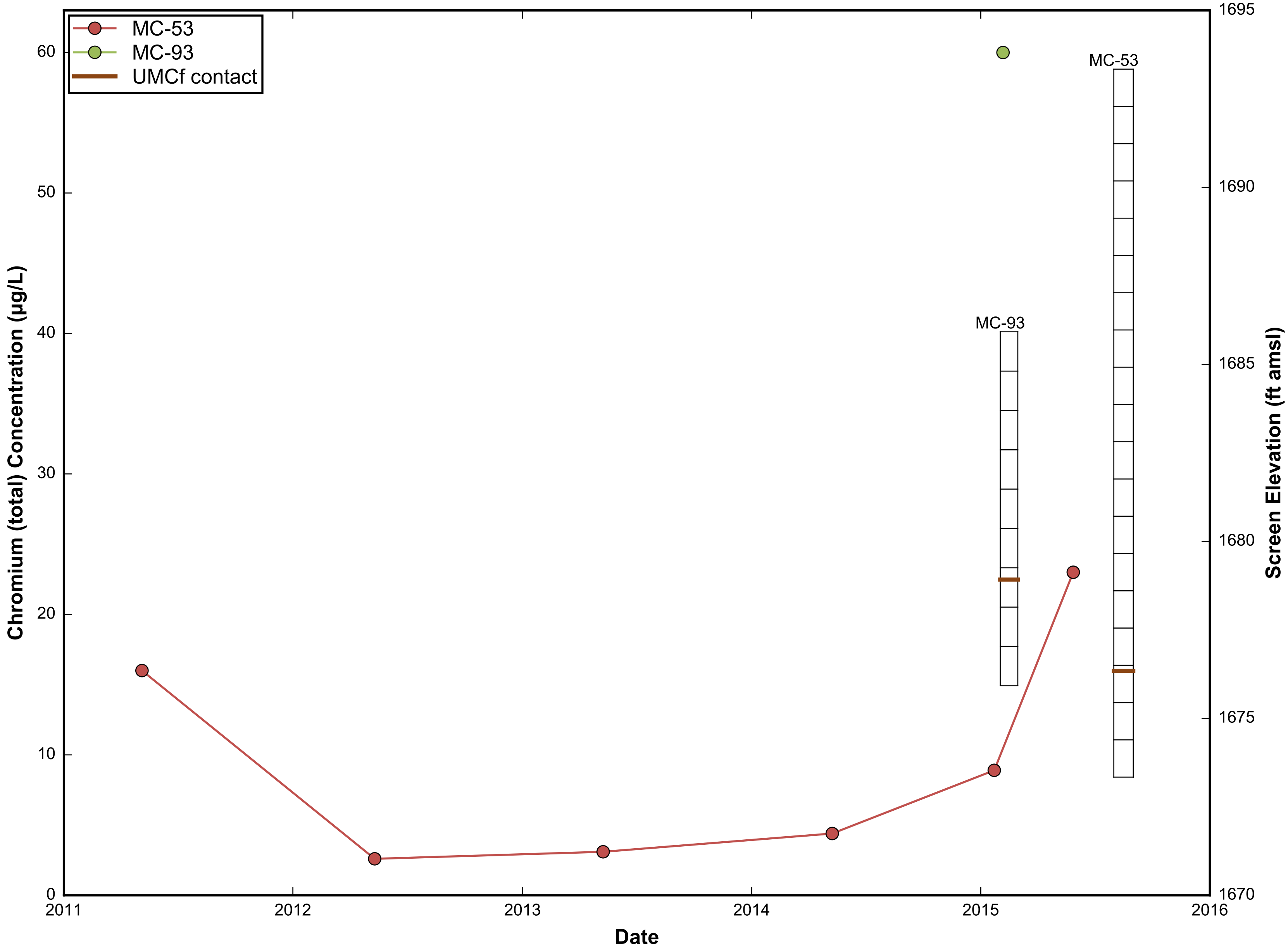
RAMBOLL ENVIRON

Cluster [MC-53,MC-93] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-30b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



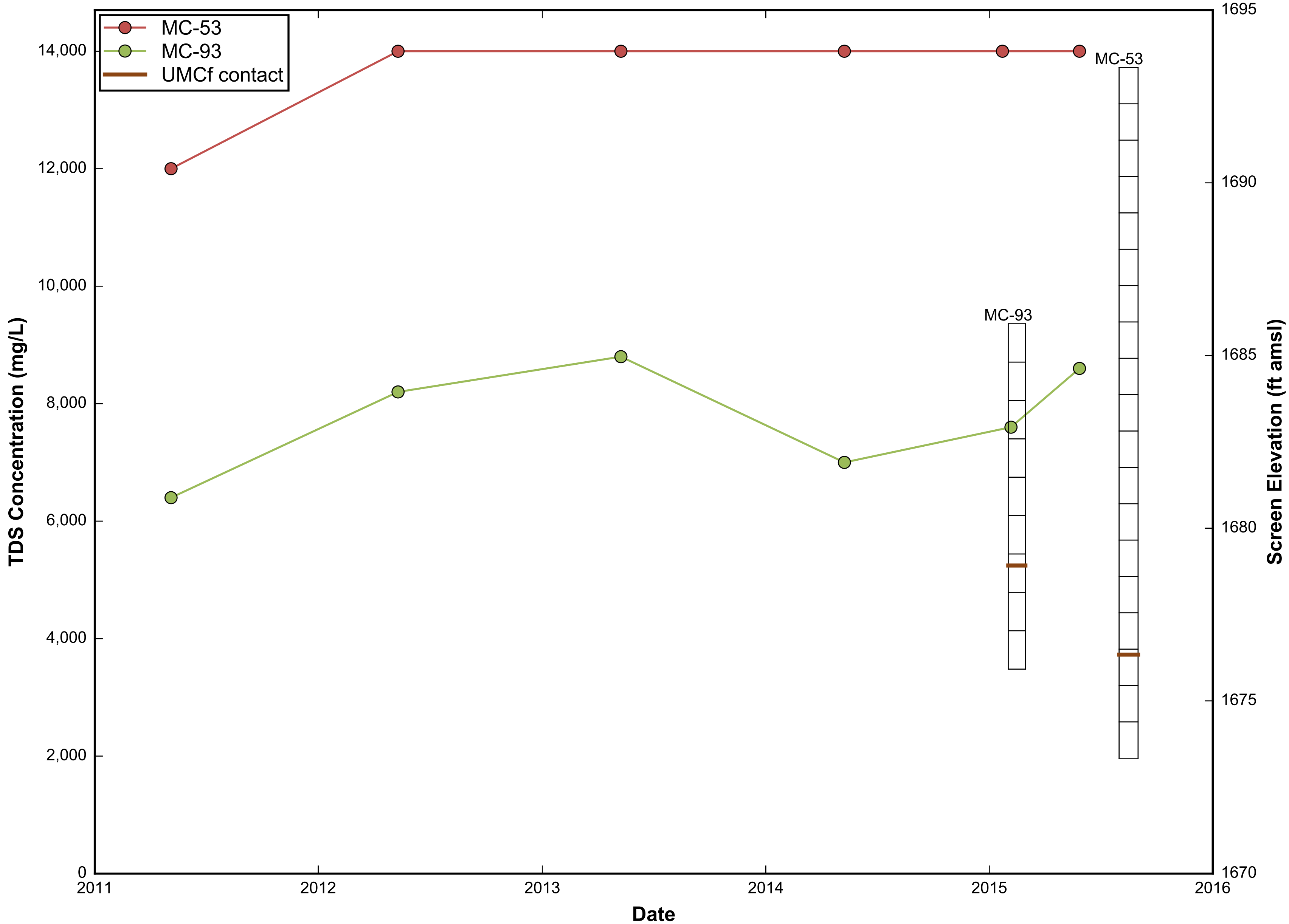
RAMBOLL ENVIRON

Cluster [MC-53,MC-93] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-30c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



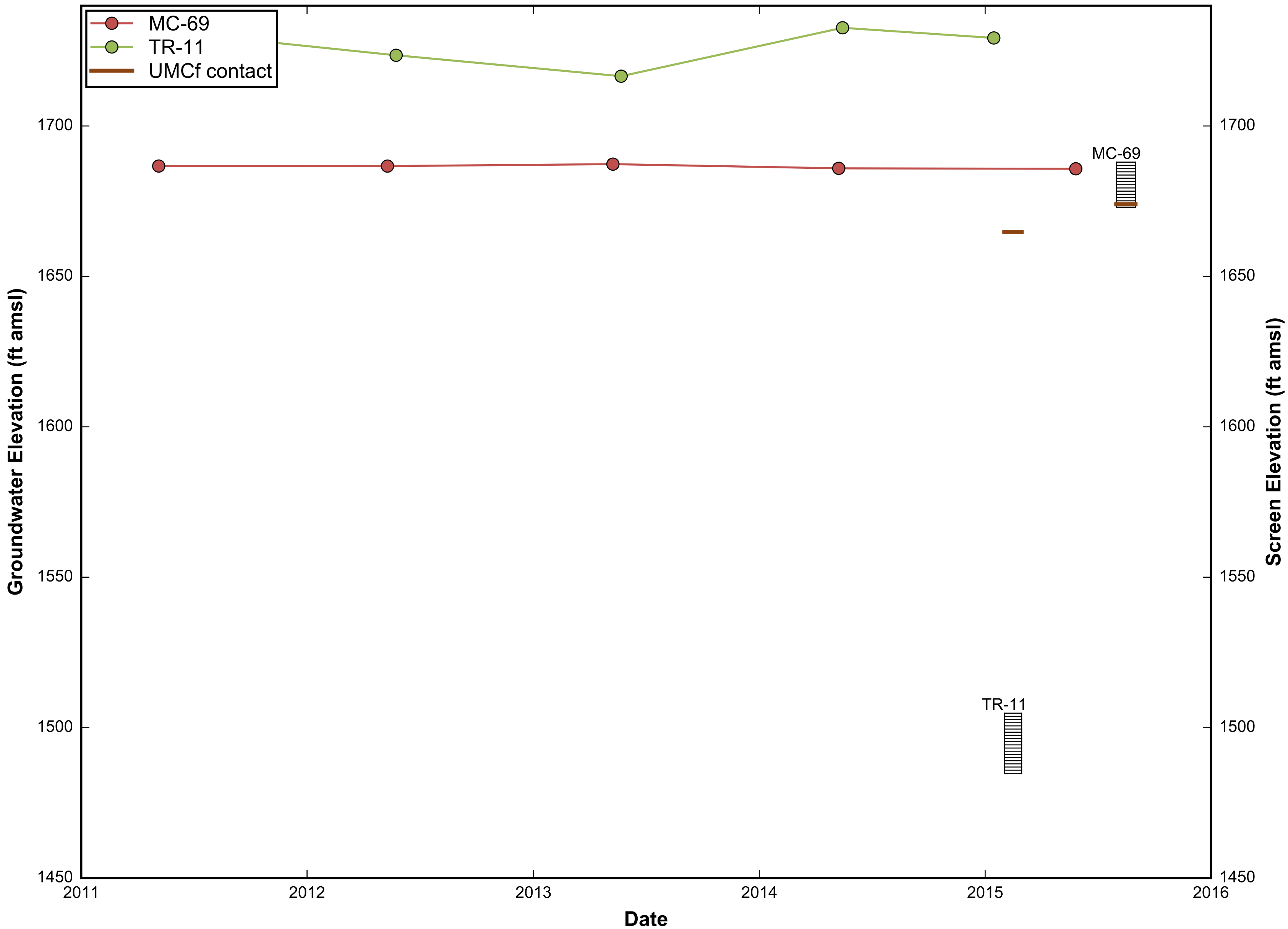
RAMBOLL ENVIRON

Cluster [MC-53,MC-93] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-30d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



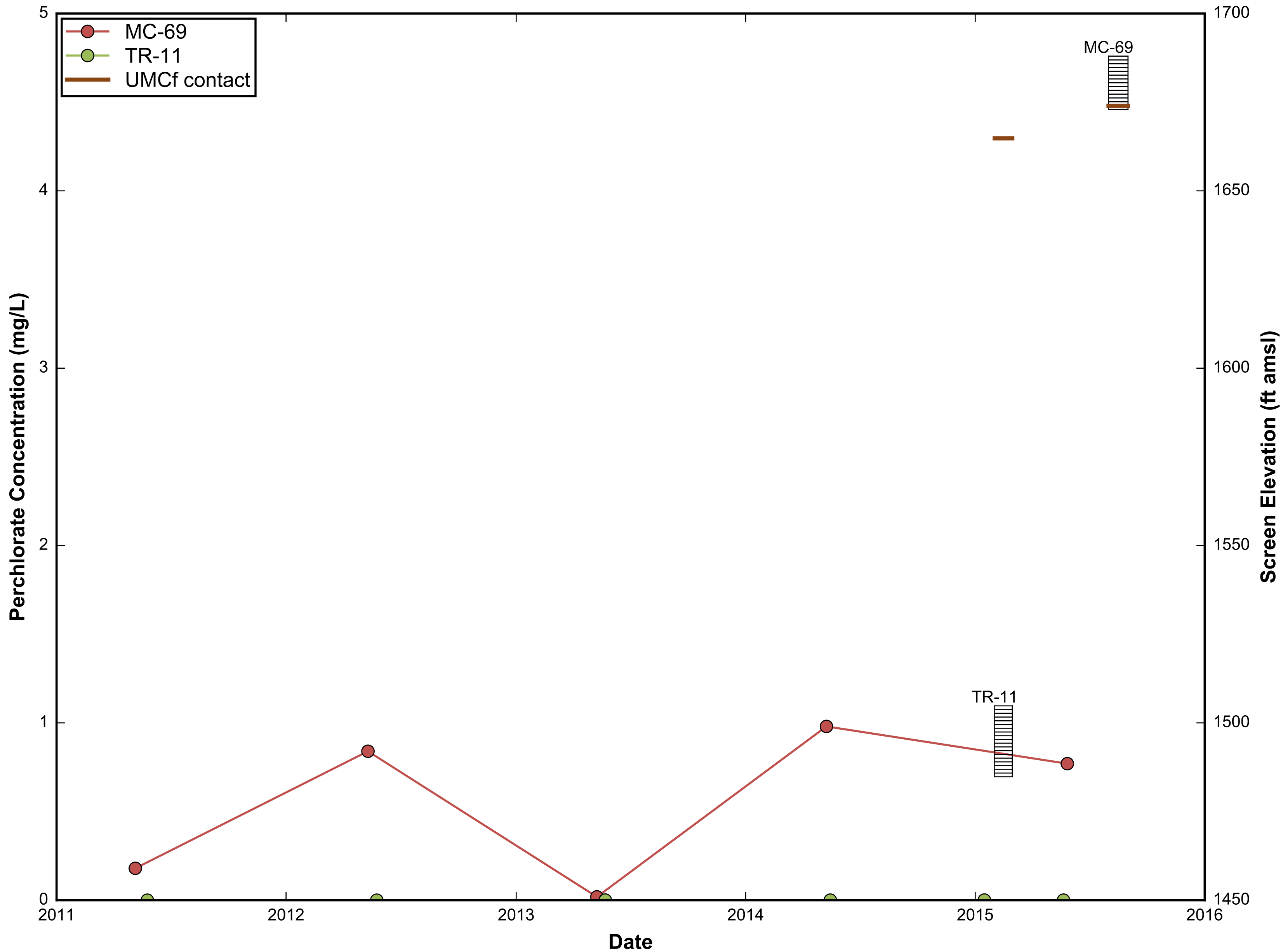
RAMBOLL ENVIRON

Cluster [MC-69,TR-11] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-31a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



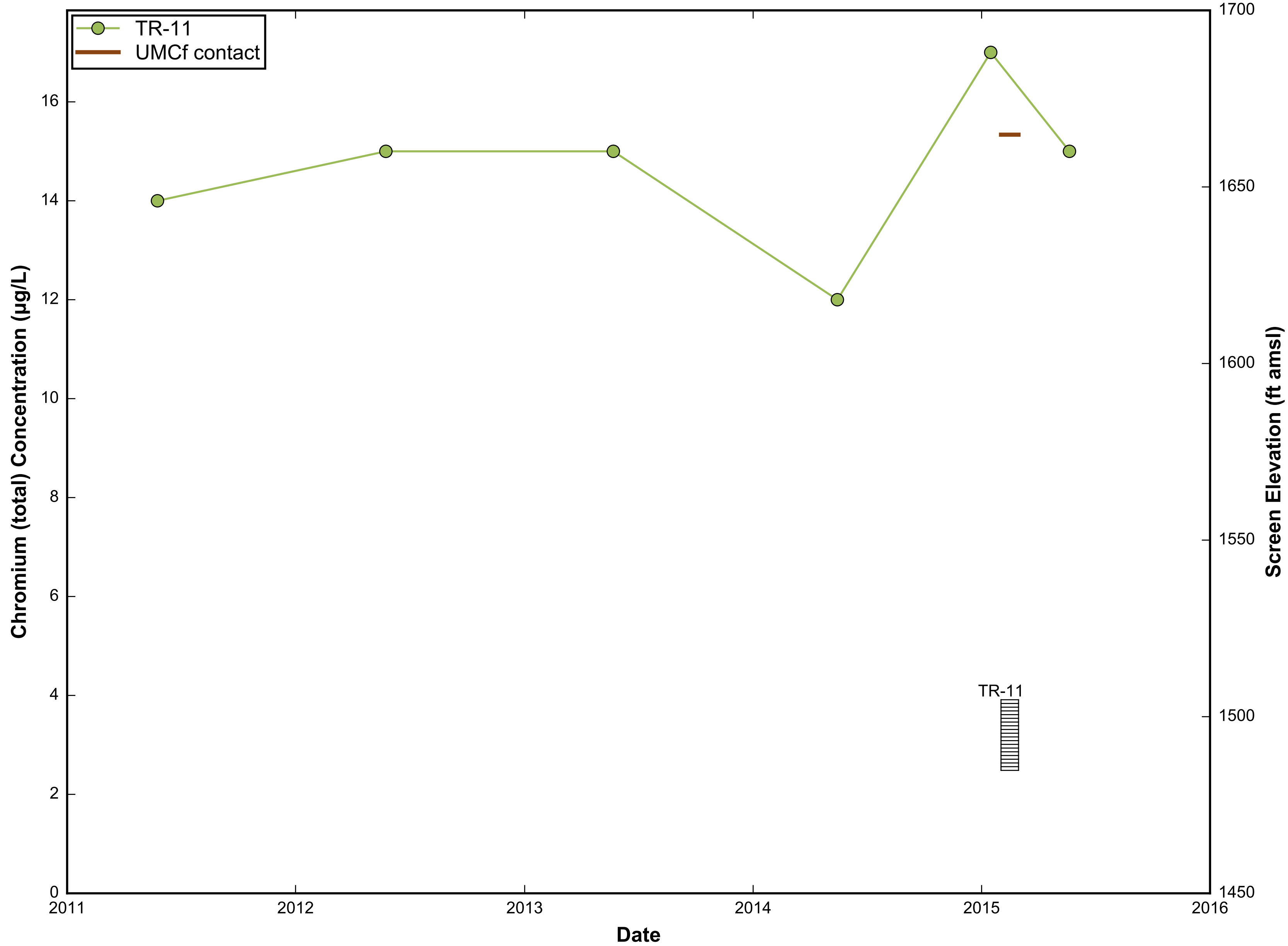
RAMBOLL ENVIRON

Cluster [MC-69,TR-11] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-31b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



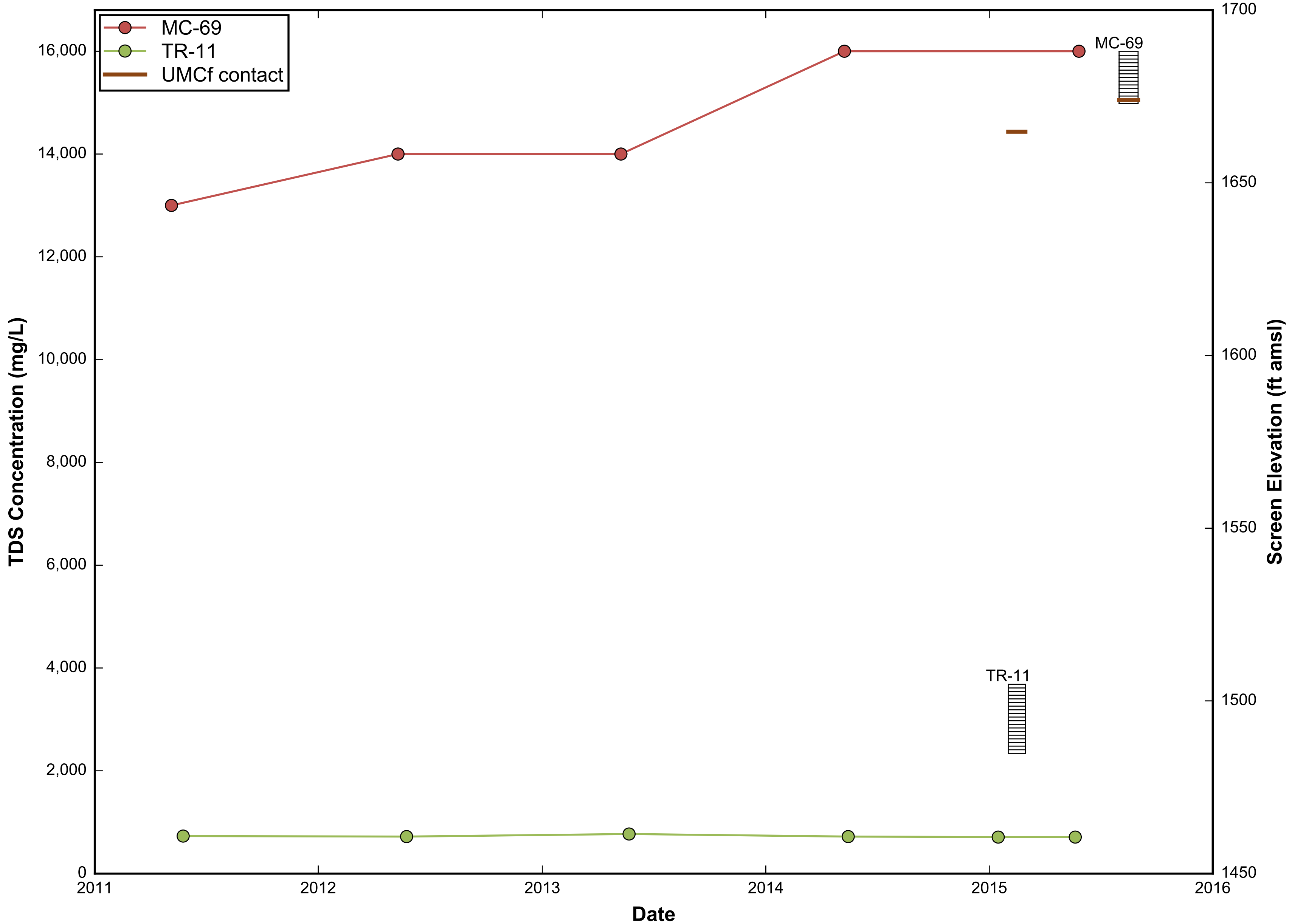
RAMBOLL ENVIRON

Cluster [MC-69,TR-11] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-31c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



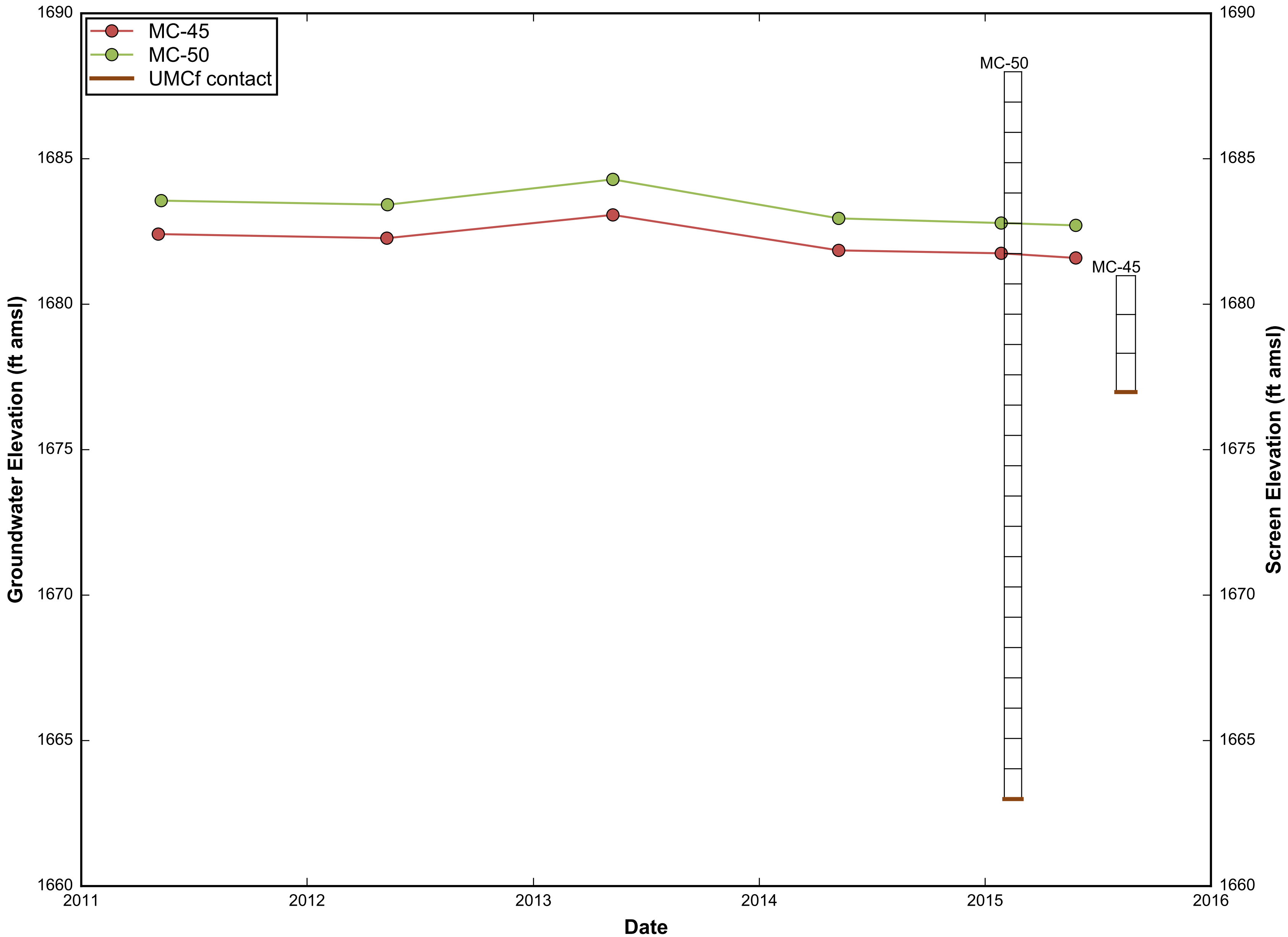
RAMBOLL ENVIRON

Cluster [MC-69,TR-11] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-31d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



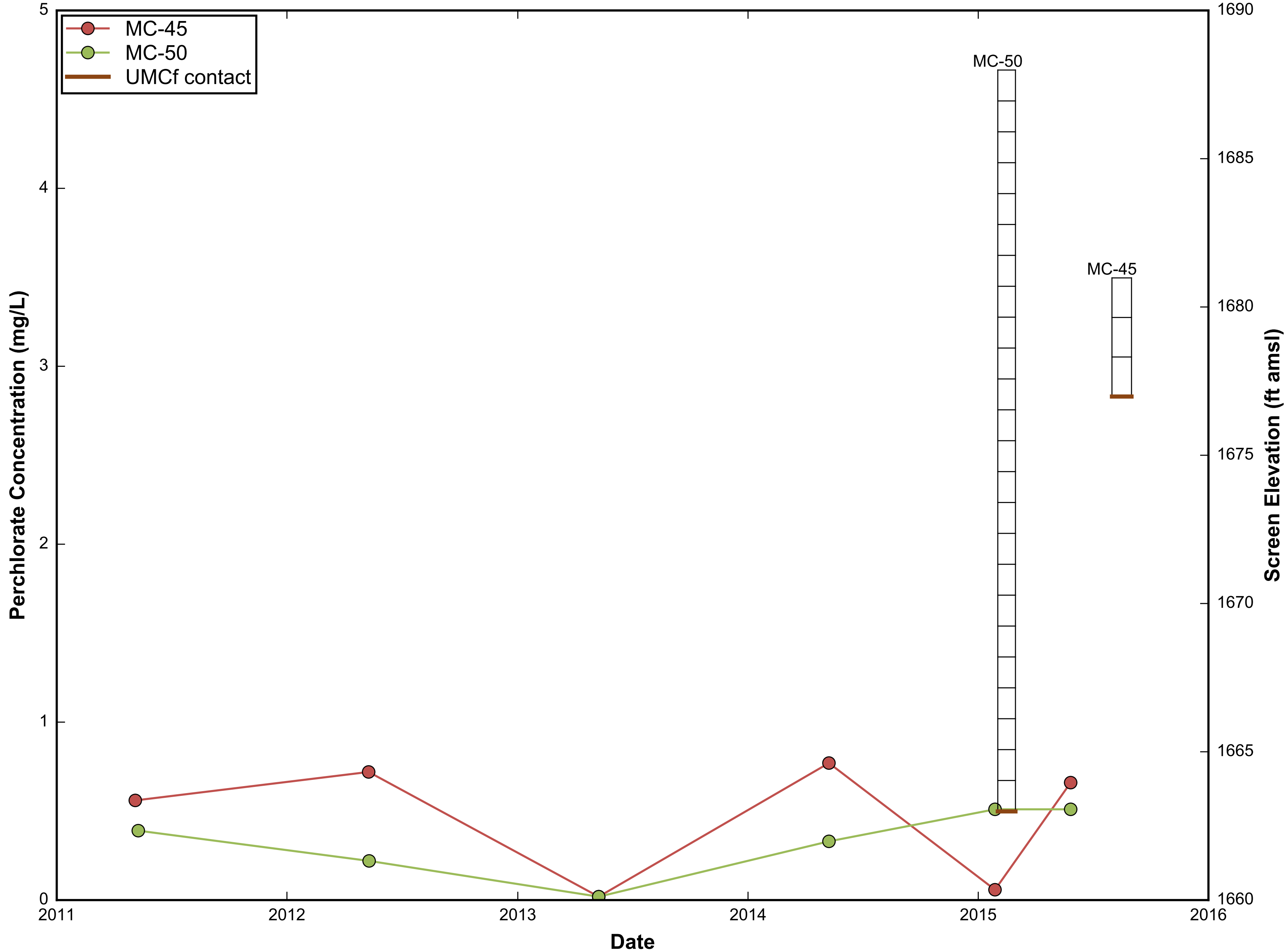
RAMBOLL ENVIRON

Cluster [MC-45,MC-50] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-32a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



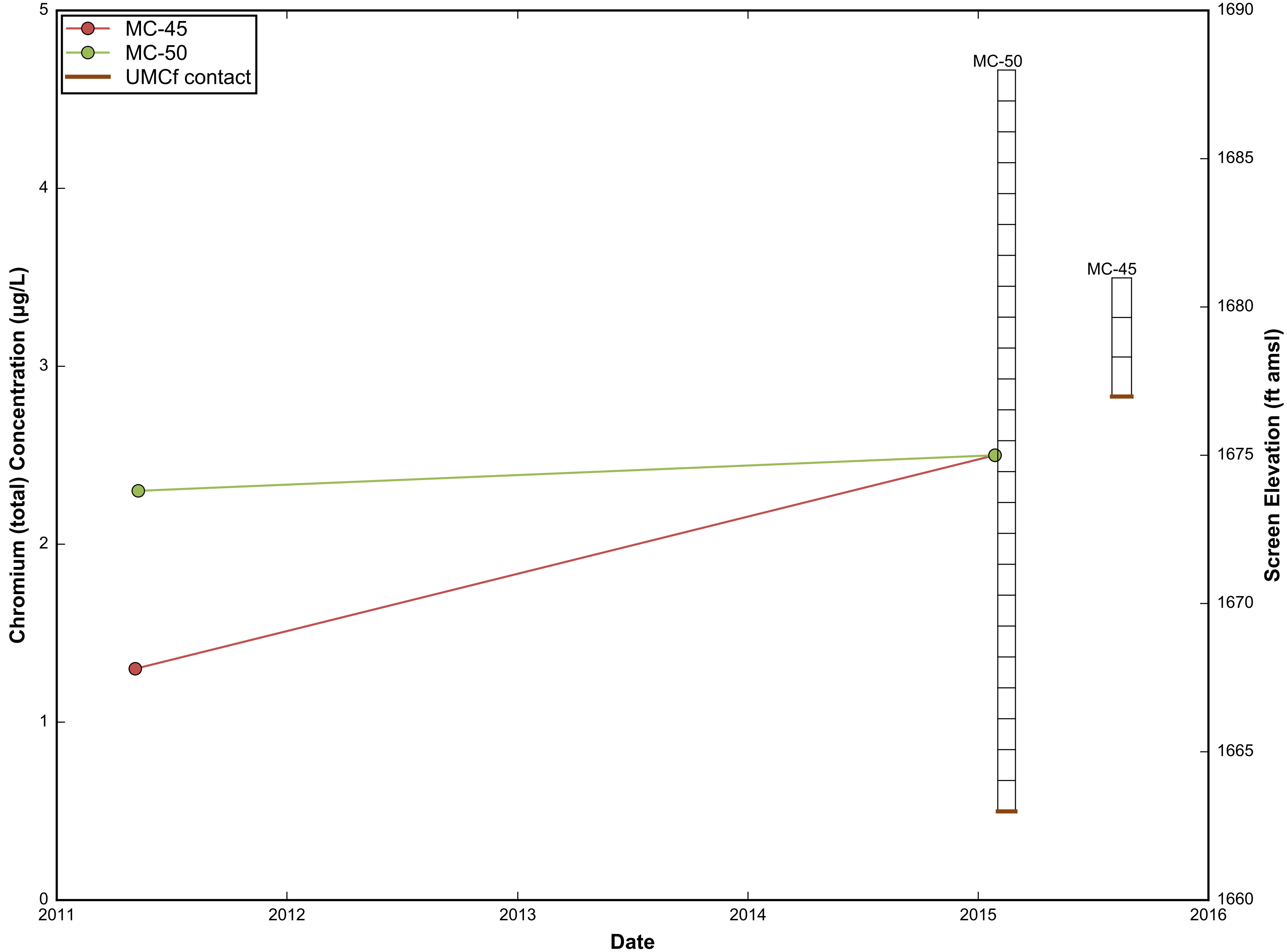
RAMBOLL ENVIRON

Cluster [MC-45,MC-50] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-32b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



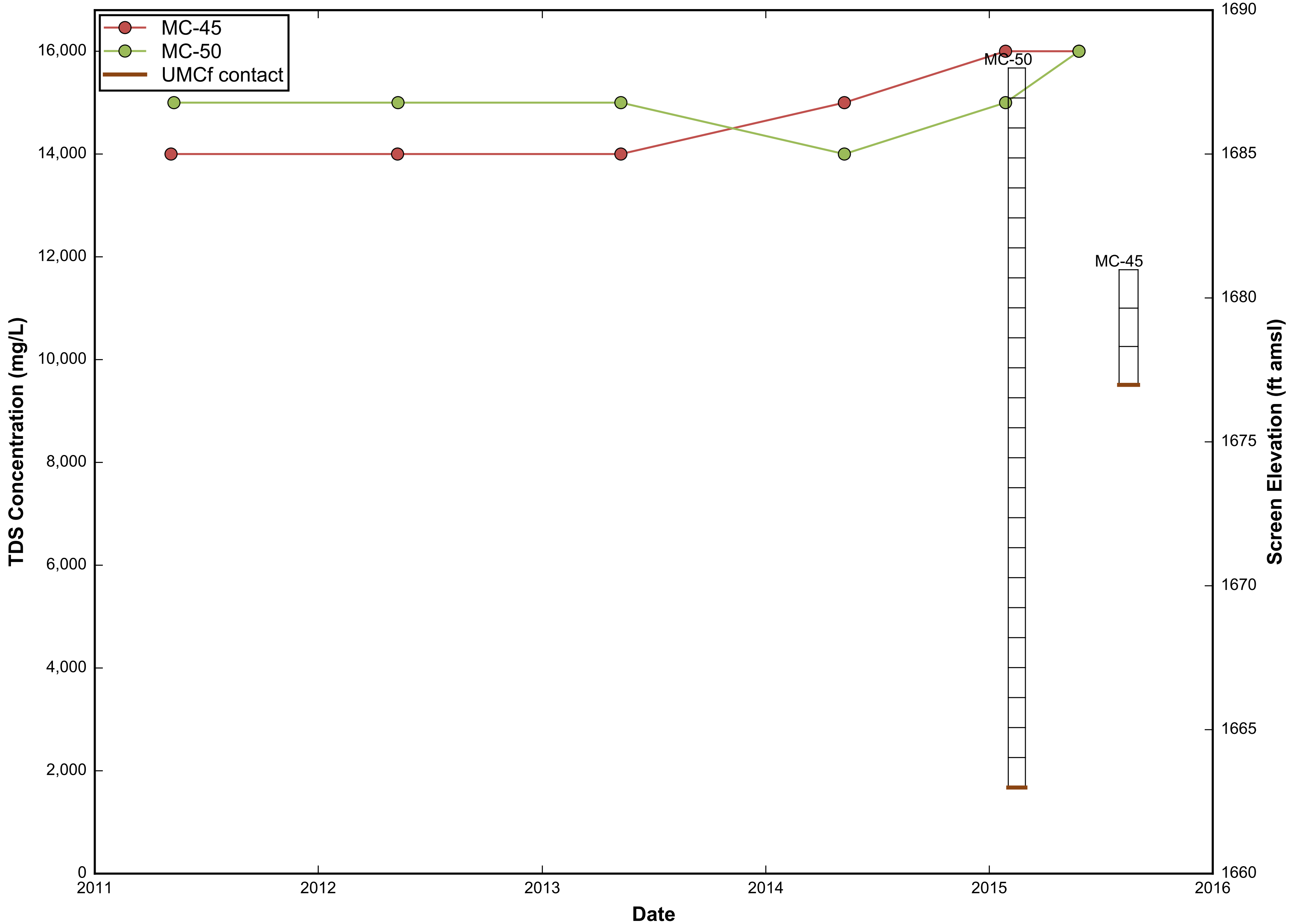
RAMBOLL ENVIRON

Cluster [MC-45,MC-50] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-32c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



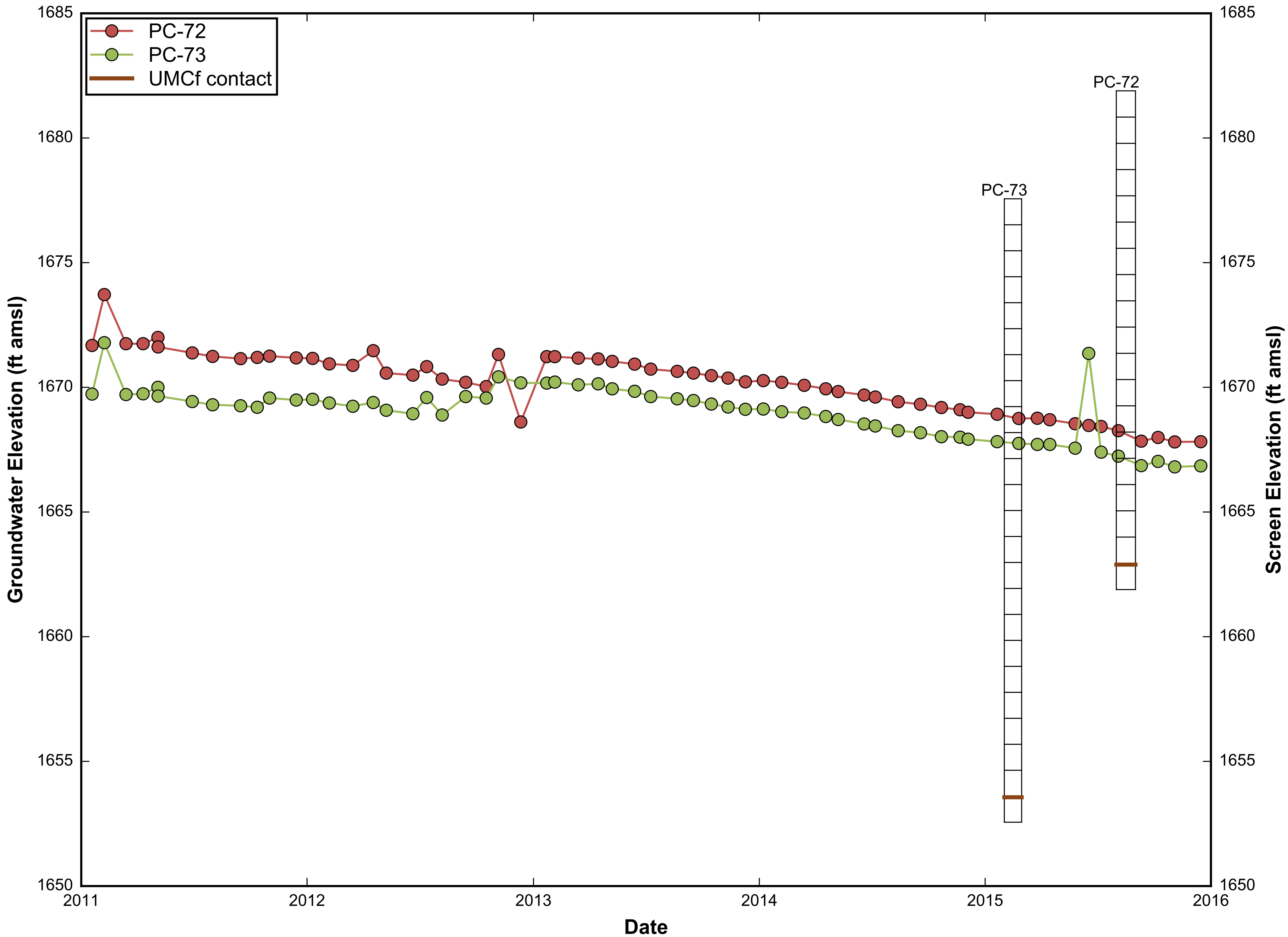
RAMBOLL ENVIRON

Cluster [MC-45,MC-50] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-32d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



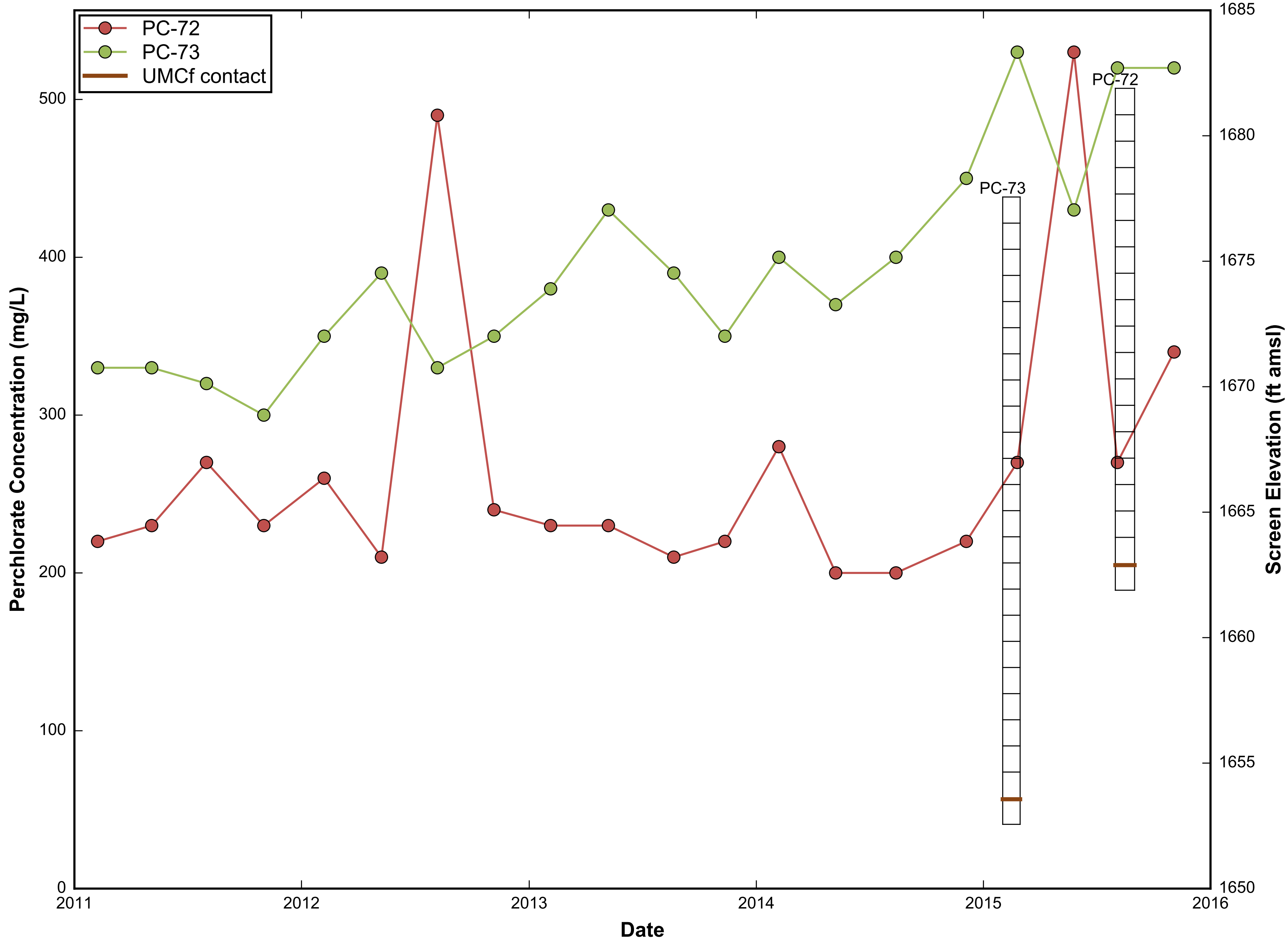
RAMBOLL ENVIRON

Cluster [PC-72,PC-73] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-33a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



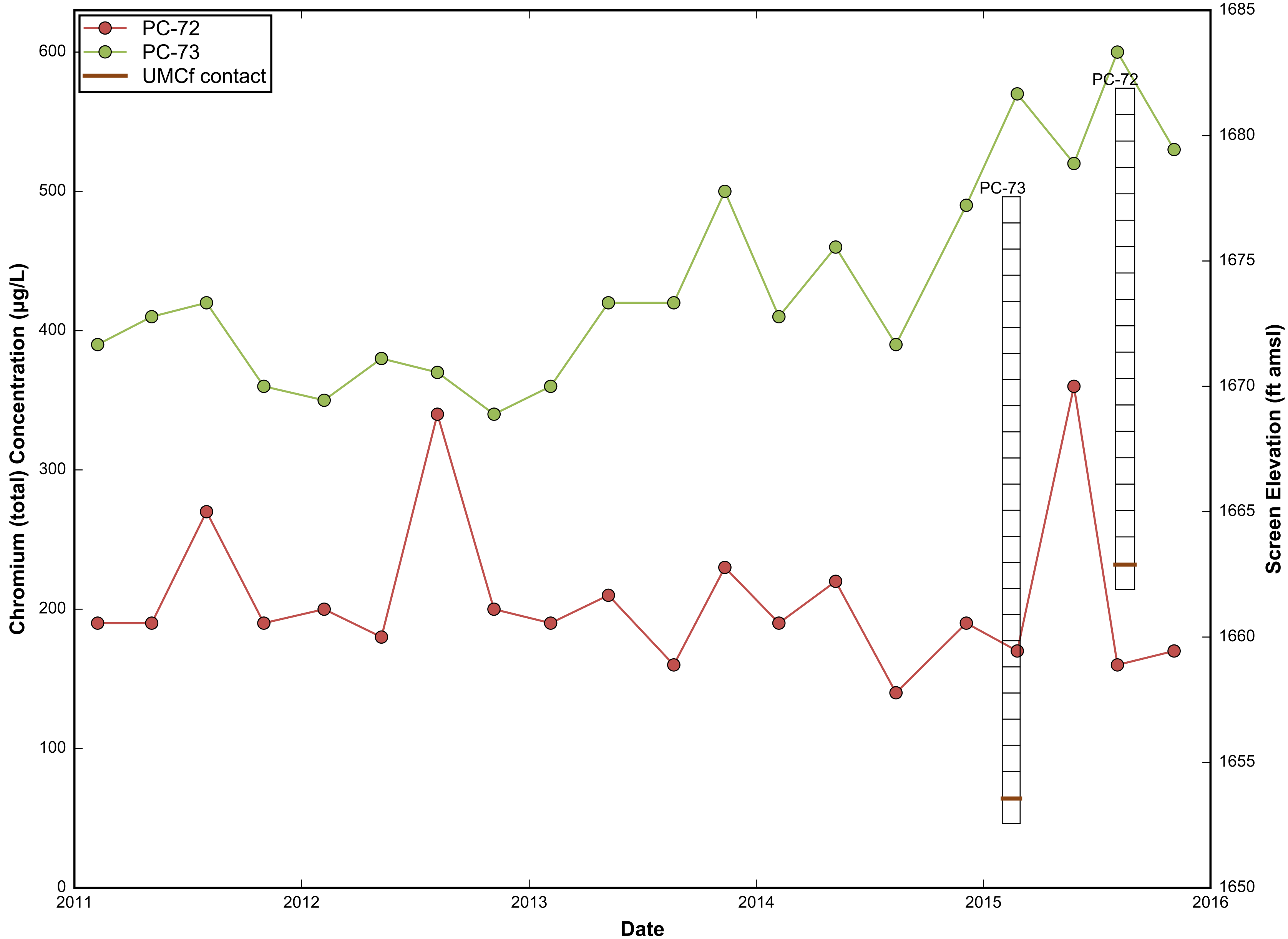
RAMBOLL ENVIRON

Cluster [PC-72,PC-73] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-33b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



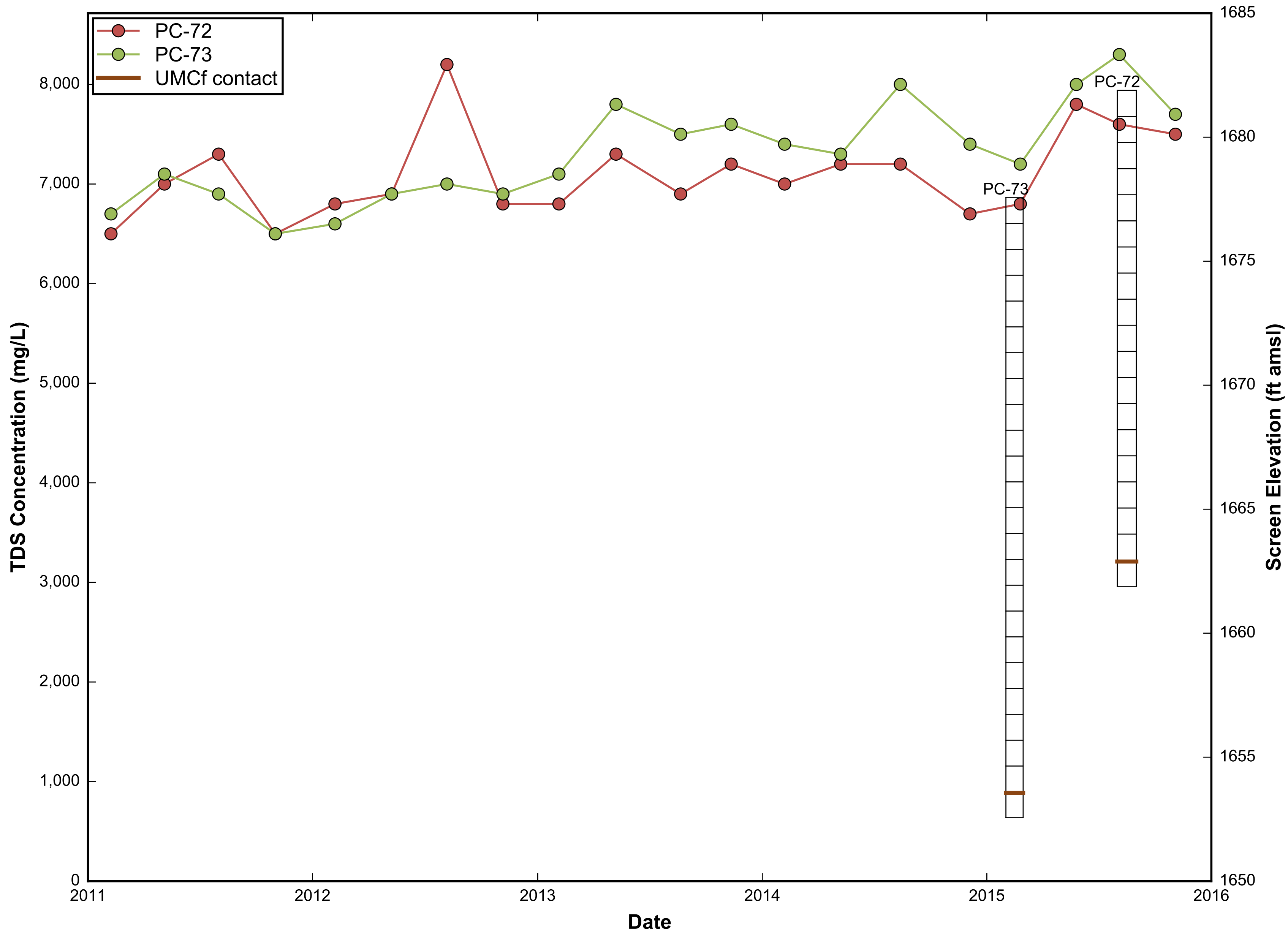
RAMBOLL ENVIRON

Cluster [PC-72,PC-73] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-33c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [PC-72,PC-73] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-33d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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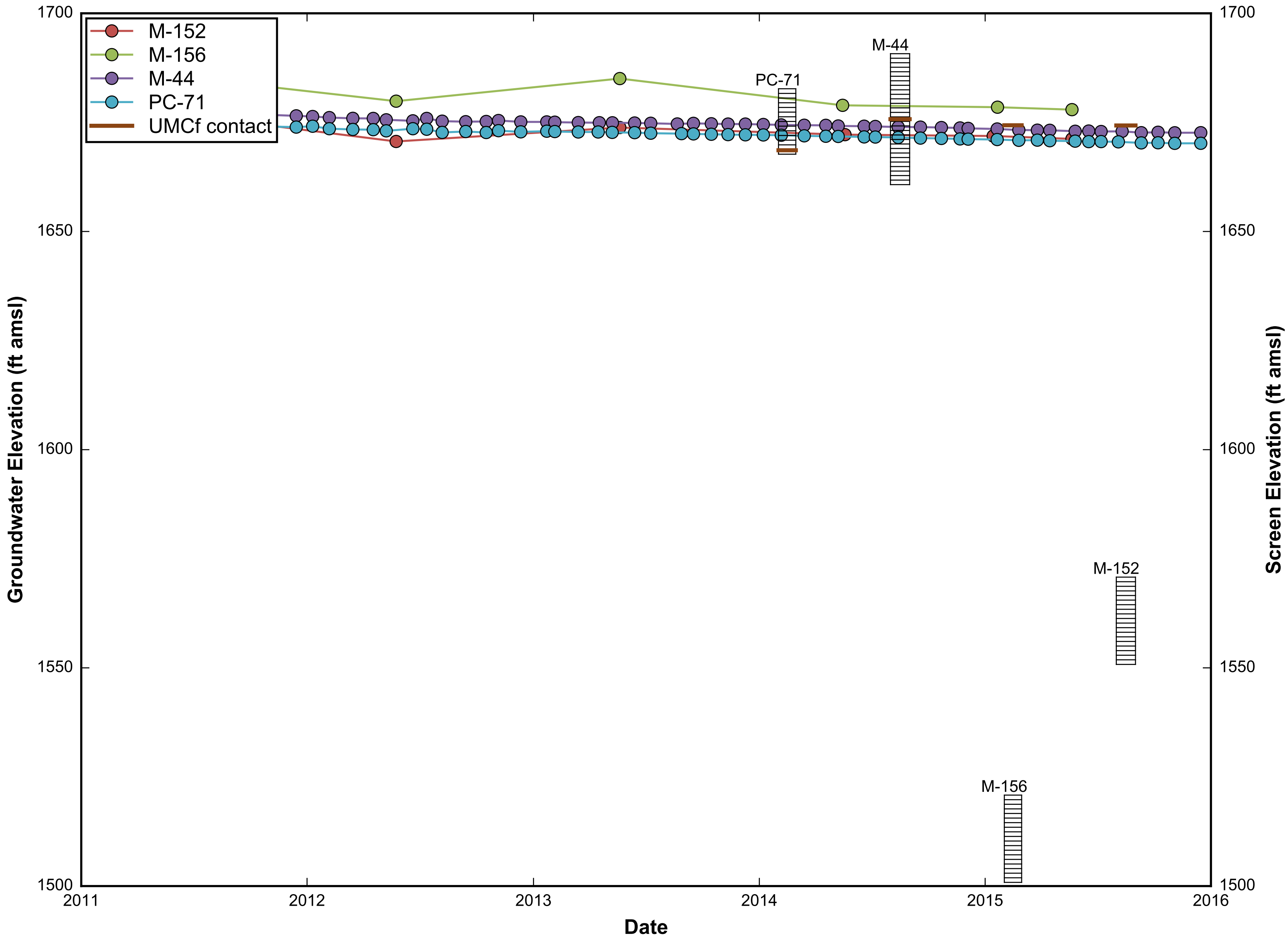


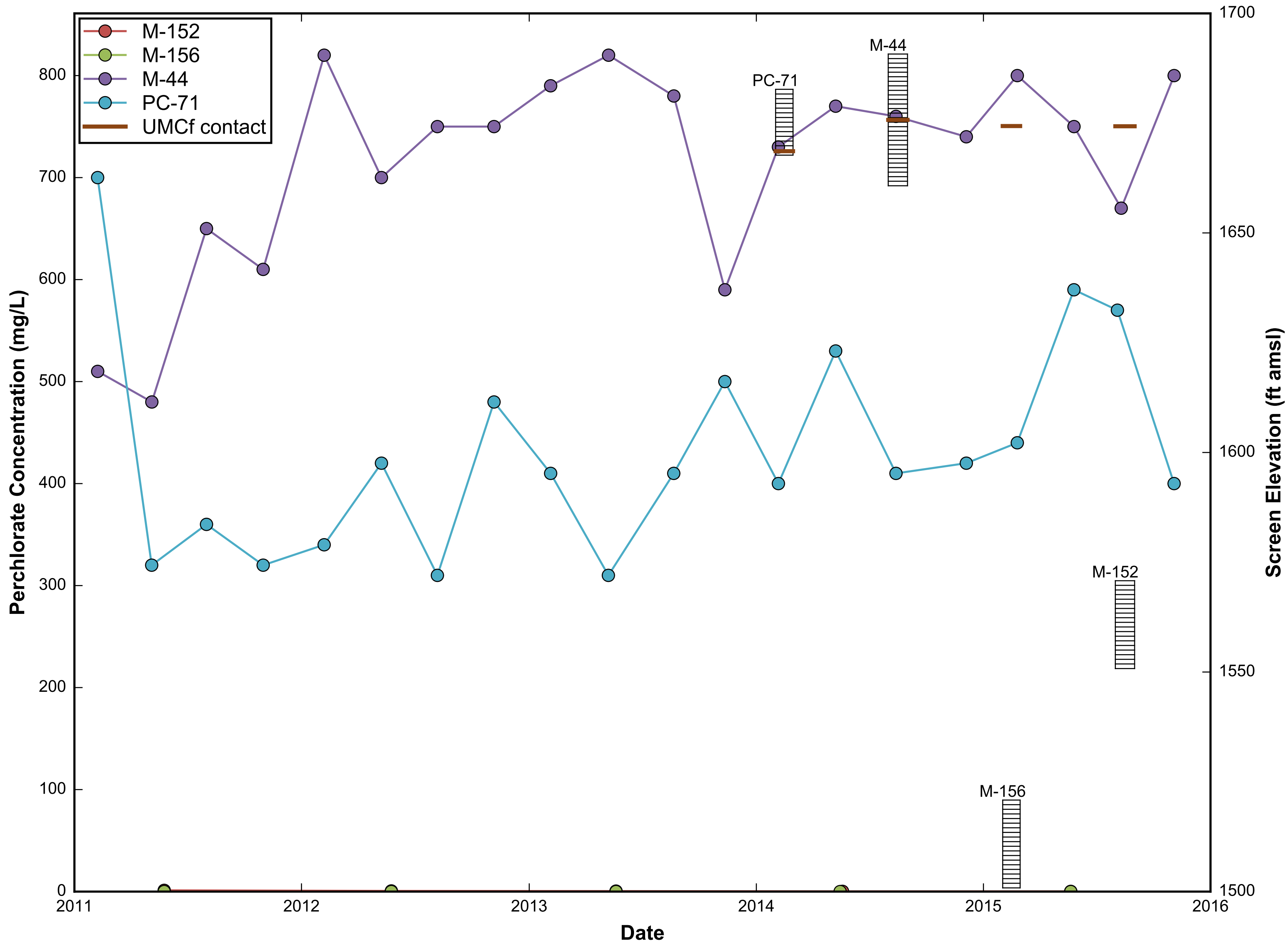
RAMBOLL ENVIRON

Cluster [M-152,M-156,M-44,PC-71] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-34a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



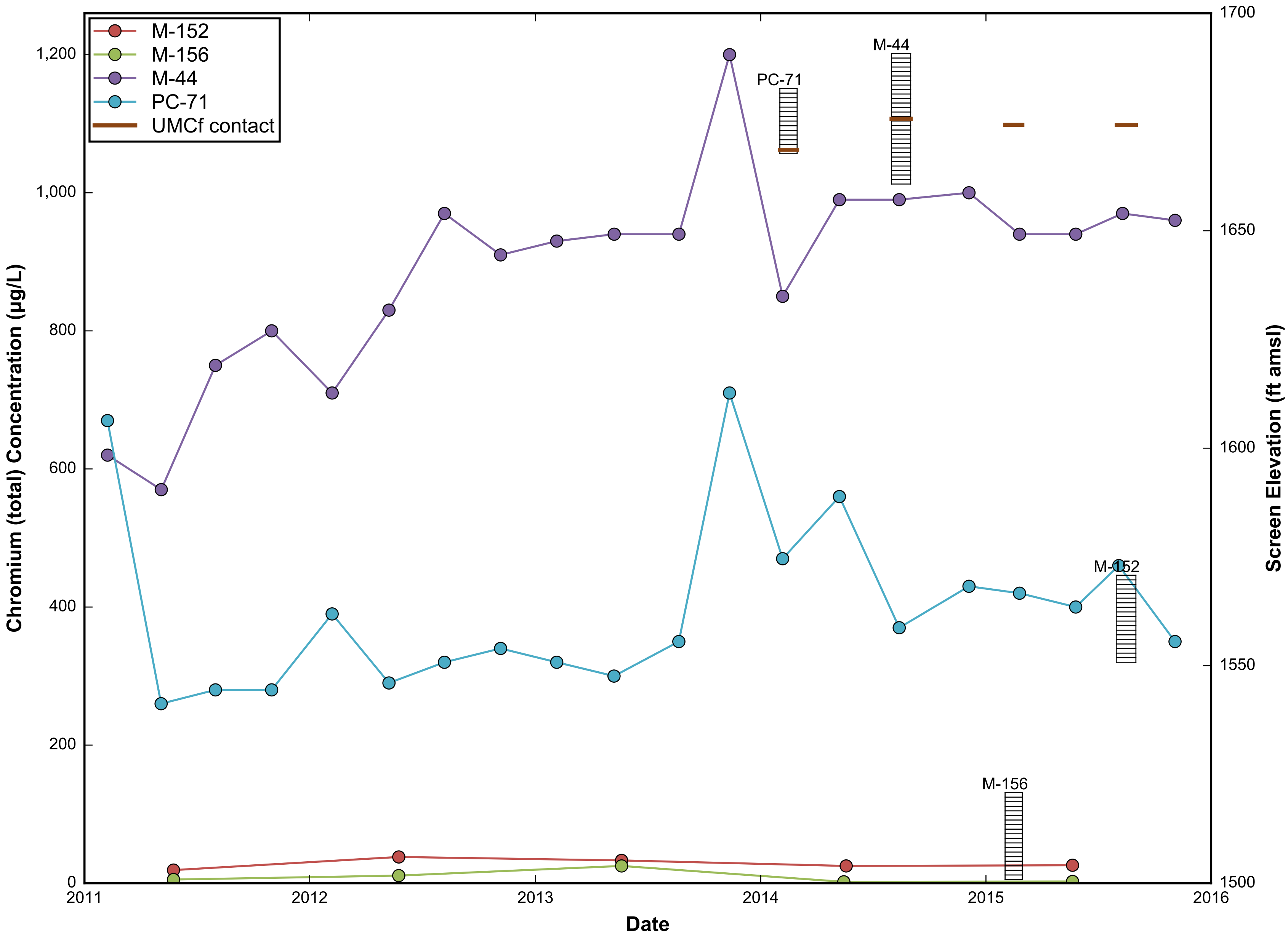
RAMBOLL ENVIRON

Cluster [M-152,M-156,M-44,PC-71] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-34b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



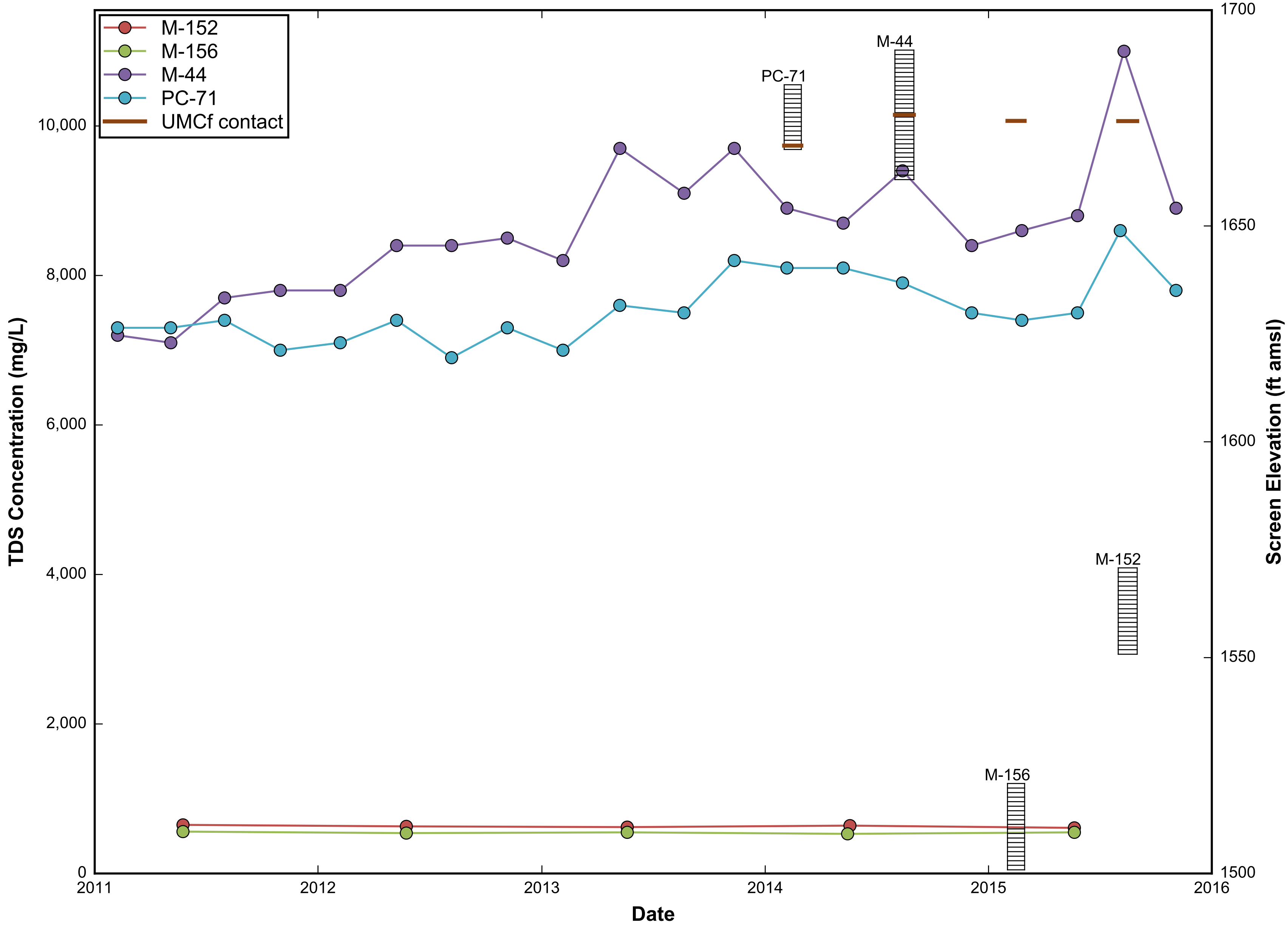
RAMBOLL ENVIRON

Cluster [M-152,M-156,M-44,PC-71] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-34c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

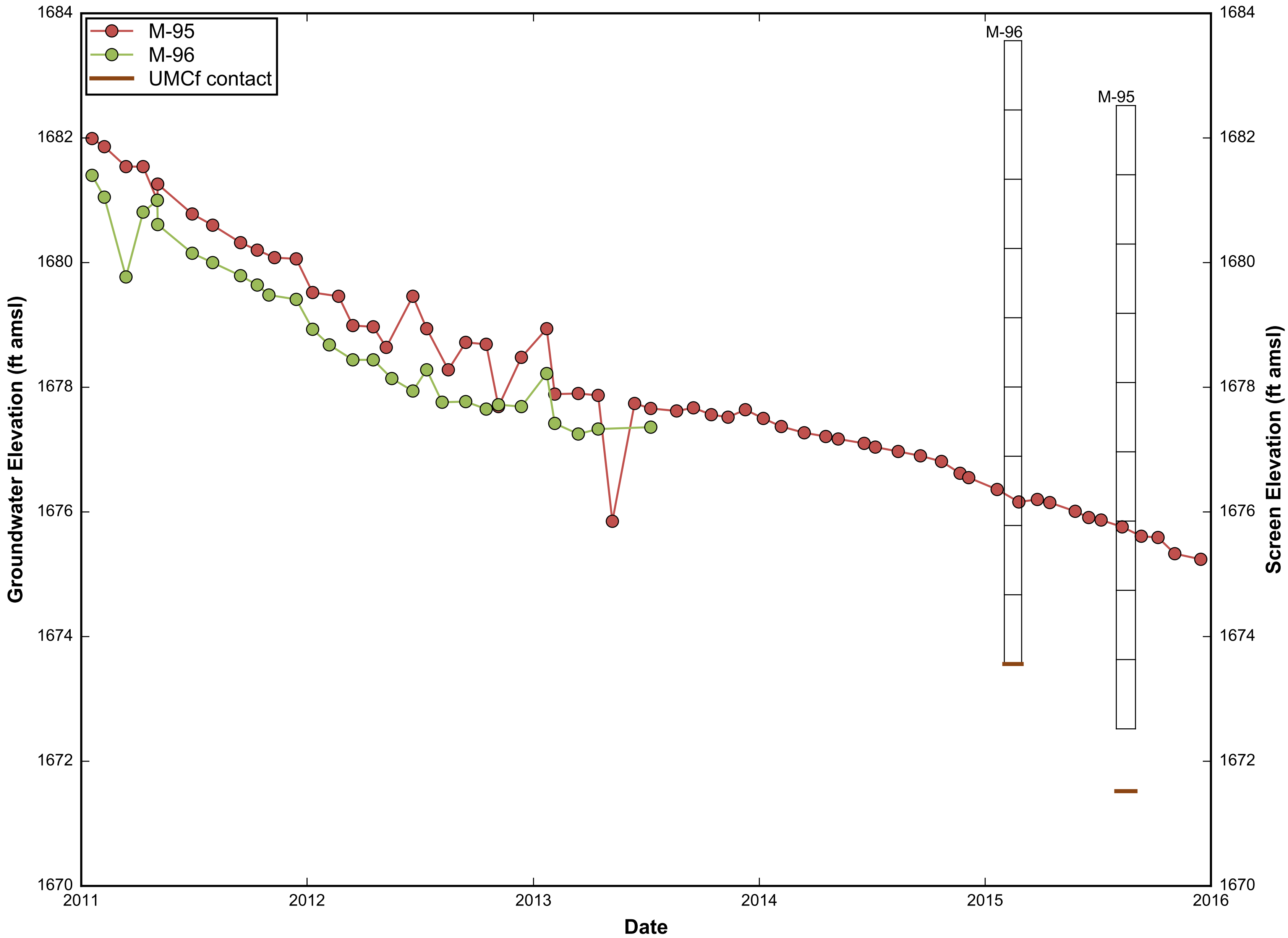
Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON	**Cluster [M-152,M-156,M-44,PC-71] - TDS** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **A-34d**

Drafter: YZ Date: 04/29/16 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



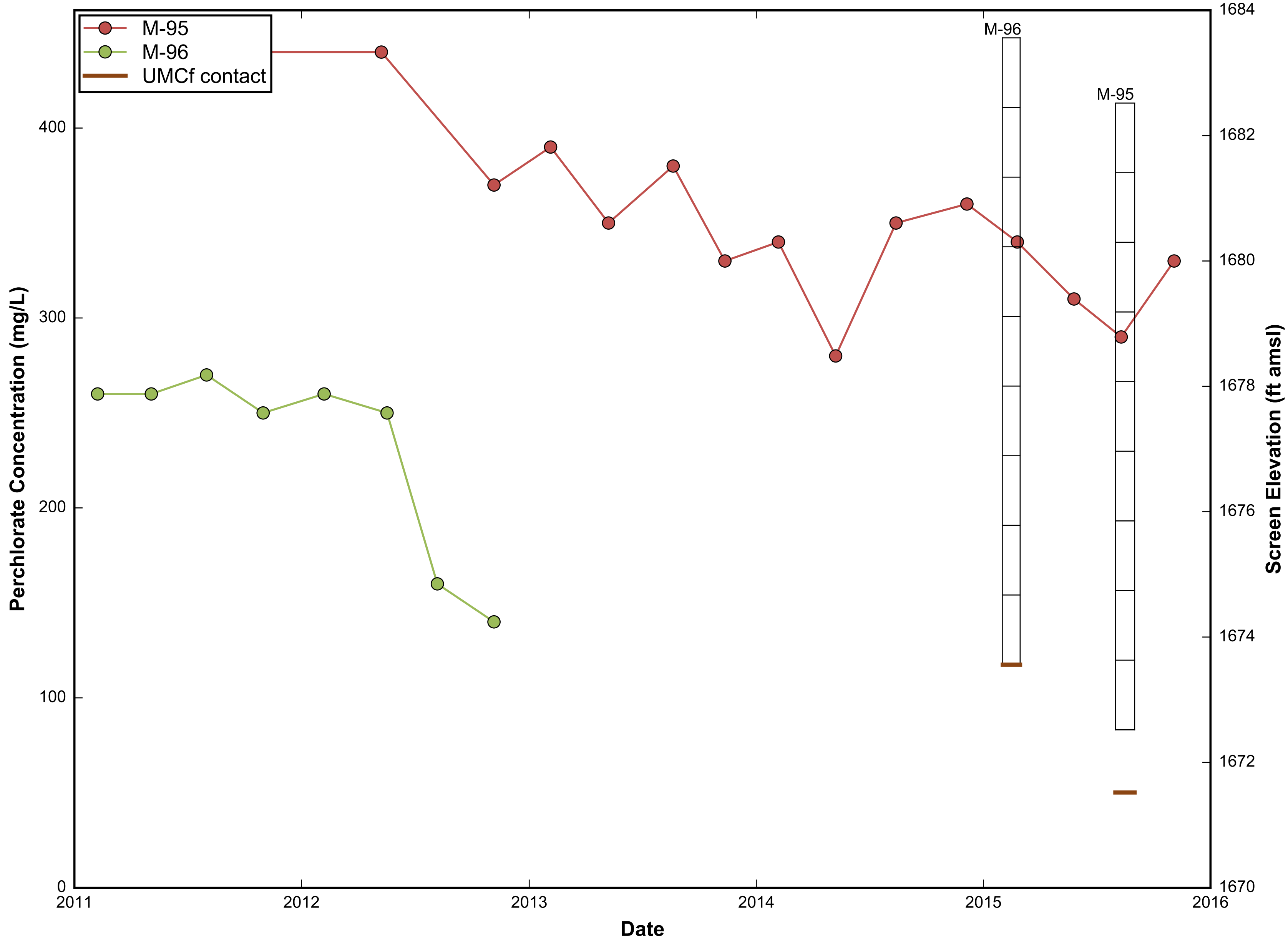
RAMBOLL ENVIRON

Cluster [M-95,M-96] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-35a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



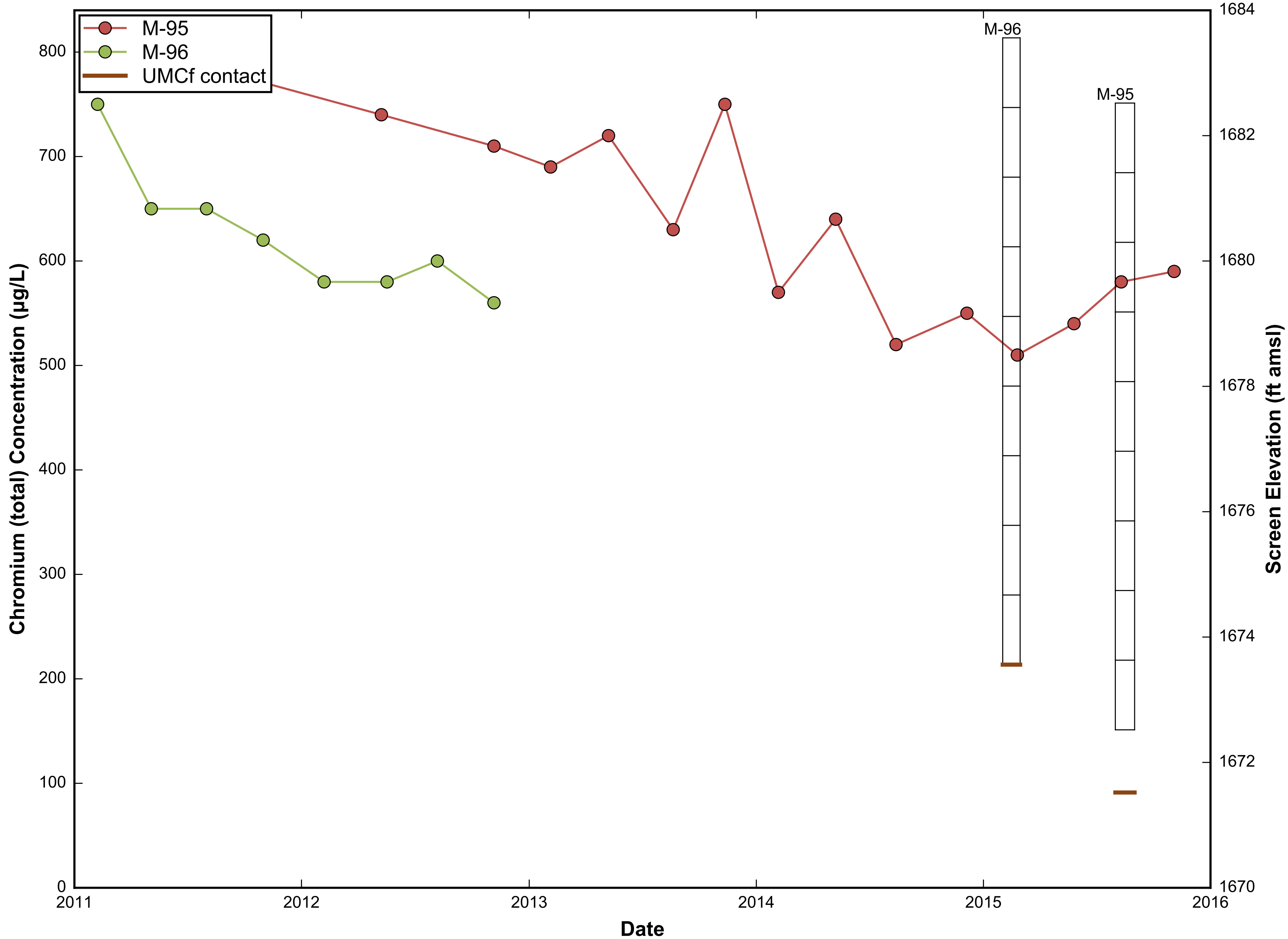
RAMBOLL ENVIRON

Cluster [M-95,M-96] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-35b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



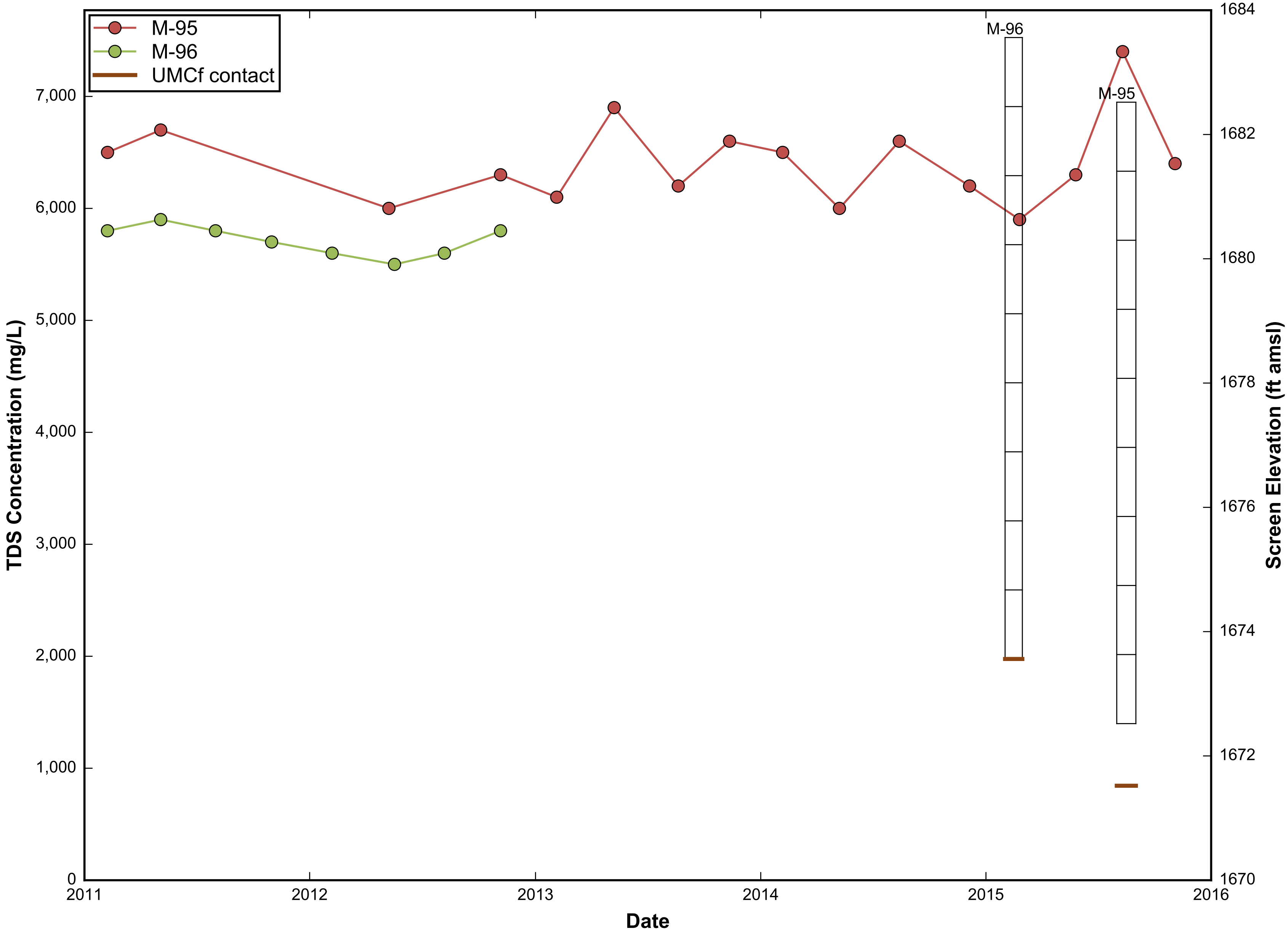
RAMBOLL ENVIRON

Cluster [M-95,M-96] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-35c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



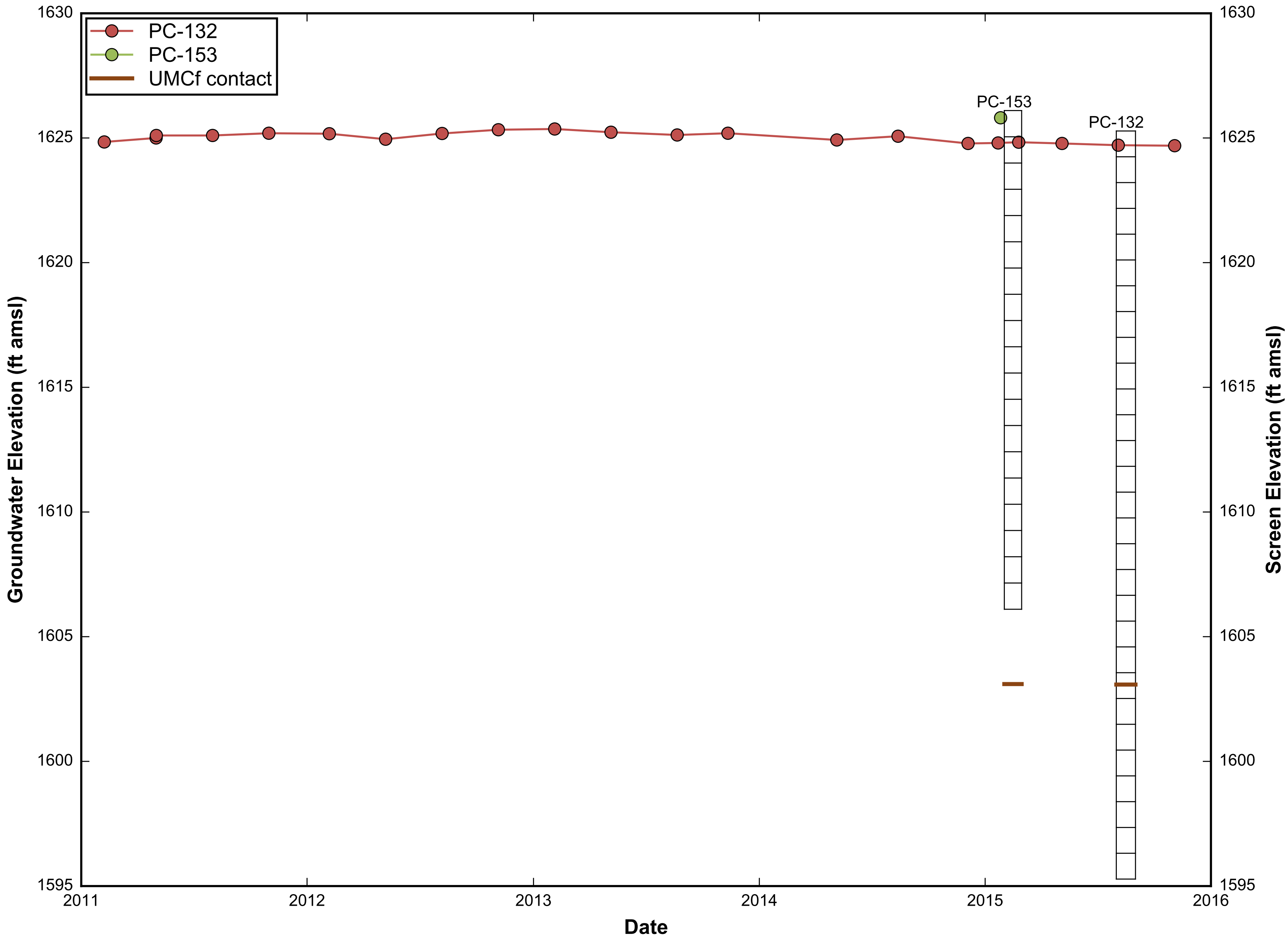
RAMBOLL ENVIRON

Cluster [M-95,M-96] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-35d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



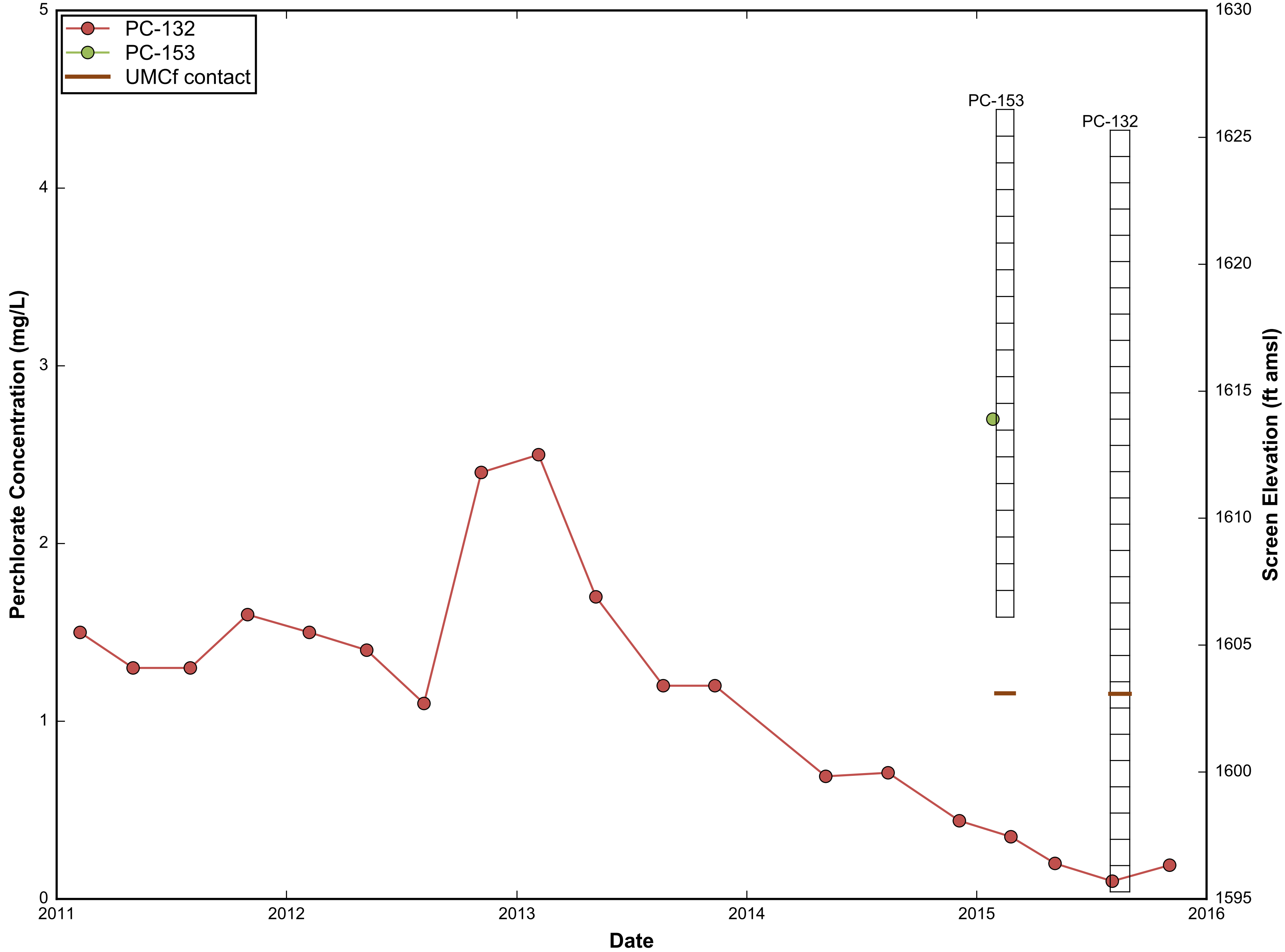
RAMBOLL ENVIRON

Cluster [PC-132,PC-153] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-36a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



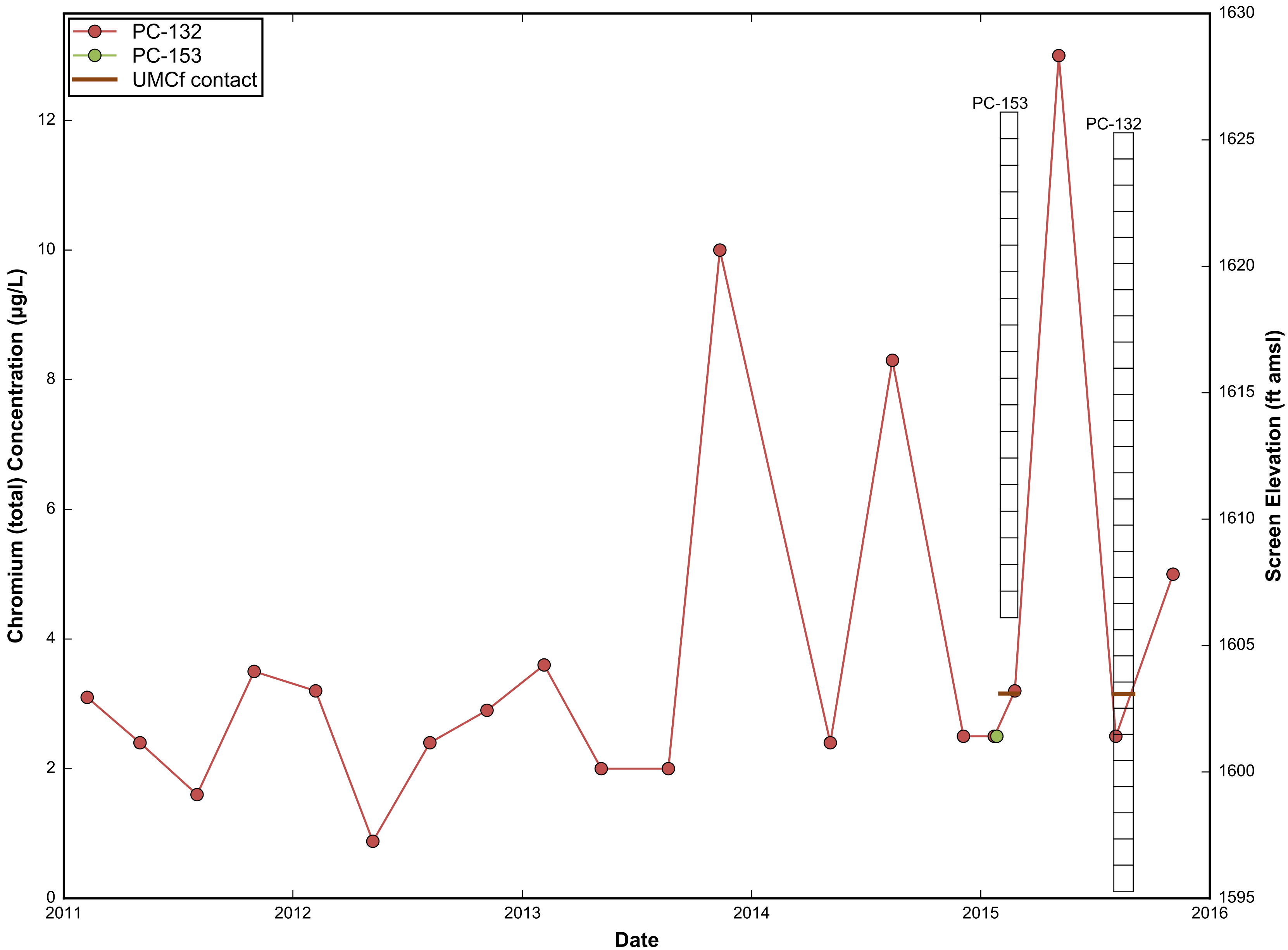
RAMBOLL ENVIRON

Cluster [PC-132,PC-153] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-36b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



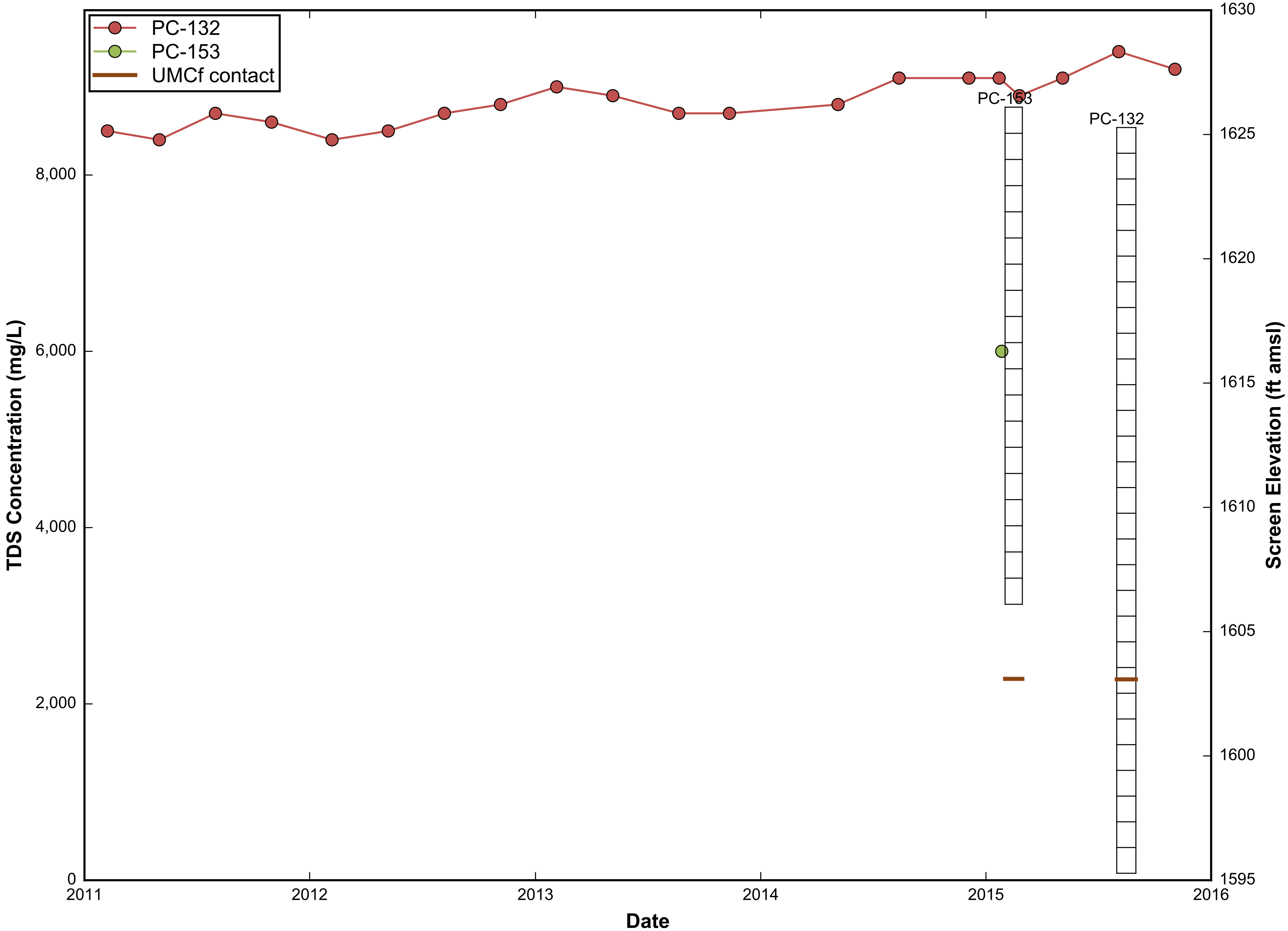
RAMBOLL ENVIRON

Cluster [PC-132,PC-153] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-36c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



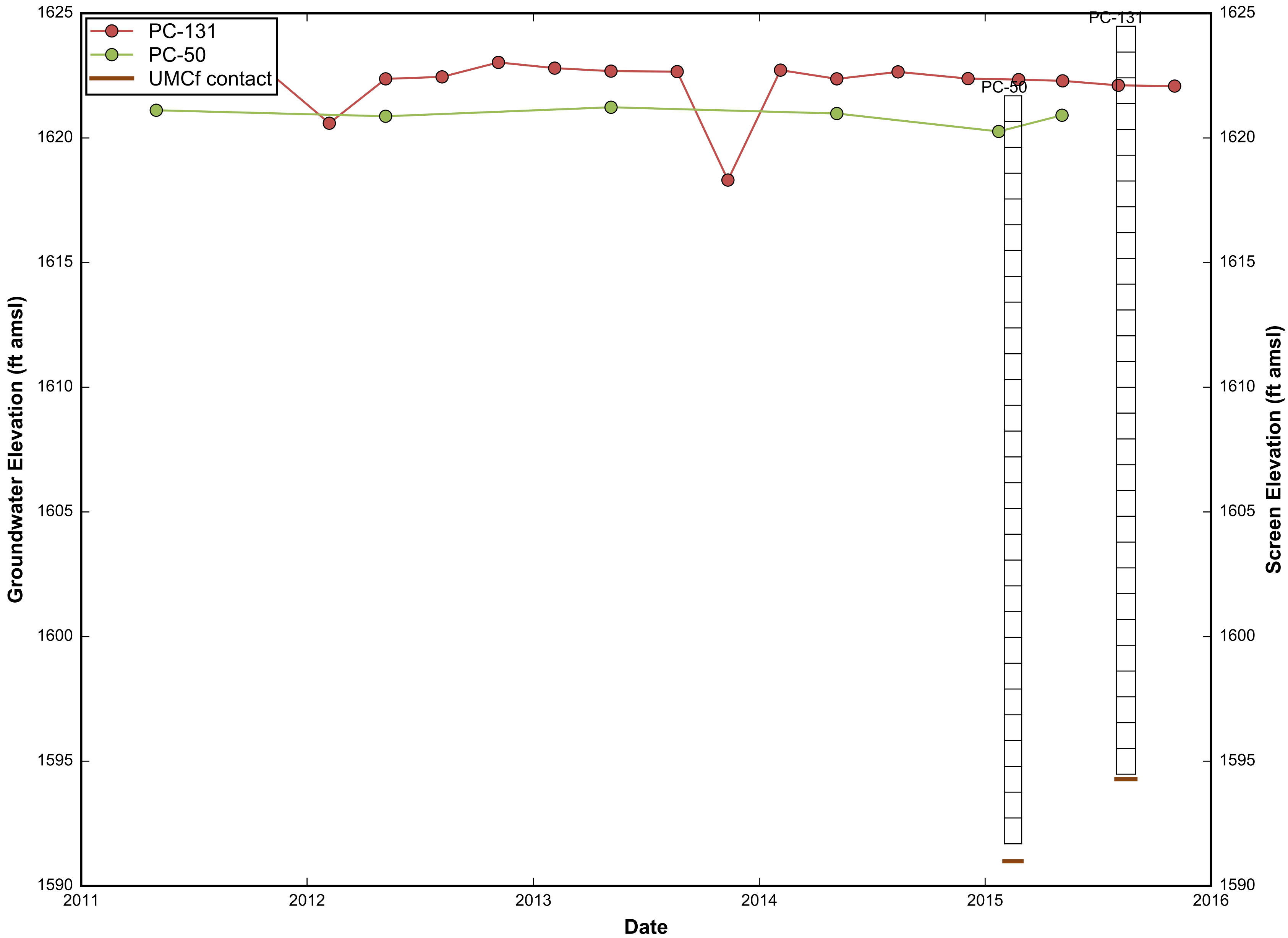
RAMBOLL ENVIRON

Cluster [PC-132,PC-153] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-36d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



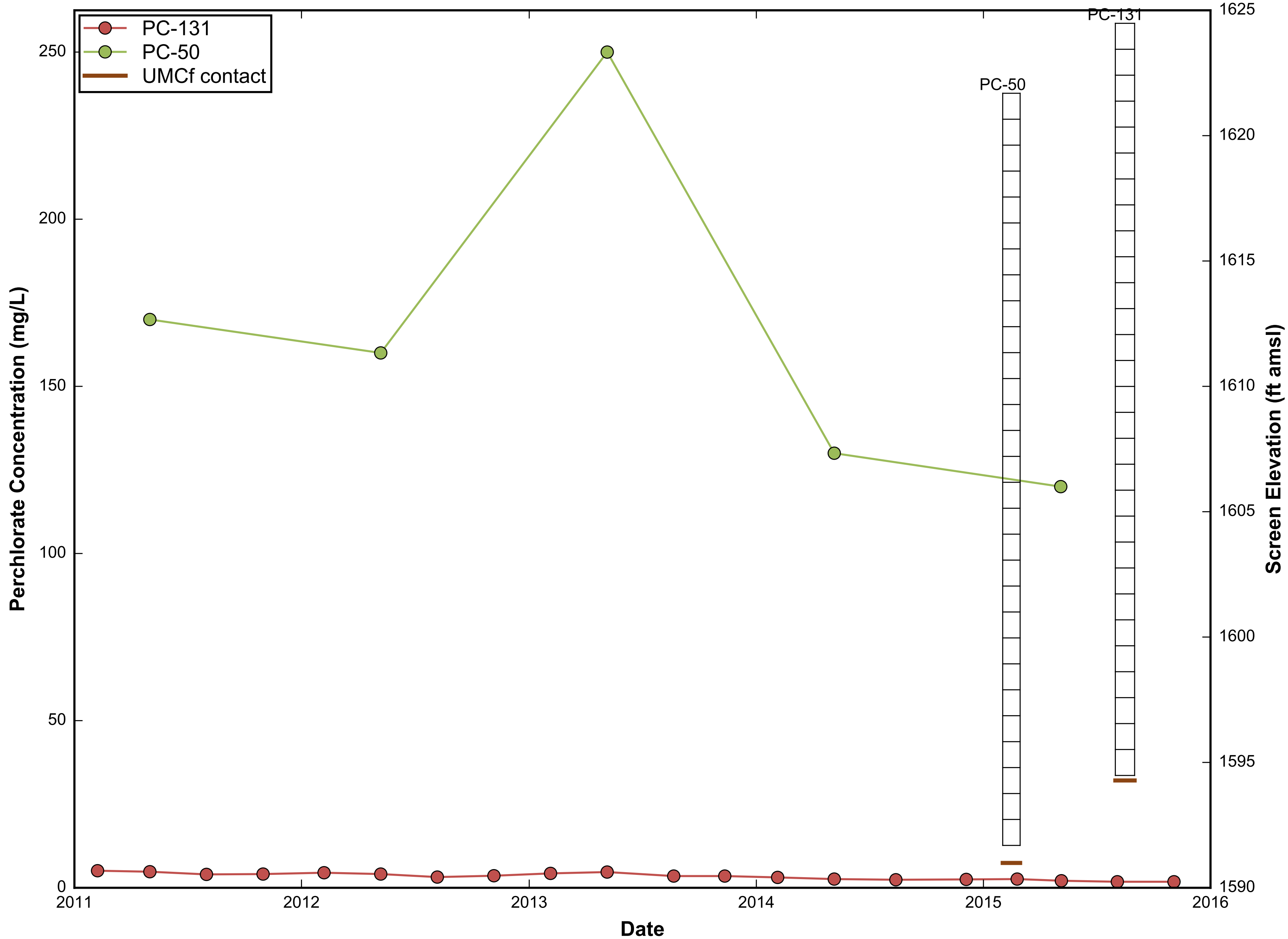
RAMBOLL ENVIRON

Cluster [PC-131,PC-50] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-37a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



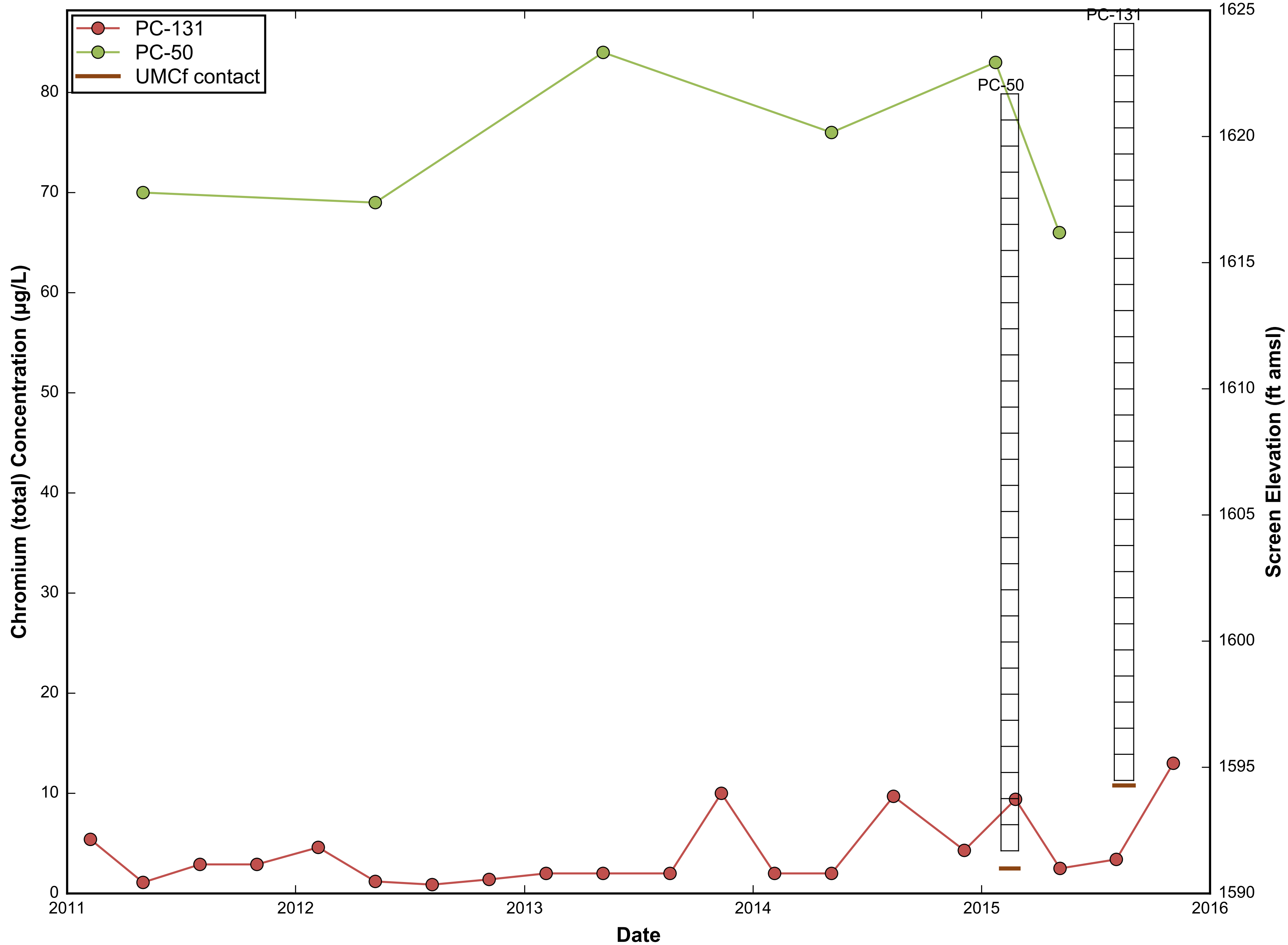
RAMBOLL ENVIRON

Cluster [PC-131,PC-50] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-37b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



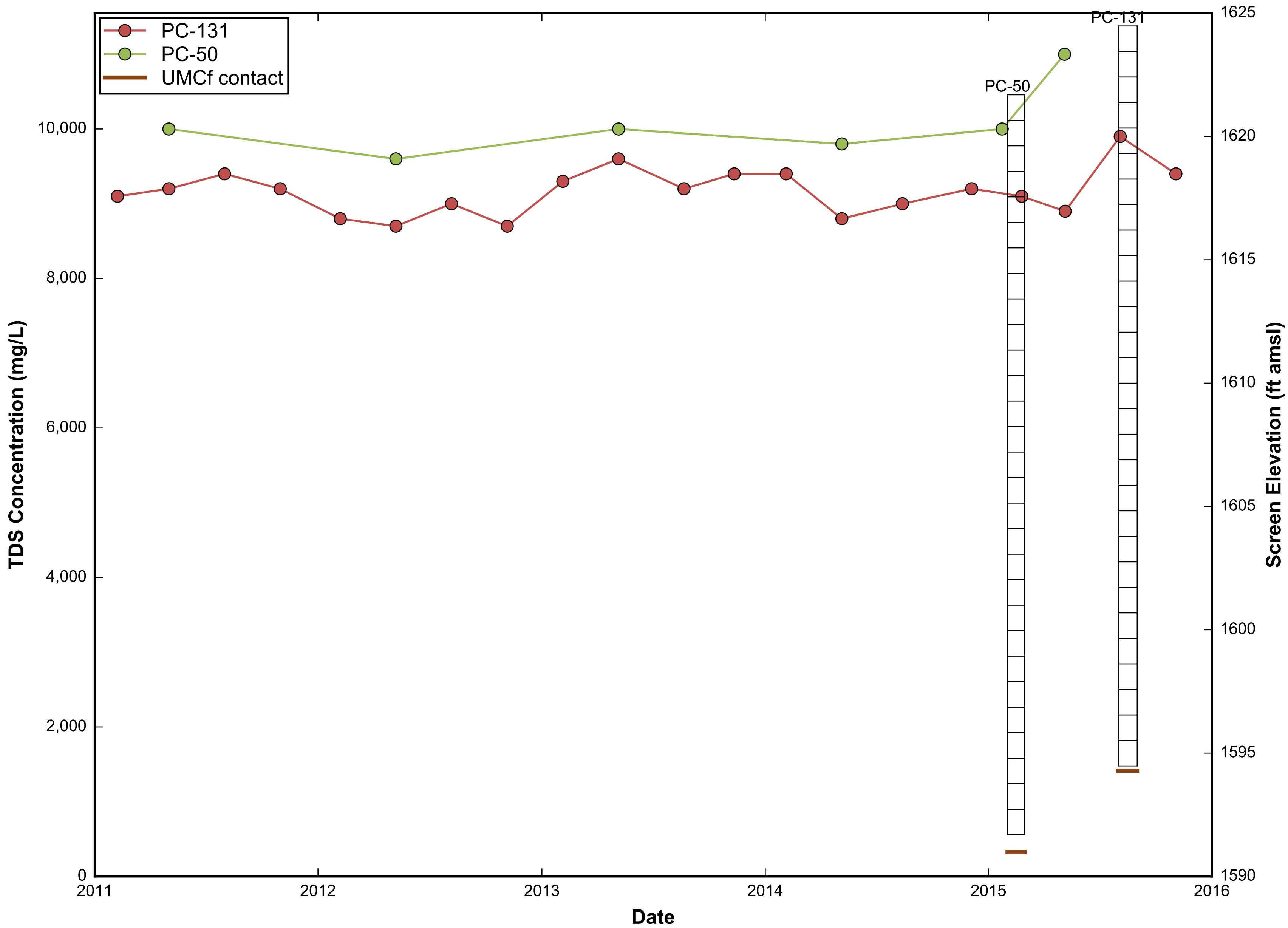
RAMBOLL ENVIRON

Cluster [PC-131,PC-50] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-37c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



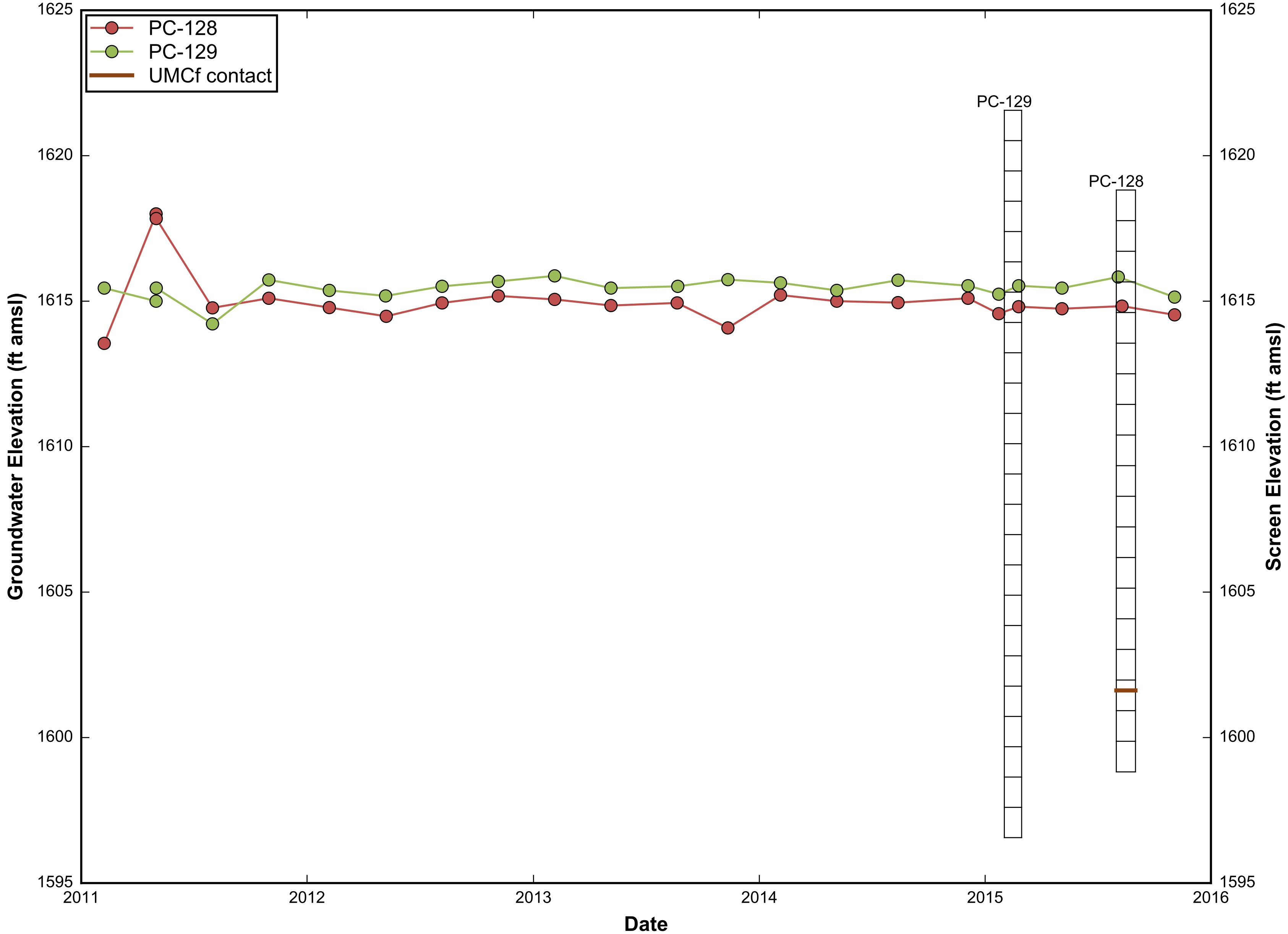
RAMBOLL ENVIRON

Cluster [PC-131,PC-50] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-37d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



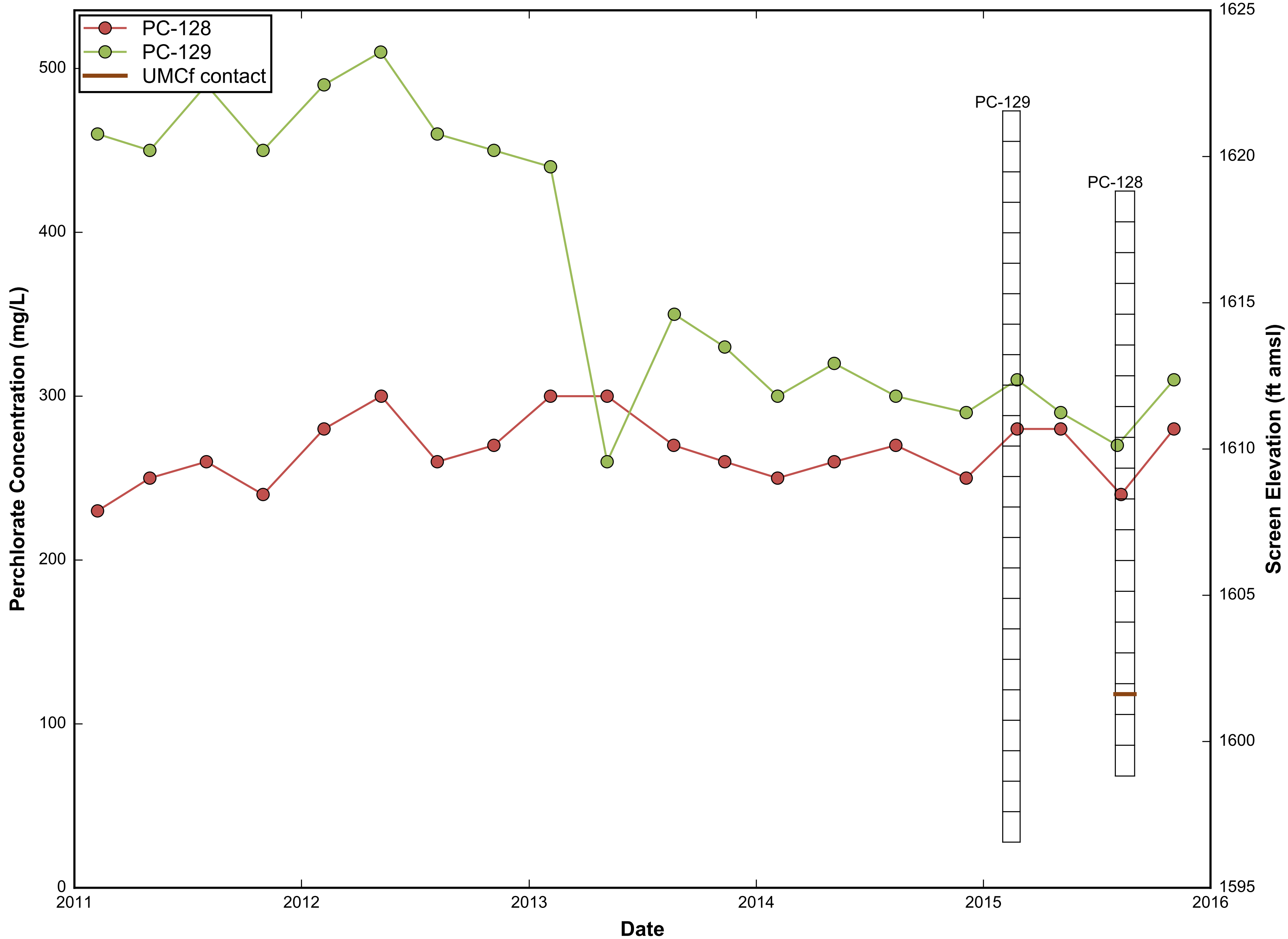
RAMBOLL ENVIRON

Cluster [PC-128,PC-129] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-38a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



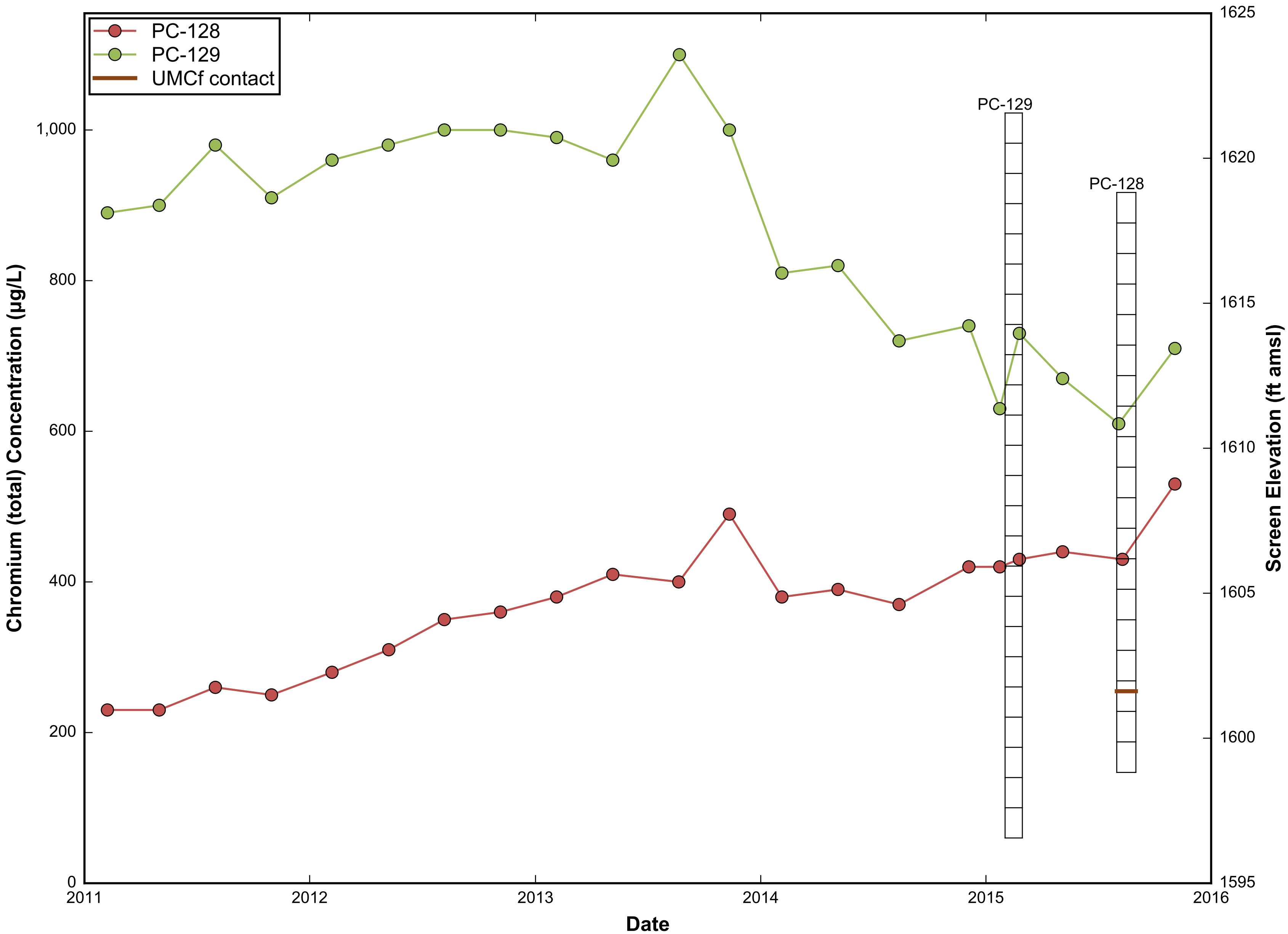
RAMBOLL ENVIRON

Cluster [PC-128,PC-129] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-38b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



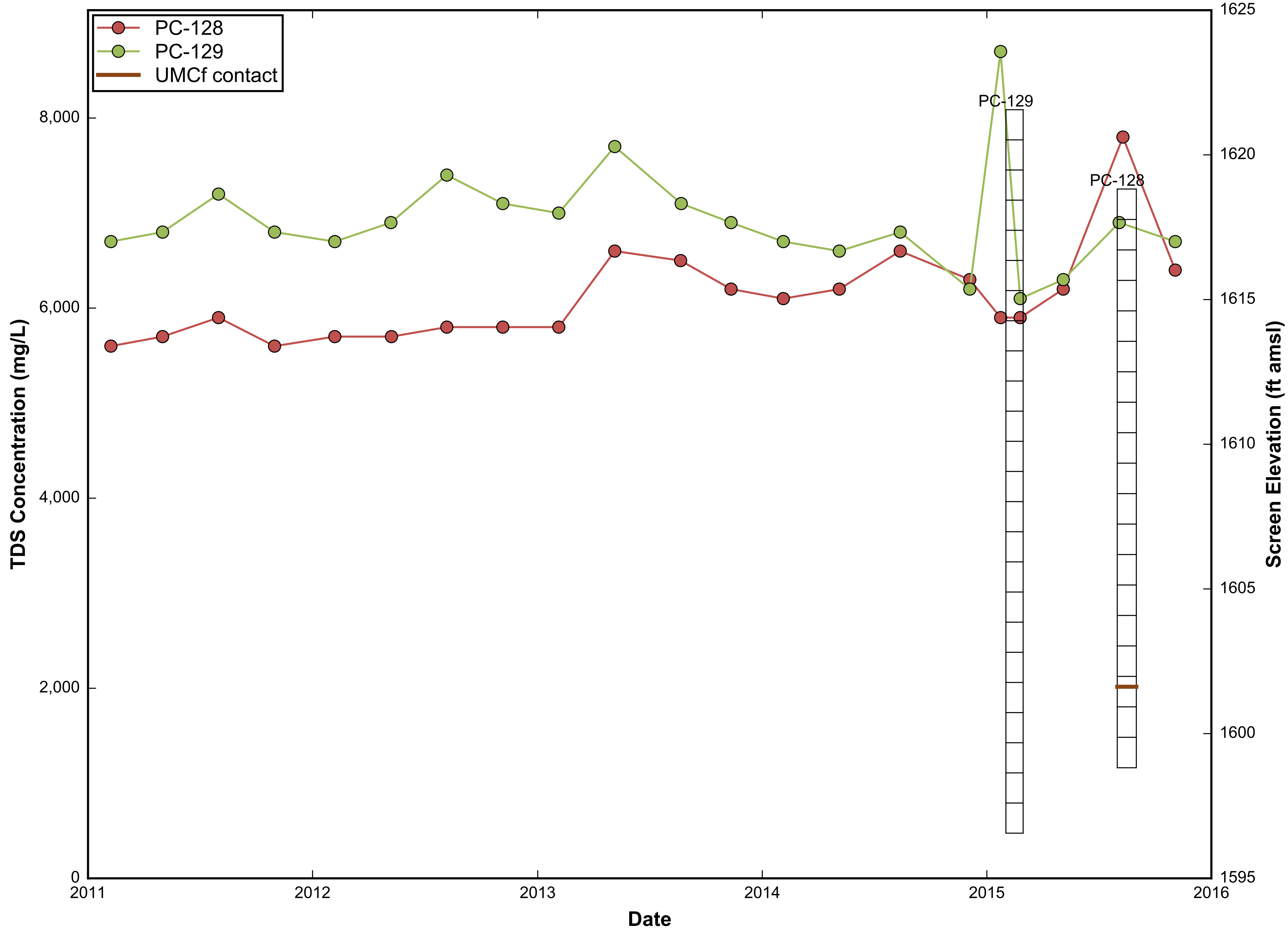
RAMBOLL ENVIRON

Cluster [PC-128,PC-129] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-38c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



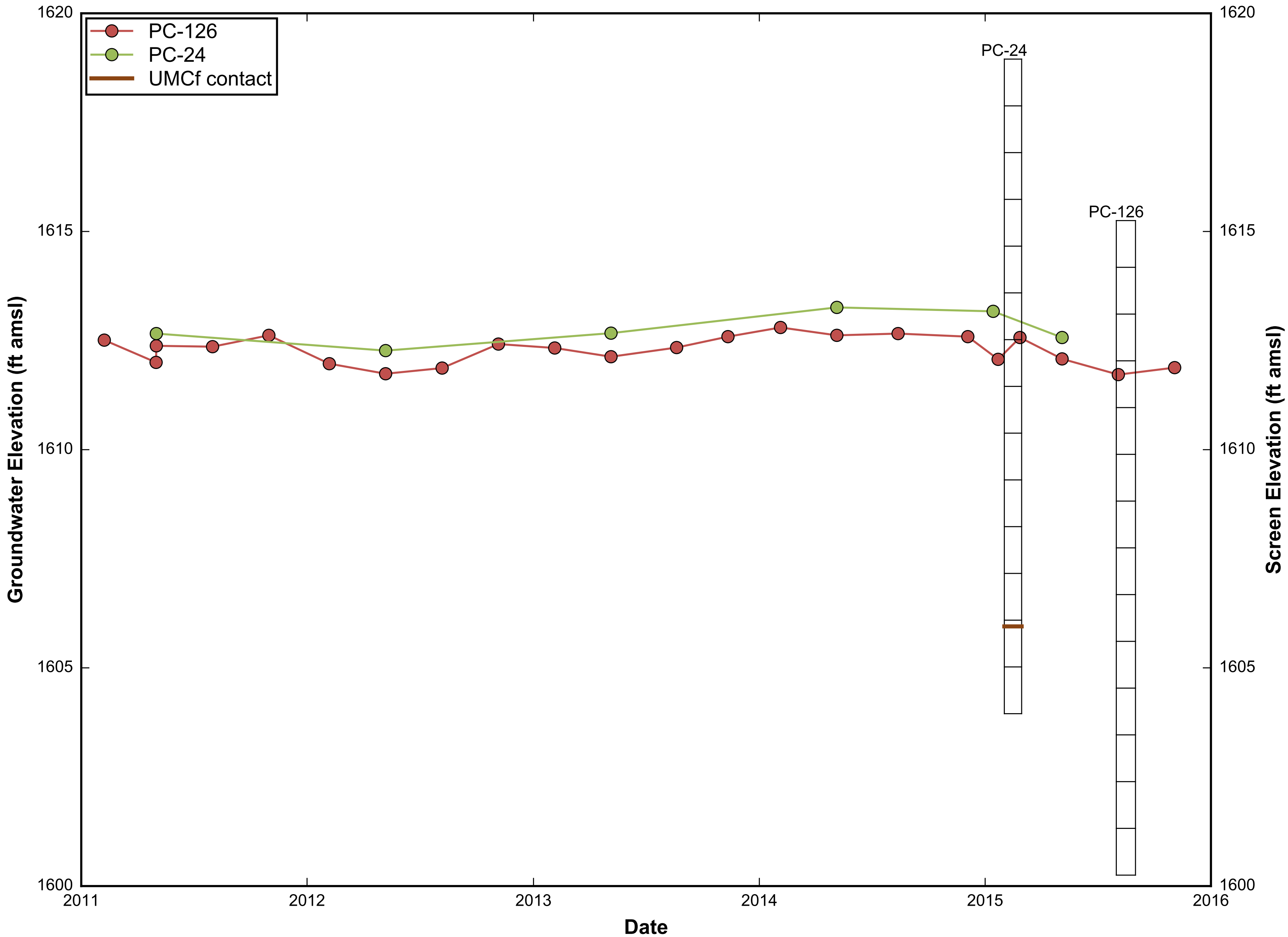
RAMBOLL ENVIRON

Cluster [PC-128,PC-129] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-38d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



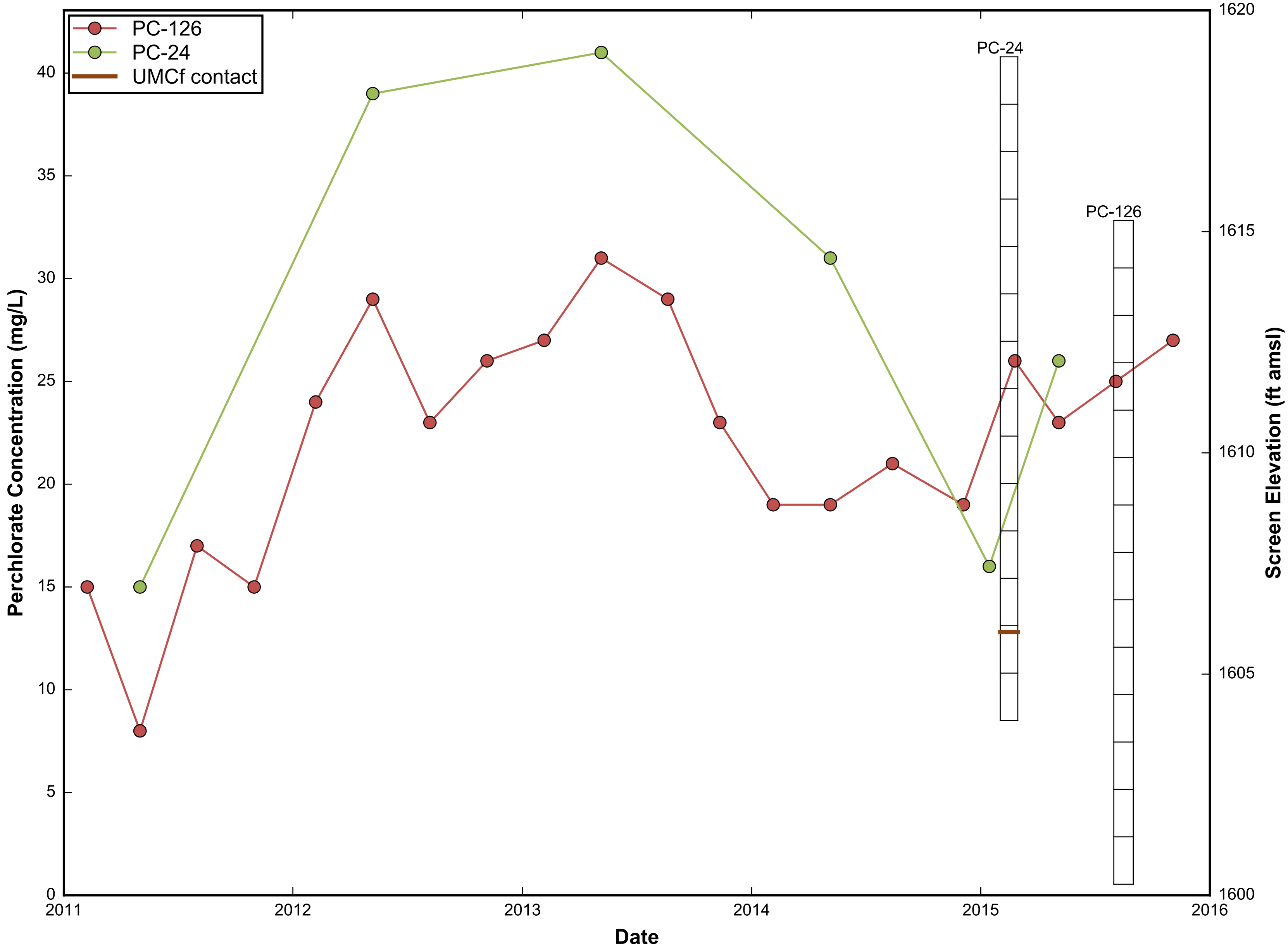
RAMBOLL ENVIRON

Cluster [PC-126,PC-24] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-39a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py

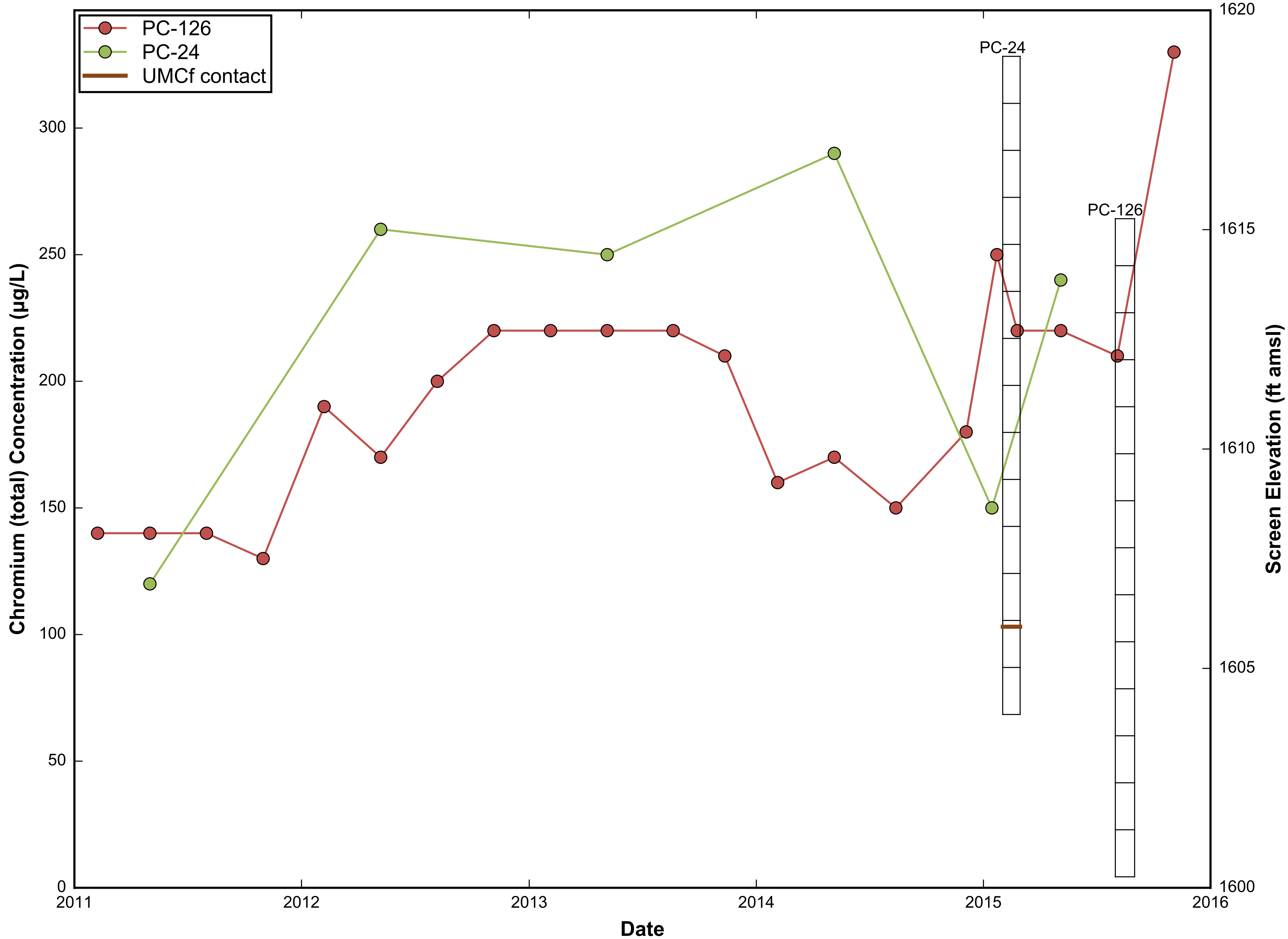


RAMBOLL ENVIRON

Cluster [PC-126,PC-24] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-39b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:



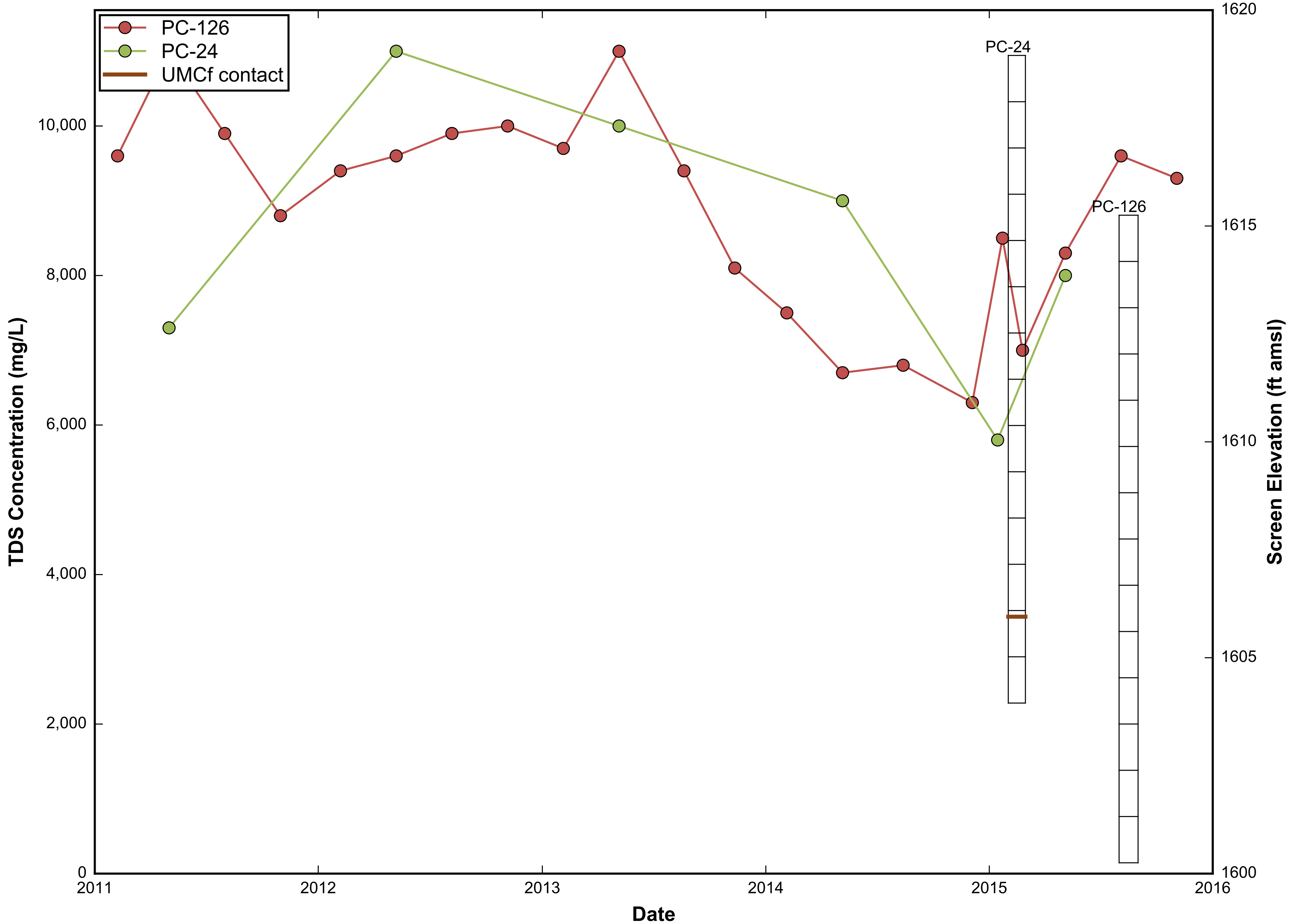
RAMBOLL ENVIRON

Cluster [PC-126,PC-24] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-39c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



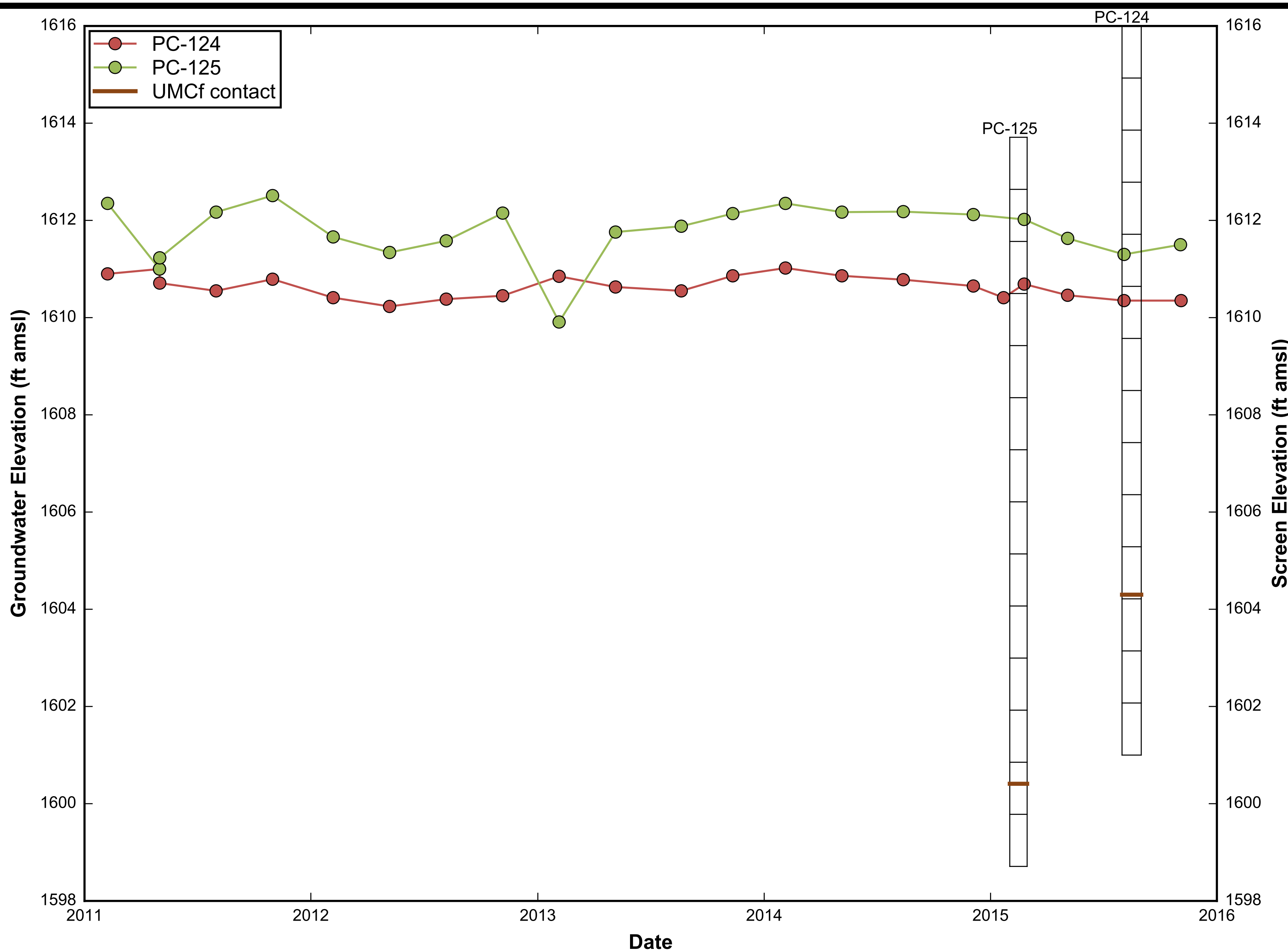
RAMBOLL ENVIRON

Cluster [PC-126,PC-24] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-39d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



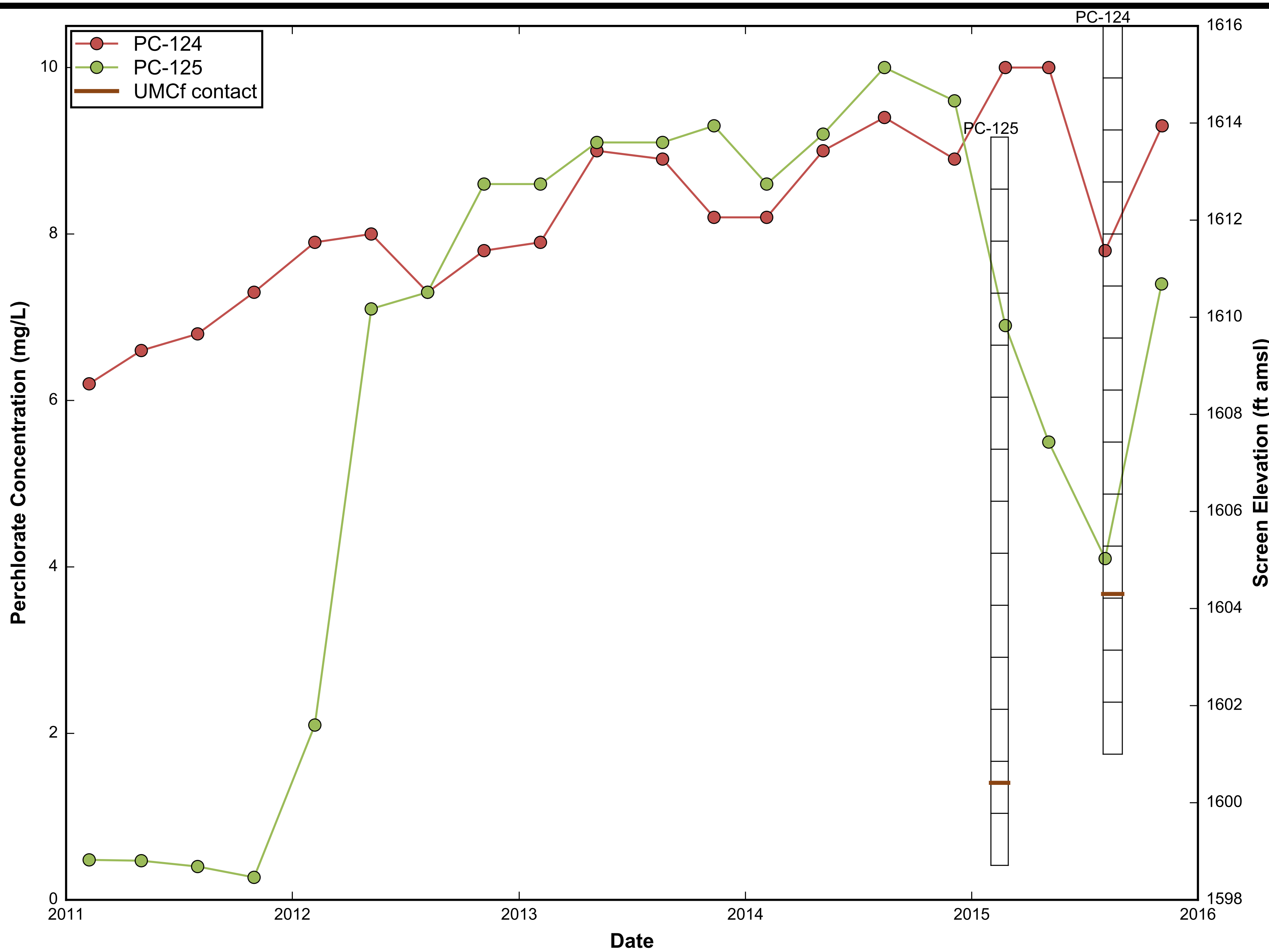
RAMBOLL ENVIRON

Cluster [PC-124,PC-125] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-40a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



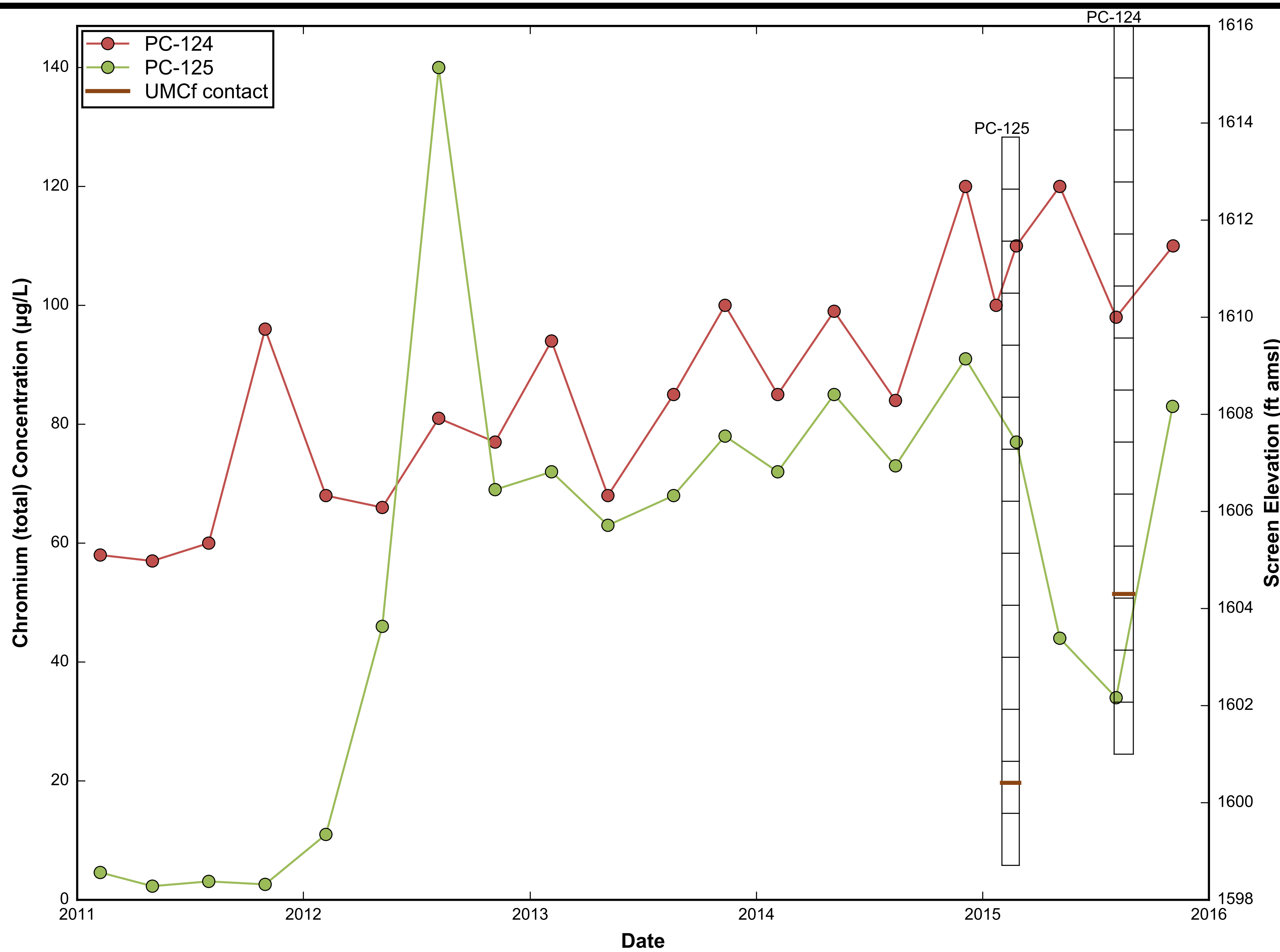
RAMBOLL ENVIRON

Cluster [PC-124,PC-125] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-40b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



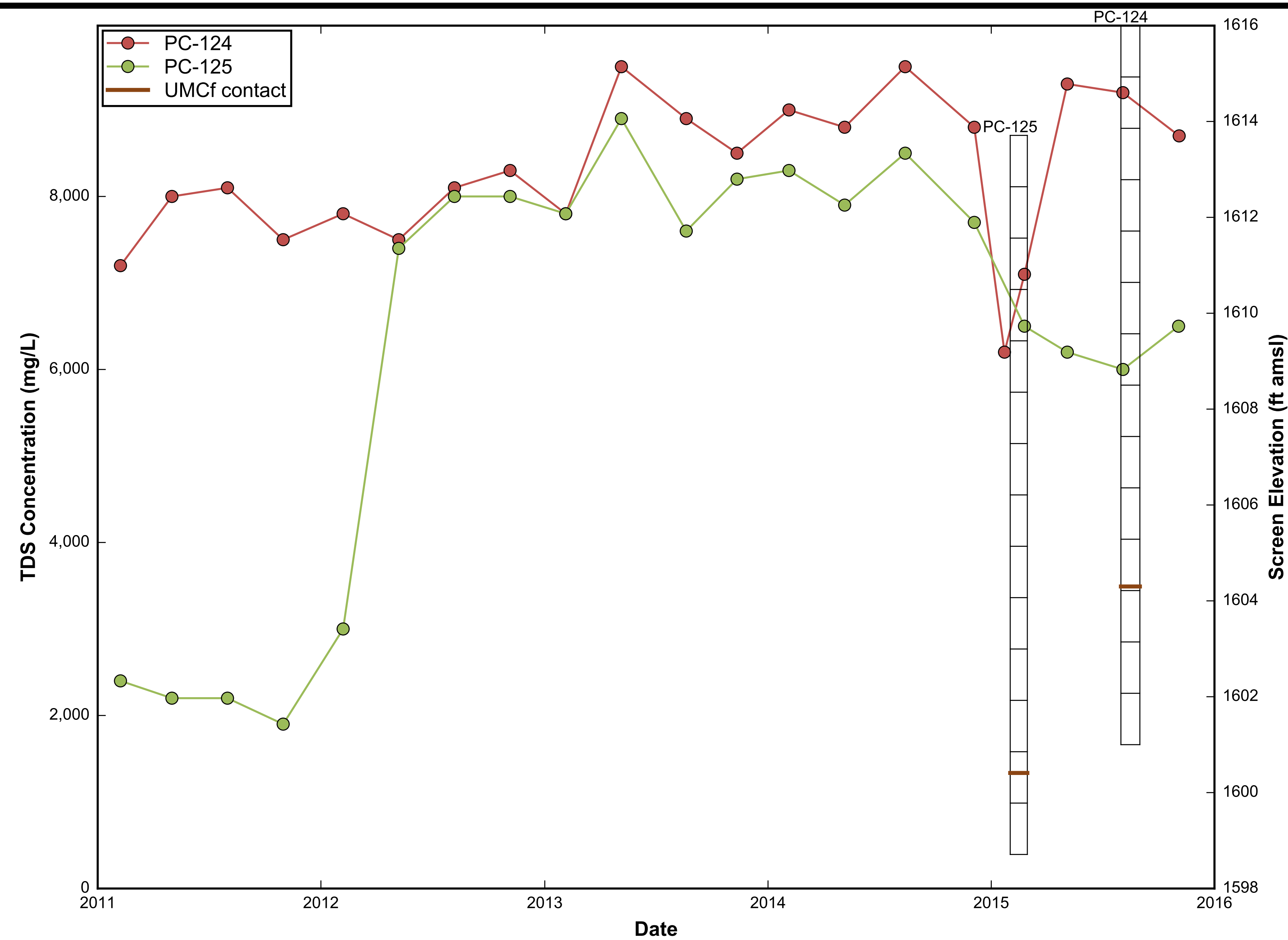
RAMBOLL ENVIRON

Cluster [PC-124,PC-125] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-40c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



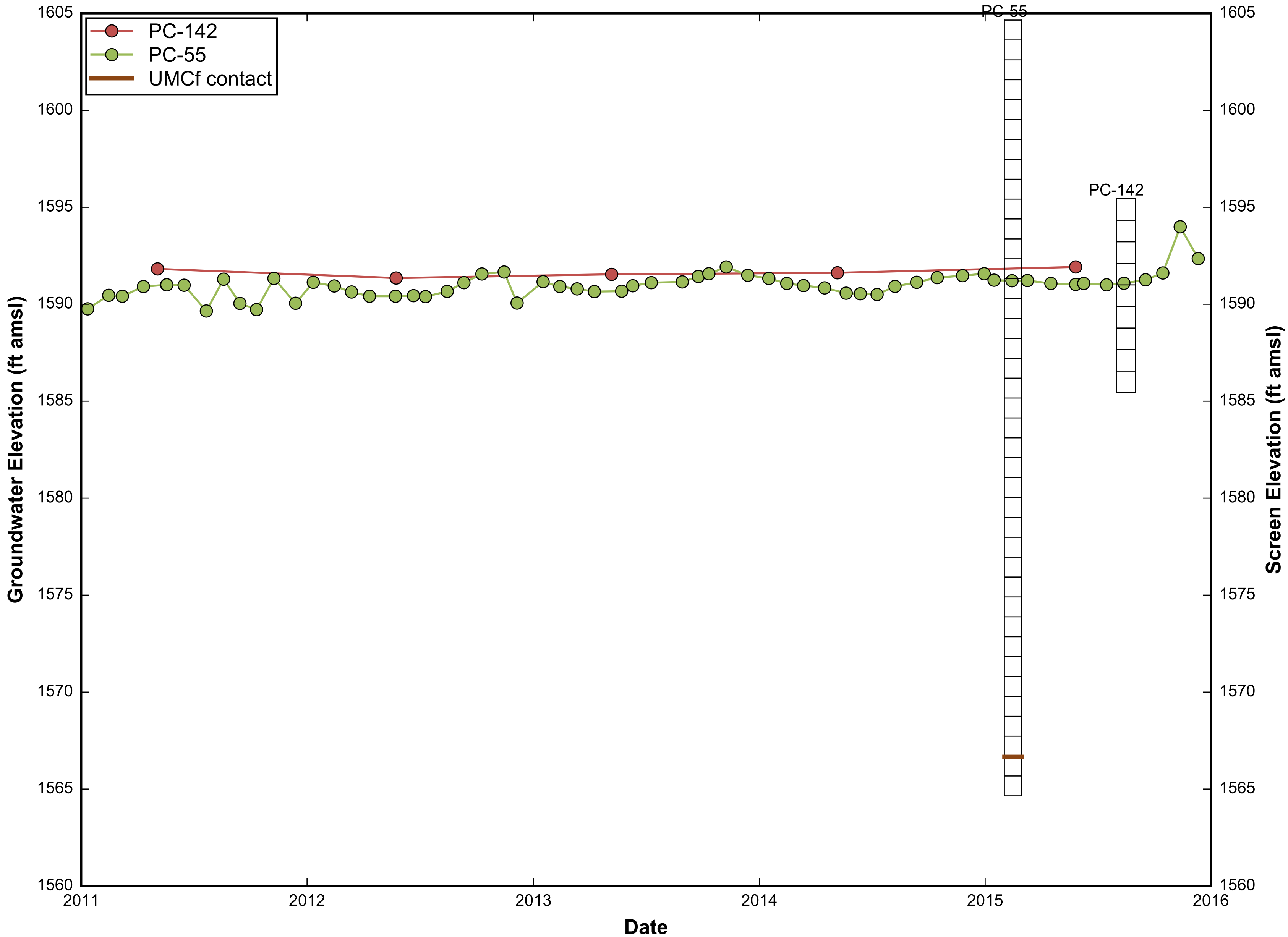
RAMBOLL ENVIRON

Cluster [PC-124,PC-125] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-40d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



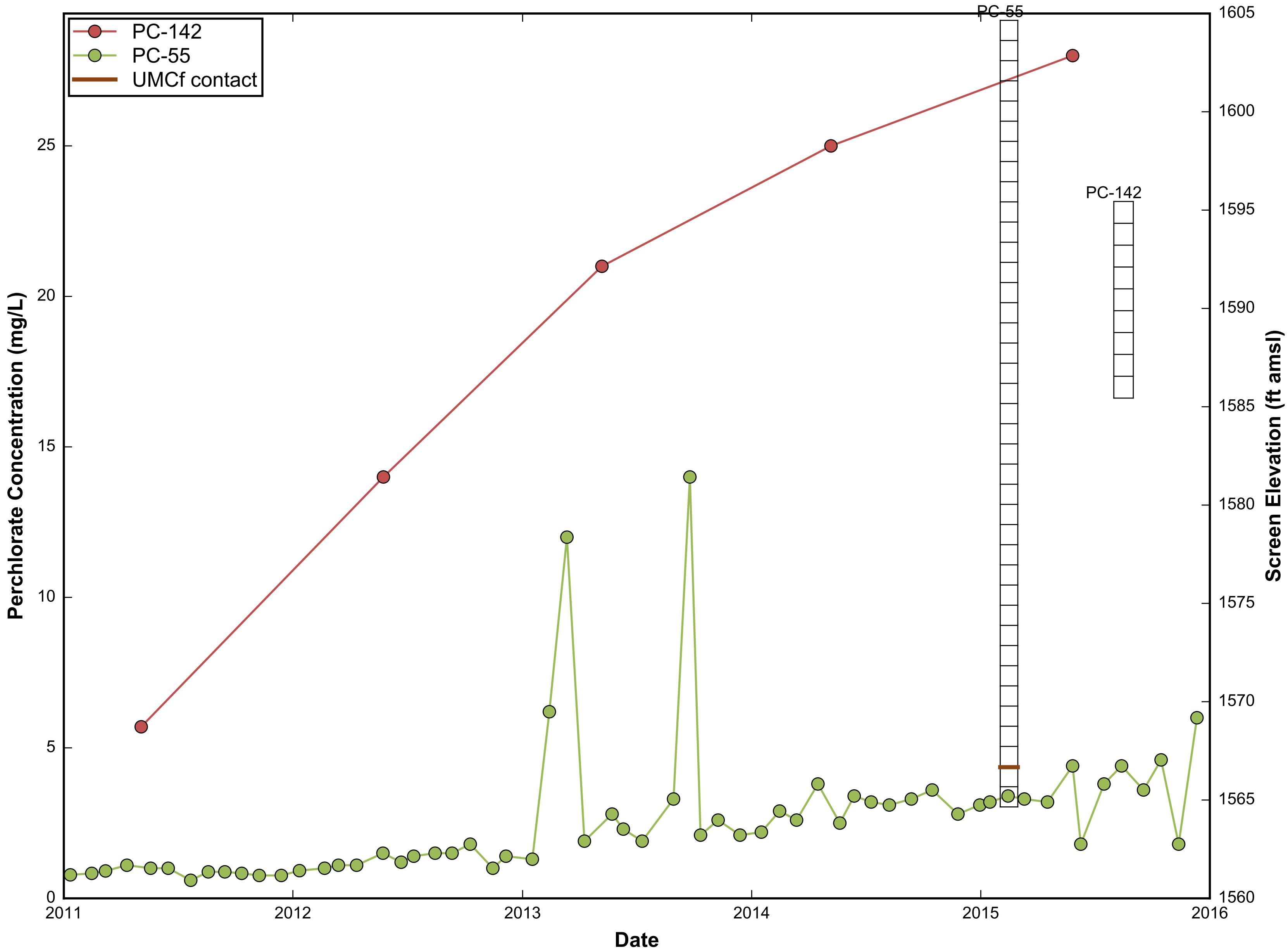
RAMBOLL ENVIRON

Cluster [PC-142,PC-55] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-41a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



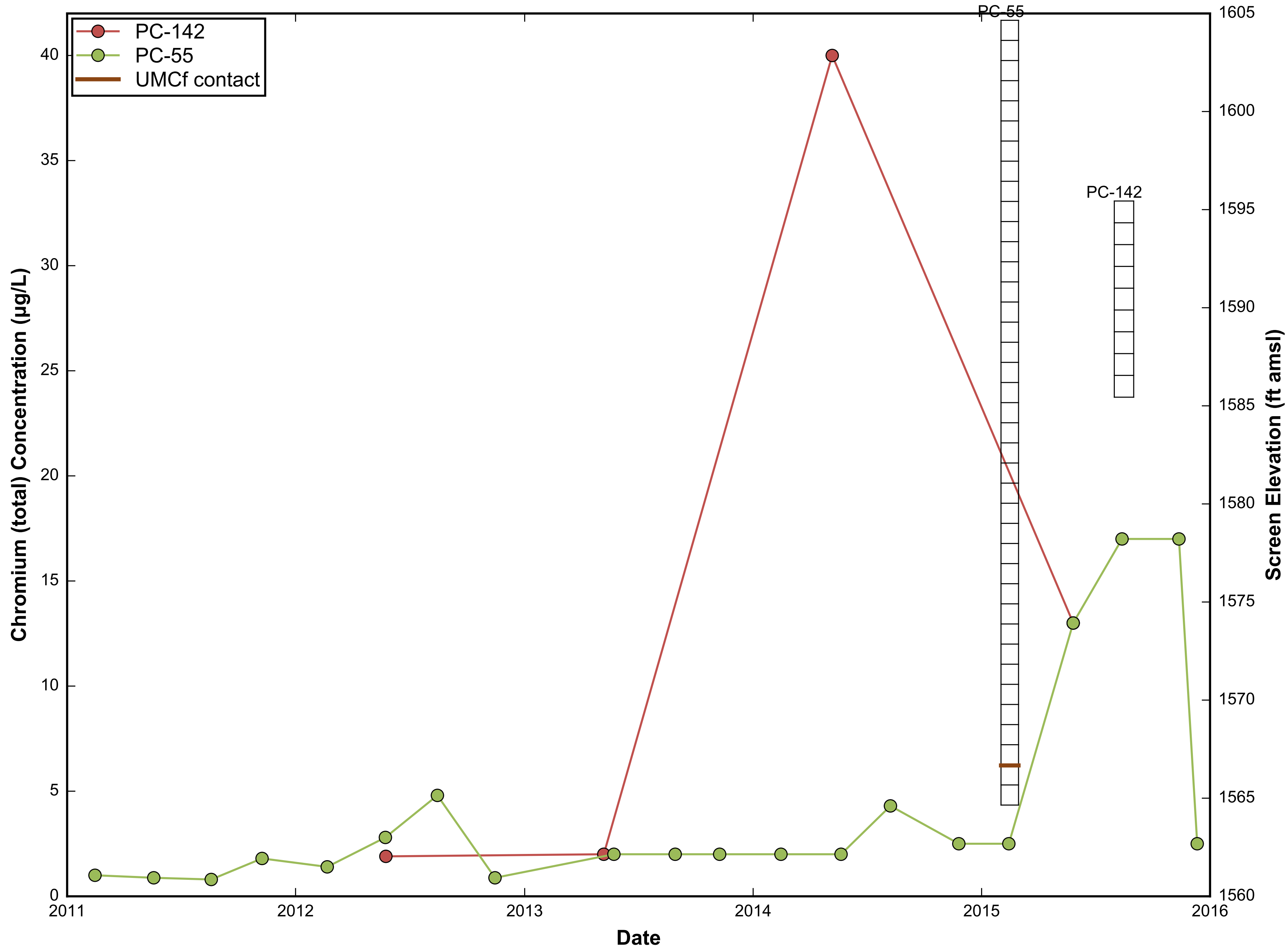
RAMBOLL ENVIRON

Cluster [PC-142,PC-55] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-41b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



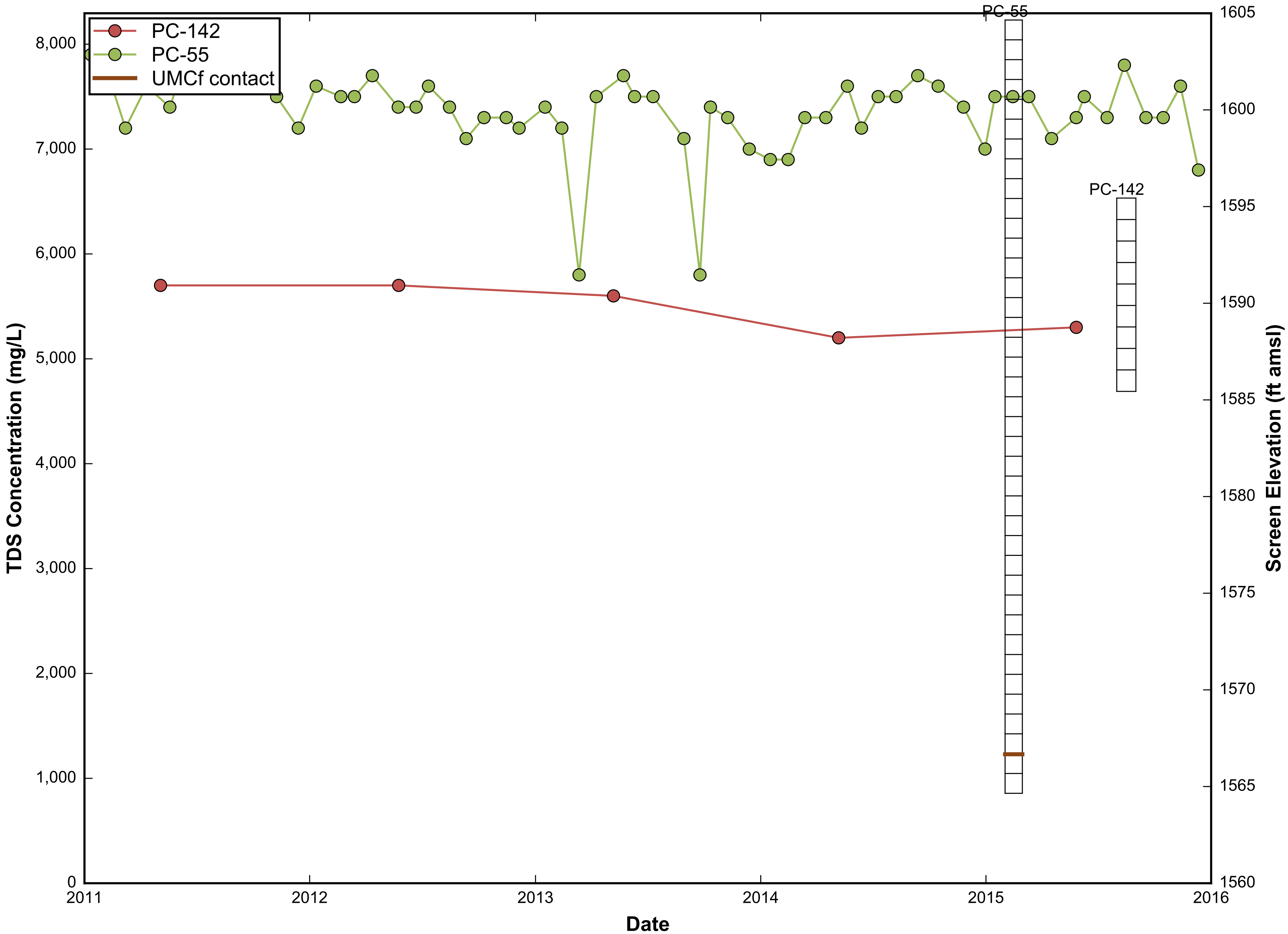
RAMBOLL ENVIRON

Cluster [PC-142,PC-55] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-41c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



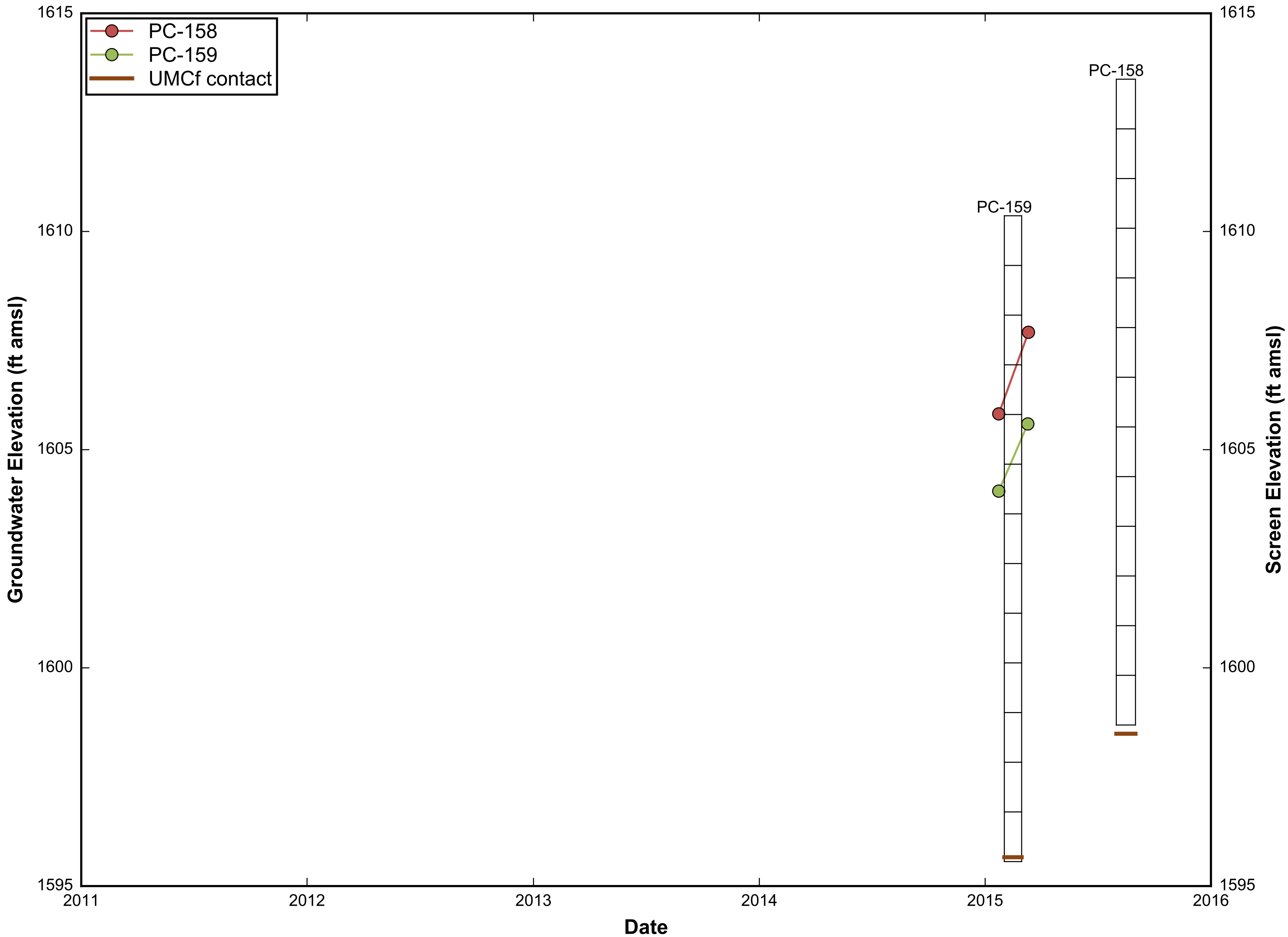
RAMBOLL ENVIRON

Cluster [PC-142,PC-55] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-41d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



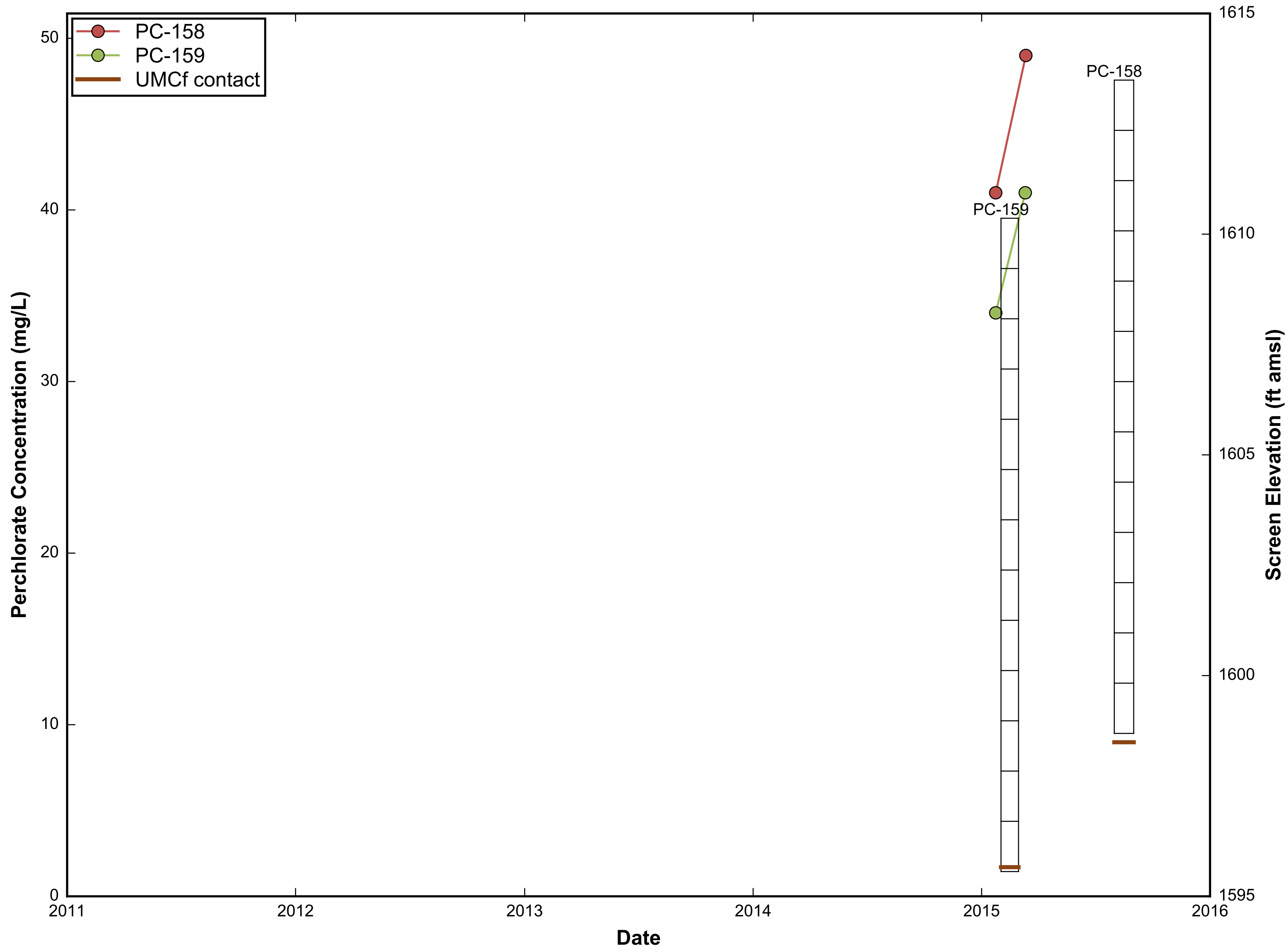
RAMBOLL ENVIRON

Cluster [PC-158,PC-159] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-42a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



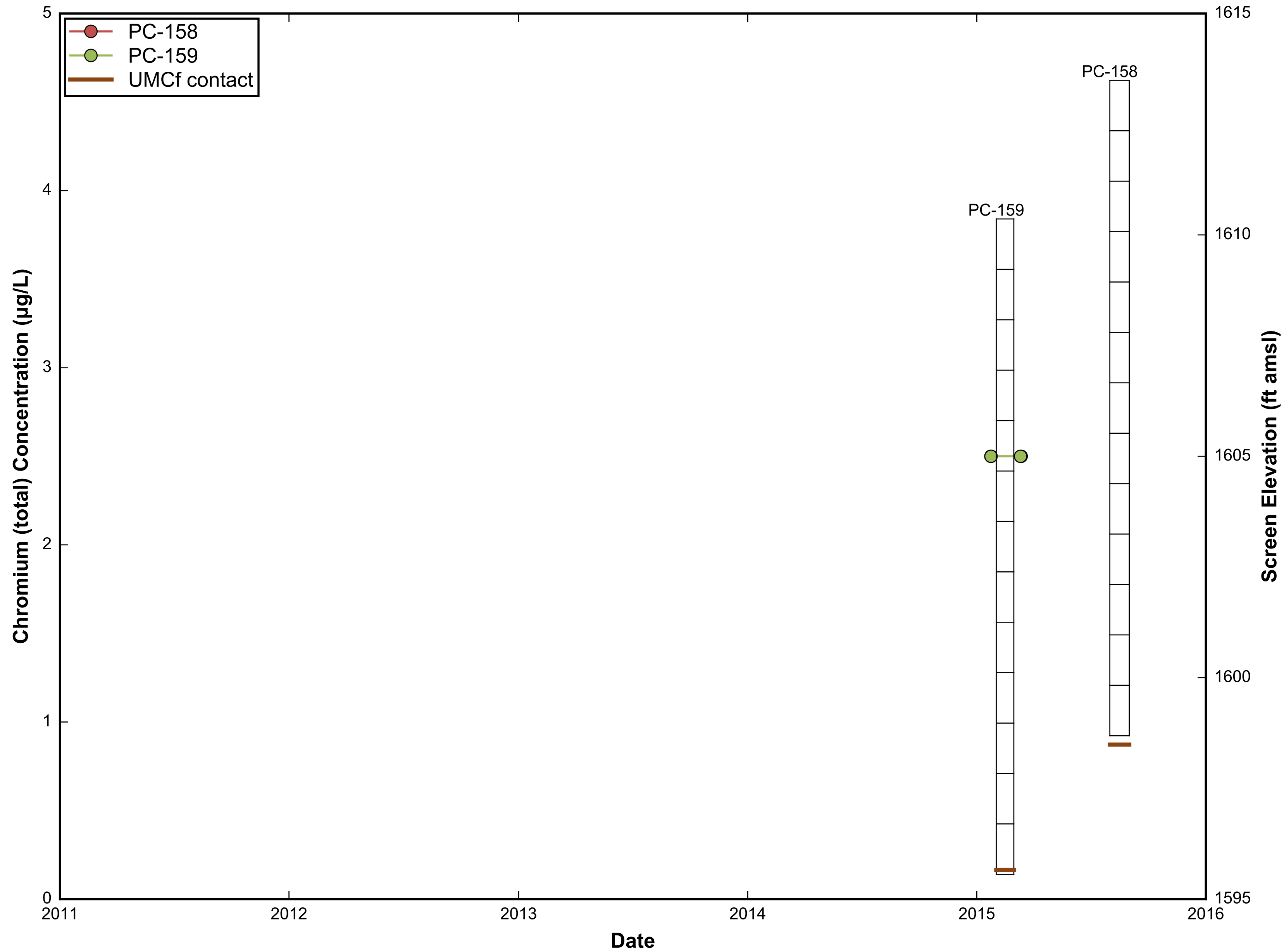
RAMBOLL ENVIRON

Cluster [PC-158,PC-159] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-42b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



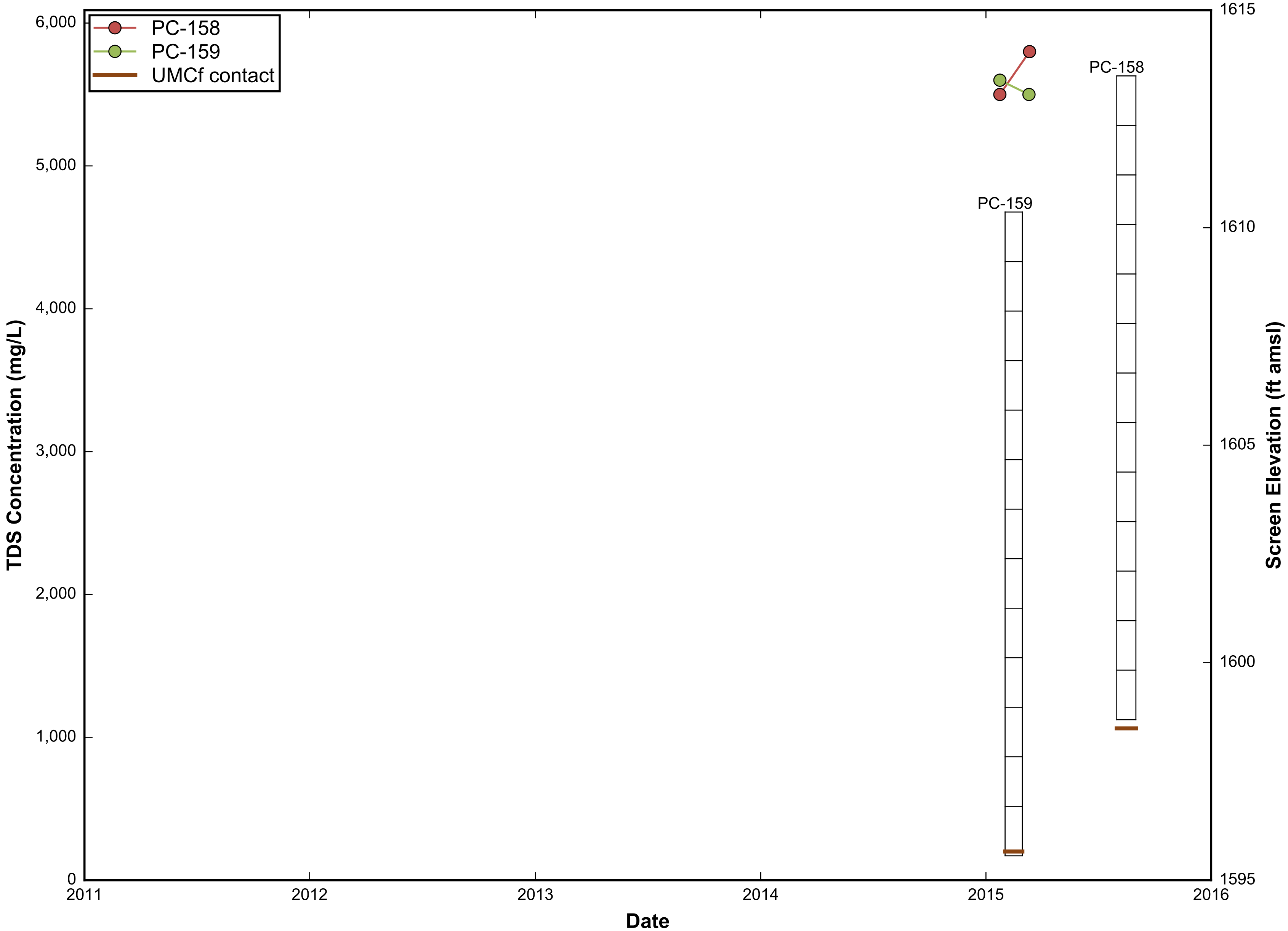
RAMBOLL ENVIRON

Cluster [PC-158,PC-159] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-42c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



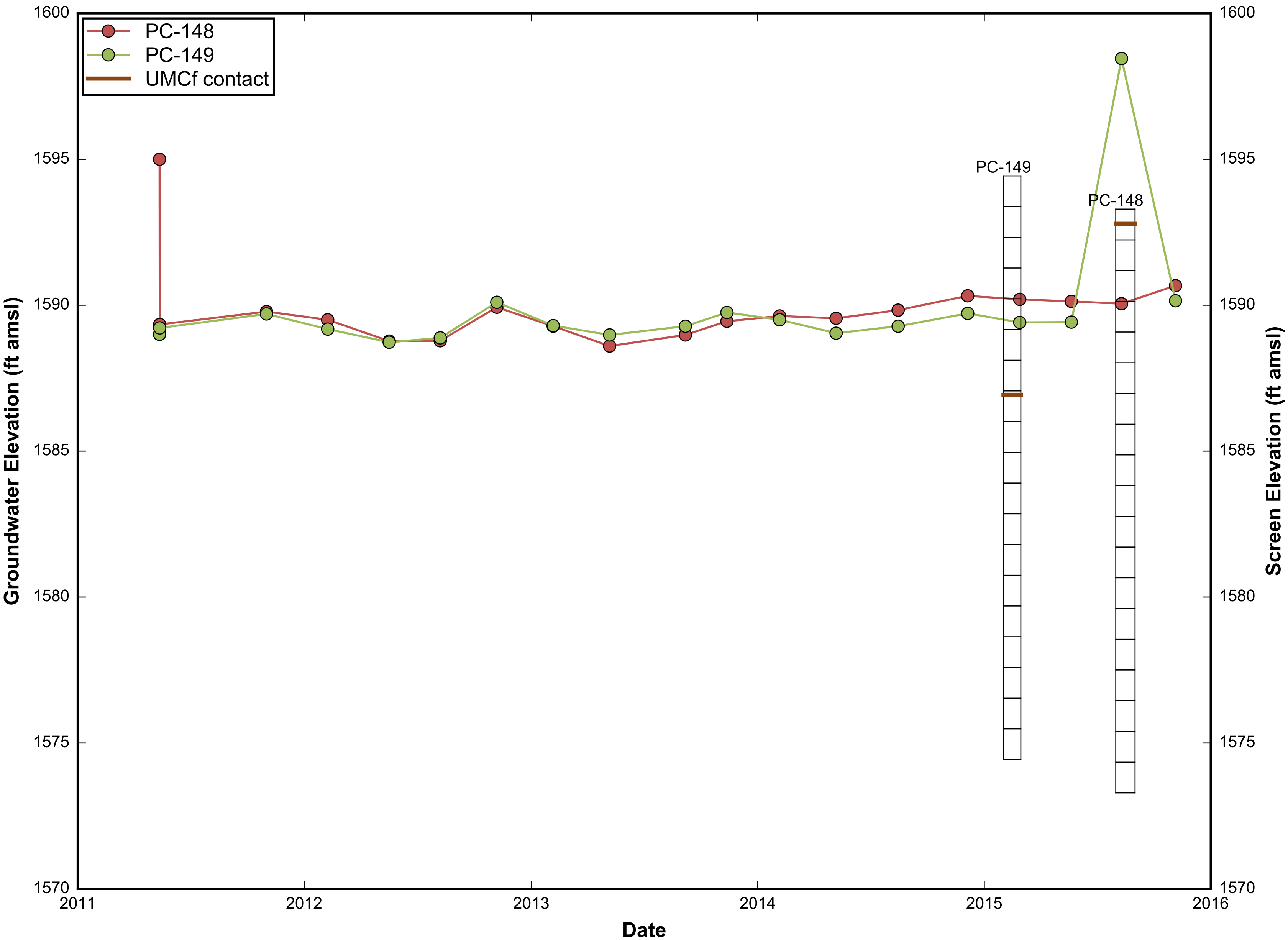
RAMBOLL ENVIRON

Cluster [PC-158,PC-159] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-42d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



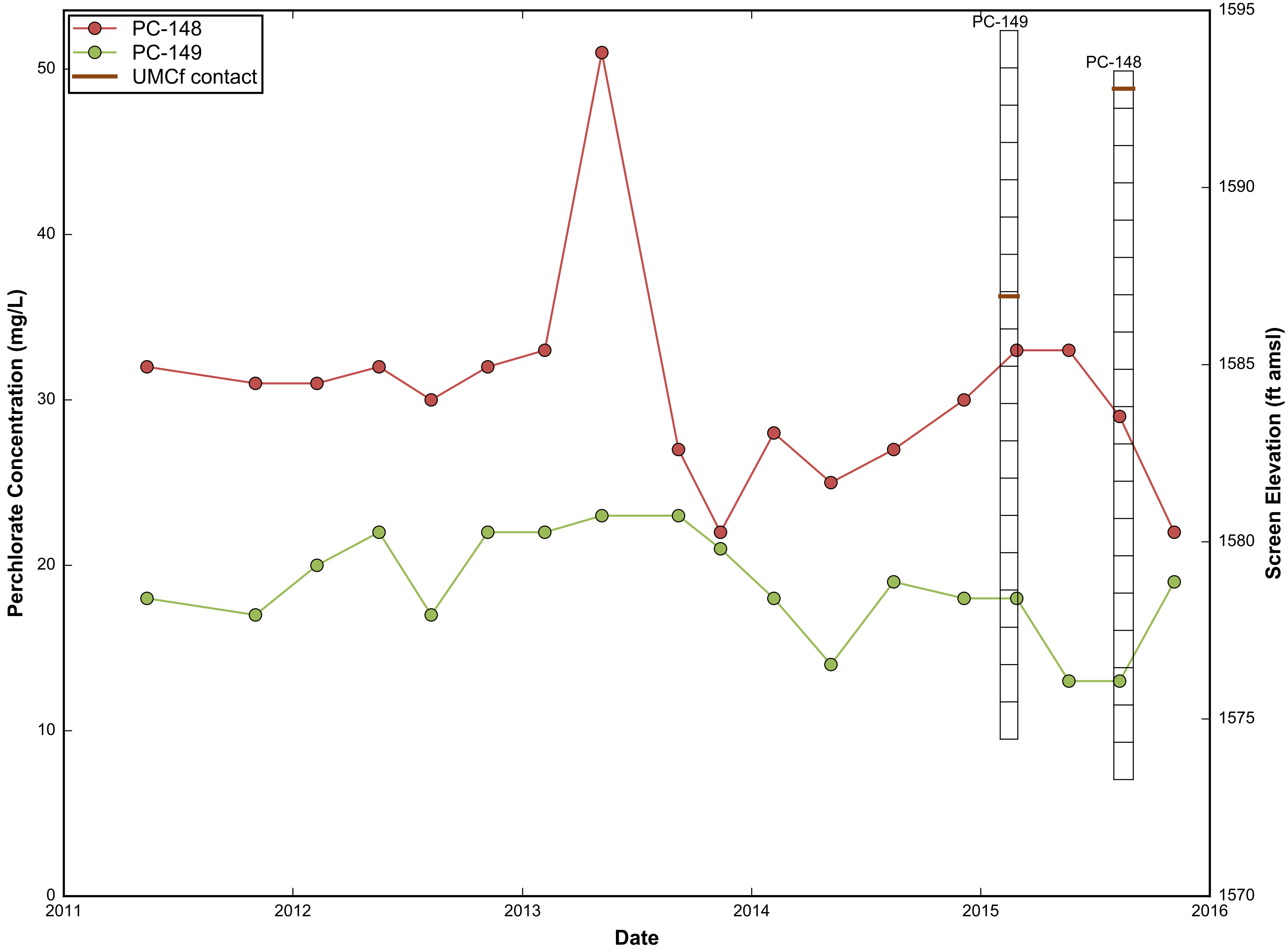
RAMBOLL ENVIRON

Cluster [PC-148,PC-149] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-43a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



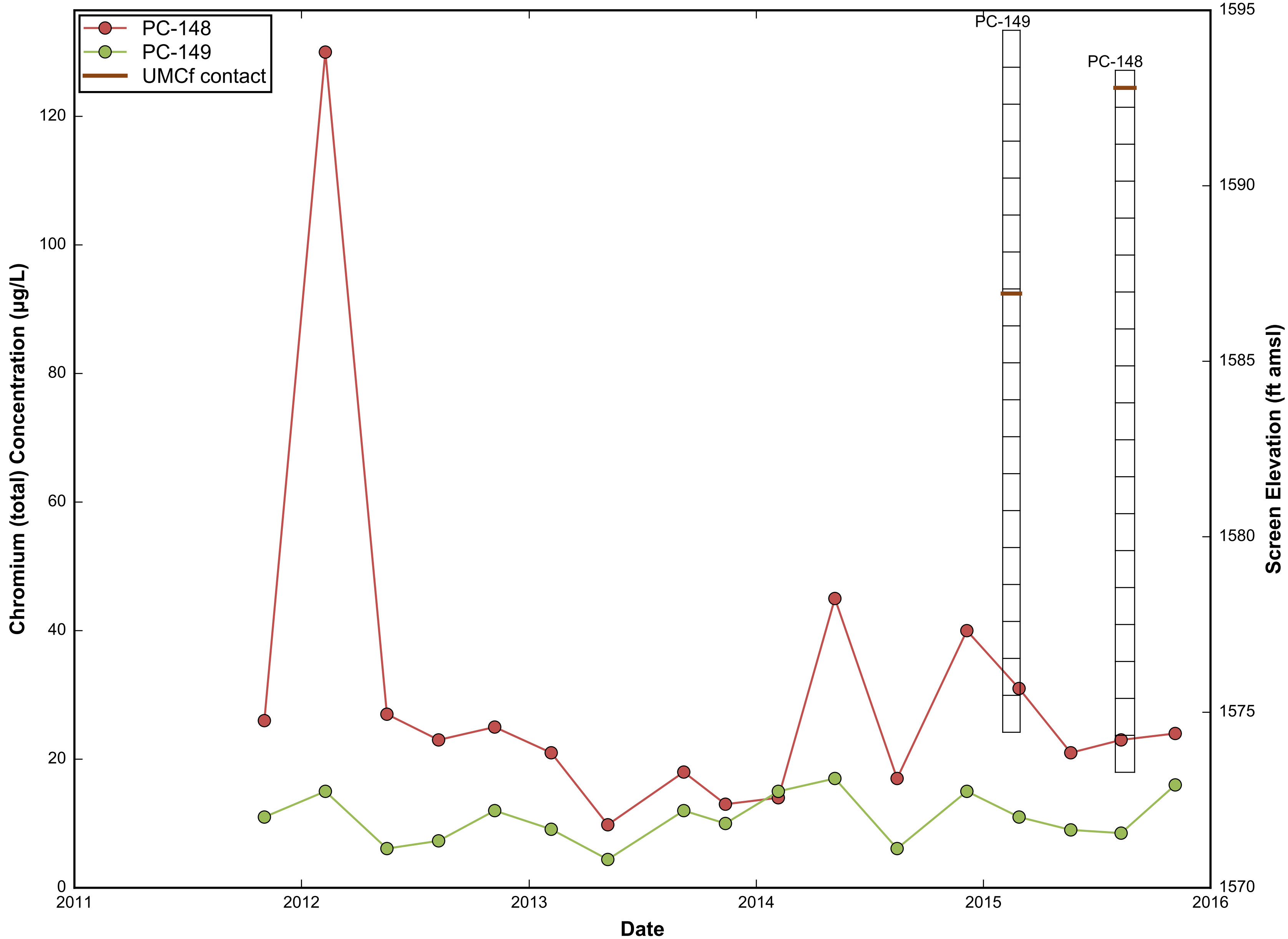
RAMBOLL ENVIRON

Cluster [PC-148,PC-149] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-43b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



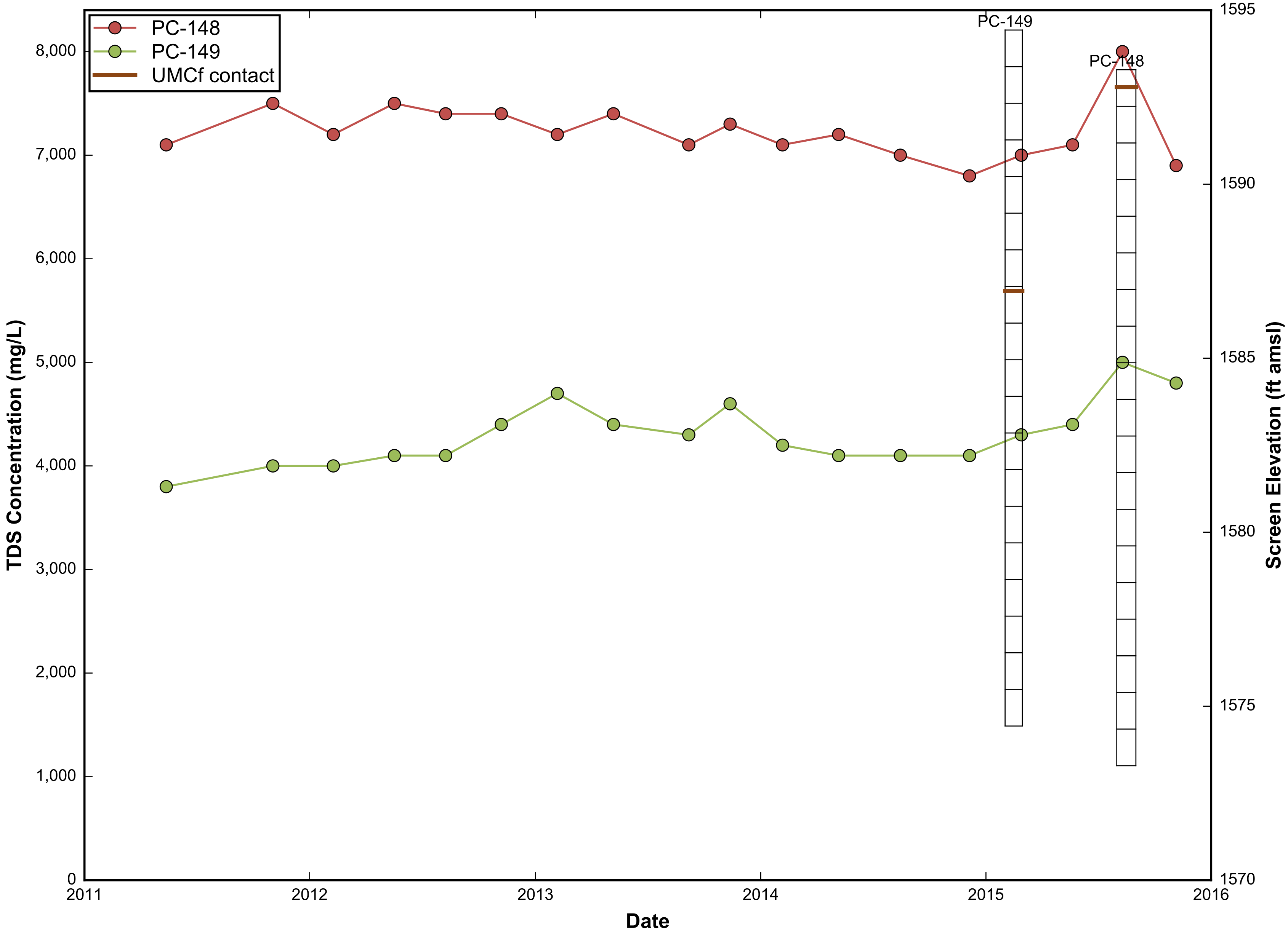
RAMBOLL ENVIRON

Cluster [PC-148,PC-149] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-43c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



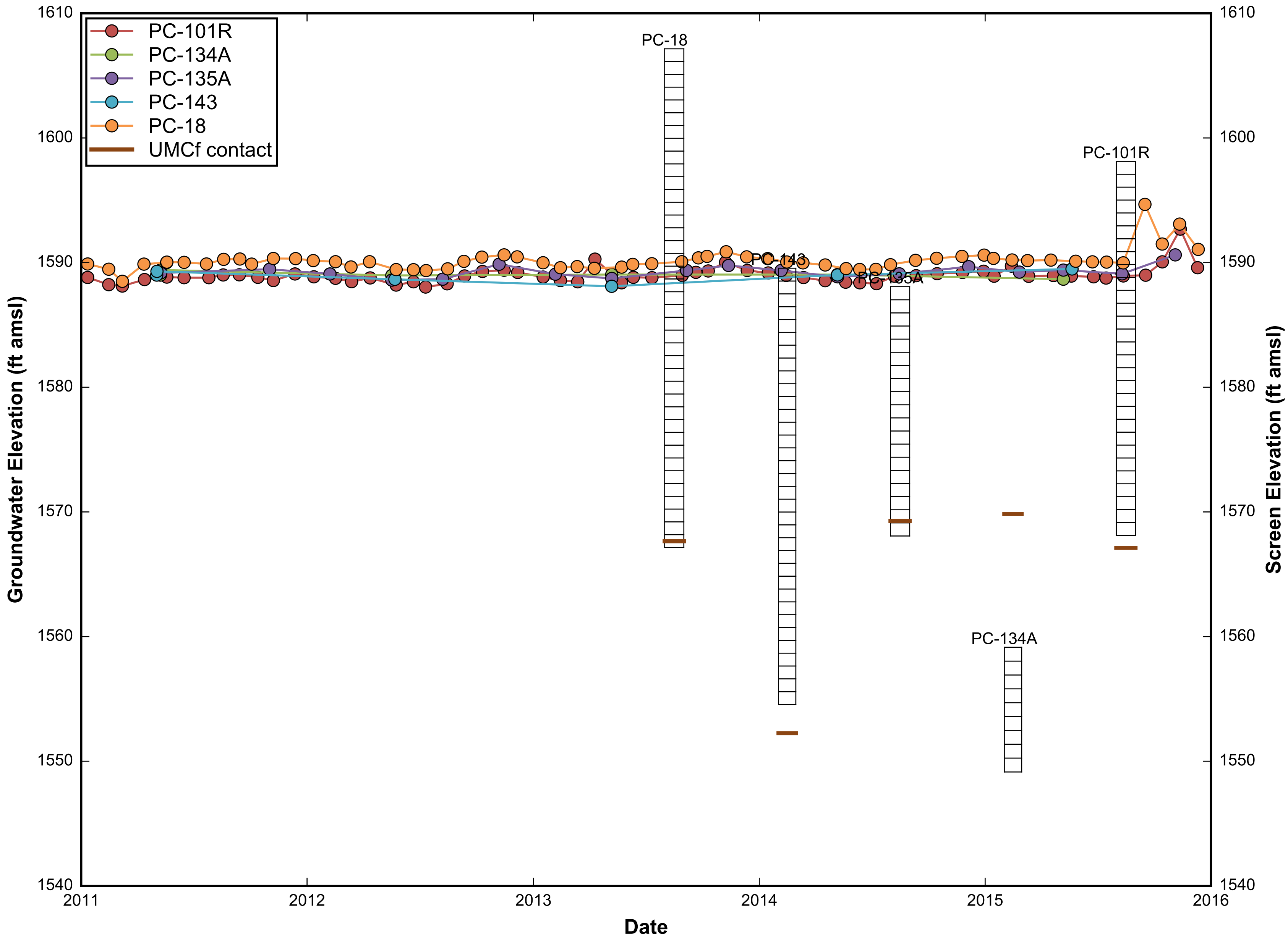
RAMBOLL ENVIRON

Cluster [PC-148,PC-149] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-43d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



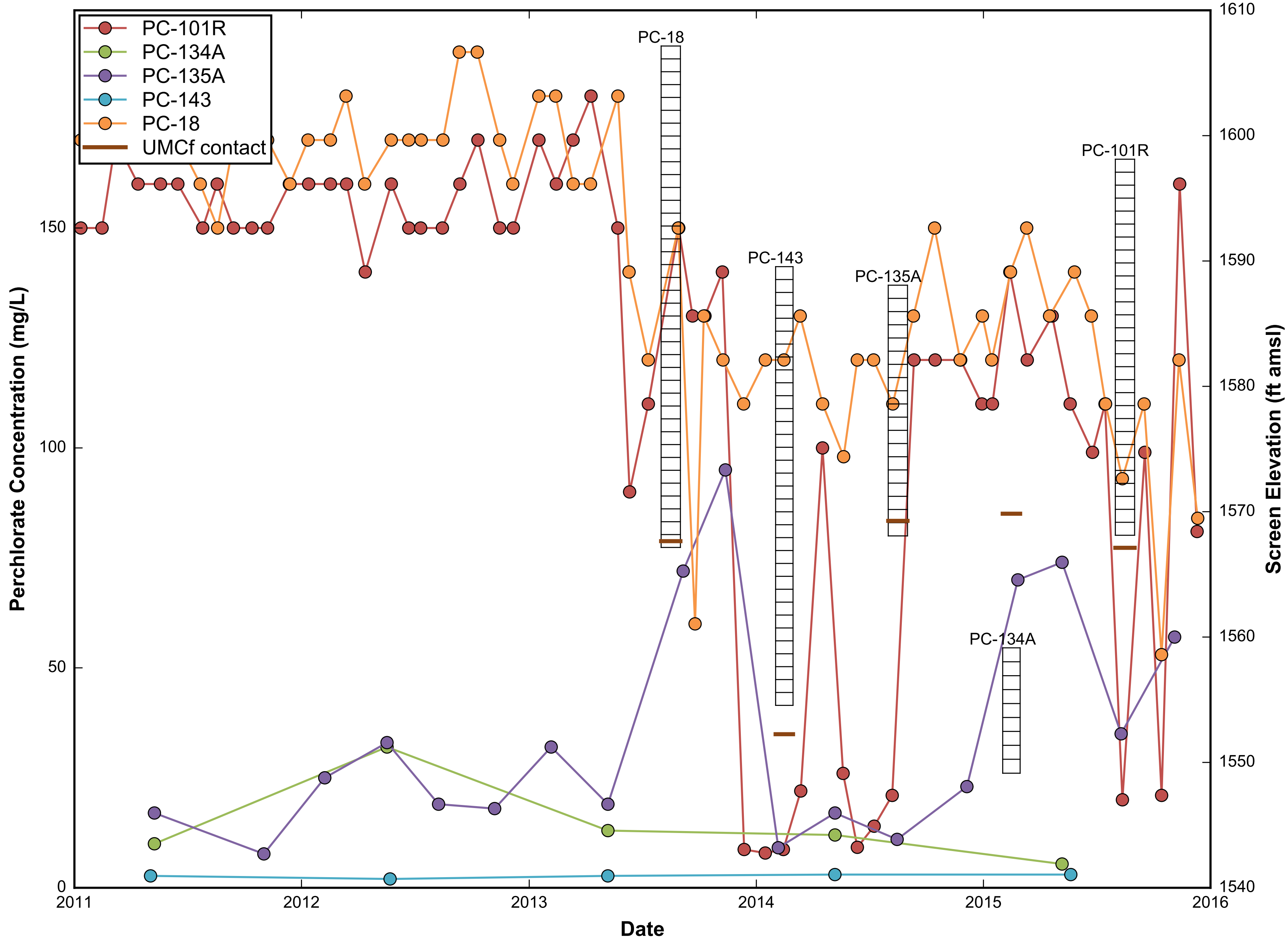
RAMBOLL ENVIRON

Cluster [PC-101R,PC-134A,PC-135A,PC-143,PC-18] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-44a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



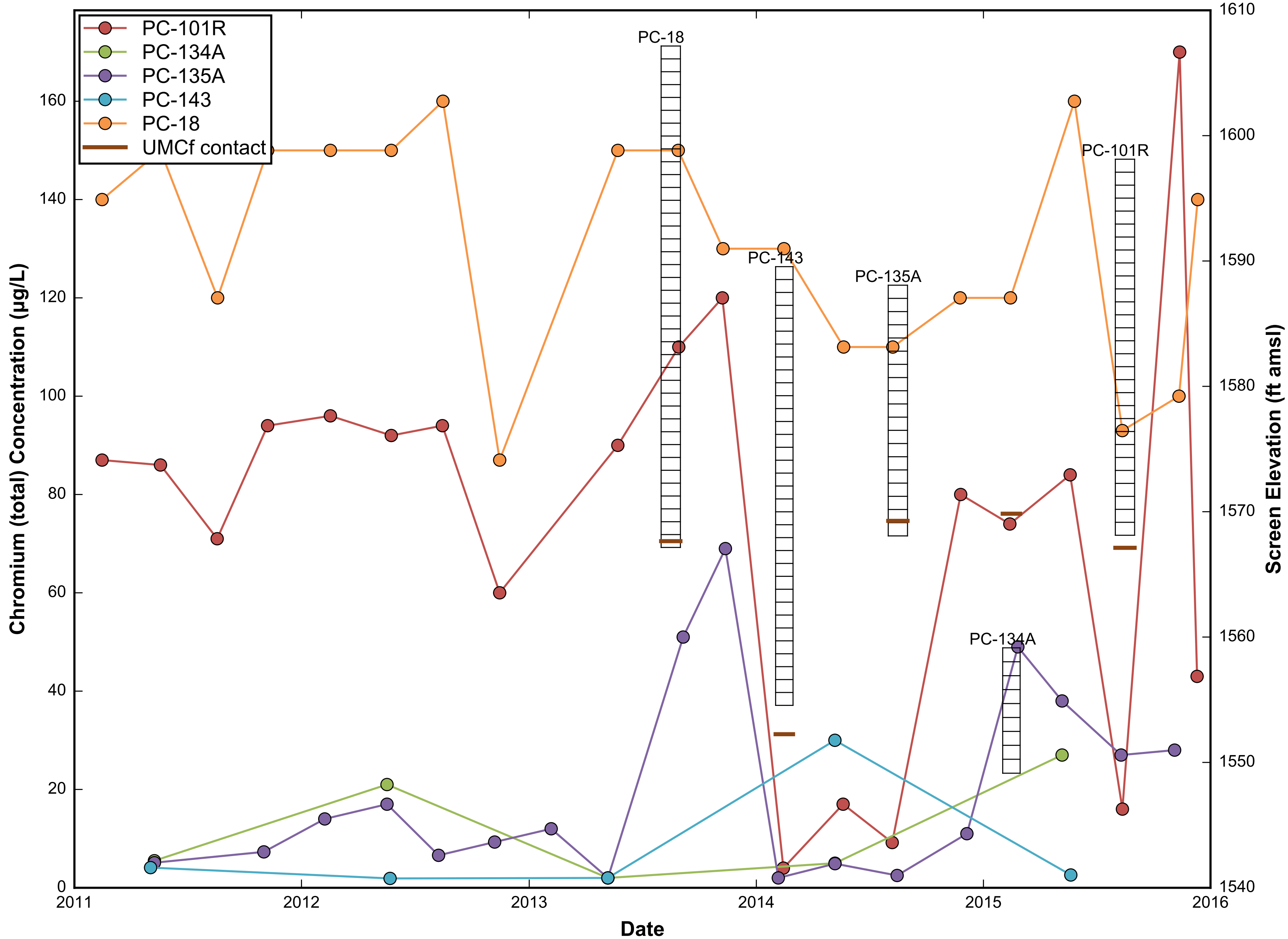
RAMBOLL ENVIRON

Cluster [PC-101R,PC-134A,PC-135A,PC-143,PC-18] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-44b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



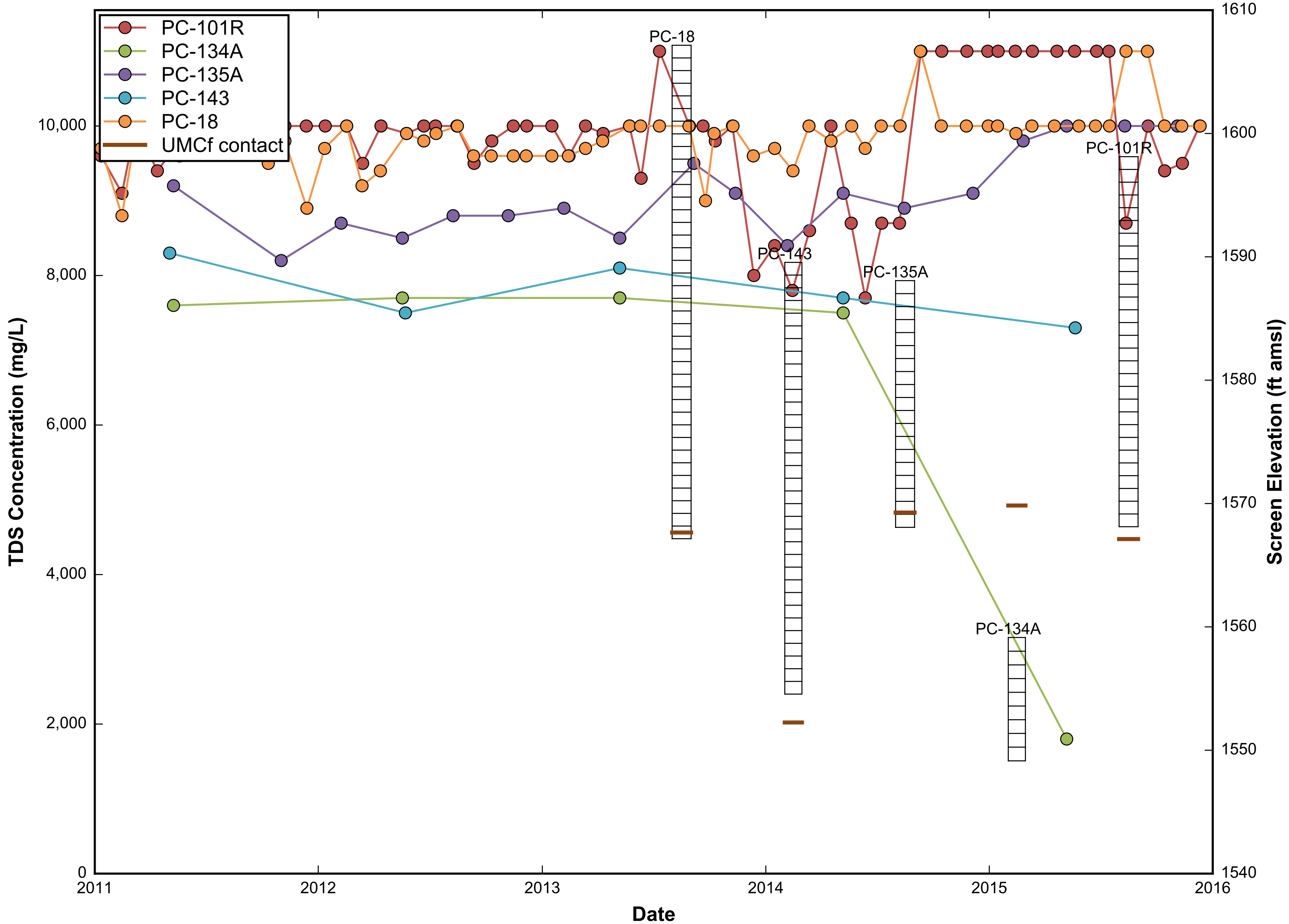
RAMBOLL ENVIRON

Cluster [PC-101R,PC-134A,PC-135A,PC-143,PC-18] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-44c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



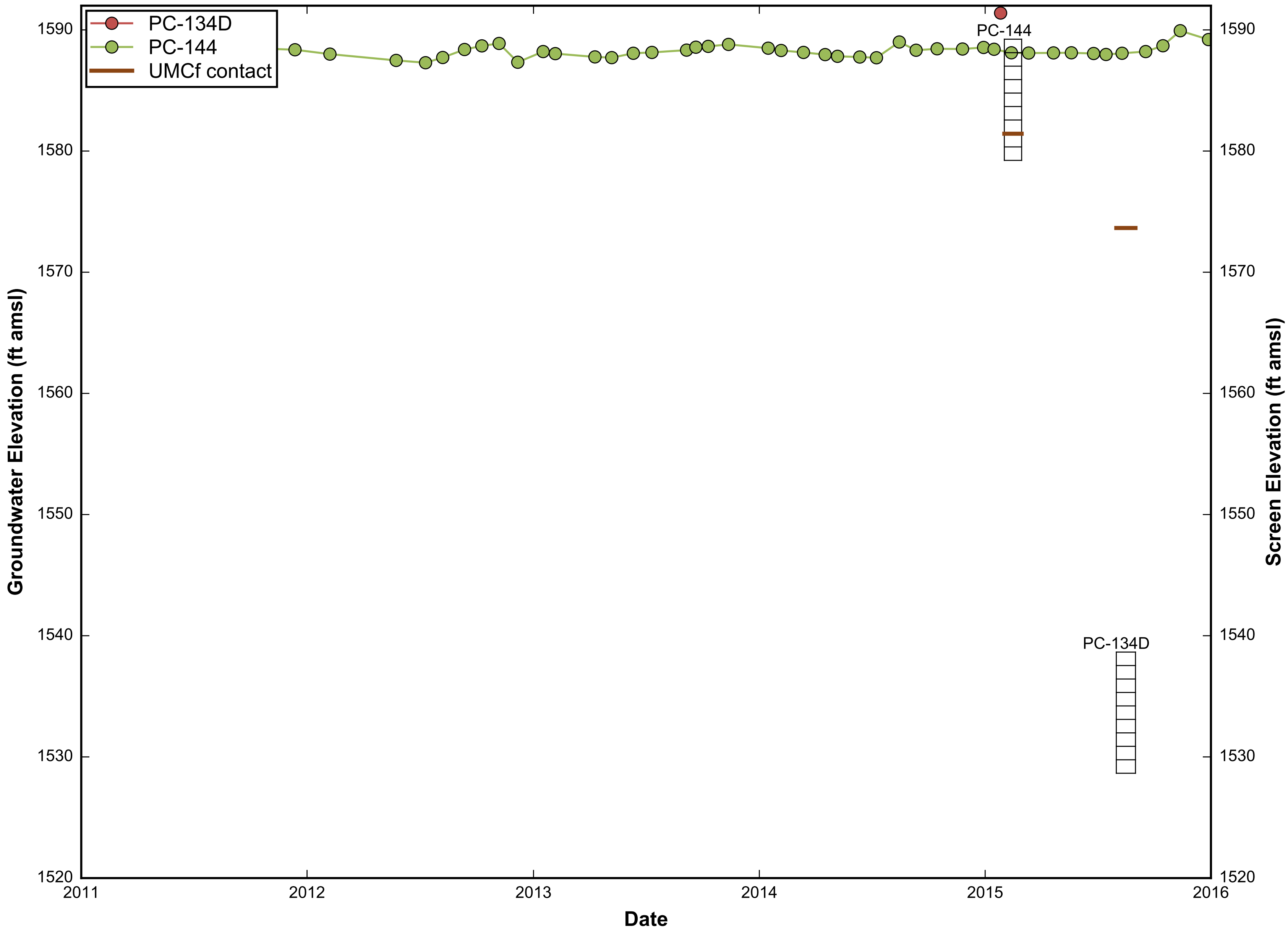
RAMBOLL ENVIRON

Cluster [PC-101R,PC-134A,PC-135A,PC-143,PC-18] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-44d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



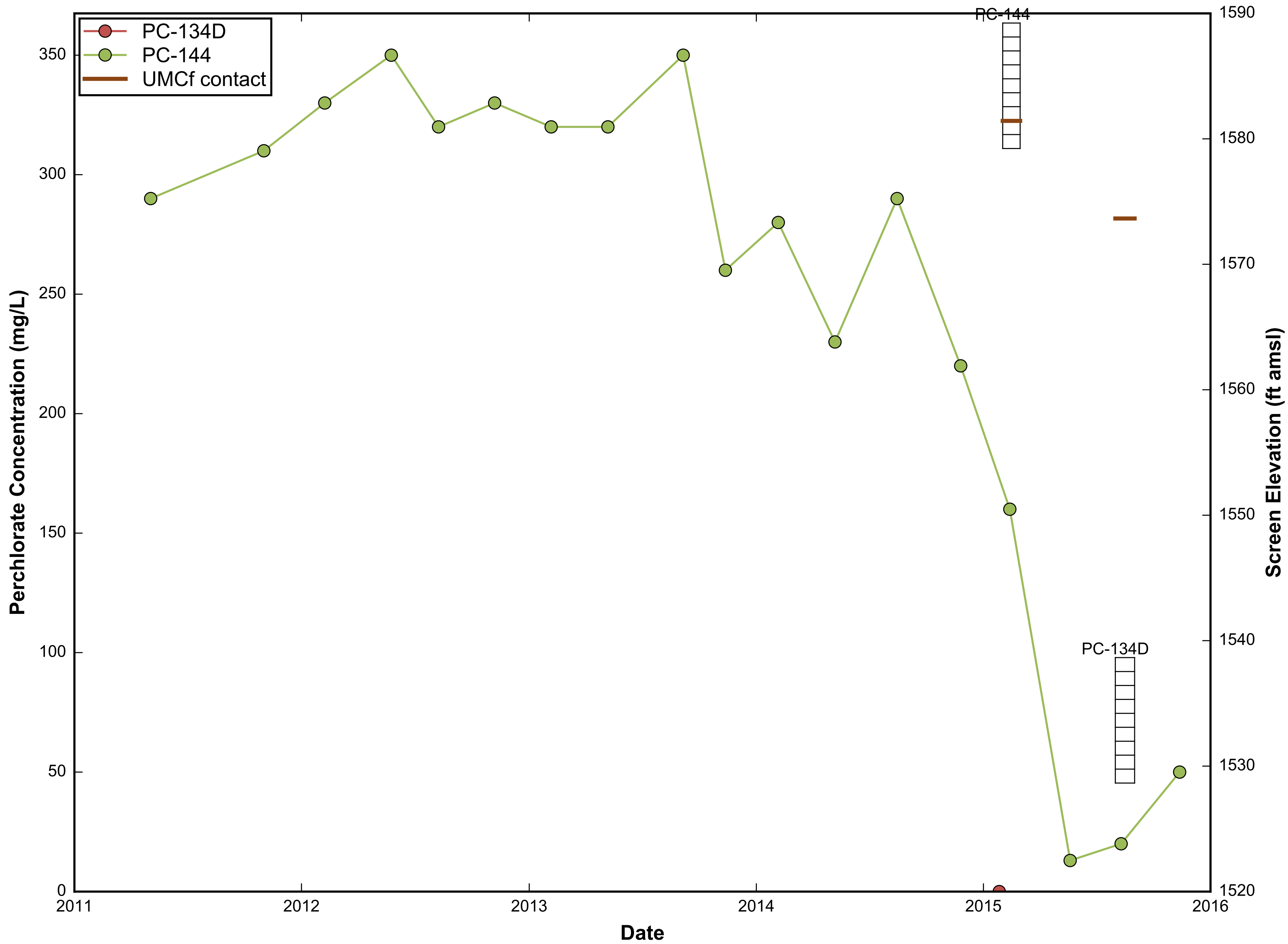
RAMBOLL ENVIRON

Cluster [PC-134D,PC-144] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-45a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



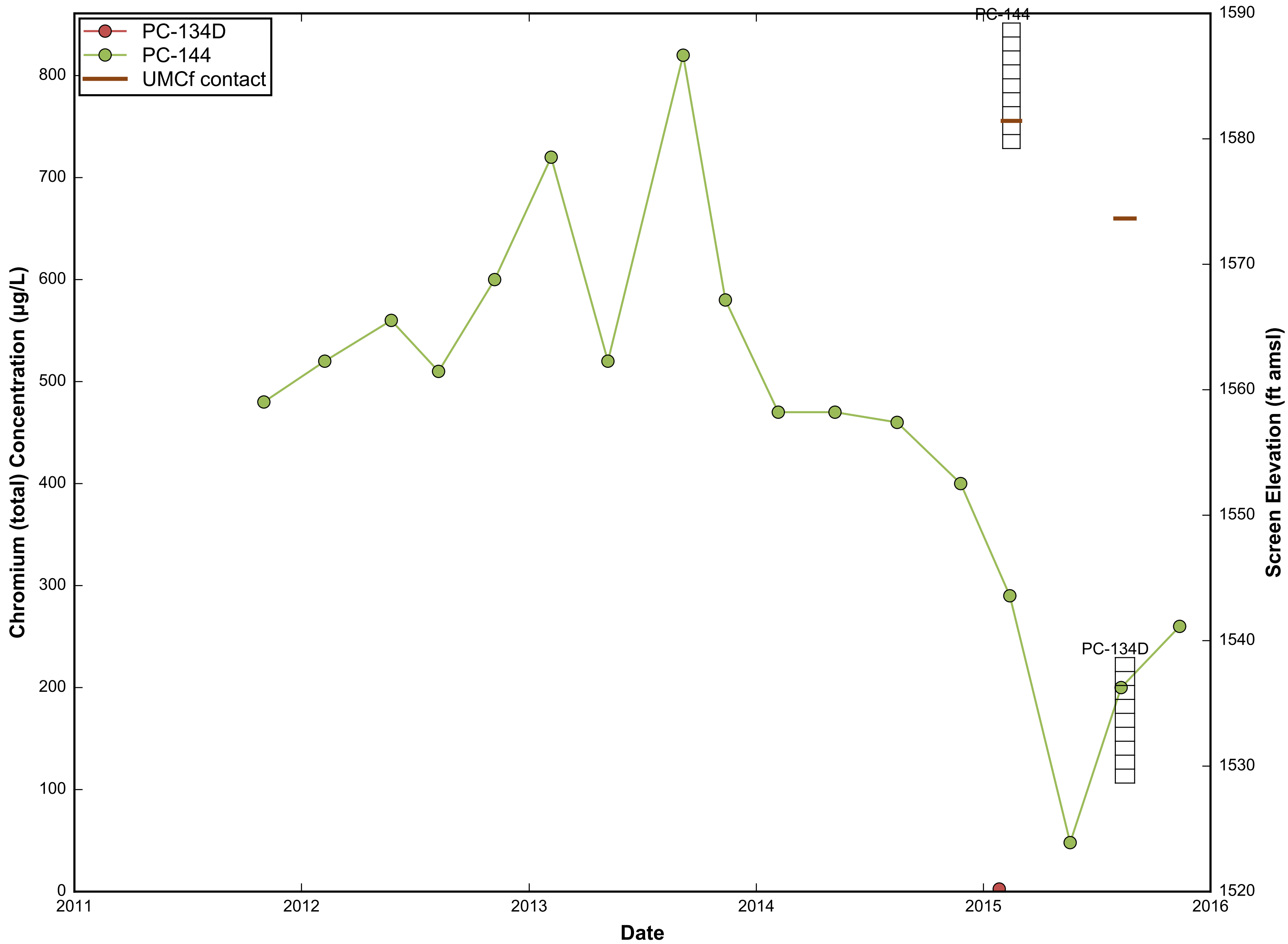
RAMBOLL ENVIRON

Cluster [PC-134D,PC-144] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-45b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



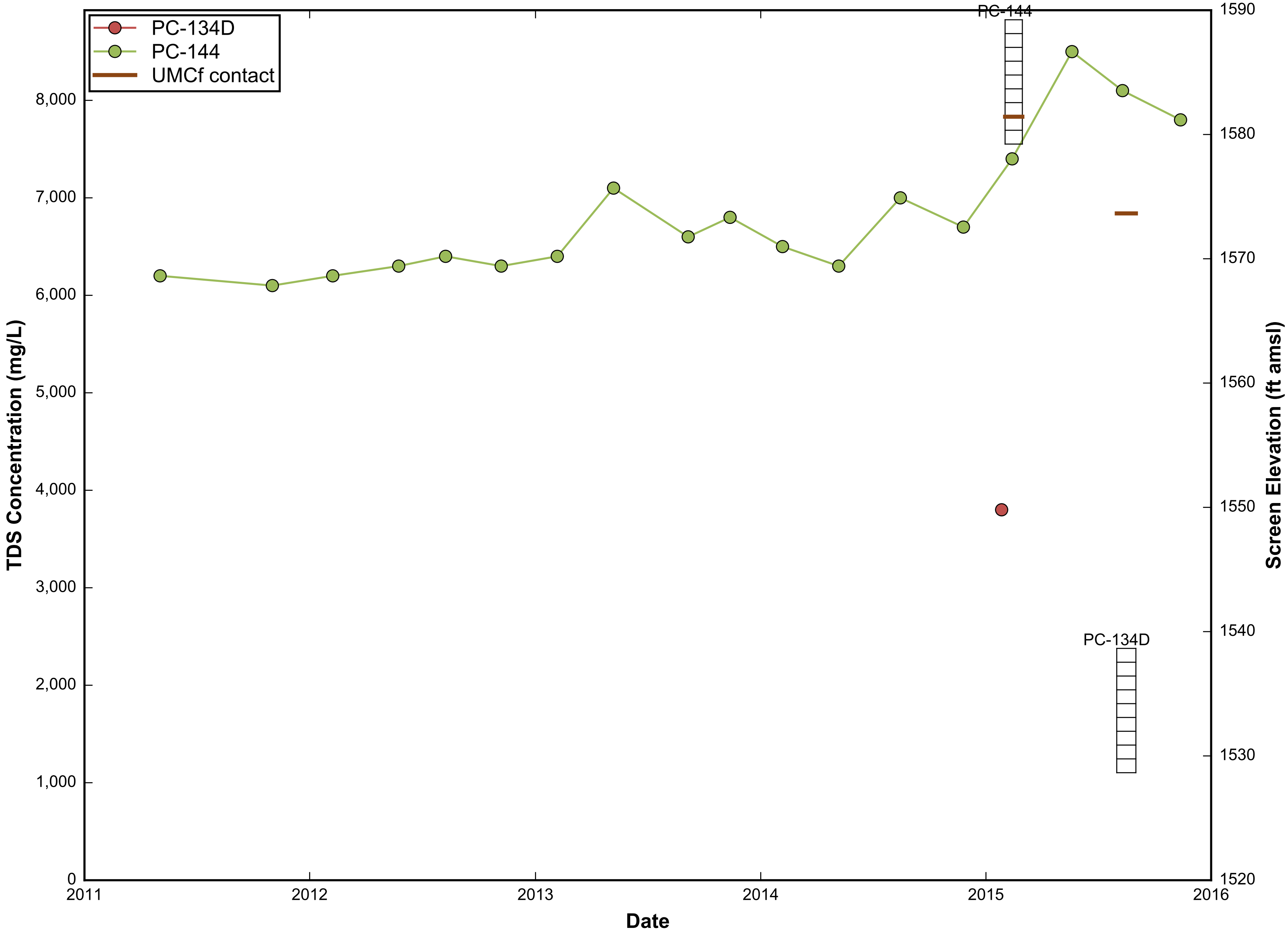
RAMBOLL ENVIRON

Cluster [PC-134D,PC-144] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-45c

Drafter: YZ Date: 04/29/16 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



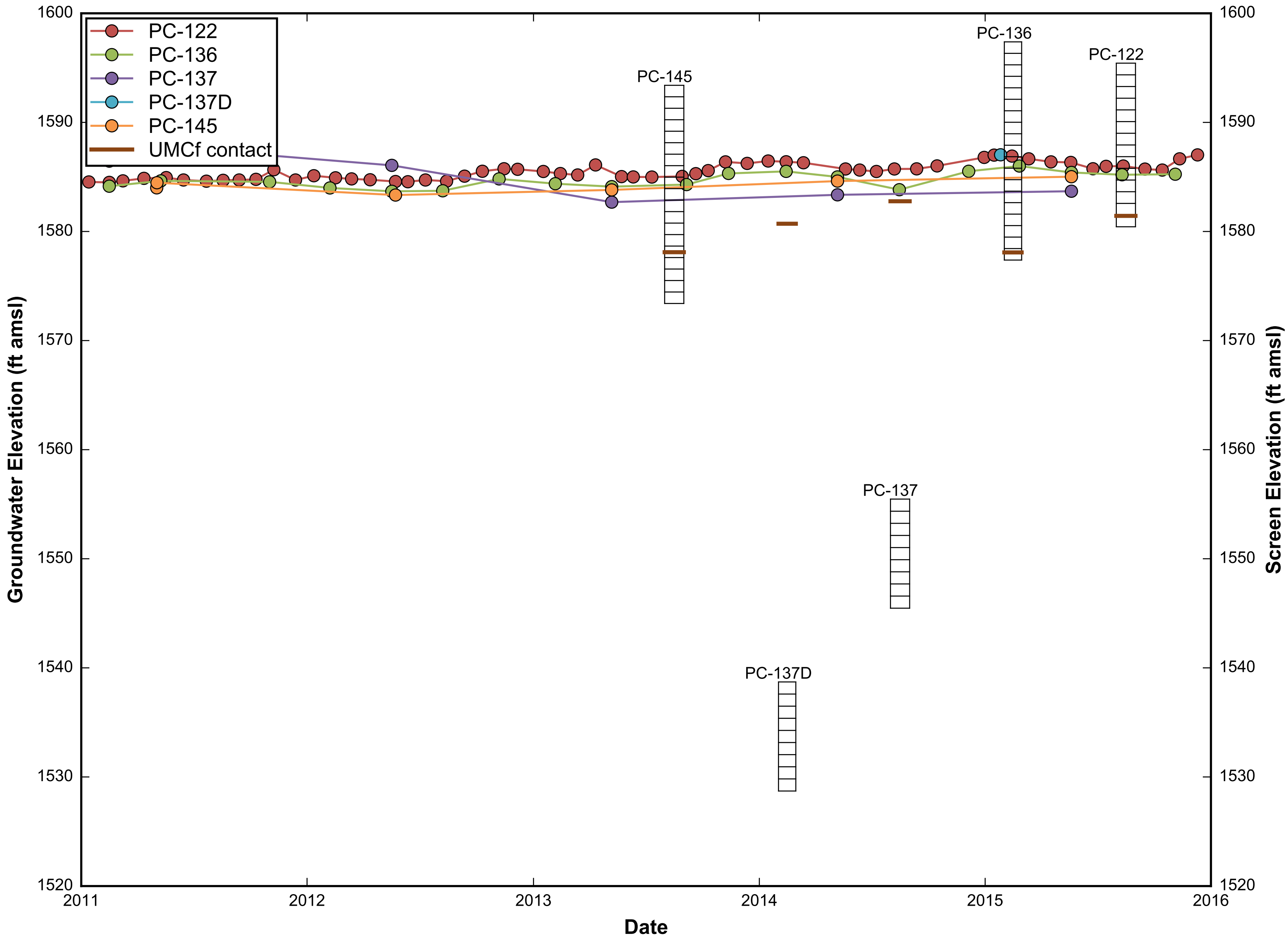
RAMBOLL ENVIRON

Cluster [PC-134D,PC-144] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-45d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



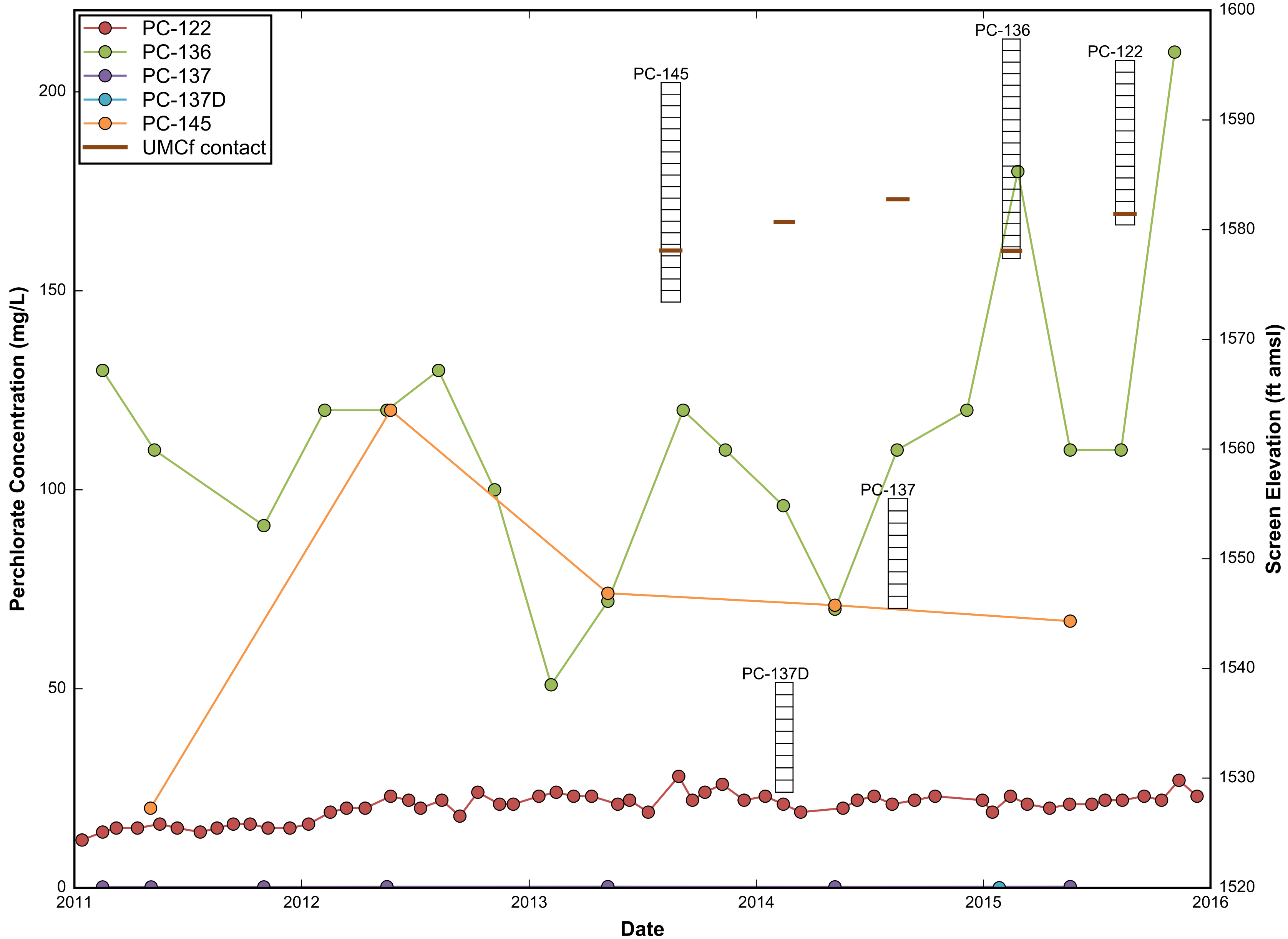
RAMBOLL ENVIRON

Cluster [PC-122,PC-136,PC-137,PC-137D,PC-145] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-46a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



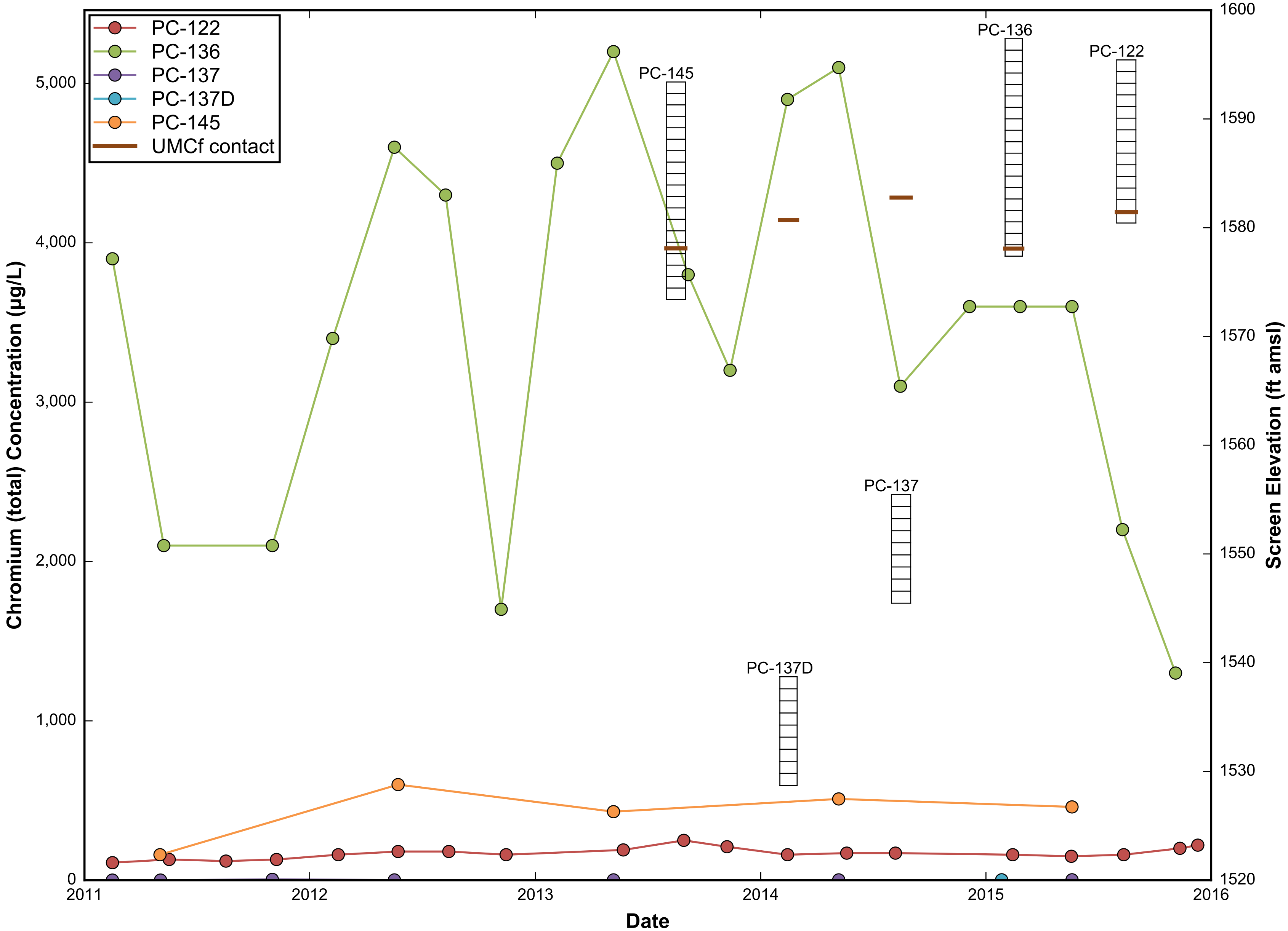
RAMBOLL ENVIRON

Cluster [PC-122,PC-136,PC-137,PC-137D,PC-145] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-46b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



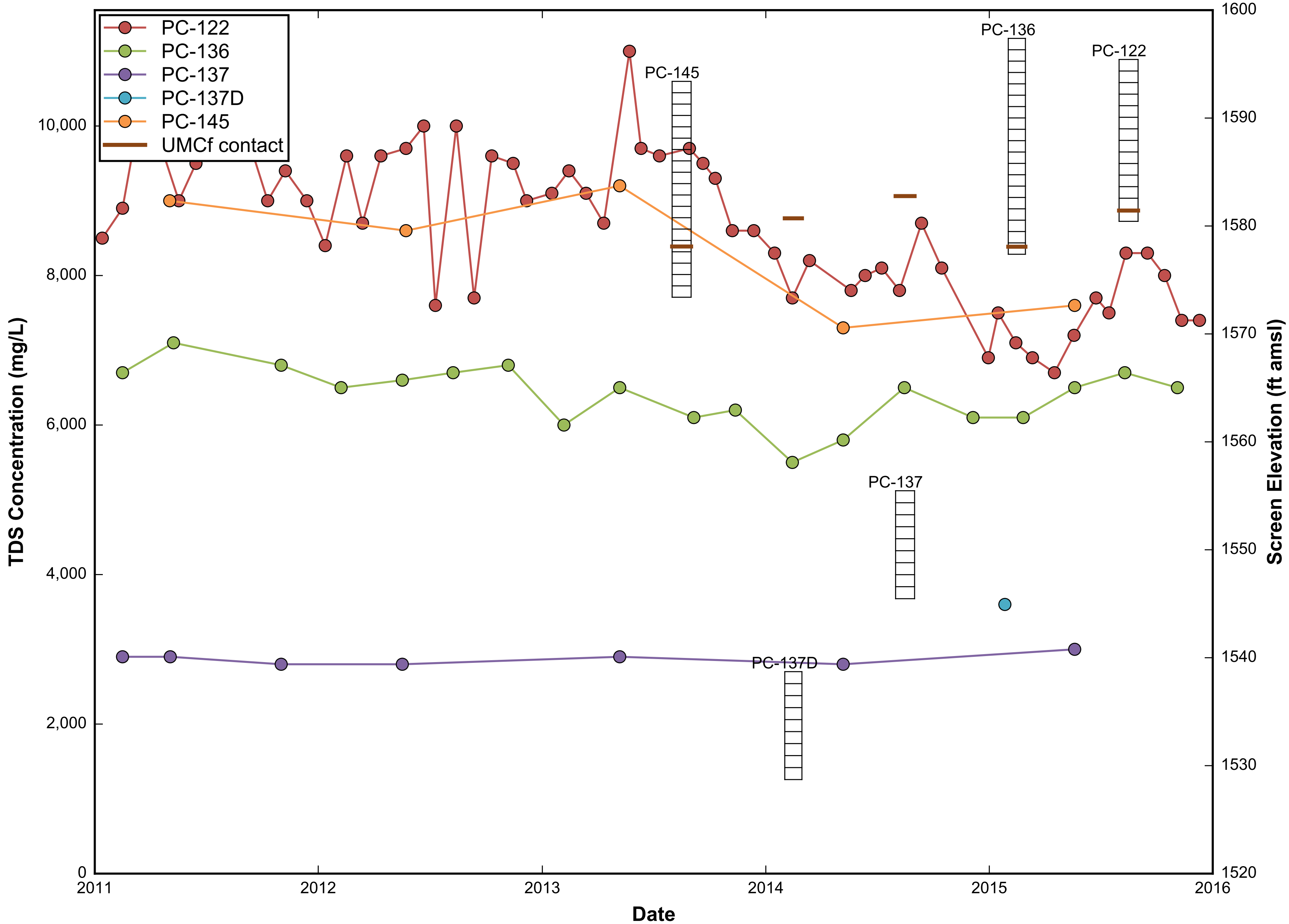
RAMBOLL ENVIRON

Cluster [PC-122,PC-136,PC-137,PC-137D,PC-145] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-46c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



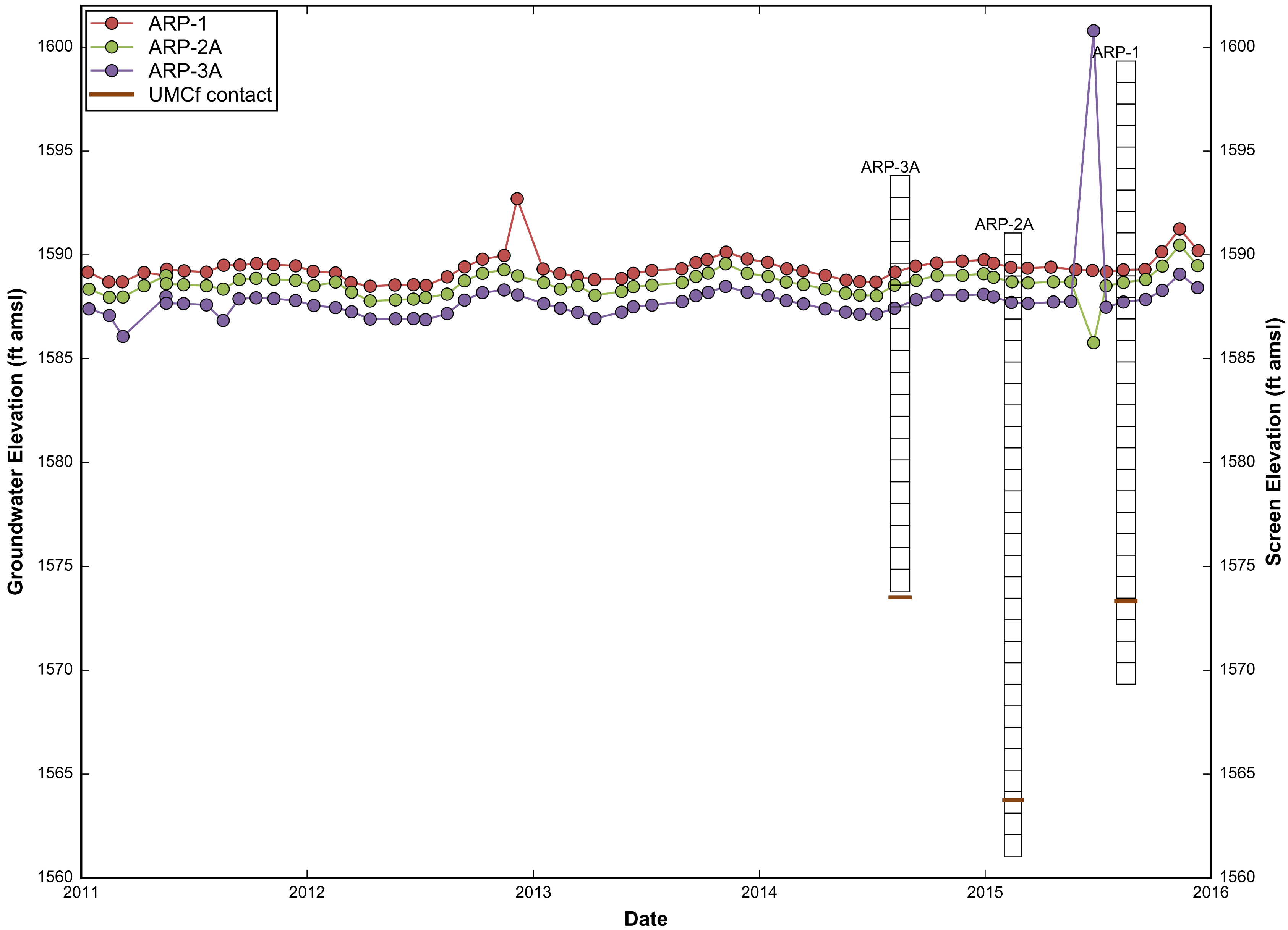
RAMBOLL ENVIRON

Cluster [PC-122,PC-136,PC-137,PC-137D,PC-145] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-46d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



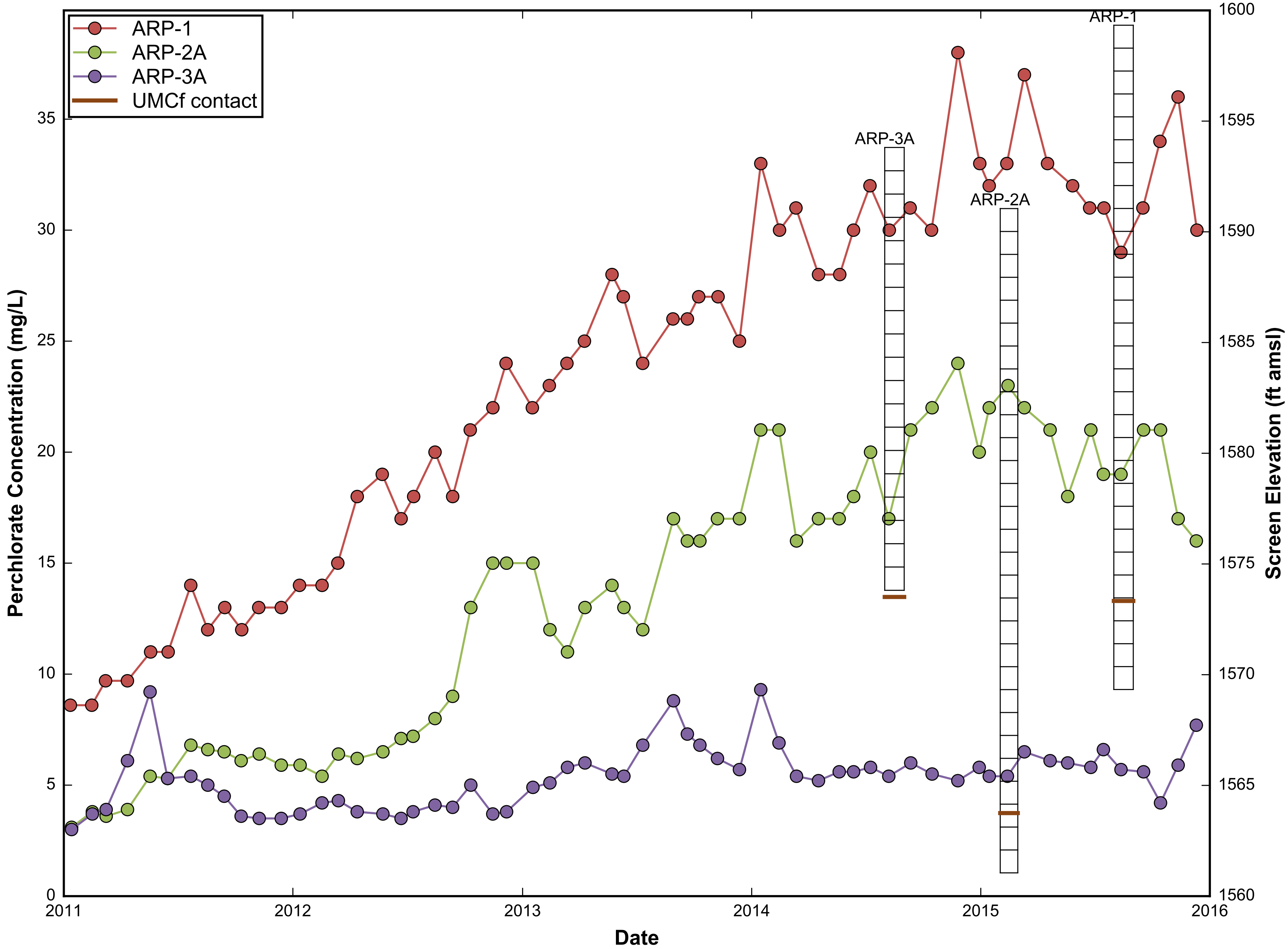
RAMBOLL ENVIRON

Cluster [ARP-1,ARP-2A,ARP-3A] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-47a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



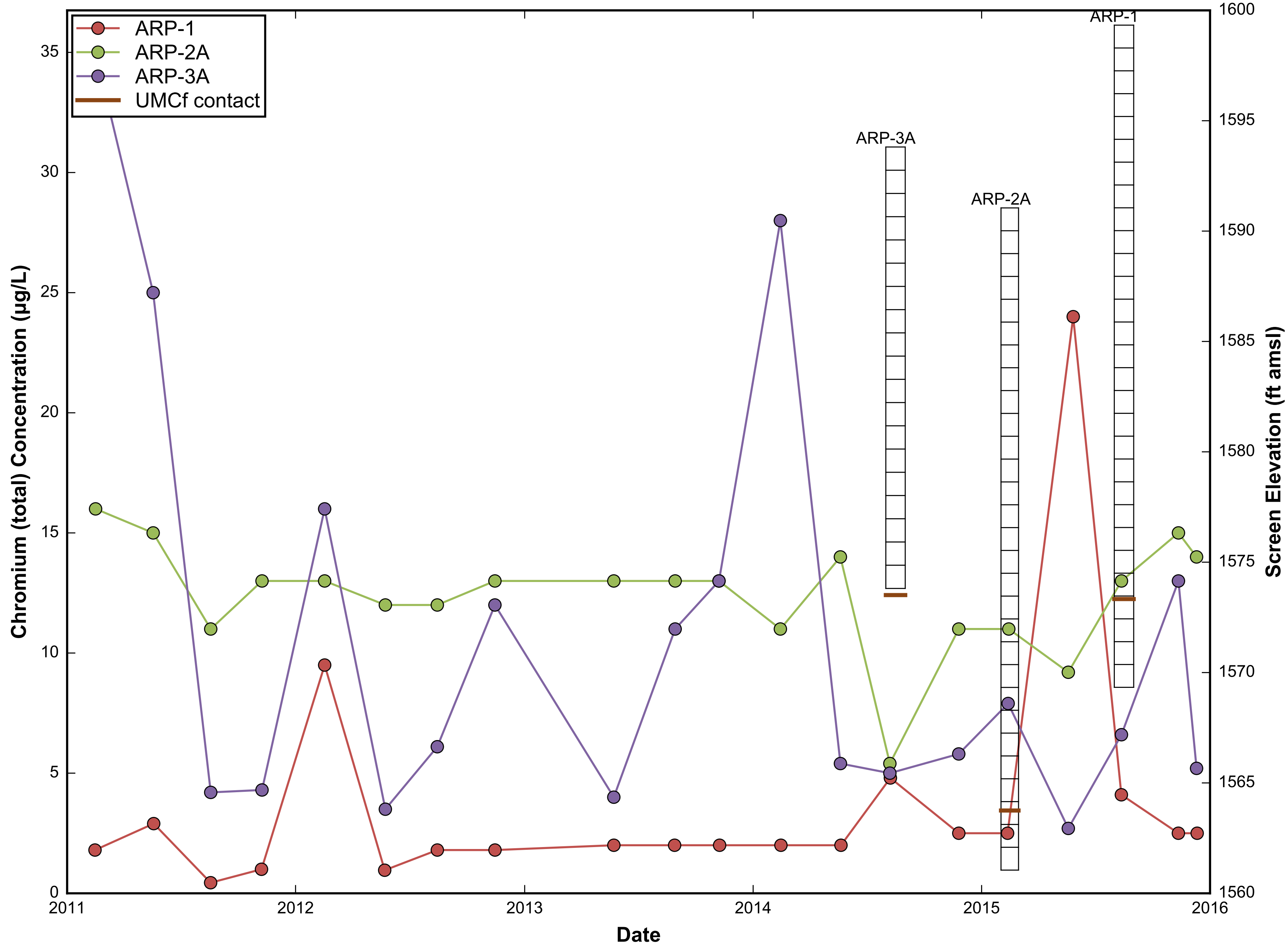
RAMBOLL ENVIRON

Cluster [ARP-1,ARP-2A,ARP-3A] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-47b

Drafter: YZ Date: 04/29/16 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



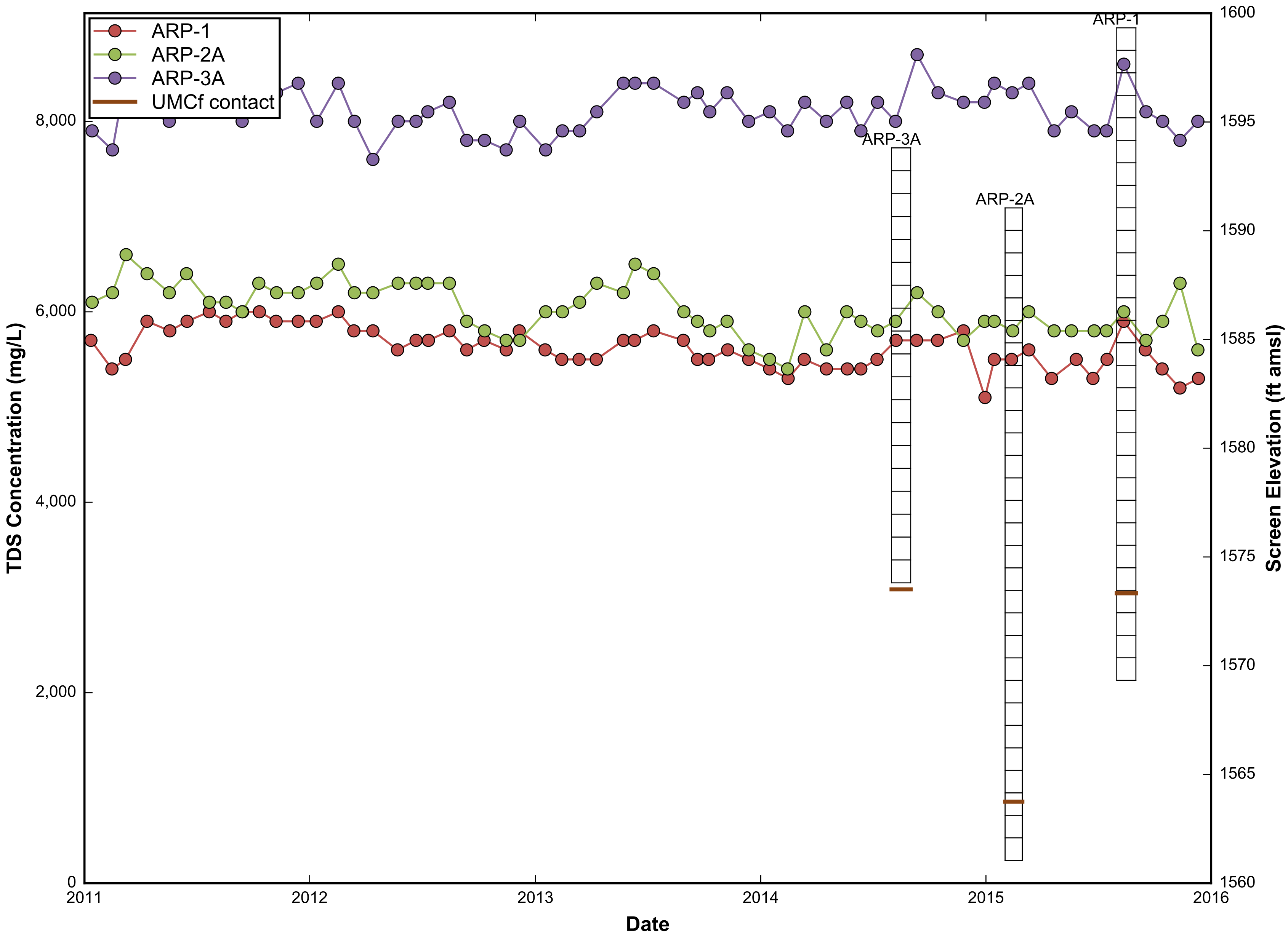
RAMBOLL ENVIRON

Cluster [ARP-1,ARP-2A,ARP-3A] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-47c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



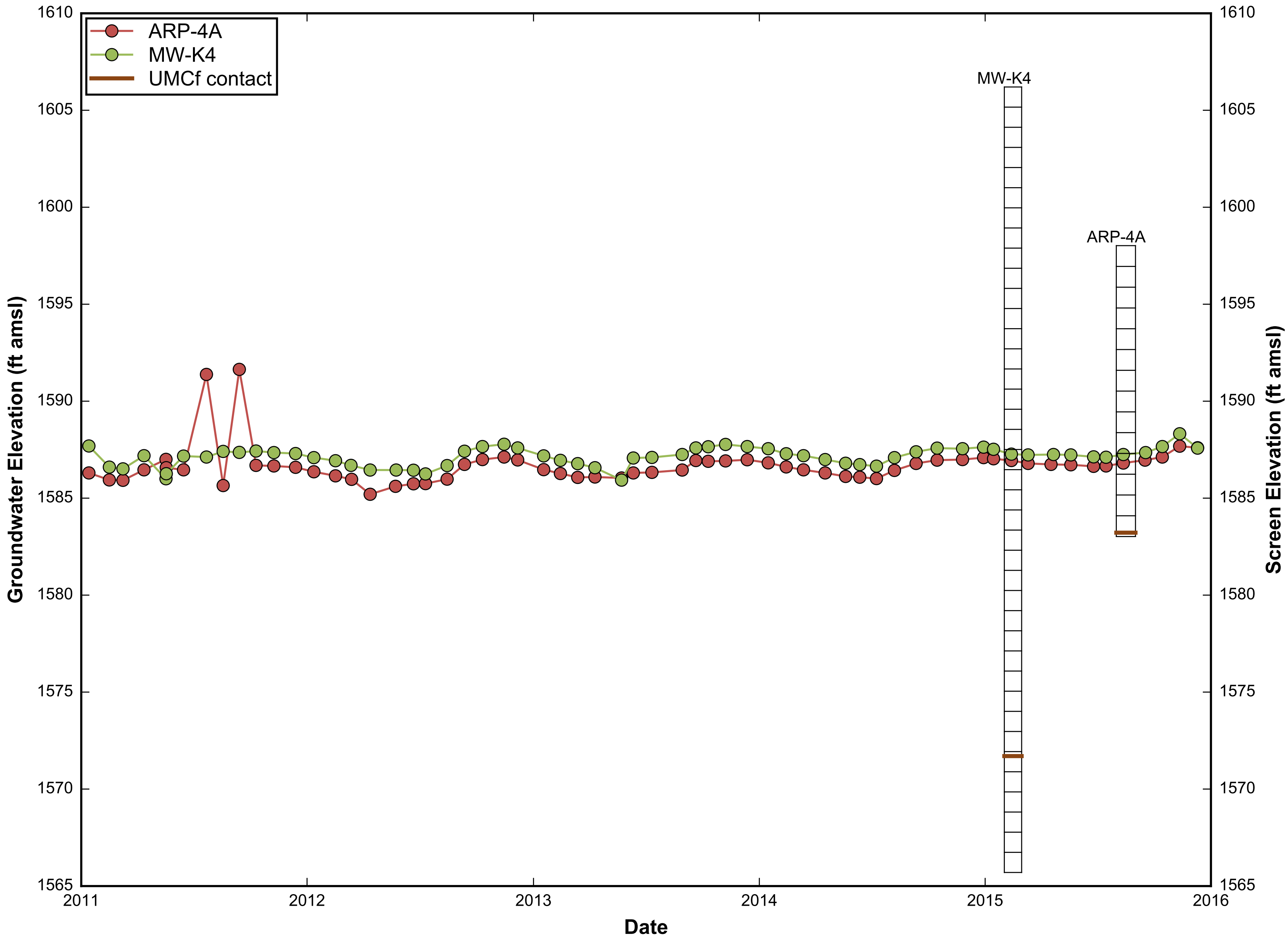
RAMBOLL ENVIRON

Cluster [ARP-1,ARP-2A,ARP-3A] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-47d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



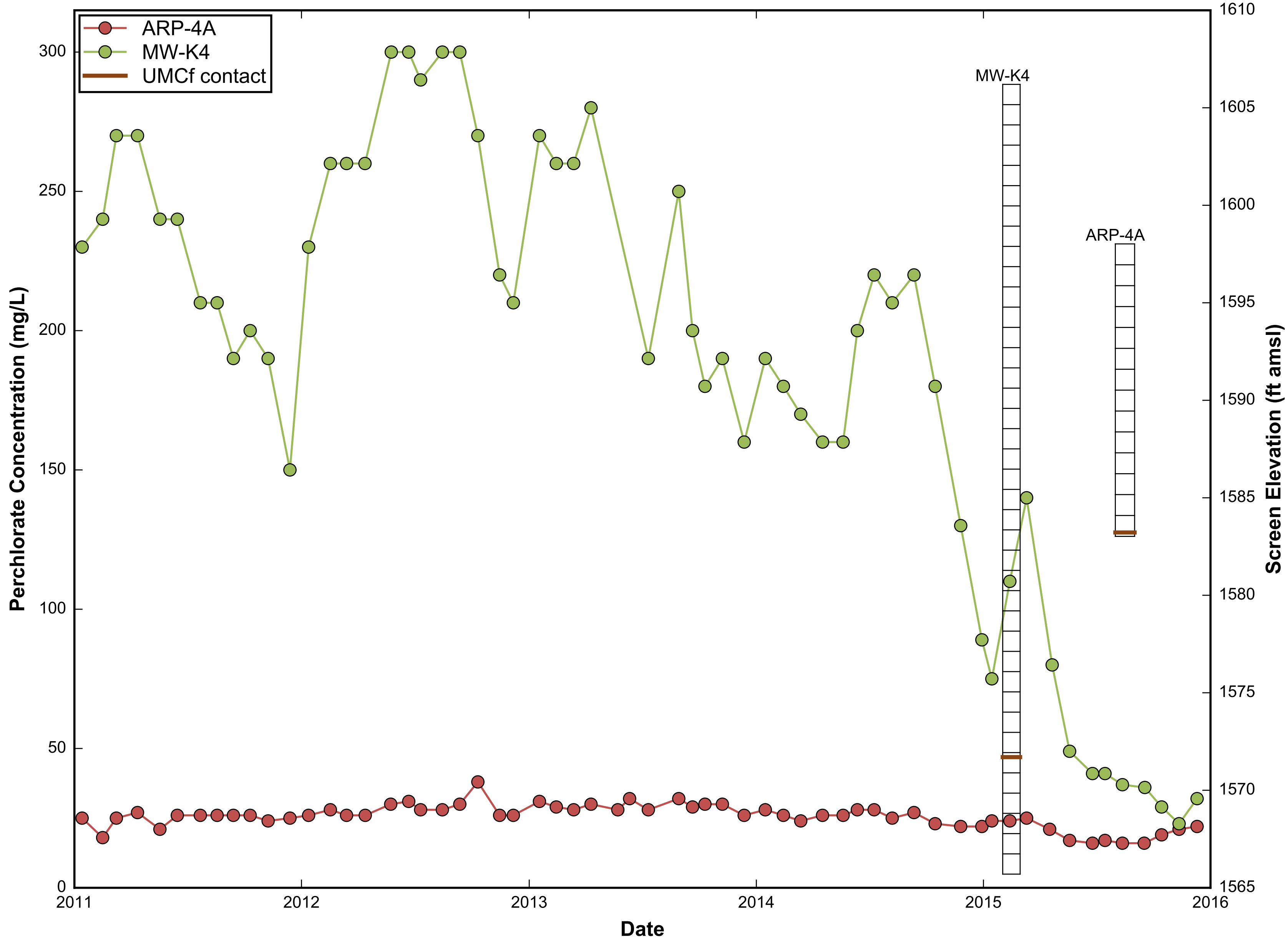
RAMBOLL ENVIRON

Cluster [ARP-4A,MW-K4] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-48a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



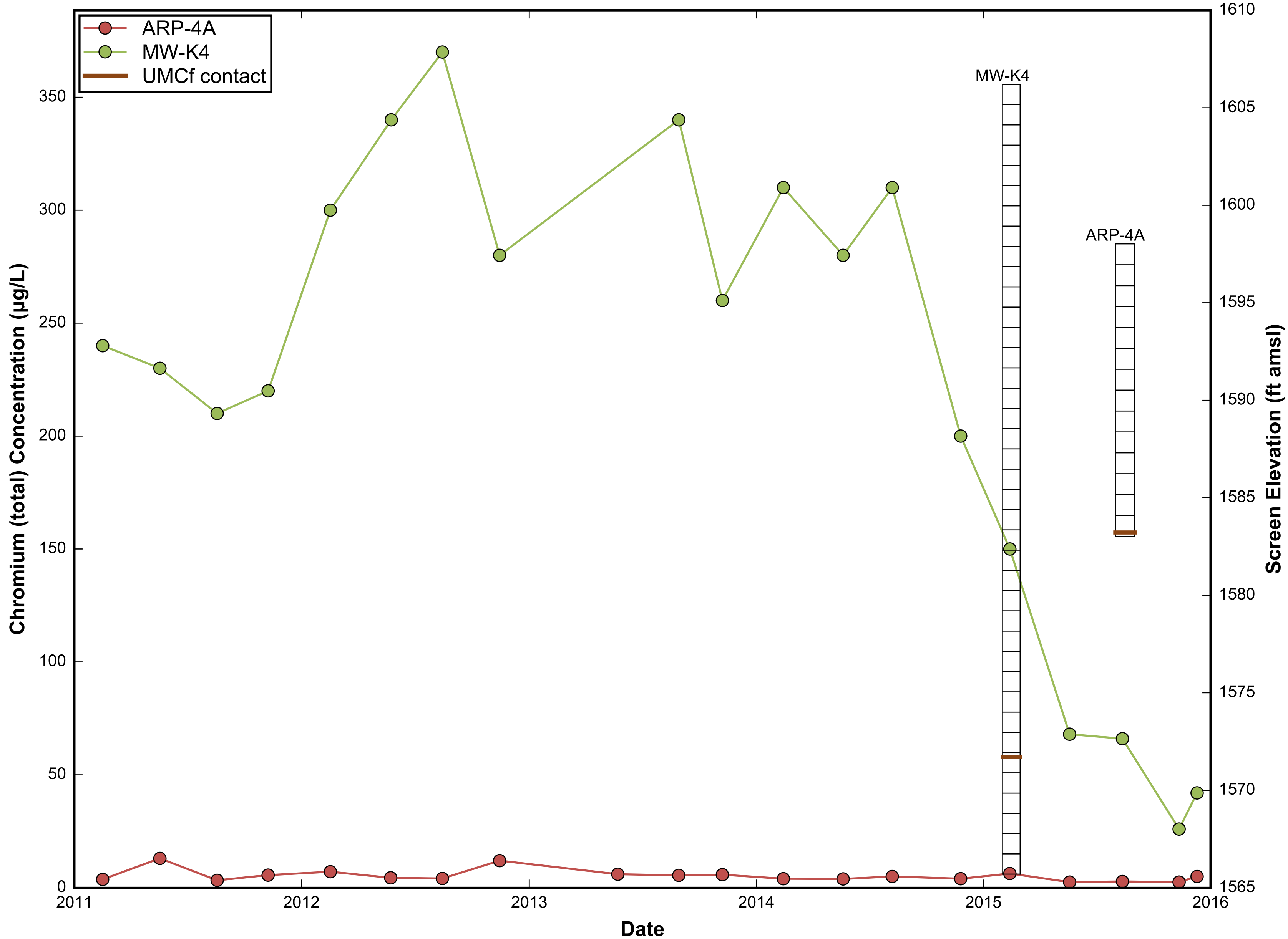
RAMBOLL ENVIRON

Cluster [ARP-4A,MW-K4] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-48b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



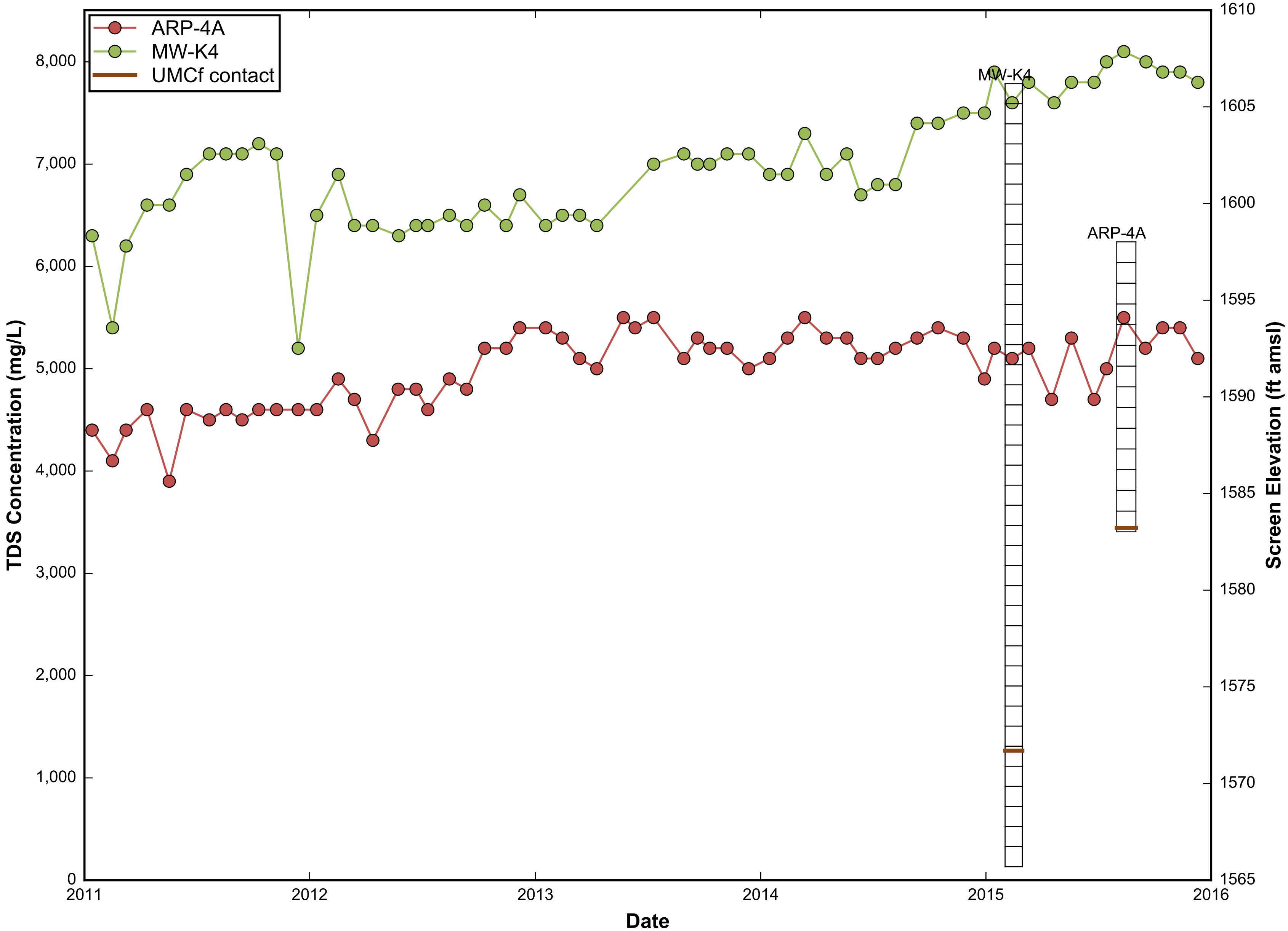
RAMBOLL ENVIRON

Cluster [ARP-4A,MW-K4] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-48c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



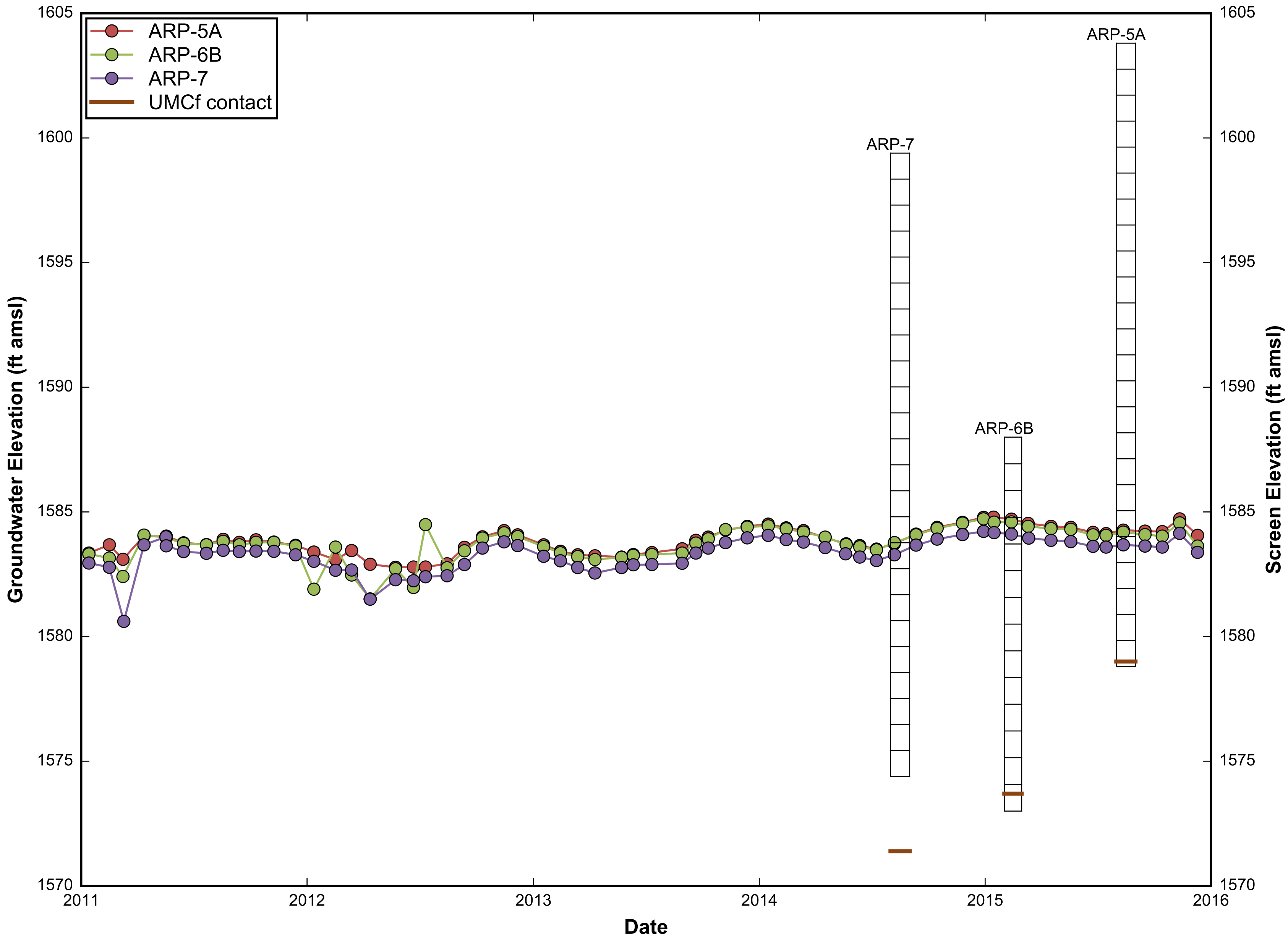
RAMBOLL ENVIRON

Cluster [ARP-4A,MW-K4] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-48d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



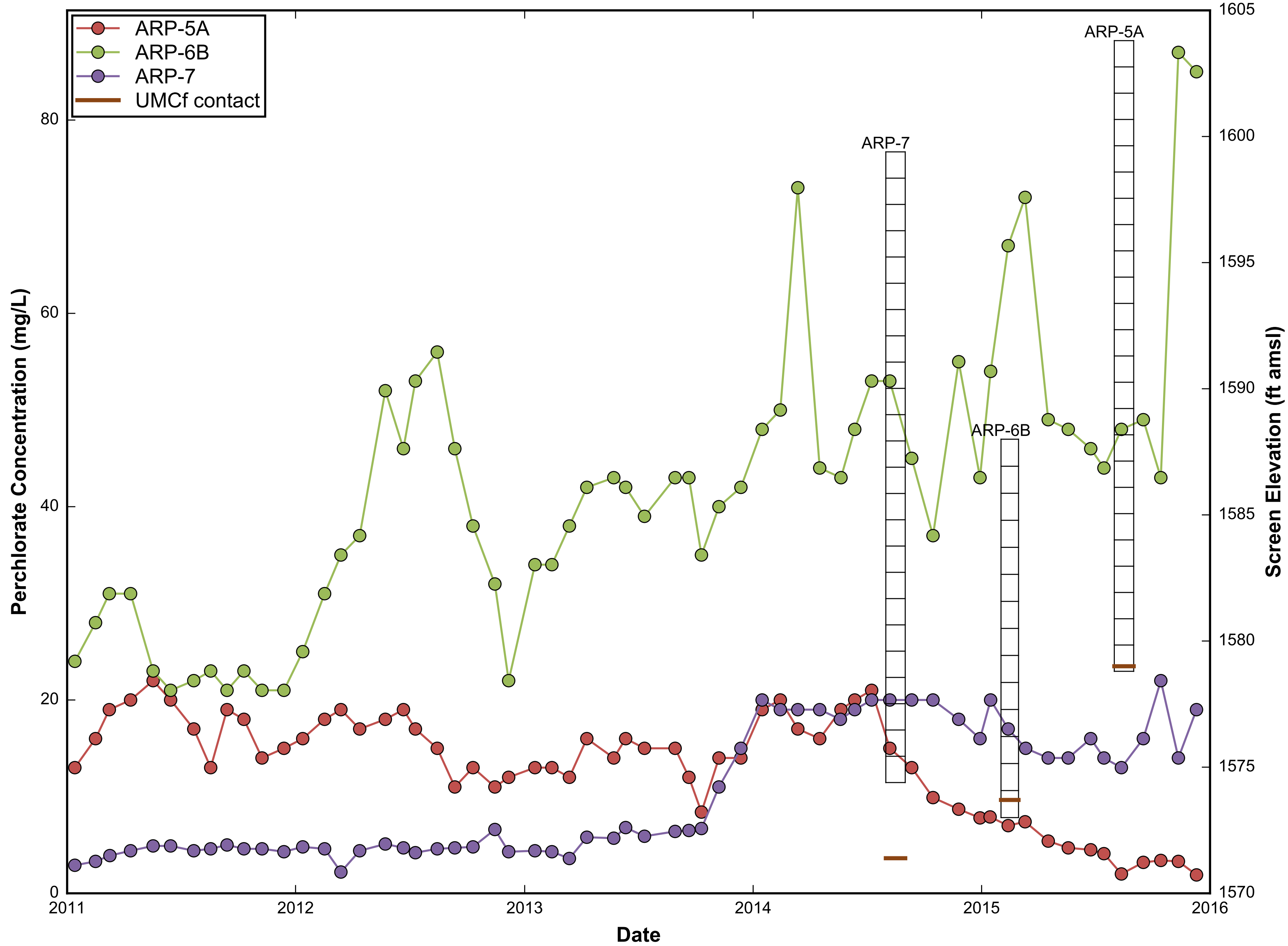
RAMBOLL ENVIRON

Cluster [ARP-5A,ARP-6B,ARP-7] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-49a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



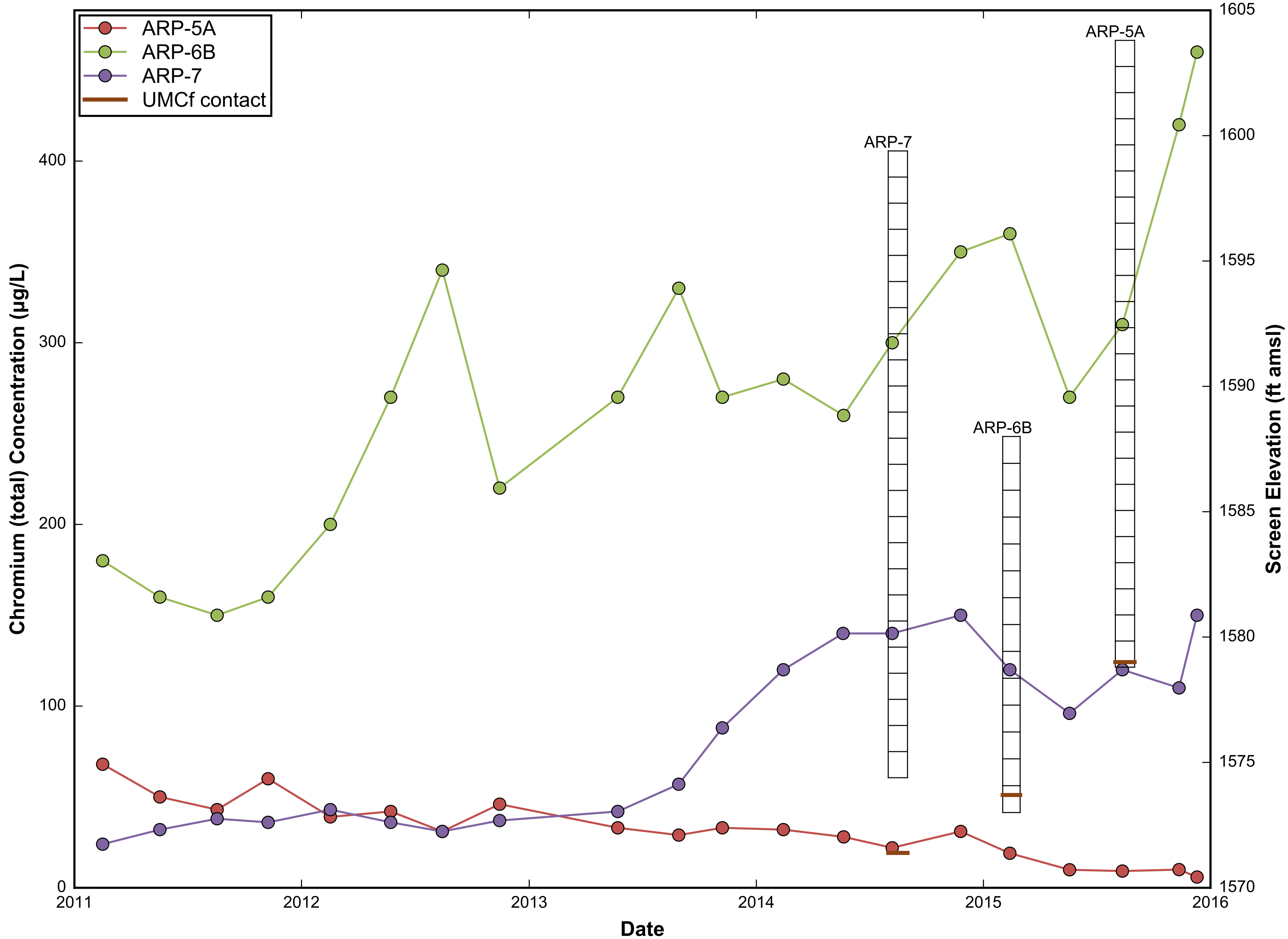
RAMBOLL ENVIRON

Cluster [ARP-5A,ARP-6B,ARP-7] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-49b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



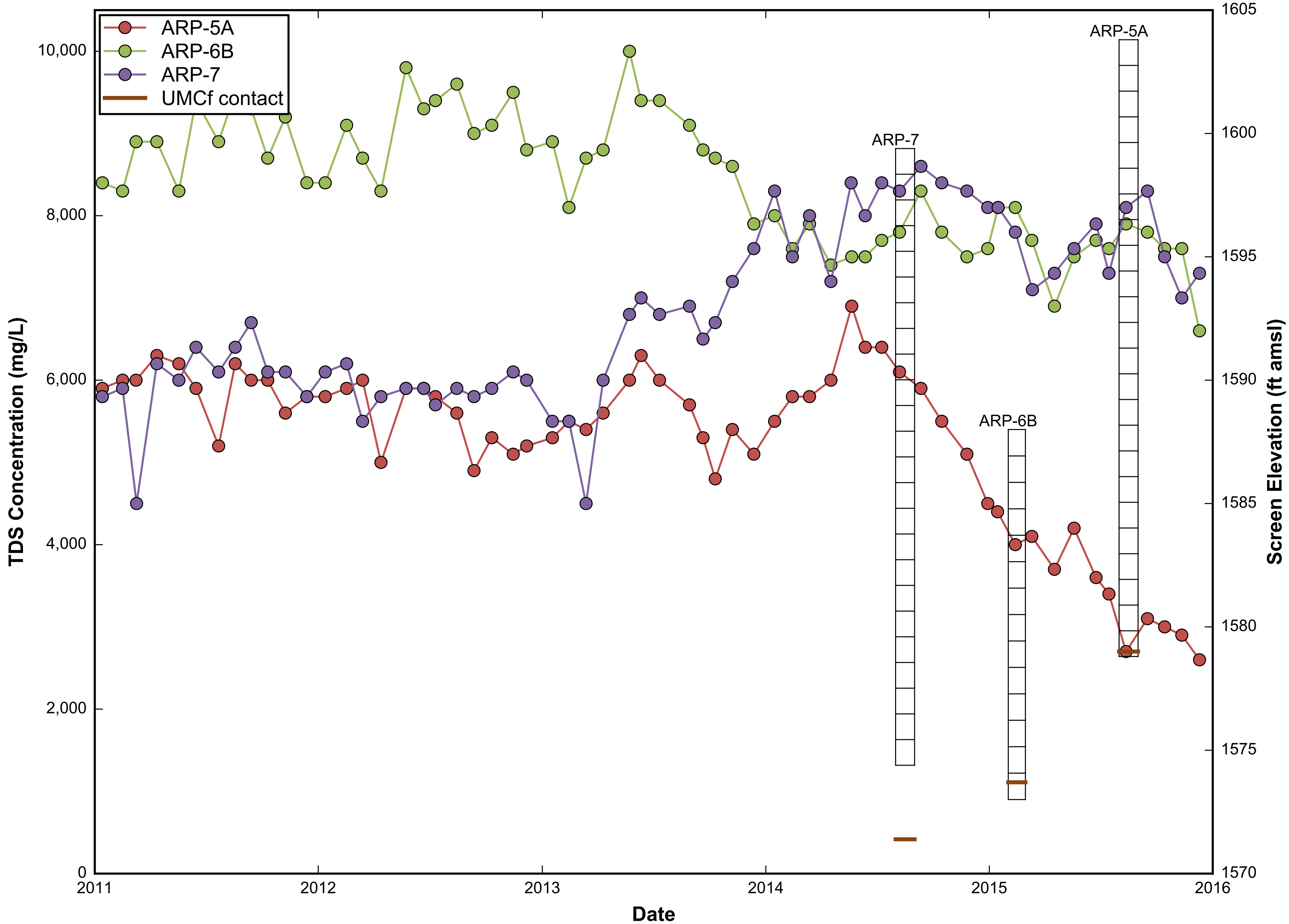
RAMBOLL ENVIRON

Cluster [ARP-5A,ARP-6B,ARP-7] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-49c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



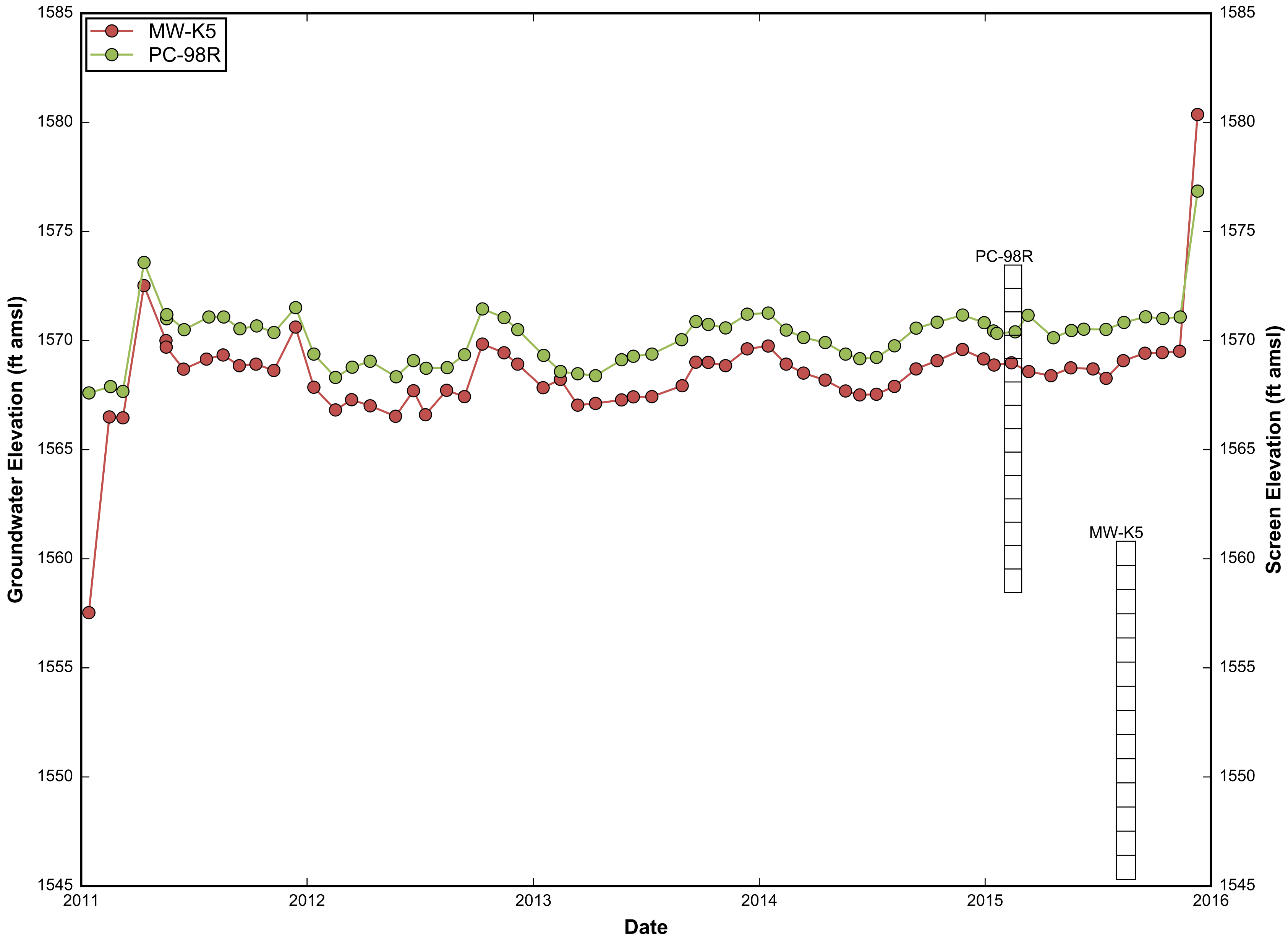
RAMBOLL ENVIRON

Cluster [ARP-5A,ARP-6B,ARP-7] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-49d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



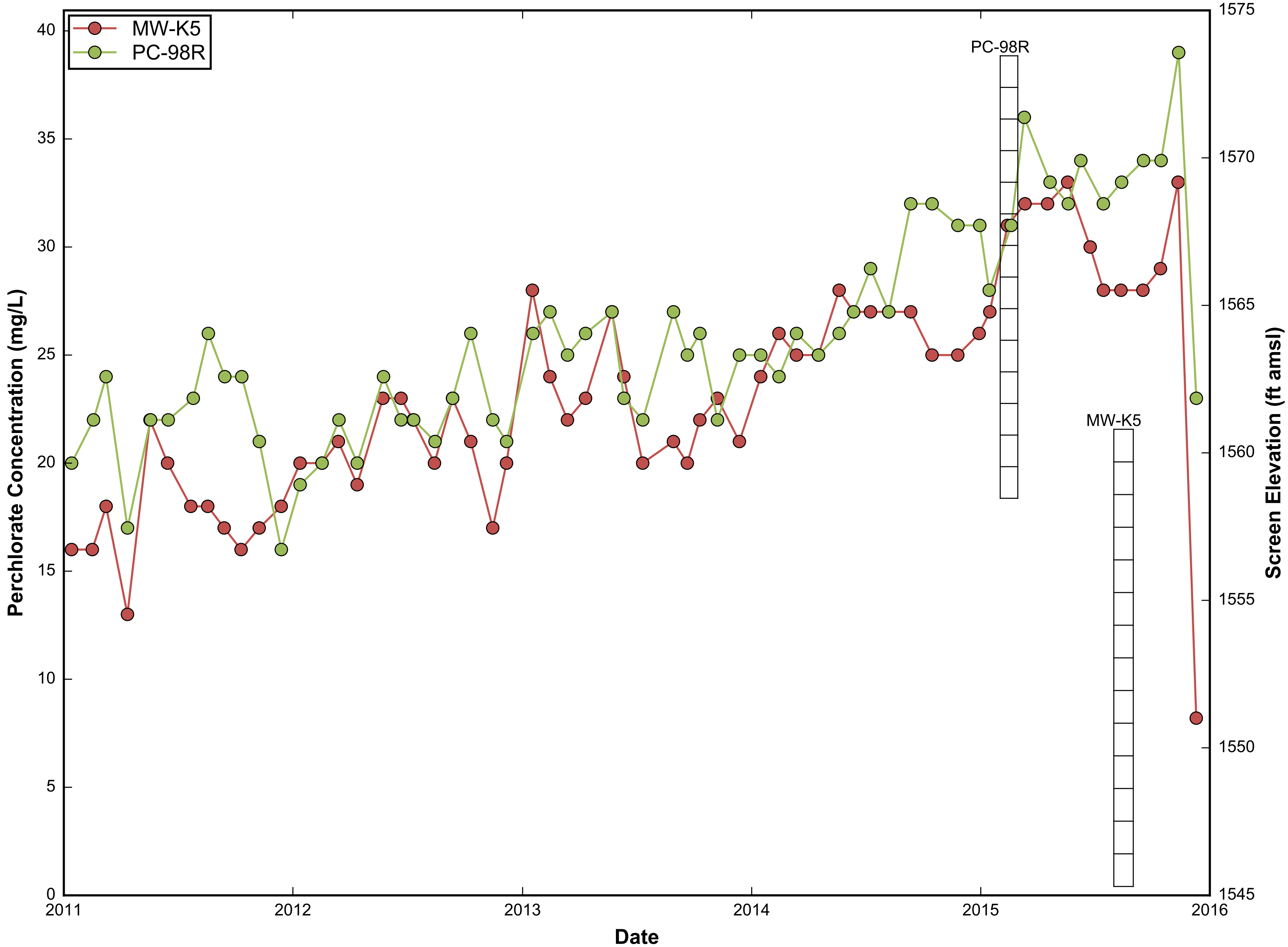
RAMBOLL ENVIRON

Cluster [MW-K5,PC-98R] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-50a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



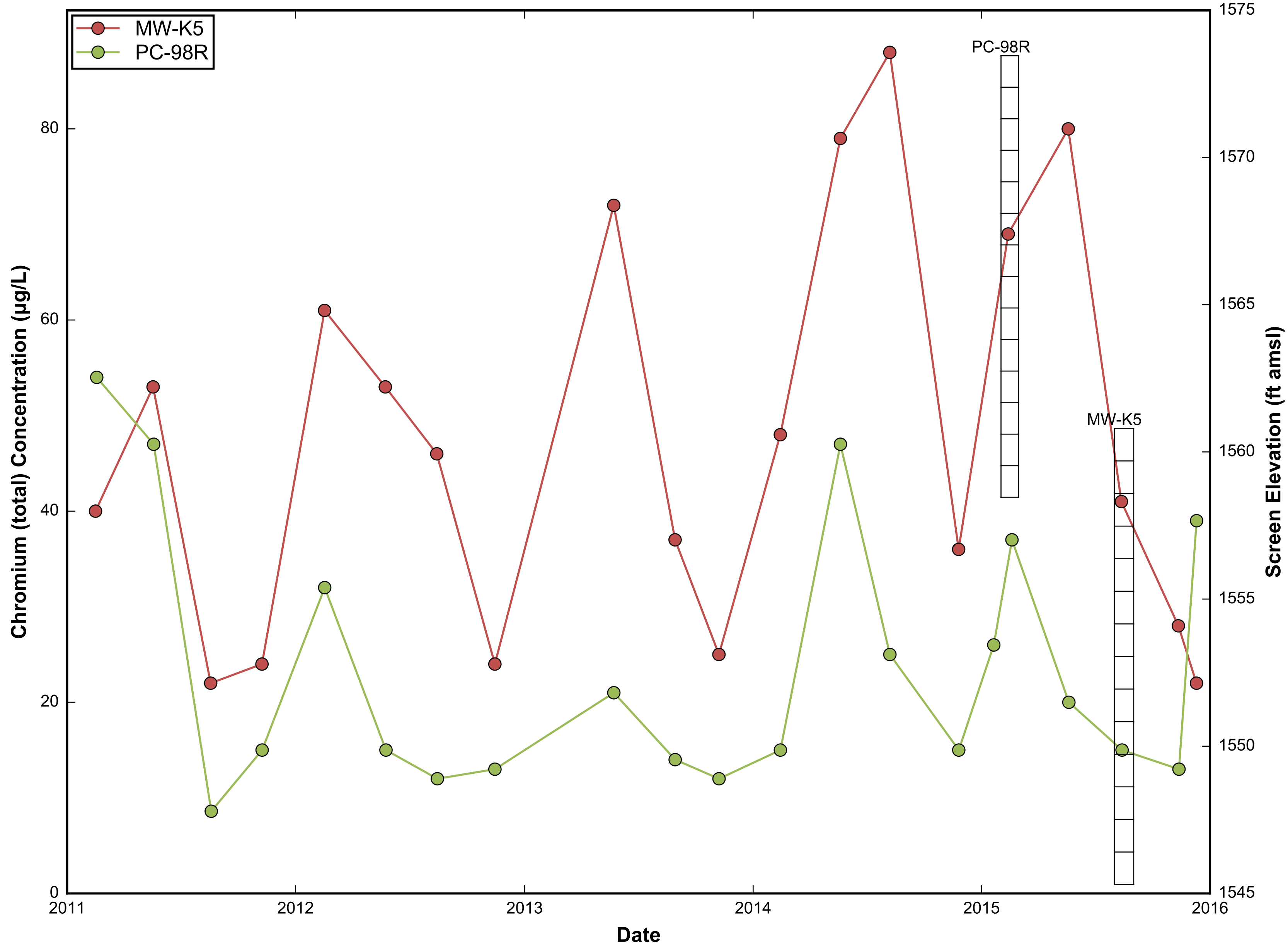
RAMBOLL ENVIRON

Cluster [MW-K5,PC-98R] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-50b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



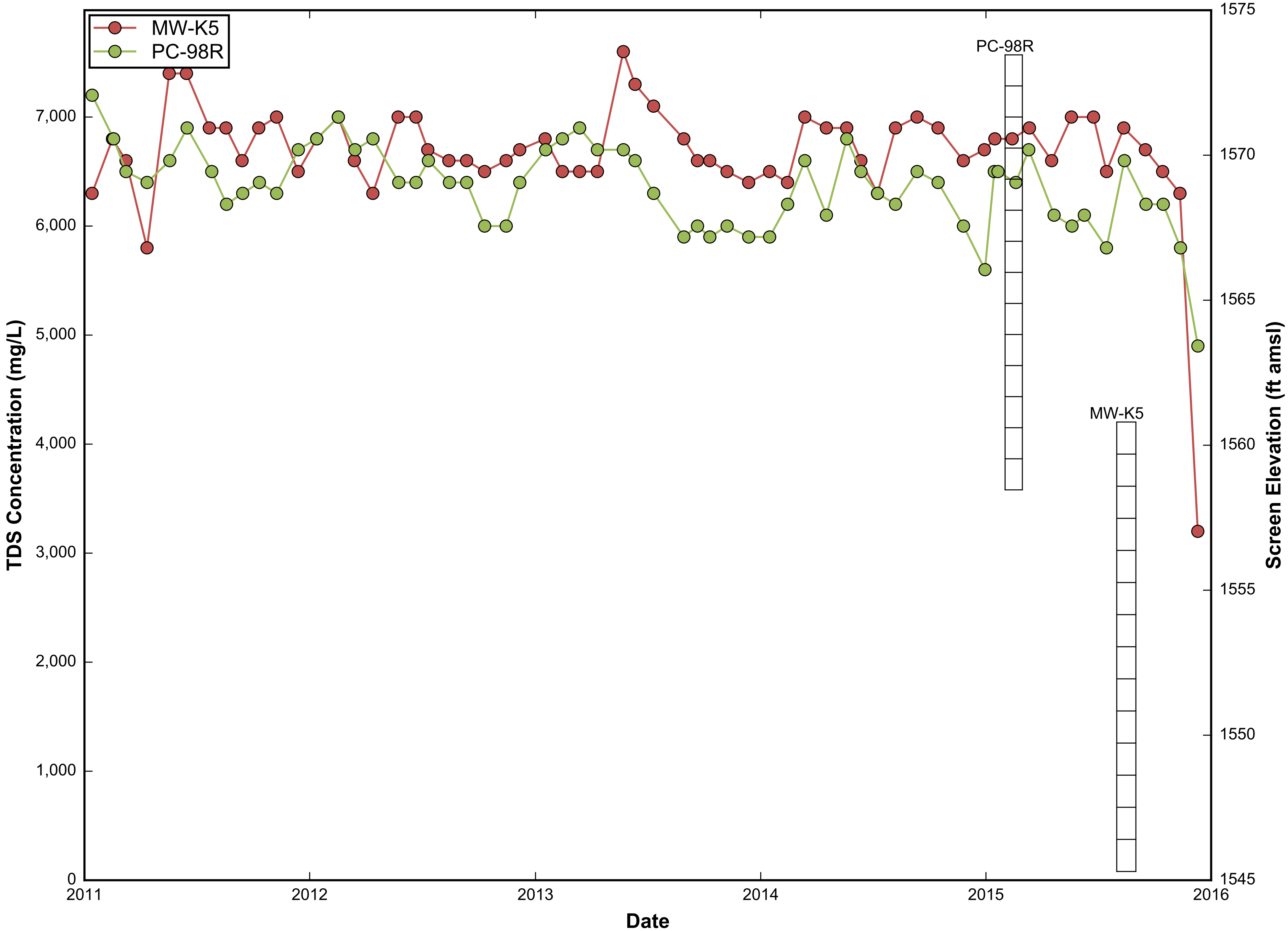
RAMBOLL ENVIRON

Cluster [MW-K5,PC-98R] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-50c

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



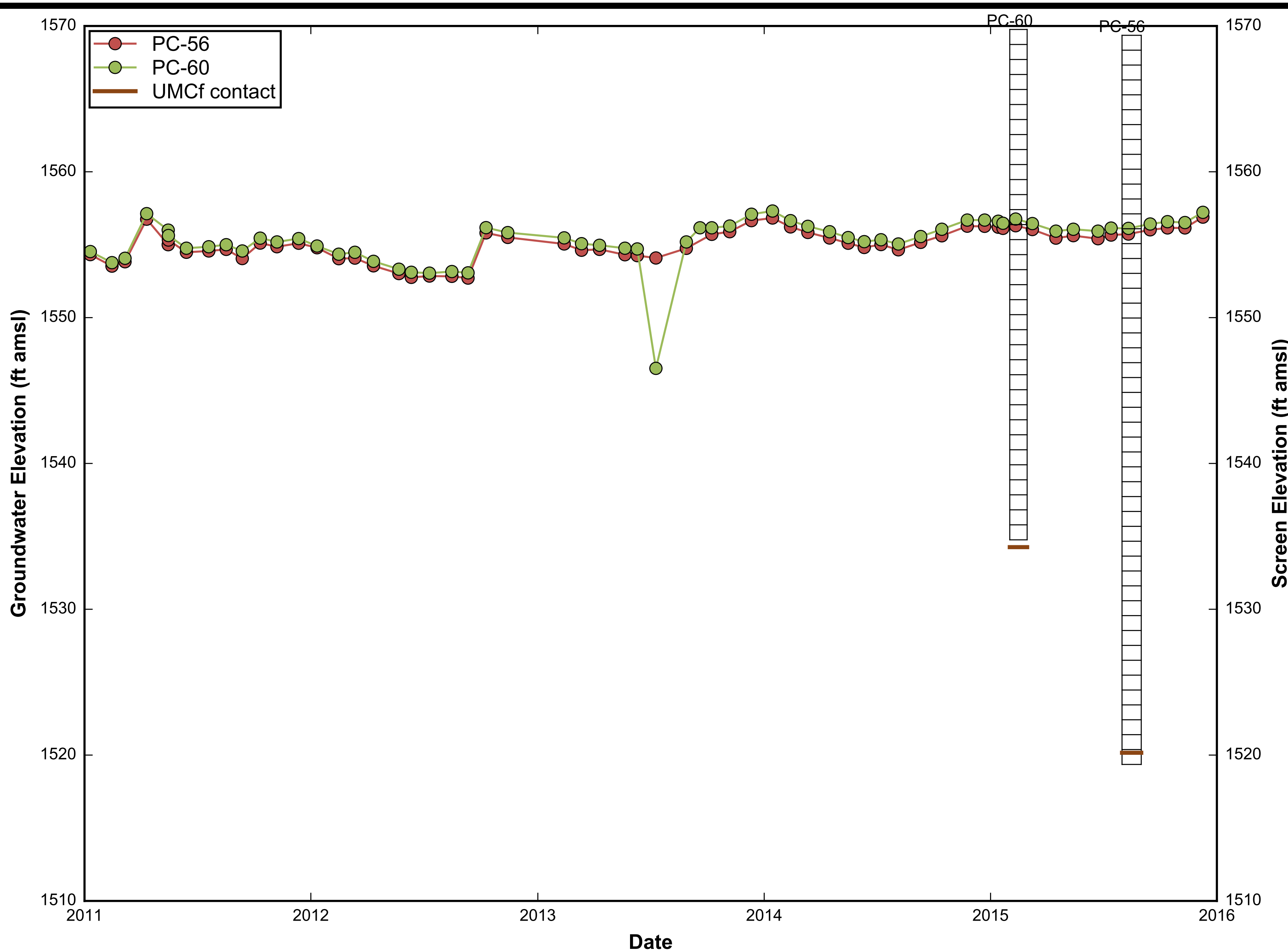
RAMBOLL ENVIRON

Cluster [MW-K5,PC-98R] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-50d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



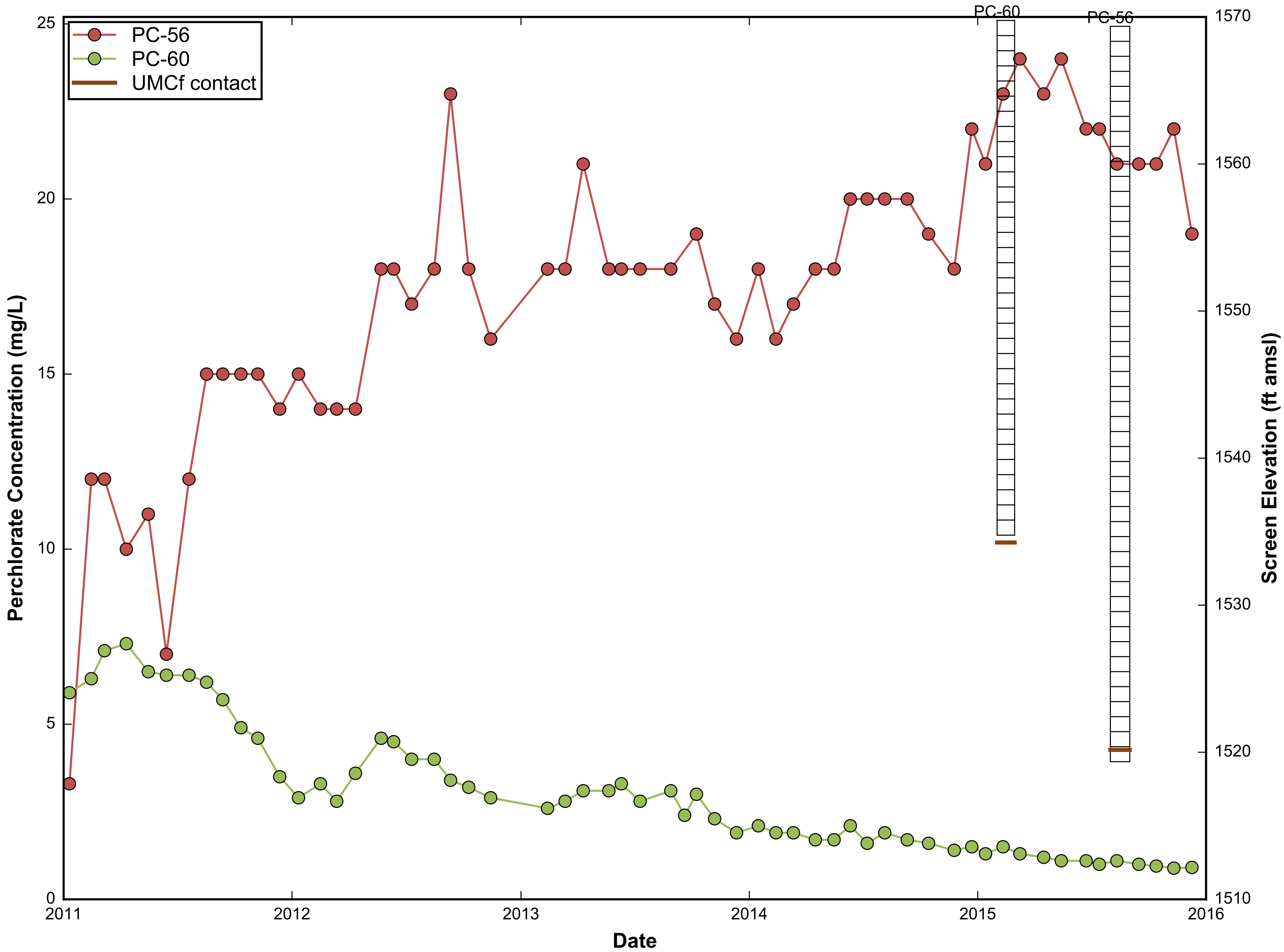
RAMBOLL ENVIRON

Cluster [PC-56,PC-60] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-51a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



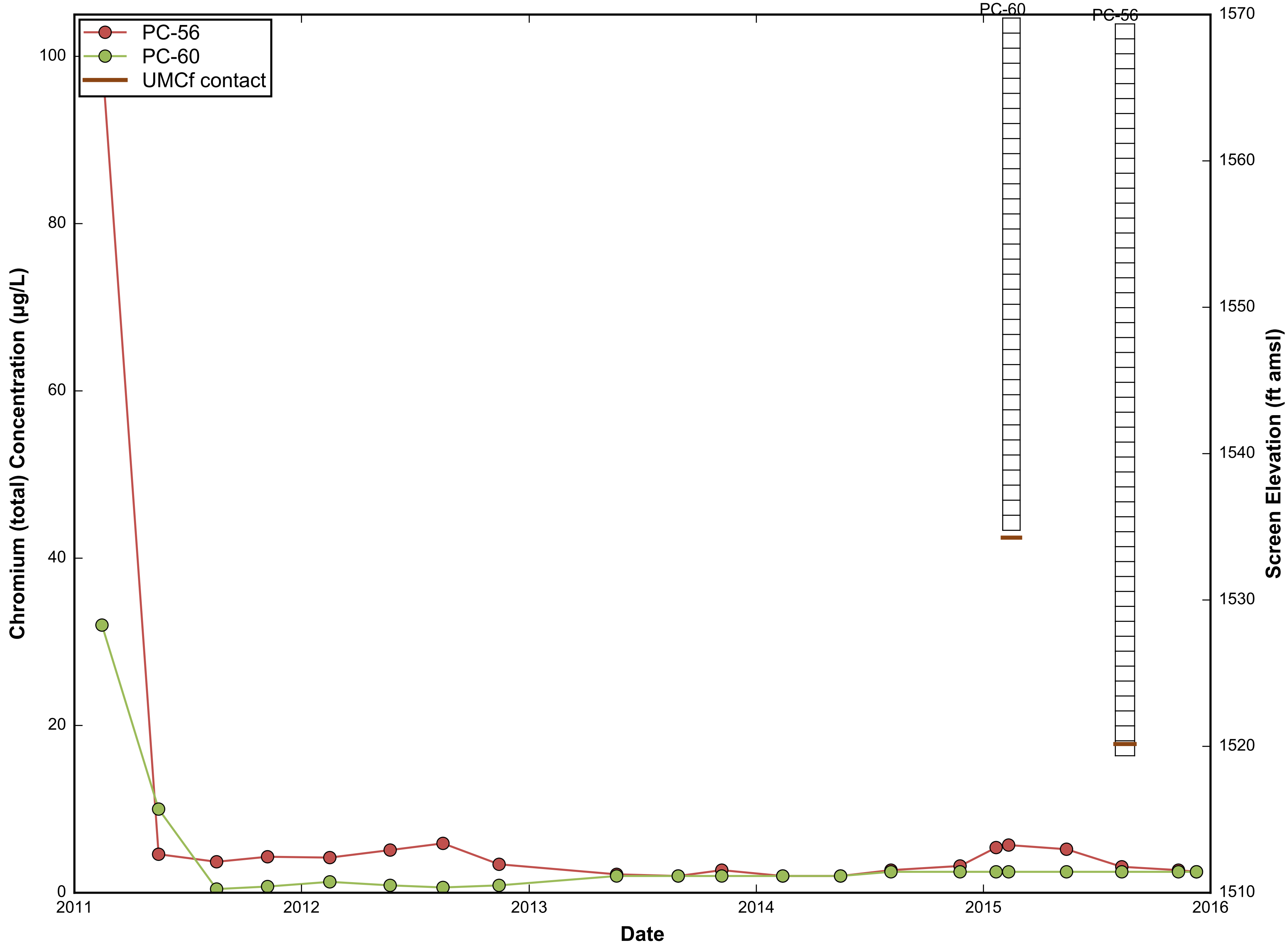
RAMBOLL ENVIRON

Cluster [PC-56,PC-60] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-51b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



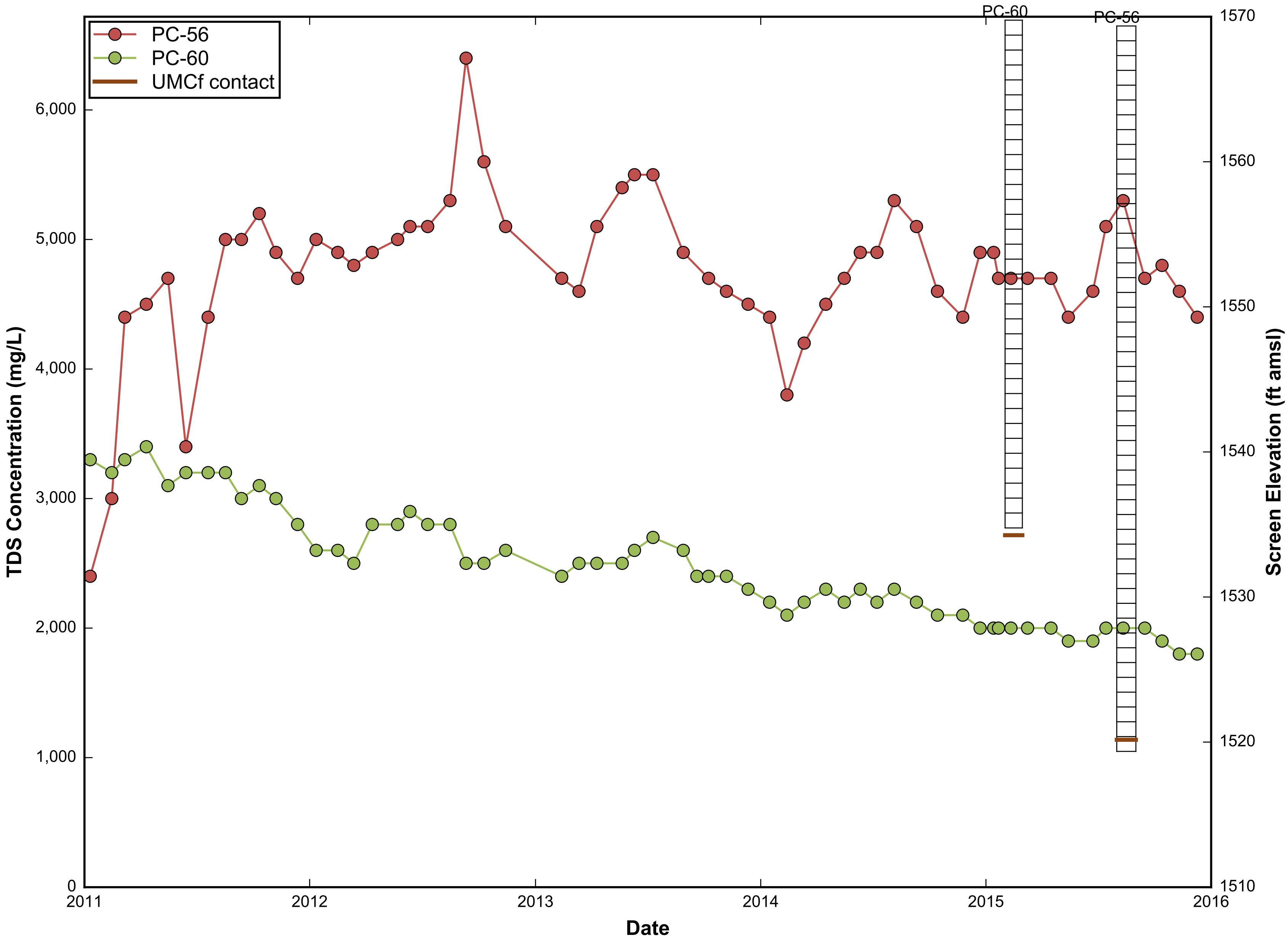
RAMBOLL ENVIRON

Cluster [PC-56,PC-60] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-51c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



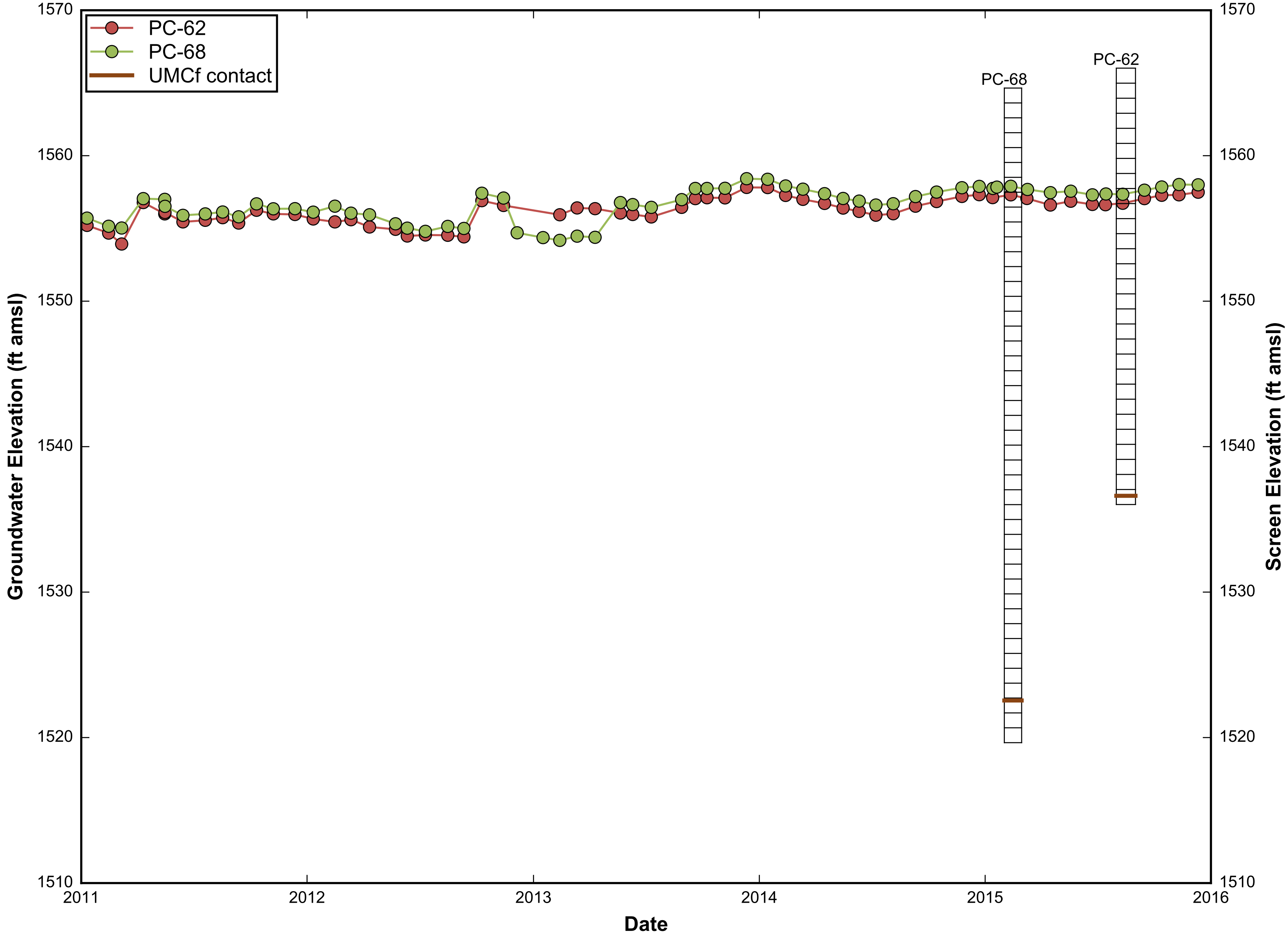
RAMBOLL ENVIRON

Cluster [PC-56,PC-60] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-51d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



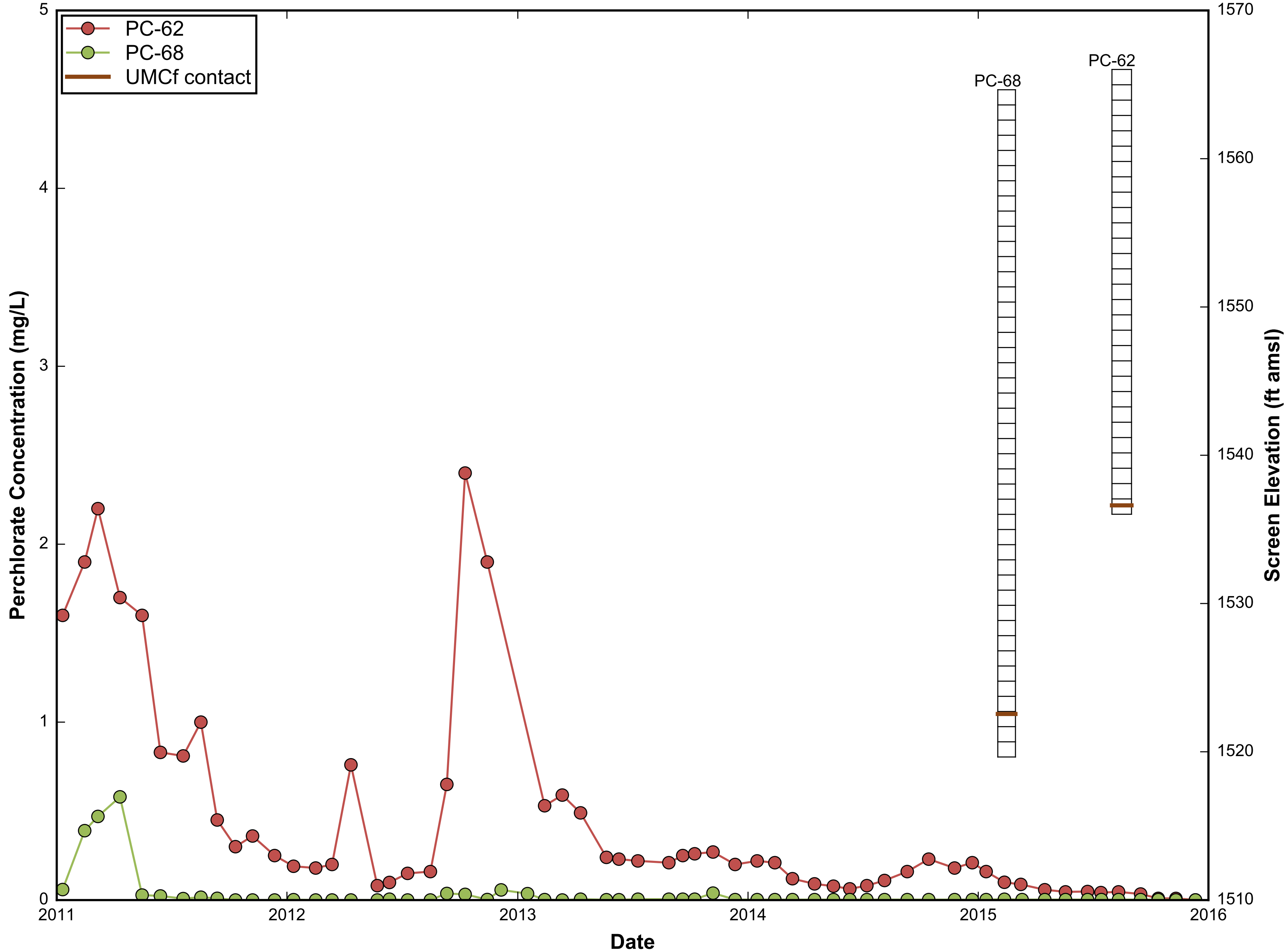
RAMBOLL ENVIRON

Cluster [PC-62,PC-68] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-52a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



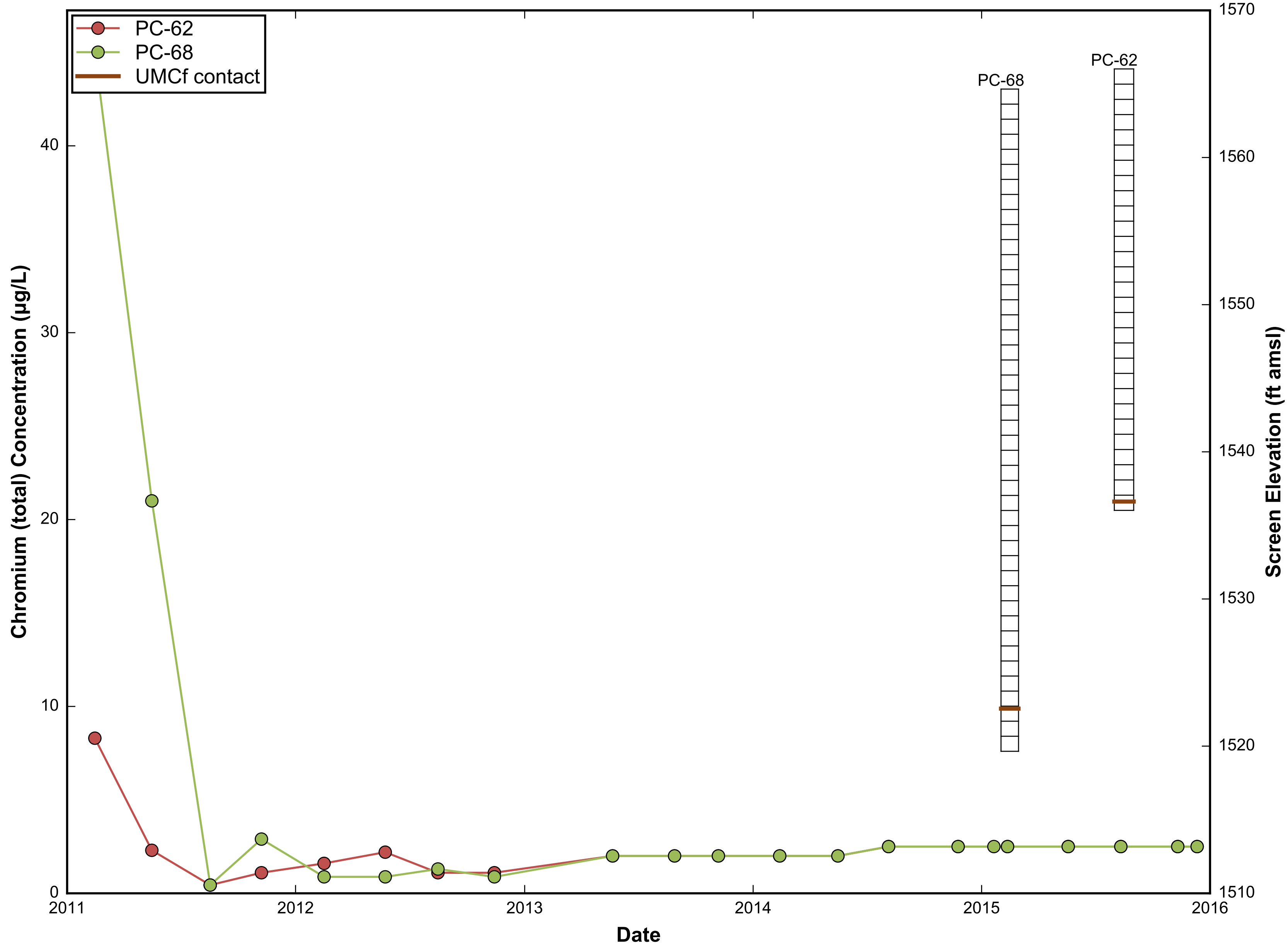
RAMBOLL ENVIRON

Cluster [PC-62,PC-68] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-52b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



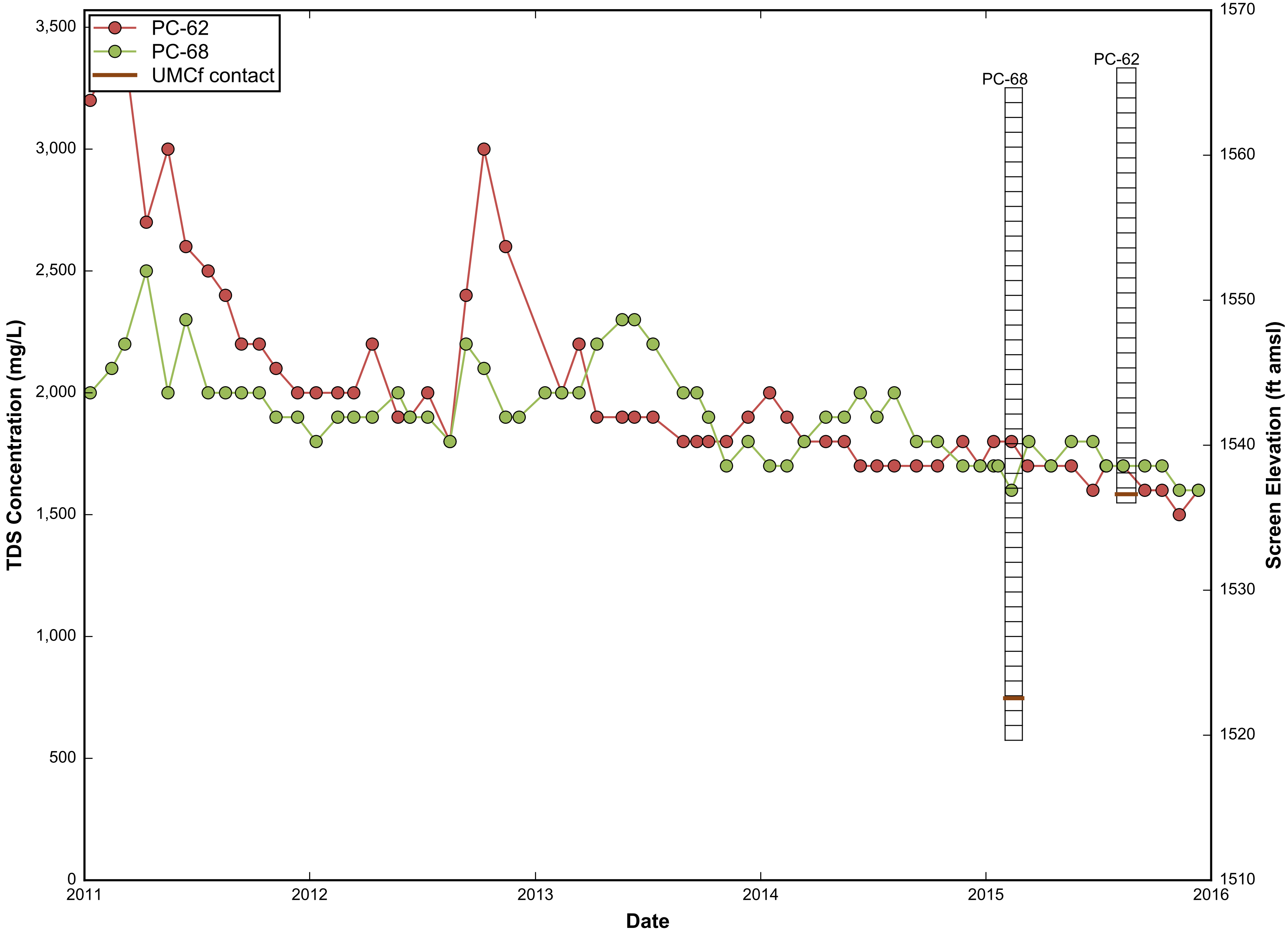
RAMBOLL ENVIRON

Cluster [PC-62,PC-68] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-52c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



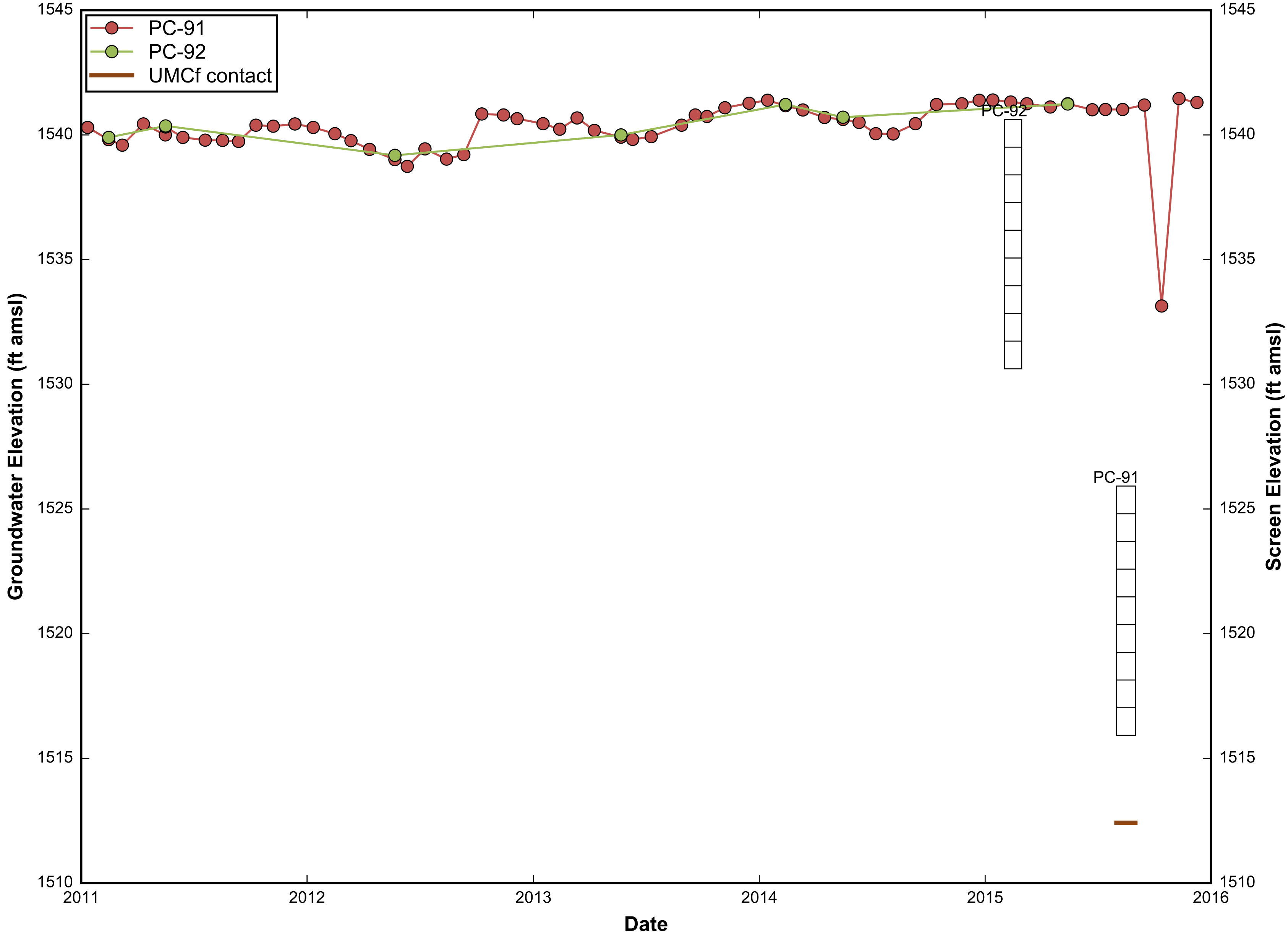
RAMBOLL ENVIRON

Cluster [PC-62,PC-68] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-52d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



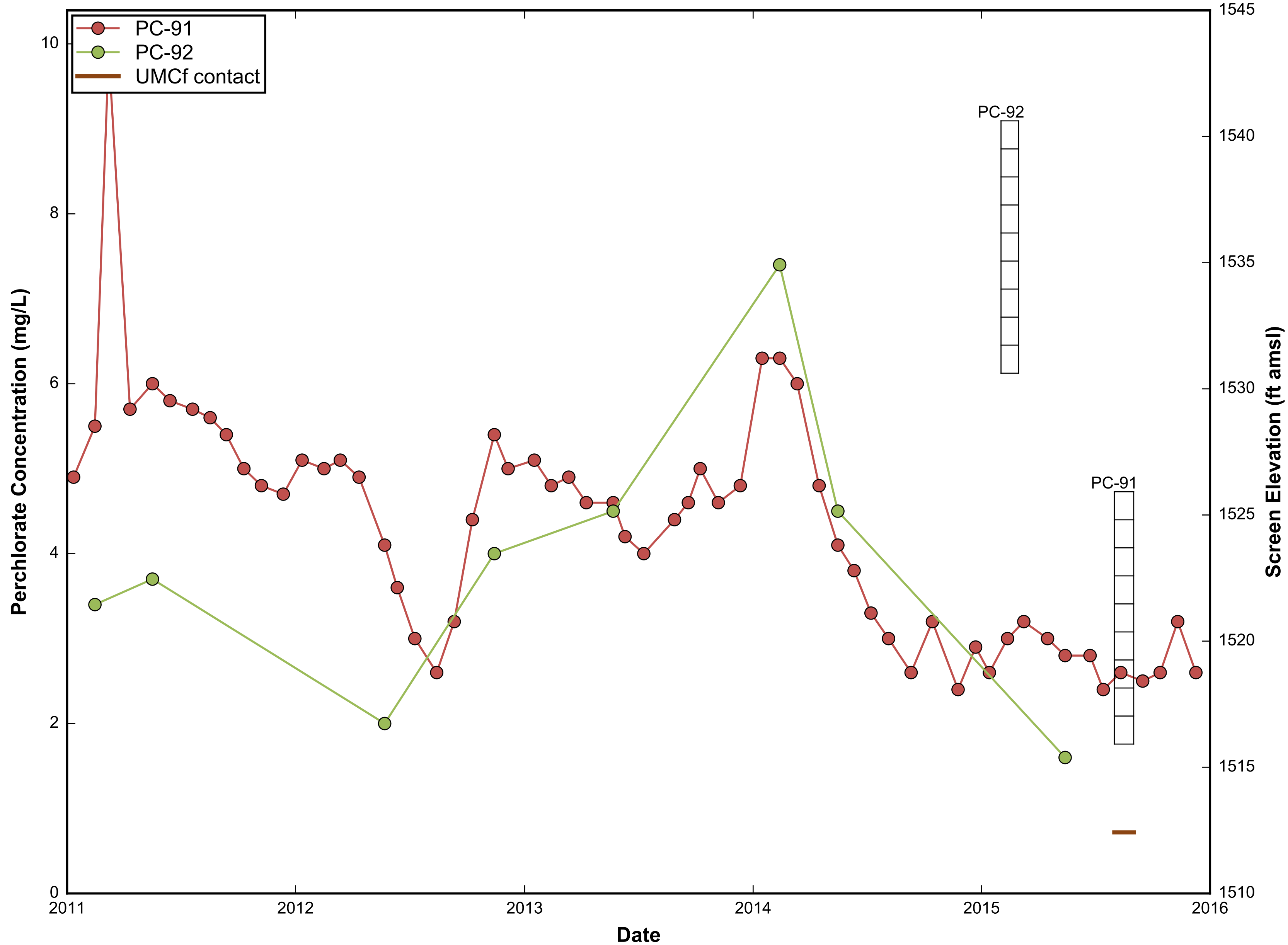
RAMBOLL ENVIRON

Cluster [PC-91,PC-92] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-53a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



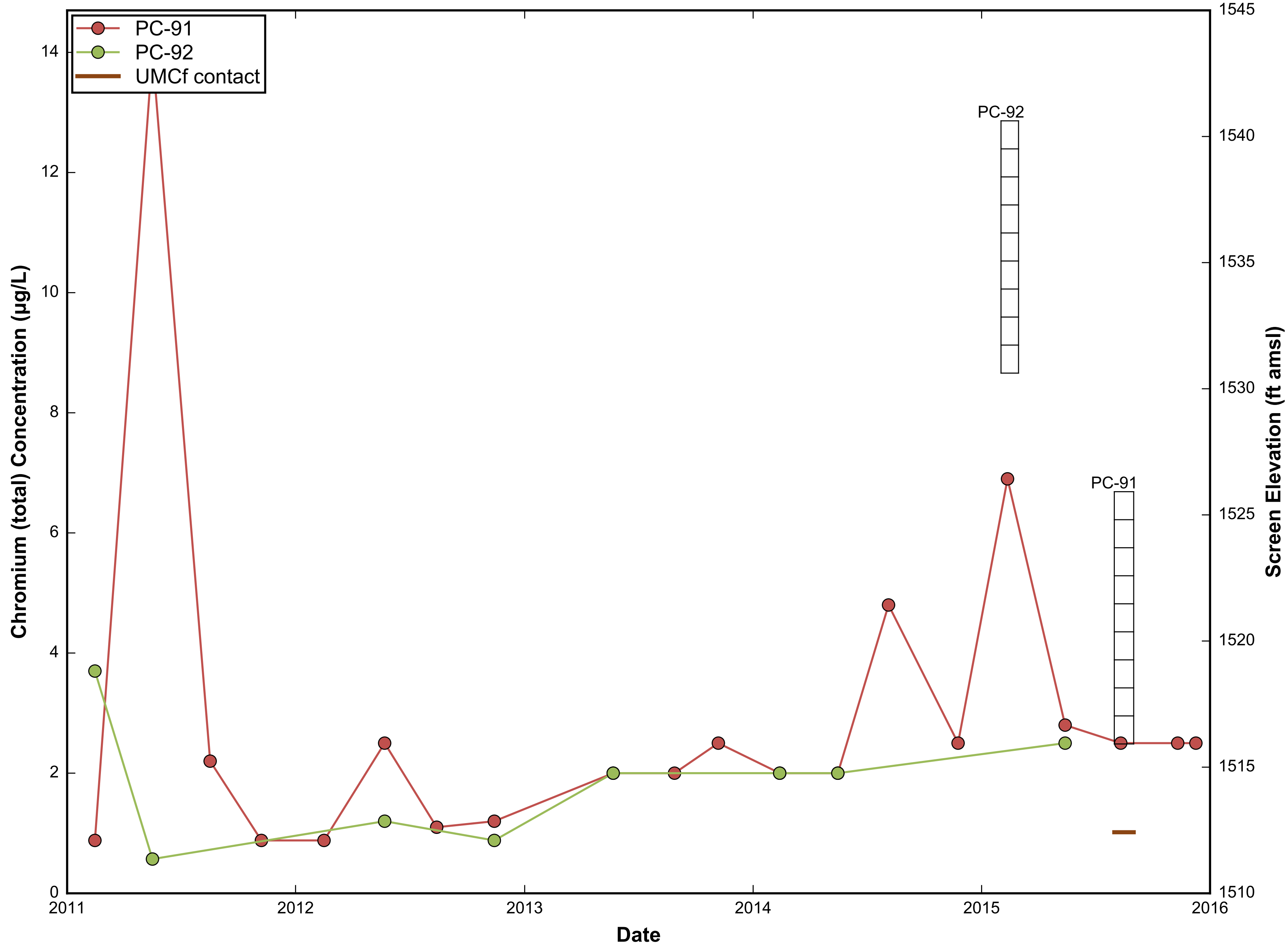
RAMBOLL ENVIRON

Cluster [PC-91,PC-92] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-53b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



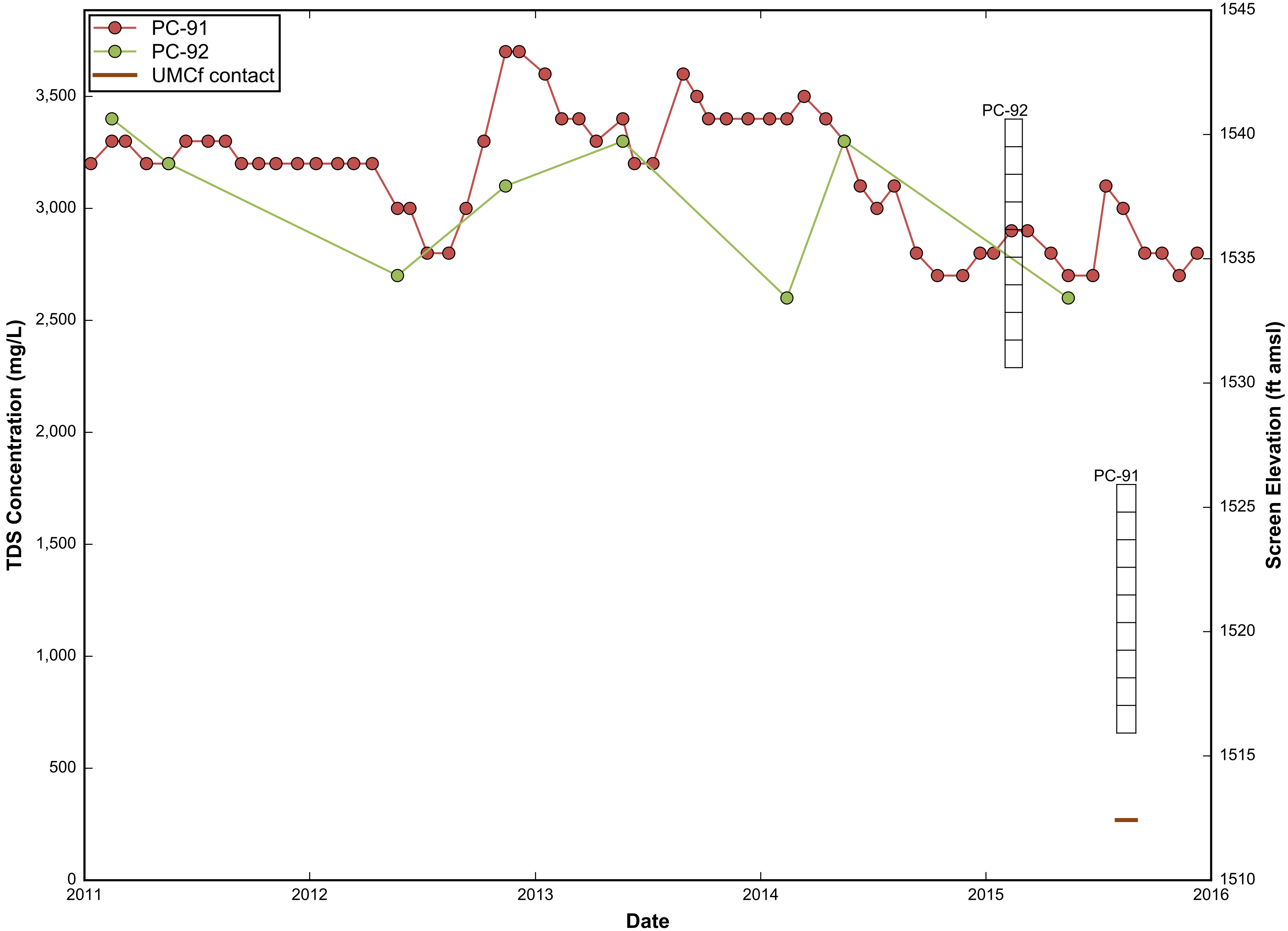
RAMBOLL ENVIRON

Cluster [PC-91,PC-92] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-53c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



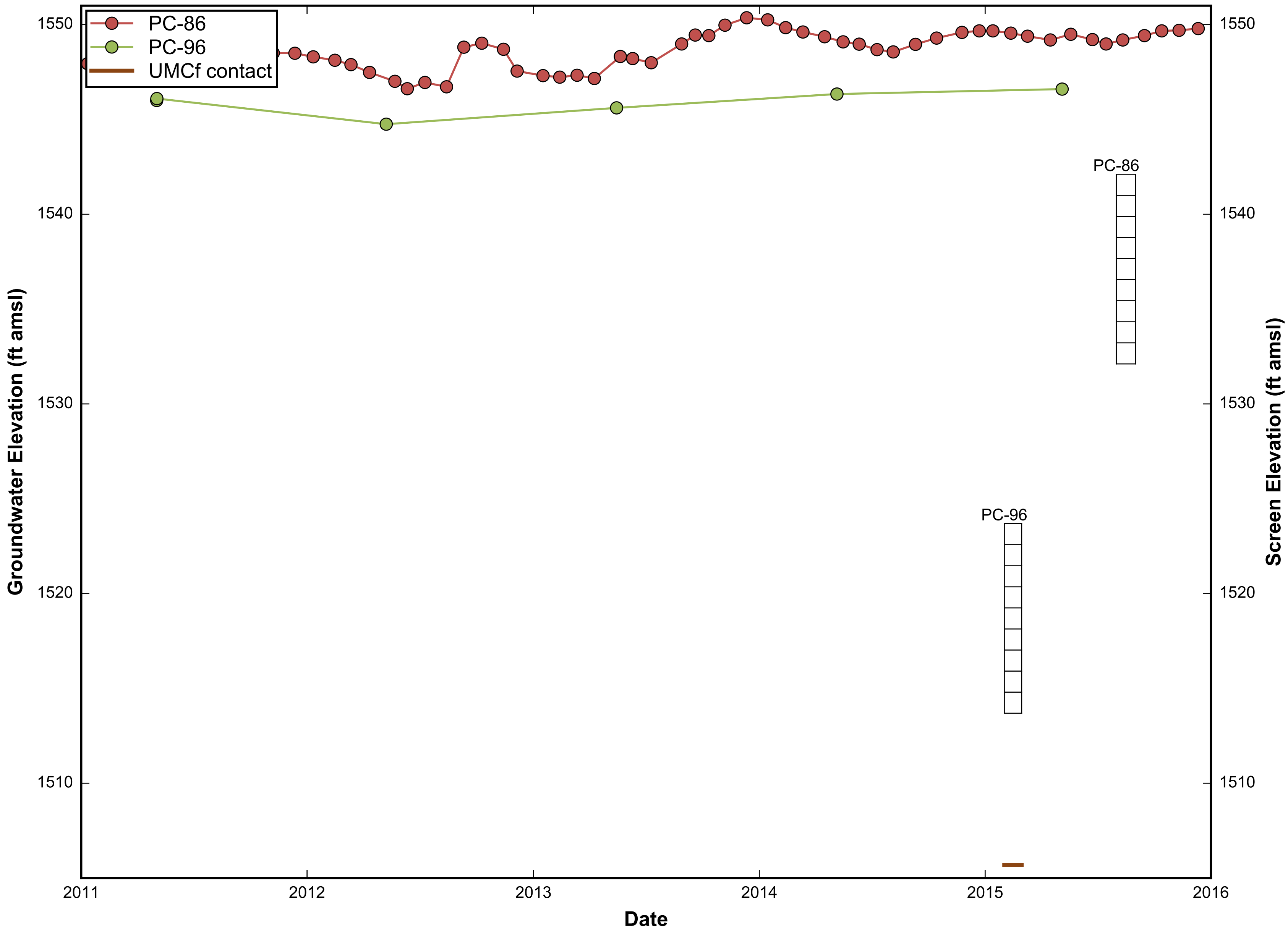
RAMBØLL ENVIRON

Cluster [PC-91,PC-92] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-53d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



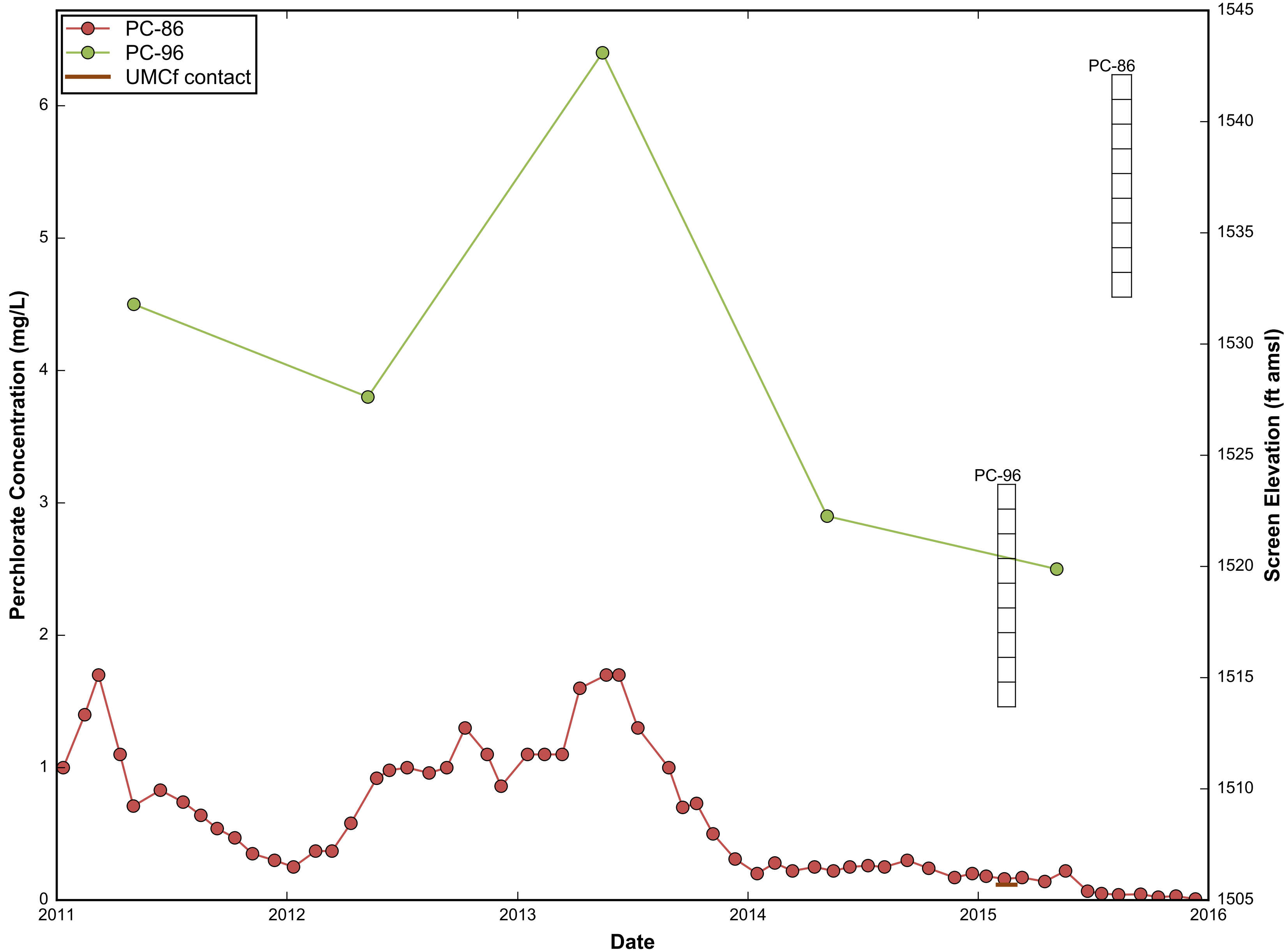
RAMBOLL ENVIRON

Cluster [PC-86,PC-96] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-54a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



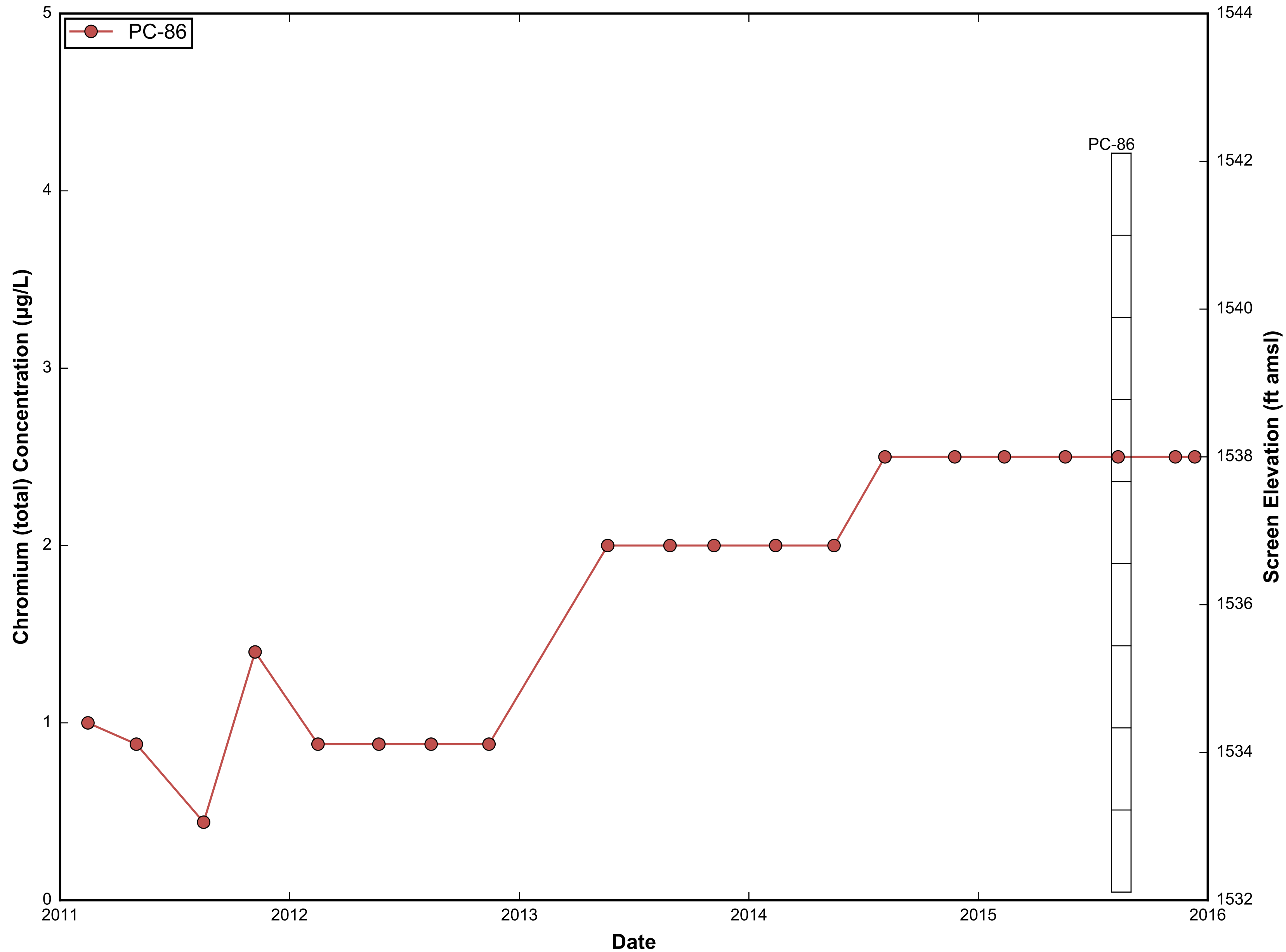
RAMBOLL ENVIRON

Cluster [PC-86,PC-96] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-54b

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



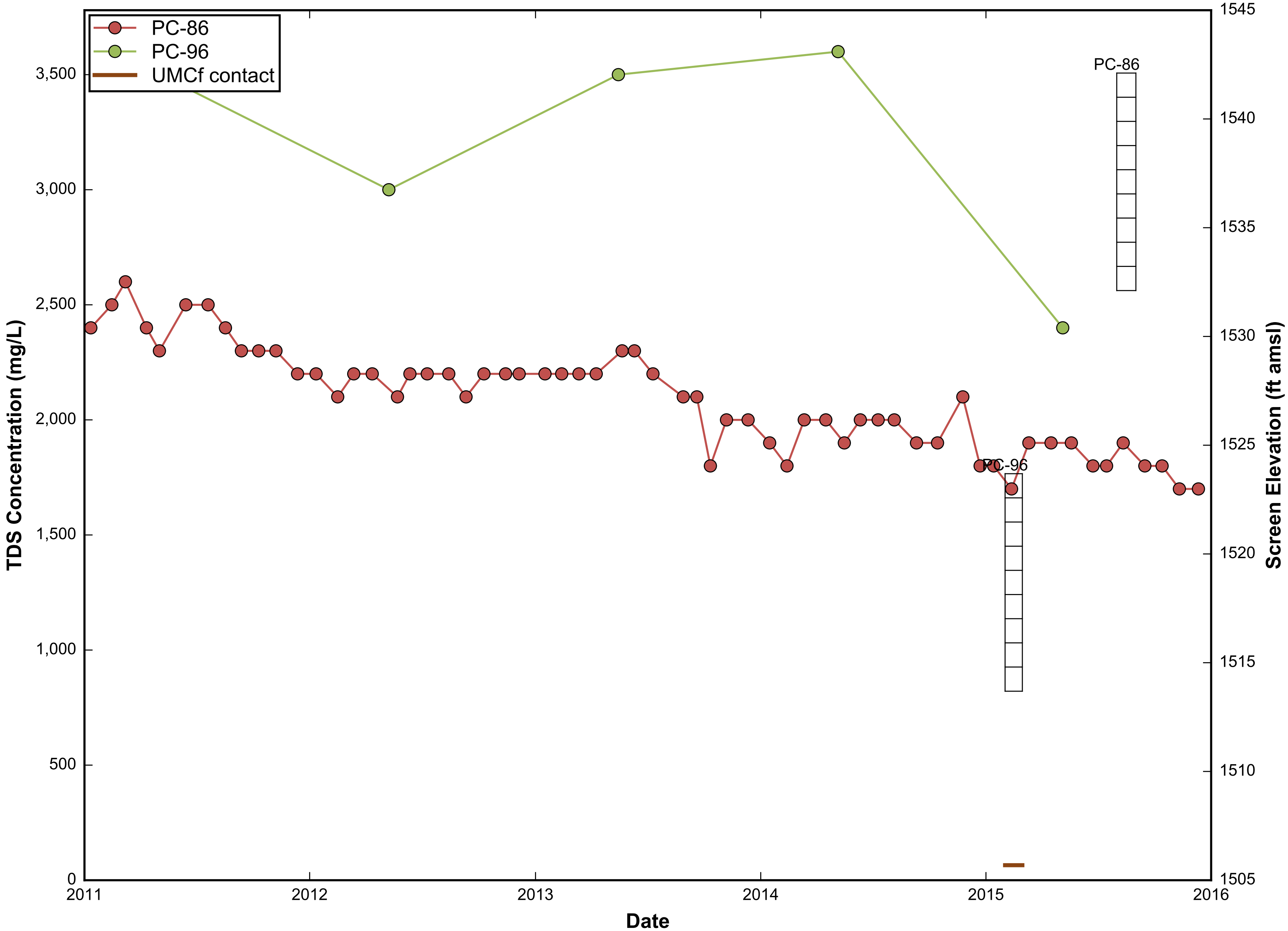
RAMBOLL ENVIRON

Cluster [PC-86,PC-96] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-54c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



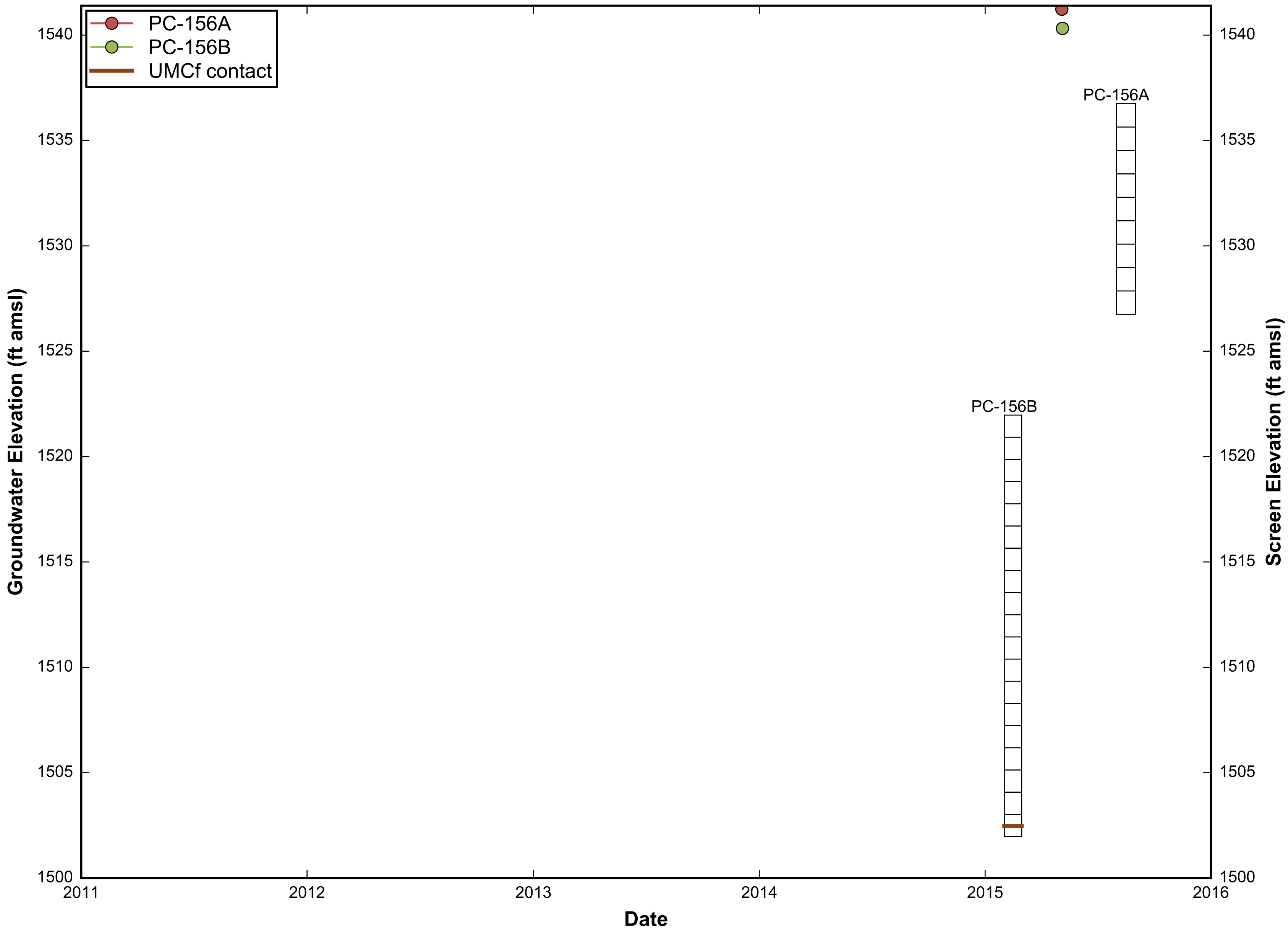
RAMBOLL ENVIRON

Cluster [PC-86,PC-96] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-54d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



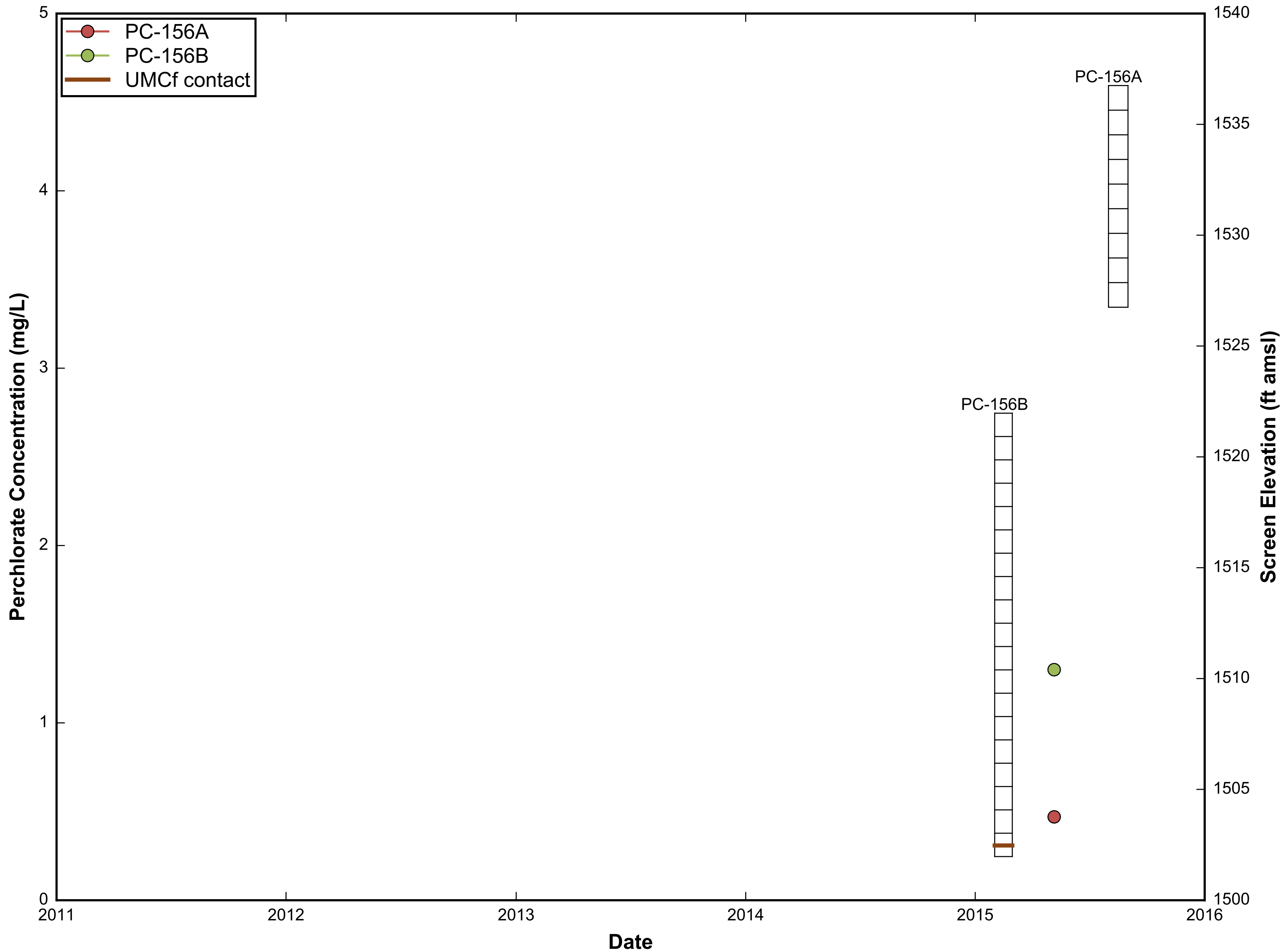
Cluster [PC-156A,PC-156B] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **A-55a**

RAMBOLL ENVIRON

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



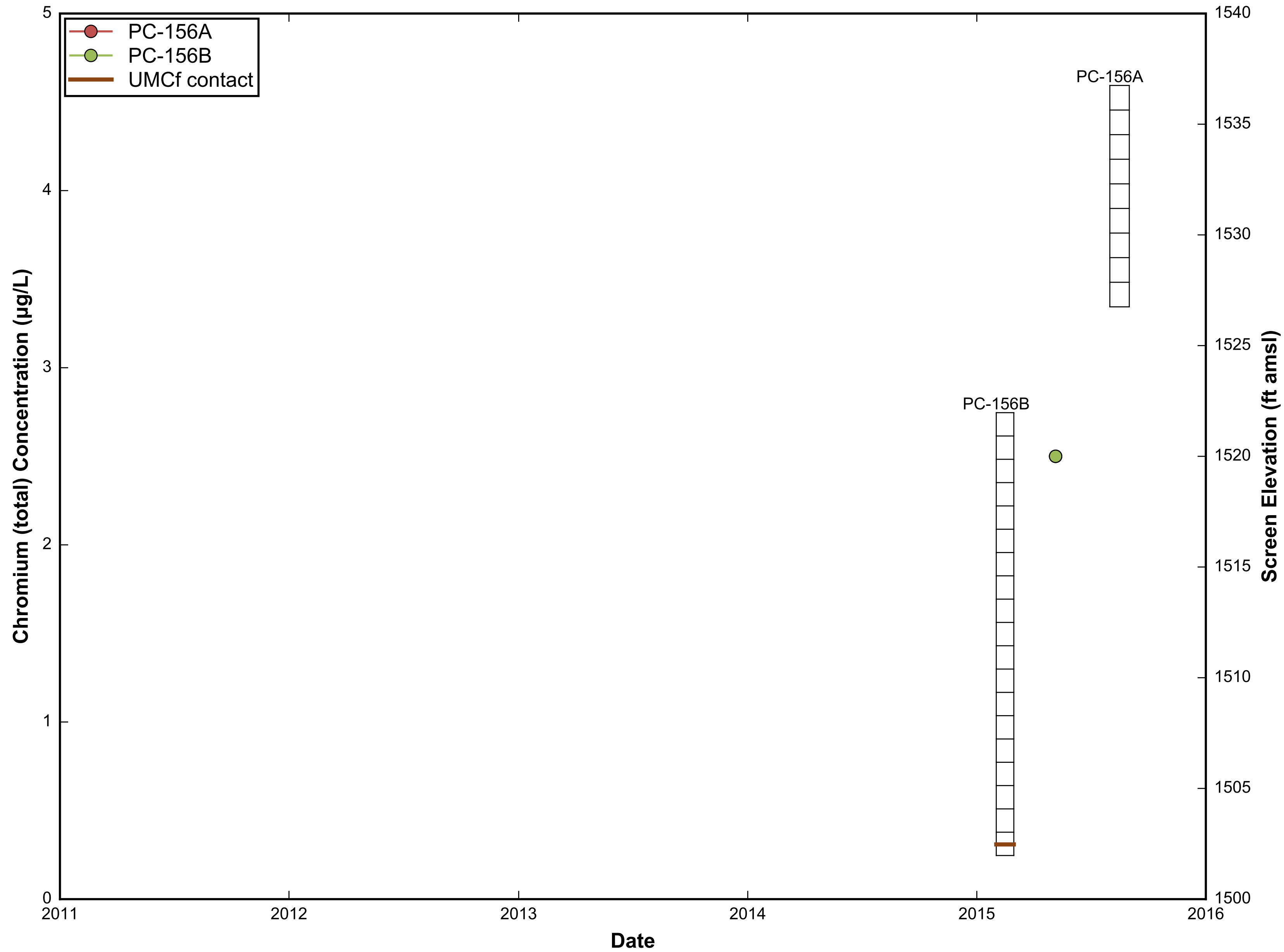
RAMBOLL ENVIRON

Cluster [PC-156A,PC-156B] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-55b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



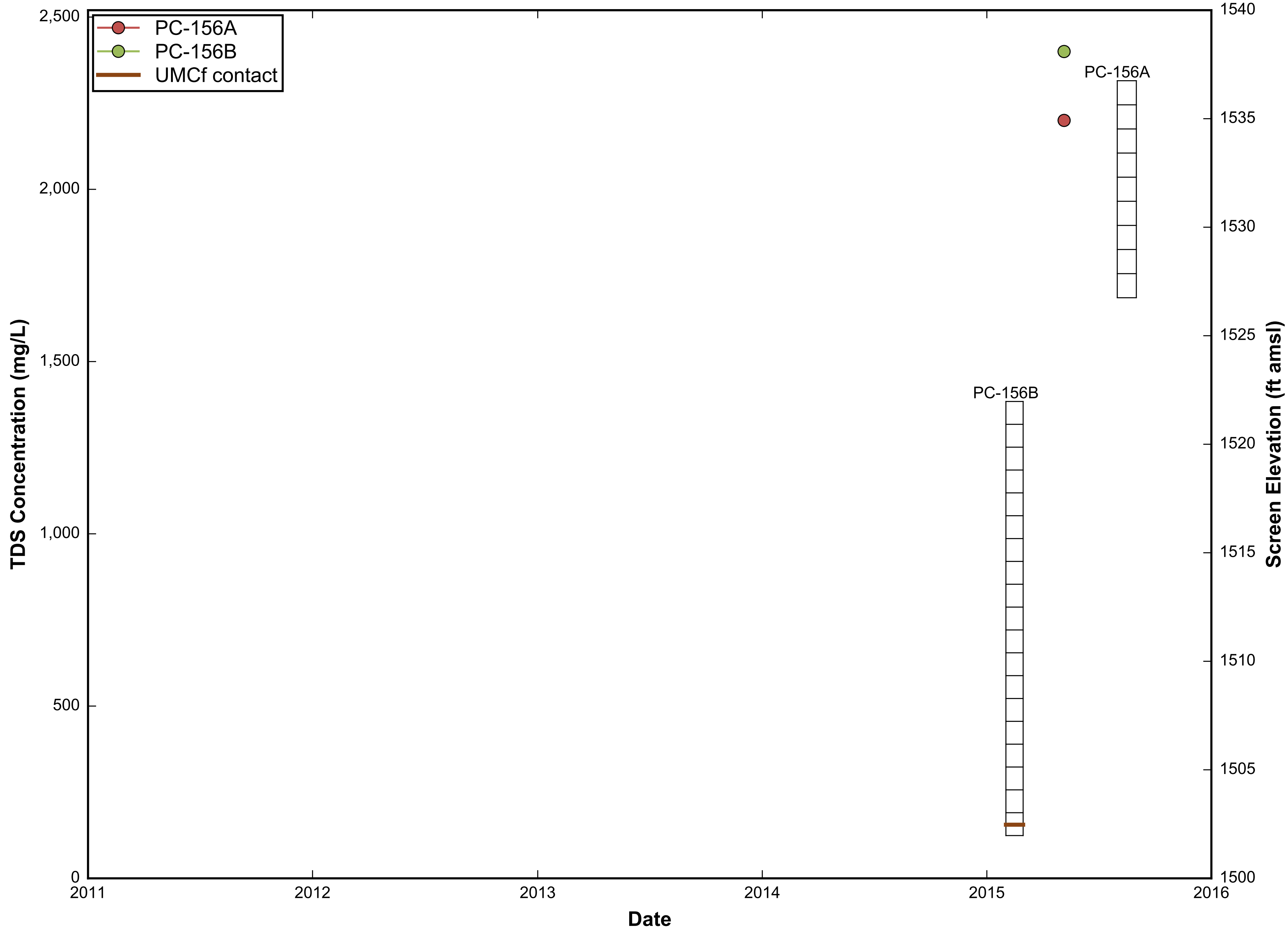
RAMBOLL ENVIRON

Cluster [PC-156A,PC-156B] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-55c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



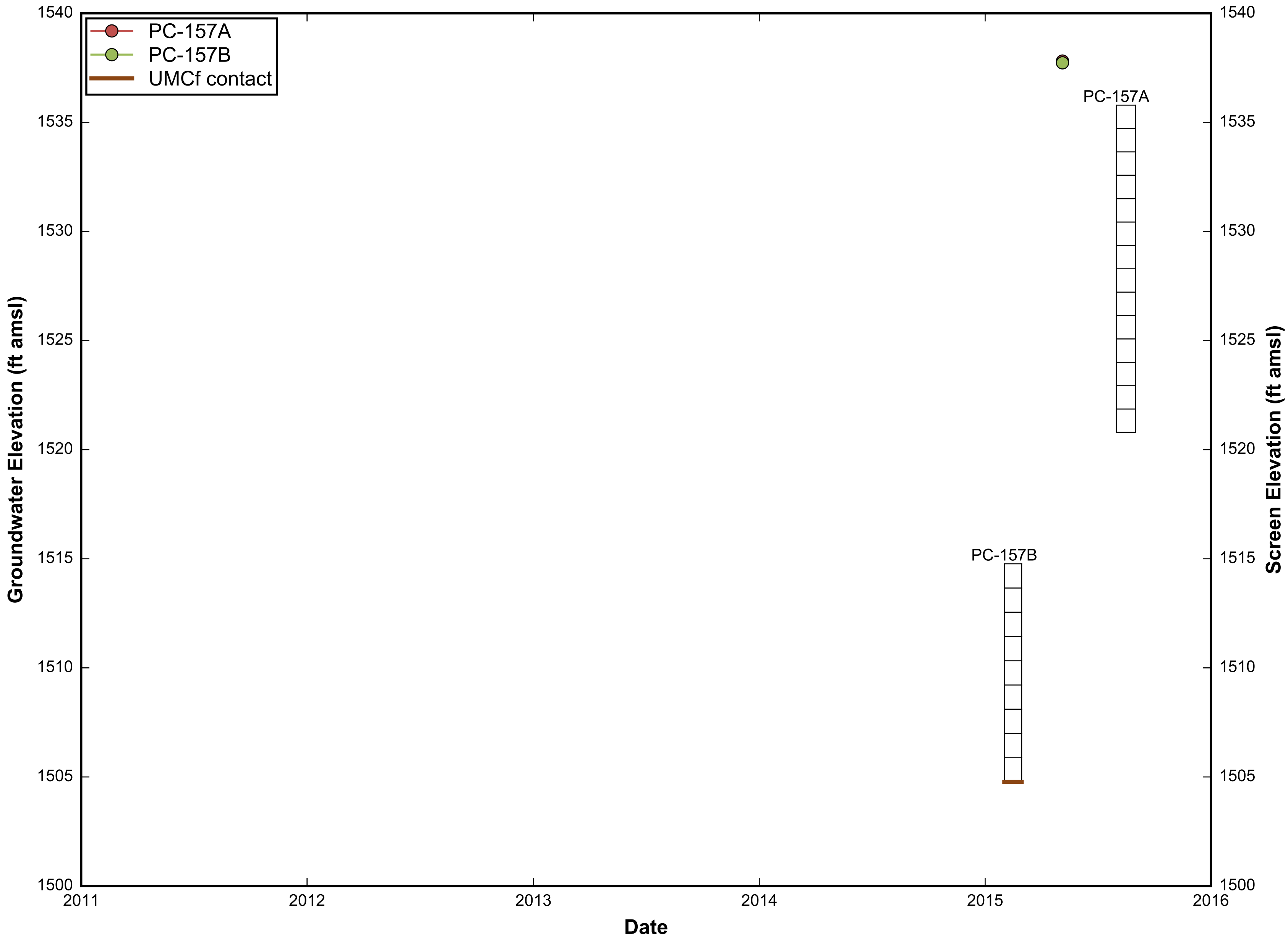
RAMBOLL ENVIRON

Cluster [PC-156A,PC-156B] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-55d

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



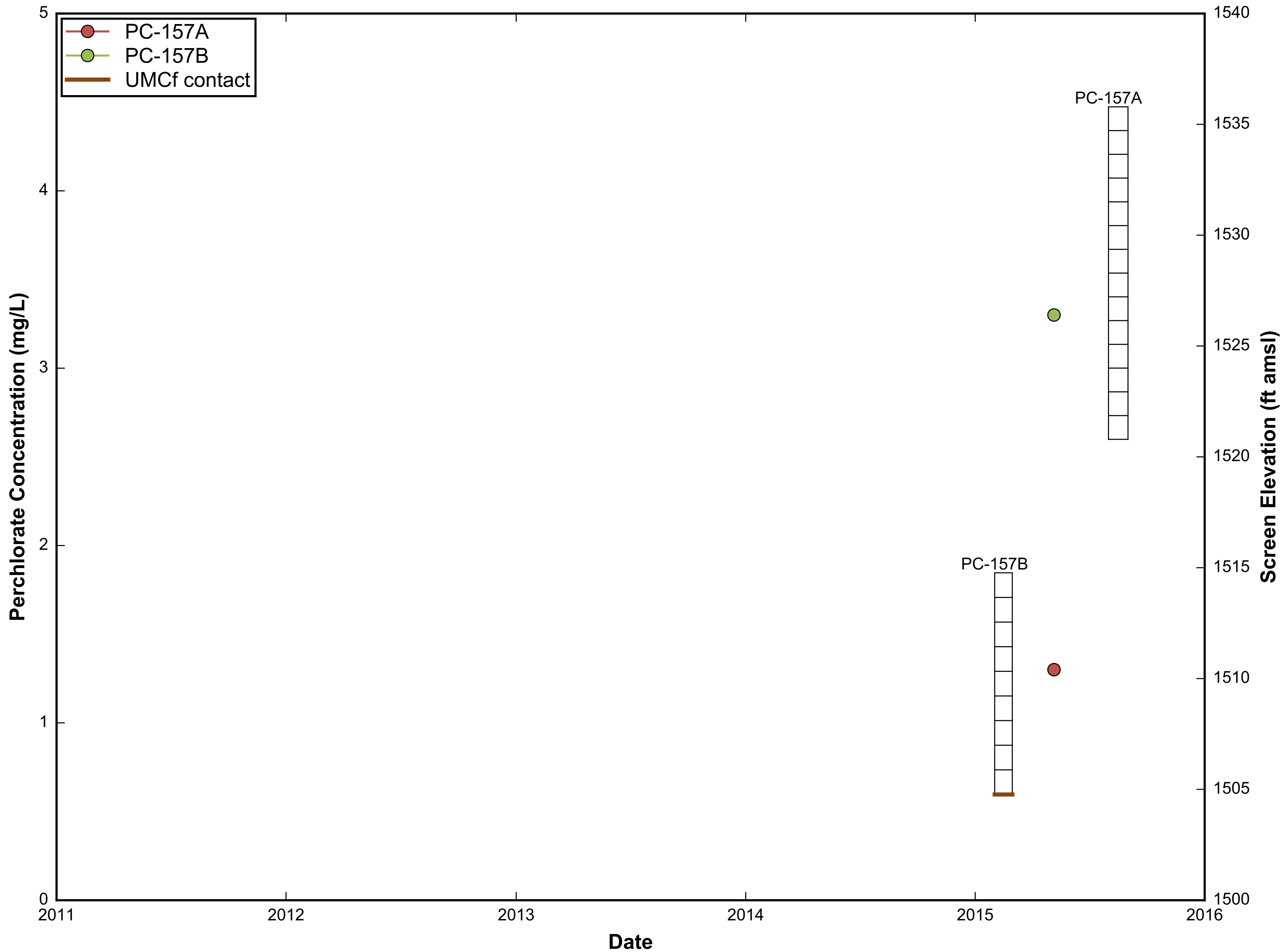
RAMBOLL ENVIRON

Cluster [PC-157A,PC-157B] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-56a

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



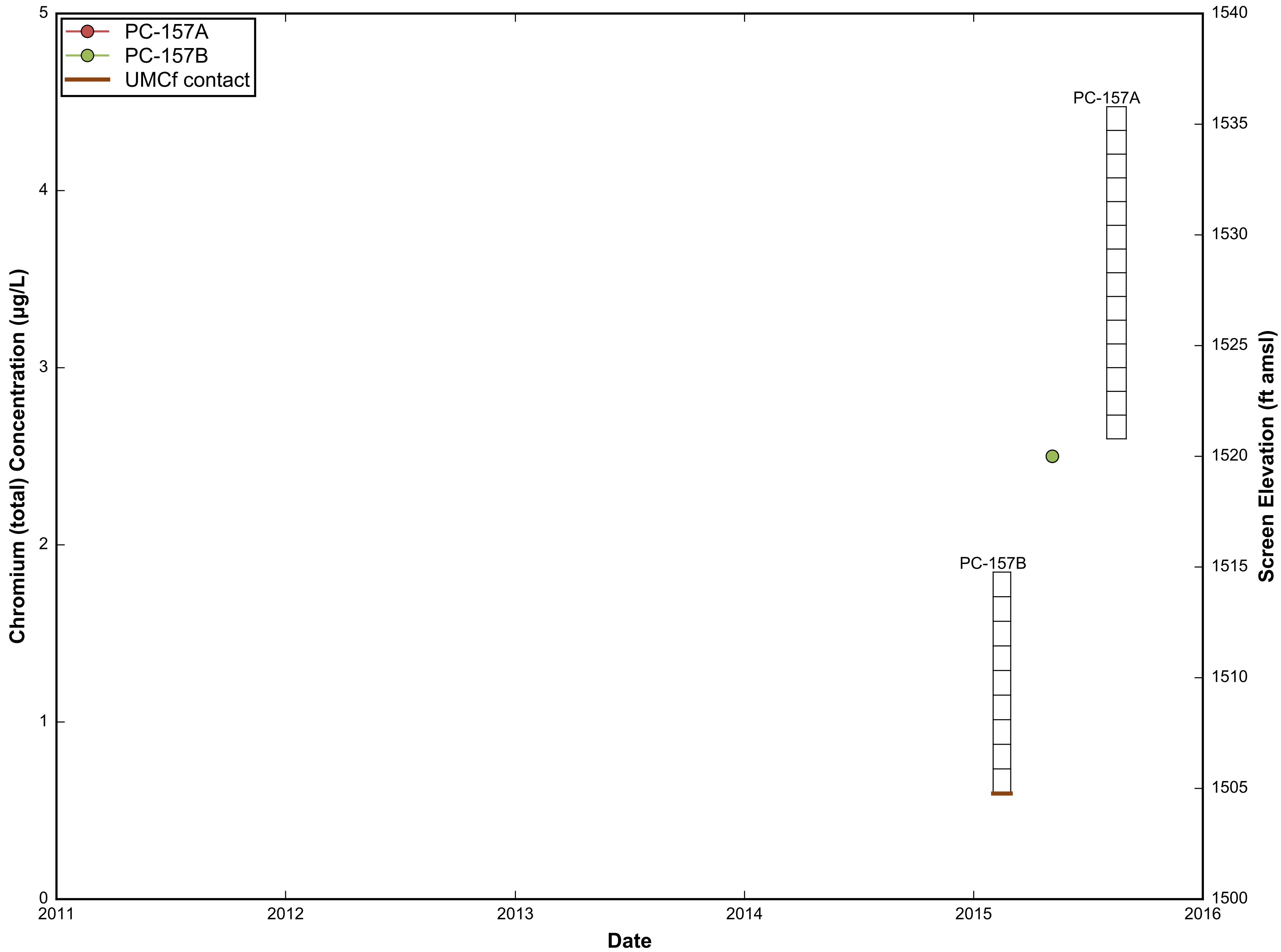
RAMBOLL ENVIRON

Cluster [PC-157A,PC-157B] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-56b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



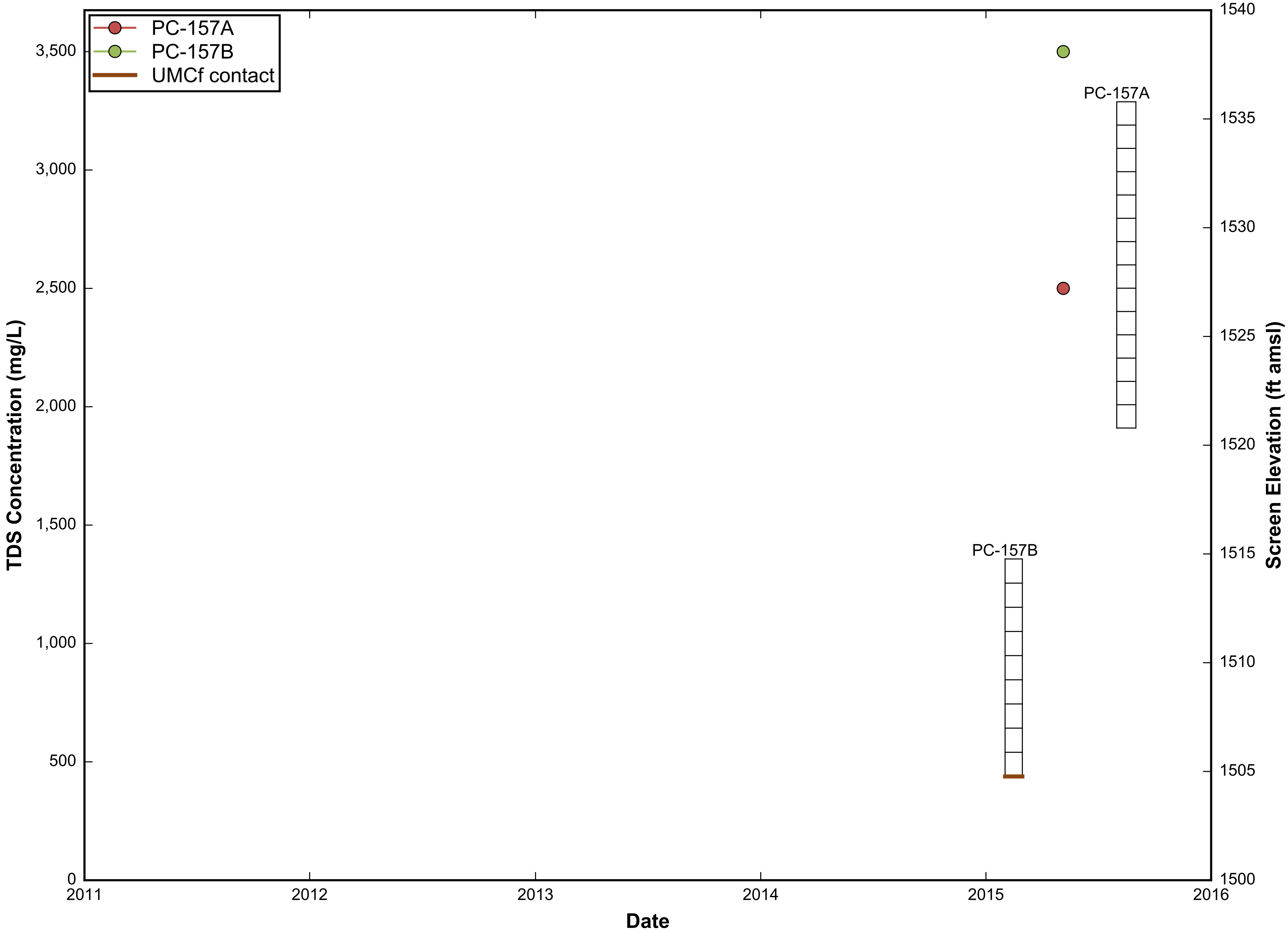
RAMBOLL ENVIRON

Cluster [PC-157A,PC-157B] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-56c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [PC-157A,PC-157B] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-56d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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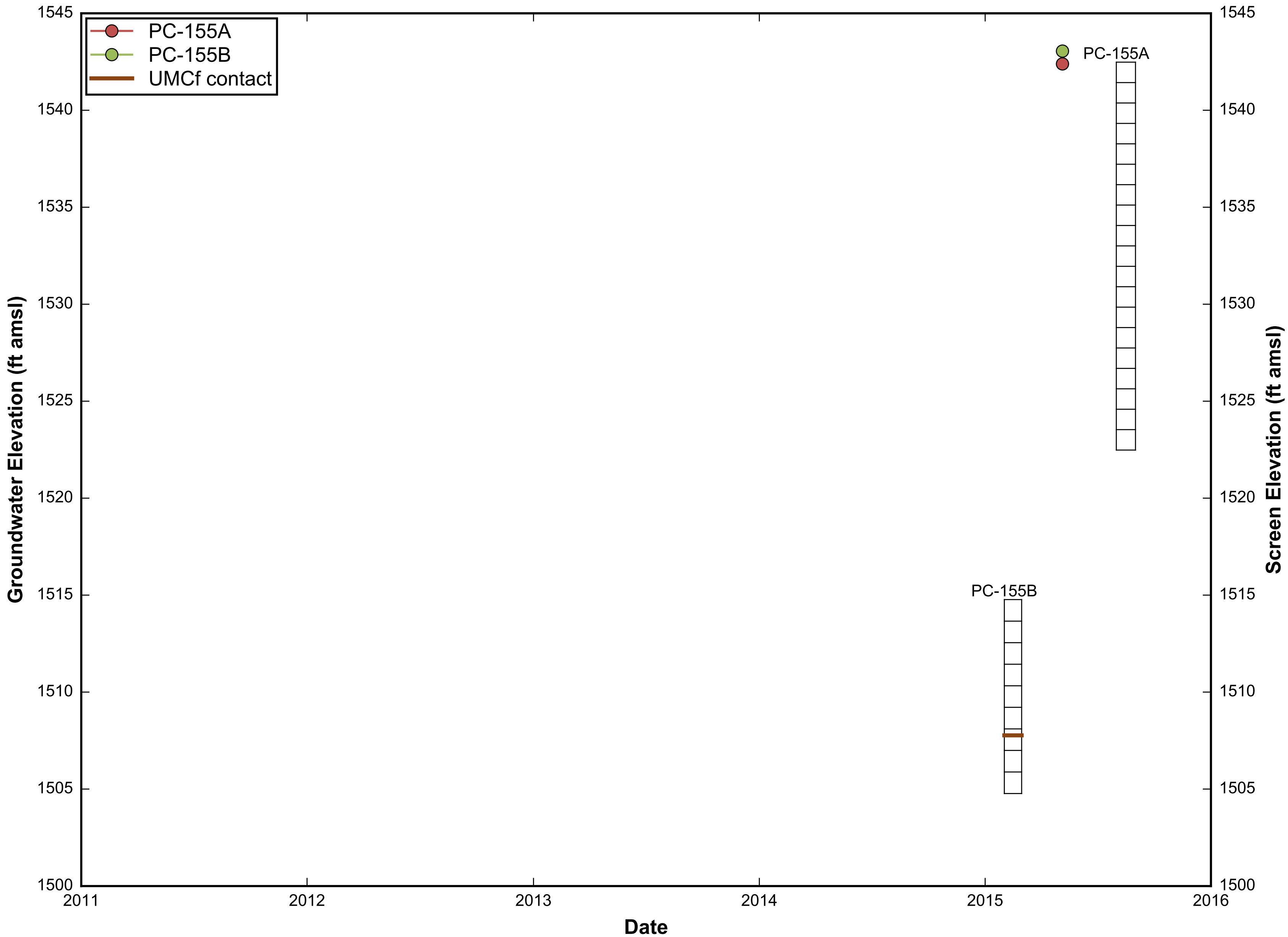

RAMBOLL ENVIRON

Cluster [PC-155A,PC-155B] - Groundwater Elevation
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-57a

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

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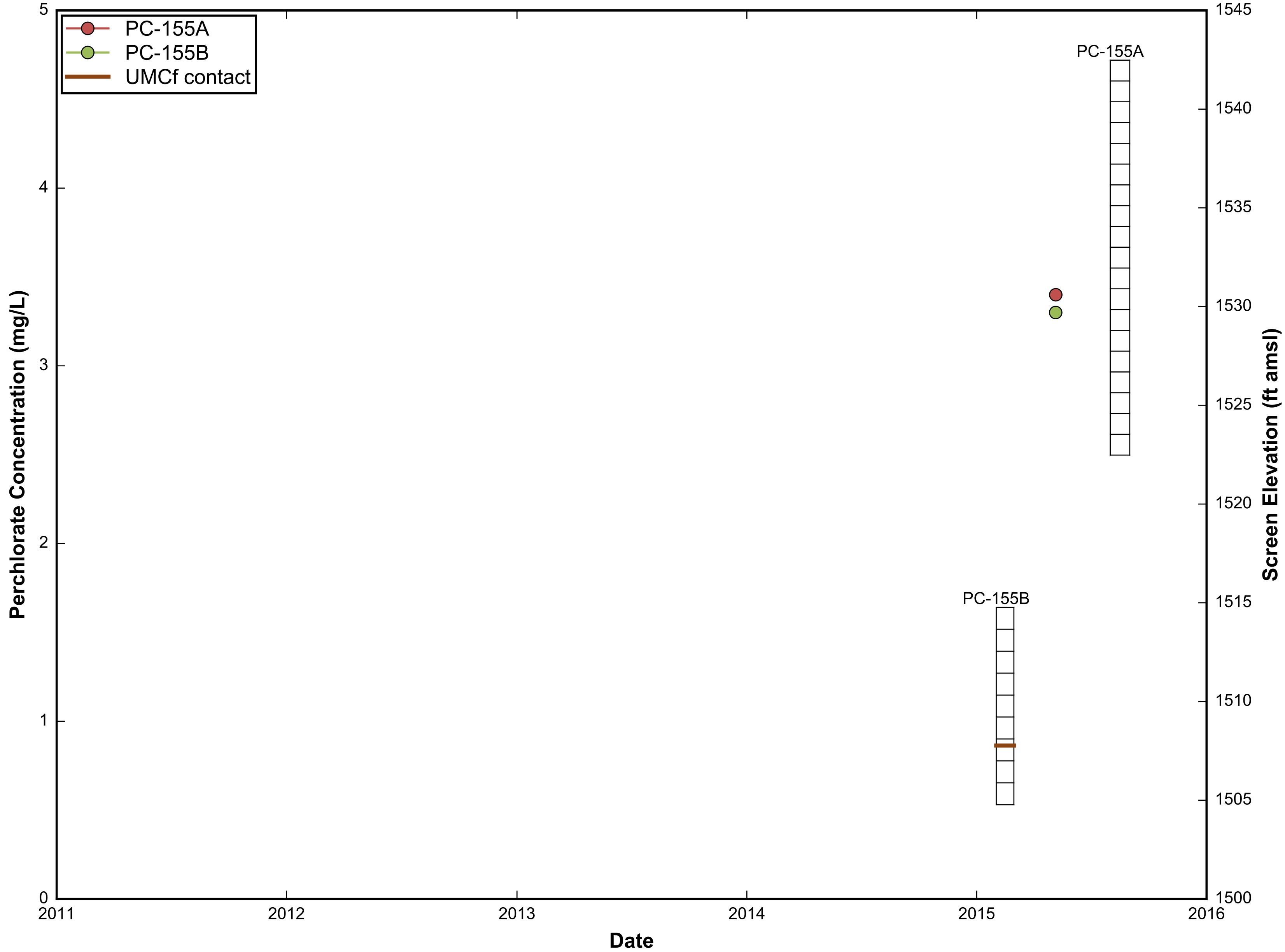

RAMBOLL ENVIRON

Cluster [PC-155A,PC-155B] - Perchlorate
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-57b

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

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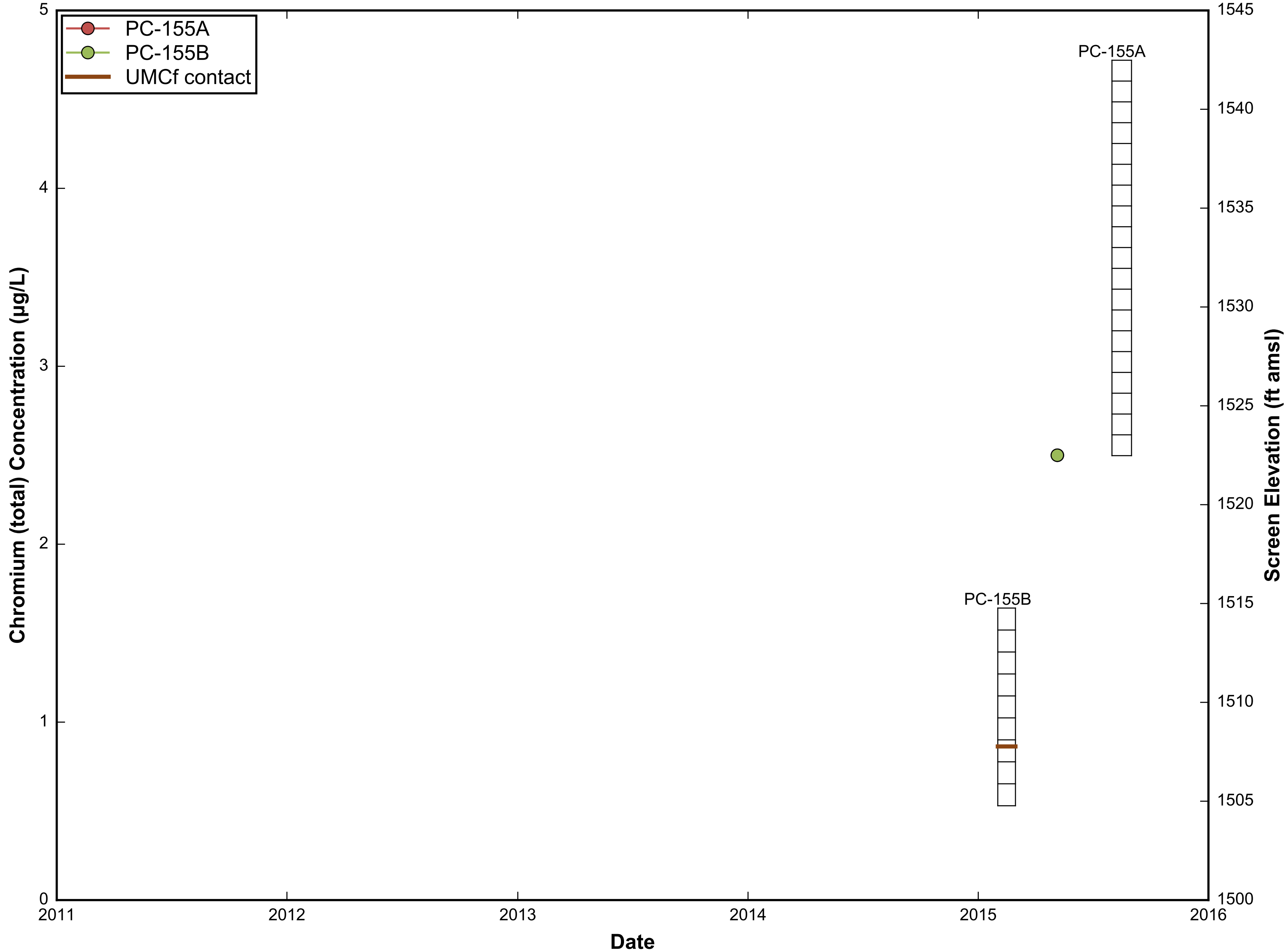


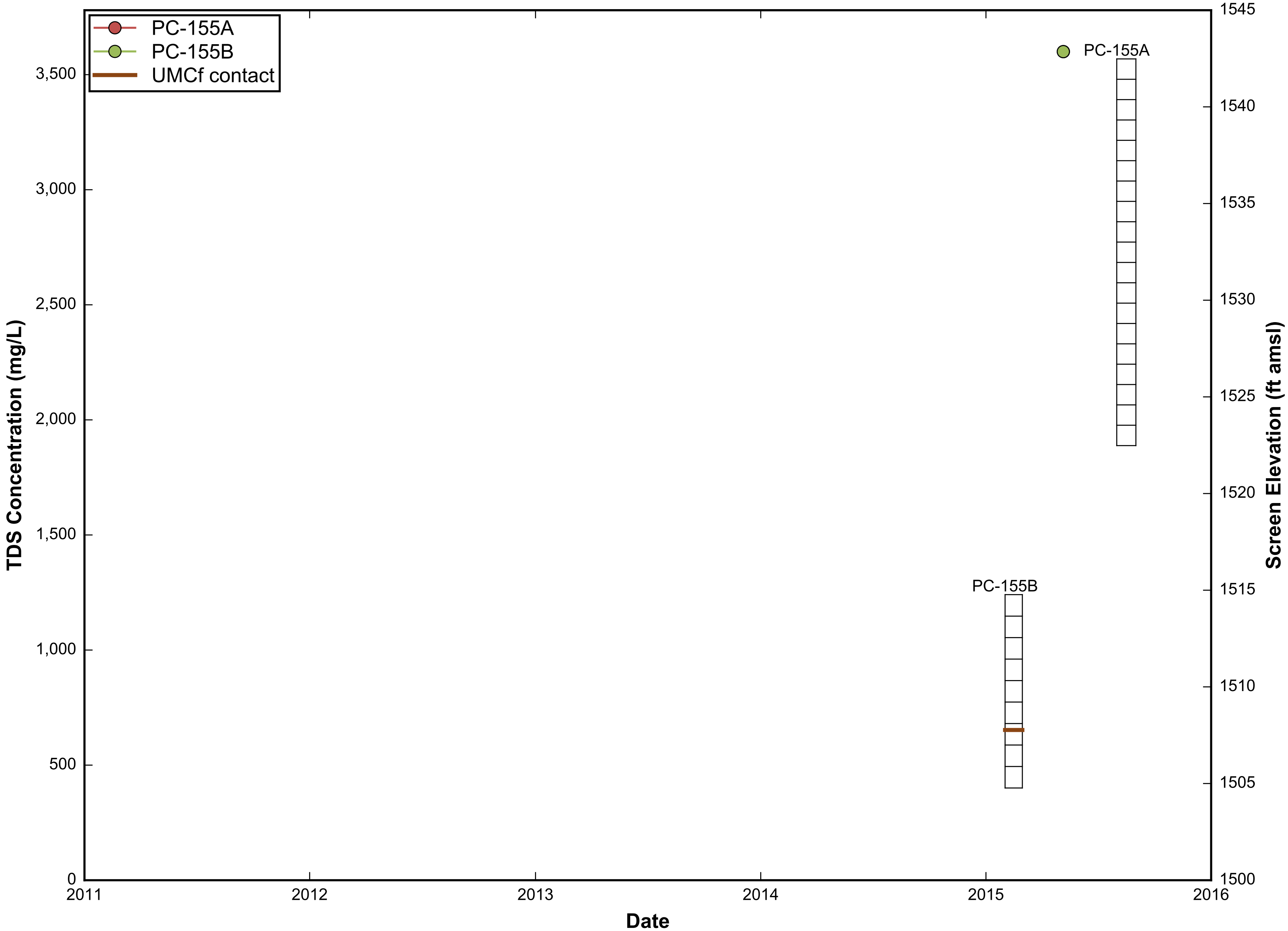
RAMBOLL ENVIRON

Cluster [PC-155A,PC-155B] - Chromium (total)
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-57c

Drafter: YZ | Date: 04/29/16 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\spatial_optimization_analysis_all.py



RAMBOLL ENVIRON

Cluster [PC-155A,PC-155B] - TDS
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
A-57d

Drafter: YZ	Date: 04/29/16	Contract Number: 21-38800A	Approved:	Revised:

APPENDIX B

TEMPORAL REDUNDANCY ANALYSIS SUPPORTING INFORMATION (AVAILABLE ELECTRONICALLY ON CD)

APPENDIX B: TEMPORAL REDUNDANCY ANALYSIS SUPPORTING INFORMATION

Appendix B contains:

1. A map showing the 18 well transects across the site used in the creation of the boxplots and bar charts that follow (page *i*);

2. Boxplots of 2011-2015 data and bar charts of iterative thinning results for perchlorate, total chromium, and groundwater elevations for wells in 18 well transects (Figures B-1 through B-18); and

3. Plots demonstrating example executions and results for iterative thinning analyses of chromium, perchlorate, total dissolved solids (TDS), and groundwater elevation at each well analyzed (Figures B-19 through B-367).

The map shows the 18 smaller, local transects into which wells were grouped in the boxplots and bar charts that follow the map.

The boxplots and bar charts were used in conjunction with Figures 4a through 4l to support the qualitative evaluation of iterative thinning results, which led to decisions regarding proposed well sampling frequencies as described in Section 3.4.2 of the report text. The boxplots show 2011-2015 data for perchlorate, chromium, and groundwater elevation. Each set of boxplots shows data for wells within one of 18 smaller, local transects whose boundaries are shown in the preceding map. In the boxplots, each star symbol represents the mean of the dataset. Bar charts of iterative thinning results were created in parallel with the boxplots along the same 18 local transects. These figures were used to put iterative thinning results for each well in the context of the surrounding wells. In particular, these plots were useful in making decisions about groundwater elevation measurement frequencies for groups of wells on the Site. The boxplots were also used to screen for areas in which low concentrations of analytes could bias iterative thinning results.

The final set of plots summarizes the process and example results of the iterative thinning procedure to optimize sampling frequency for total chromium, perchlorate, TDS, and groundwater elevation in each well in the current monitoring program with at least 10 data points in the 2011-2015 dataset. The iterative thinning algorithm is described in Section 3.4.1 of the report text. Each plot shows:

1. All groundwater monitoring program data for the given analyte at the given well over the period 2011-2015. The raw data is plotted to distinguish:
    a. Detected values (blue circles) which were included in the thinning analysis,
    b. Nondetect values (white circles) which were included in the thinning analysis and plotted at half the detection limit, and
    c. Outliers (blue X symbols) which were defined as data points falling outside the range of [Q1 - (1.5 x IQR), Q3 + (1.5 x IQR)], where Q1 is the 25th percentile, Q3

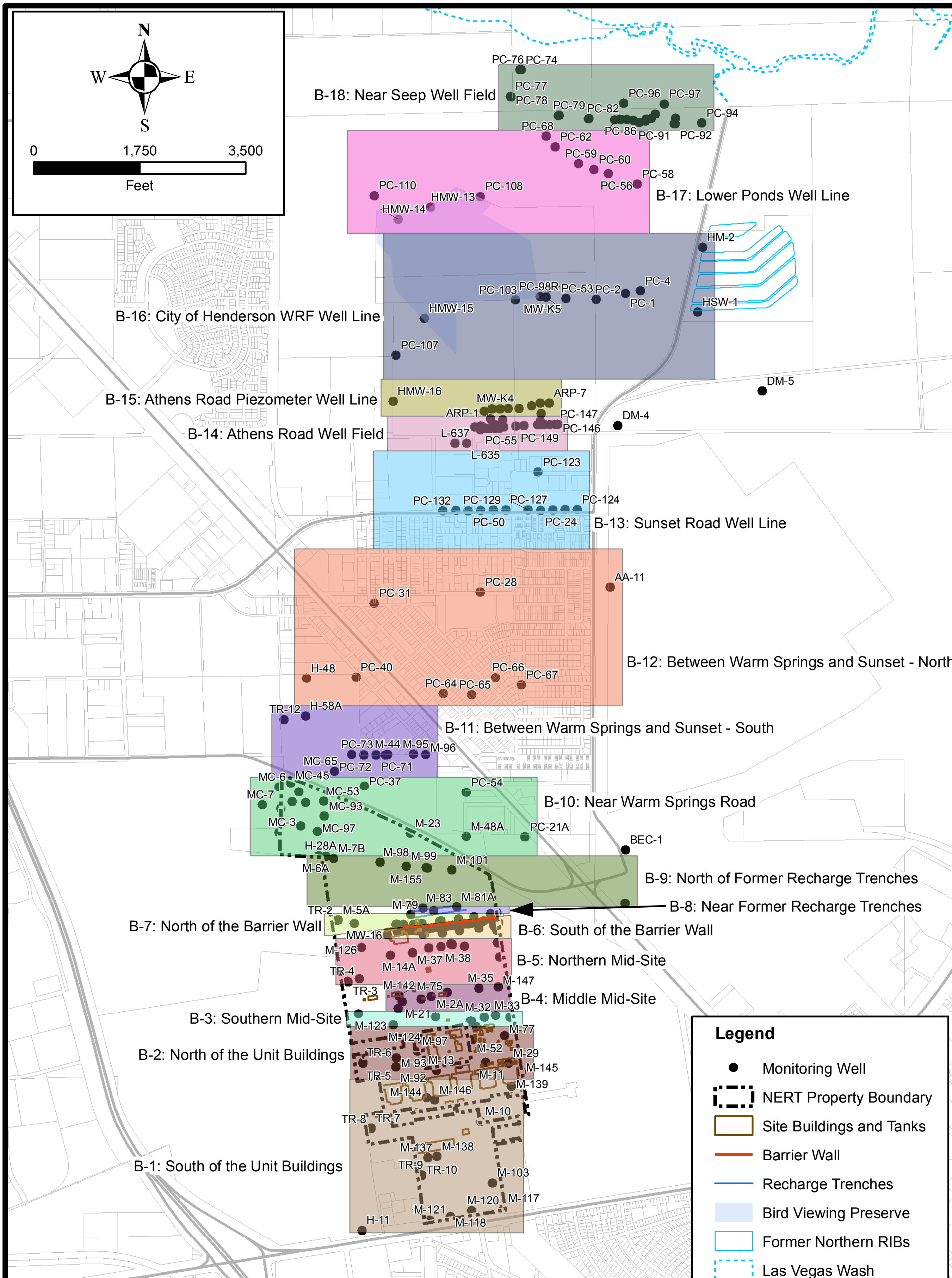
is the 75th percentile, and IQR is the interquartile range of each dataset. The outlier values were not included in the thinning analysis;

2. The smoothed trendline (red line) for the full dataset;
3. The confidence band (green lines) around the smoothed trendline;
4. Trendlines produced by successful simulations (light blue lines);
5. Trendlines produced by failed simulations (light orange lines); and
6. An information box that lists the analytical parameters and results.

It is important to note that the 100 simulations performed to evaluate whether a certain percent reduction would be appropriate for a given well used datasets that were partially randomly selected. Consequently, the plots shown represent only a single execution of the iterative thinning algorithm. While Figures 4a through 4l, Tables 3 and 4, and the preceding boxplots and bar charts in Appendix B were all produced from a single execution of the iterative thinning algorithm, these plots were produced on a second execution of the algorithm. Any differences noted between these two executions are due to the random selection of the simulated datasets it the algorithm. A comparison between Tables 3 and 4 and the results presented in these plots shows that results for a single well generally agree between executions, though a few differences (generally of approximately 5%) may exist. These algorithm-induced random differences that may occur between executions do not alter the overall picture of the thinning results across the groundwater monitoring program.

These plots were referenced when evaluating the iterative thinning results. In particular, these plots were used to determine whether trends or disruptions in the data influenced the sampling interval recommended by the iterative thinning.

H:\LePetomane\NERT\GWM\Monitoring Optimization\Appendices\Appendix B - Temporal Redundancy Analysis\Figure B-1 Boxplot Locations 8.5x11.mxd



RAMBOLL ENVIRON

DRAFTED BY: RS | 4/26/2016

APPENDIX B FIGURE LOCATIONS

Nevada Environmental Response Trust Site

Henderson, Nevada

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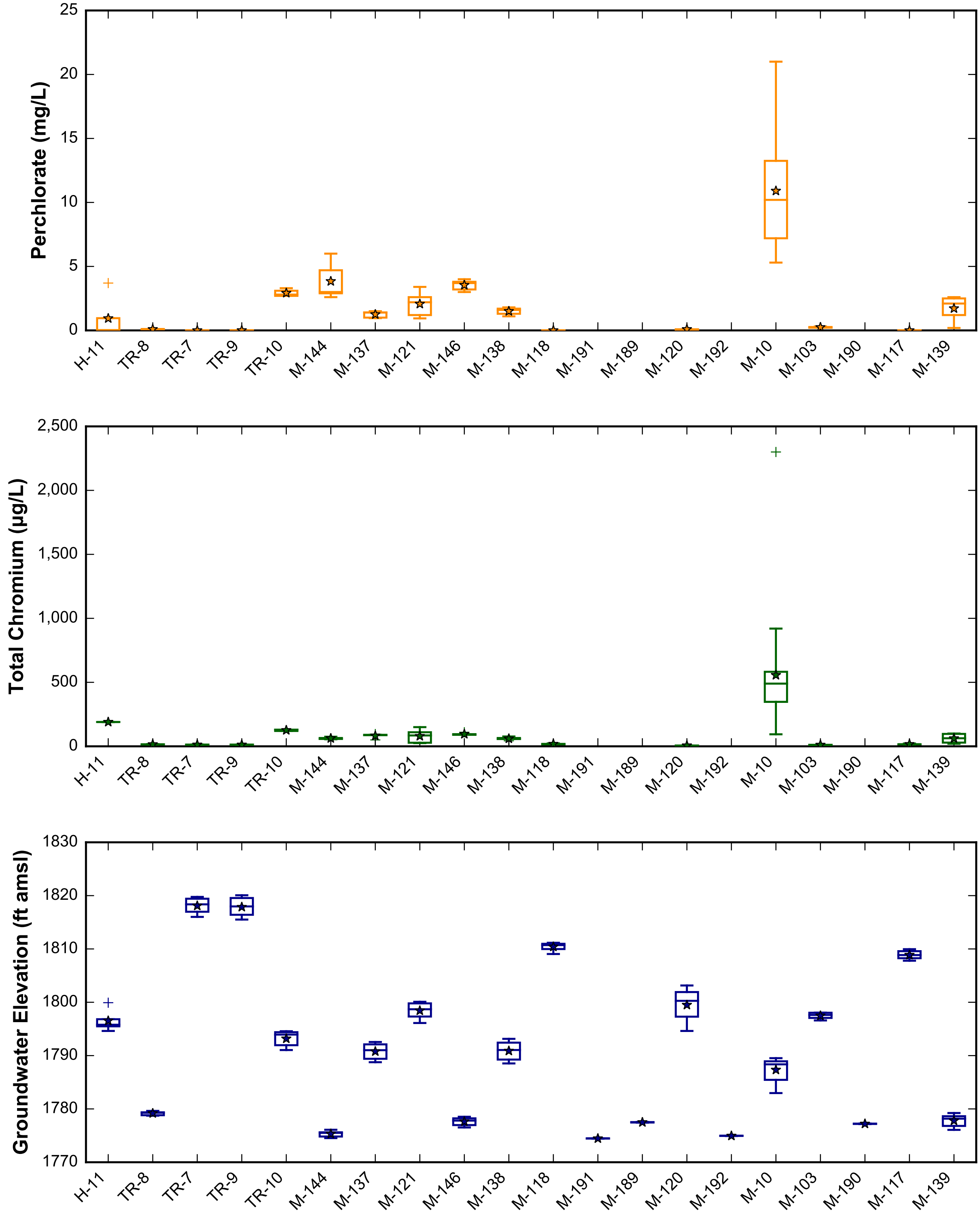


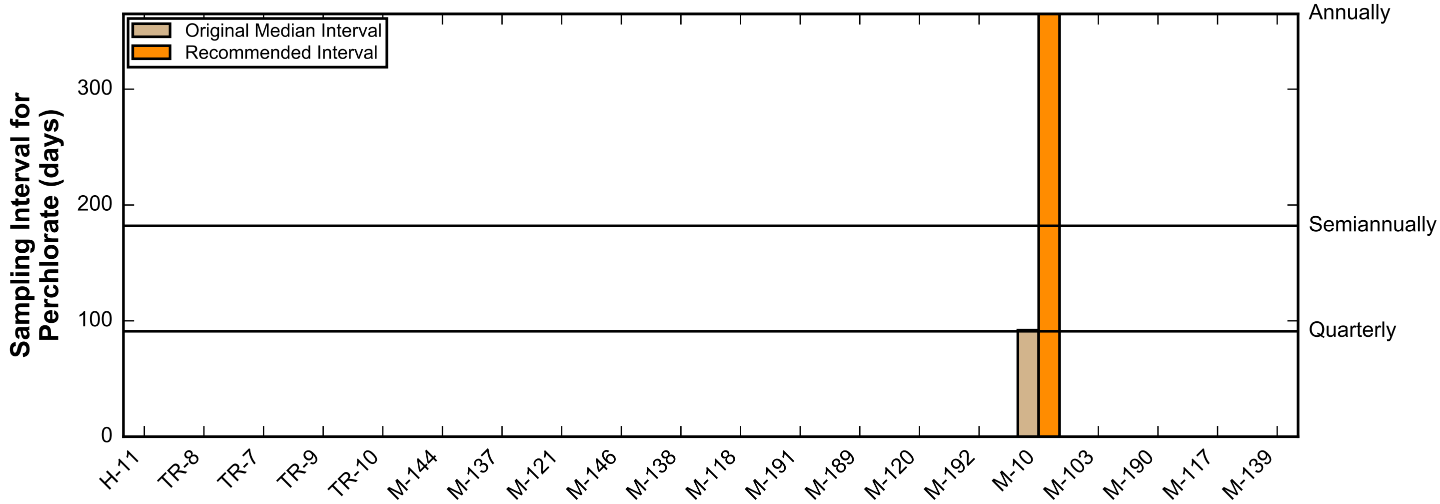
RAMBOLL ENVIRON

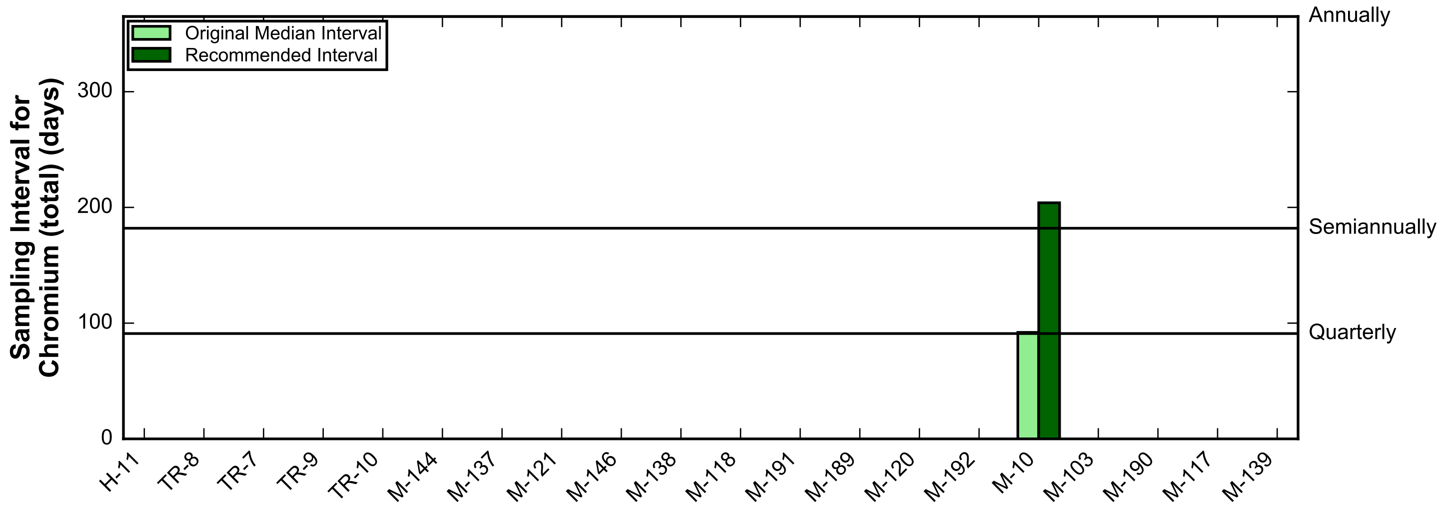
Statistical Analysis: South of the Unit Buildings
Nevada Environmental Response Trust Site
Henderson, Nevada

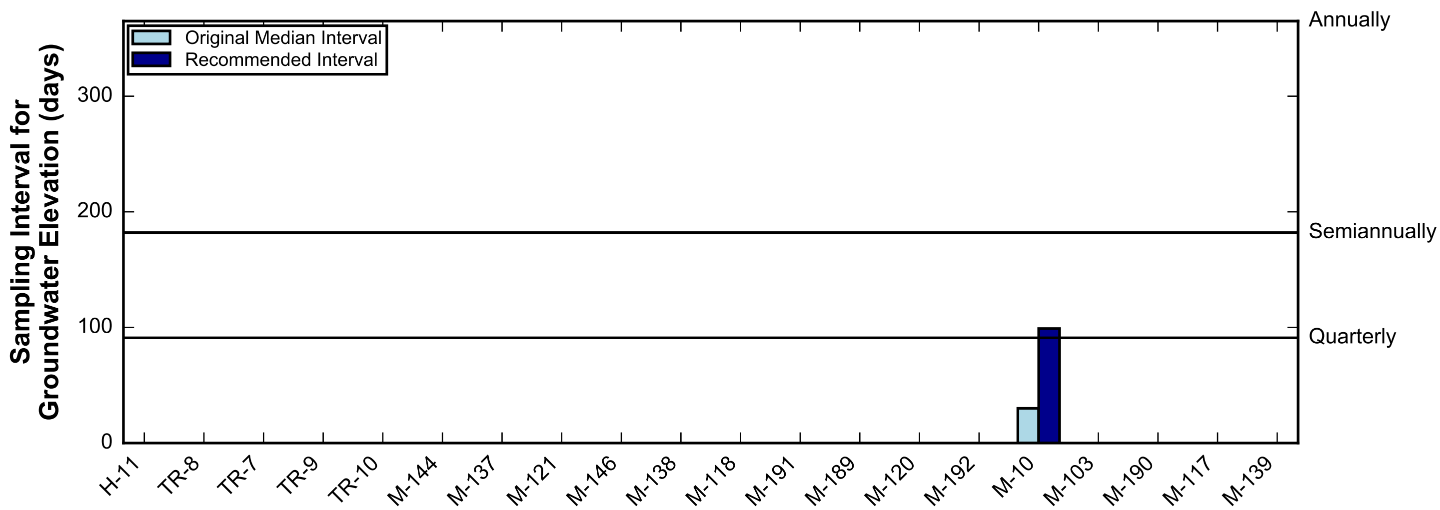
Figure
B-1a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py







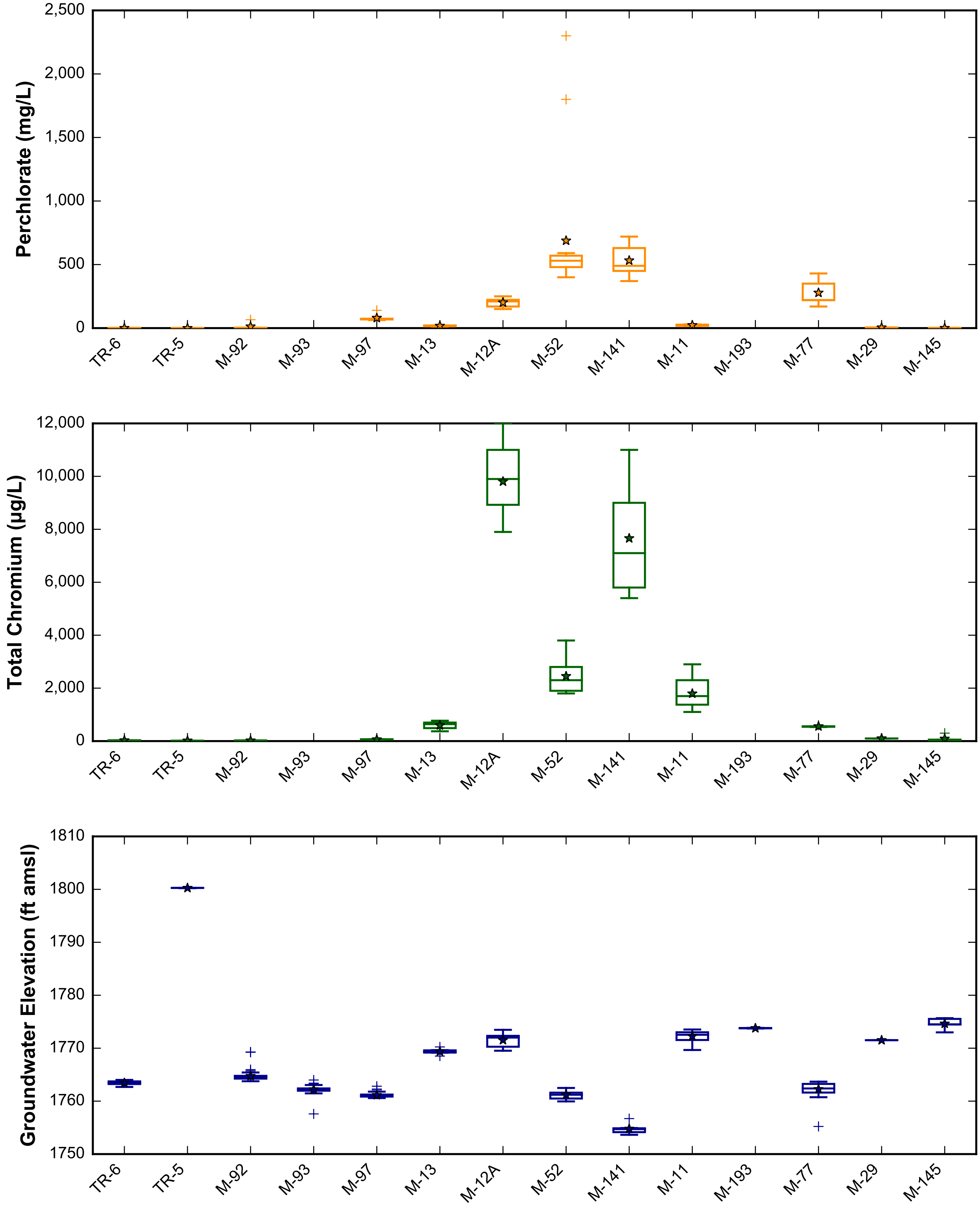
RAMBOLL ENVIRON

Thinning Results: South of the Unit Buildings
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-1b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



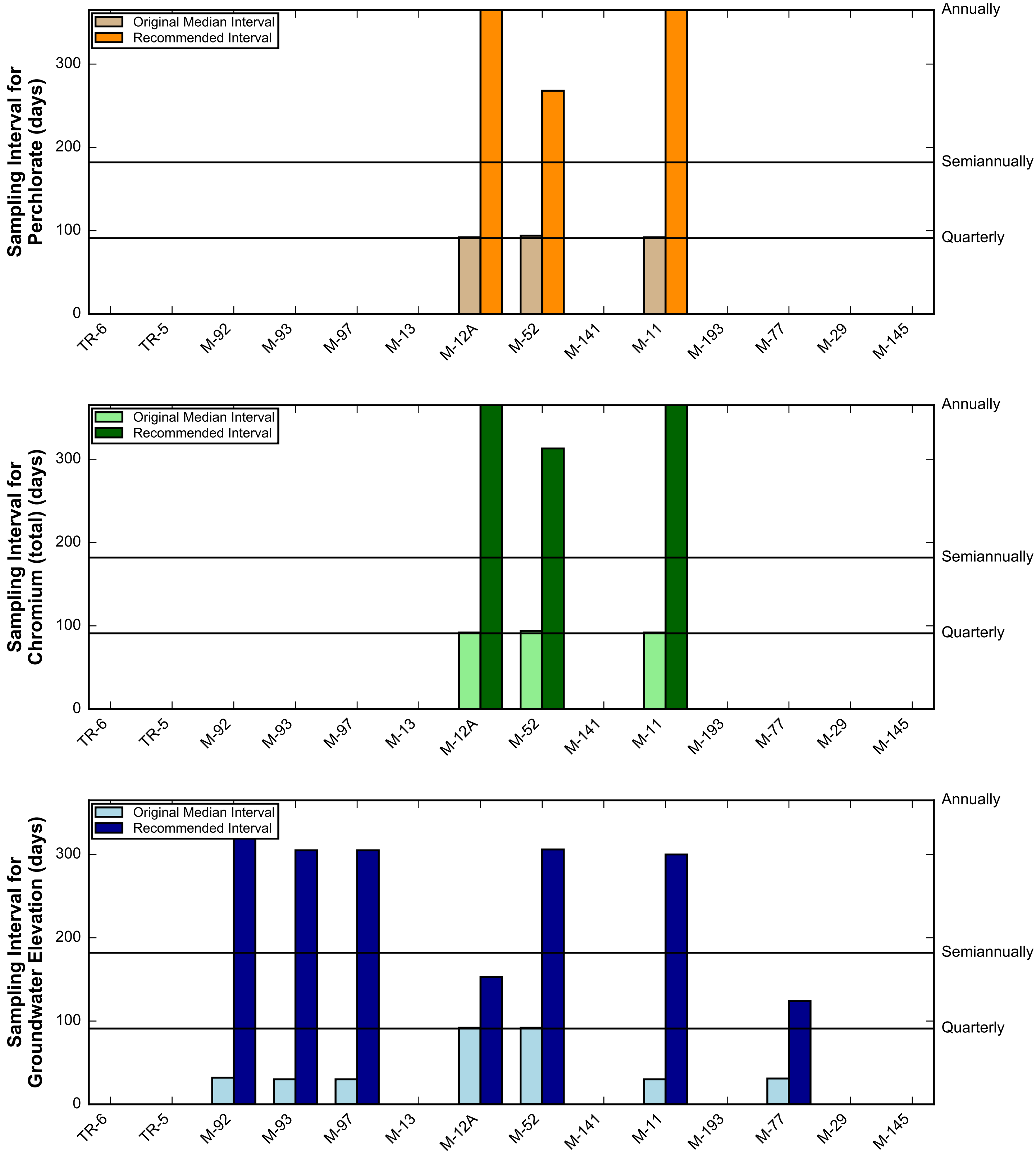
RAMBOLL ENVIRON

Statistical Analysis: North of the Unit Buildings
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-2a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



RAMBOLL ENVIRON

Thinning Results: North of the Unit Buildings
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-2b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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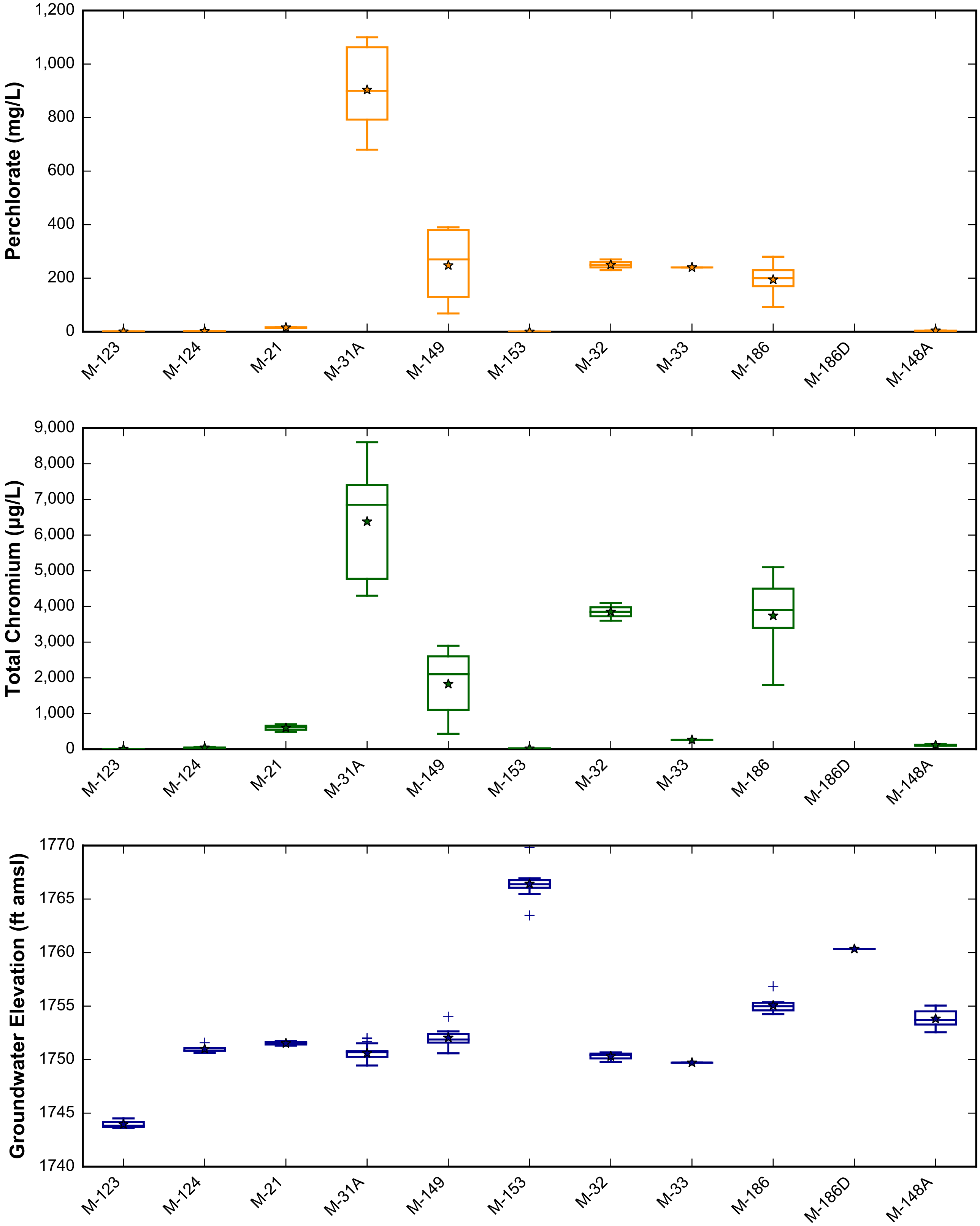


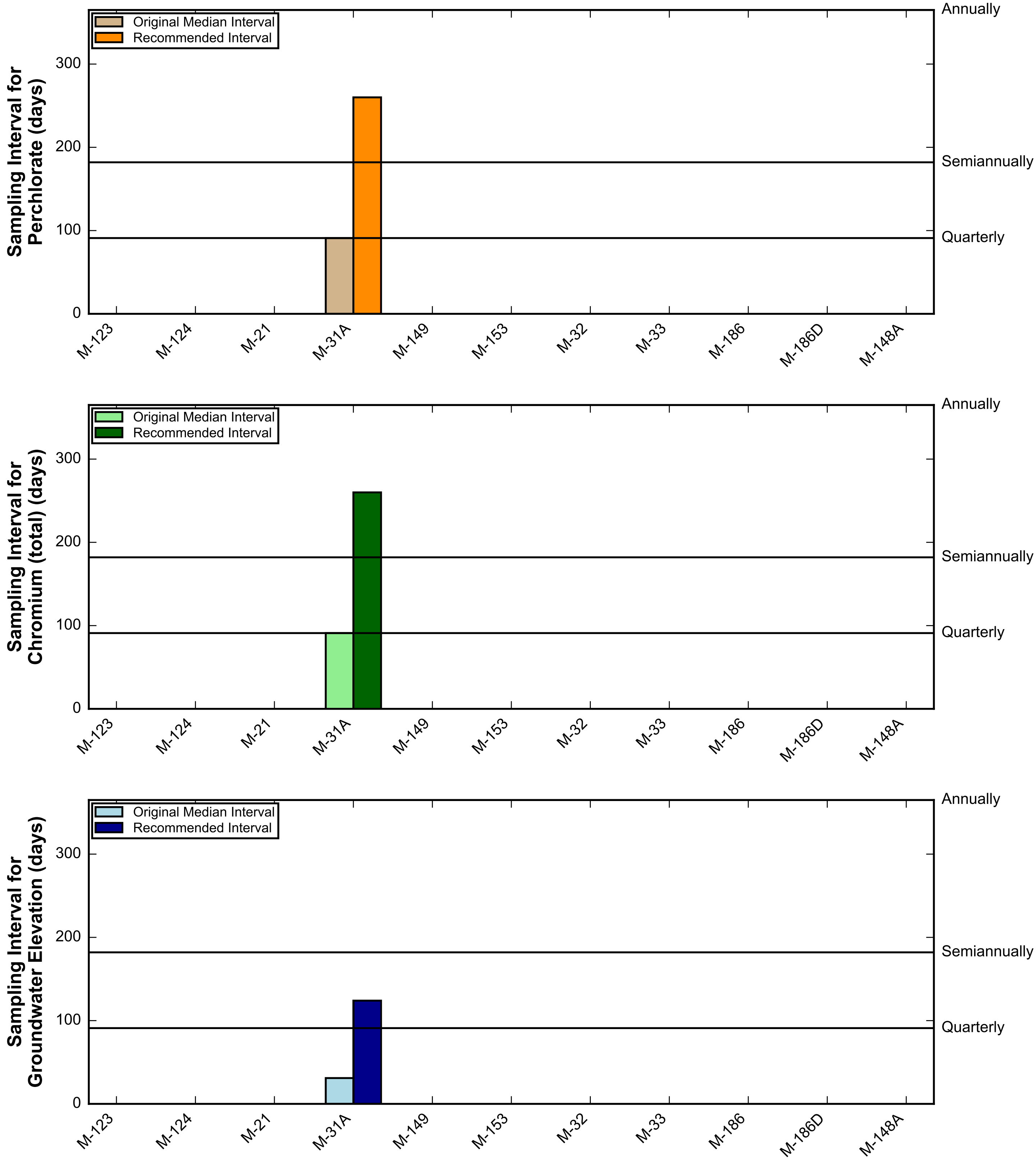
RAMBOLL ENVIRON

Statistical Analysis: Southern Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-3a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py

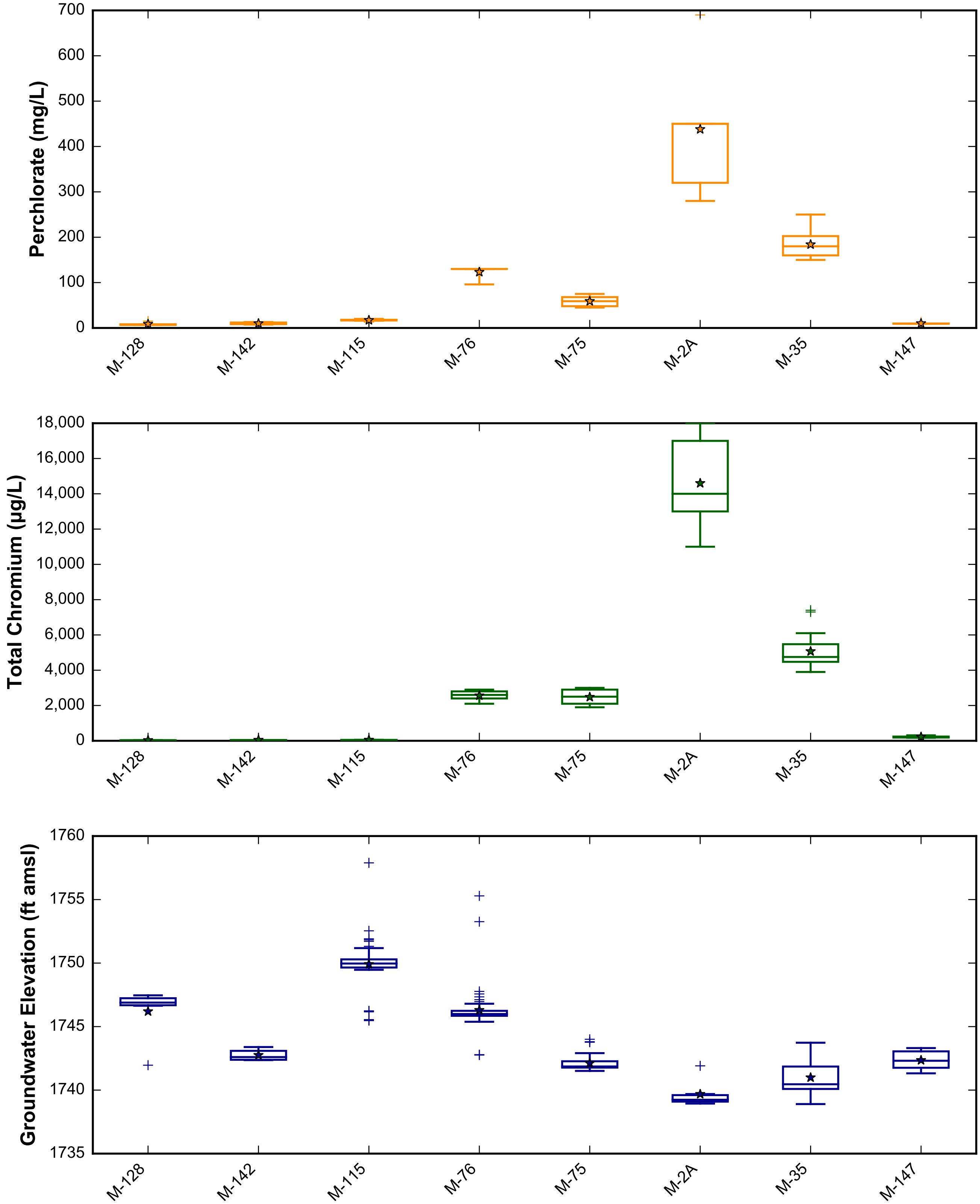


RAMBOLL ENVIRON

Thinning Results: Southern Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-3b

Drafter: ERG	Date: 04/29/16	Contract Number: 2138800A	Approved:	Revised:



RAMBØLL ENVIRON

Statistical Analysis: Middle Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-4a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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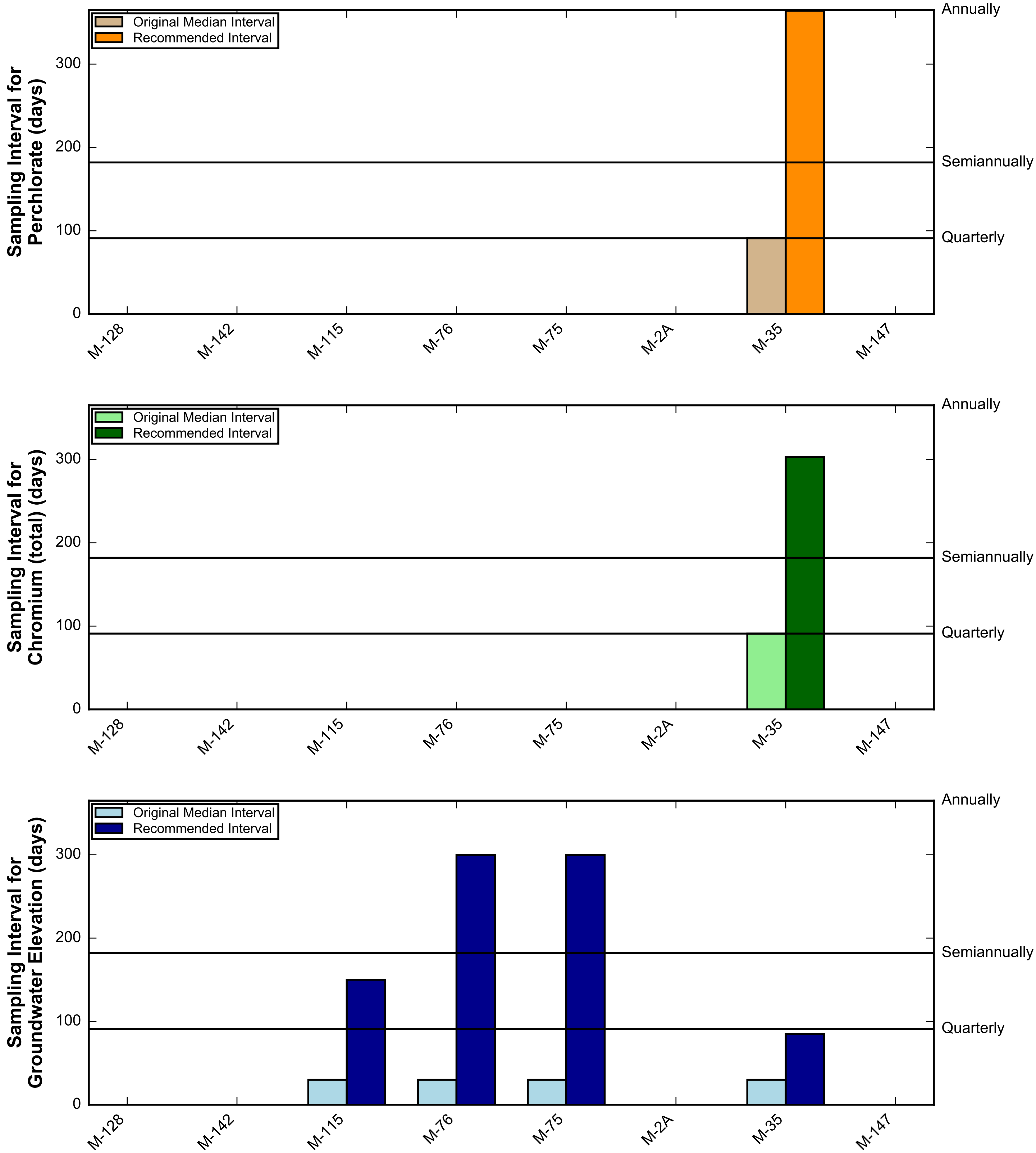
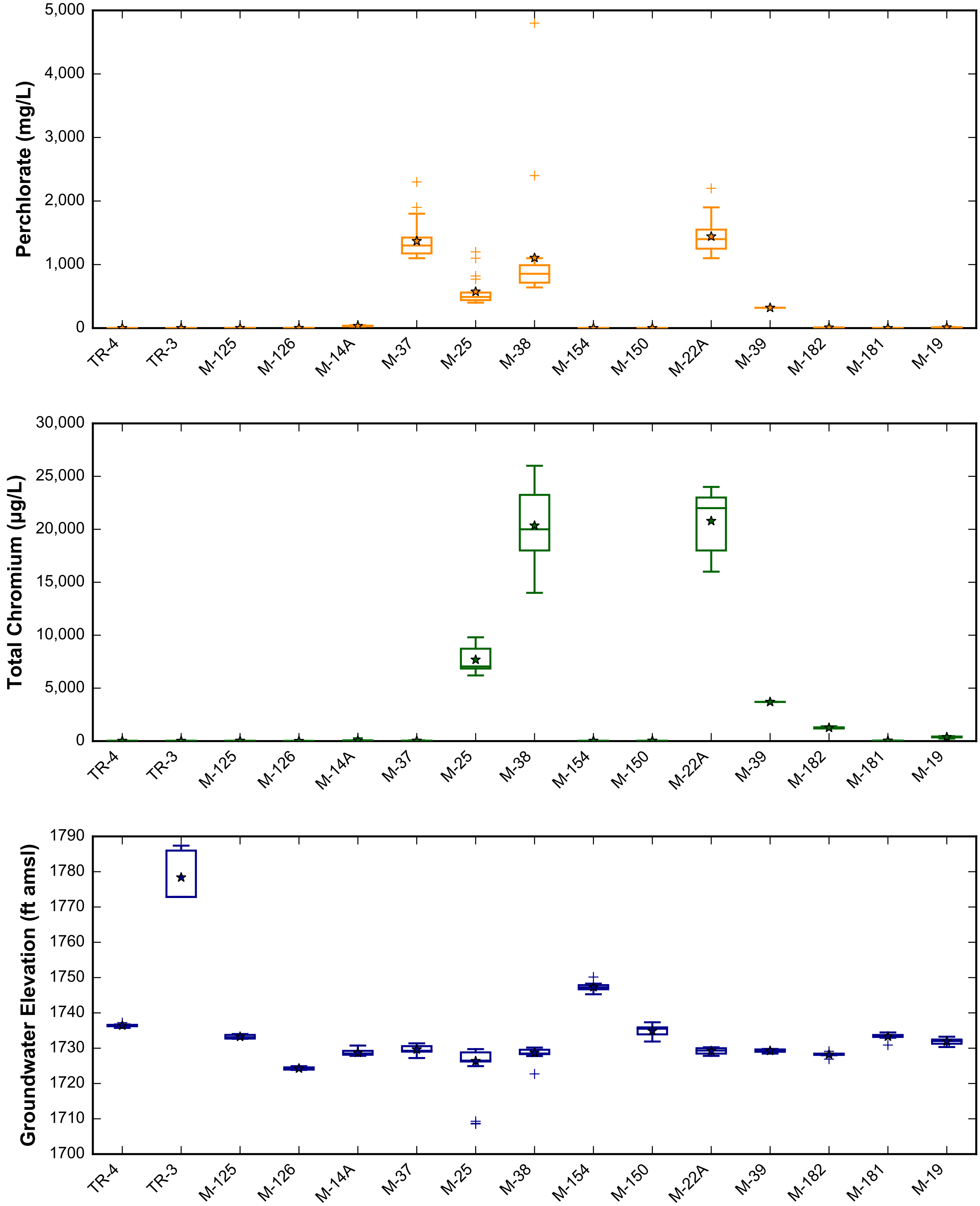


RAMBOLL ENVIRON

Thinning Results: Middle Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-4b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:



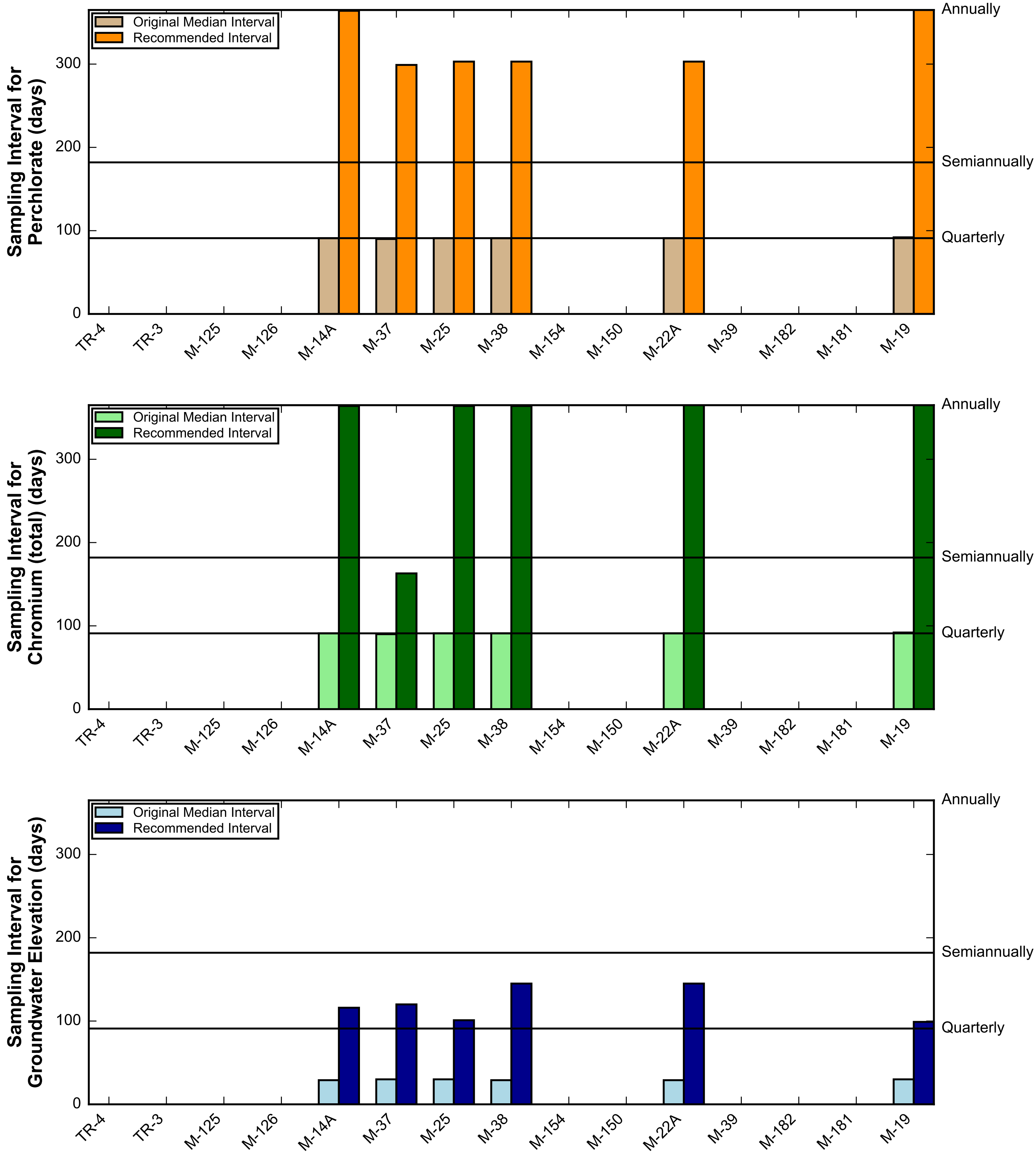
RAMBOLL ENVIRON

Statistical Analysis: Northern Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-5a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



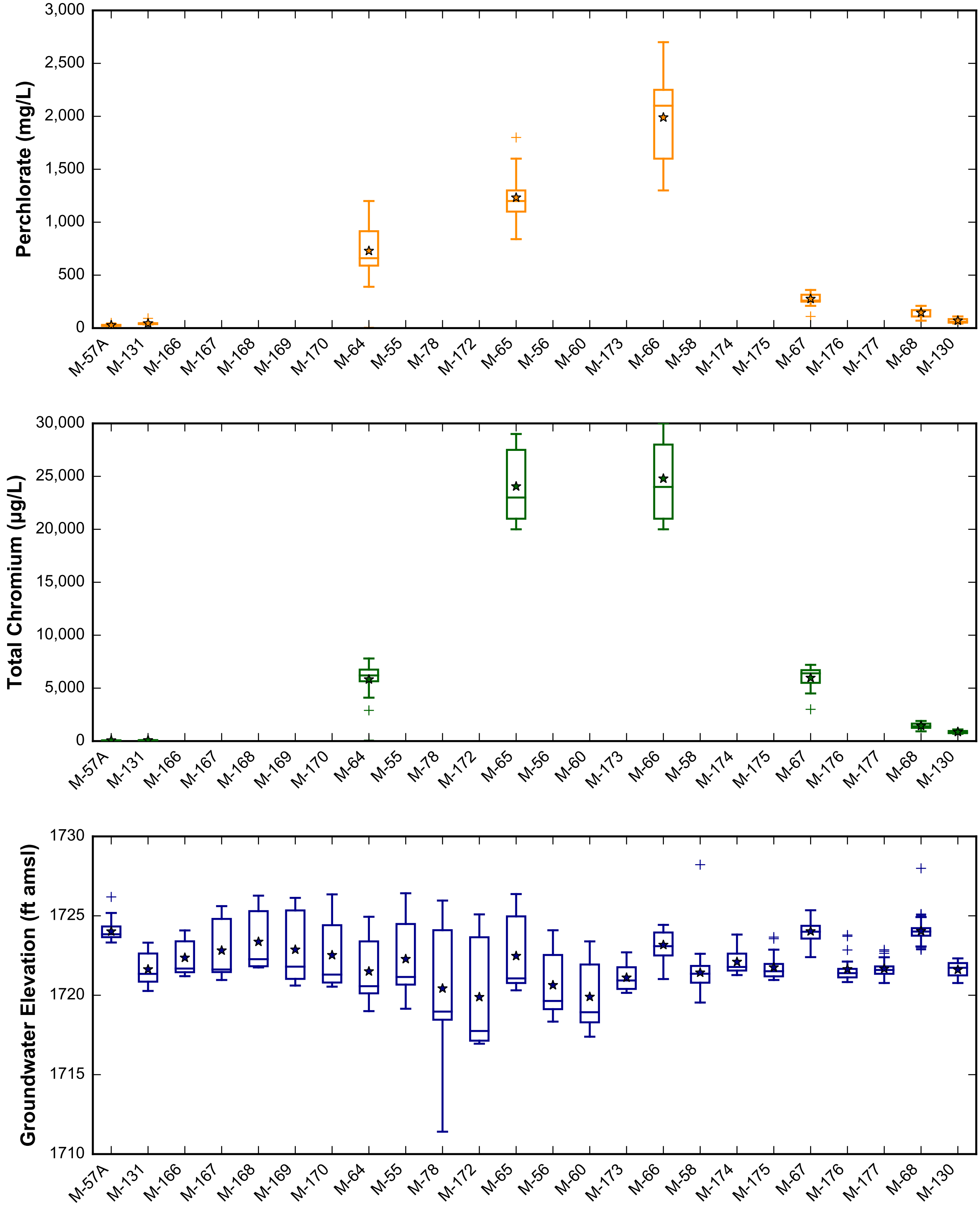
RAMBOLL ENVIRON

Thinning Results: Northern Mid-Site
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-5b

Drafter: ERG Date: 04/29/16 Contract Number: 2138800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



RAMBOLL ENVIRON

Statistical Analysis: South of the Barrier Wall
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-6a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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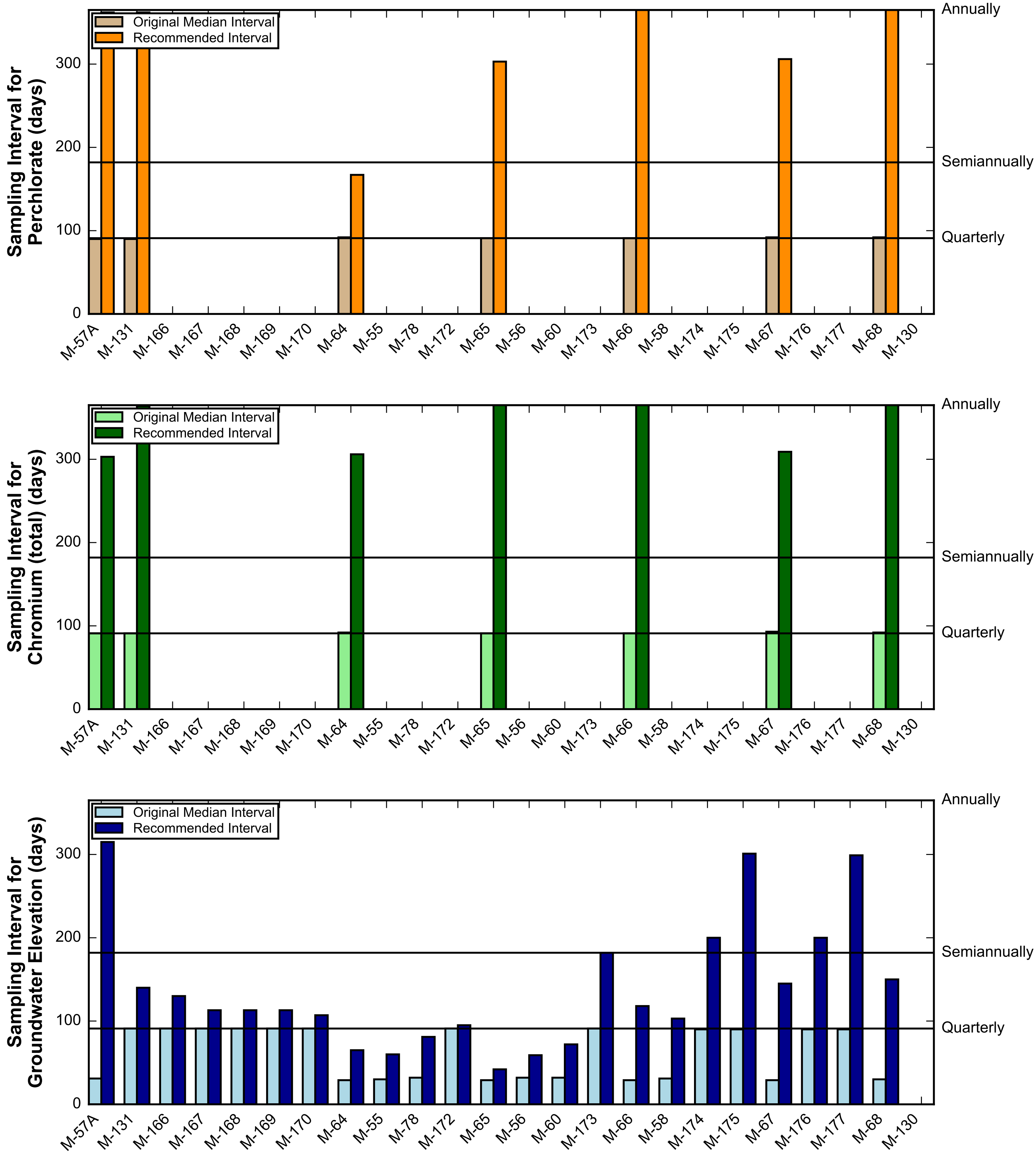

RAMBOLL ENVIRON	**Thinning Results: South of the Barrier Wall** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **B-6b**

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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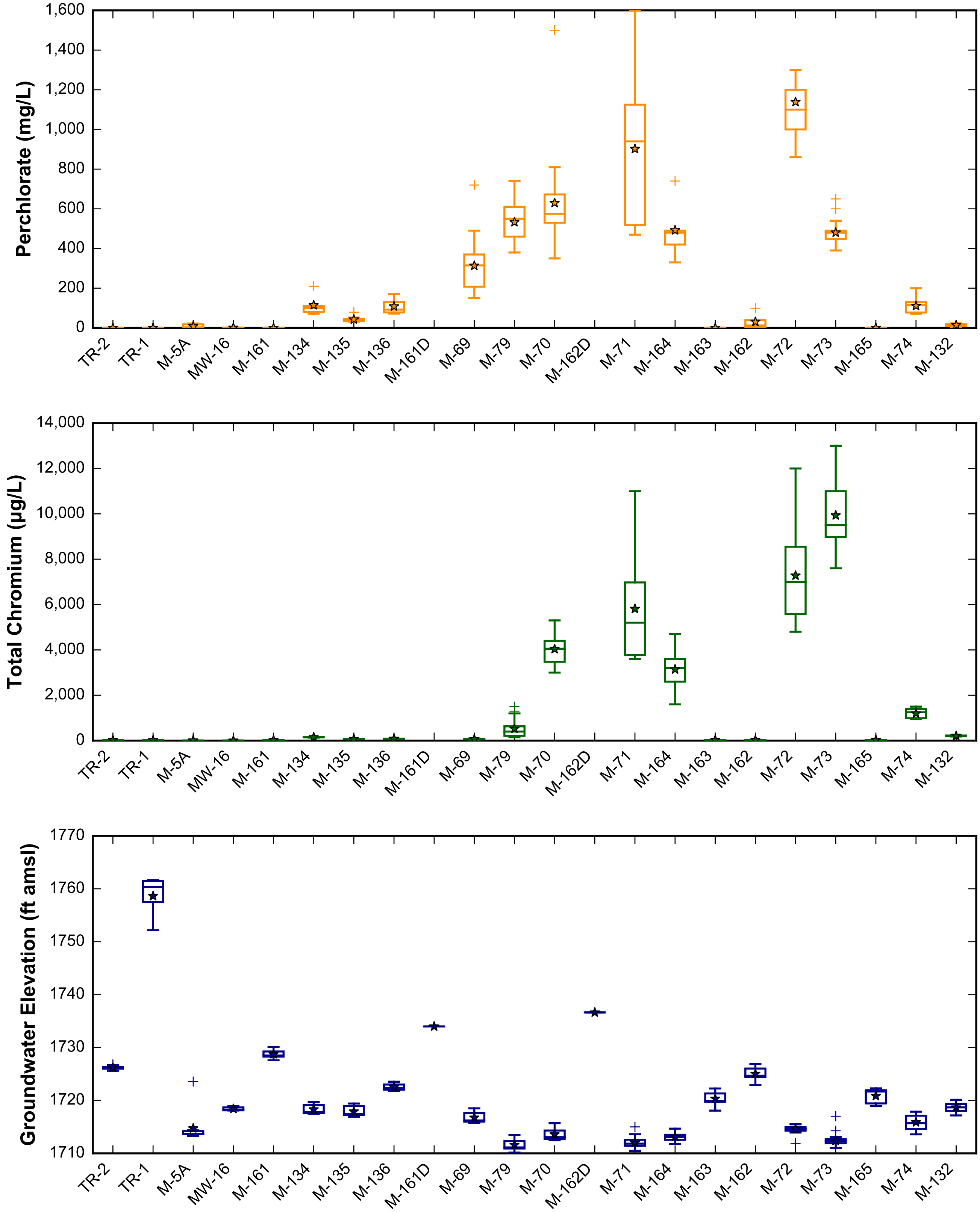

RAMBOLL ENVIRON

Statistical Analysis: North of the Barrier Wall
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-7a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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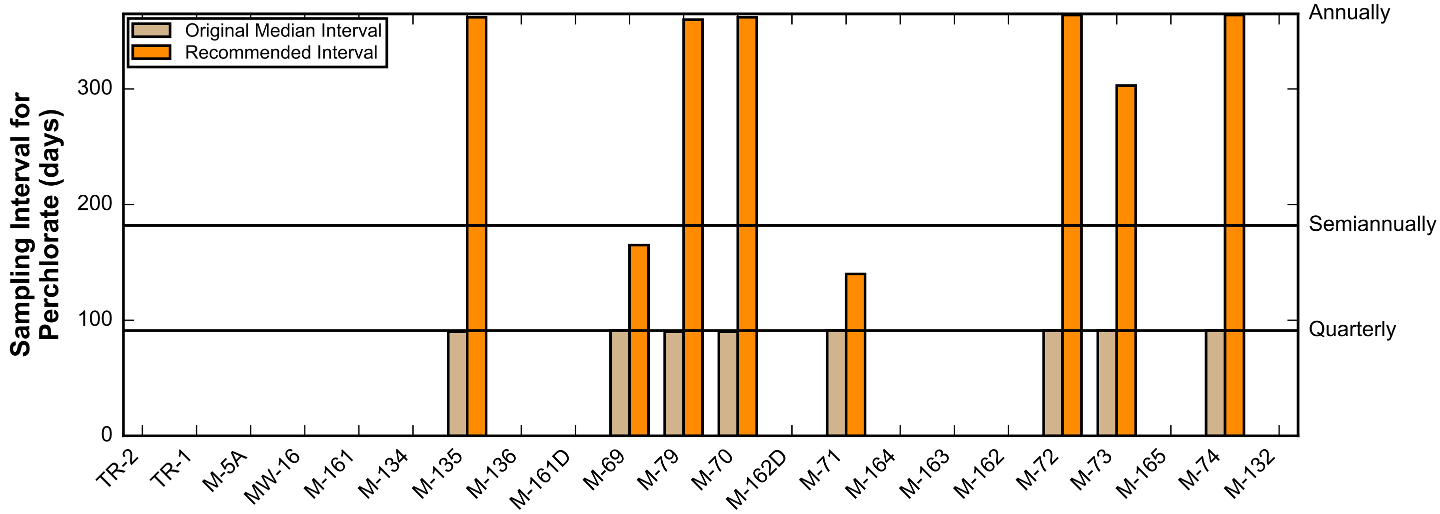

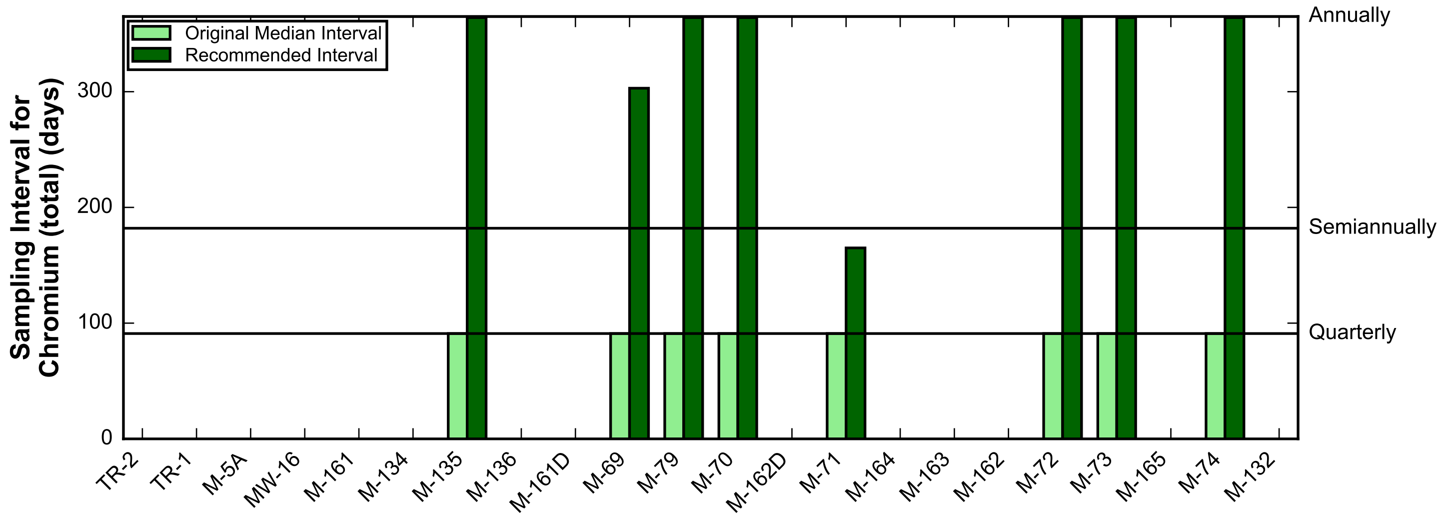

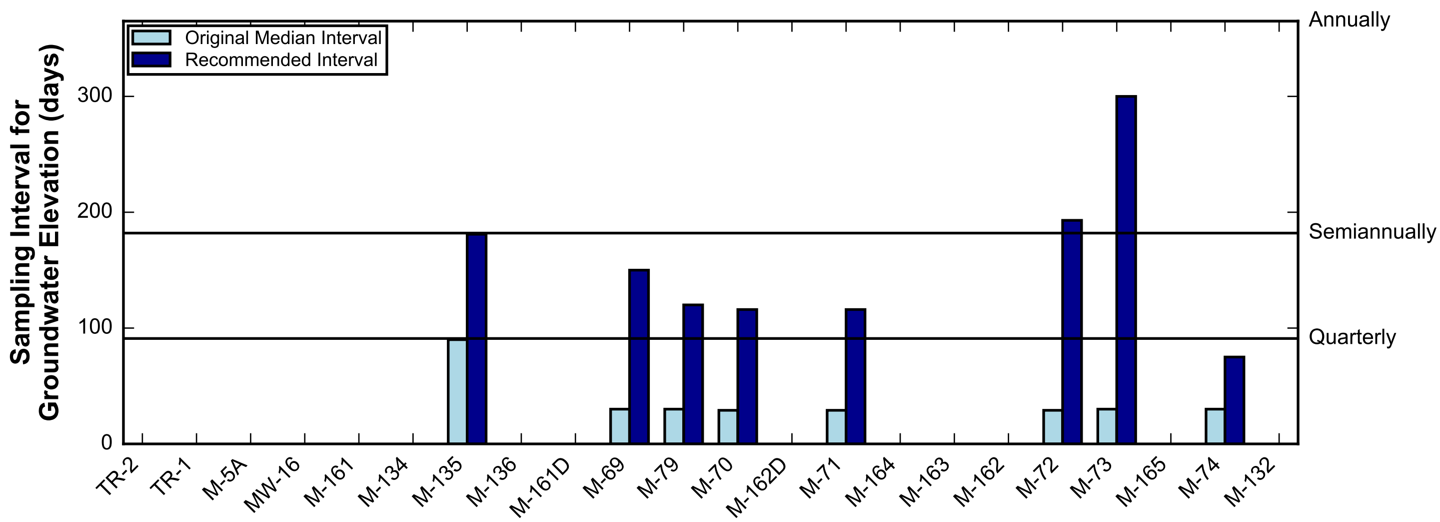

RAMBOLL ENVIRON

Thinning Results: North of the Barrier Wall
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-7b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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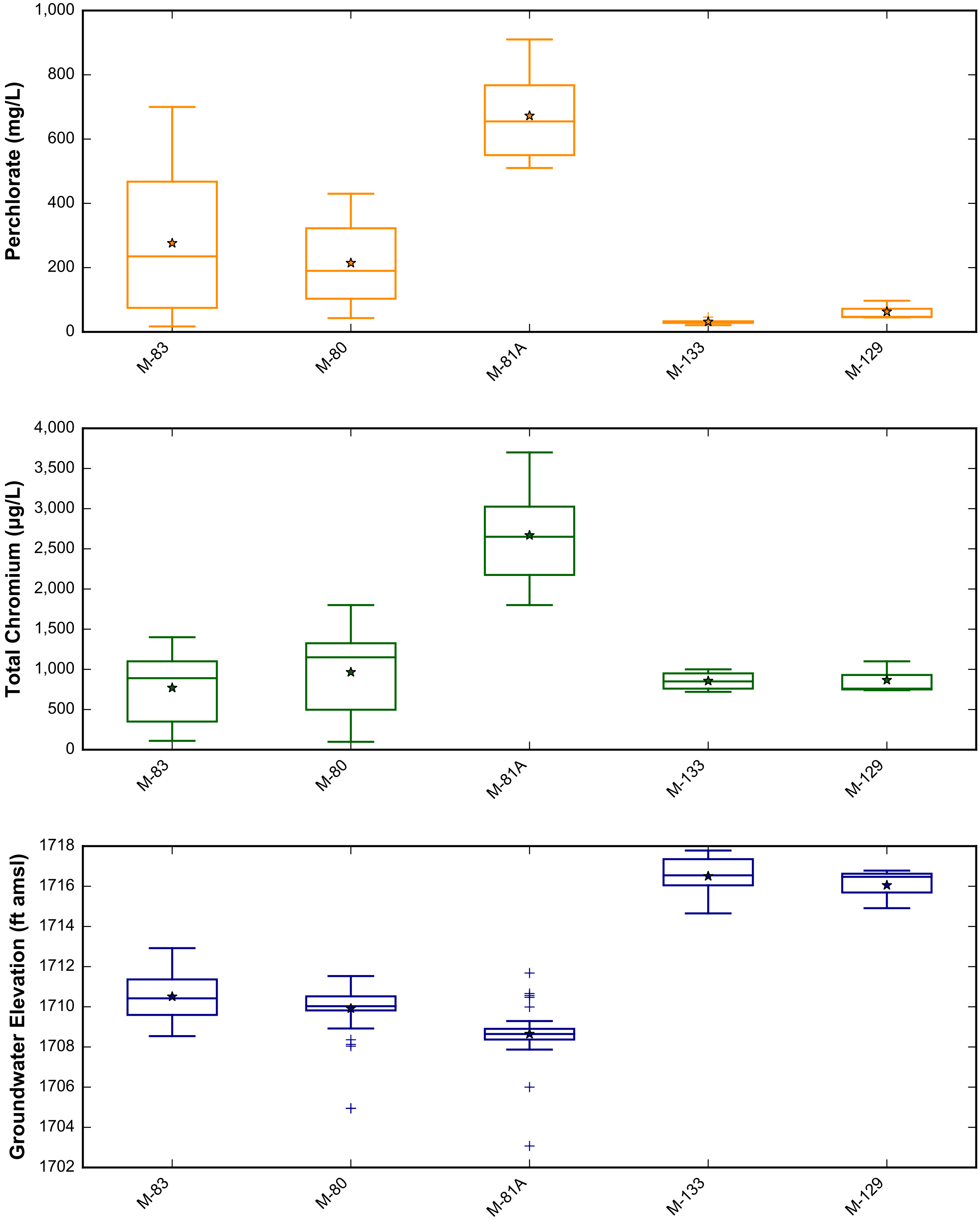
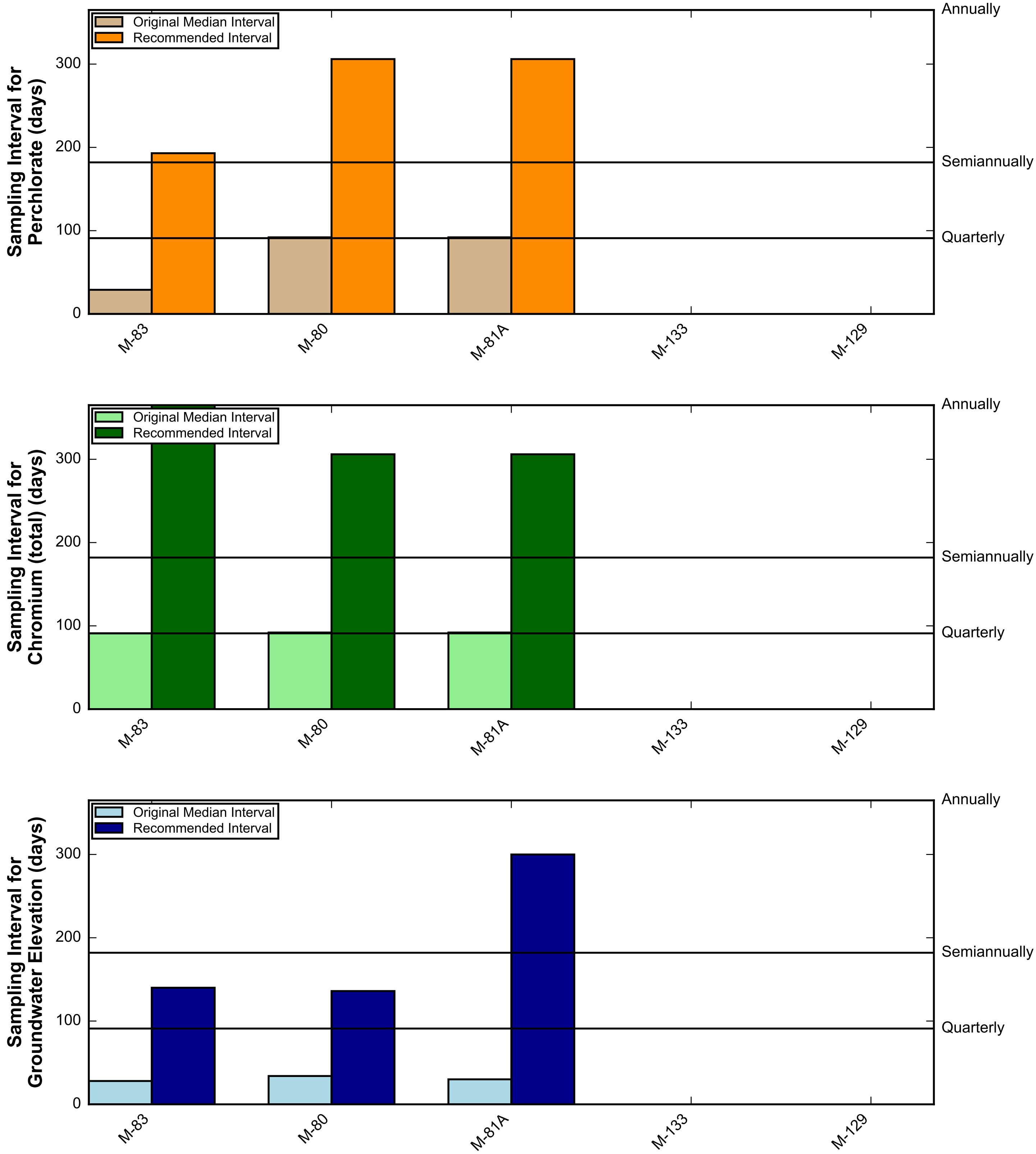


RAMBOLL ENVIRON

Statistical Analysis: Near Former Recharge Trenches
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-8a

Drafter: JH	Date: 04/29/16	Contract Number: 2138800A	Approved:	Revised:



RAMBOLL ENVIRON

Thinning Results: Near Former Recharge Trenches
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-8b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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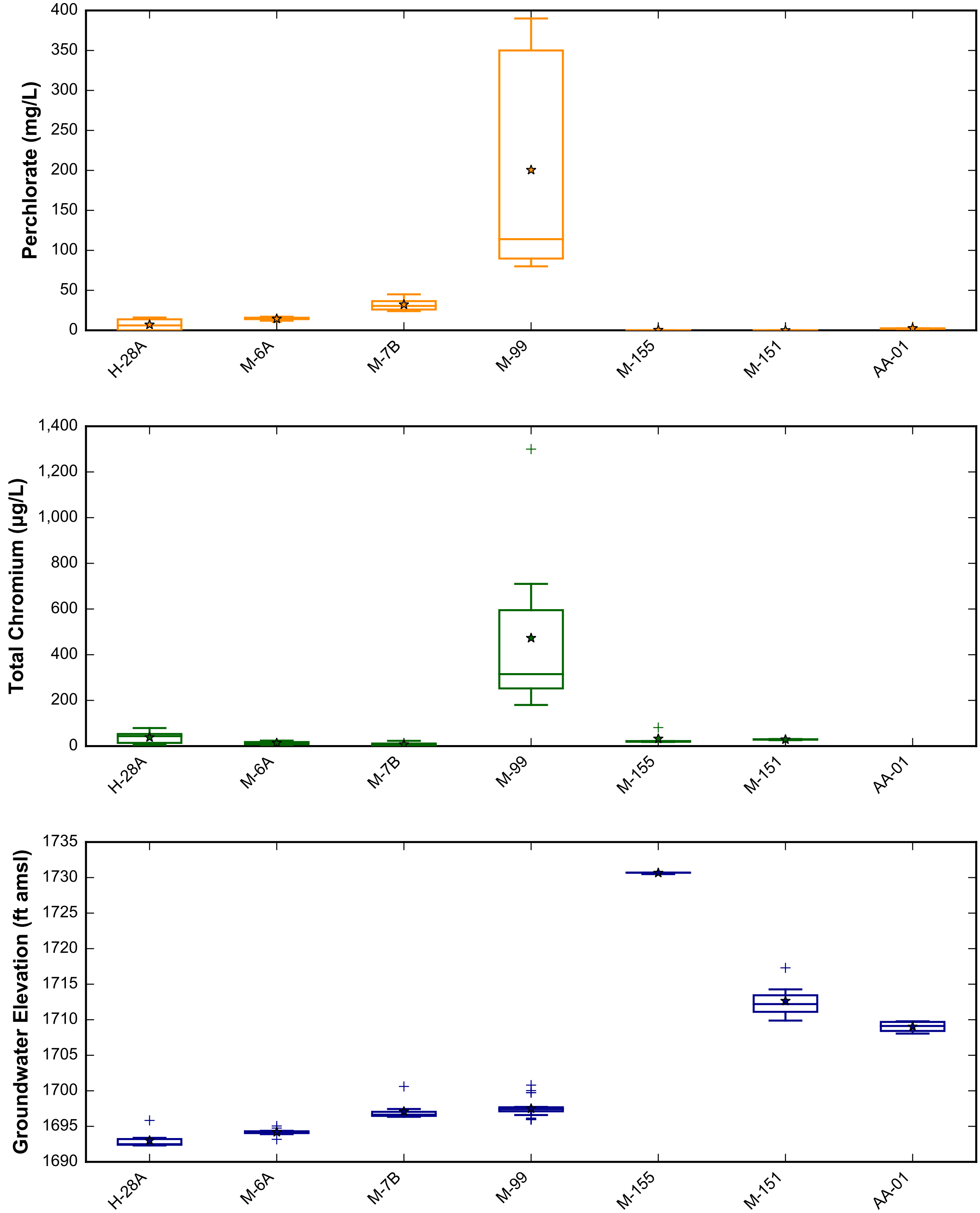
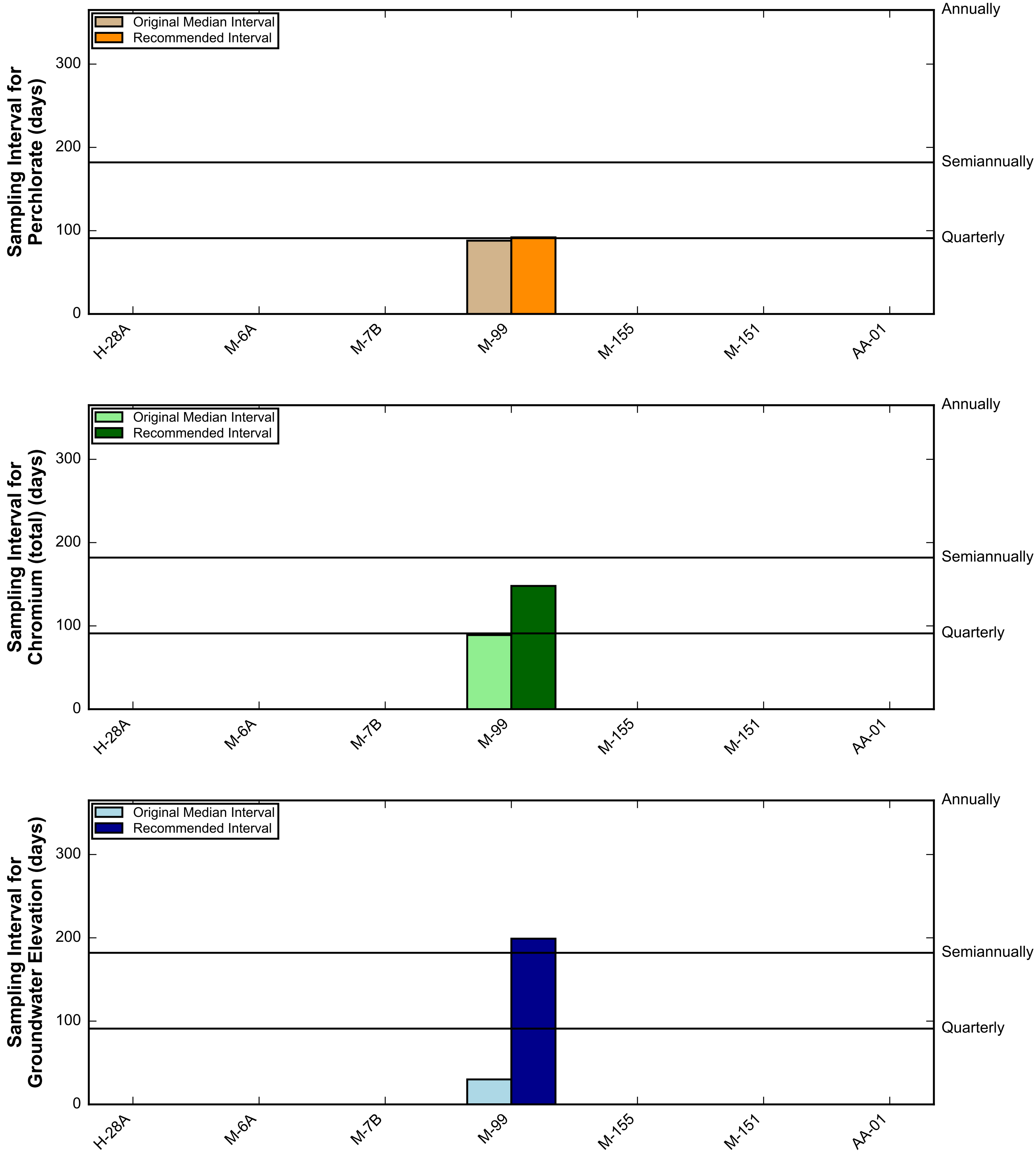


RAMBOLL ENVIRON	**Statistical Analysis: North of Former Recharge Trenches** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **B-9a**

Drafter: JH Date: 04/29/16 Contract Number: 2138800A Approved: Revised:



RAMBOLL ENVIRON

Thinning Results: North of Former Recharge Trenches
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-9b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

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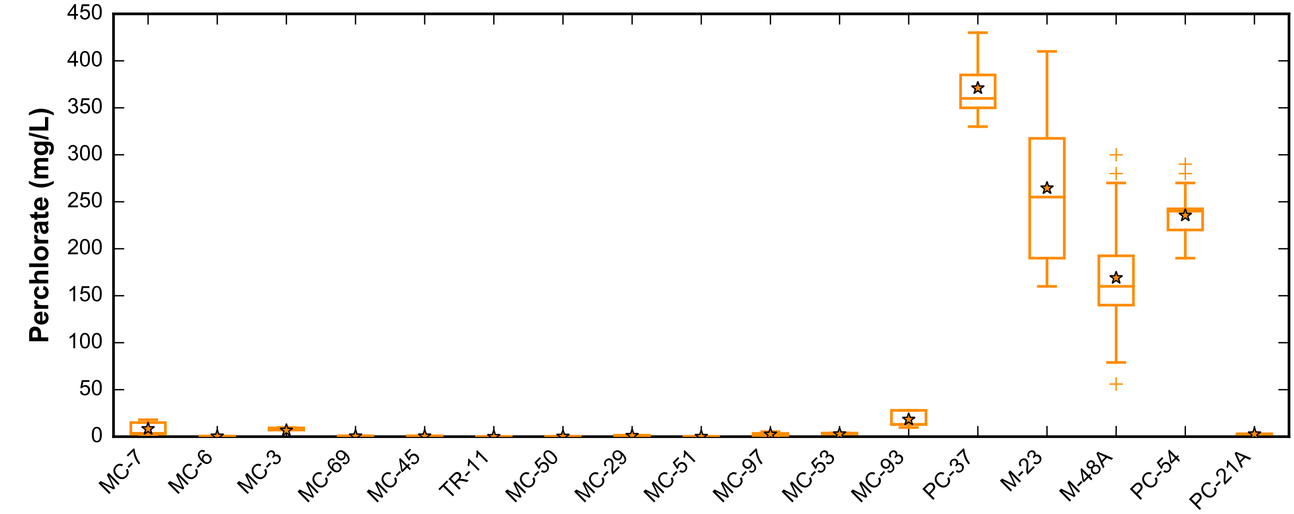
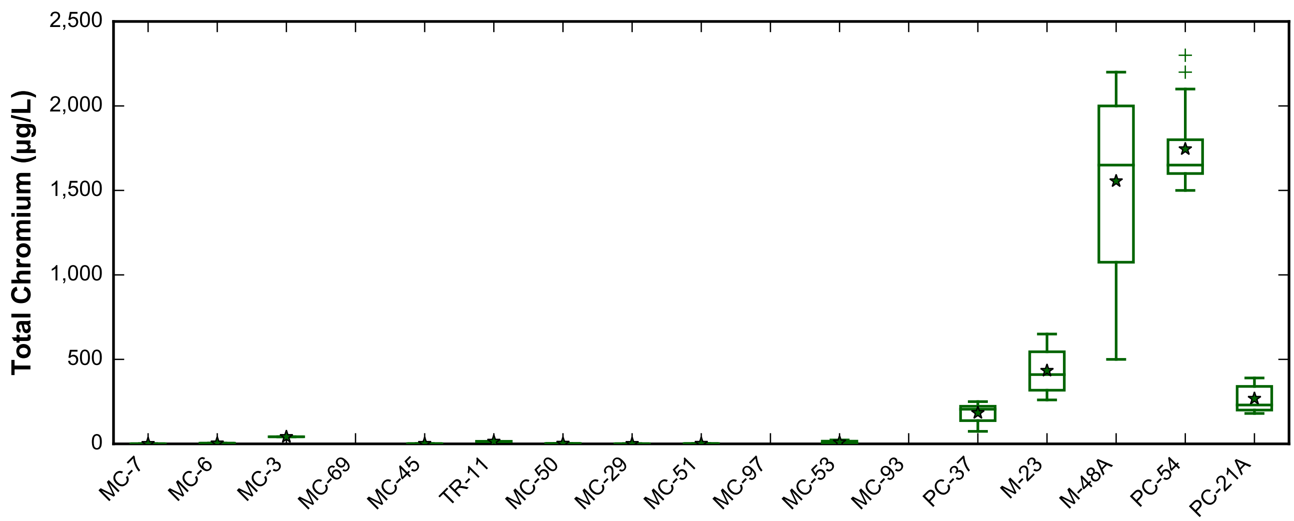
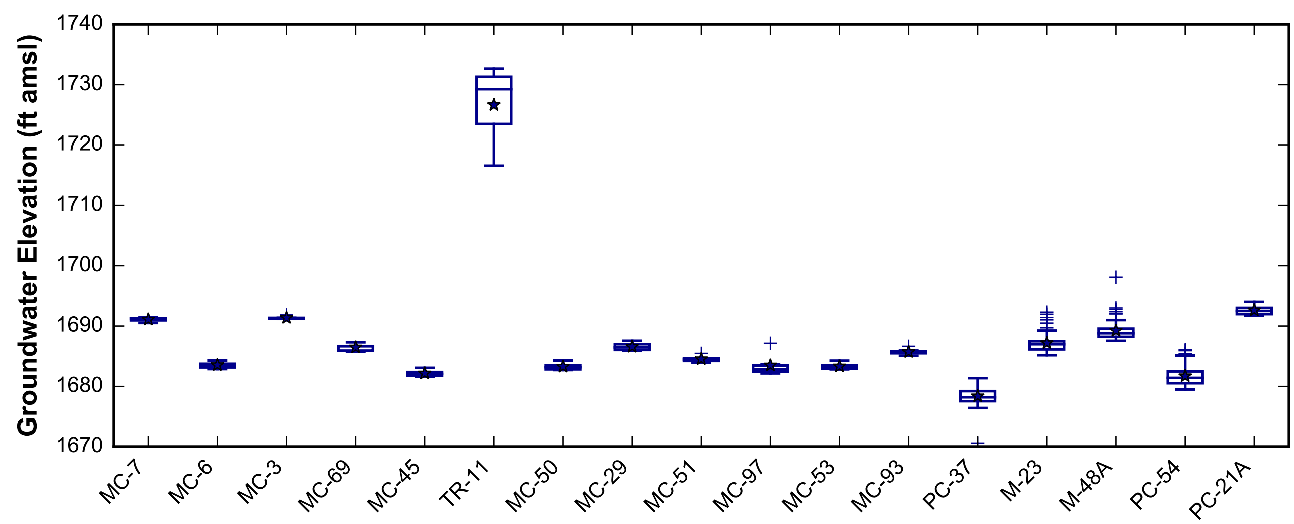






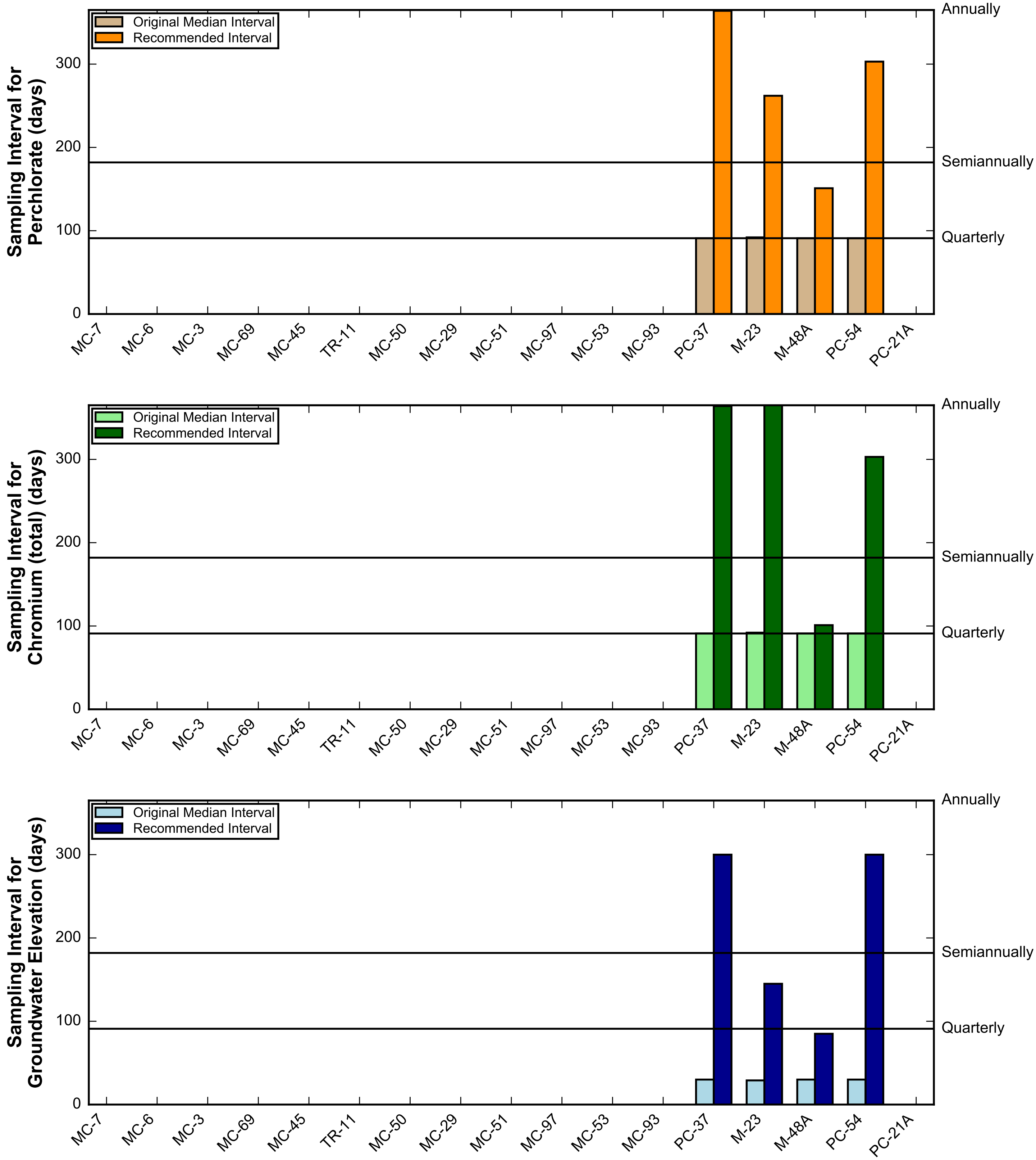
RAMBOLL ENVIRON

Statistical Analysis: Near Warm Springs Road
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-10a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py

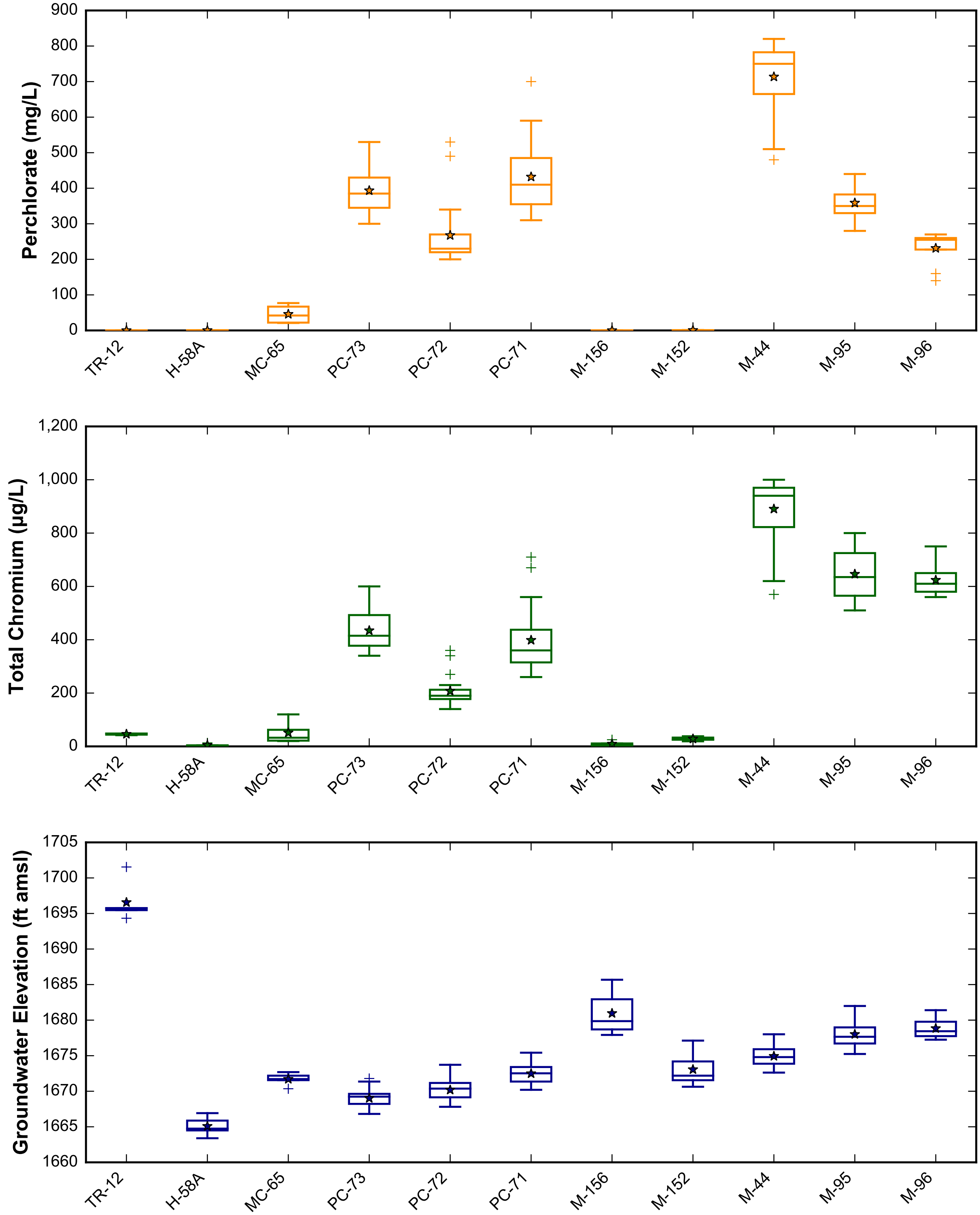


RAMBOLL ENVIRON

Thinning Results: Near Warm Springs Road
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-10b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:



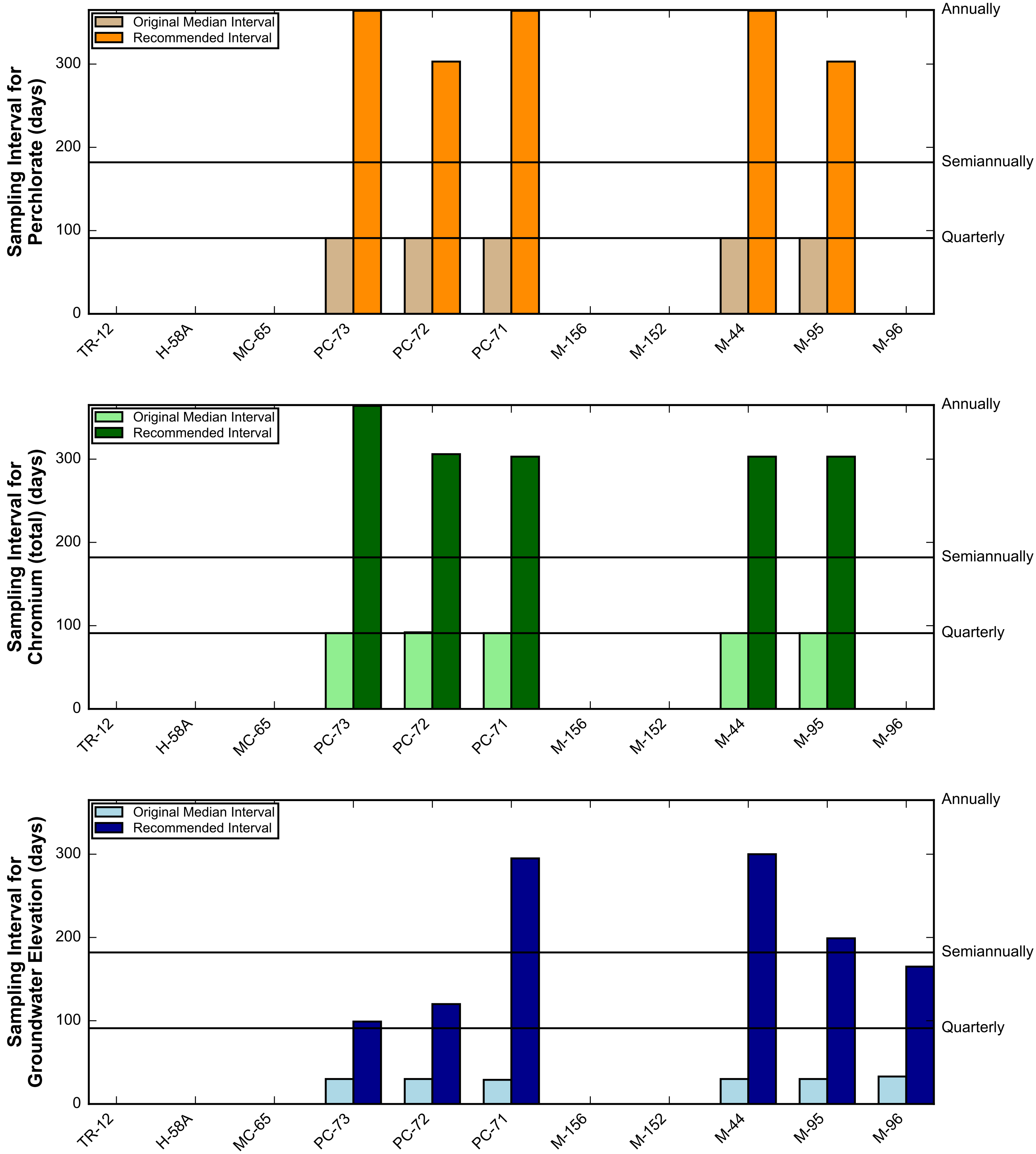
RAMBOLL ENVIRON

Statistical Analysis: Between Warm Springs and Sunset - South
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-11a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



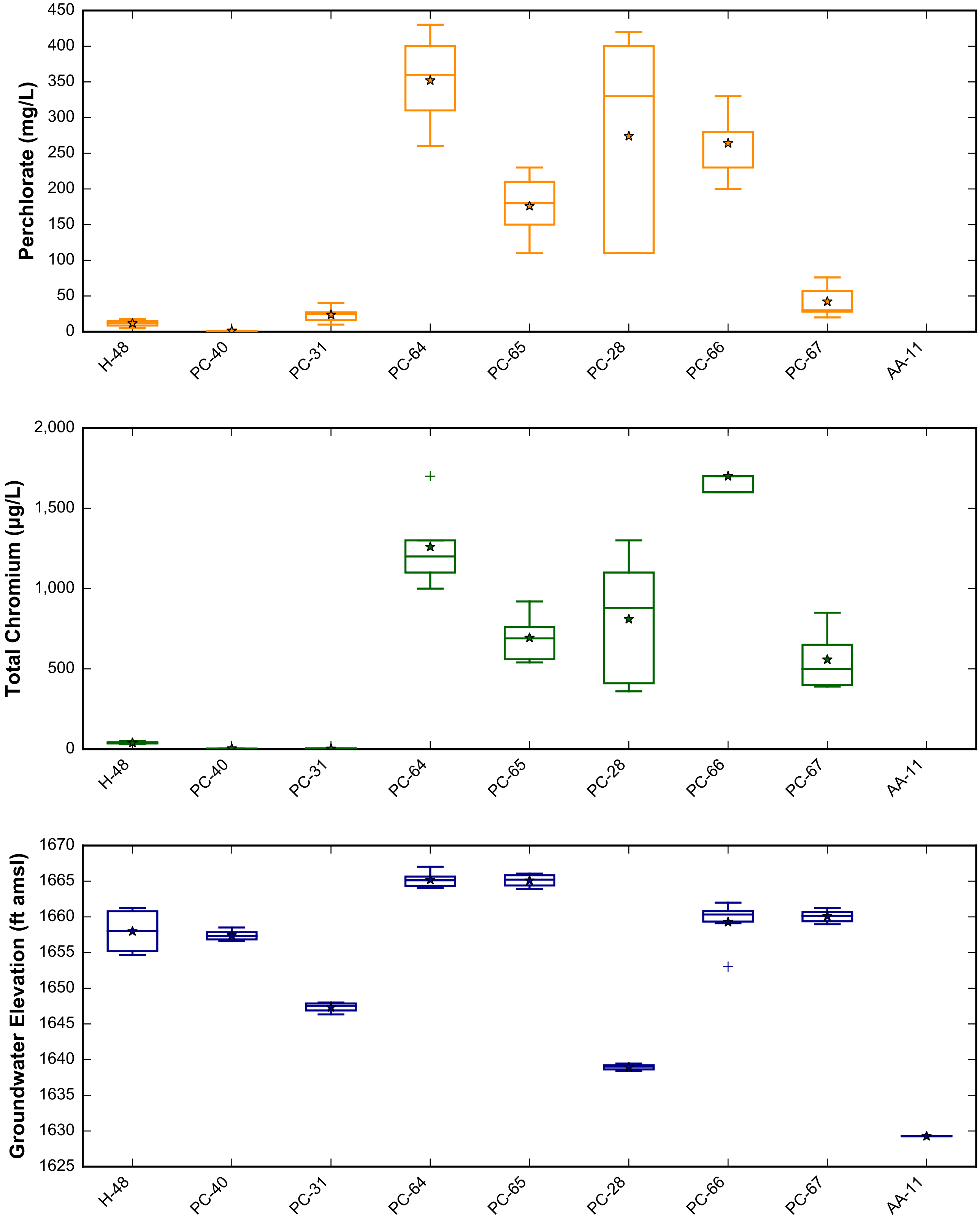
RAMBOLL ENVIRON

Thinning Results: Between Warm Springs and Sunset - South
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-11b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



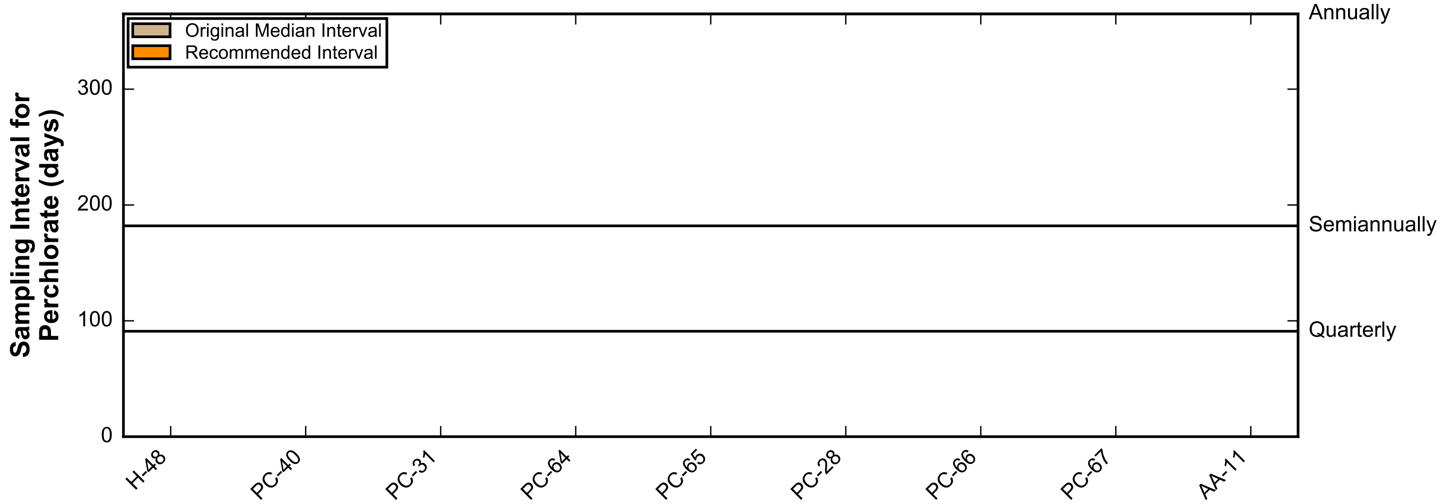
RAMBOLL ENVIRON

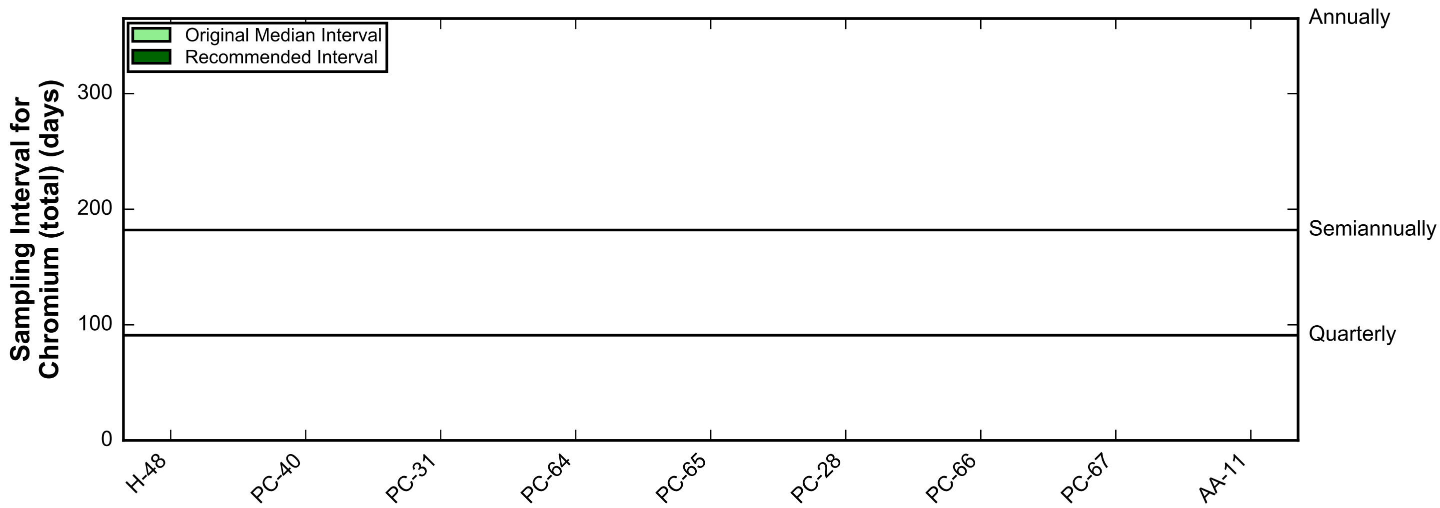
Statistical Analysis: Between Warm Springs and Sunset - North
Nevada Environmental Response Trust Site
Henderson, Nevada

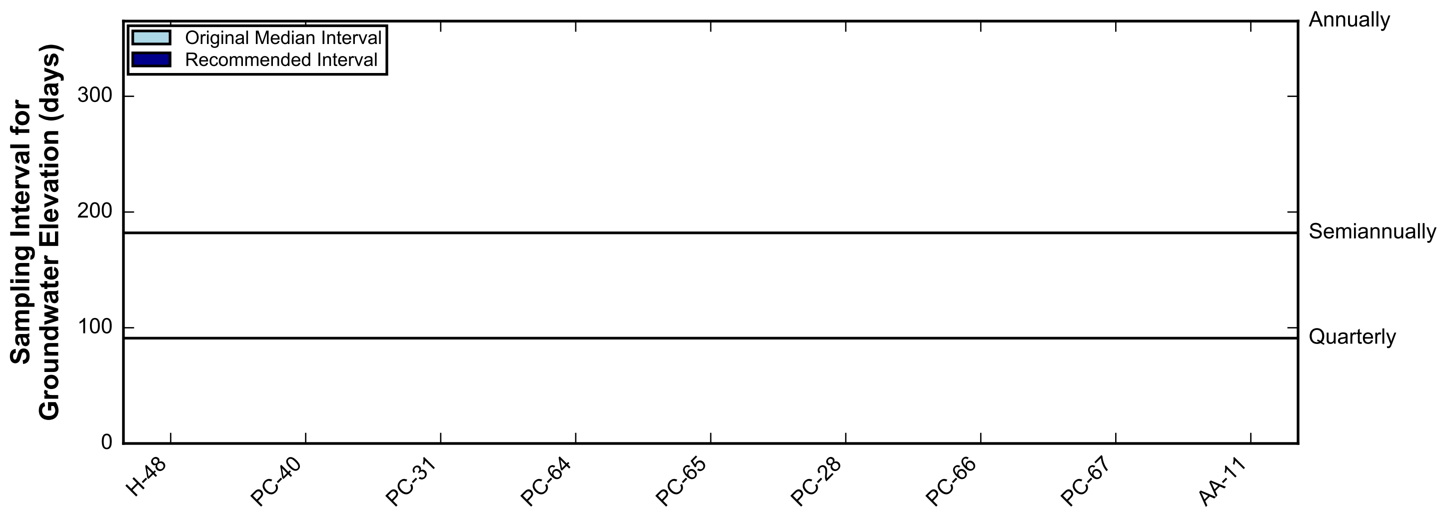
Figure
B-12a

Drafter: JH	Date: 04/29/16	Contract Number: 2138800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py







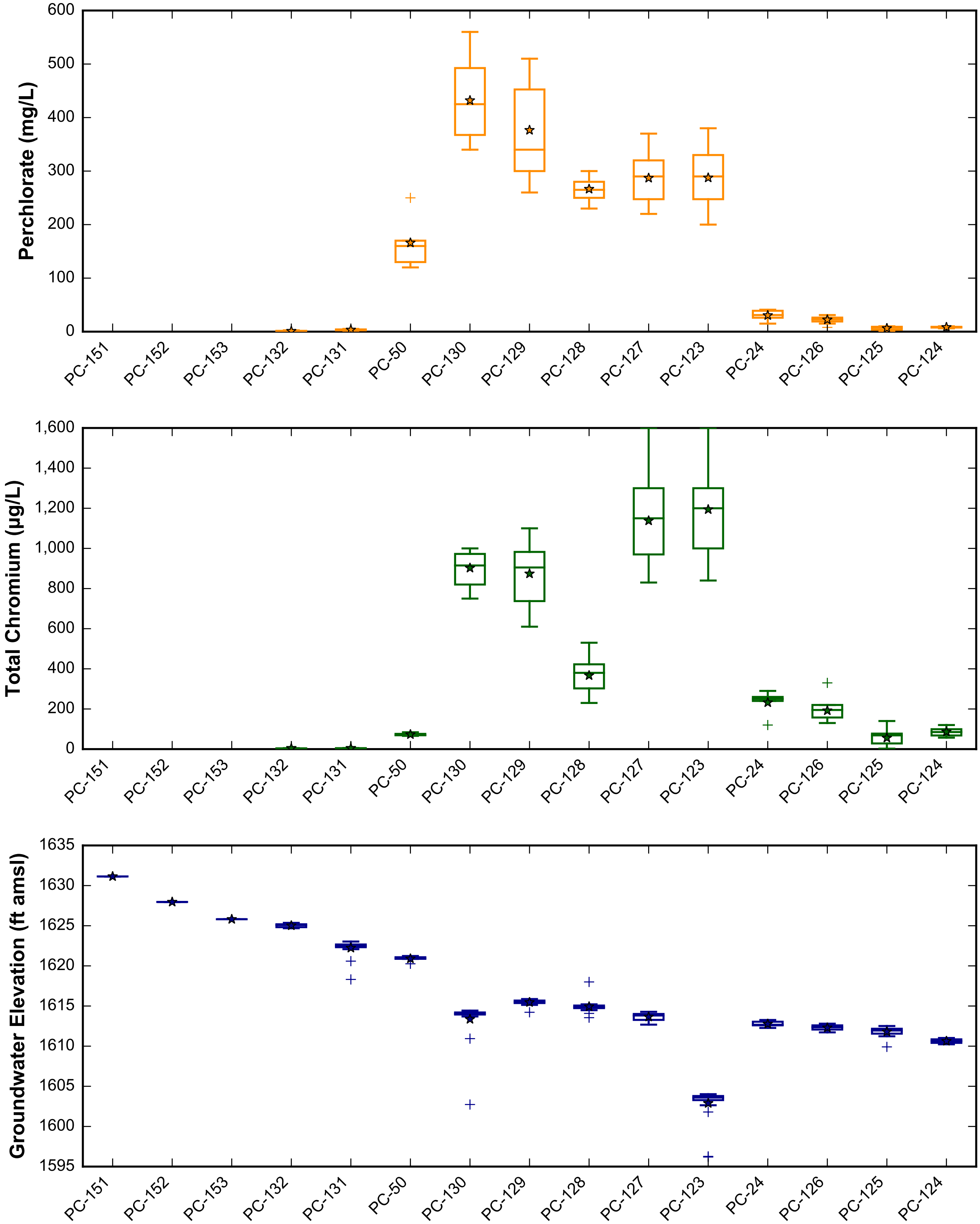
RAMBOLL ENVIRON

Thinning Results: Between Warm Springs and Sunset - North
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-12b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



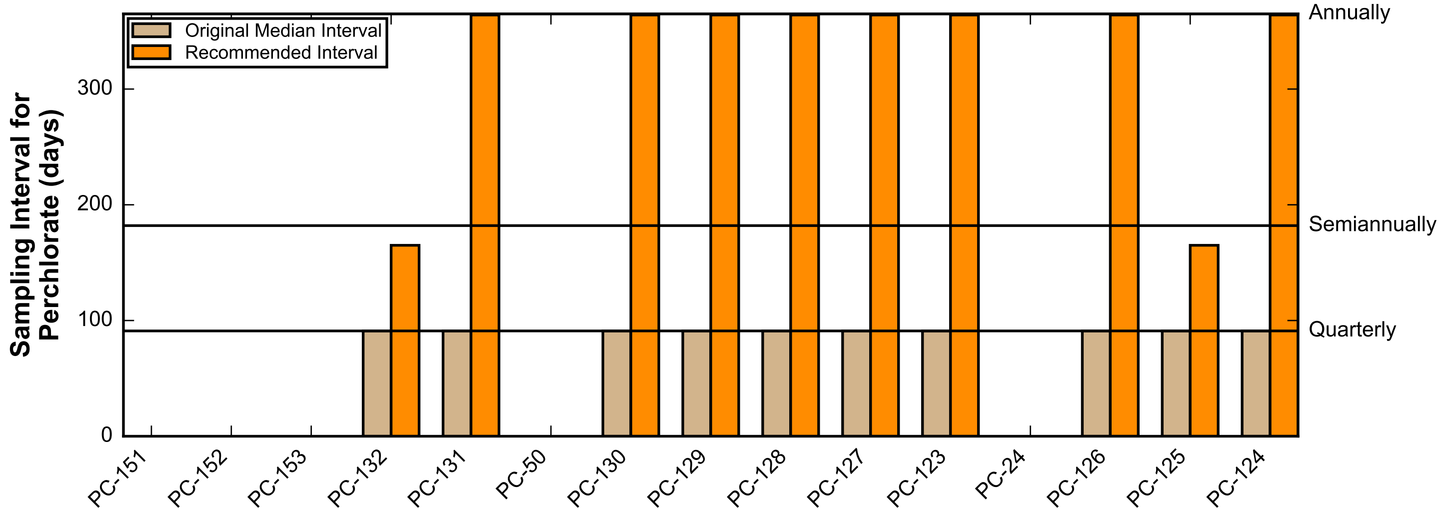
RAMBOLL ENVIRON

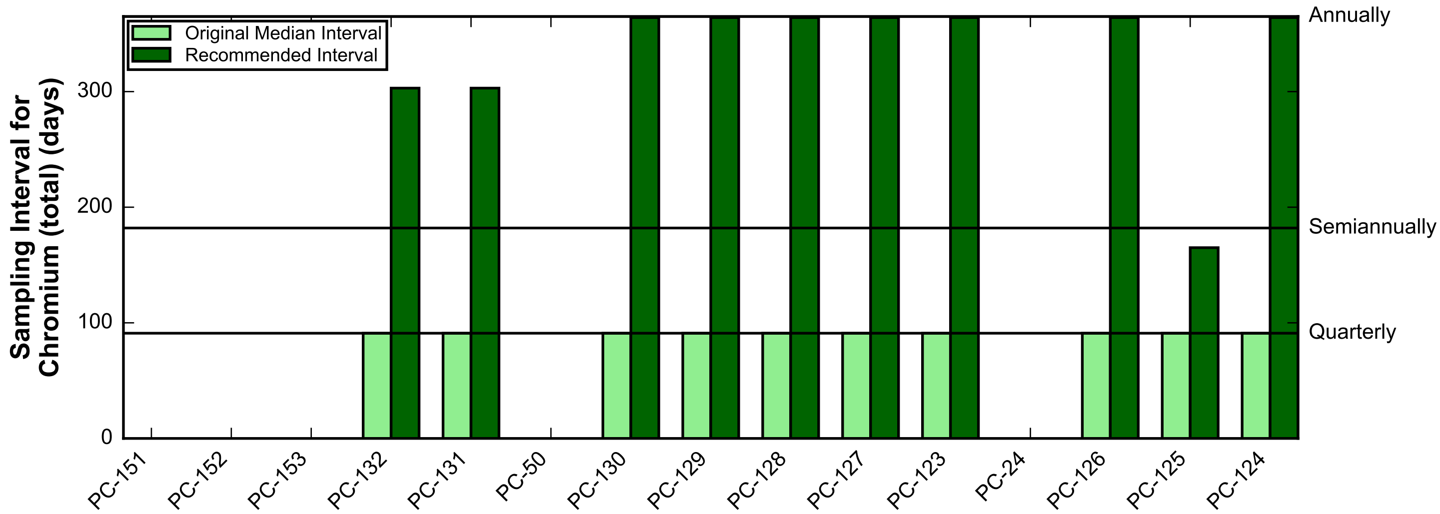
Statistical Analysis: Sunset Road Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

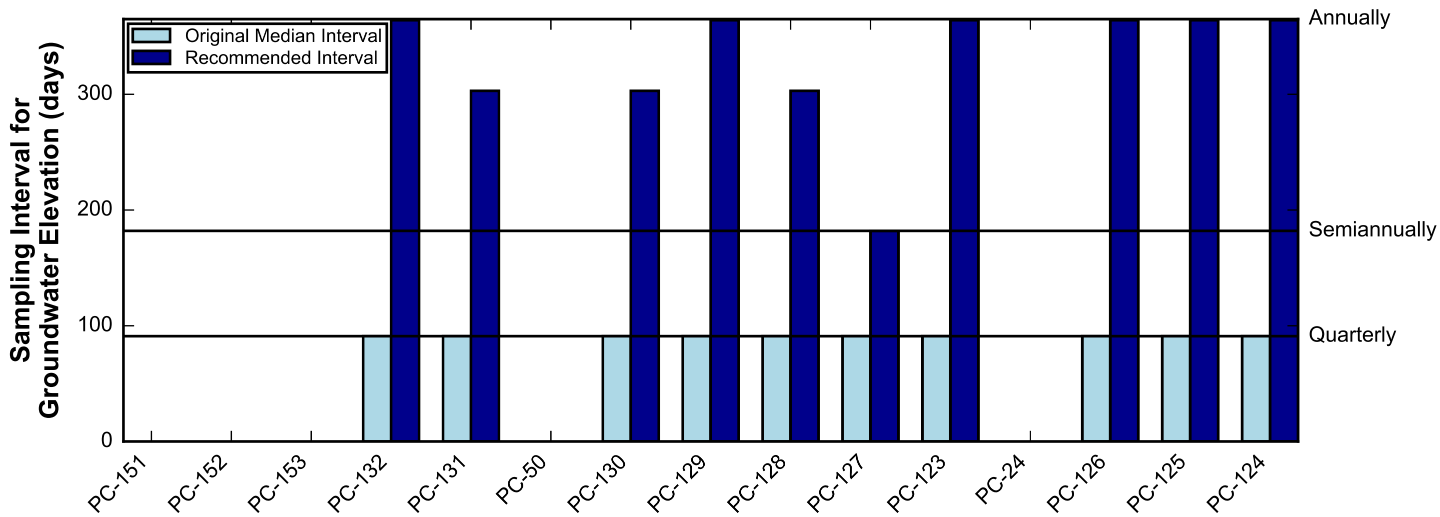
Figure
B-13a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py







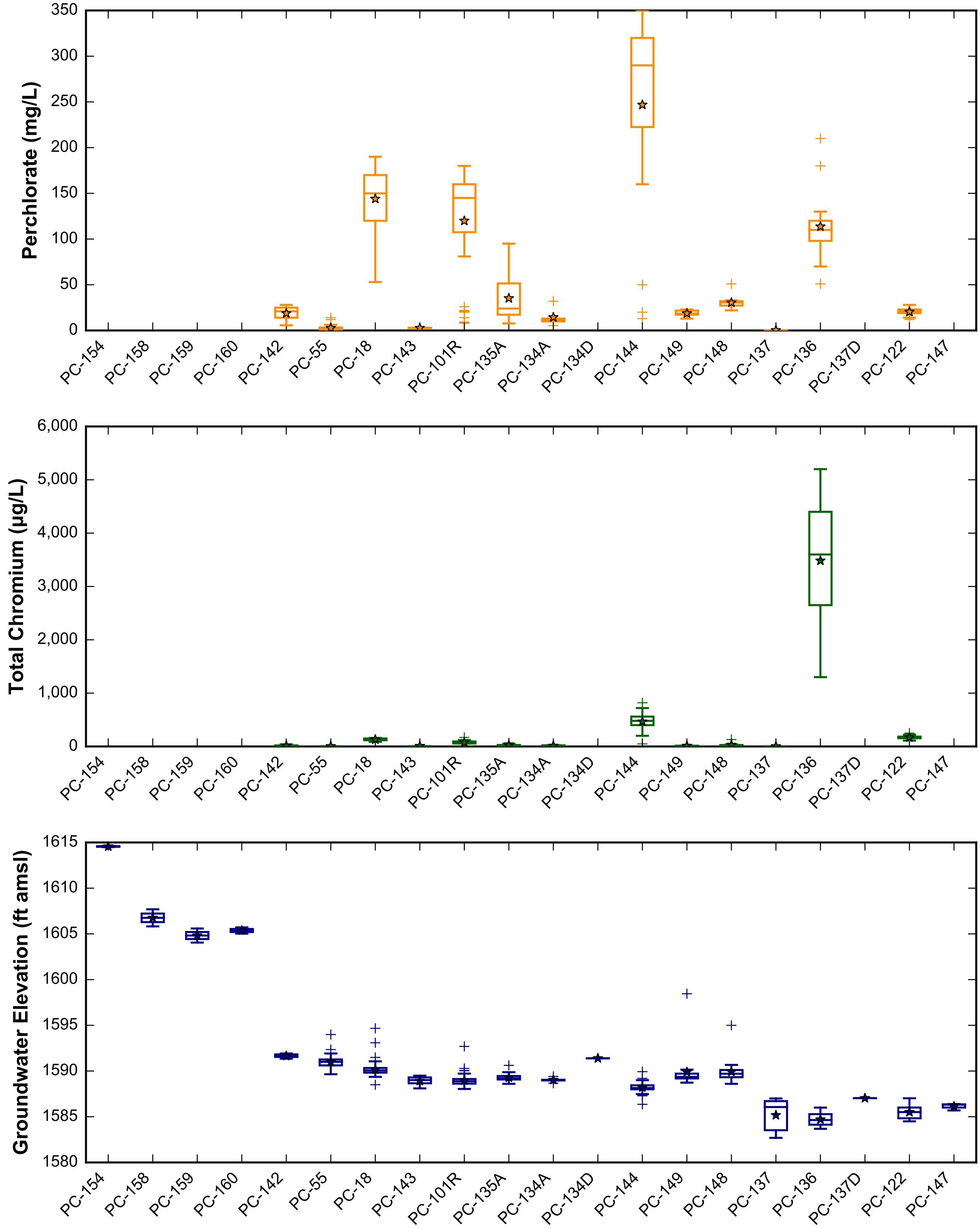
RAMBOLL ENVIRON

Thinning Results: Sunset Road Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-13b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py

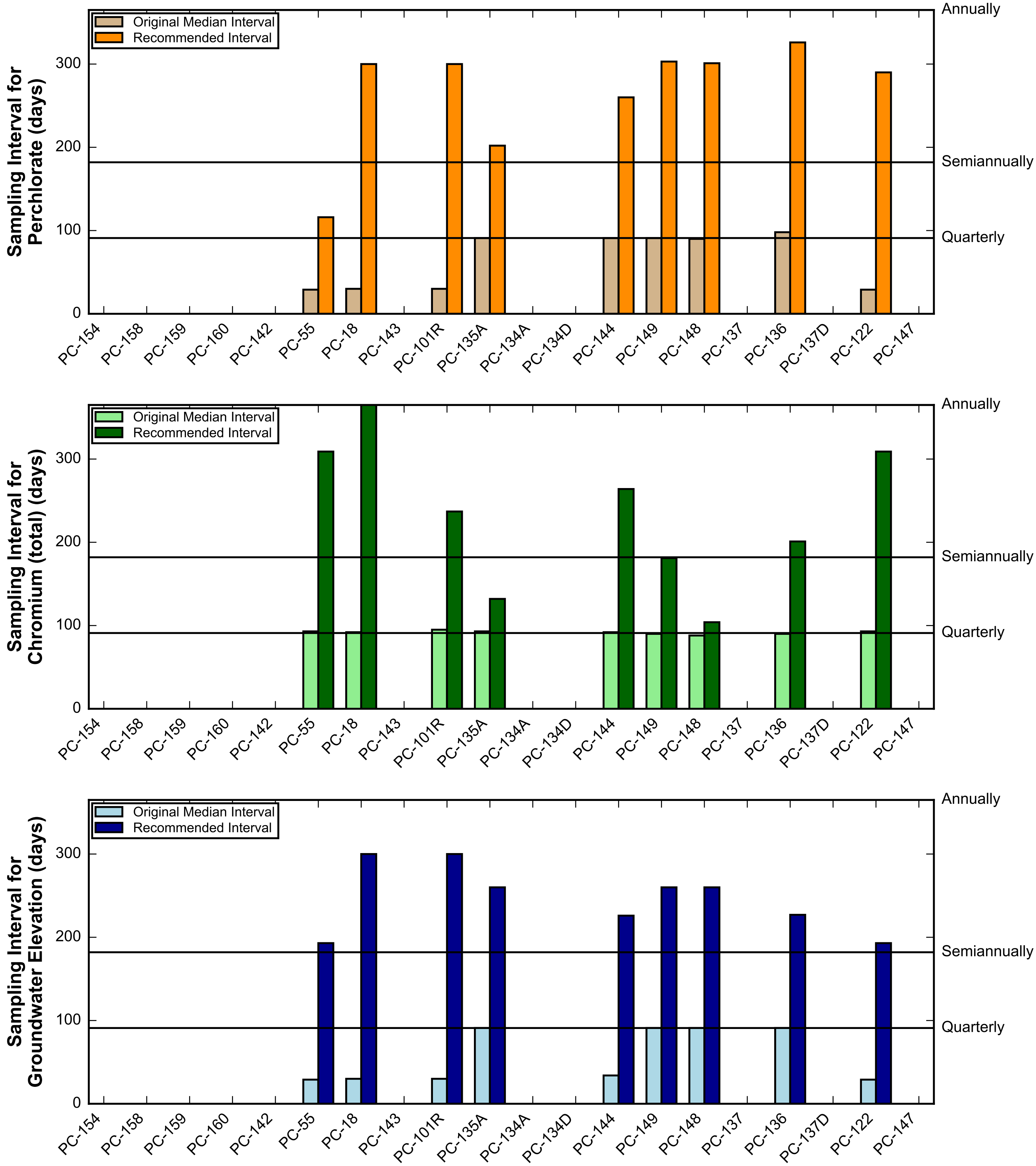


RAMBOLL ENVIRON

Statistical Analysis: Athens Road Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-14a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

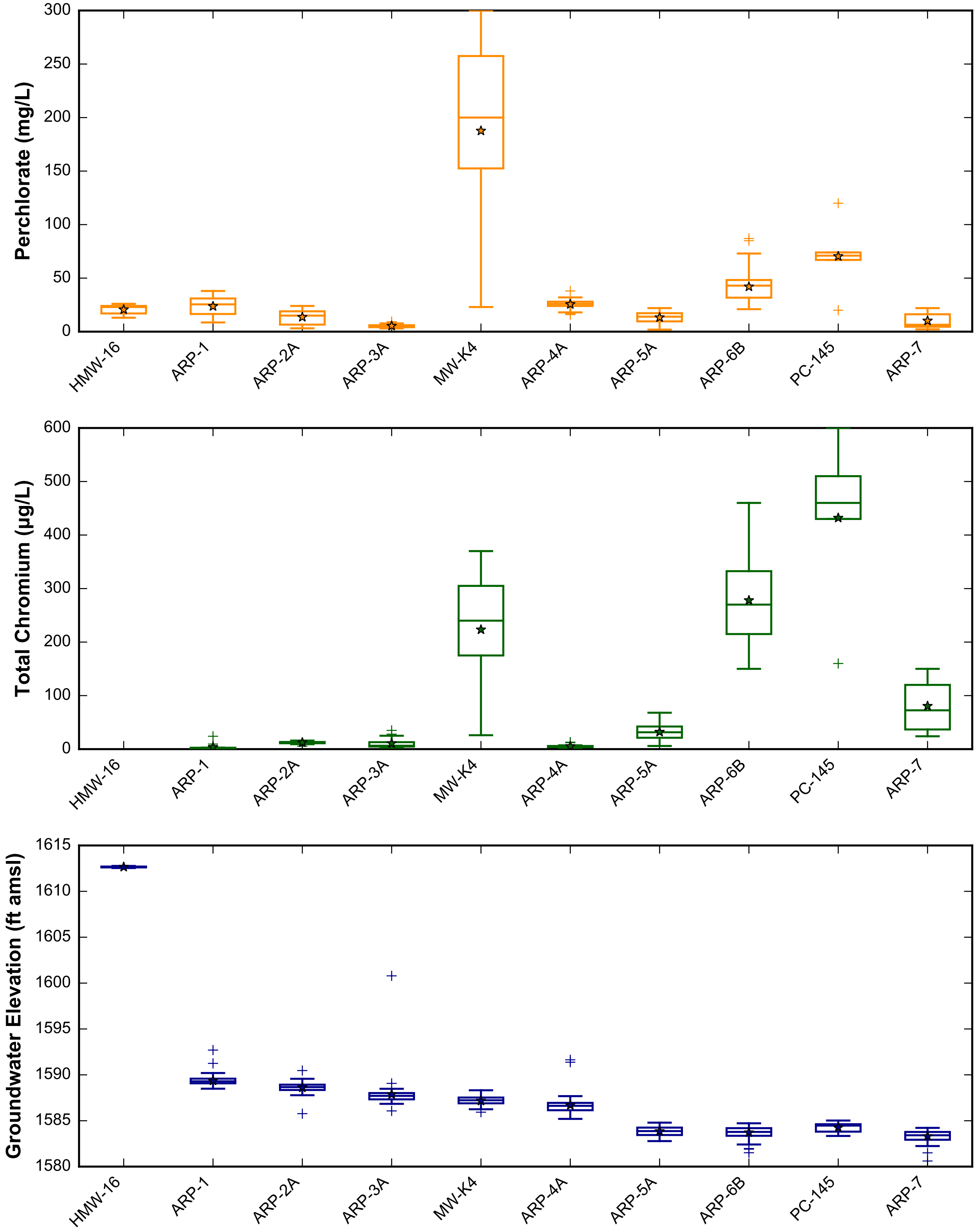


RAMBOLL ENVIRON

Thinning Results: Athens Road Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-14b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:



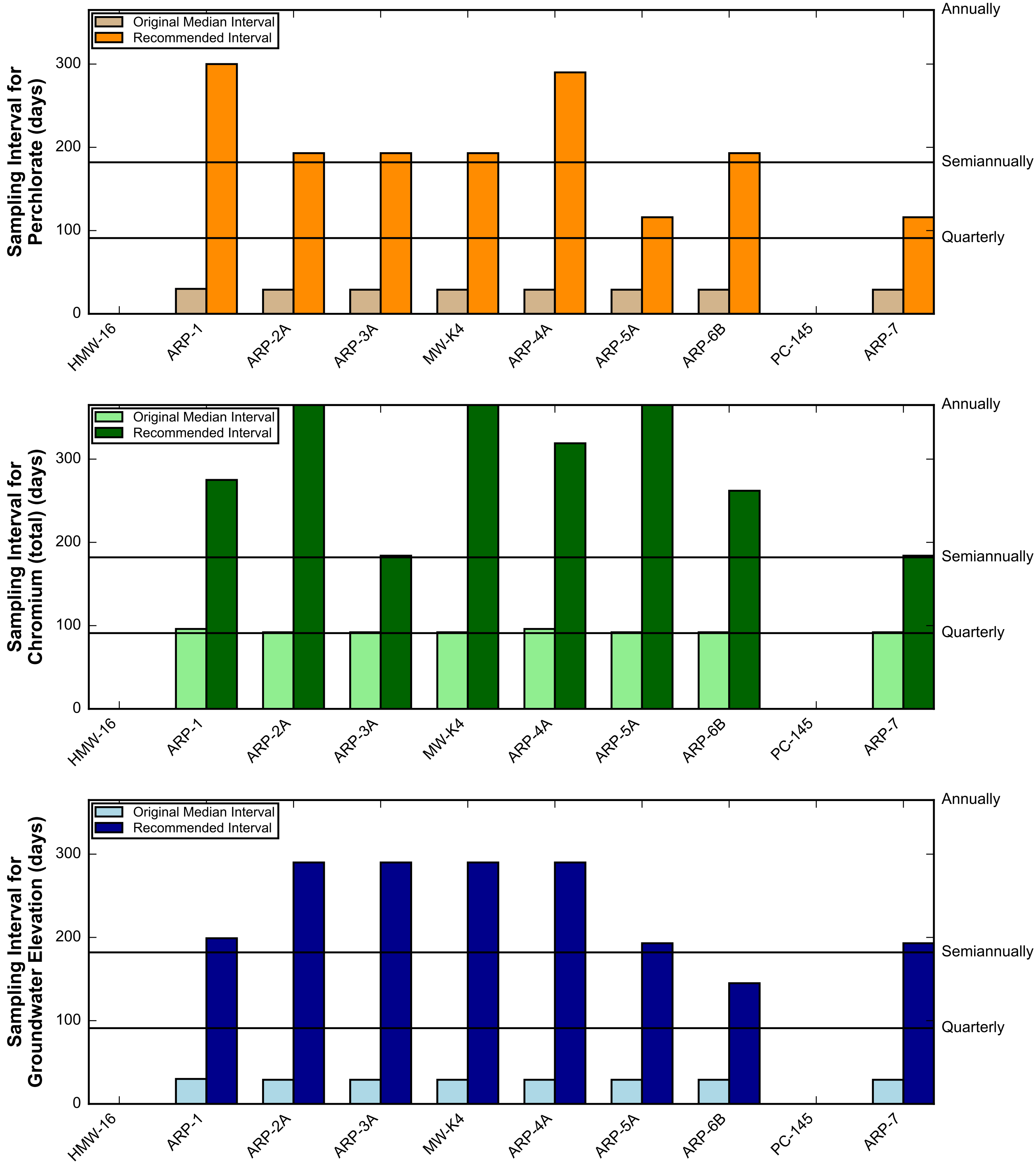
RAMBOLL ENVIRON

Statistical Analysis: Athens Road Piezometer Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-15a

Drafter: JH	Date: 04/29/16	Contract Number: 2138800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



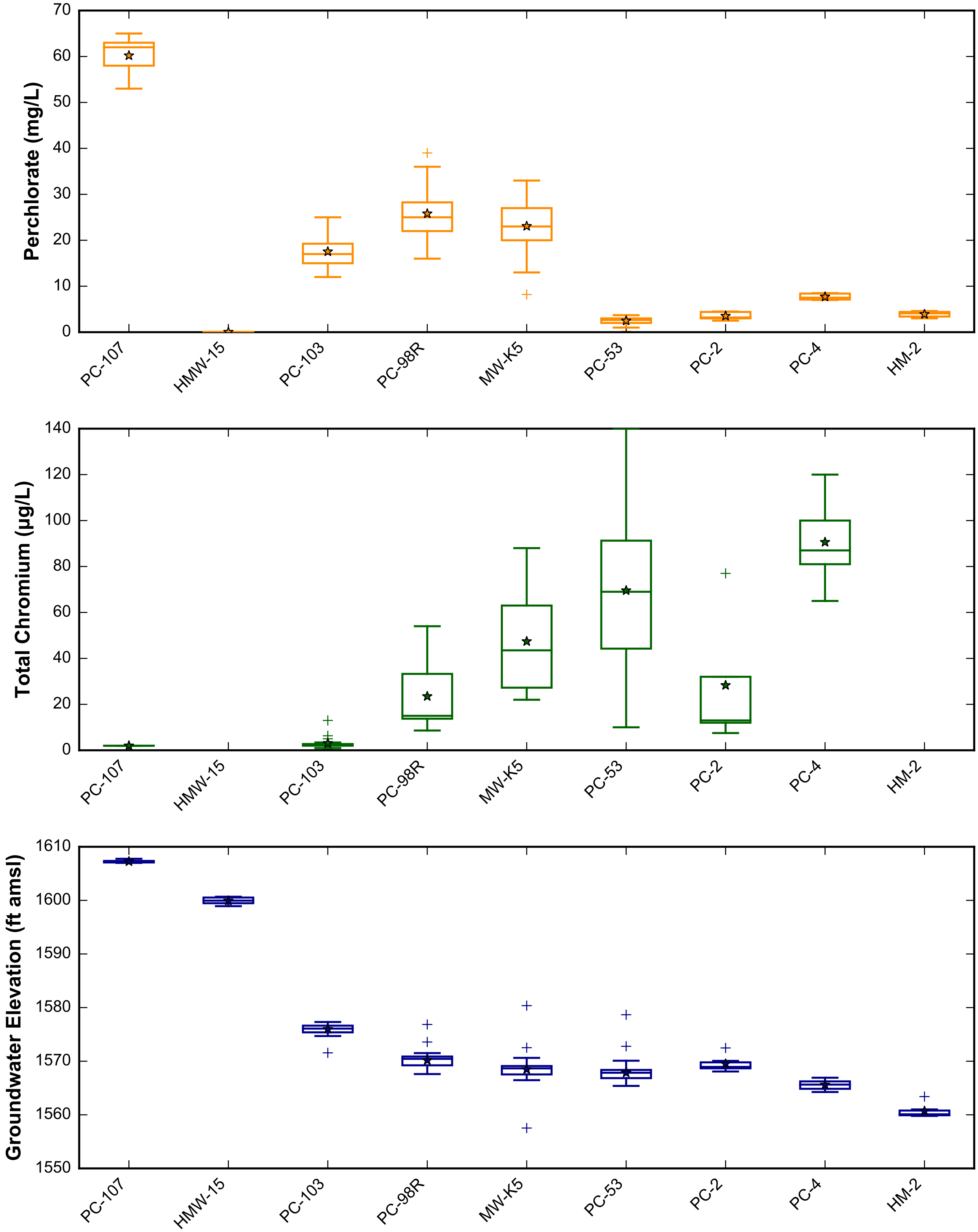
RAMBOLL ENVIRON

Thinning Results: Athens Road Piezometer Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-15b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

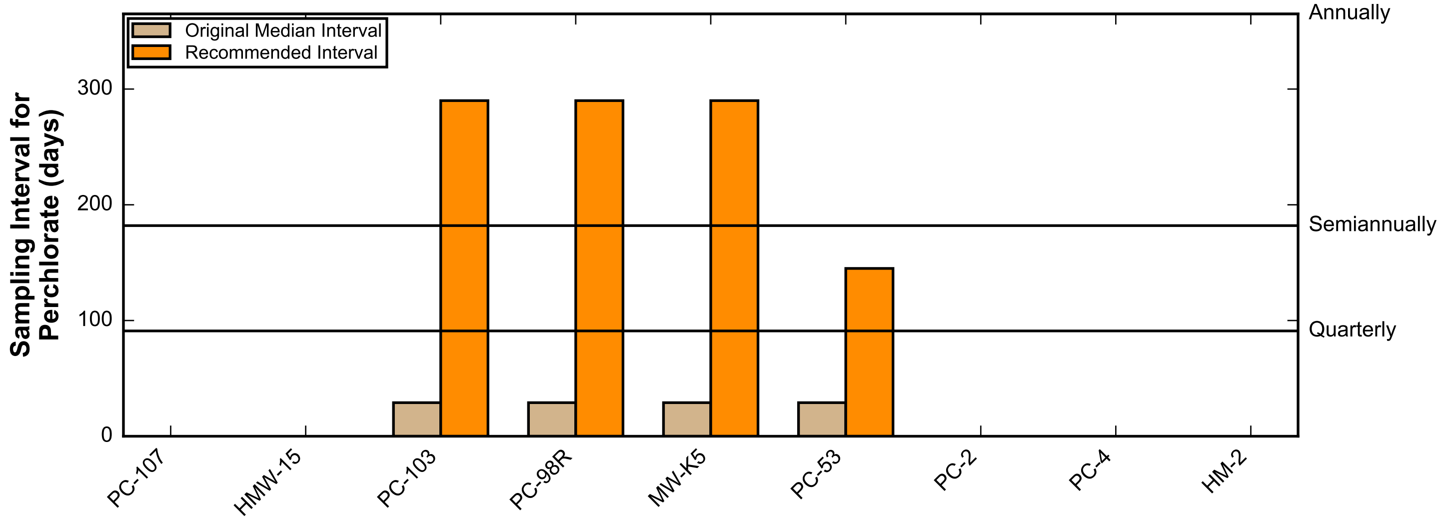
Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py

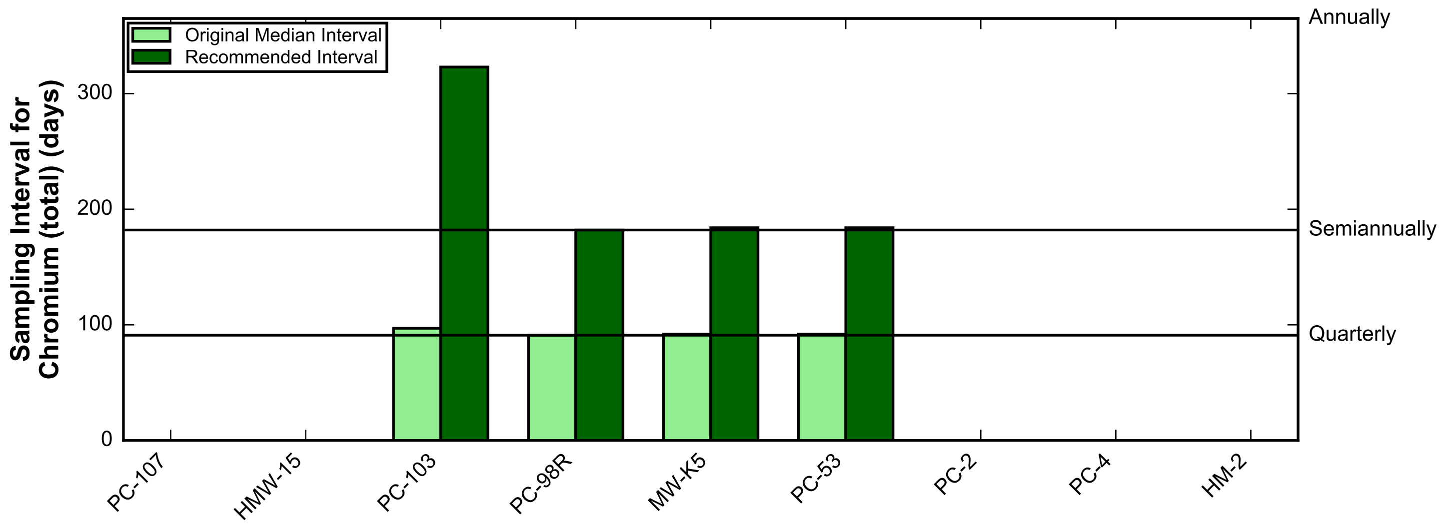


RAMBOLL ENVIRON	**Statistical Analysis: City of Henderson WRF Well Line** Nevada Environmental Response Trust Site Henderson, Nevada	Figure **B-16a**

Drafter: JH   Date: 04/29/16   Contract Number: 2138800A   Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py





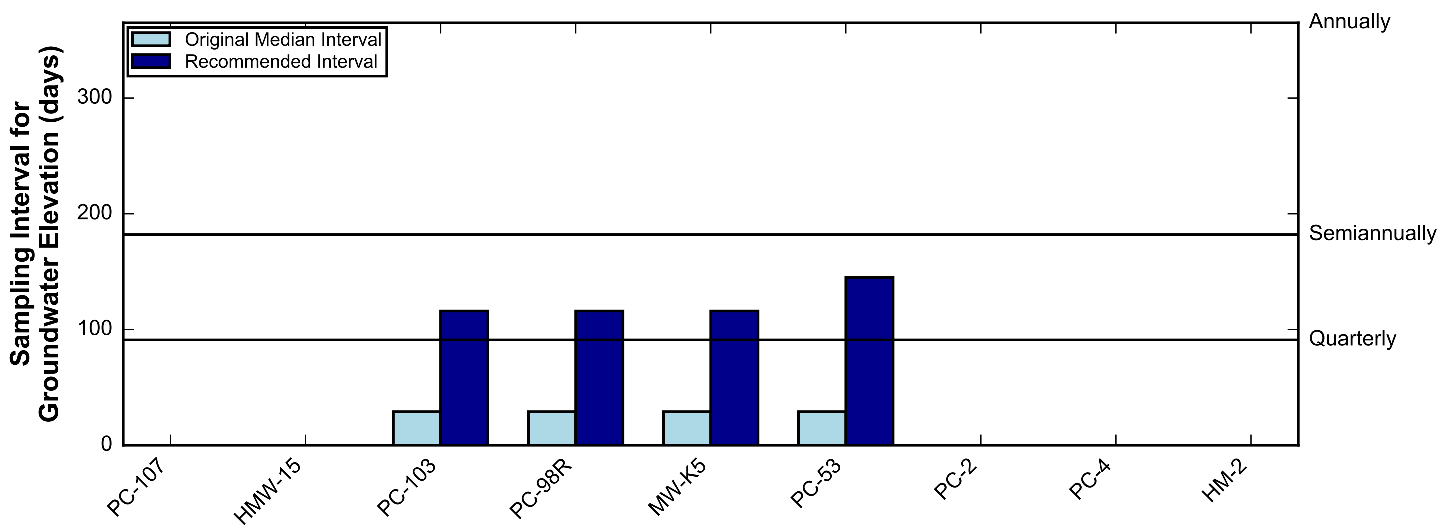
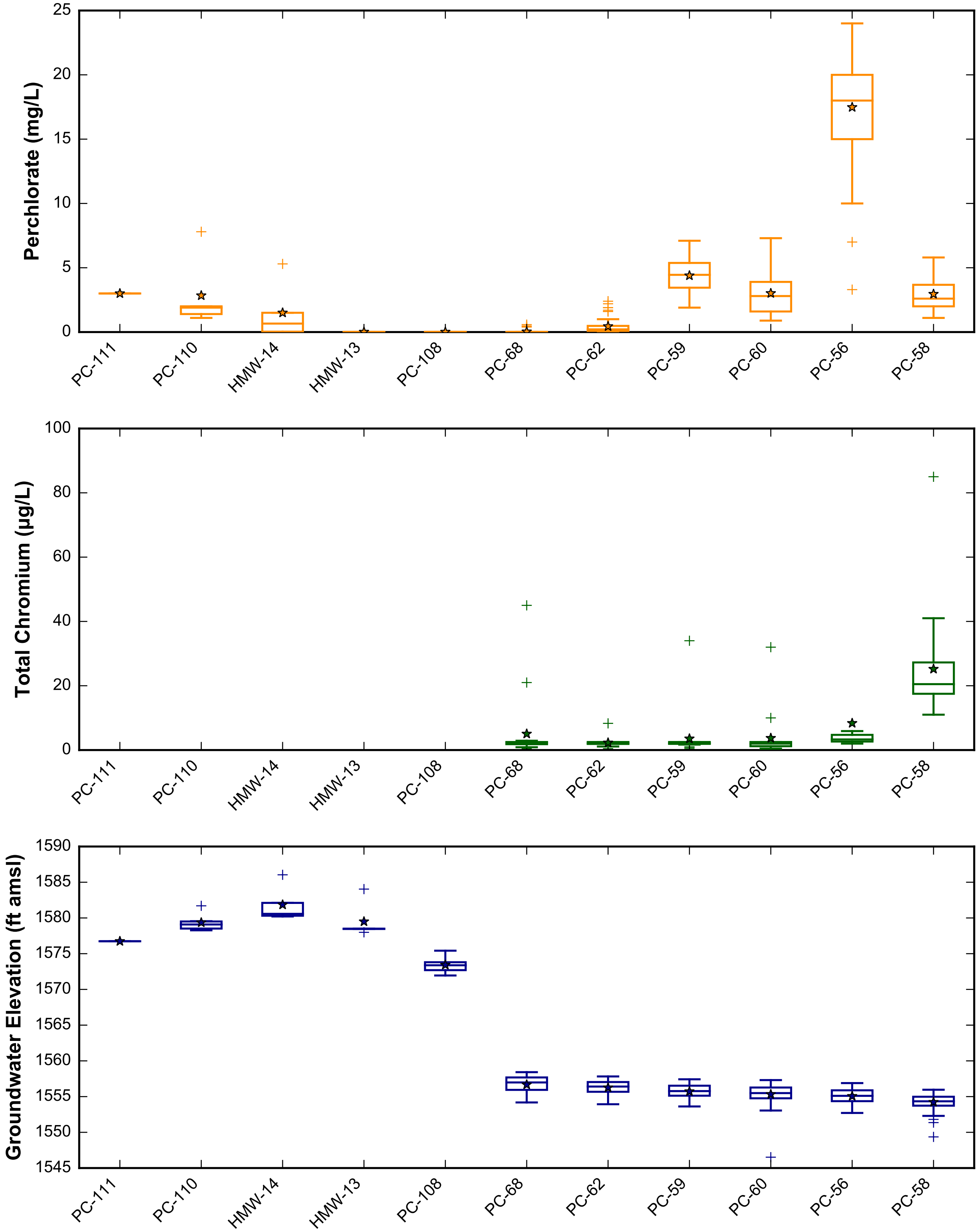


		Figure
RAMBOLL ENVIRON	**Thinning Results: City of Henderson WRF Well Line** Nevada Environmental Response Trust Site Henderson, Nevada	**B-16b**

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



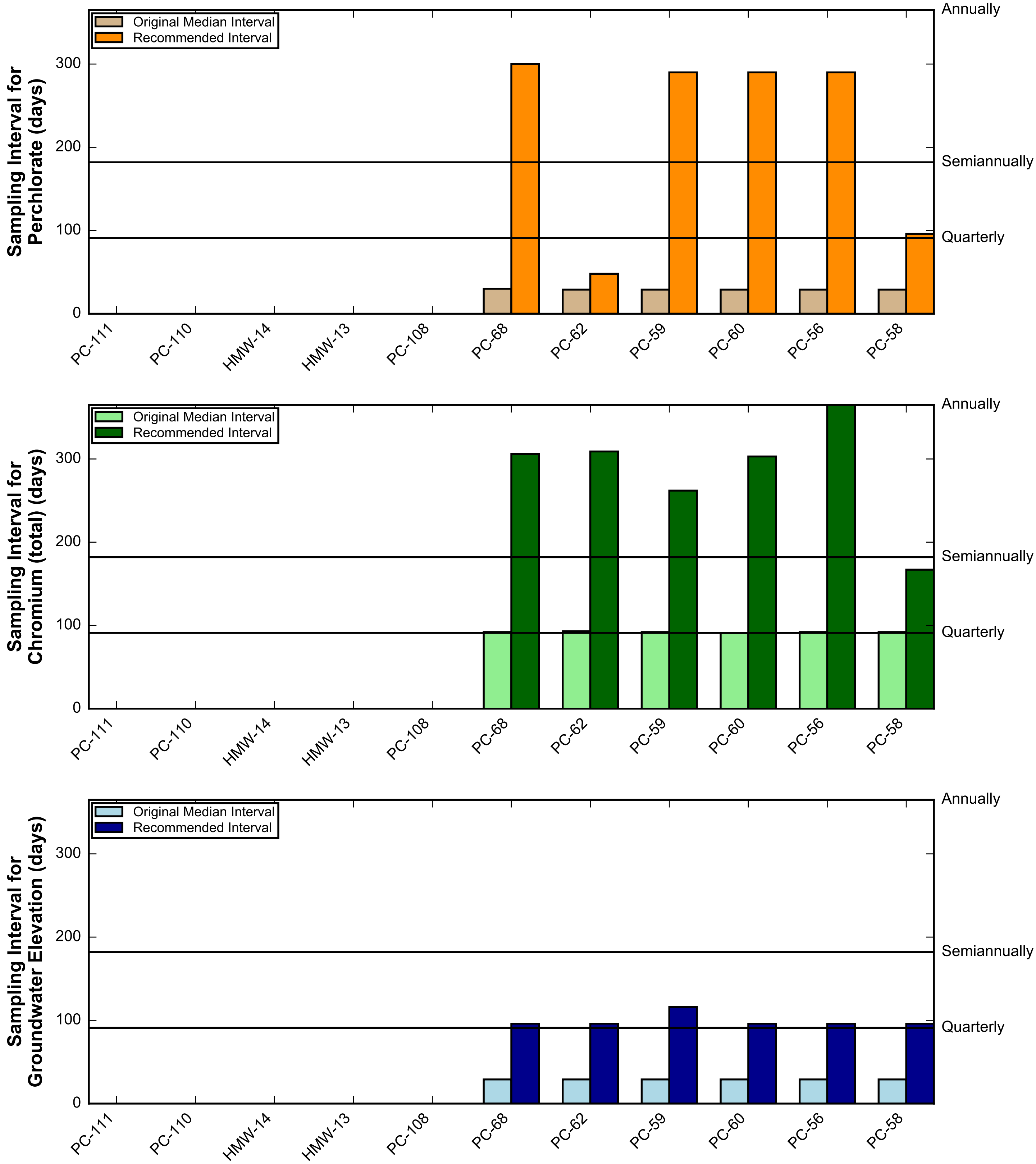
RAMBOLL ENVIRON

Statistical Analysis: Lower Ponds Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-17a

Drafter: JH | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



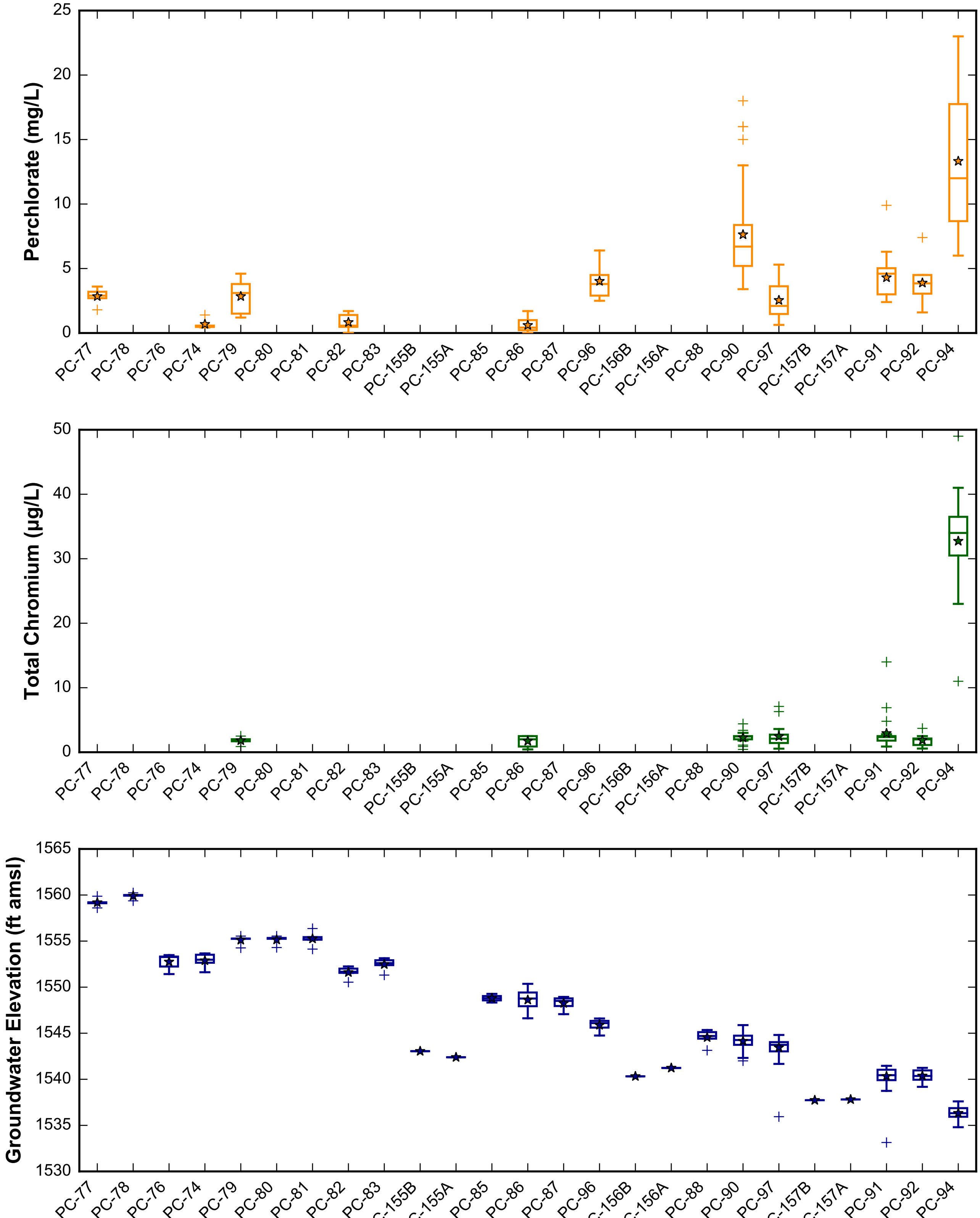
RAMBOLL ENVIRON

Thinning Results: Lower Ponds Well Line
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-17b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



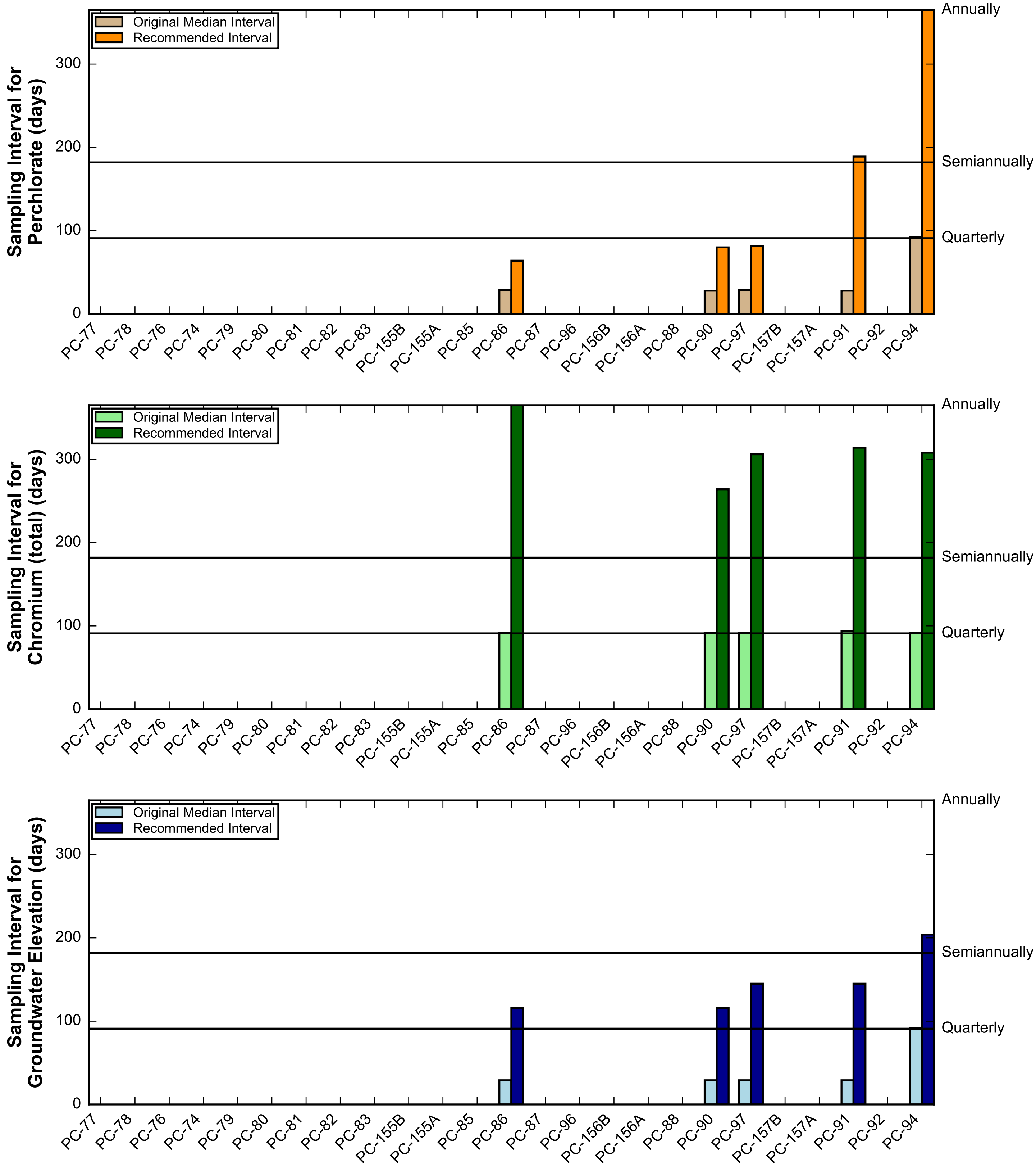
RAMBOLL ENVIRON

Statistical Analysis: Near Seep Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-18a

Drafter: JH	Date: 04/29/16	Contract Number: 2138800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\boxplots.py



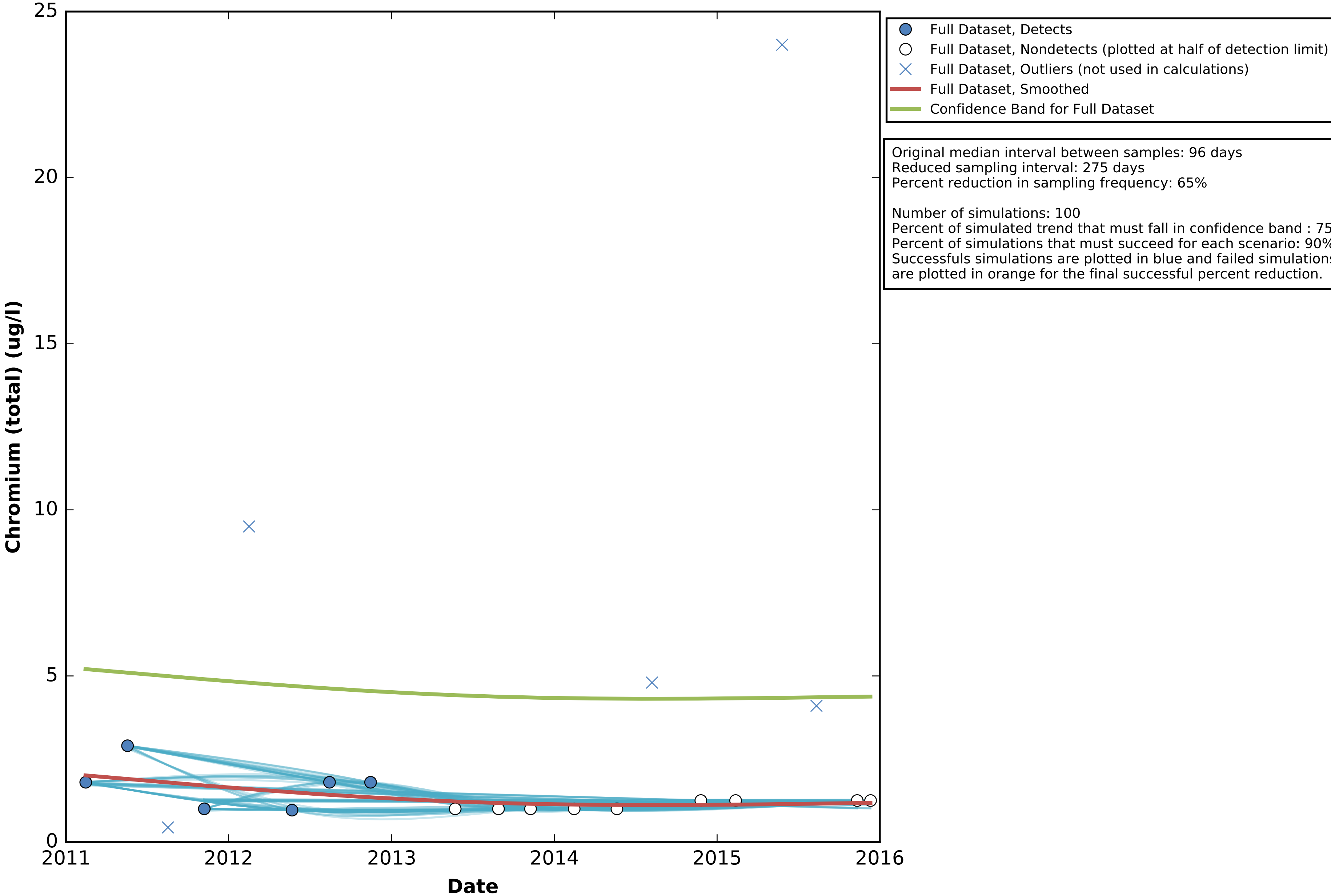
RAMBOLL ENVIRON

Thinning Results: Near Seep Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-18b

Drafter: ERG | Date: 04/29/16 | Contract Number: 2138800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 96 days
Reduced sampling interval: 275 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

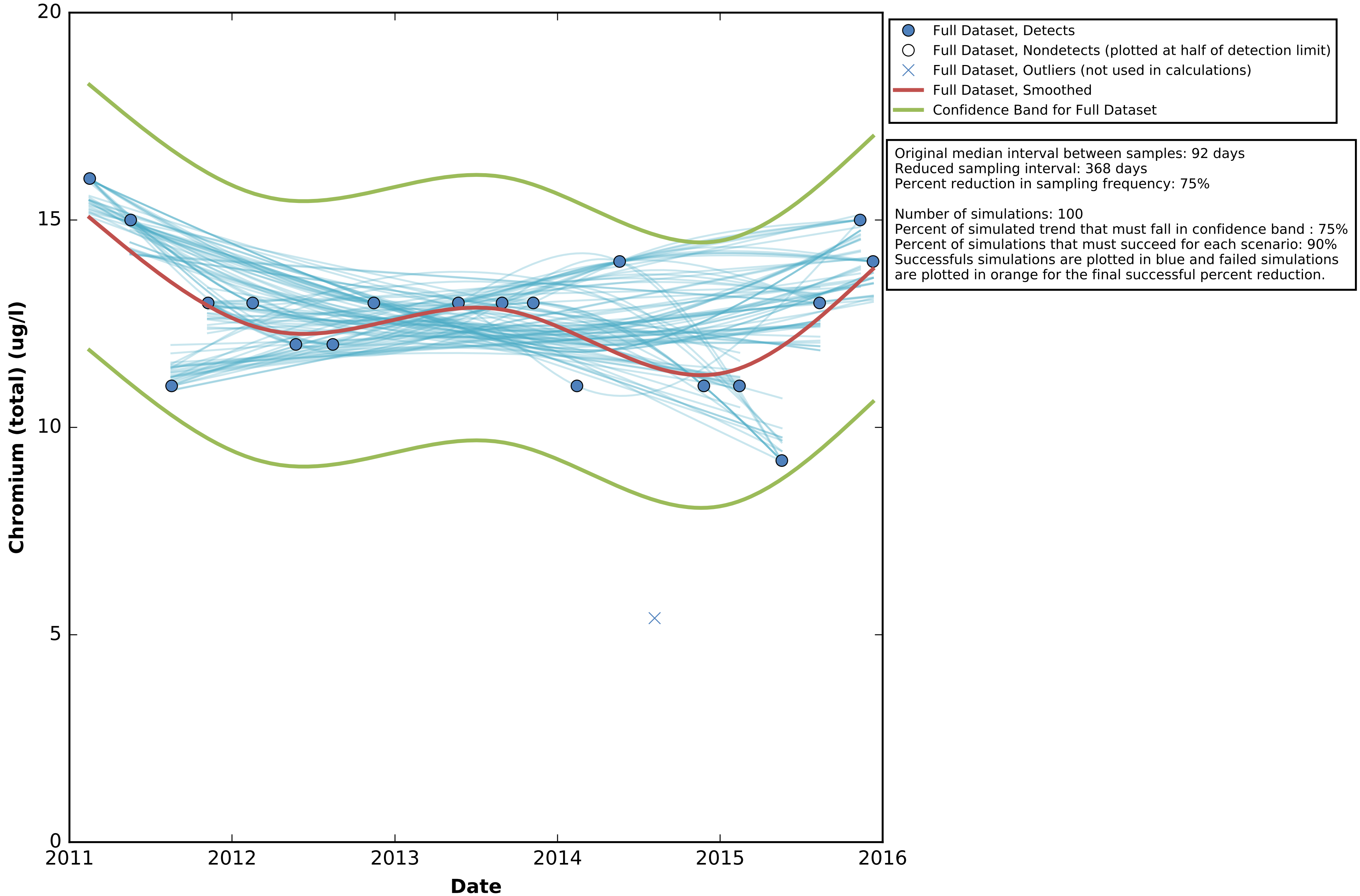
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-1
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-19

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



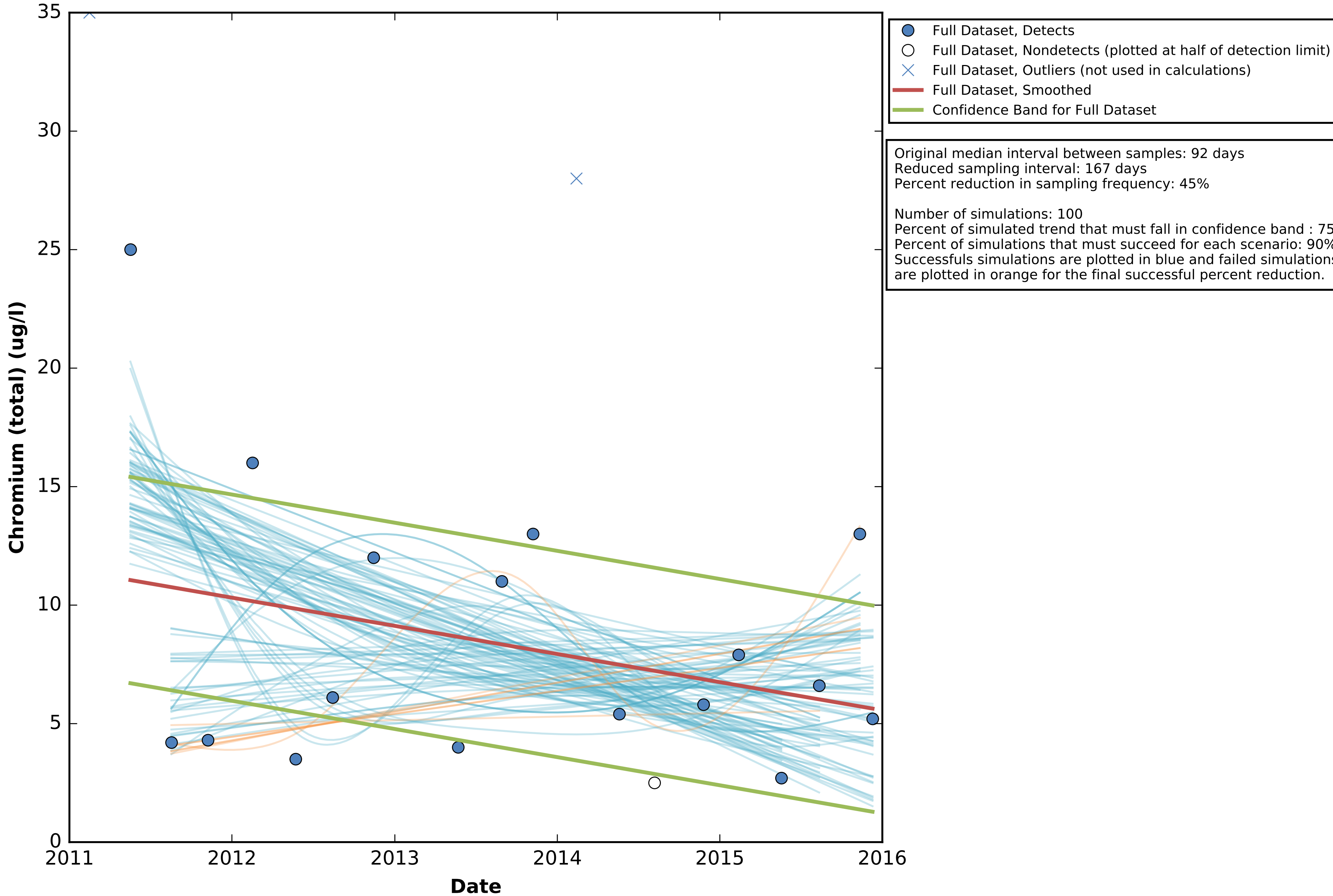
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-2A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-20

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 167 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

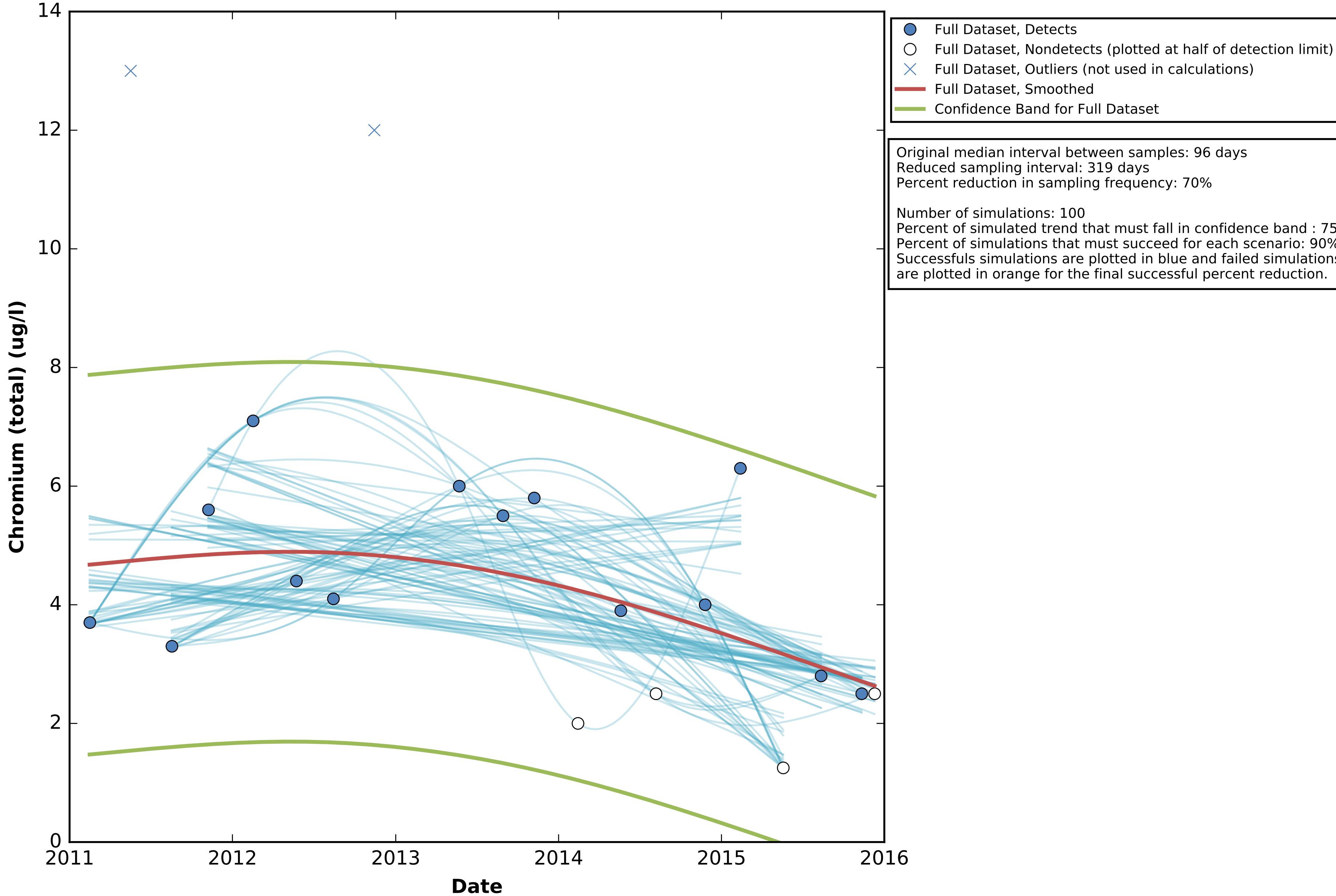
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-21

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 96 days
Reduced sampling interval: 319 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

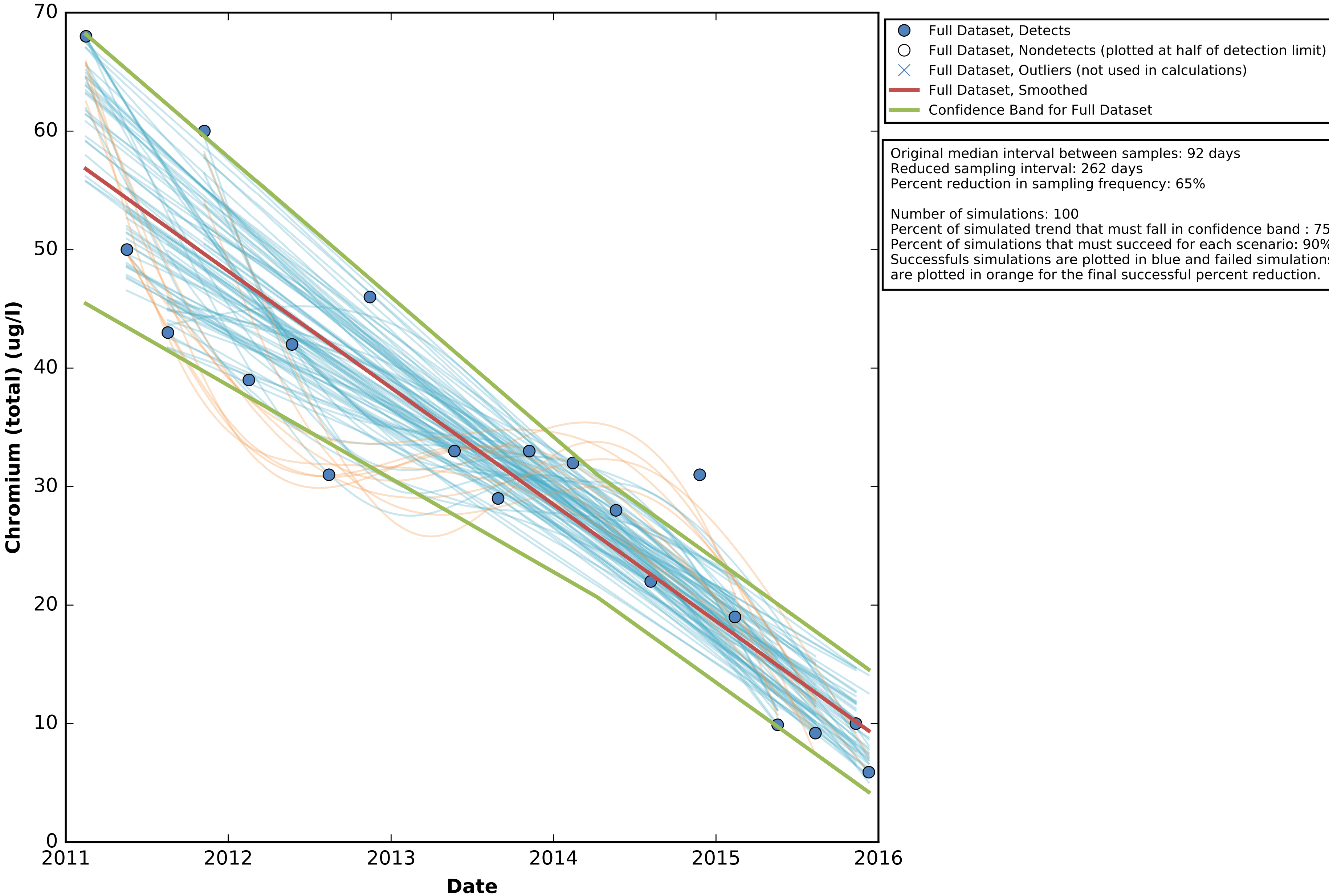
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-4A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-22

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 262 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

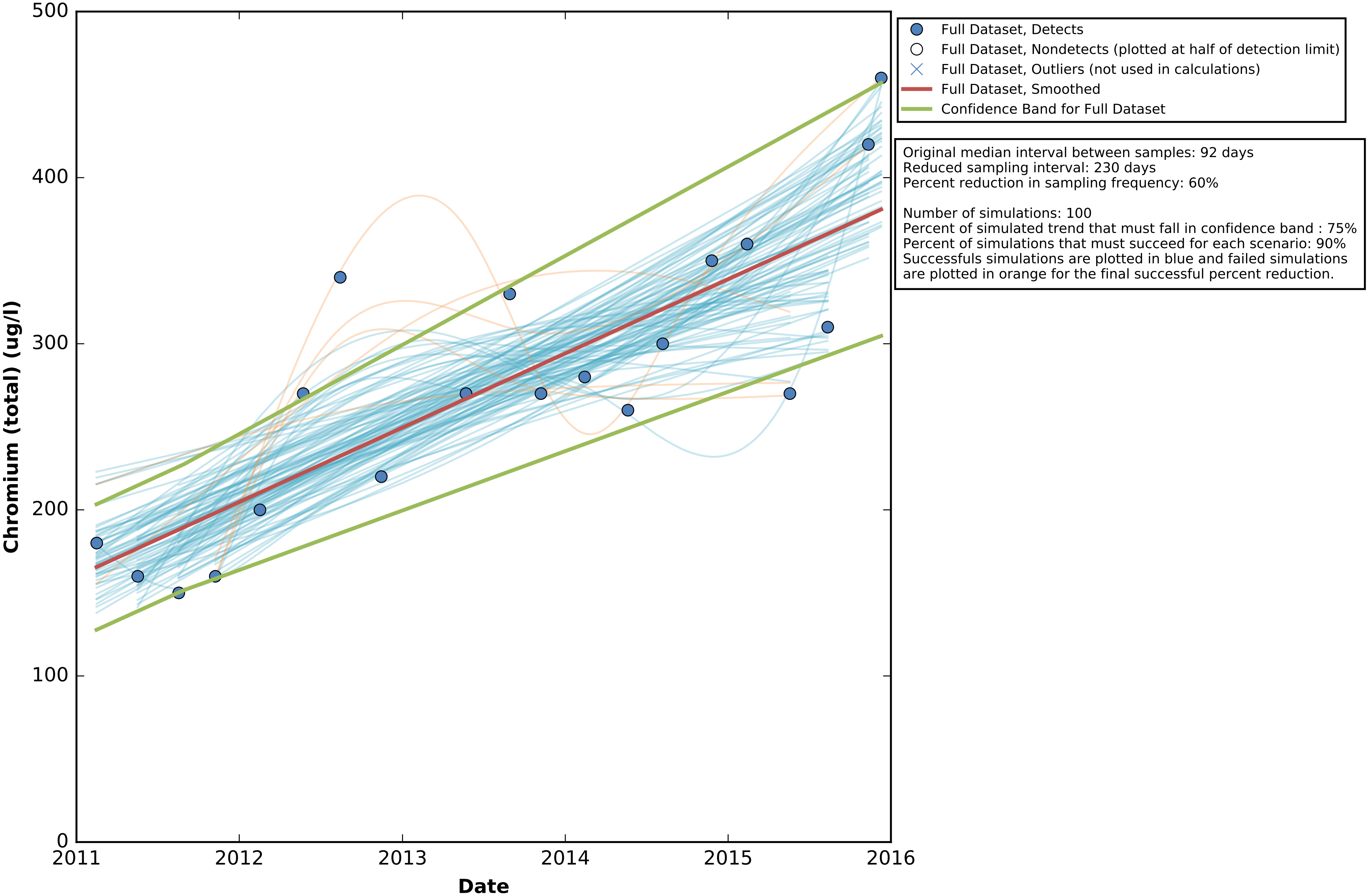
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-5A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-23

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



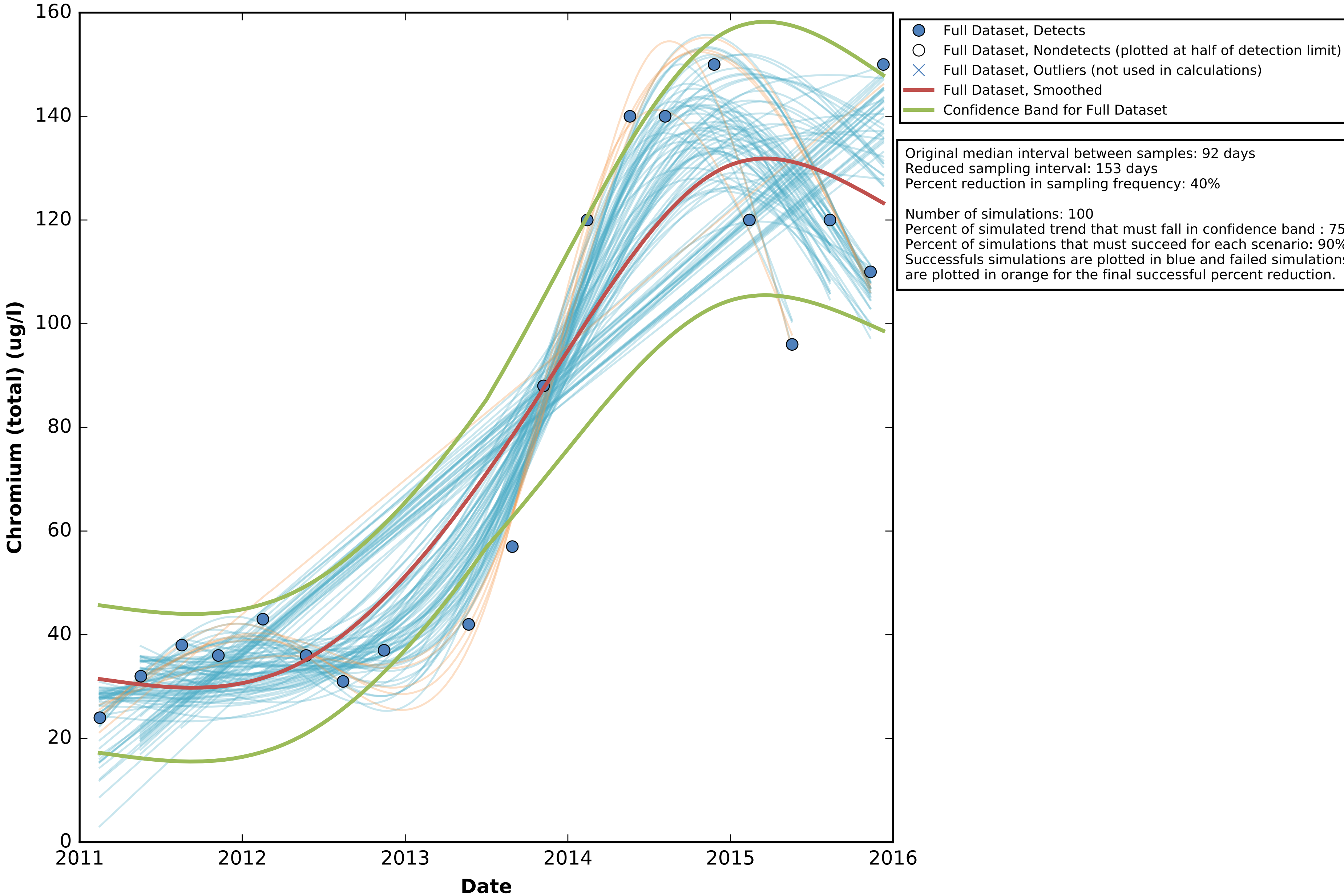
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-6B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-24

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 153 days
Percent reduction in sampling frequency: 40%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

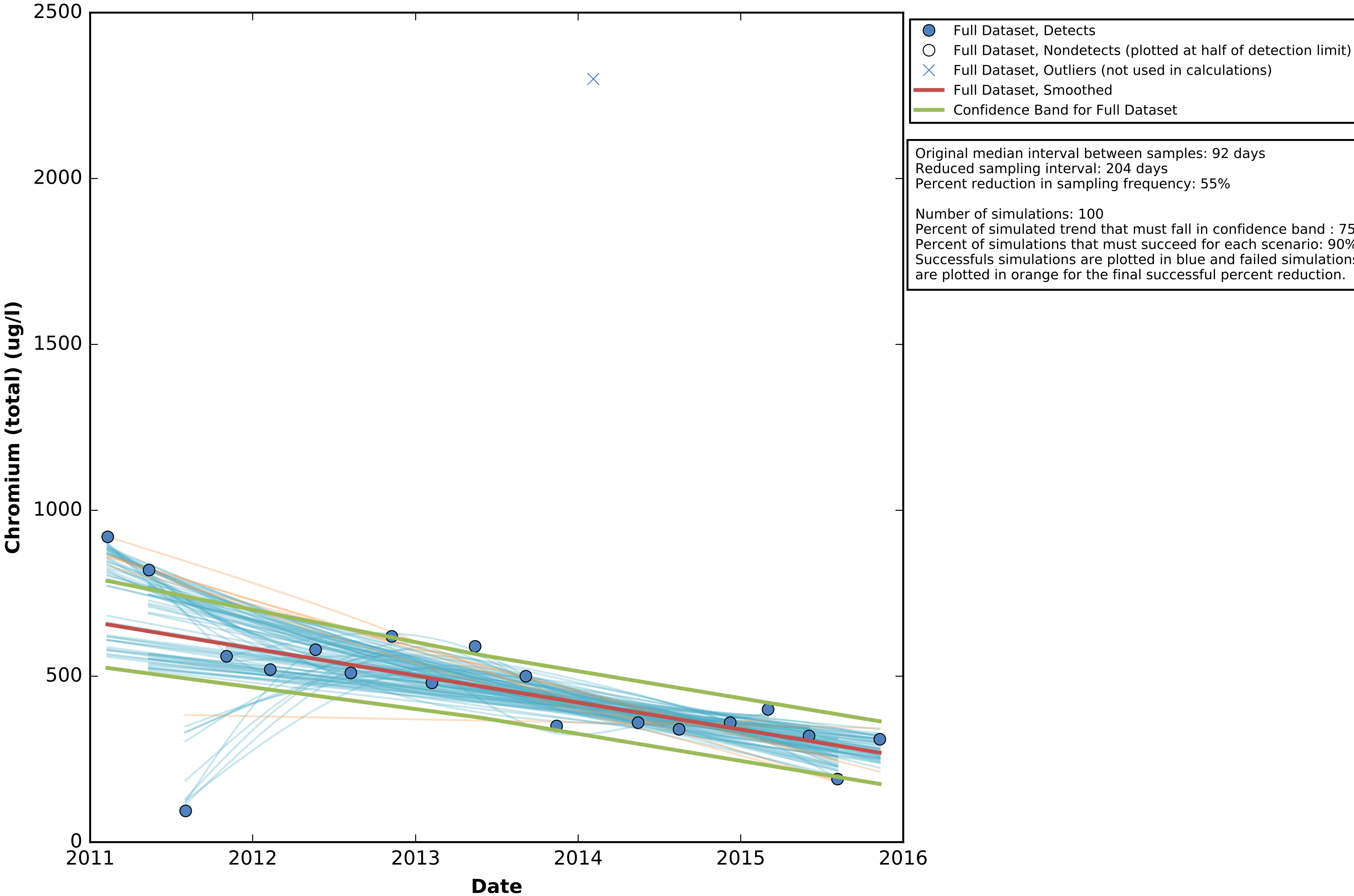
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in ARP-7
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-25

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 204 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

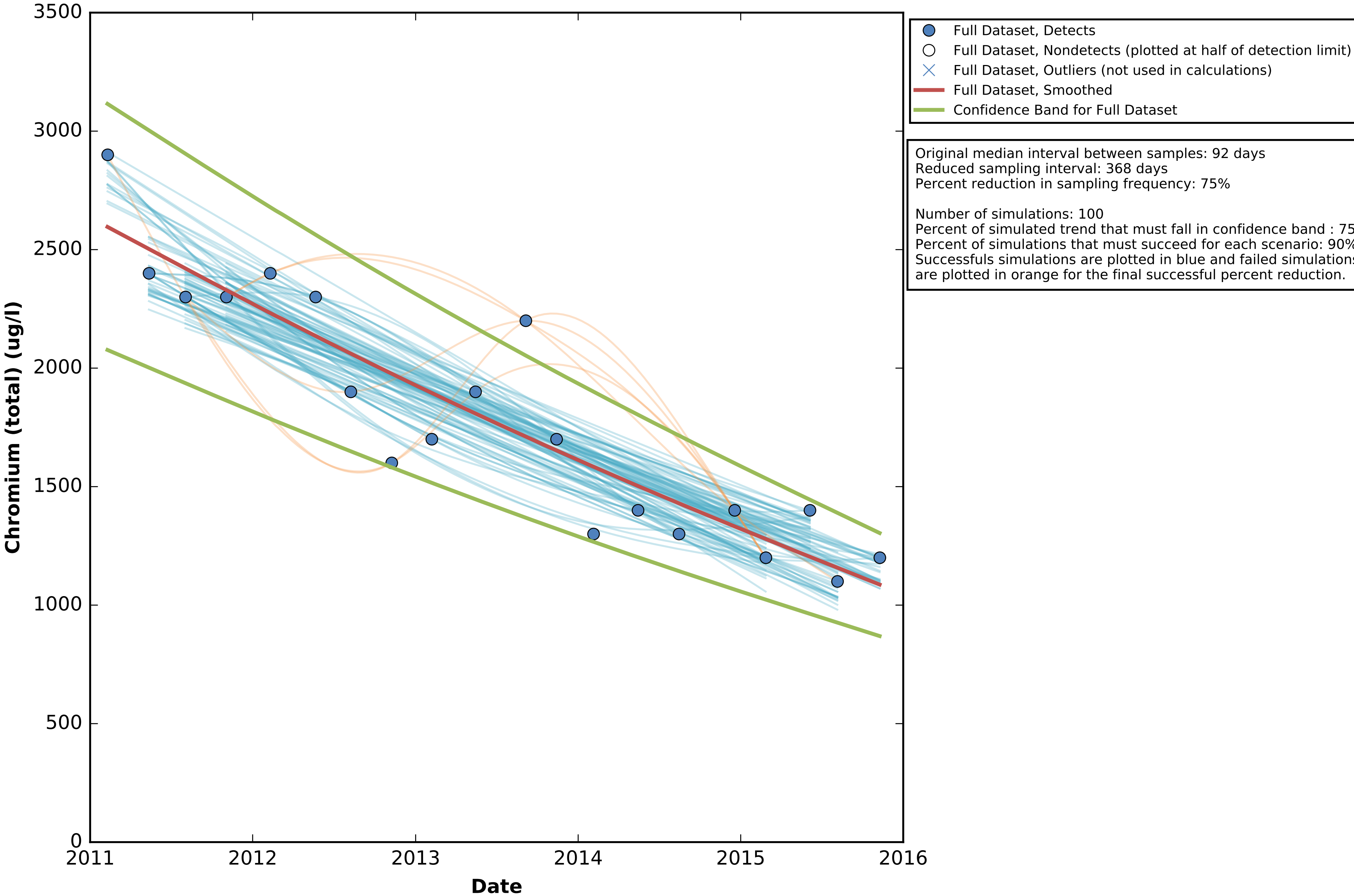
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-10
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-26

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

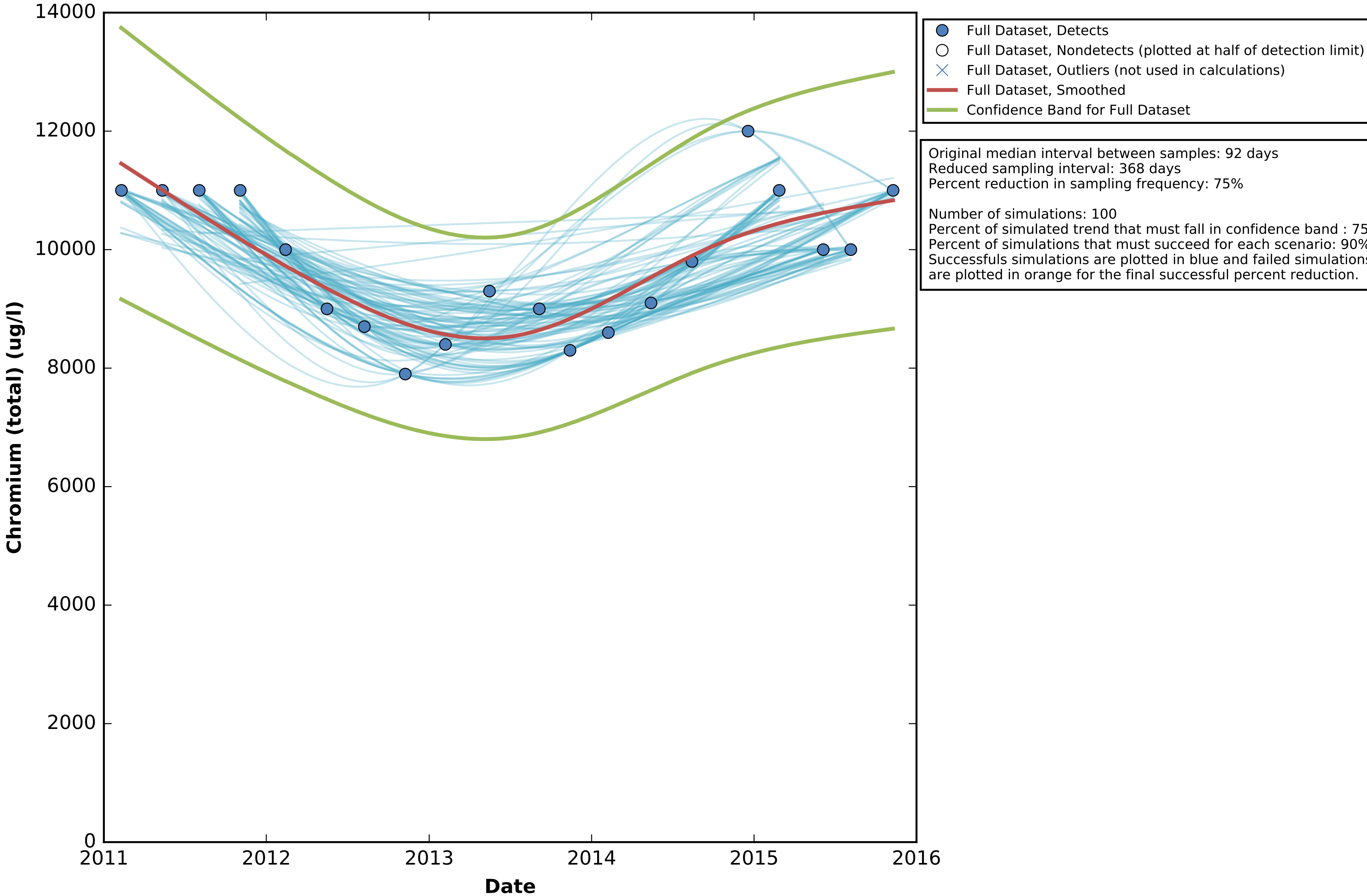
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-11
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-27

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

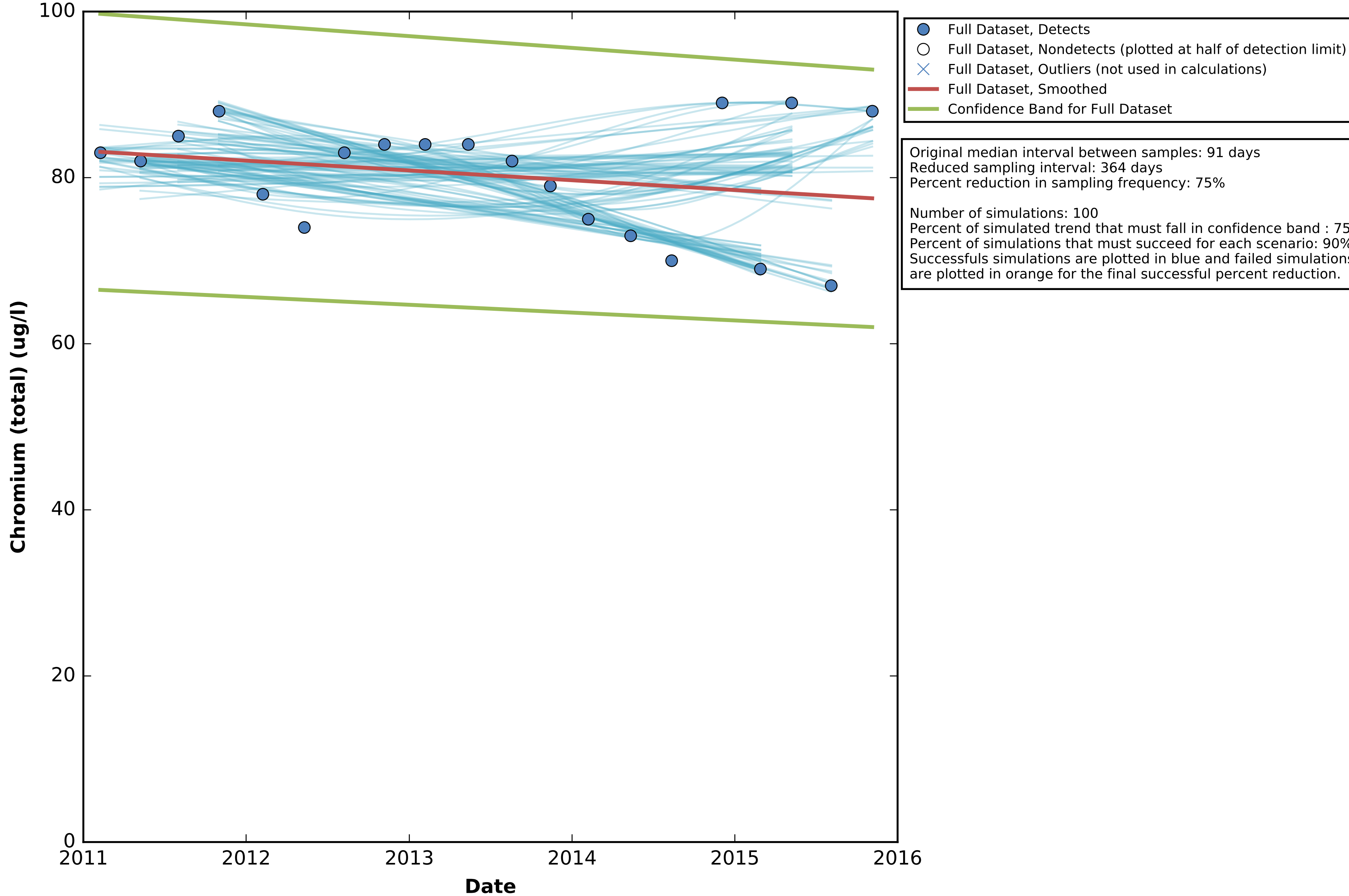
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-12A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-28

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

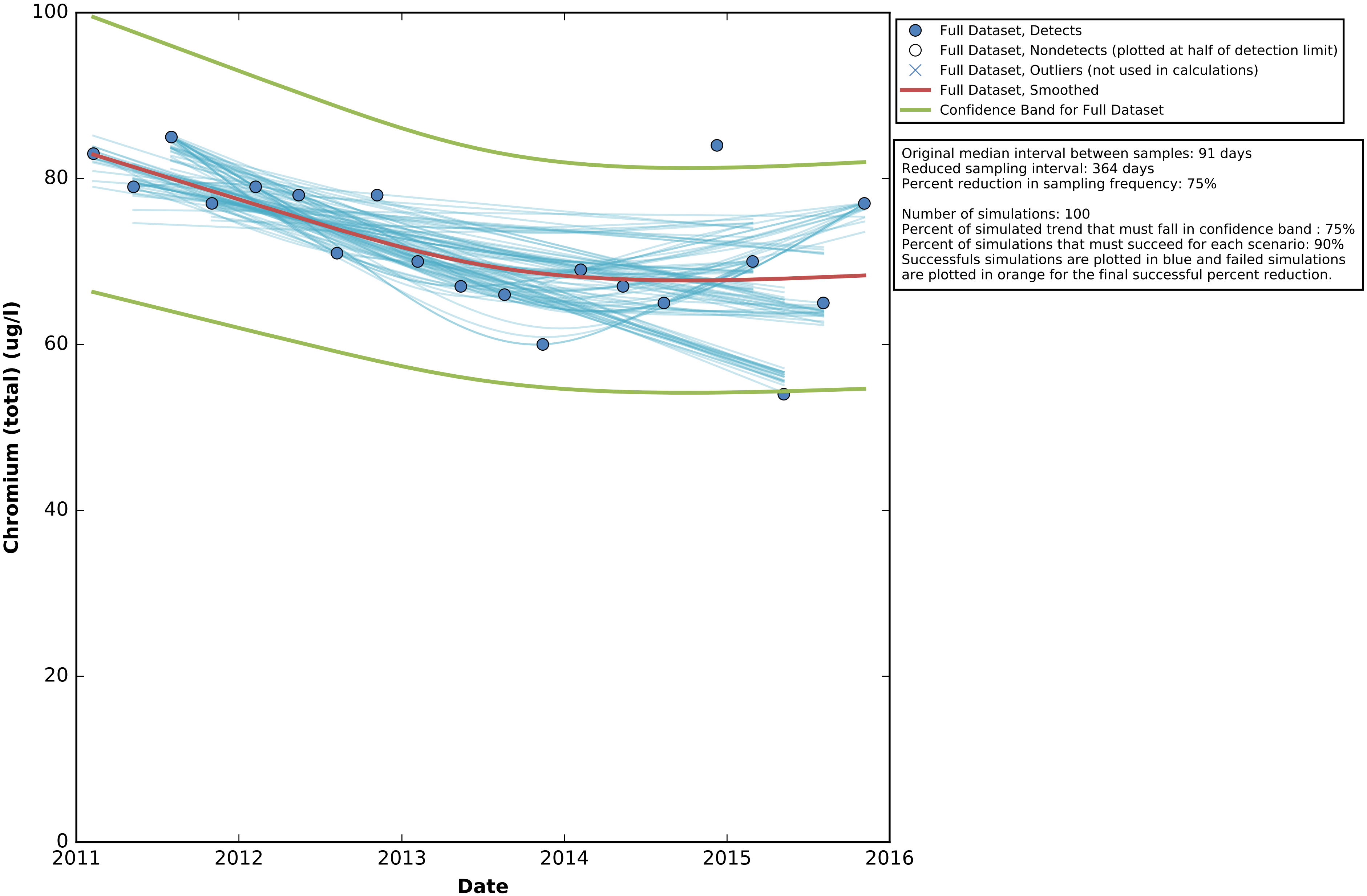
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-29

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



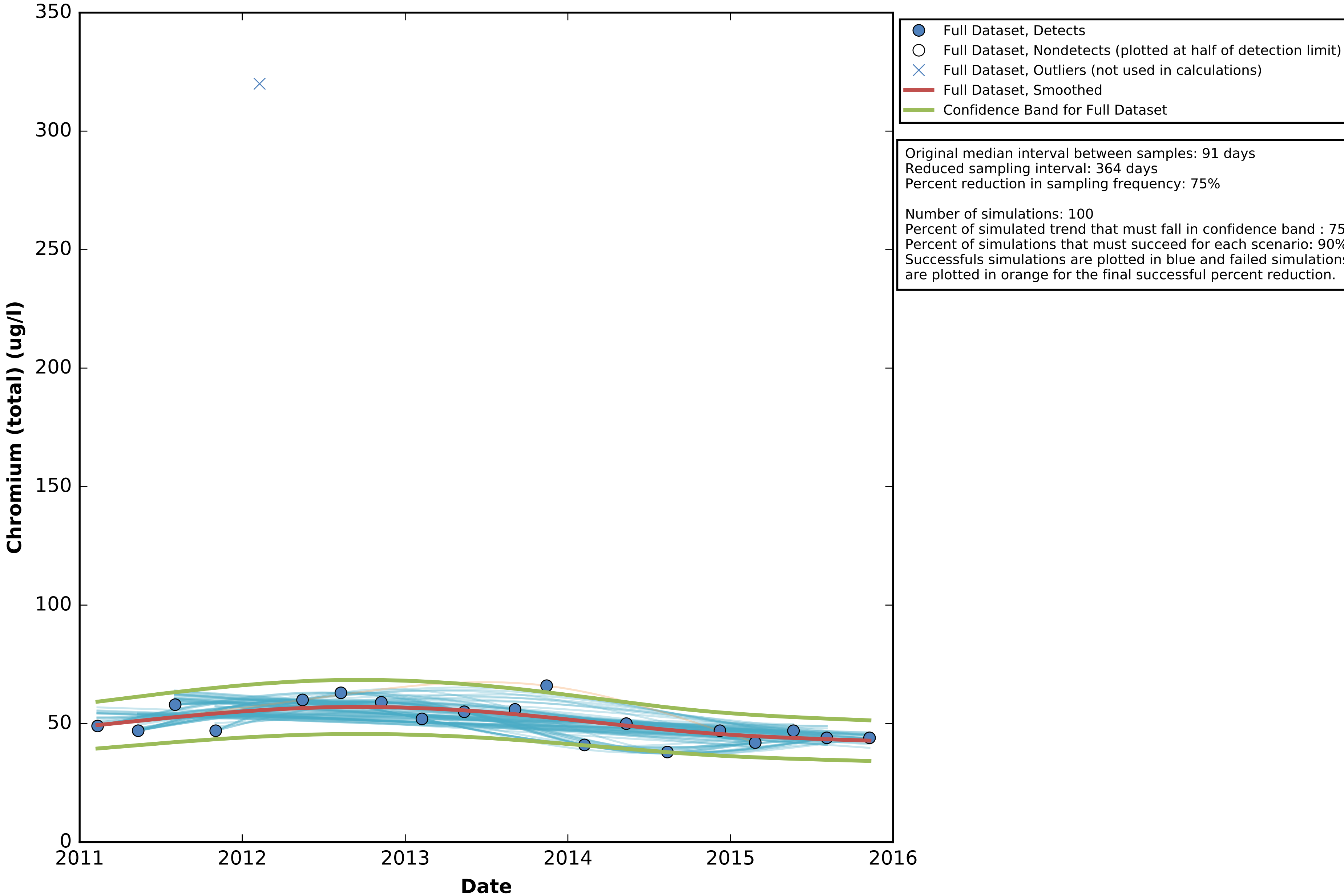
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-135
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-30

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

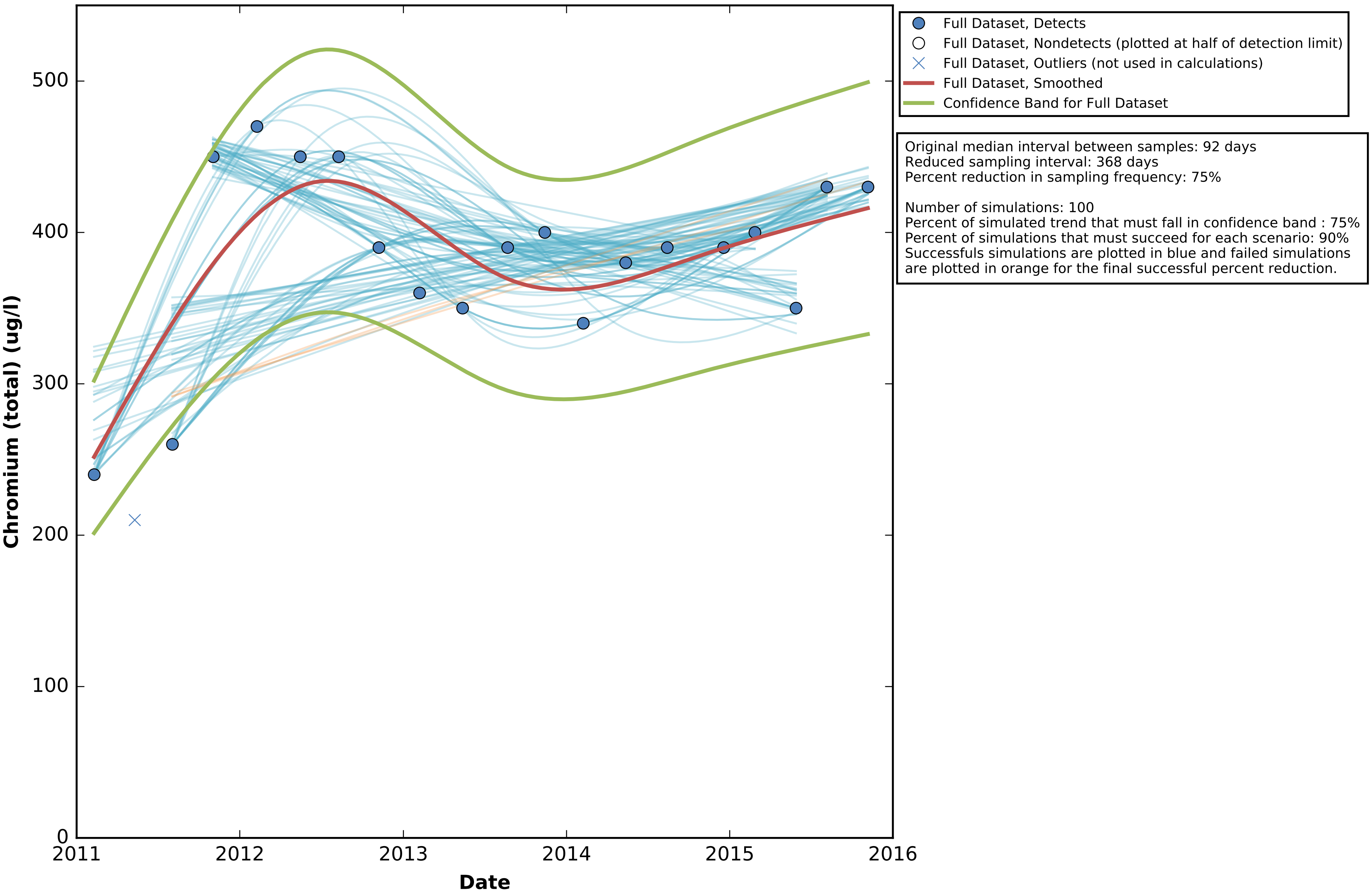
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-14A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-31

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



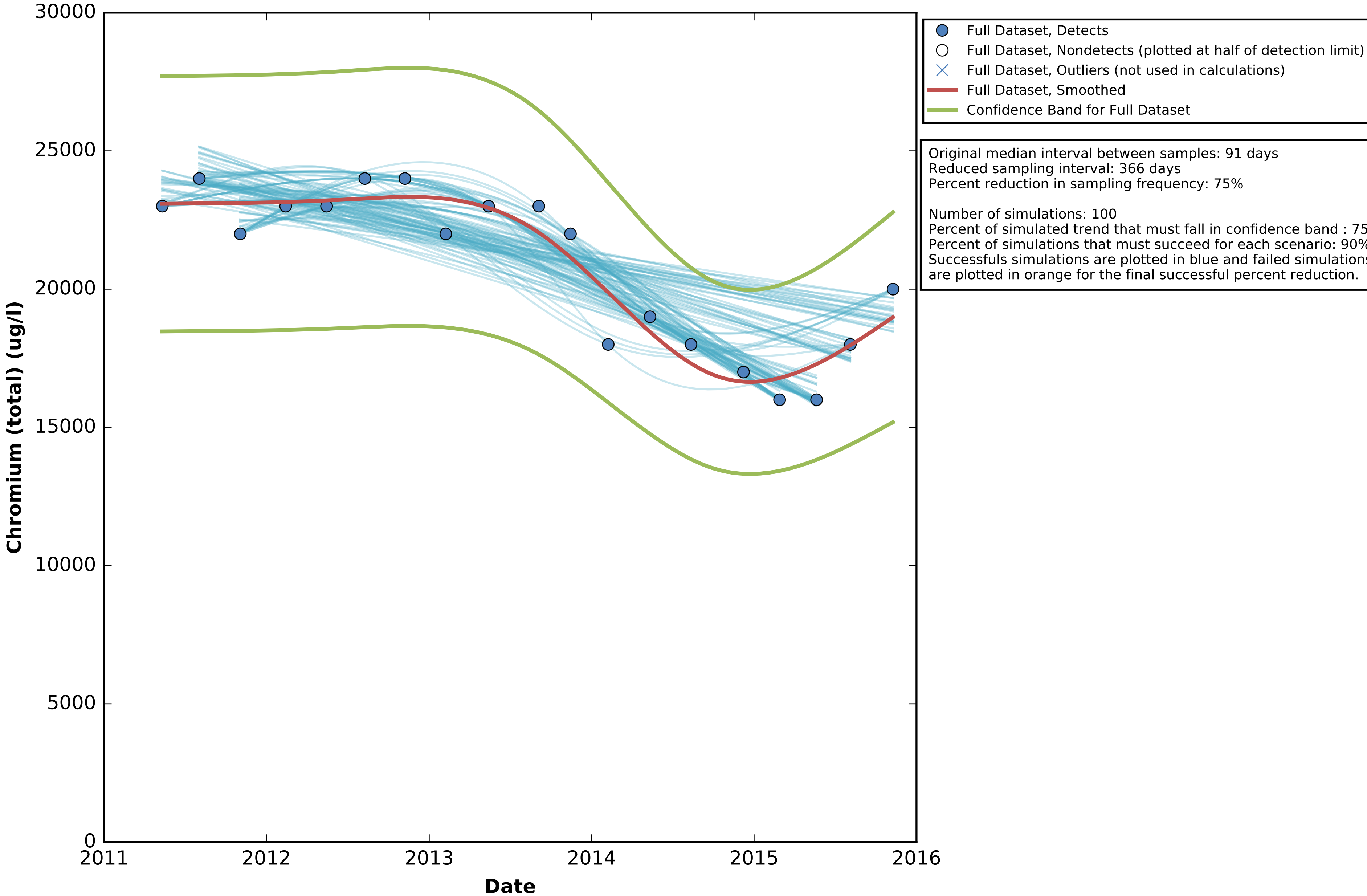
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-19
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-32

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 366 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

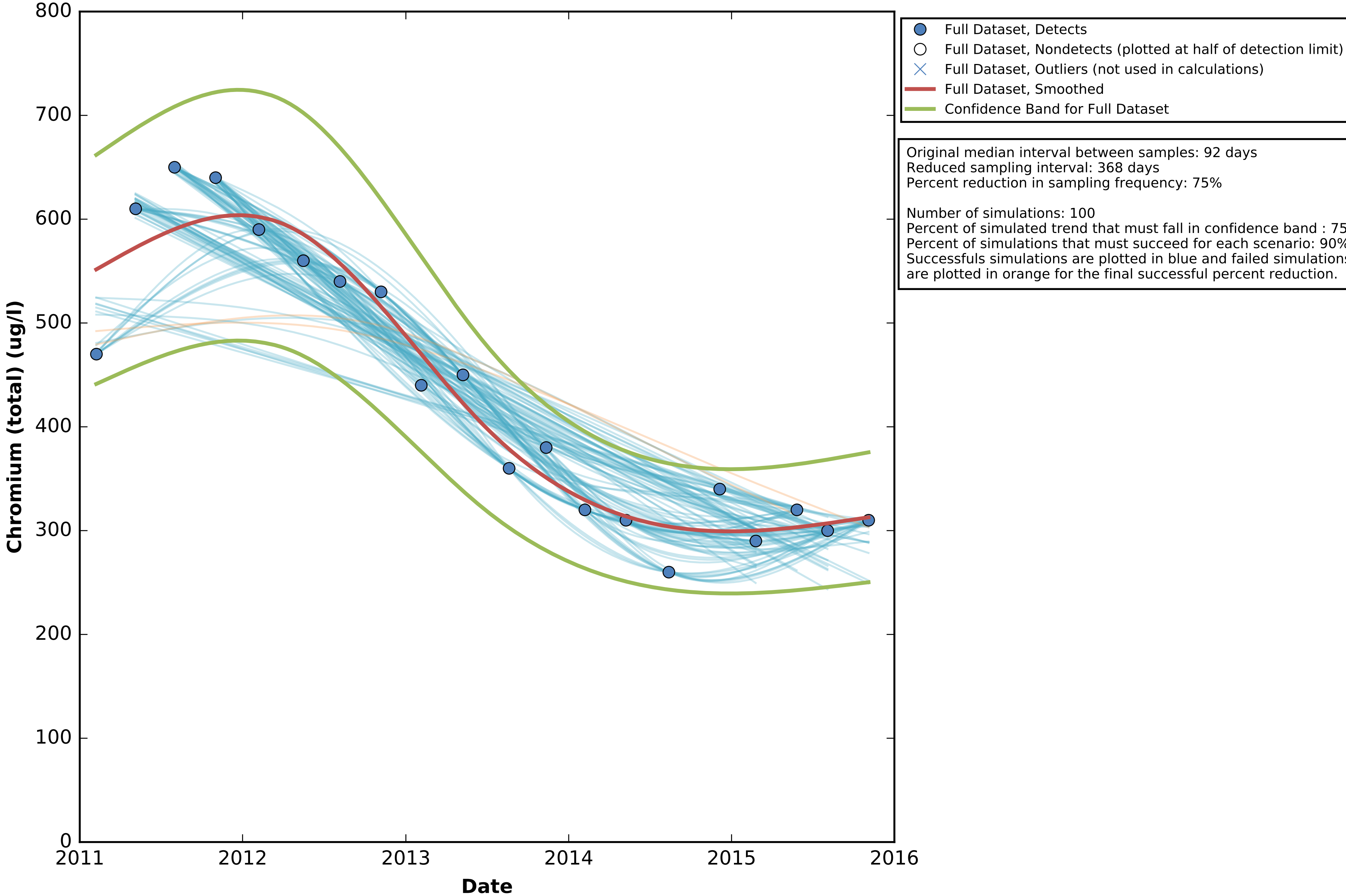
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-22A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-33

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

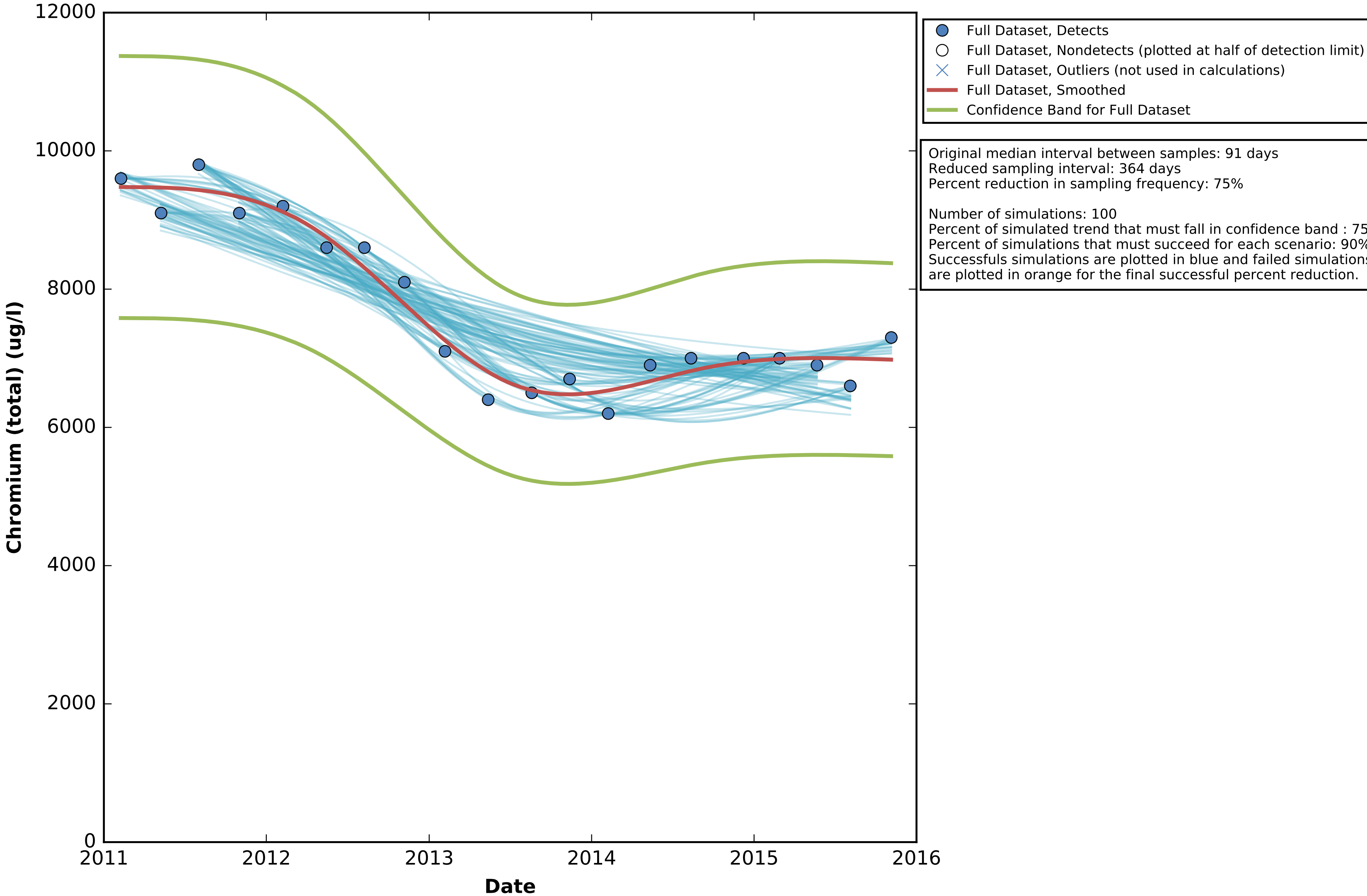
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-23
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-34

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

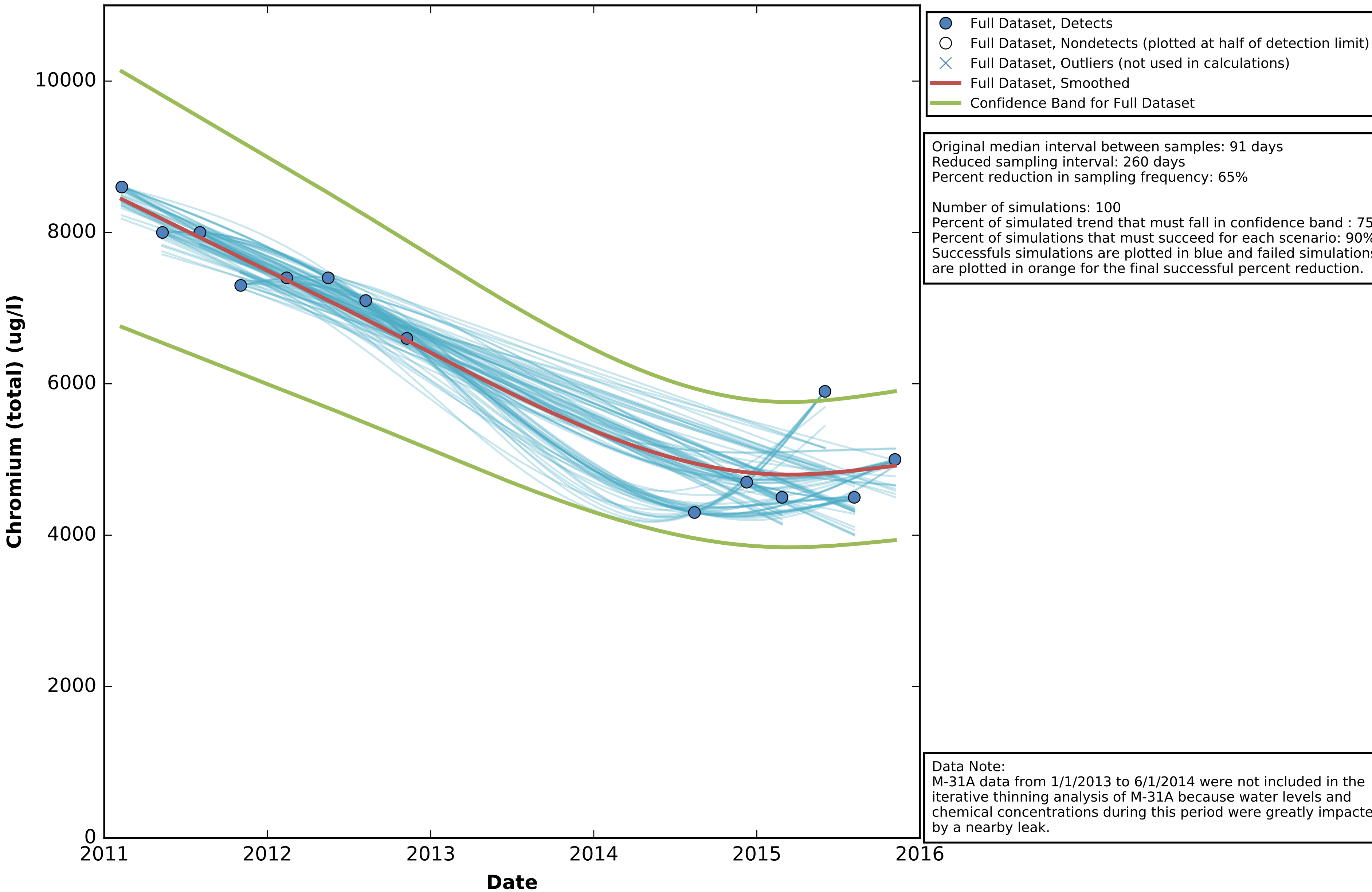
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-25
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-35

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Data Note:
M-31A data from 1/1/2013 to 6/1/2014 were not included in the iterative thinning analysis of M-31A because water levels and chemical concentrations during this period were greatly impacted by a nearby leak.

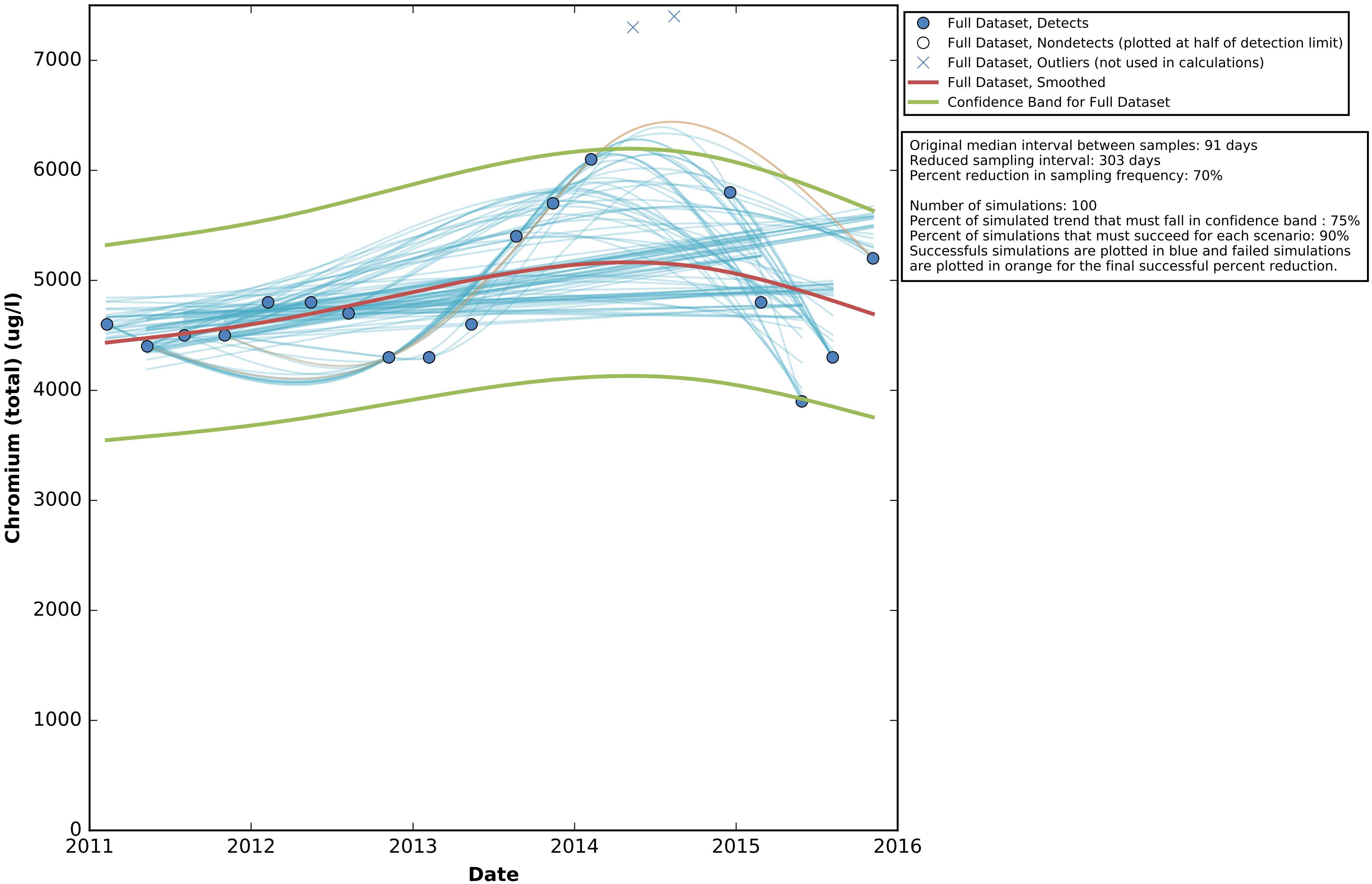
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-31A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-36

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



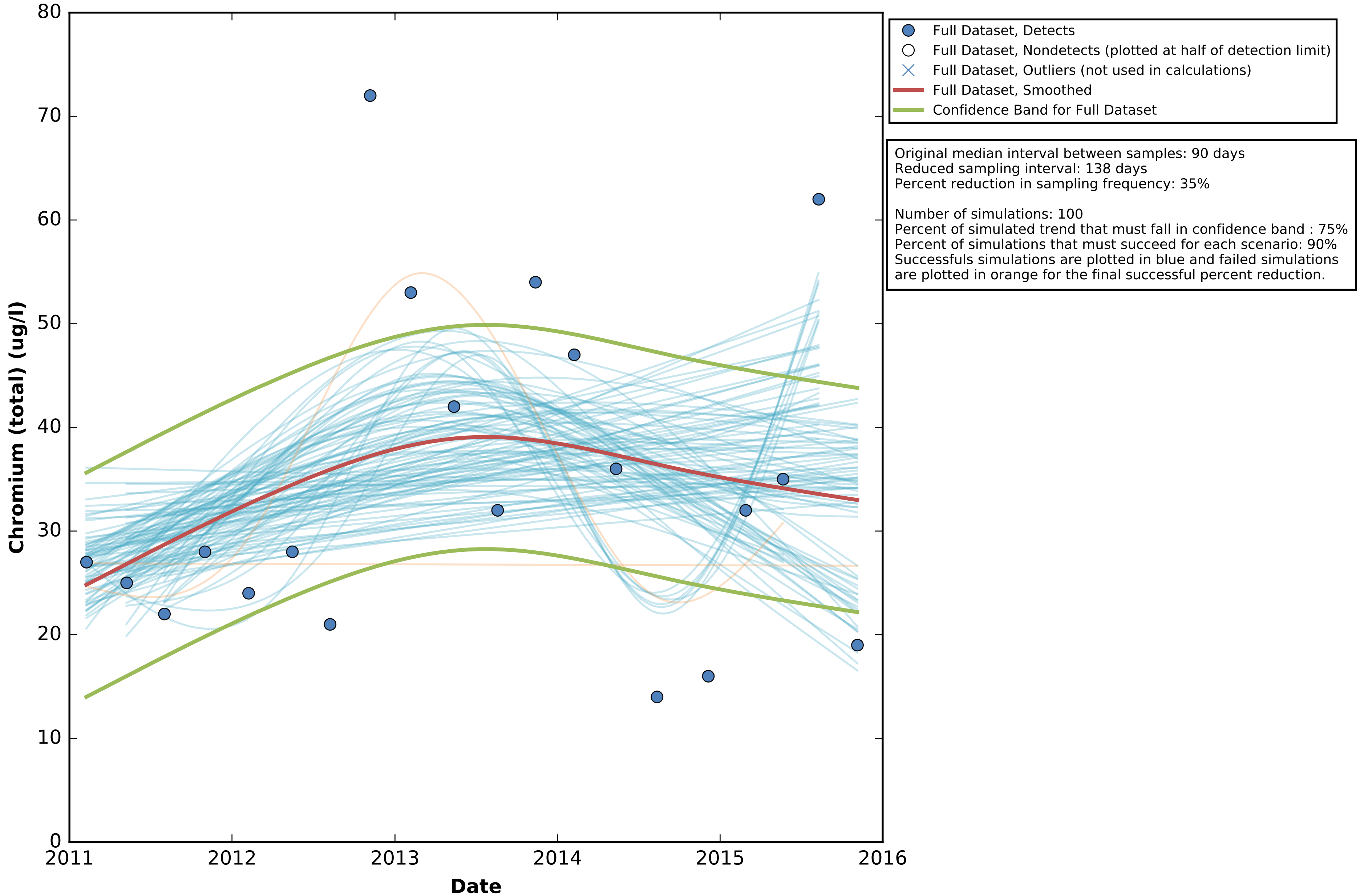
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-35
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-37

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



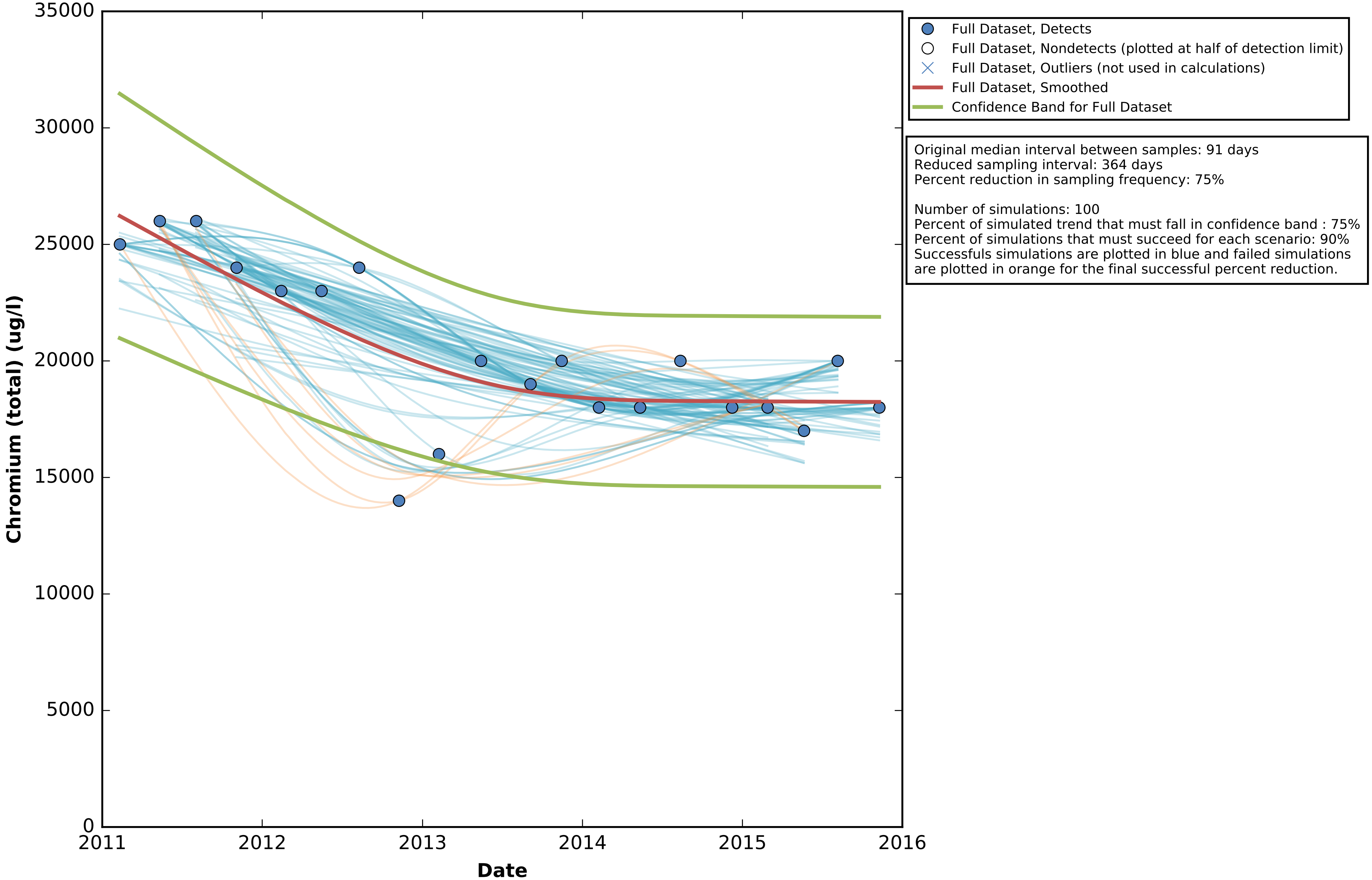
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-38

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



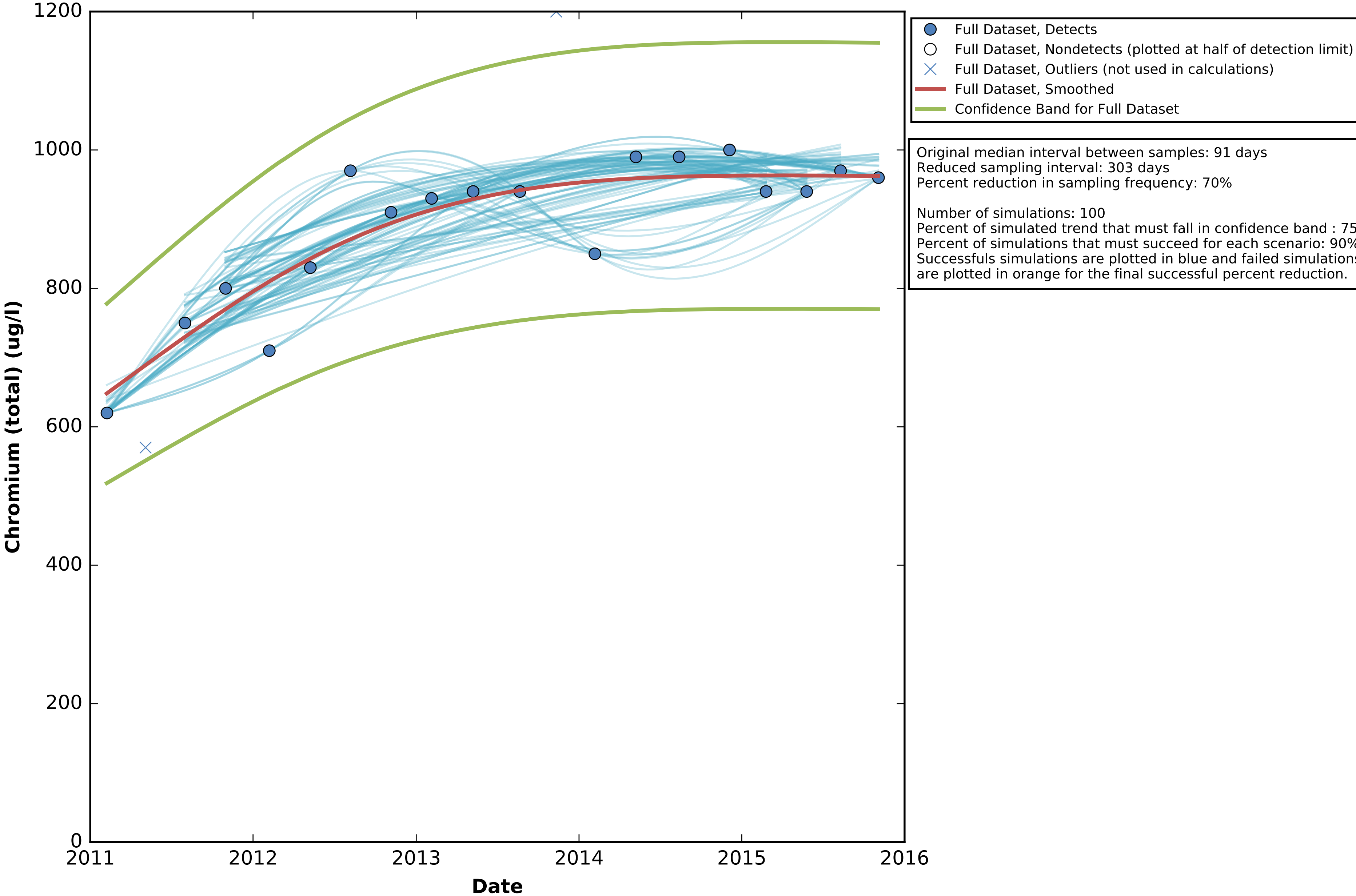
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-38
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-39

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

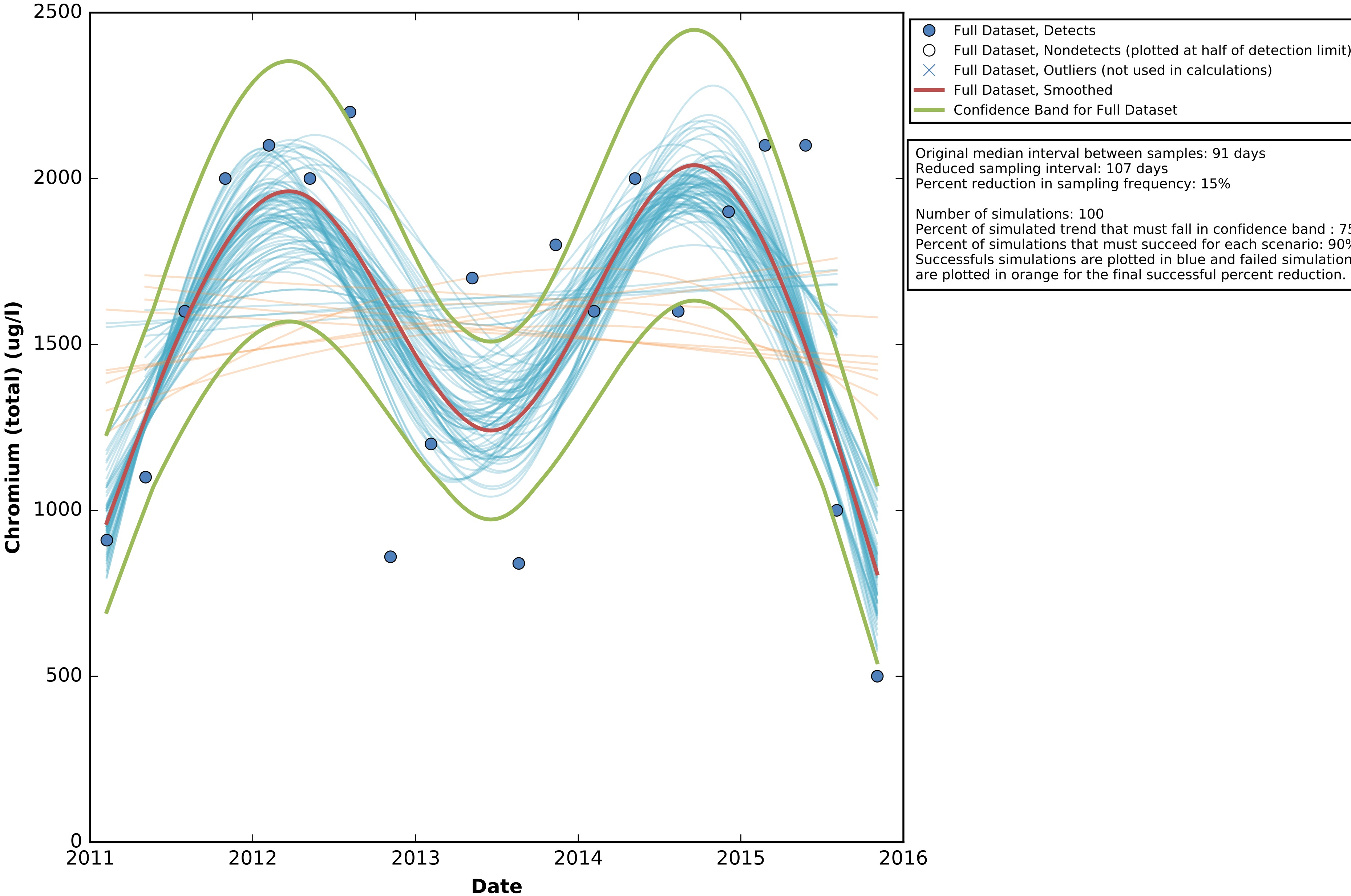
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-44
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-40

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 107 days
Percent reduction in sampling frequency: 15%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

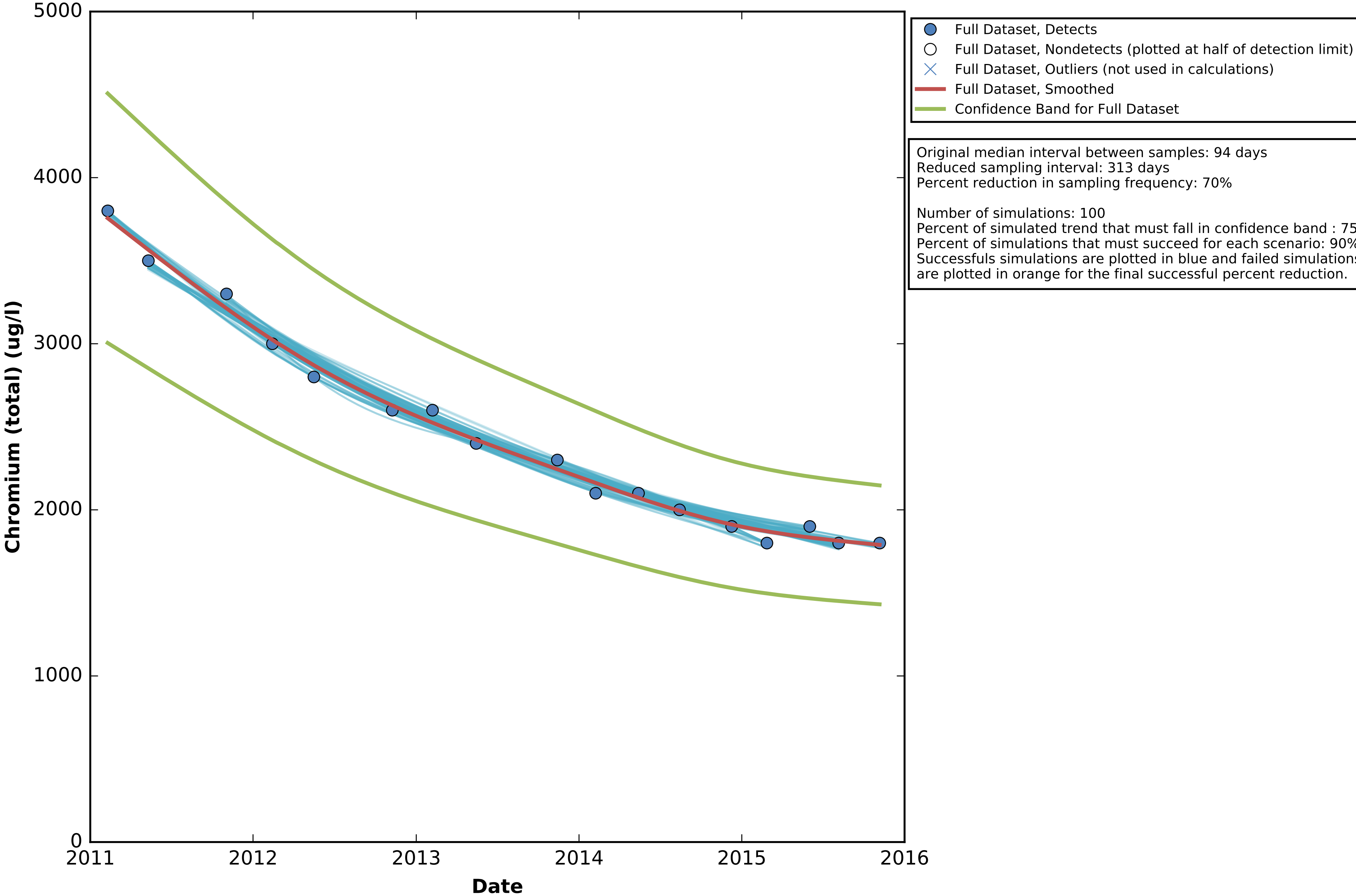
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-48A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-41

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 94 days
Reduced sampling interval: 313 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

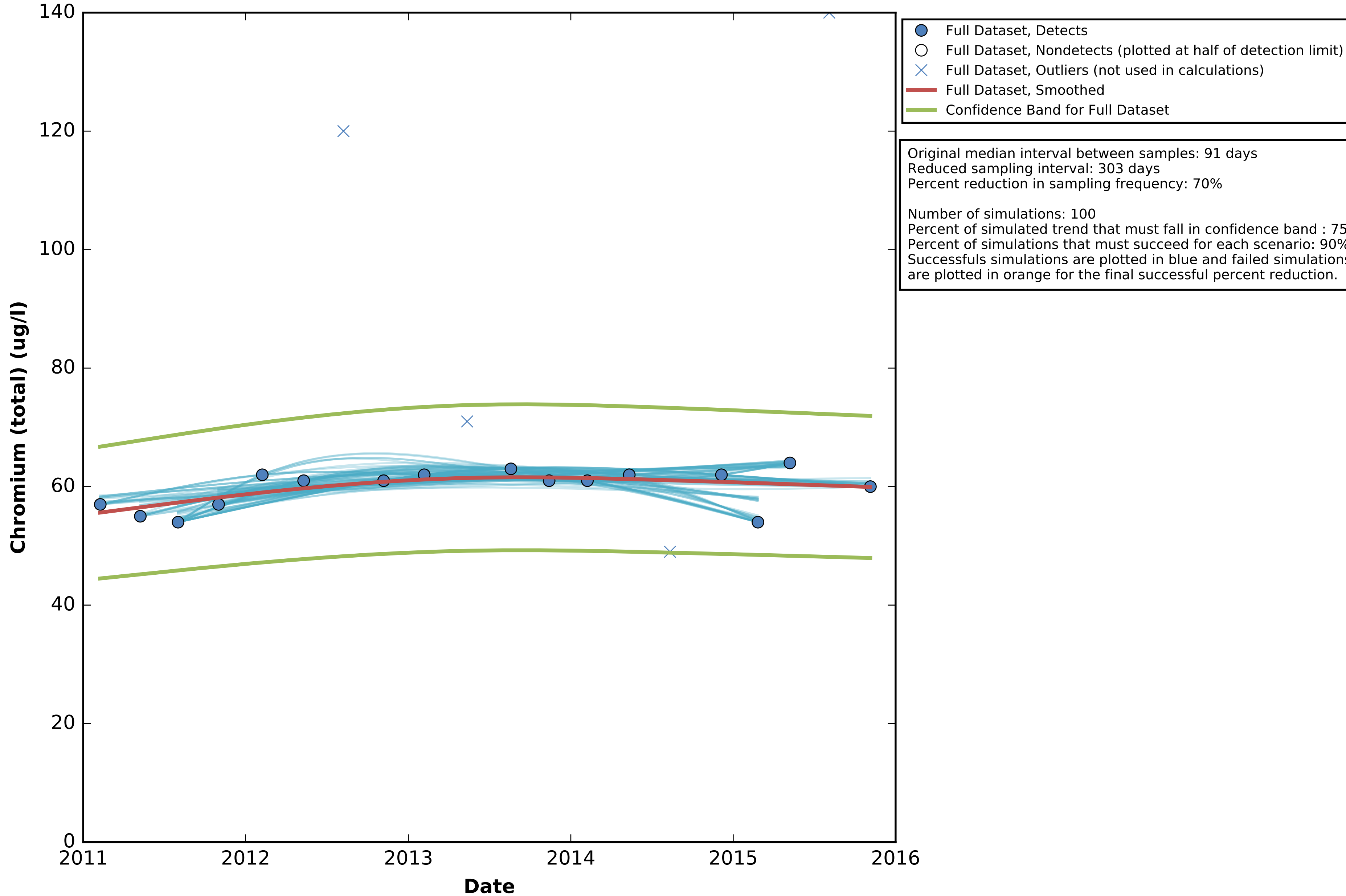
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-52
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-42

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

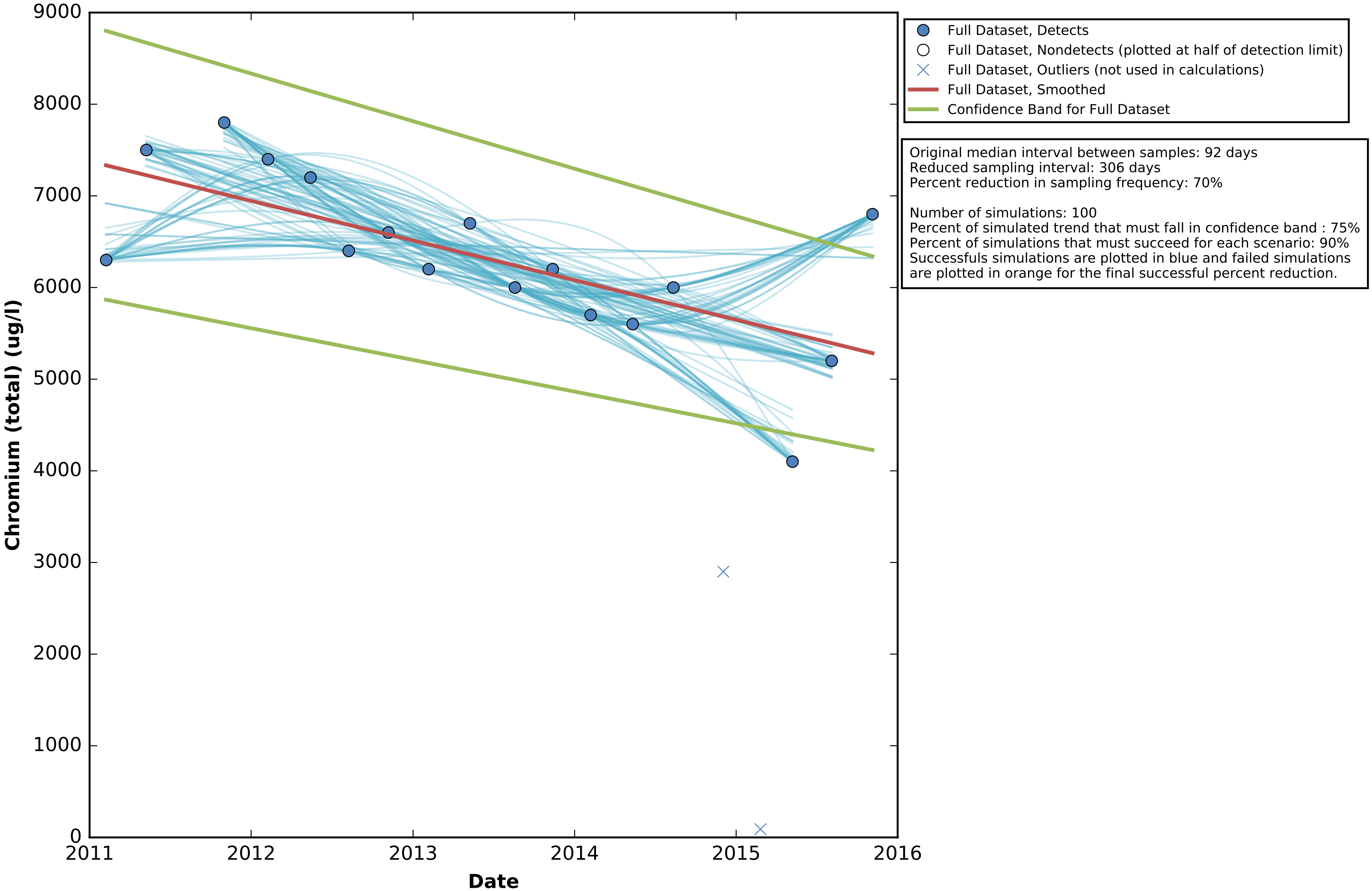
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-57A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-43

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



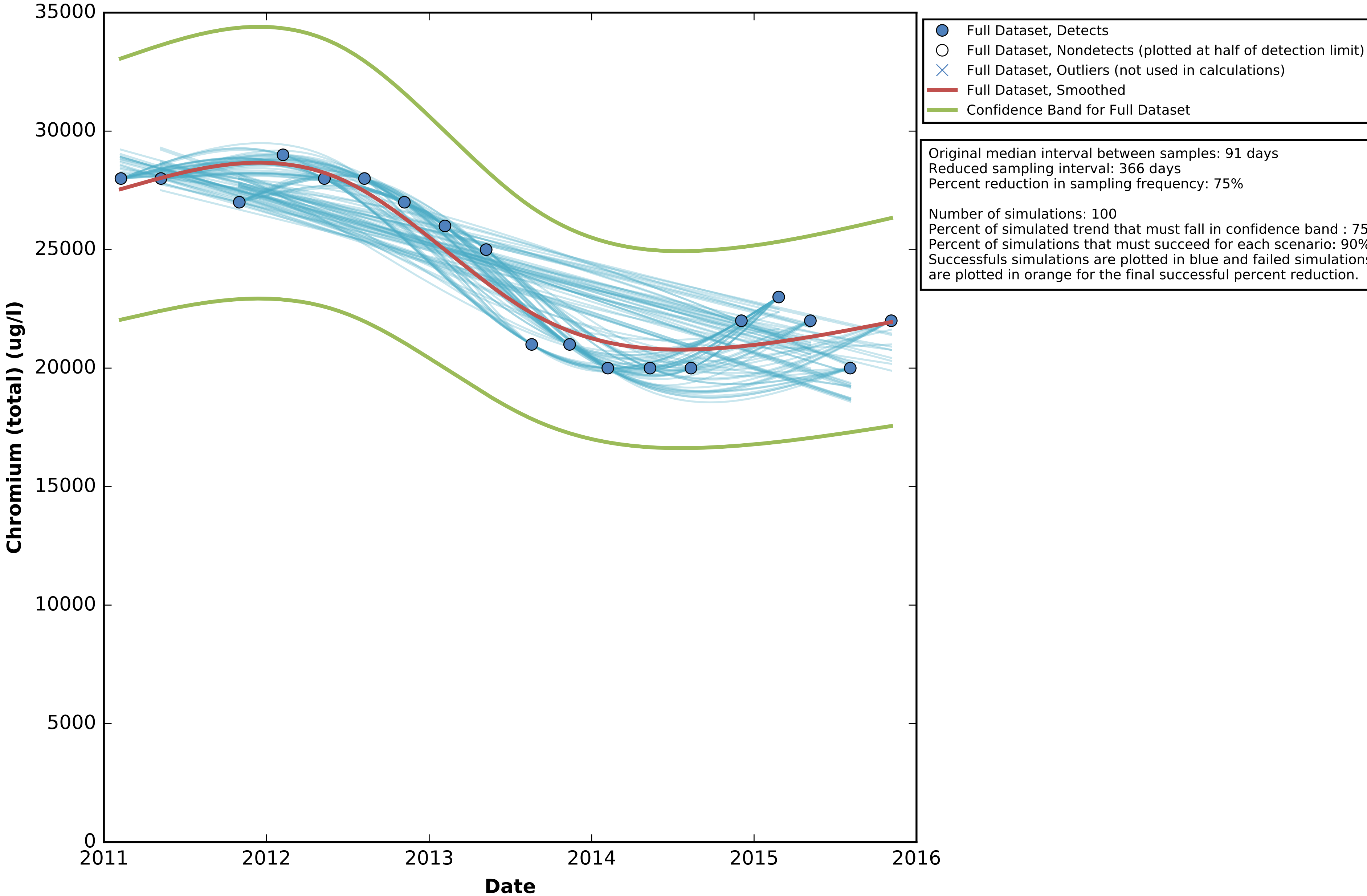
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-64
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-44

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 366 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

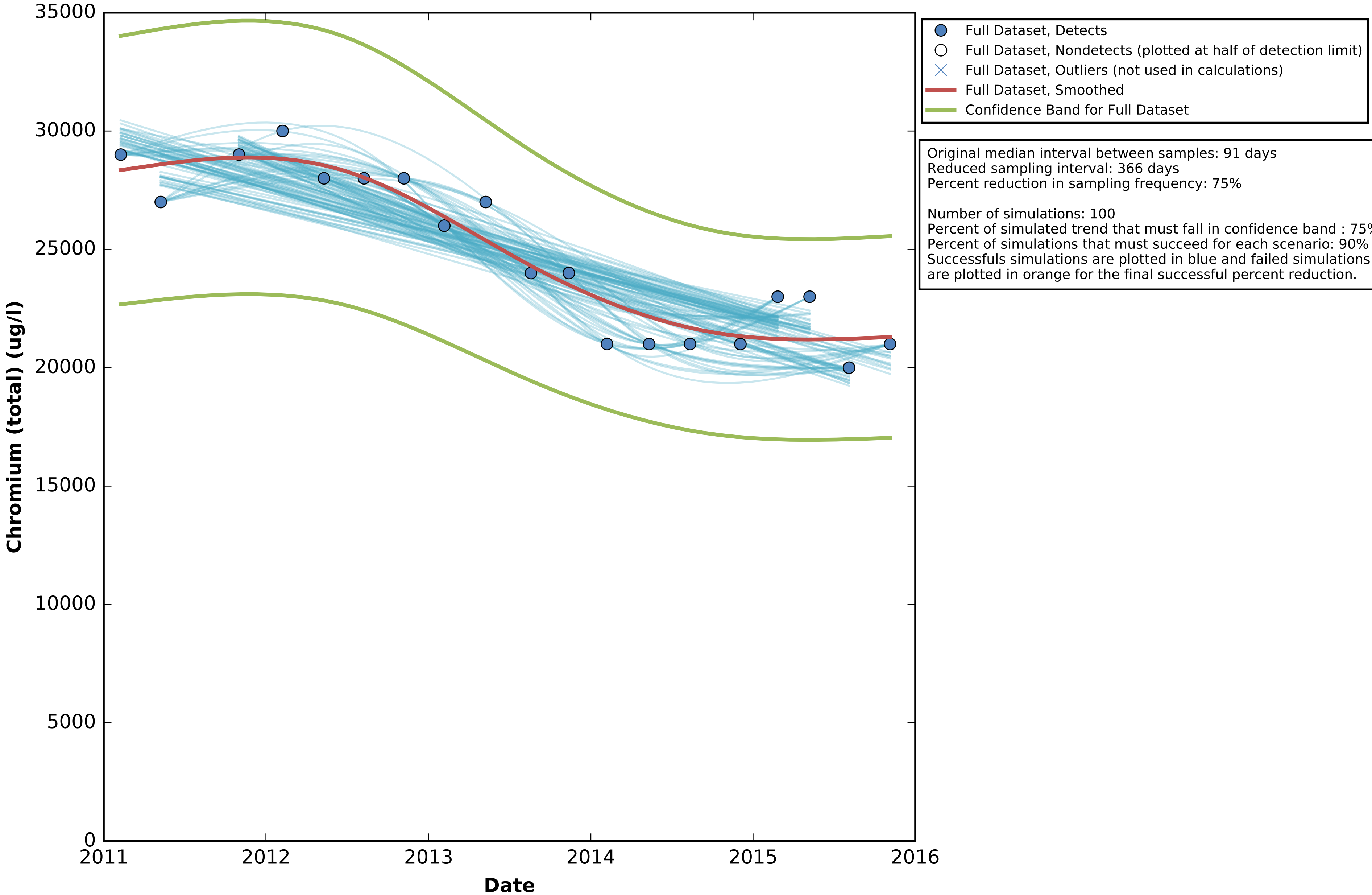
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-65
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-45

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 366 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

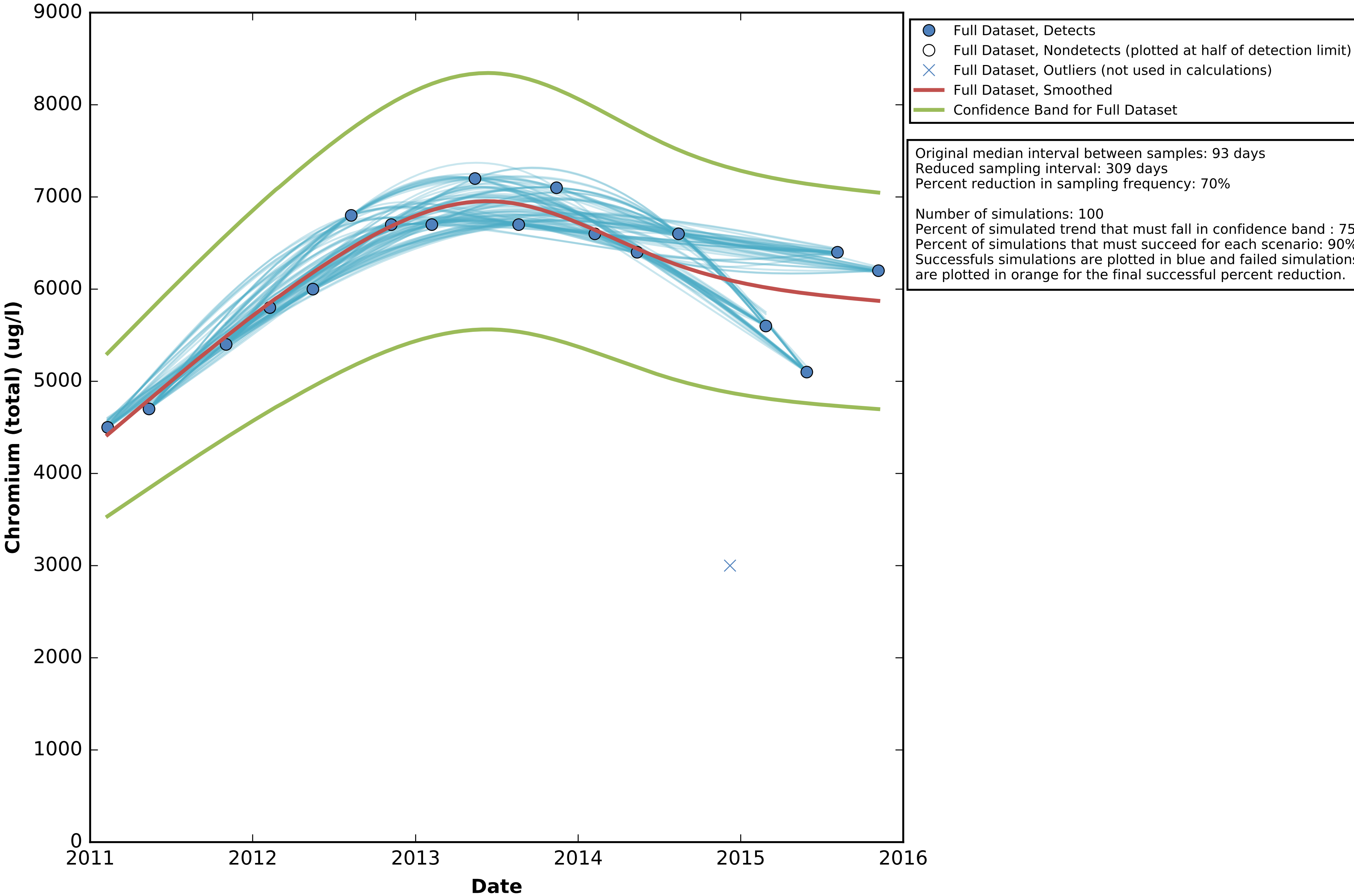
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-66
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-46

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 93 days
Reduced sampling interval: 309 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

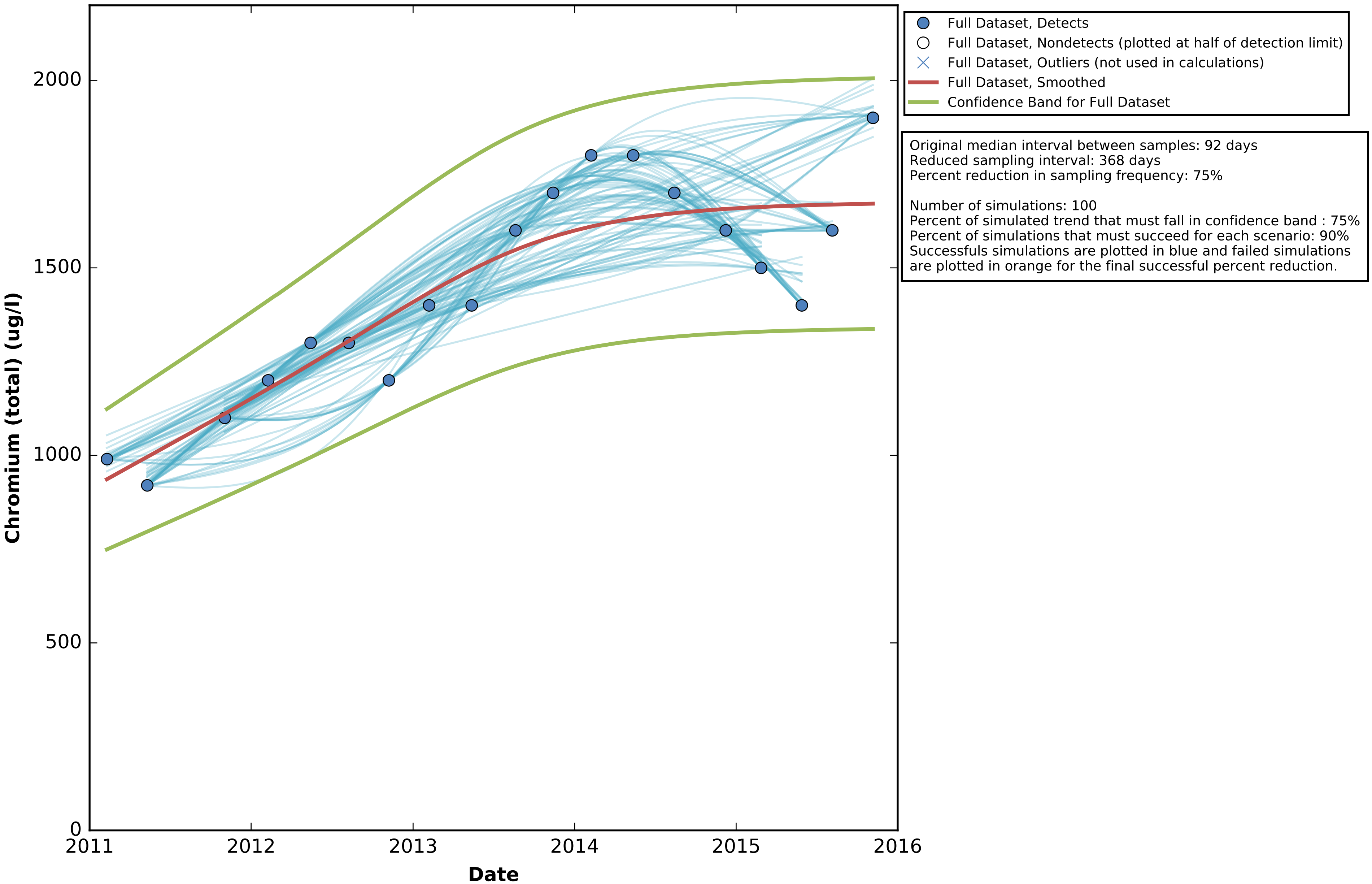
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-67
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-47

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



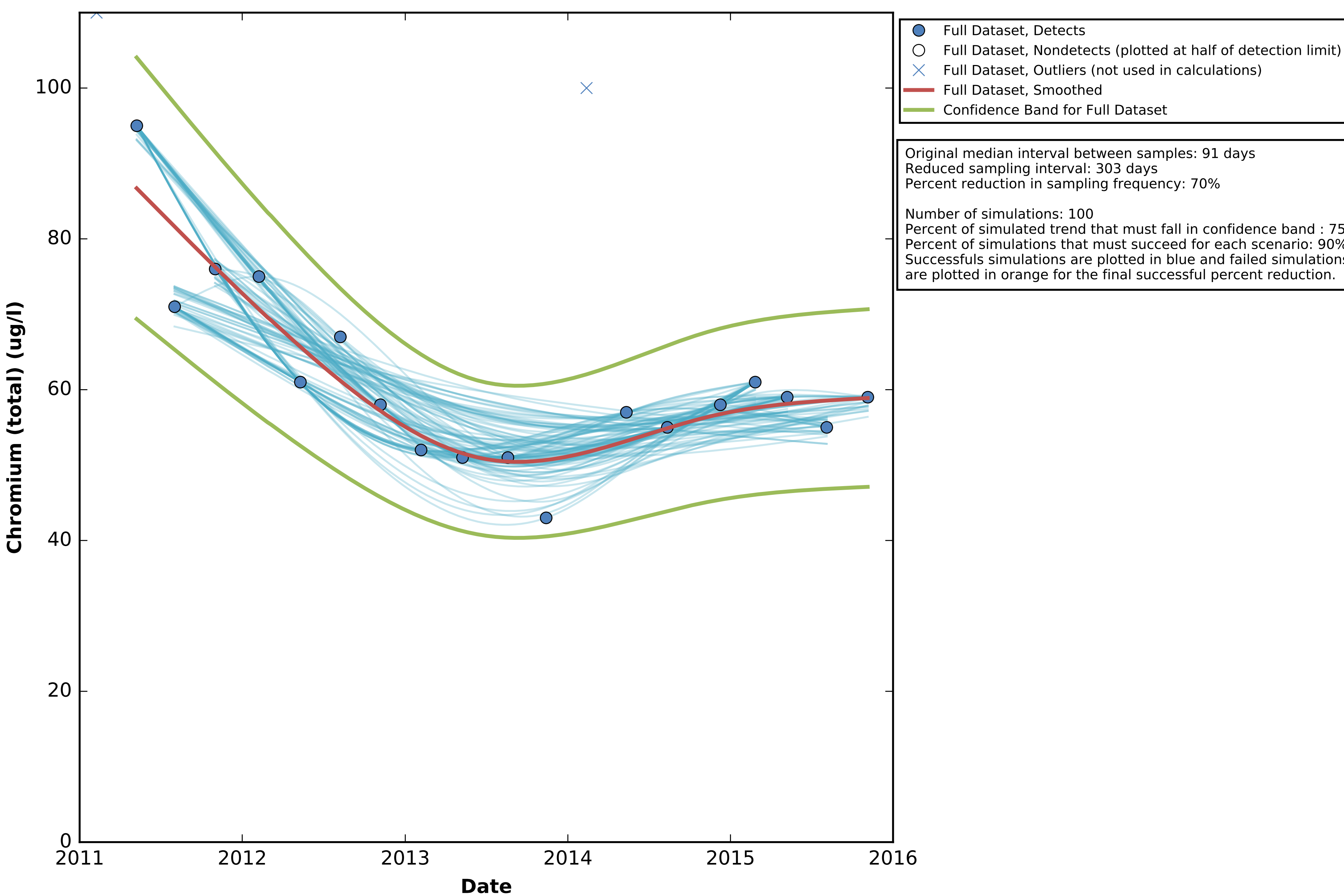
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-48

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

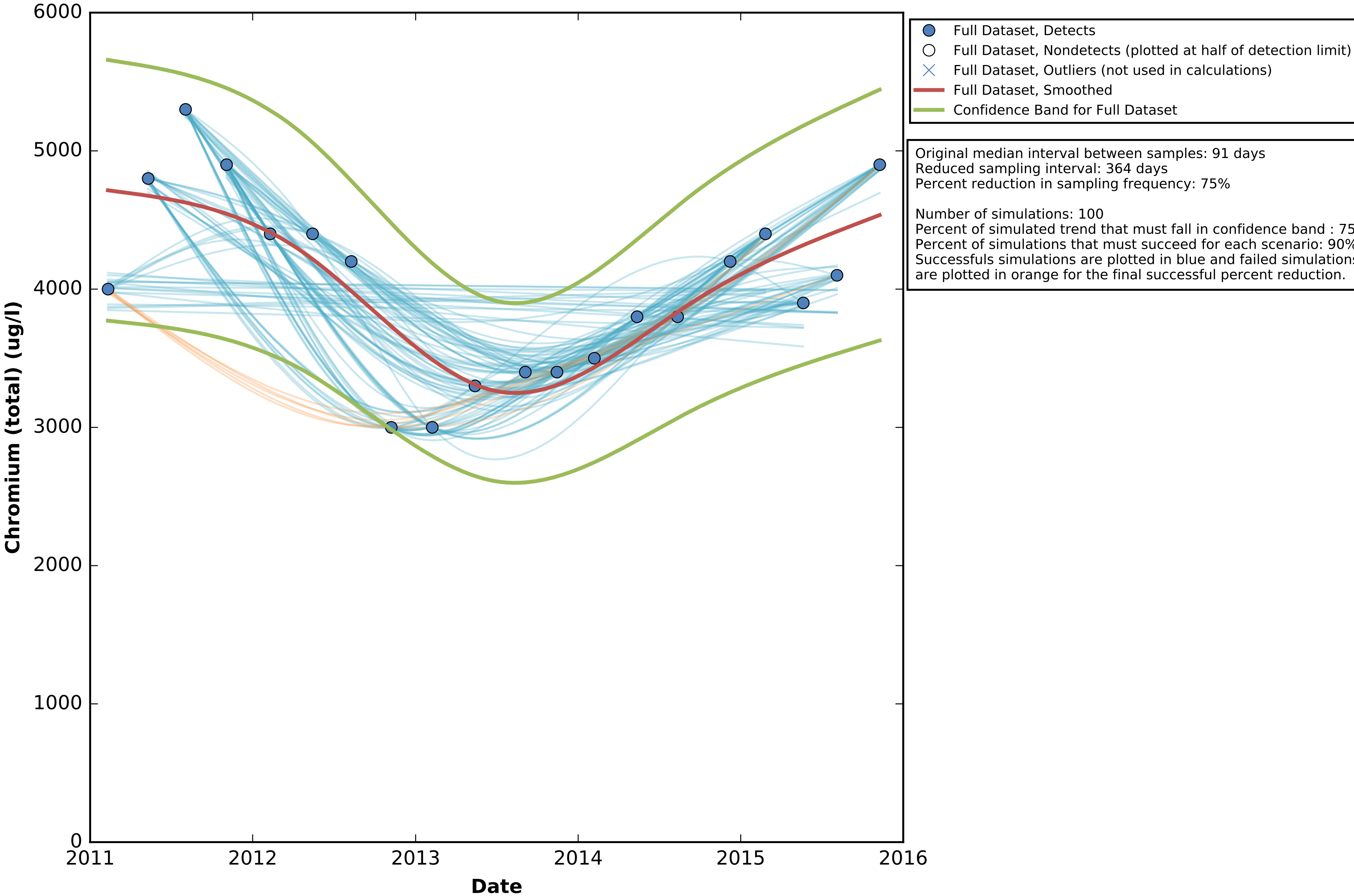
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-69
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-49

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

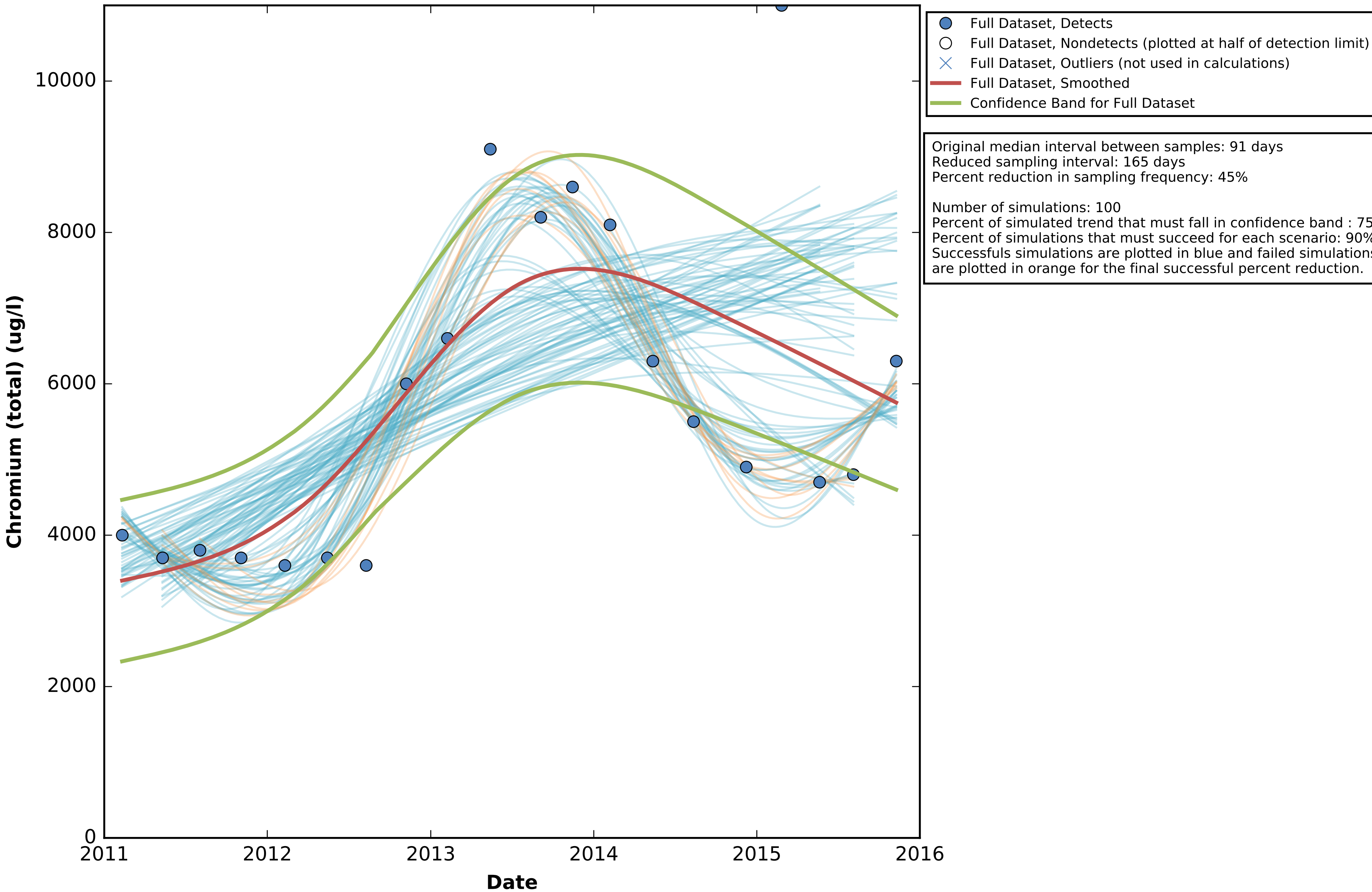
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-70
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-50

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 165 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

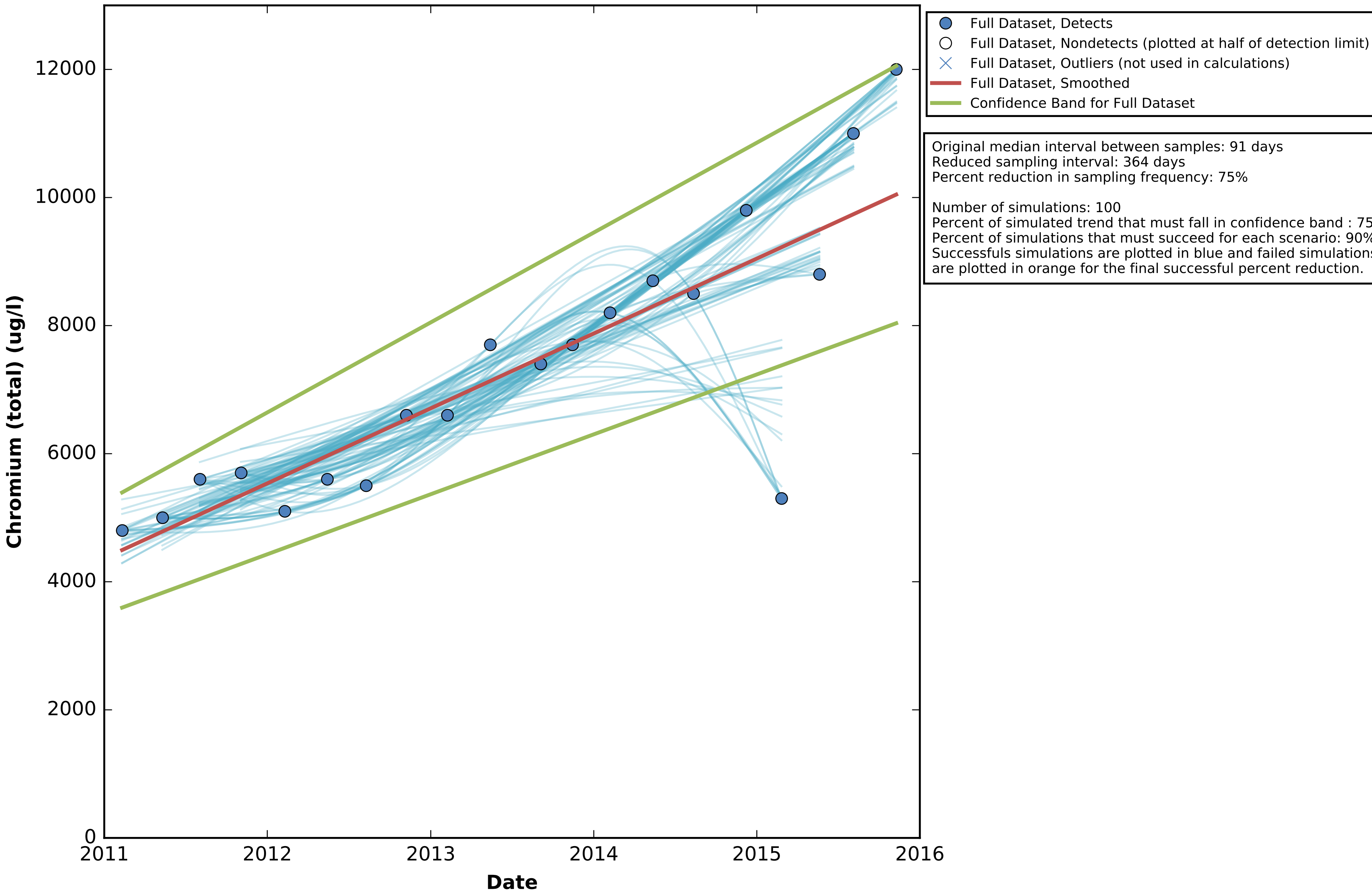
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-51

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

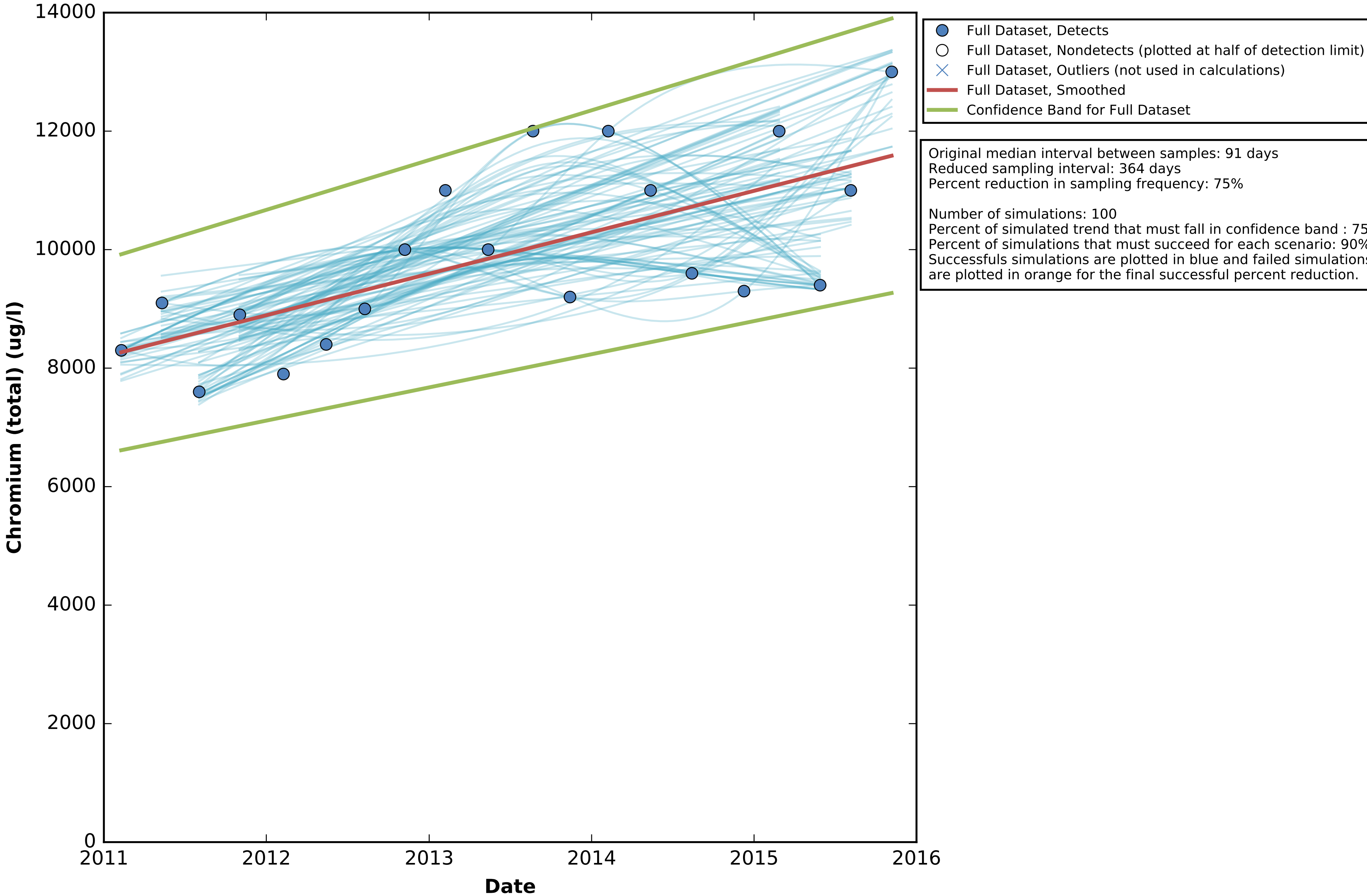
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-52

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

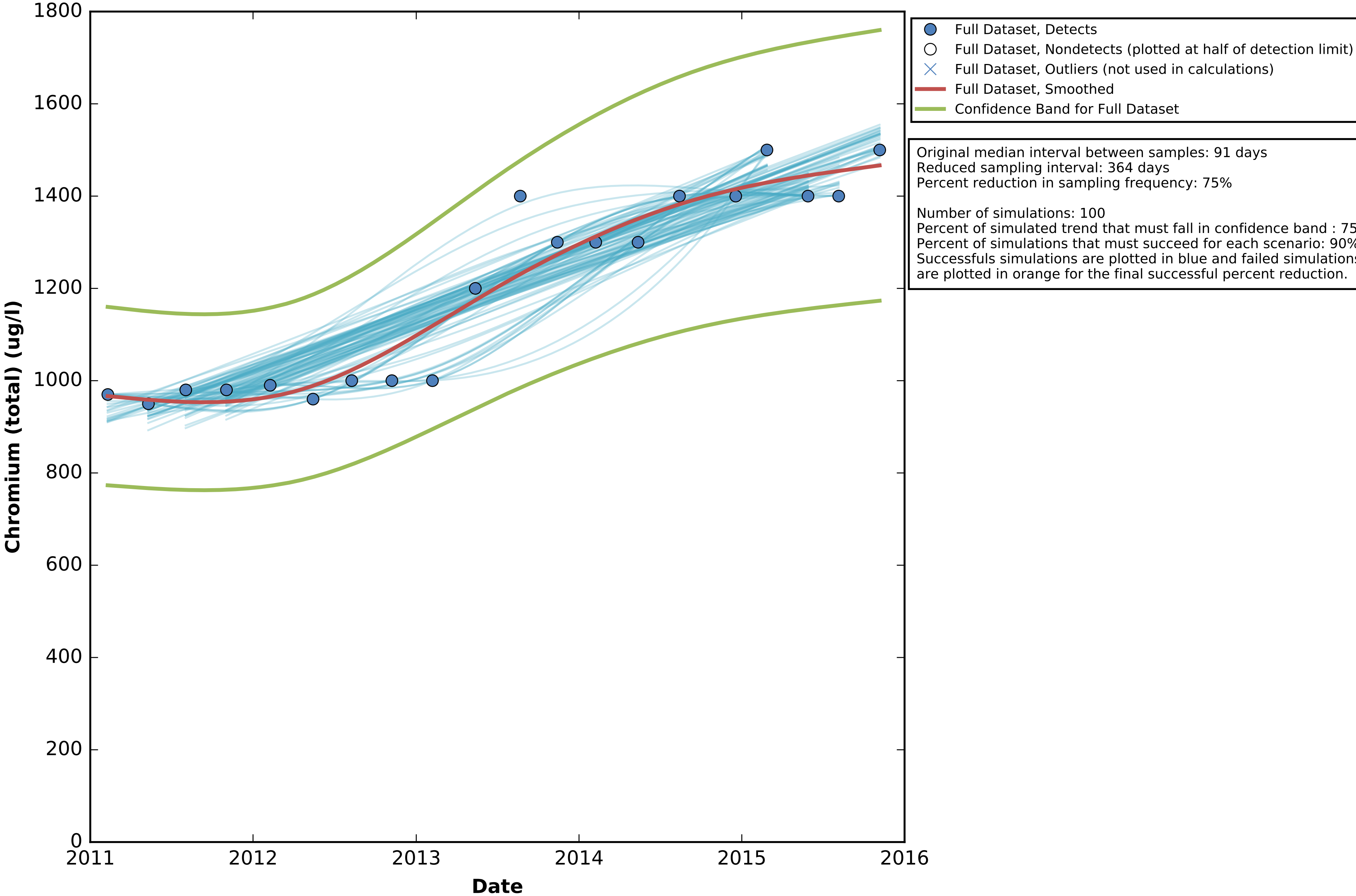
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-53

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

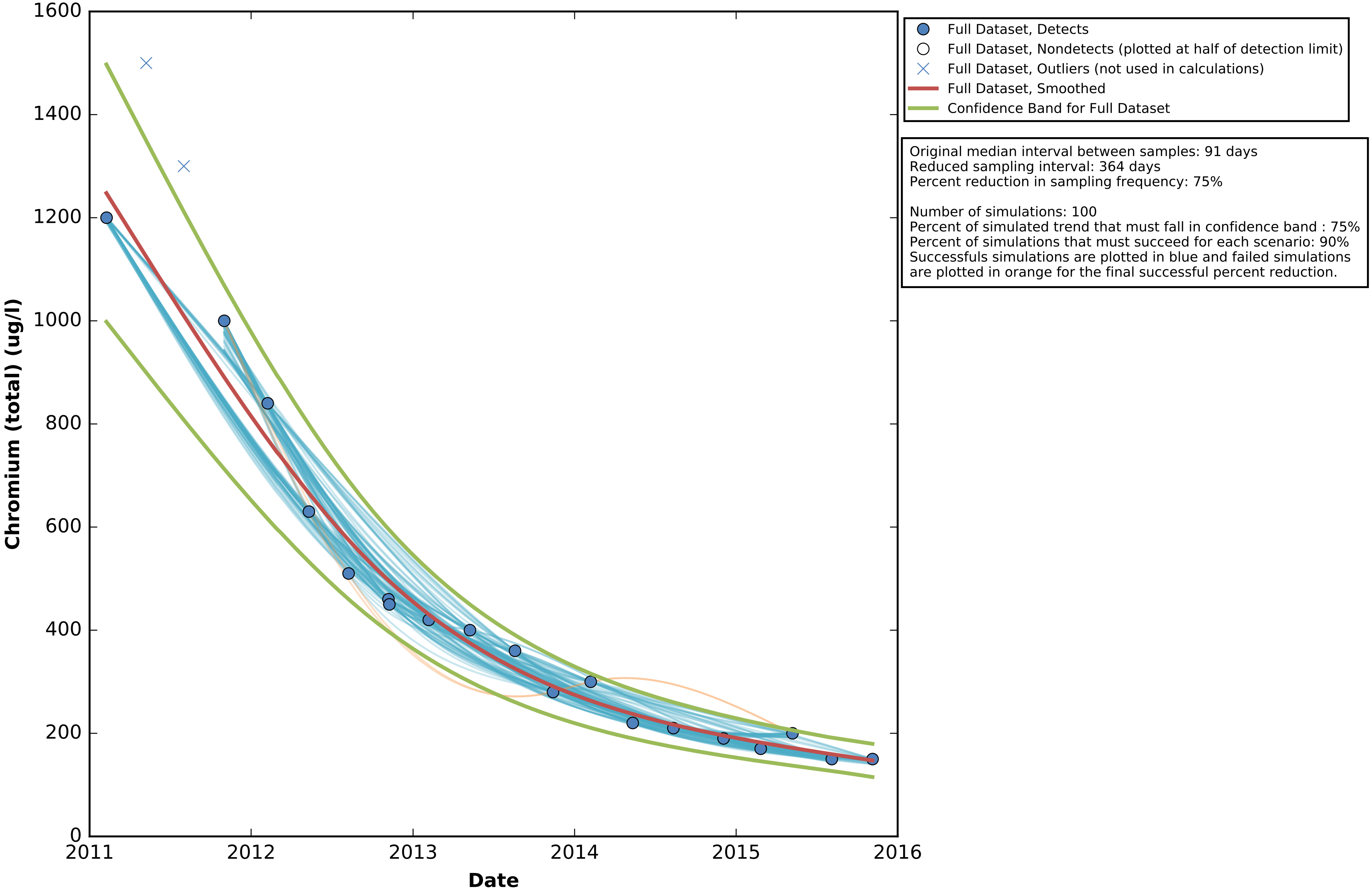
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-74
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-54

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



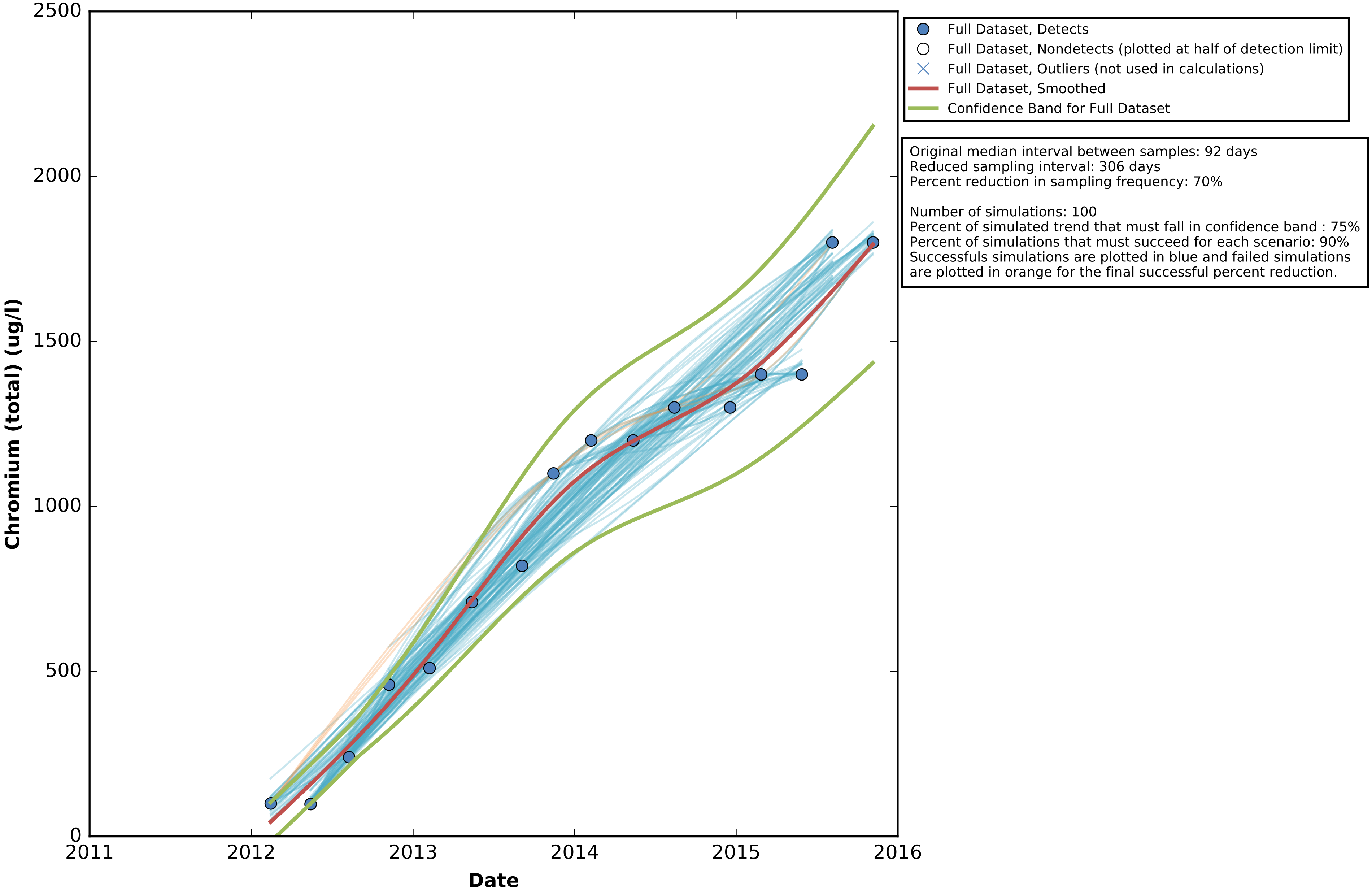
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-79
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-55

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



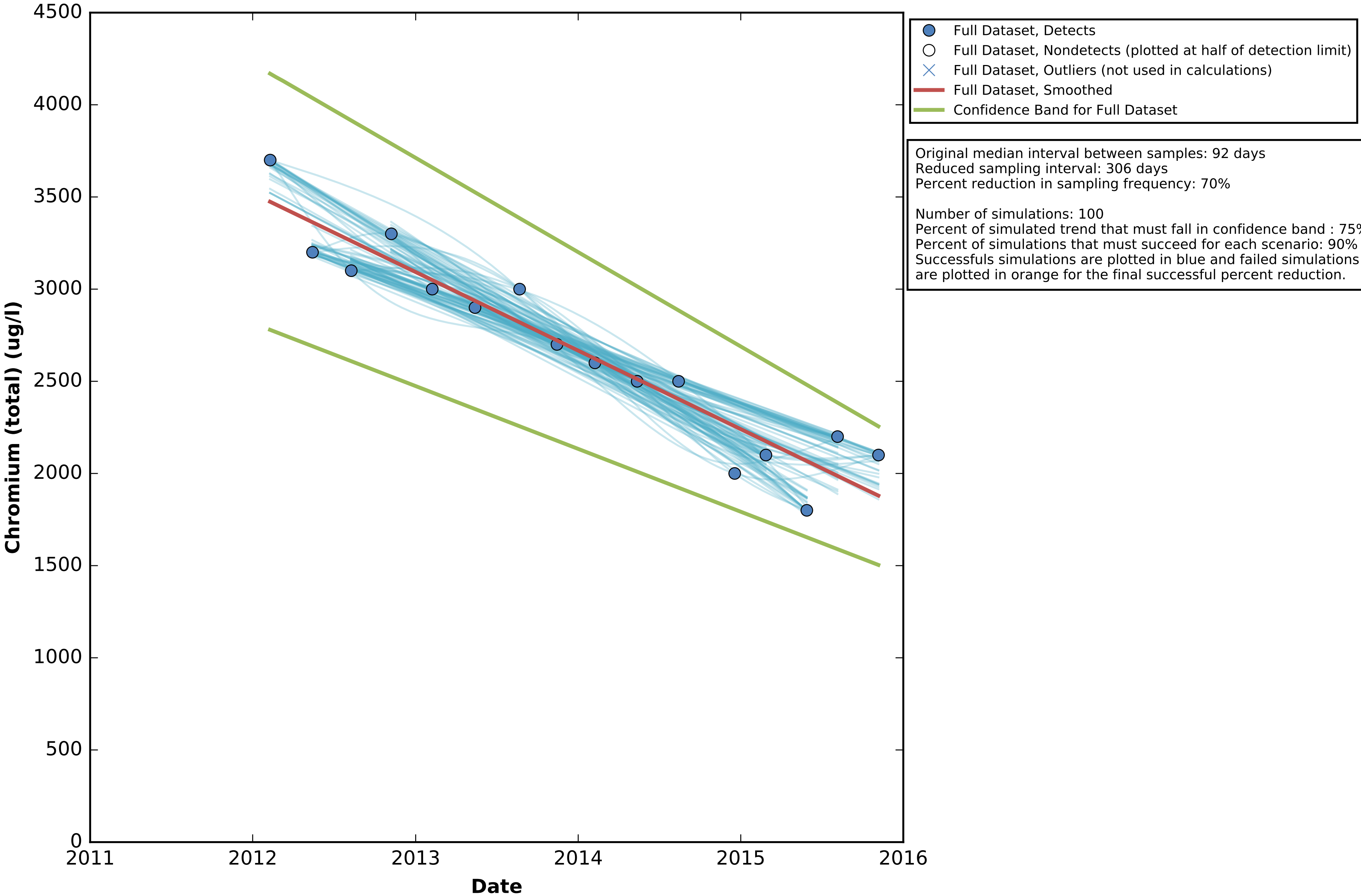
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-80
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-56

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

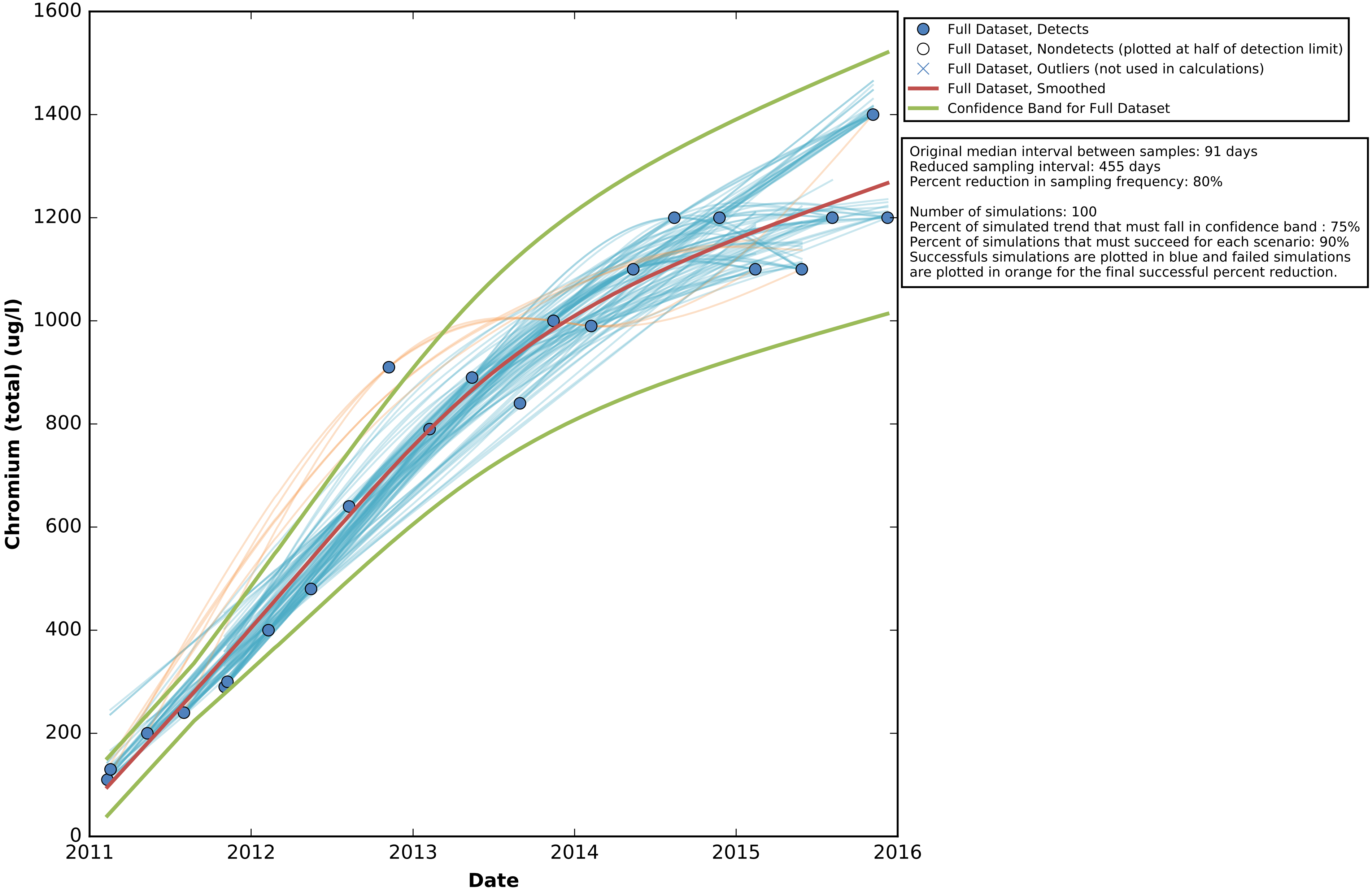
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-81A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-57

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



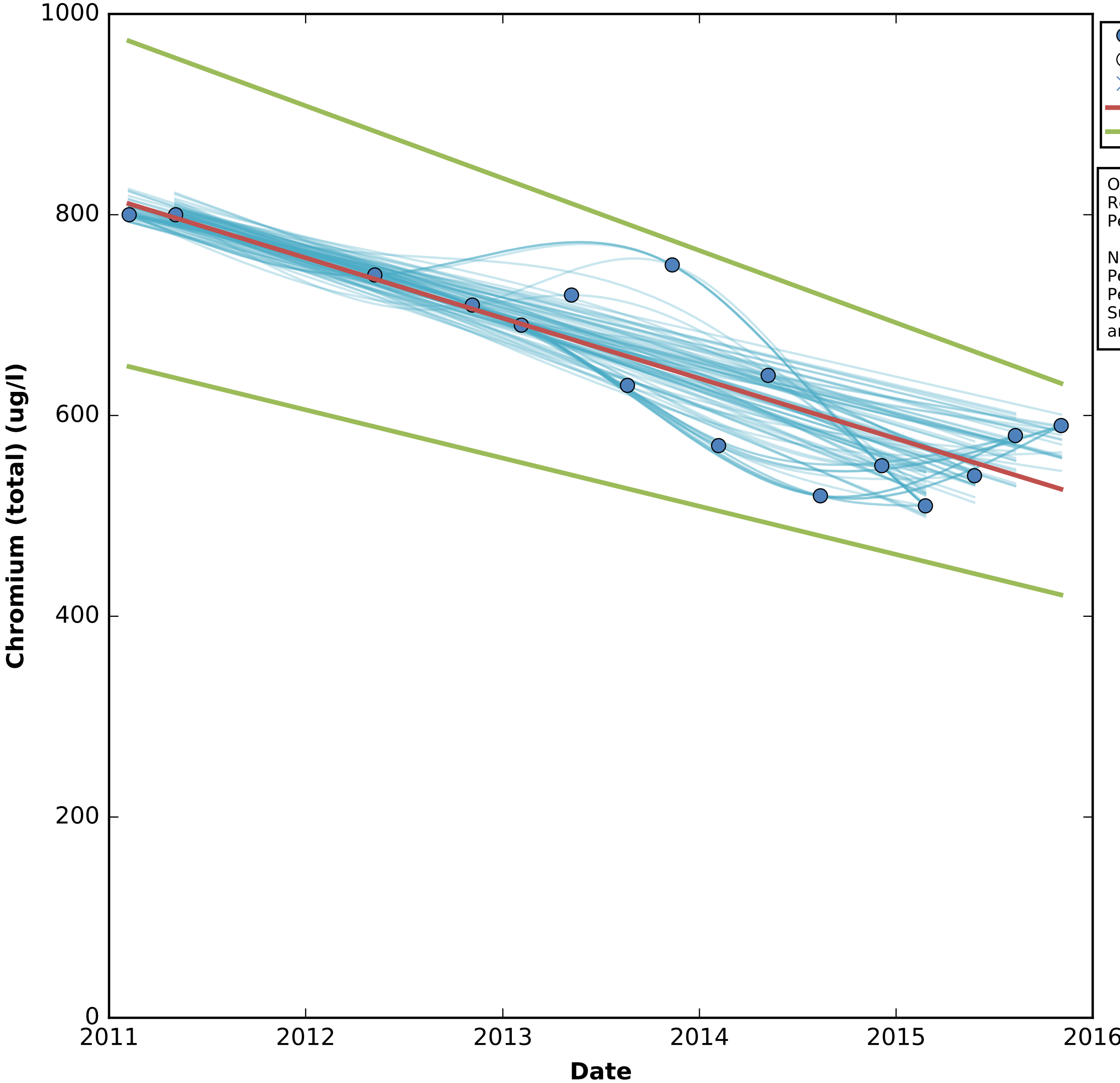
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-83
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-58

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

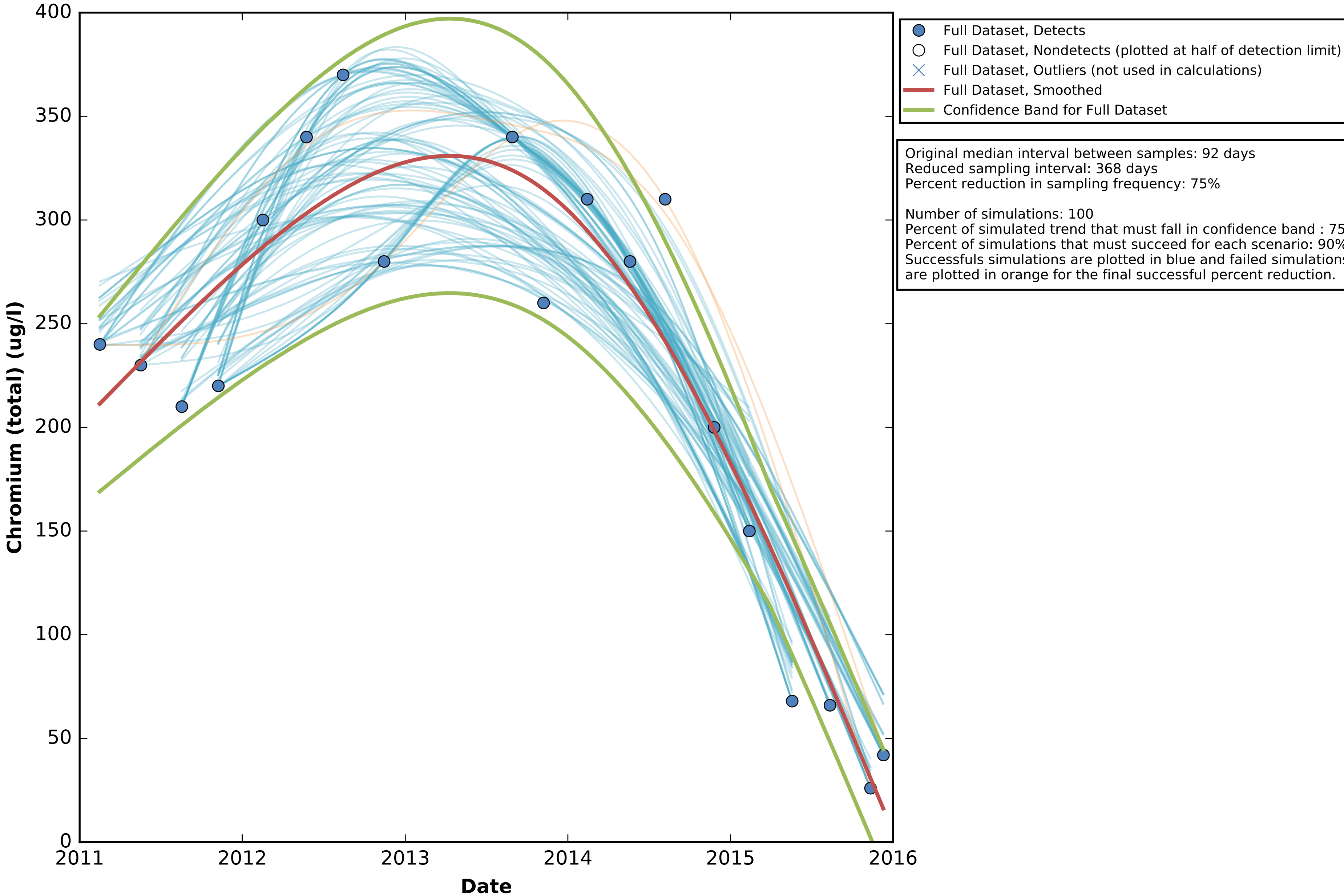
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in M-95
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-59

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

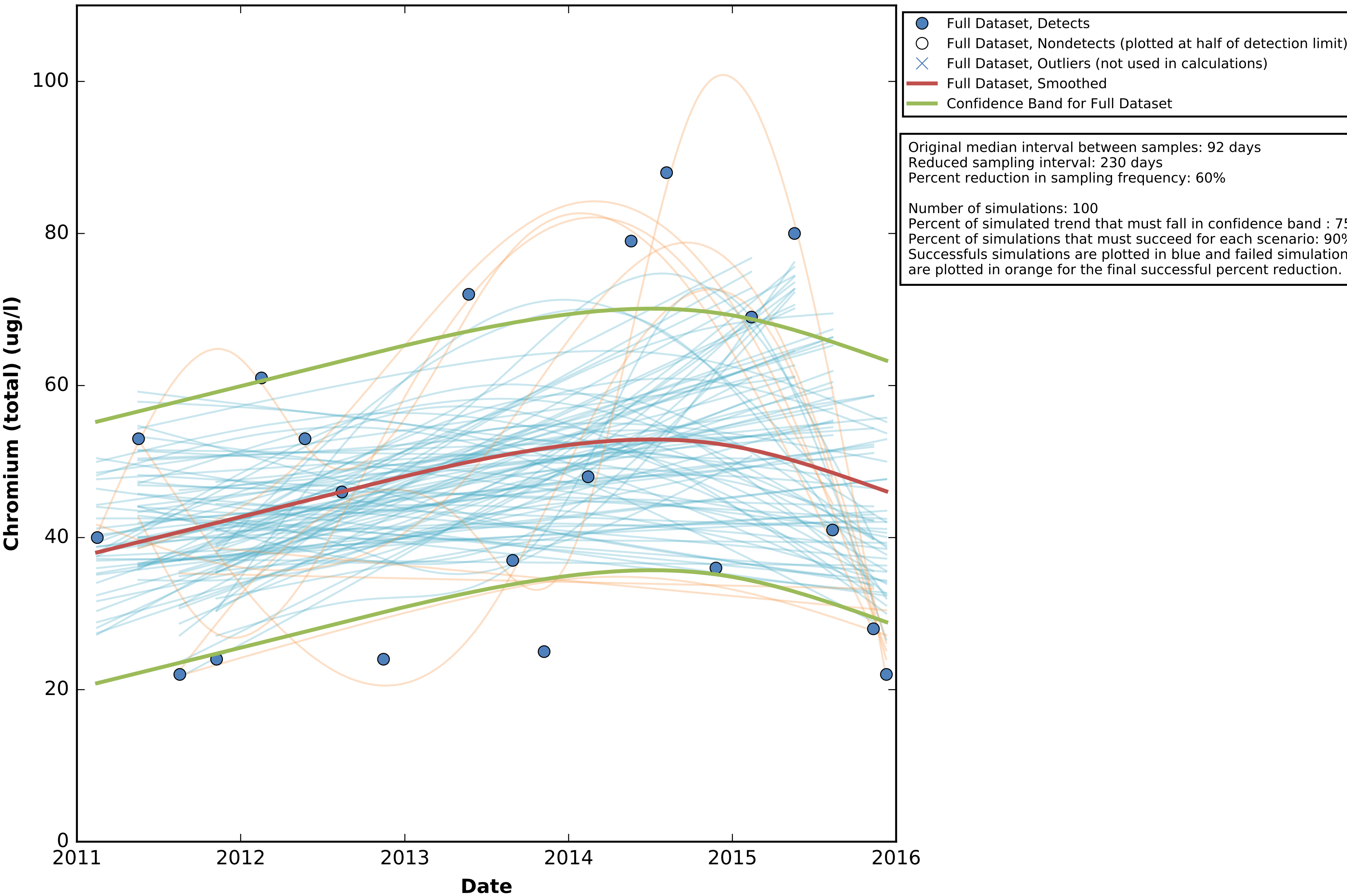
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in MW-K4
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-60**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 230 days
Percent reduction in sampling frequency: 60%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

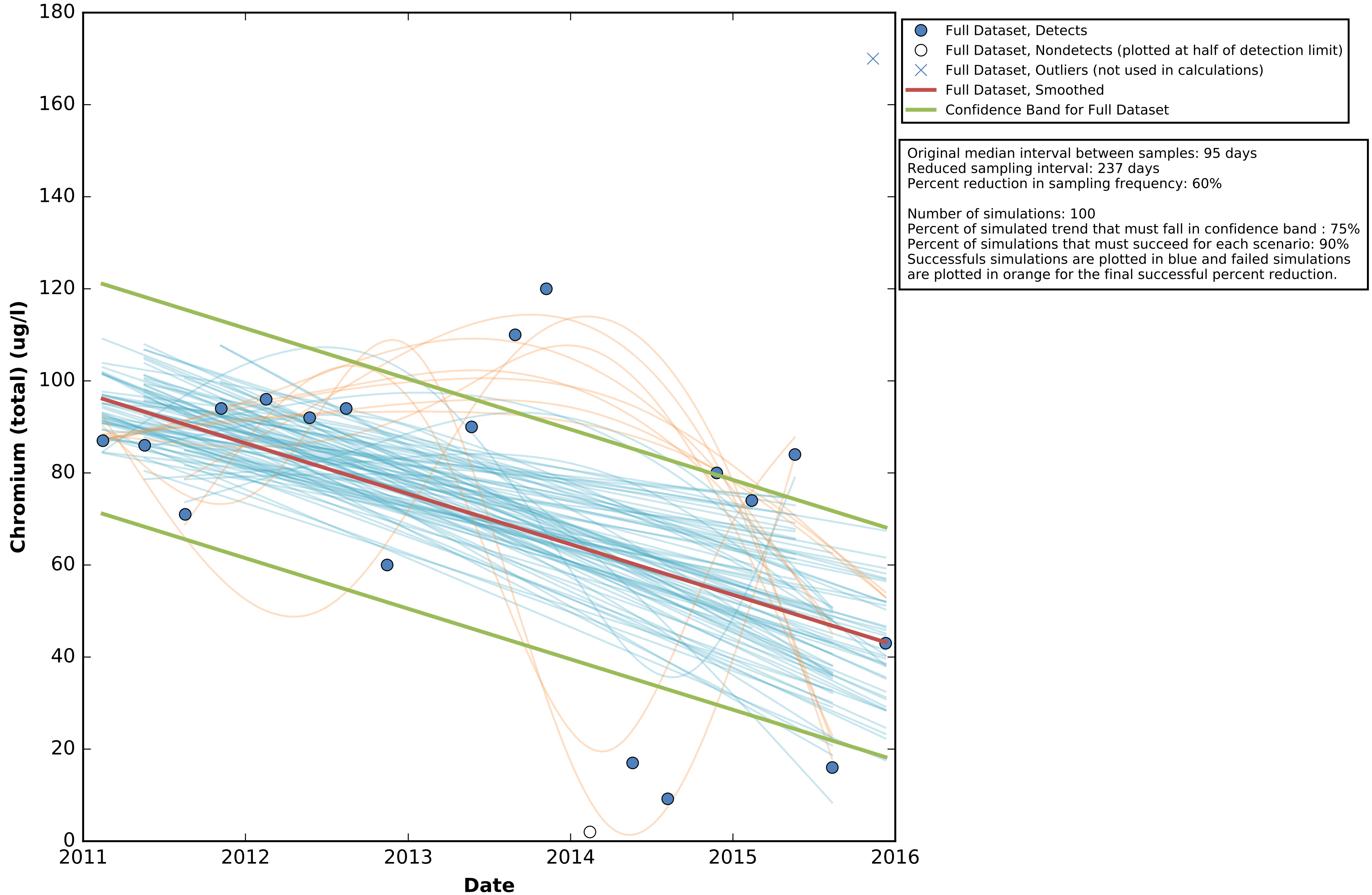
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in MW-K5
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-61

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



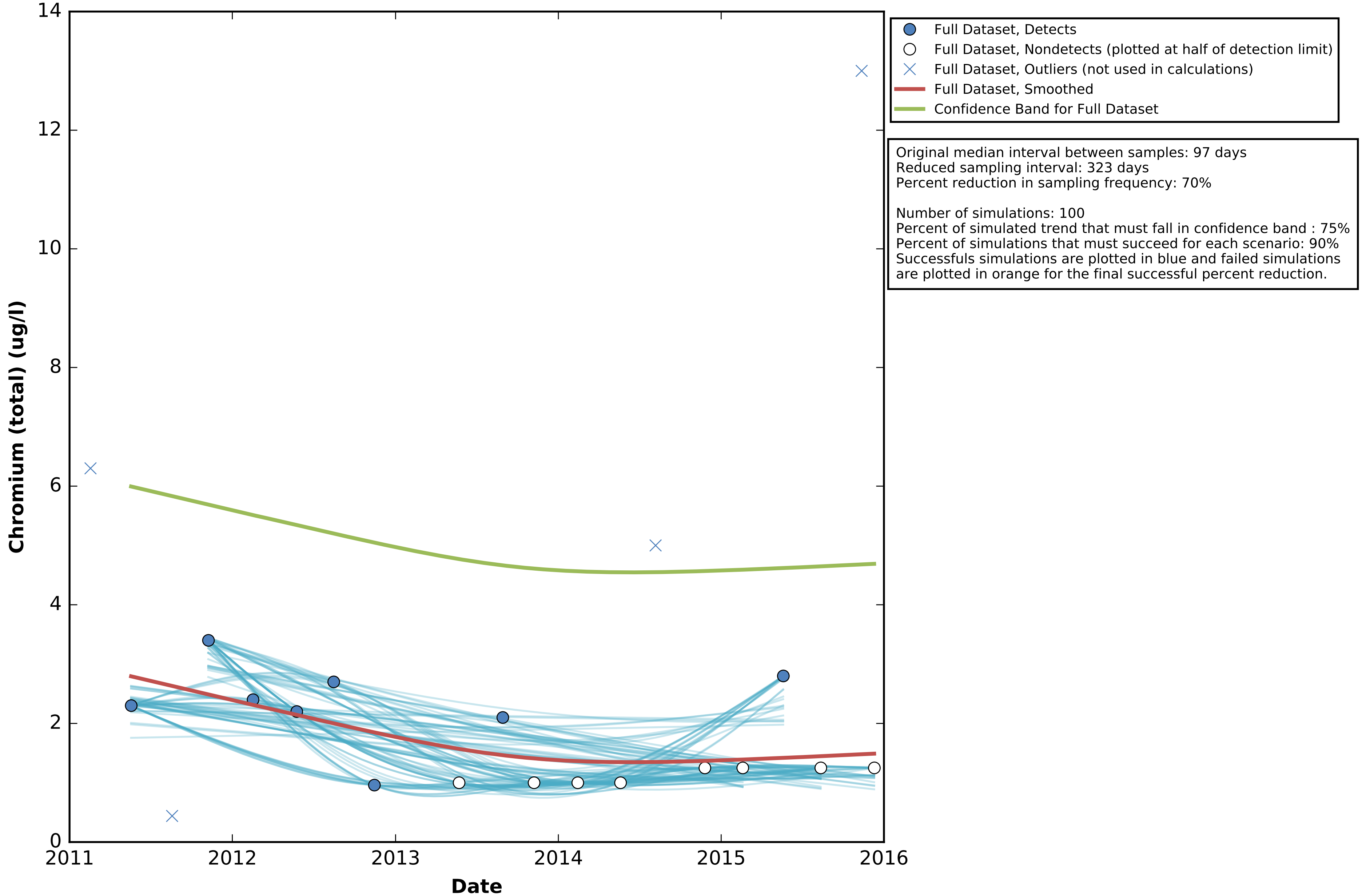
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-101R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-62

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



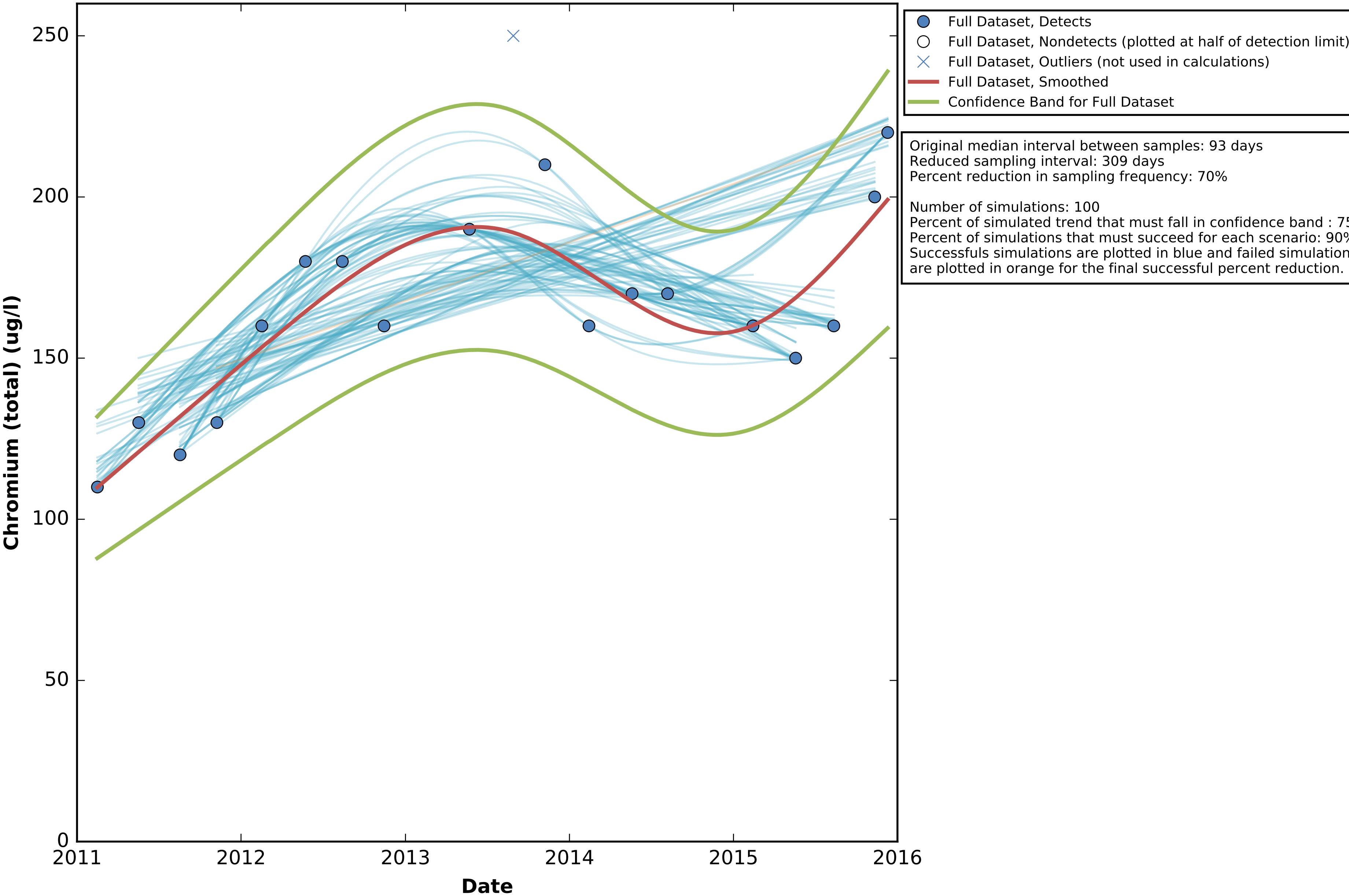
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-103
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-63

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 93 days
Reduced sampling interval: 309 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

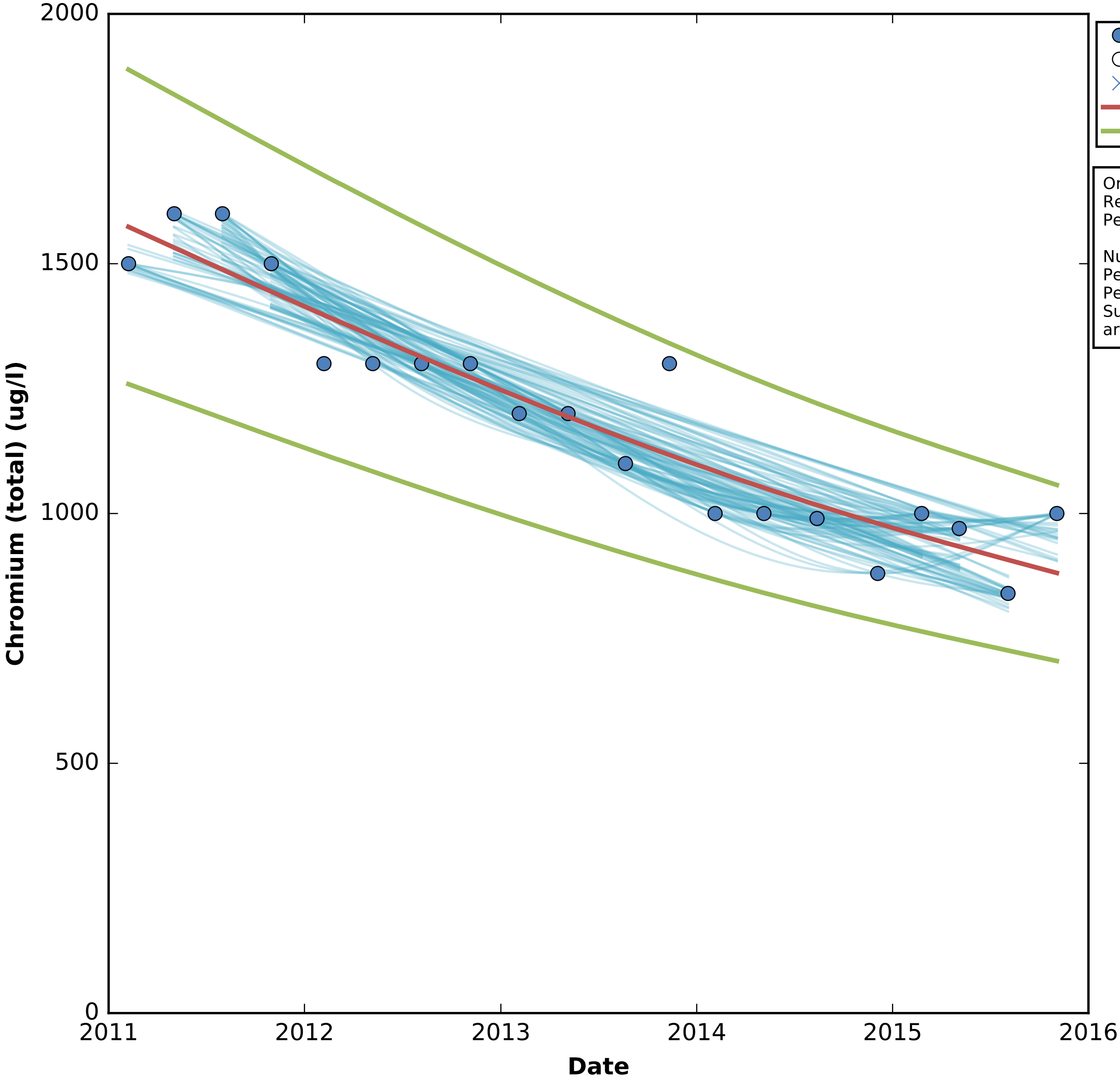
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-122
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-64

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

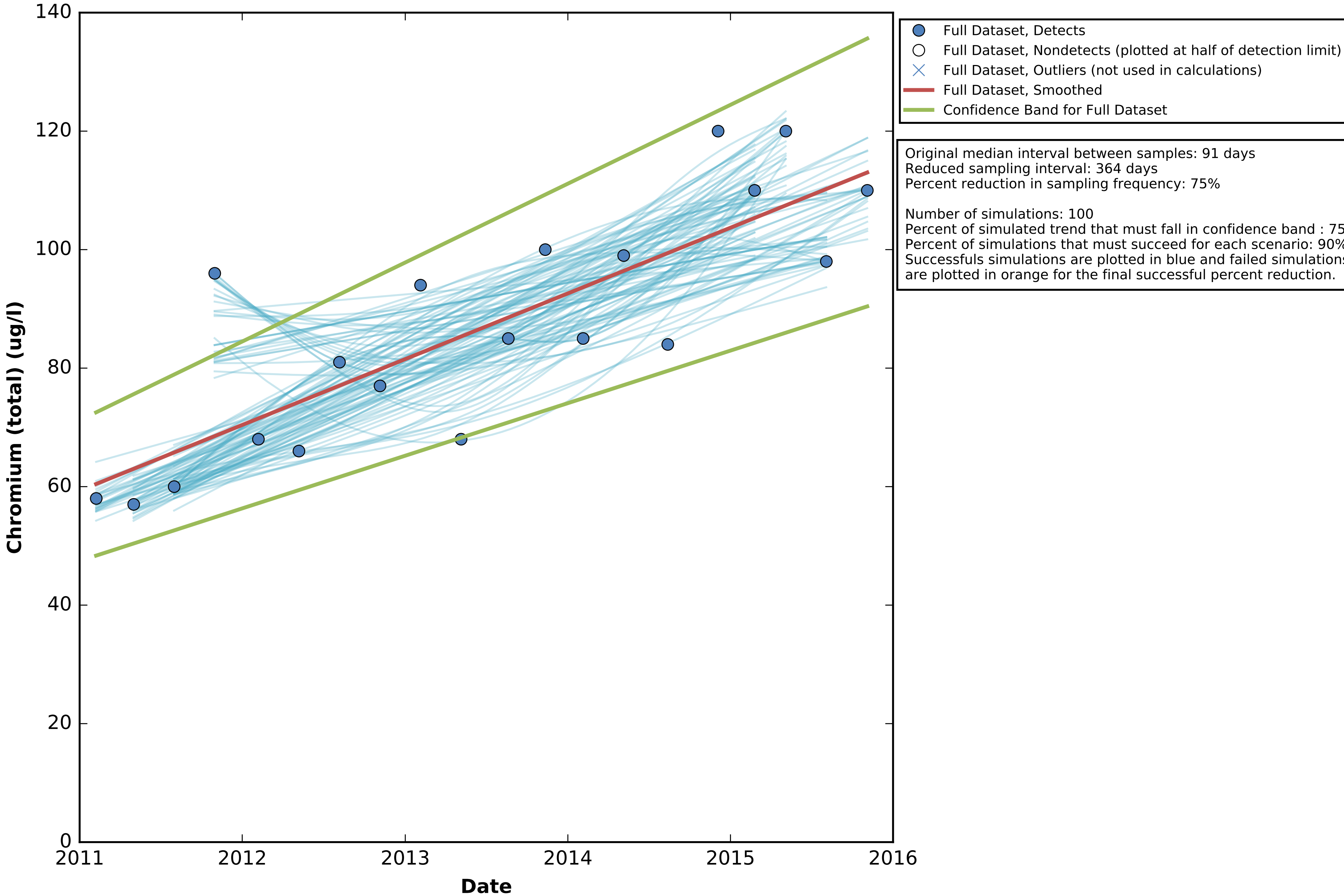
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-123
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-65

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

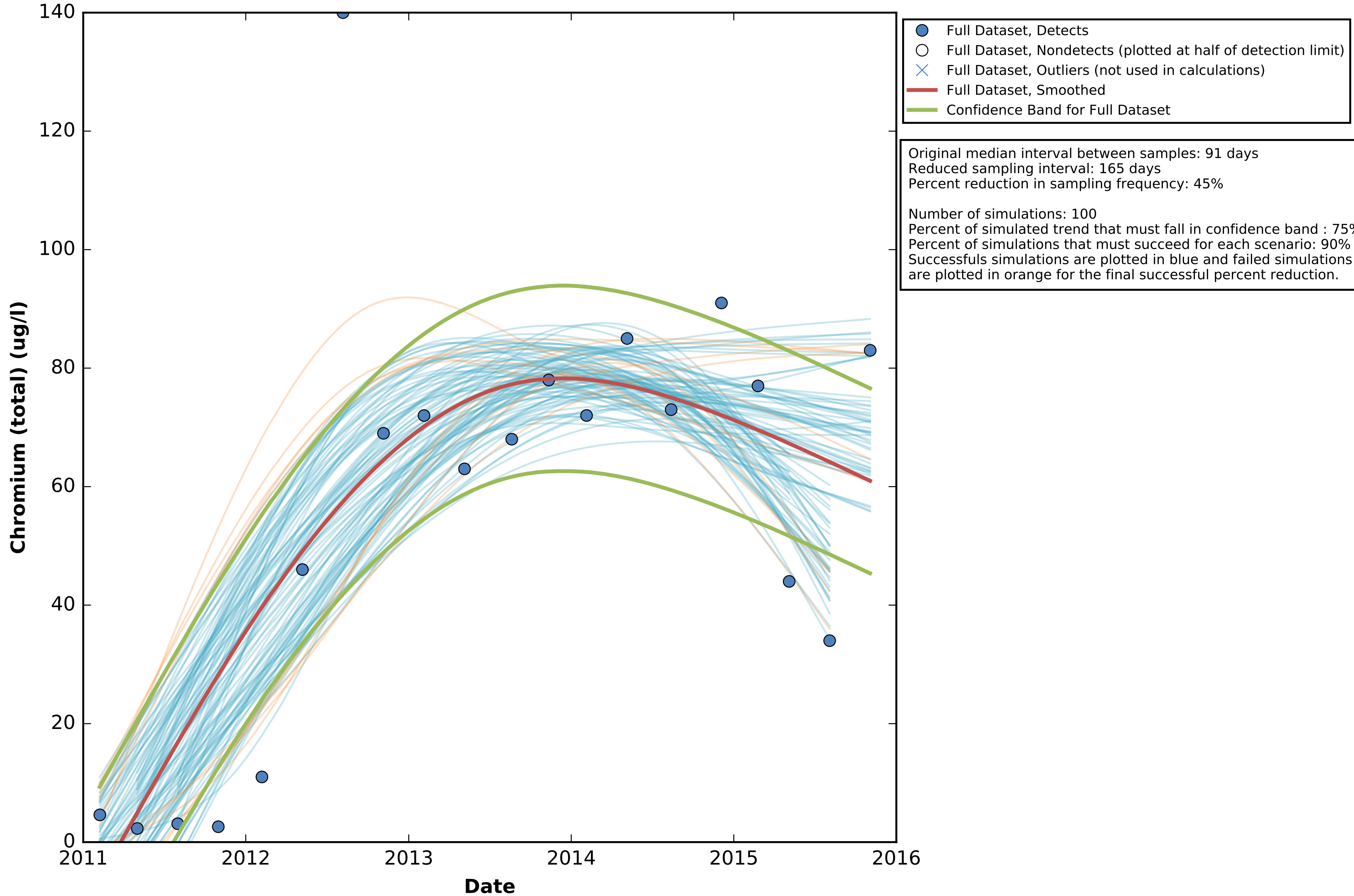
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-124
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-66

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 165 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

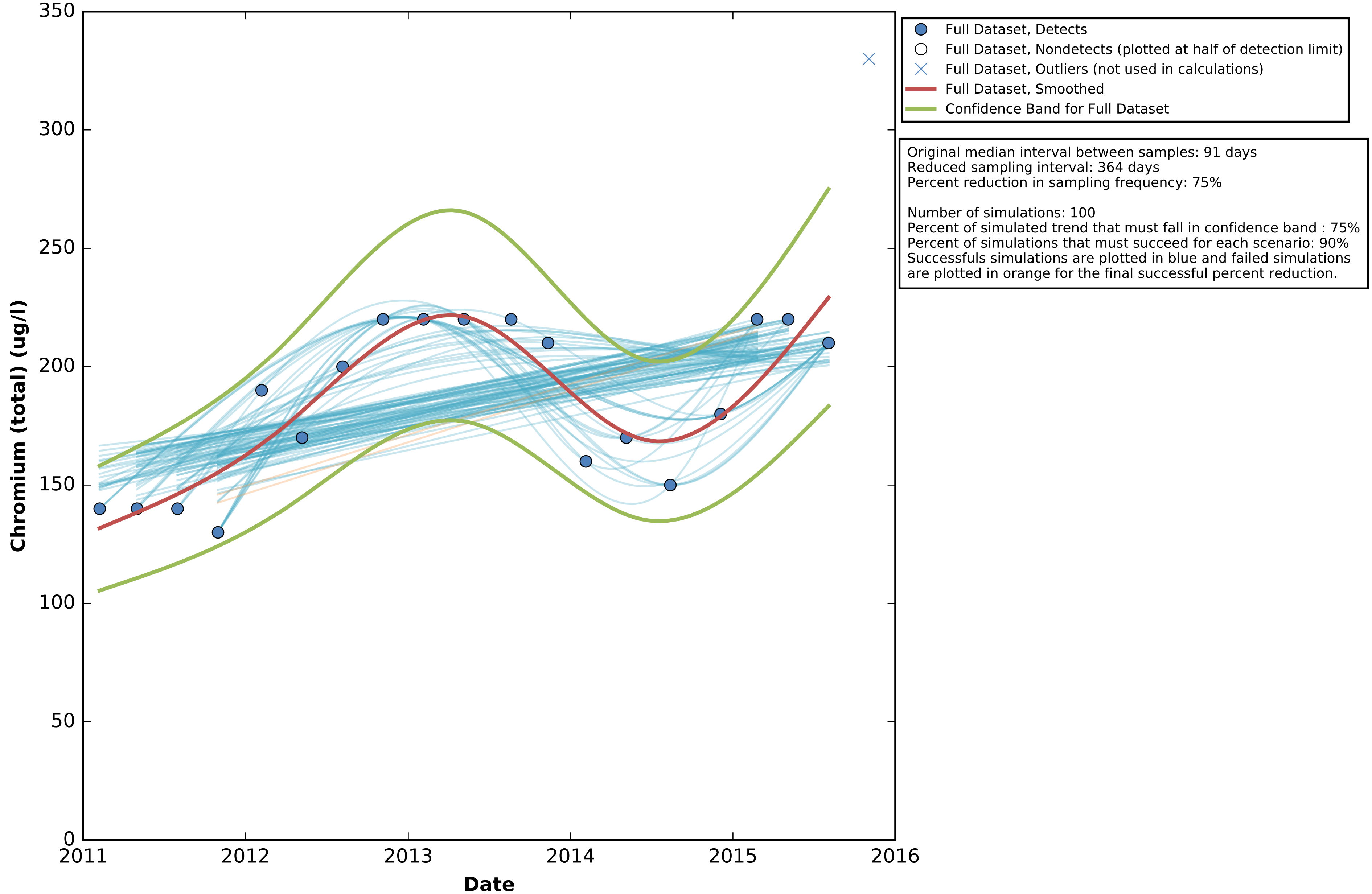
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-125
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-67

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



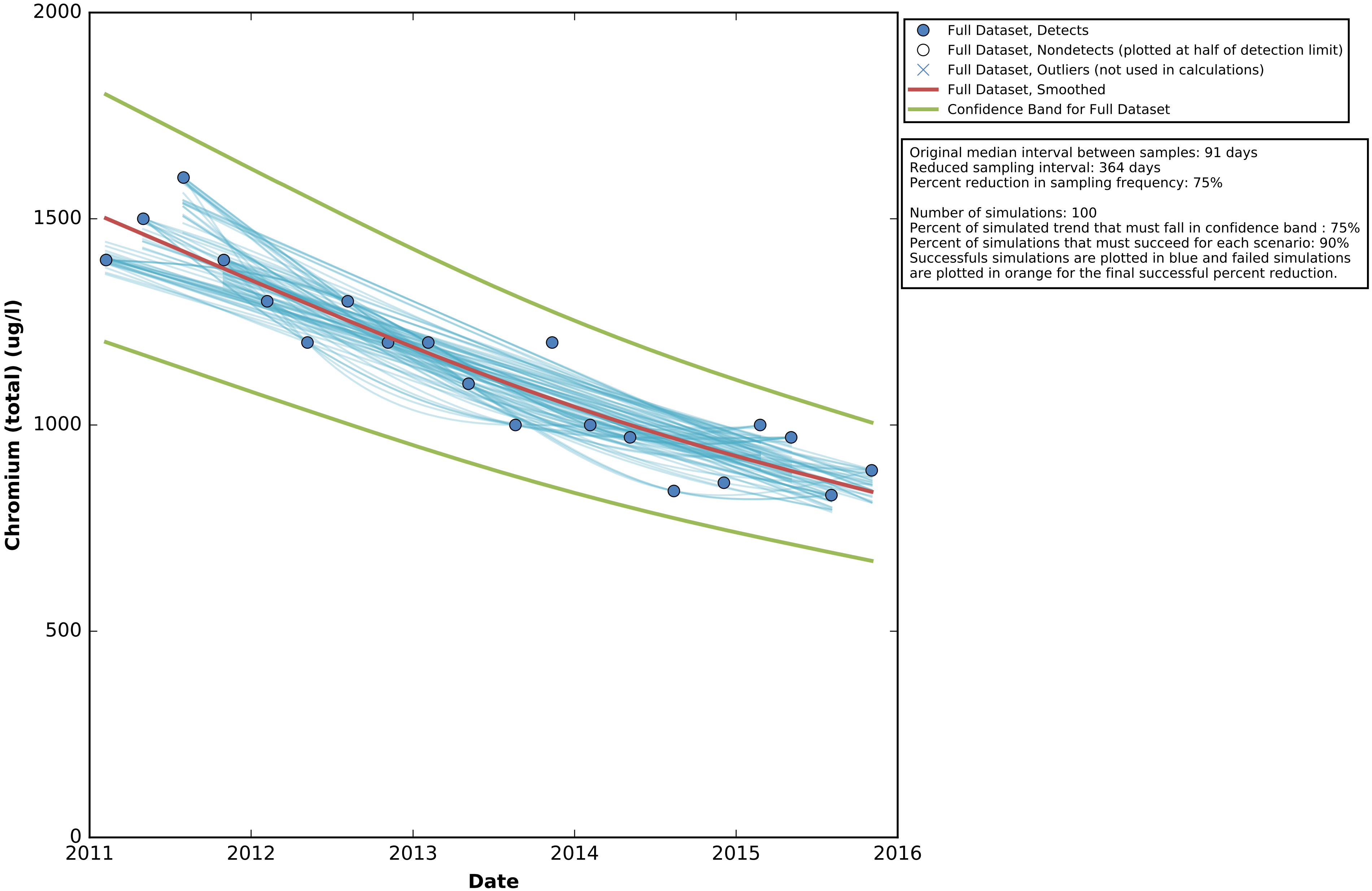
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-126
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-68

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



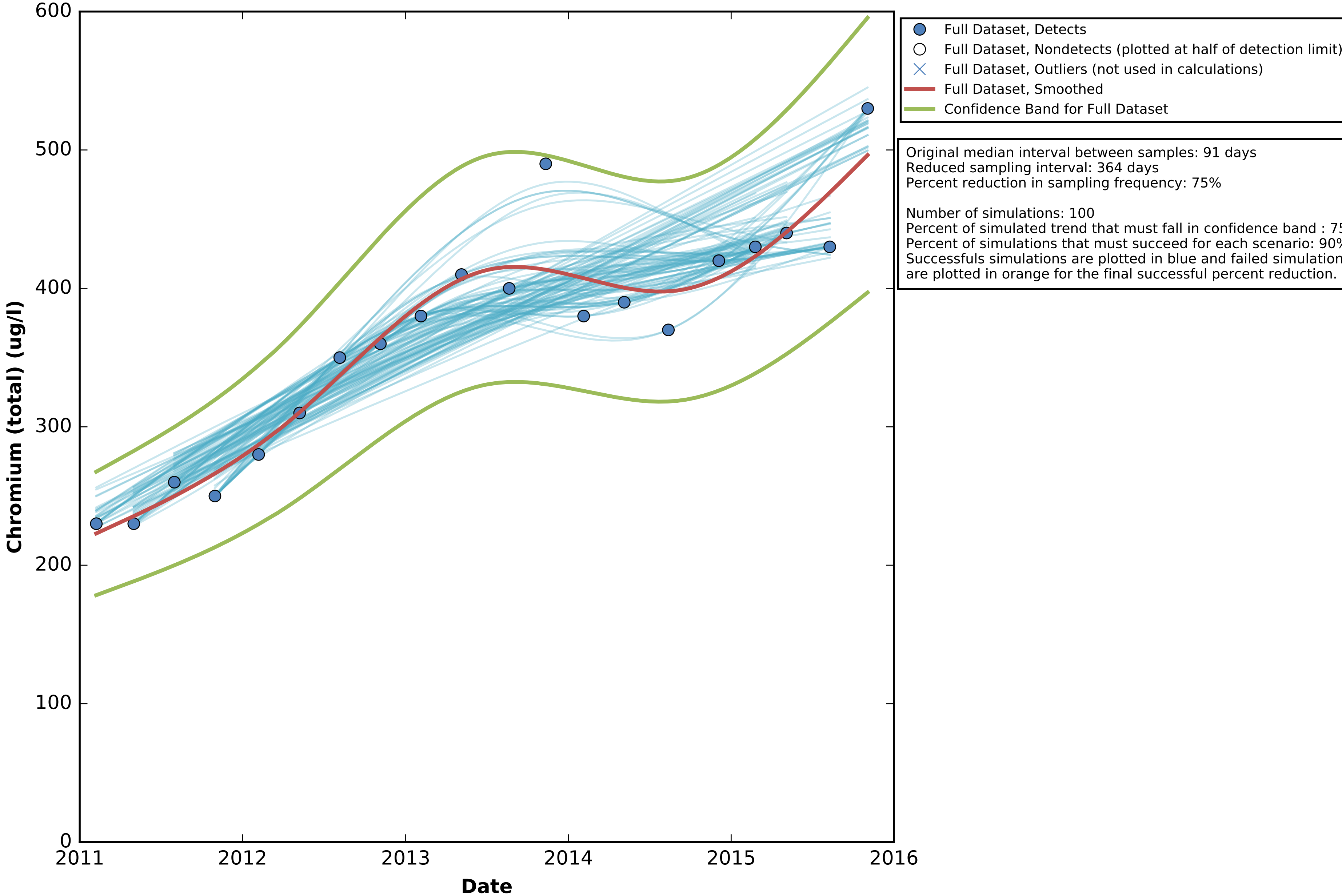
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-127
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-69

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

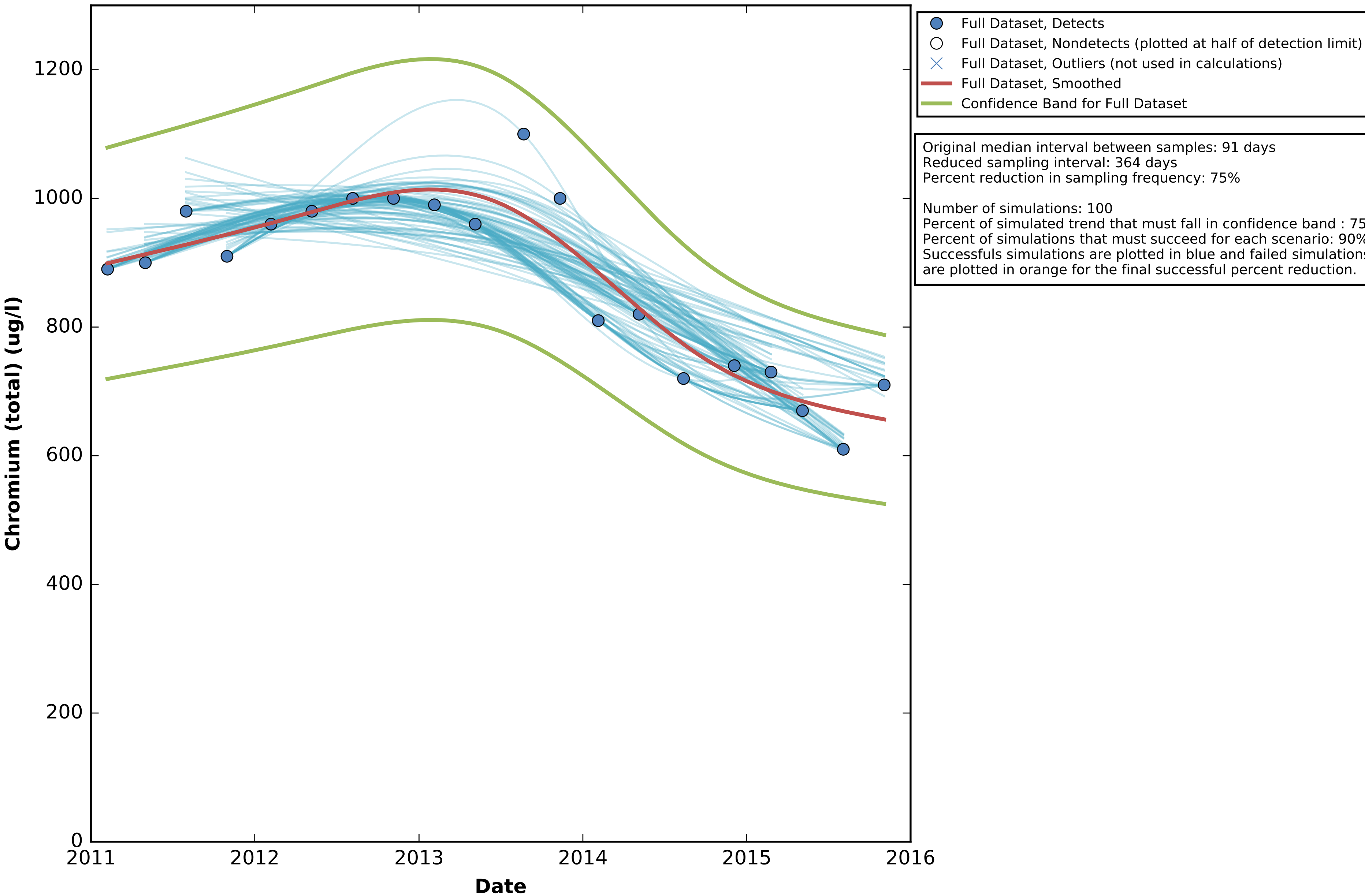
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-128
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-70

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

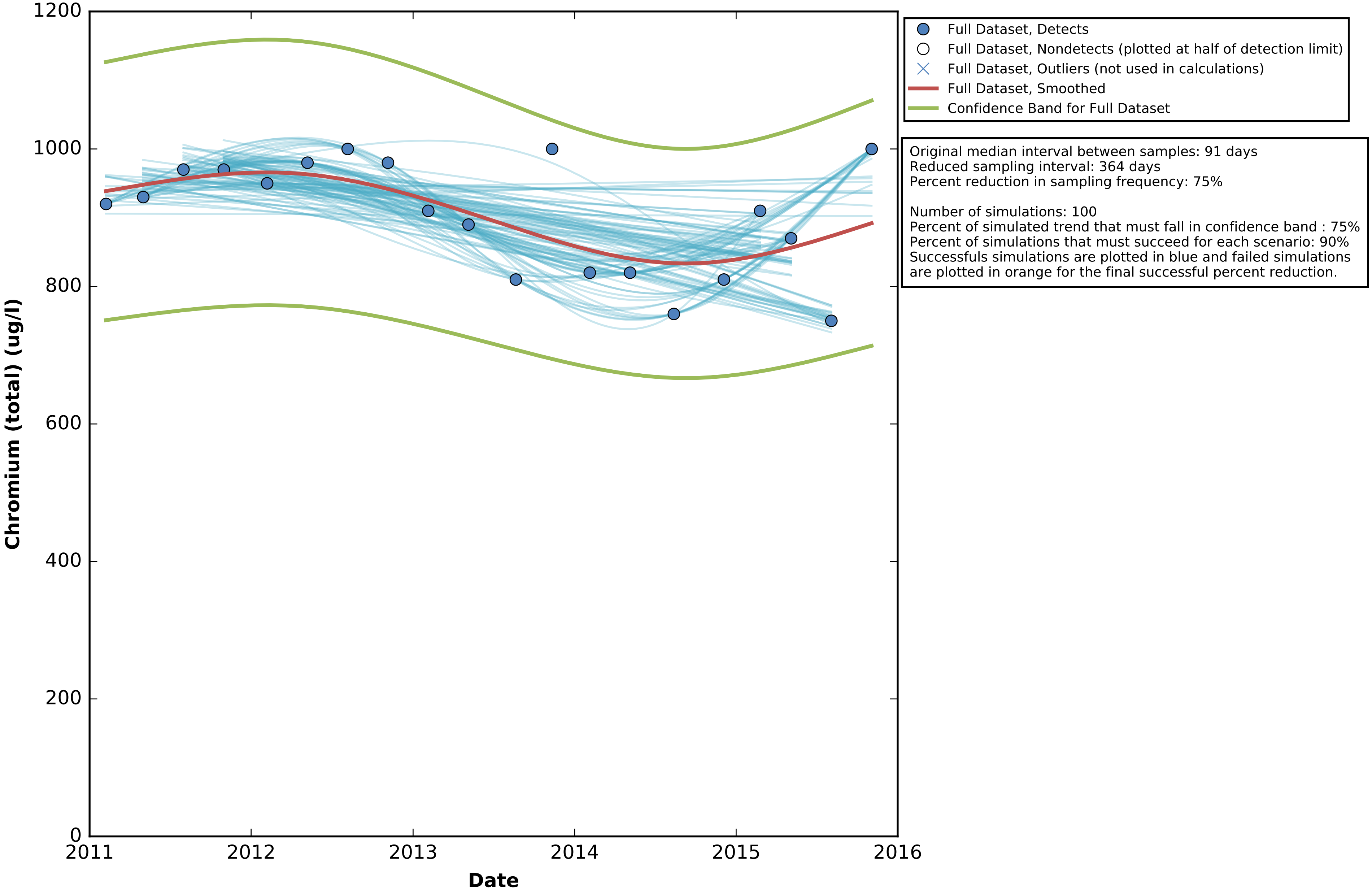
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-129
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-71

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



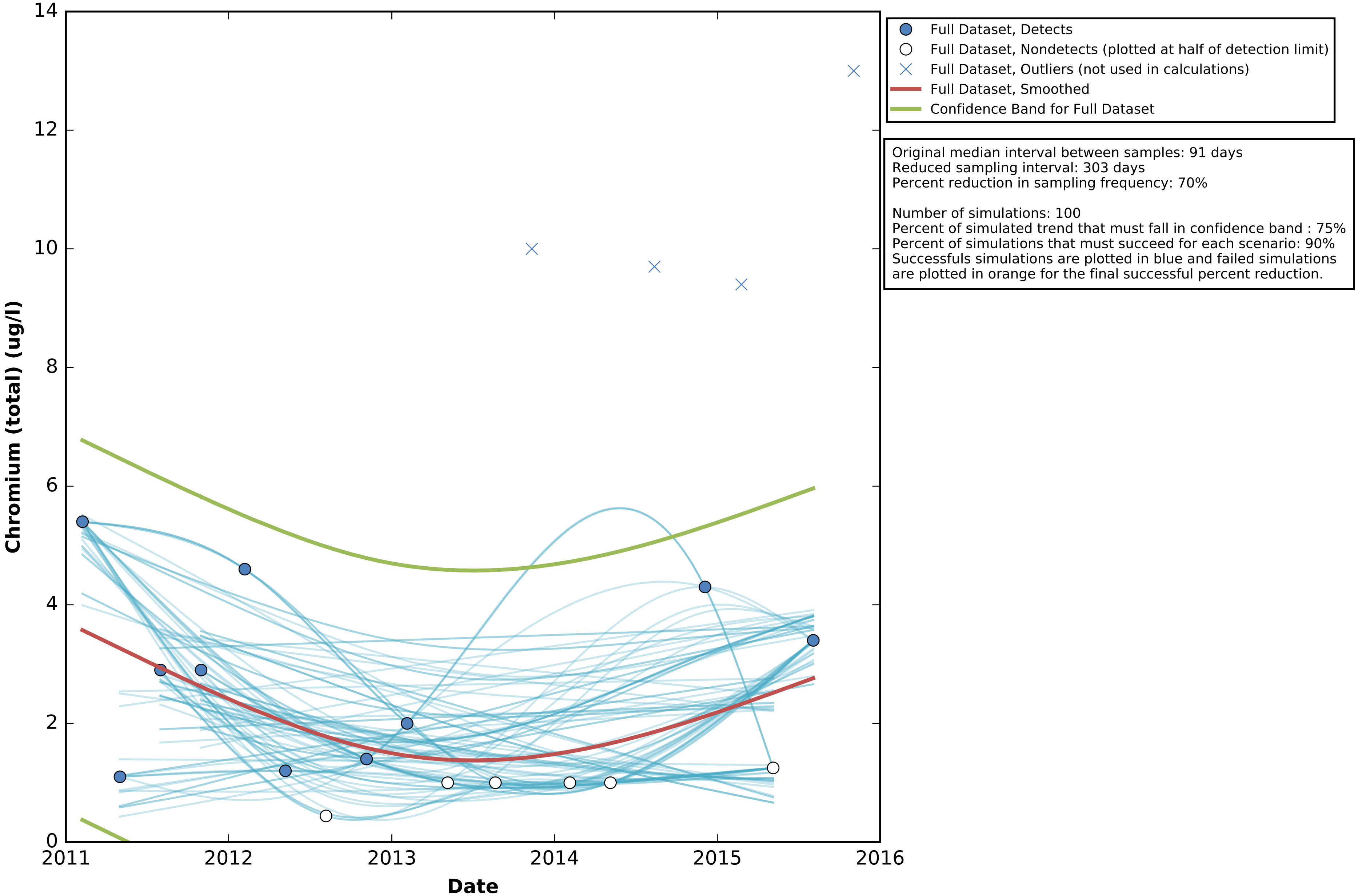
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-130
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-72**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py

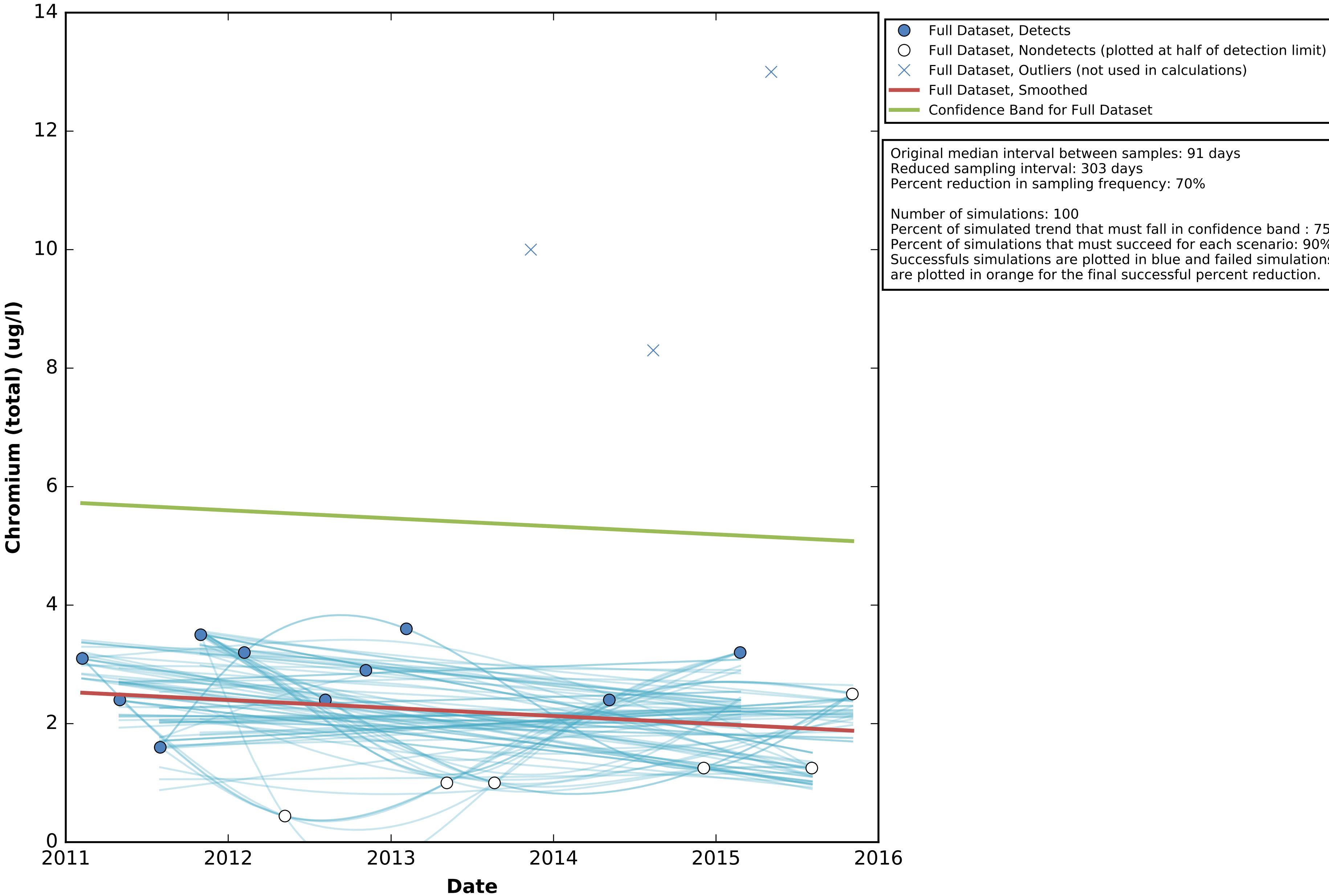


RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-73

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

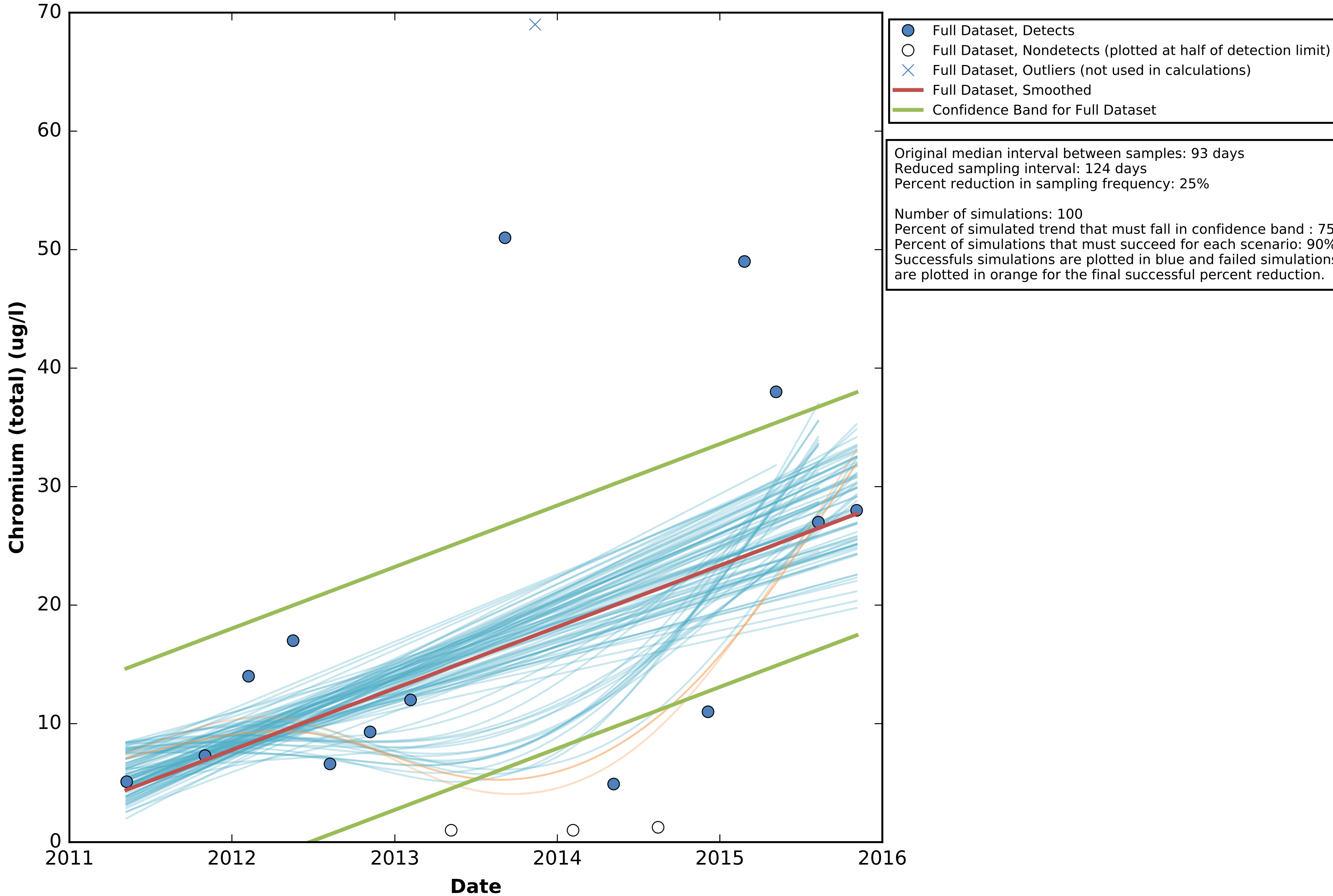
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-132
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-74

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 93 days
Reduced sampling interval: 124 days
Percent reduction in sampling frequency: 25%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

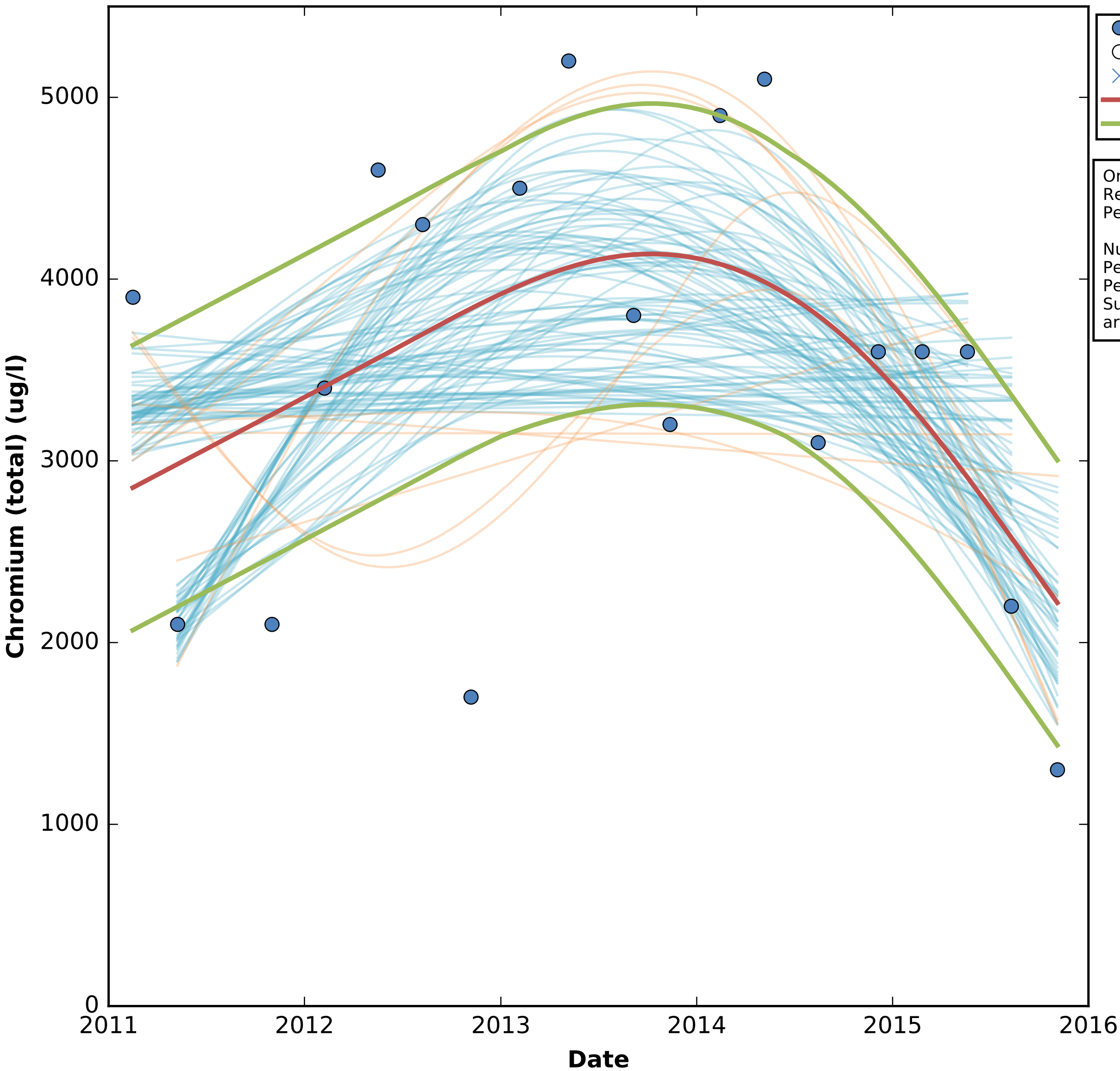
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-135A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-75

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 164 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

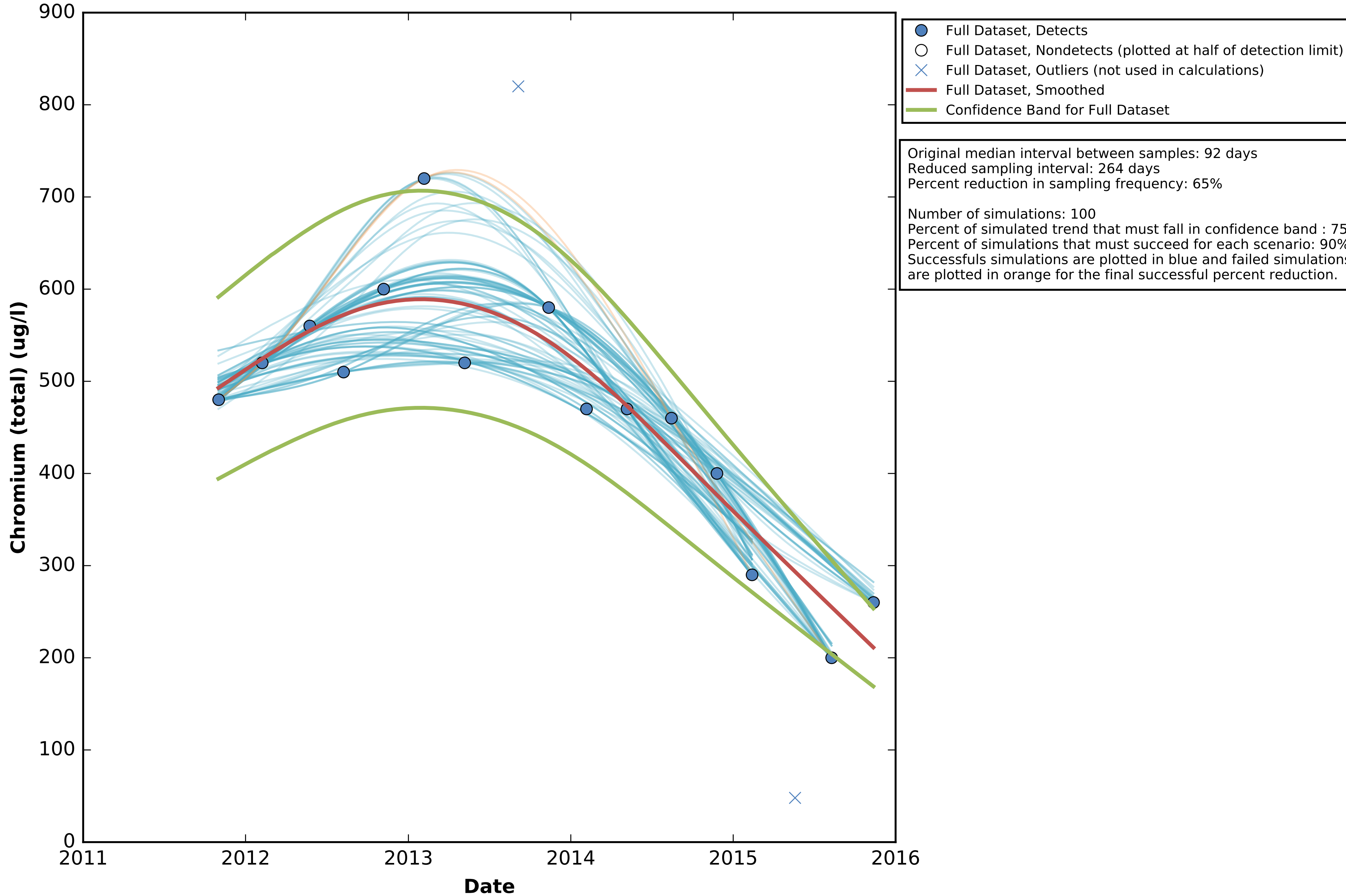
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-136
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-76

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 264 days
Percent reduction in sampling frequency: 65%

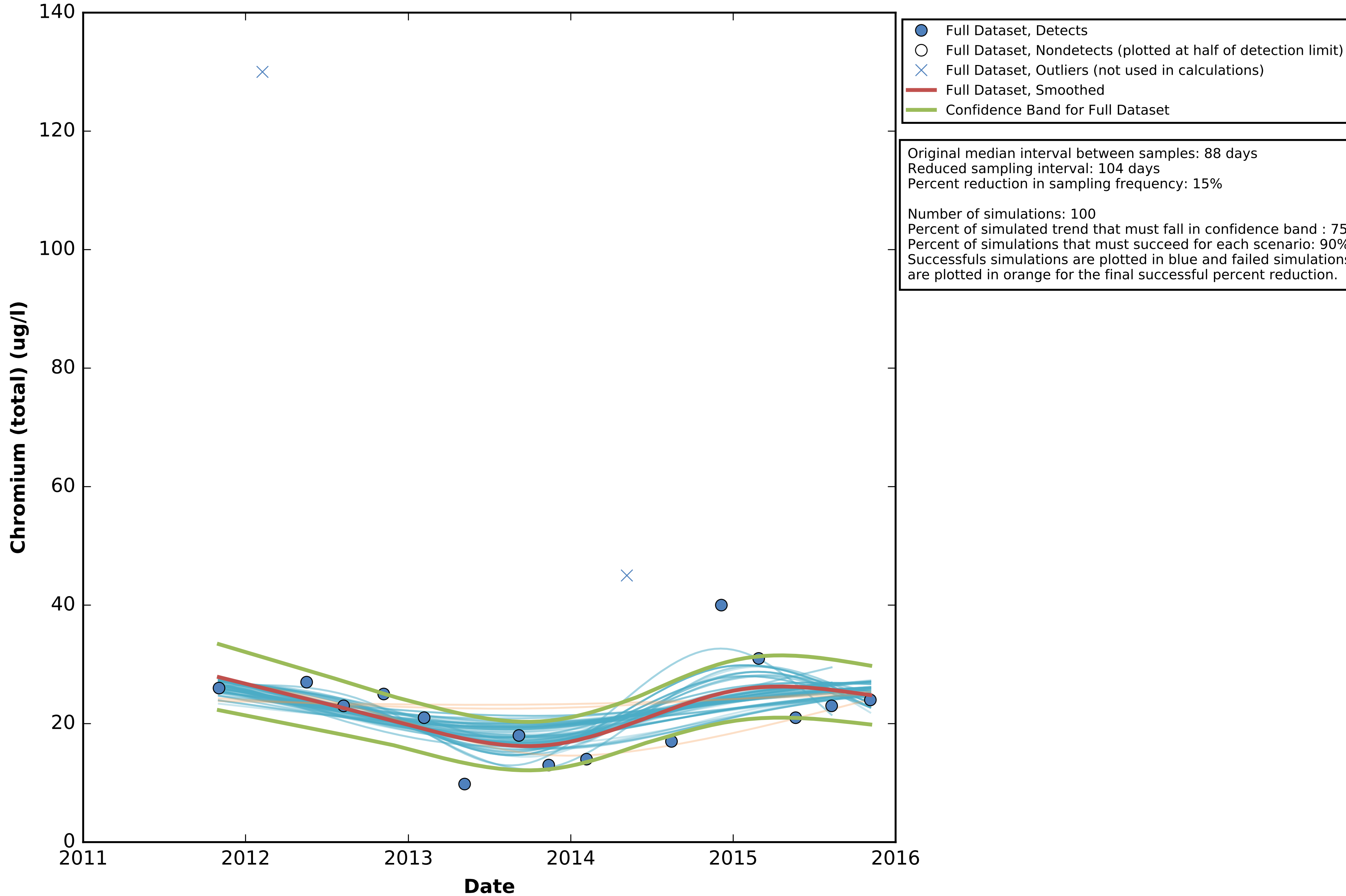
Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-144
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-77

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:



Original median interval between samples: 88 days
Reduced sampling interval: 104 days
Percent reduction in sampling frequency: 15%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

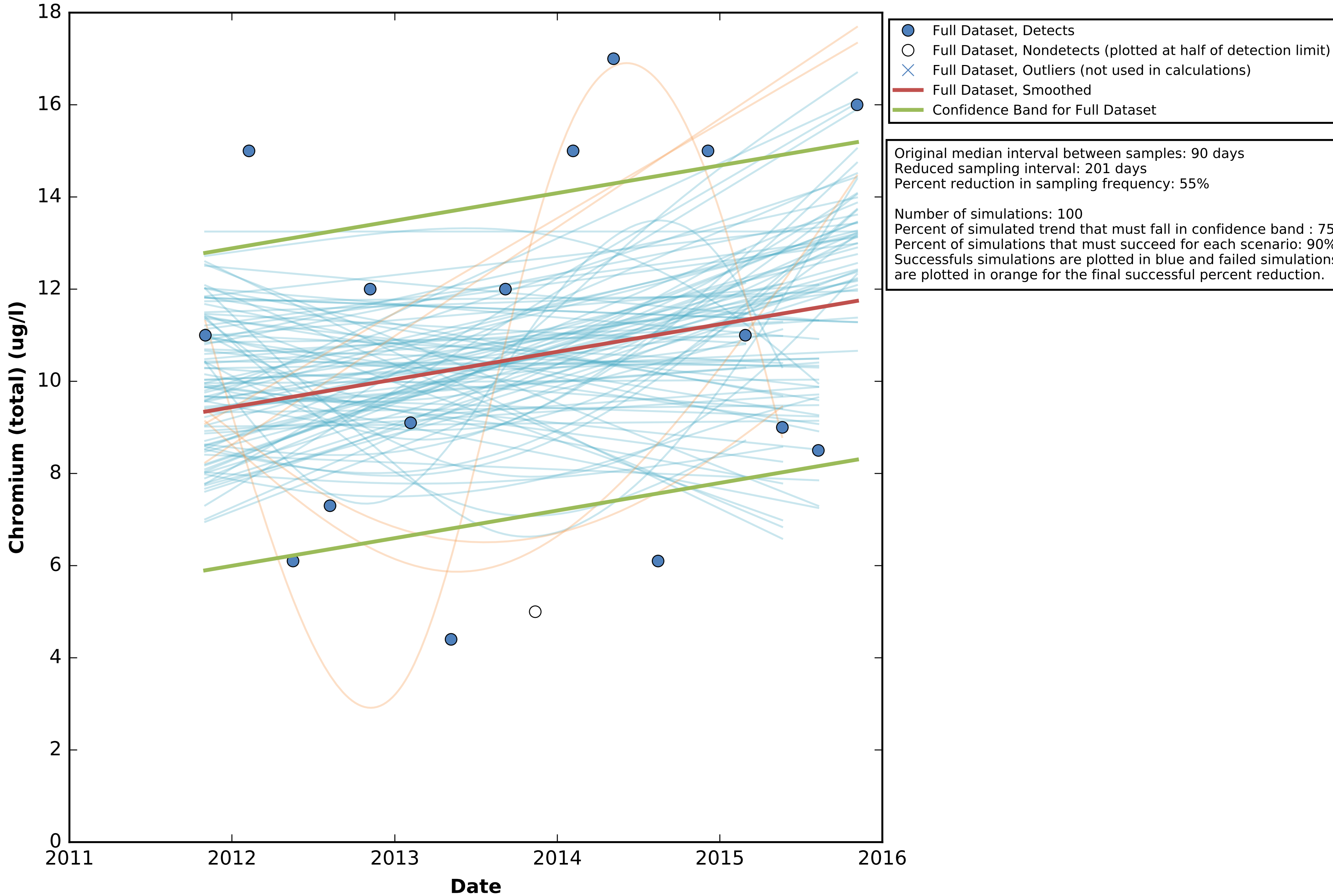
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-148
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-78

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 201 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

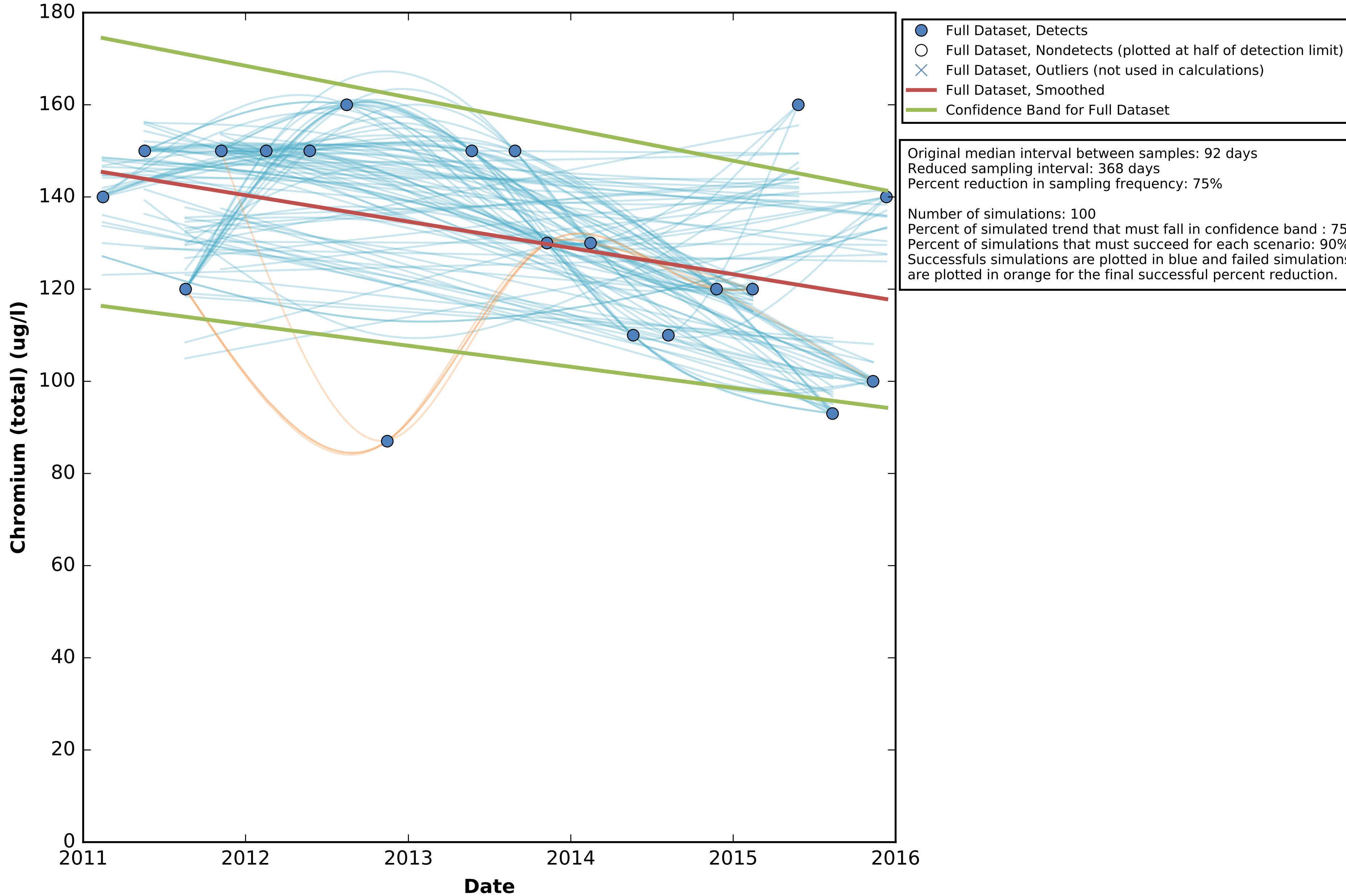
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-149
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-79**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

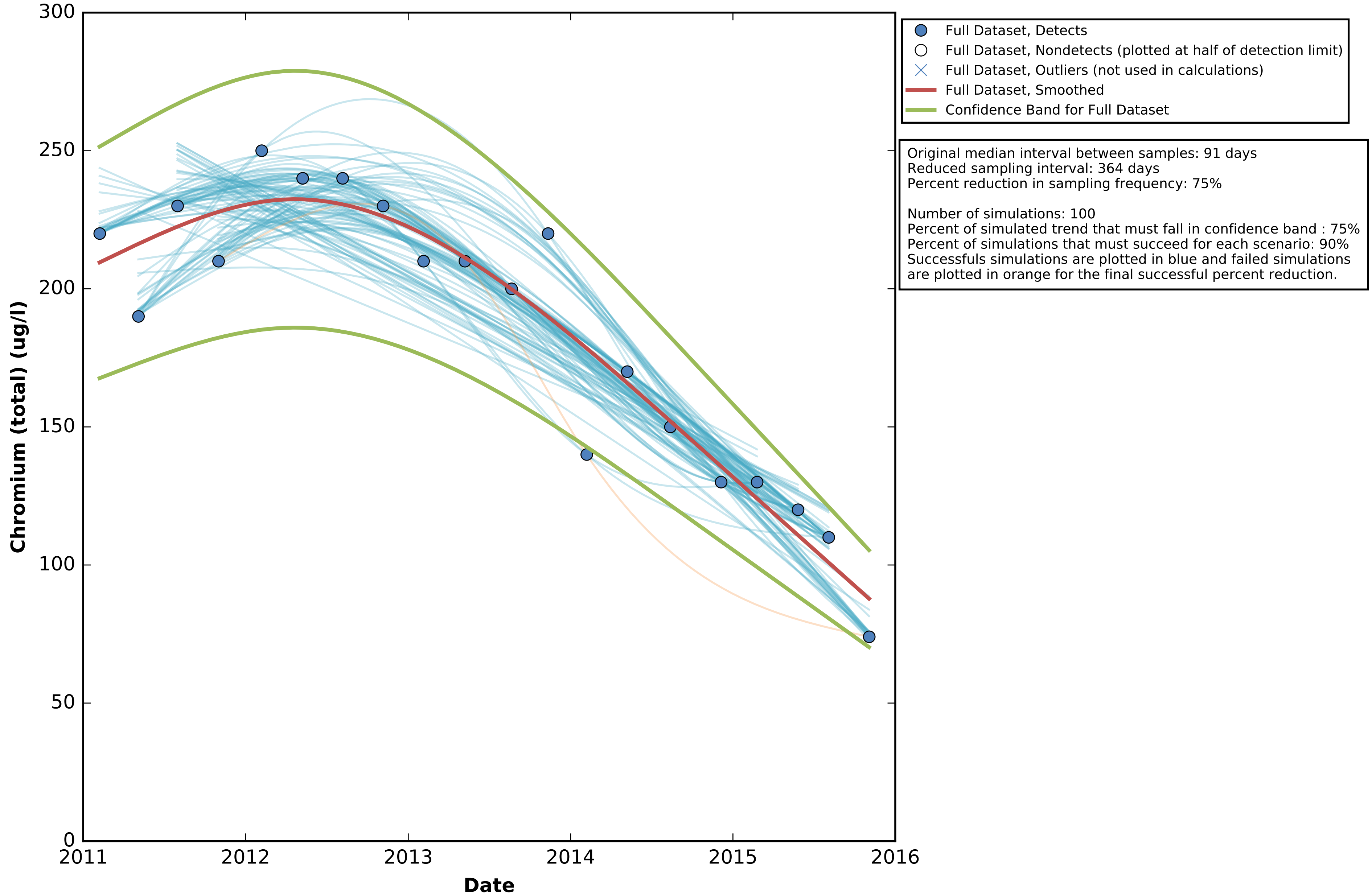
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-18
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-80

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



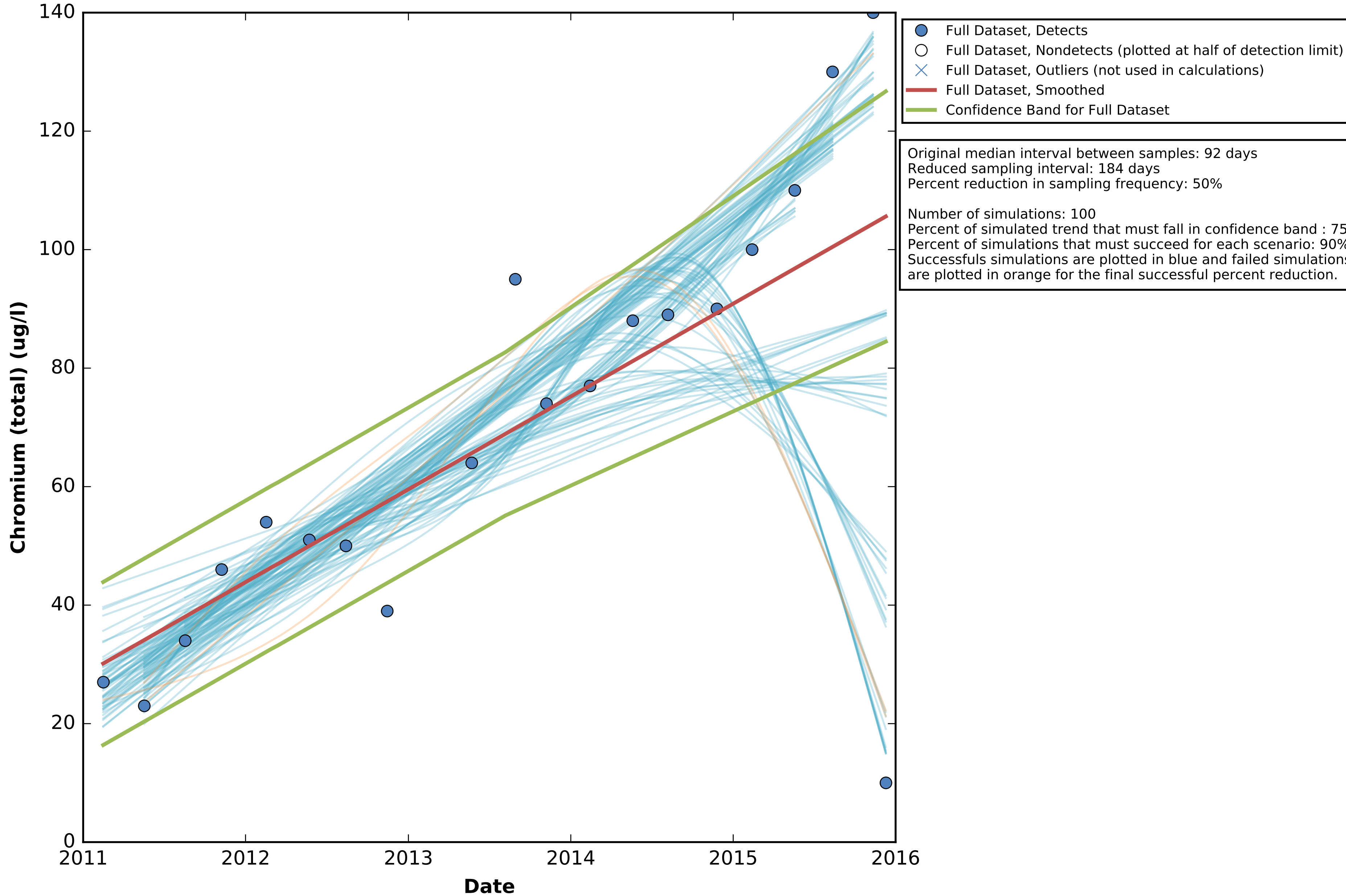
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-81

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 184 days
Percent reduction in sampling frequency: 50%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

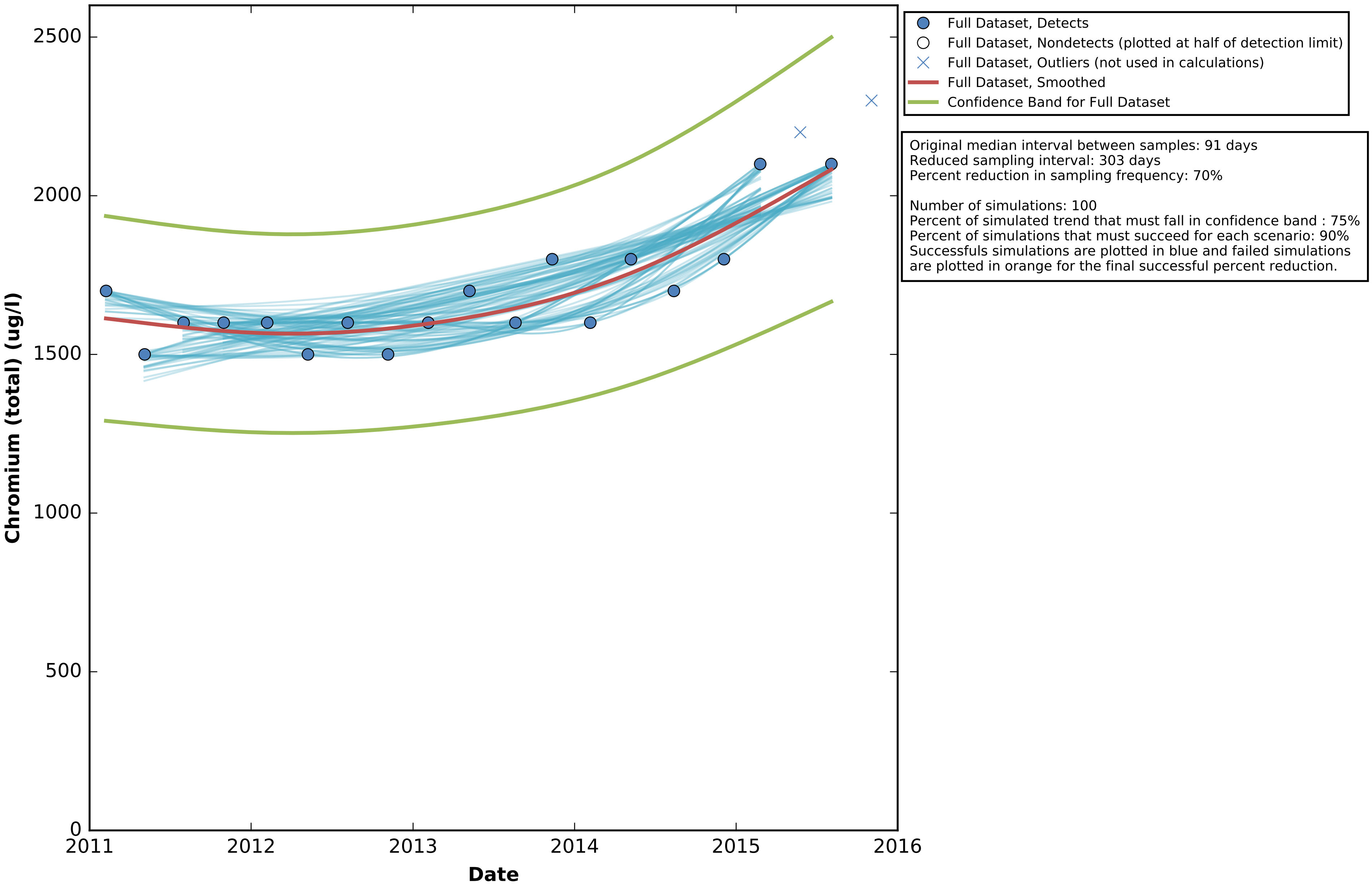
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-53
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-82

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



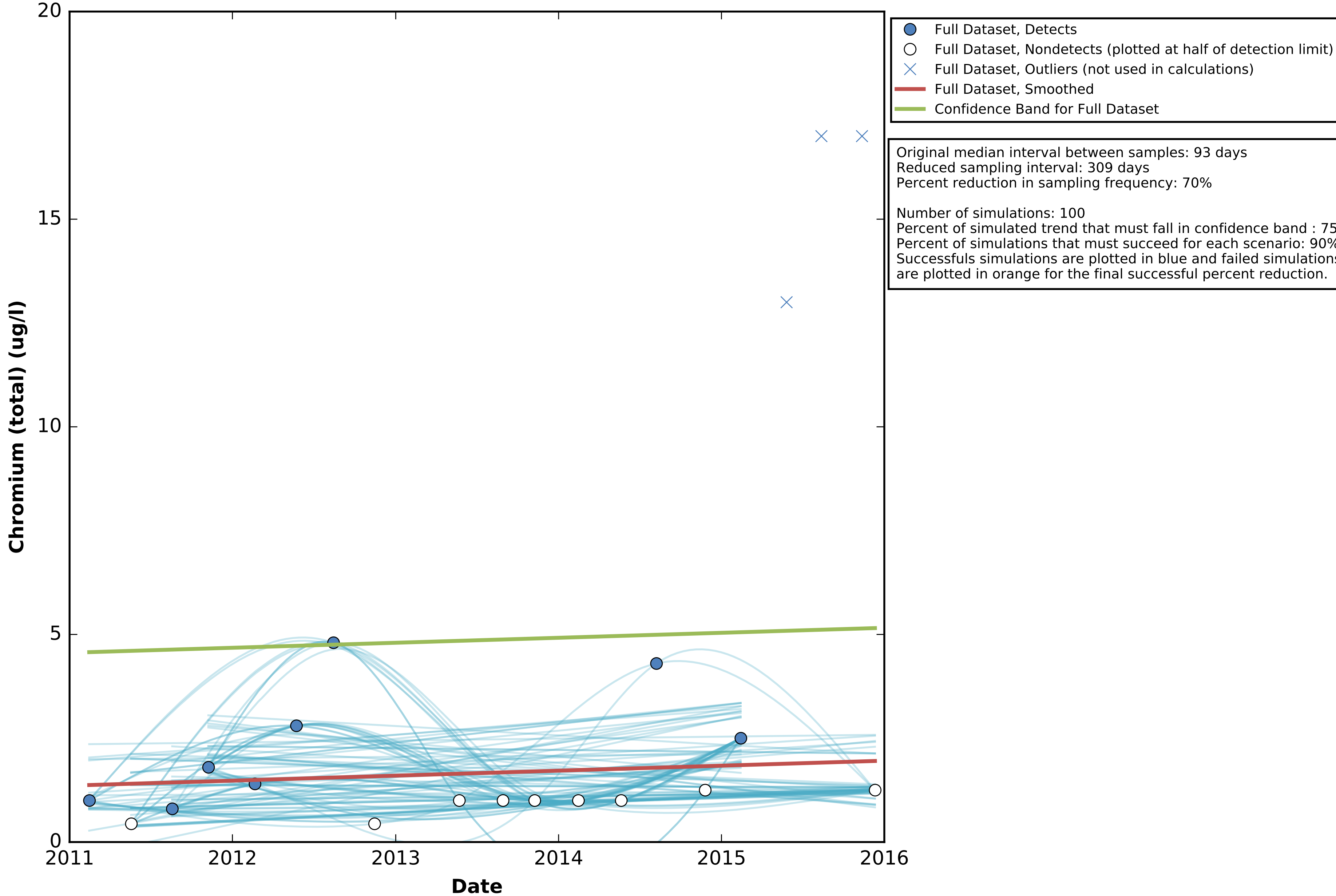
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-54
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-83

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 93 days
Reduced sampling interval: 309 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

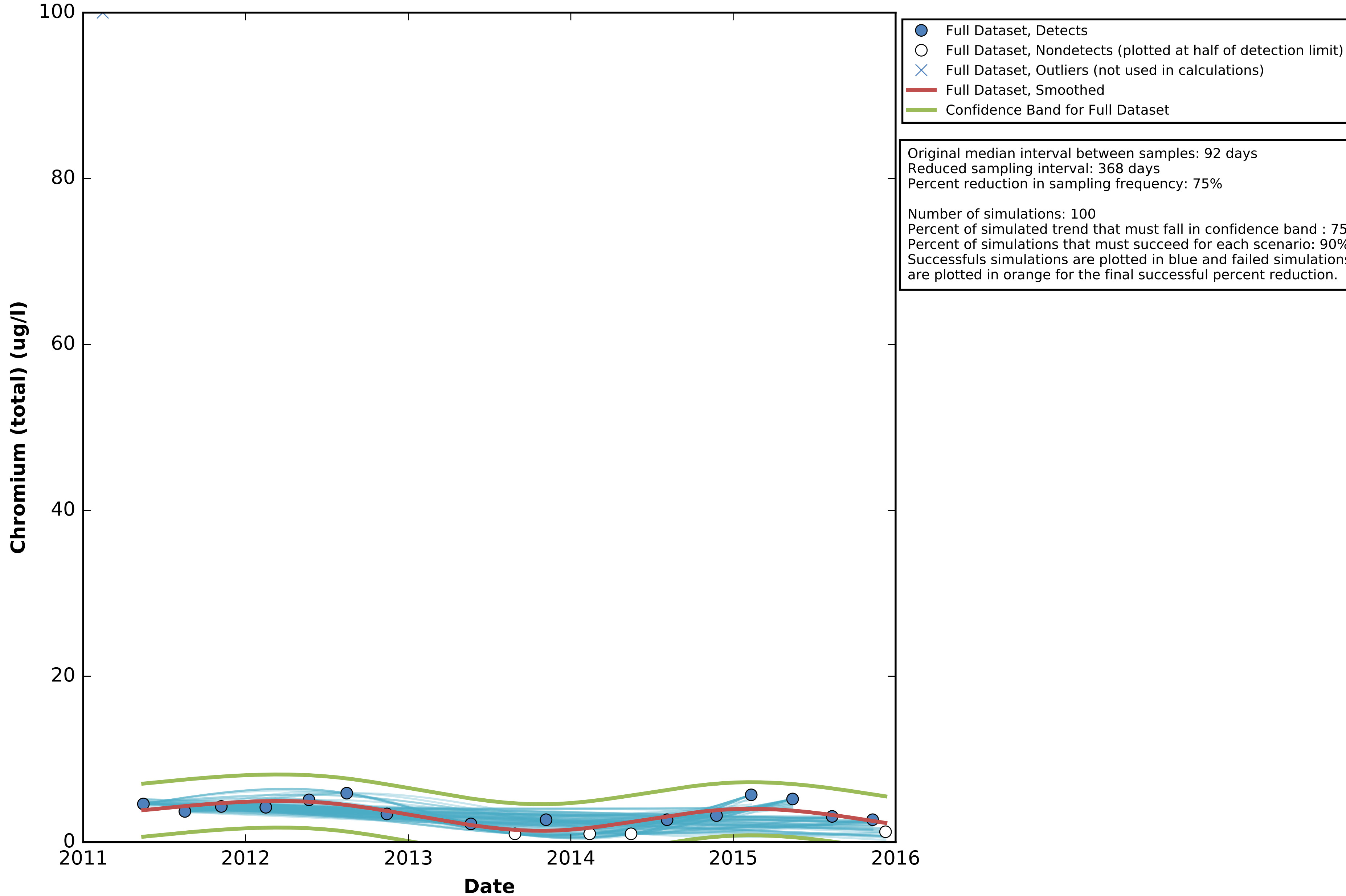
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-84

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

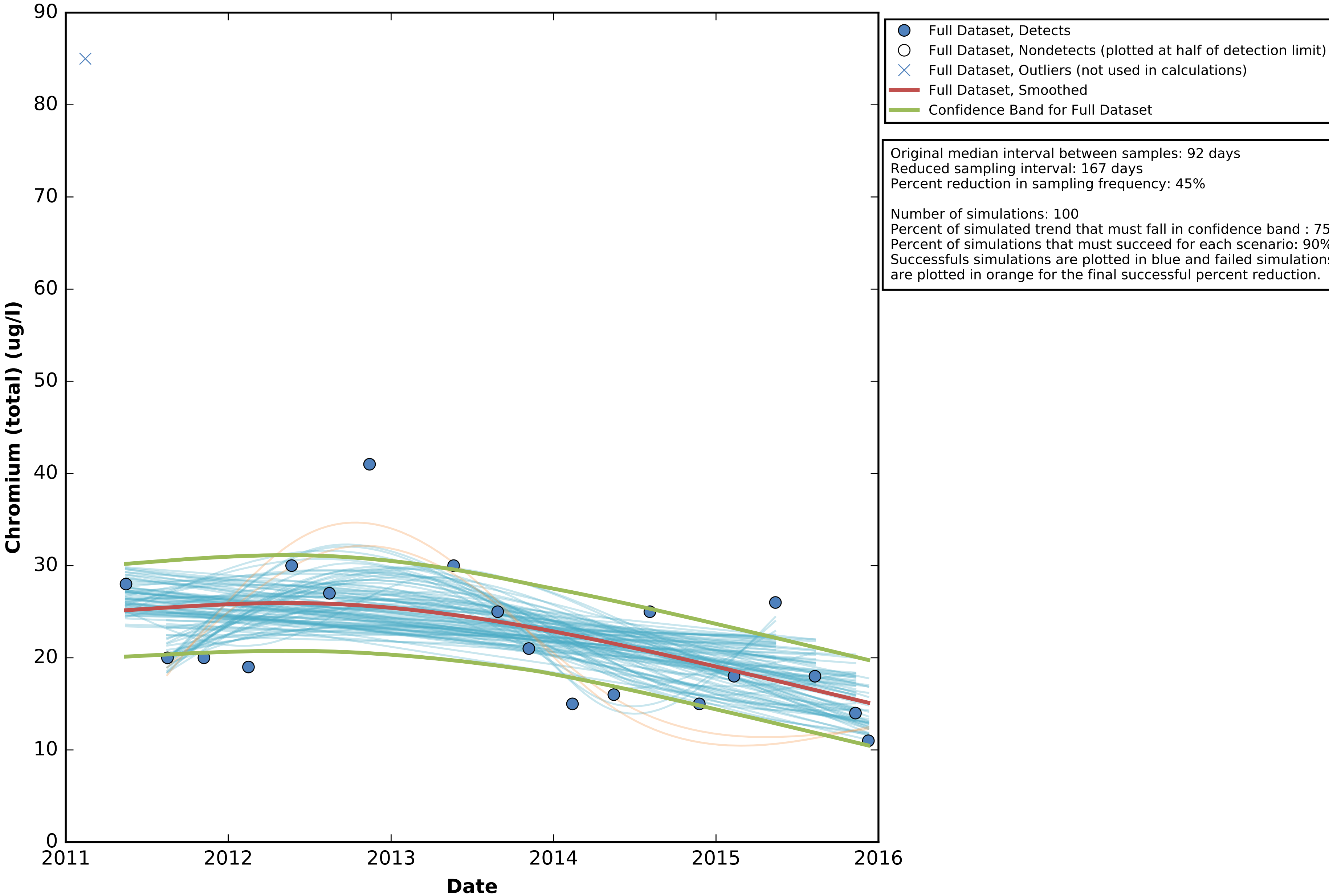
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-85

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 167 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

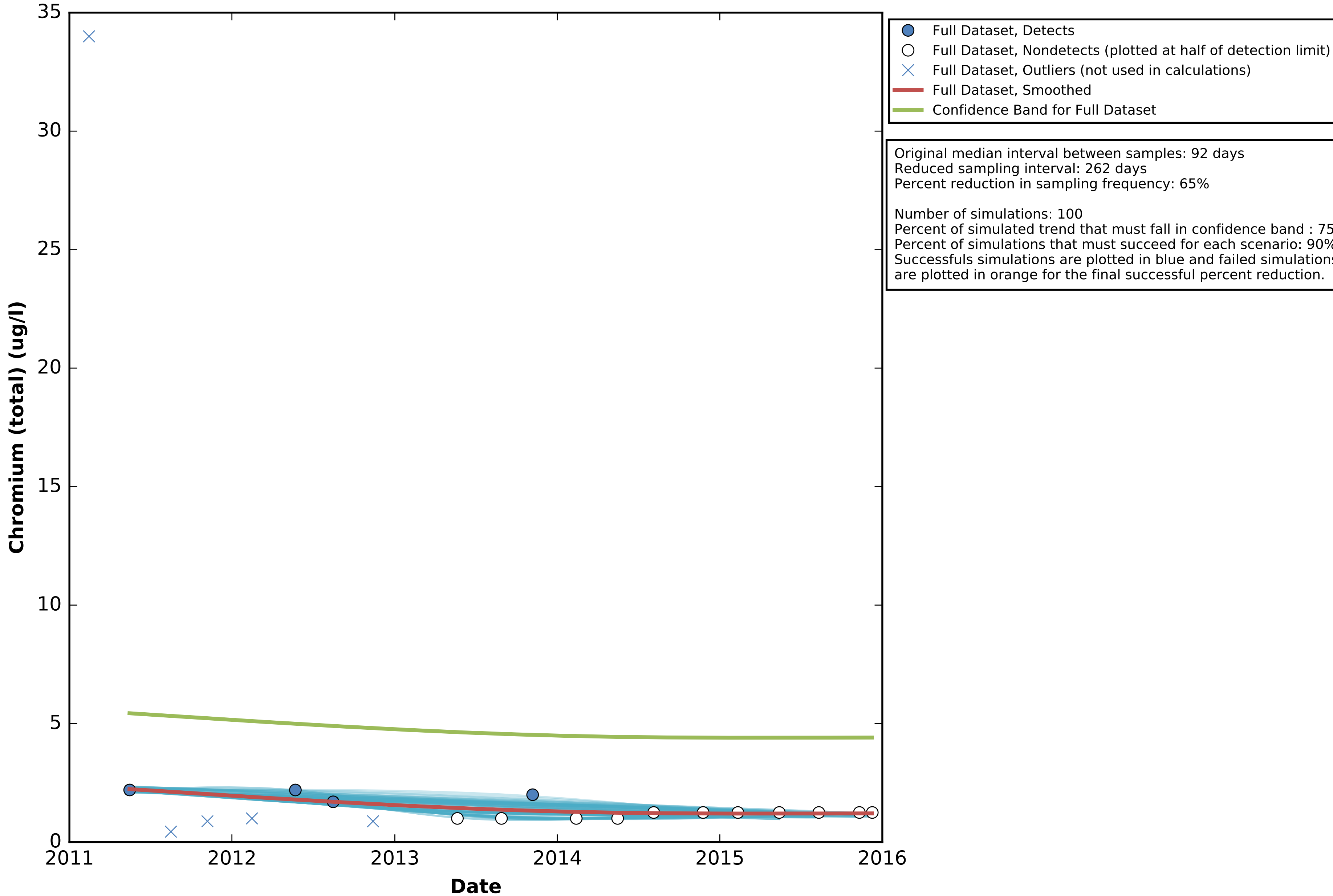
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-86

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 262 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

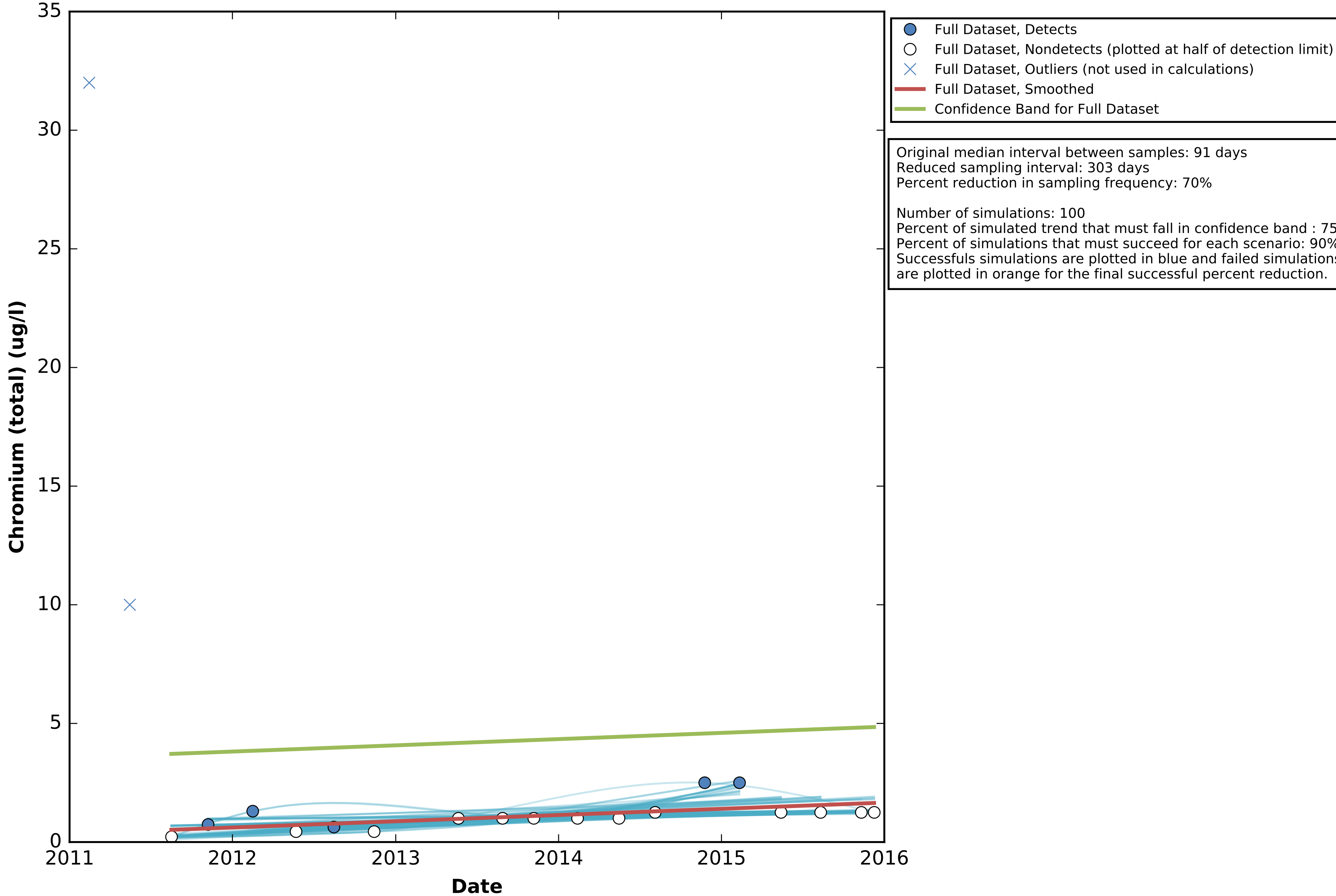
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-59
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-87

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

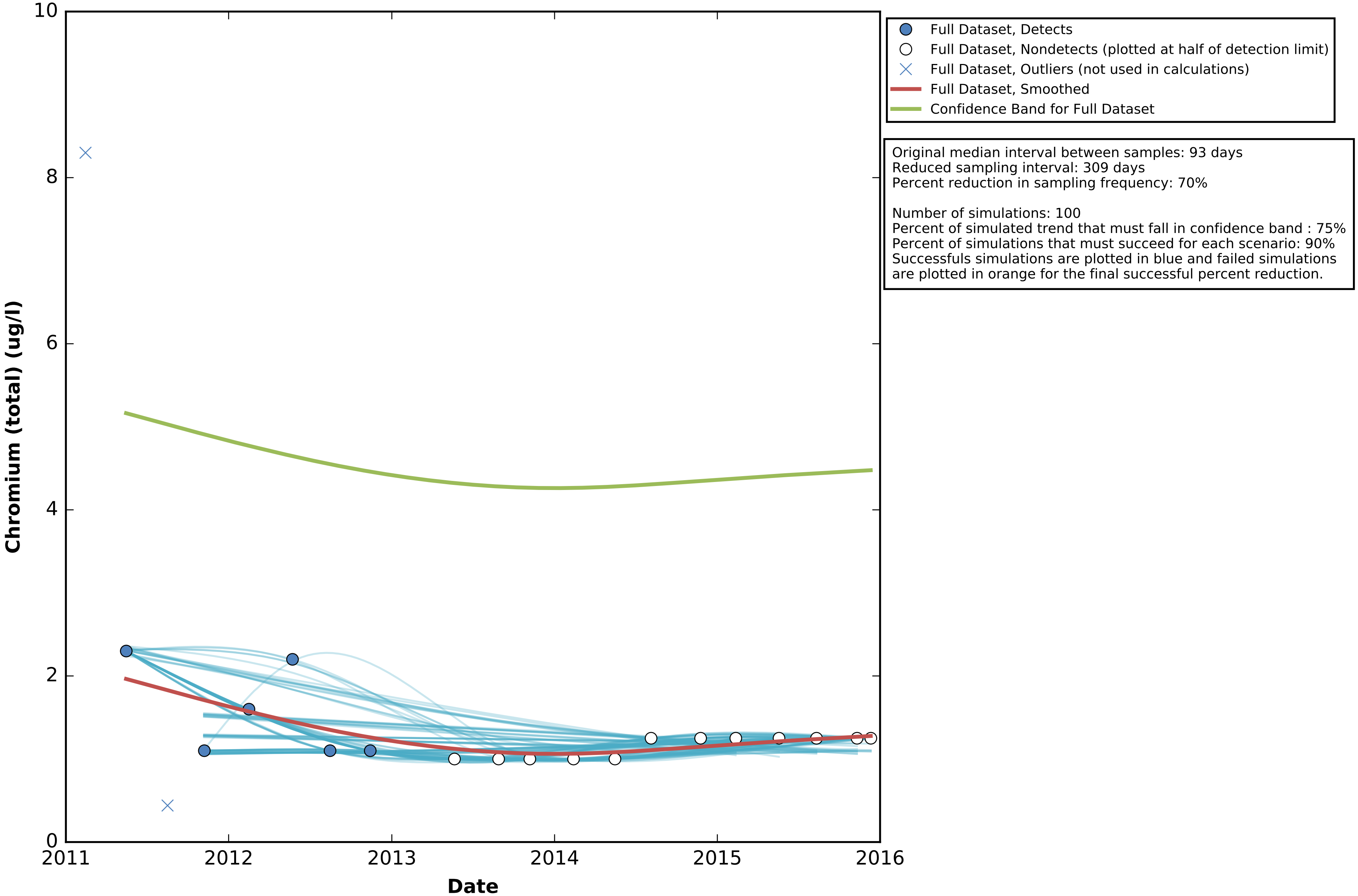
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-60
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-88

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



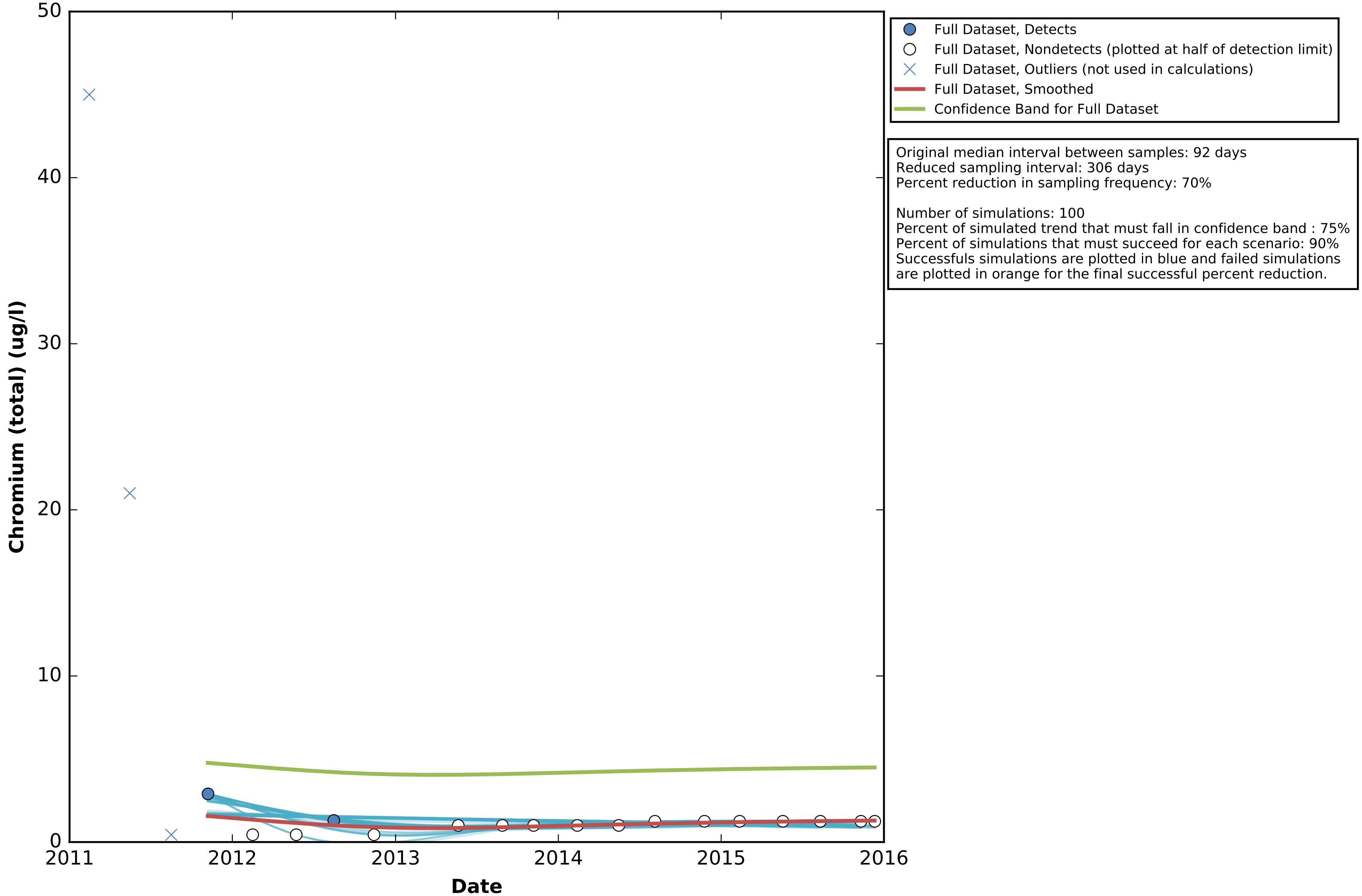
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-62
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-89

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



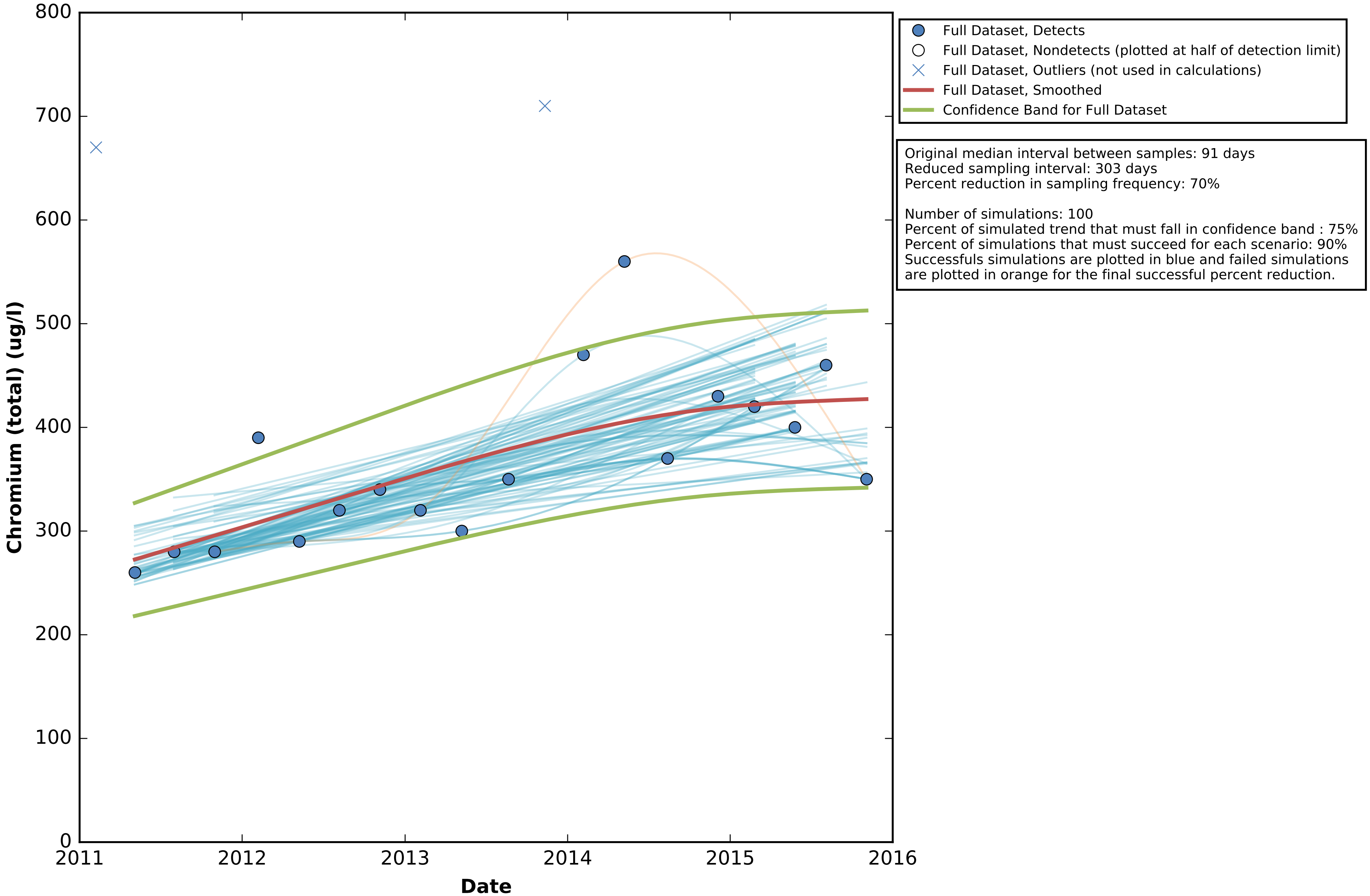
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-90

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

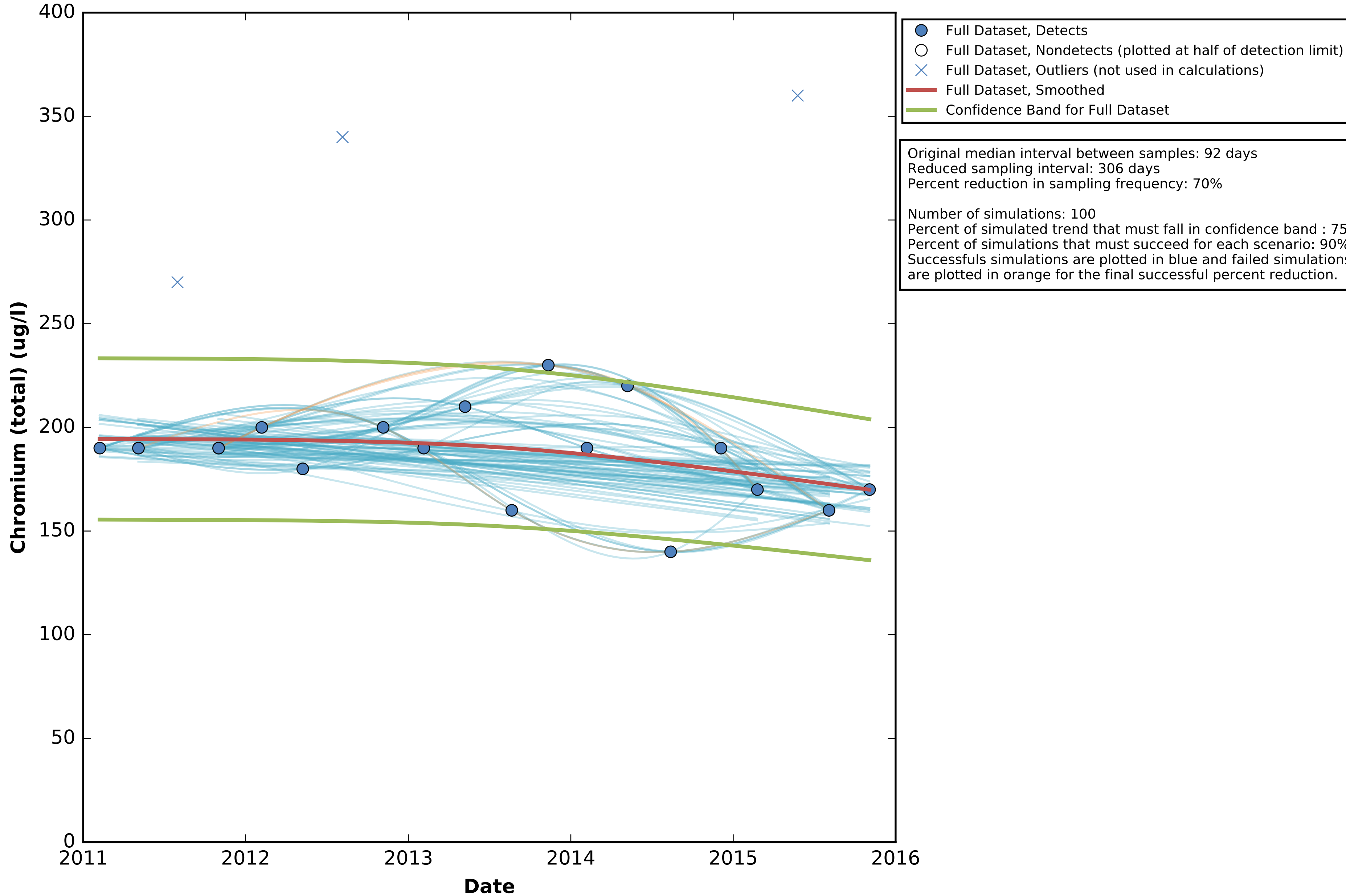
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-91

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

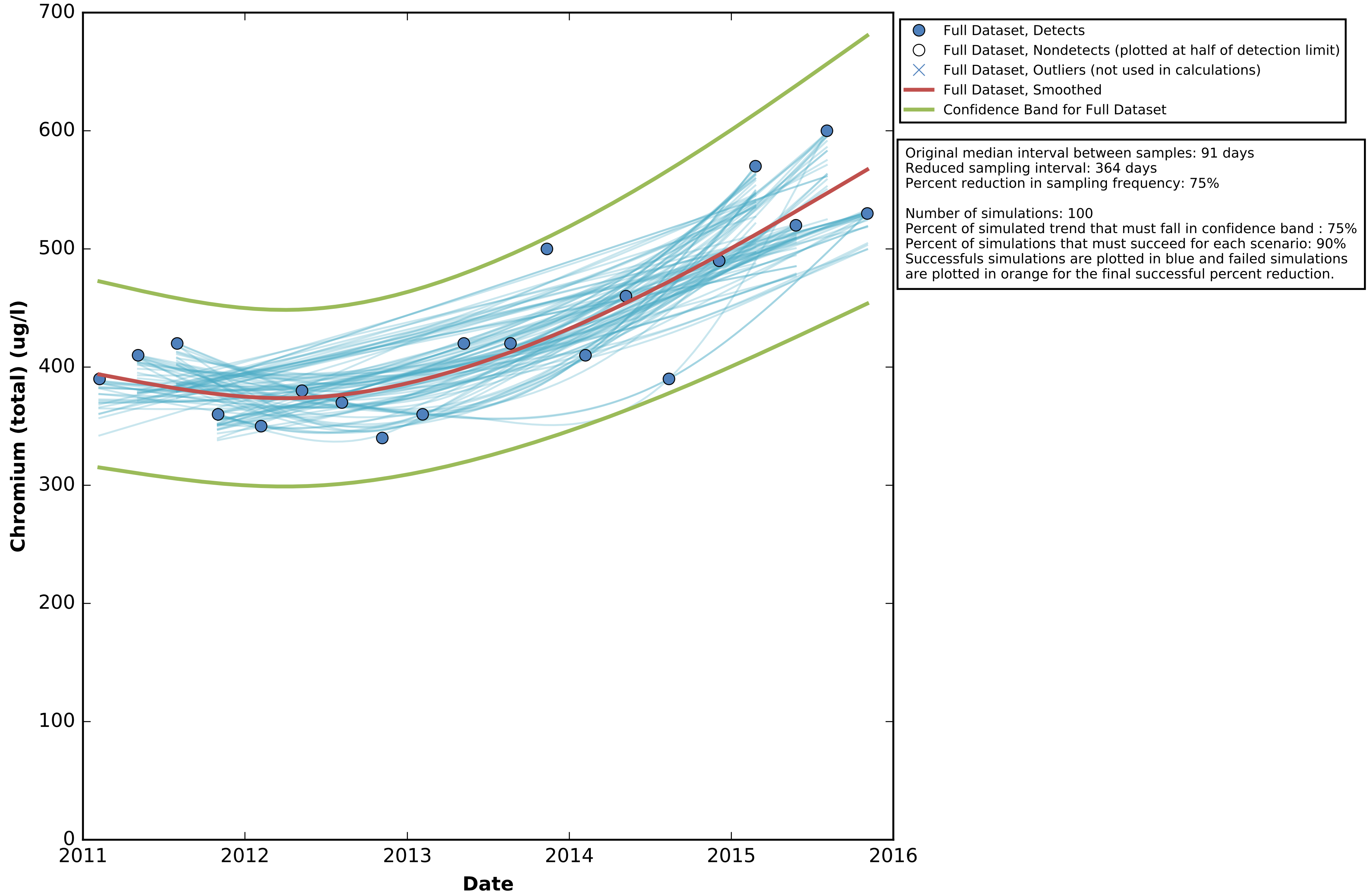
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-92

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



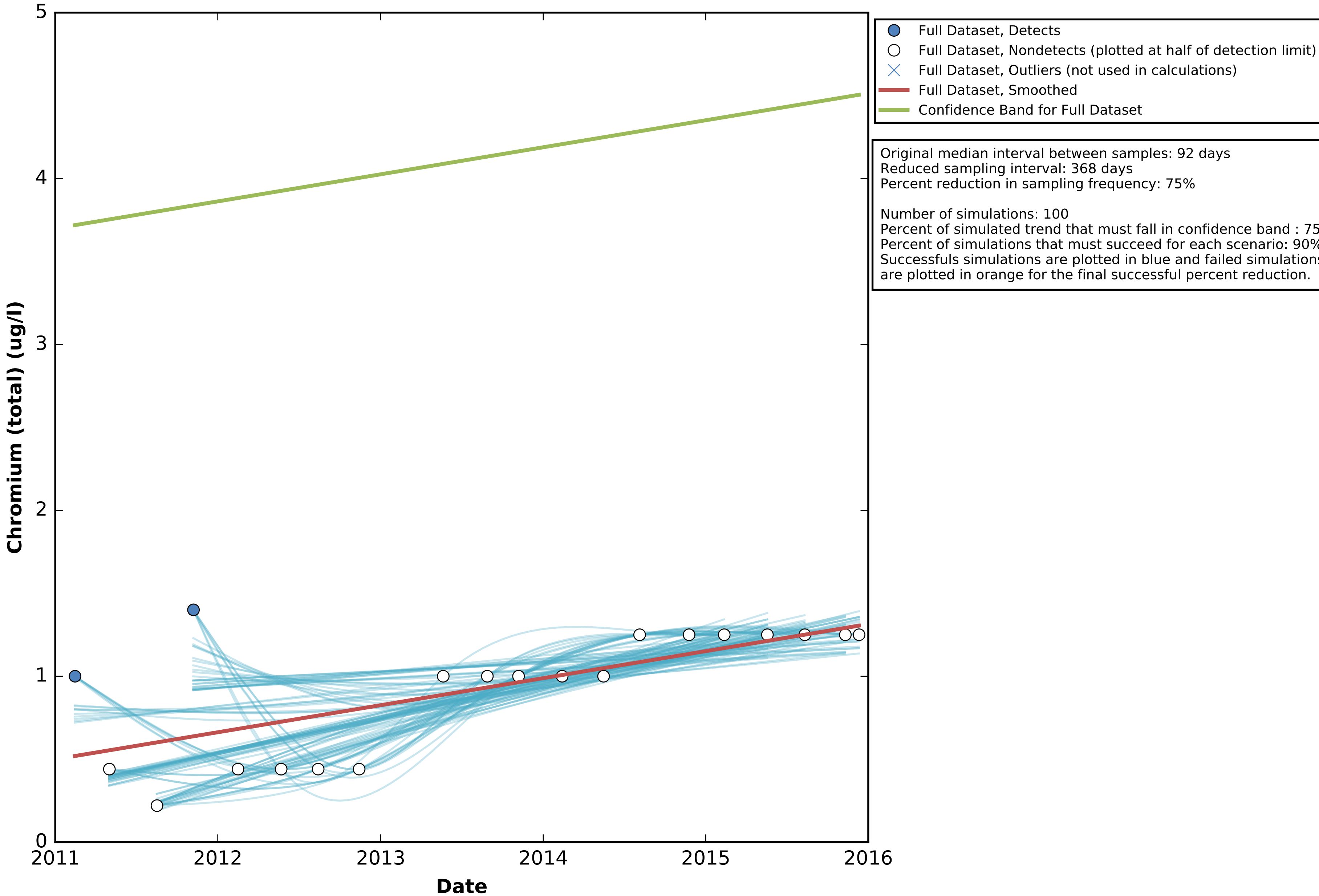
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-93

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

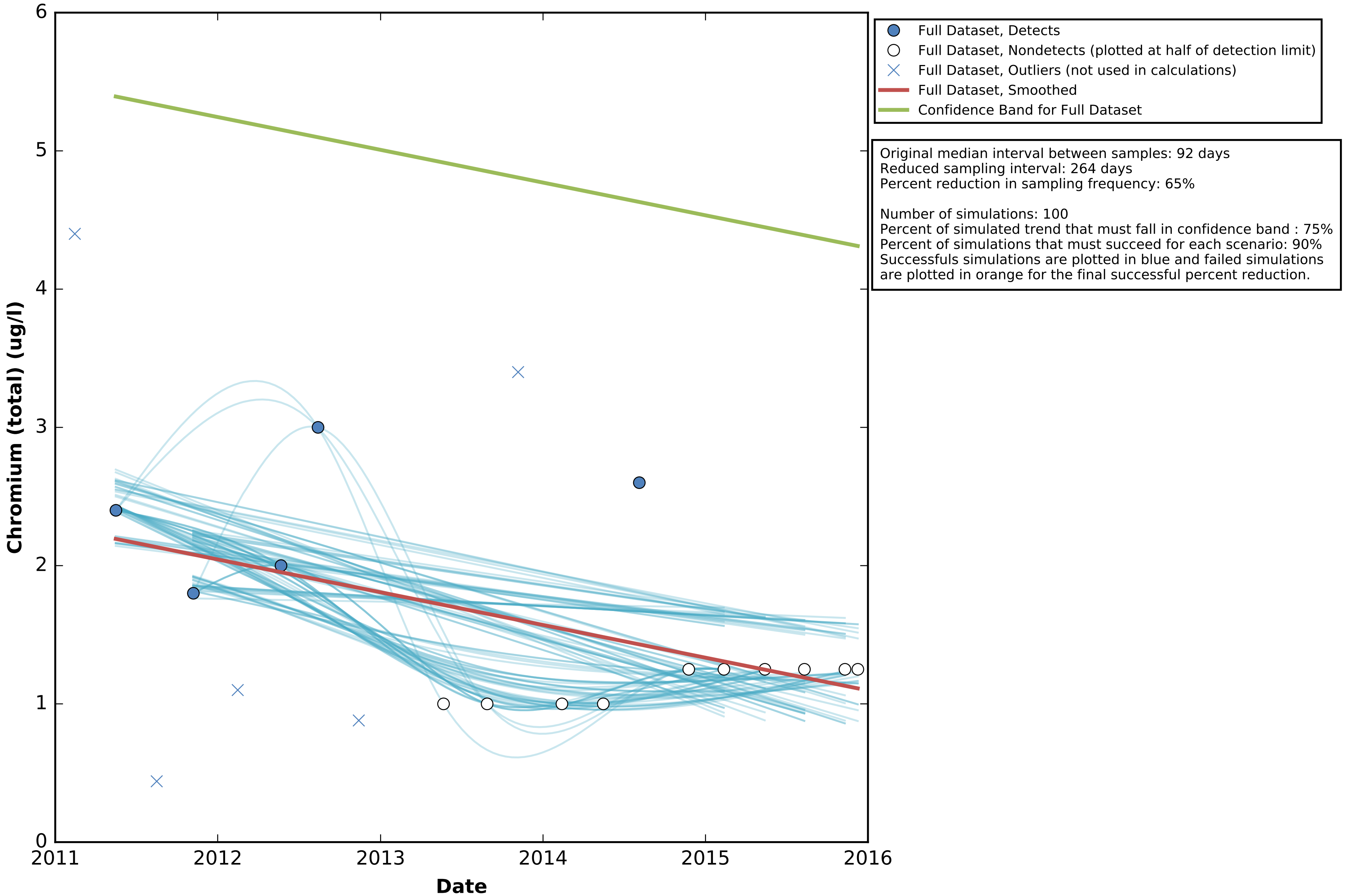
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-86
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-94

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



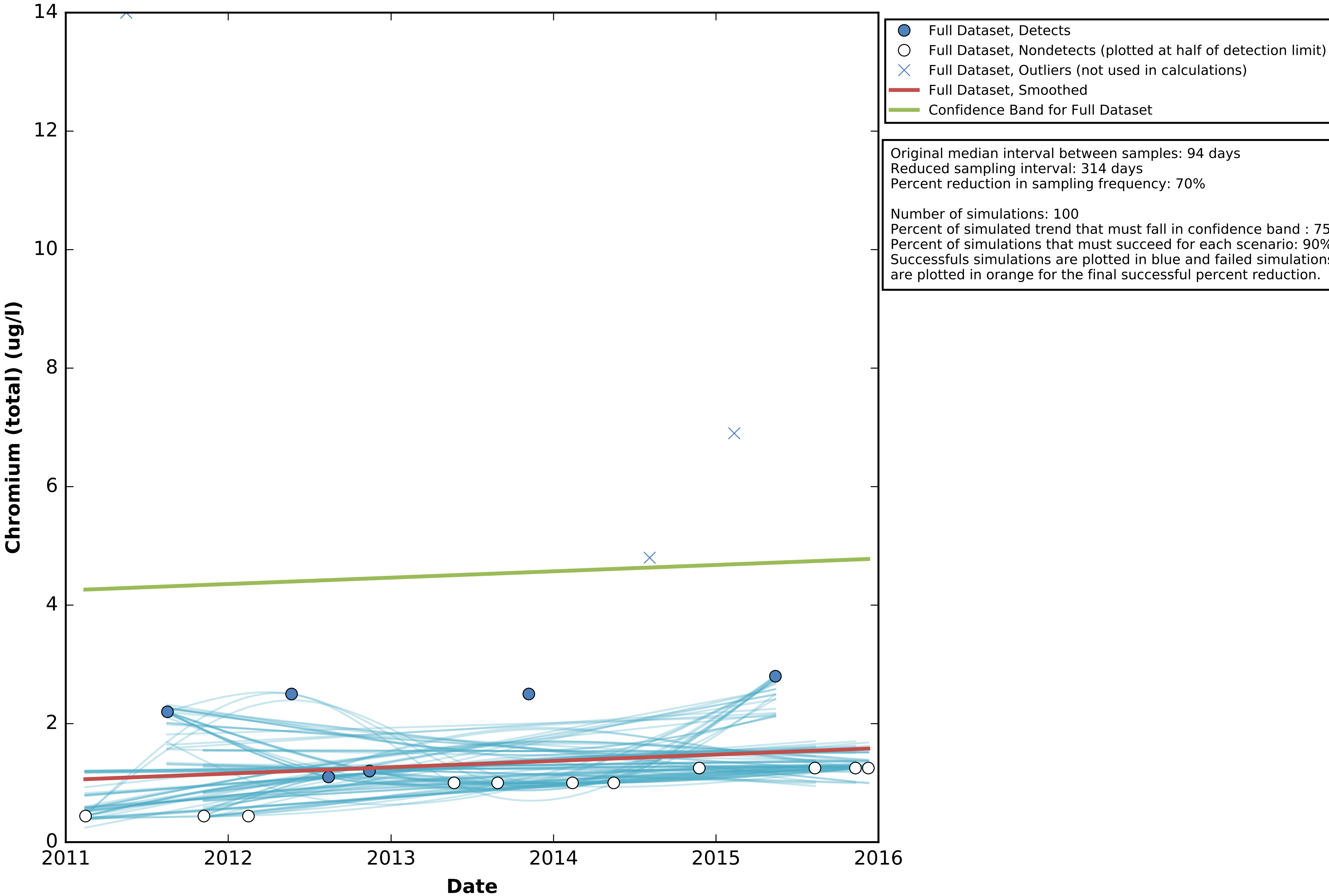
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-90
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-95

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 94 days
Reduced sampling interval: 314 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

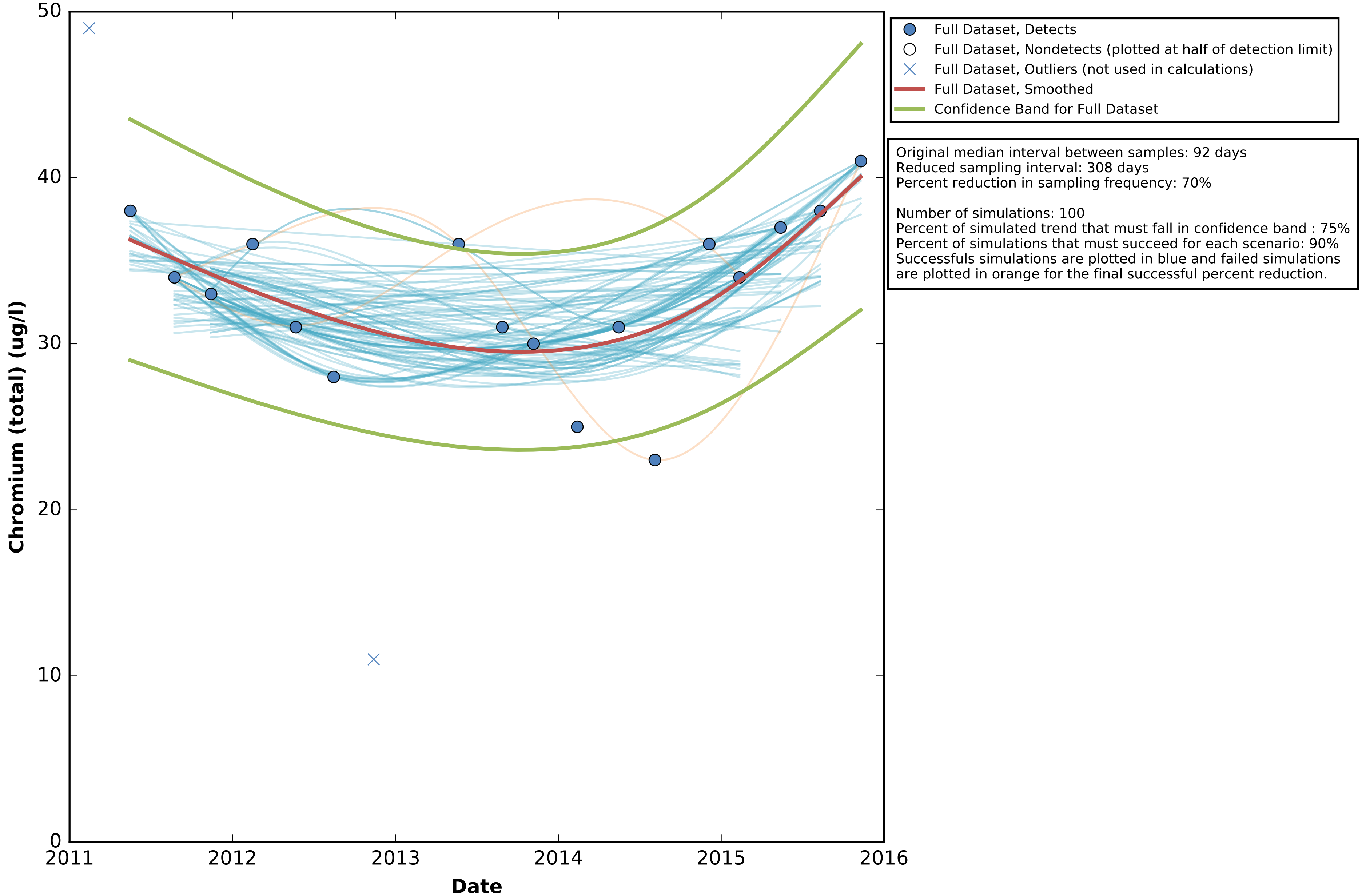
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-91
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-96

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



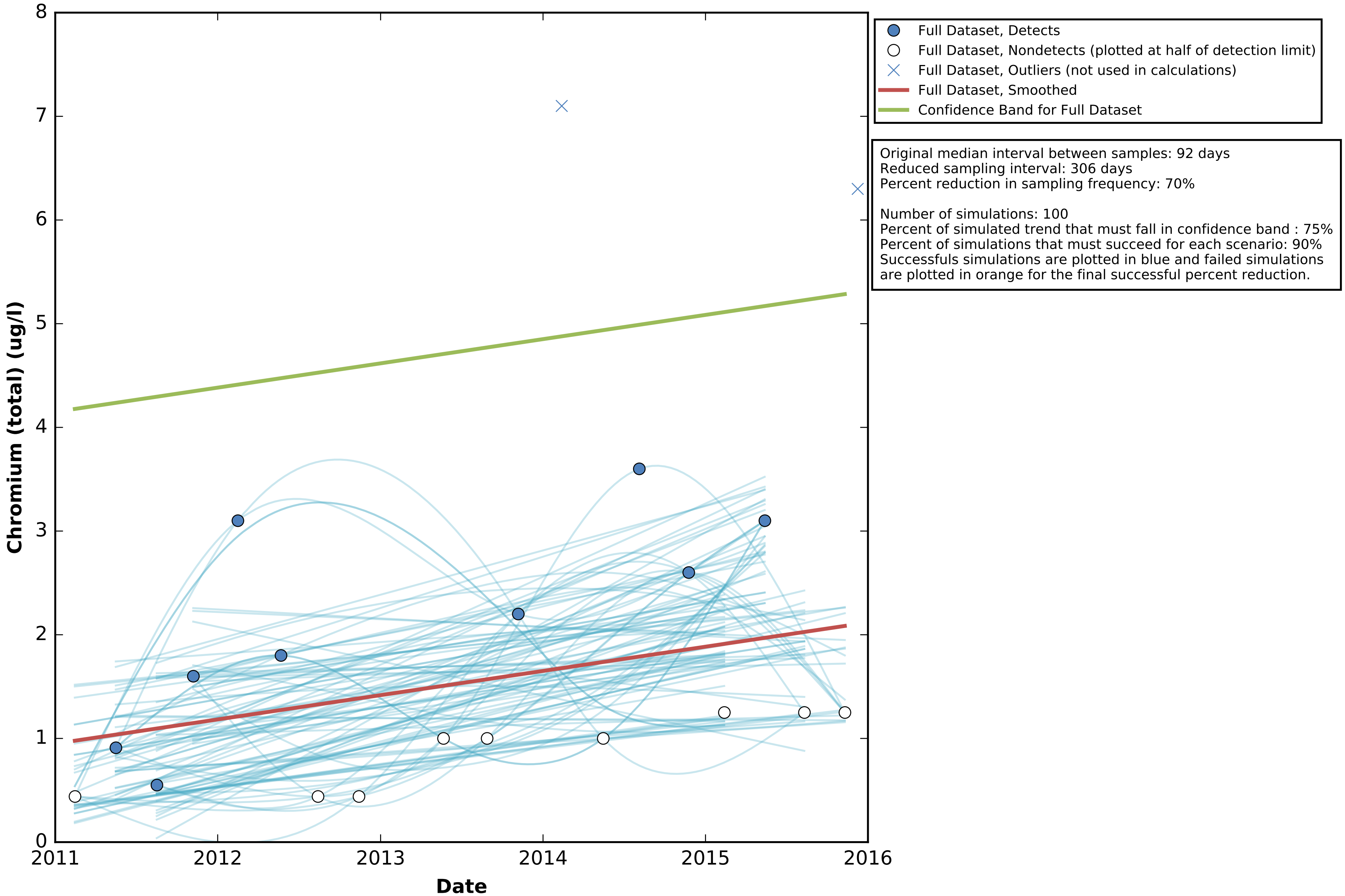
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-94
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-97

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



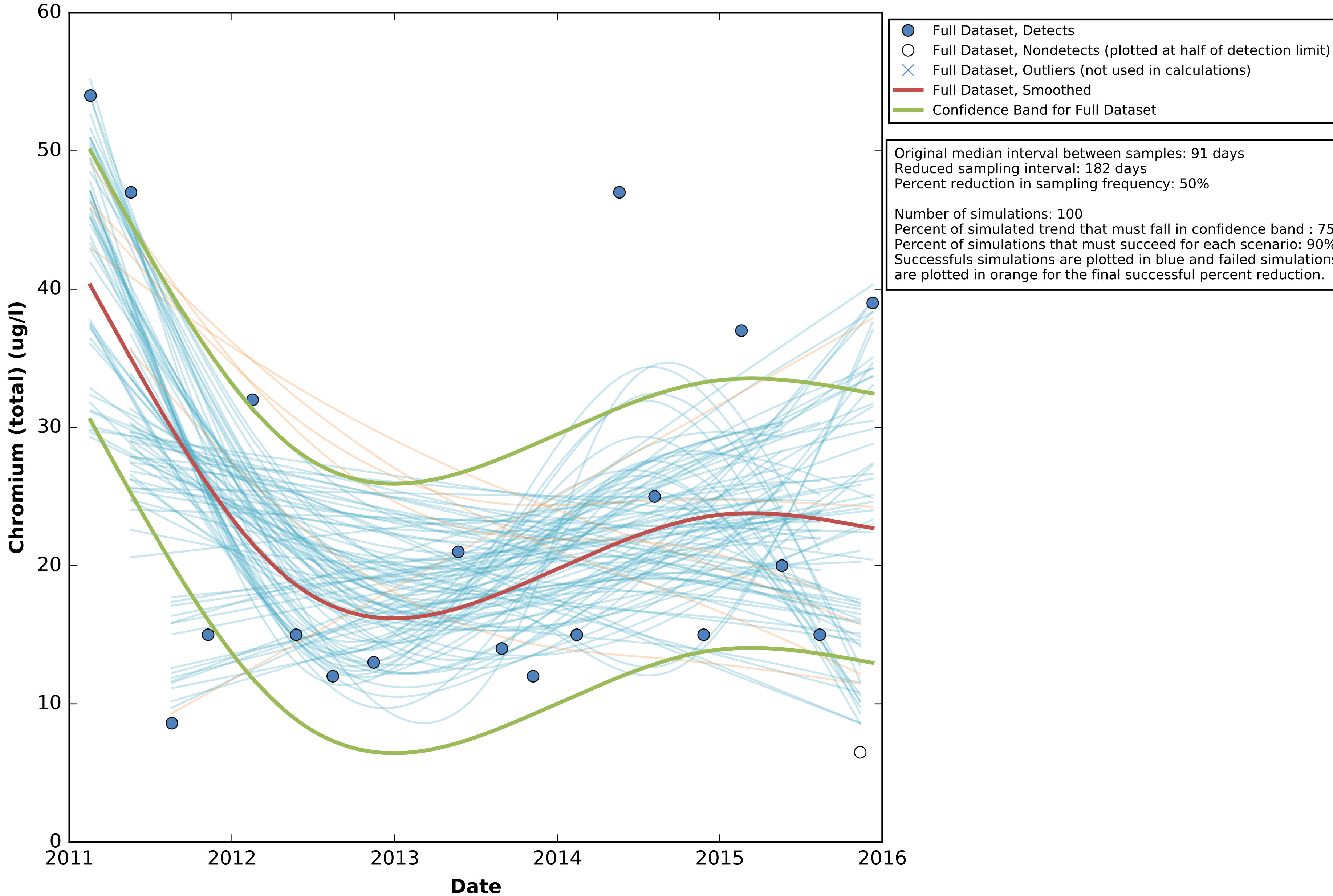
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-97
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-98

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 182 days
Percent reduction in sampling frequency: 50%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

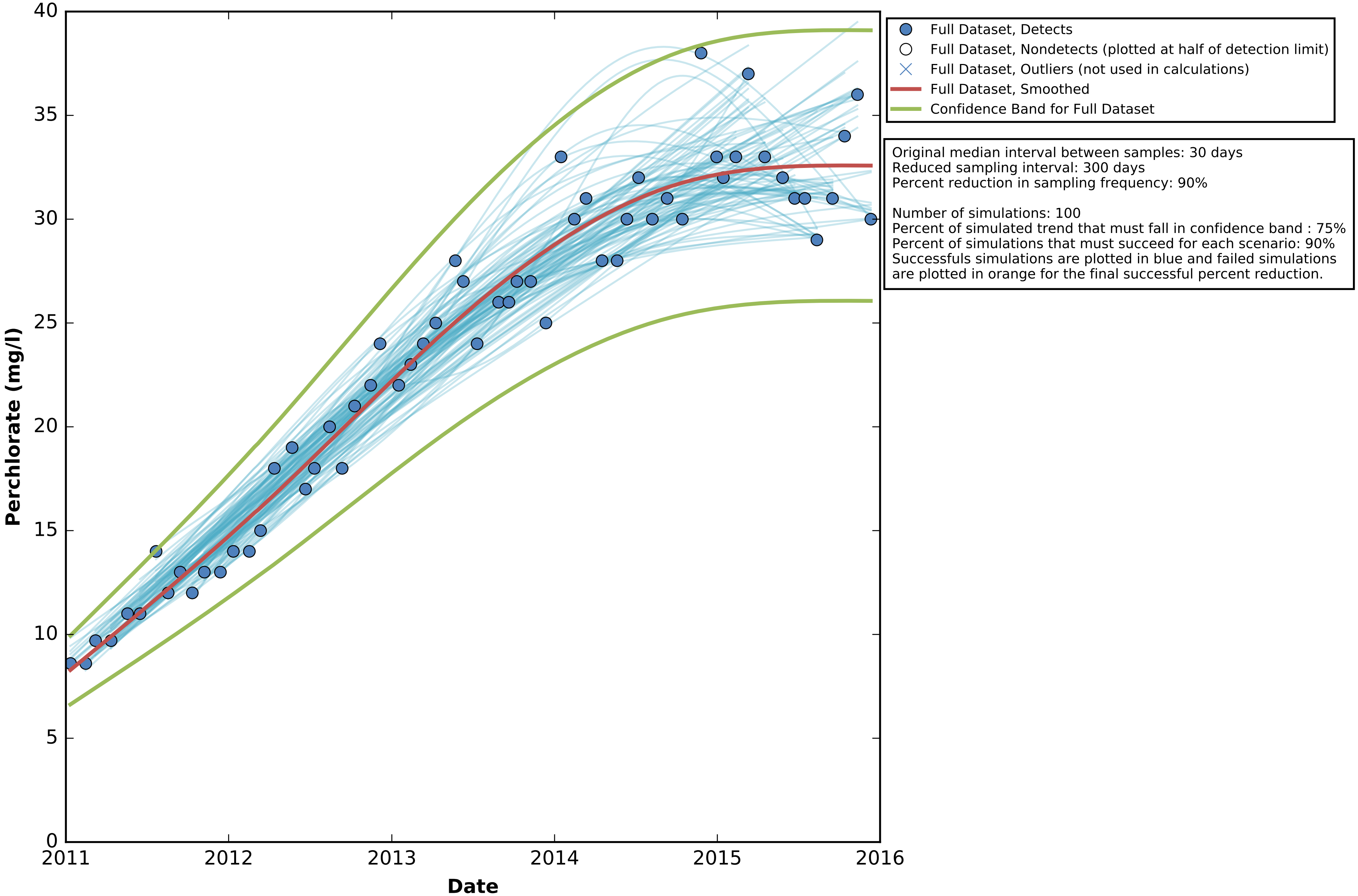
RAMBOLL ENVIRON

Iterative Thinning Results for Chromium (total) in PC-98R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-99**

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



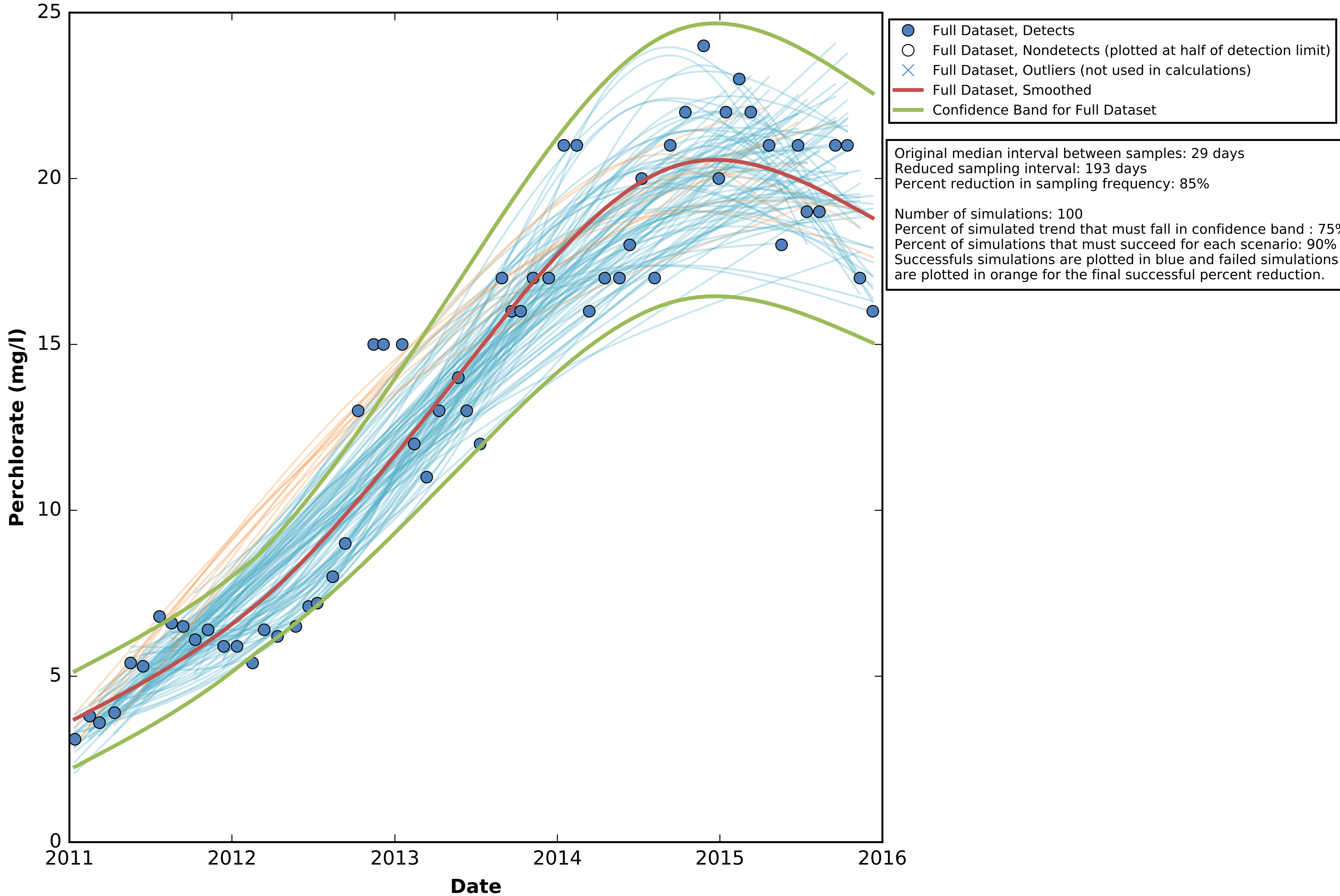
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-1
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-100

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

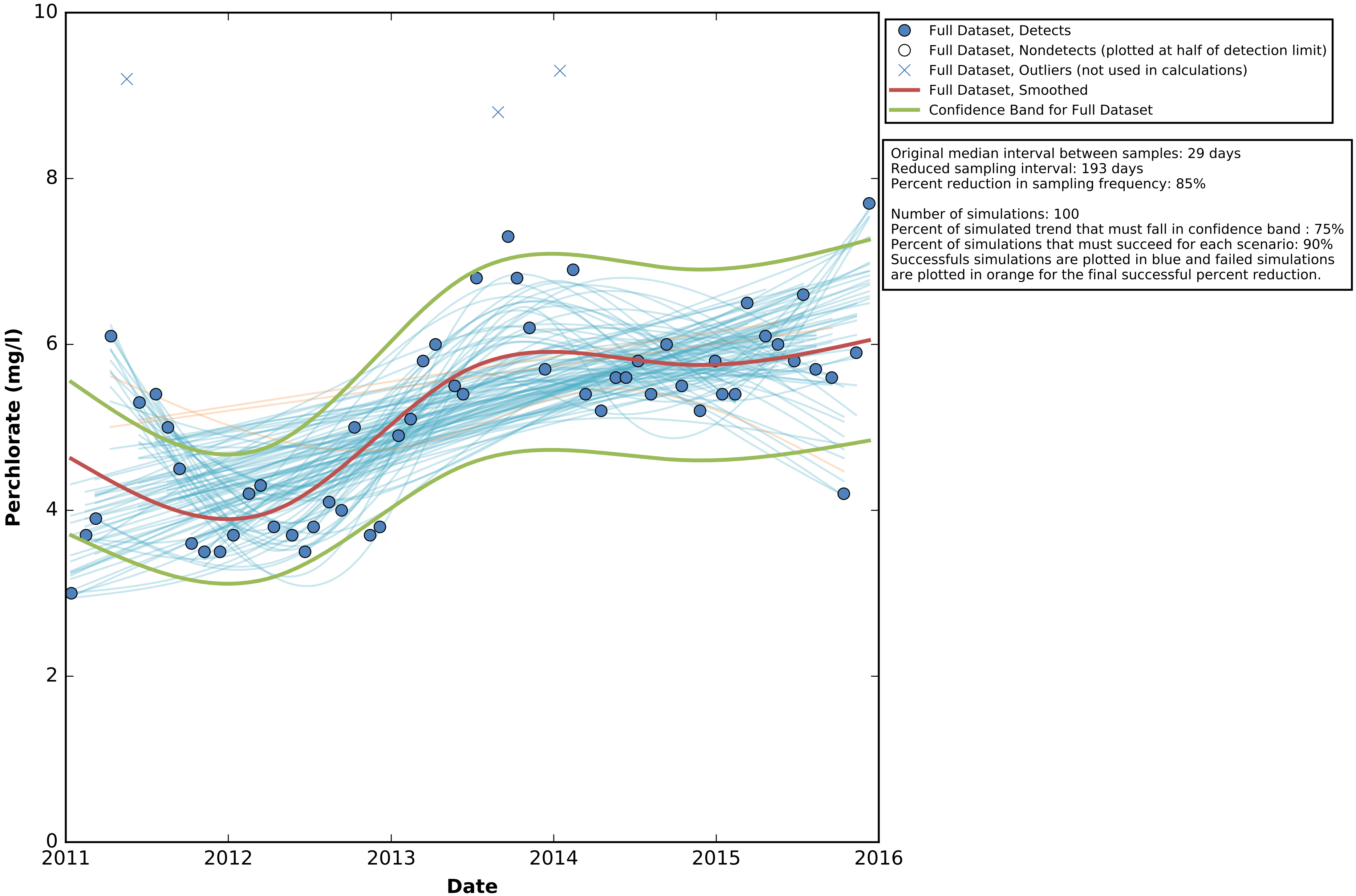
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-2A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-101

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



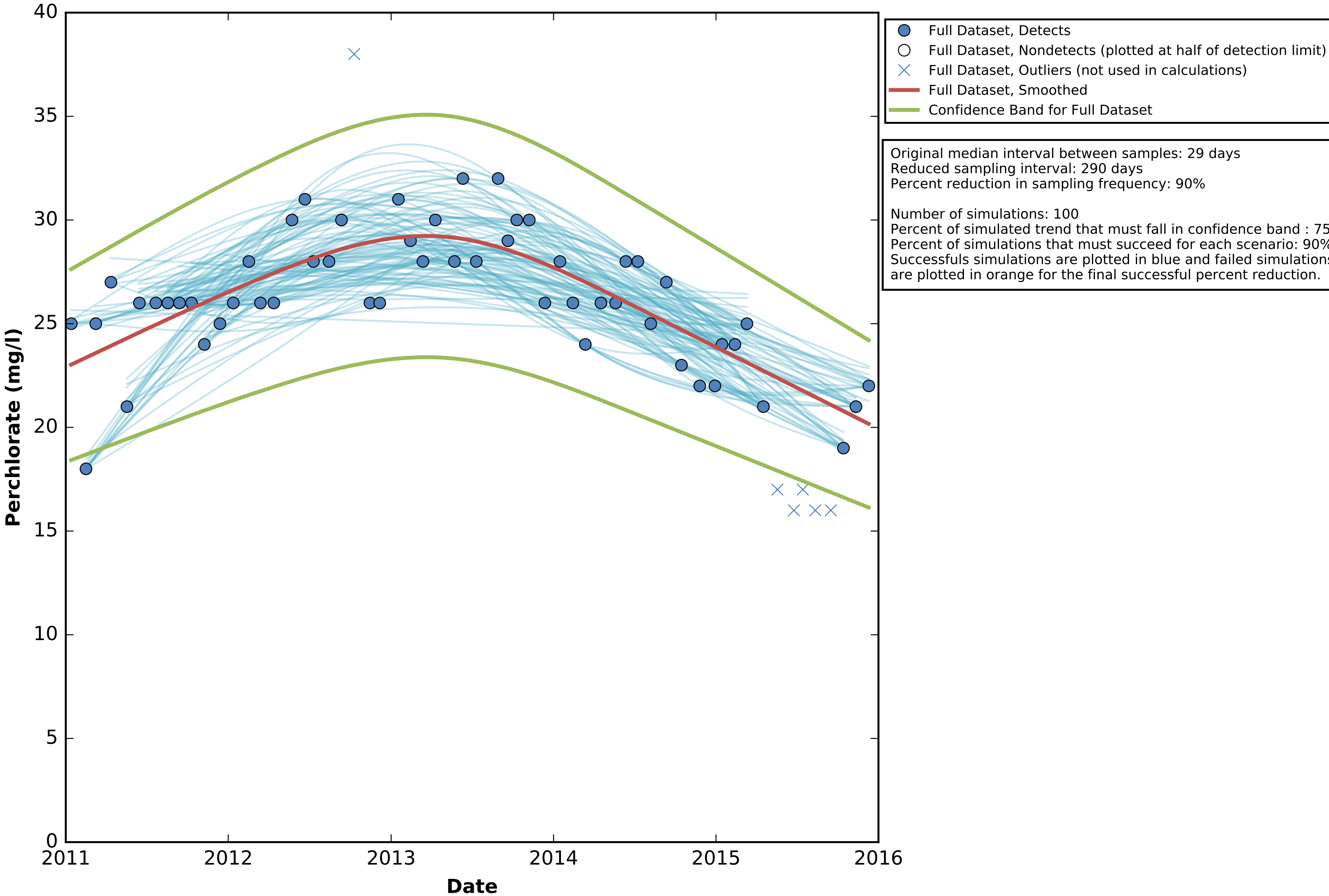
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-102

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

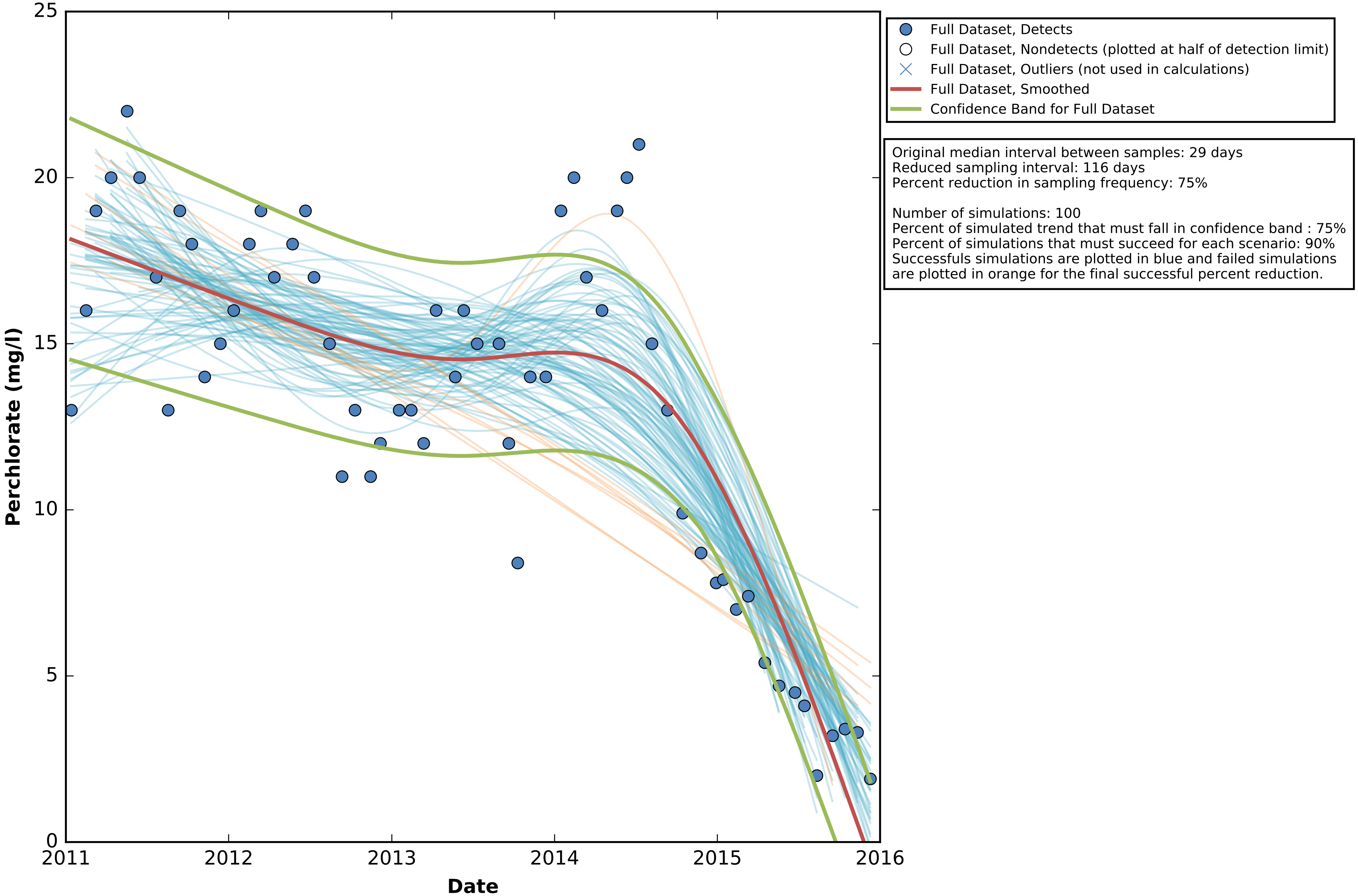
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-4A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-103

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



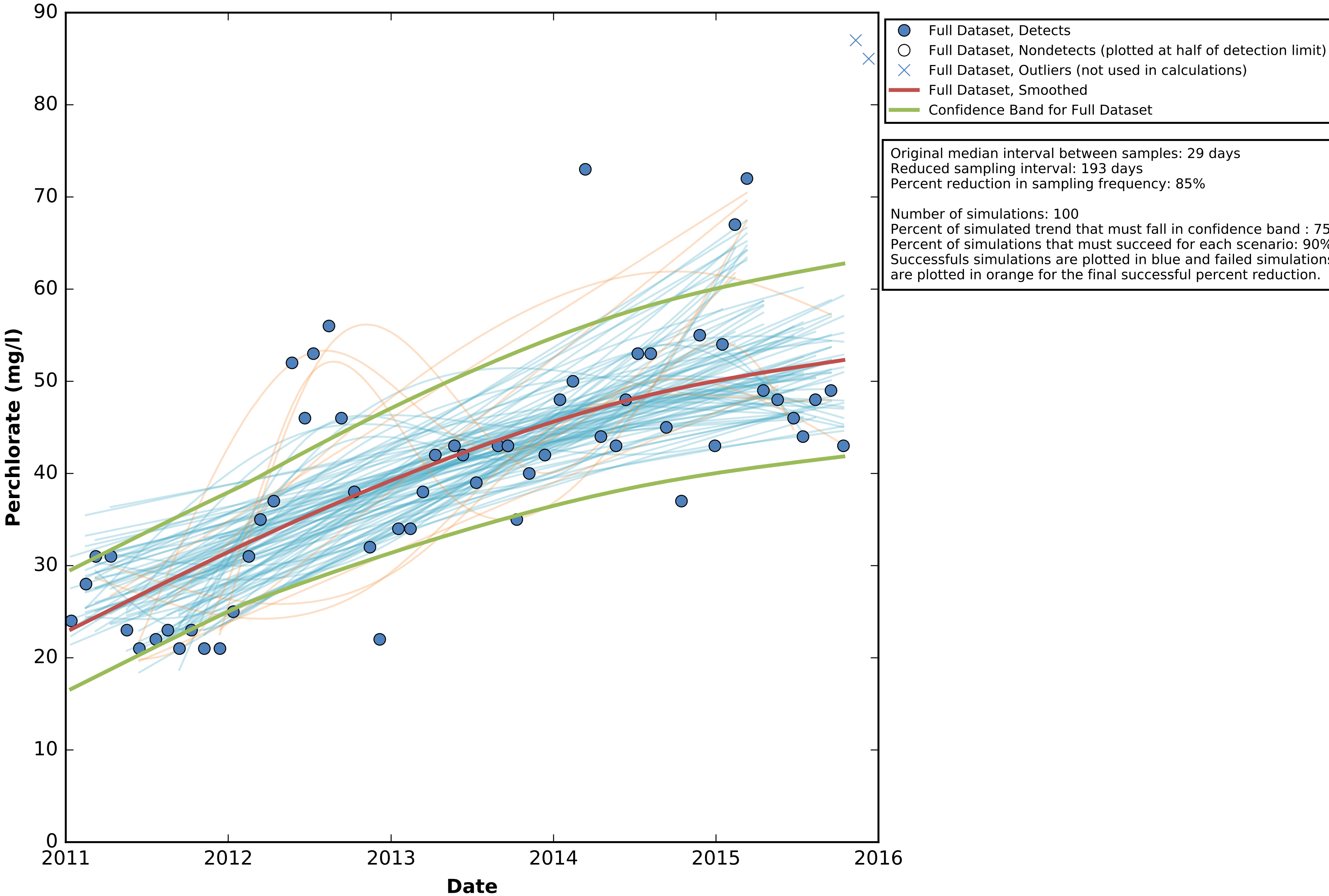
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-5A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-104

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

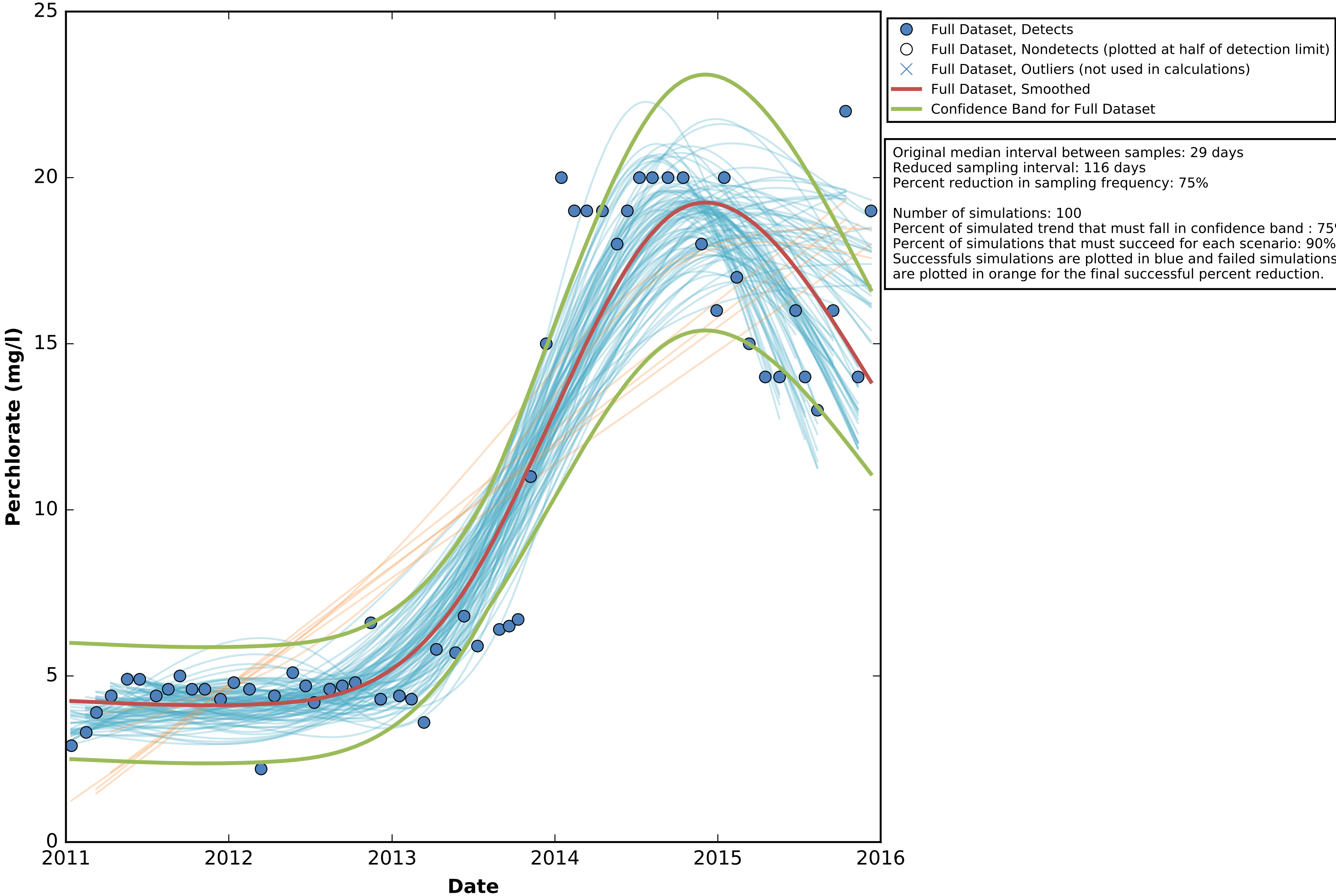
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-6B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-105

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

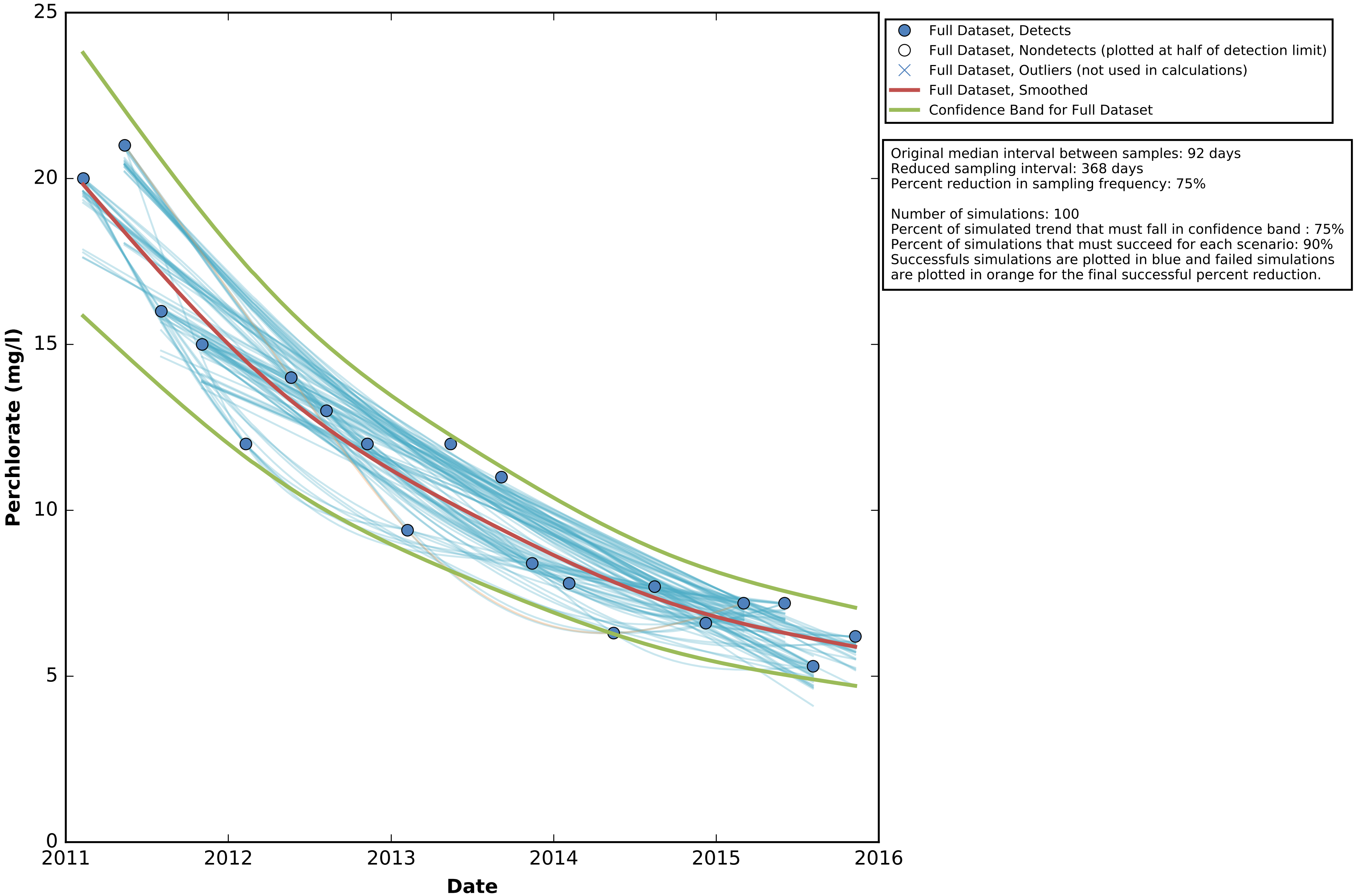
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in ARP-7
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-106

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



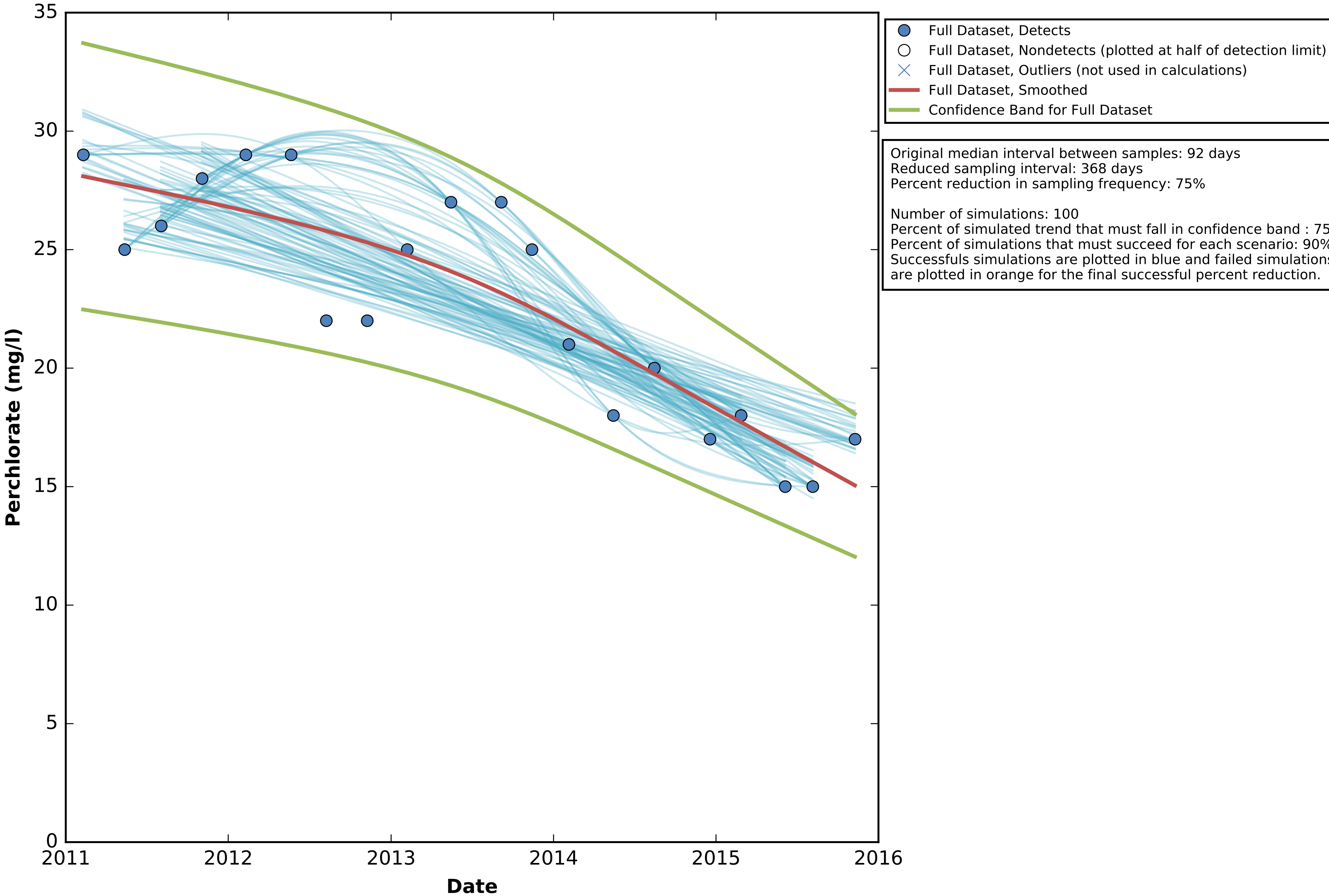
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-10
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-107

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

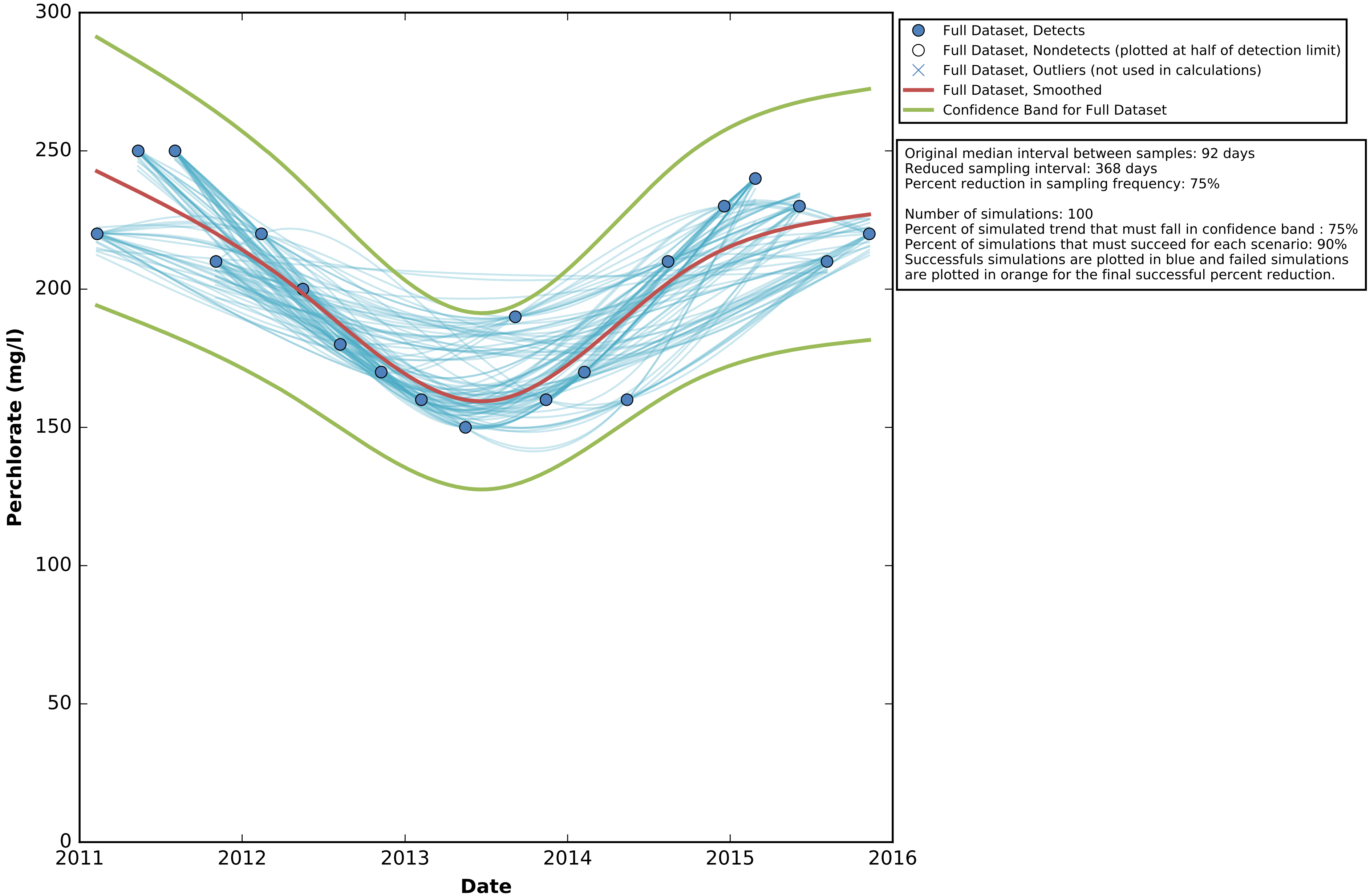
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-11
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-108

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



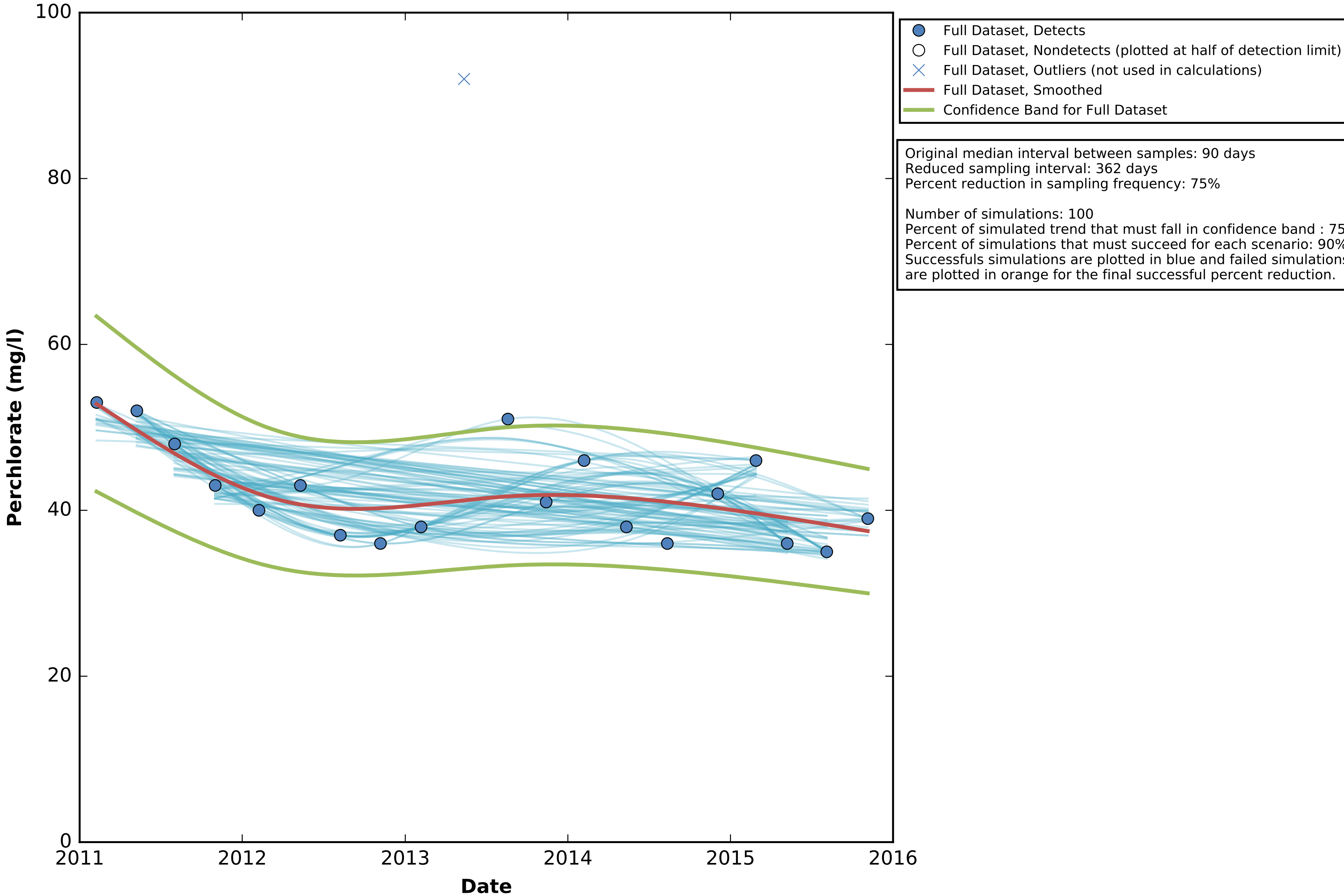
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-12A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-109

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 362 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

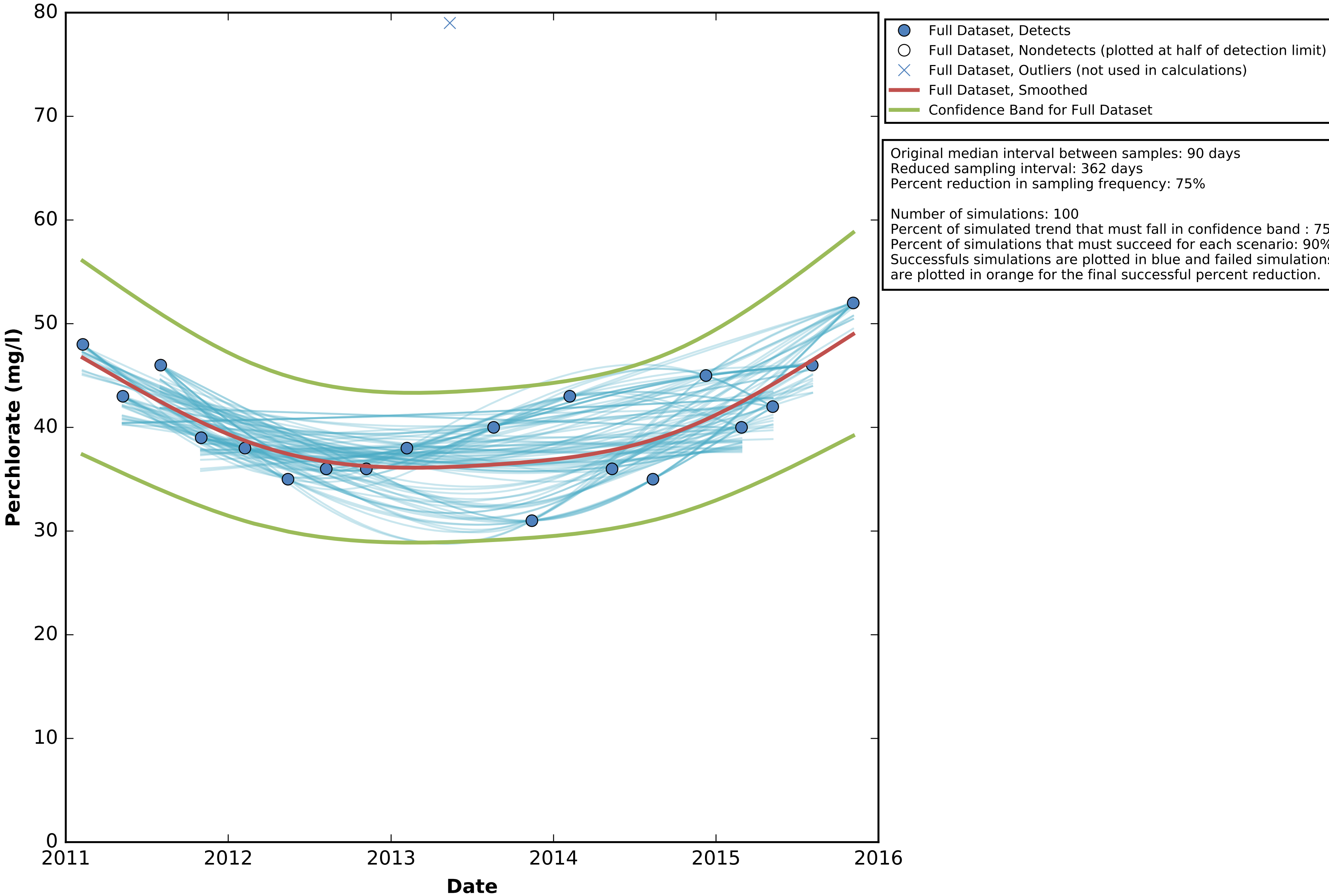
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-110

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 362 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

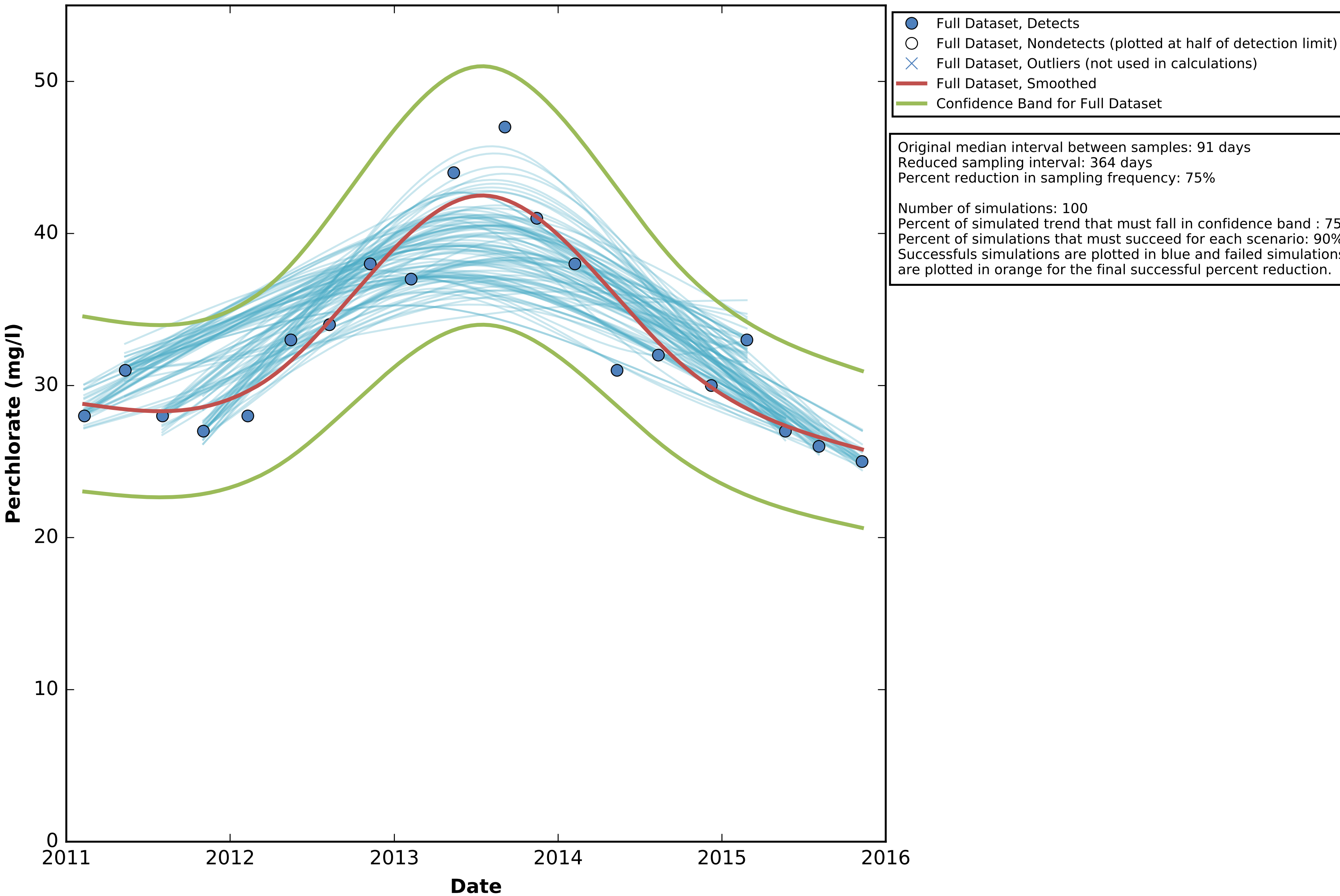
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-135
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-111

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

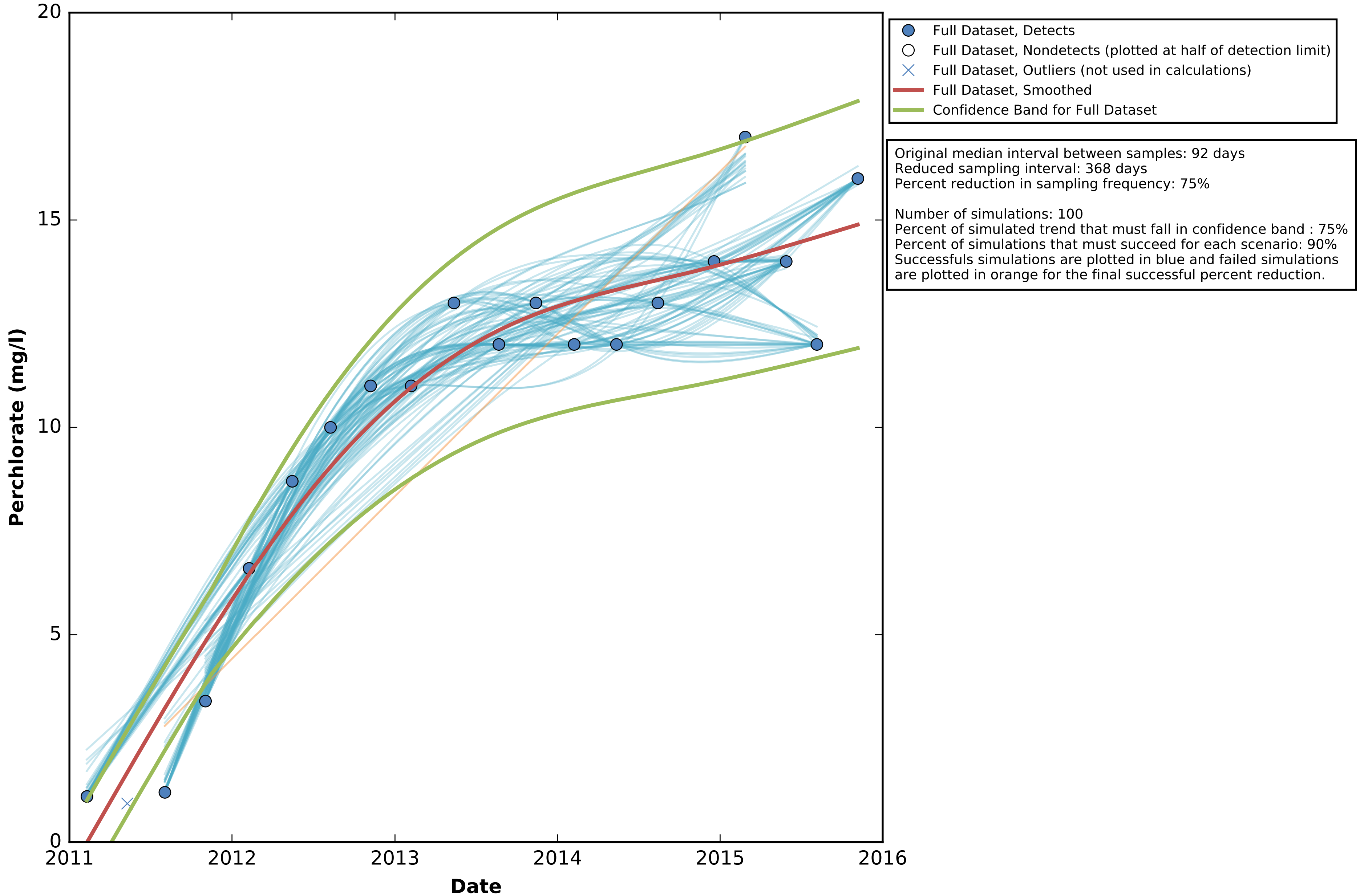
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-14A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-112**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



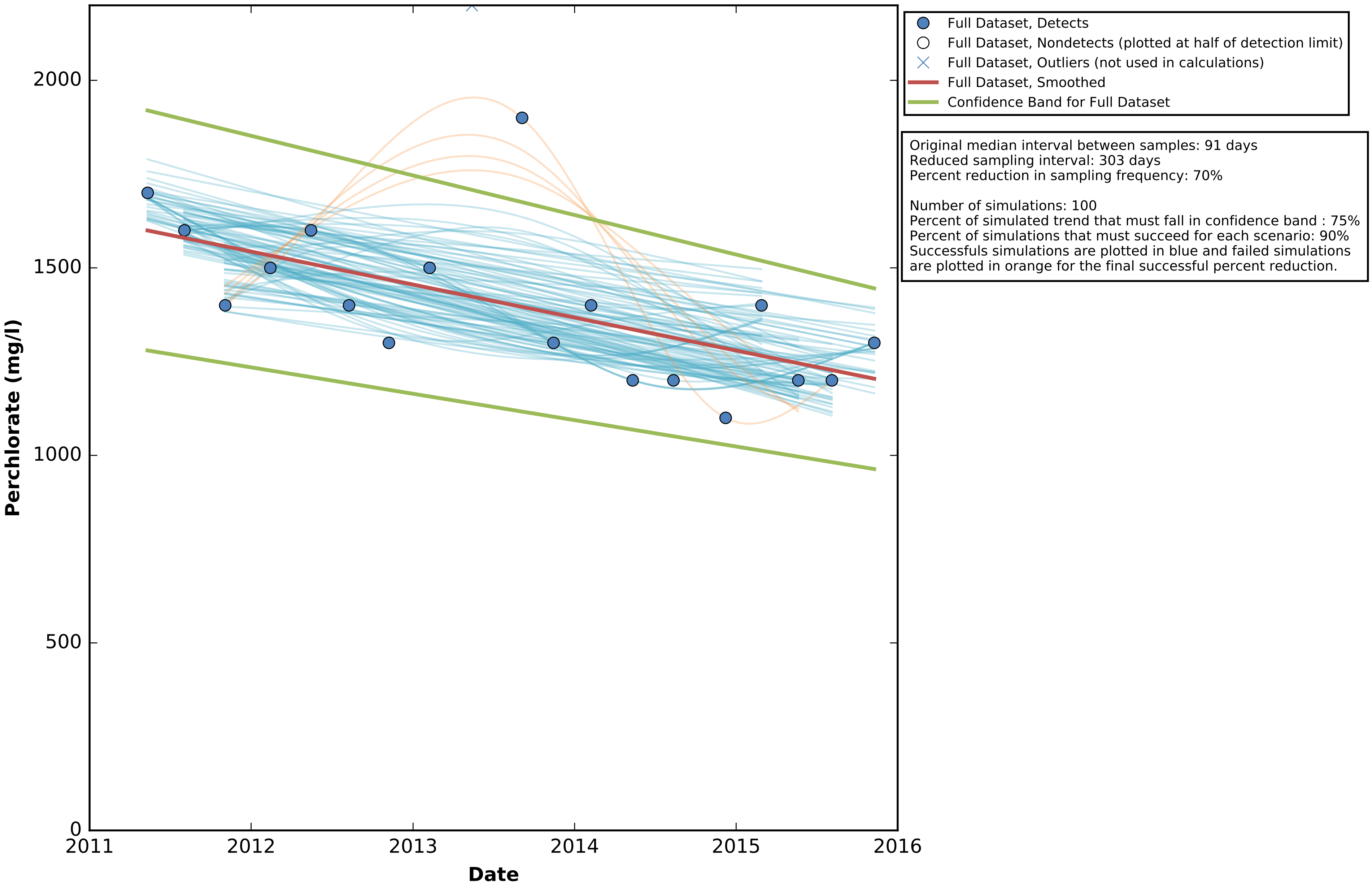
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-19
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-113

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



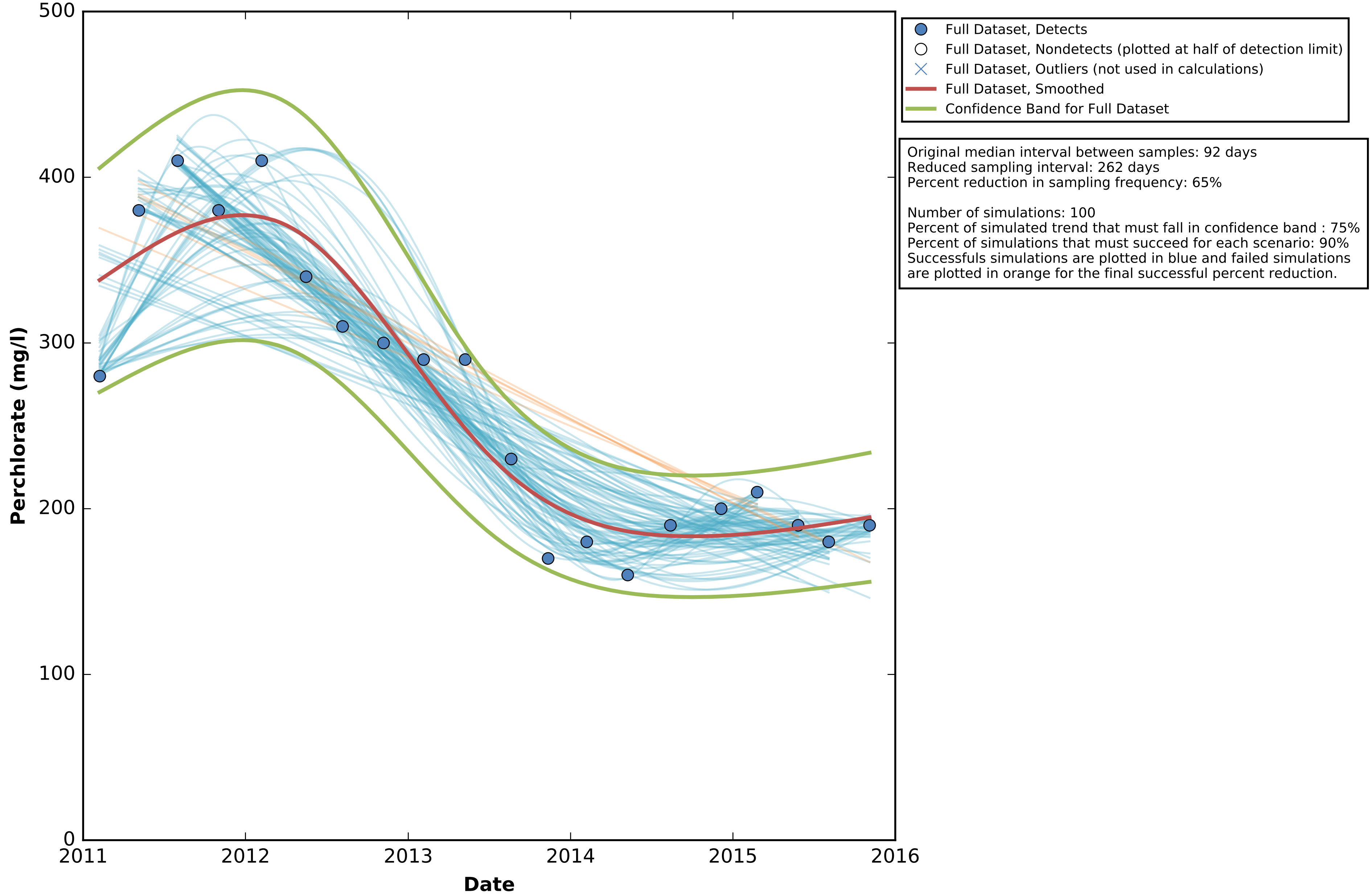
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-22A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-114

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 262 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

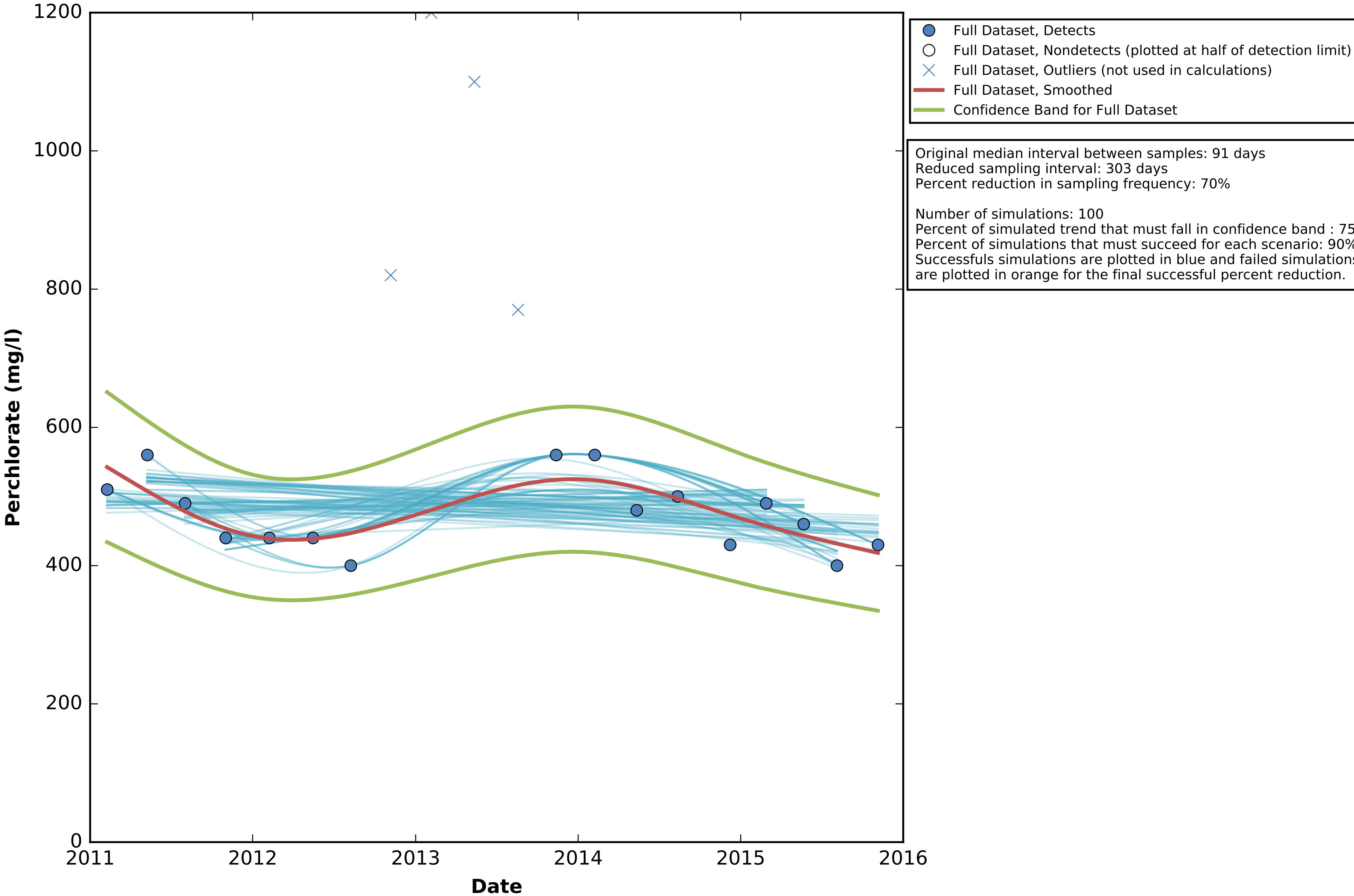
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-23
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-115

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

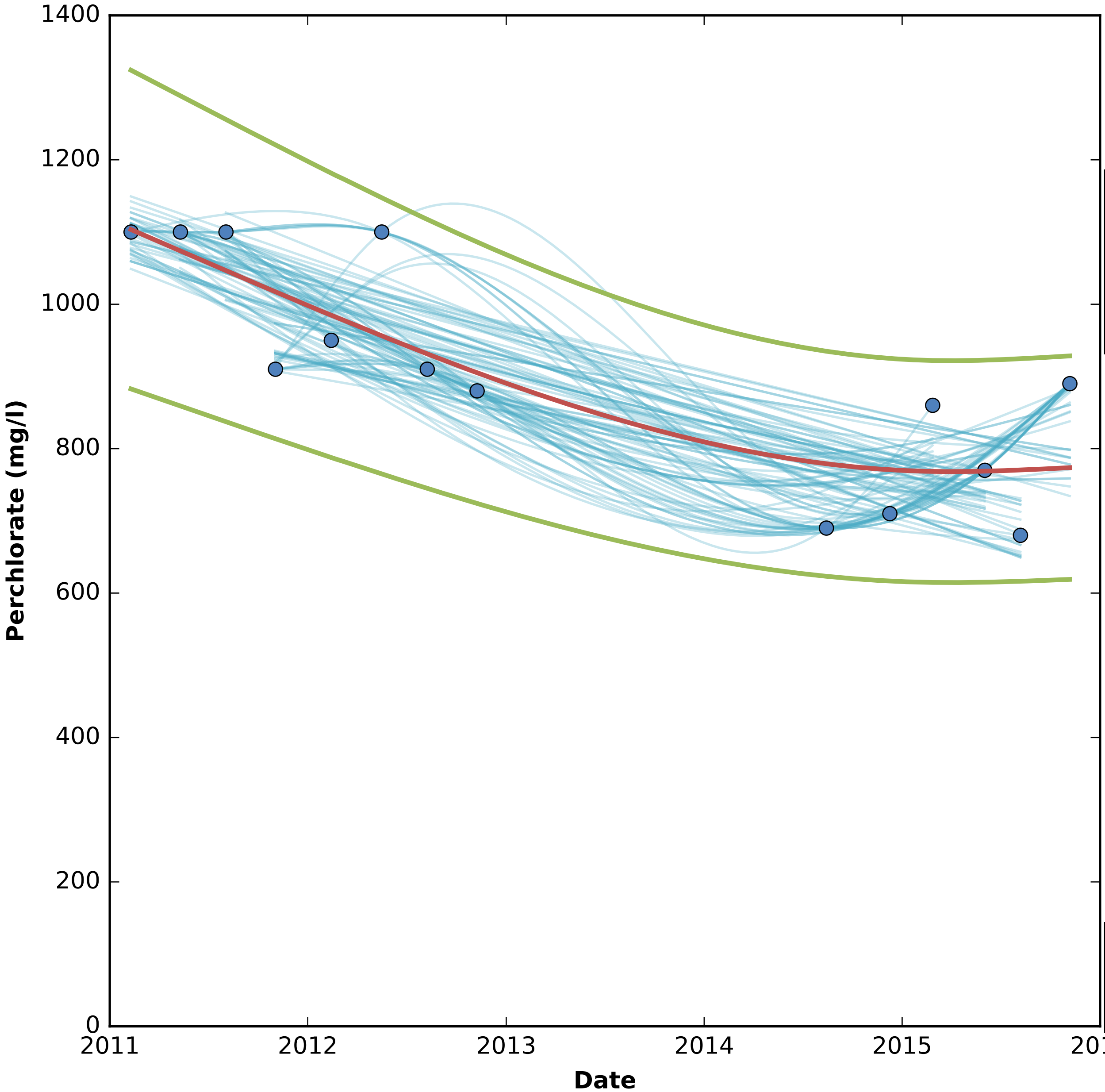
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-25
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-116

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Data Note:
M-31A data from 1/1/2013 to 6/1/2014 were not included in the iterative thinning analysis of M-31A because water levels and chemical concentrations during this period were greatly impacted by a nearby leak.

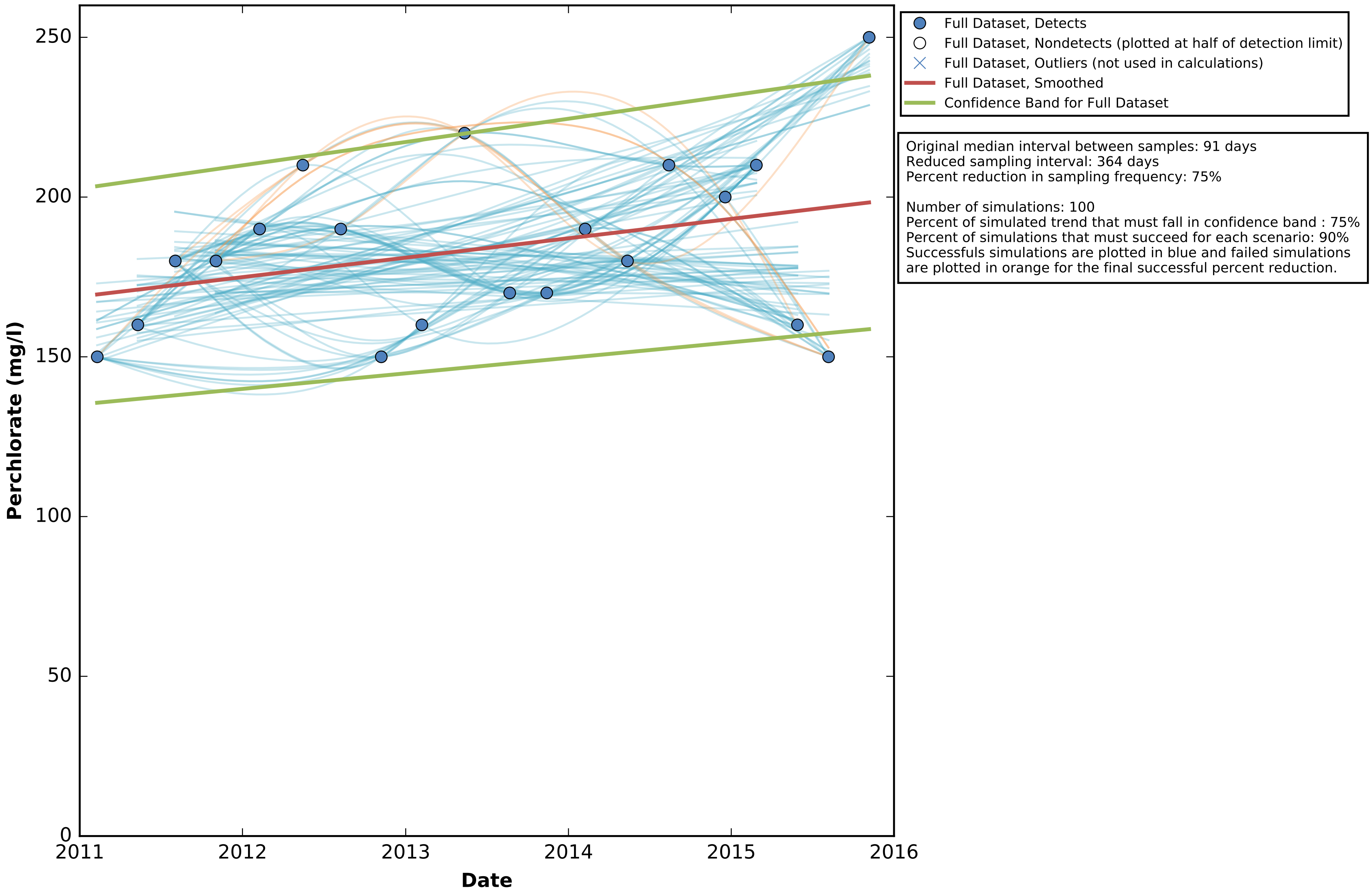
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-31A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-117

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



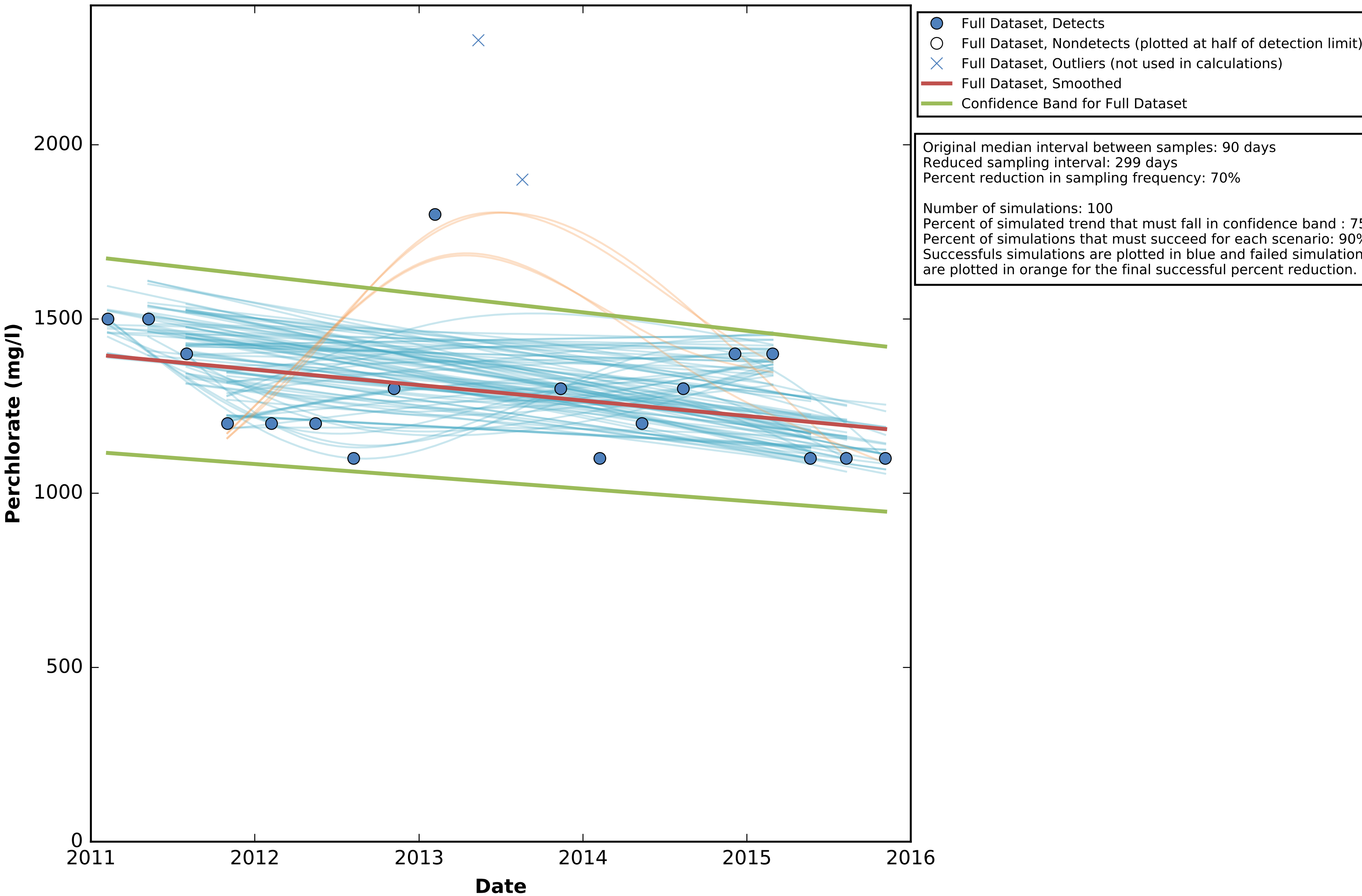
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-35
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-118

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 299 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

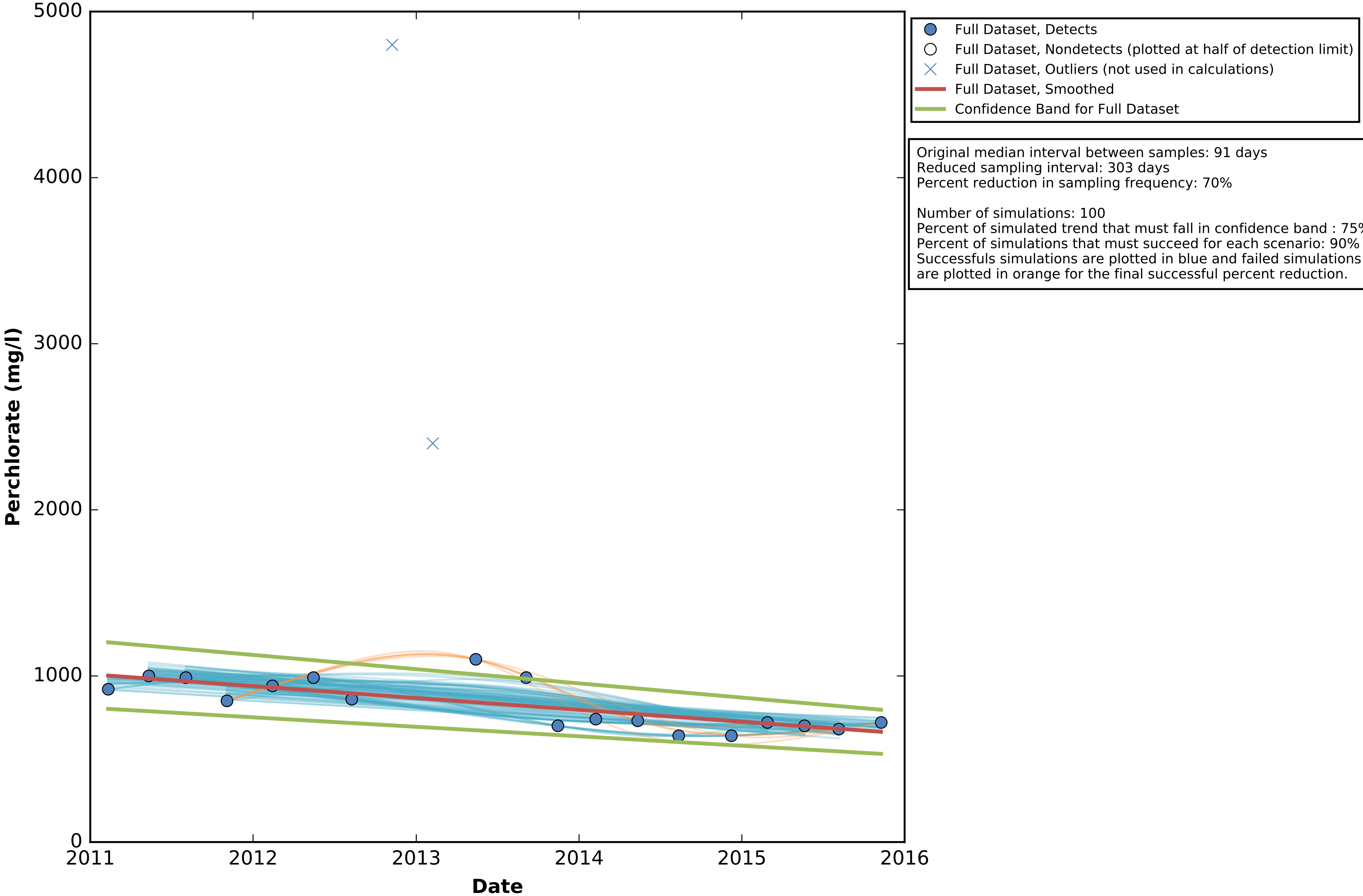
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-119

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

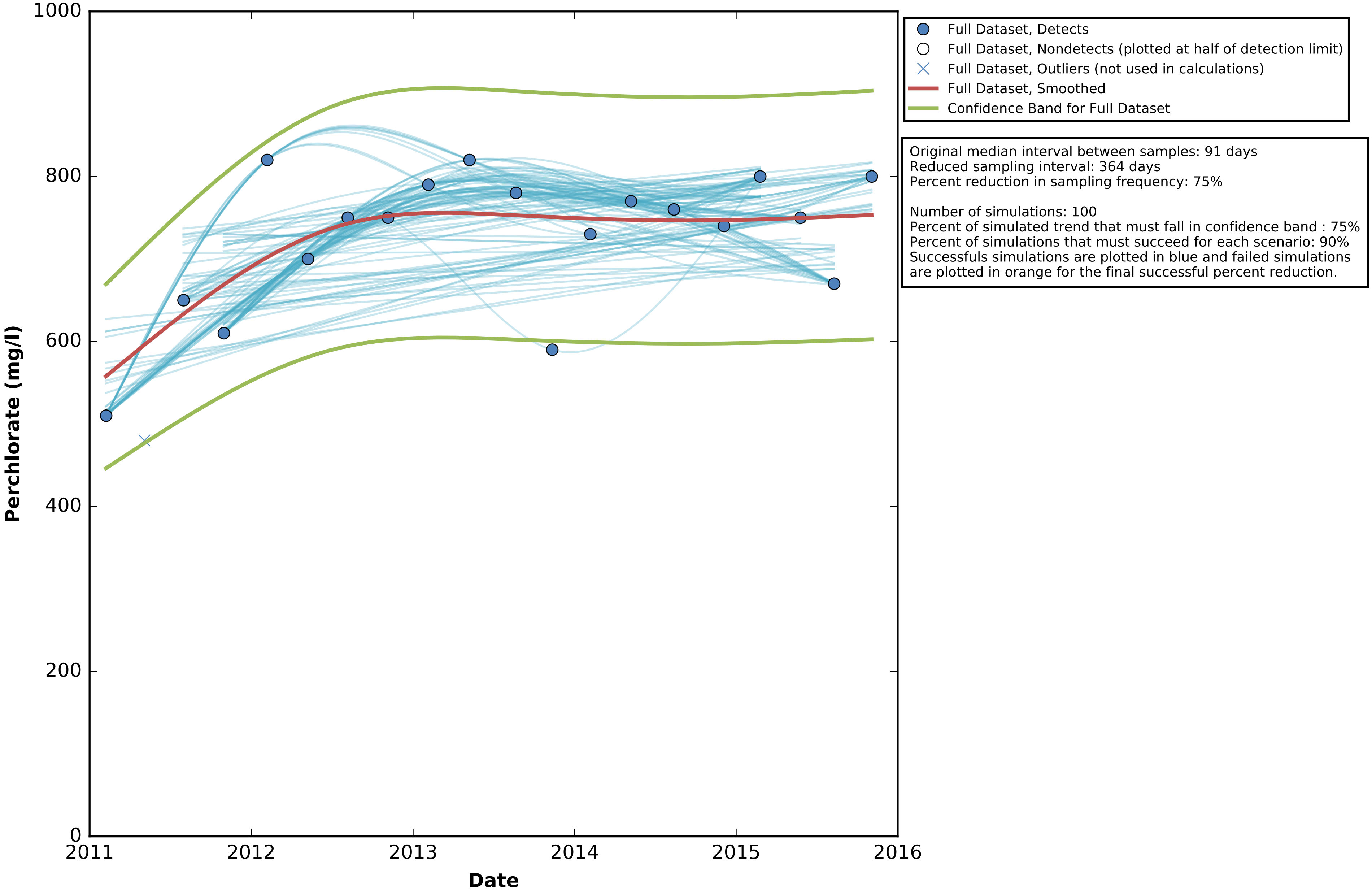
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-38
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-120

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



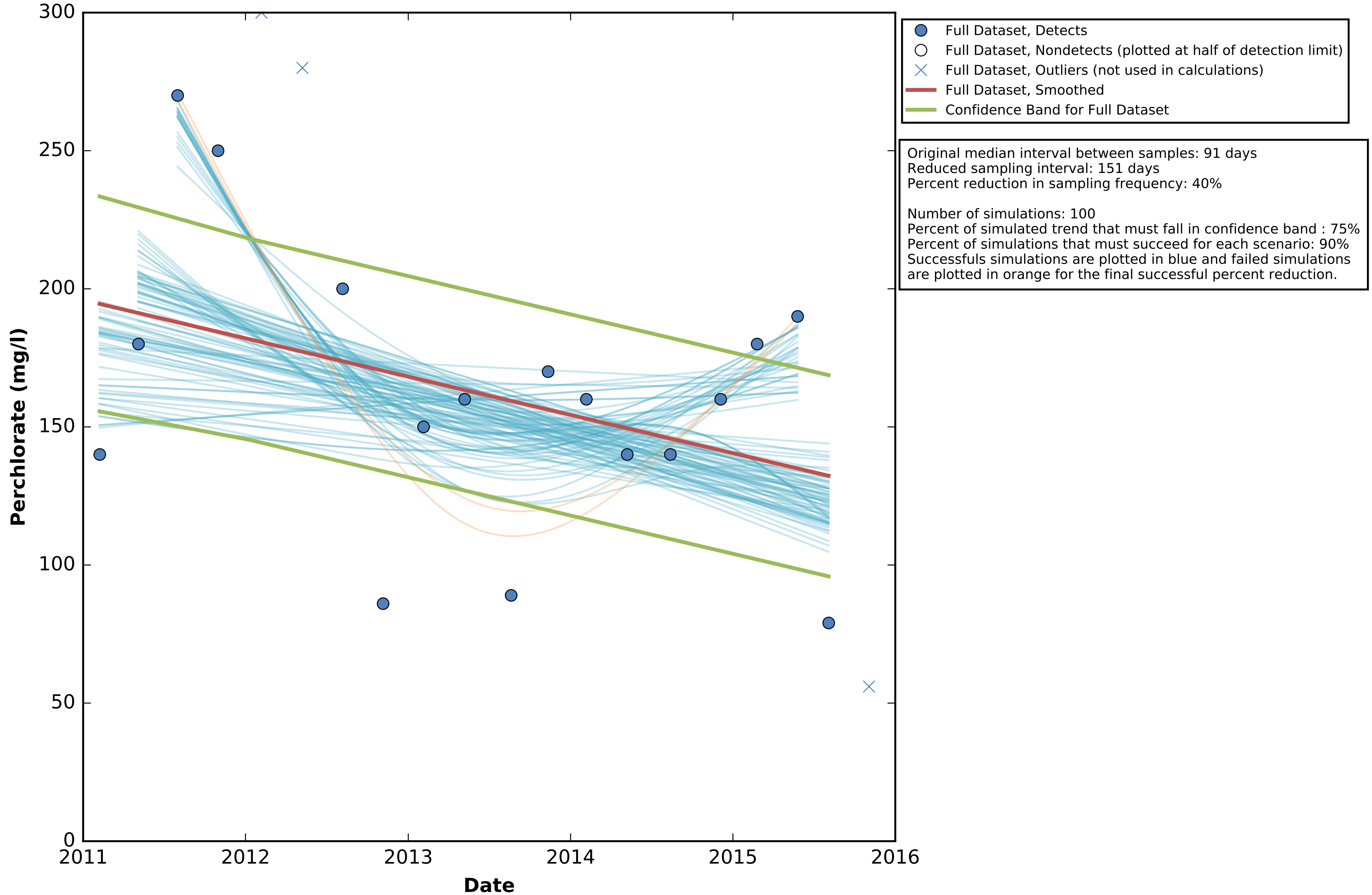
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-44
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-121

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



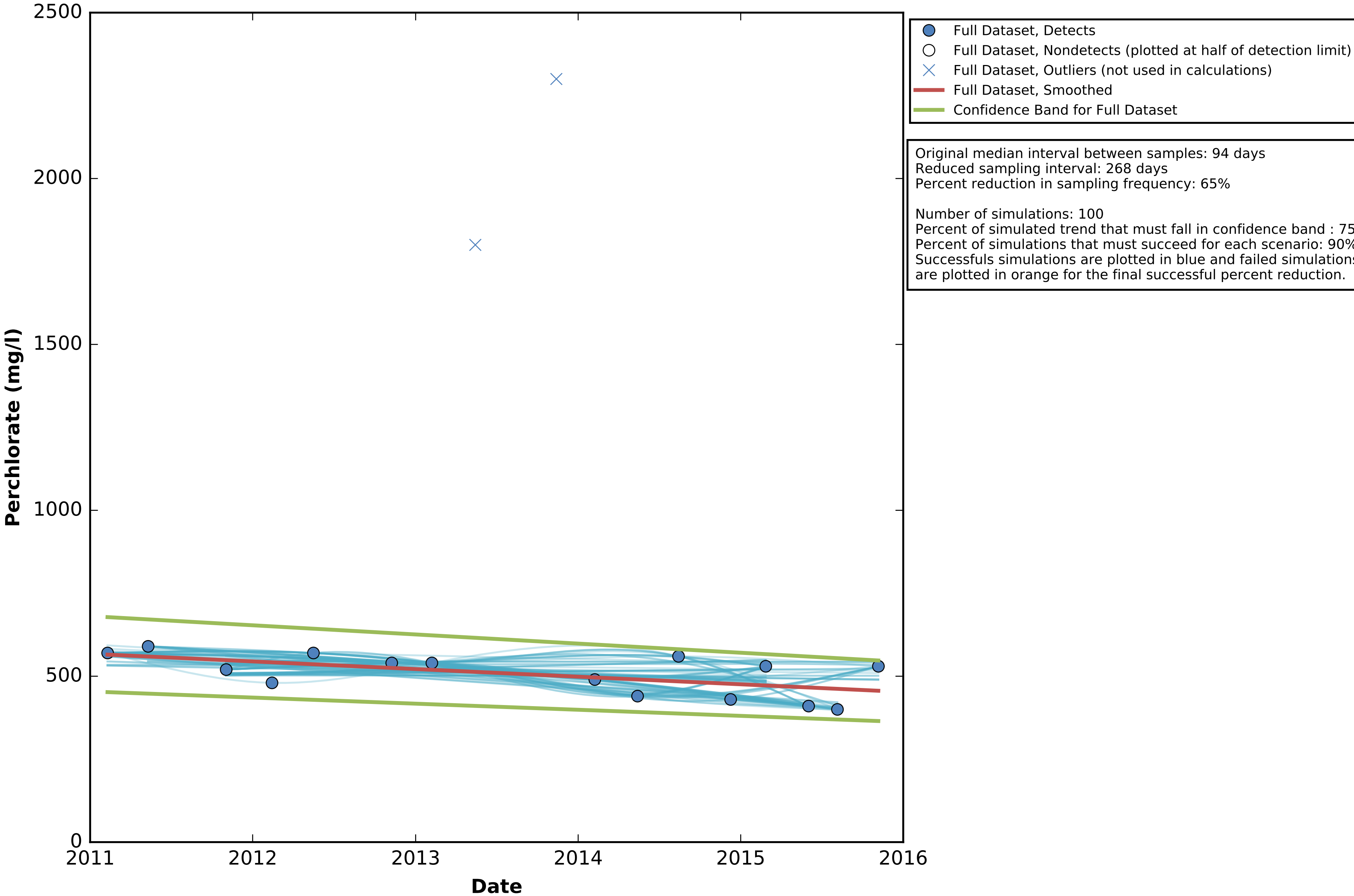
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-48A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-122

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 94 days
Reduced sampling interval: 268 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

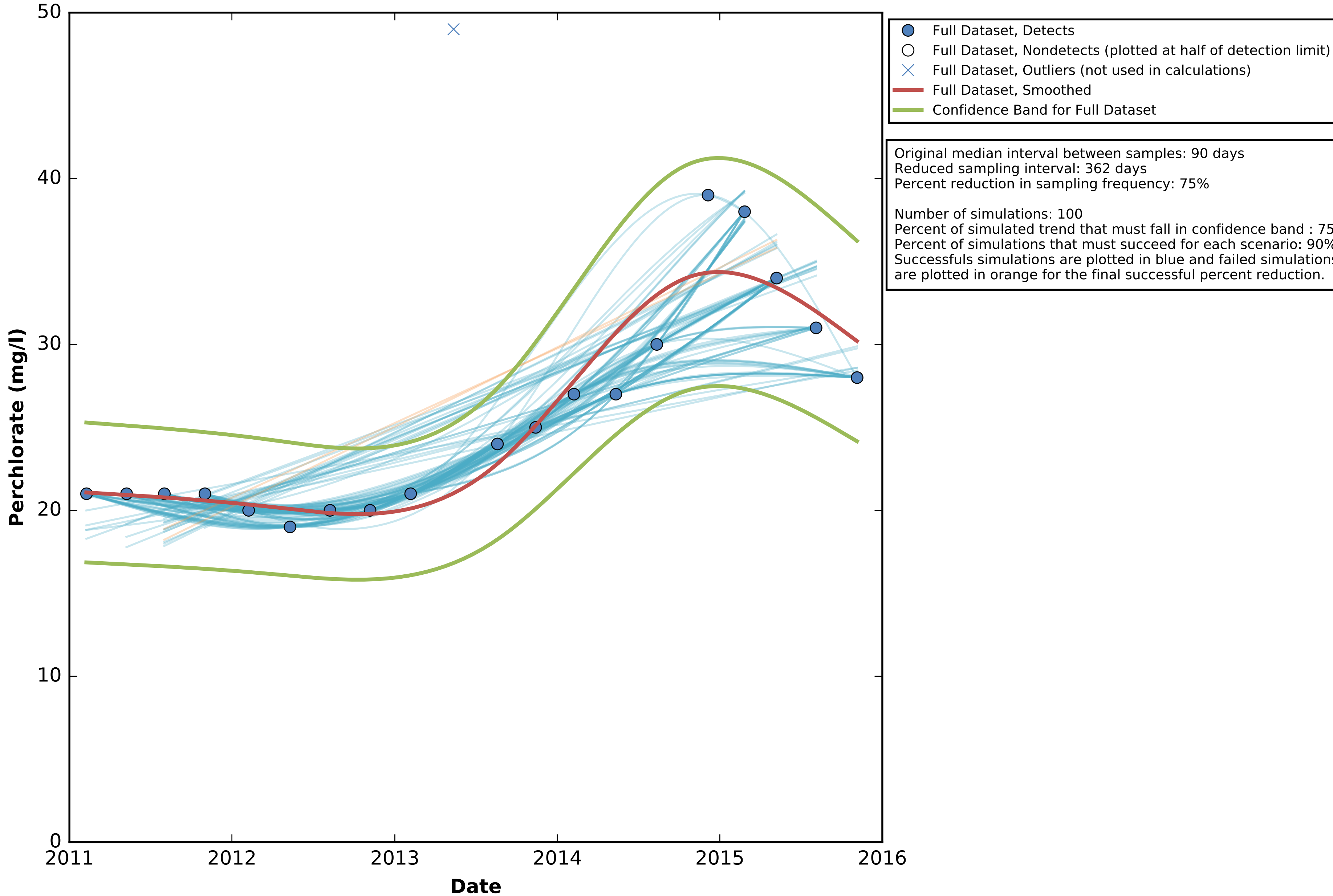
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-52
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-123

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 362 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

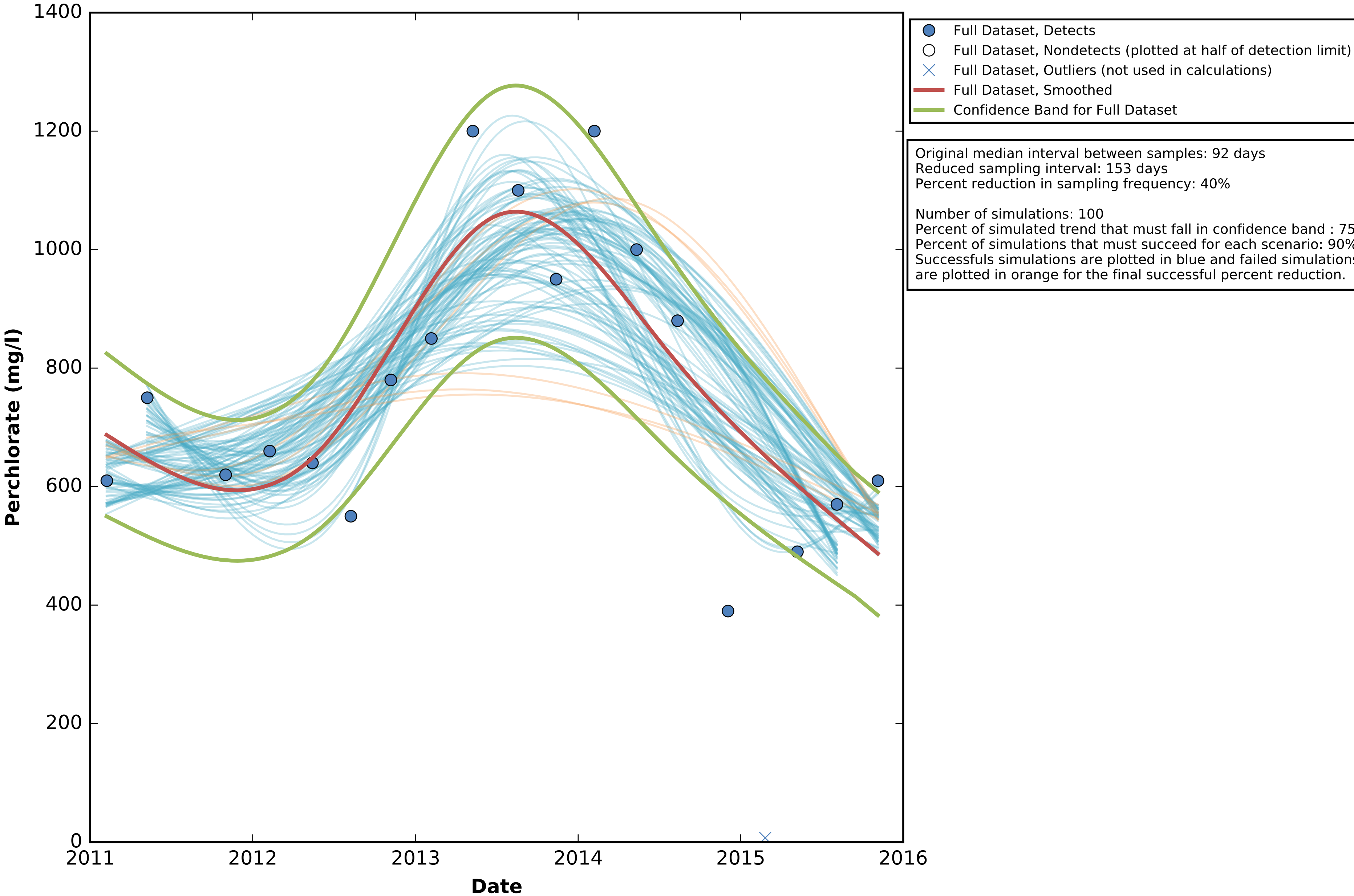
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-57A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-124

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 153 days
Percent reduction in sampling frequency: 40%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

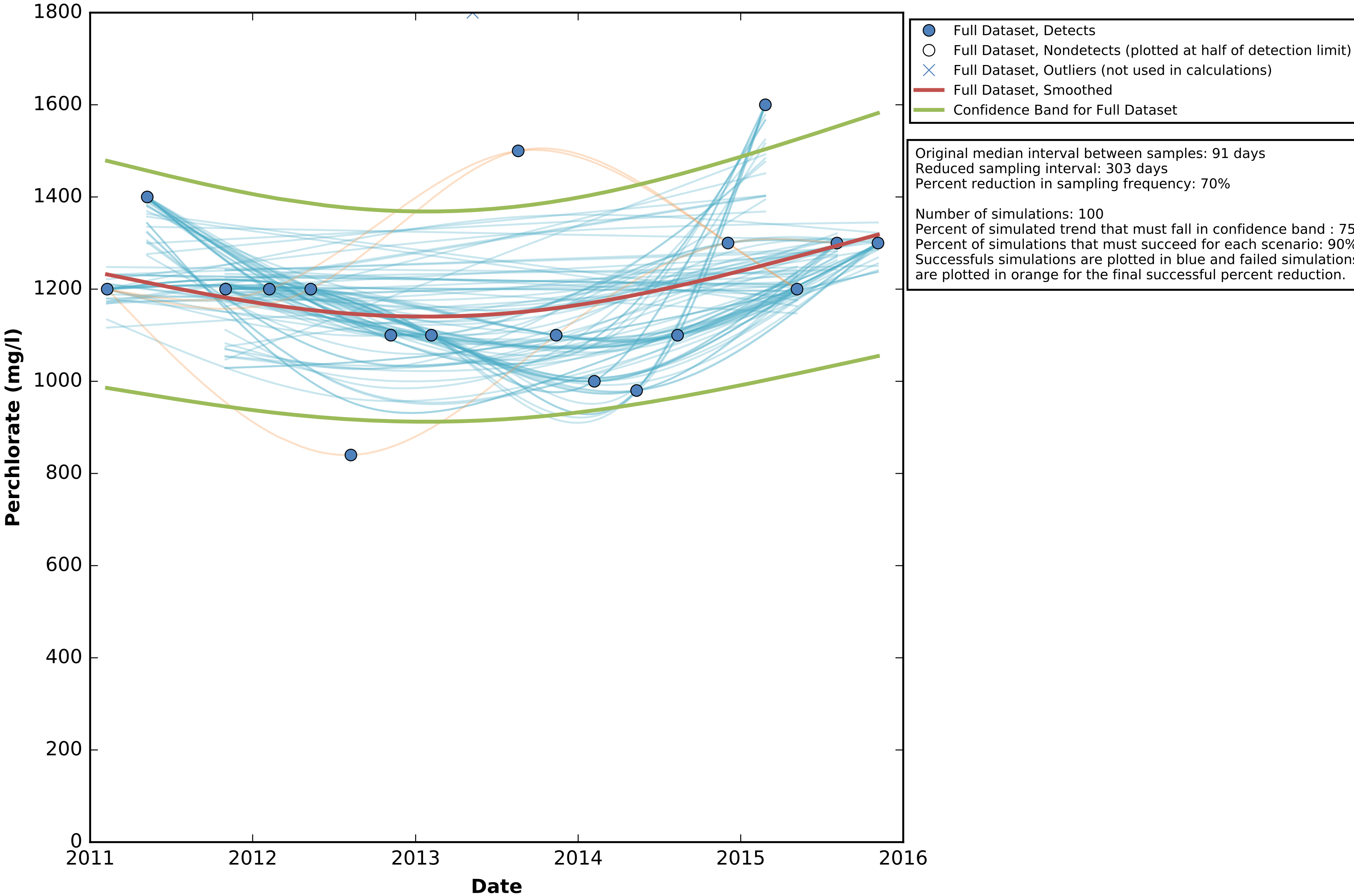
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-64
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-125**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

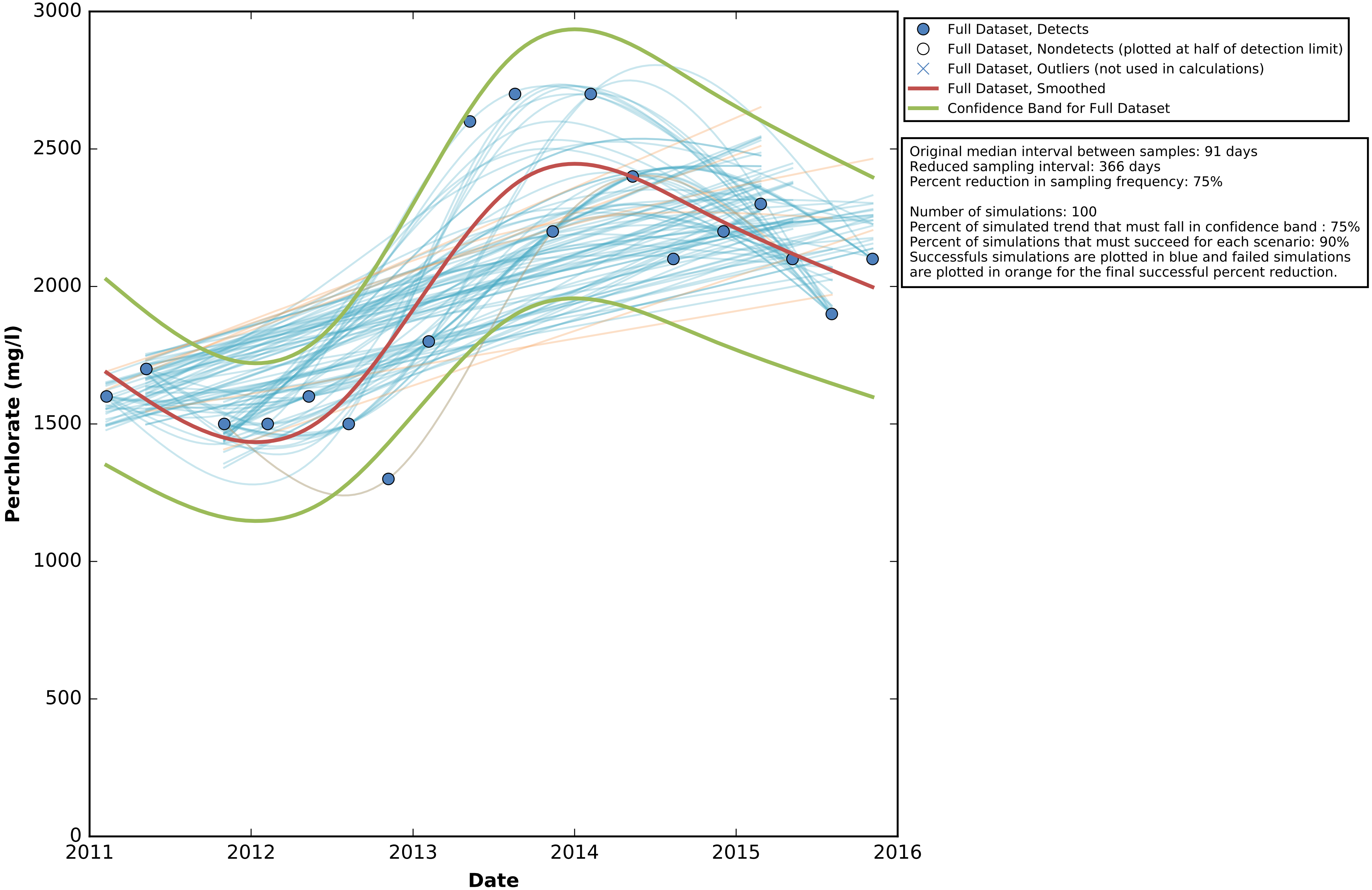
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-65
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-126

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



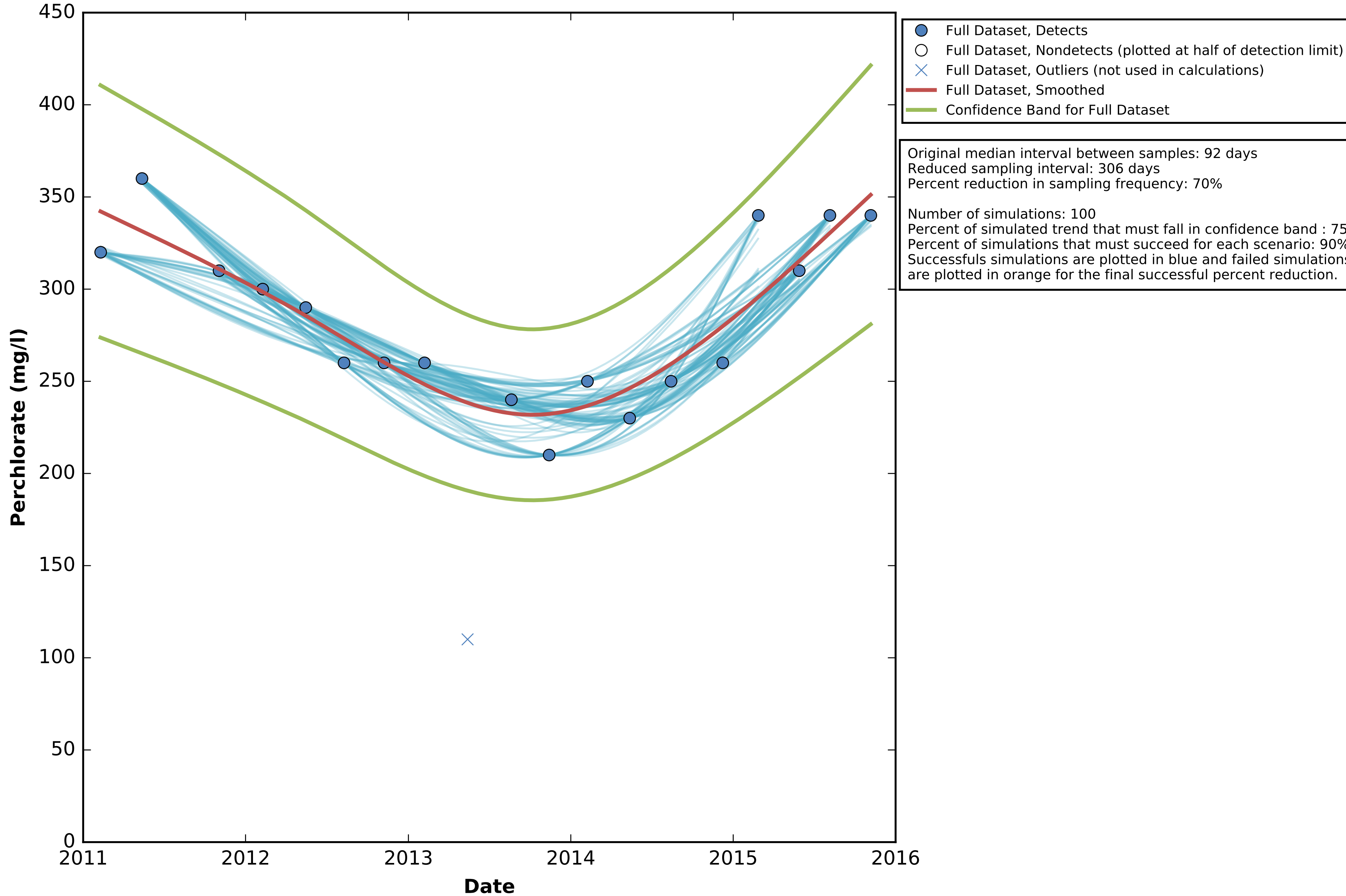
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-66
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-127

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

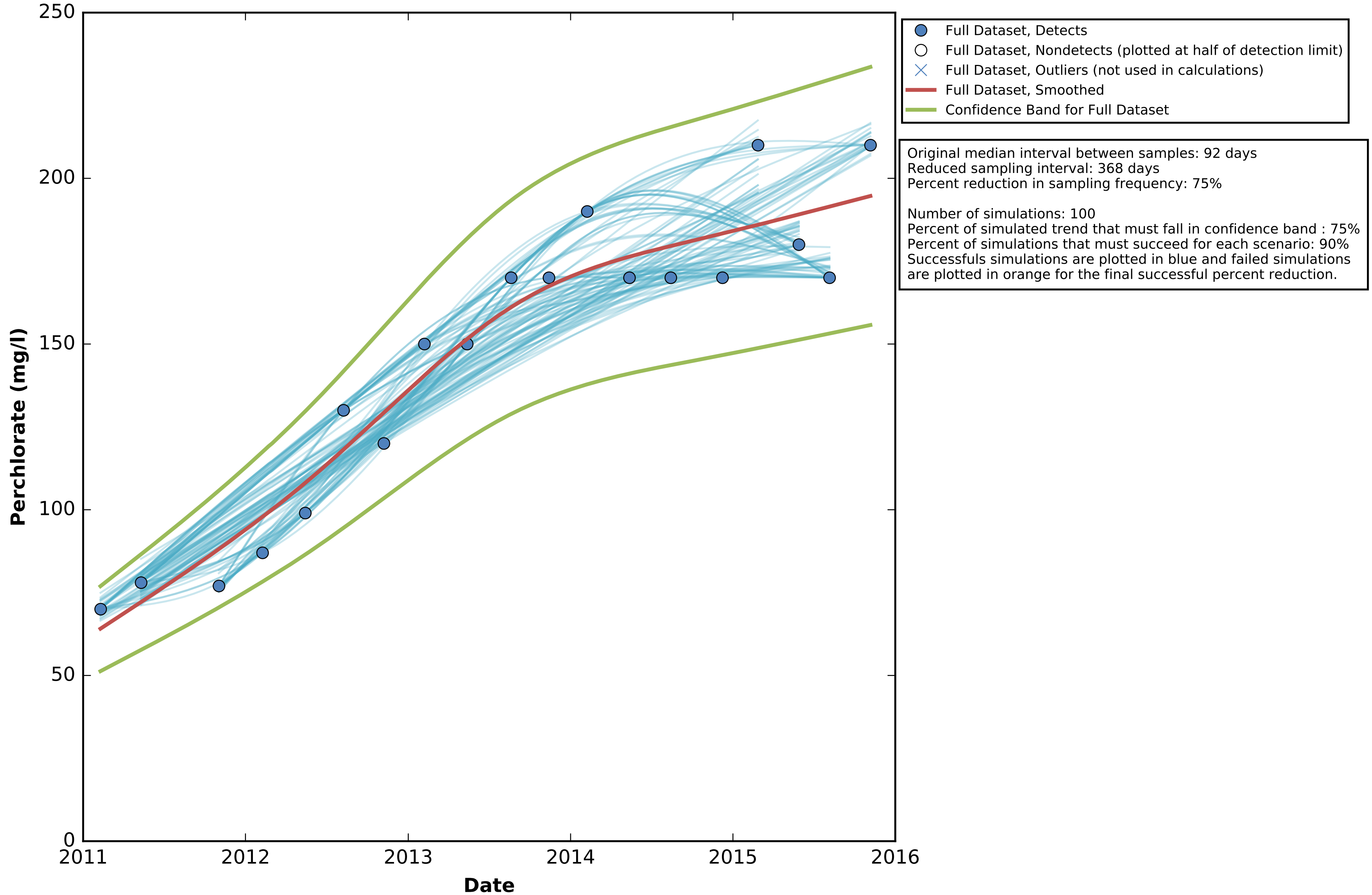
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-67
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-128

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



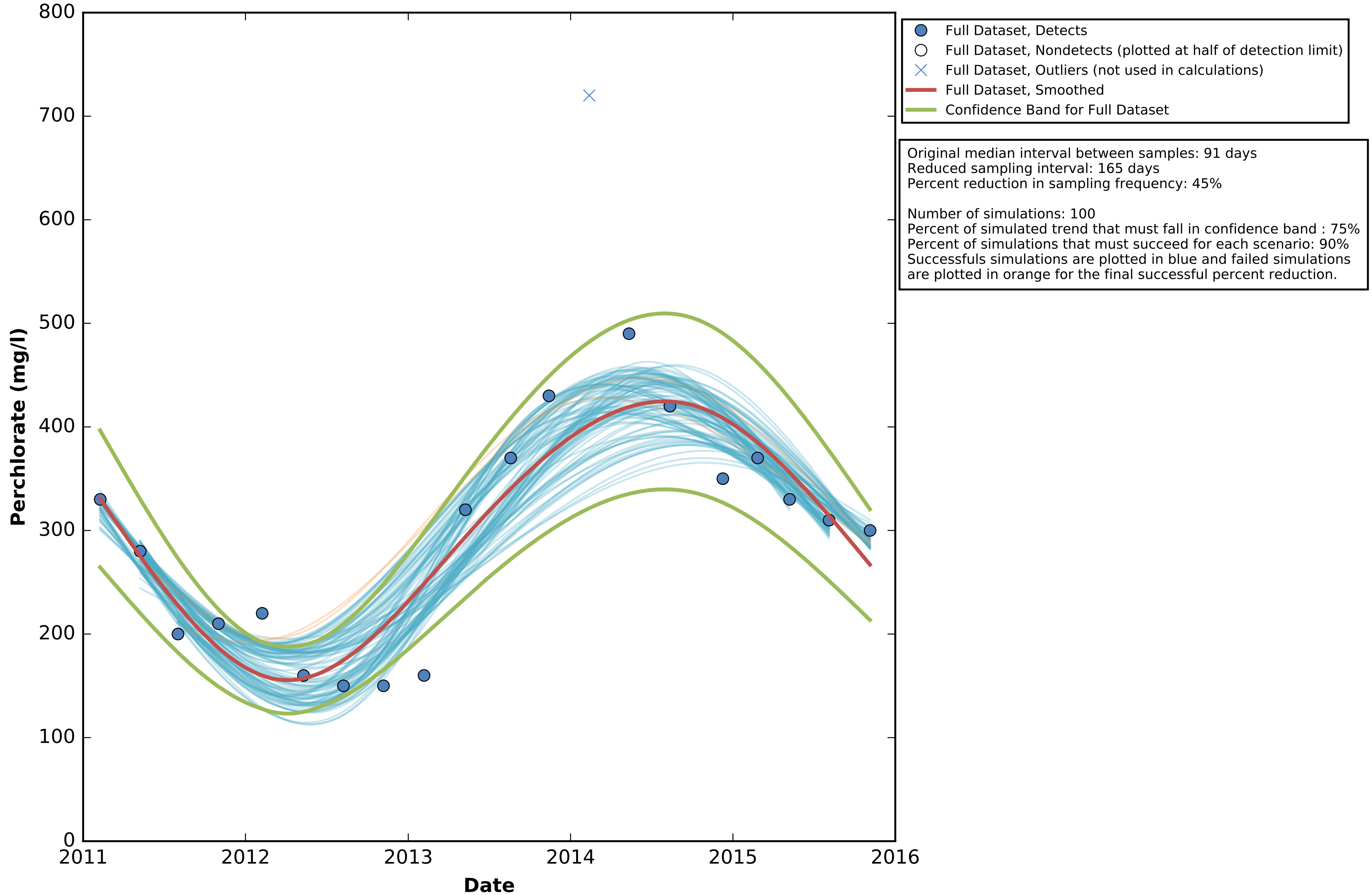
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-129

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py

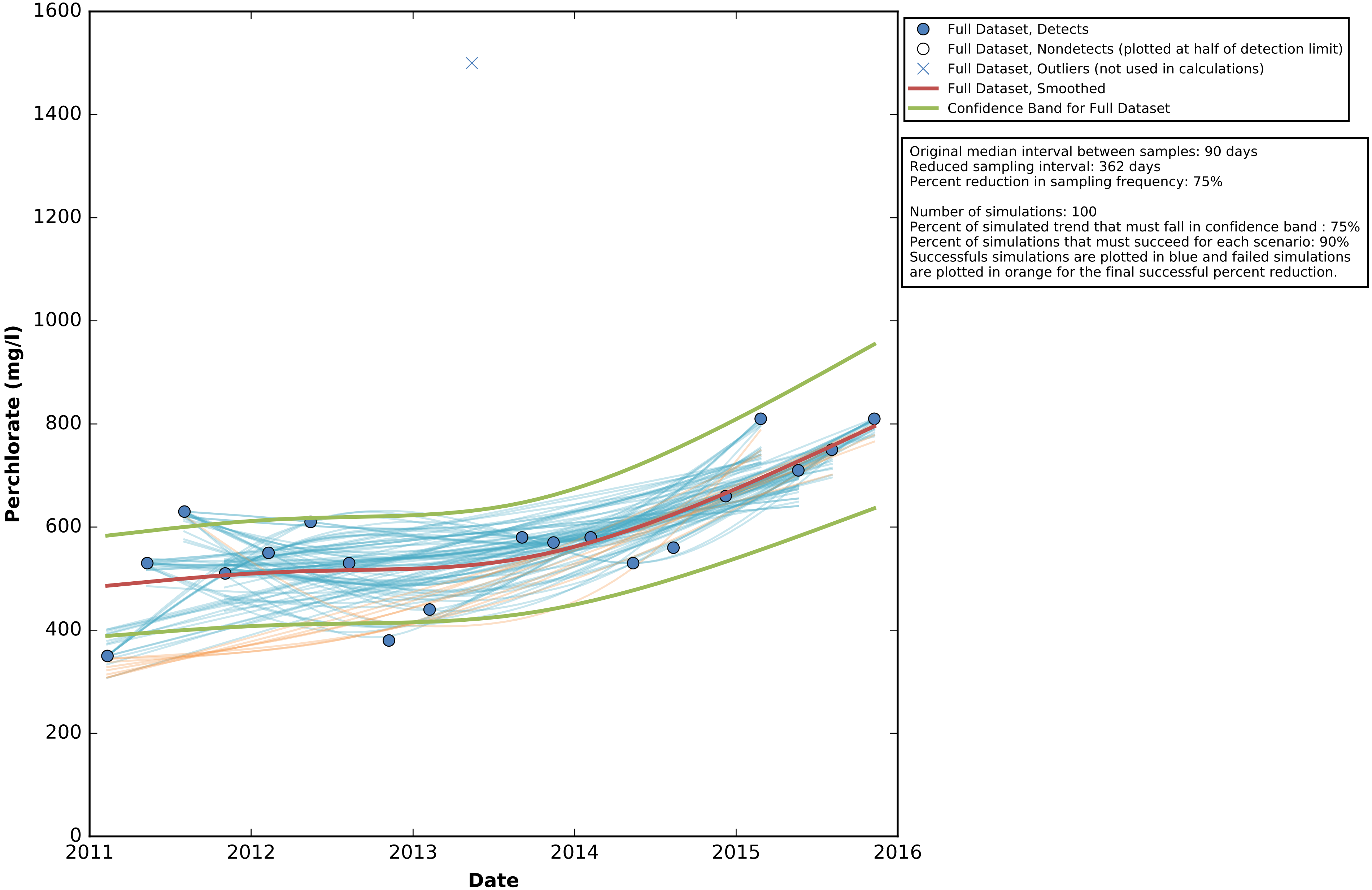


RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-69
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-130

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:



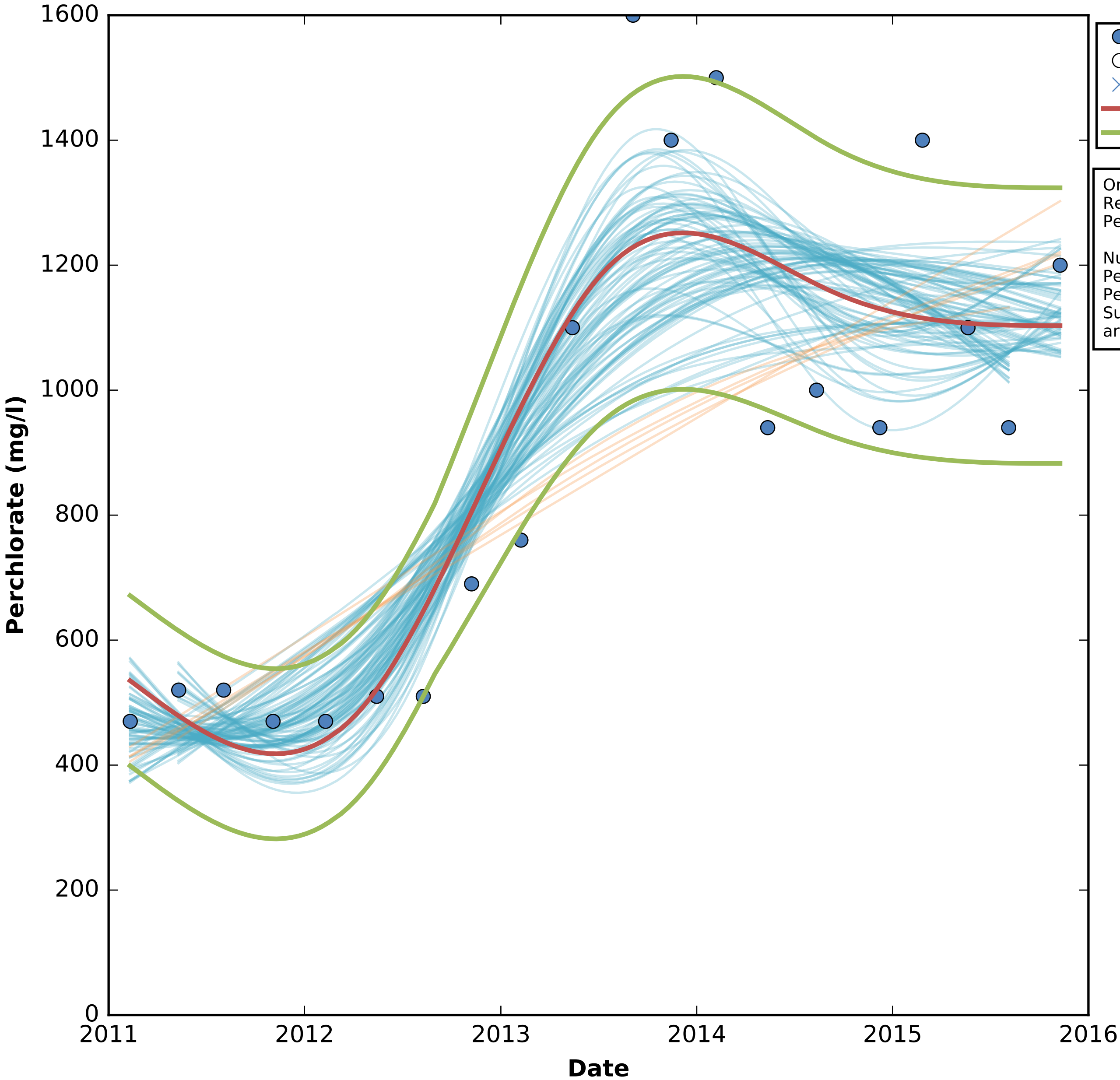
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-70
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-131

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 121 days
Percent reduction in sampling frequency: 25%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

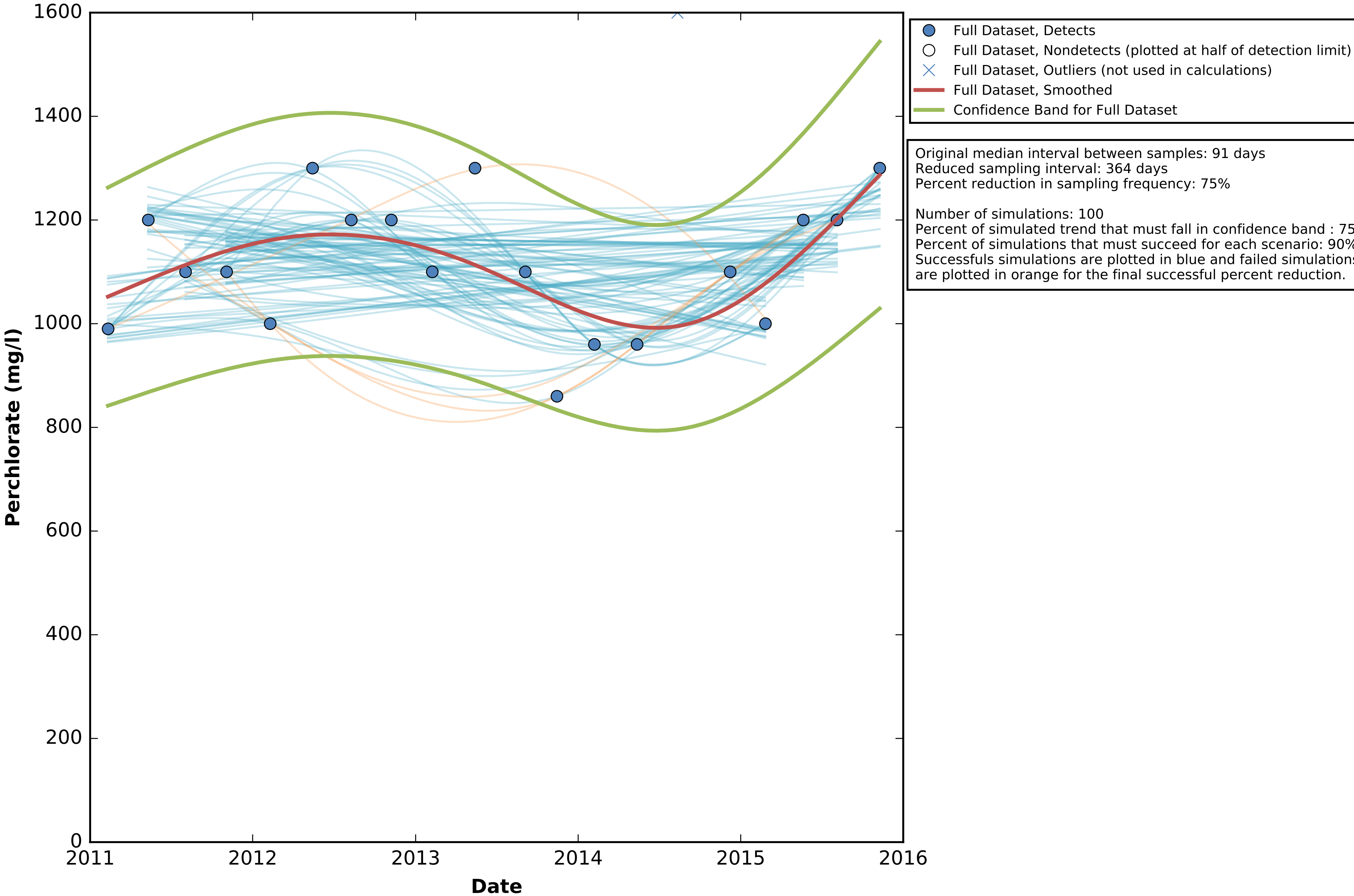
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-132

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

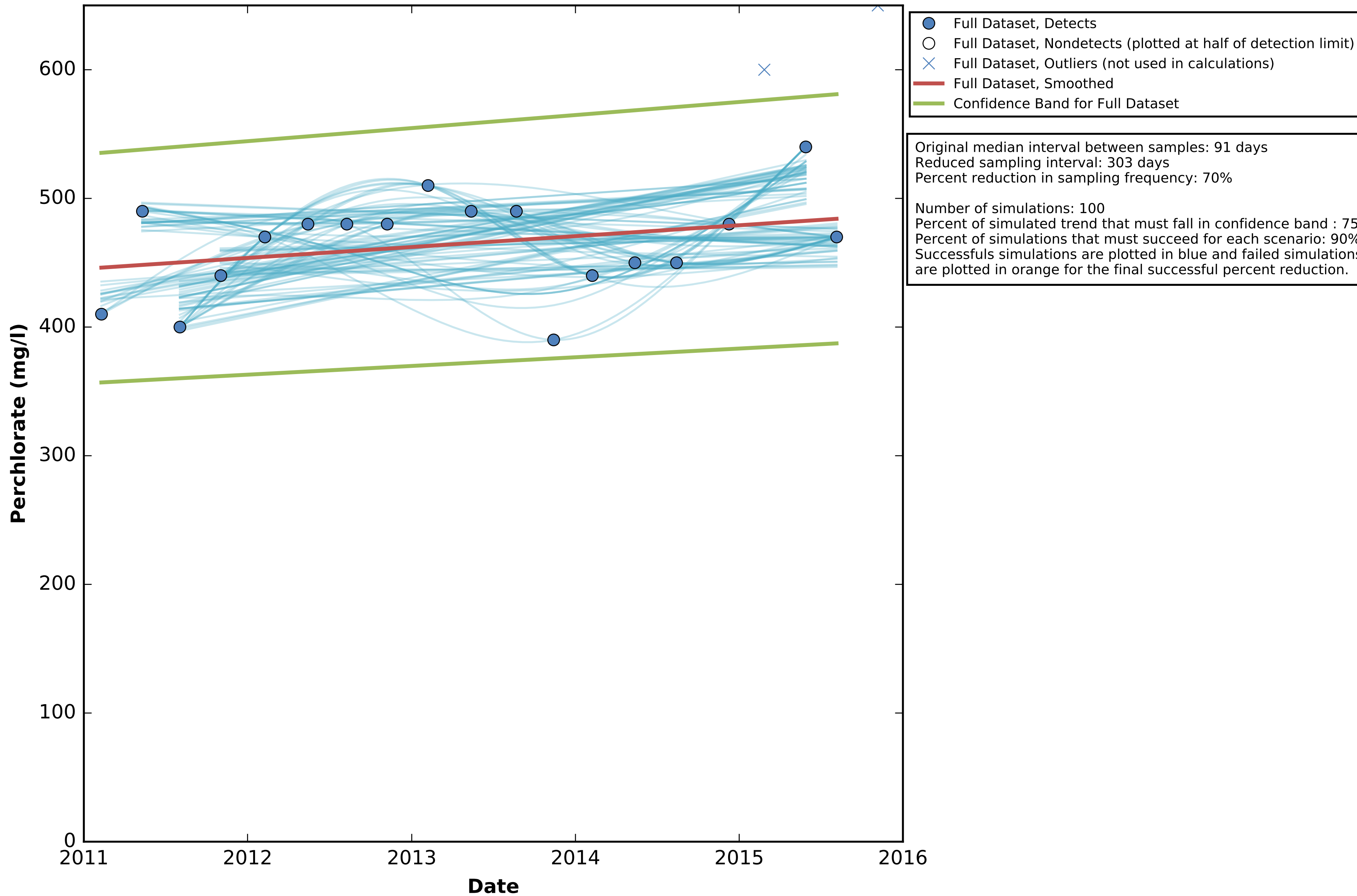
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-133

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

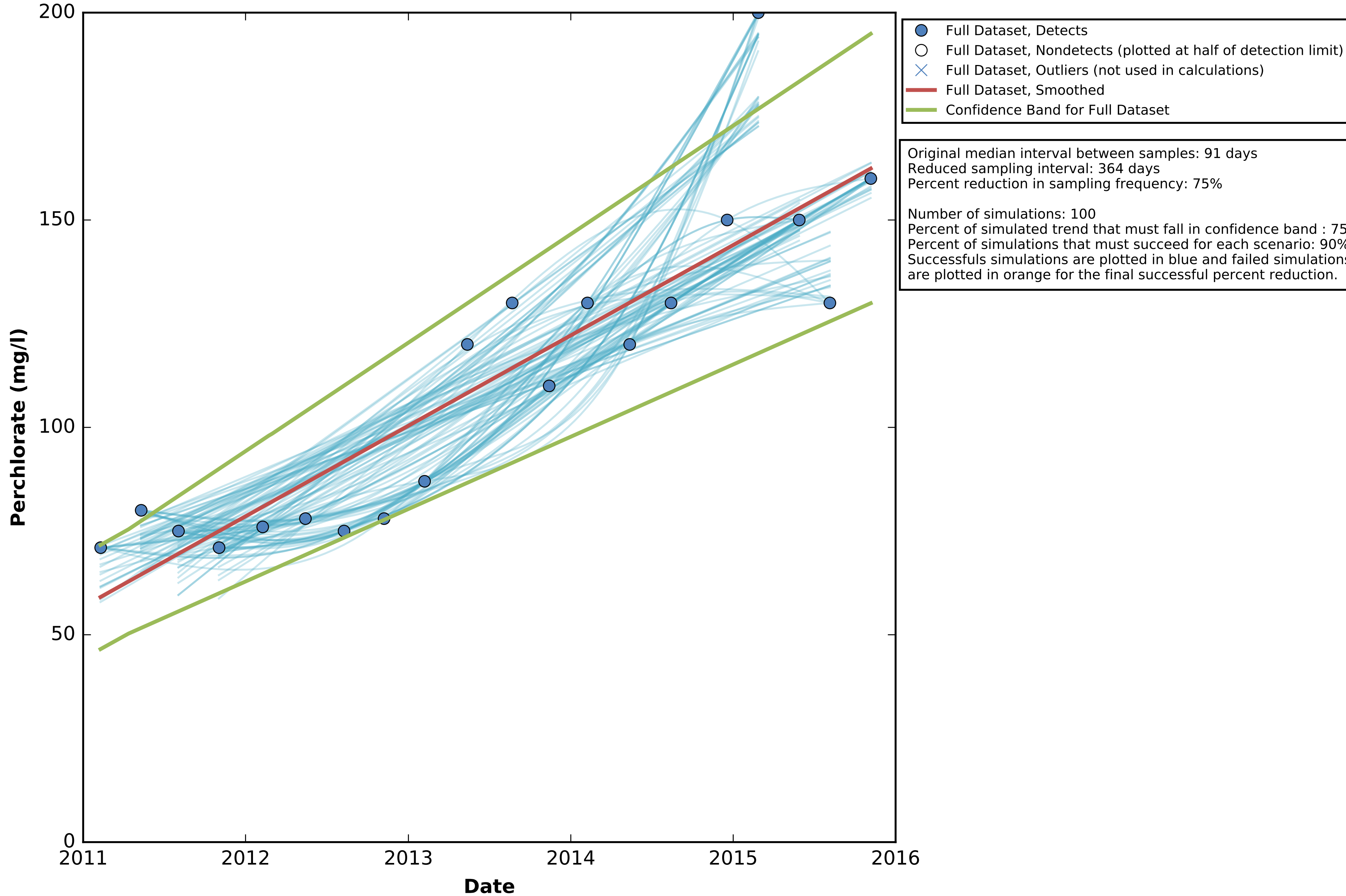
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-134

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

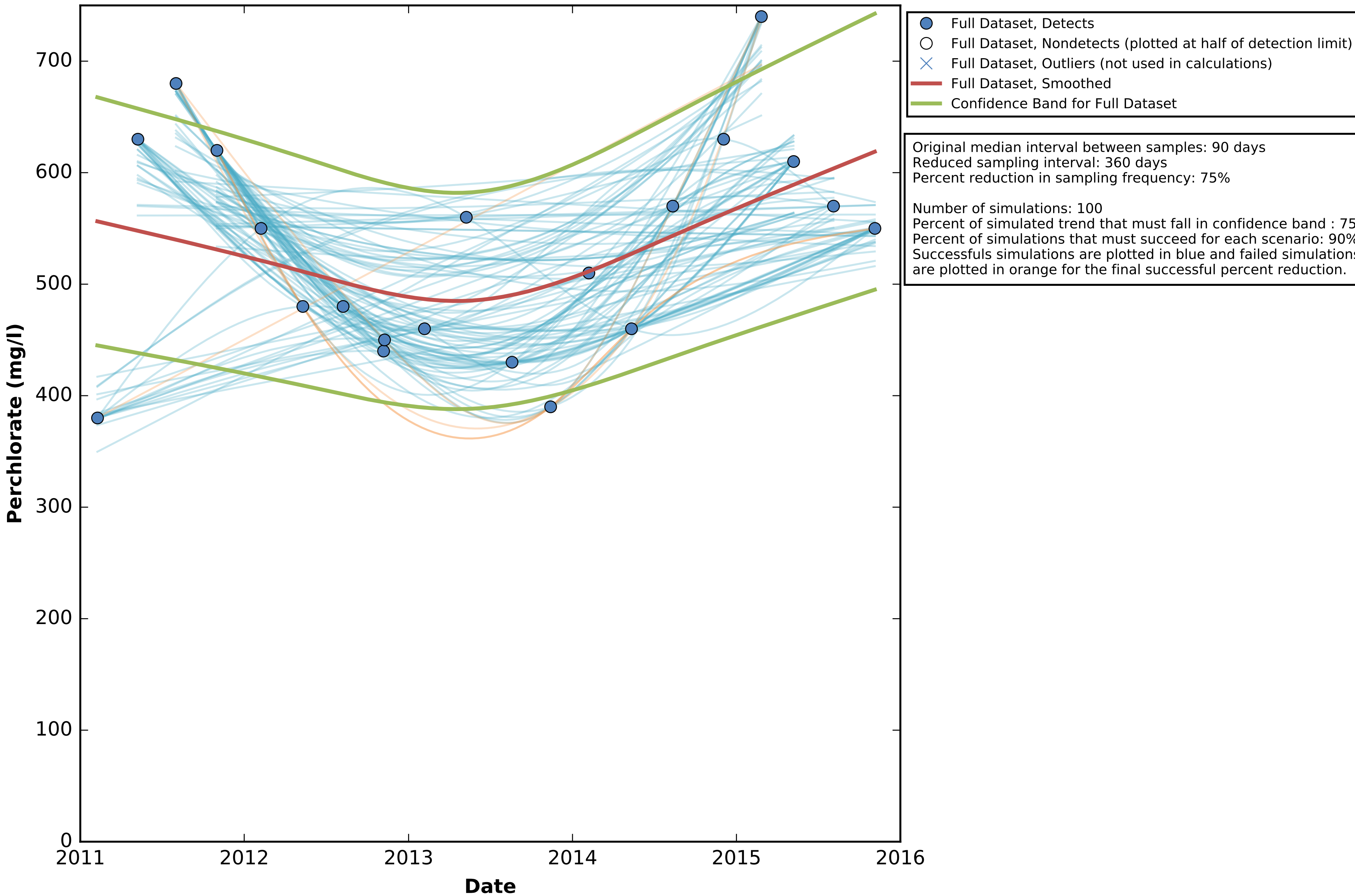
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-74
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-135

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 360 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

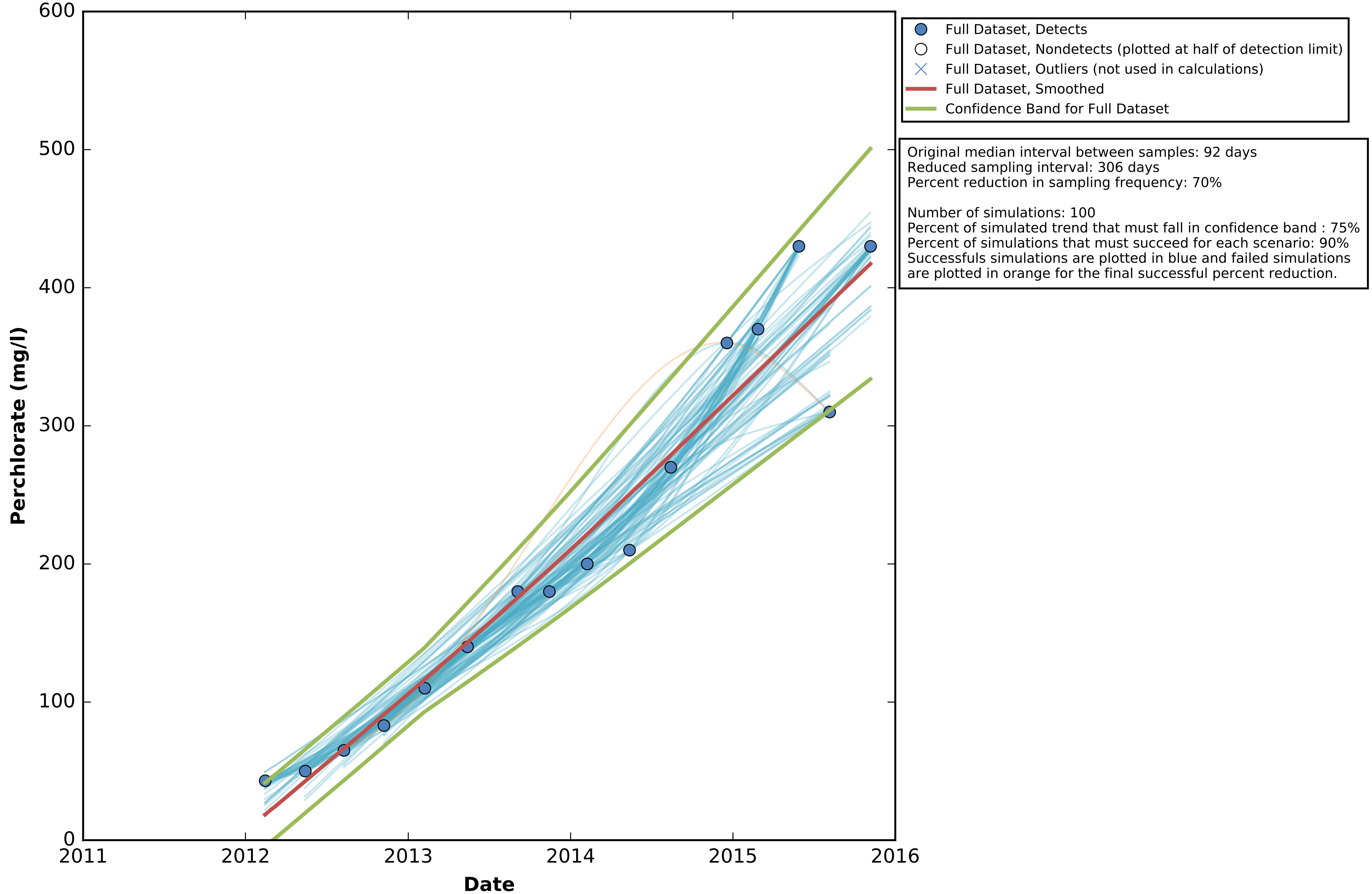
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-79
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-136

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



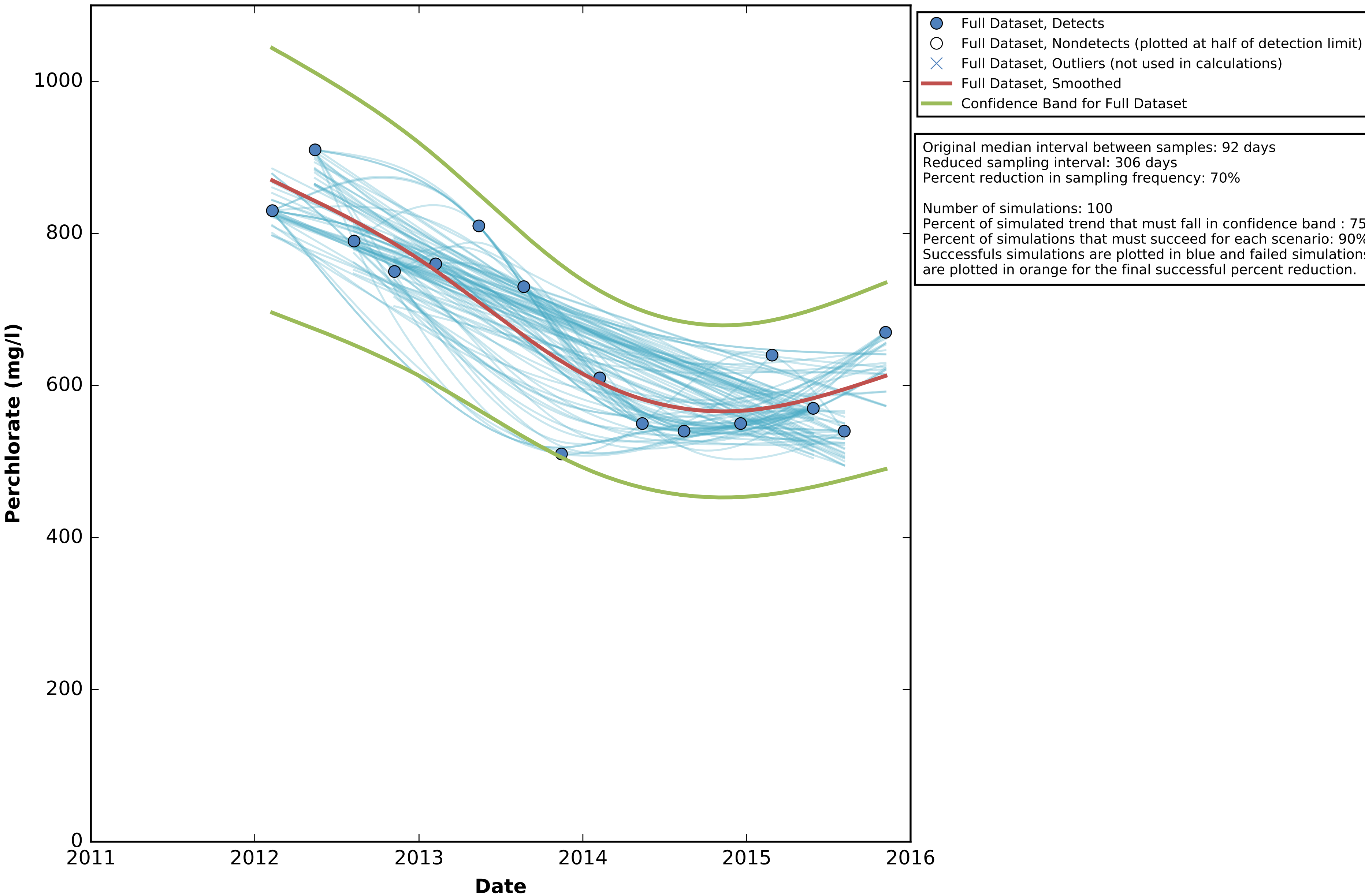
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-80
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-137

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

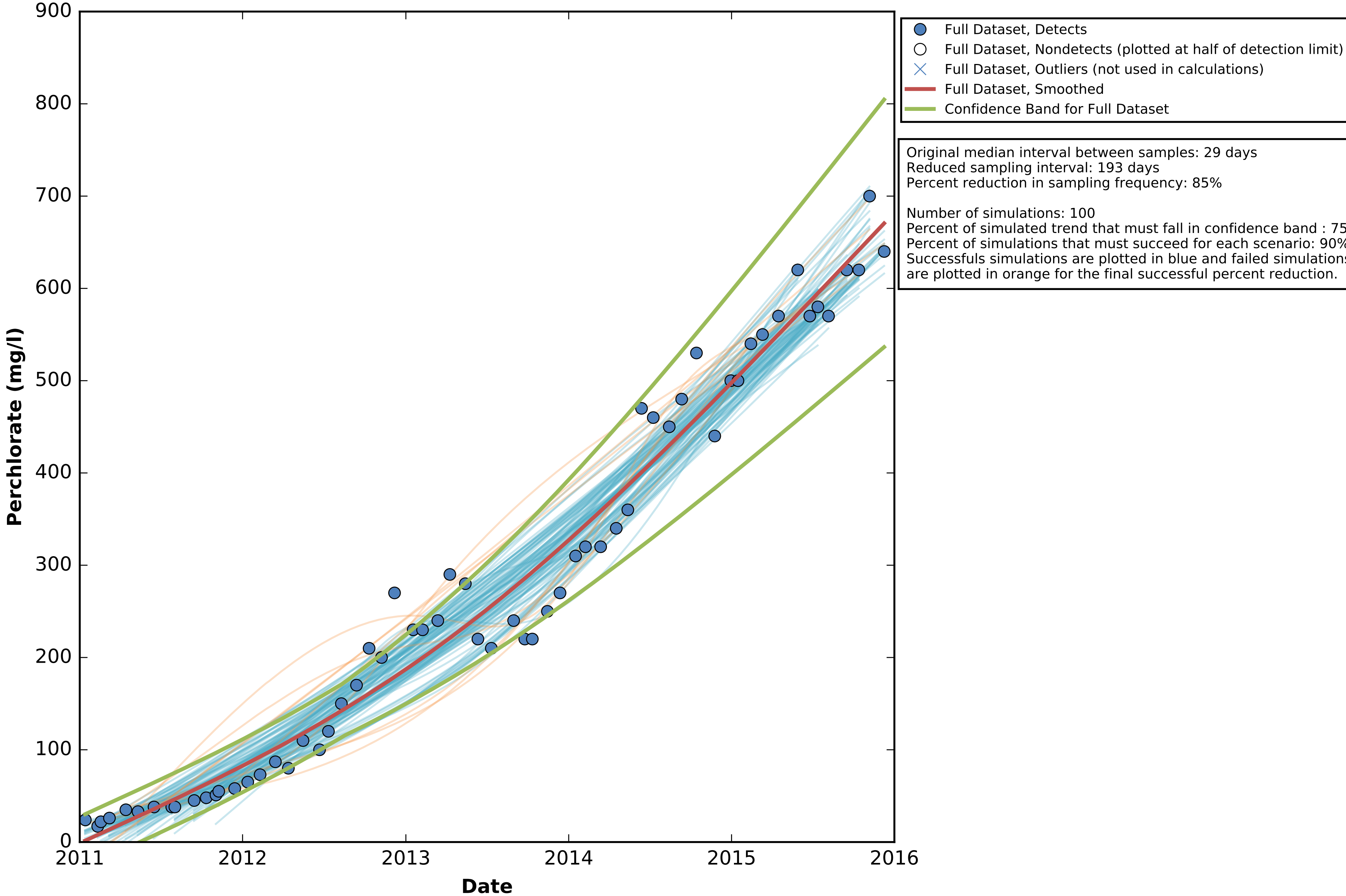
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-81A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-138

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

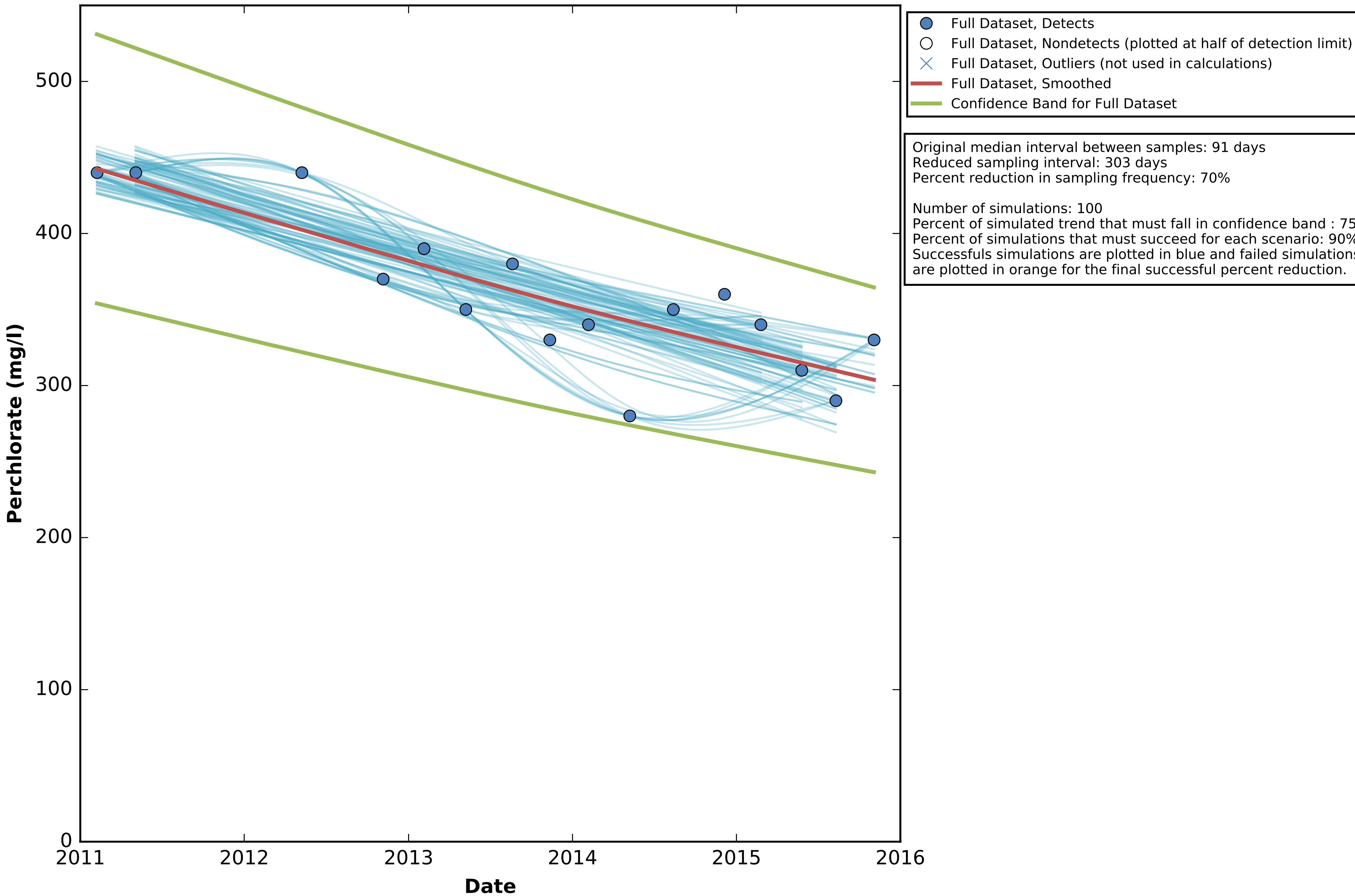
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-83
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-139

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

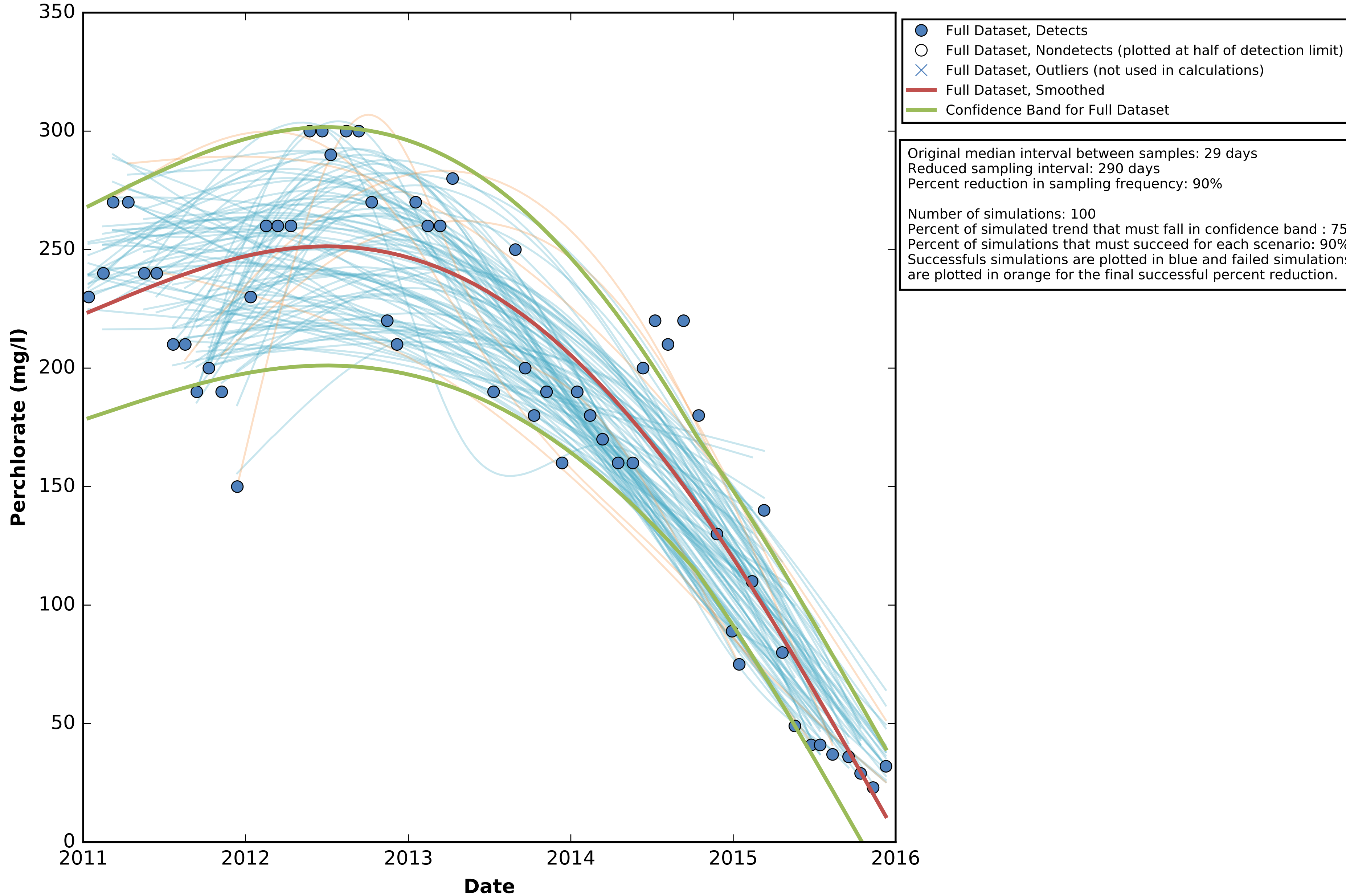
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in M-95
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-140

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

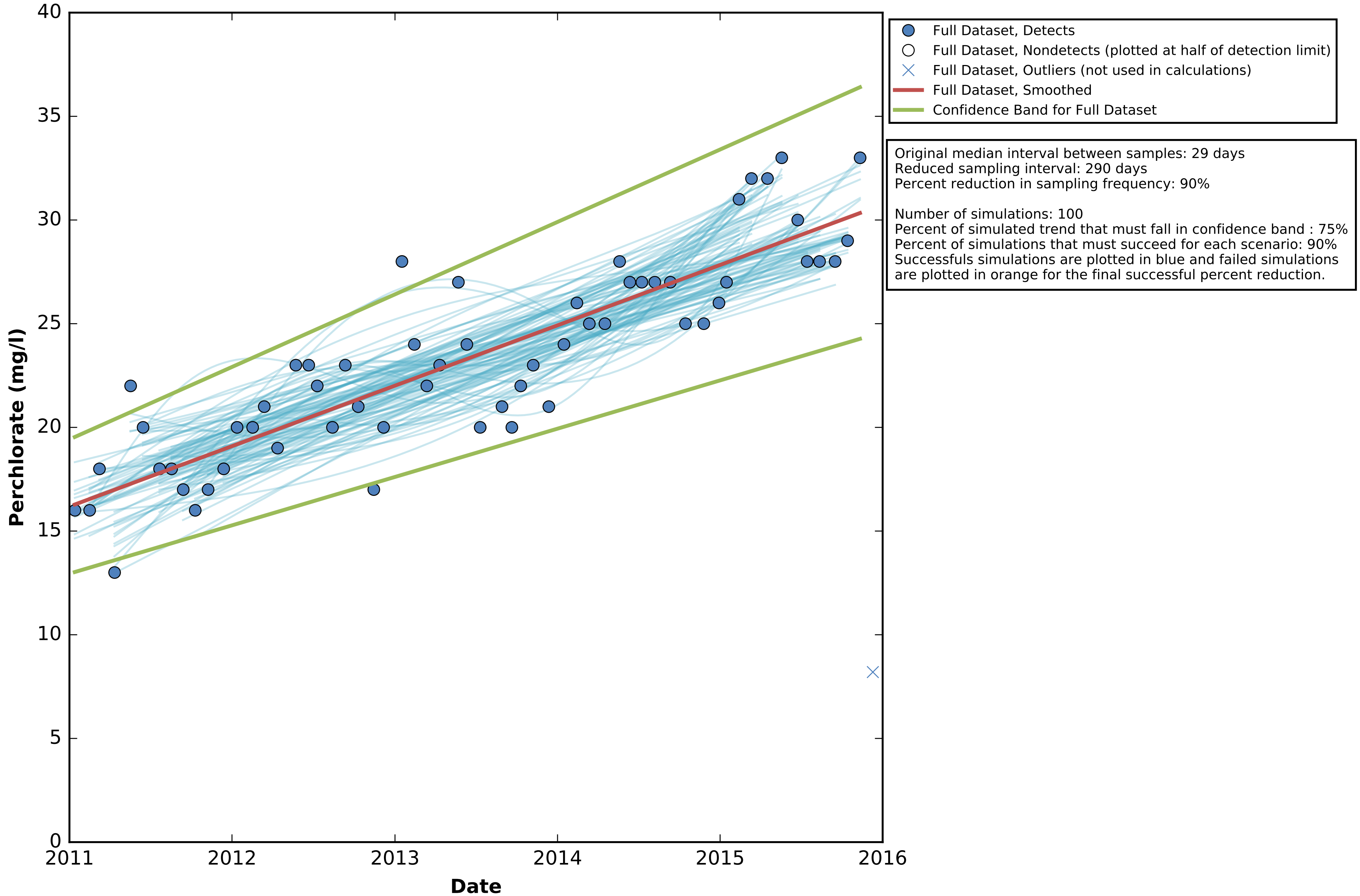
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in MW-K4
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-141

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



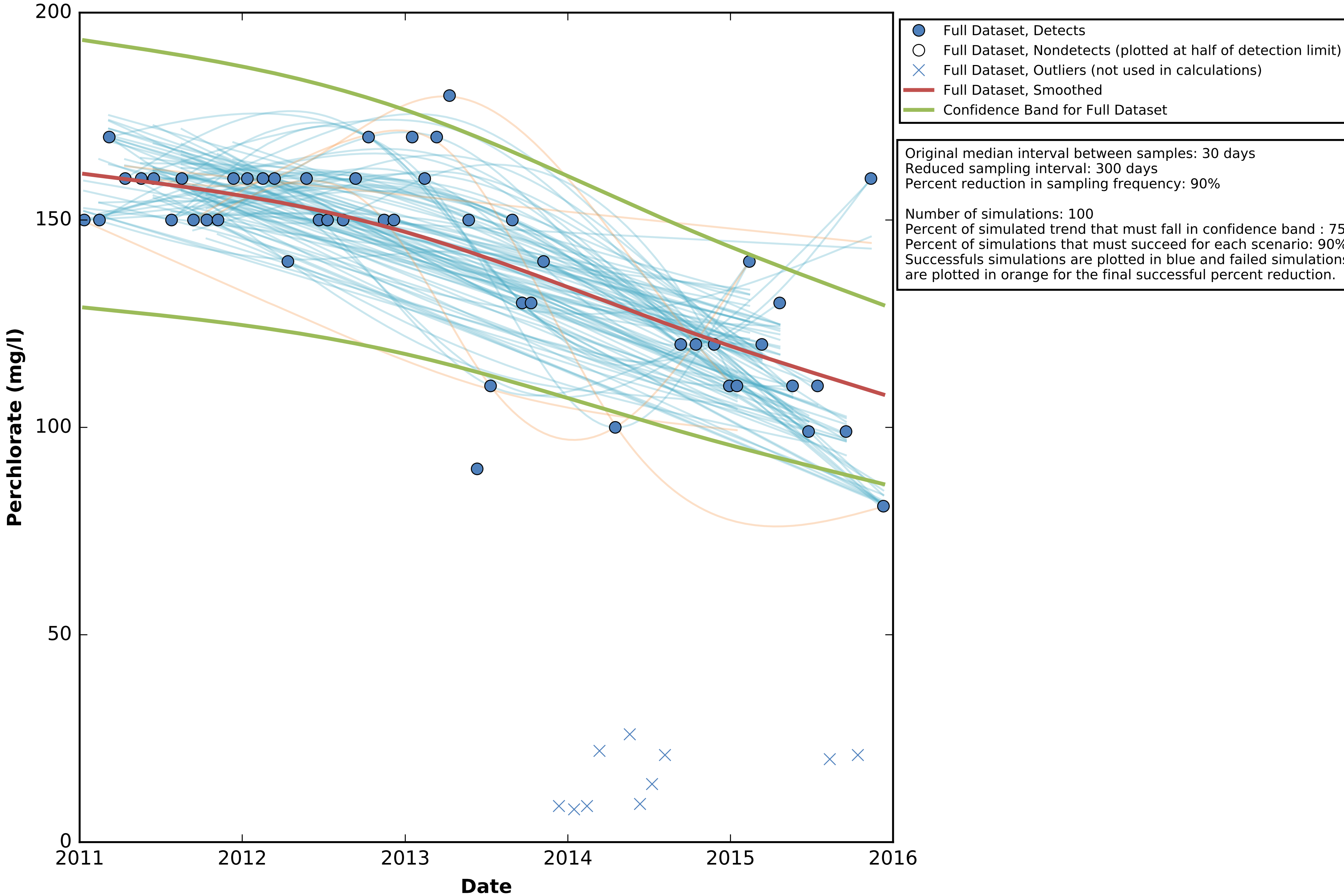
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in MW-K5
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-142

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

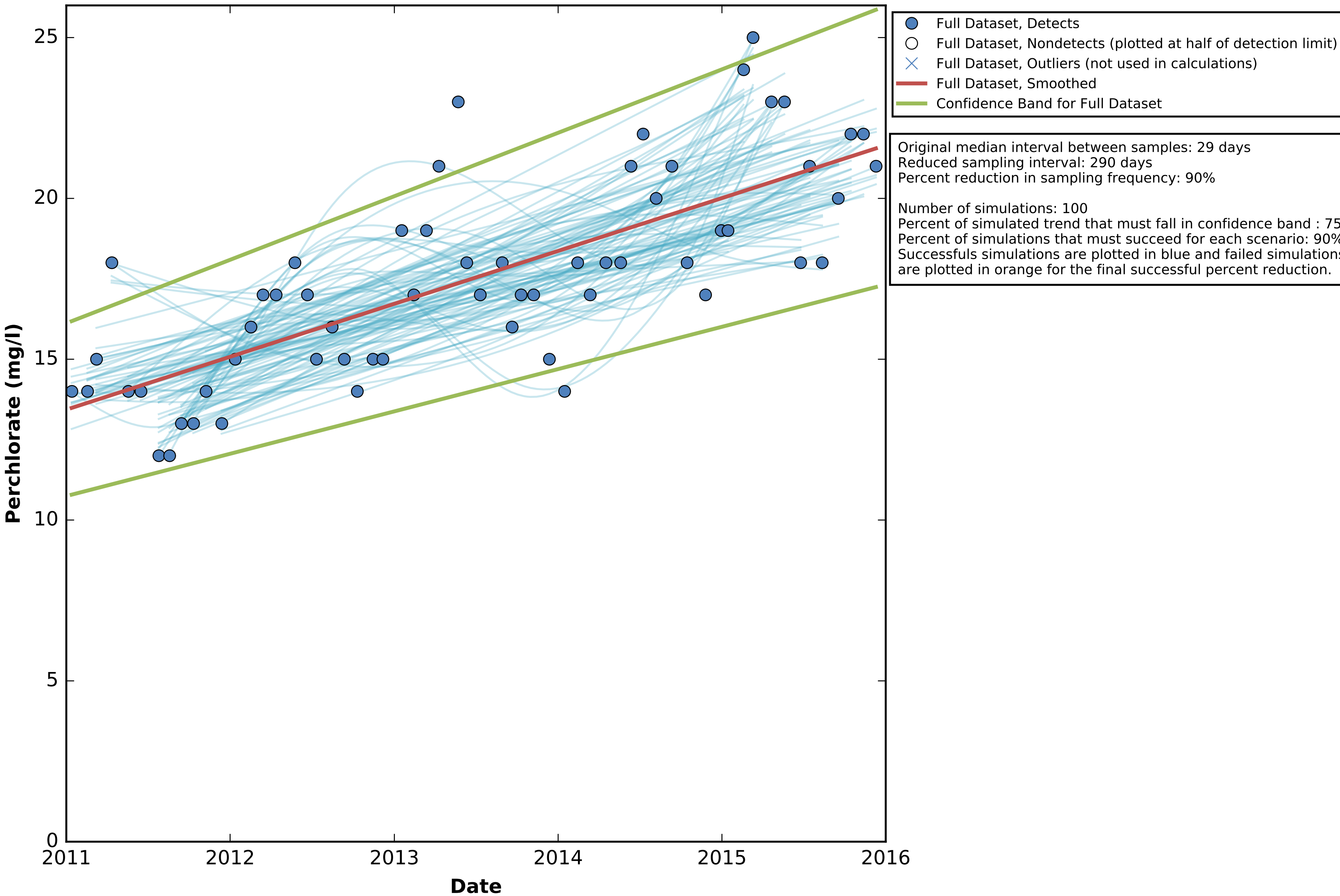
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-101R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-143

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

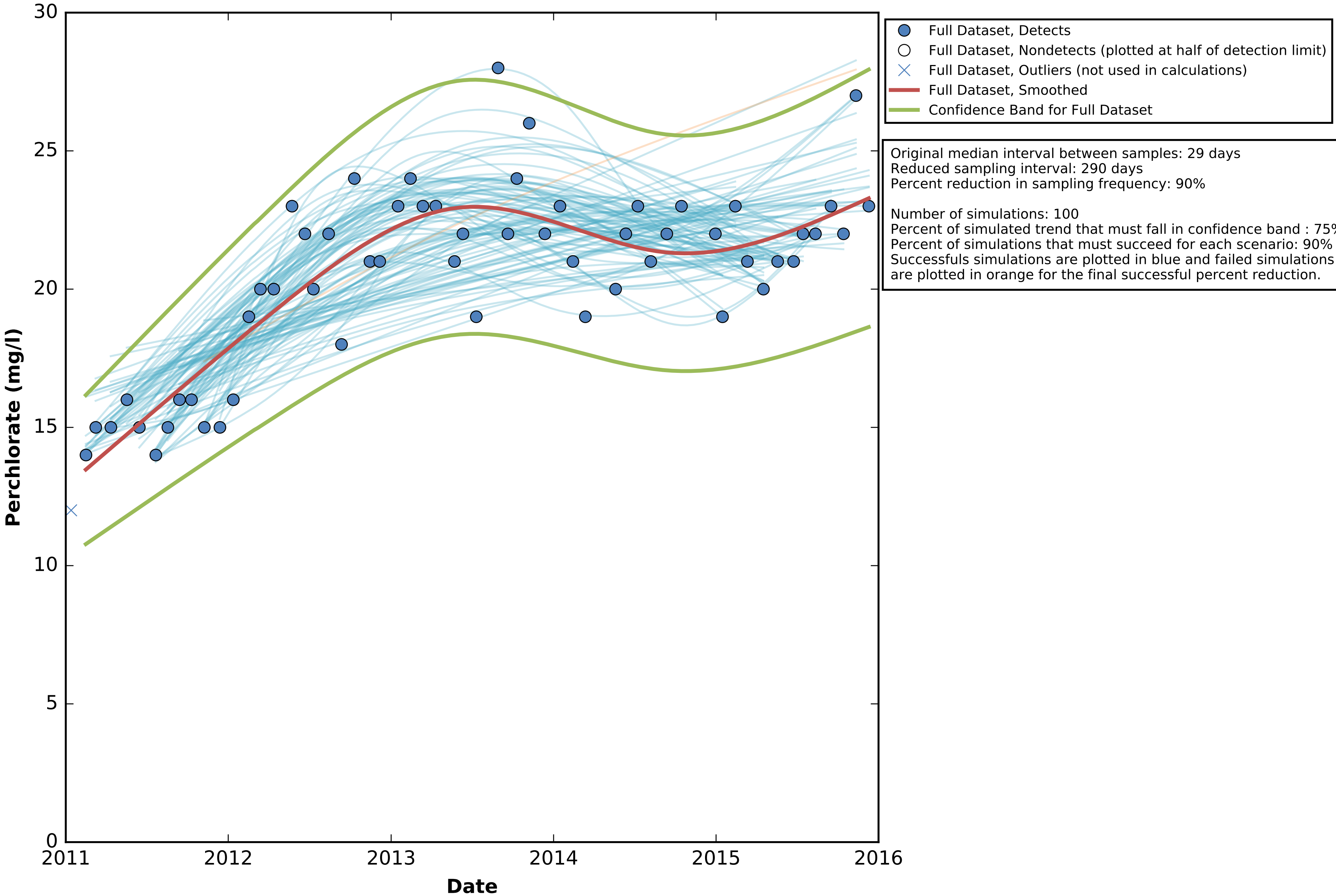
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-103
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-144

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

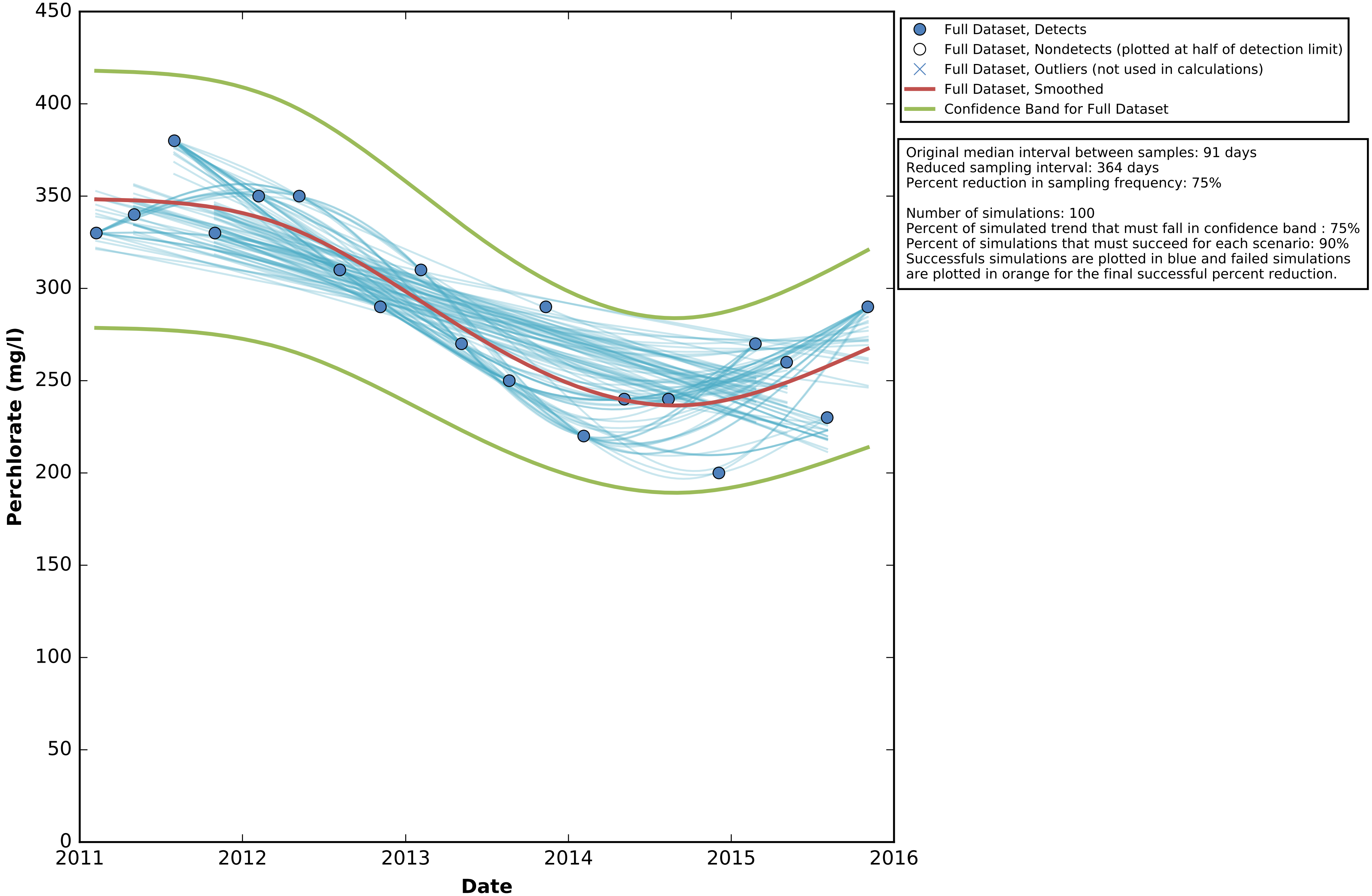
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-122
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-145

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



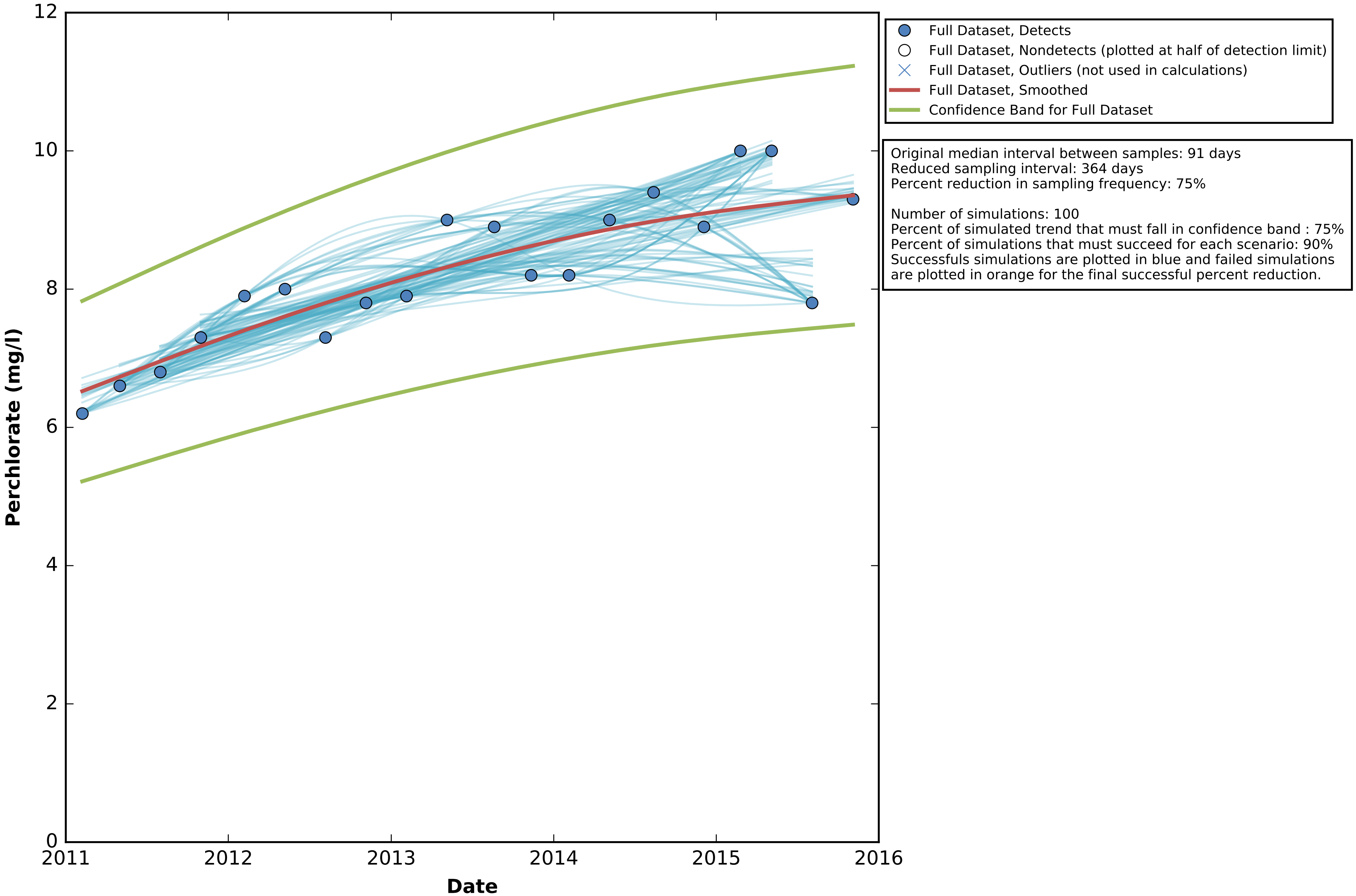
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-123
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-146

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



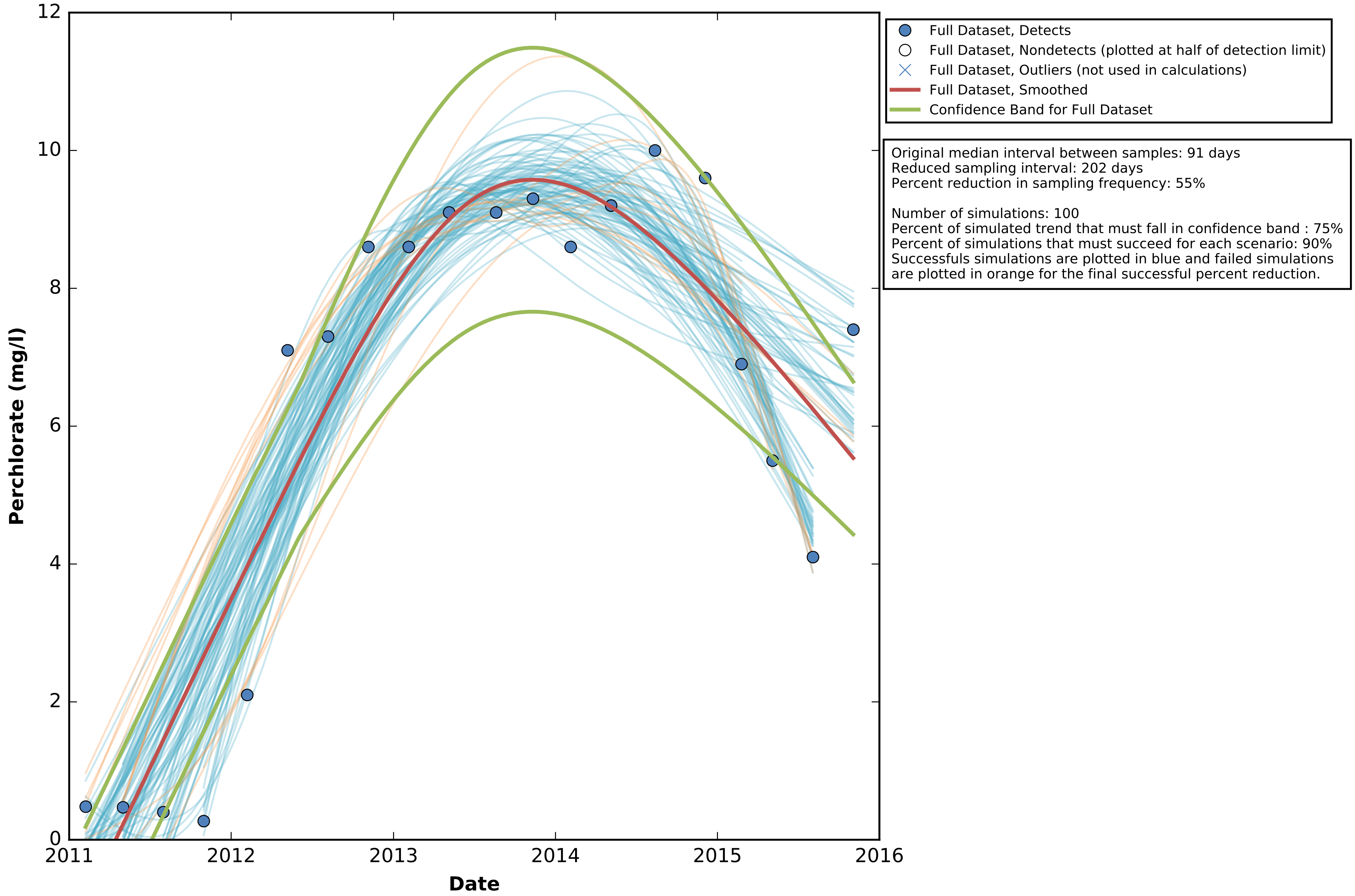
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-124
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-147

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



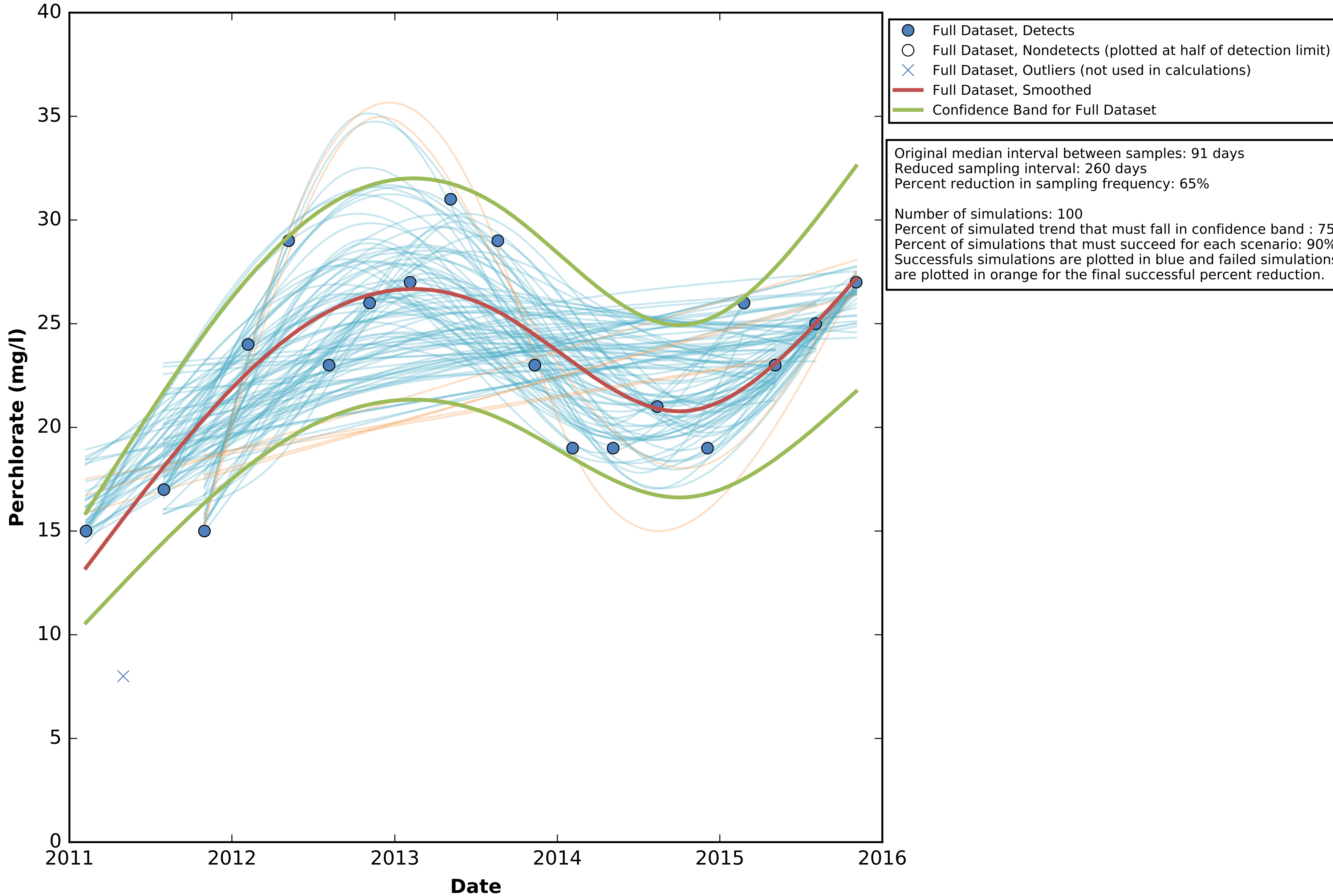
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-125
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-148

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

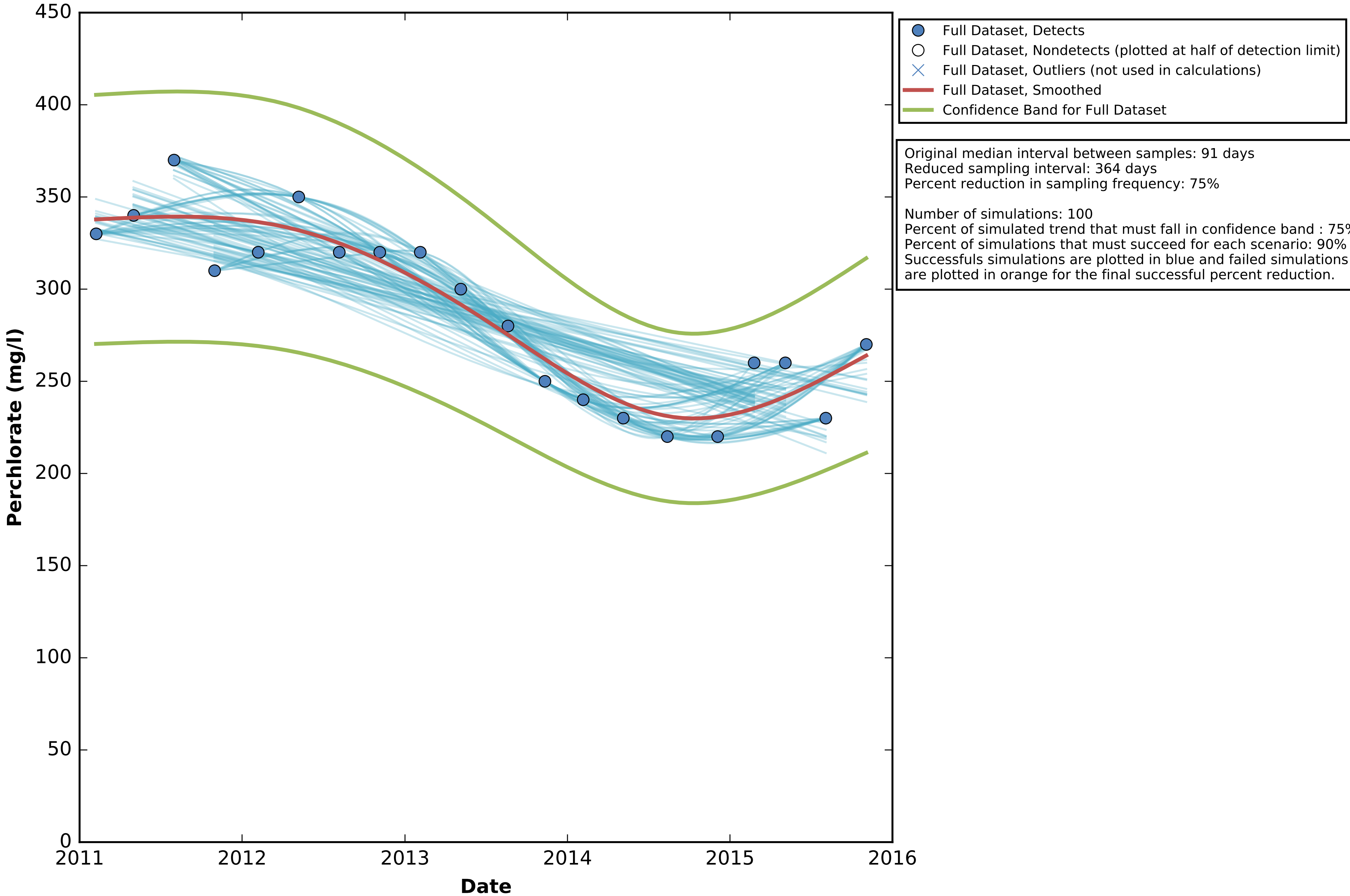
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-126
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-149

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

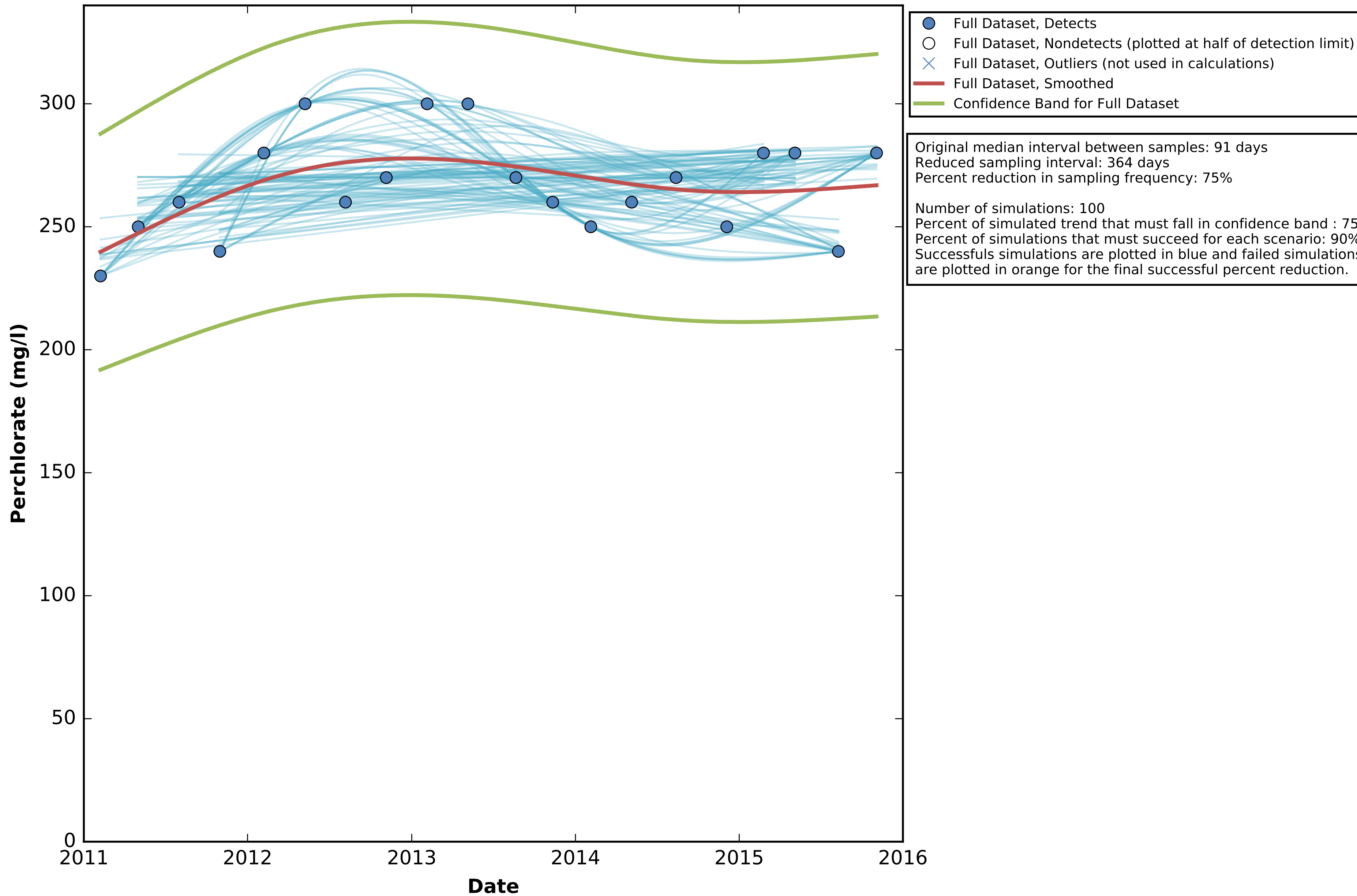
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-127
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-150

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

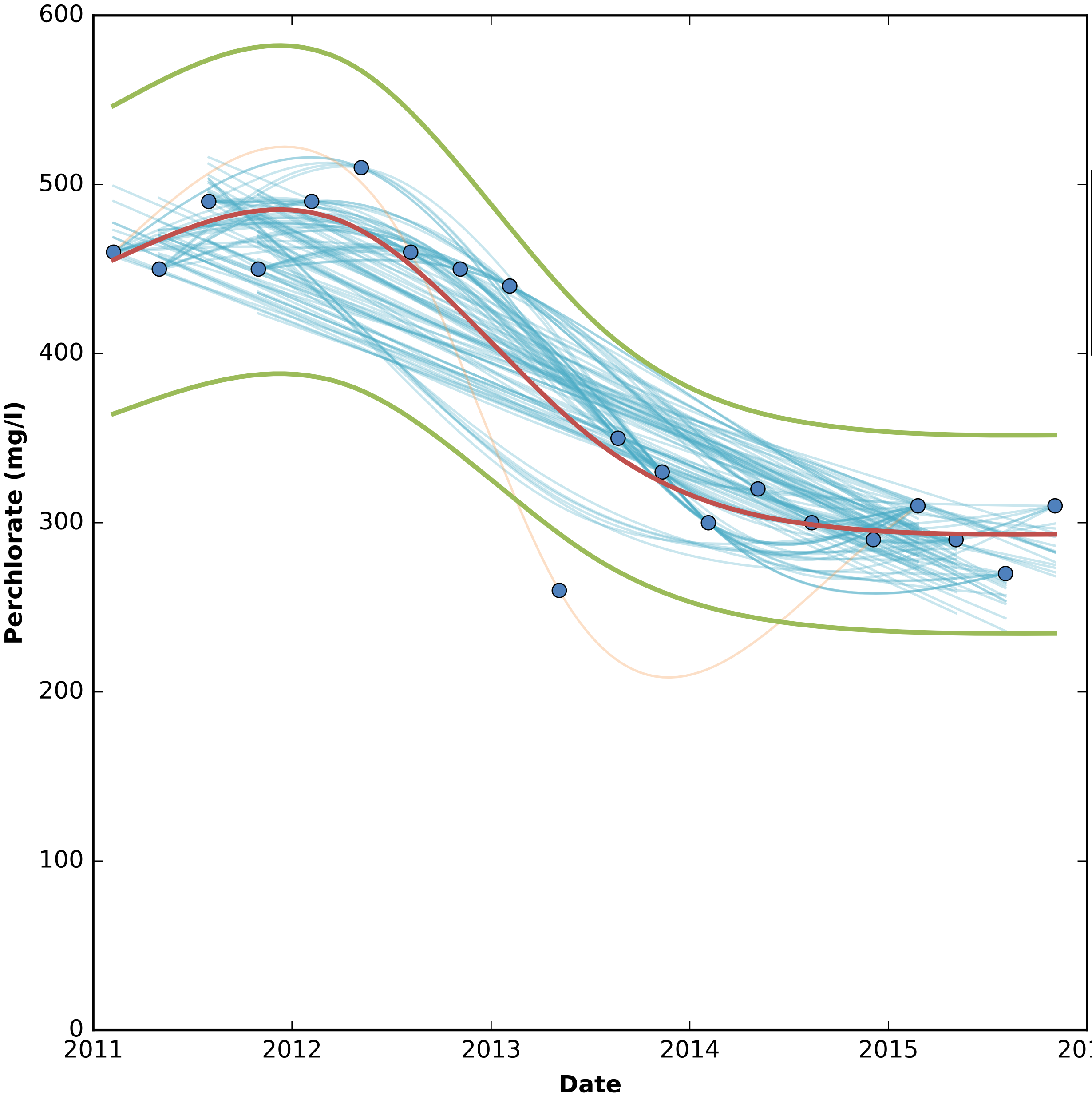
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-128
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-151

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

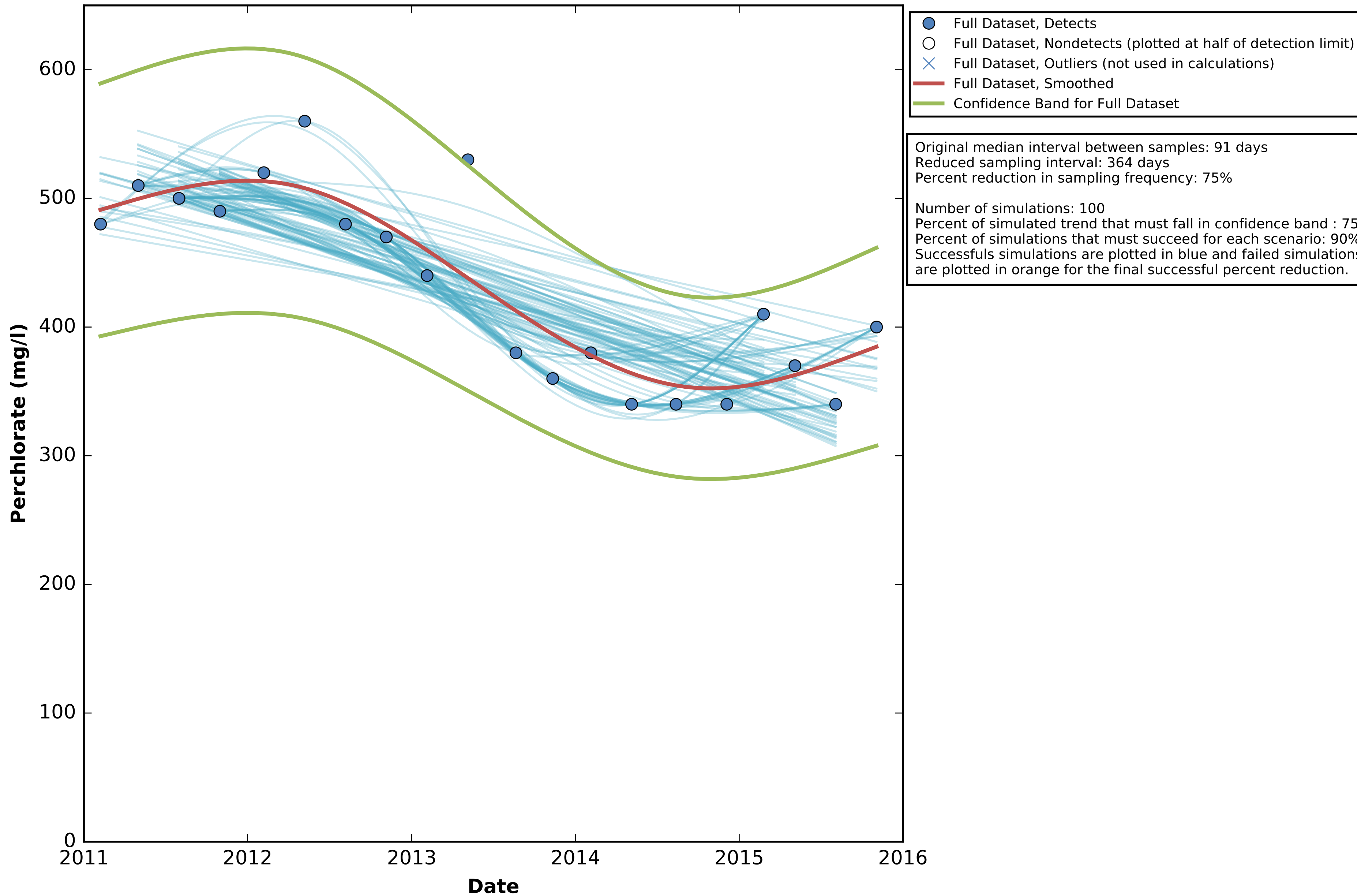
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-129
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-152

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

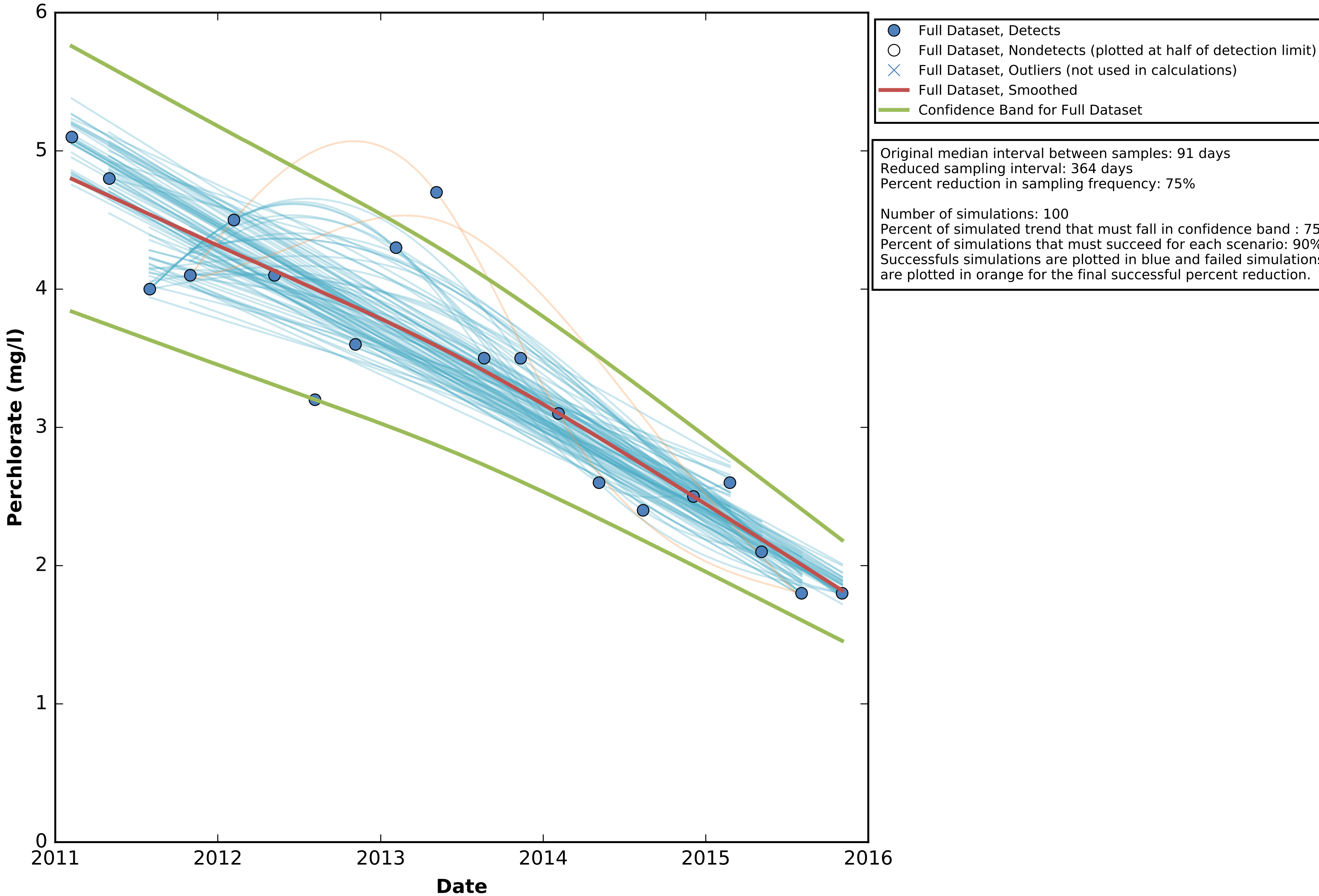
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-130
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-153

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

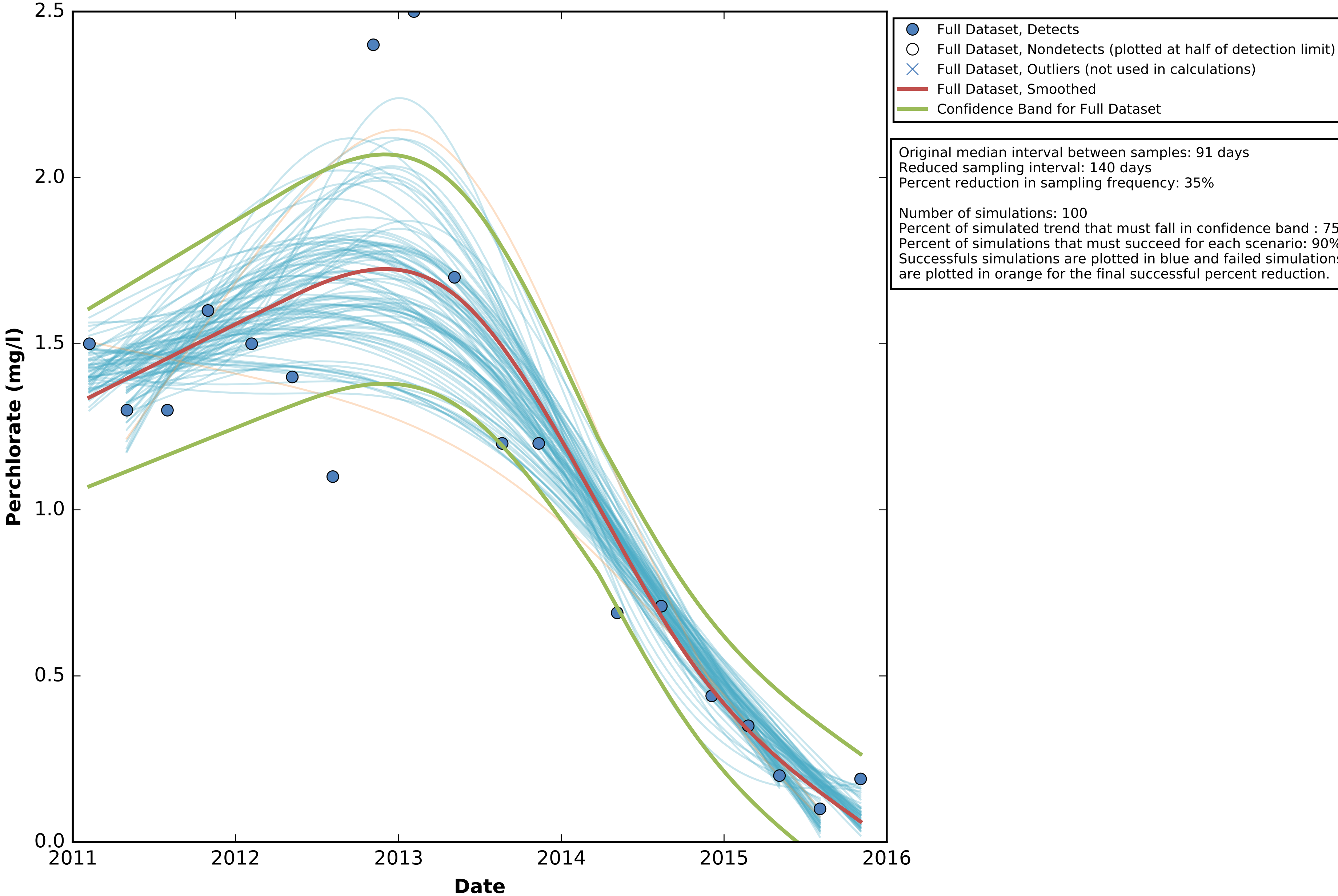
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-154

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 140 days
Percent reduction in sampling frequency: 35%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

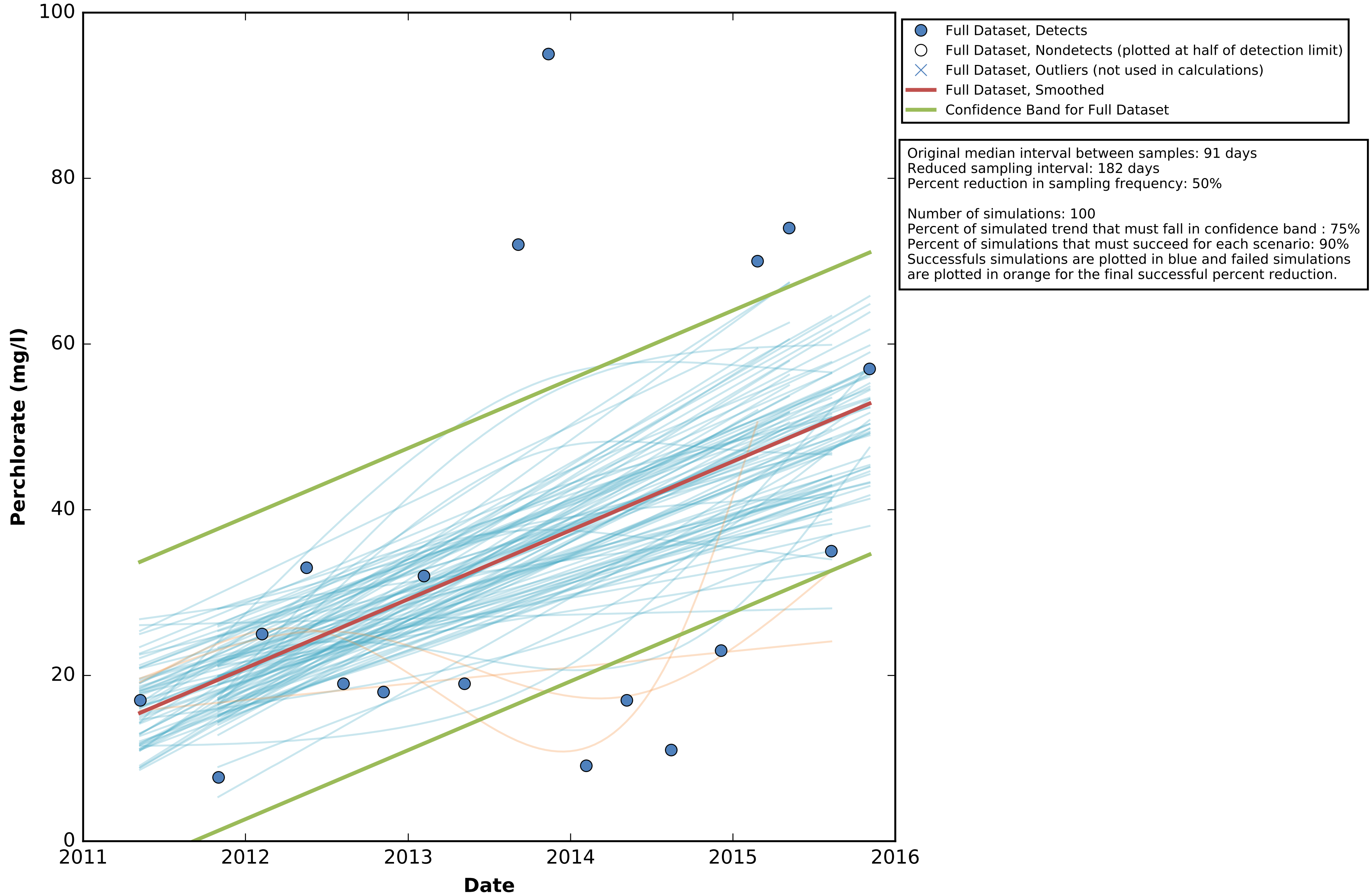
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-132
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-155

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



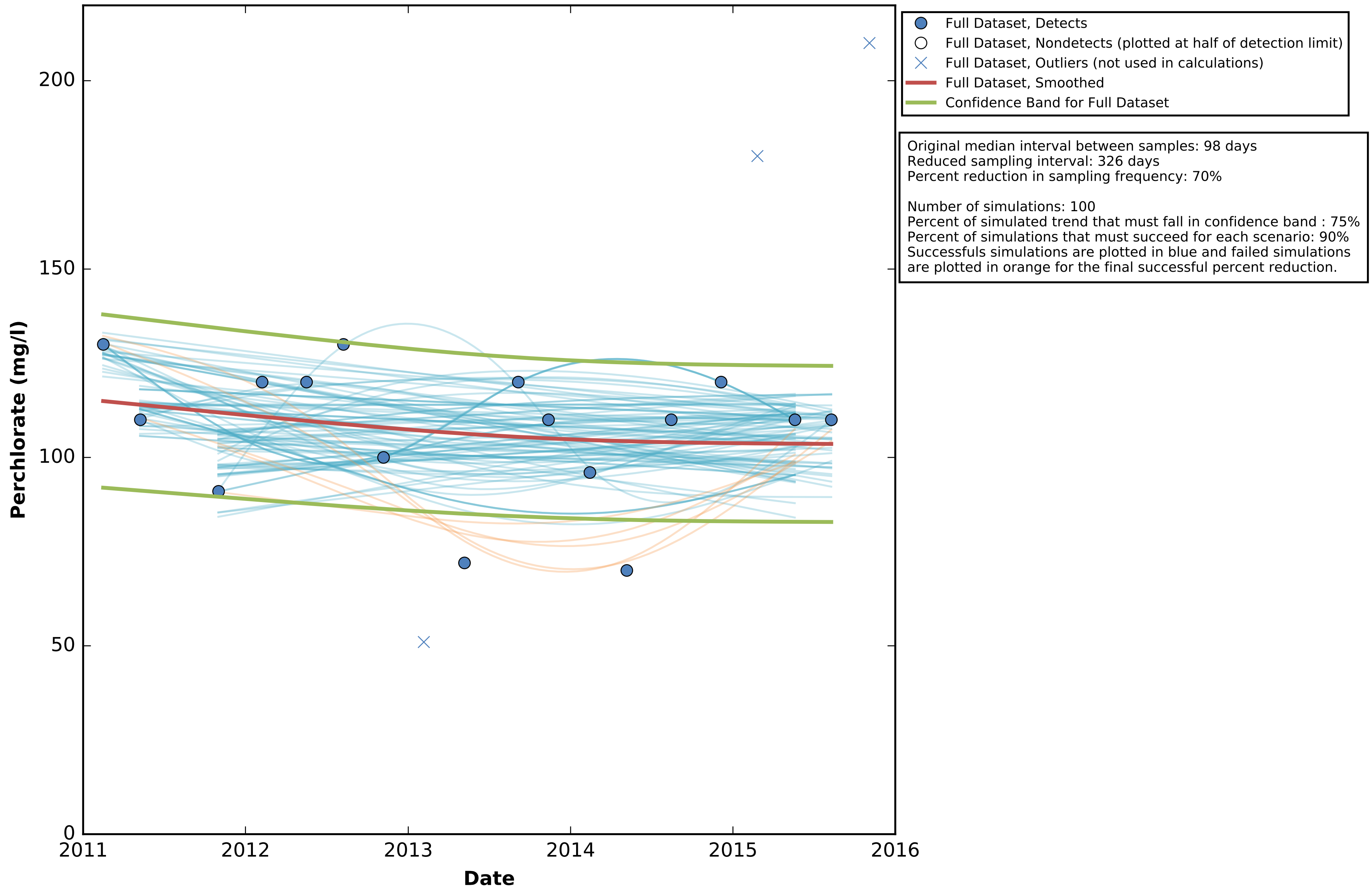
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-135A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-156

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



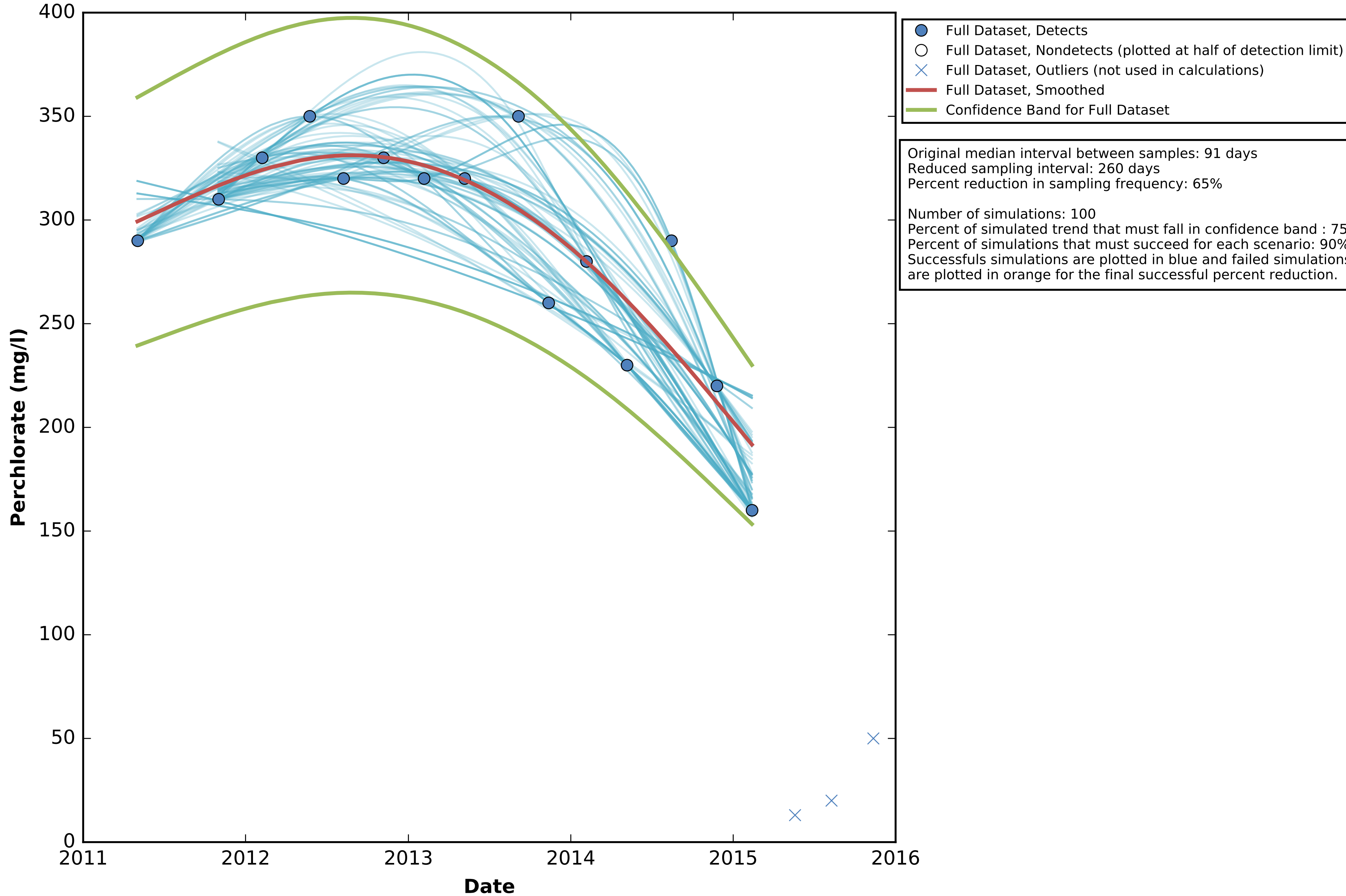
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-136
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-157

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

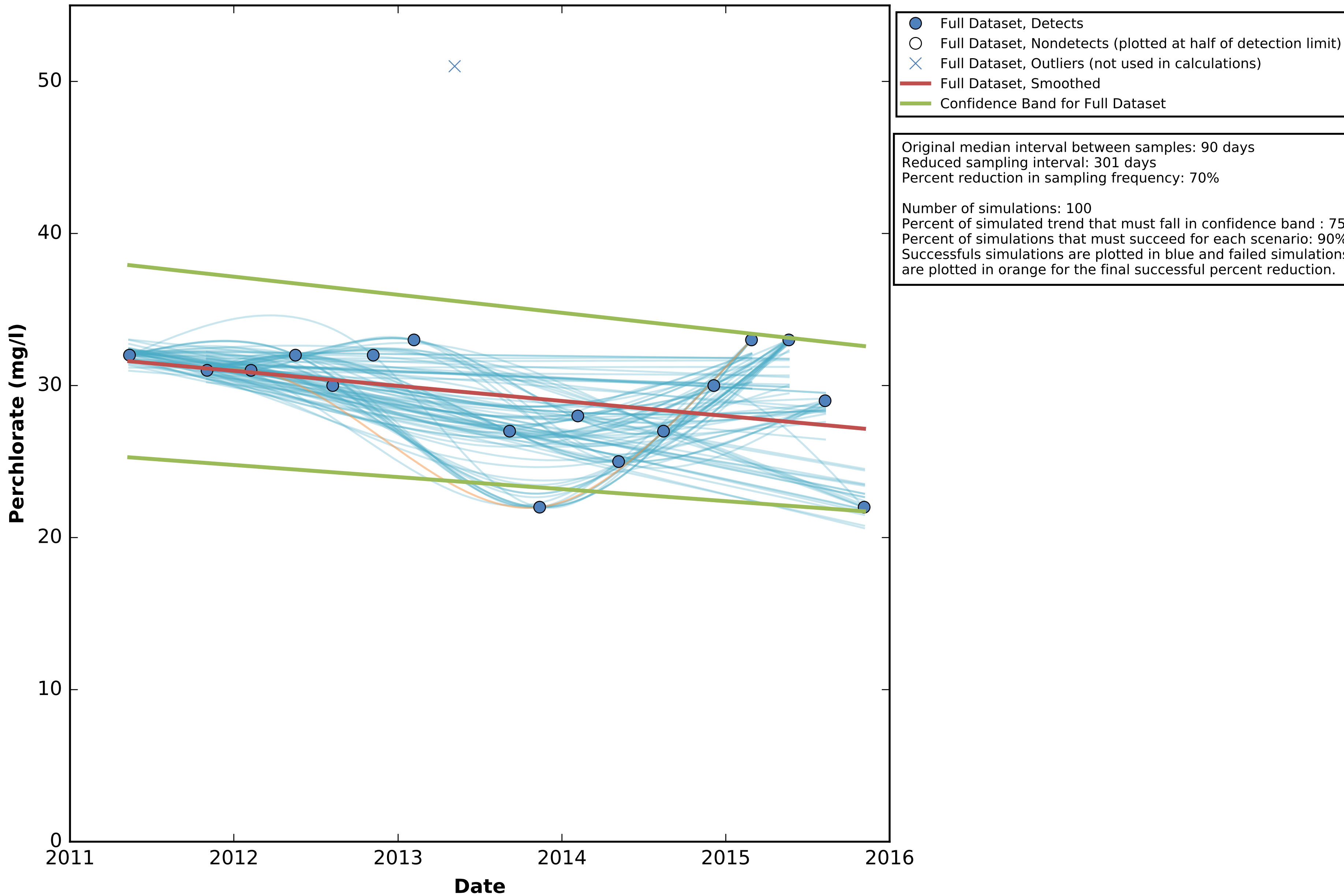
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-144
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-158

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 301 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

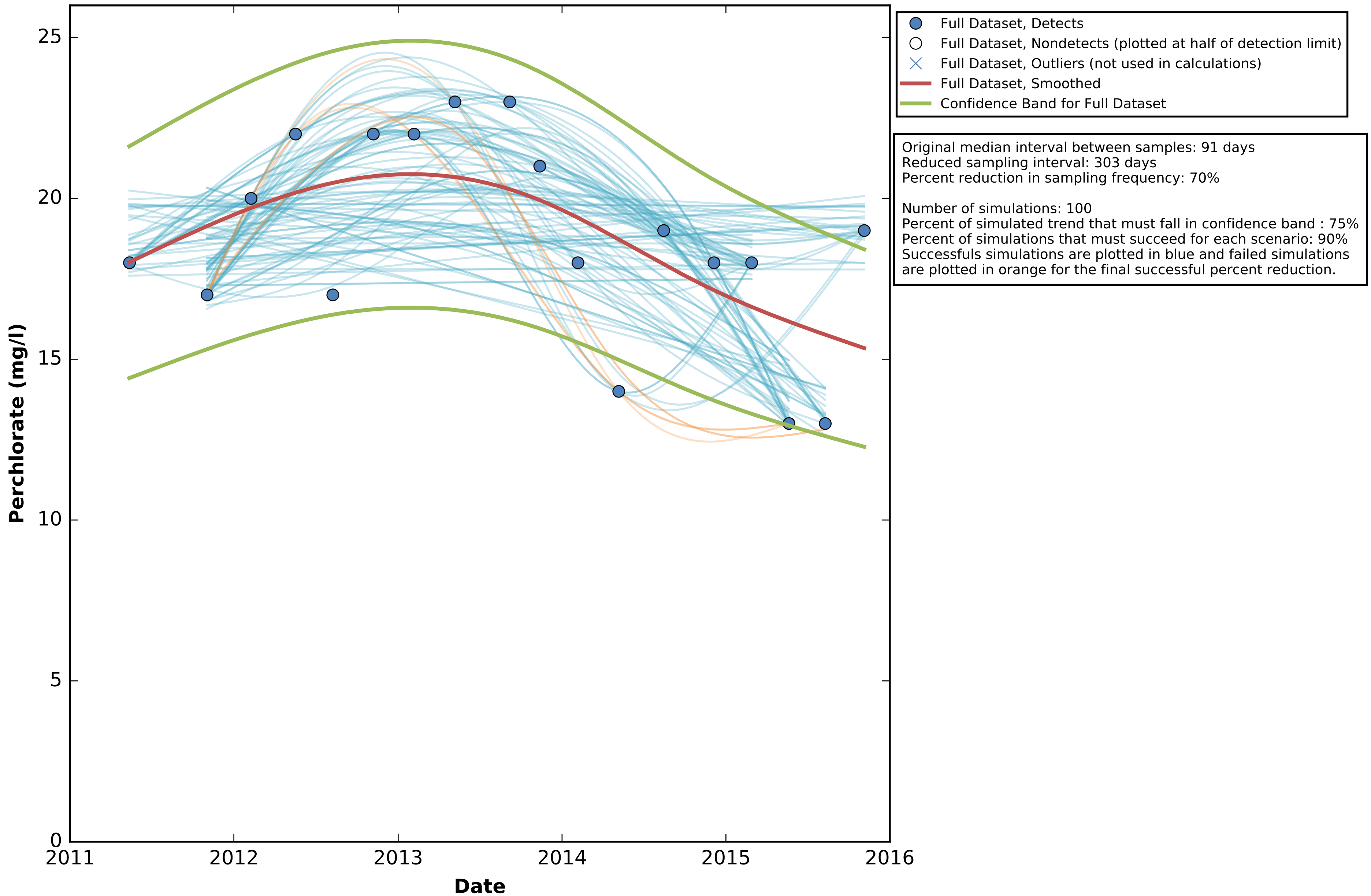
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-148
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-159

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



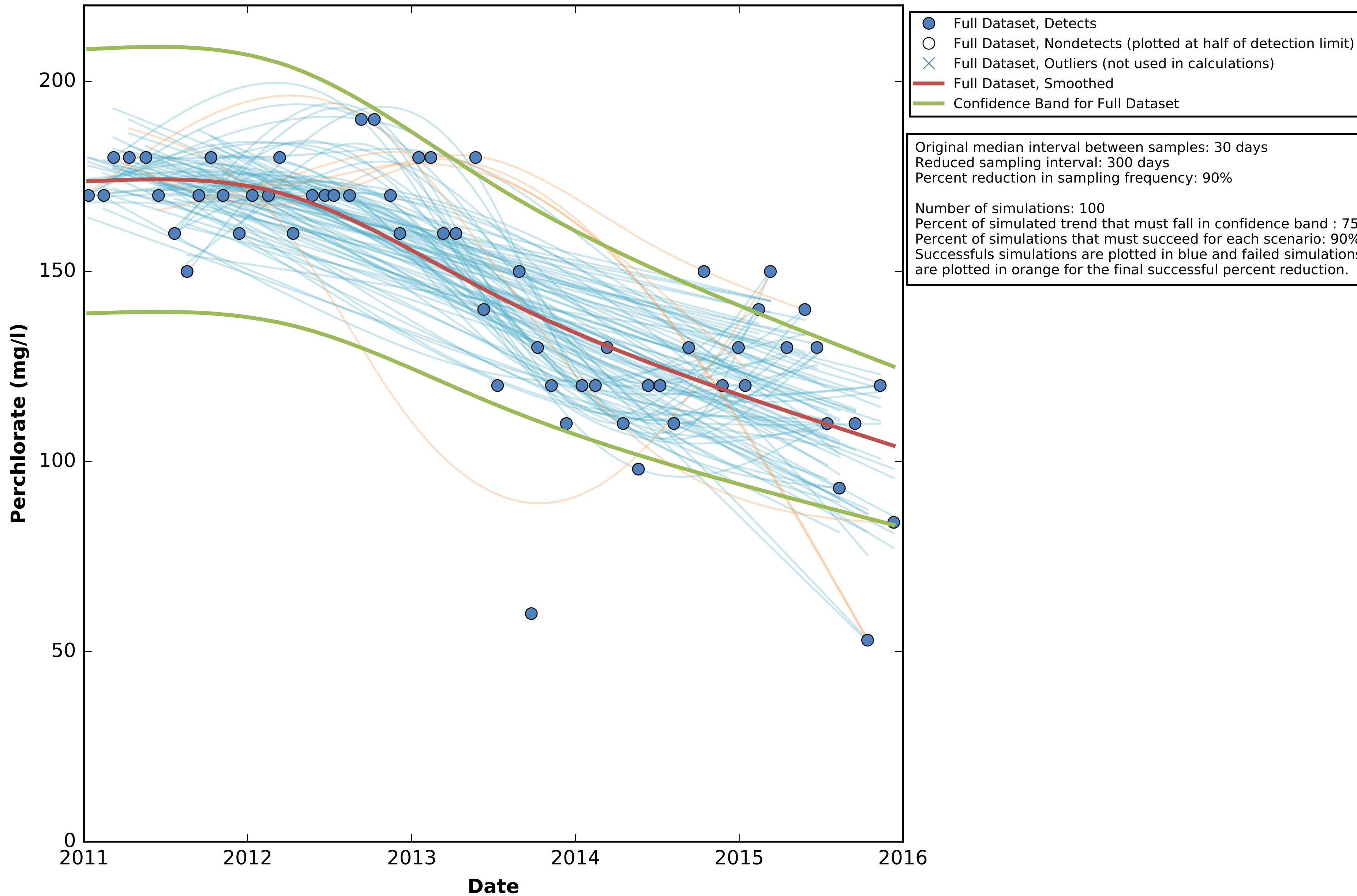
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-149
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-160

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

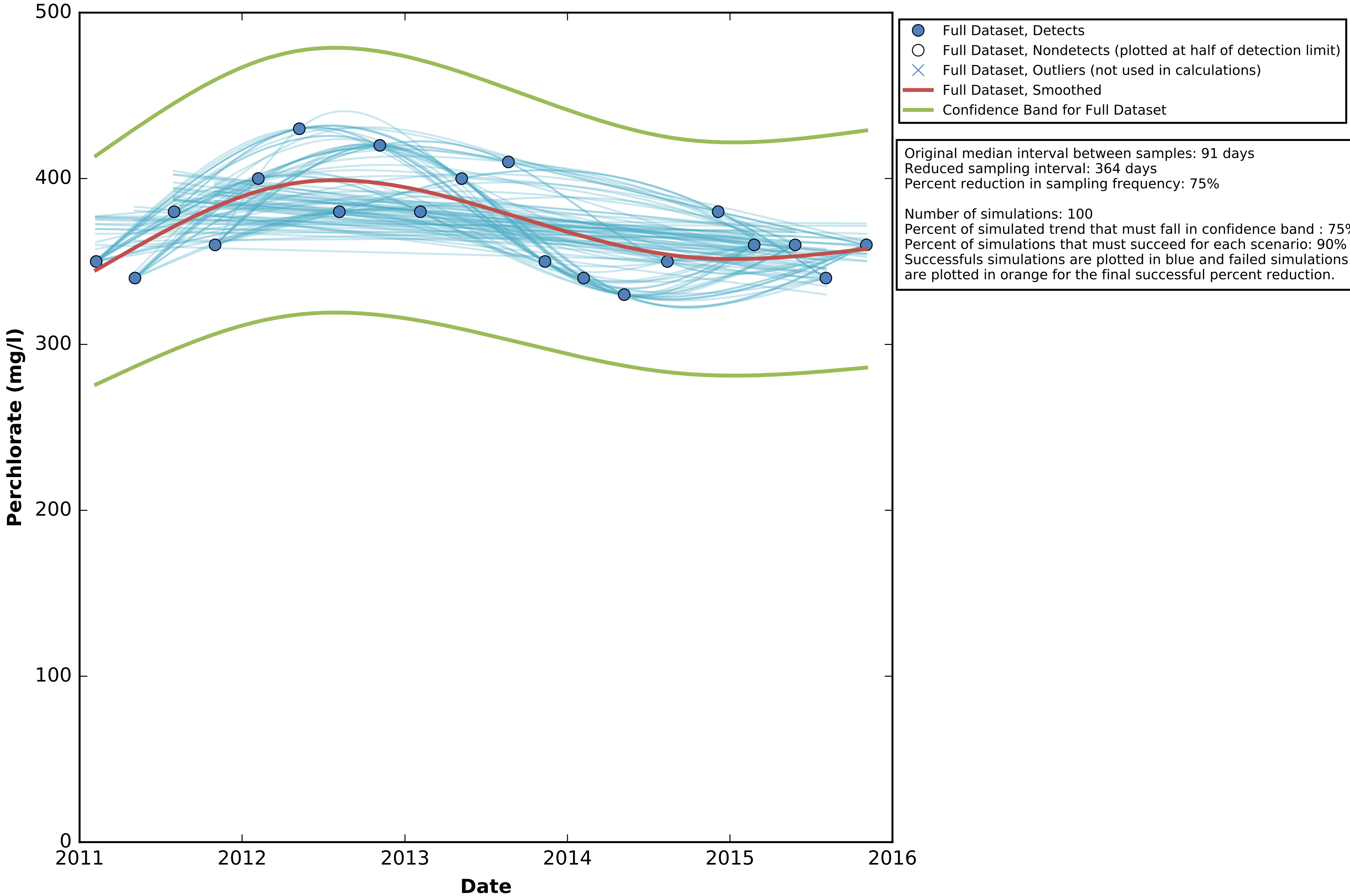
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-18
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-161

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

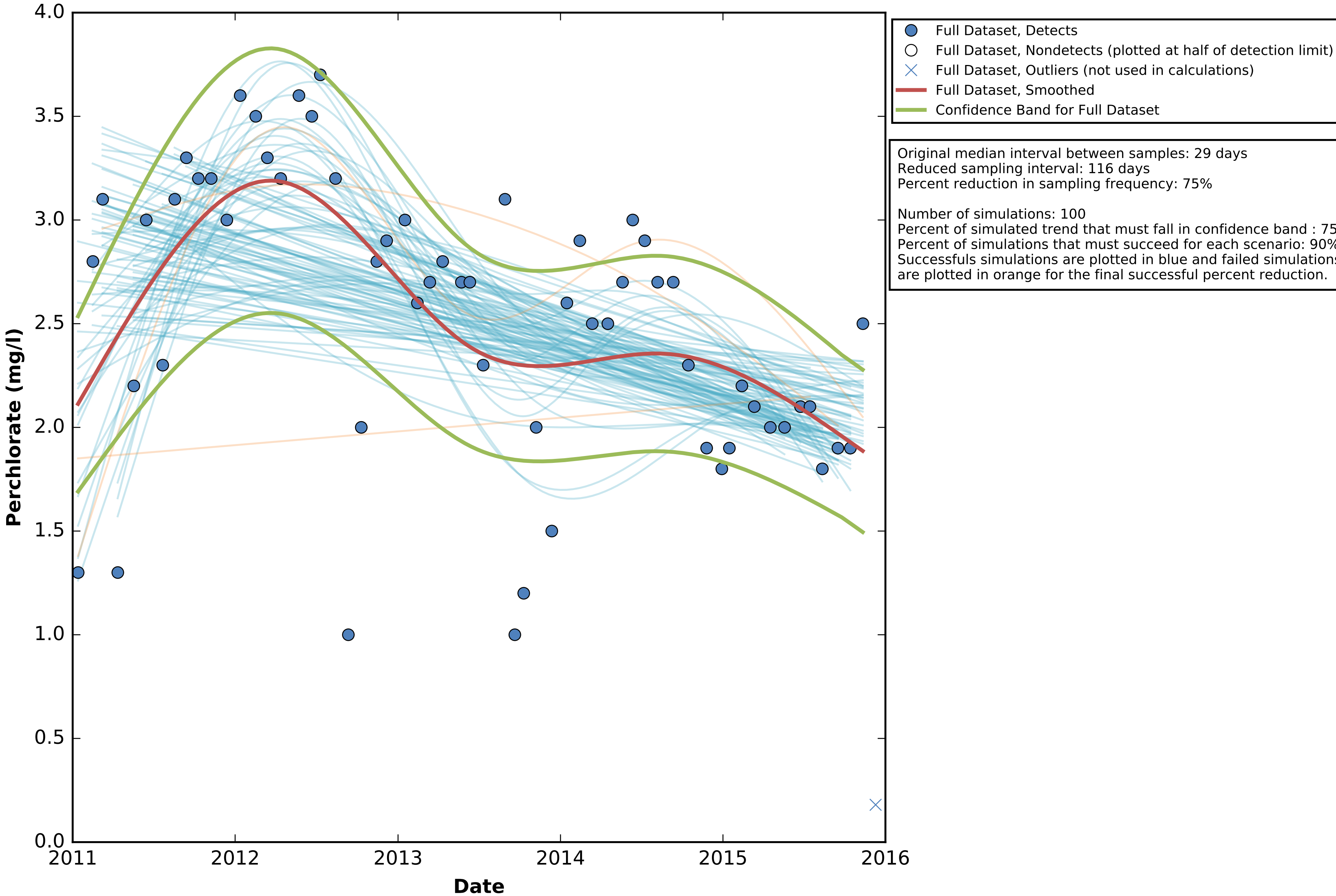
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-162

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

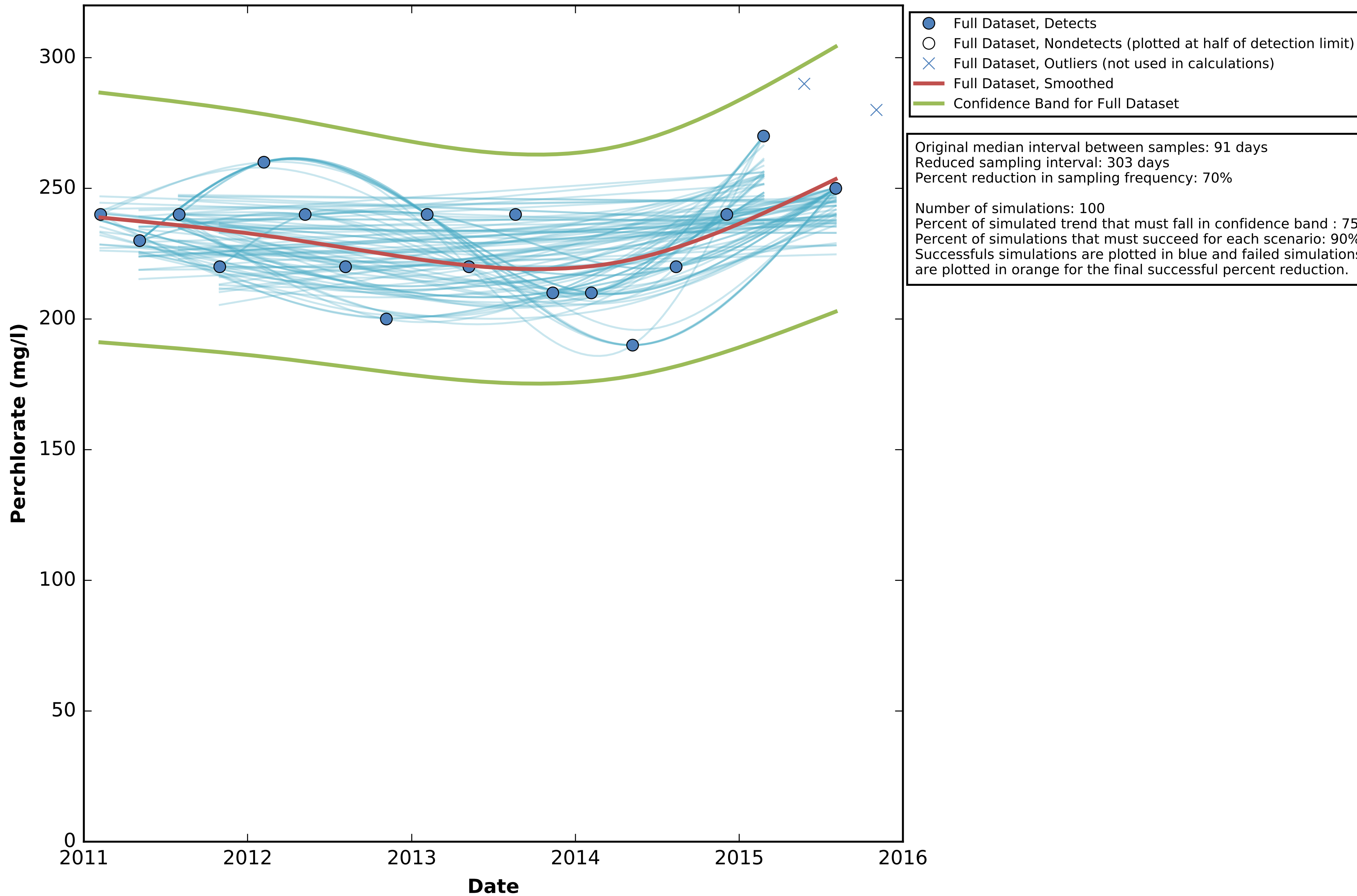
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-53
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-163

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

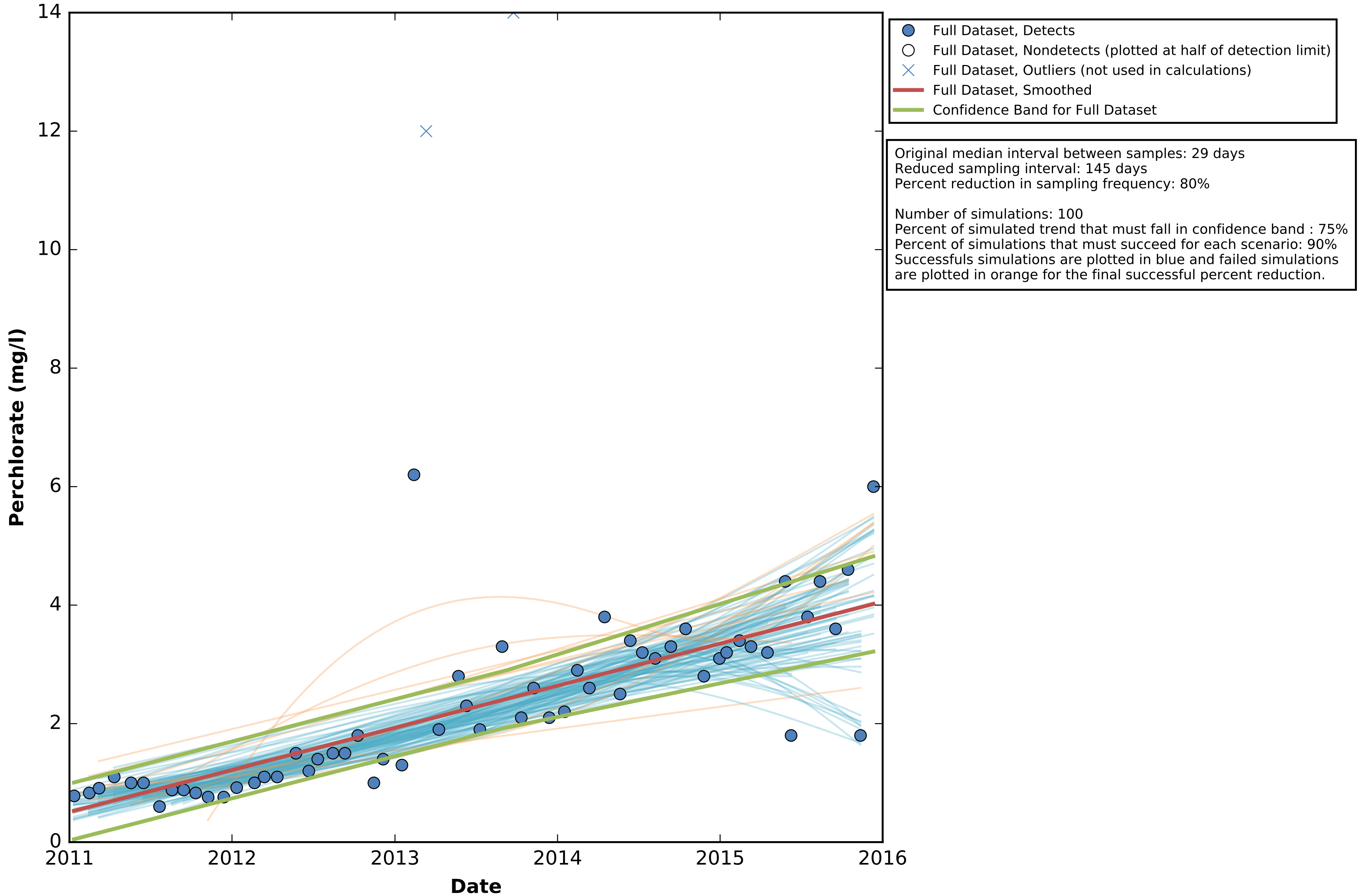
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-54
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-164

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



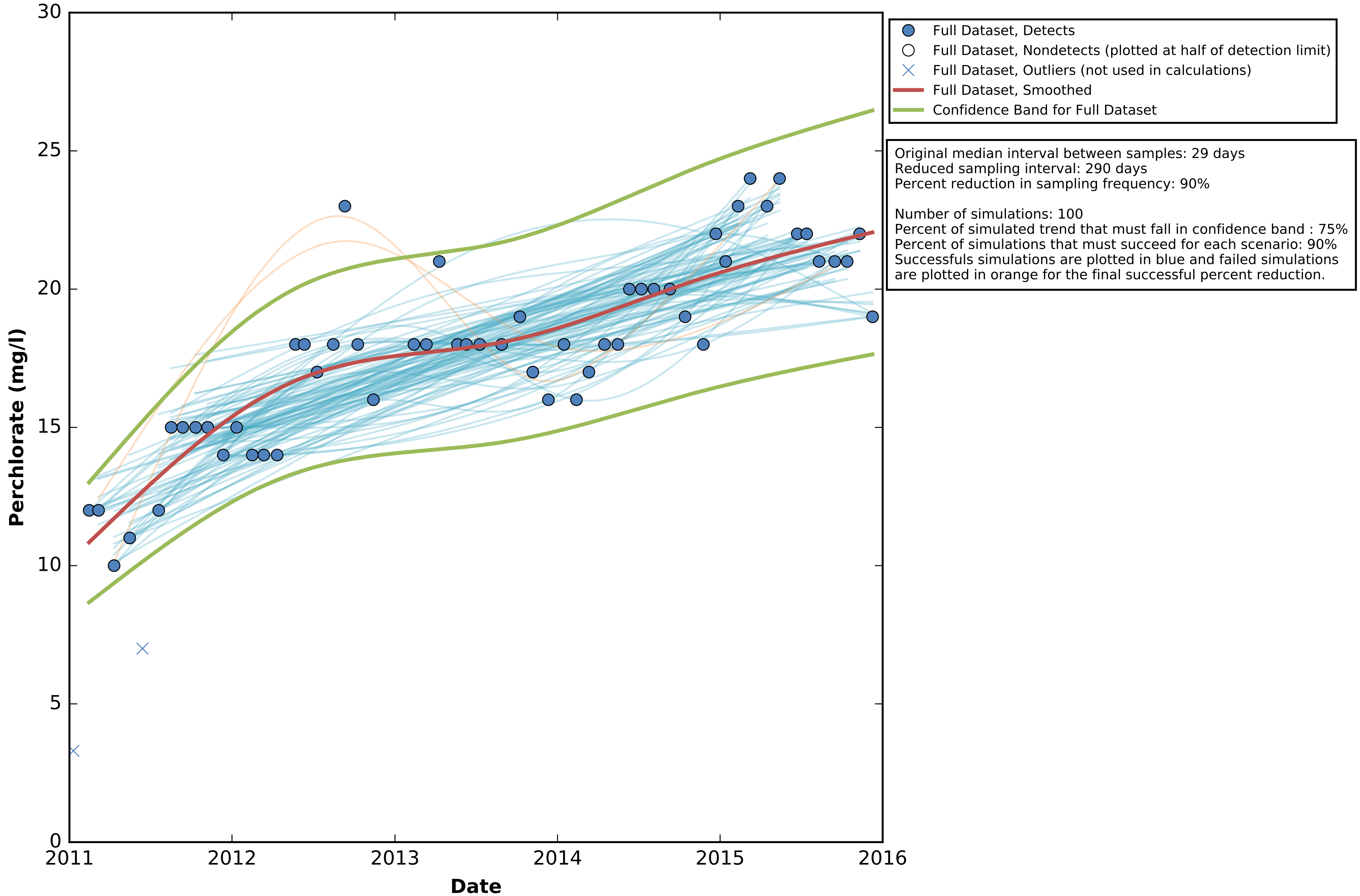
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-165**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



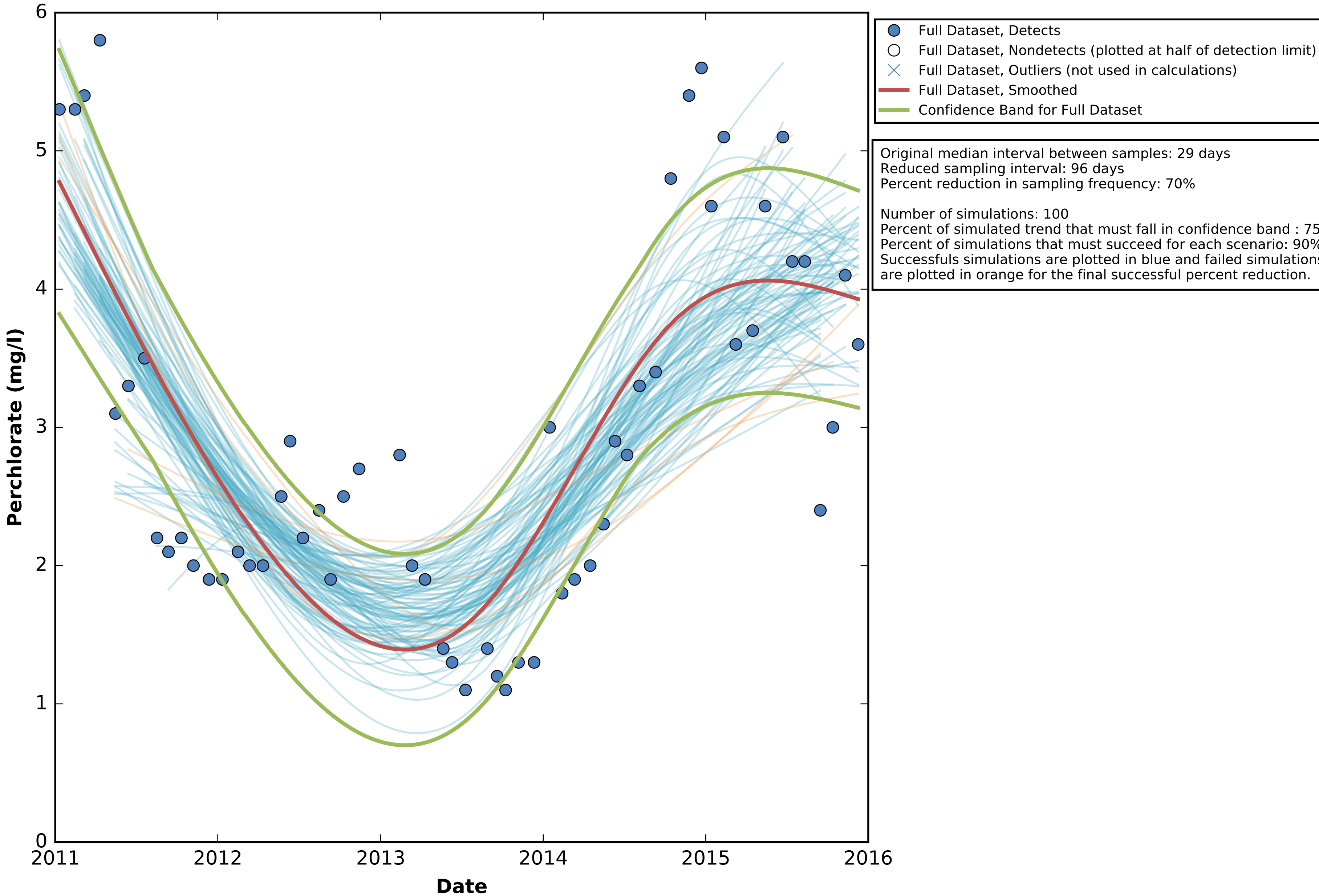
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-166

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

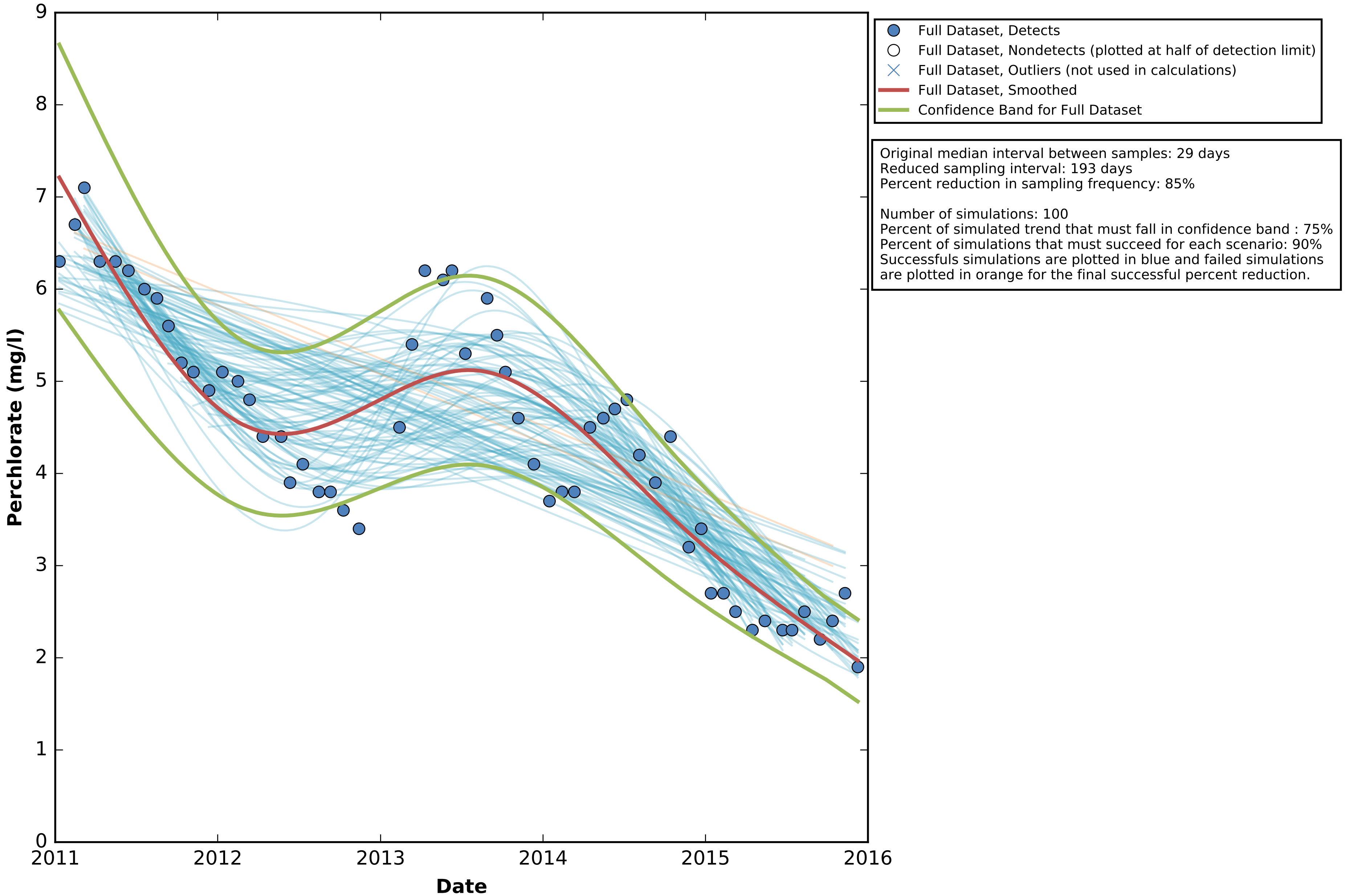
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-167

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



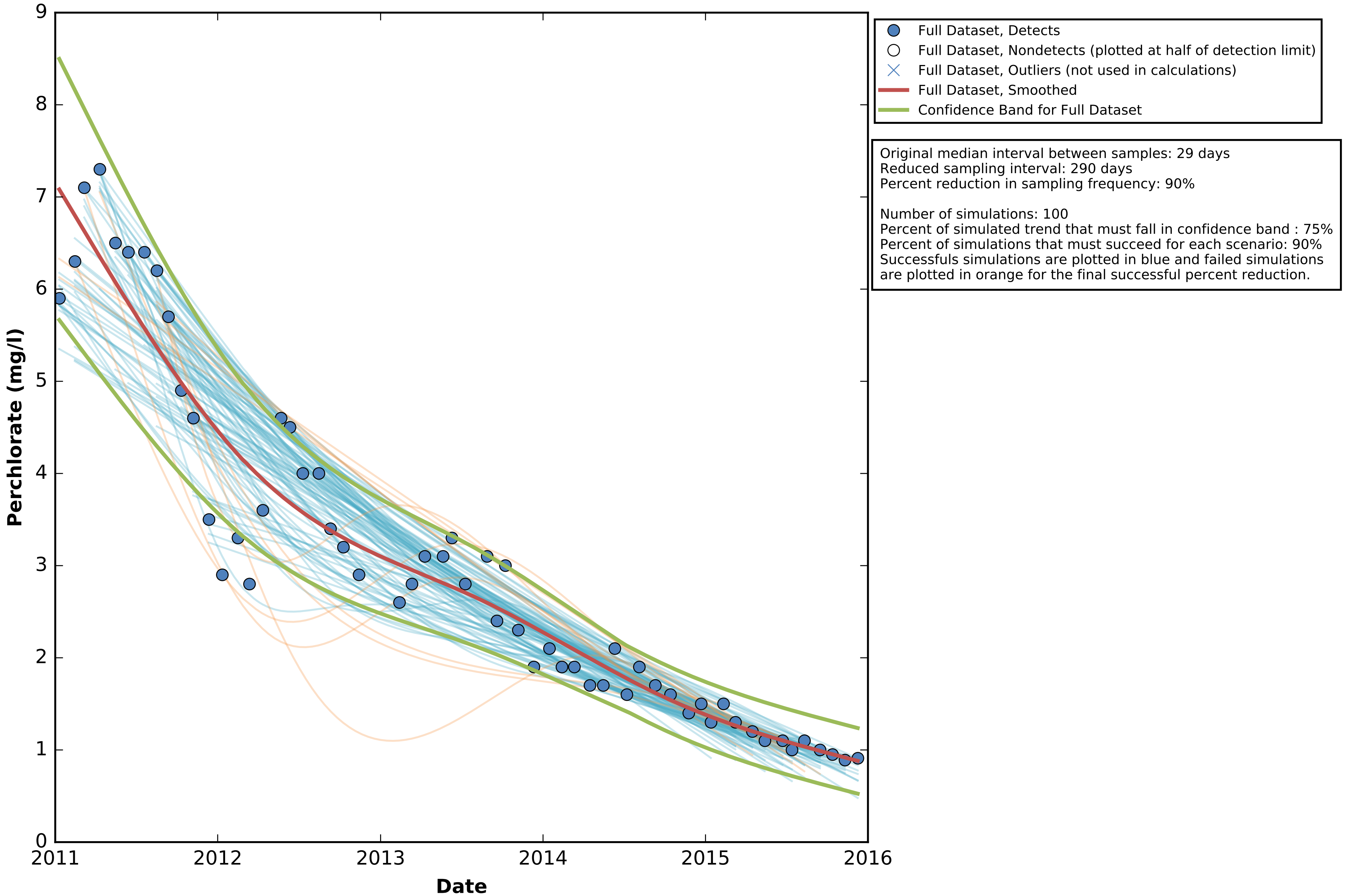
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-59
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-168

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



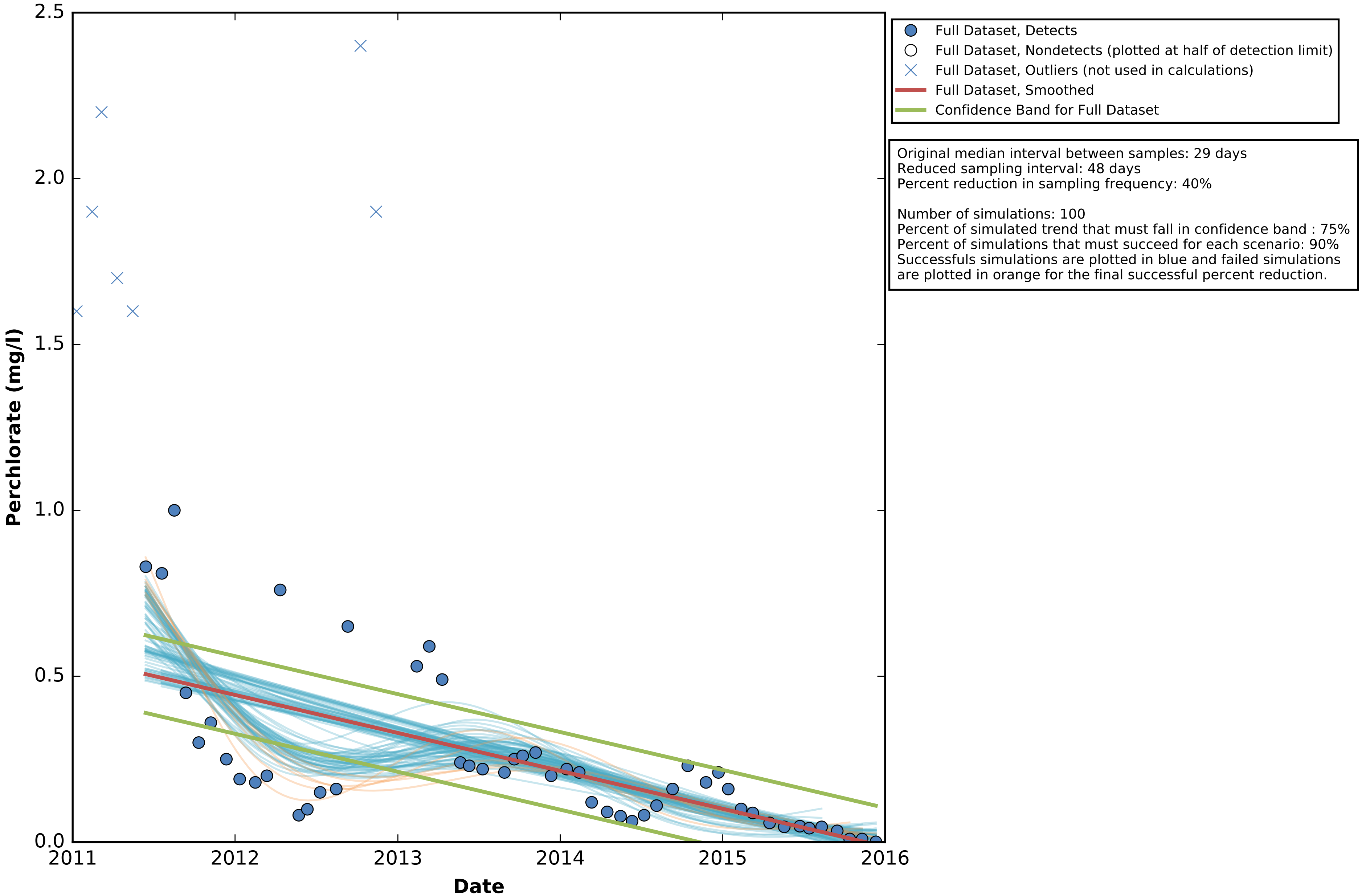
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-60
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-169

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



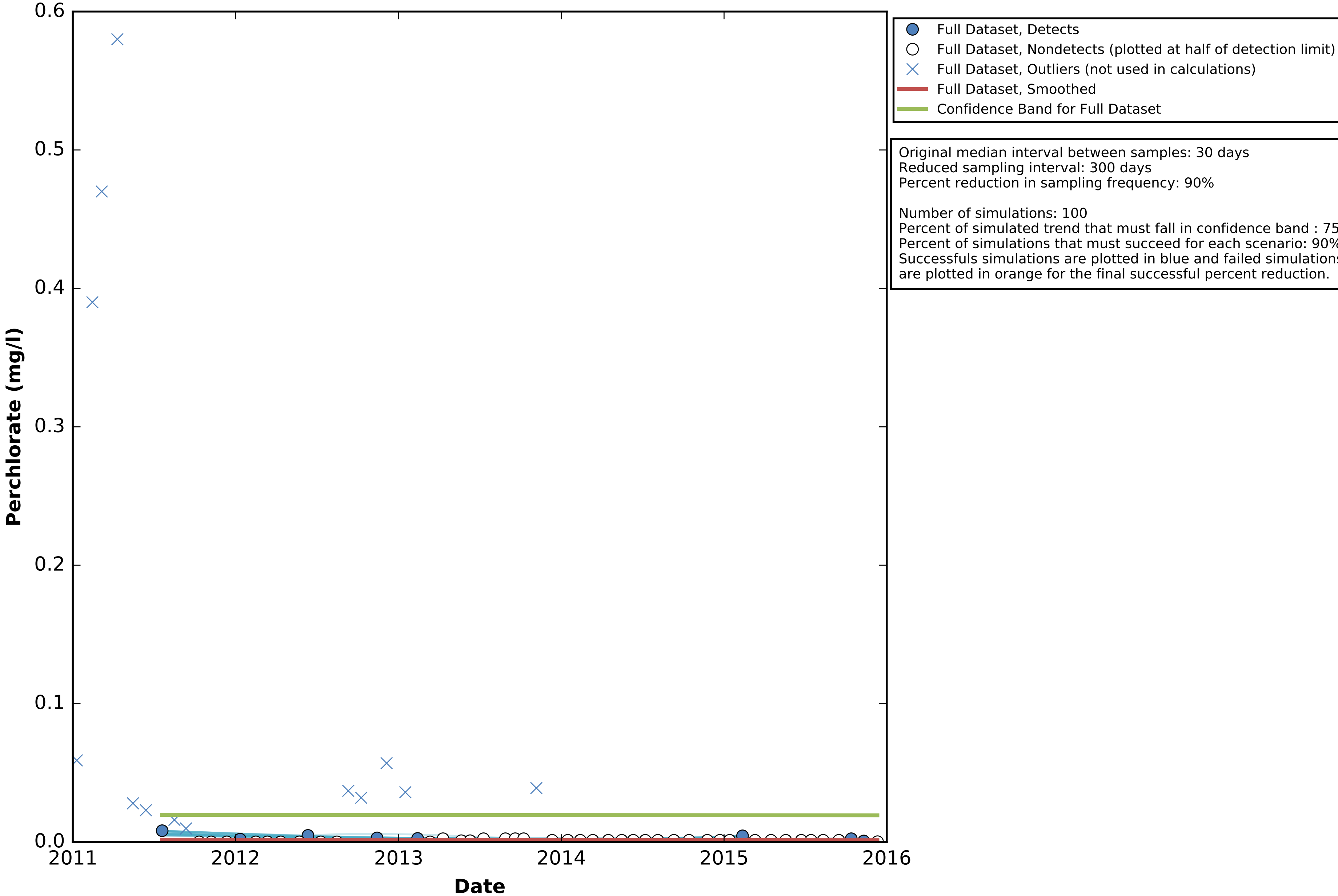
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-62
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-170

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

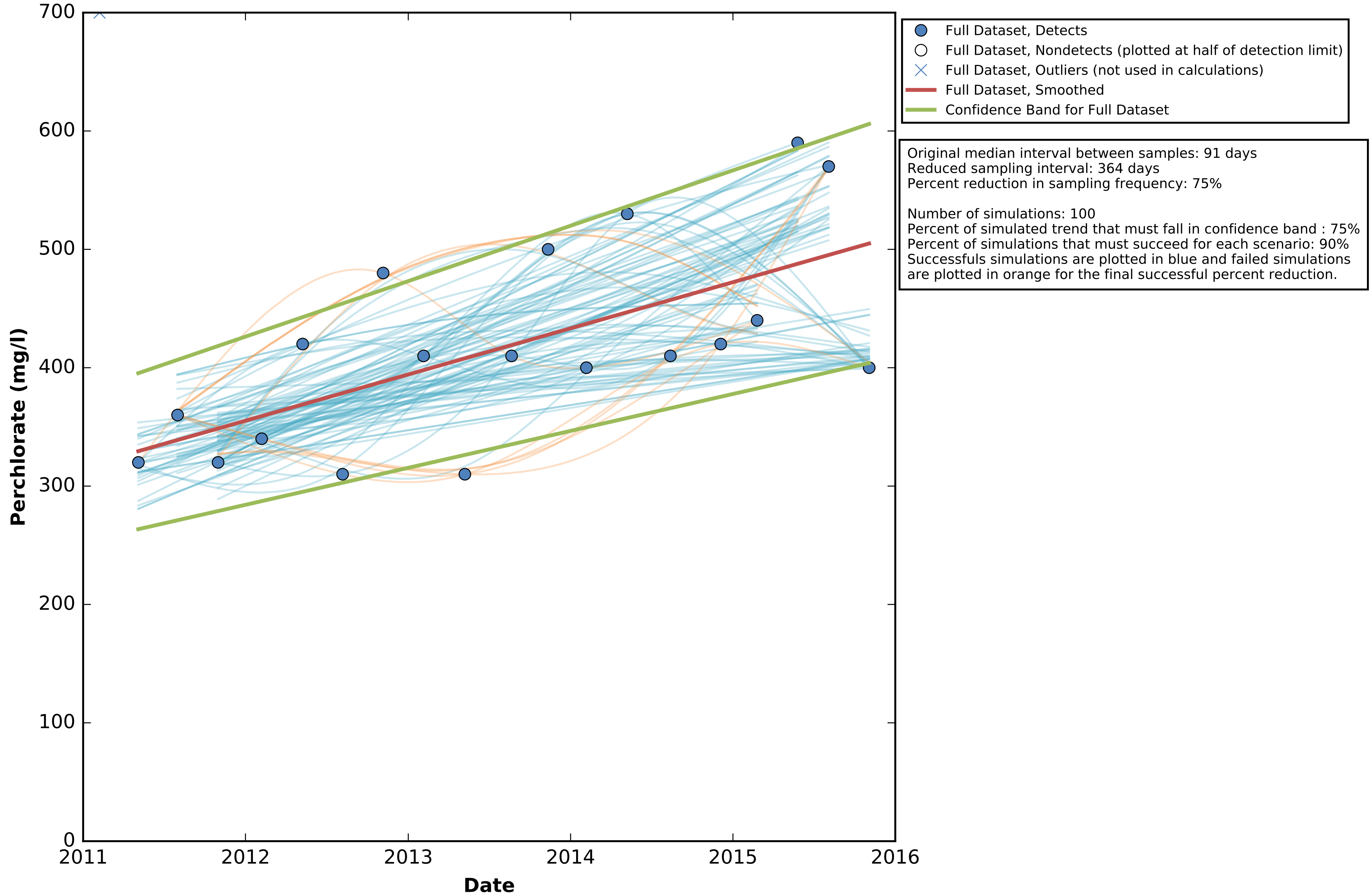
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-171

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



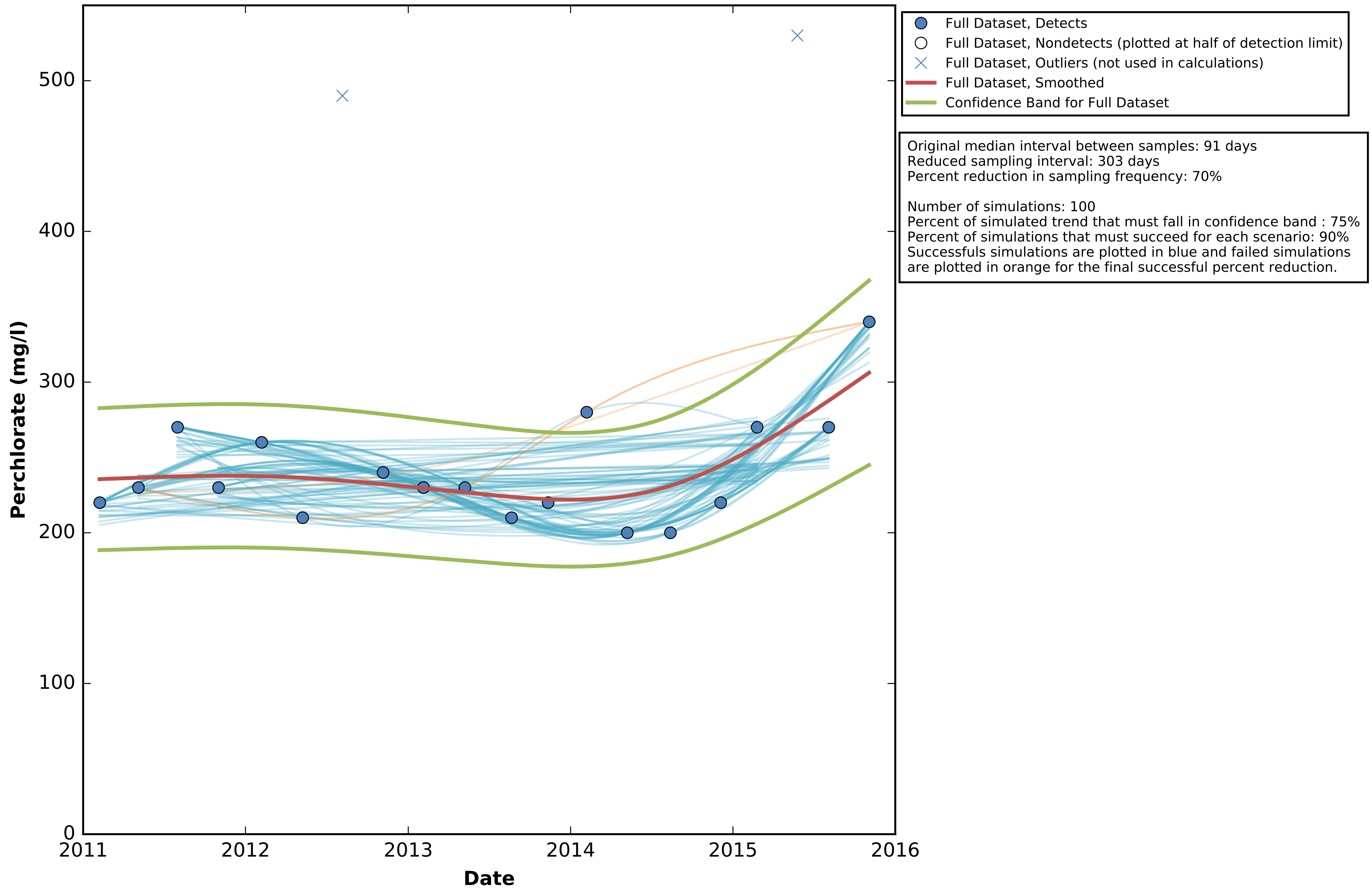
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-172

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



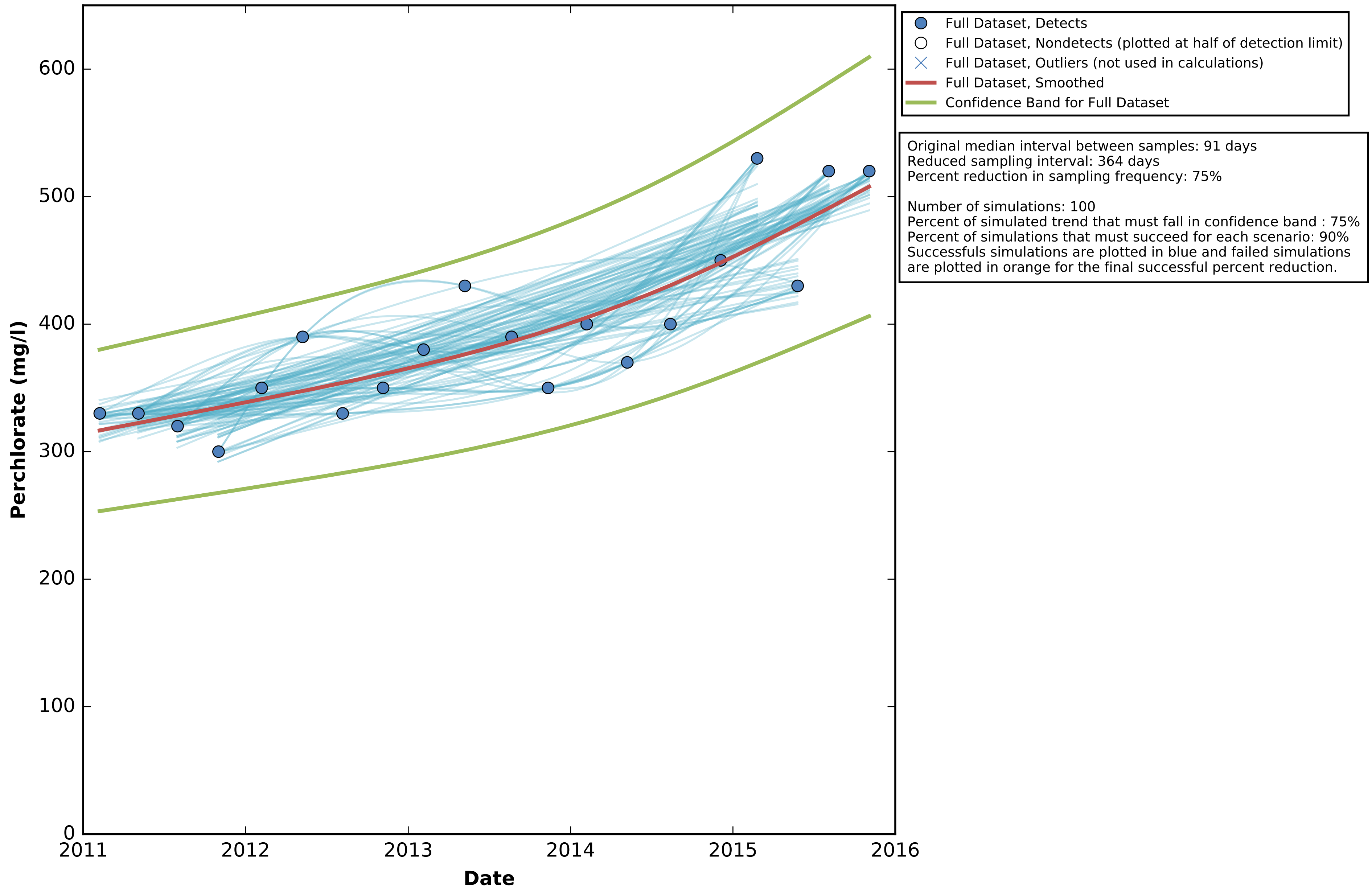
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-173

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



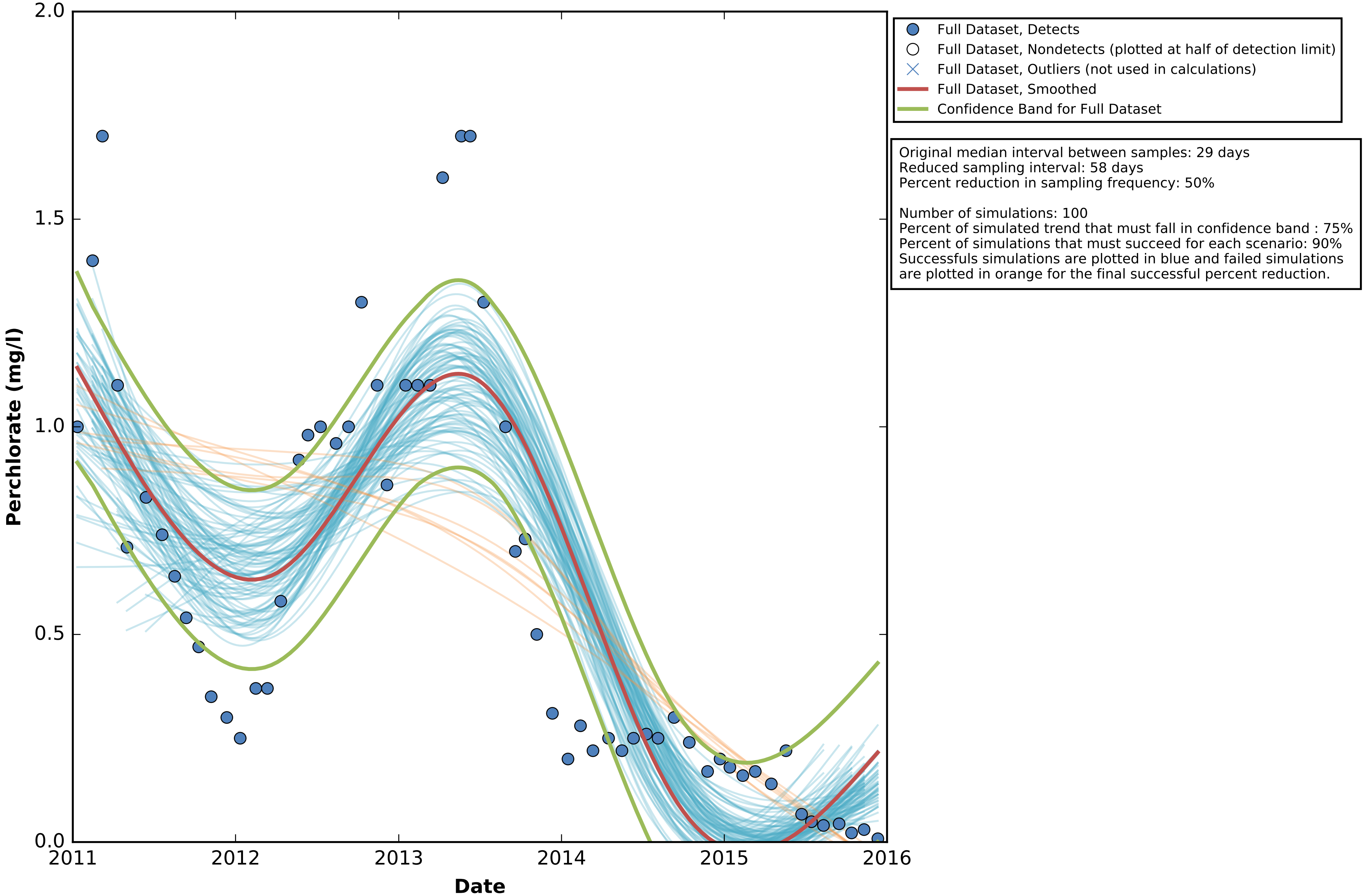
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-174

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



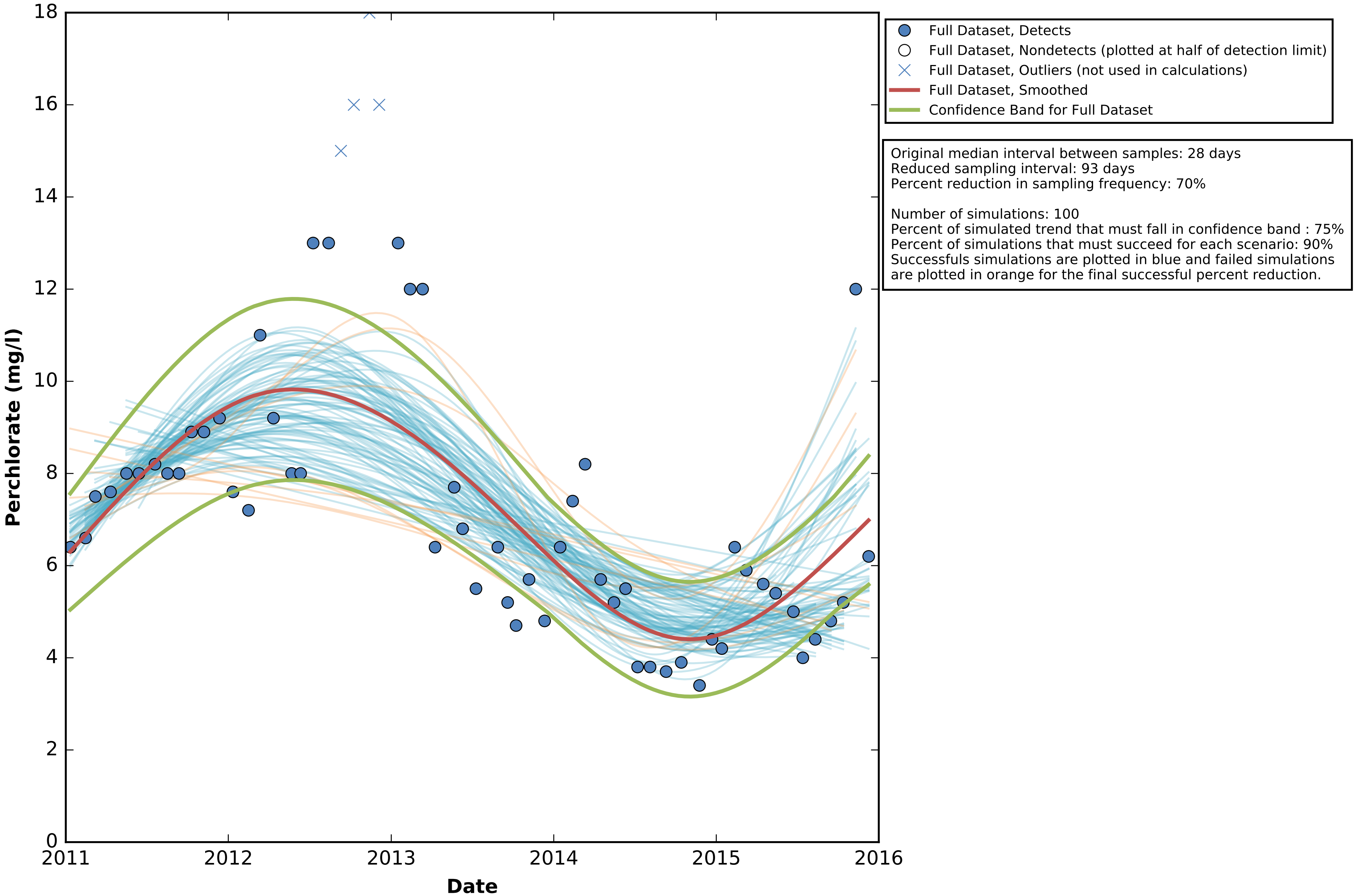
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-86
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-175

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



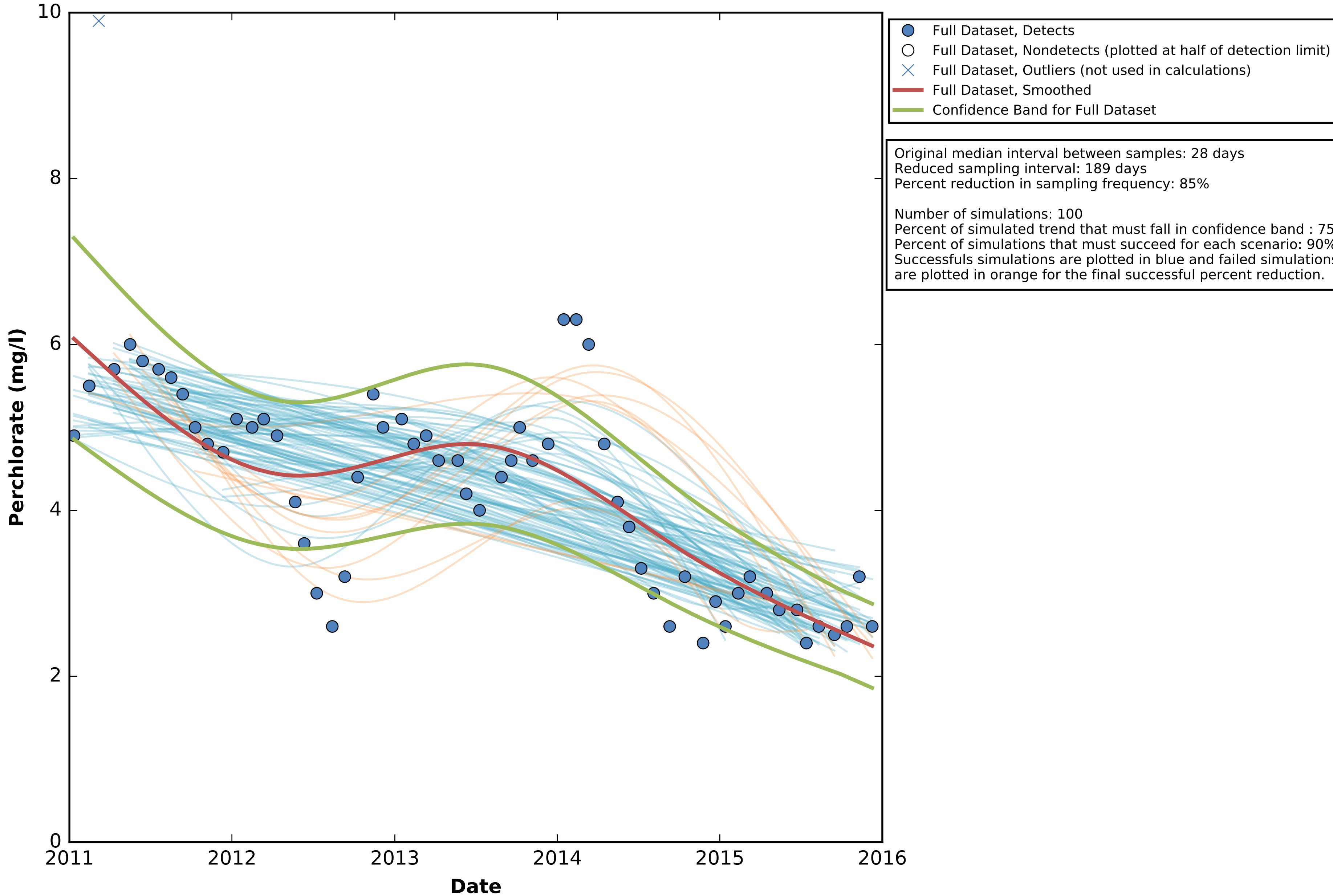
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-90
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-176

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 28 days
Reduced sampling interval: 189 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

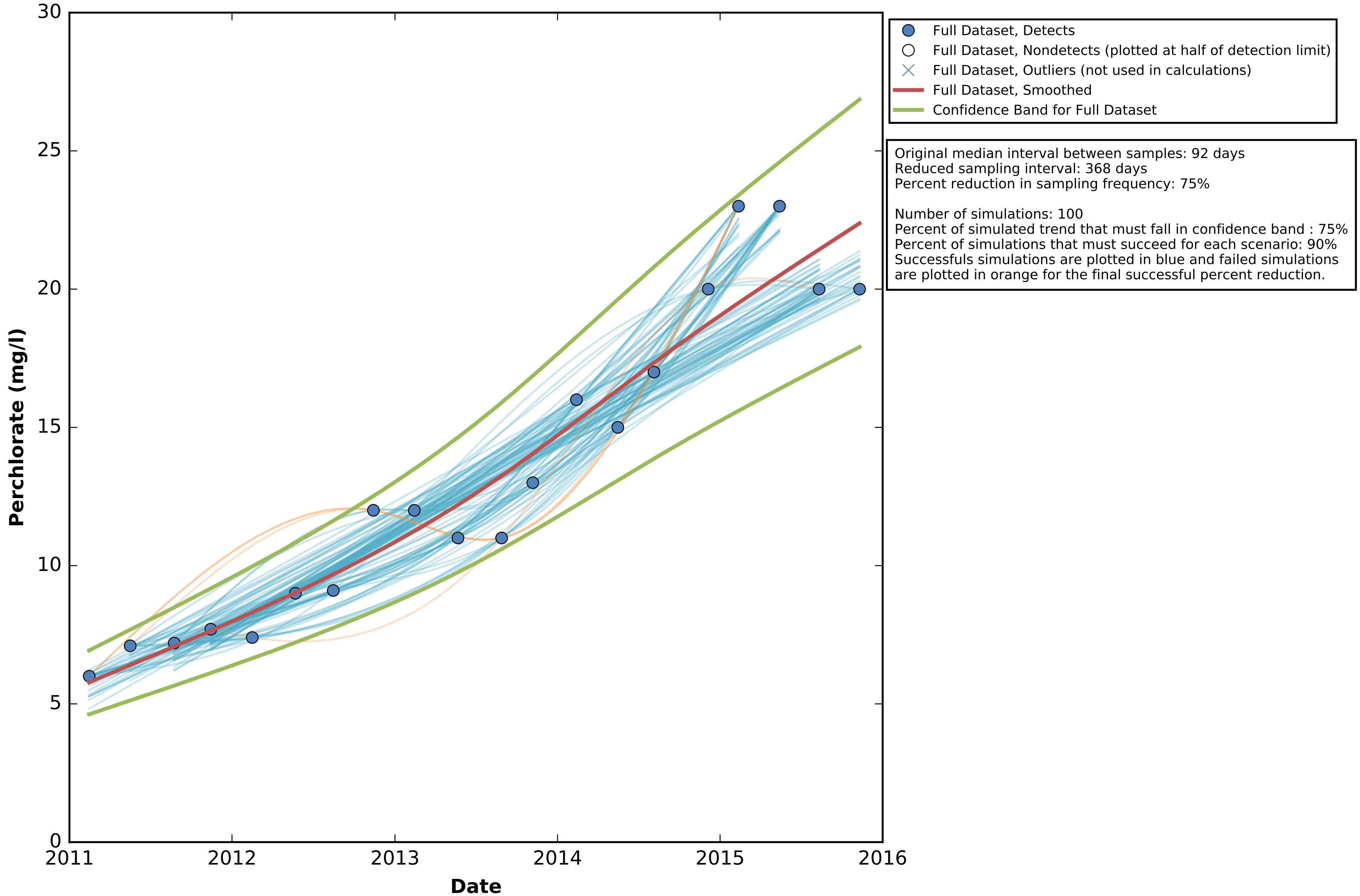
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-91
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-177

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



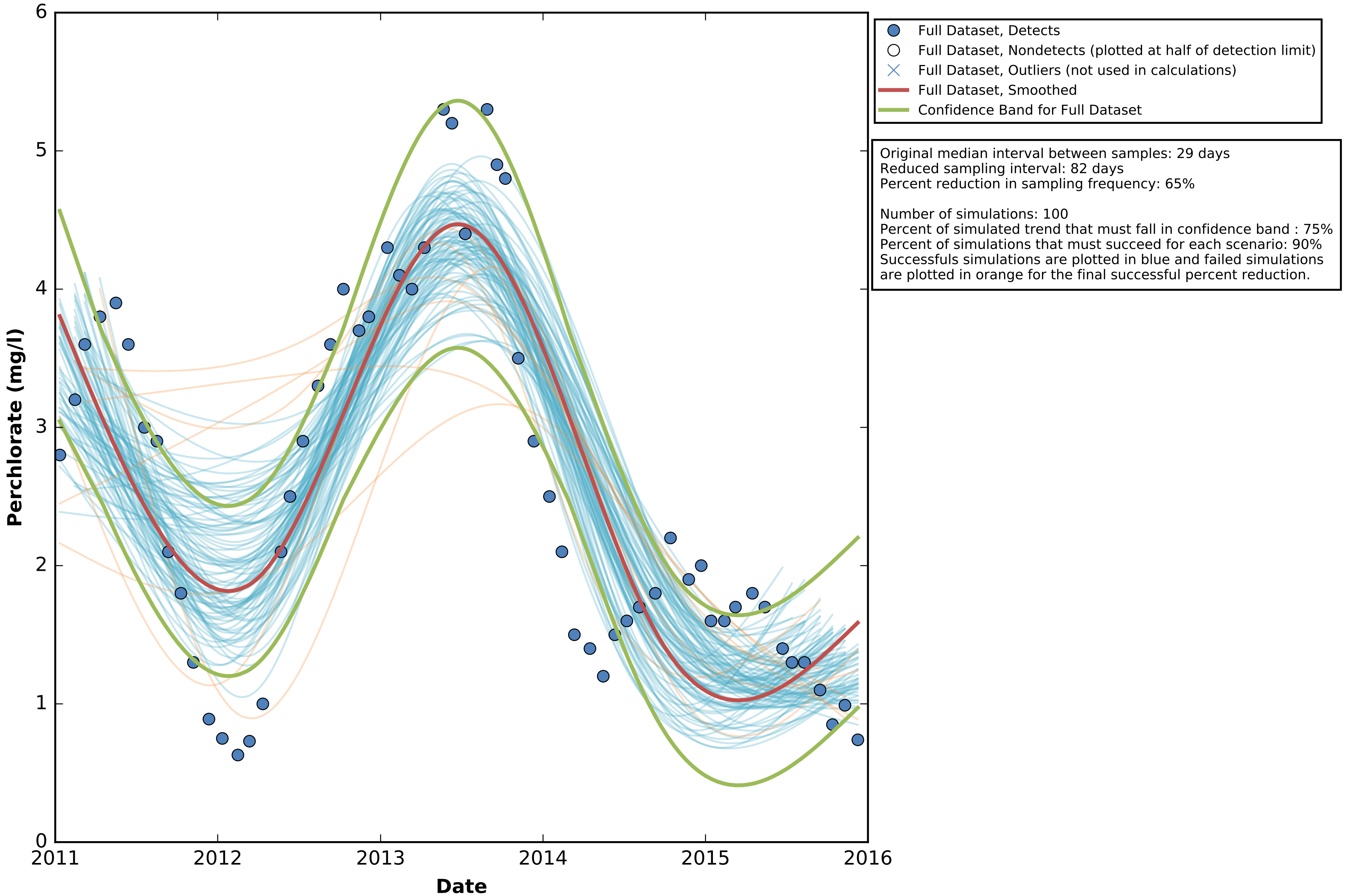
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-94
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-178

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



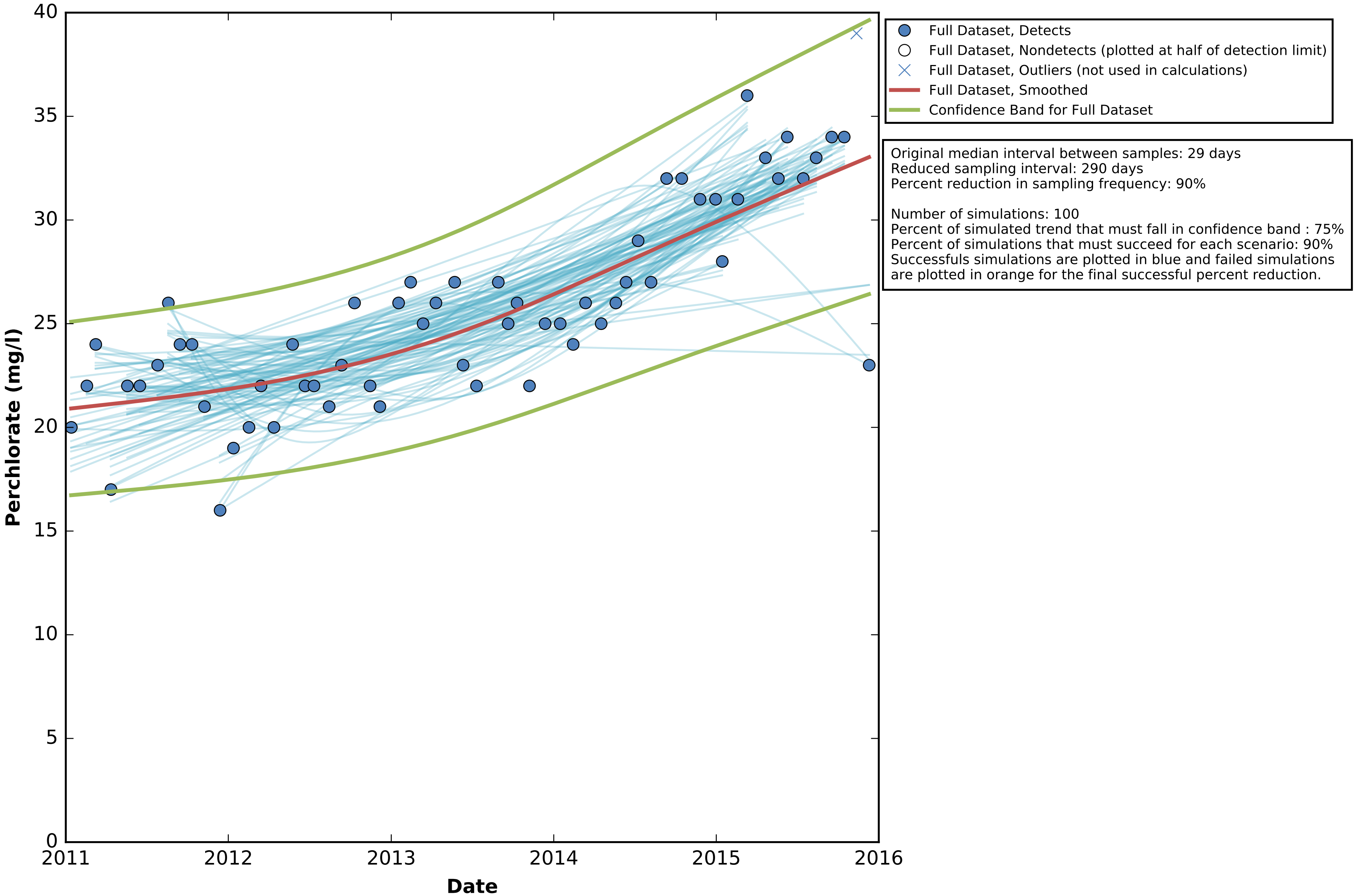
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-97
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-179

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

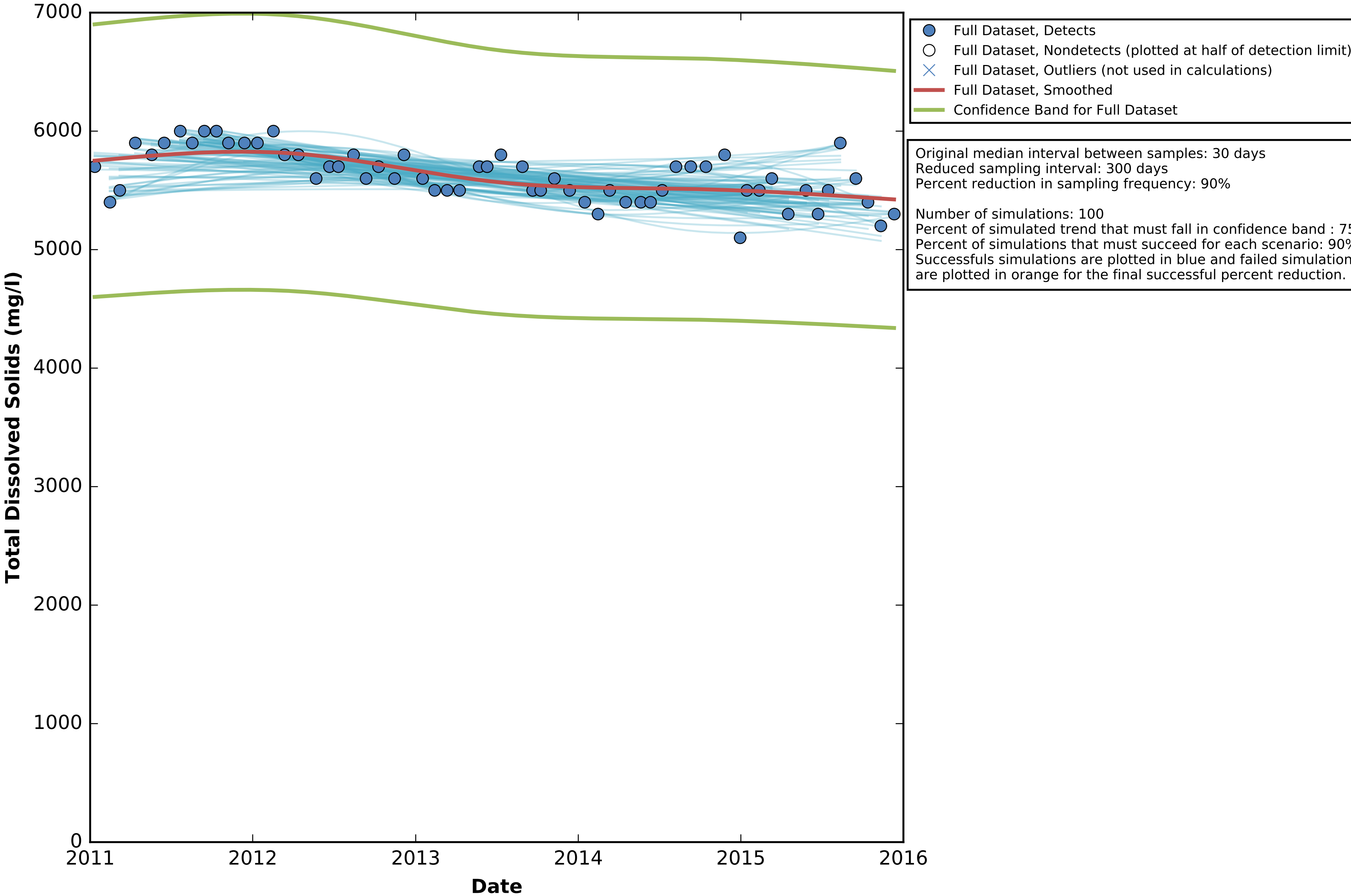
RAMBOLL ENVIRON

Iterative Thinning Results for Perchlorate in PC-98R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-180

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

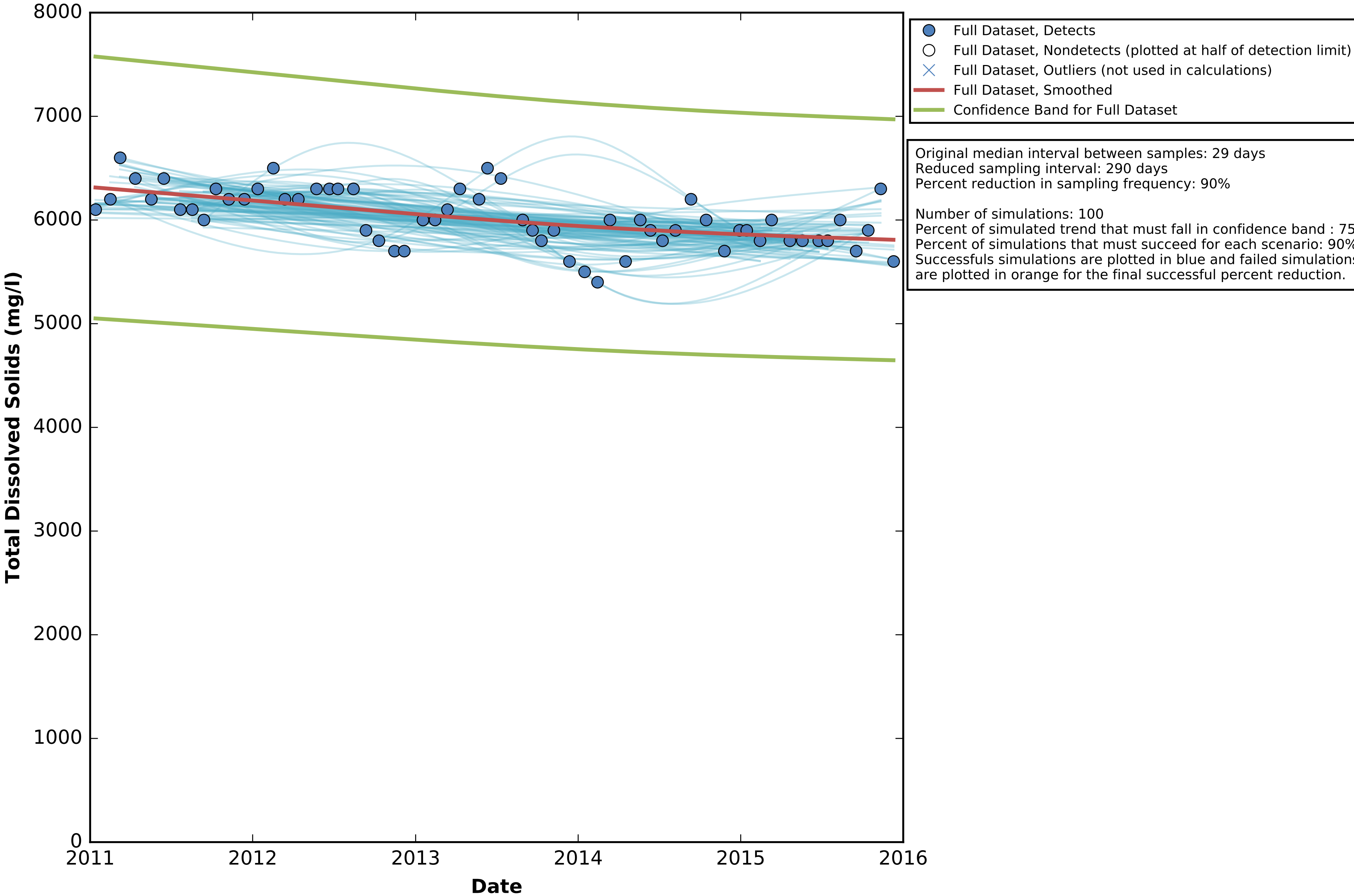
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-1
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-181

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

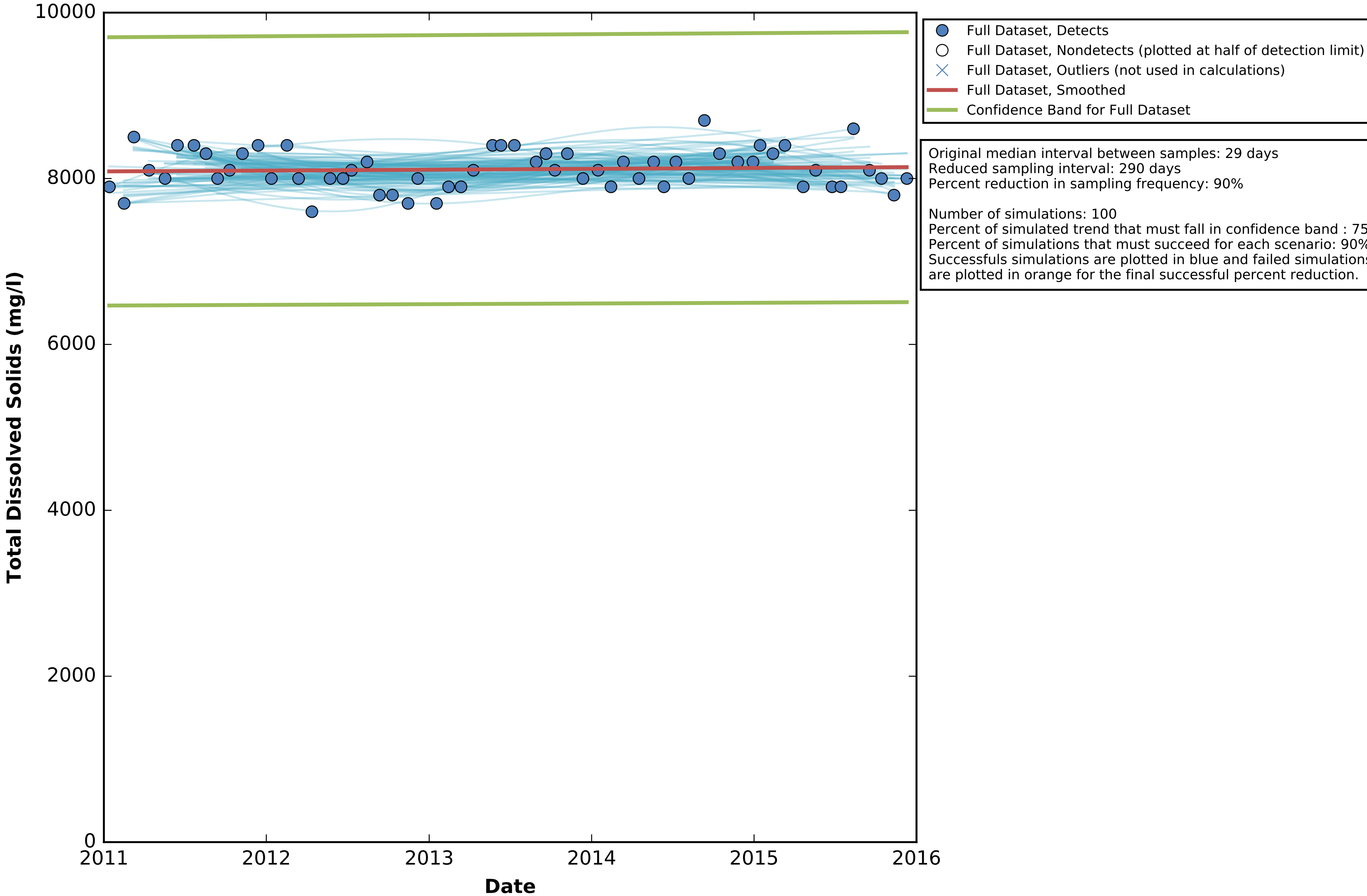
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-2A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-182

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

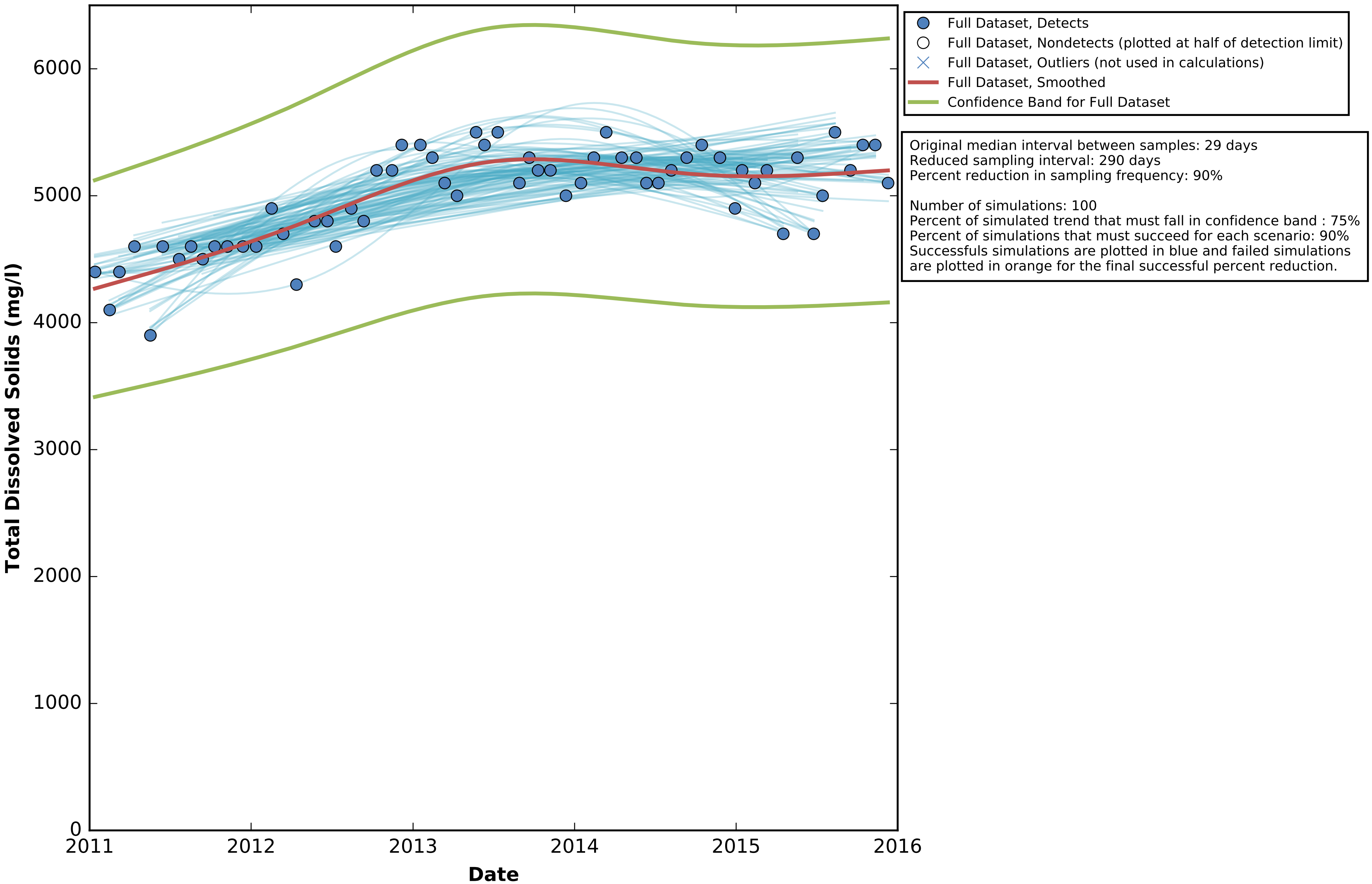
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-183

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



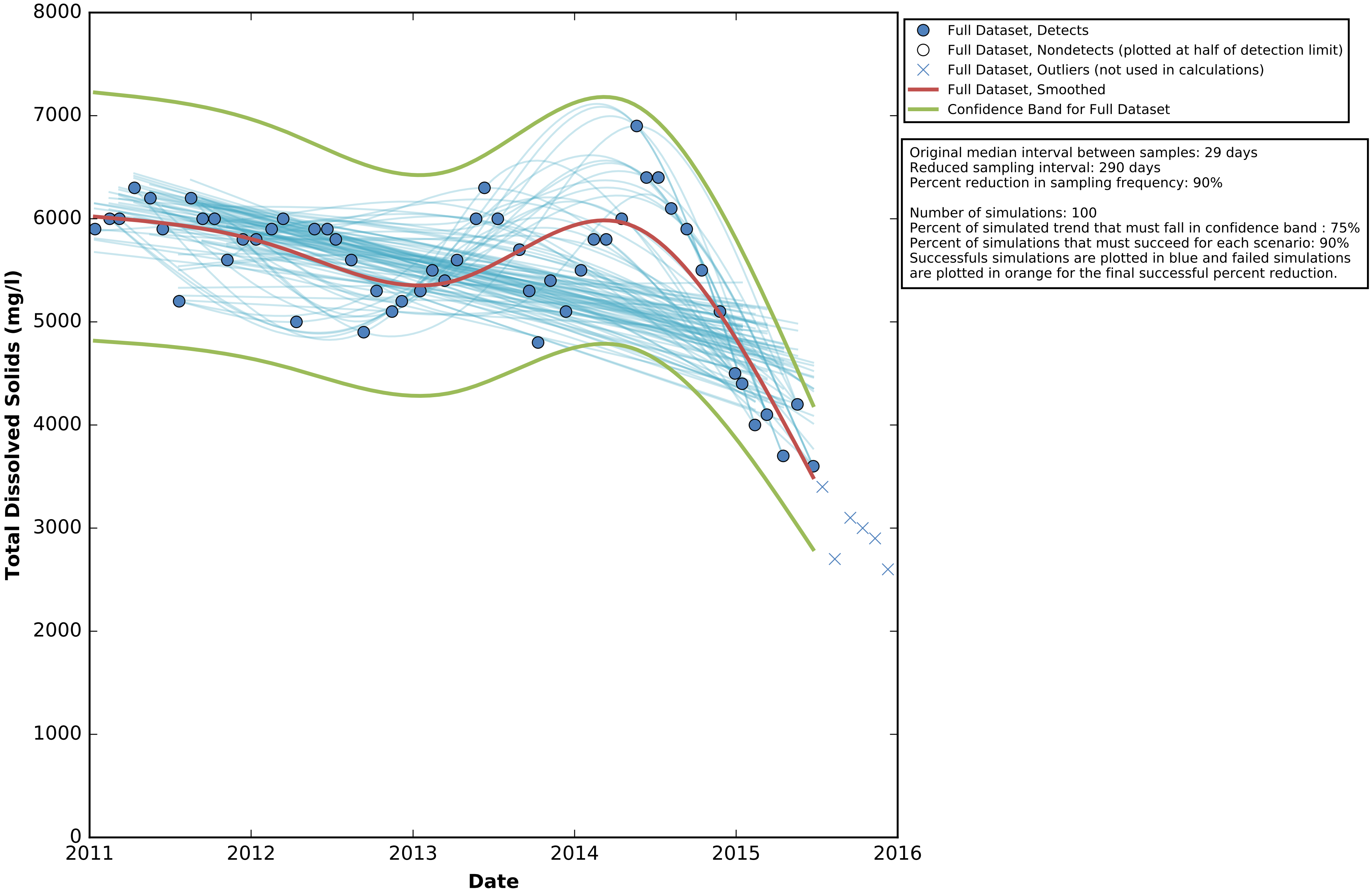
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-4A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-184

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



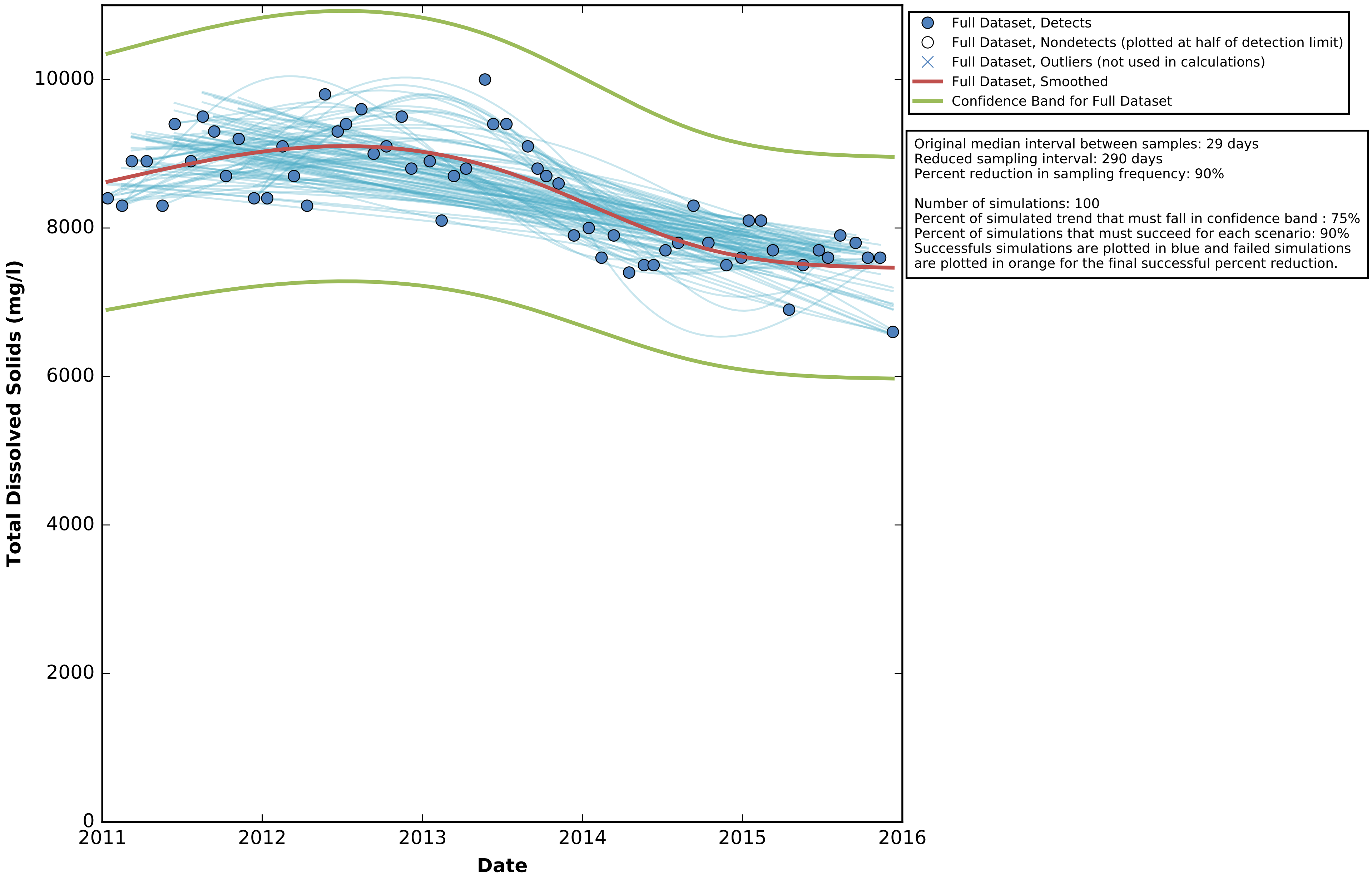
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-5A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-185

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



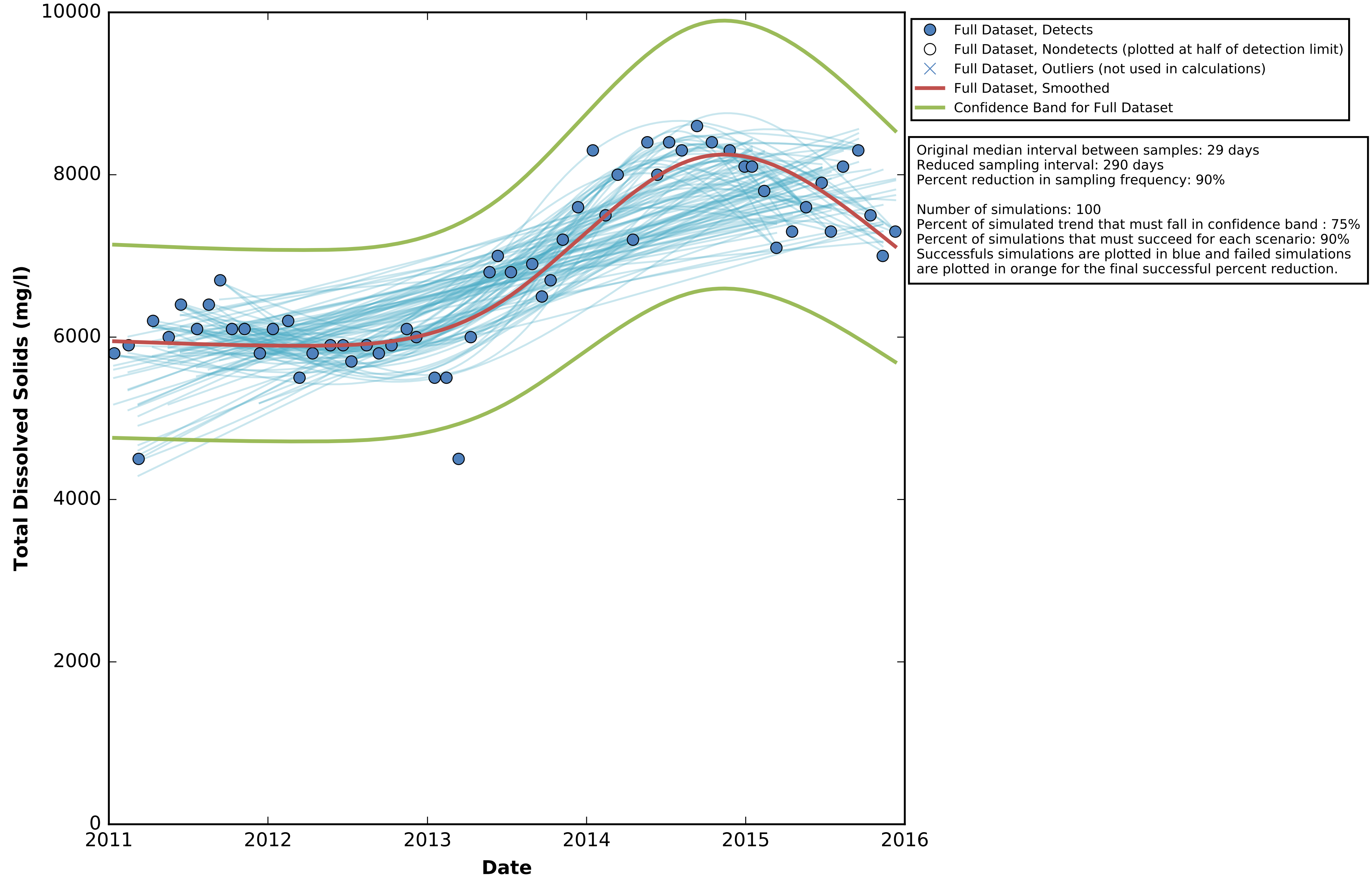
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-6B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-186

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



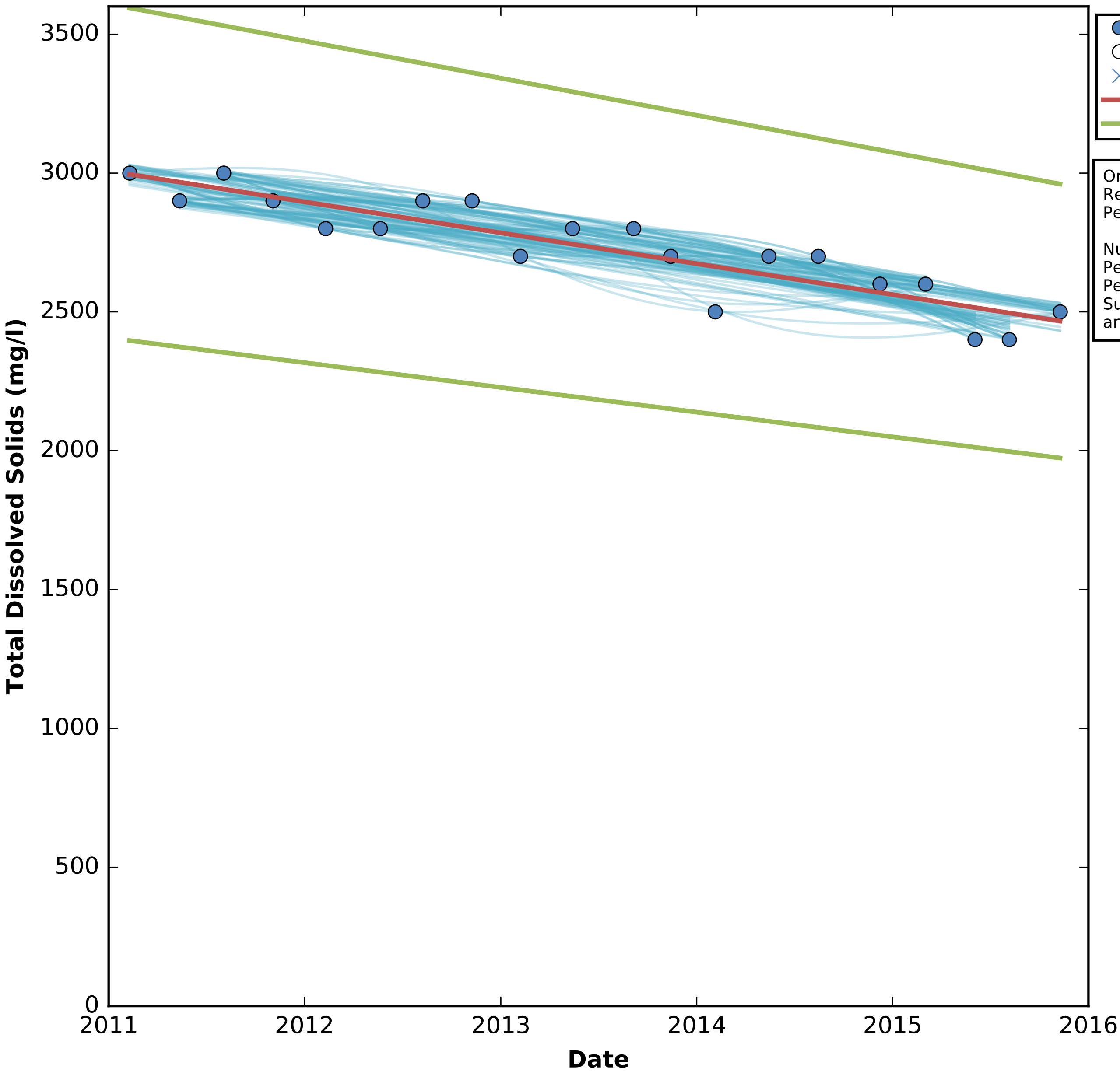
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in ARP-7
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-187

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

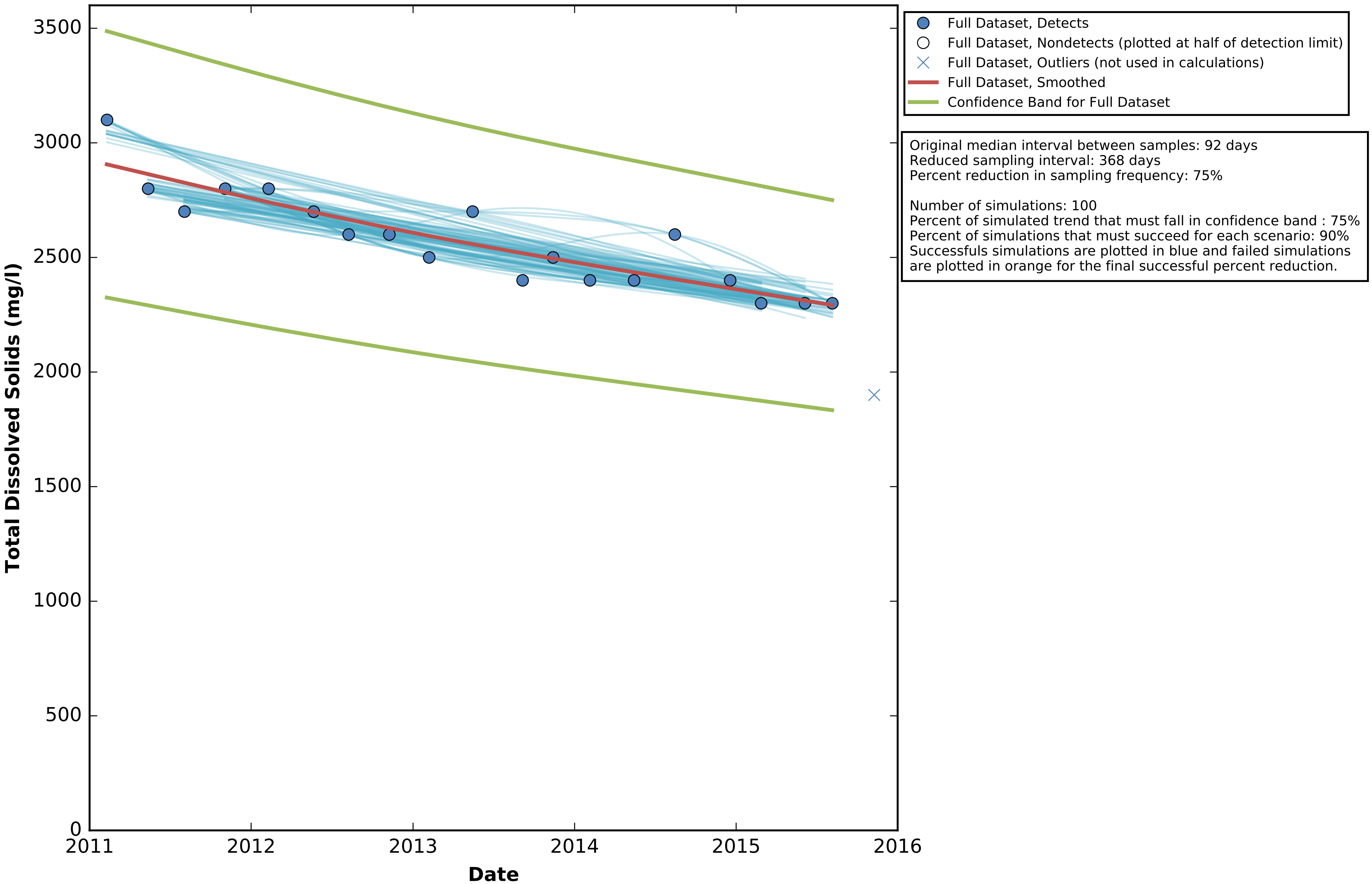
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-10
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-188

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



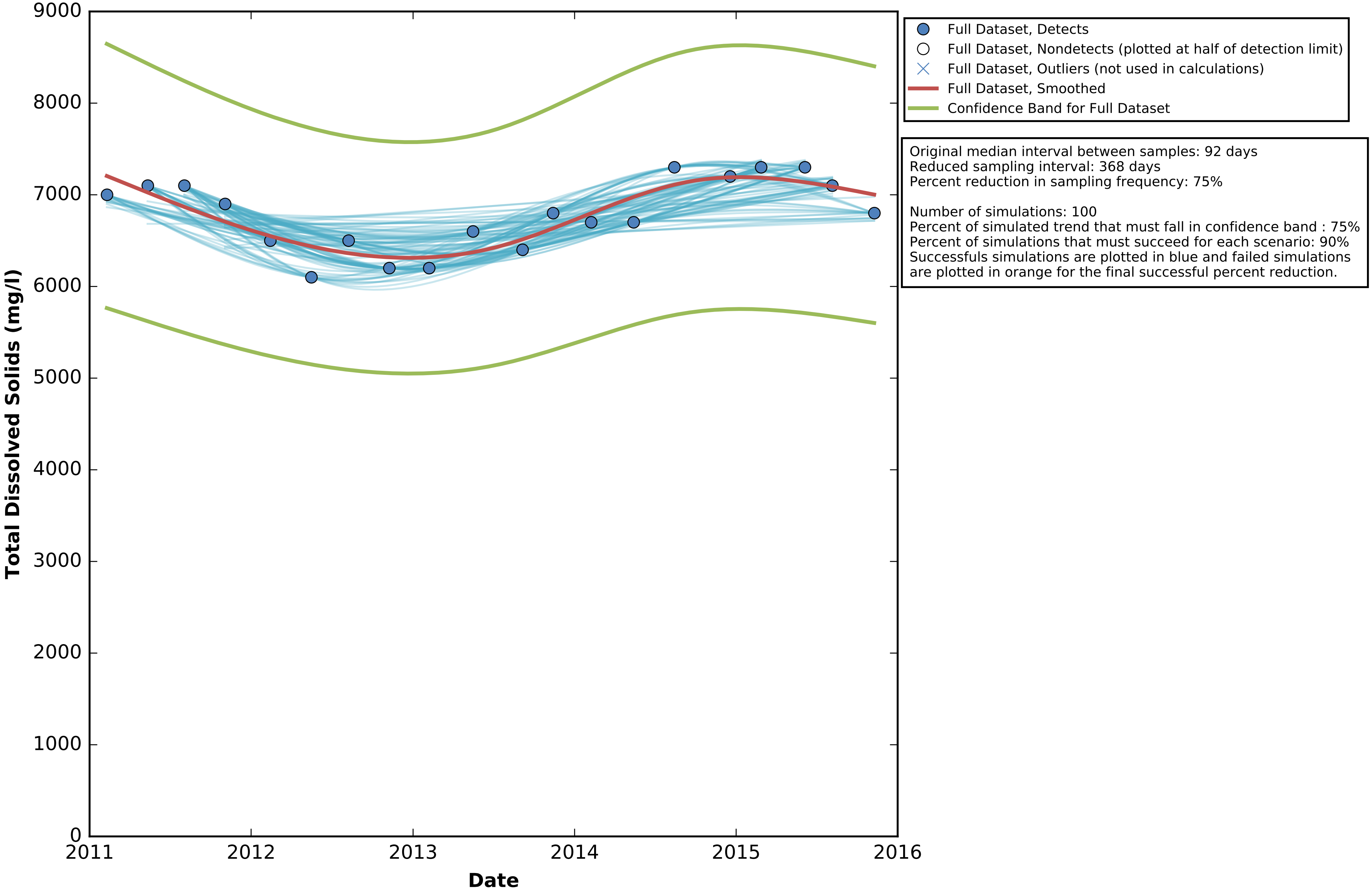
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-11
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-189

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



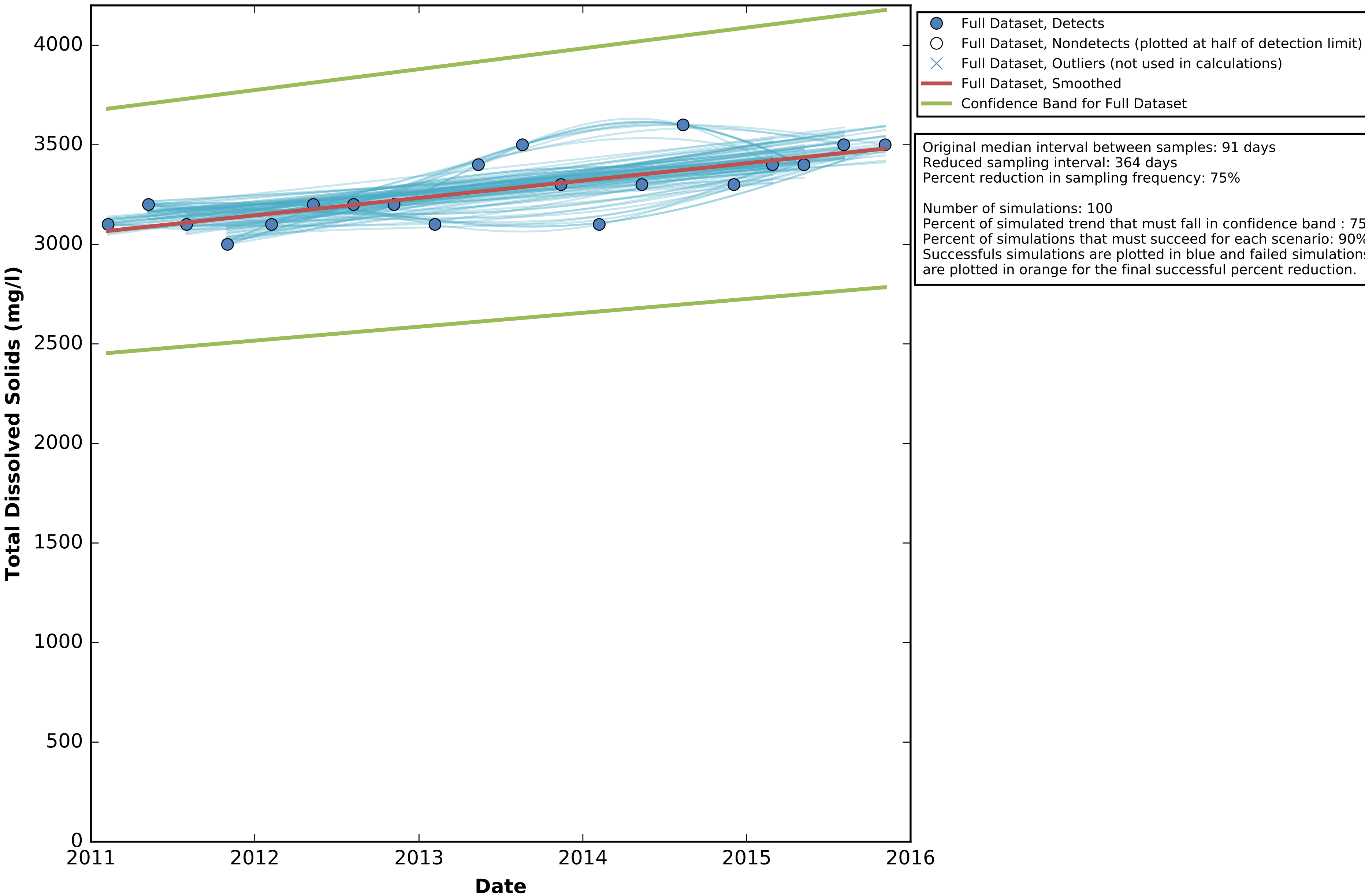
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-12A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-190

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

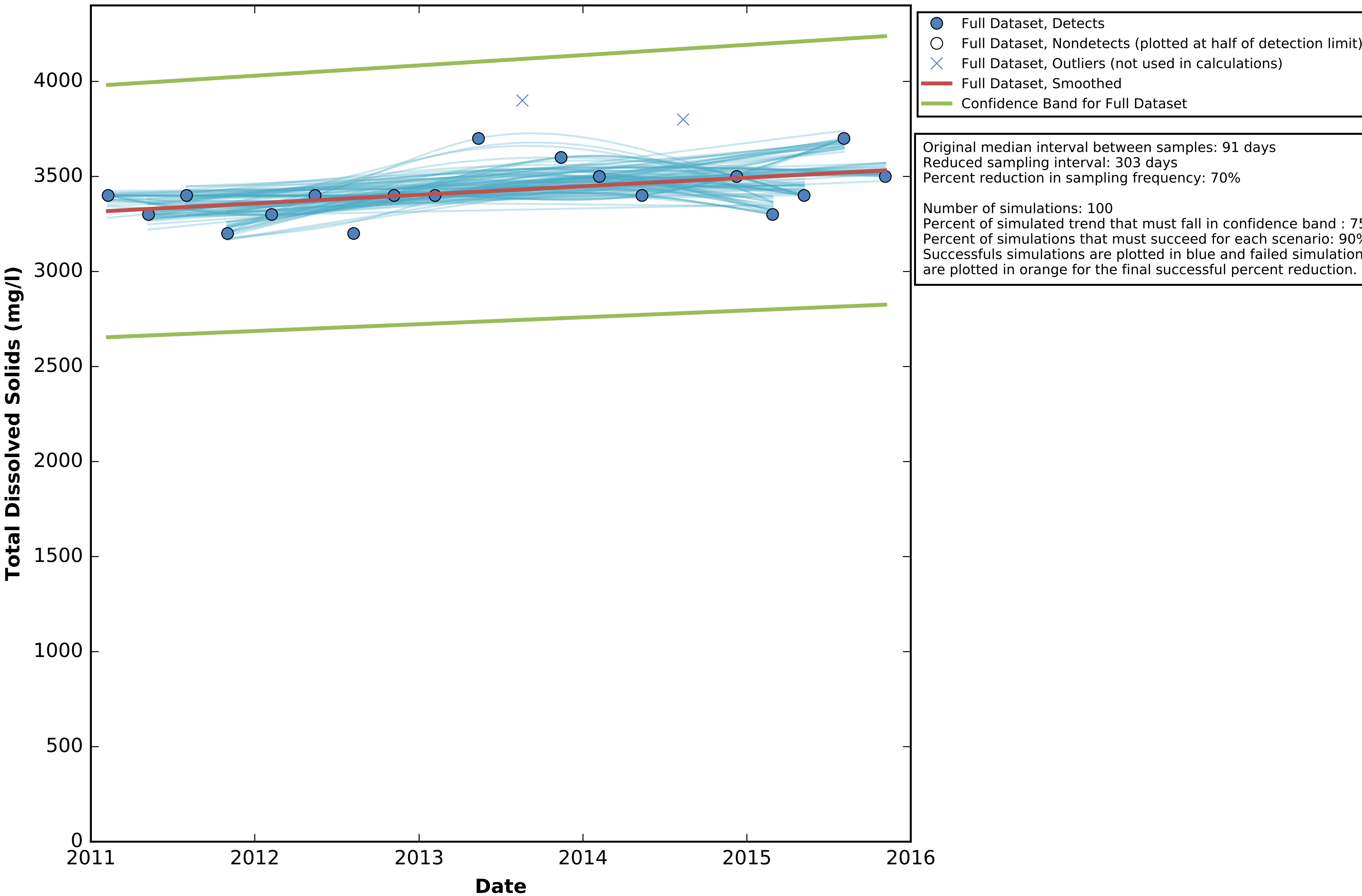
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-191

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

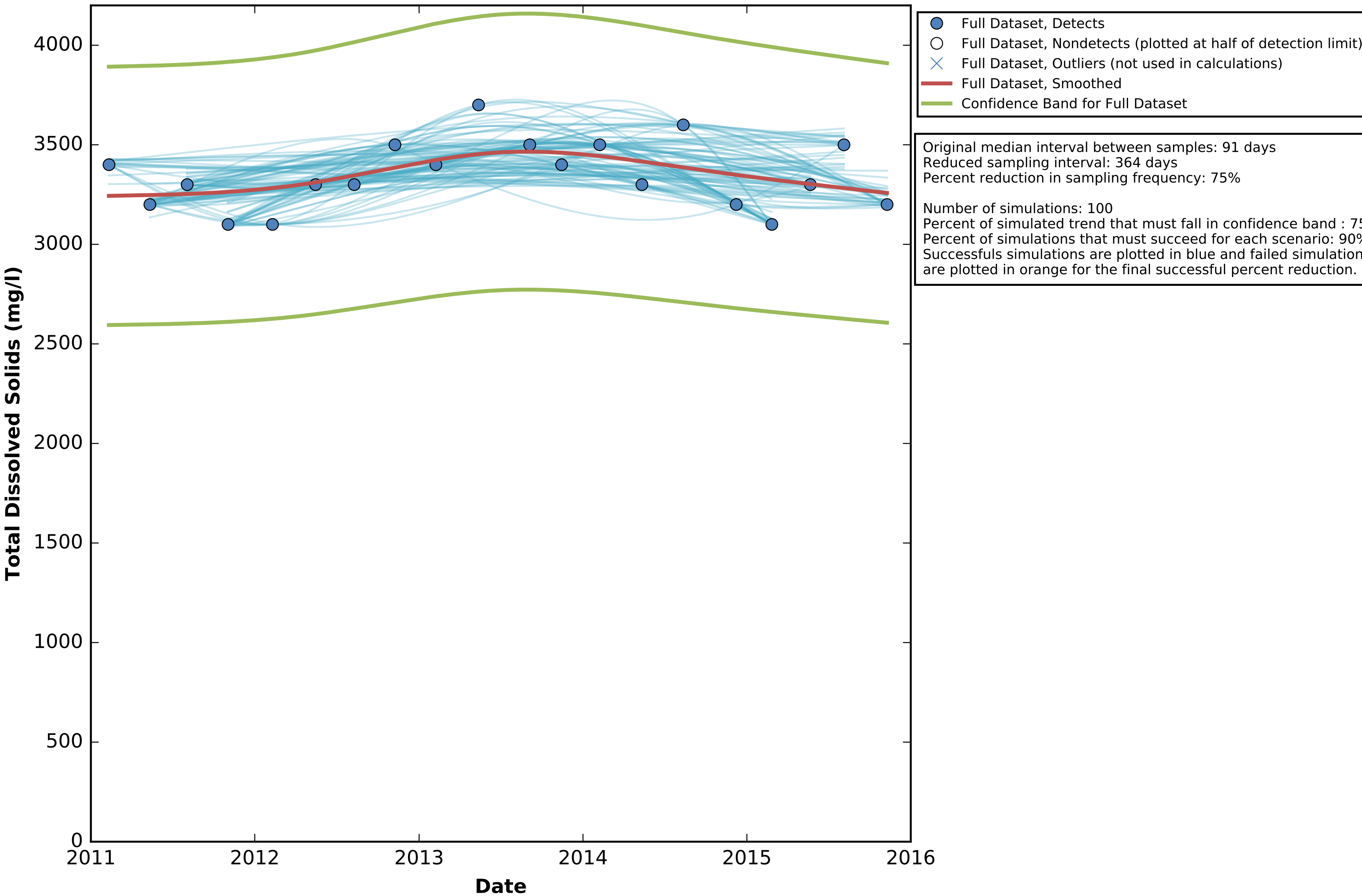
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-135
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-192

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

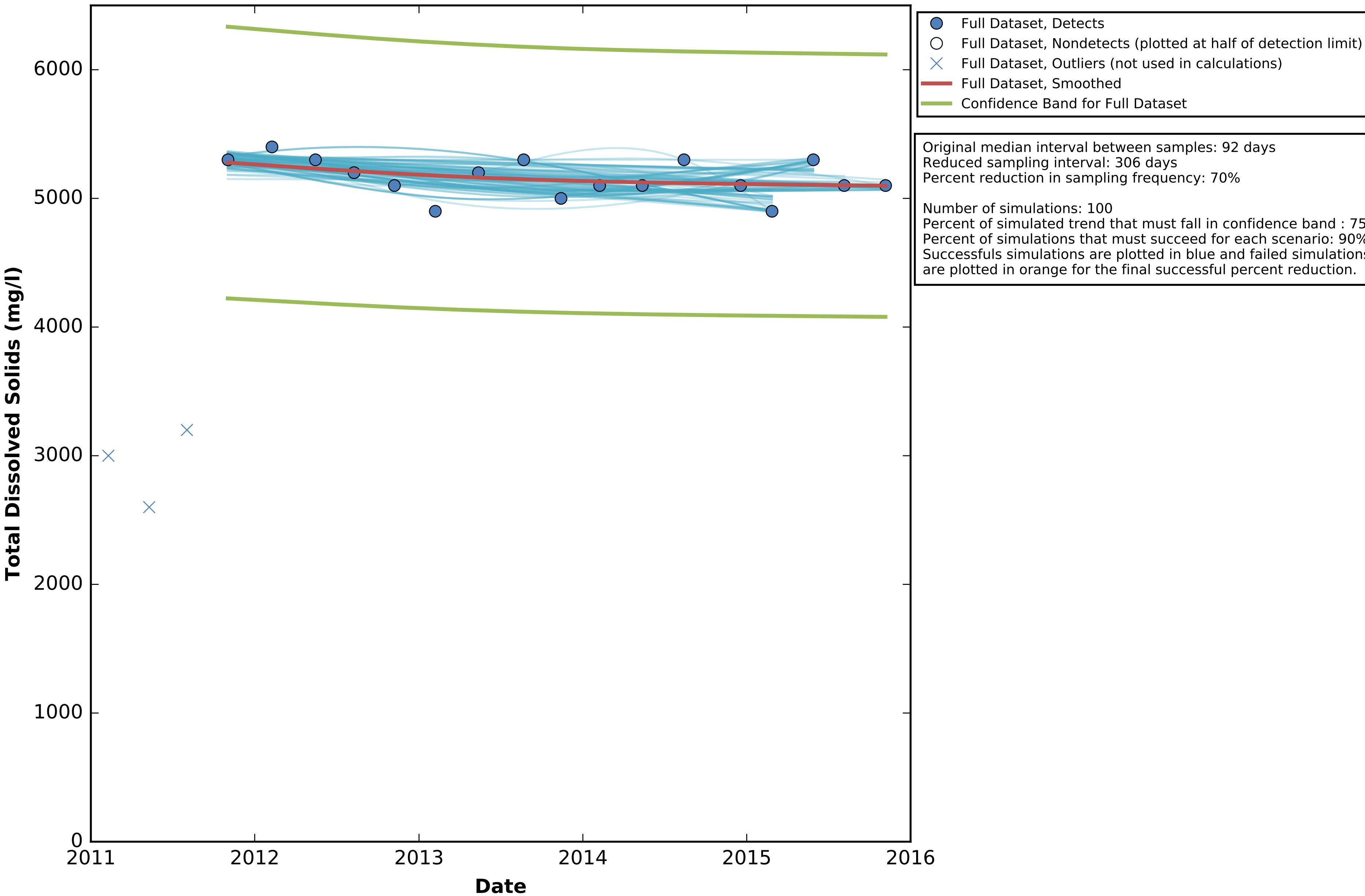
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-14A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-193

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

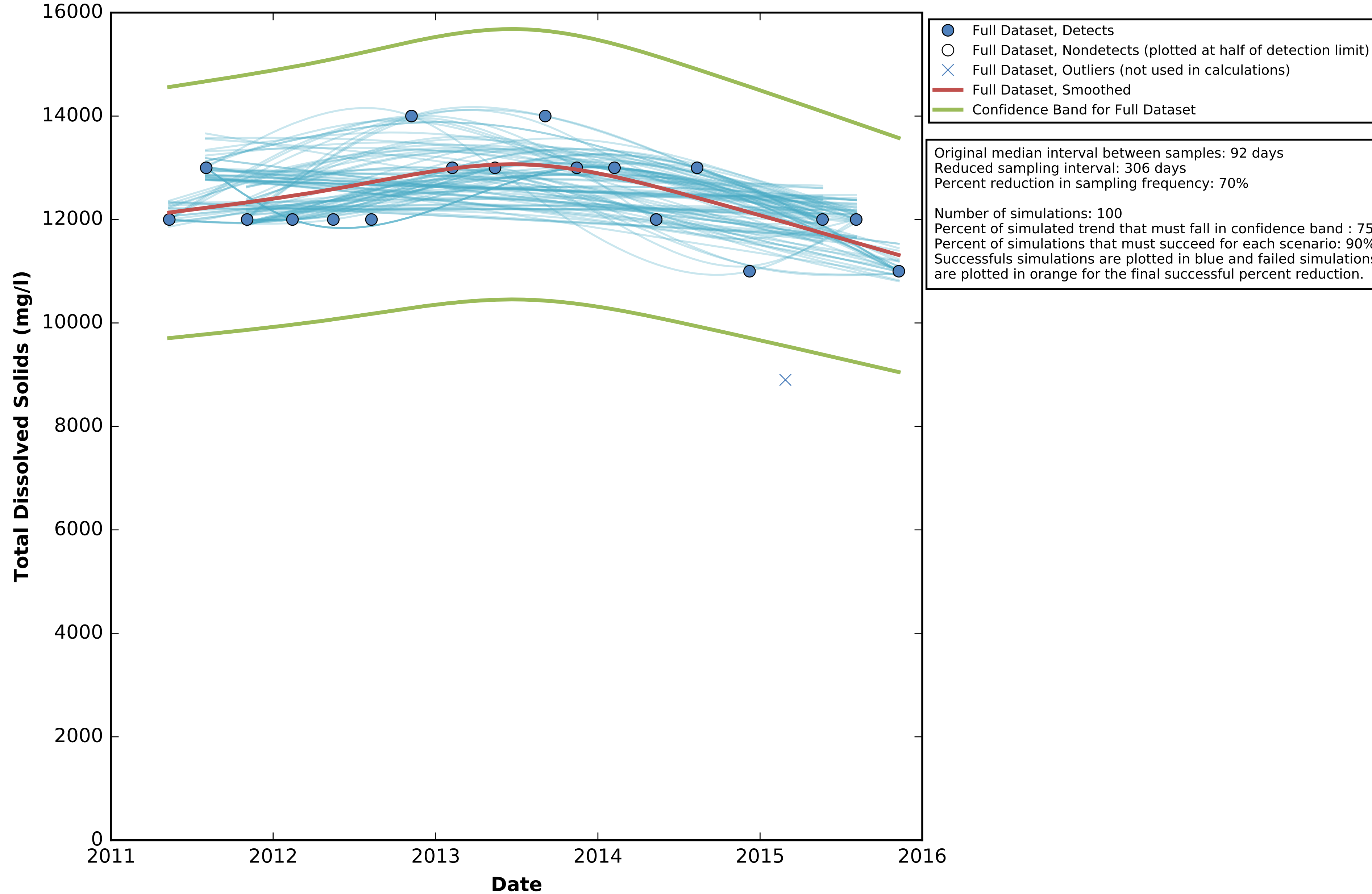
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-19
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-194**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

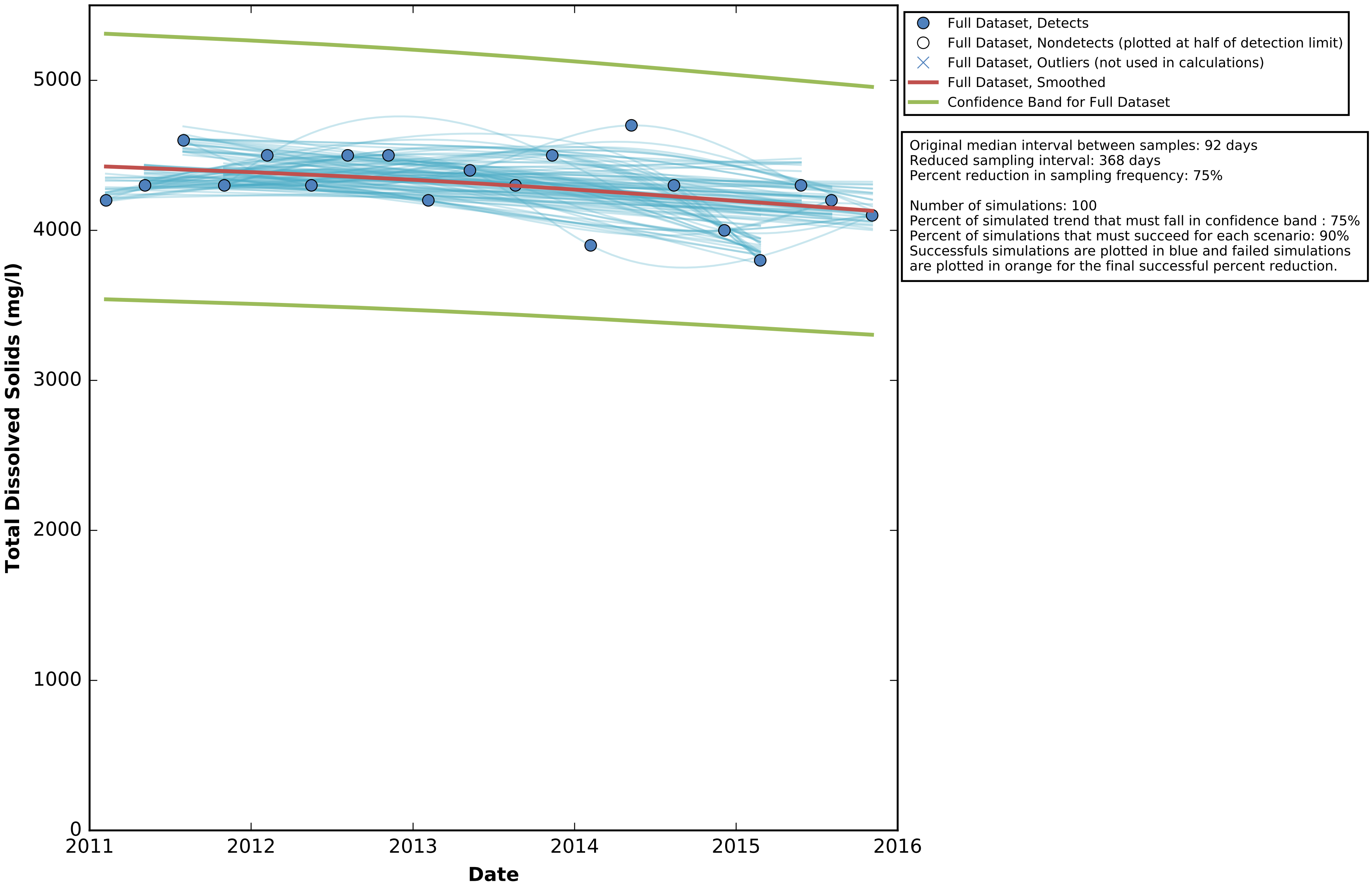
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-22A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-195

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



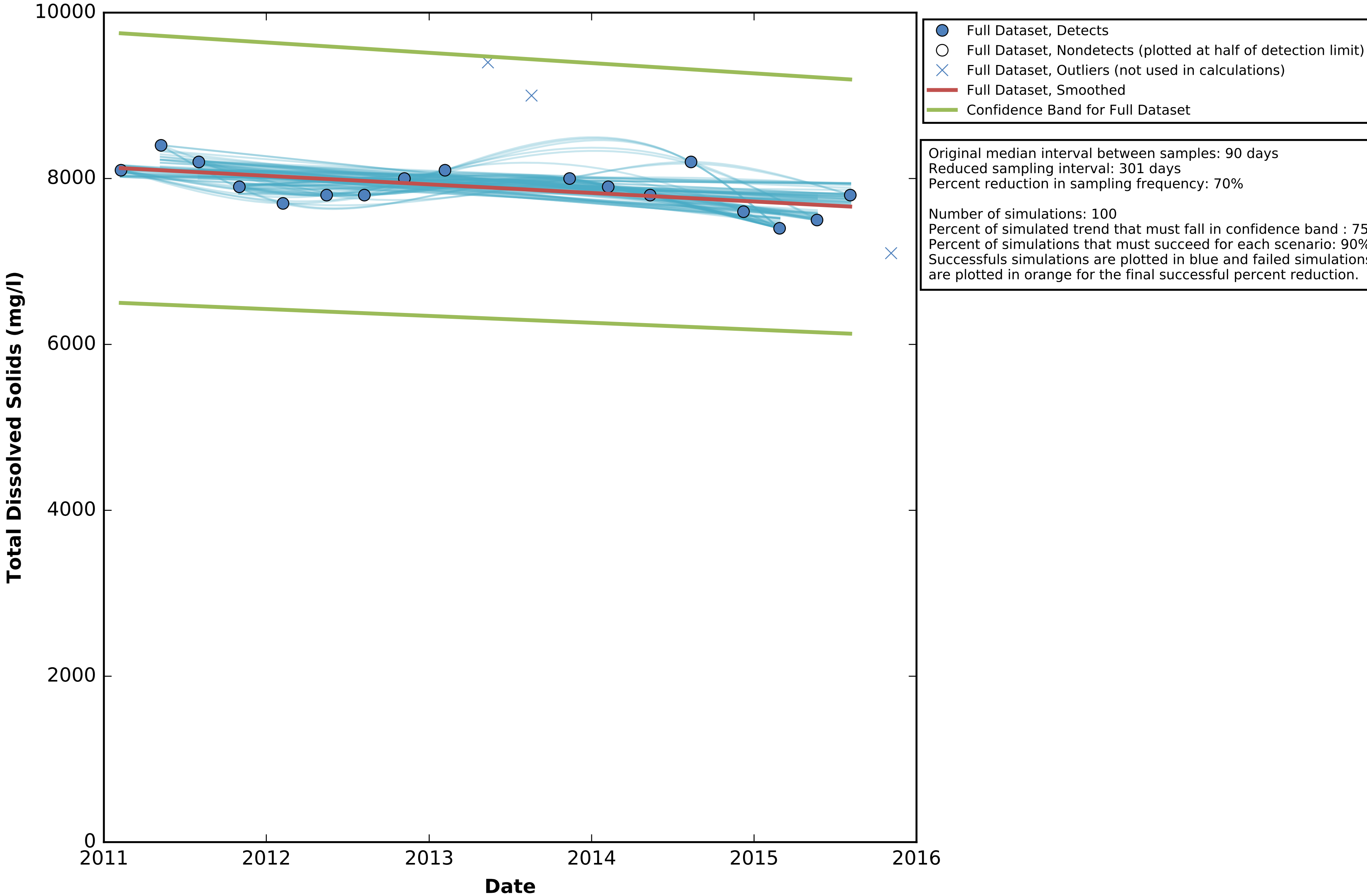
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-23
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-196

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 301 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

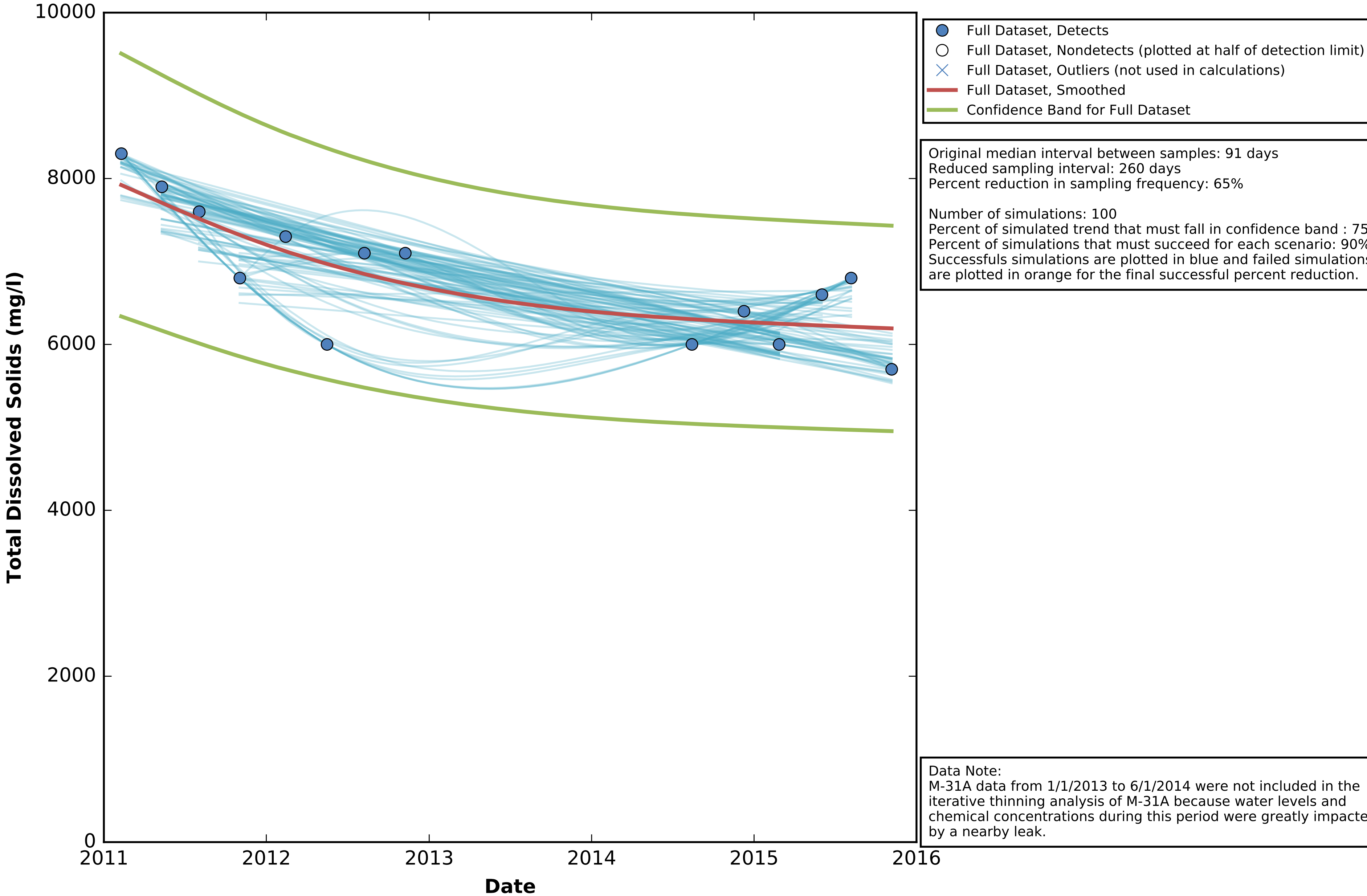
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-25
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-197

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Data Note:
M-31A data from 1/1/2013 to 6/1/2014 were not included in the iterative thinning analysis of M-31A because water levels and chemical concentrations during this period were greatly impacted by a nearby leak.

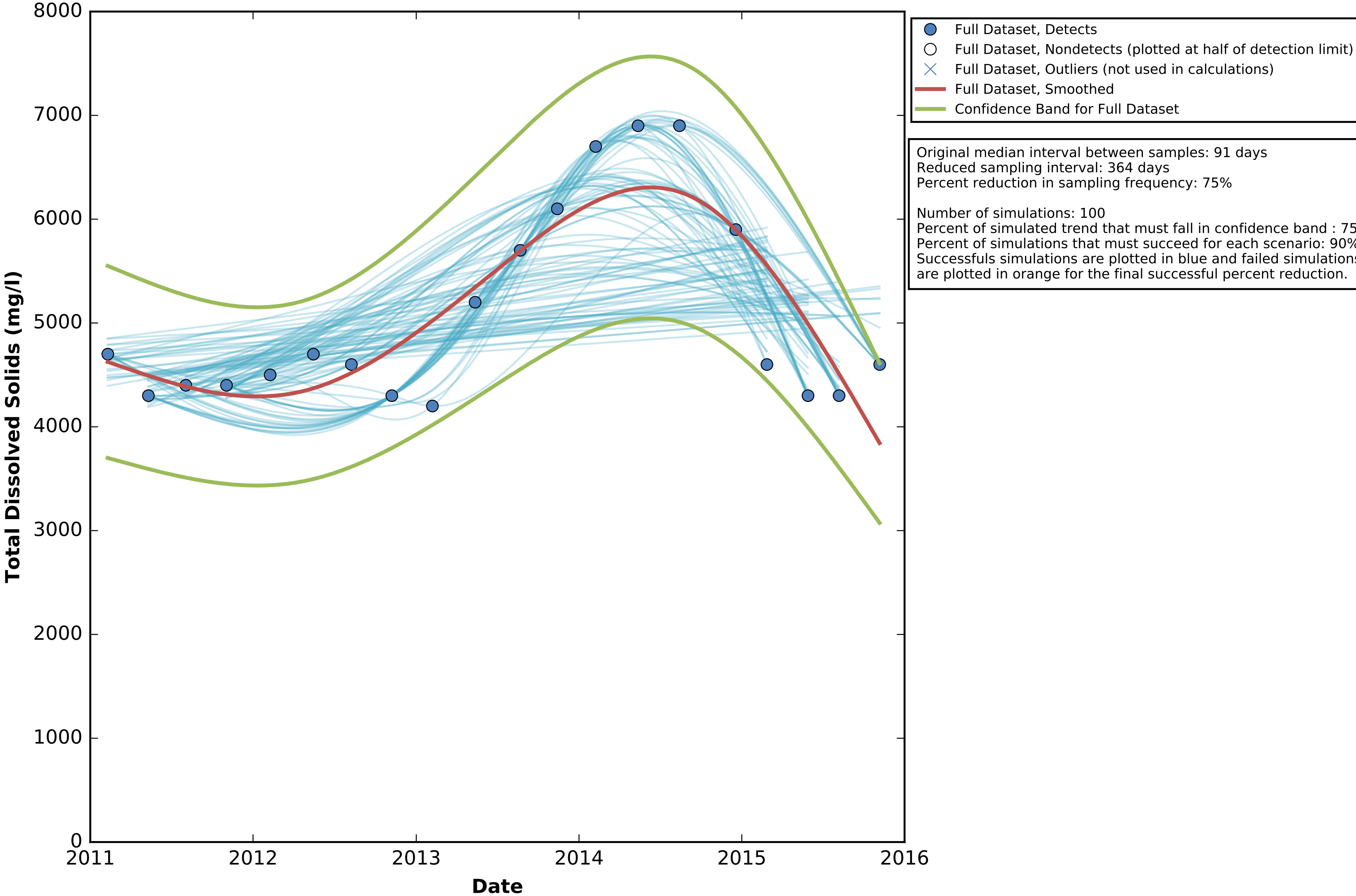
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-31A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-198

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

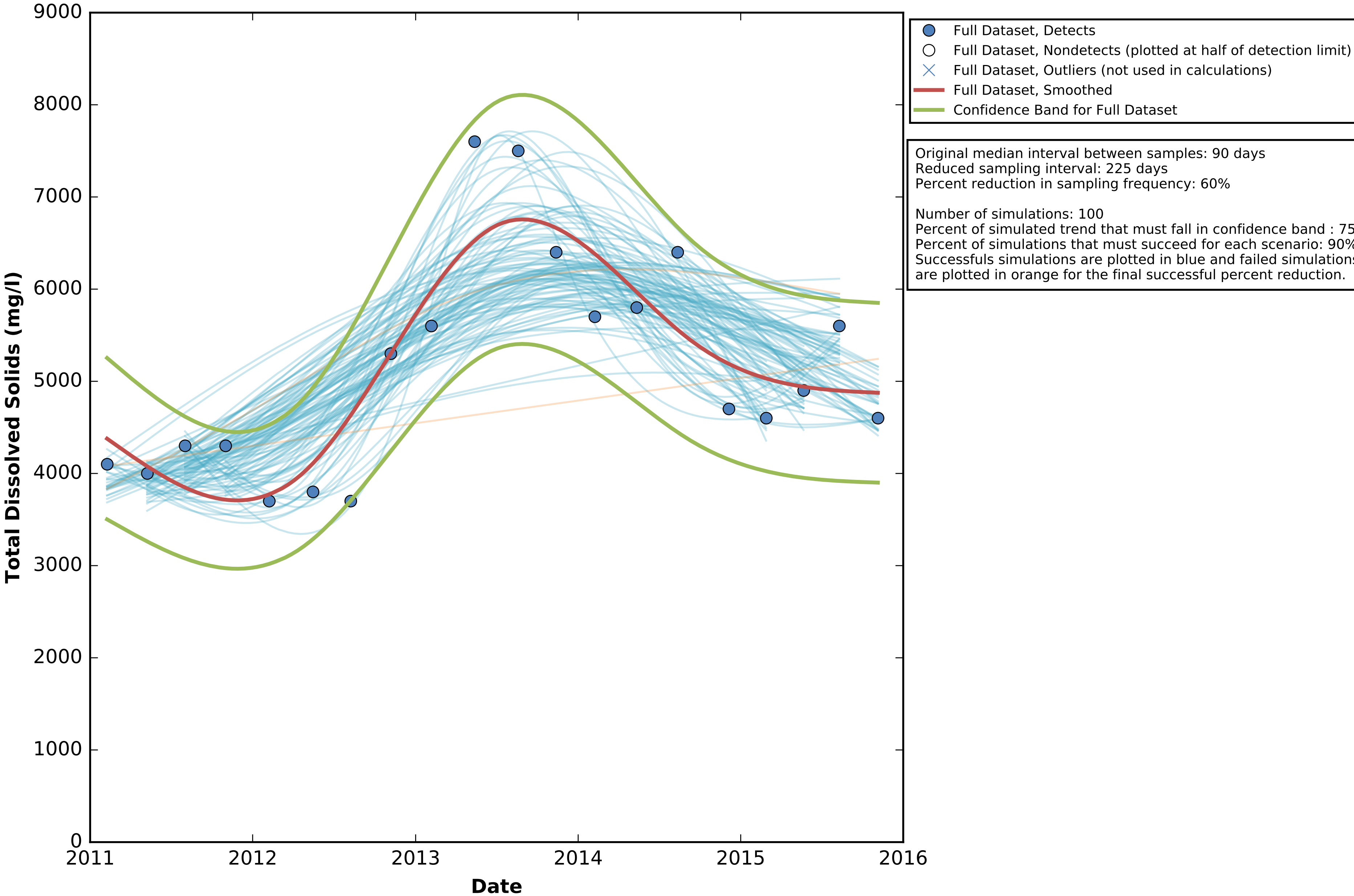
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-35
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-199

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 225 days
Percent reduction in sampling frequency: 60%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

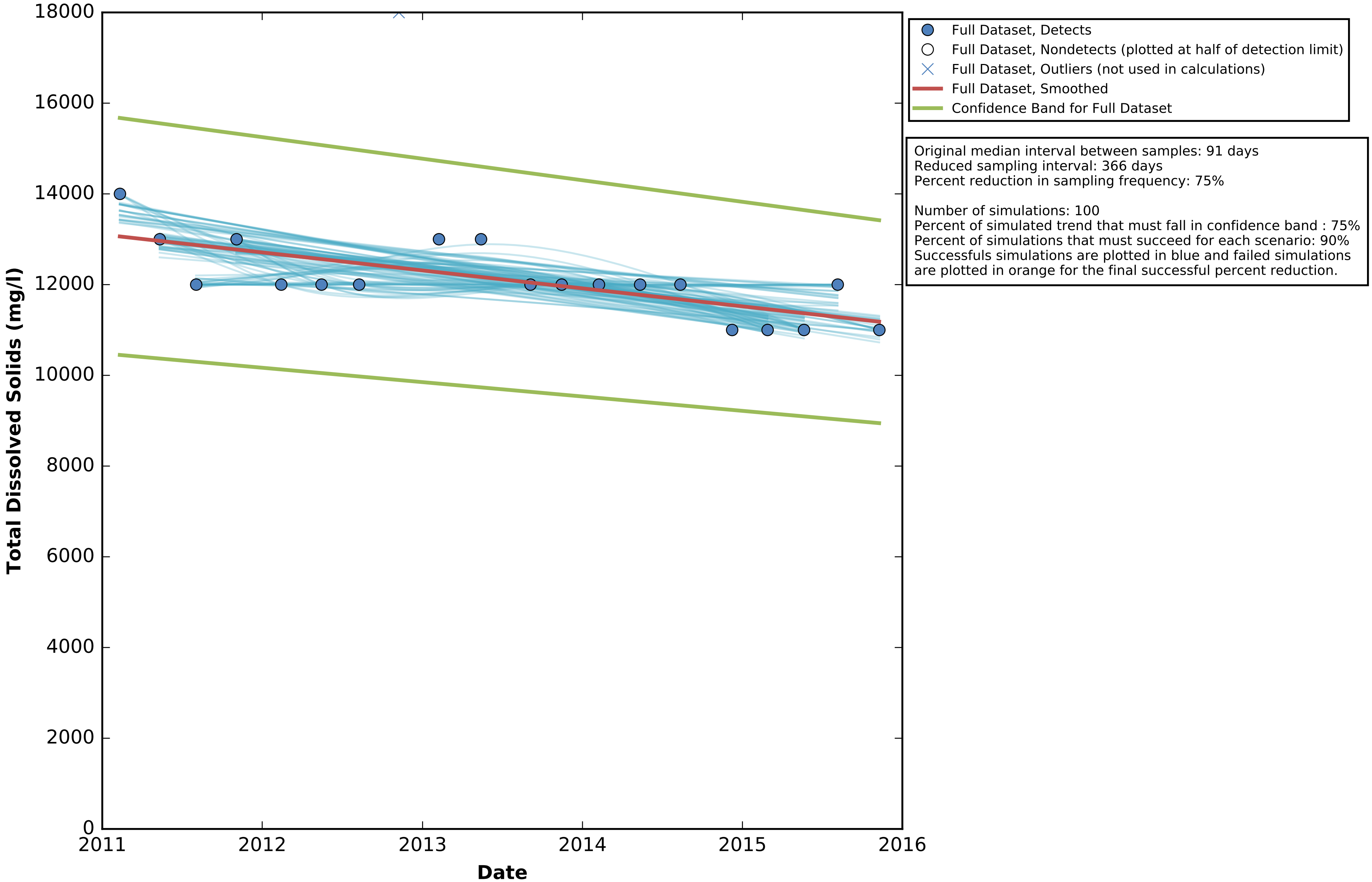
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-200

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



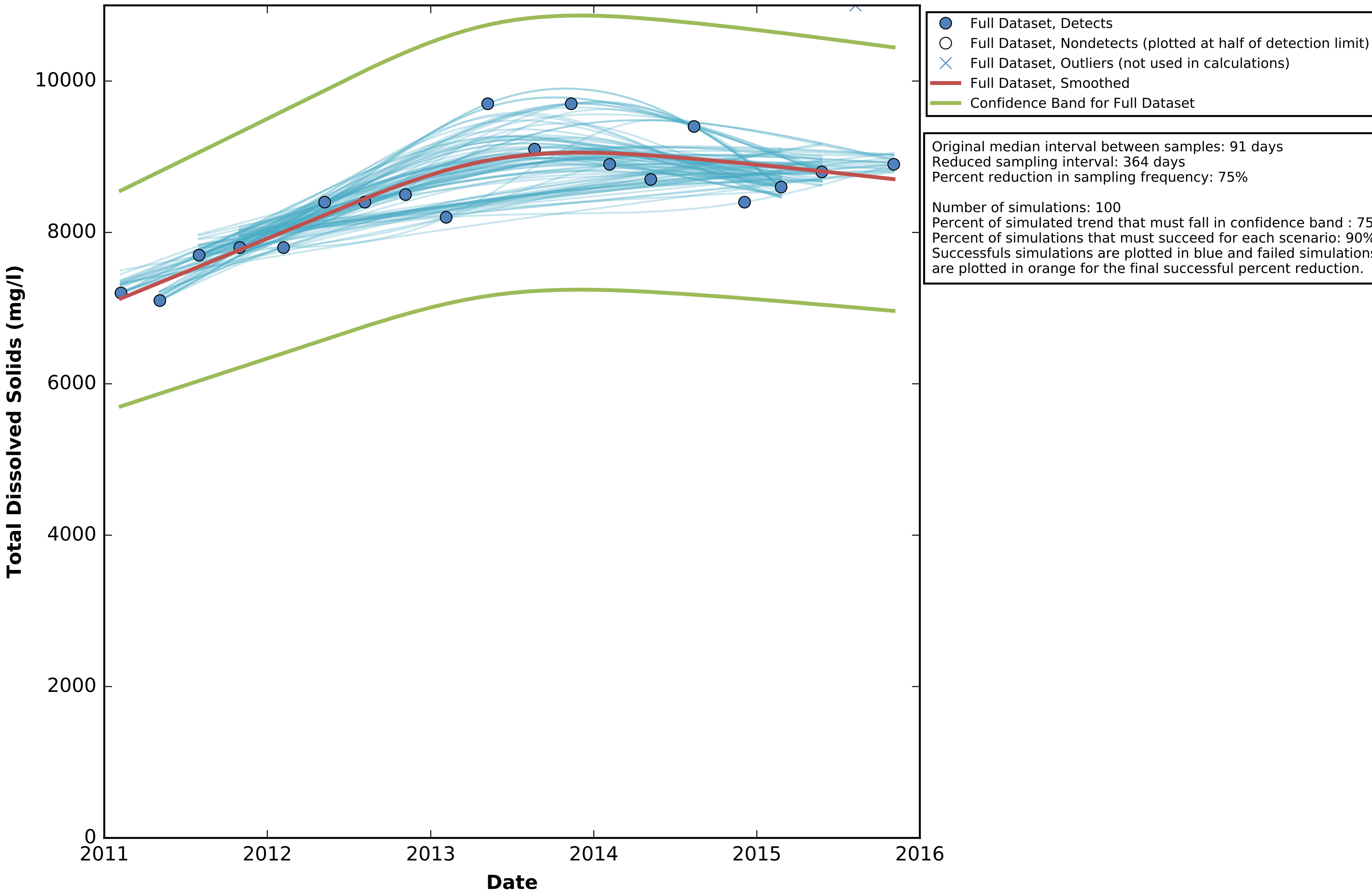
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-38
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-201

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

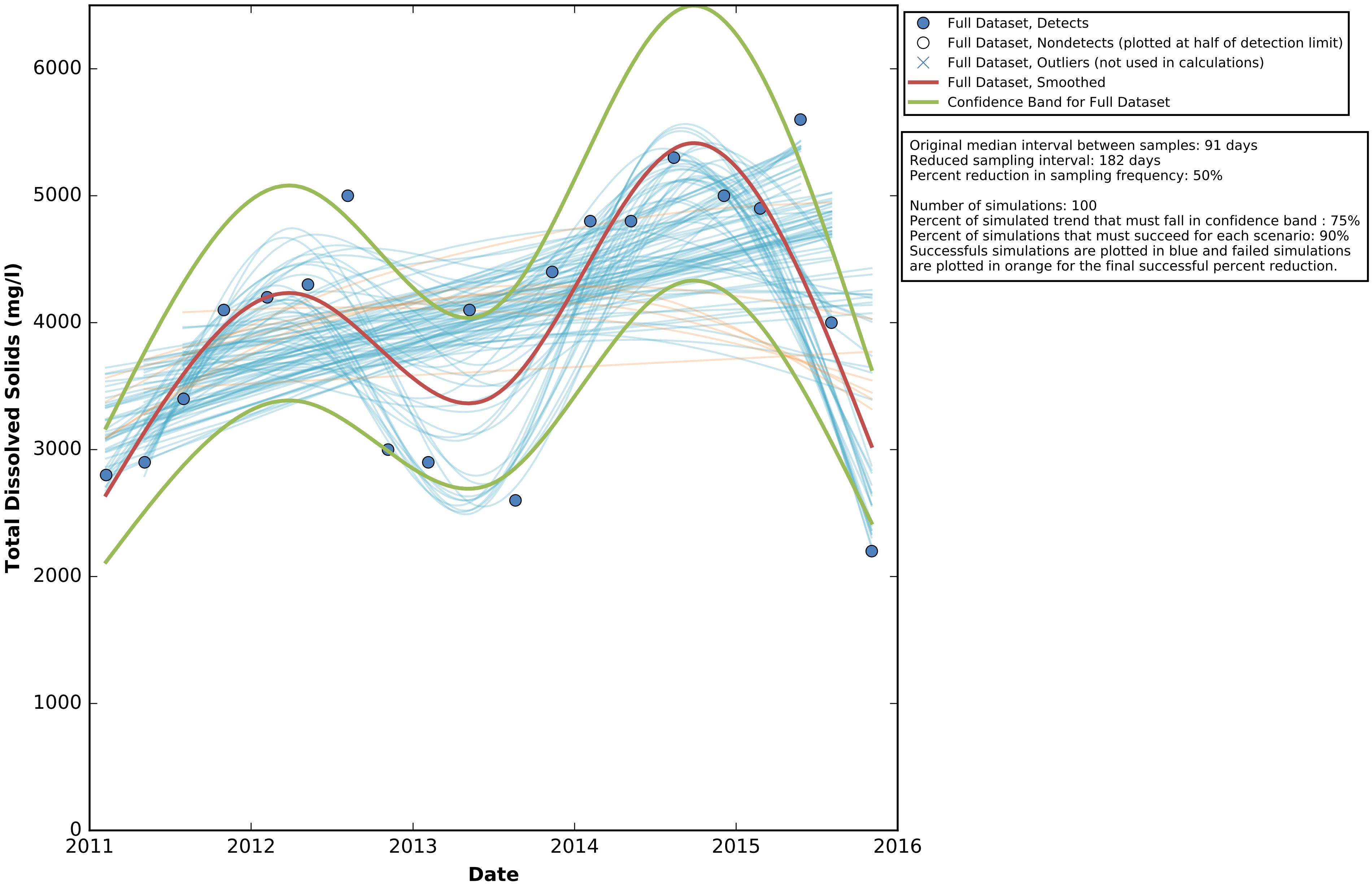
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-44
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-202

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



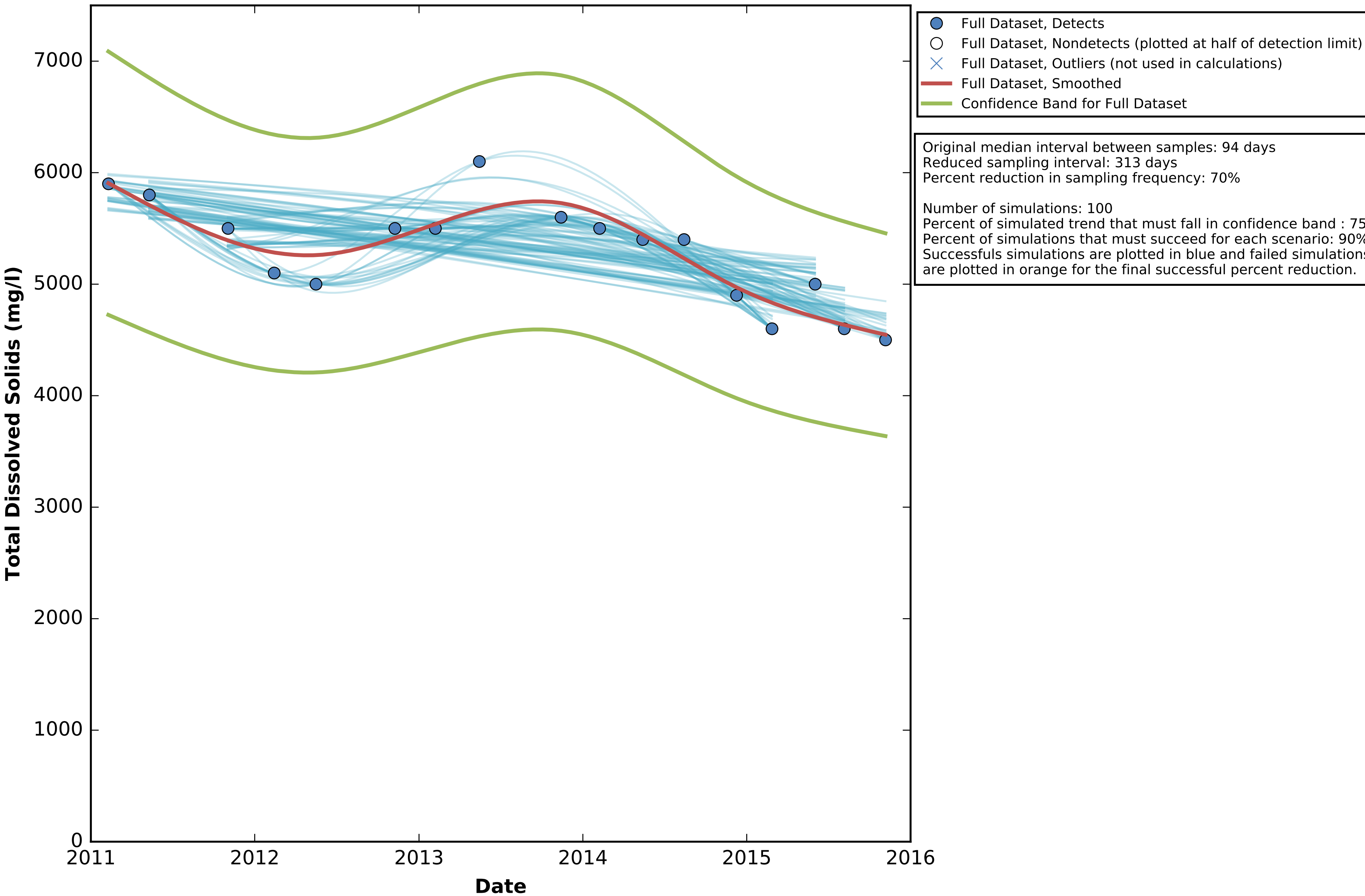
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-48A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-203

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 94 days
Reduced sampling interval: 313 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

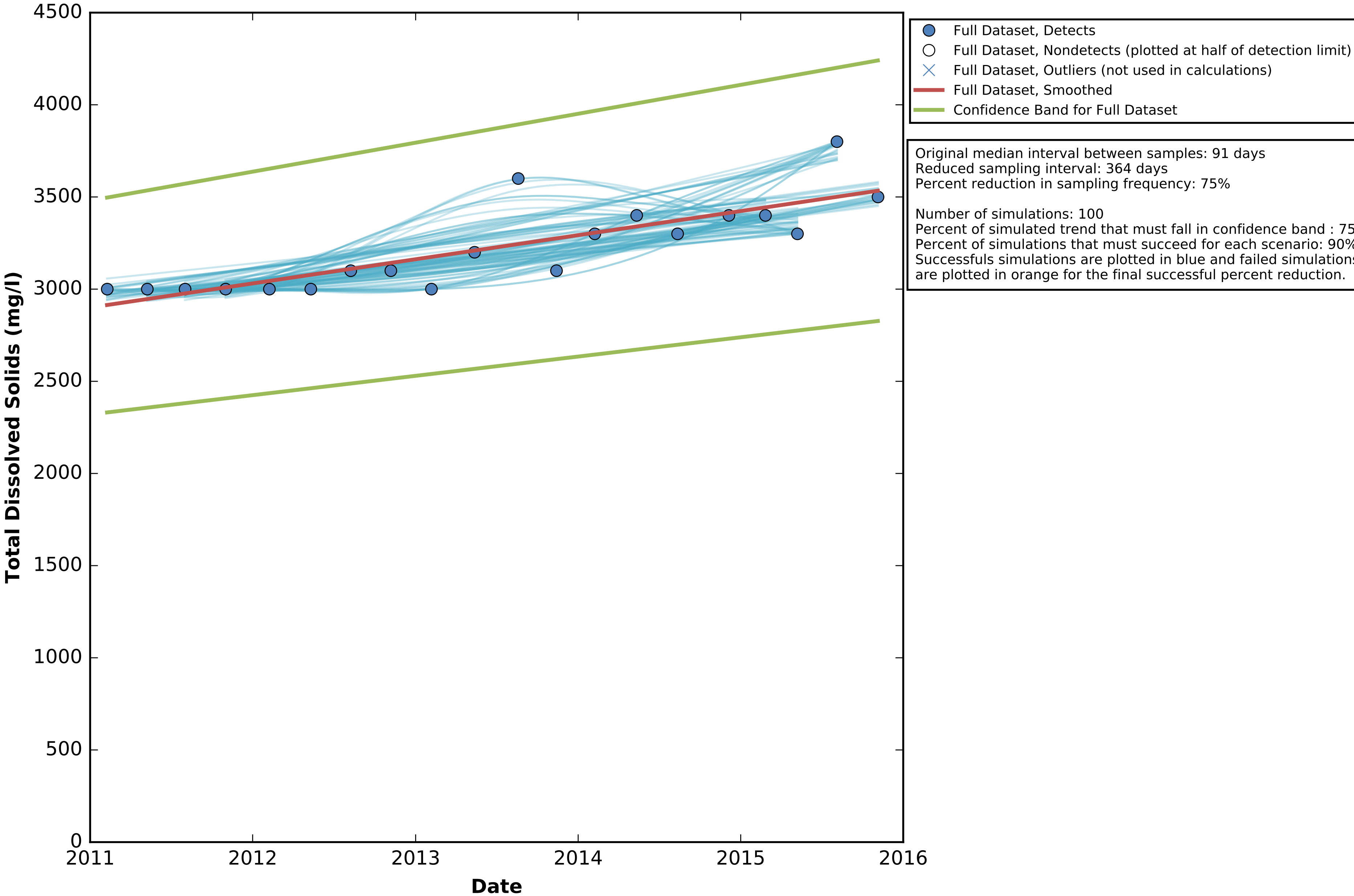
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-52
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-204

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

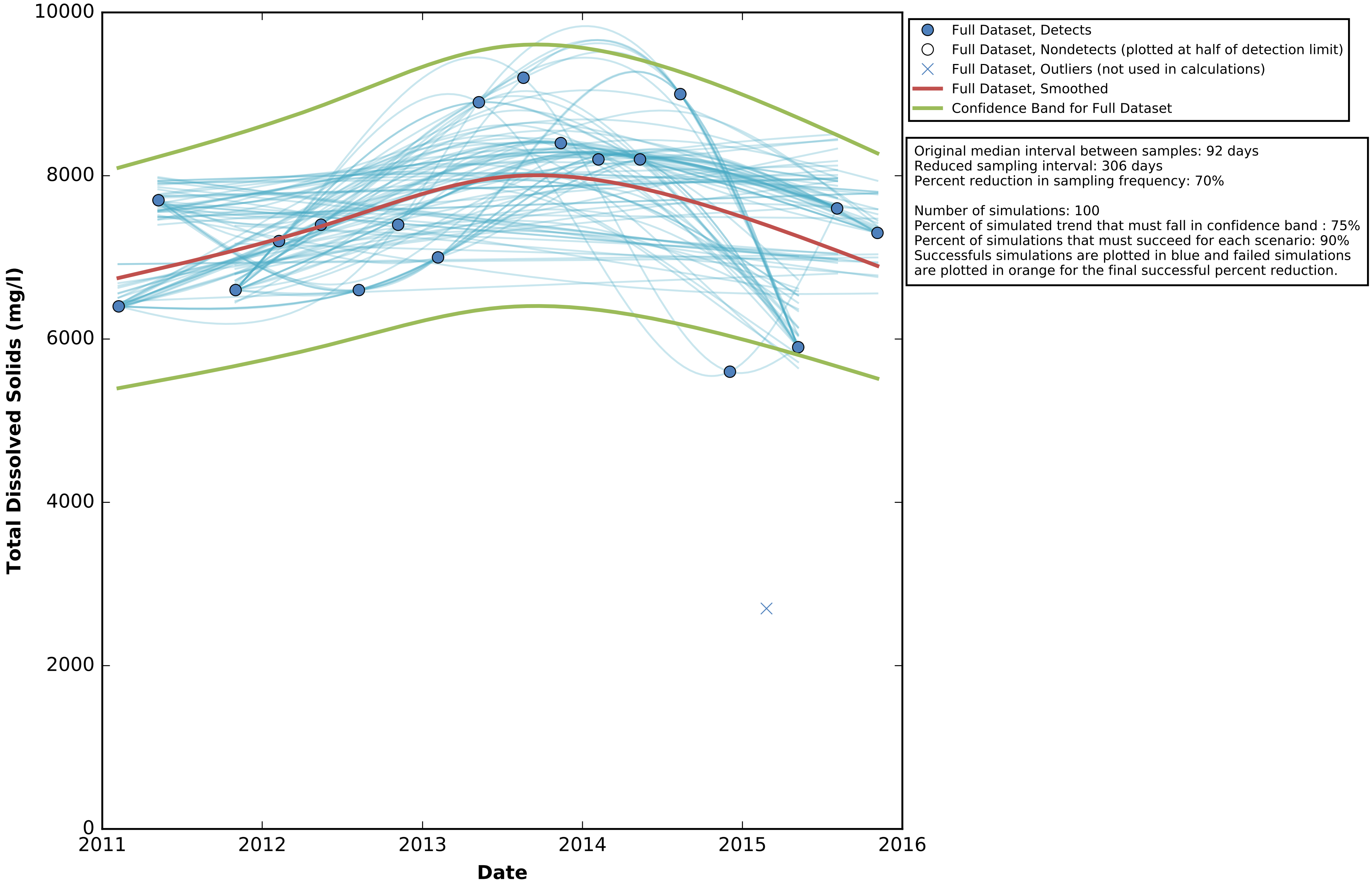
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-57A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-205

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



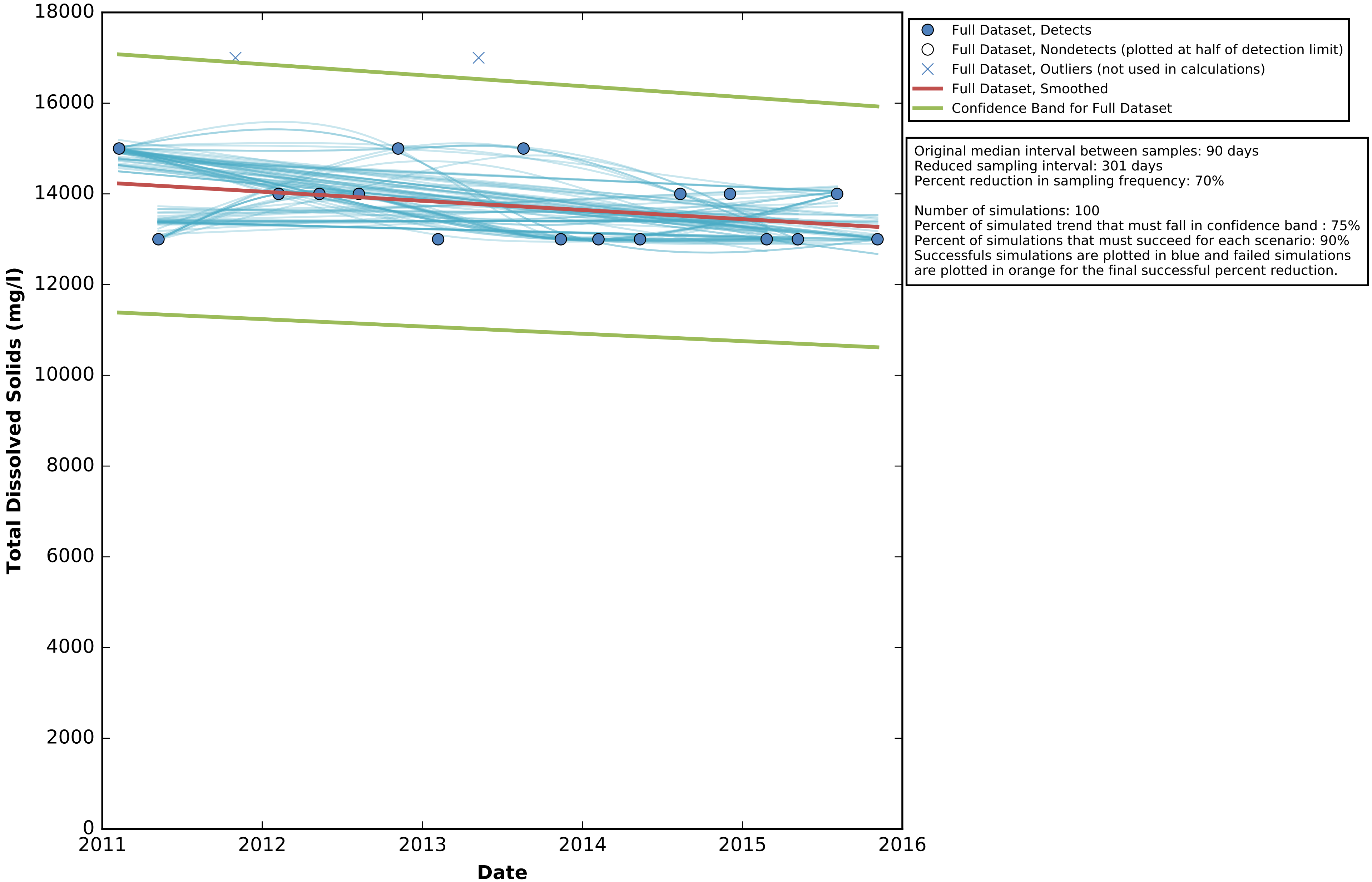
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-64
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-206

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



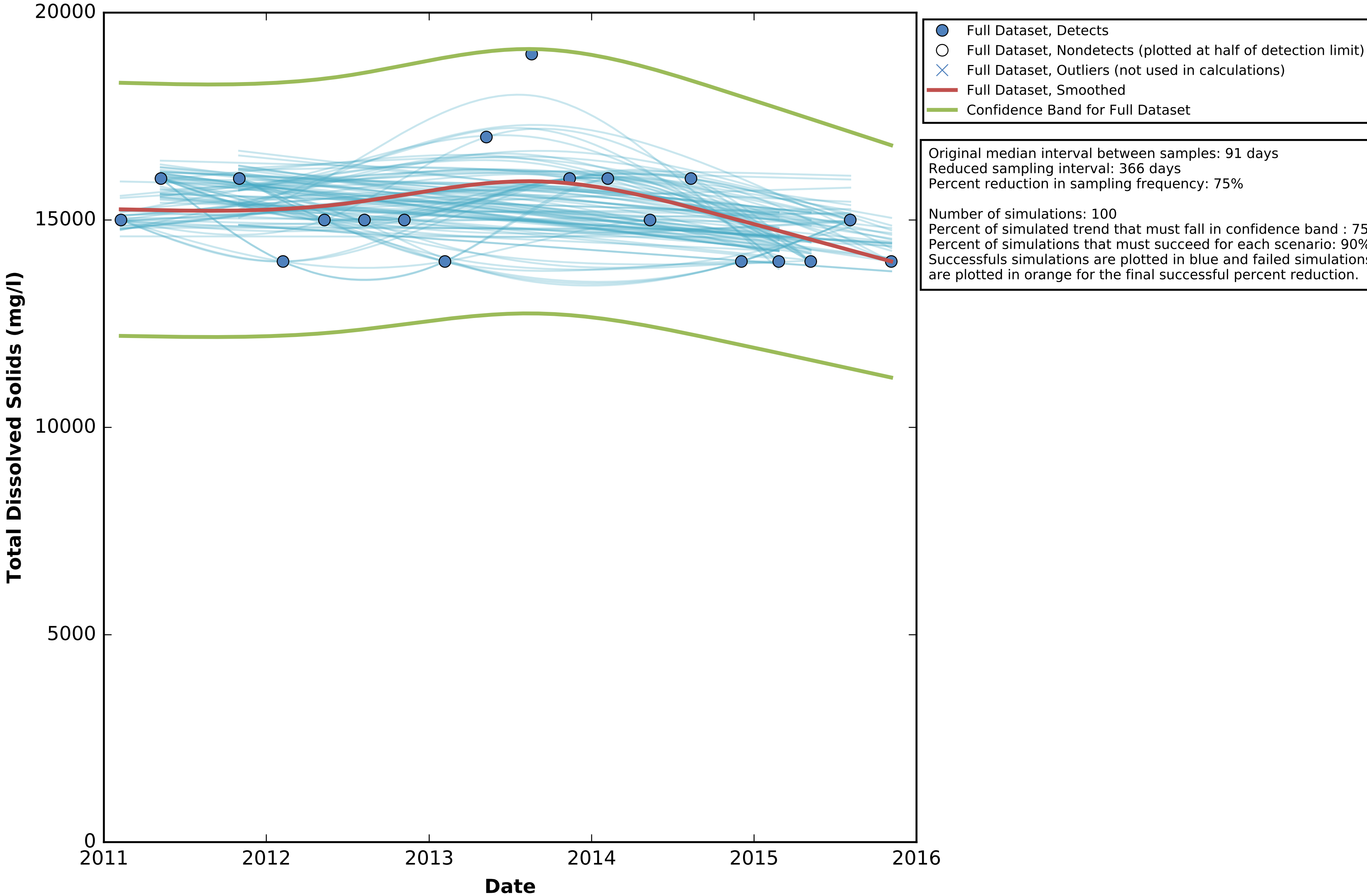
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-65
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-207

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 366 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

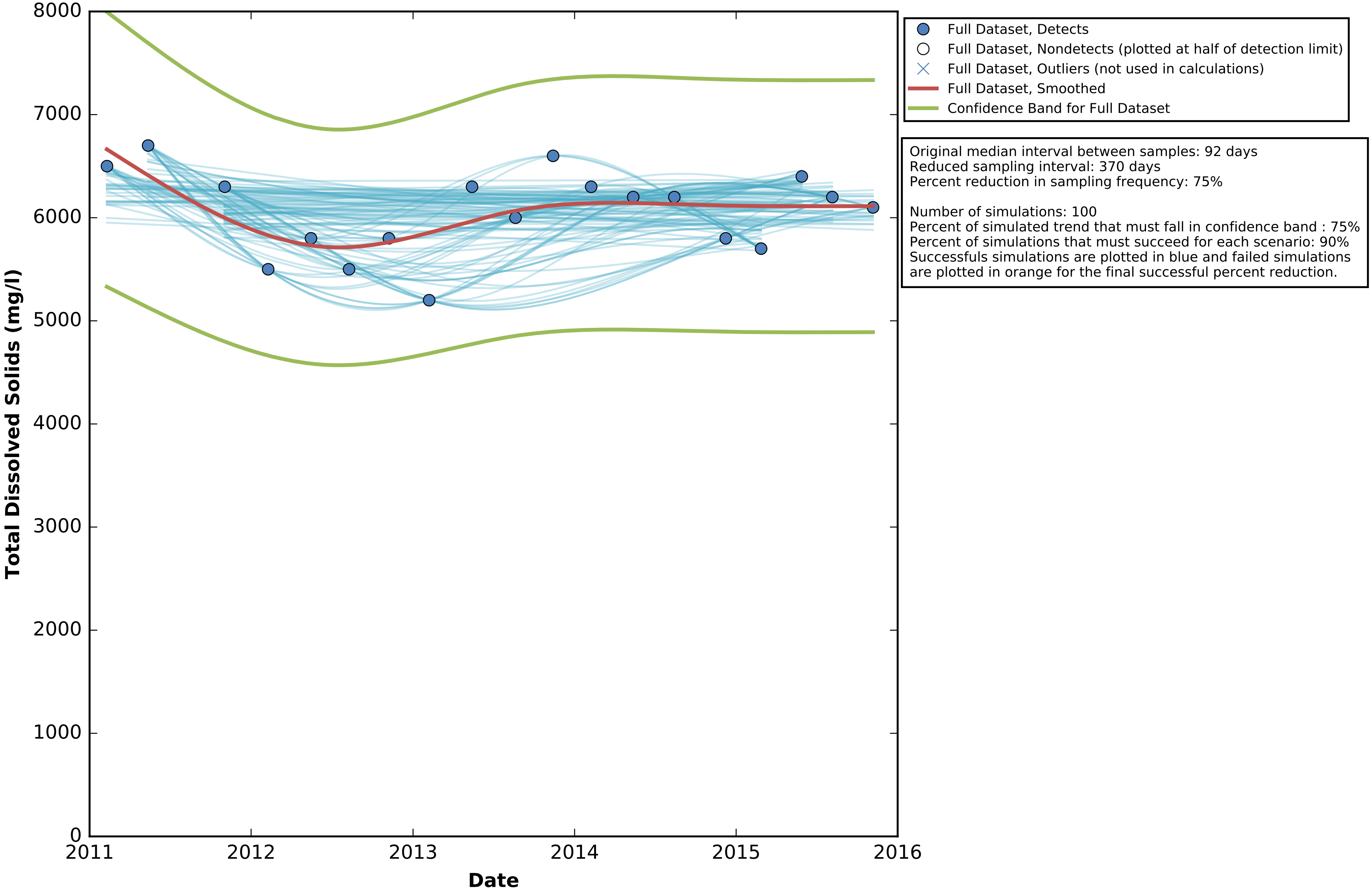
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-66
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-208

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



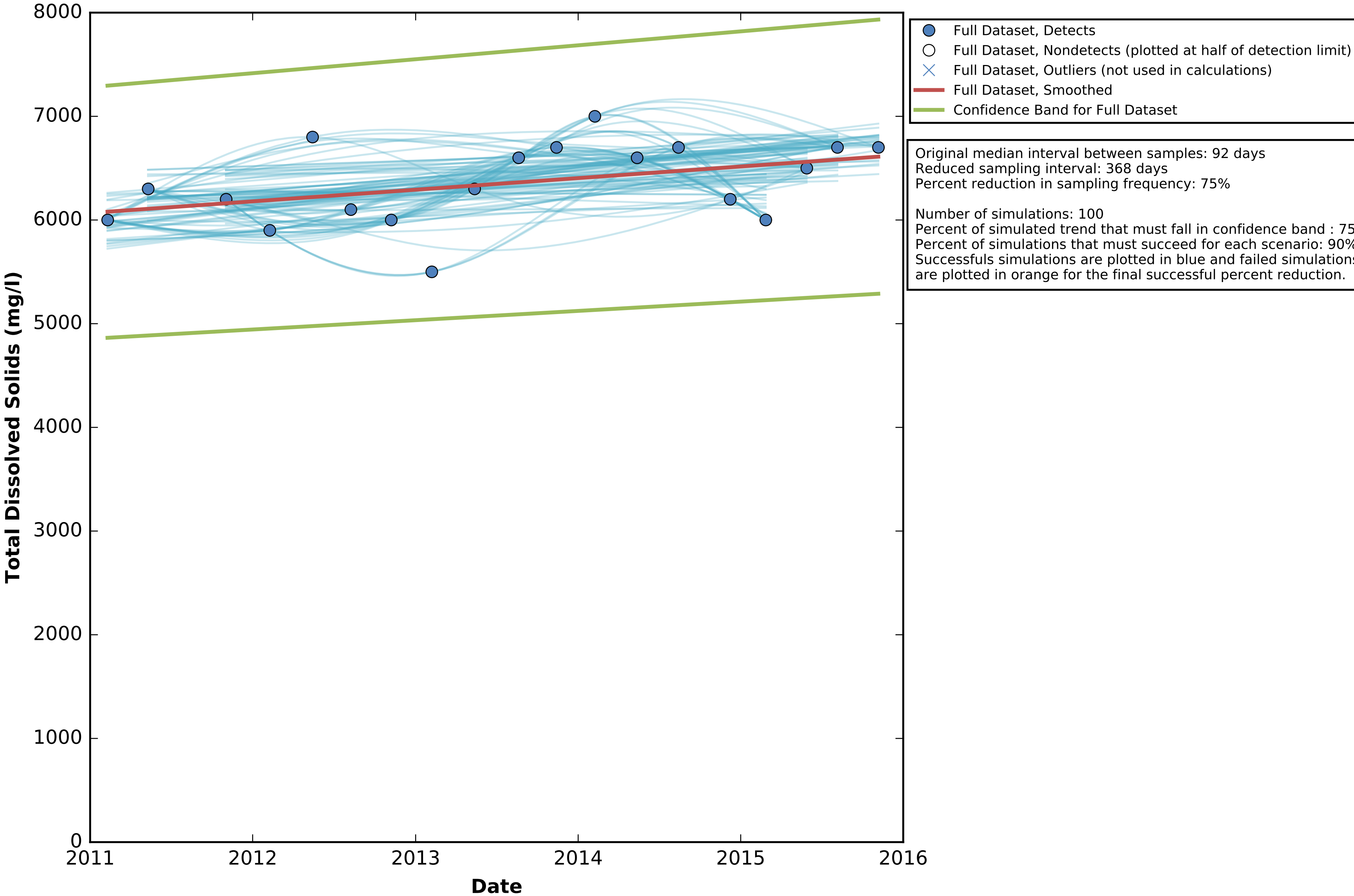
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-67
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-209**

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

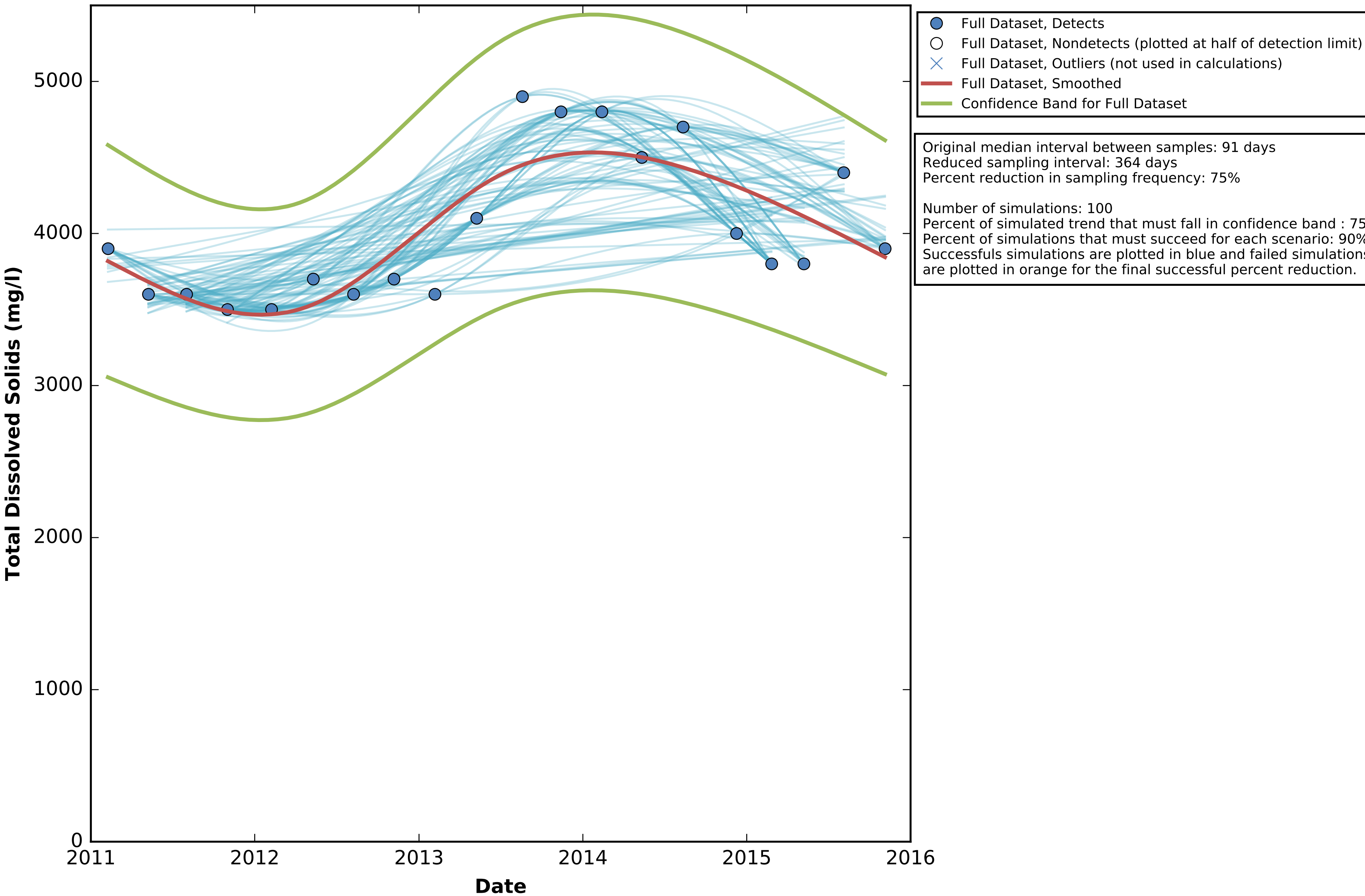
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-210

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

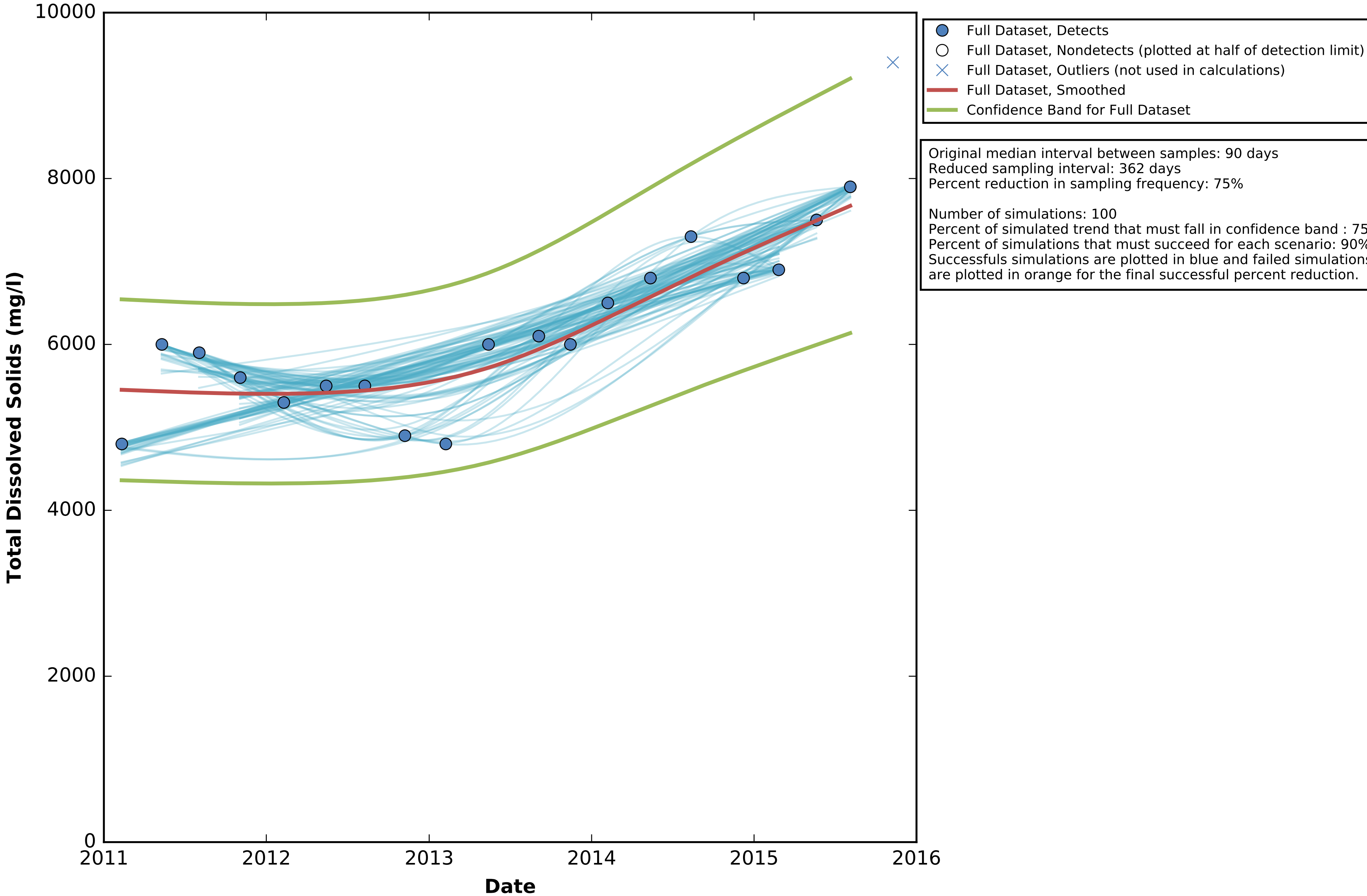
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-69
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-211

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 362 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

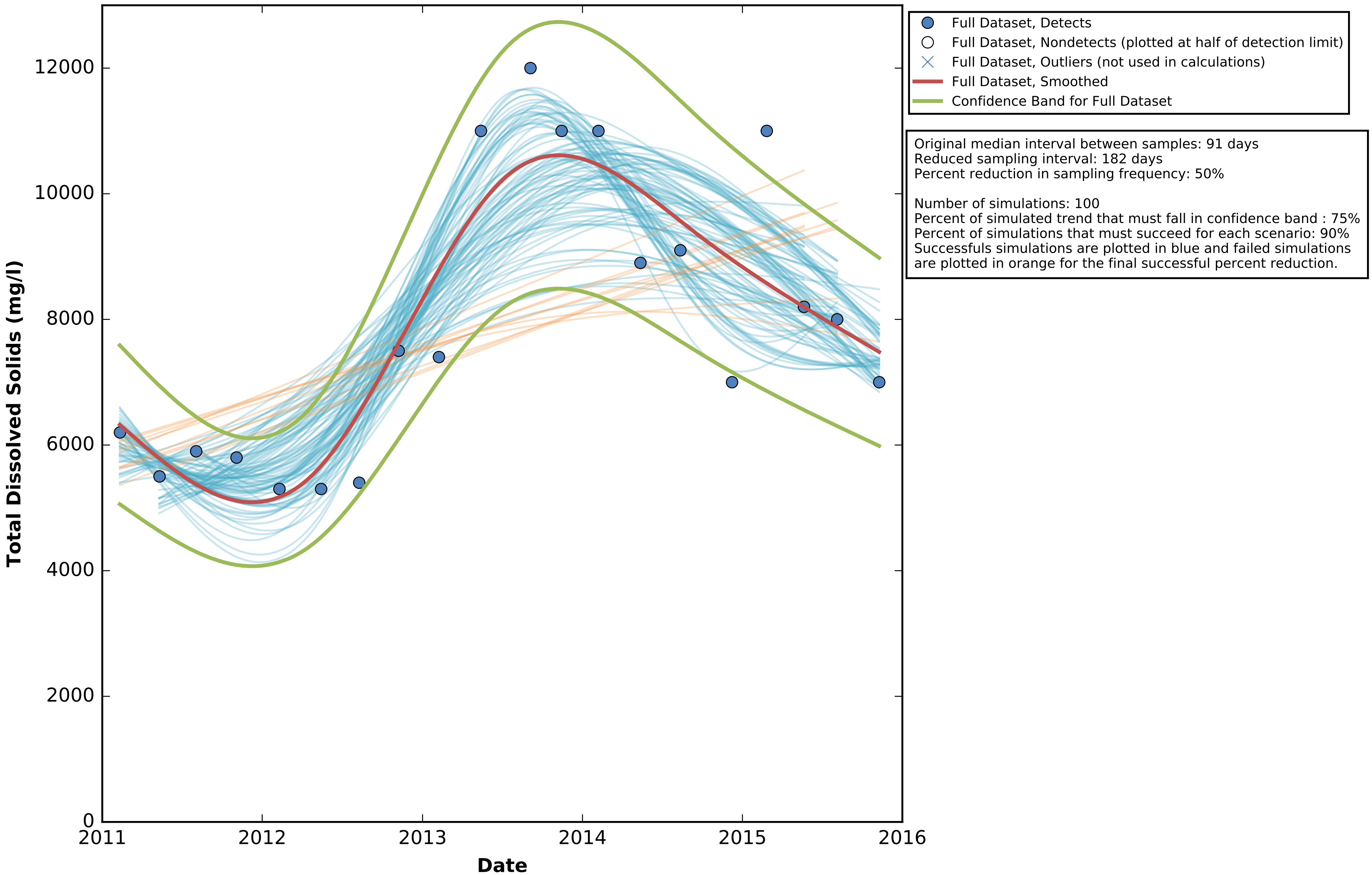
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-70
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-212**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



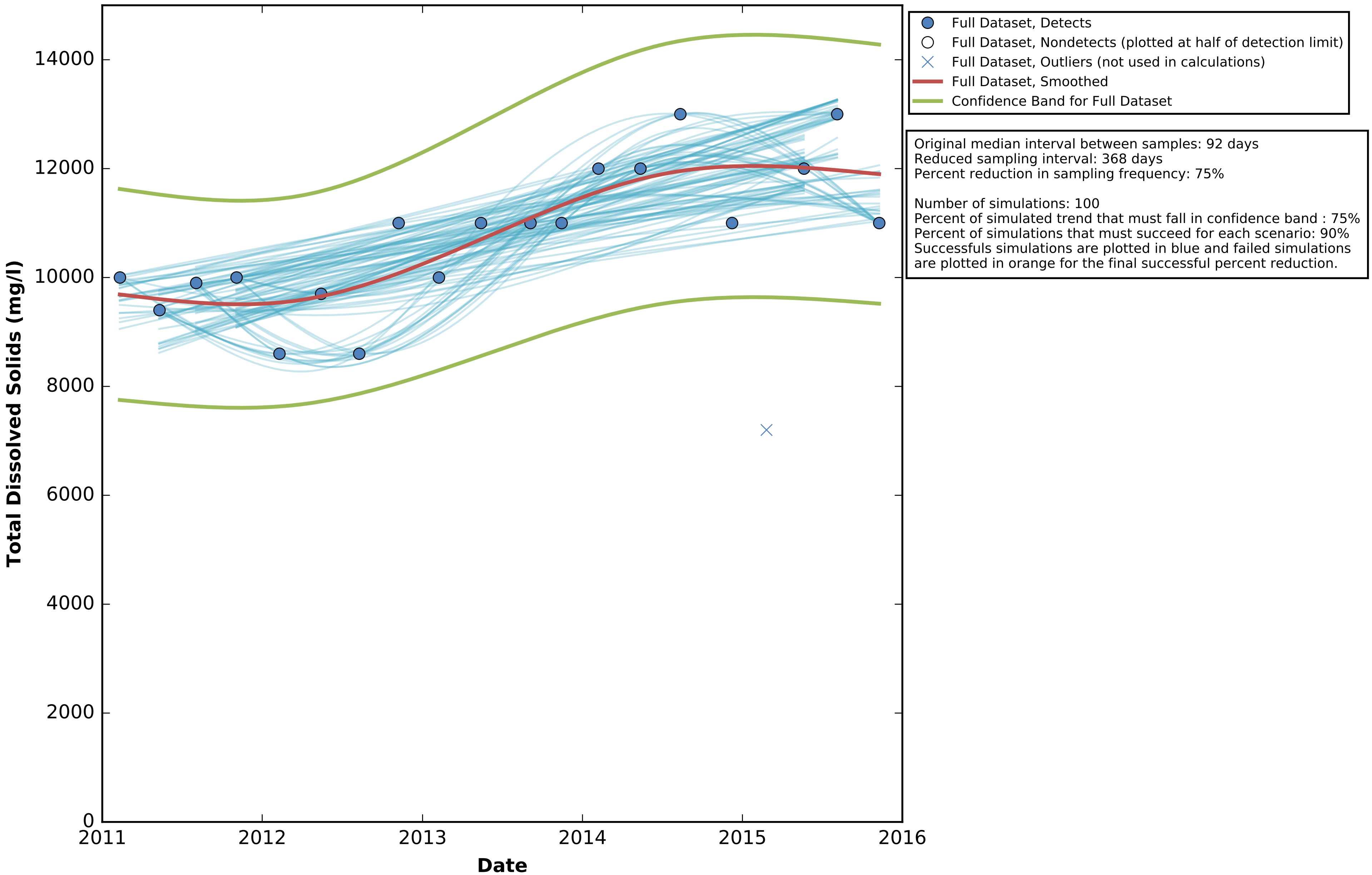
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-213

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



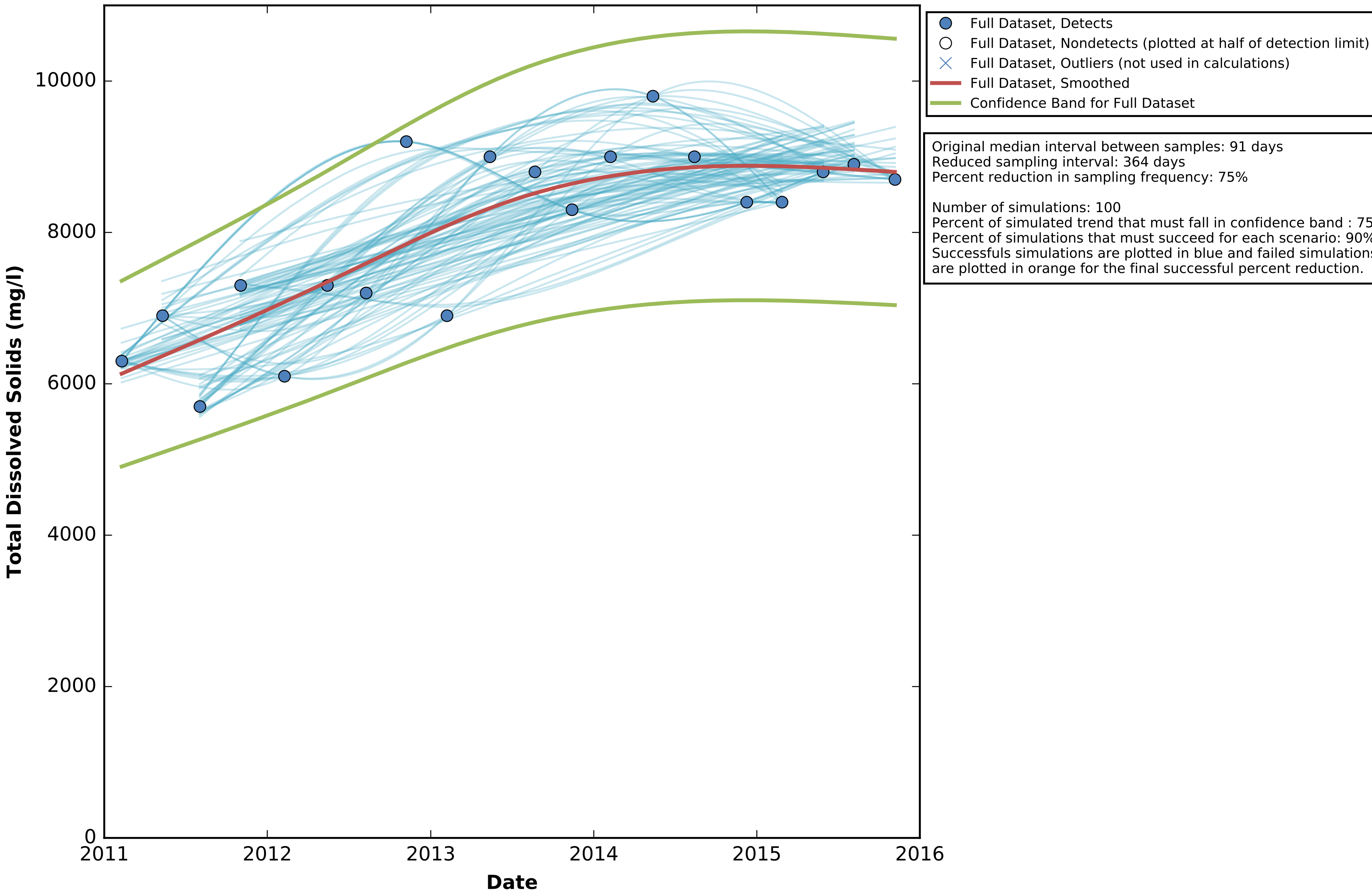
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-214

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

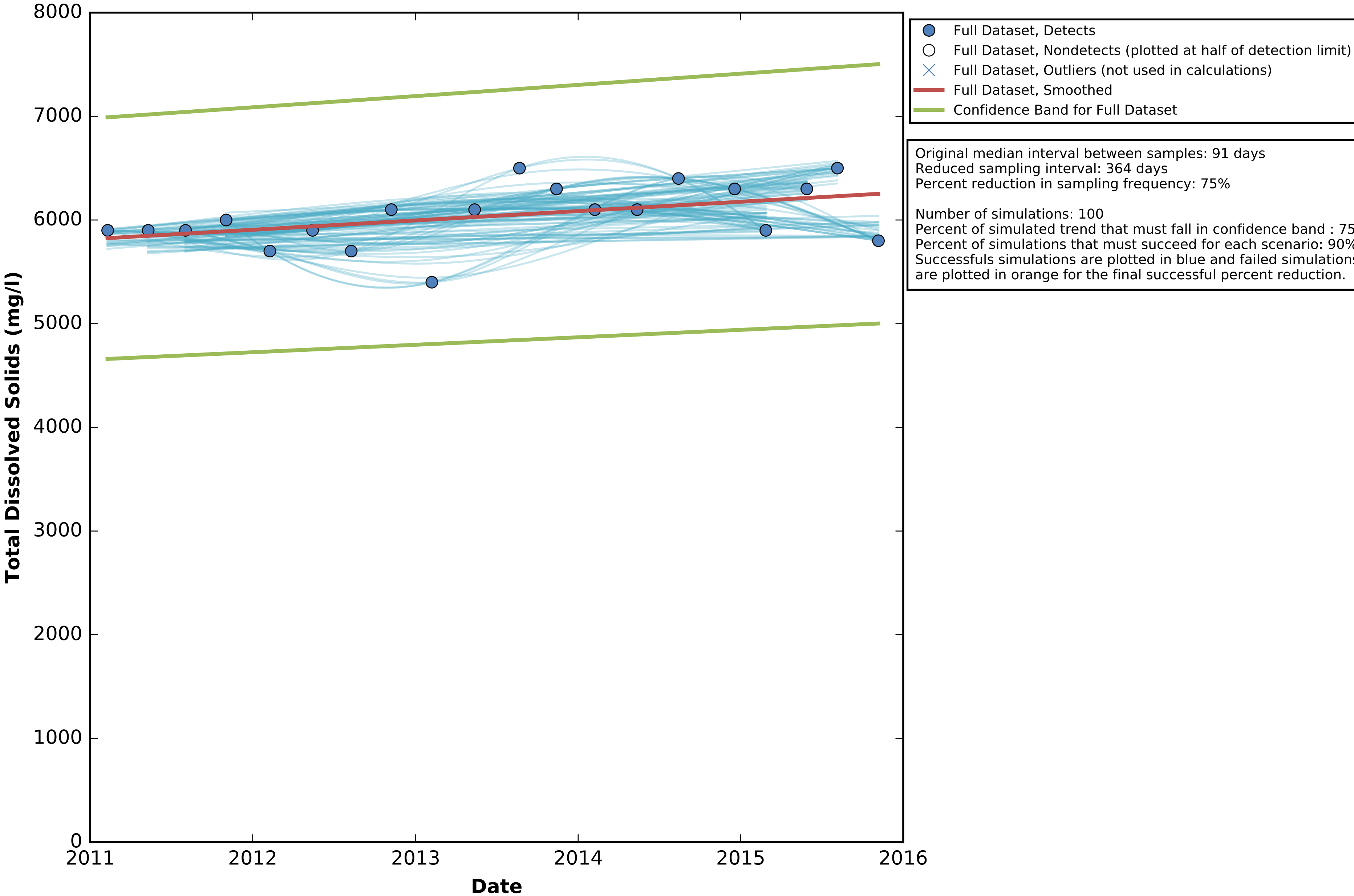
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-215

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

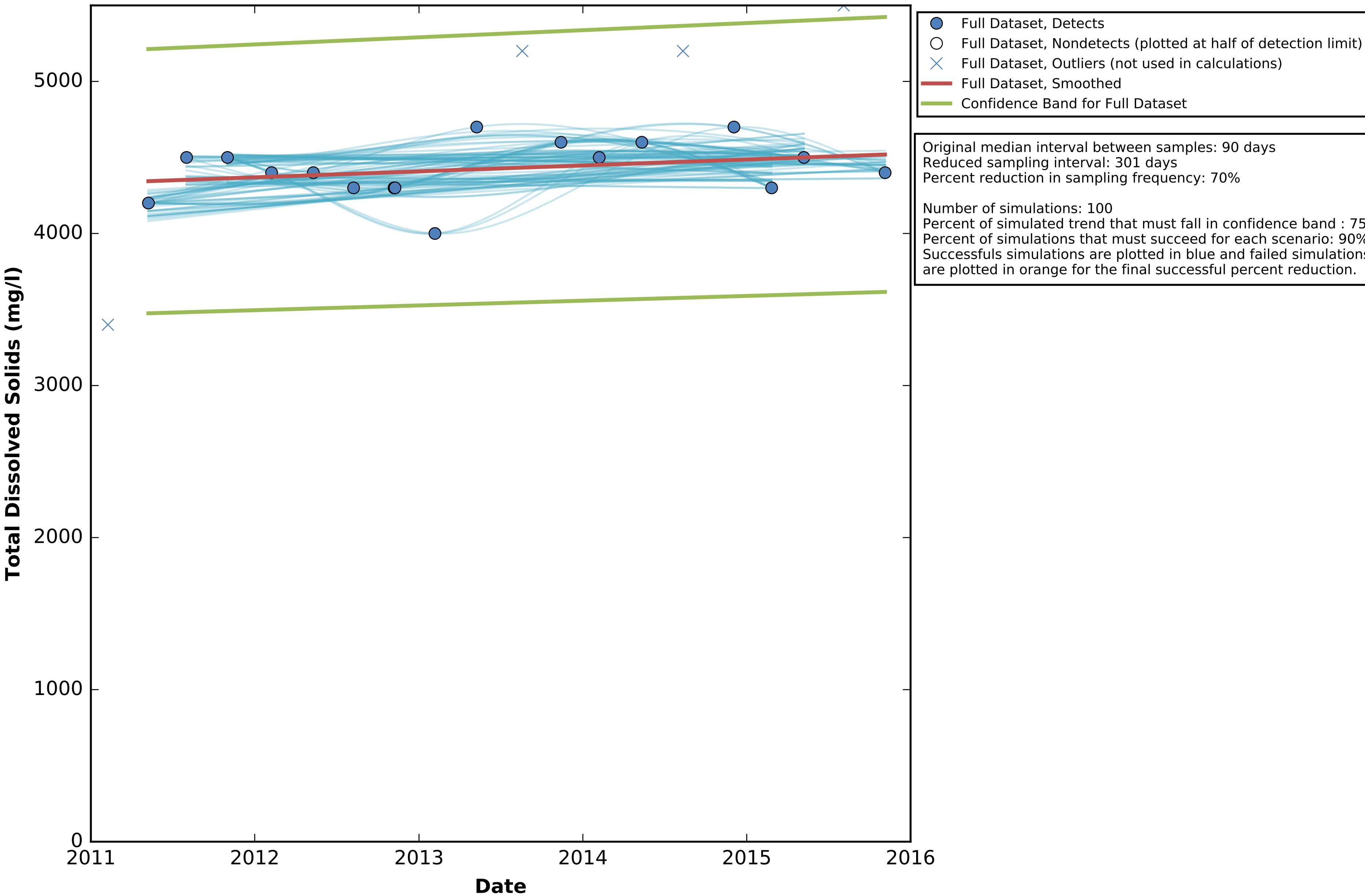
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-74
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-216

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 301 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

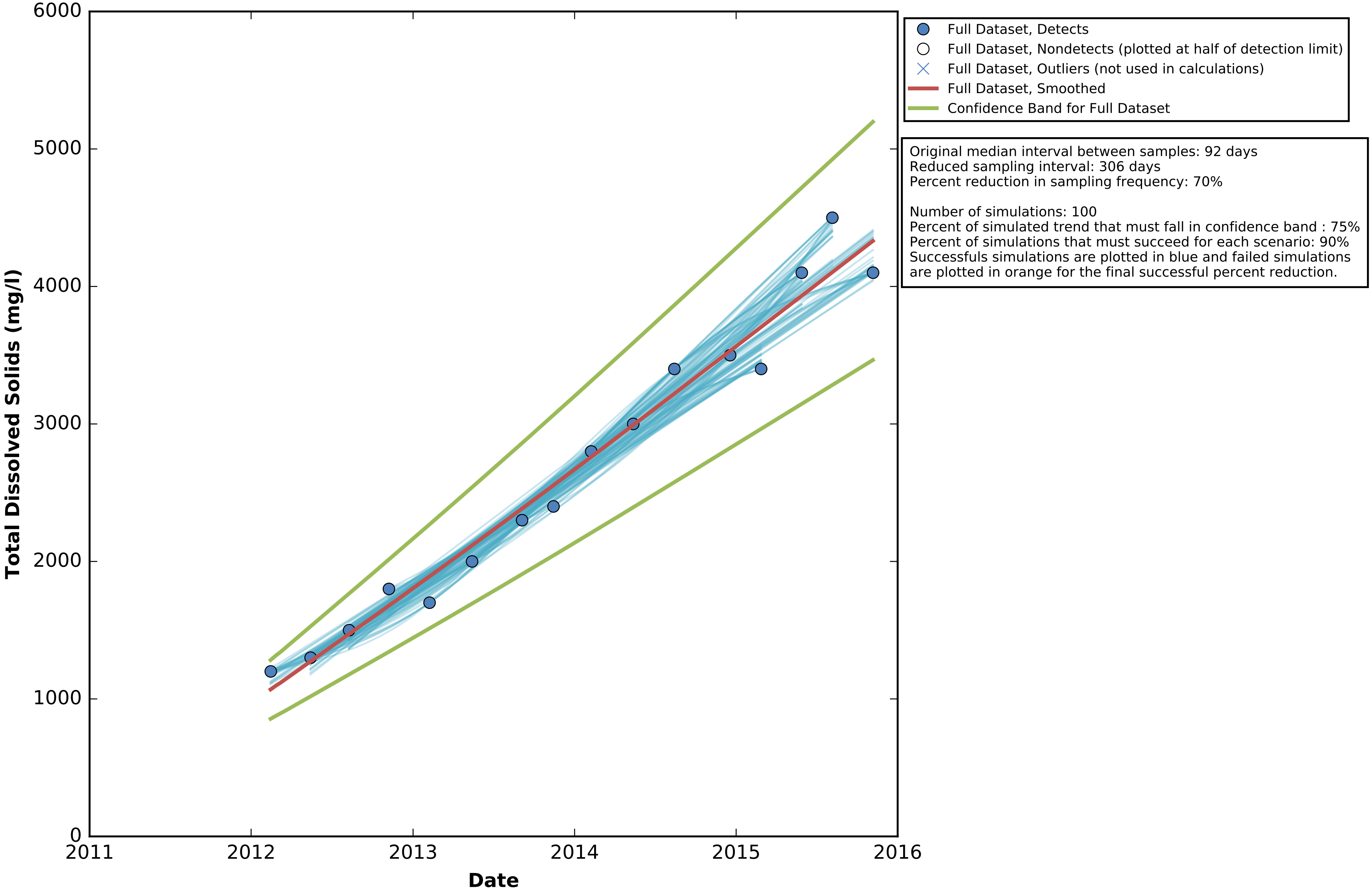
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-79
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-217

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



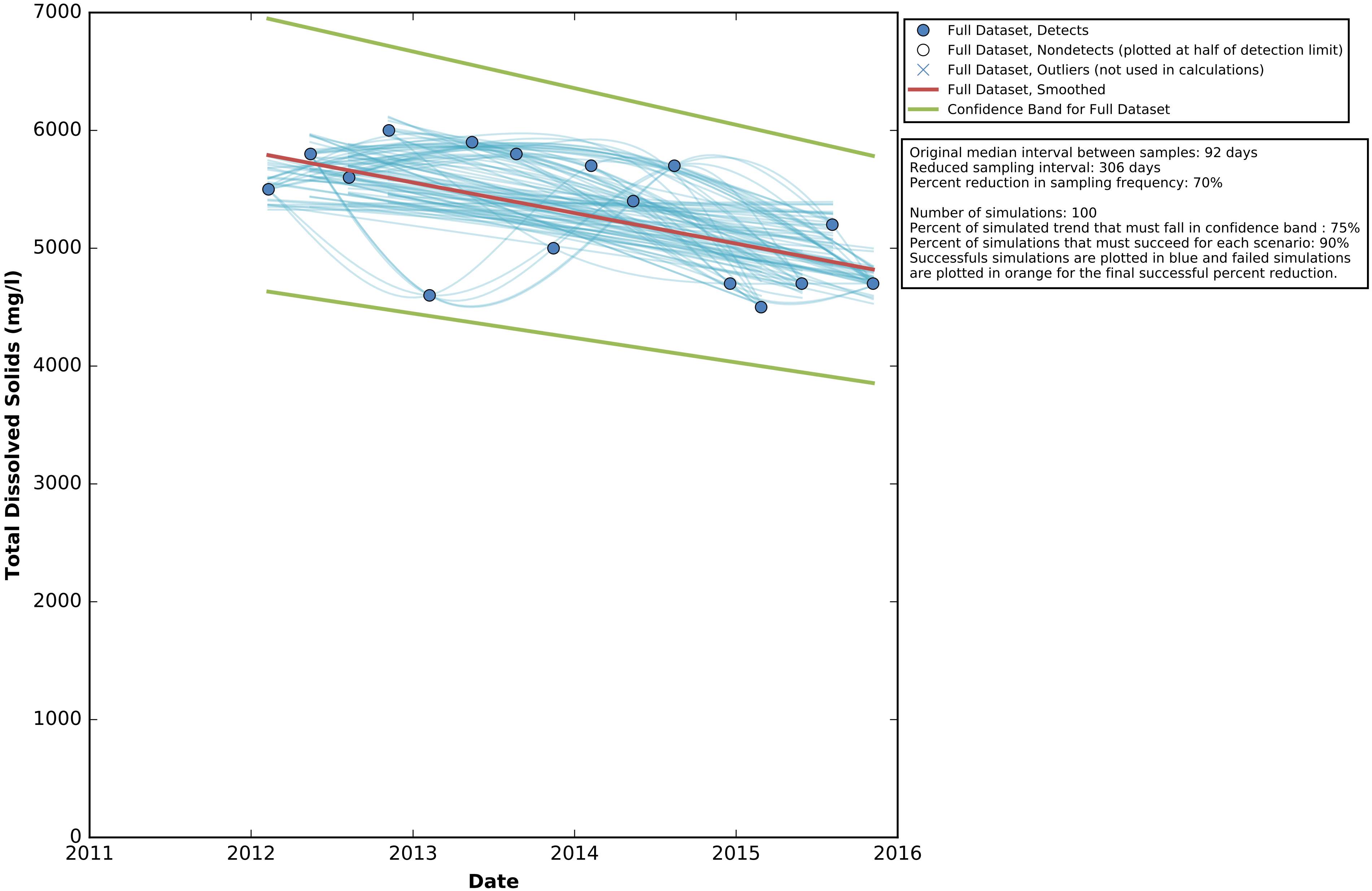
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-80
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-218

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



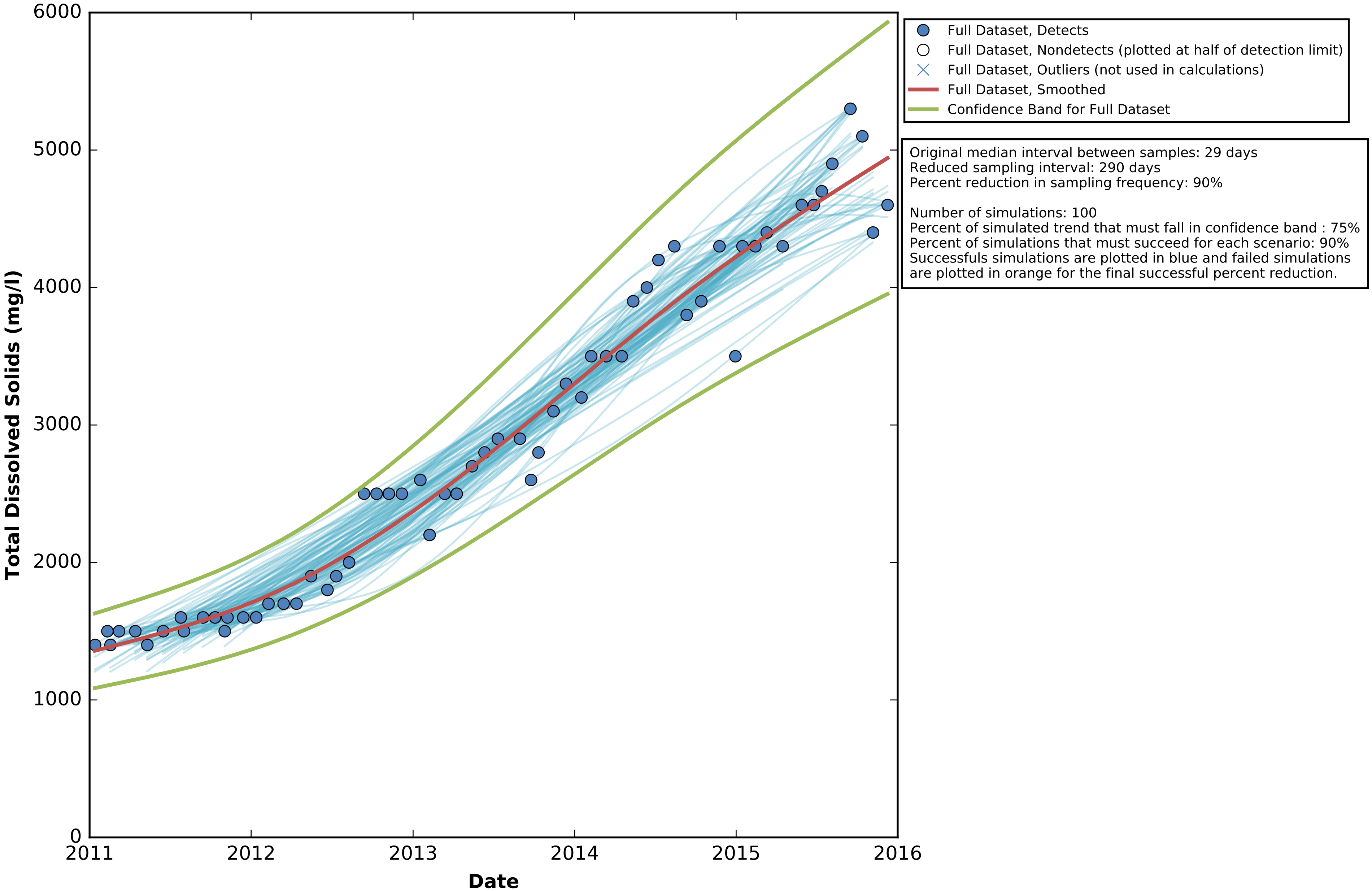
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-81A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-219

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



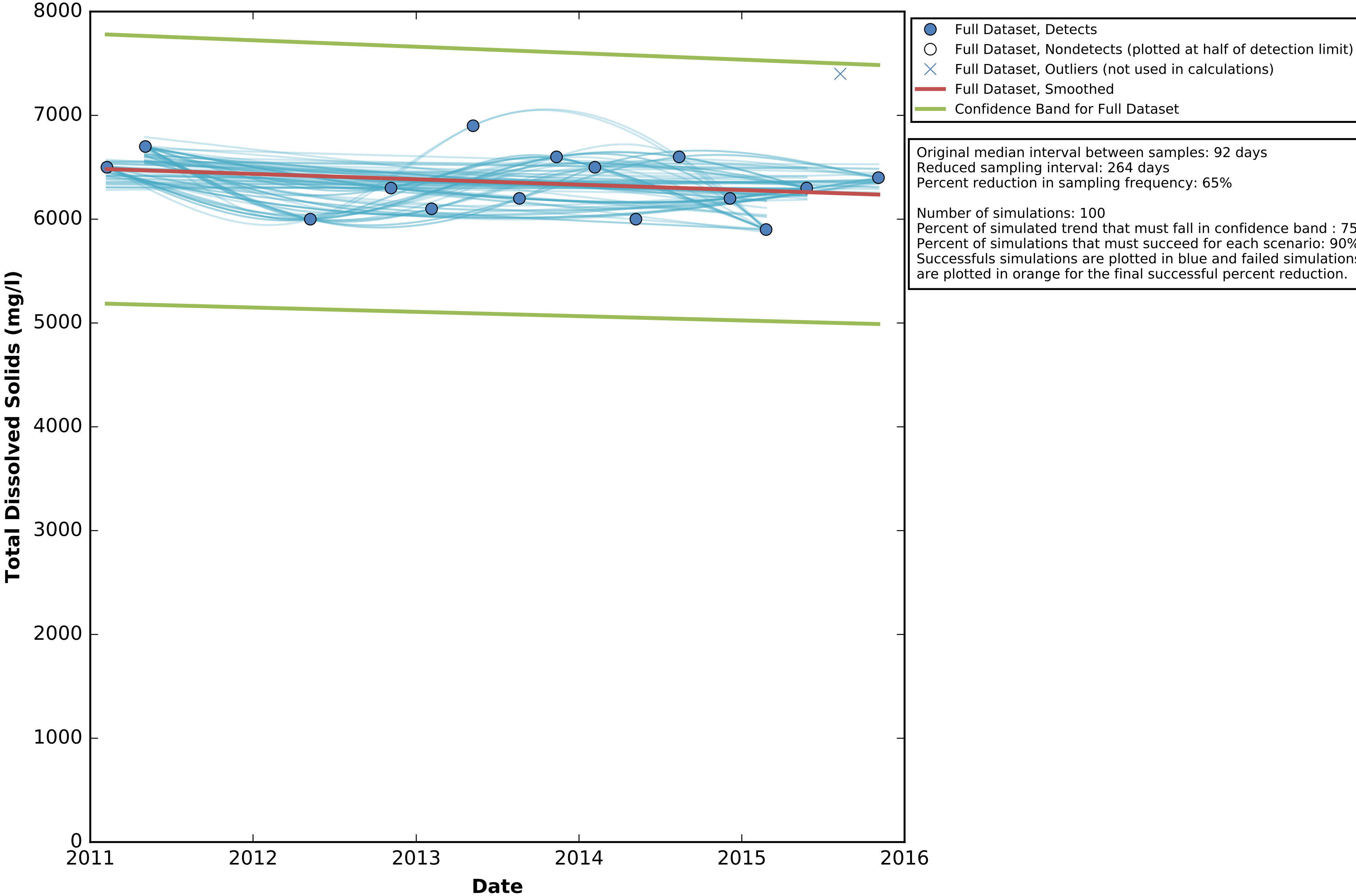
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-83
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-220

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 264 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

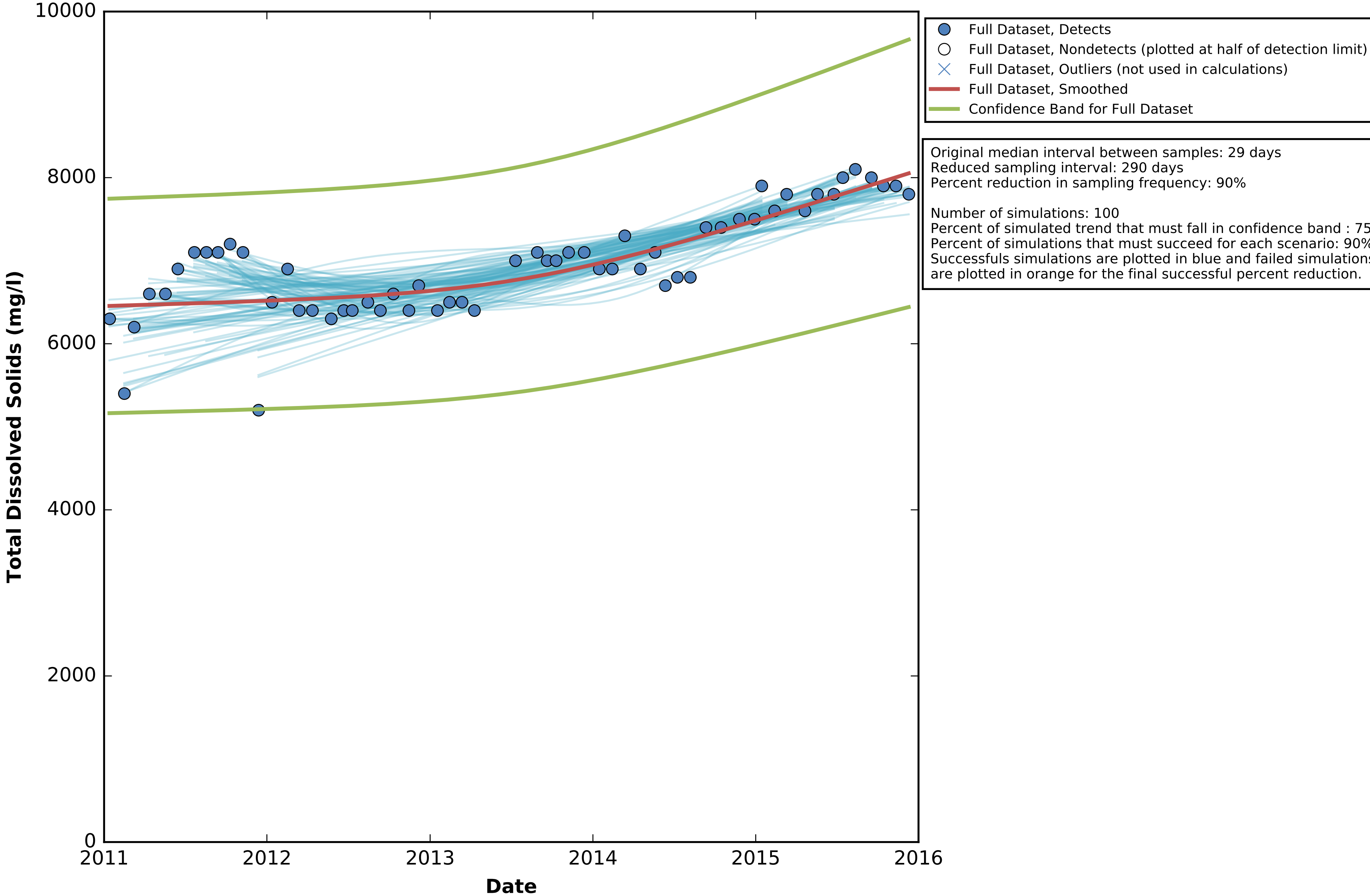
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in M-95
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-221

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

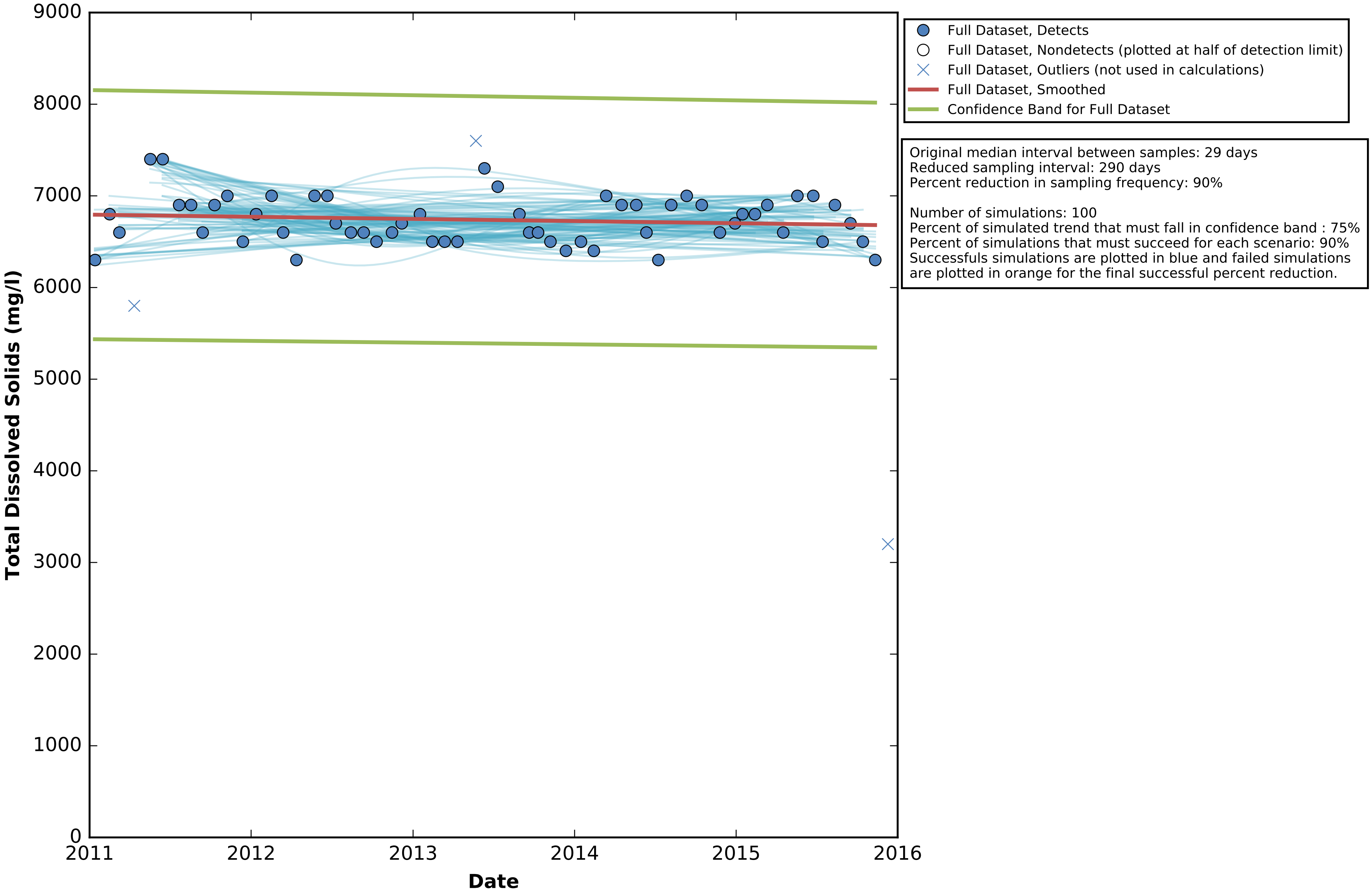
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in MW-K4
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-222

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



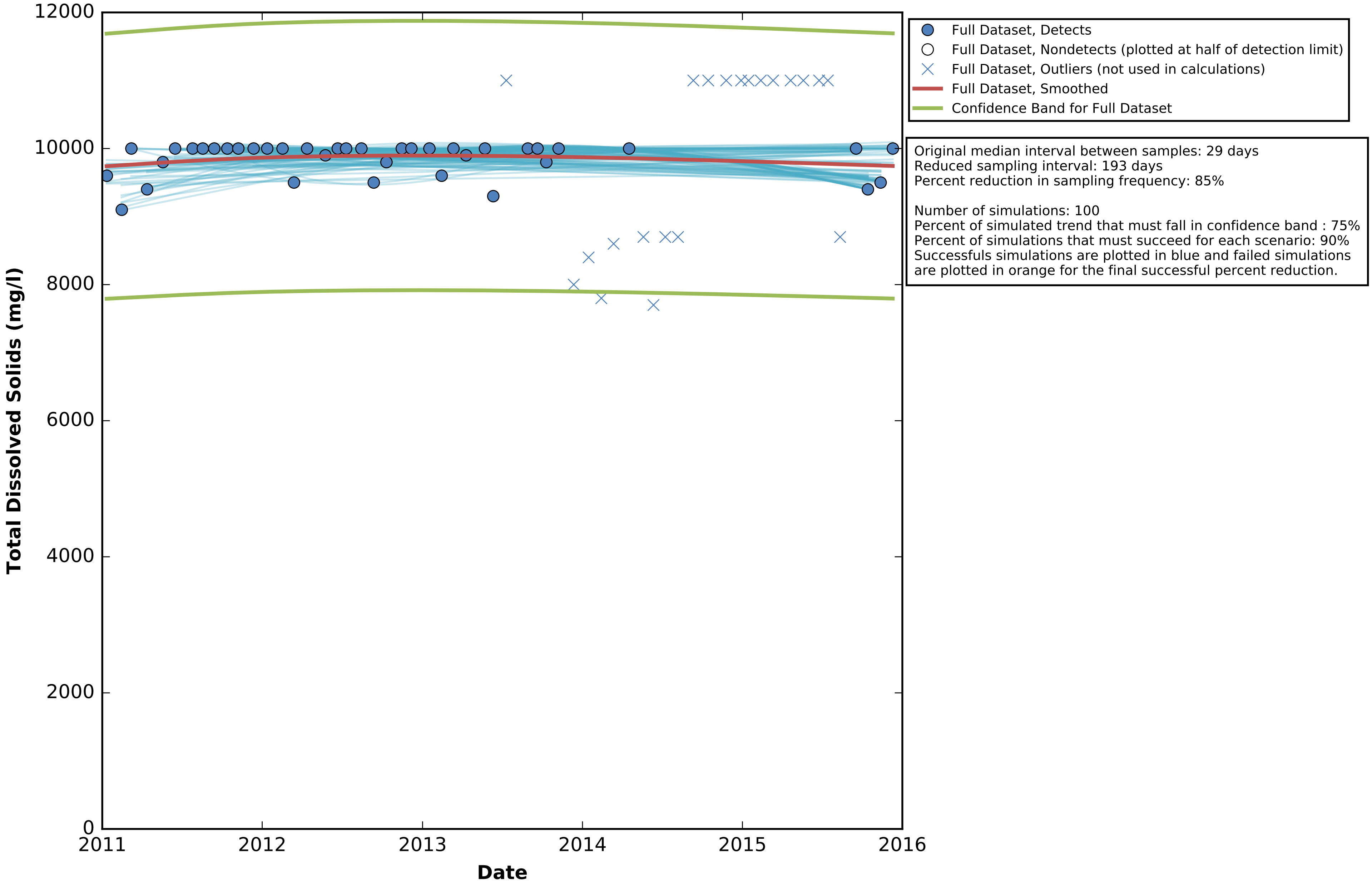
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in MW-K5
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-223

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



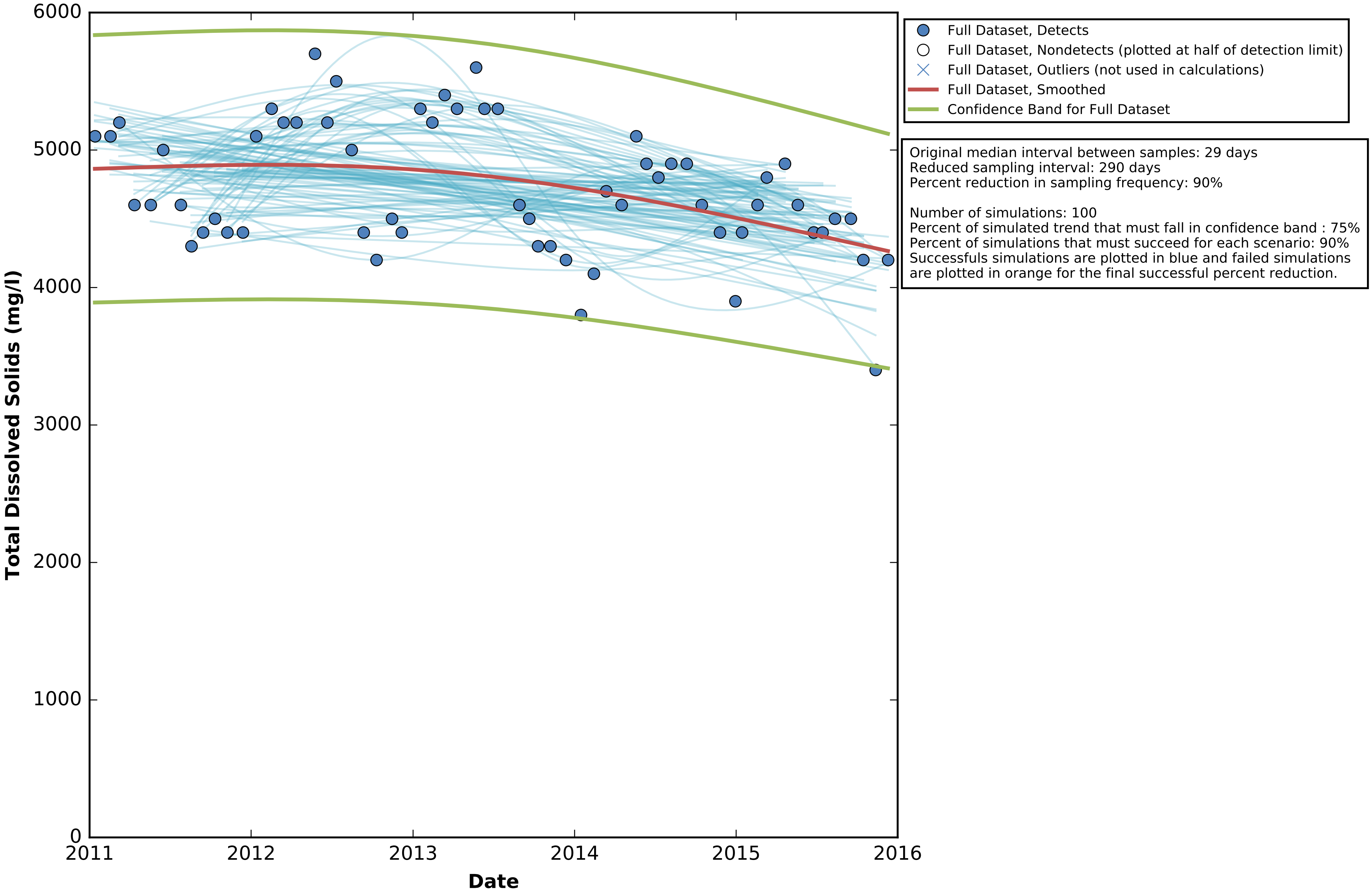
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-101R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-224

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



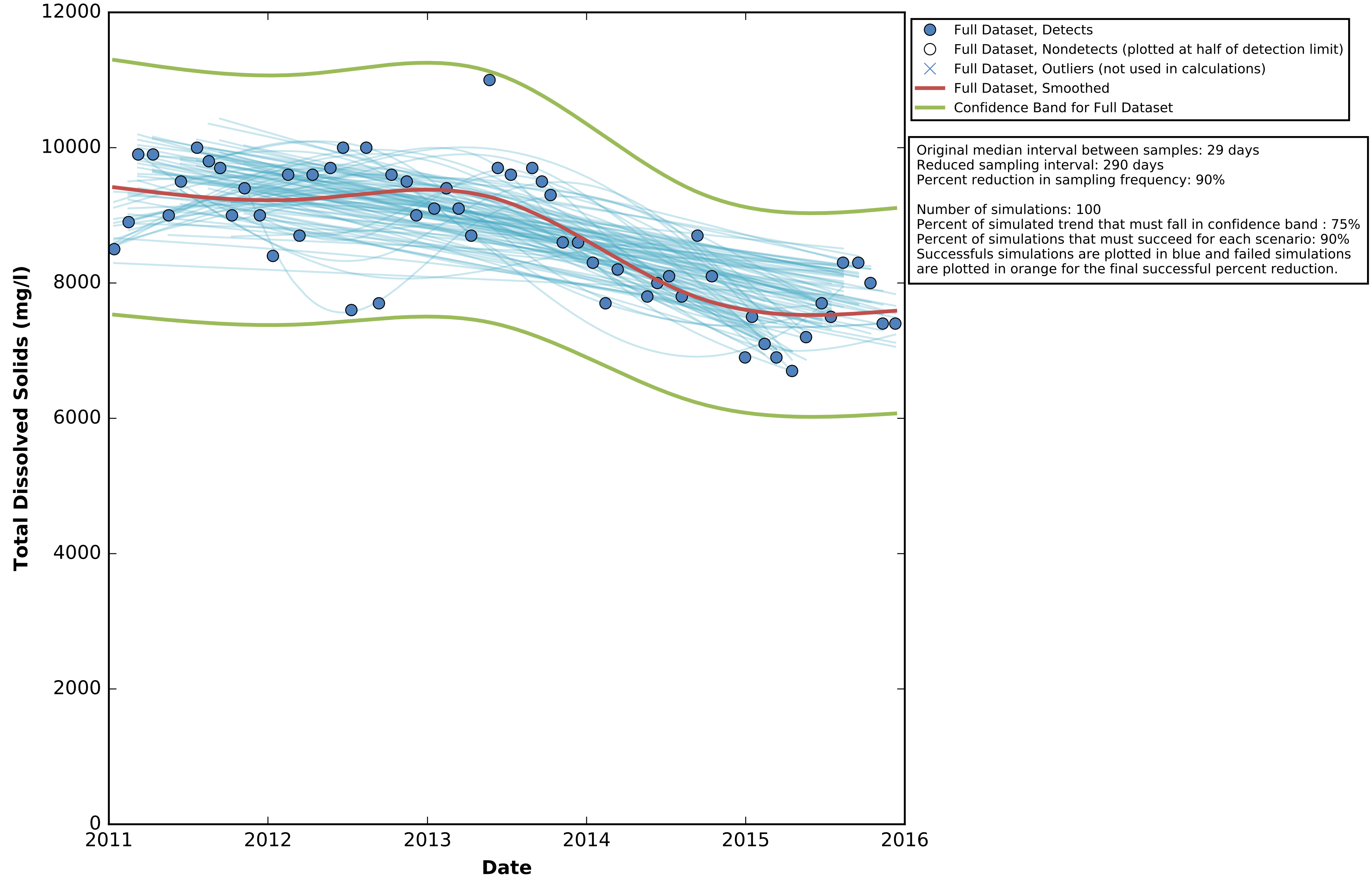
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-103
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-225

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



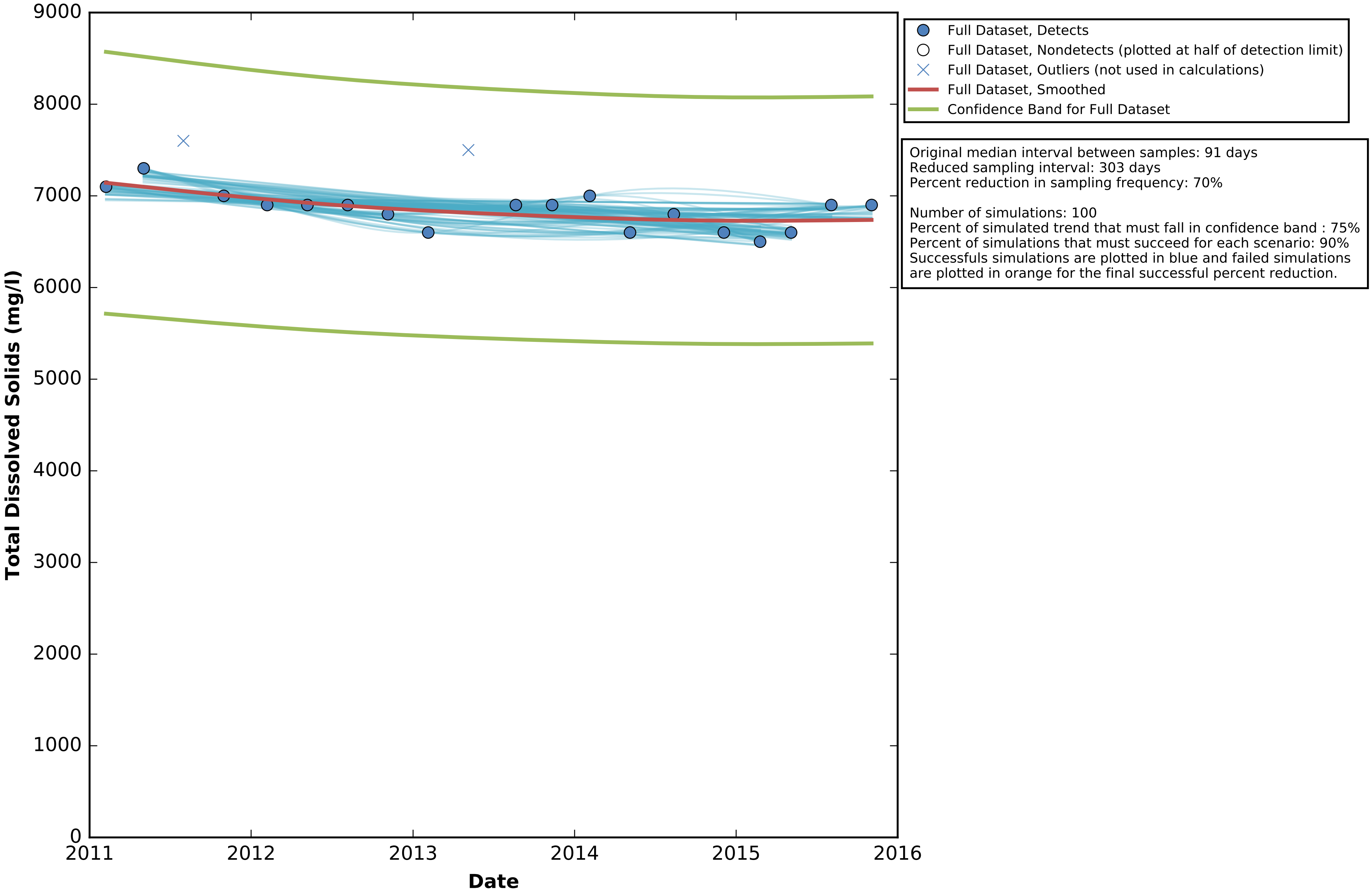
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-122
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-226

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



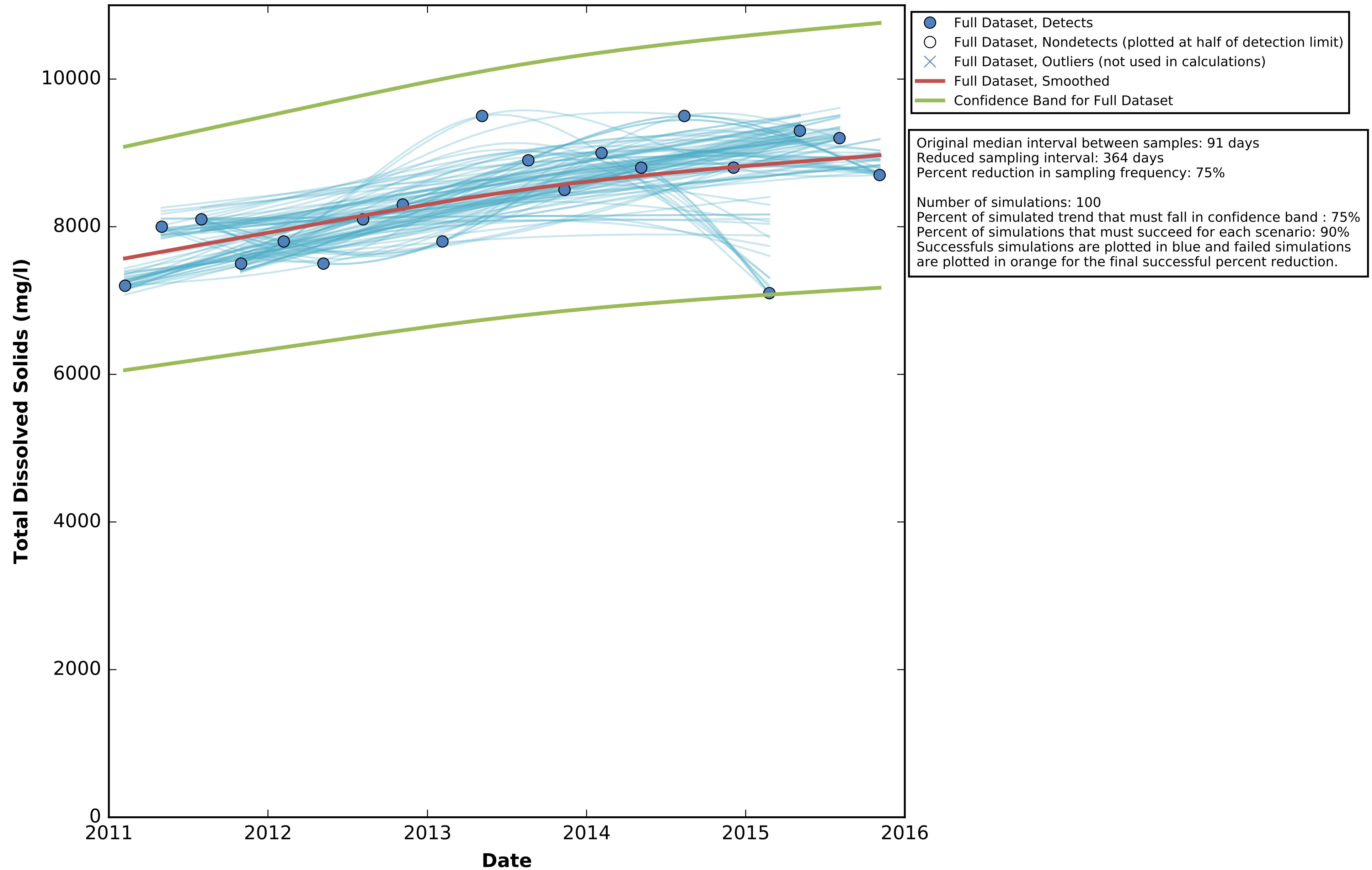
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-123
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-227

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



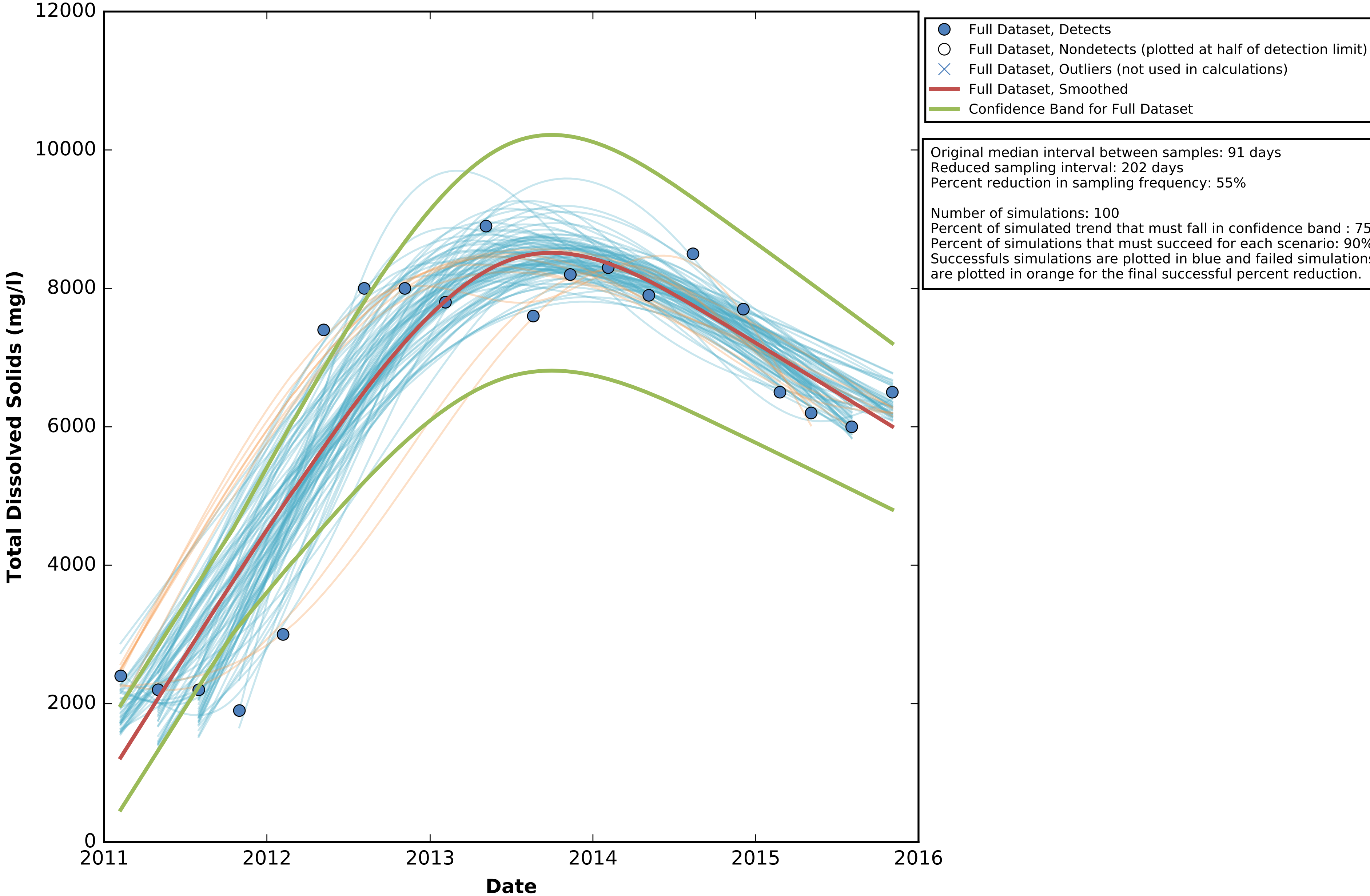
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-124
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-228

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 202 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

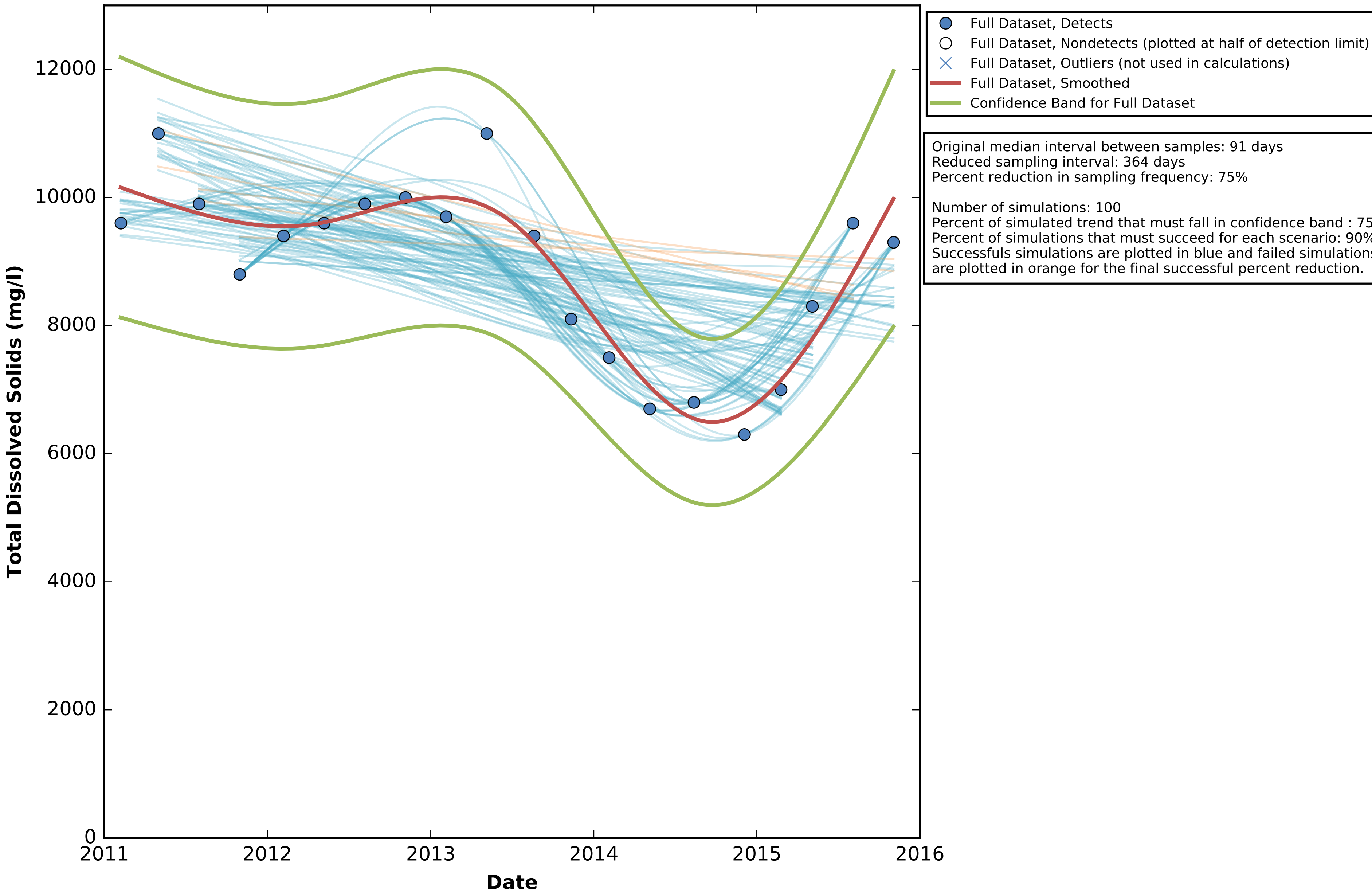
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-125
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-229

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

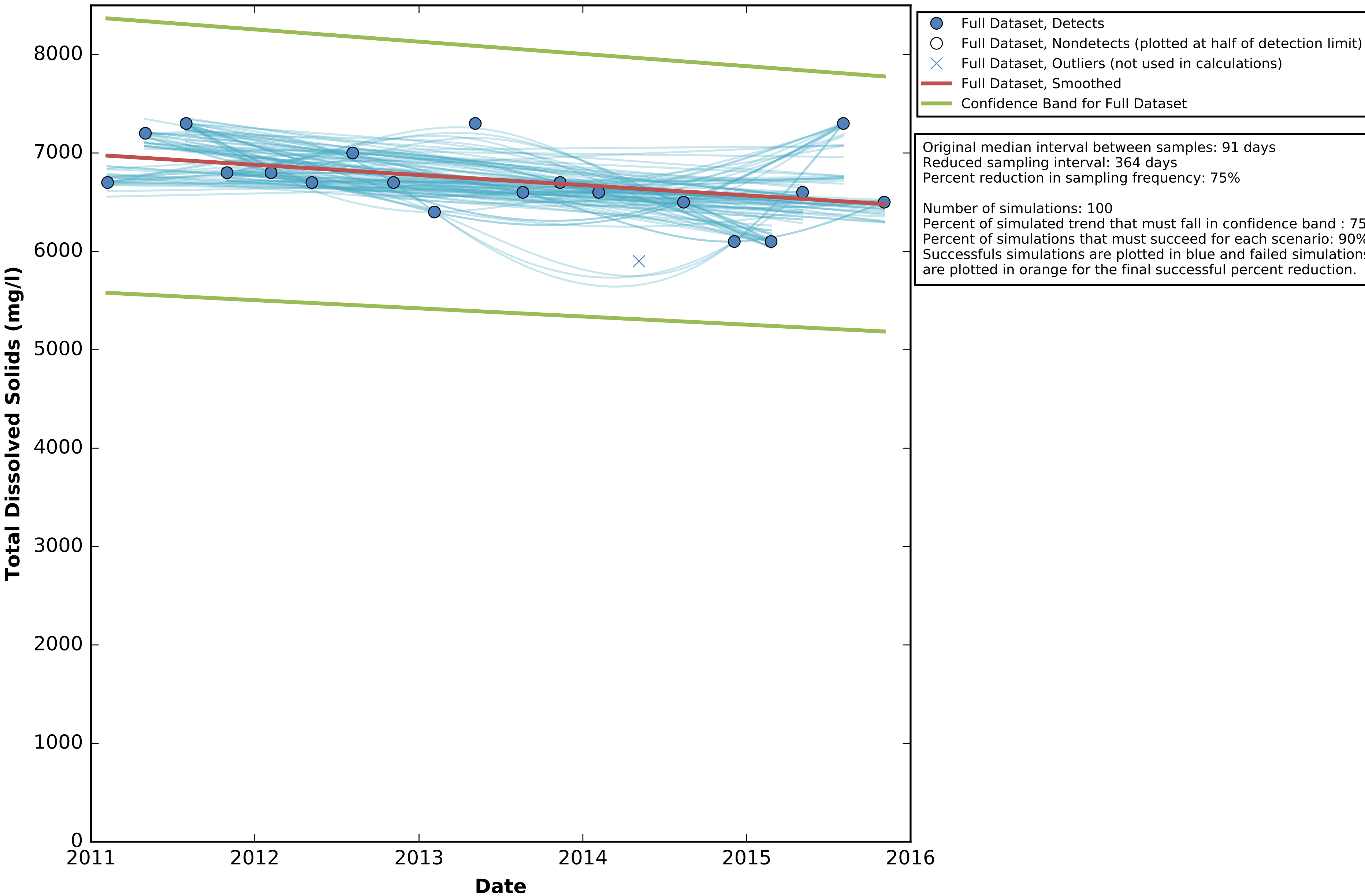
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-126
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-230

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

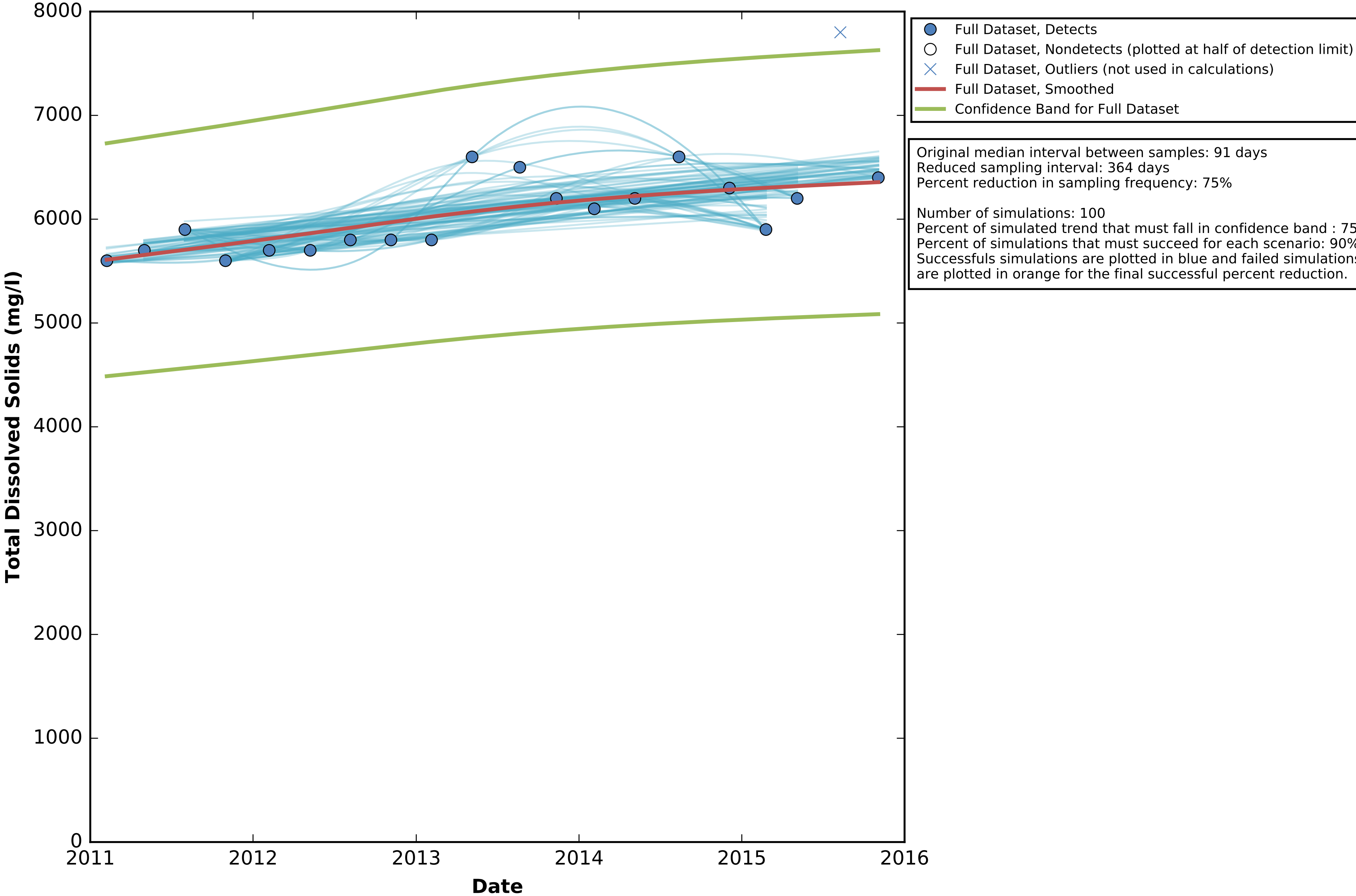
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-127
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-231

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

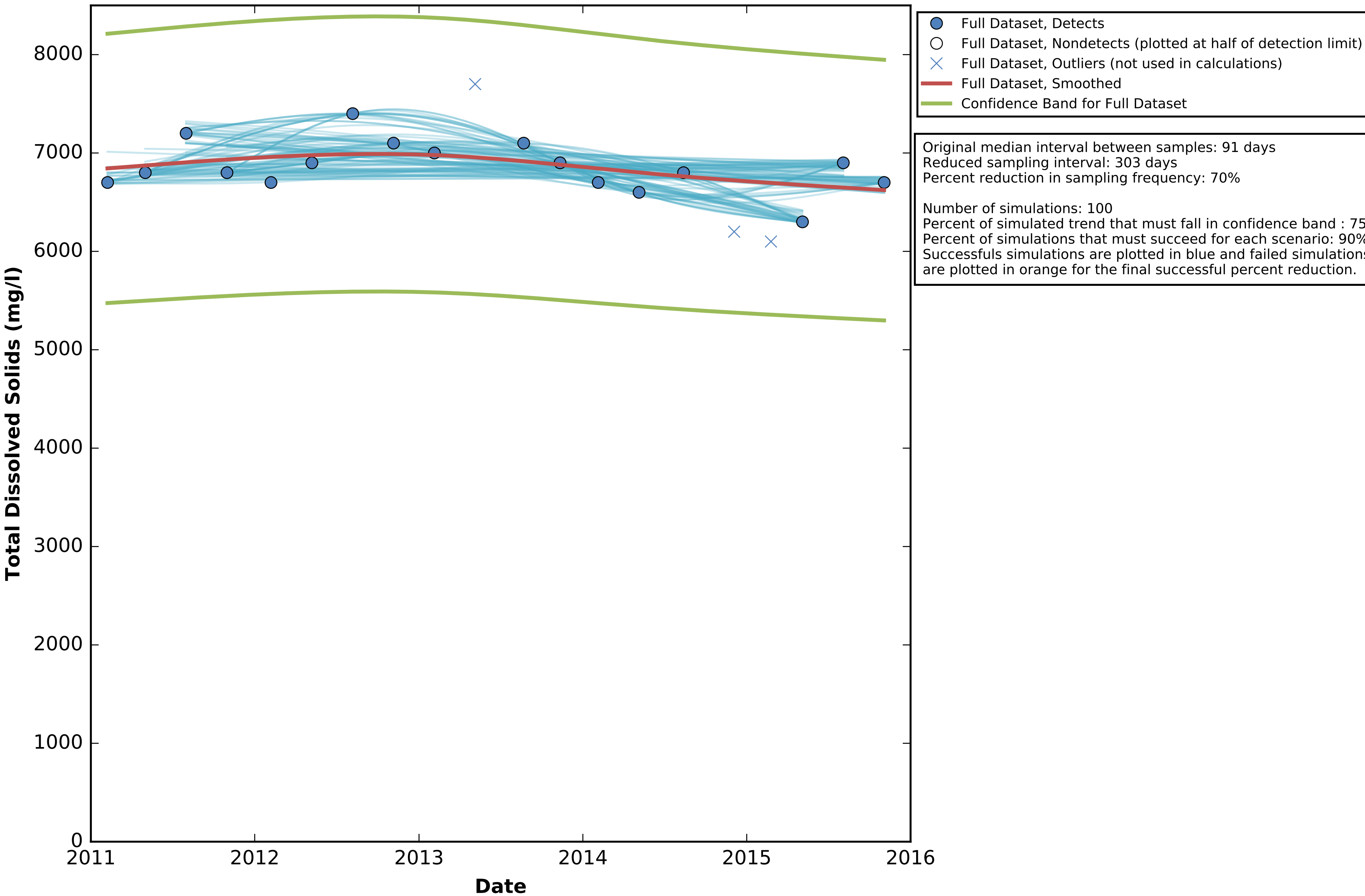
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-128
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-232

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

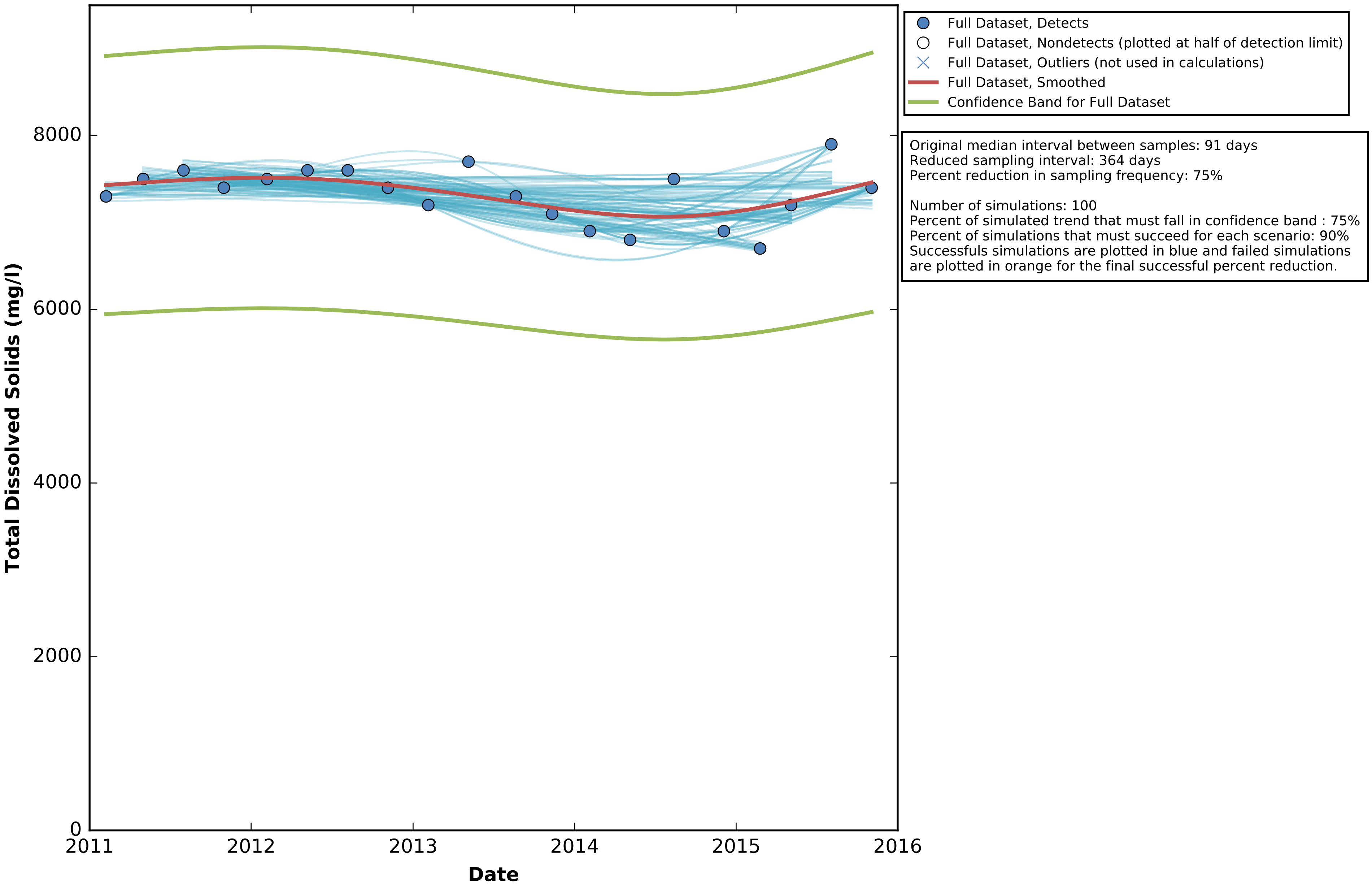
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-129
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-233

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



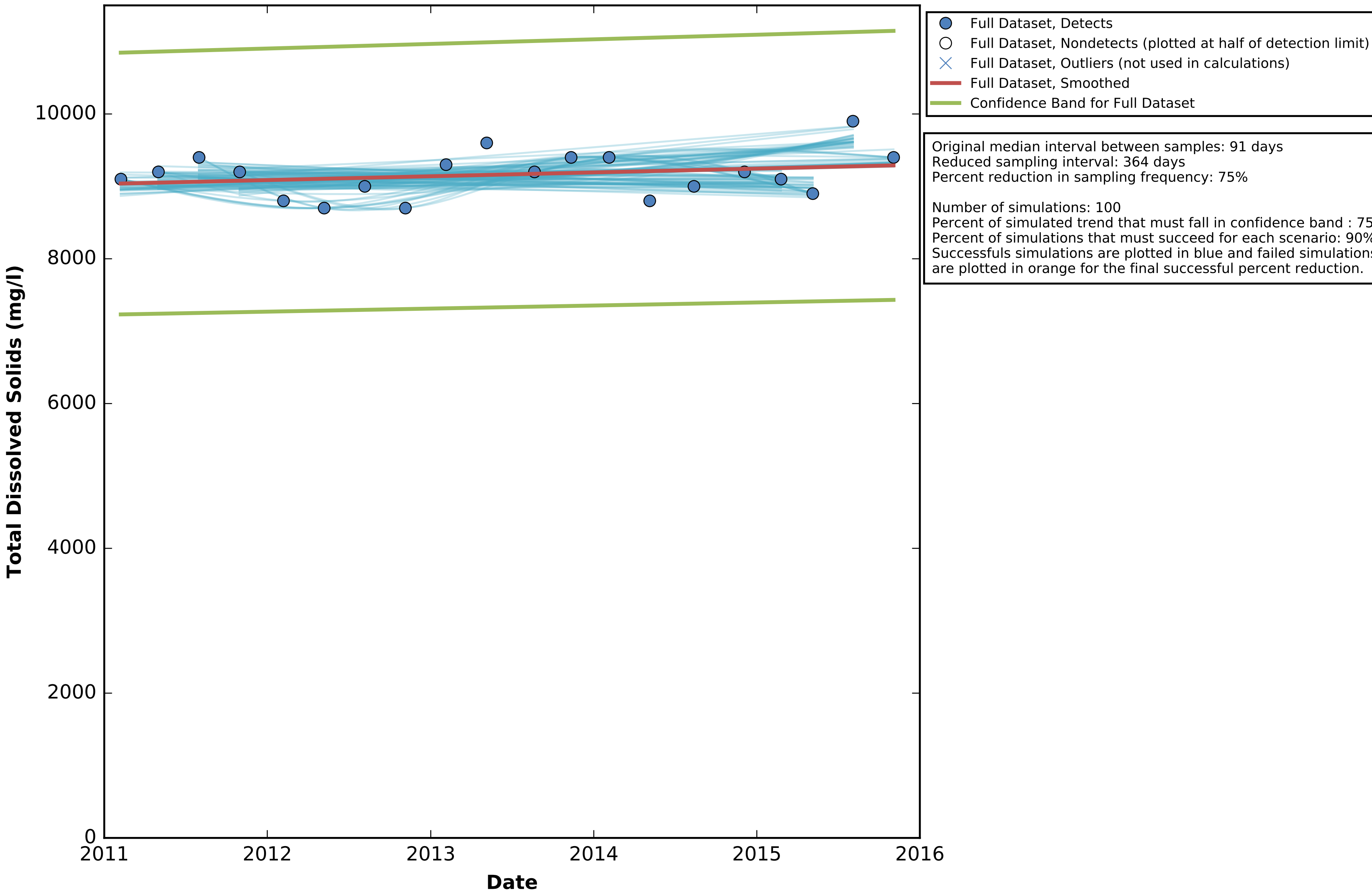
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-130
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-234

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

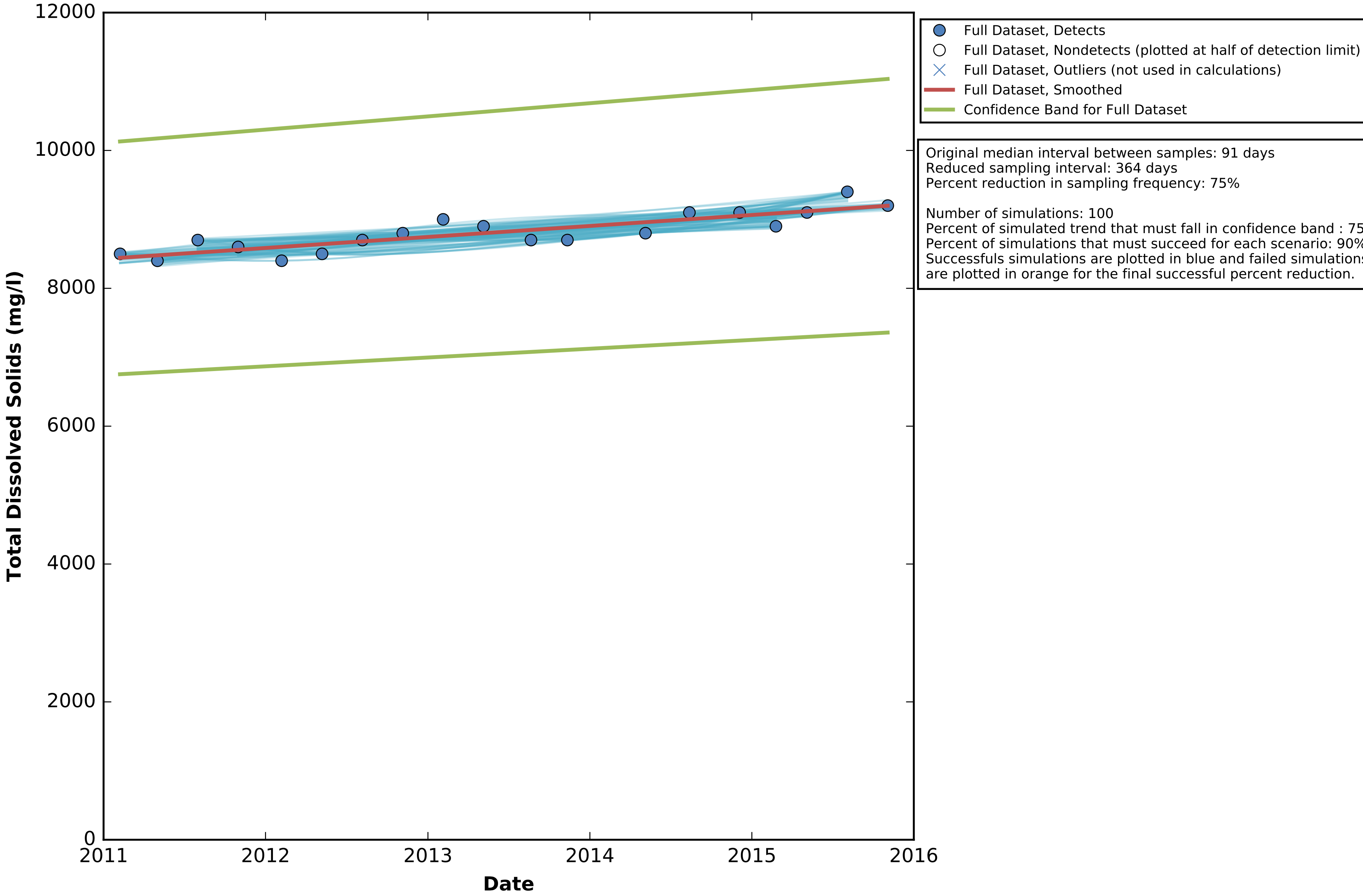
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-235

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

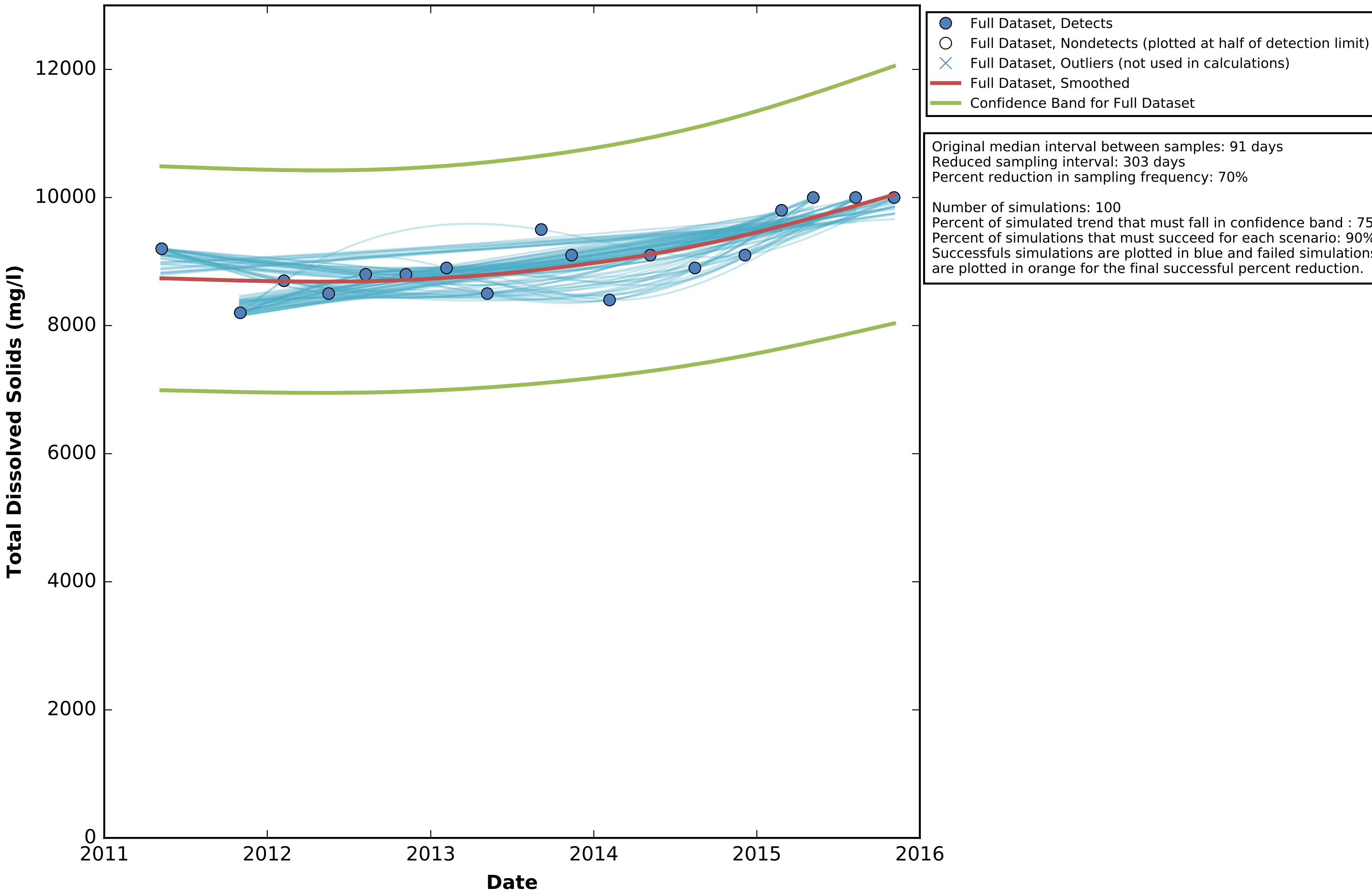
Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-132
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-236

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

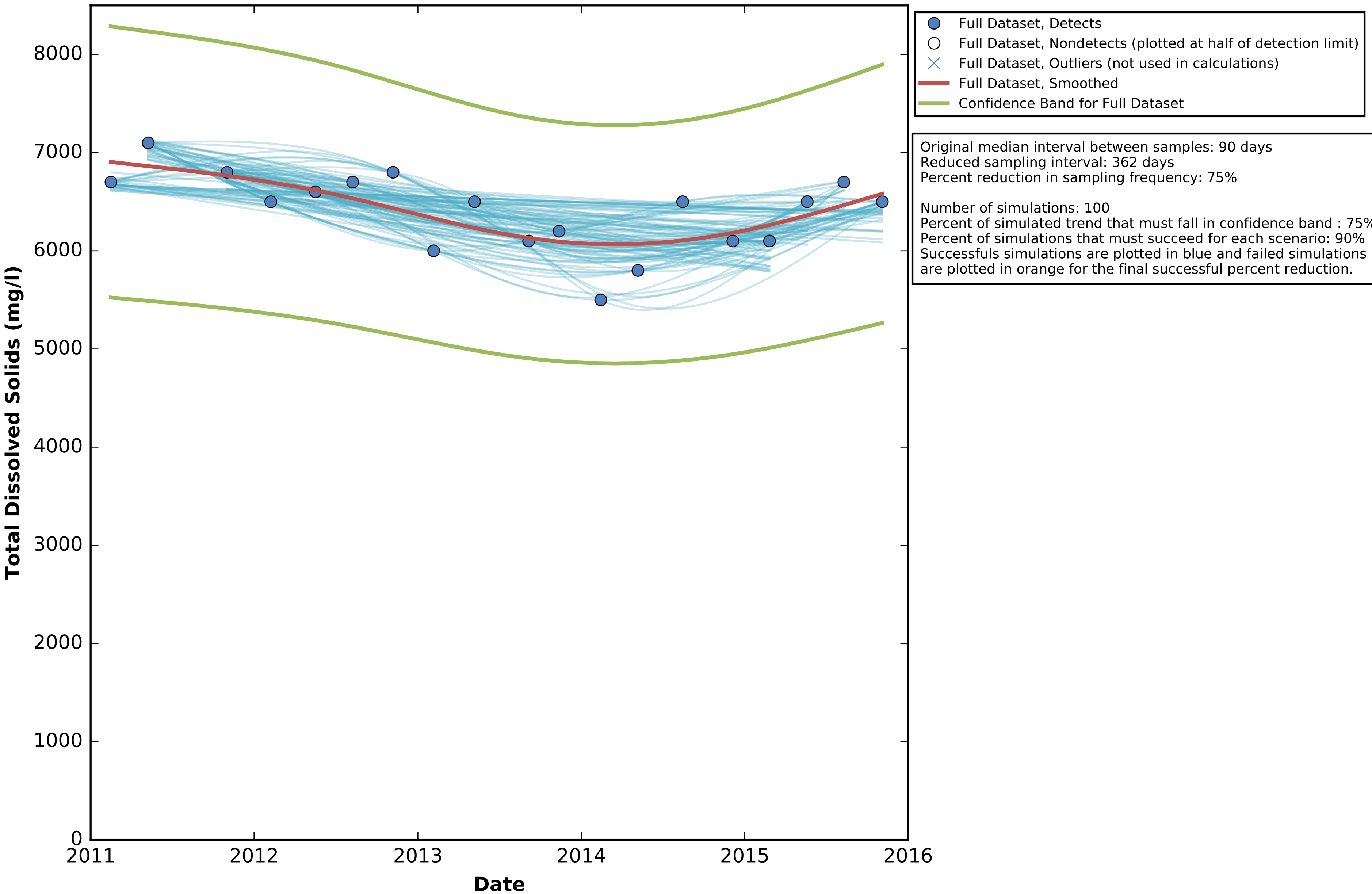
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-135A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-237

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 362 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

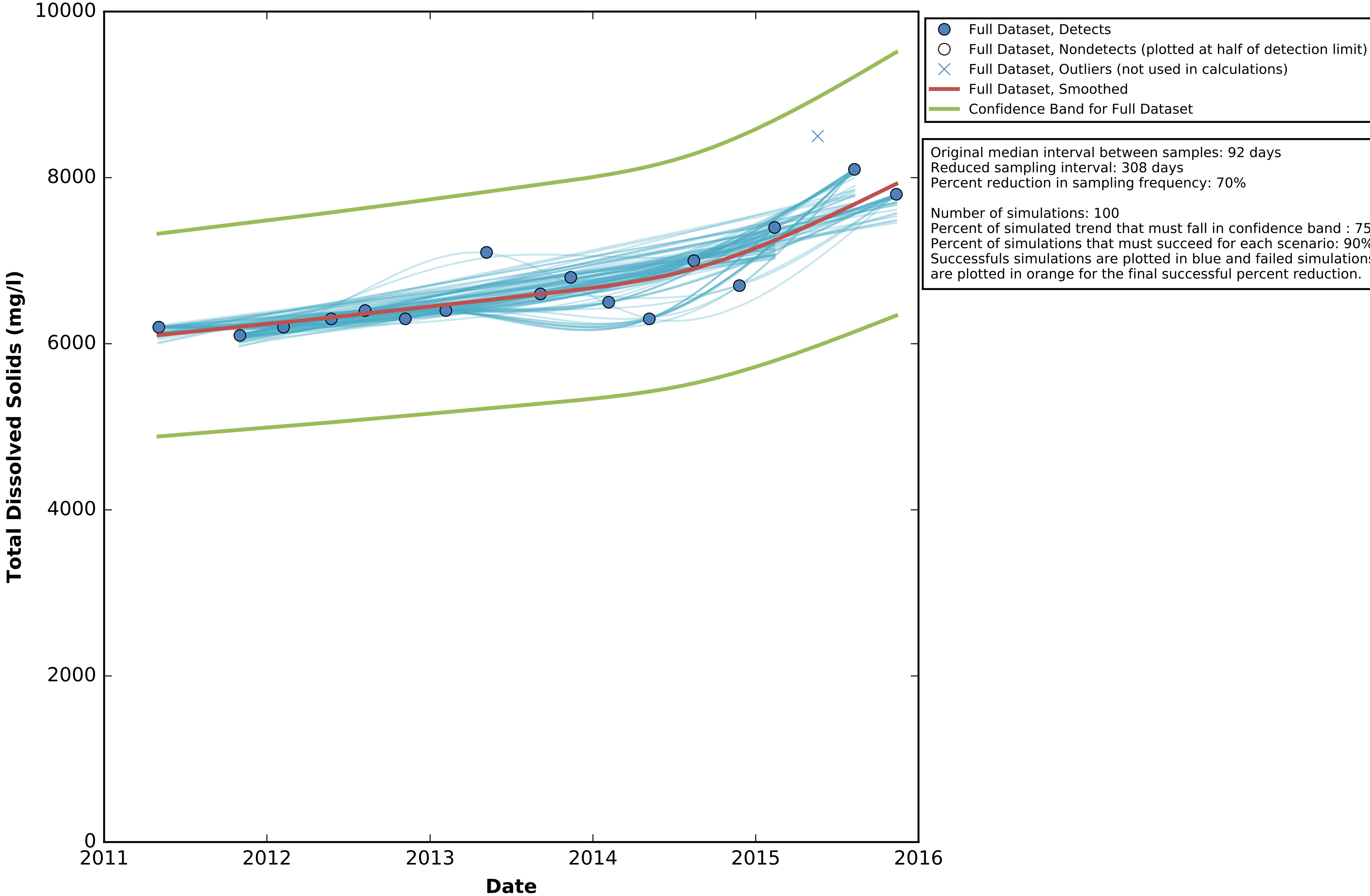
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-136
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-238

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 308 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

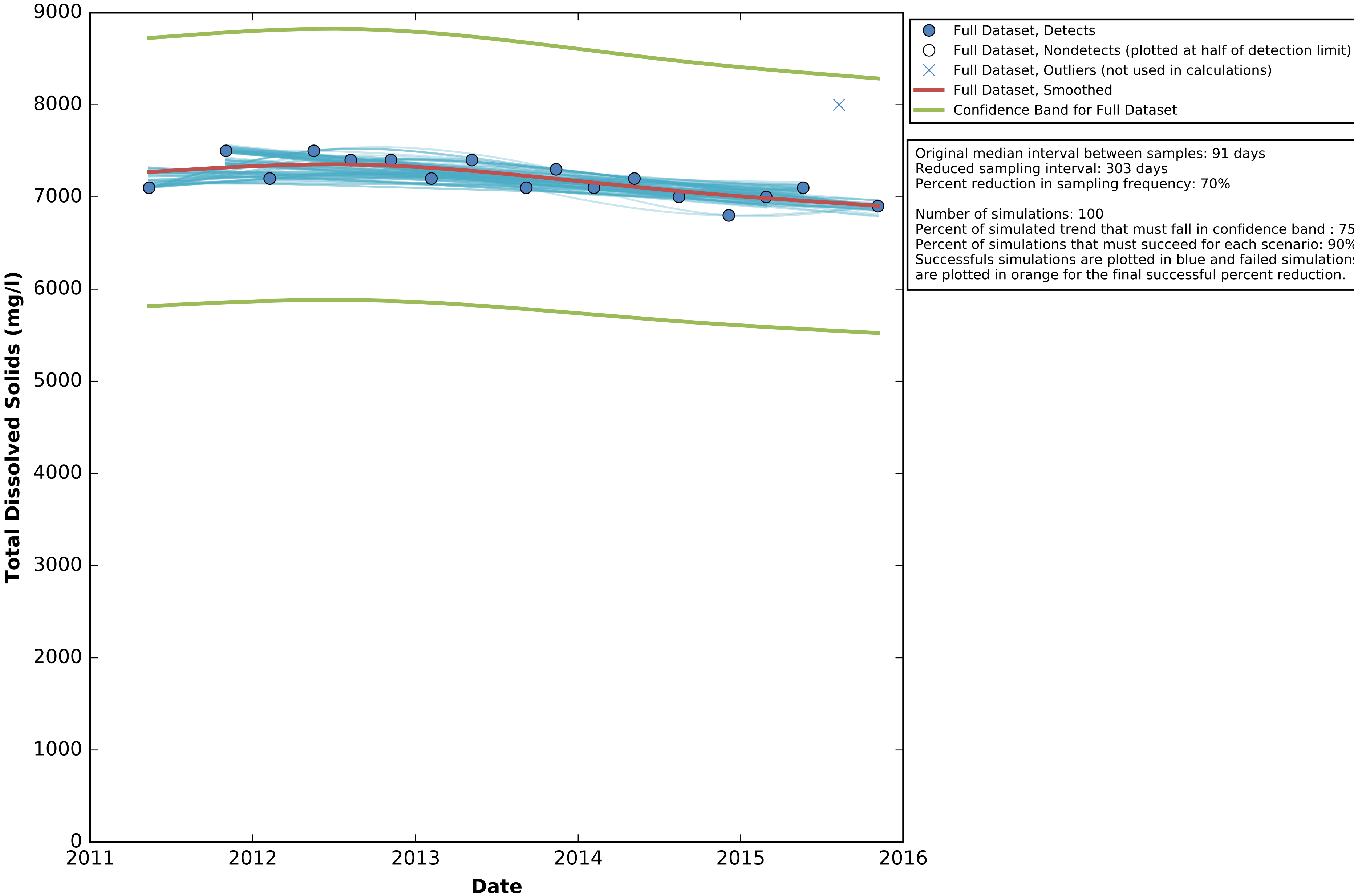
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-144
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-239

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

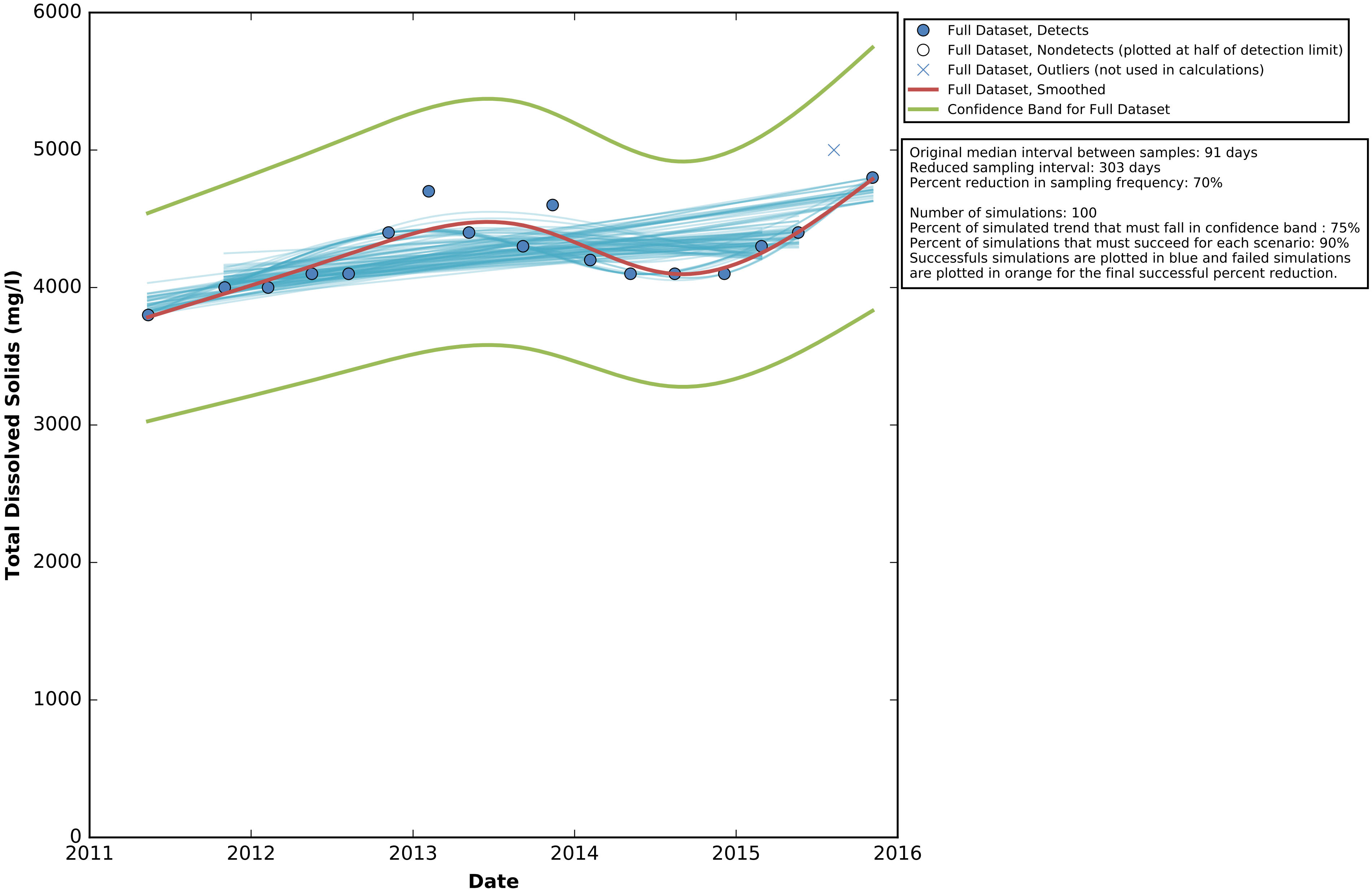
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-148
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-240

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



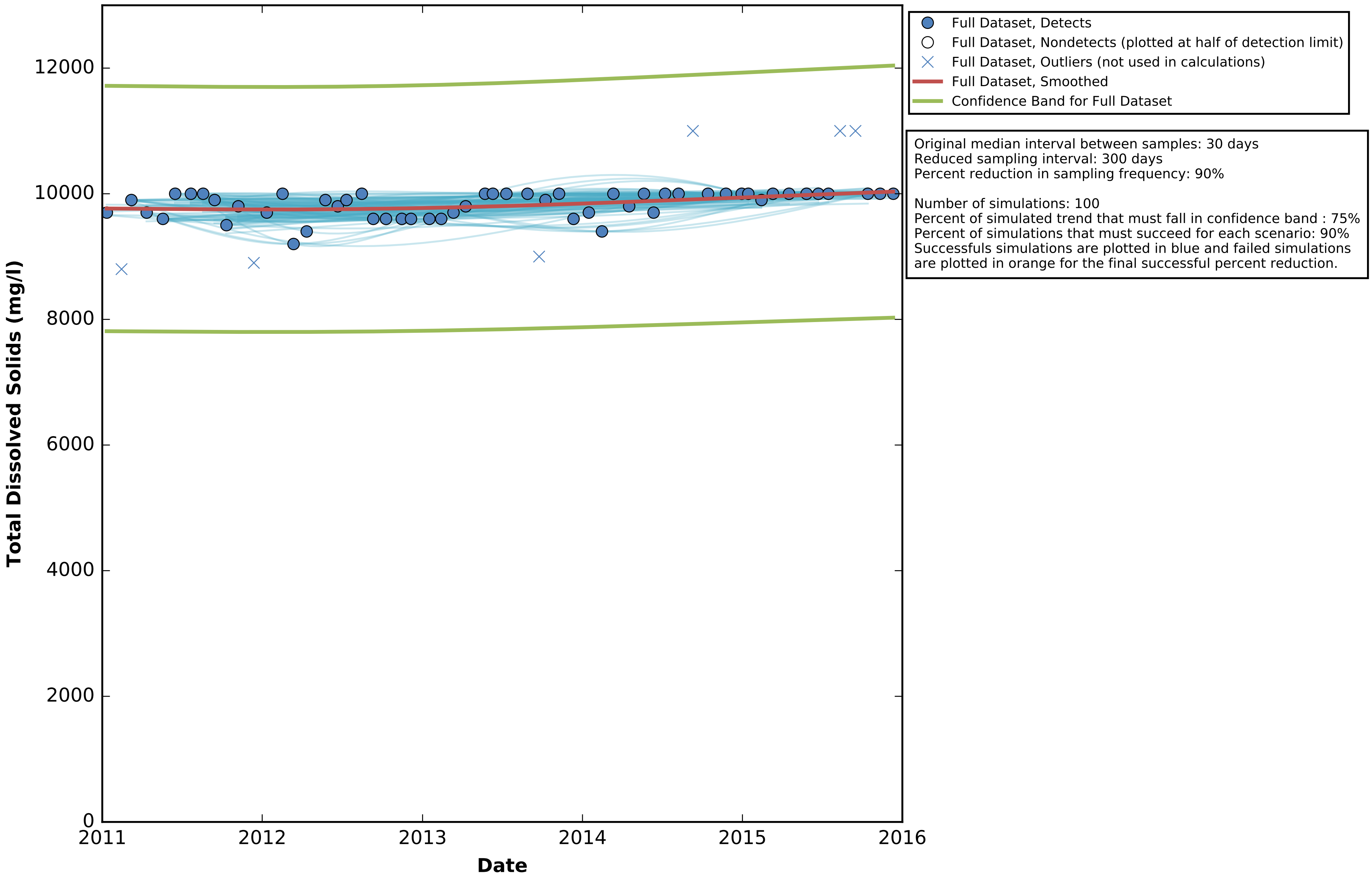
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-149
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-241

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



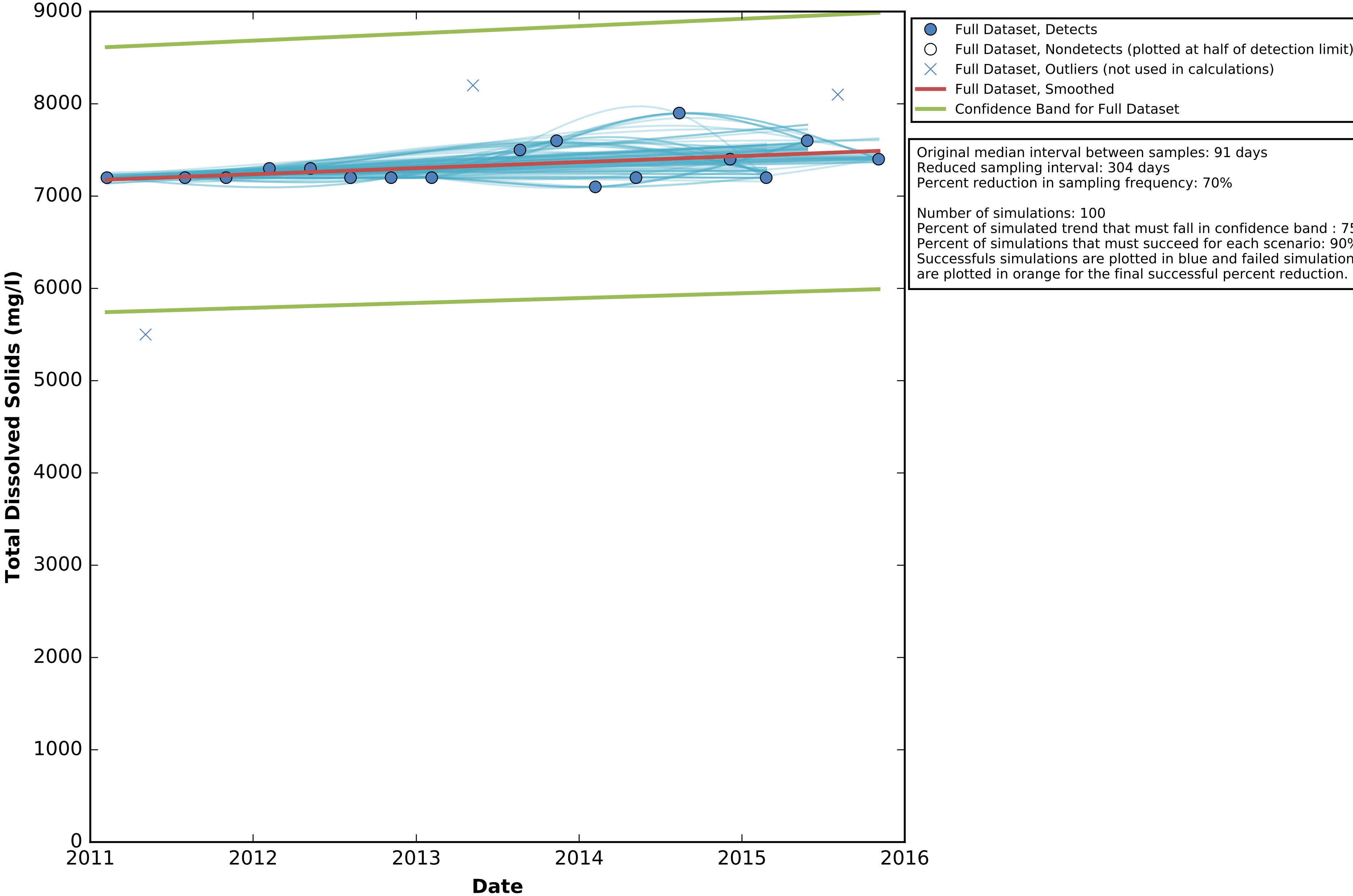
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-18
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-242

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 304 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

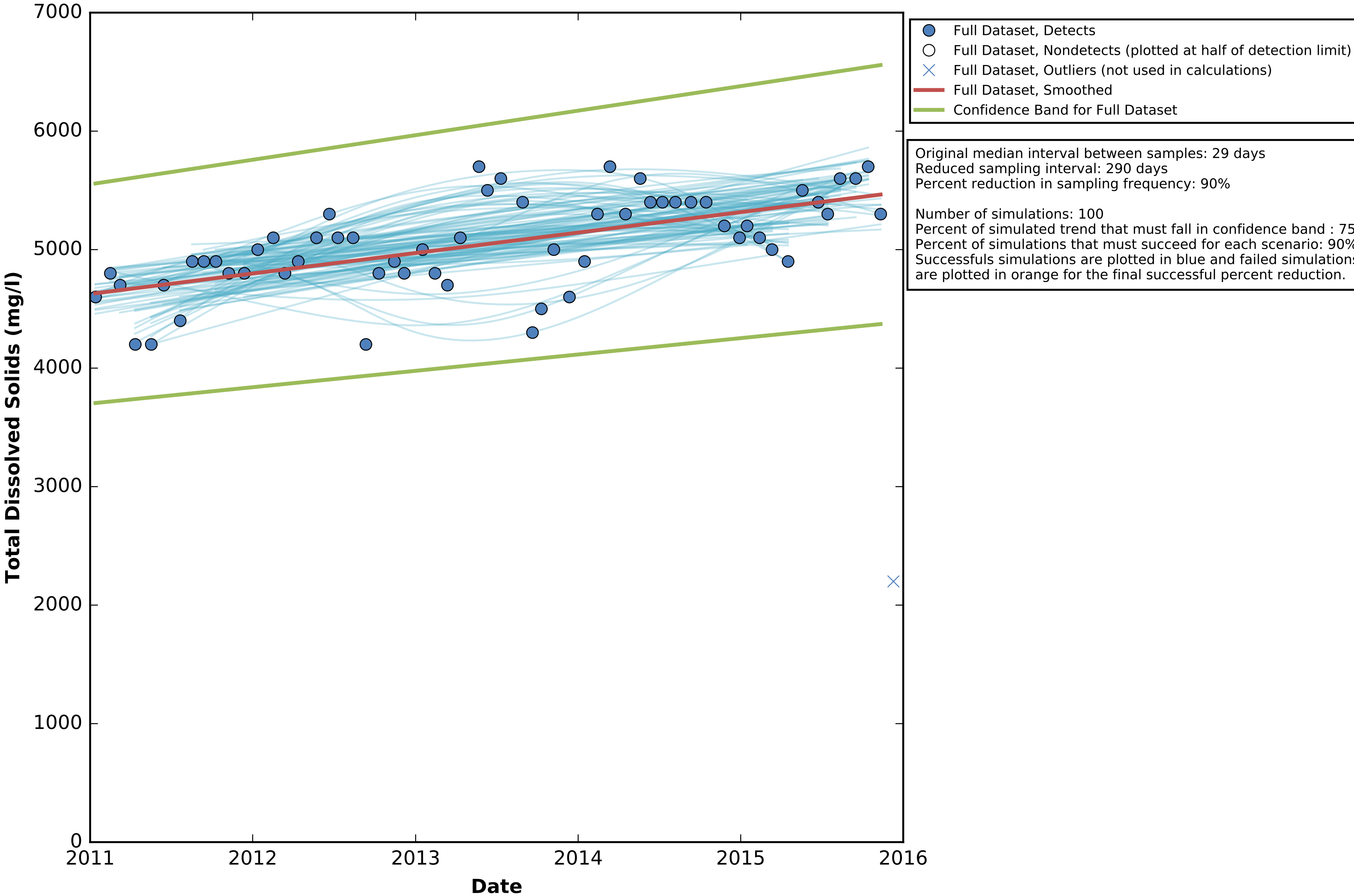
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-243

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

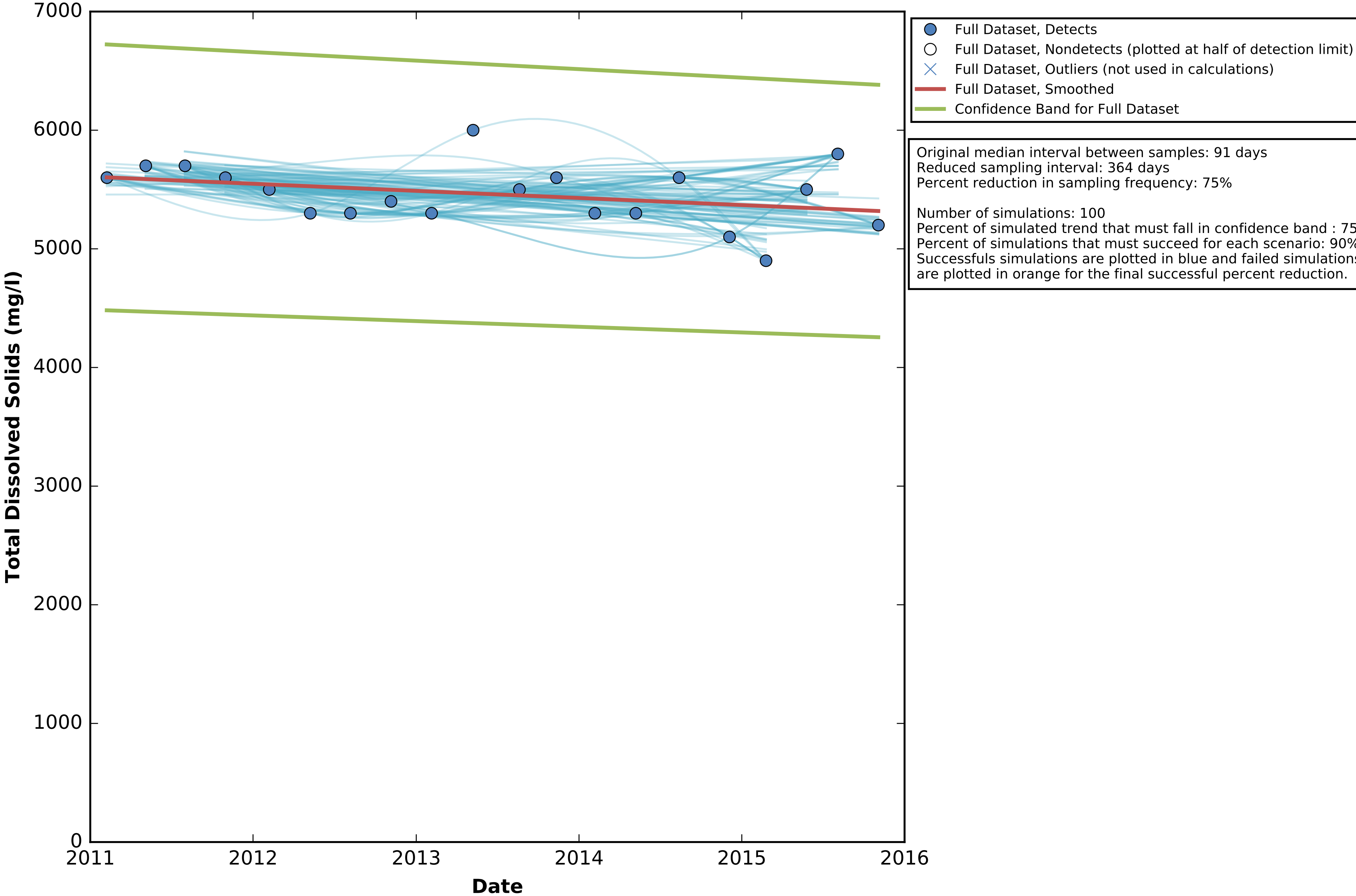
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-53
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-244

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

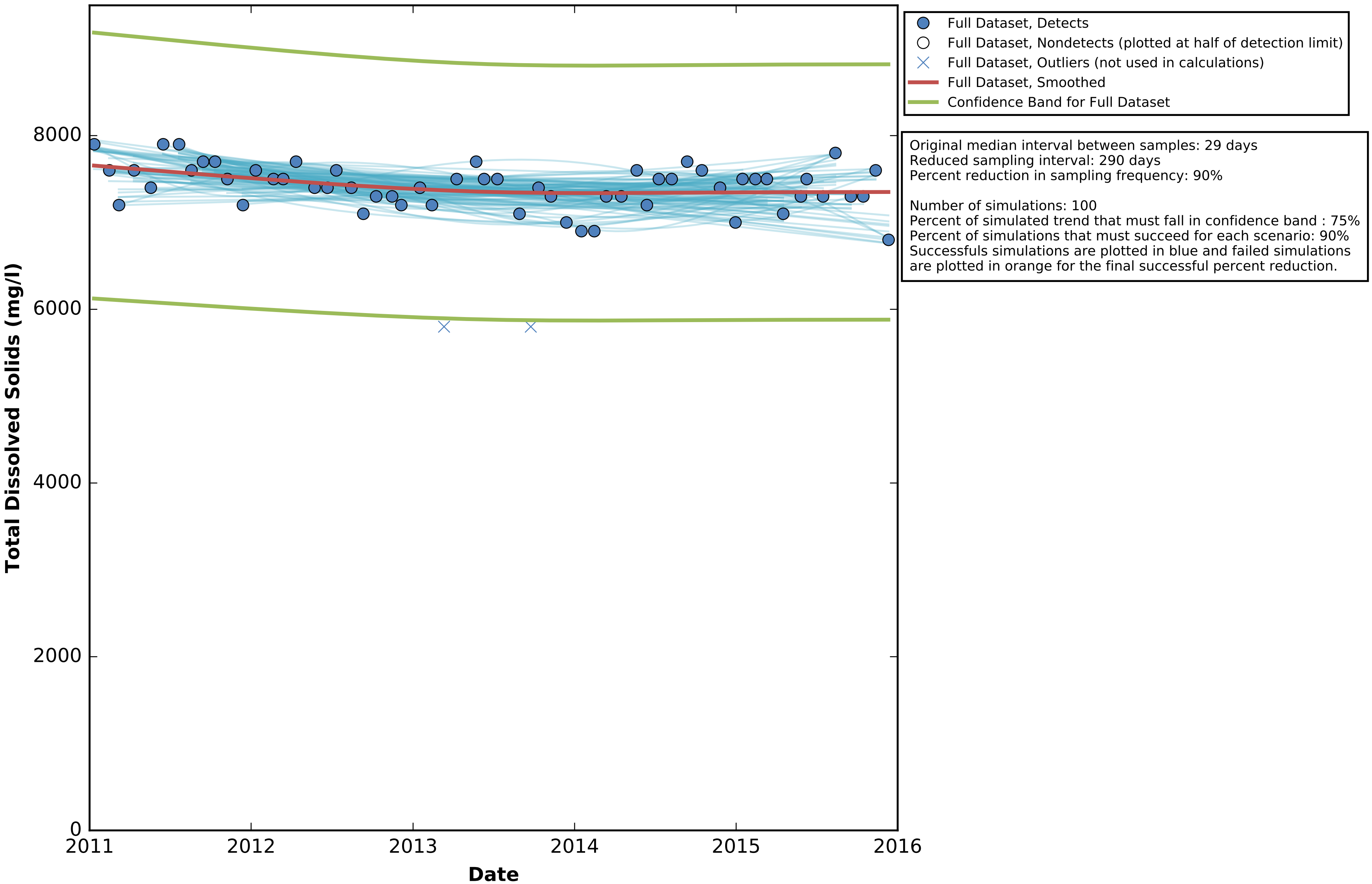
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-54
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-245

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



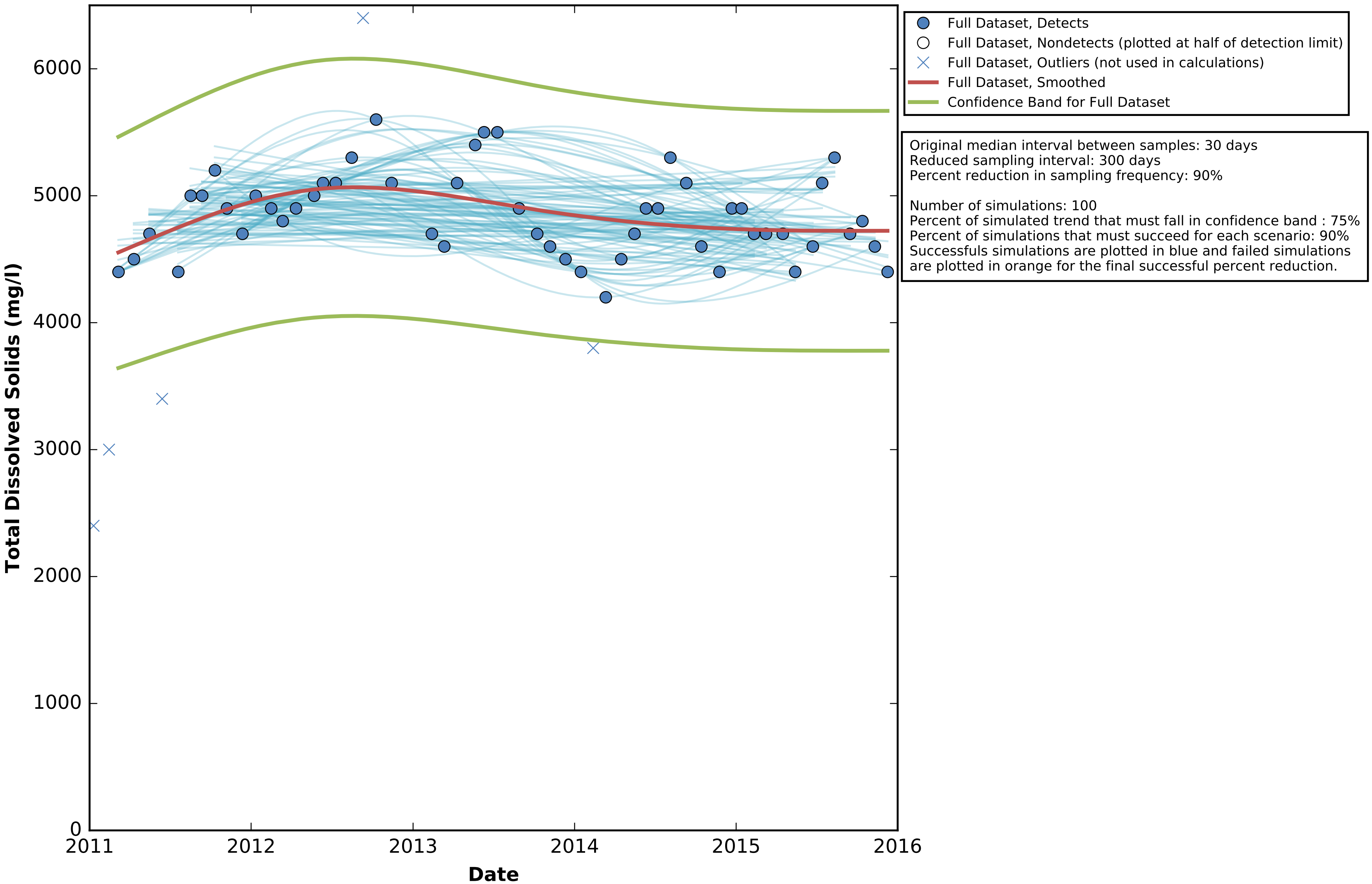
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-246

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



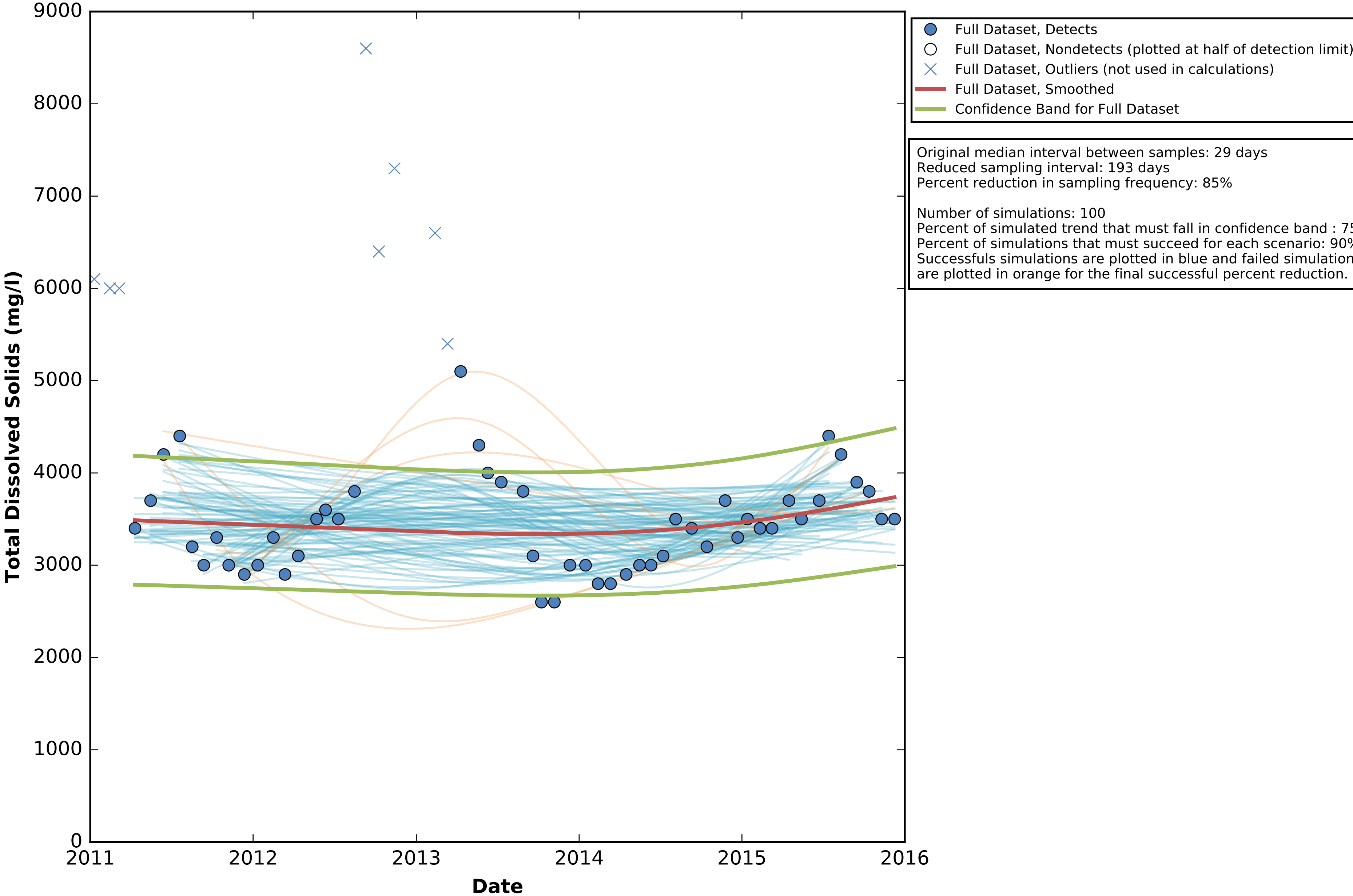
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-247

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

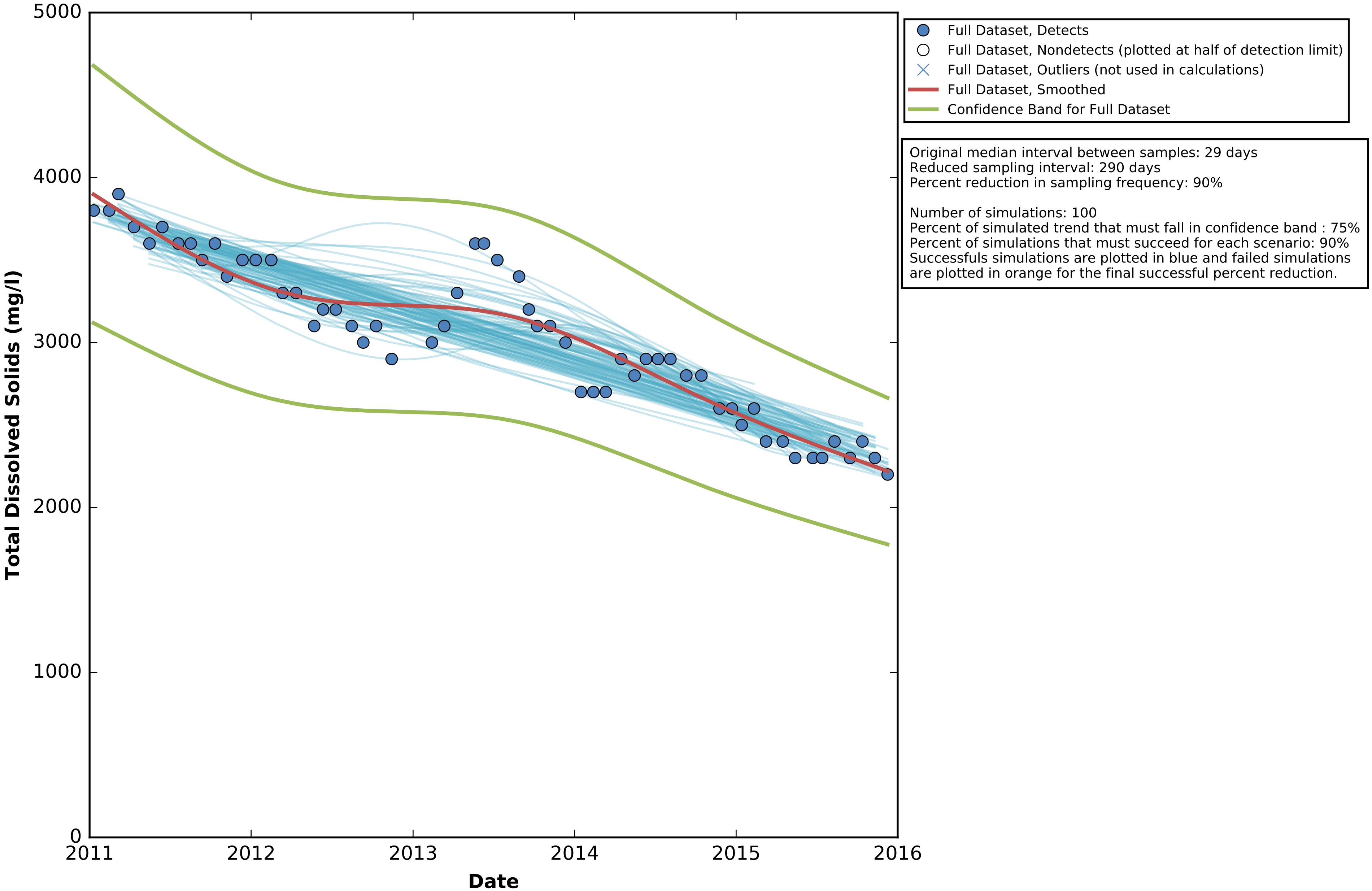
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-248

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



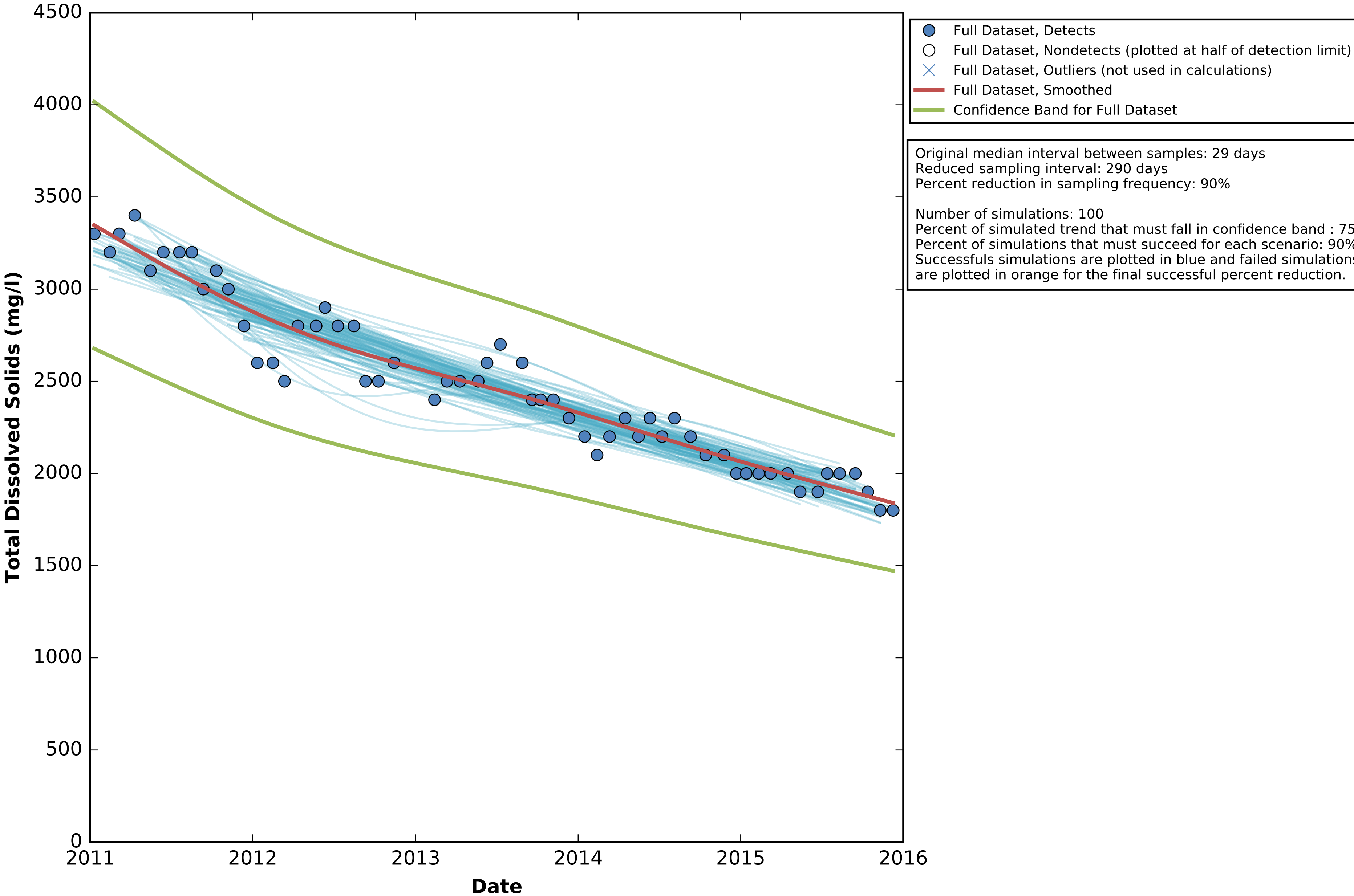
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-59
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-249

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

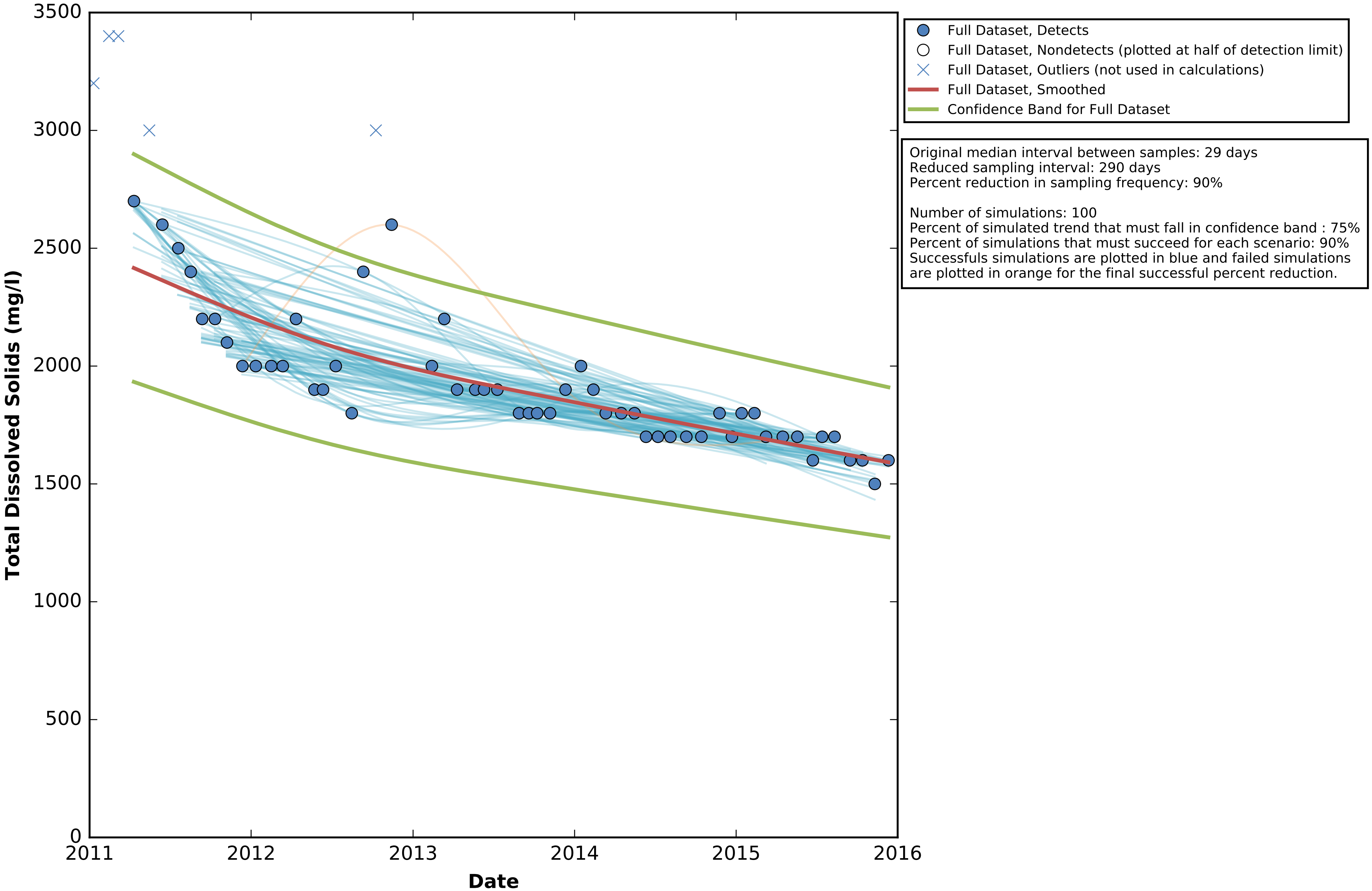
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-60
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-250

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



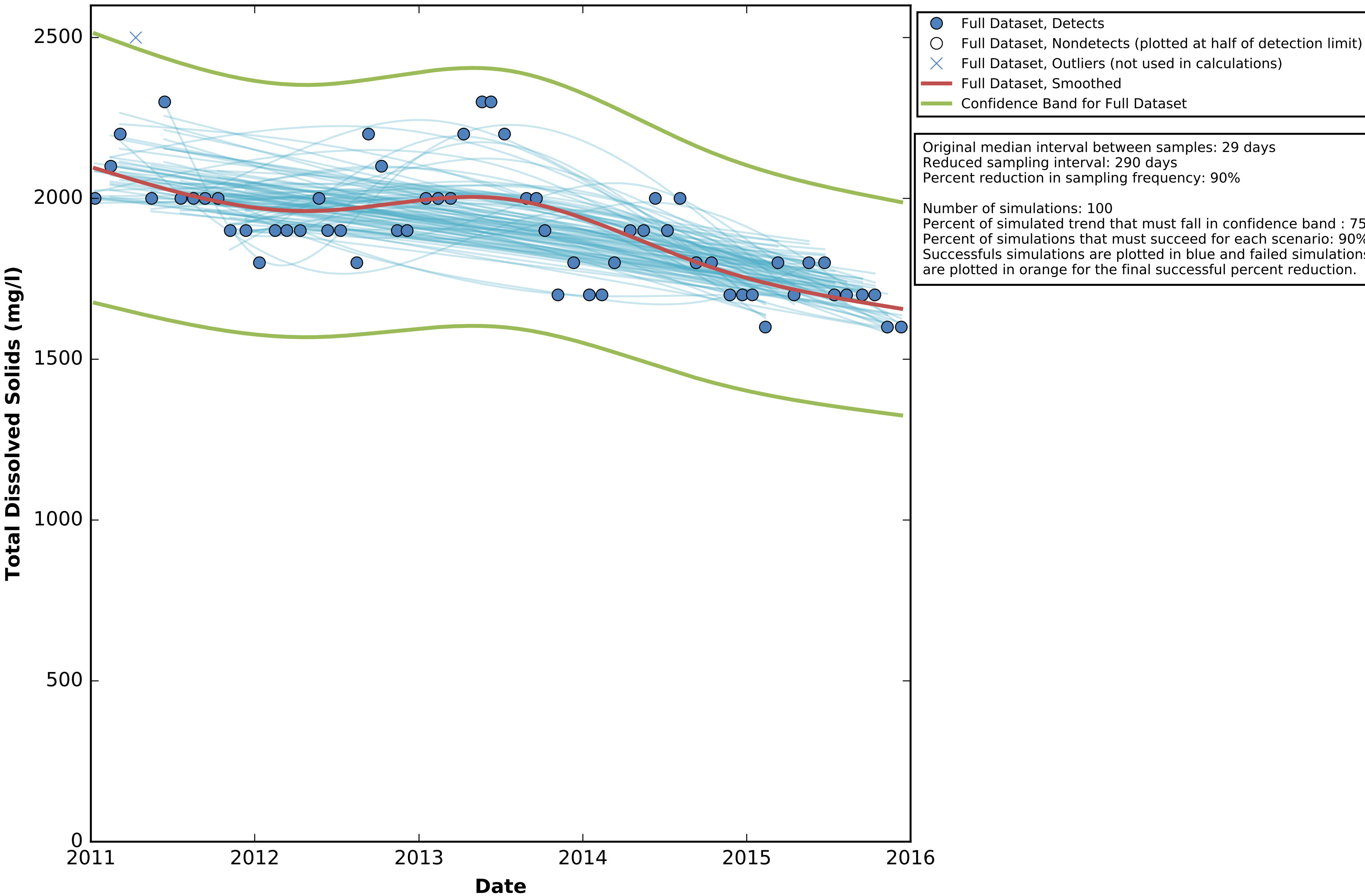
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-62
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-251

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

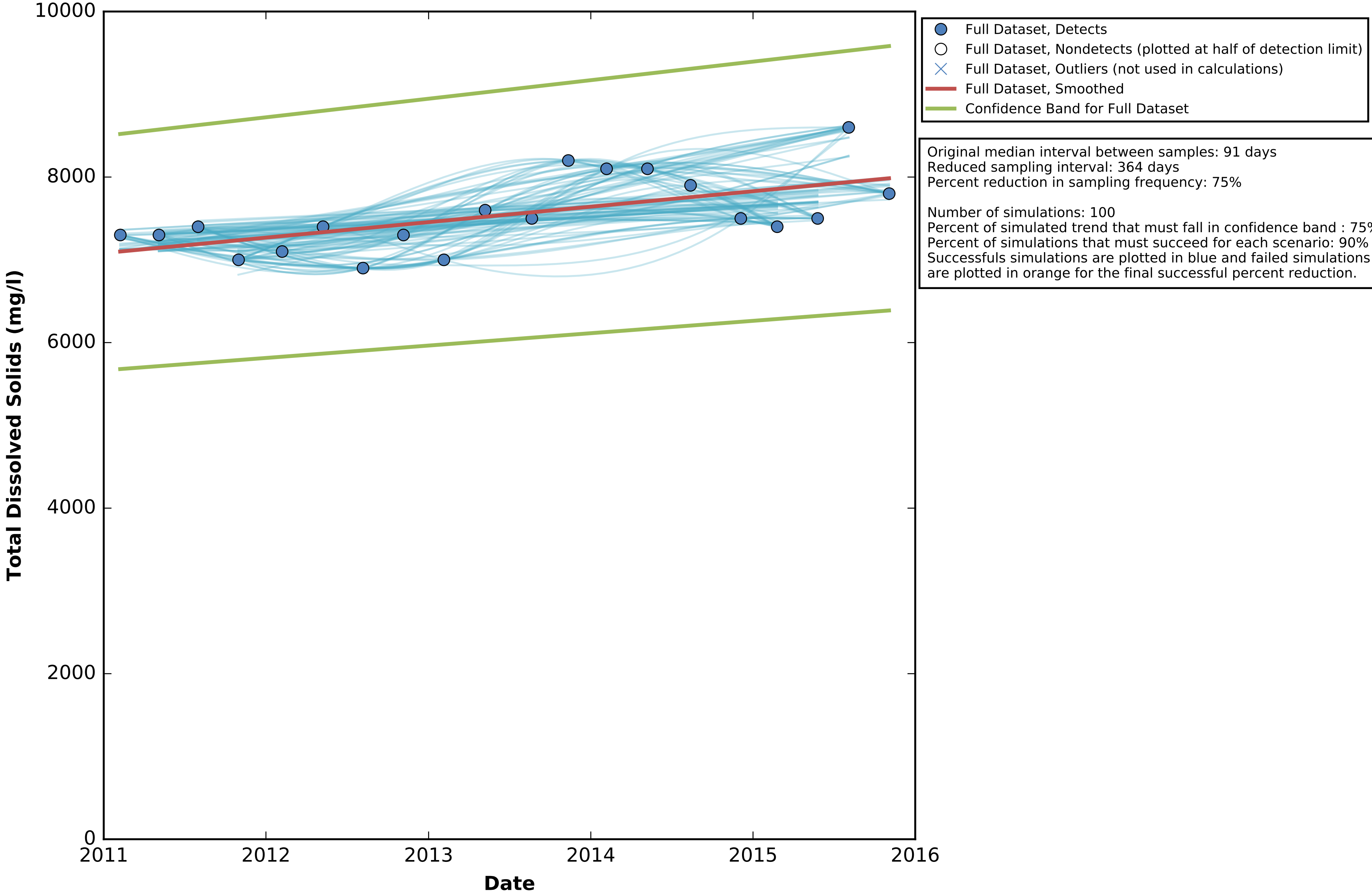
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-252

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

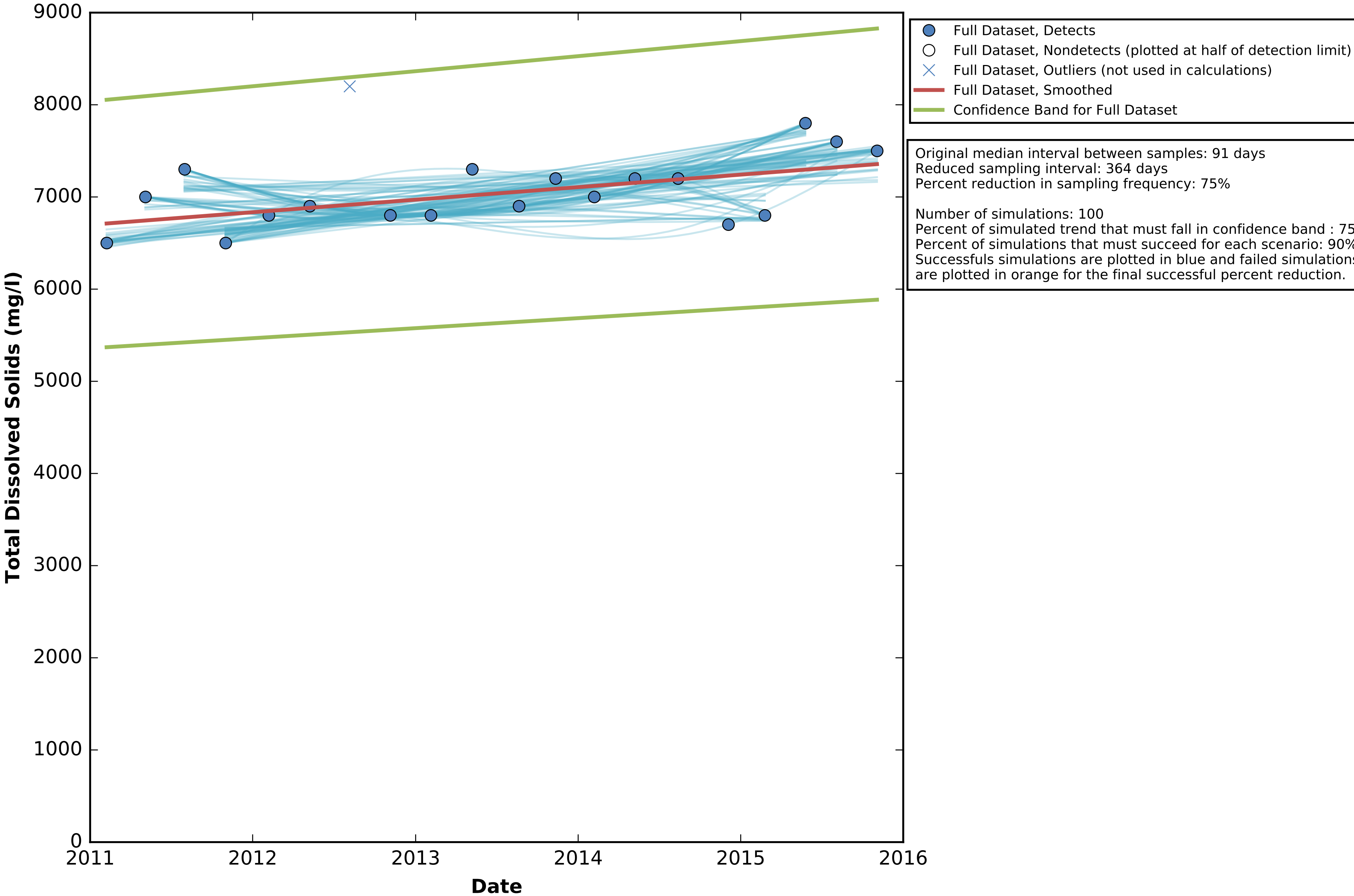
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-253

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

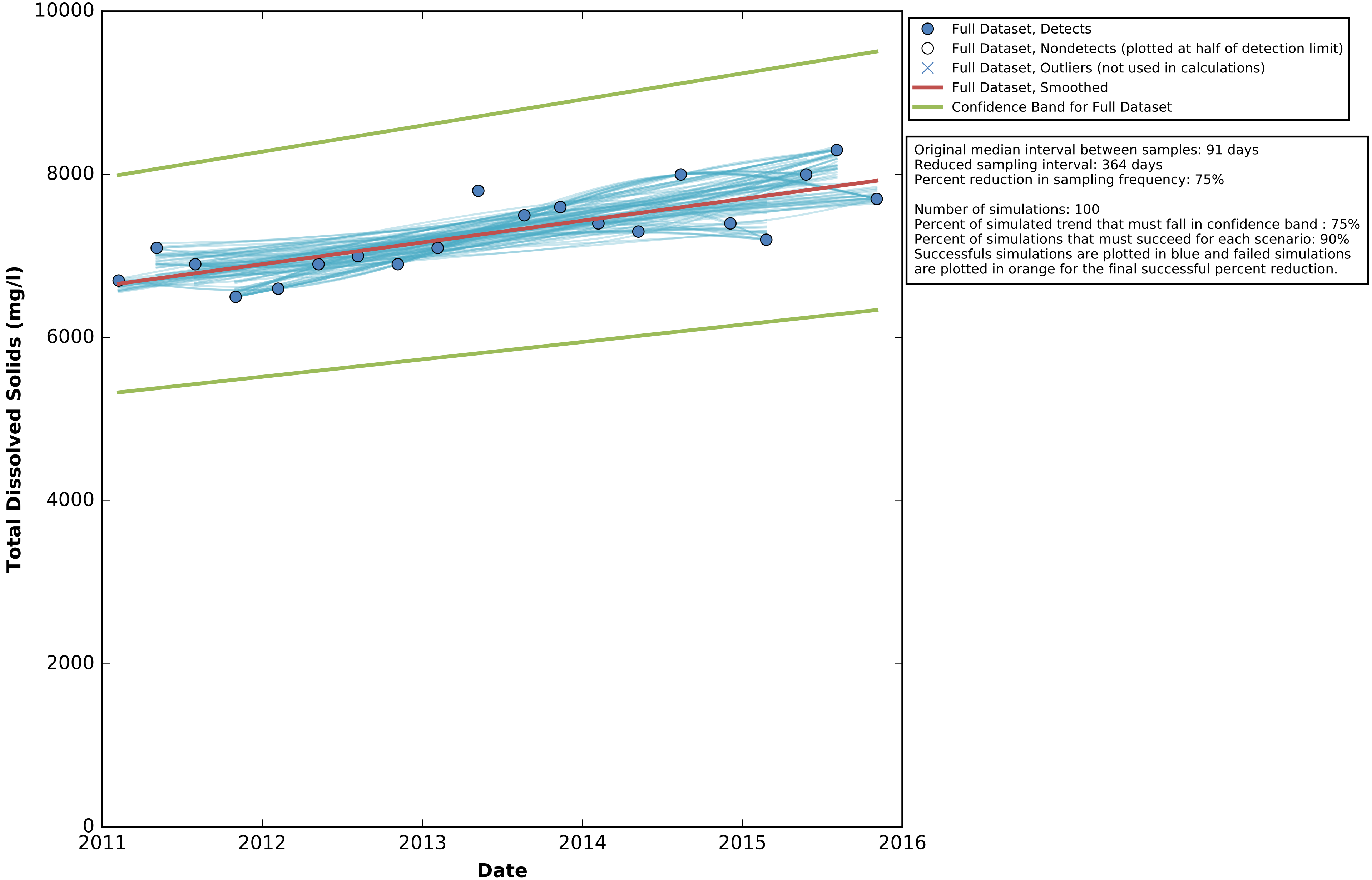
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-254

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



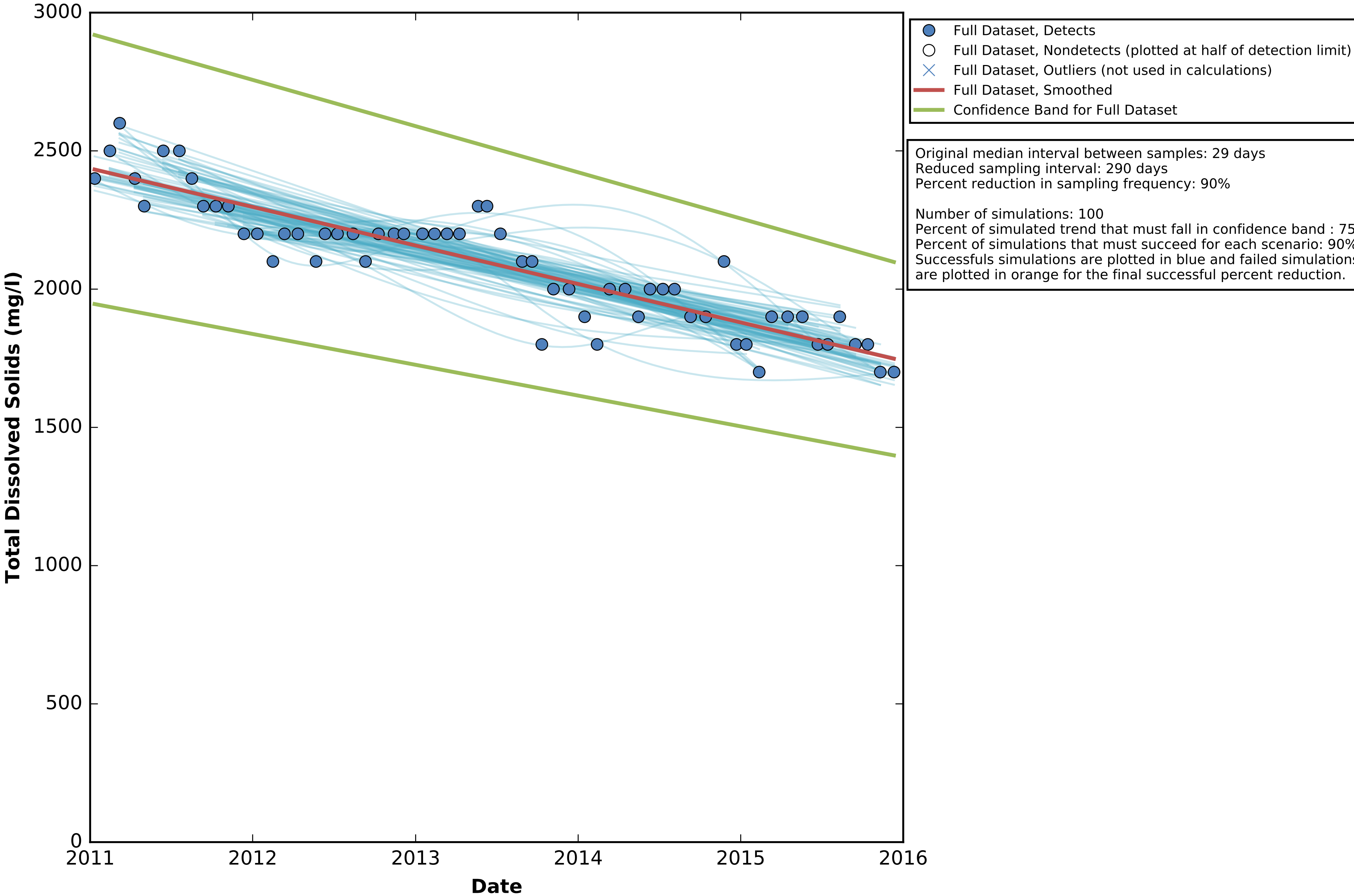
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-255

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

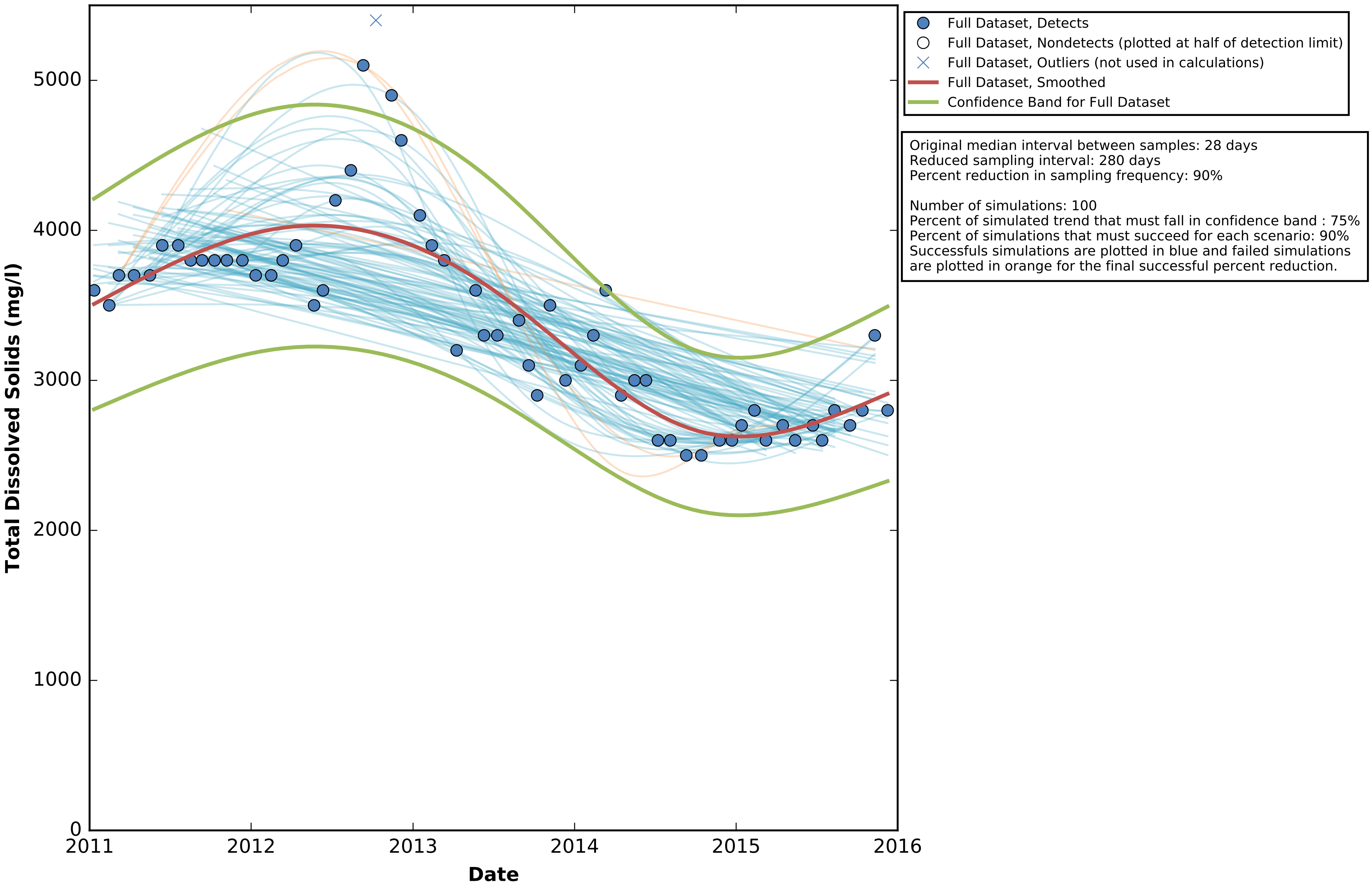
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-86
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-256

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



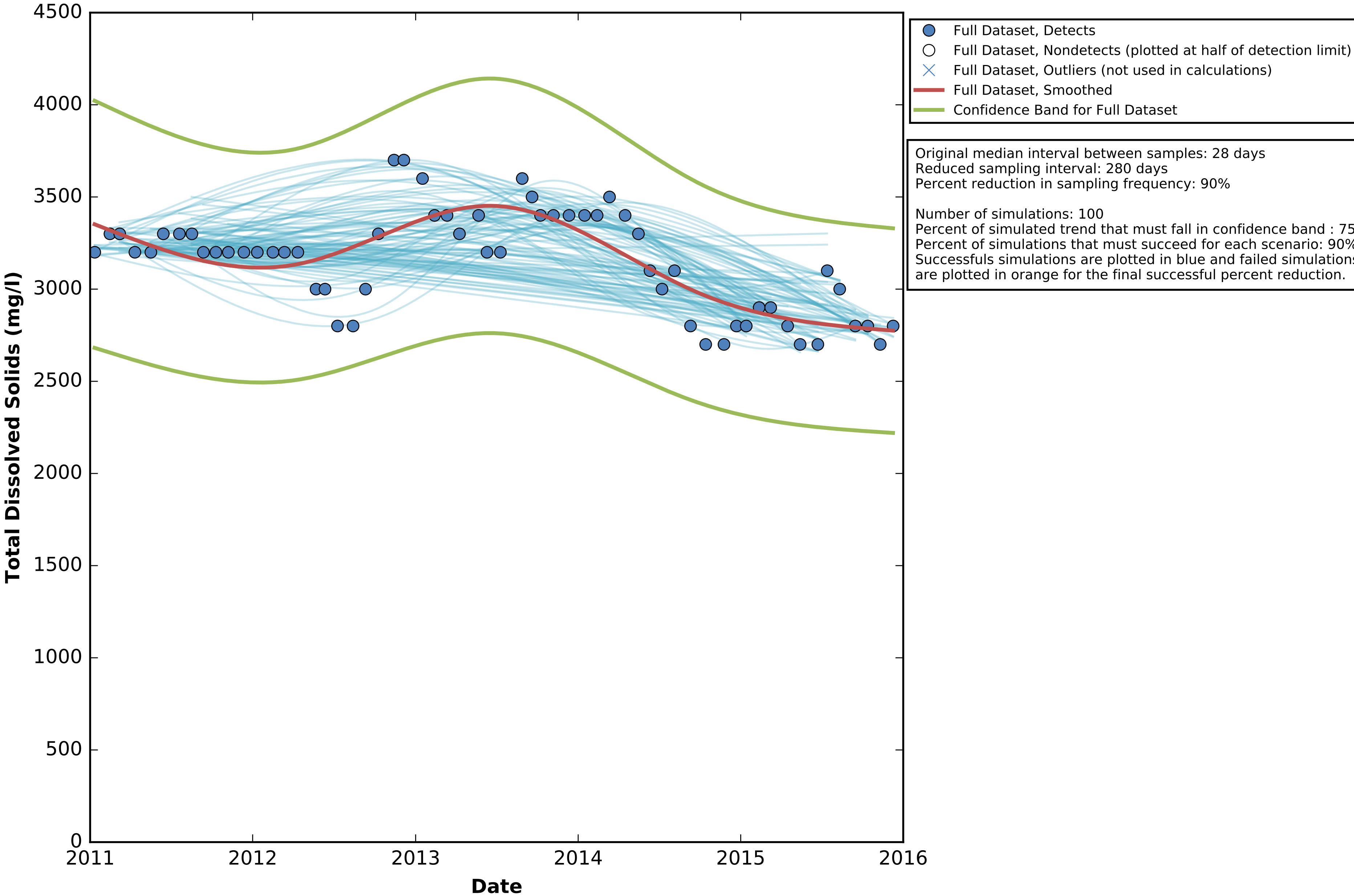
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-90
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-257

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 28 days
Reduced sampling interval: 280 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

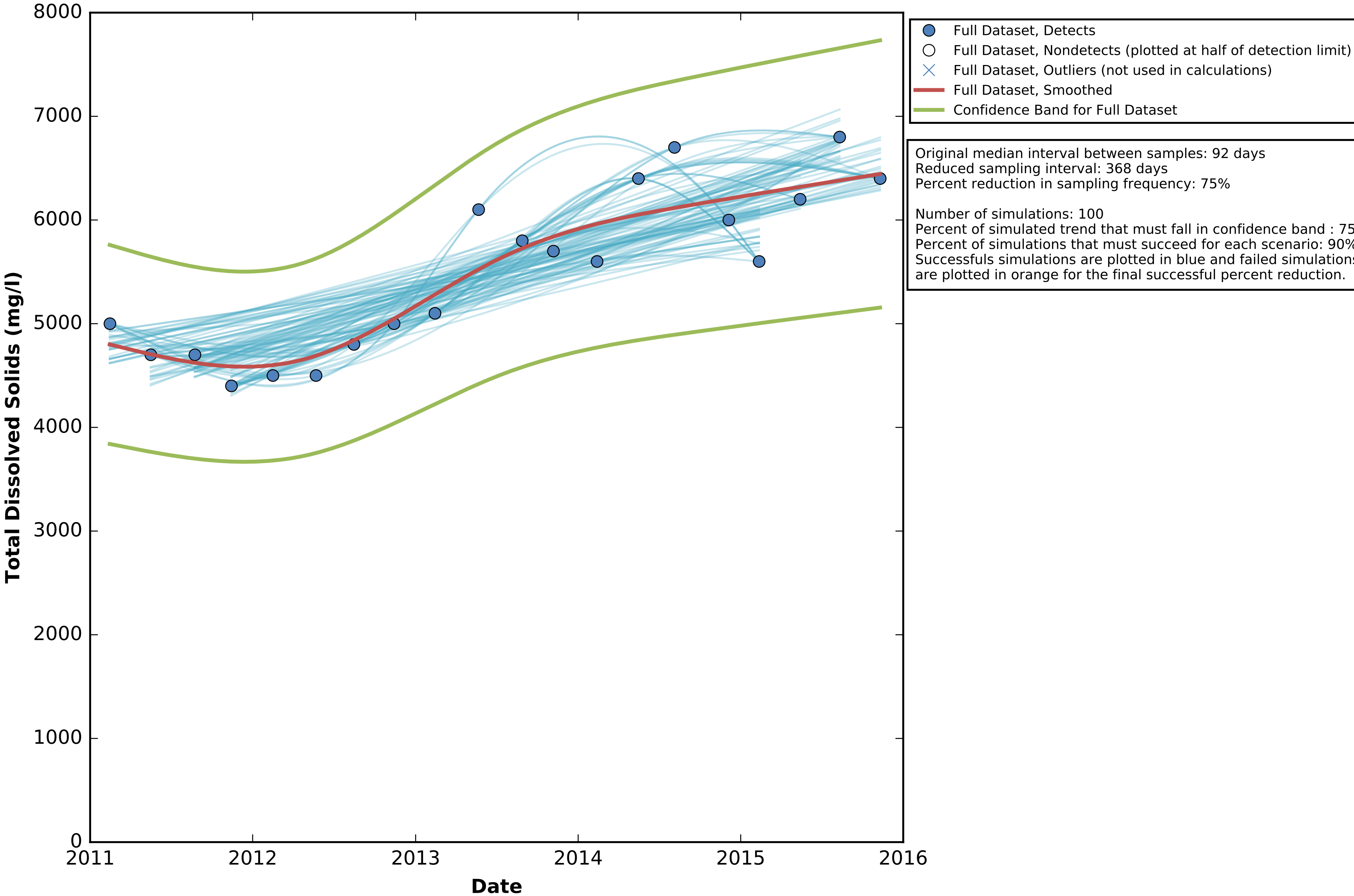
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-91
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-258

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 368 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

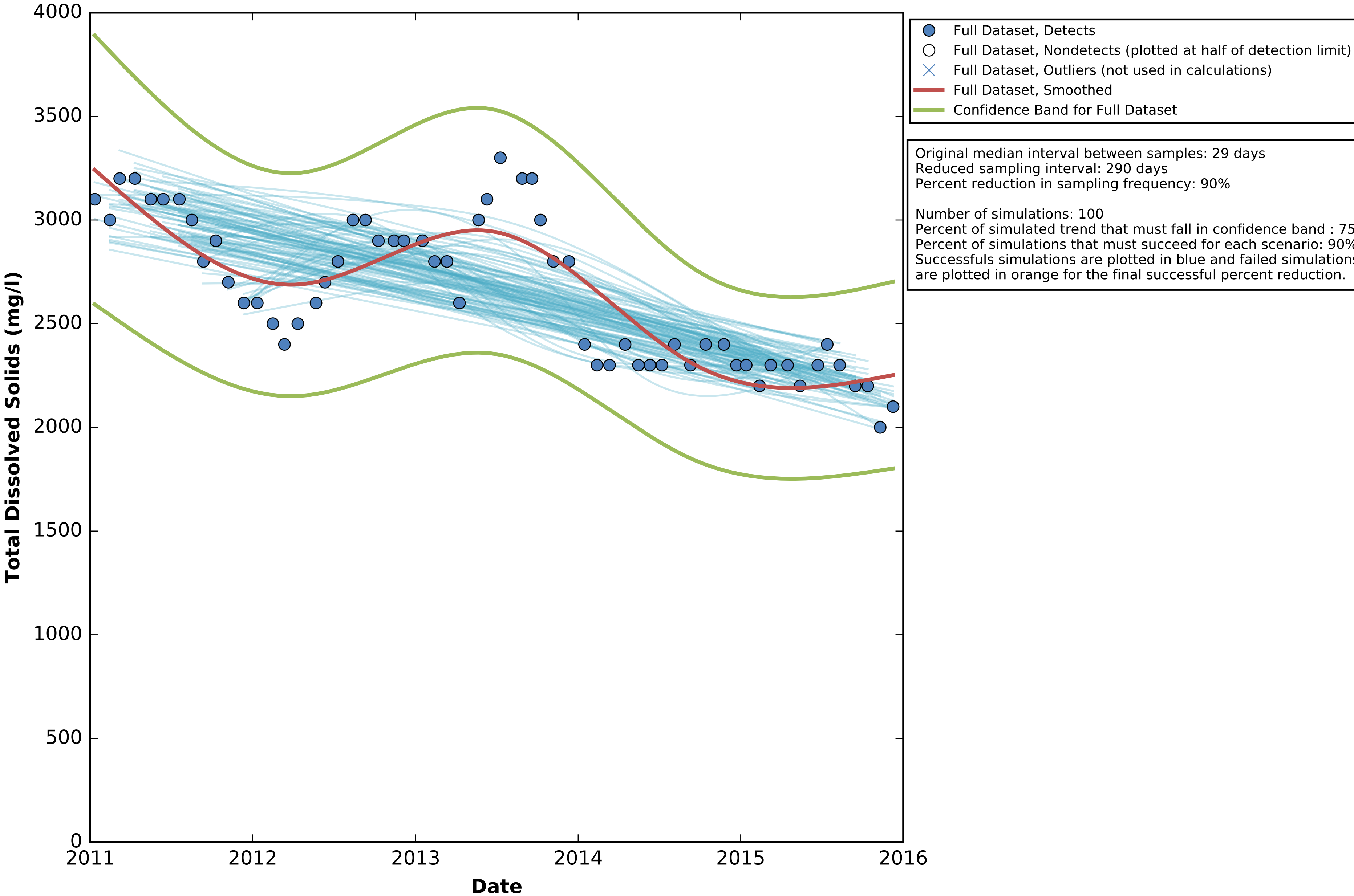
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-94
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-259

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

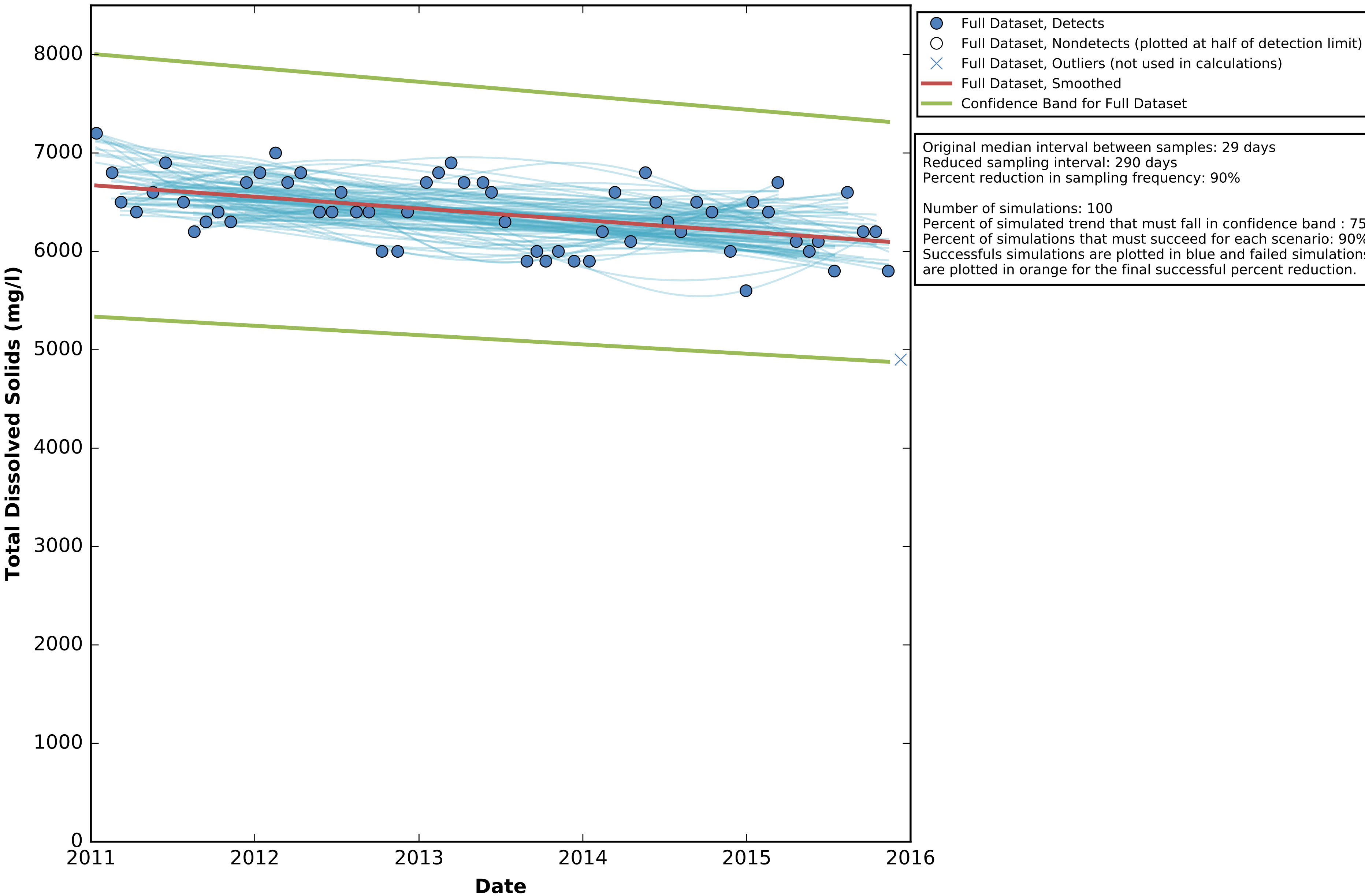
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-97
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-260

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

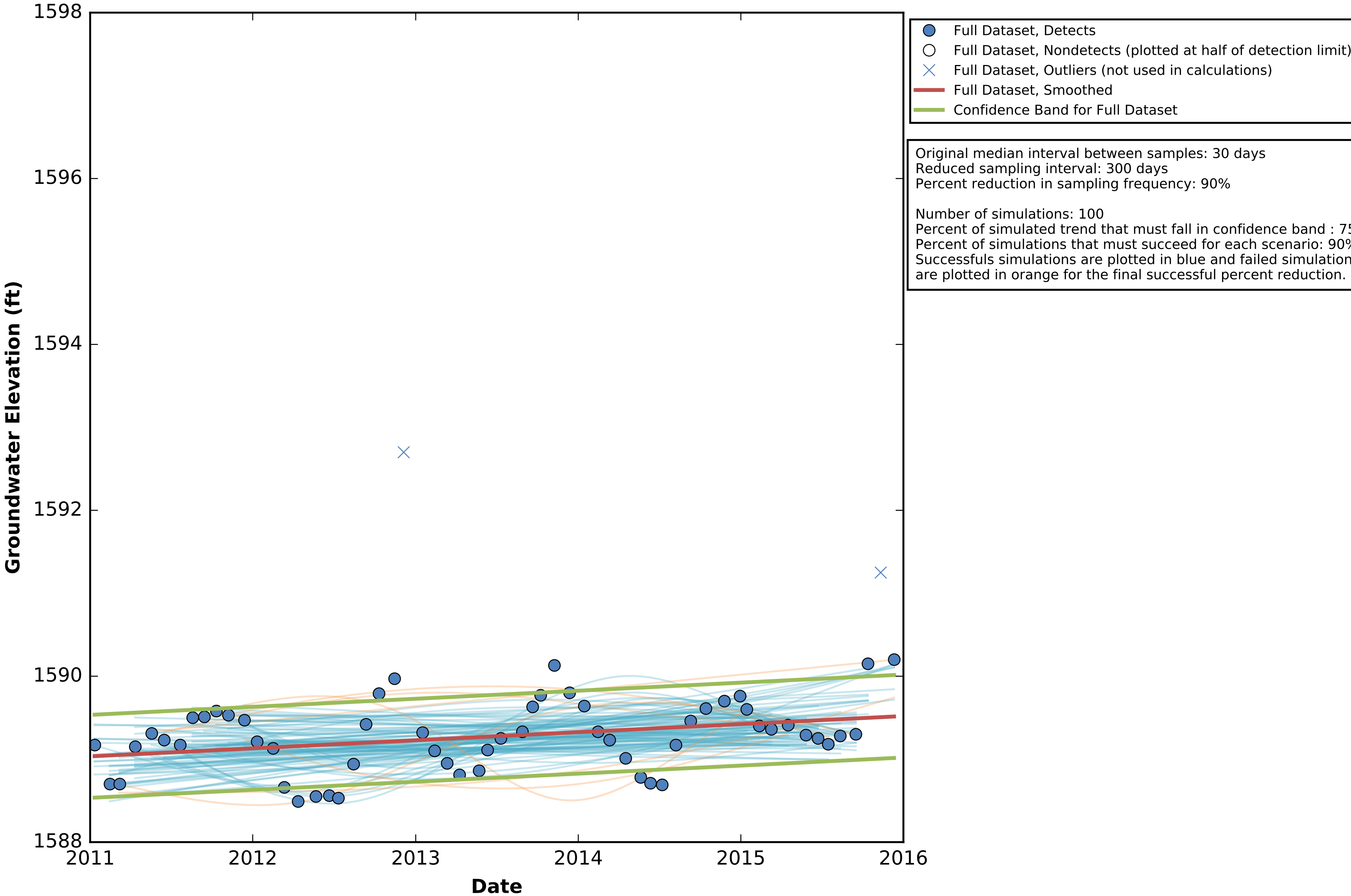
RAMBOLL ENVIRON

Iterative Thinning Results for Total Dissolved Solids in PC-98R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-261

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

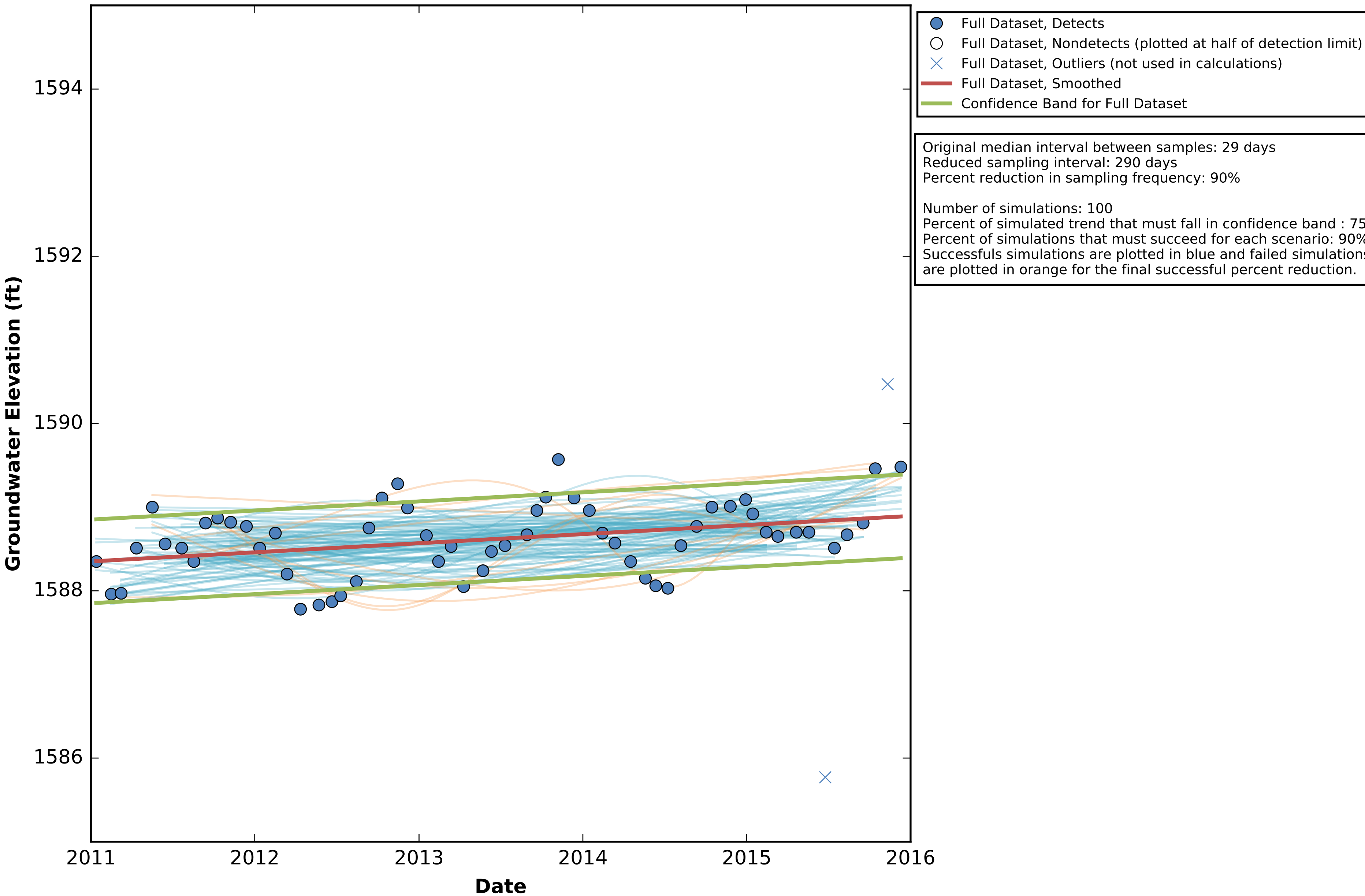
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-1
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-262

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

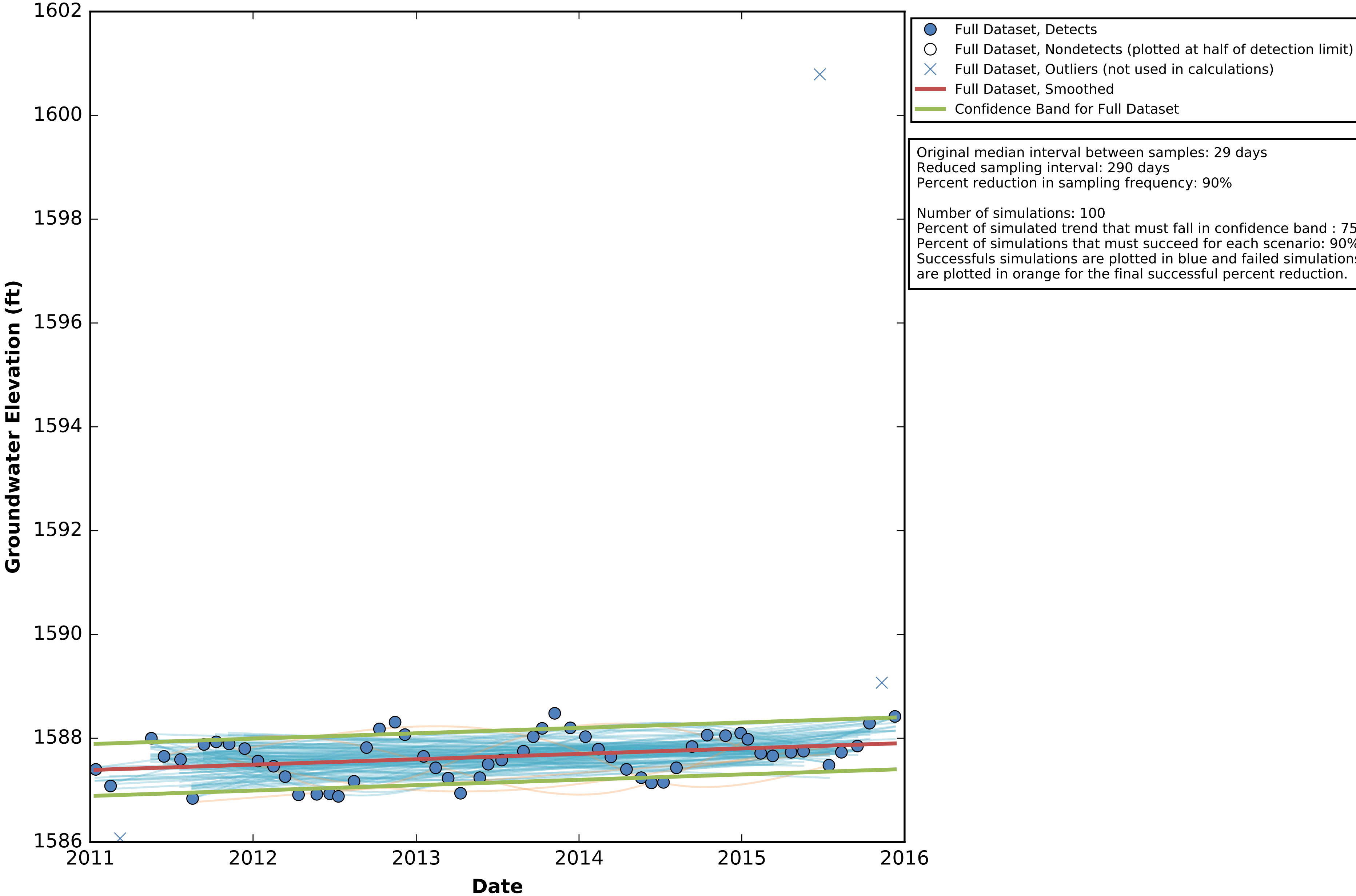
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-2A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-263

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

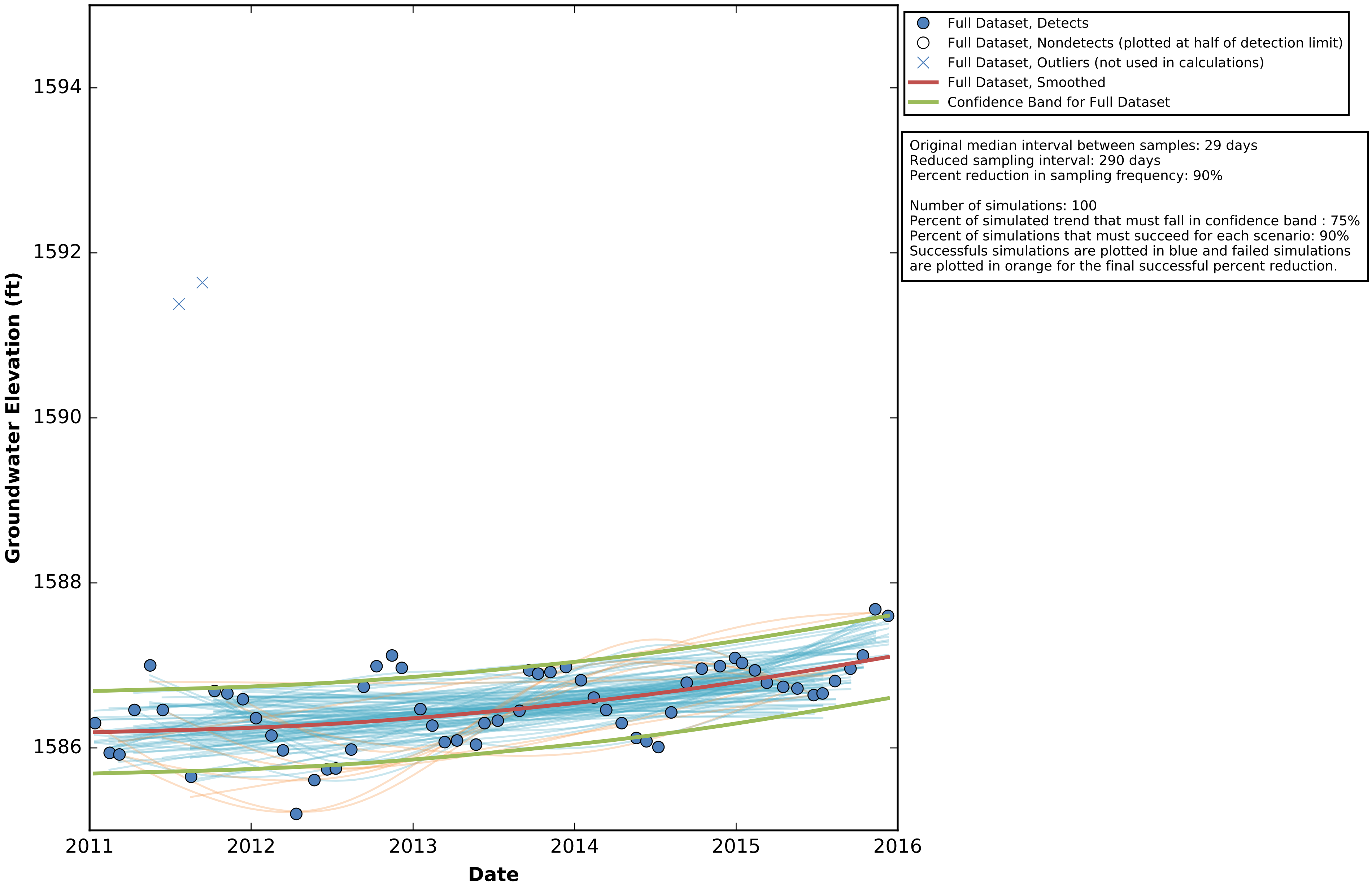
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-264

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



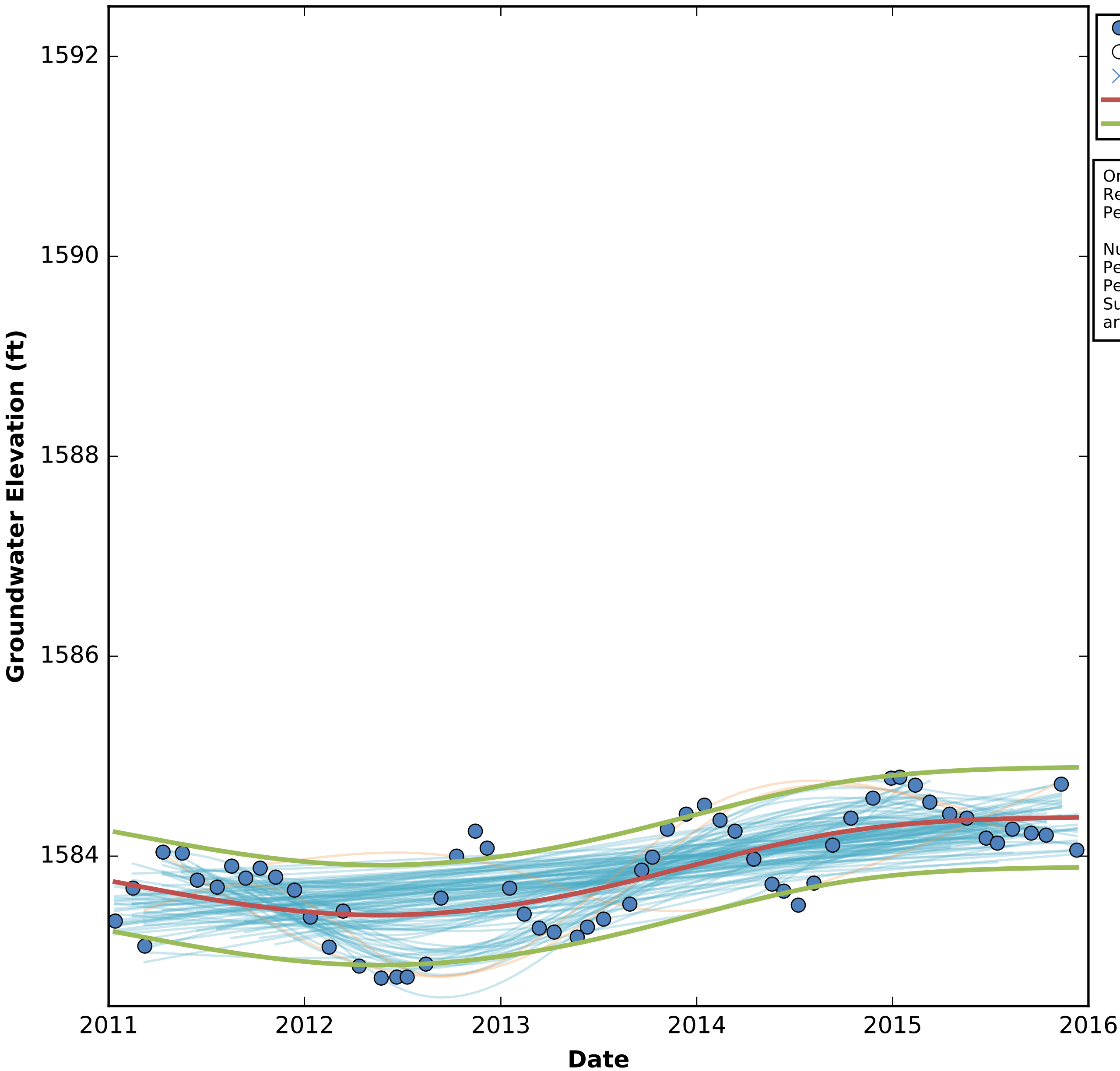
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-4A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-265

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

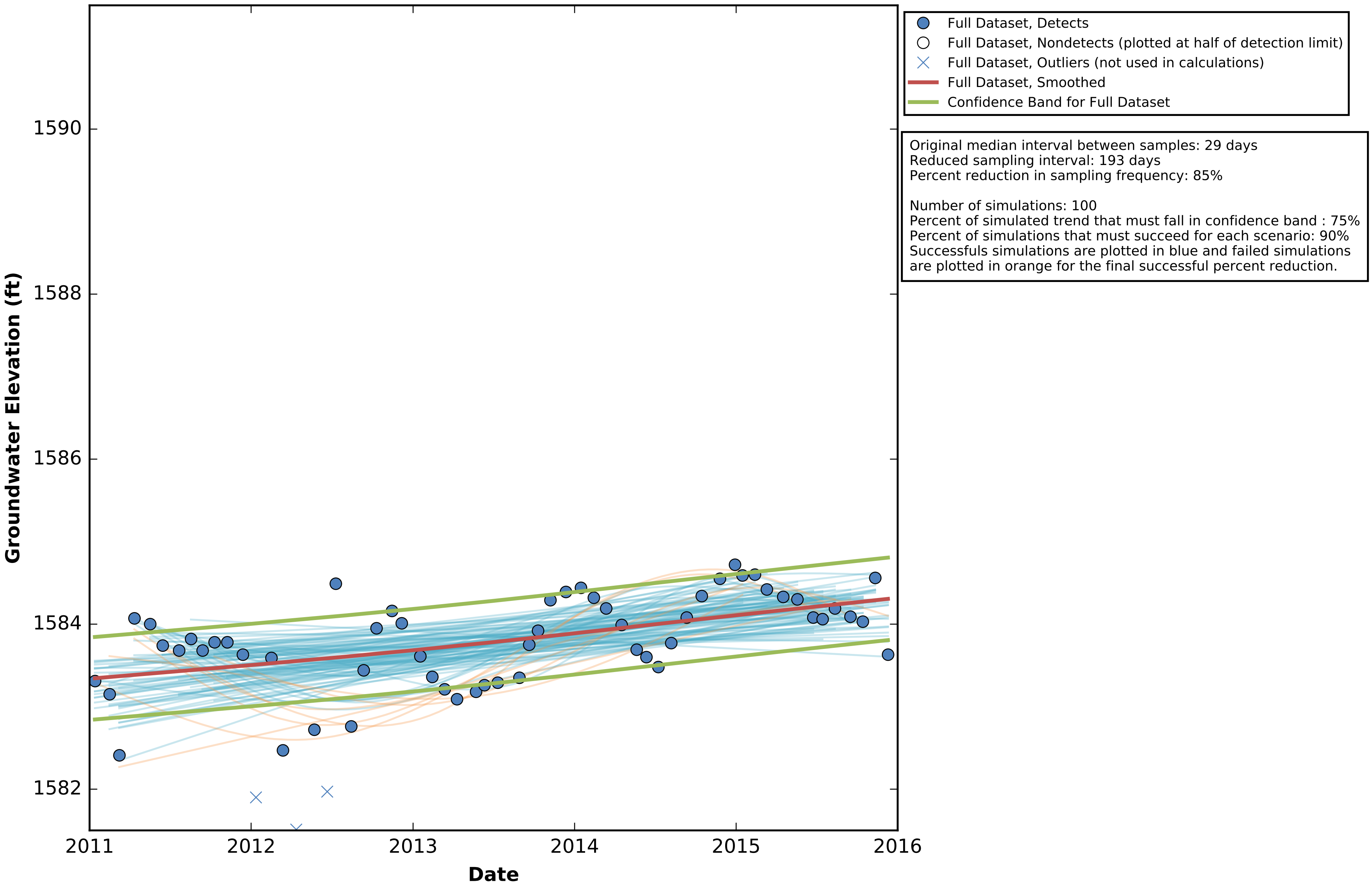
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-5A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-266

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



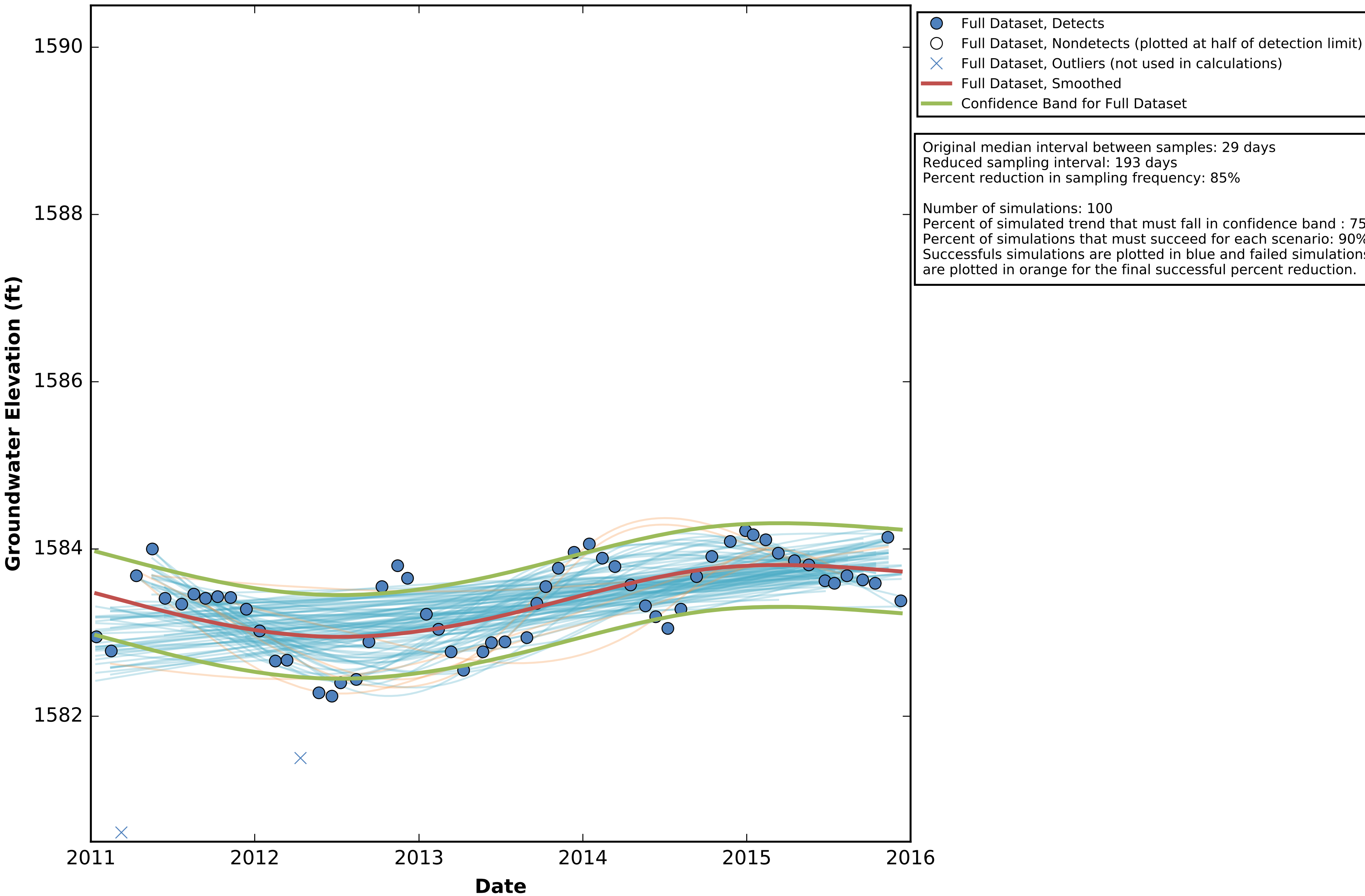
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-6B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-267

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

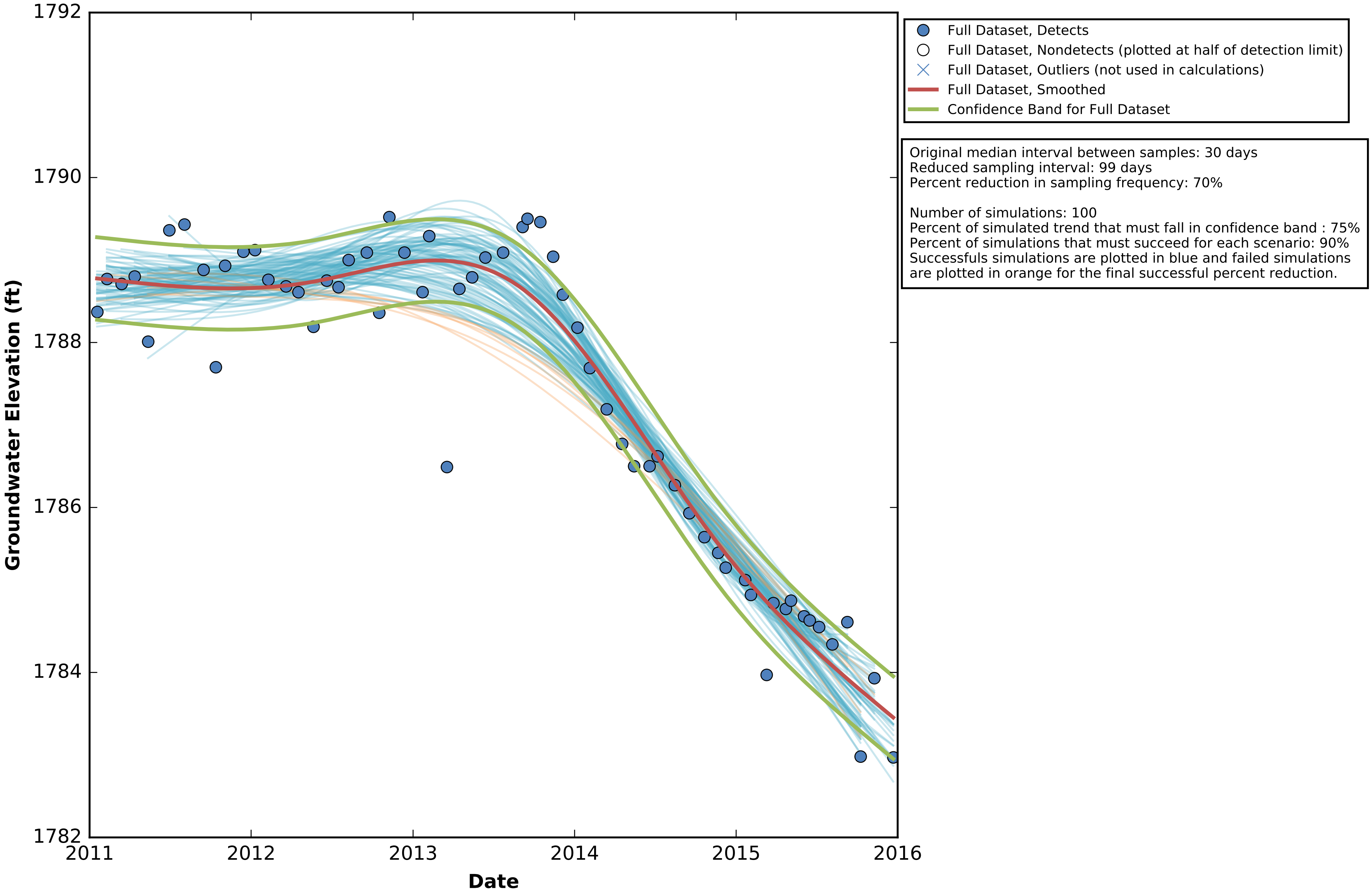
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in ARP-7
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-268

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



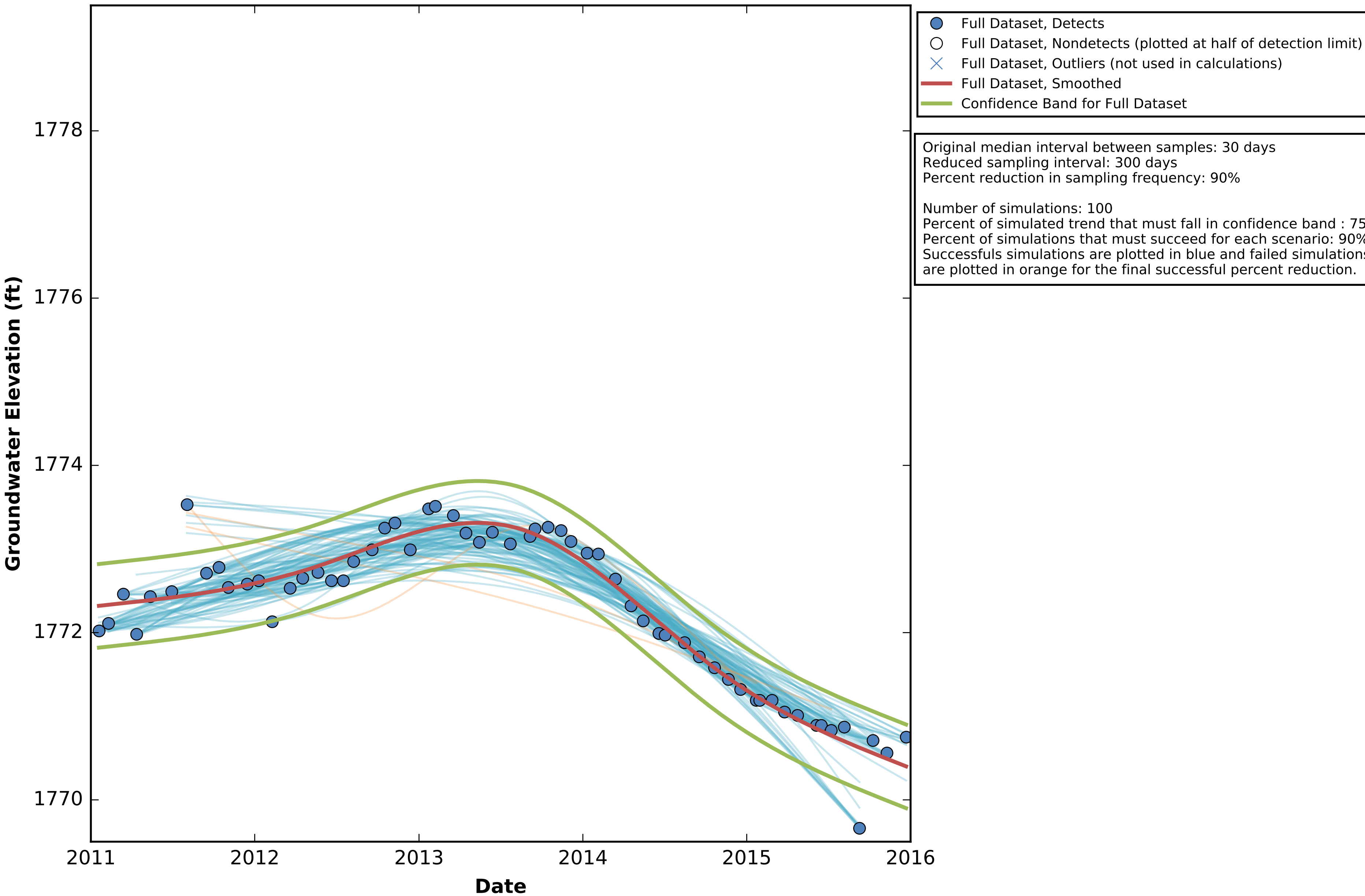
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-10
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-269

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations
are plotted in orange for the final successful percent reduction.

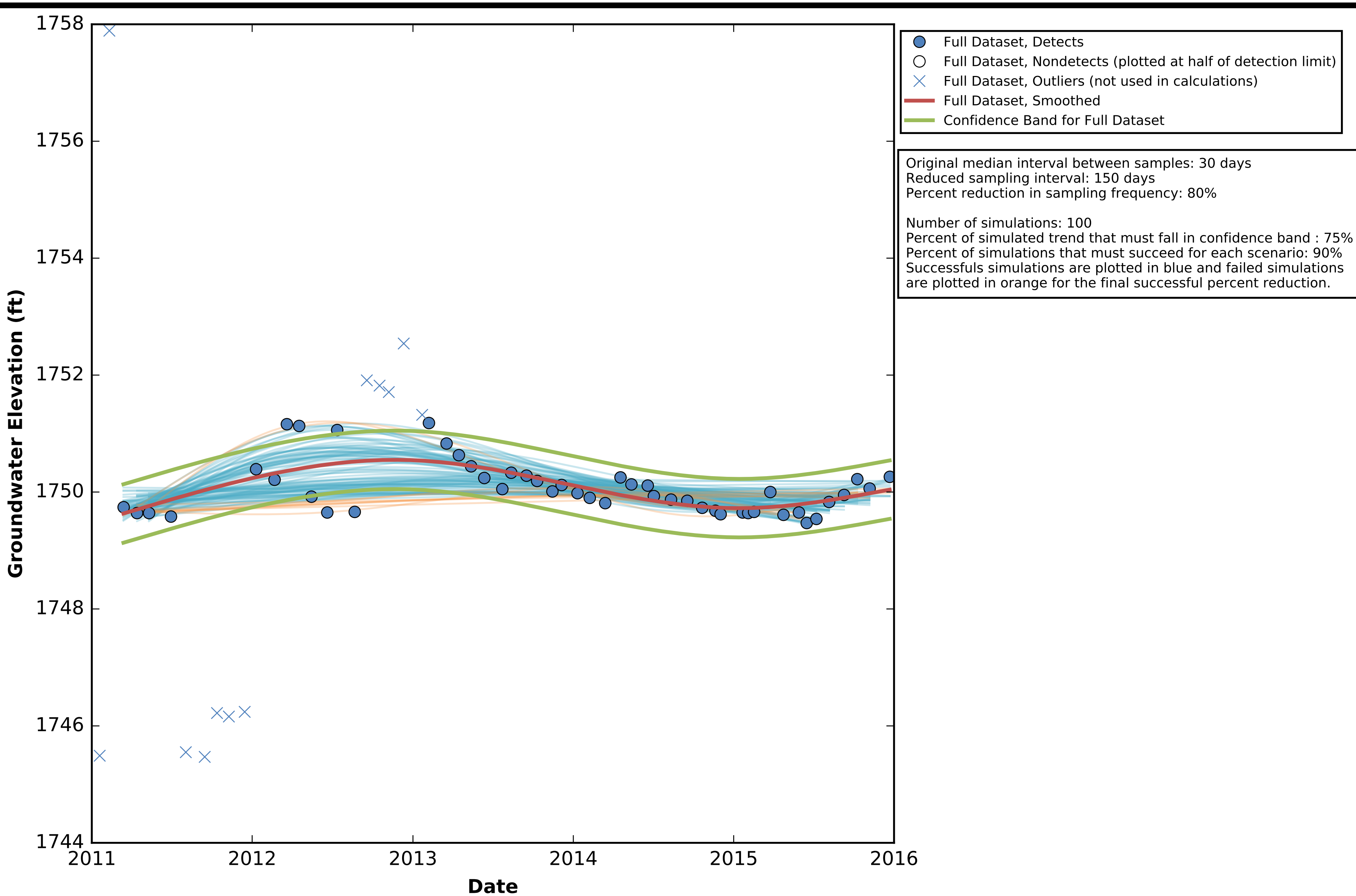
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-11
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-270

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



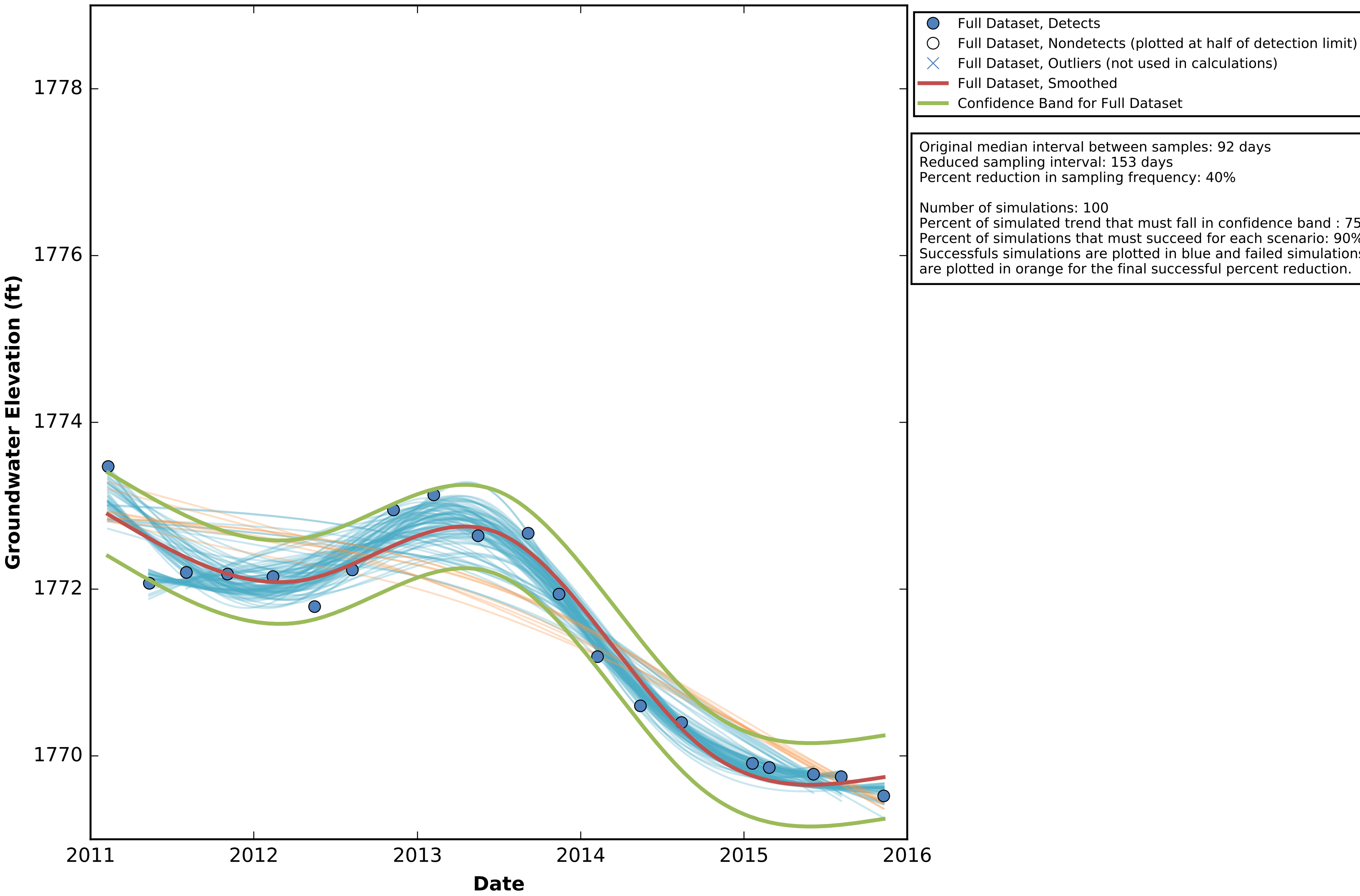
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-115
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-271

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 153 days
Percent reduction in sampling frequency: 40%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

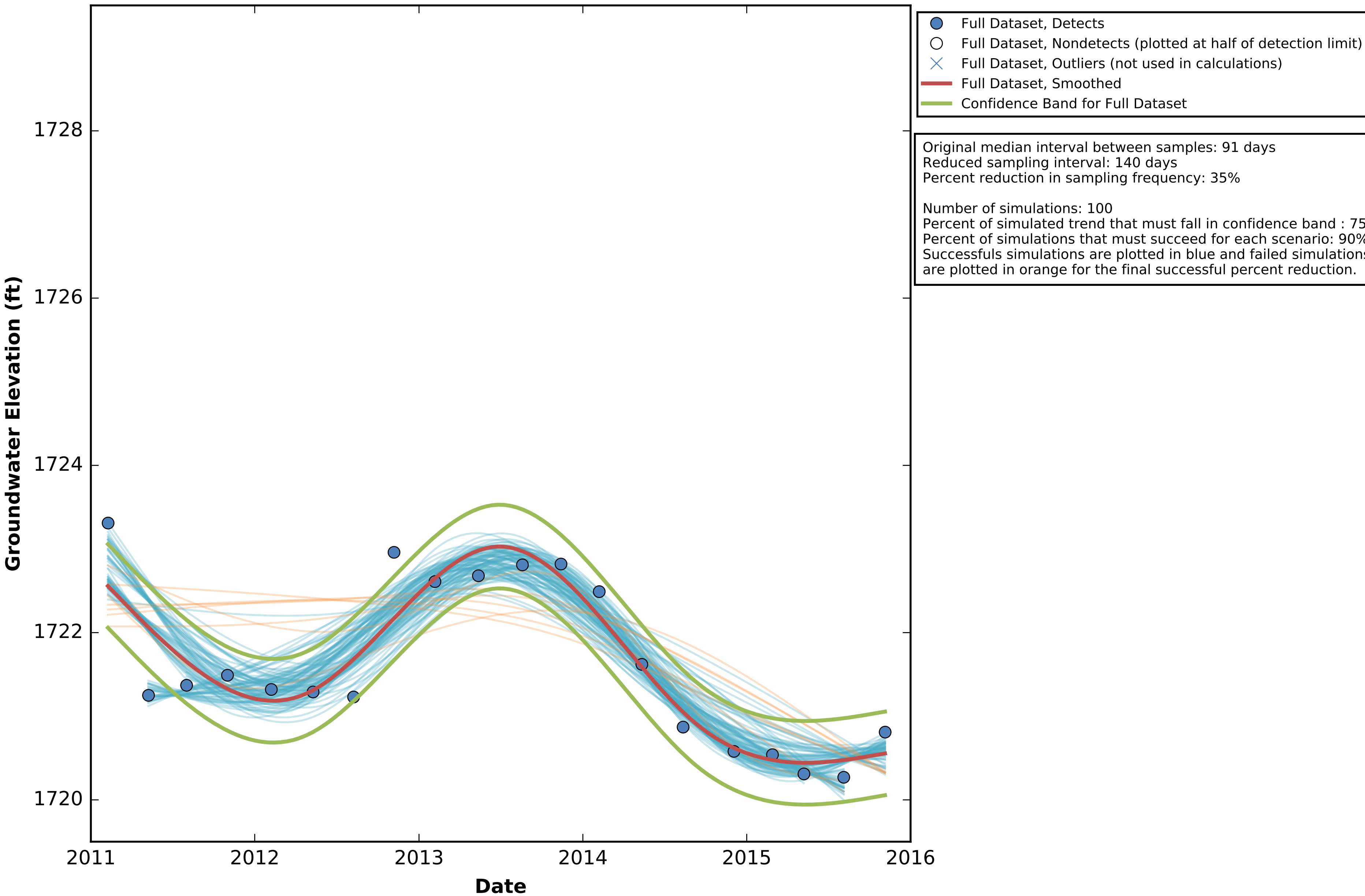
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-12A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-272

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 140 days
Percent reduction in sampling frequency: 35%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

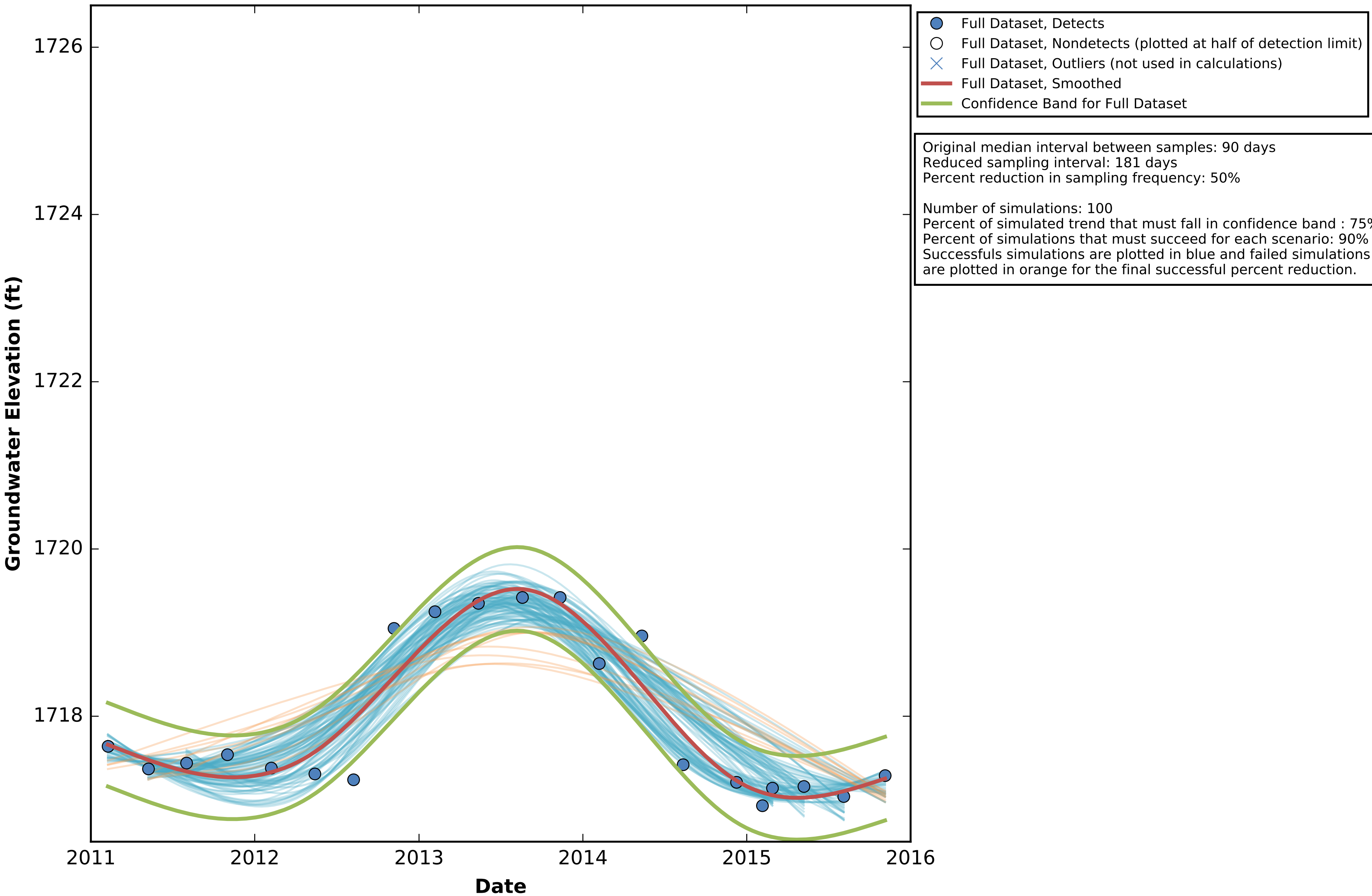
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-273

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 181 days
Percent reduction in sampling frequency: 50%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

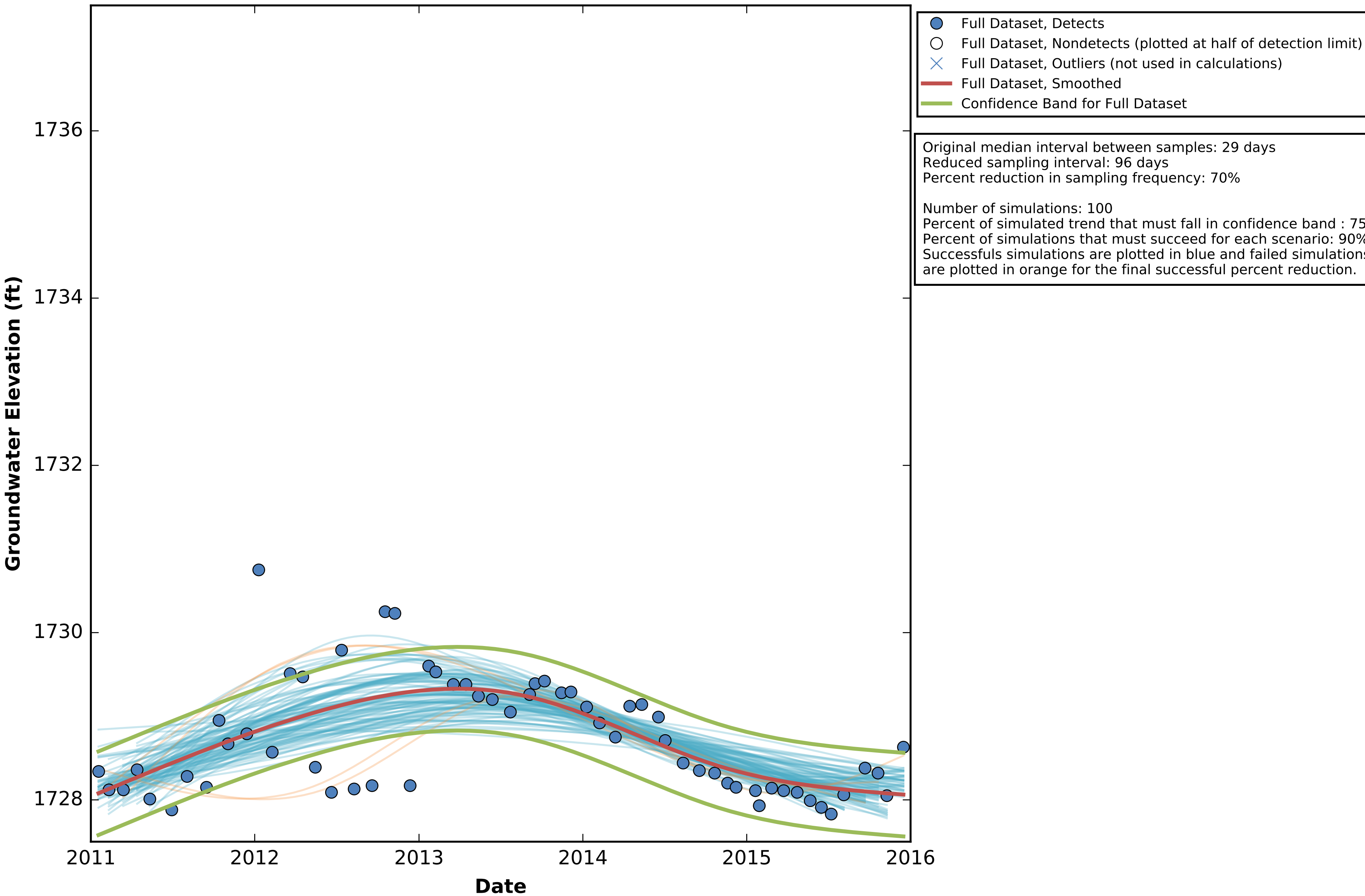
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-135
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-274

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

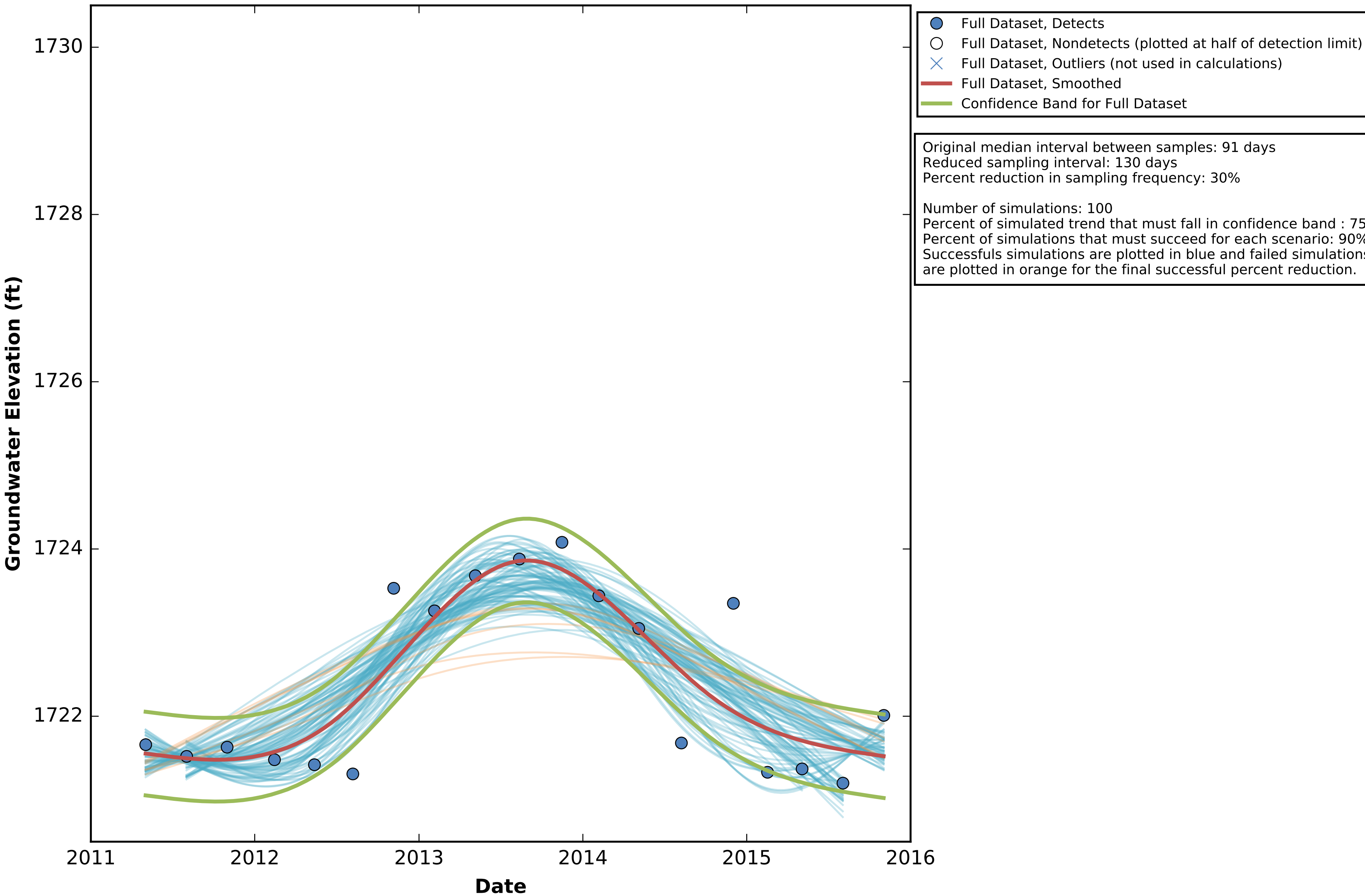
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-14A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-275

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 130 days
Percent reduction in sampling frequency: 30%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

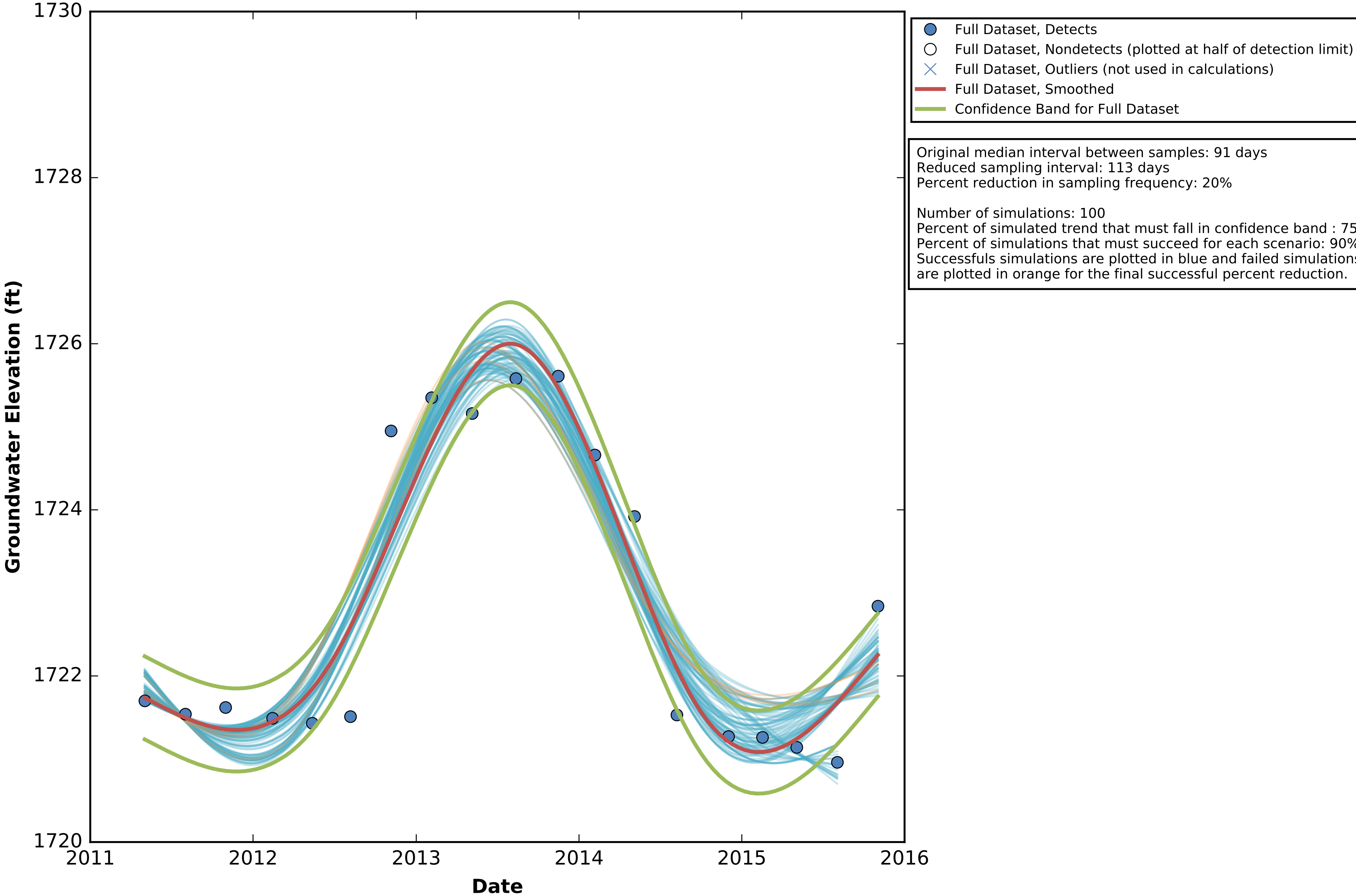
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-166
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-276

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 113 days
Percent reduction in sampling frequency: 20%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

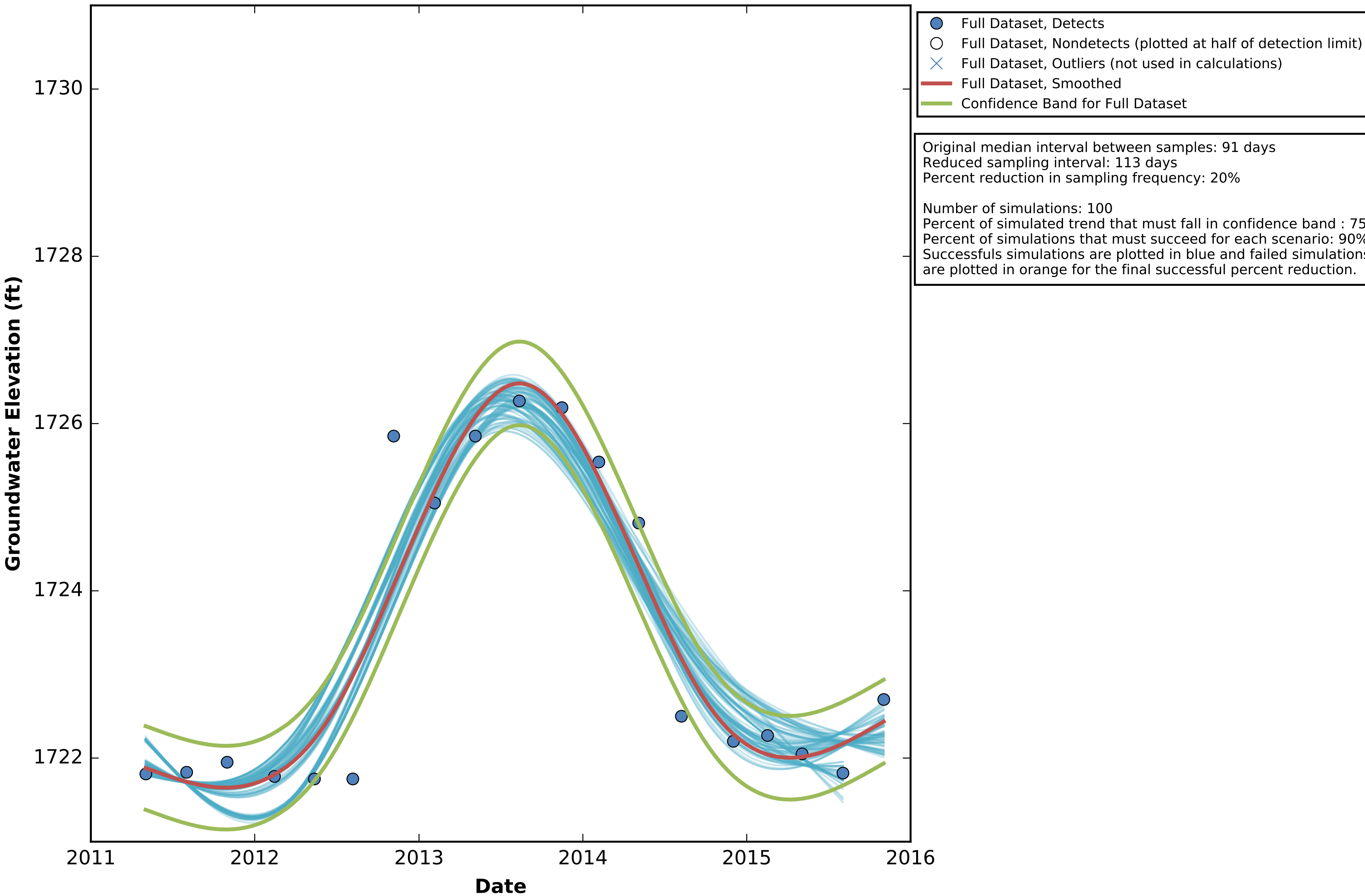
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-167
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-277

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 113 days
Percent reduction in sampling frequency: 20%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

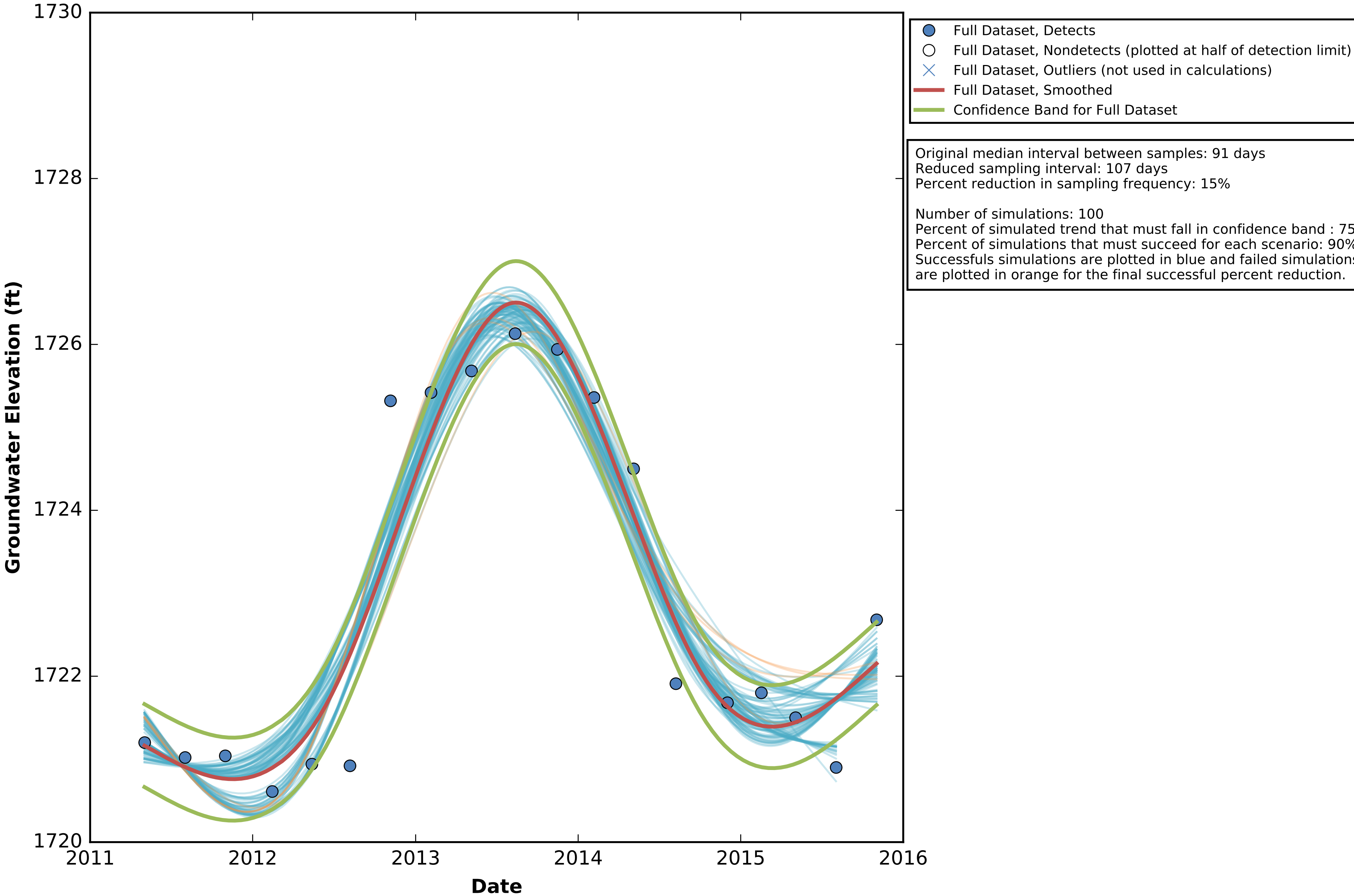
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-168
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-278

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 107 days
Percent reduction in sampling frequency: 15%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

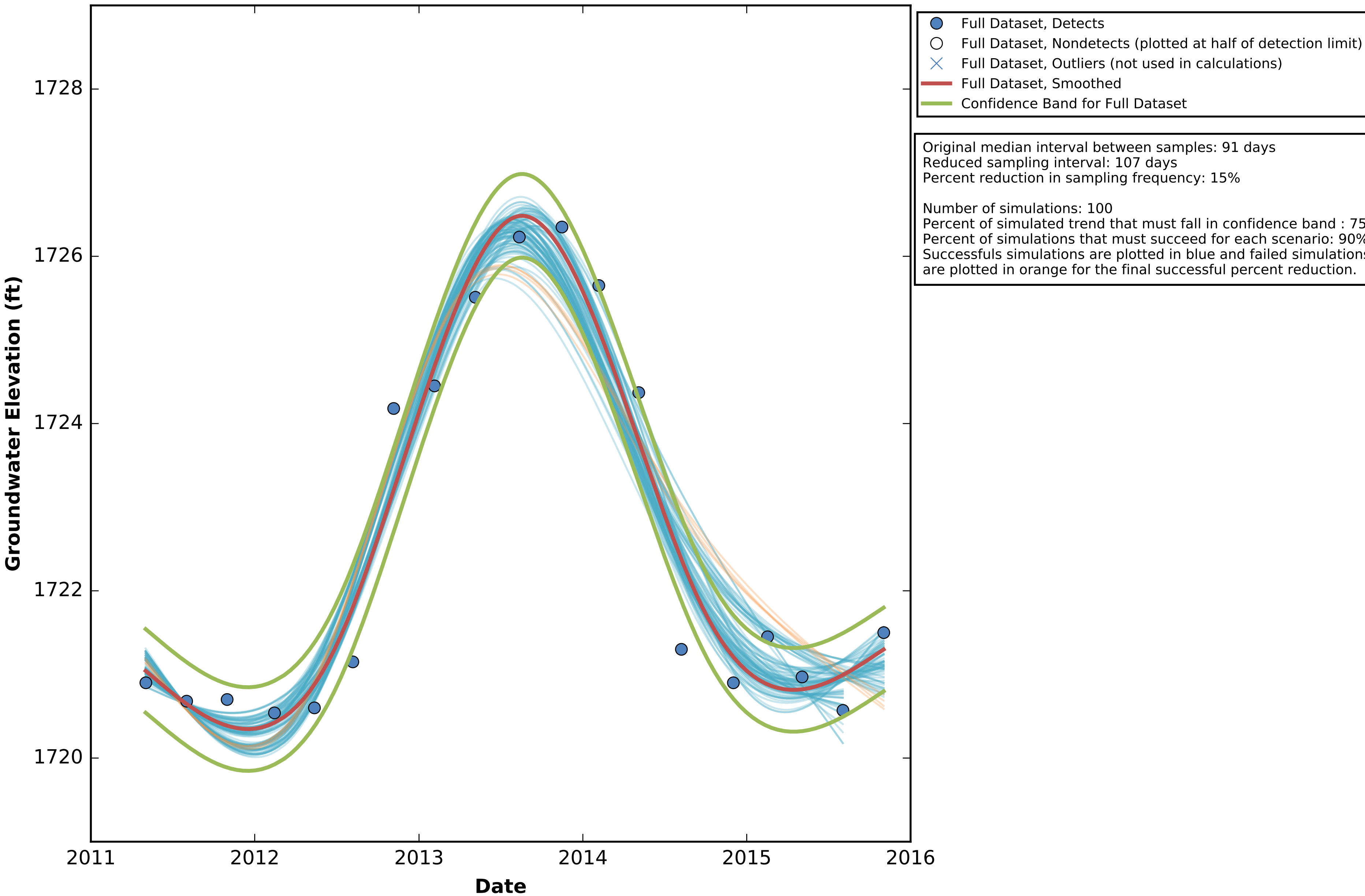
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-169
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-279

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 107 days
Percent reduction in sampling frequency: 15%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

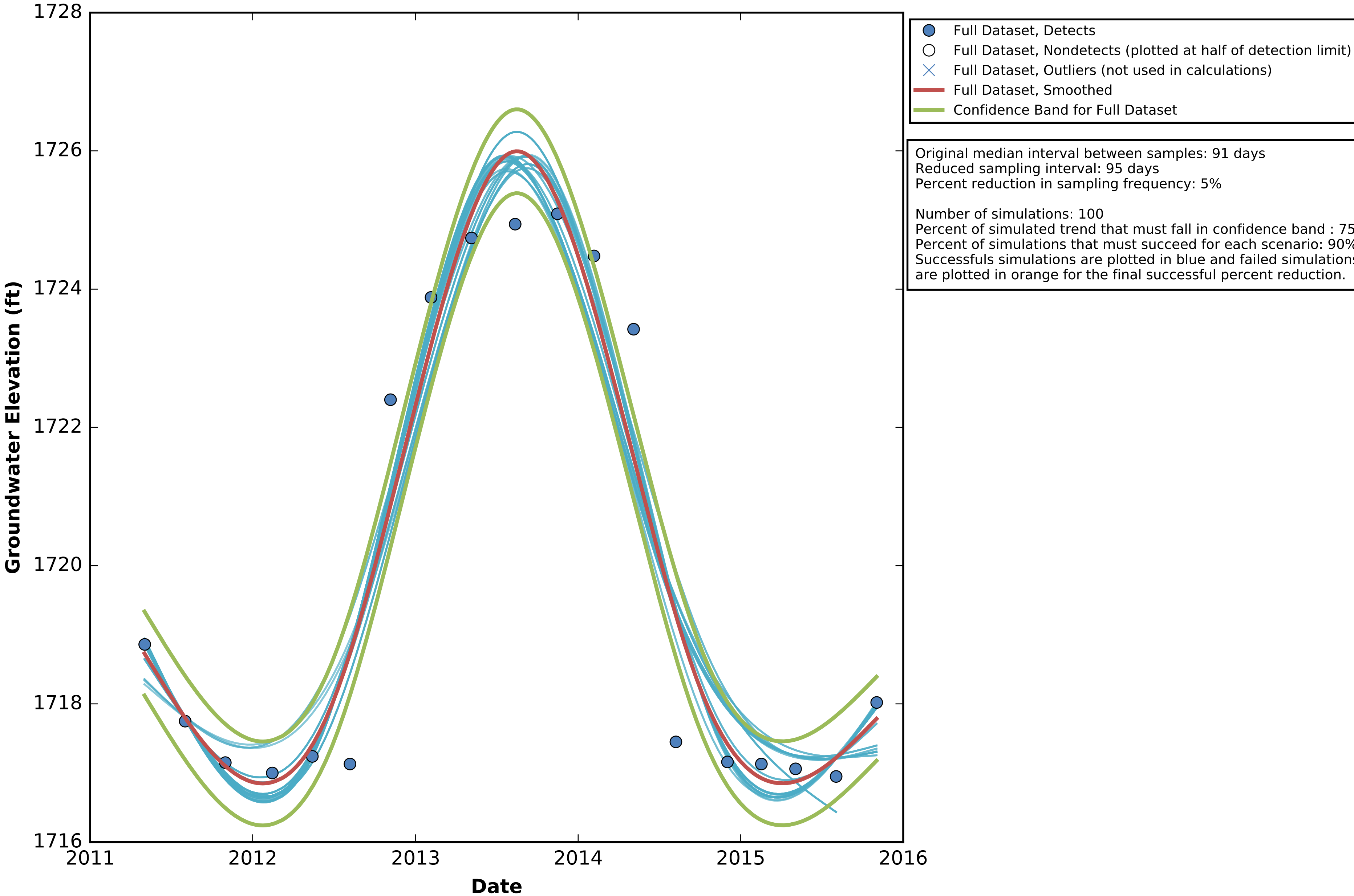
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-170
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-280

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 95 days
Percent reduction in sampling frequency: 5%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

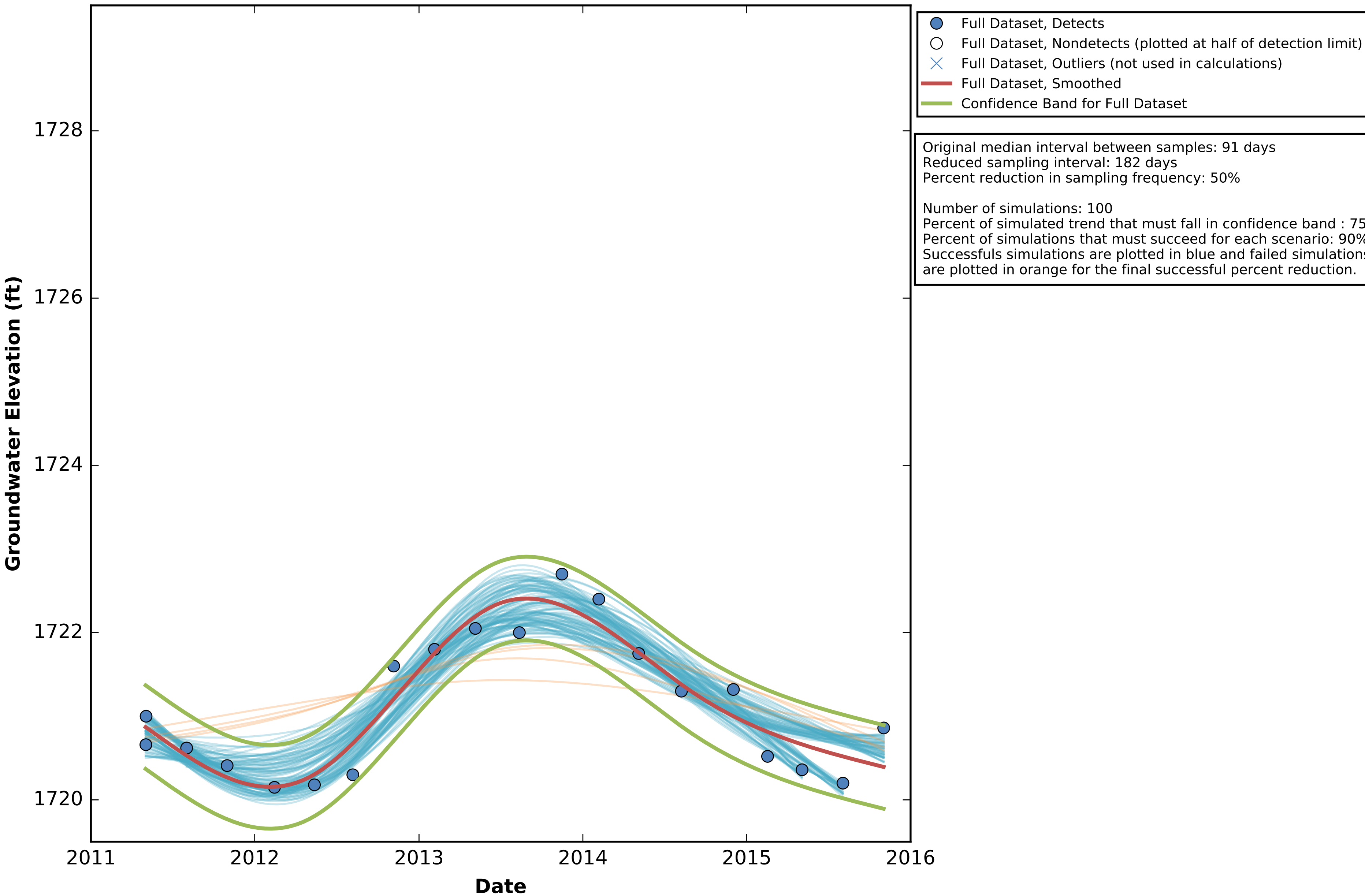
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-172
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-281

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 182 days
Percent reduction in sampling frequency: 50%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

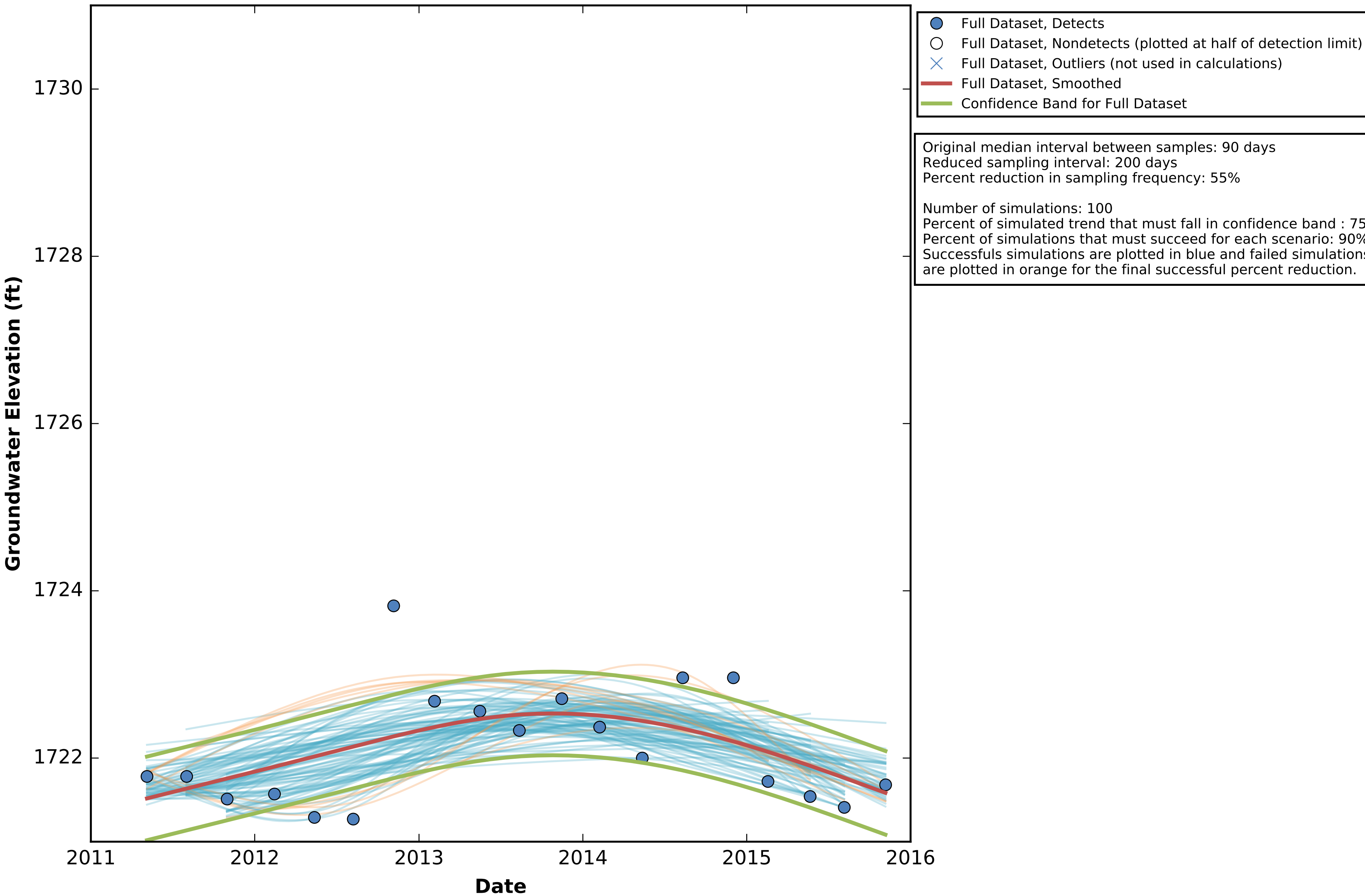
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-173
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-282

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 200 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

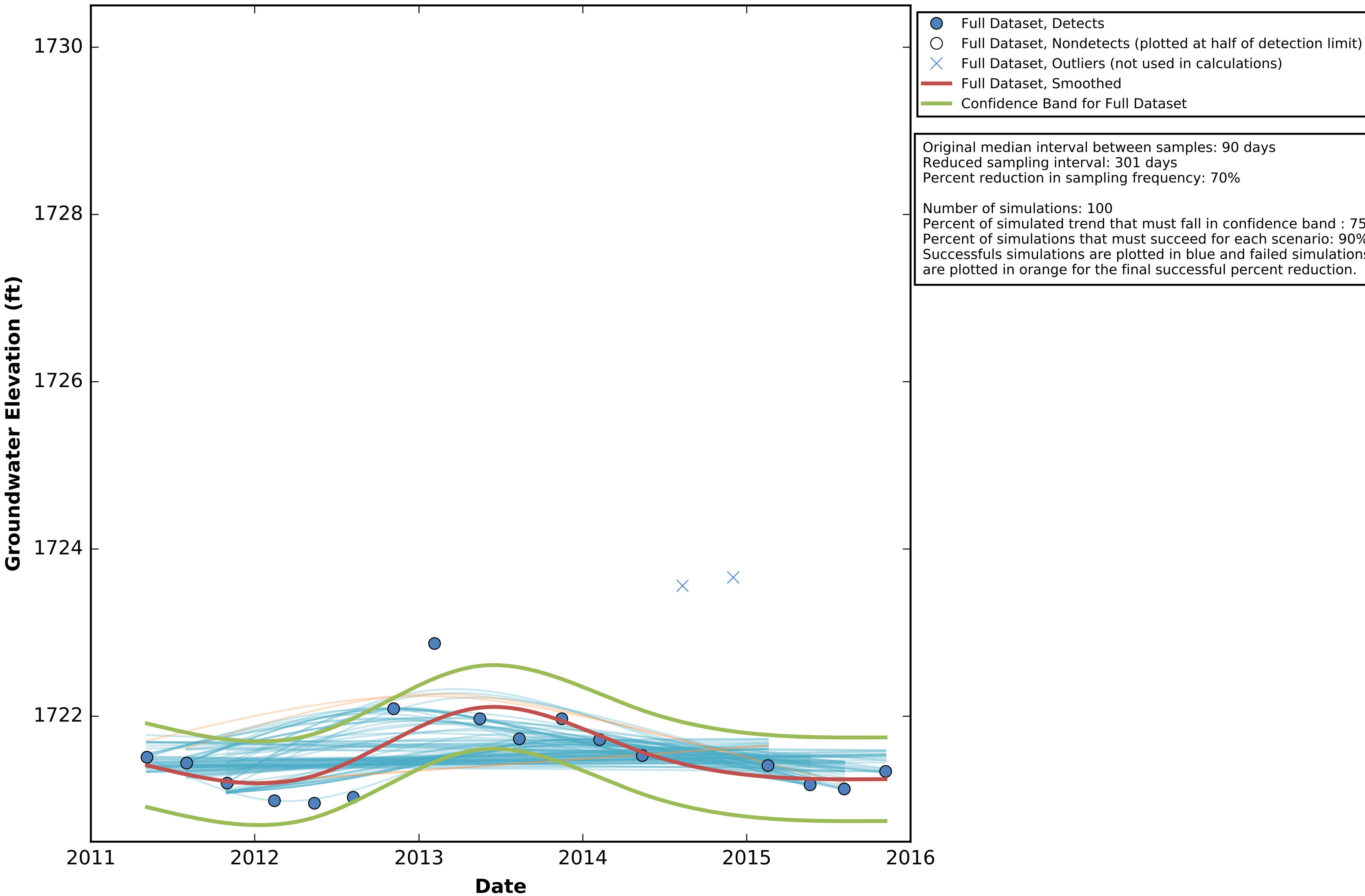
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-174
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-283

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 301 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

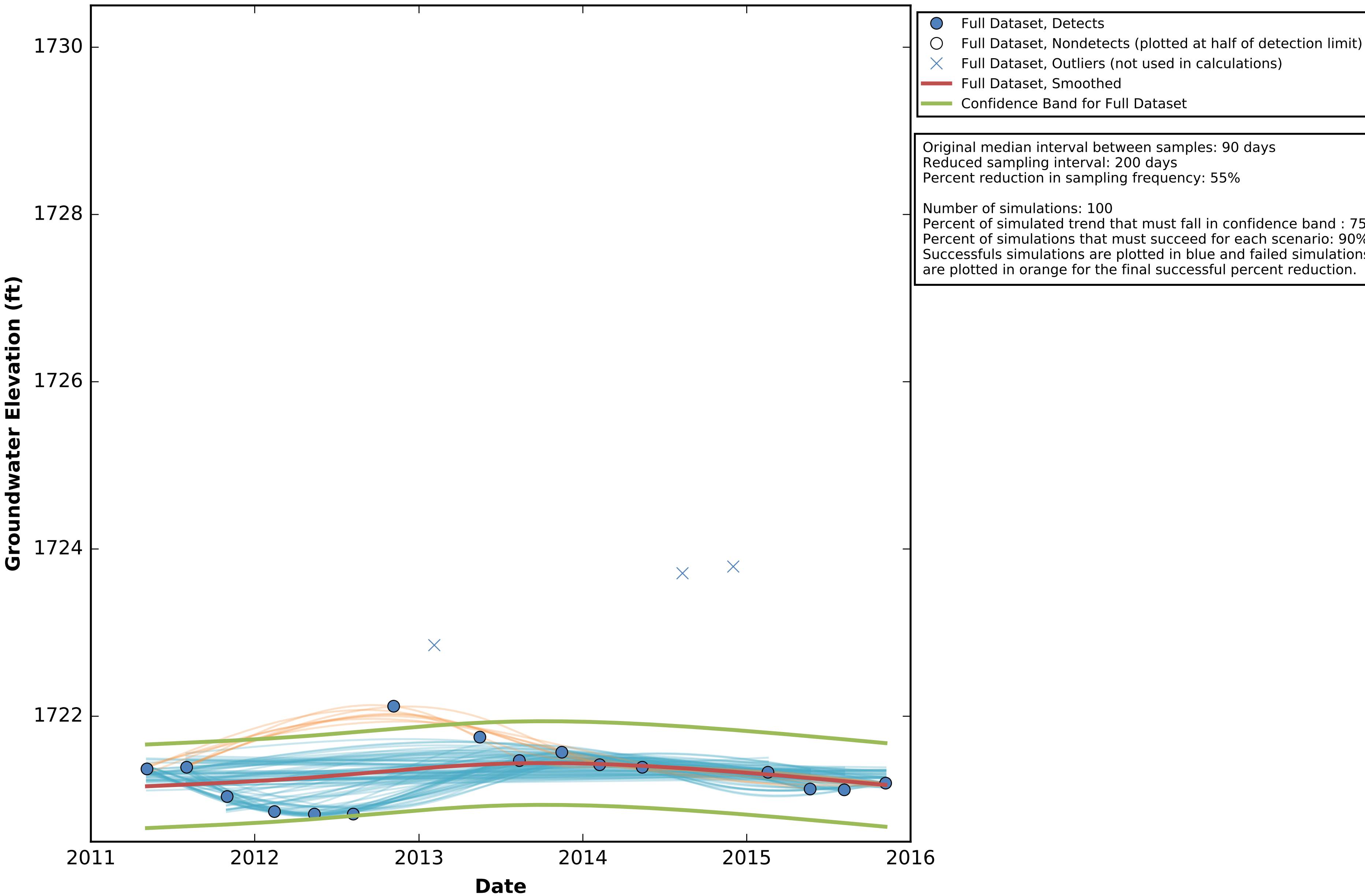
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-175
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-284

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 200 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

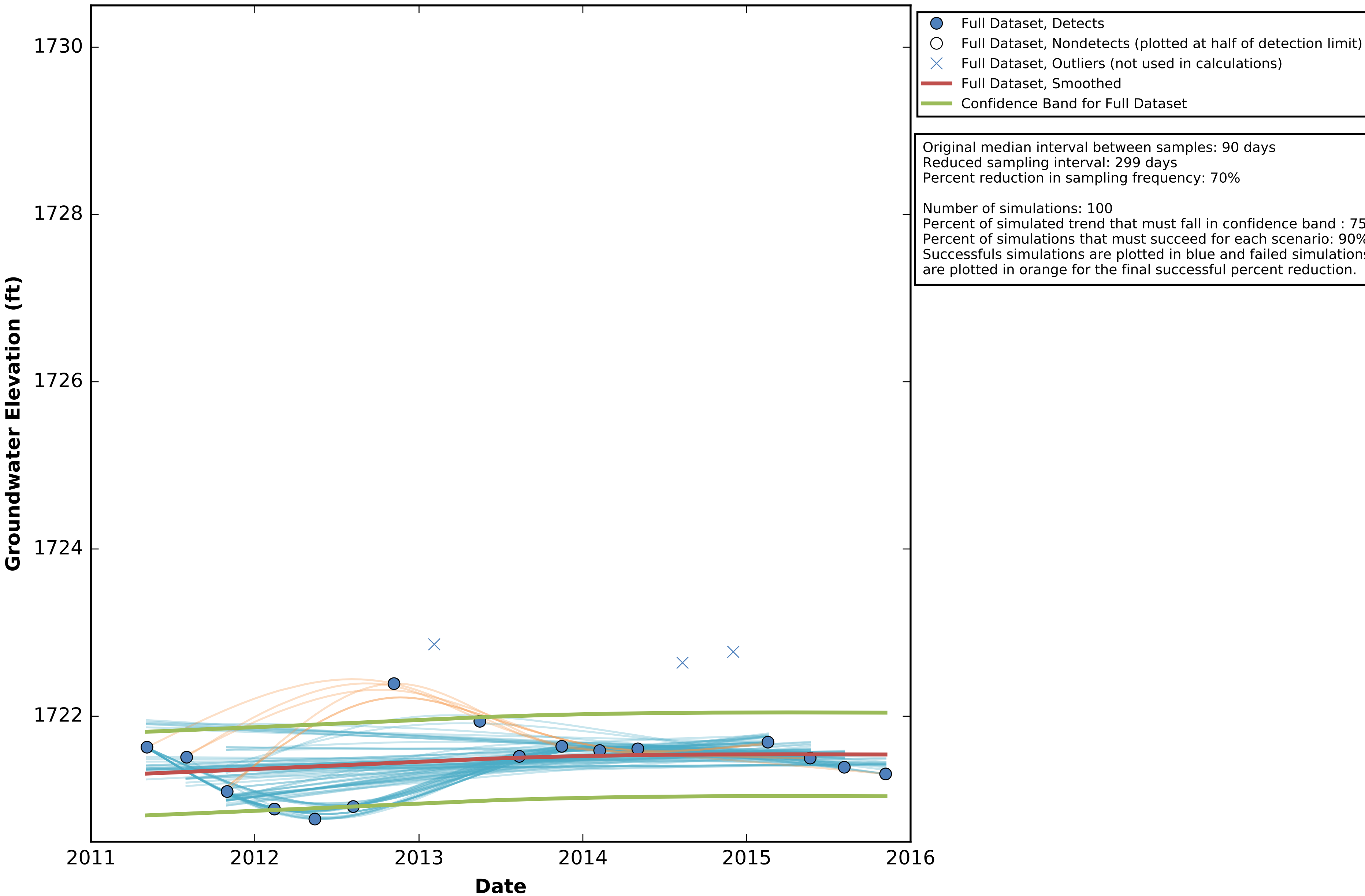
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-176
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-285

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 90 days
Reduced sampling interval: 299 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

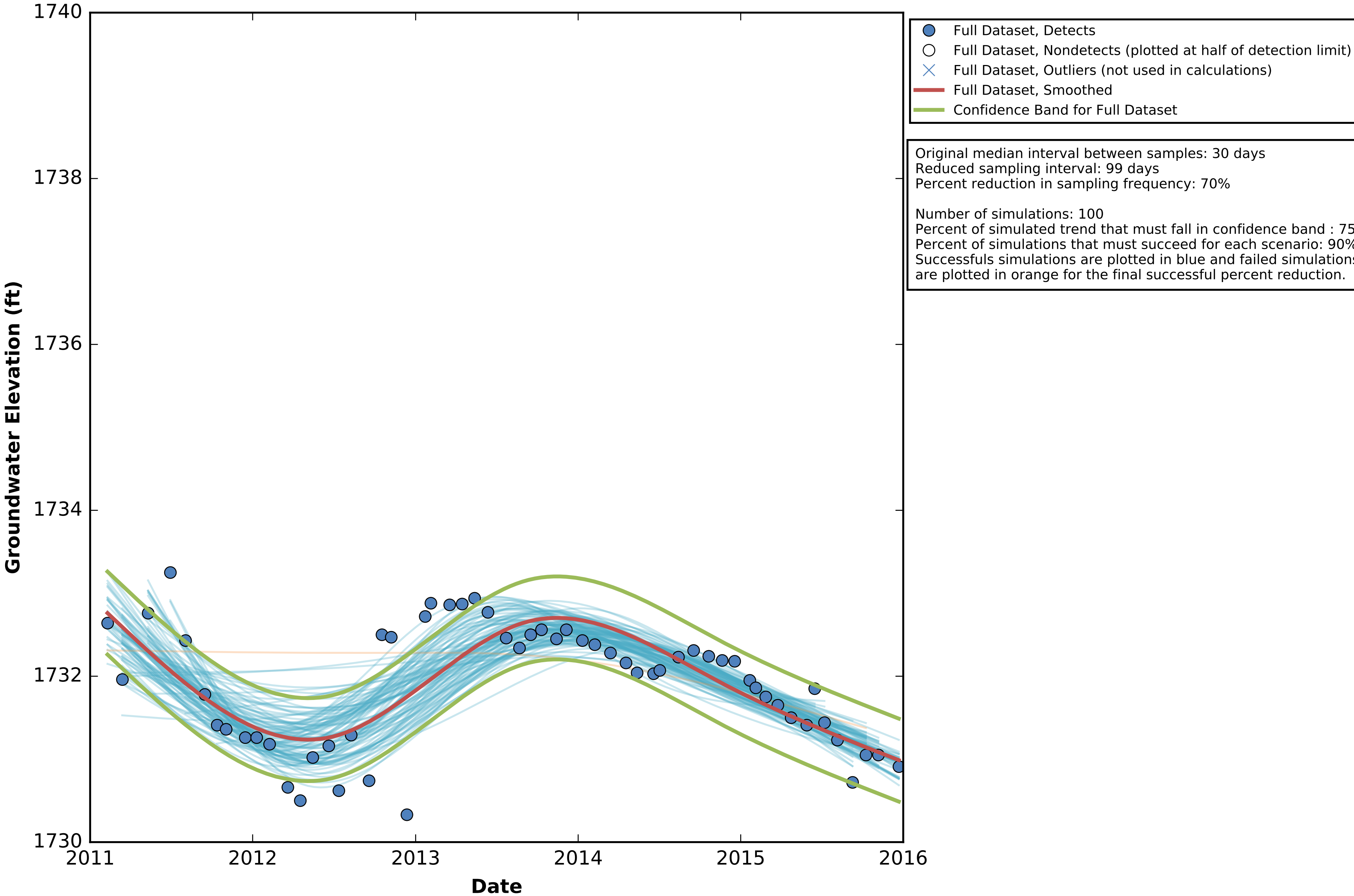
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-177
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-286

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 99 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

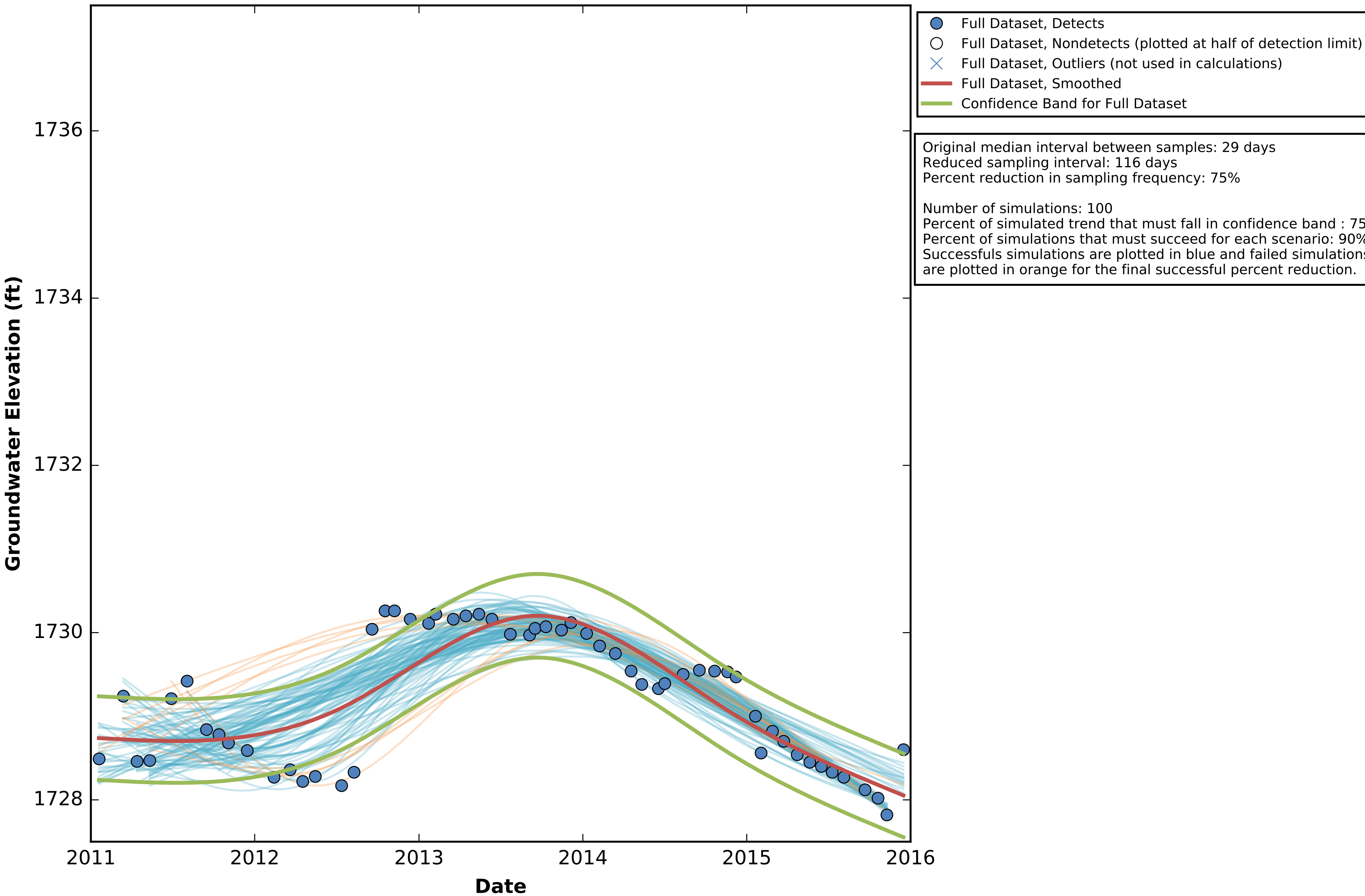
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-19
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-287

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

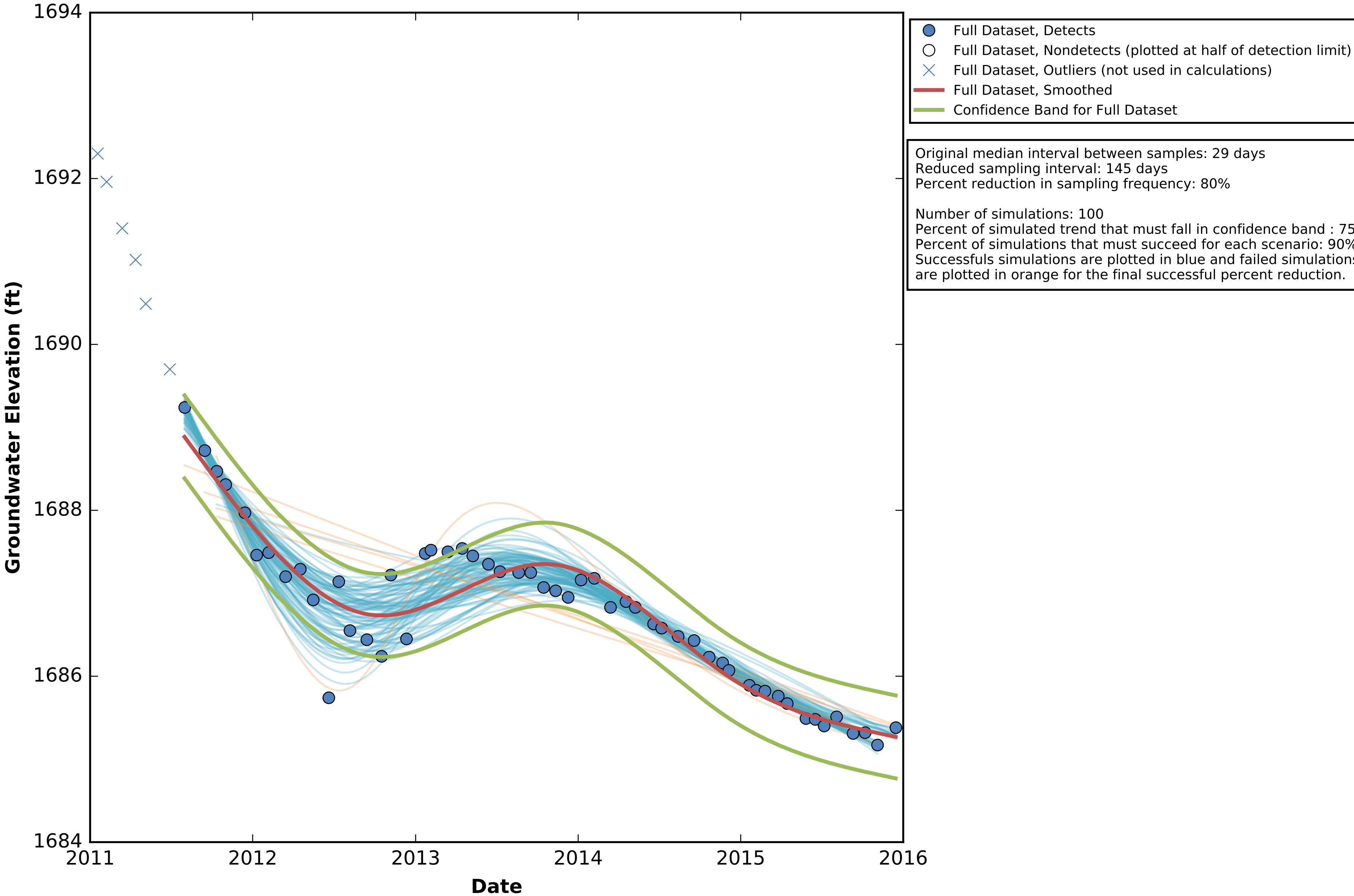
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-22A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-288

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 145 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

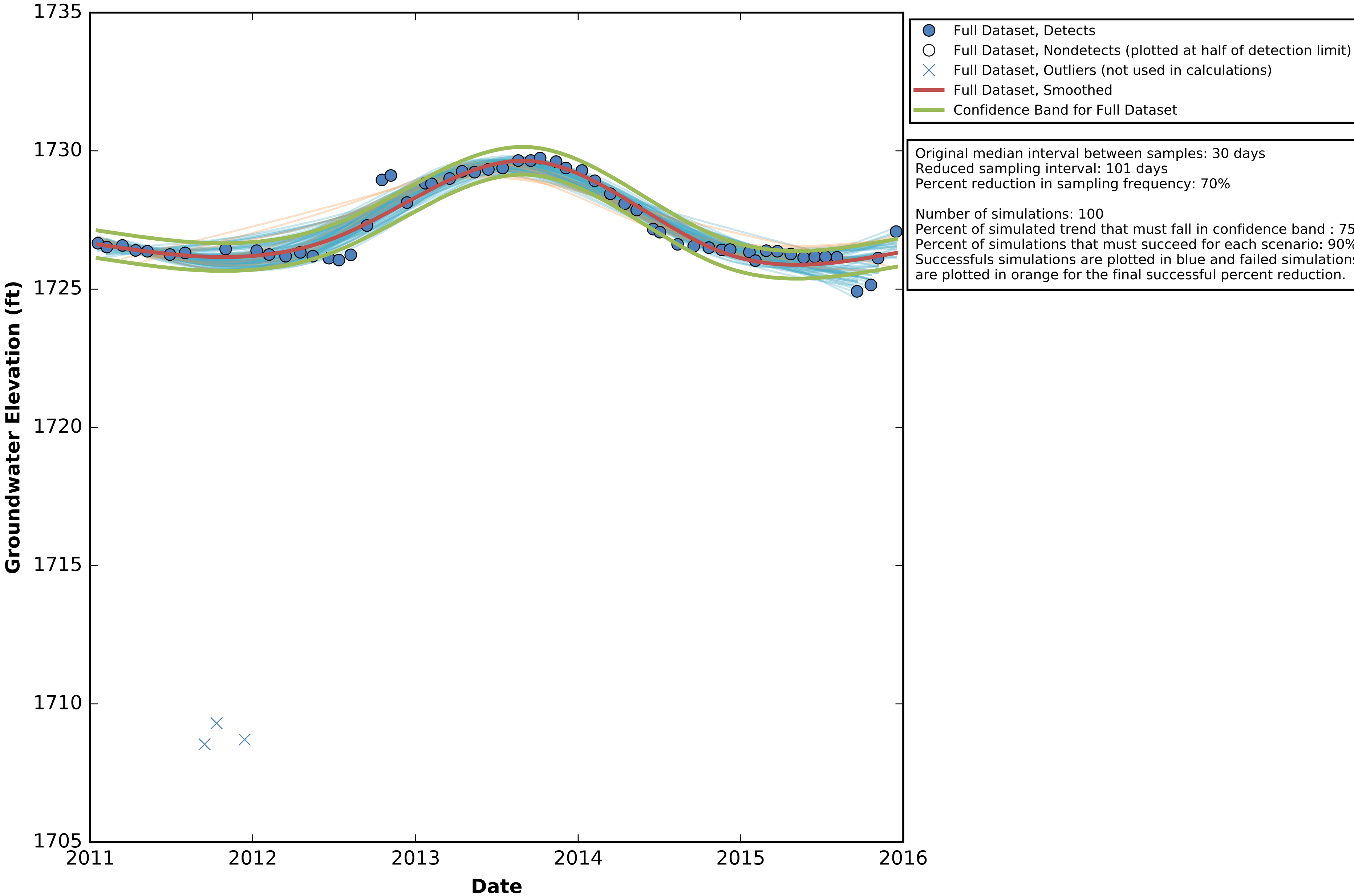
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-23
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-289

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 101 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successful simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

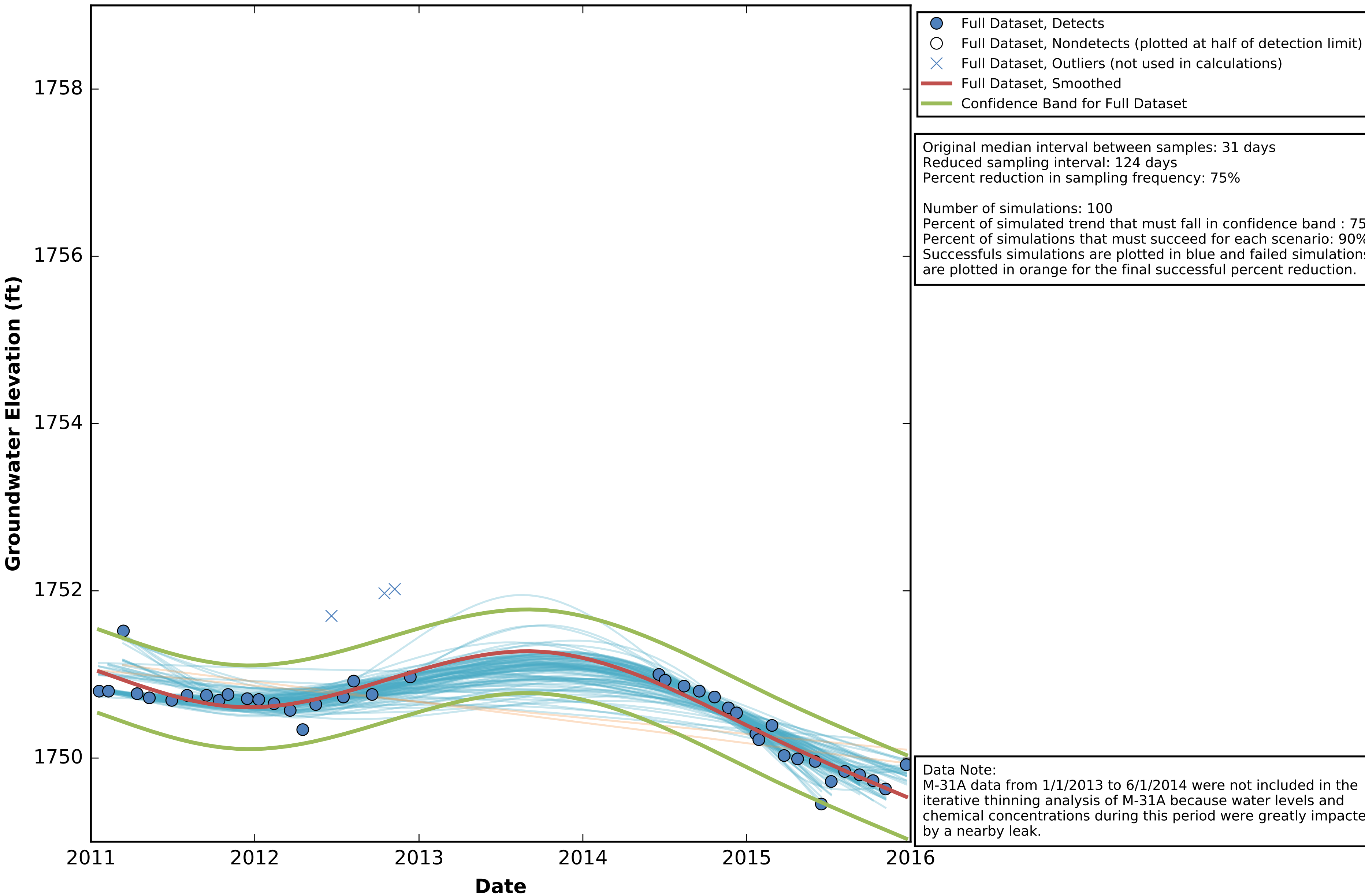
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-25
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure **B-290**

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 31 days
Reduced sampling interval: 124 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Data Note:
M-31A data from 1/1/2013 to 6/1/2014 were not included in the iterative thinning analysis of M-31A because water levels and chemical concentrations during this period were greatly impacted by a nearby leak.

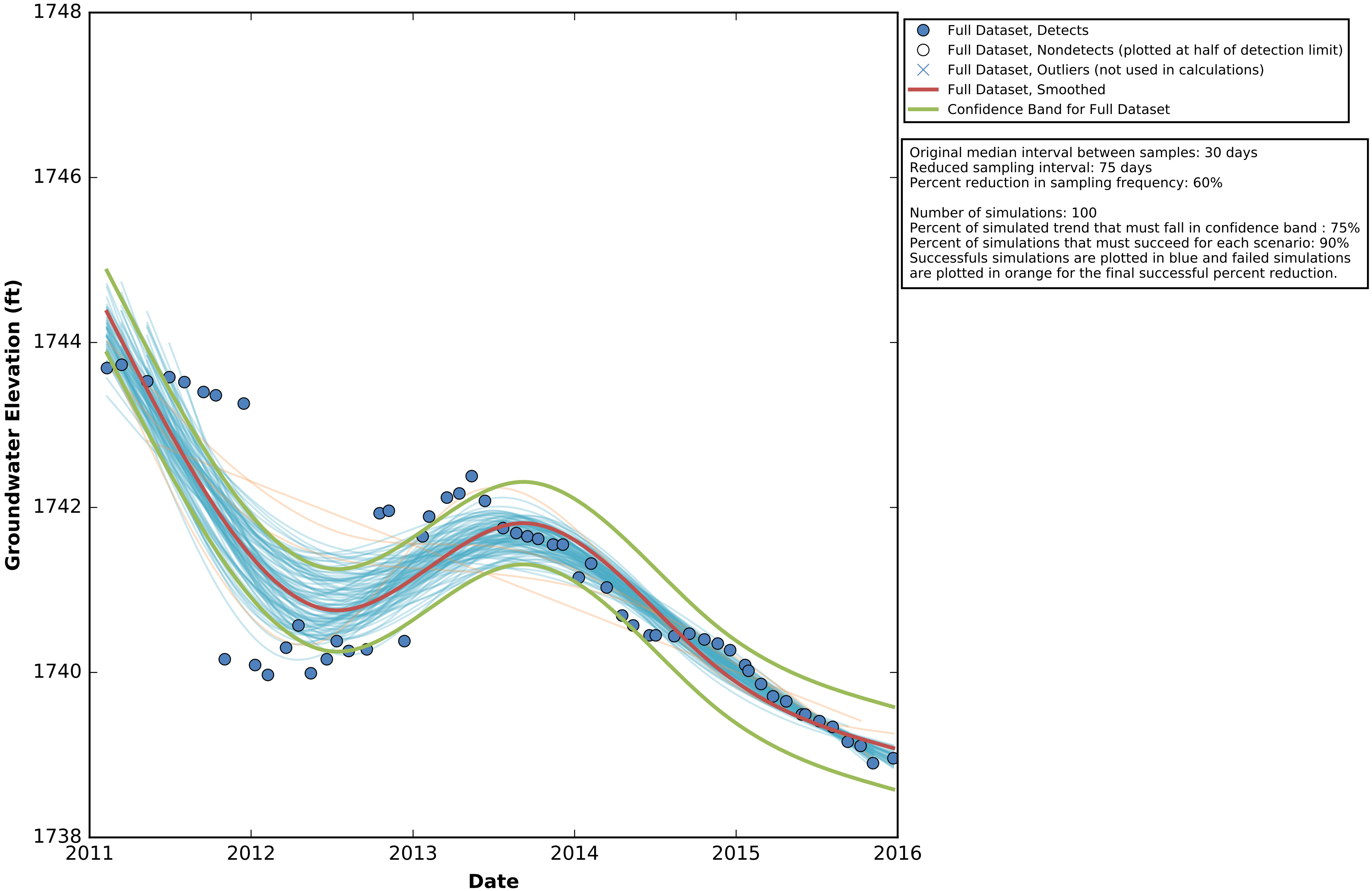
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-31A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-291

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



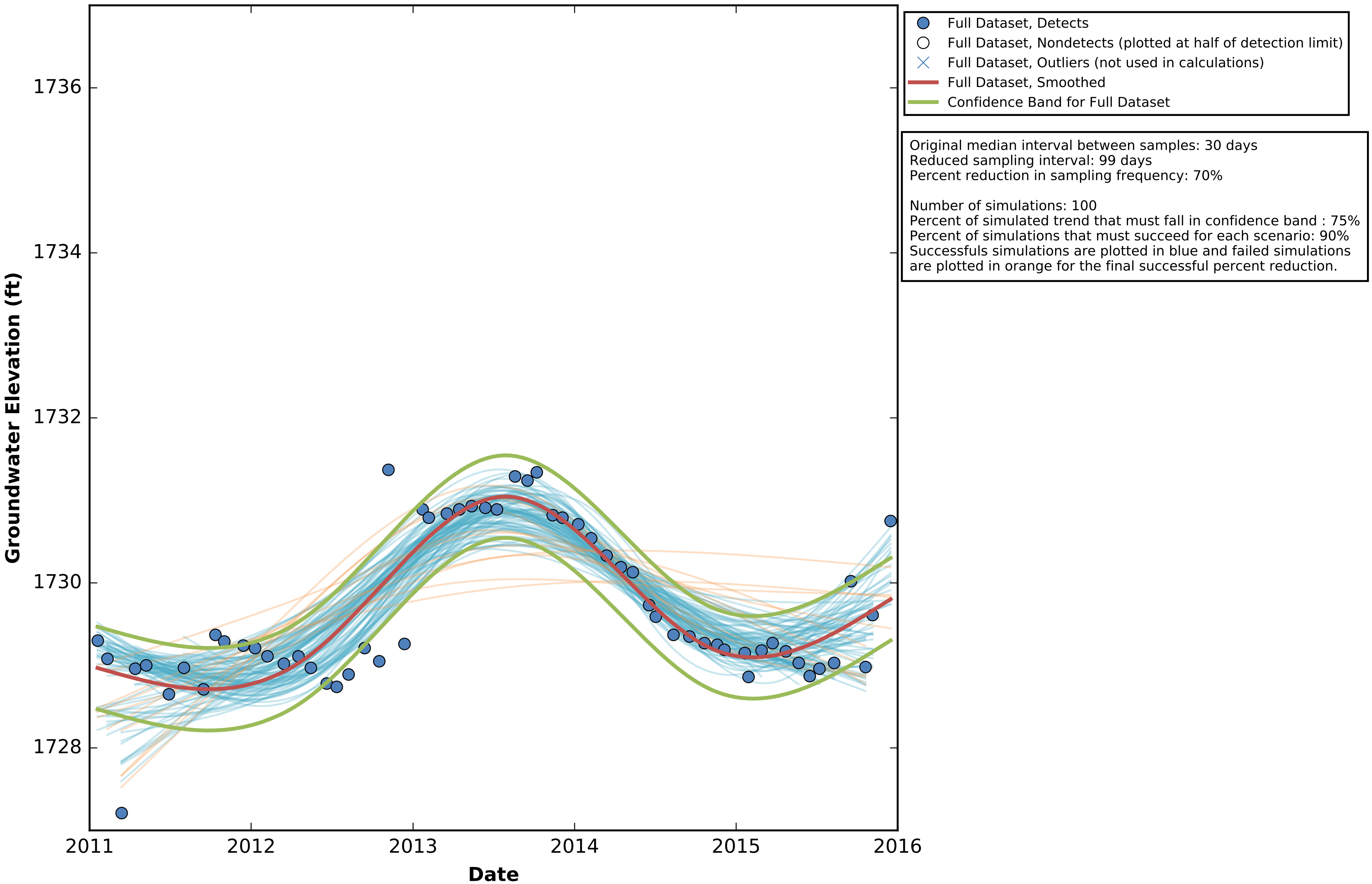
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-35
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-292

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



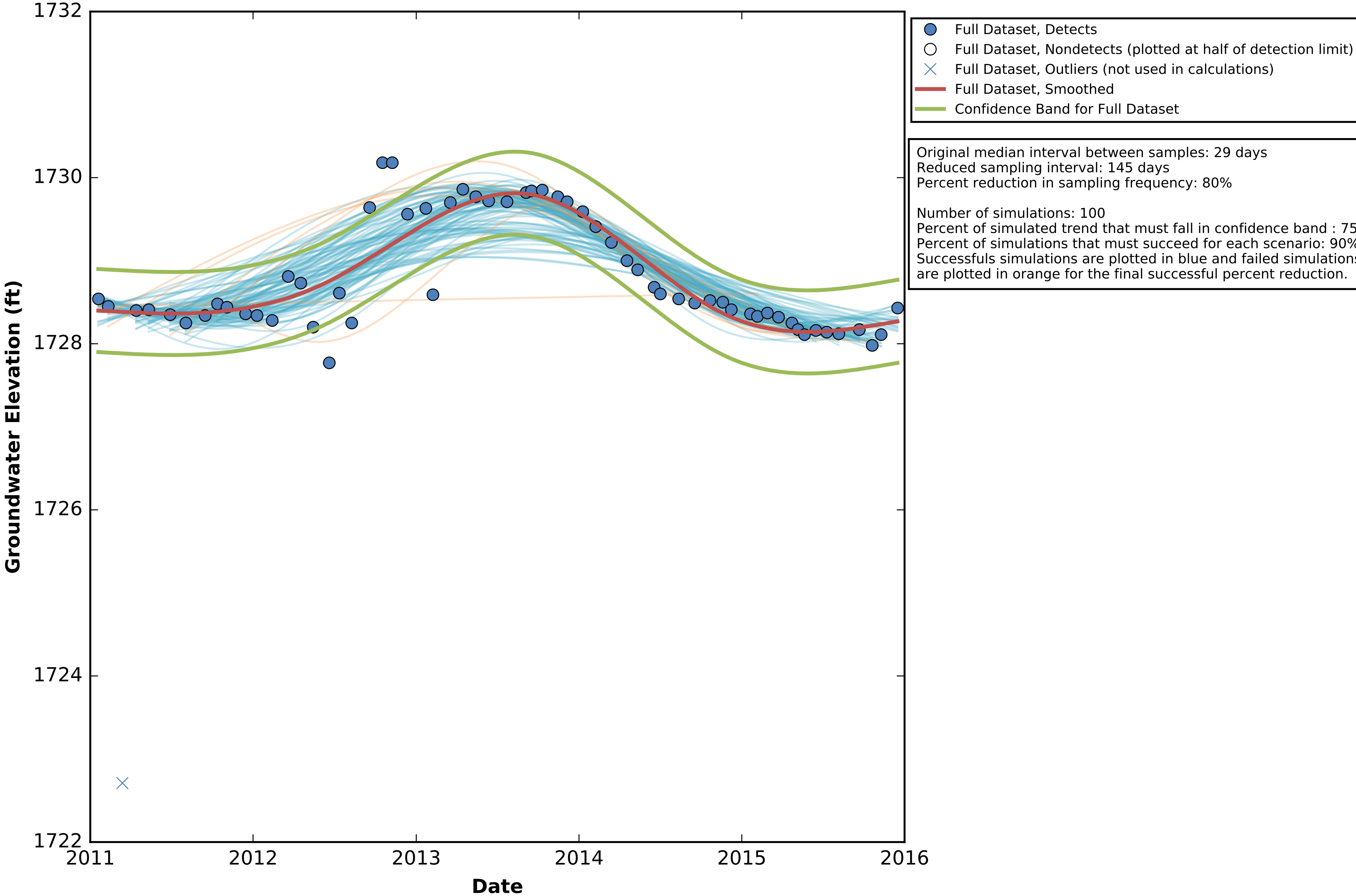
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-293

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 145 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

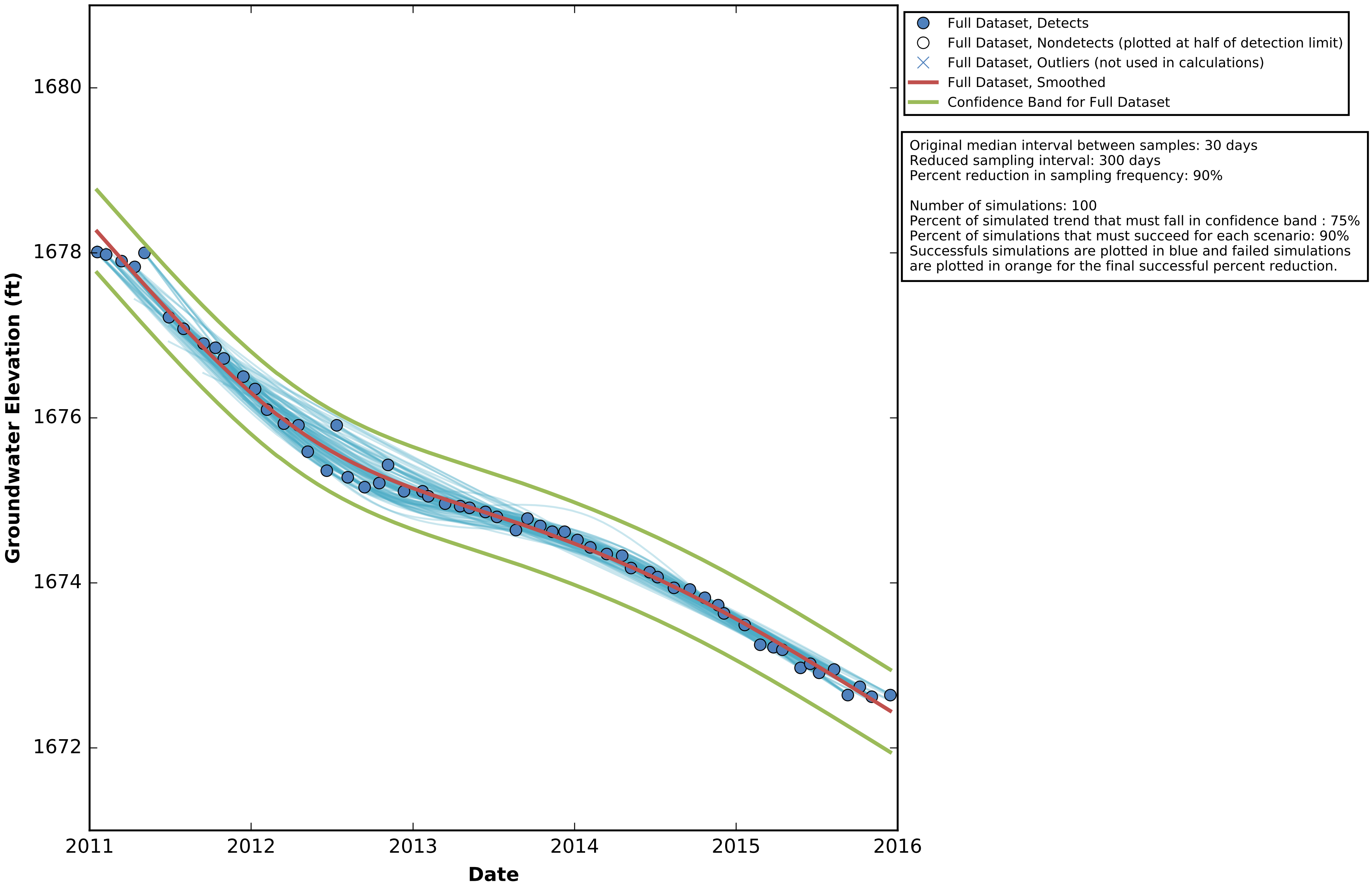
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-38
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-294

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



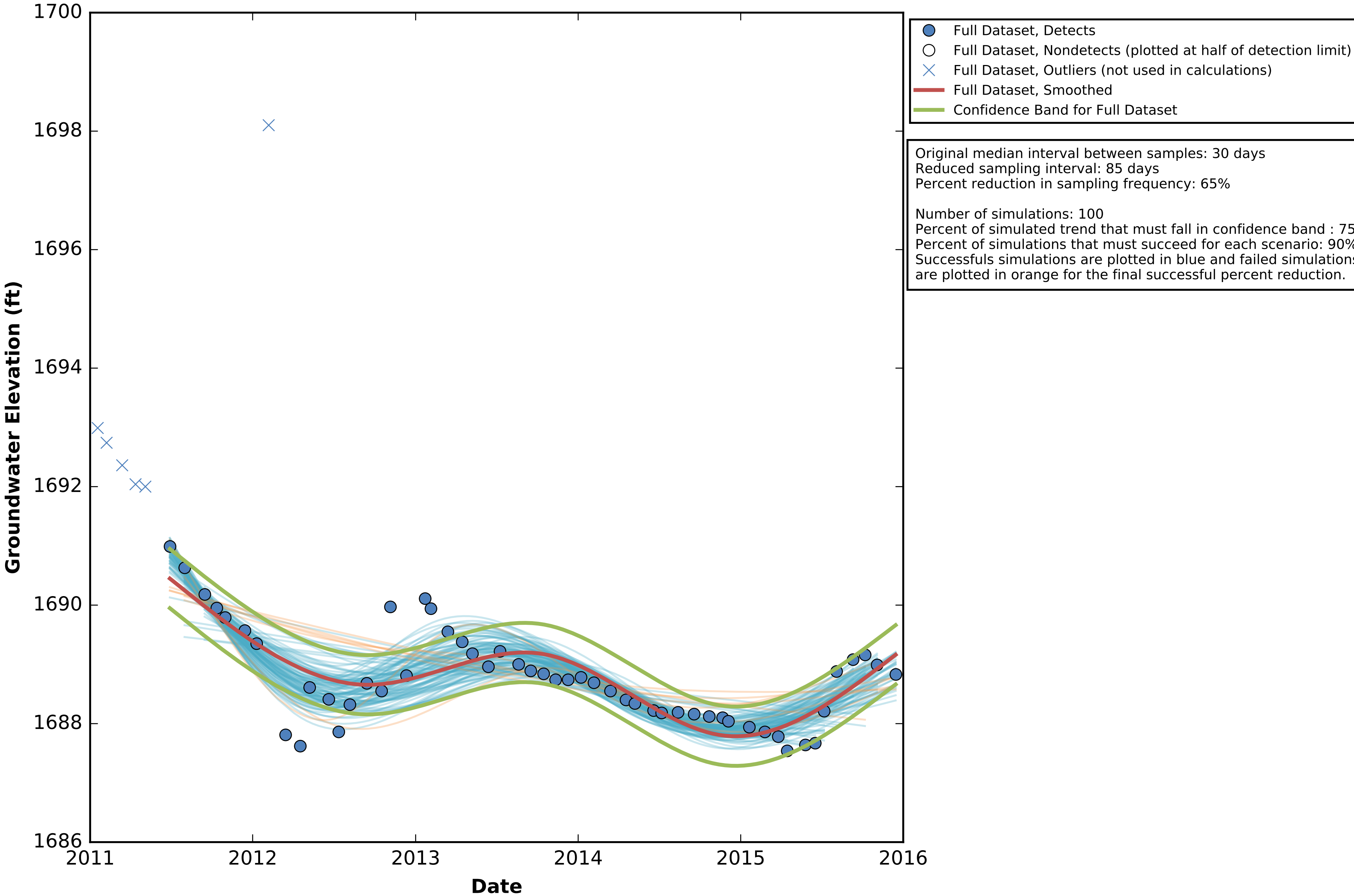
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-44
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-295

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 85 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

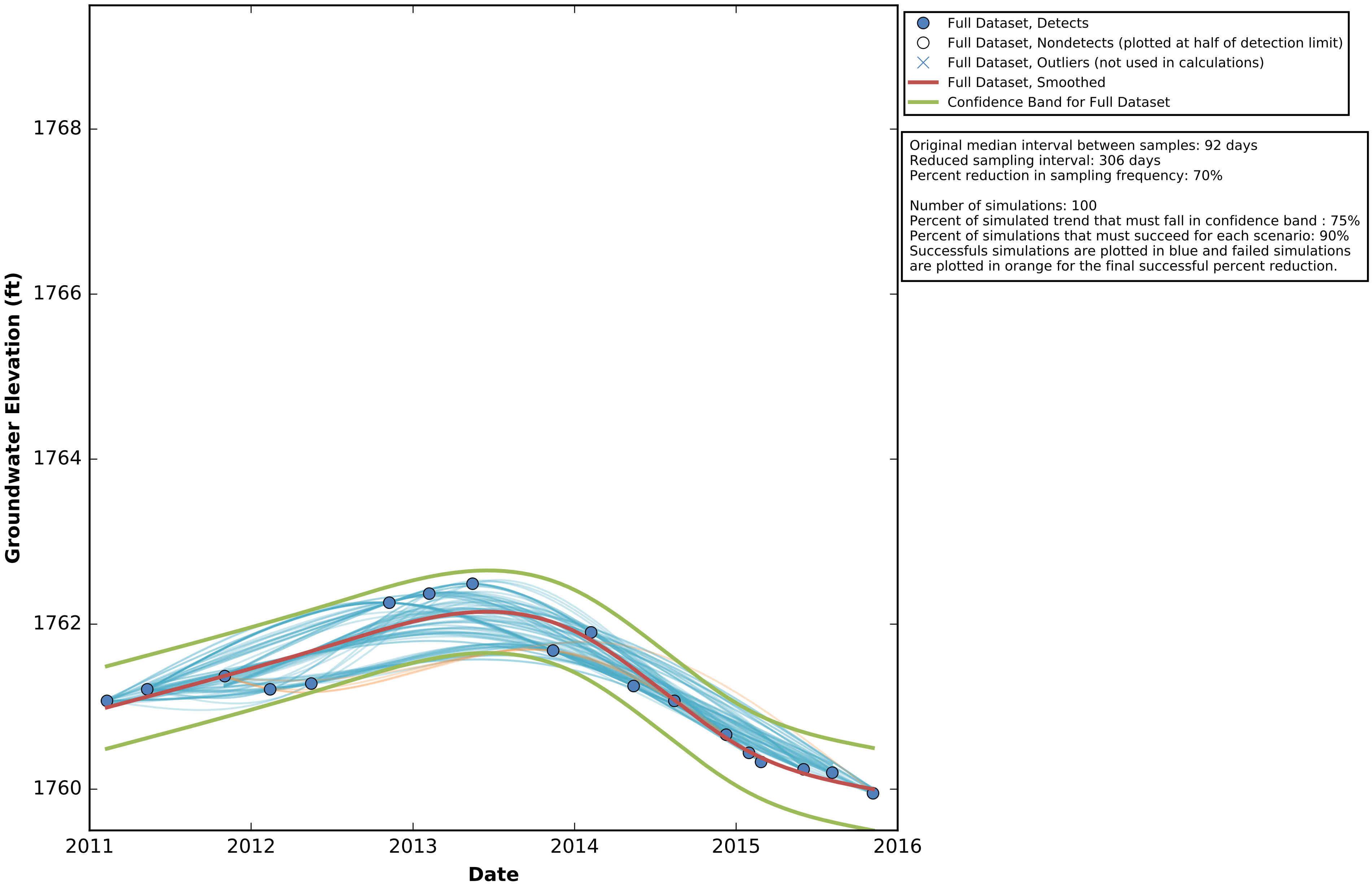
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-48A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-296

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 306 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

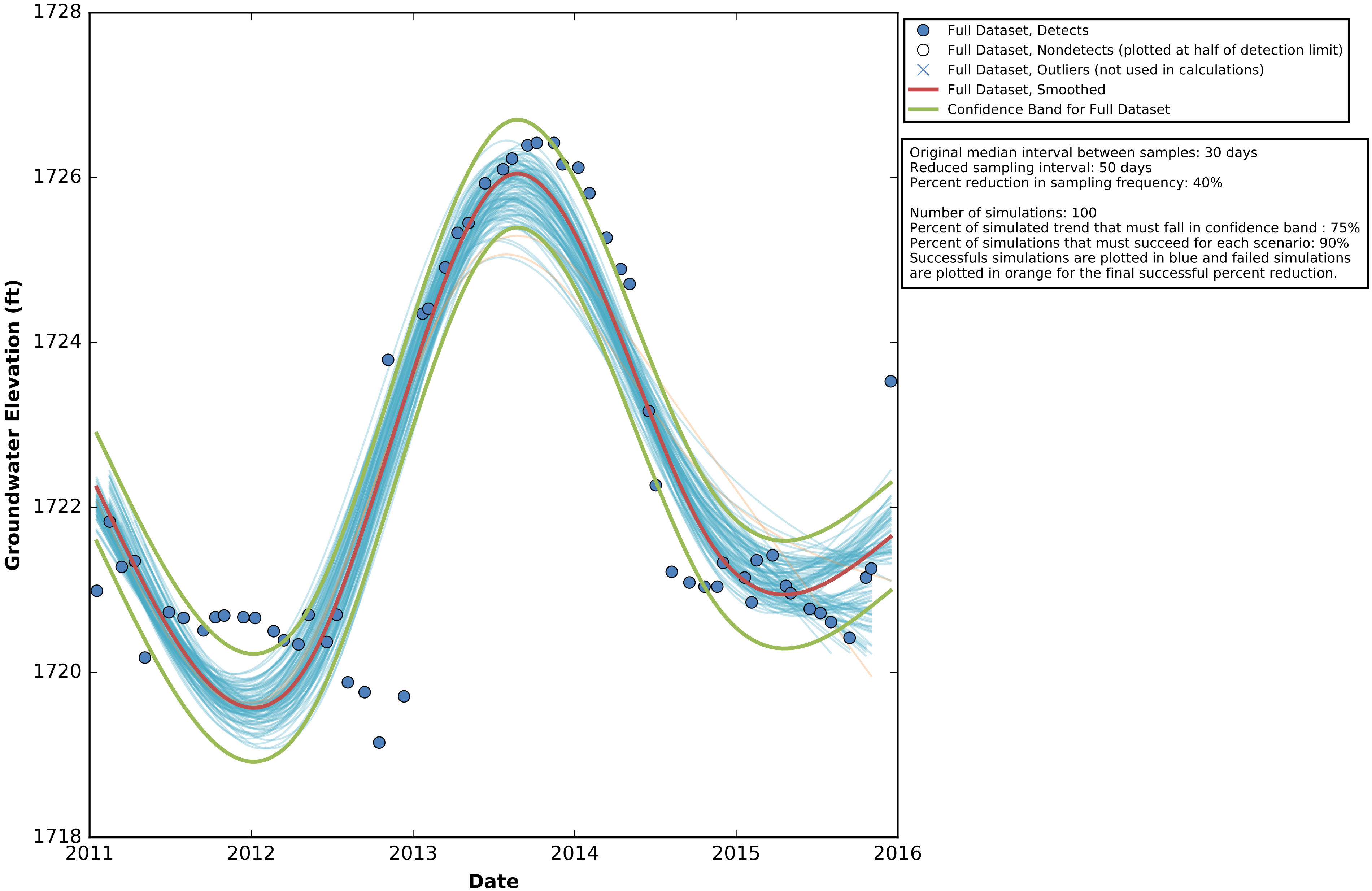
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-52
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-297

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



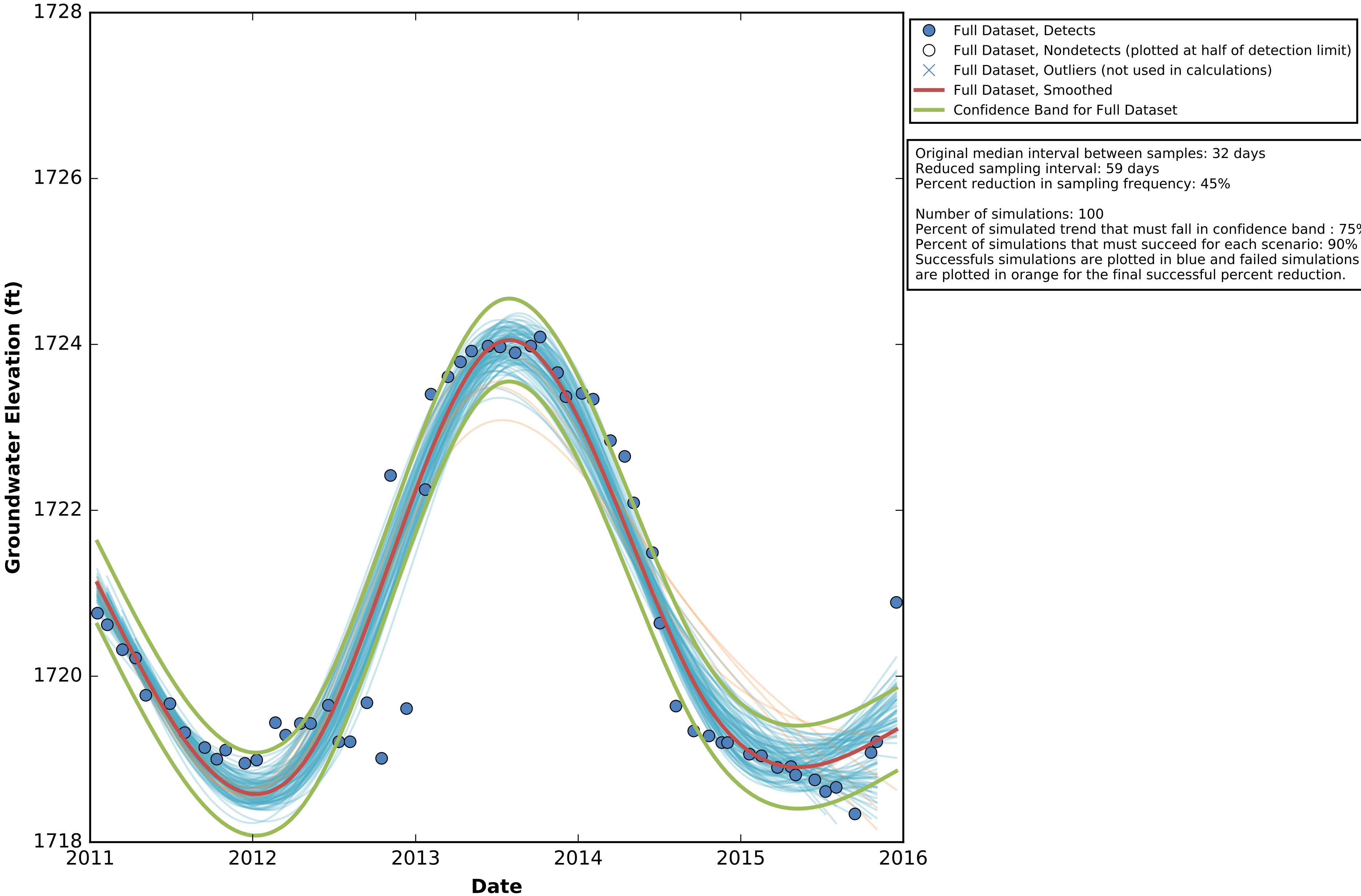
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-298

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 32 days
Reduced sampling interval: 59 days
Percent reduction in sampling frequency: 45%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

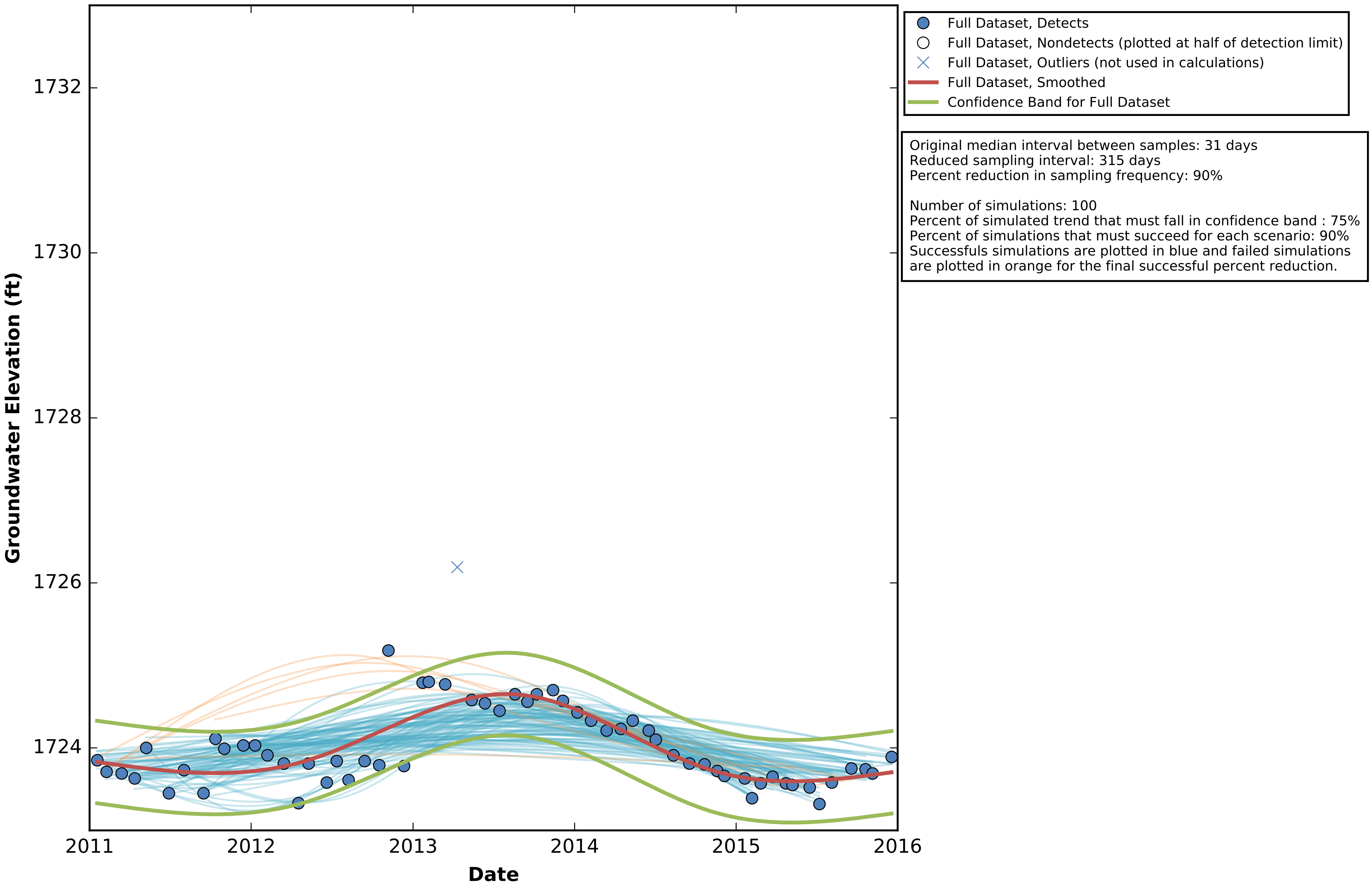
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-299

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



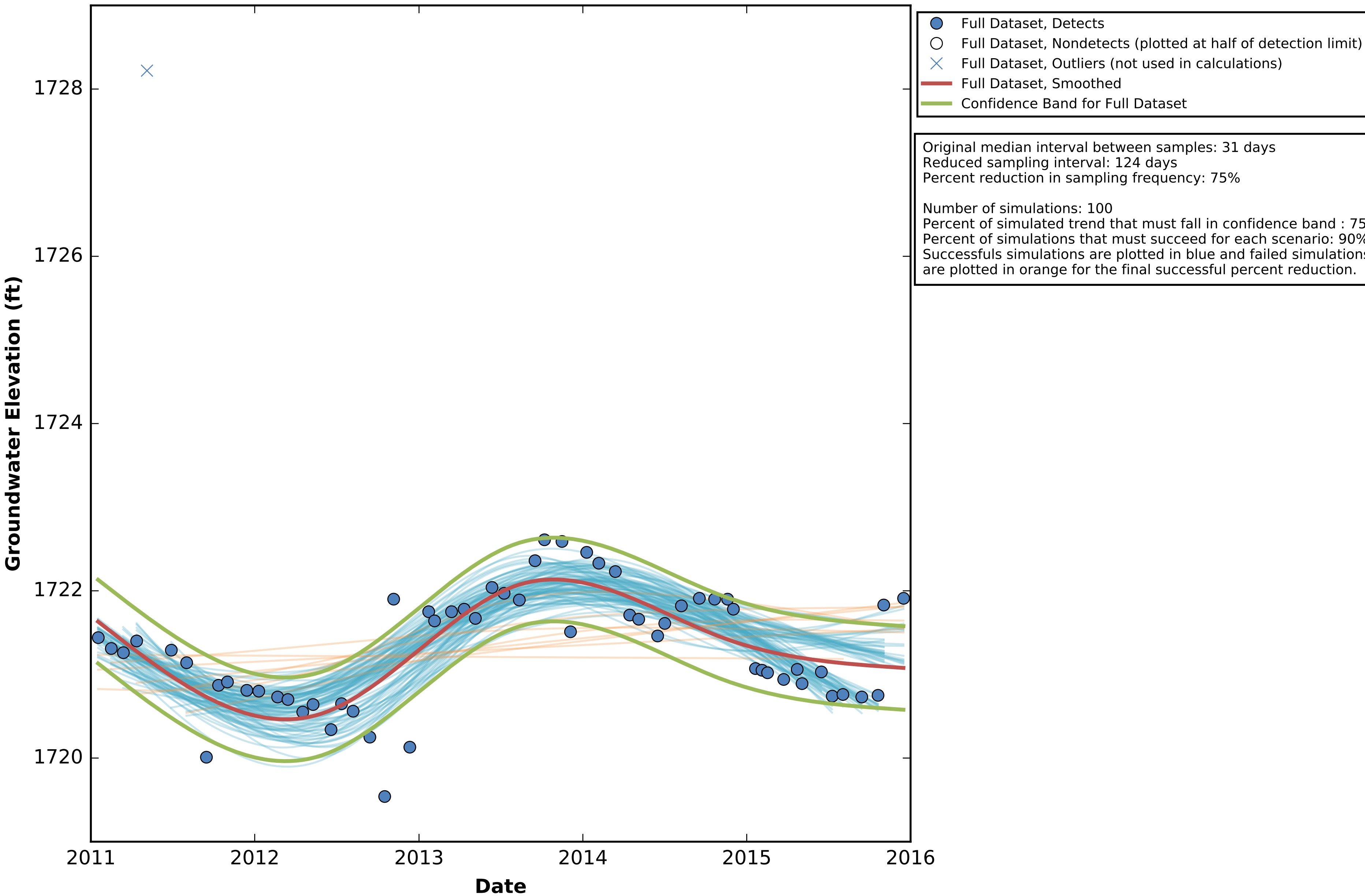
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-57A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-300

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 31 days
Reduced sampling interval: 124 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

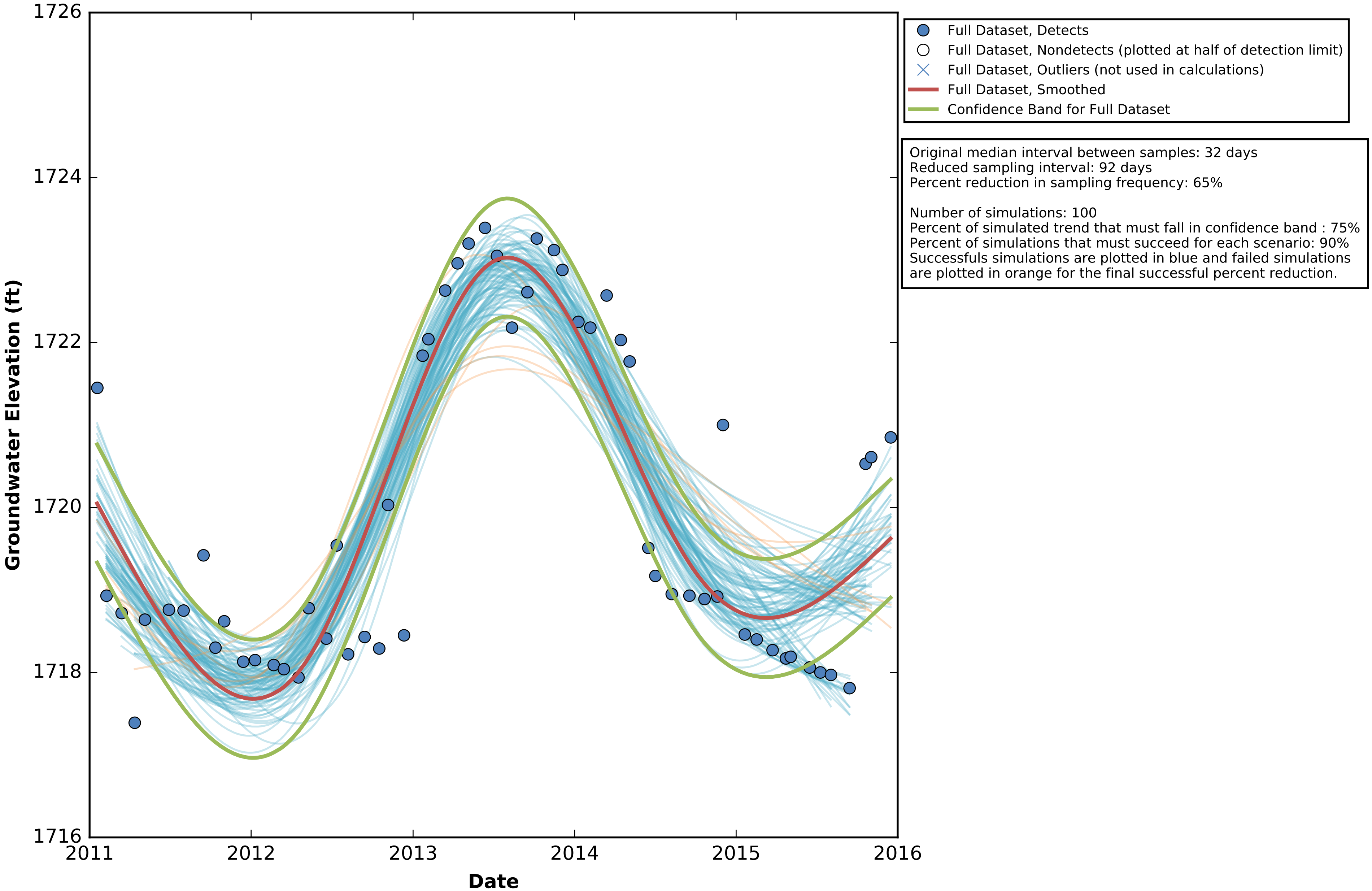
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-301

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 32 days
Reduced sampling interval: 92 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

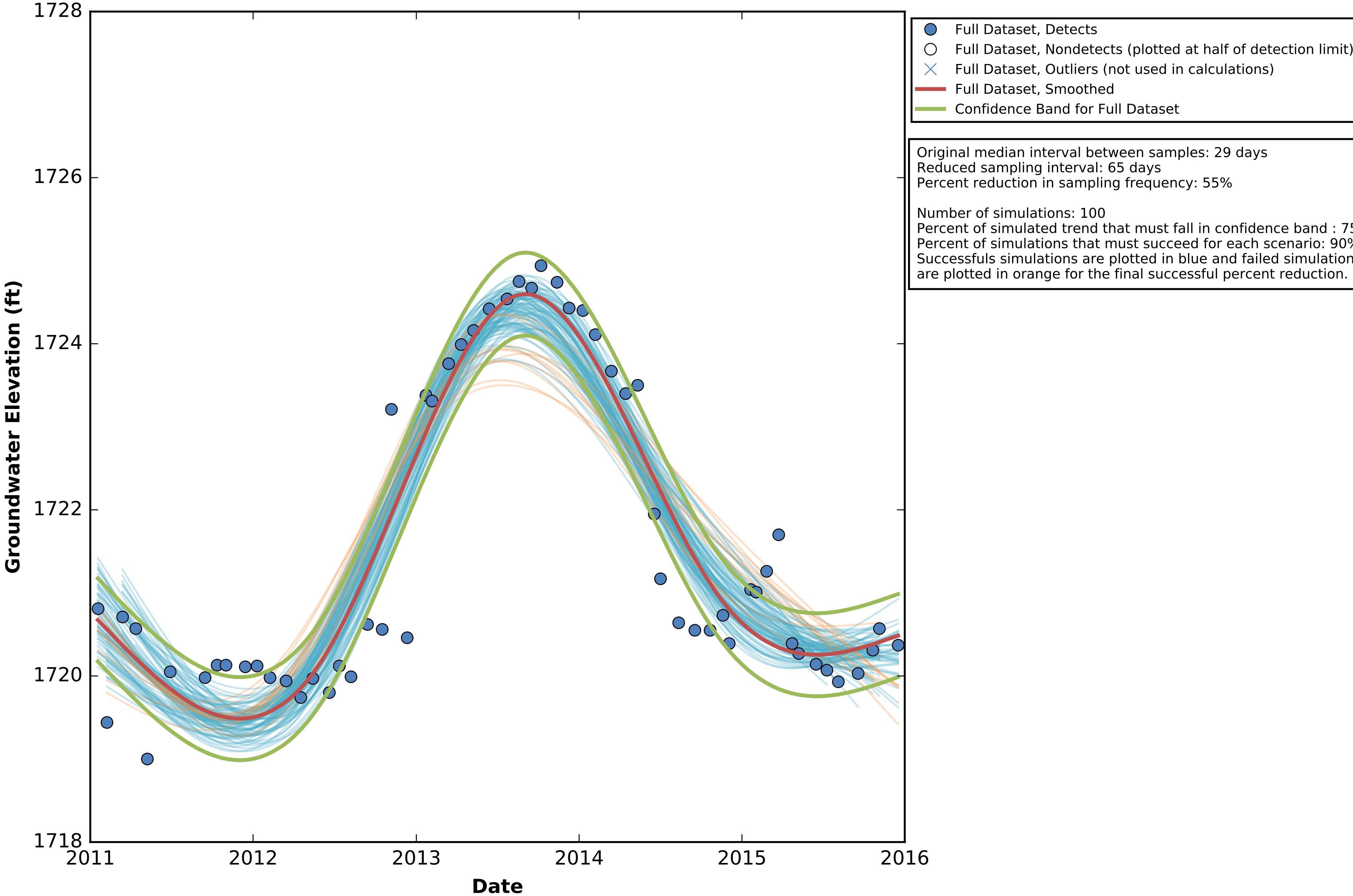
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-60
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-302

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 65 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

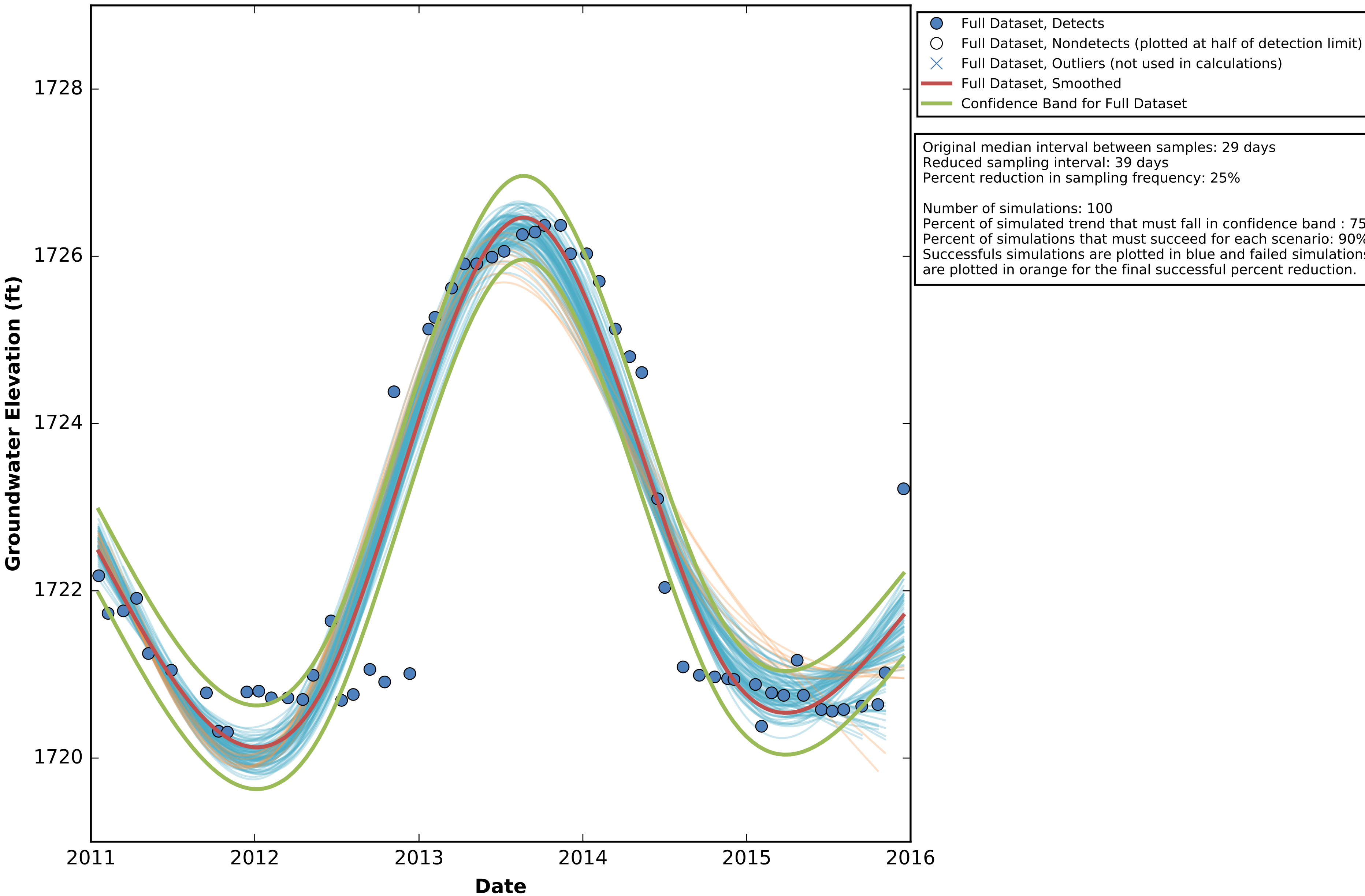
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-64
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-303

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 39 days
Percent reduction in sampling frequency: 25%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

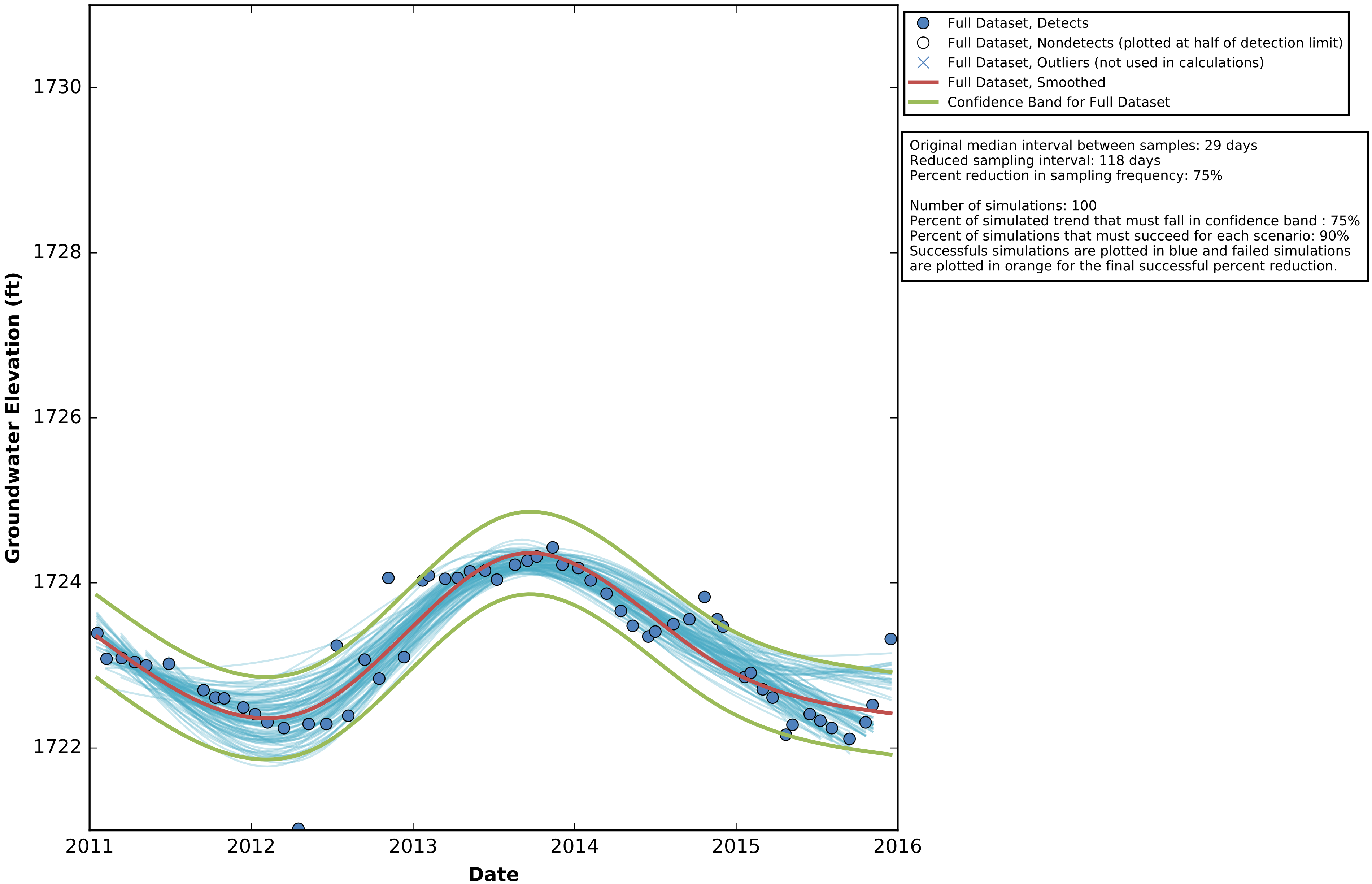
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-65
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-304

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



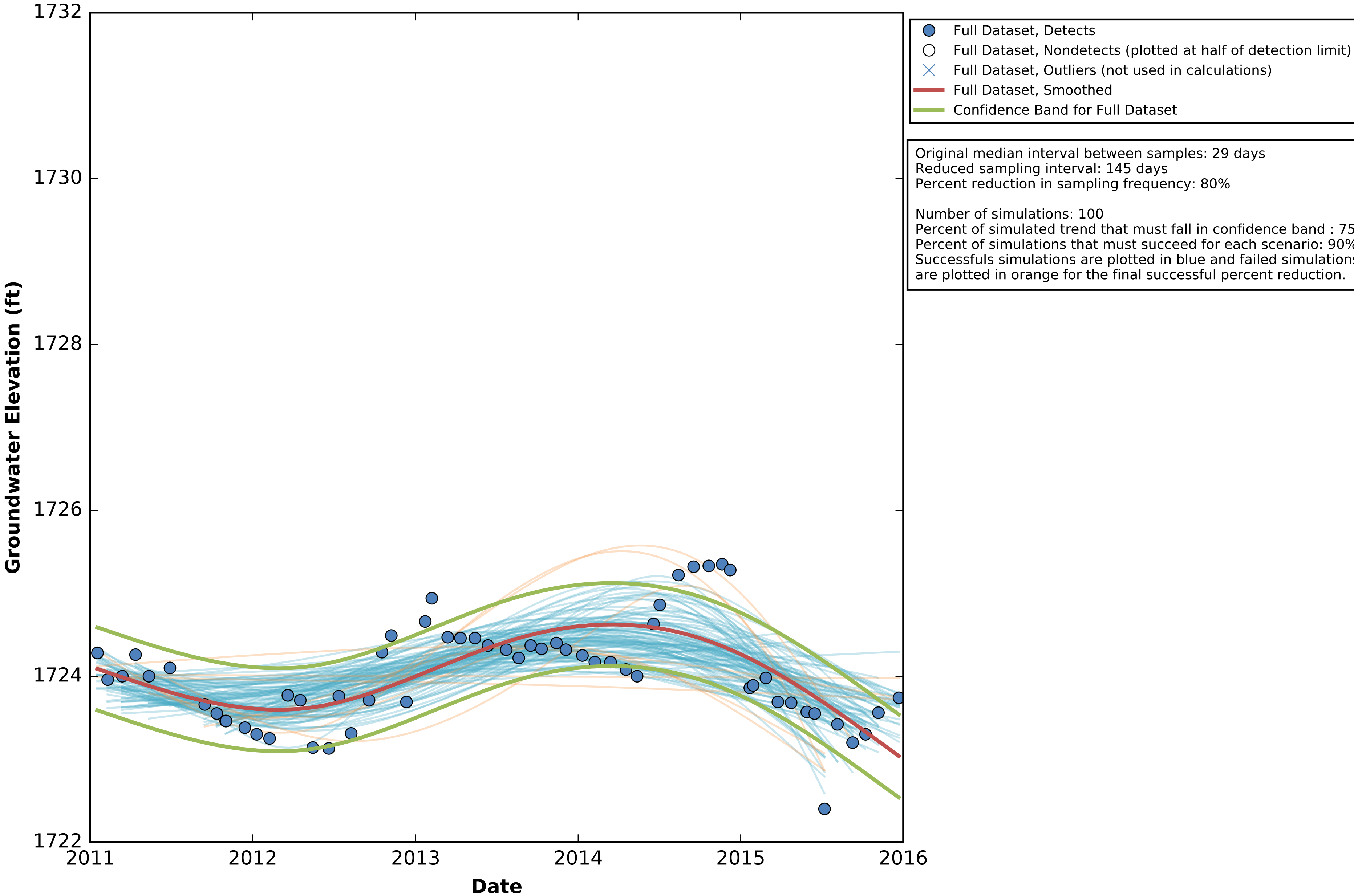
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-66
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-305

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 145 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

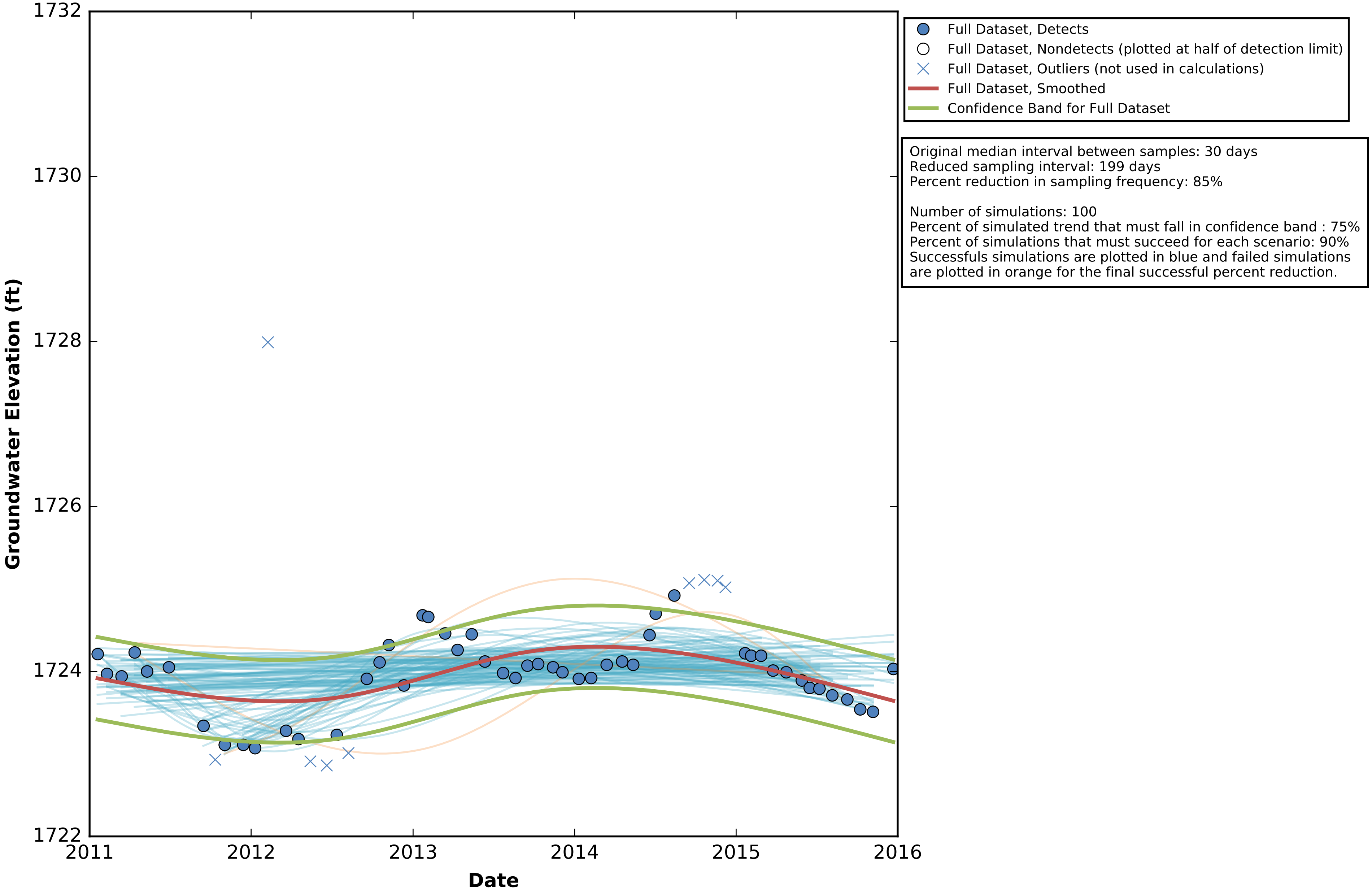
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-67
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-306

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



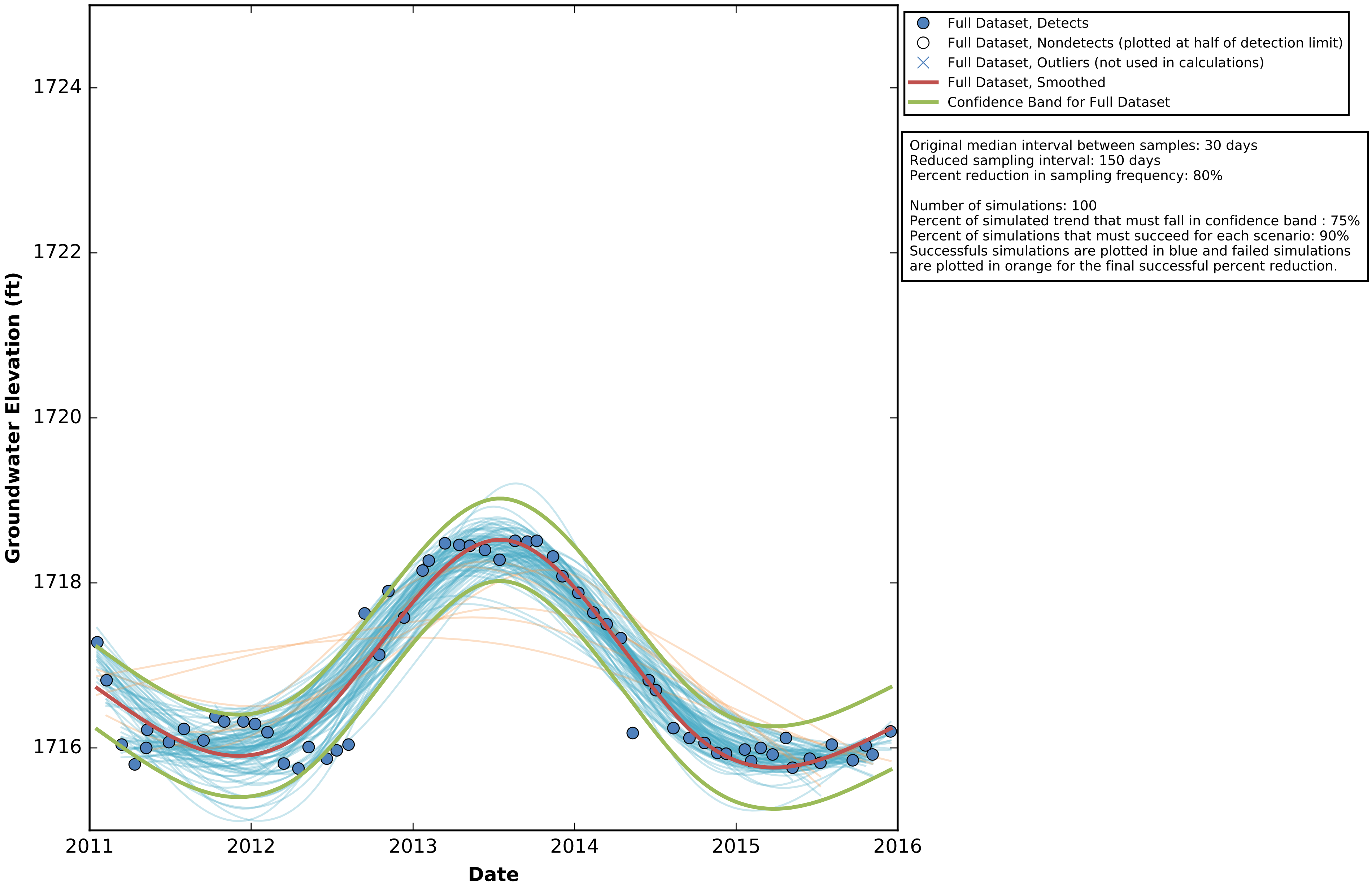
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-307

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



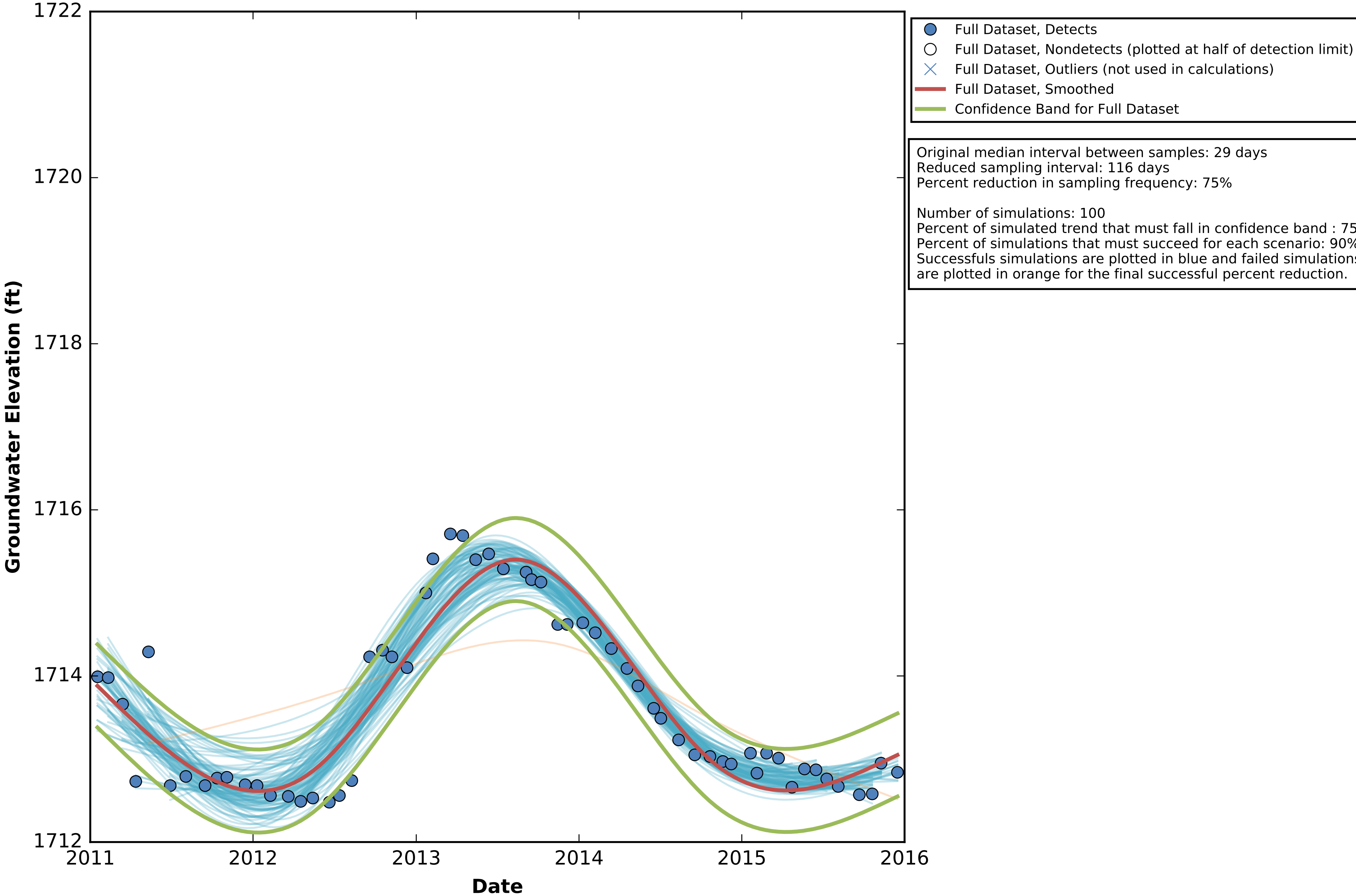
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-69
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-308

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

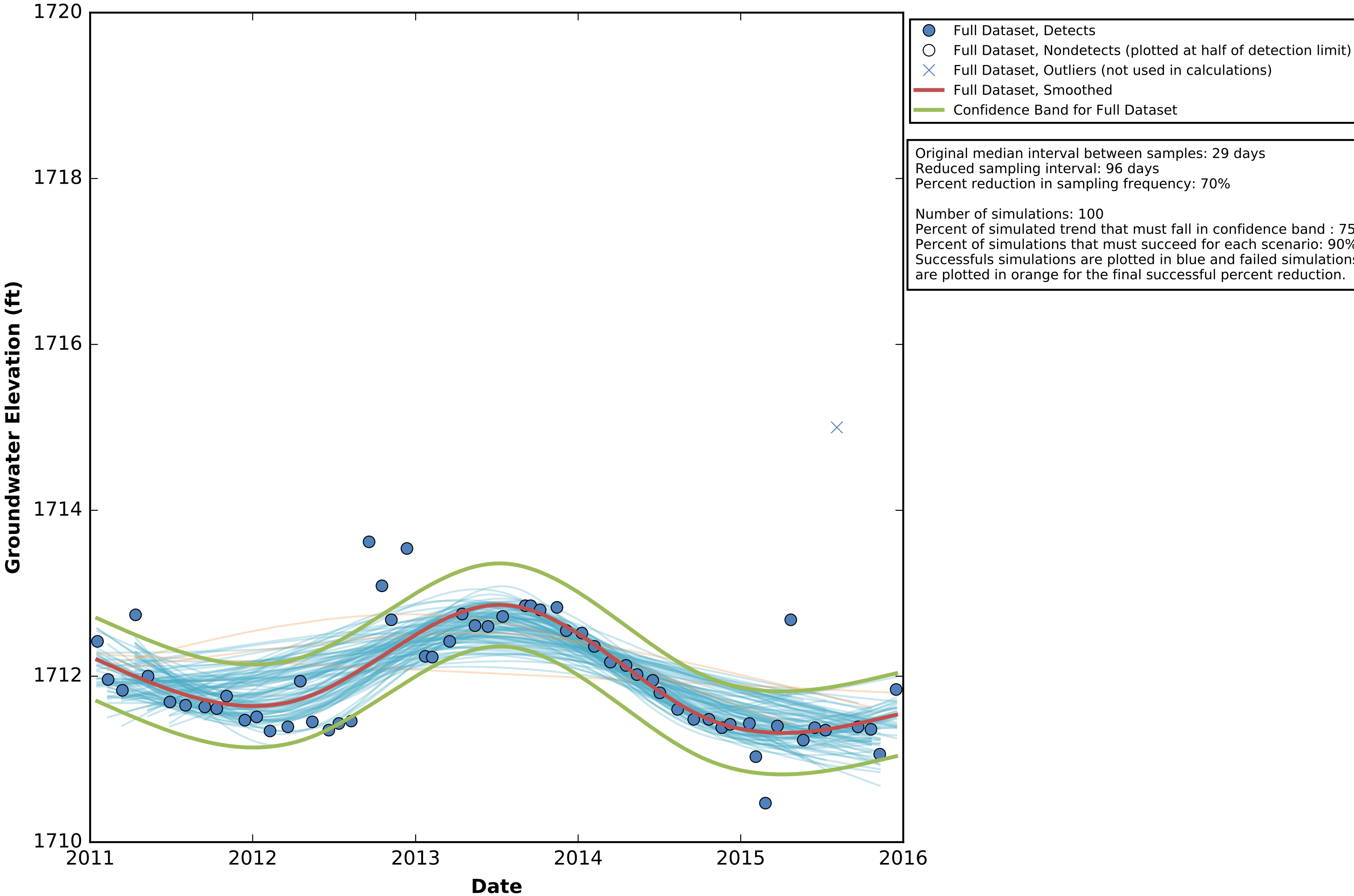
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-70
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-309

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

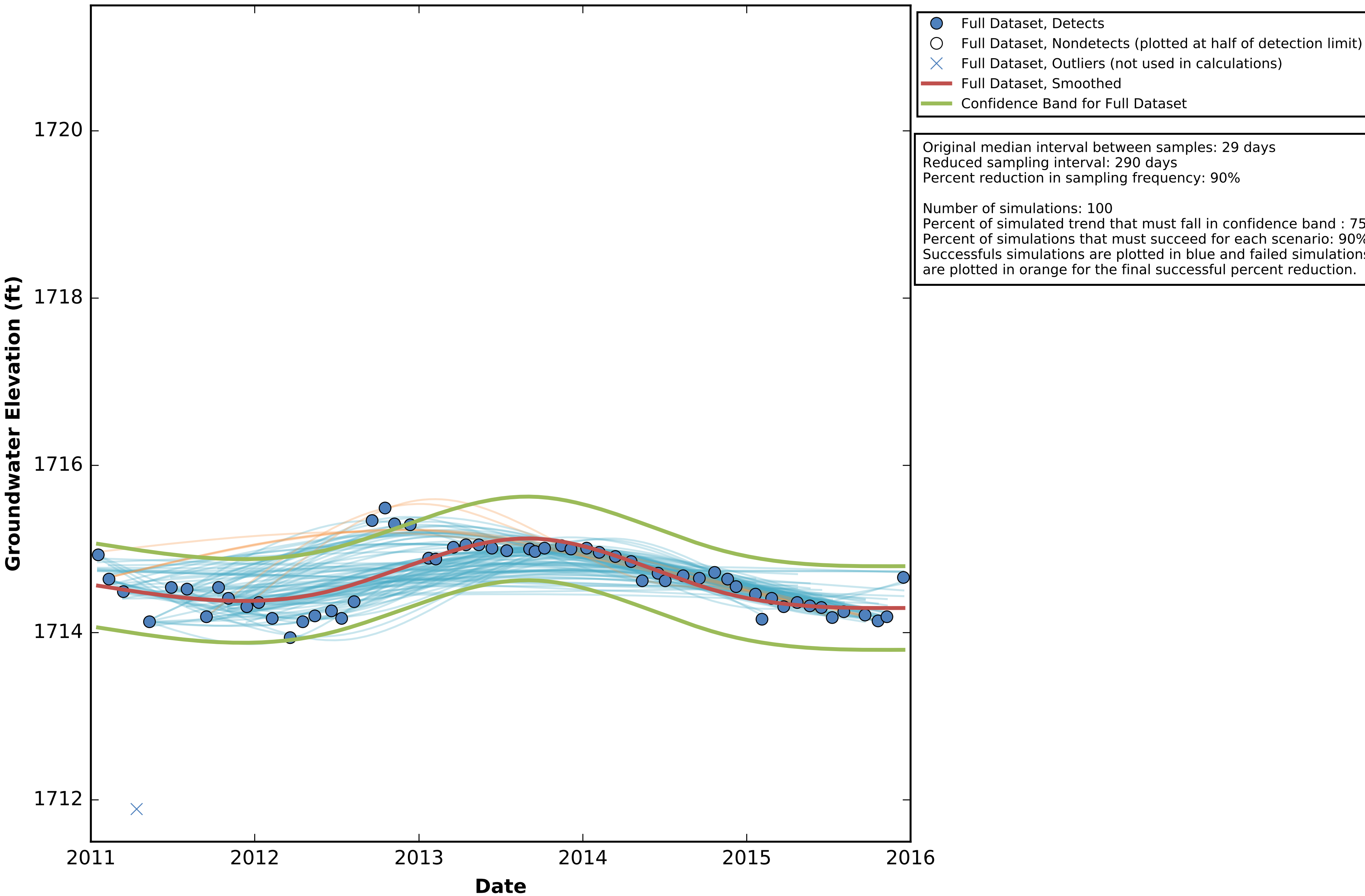
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-310

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

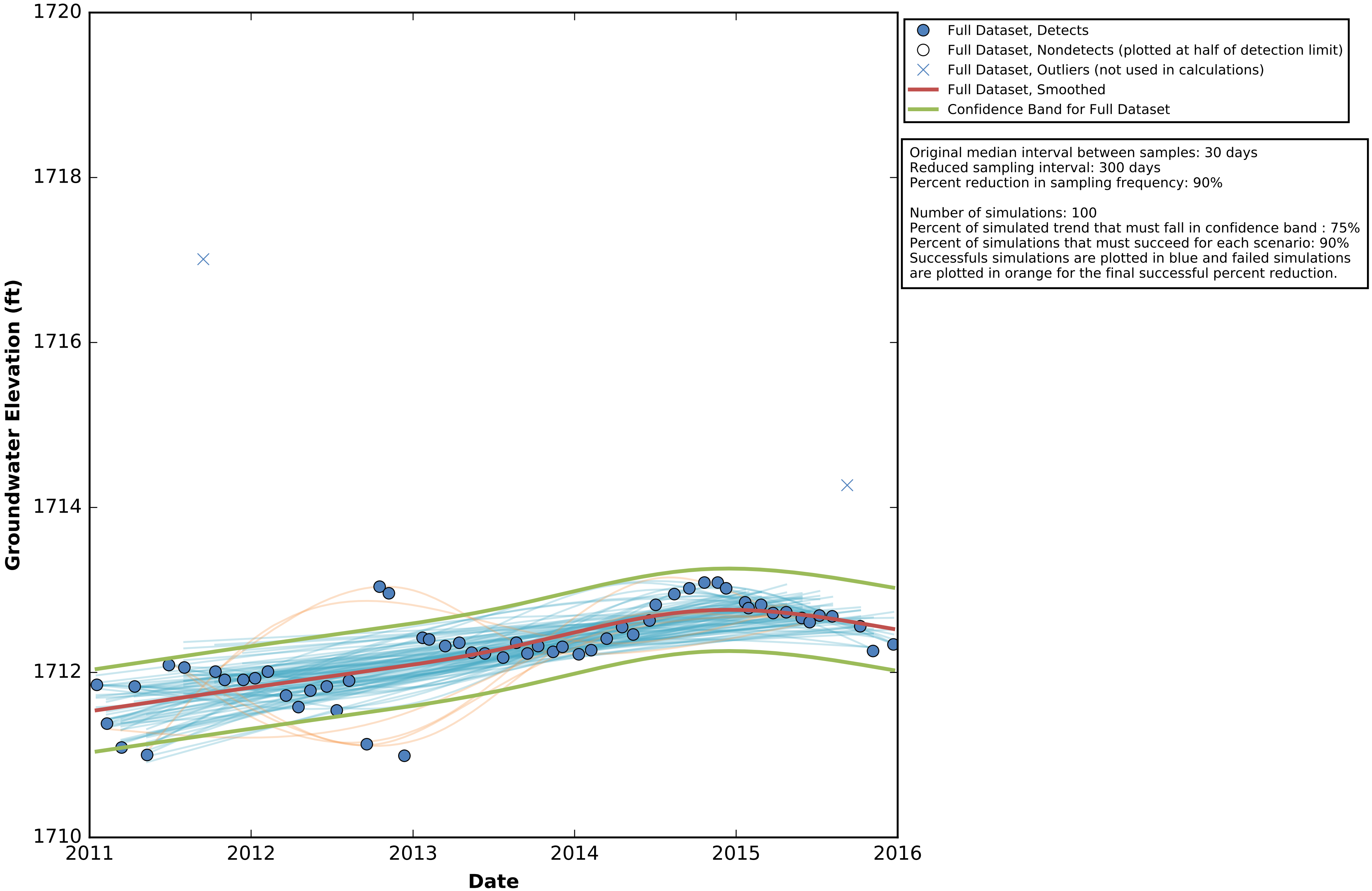
Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Iterative Thinning Results for Groundwater Elevation in M-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-311

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



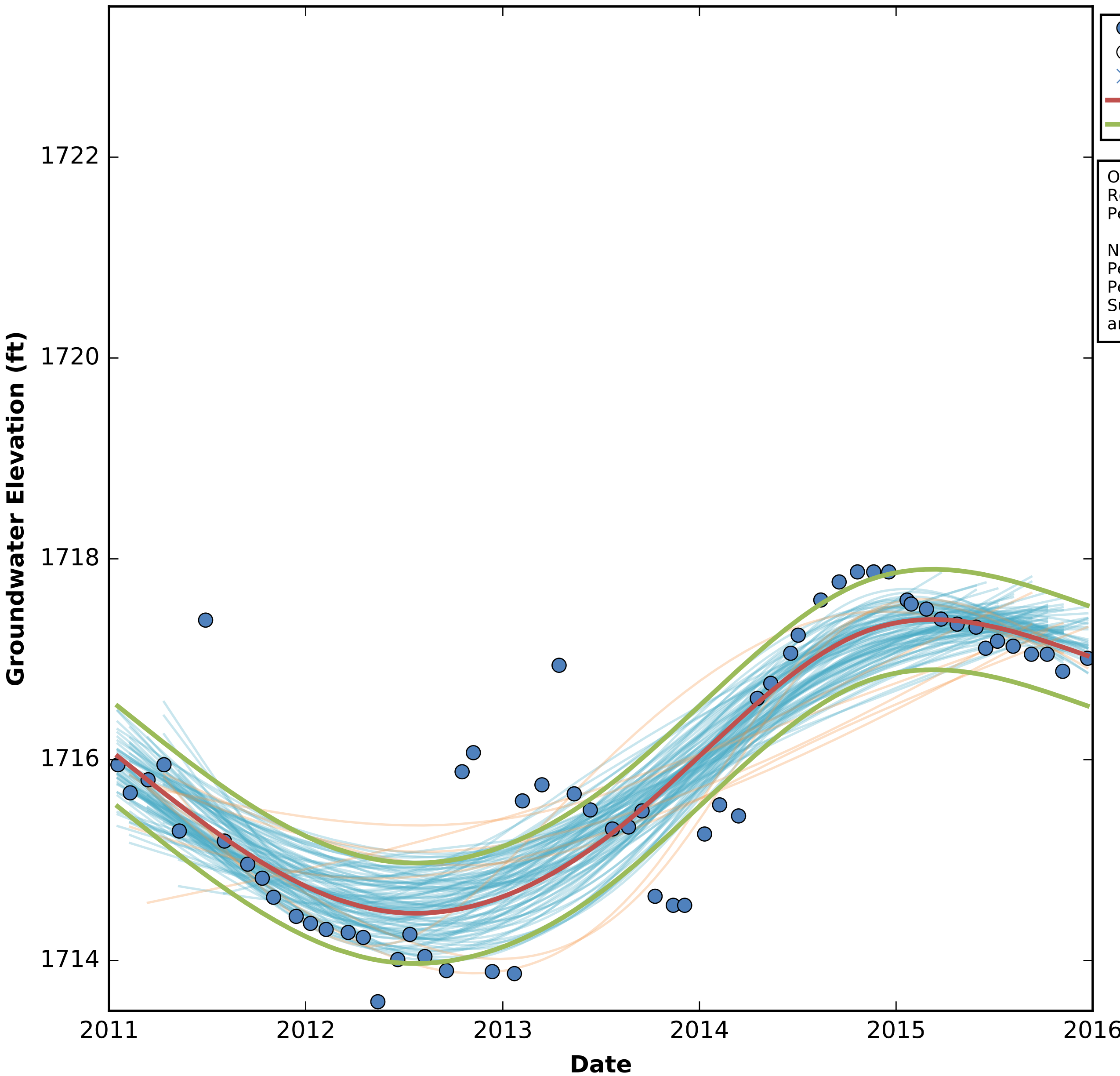
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-312

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 85 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

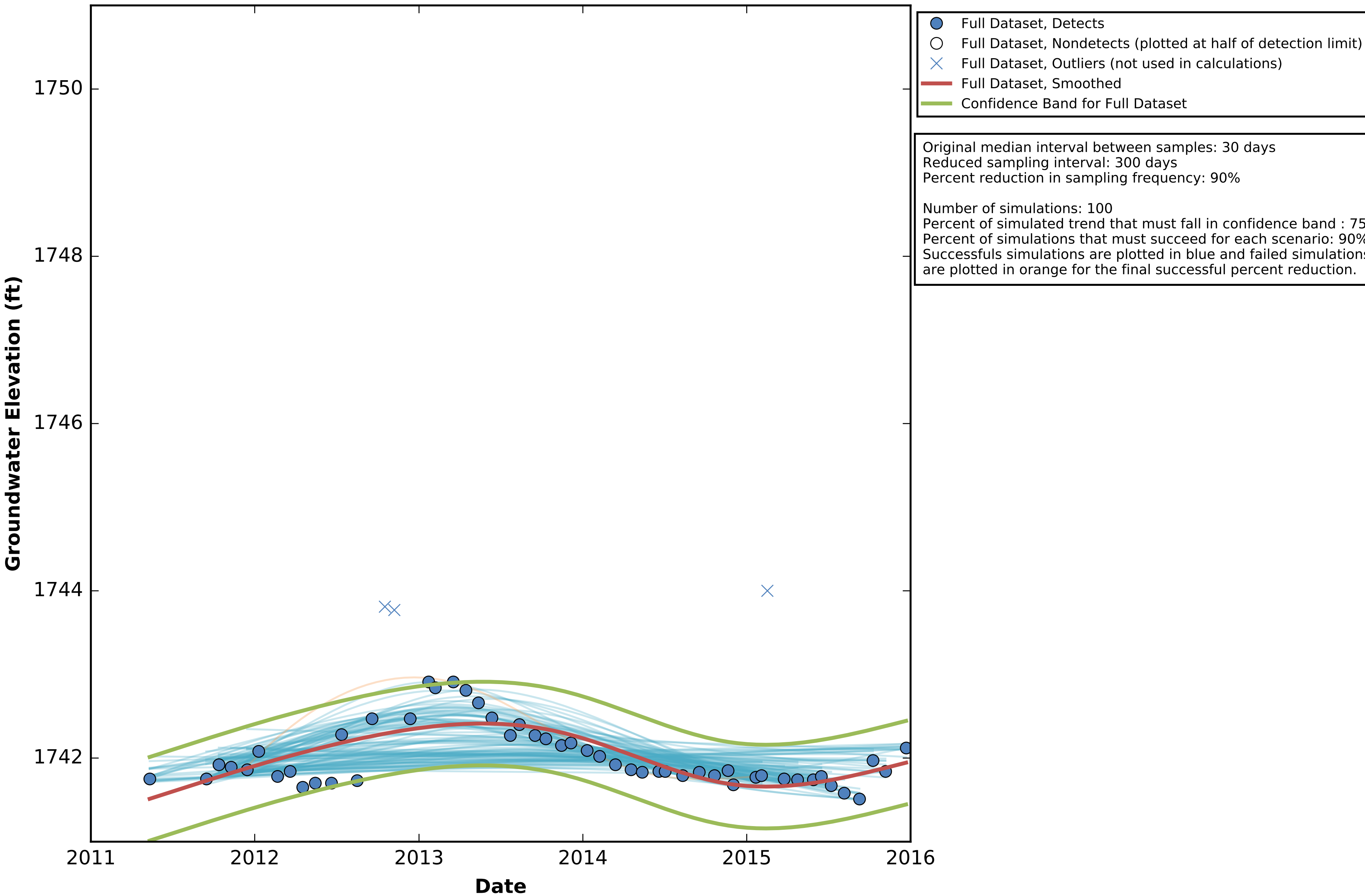
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-74
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-313

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

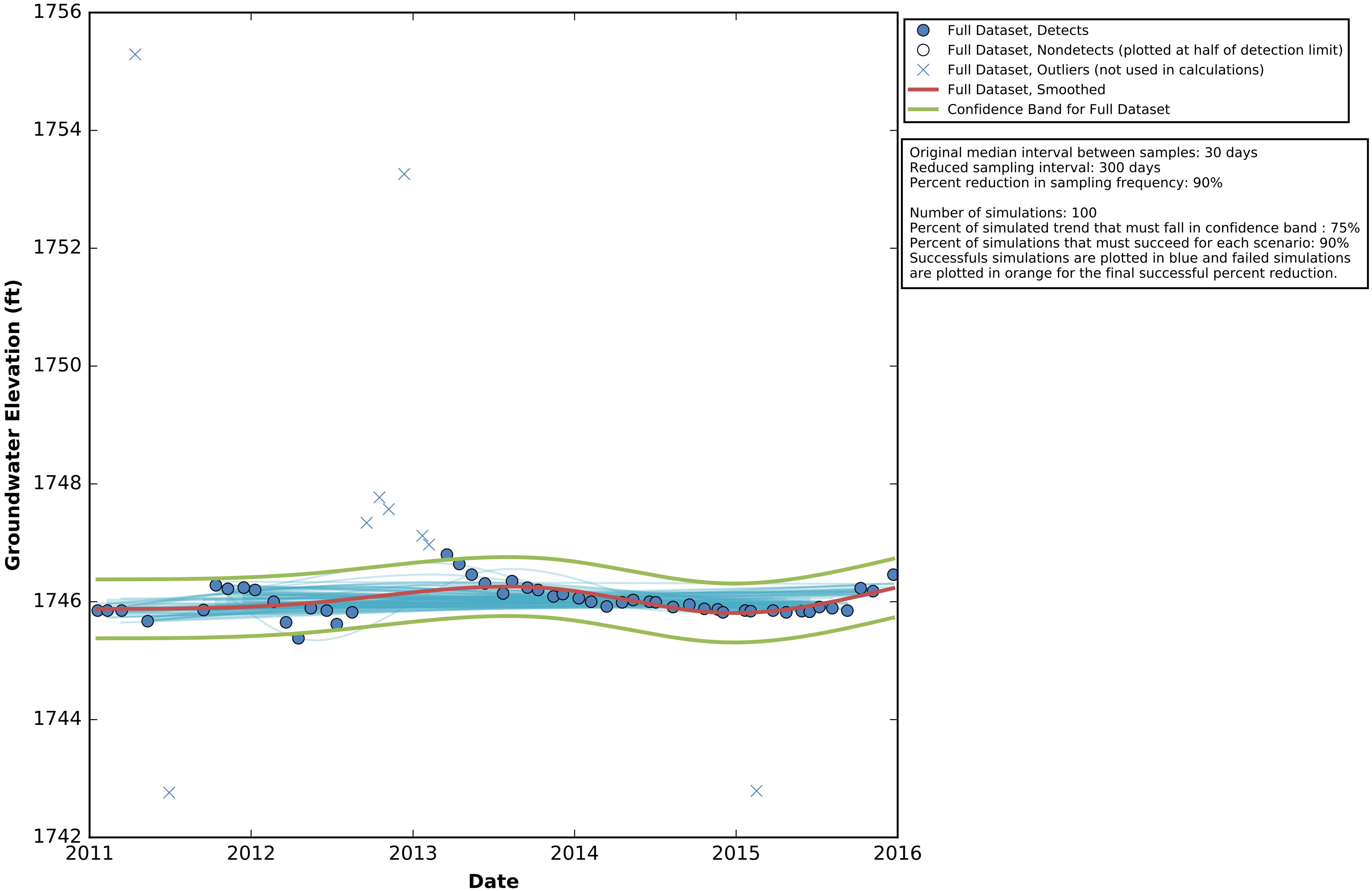
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-75
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-314

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



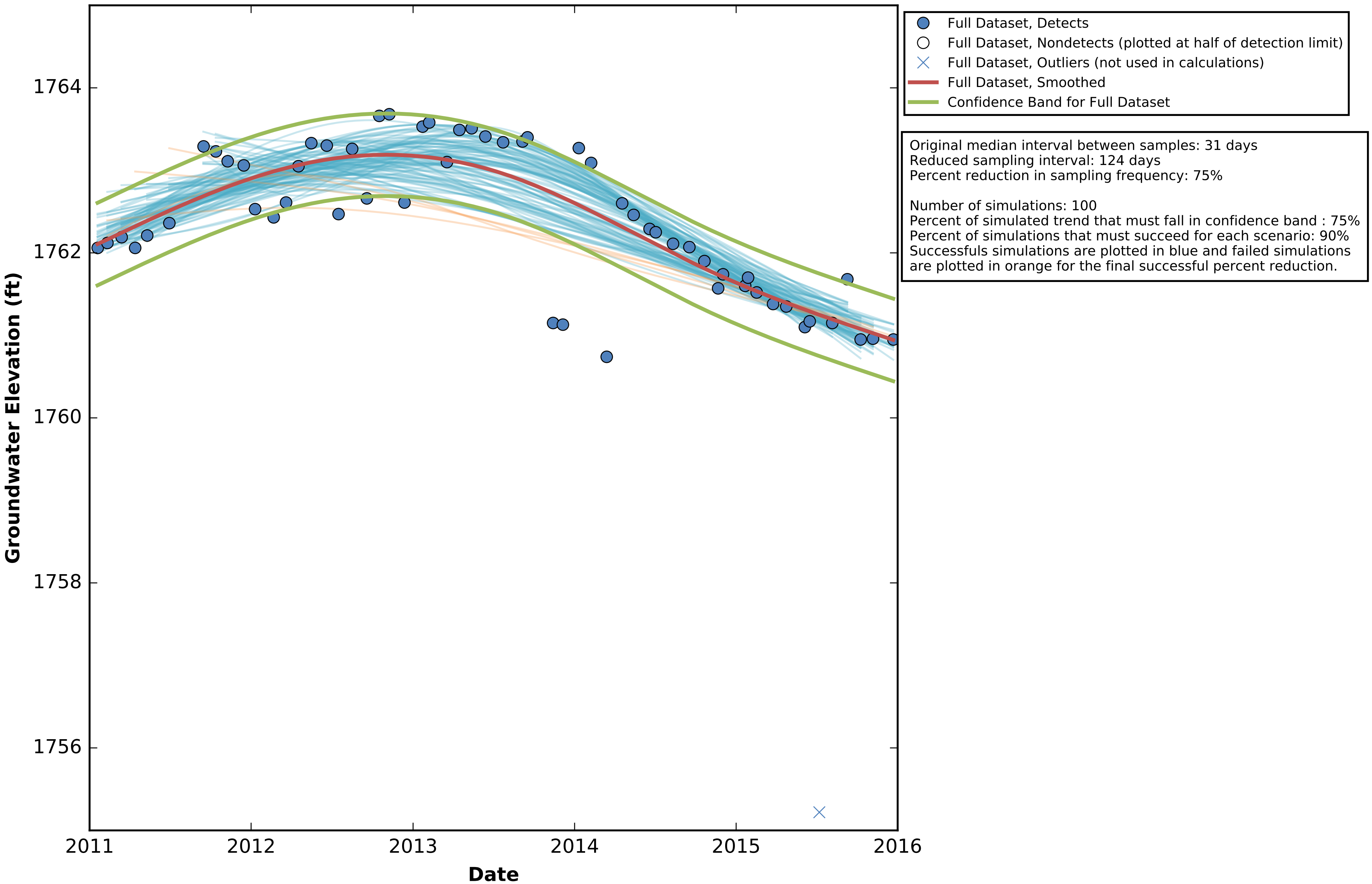
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-76
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-315

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



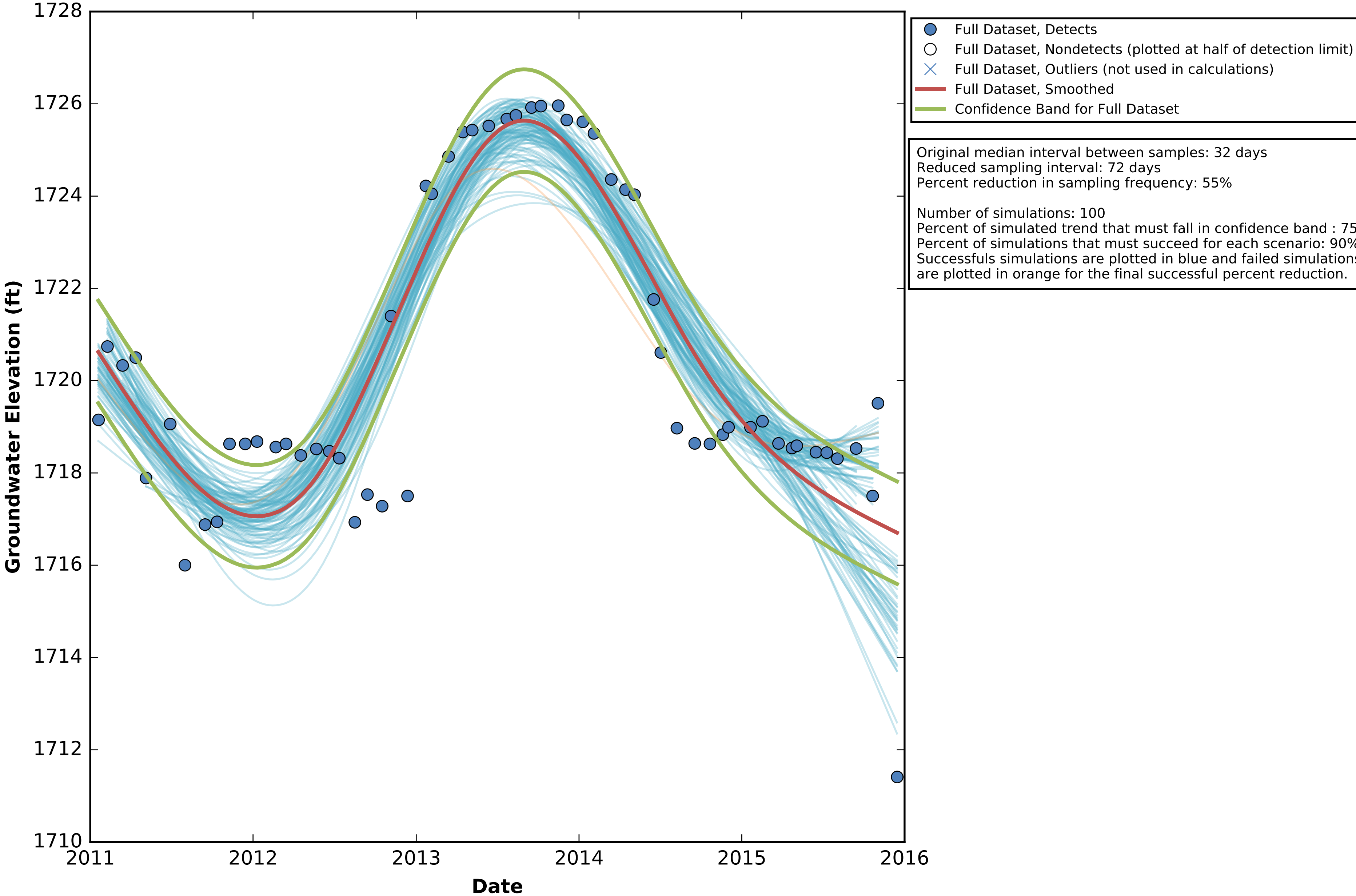
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-77
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-316

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 32 days
Reduced sampling interval: 72 days
Percent reduction in sampling frequency: 55%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

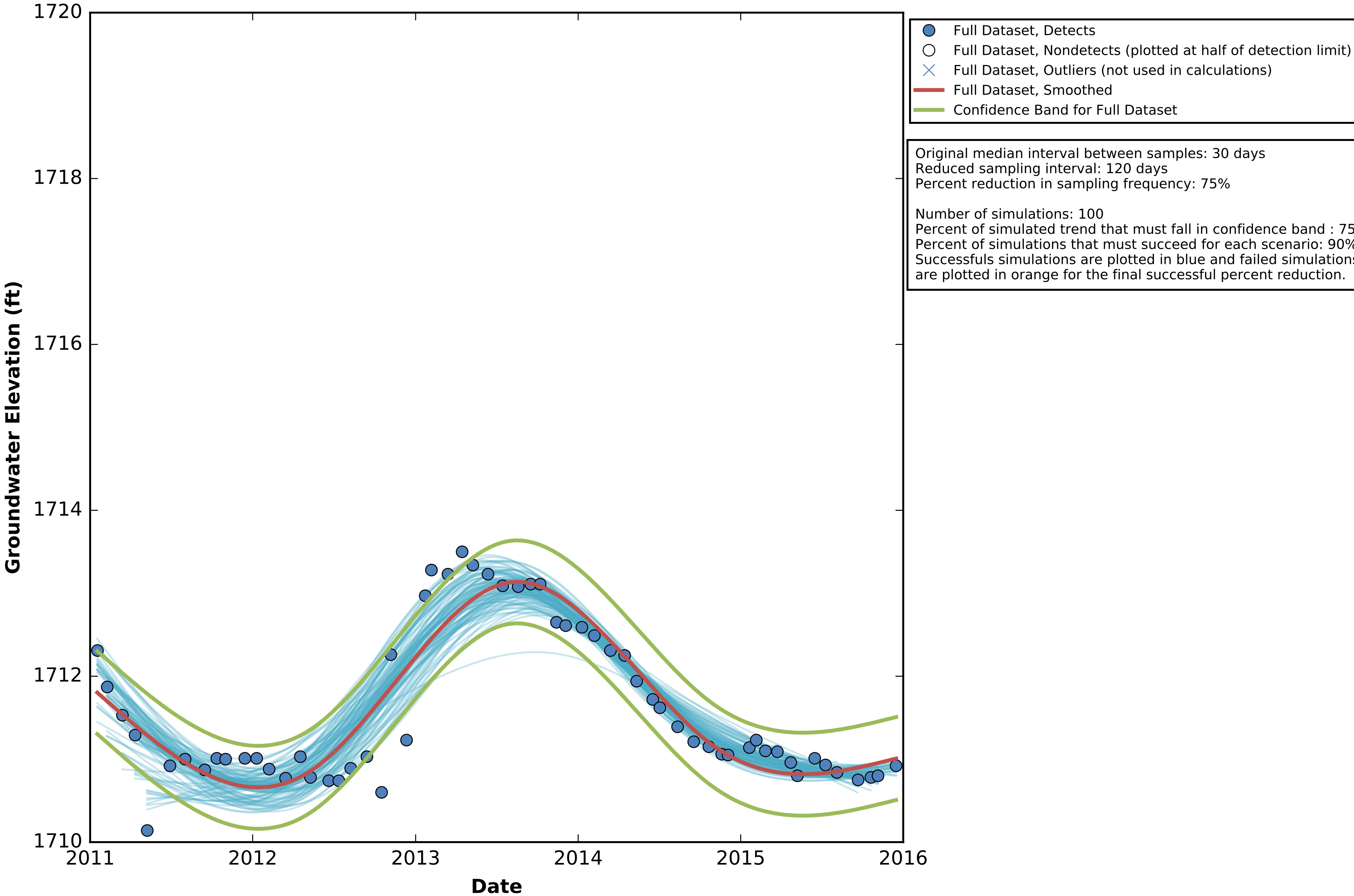
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-78
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-317

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 120 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

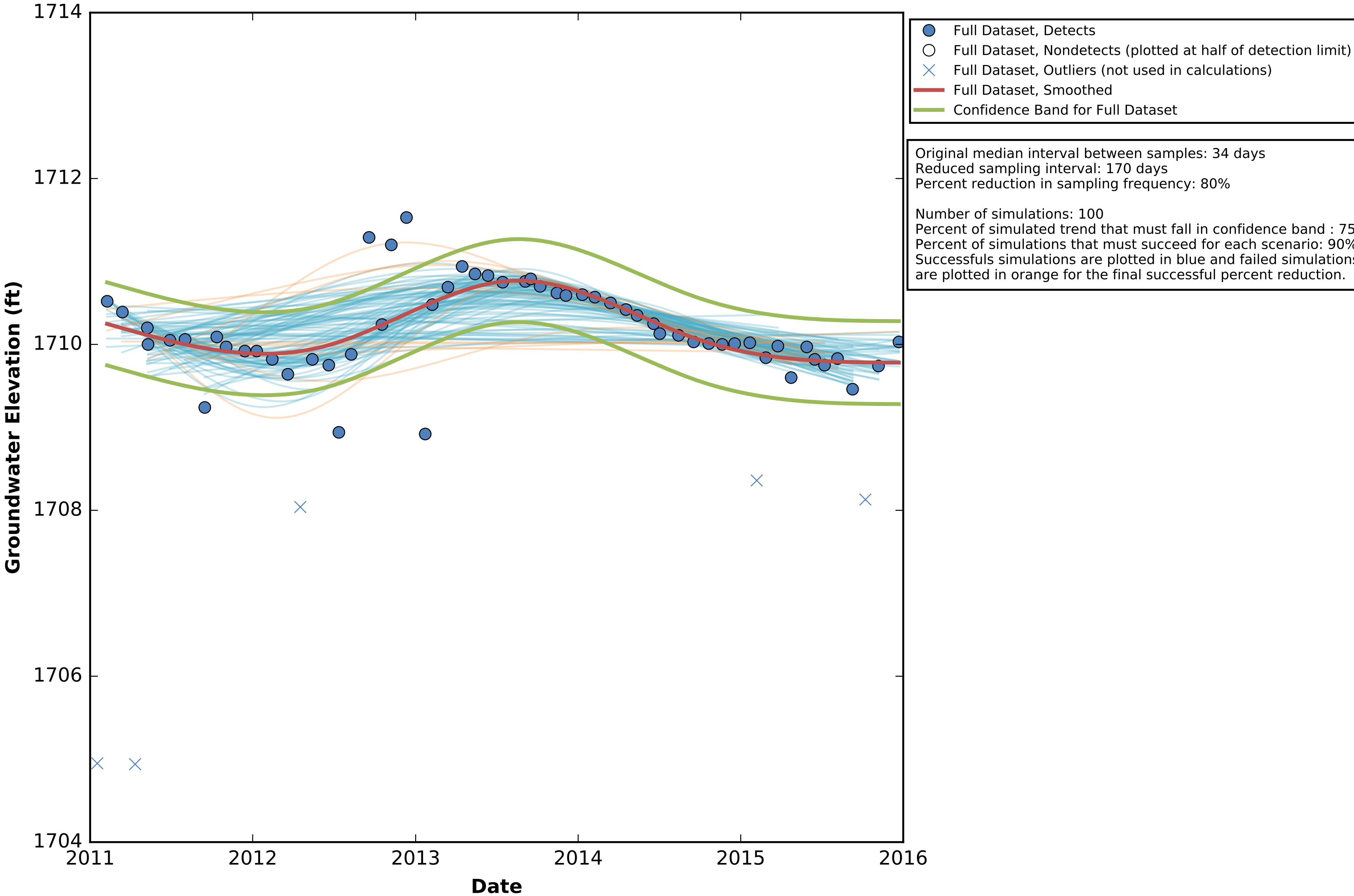
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-79
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-318

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 34 days
Reduced sampling interval: 170 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

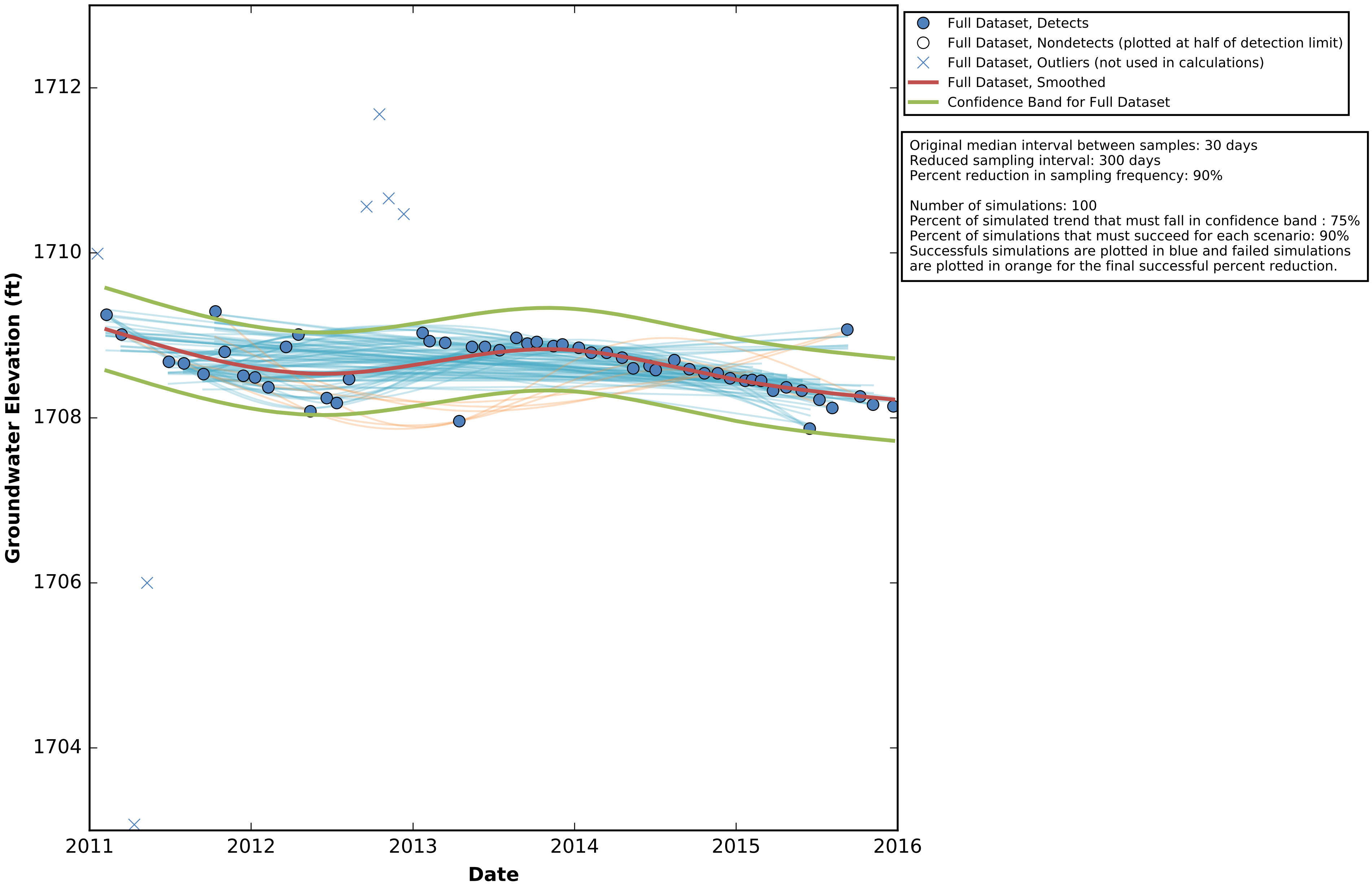
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-80
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-319

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

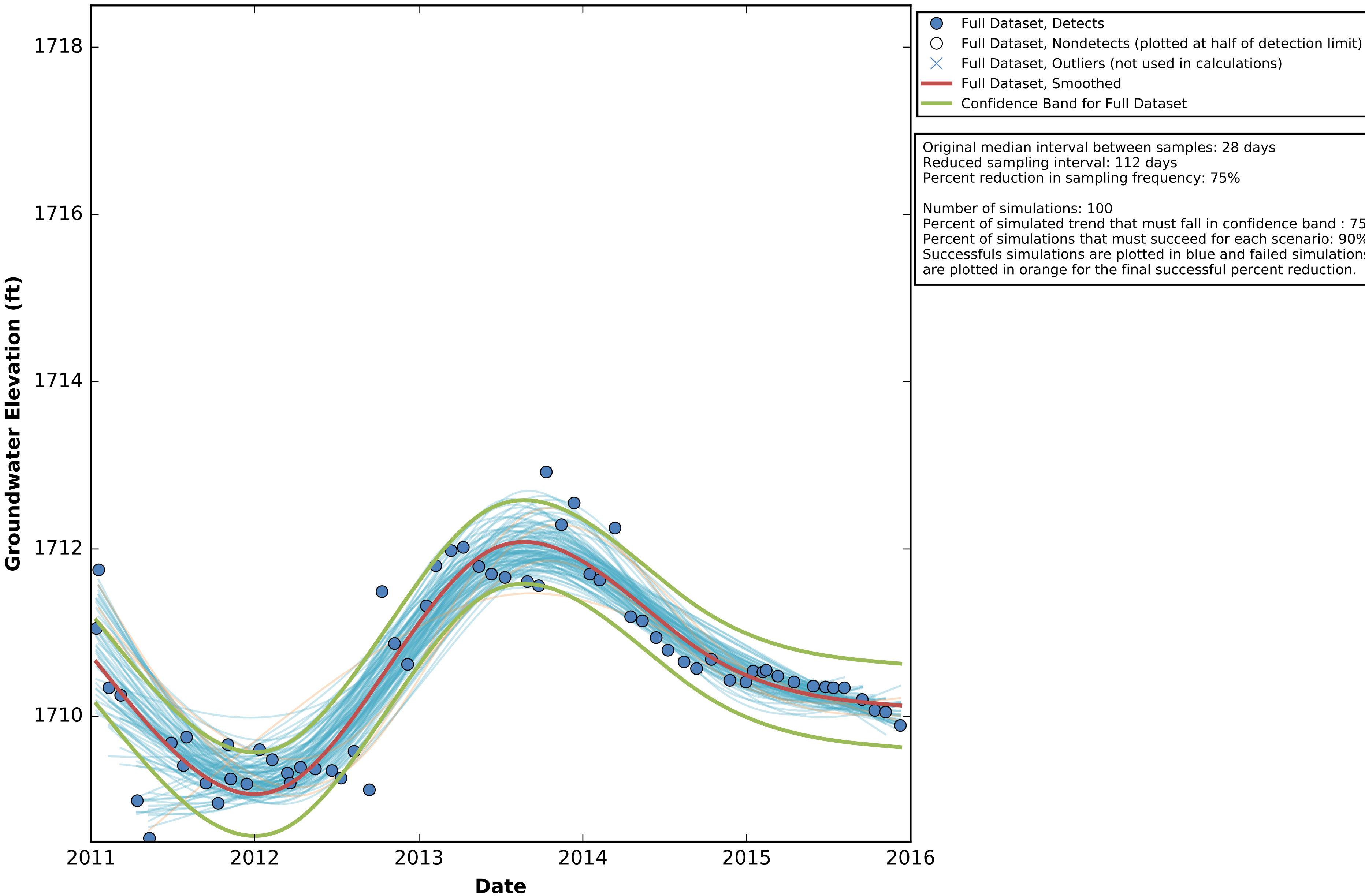
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-81A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-320

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 28 days
Reduced sampling interval: 112 days
Percent reduction in sampling frequency: 75%

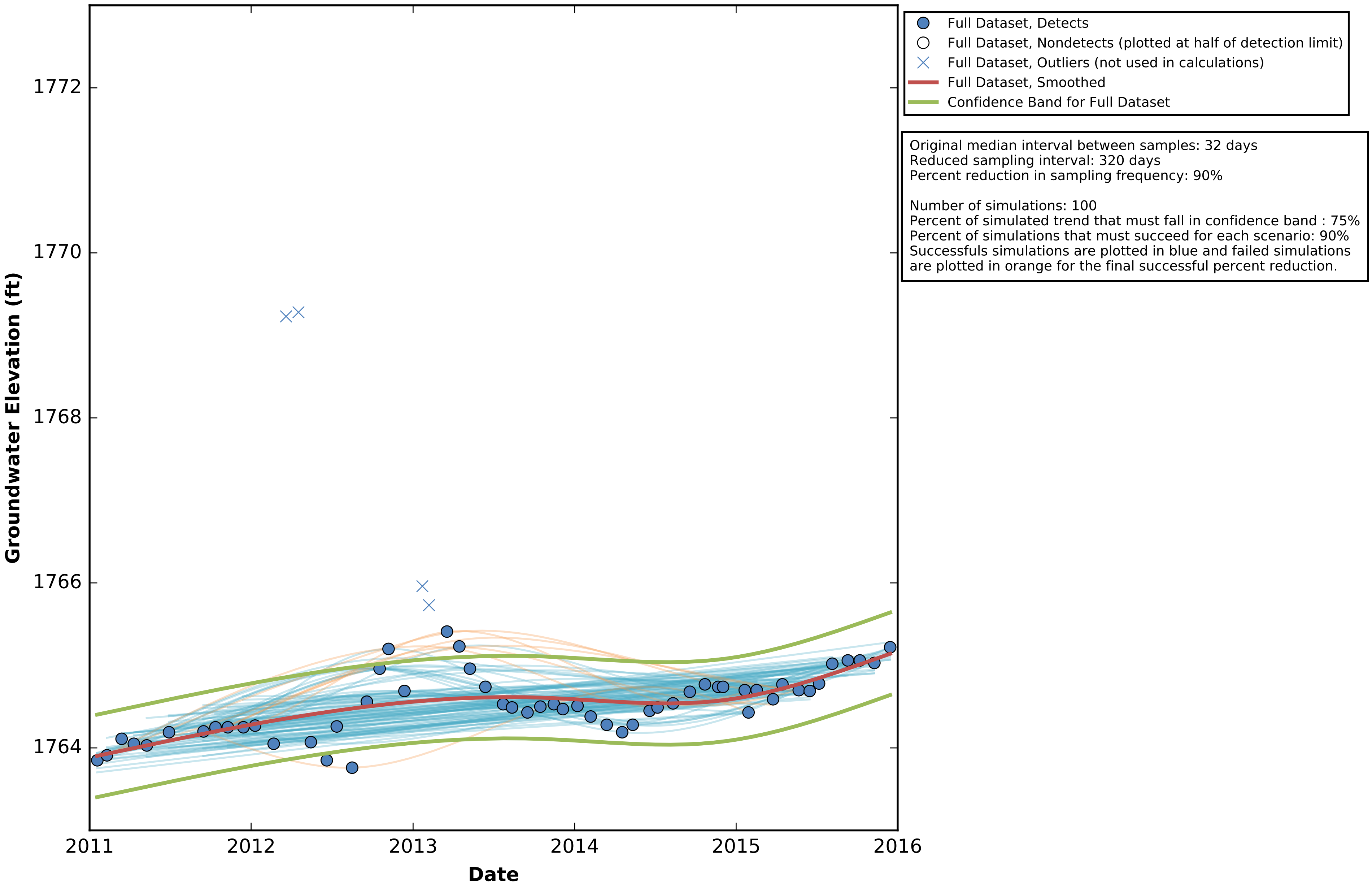
Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Iterative Thinning Results for Groundwater Elevation in M-83
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-321

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



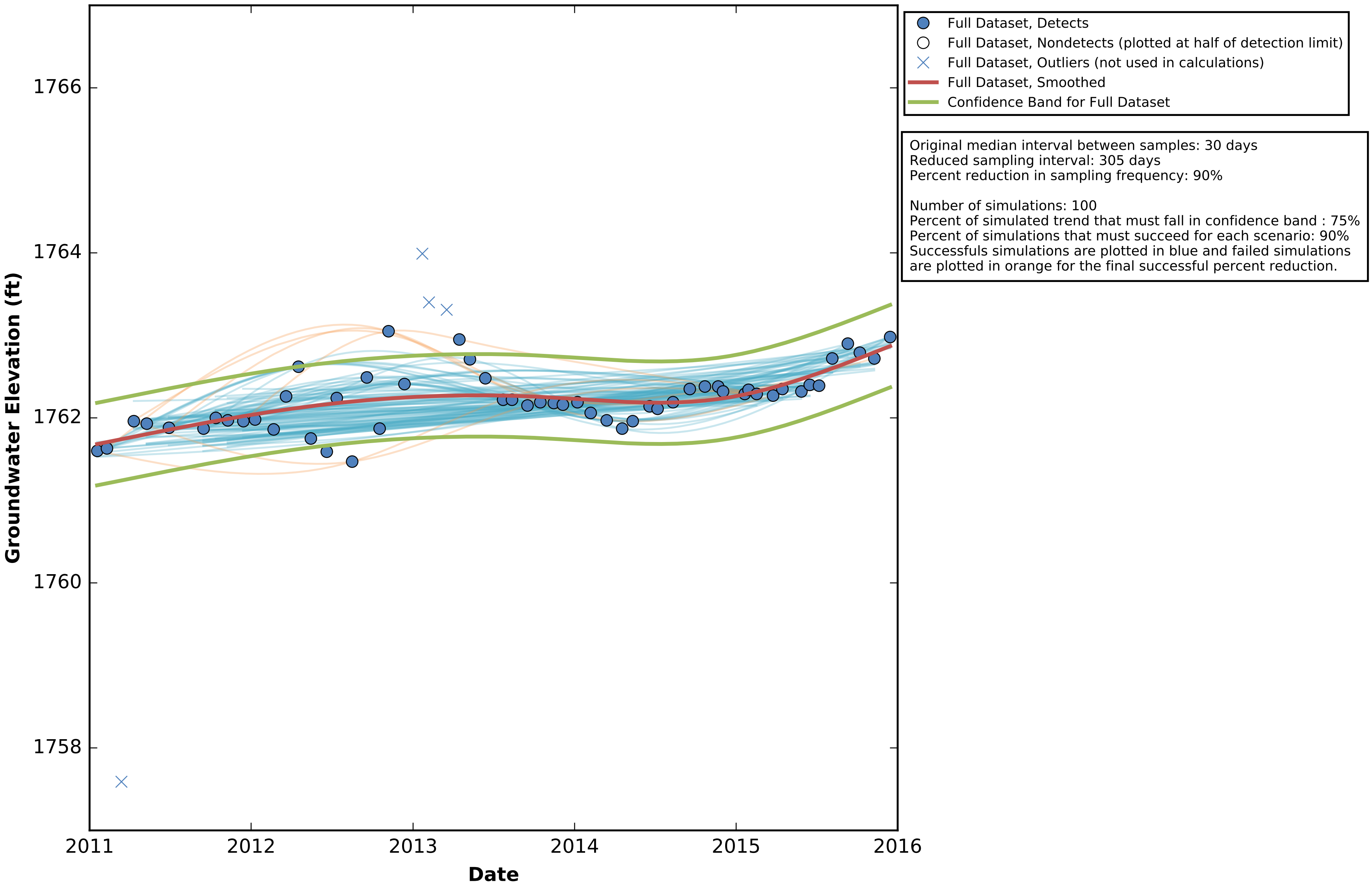
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-92
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-322

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



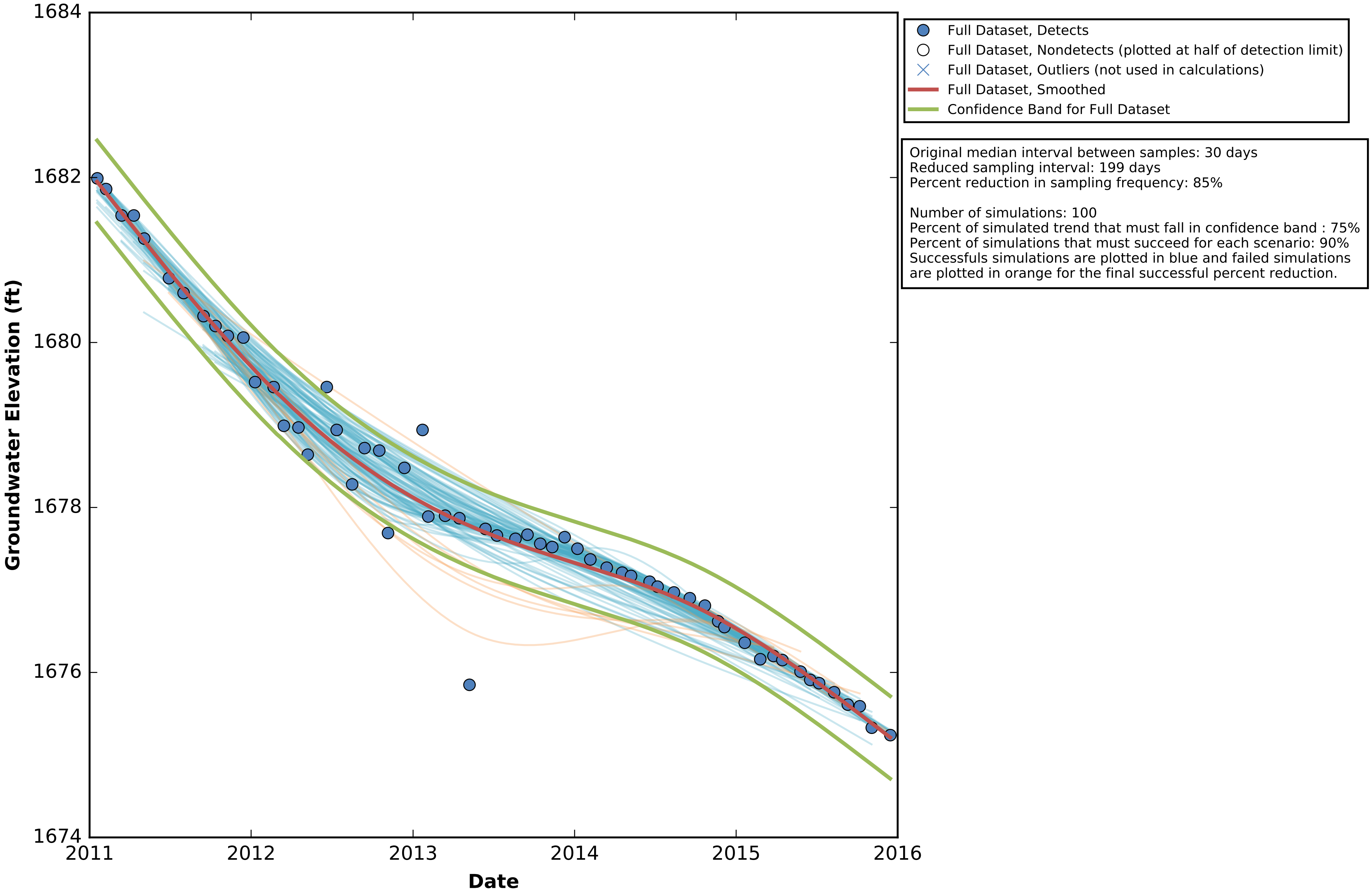
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-93
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-323

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



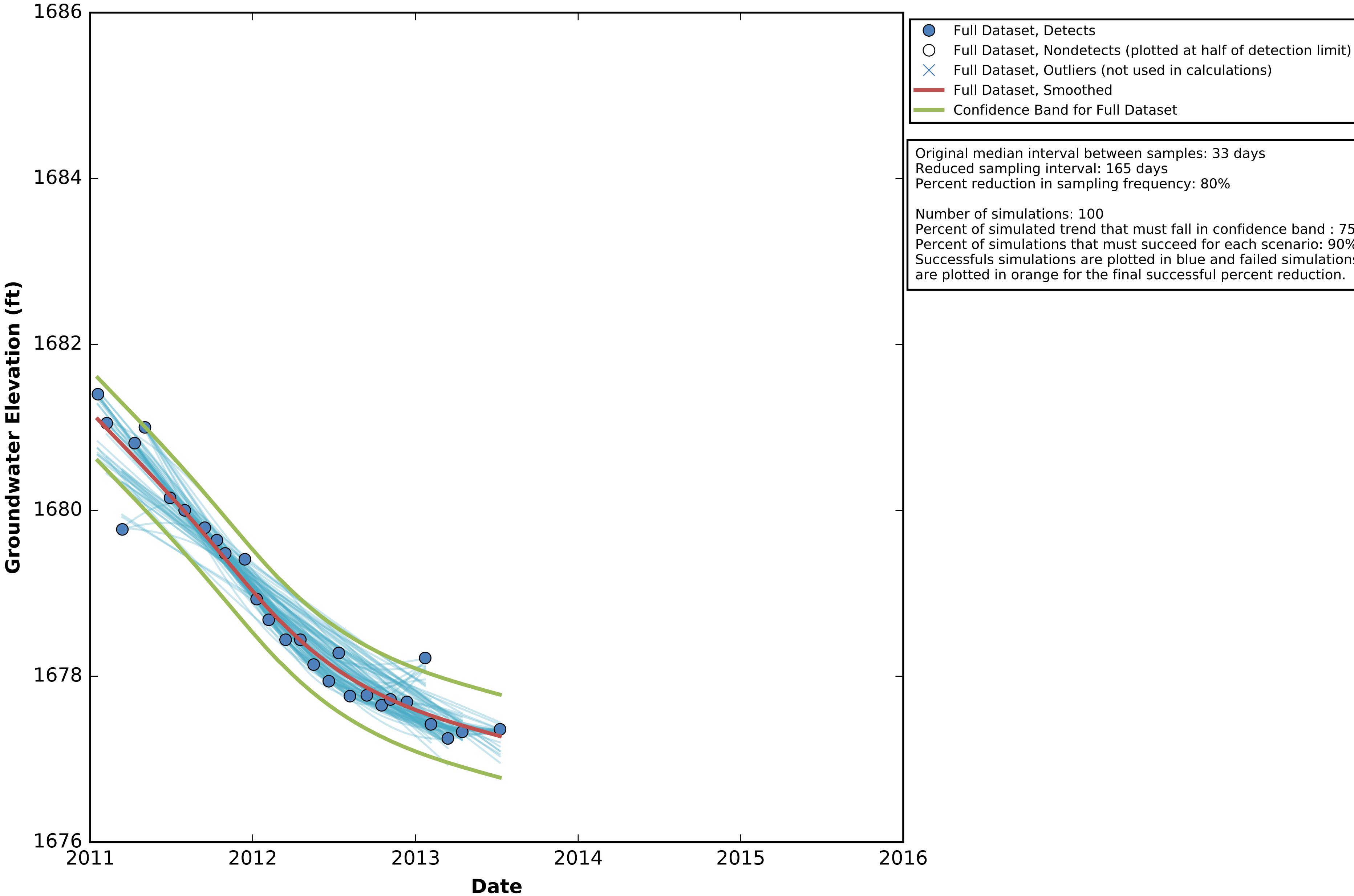
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-95
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-324

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 33 days
Reduced sampling interval: 165 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

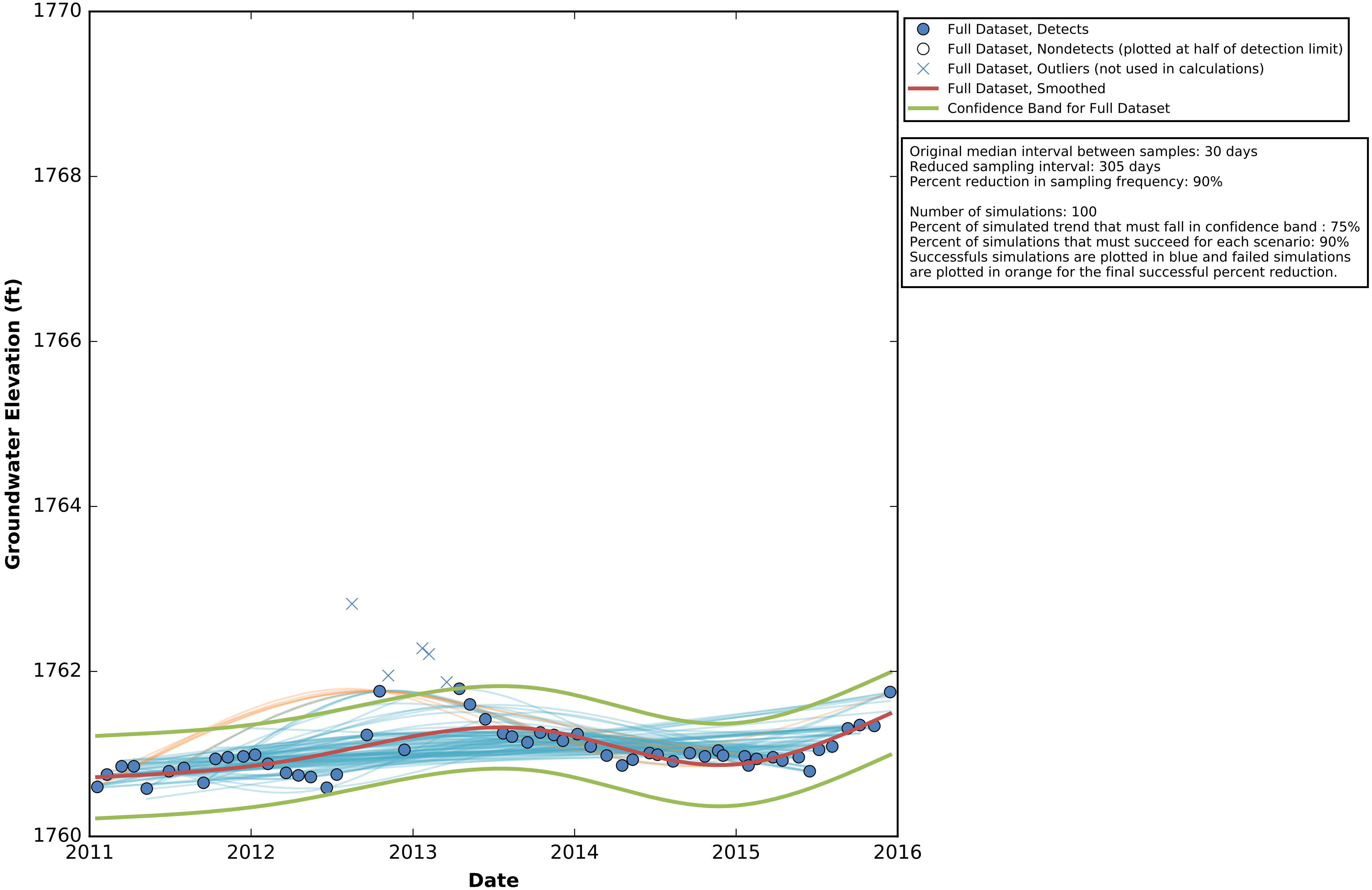
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-96
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-325

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 305 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

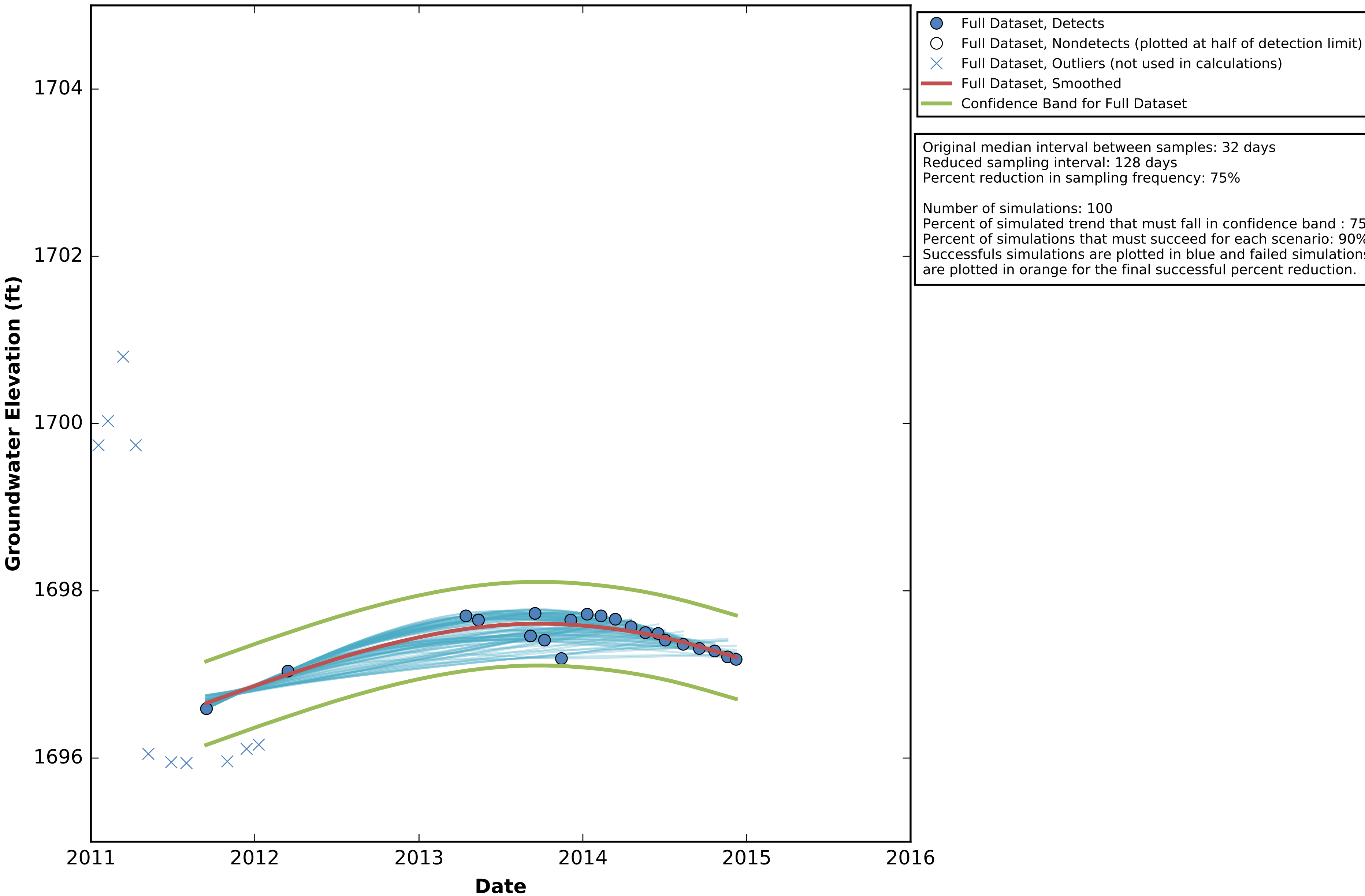
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-97
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-326

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 32 days
Reduced sampling interval: 128 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

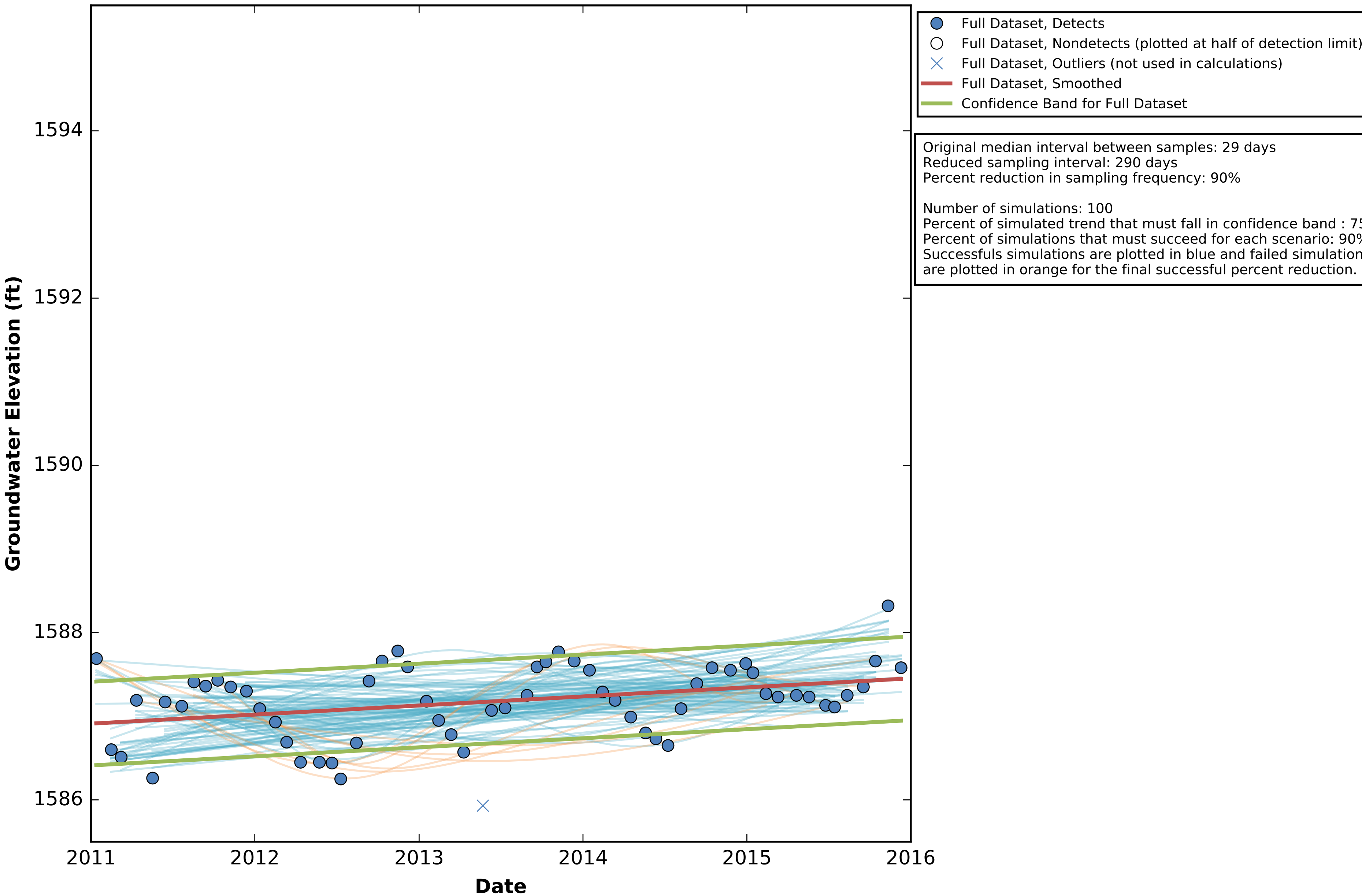
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in M-99
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-327

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 290 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

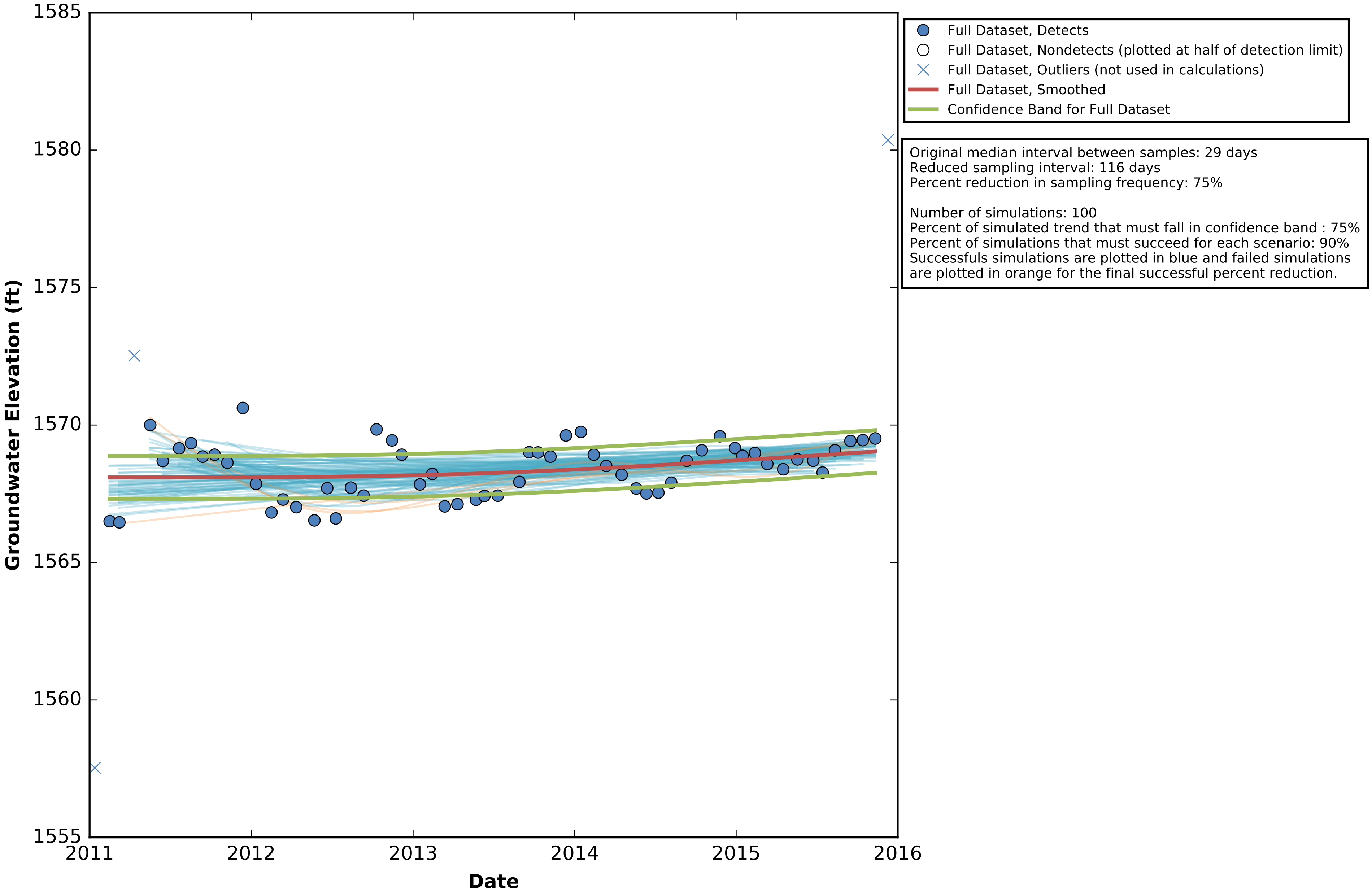
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in MW-K4
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-328

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



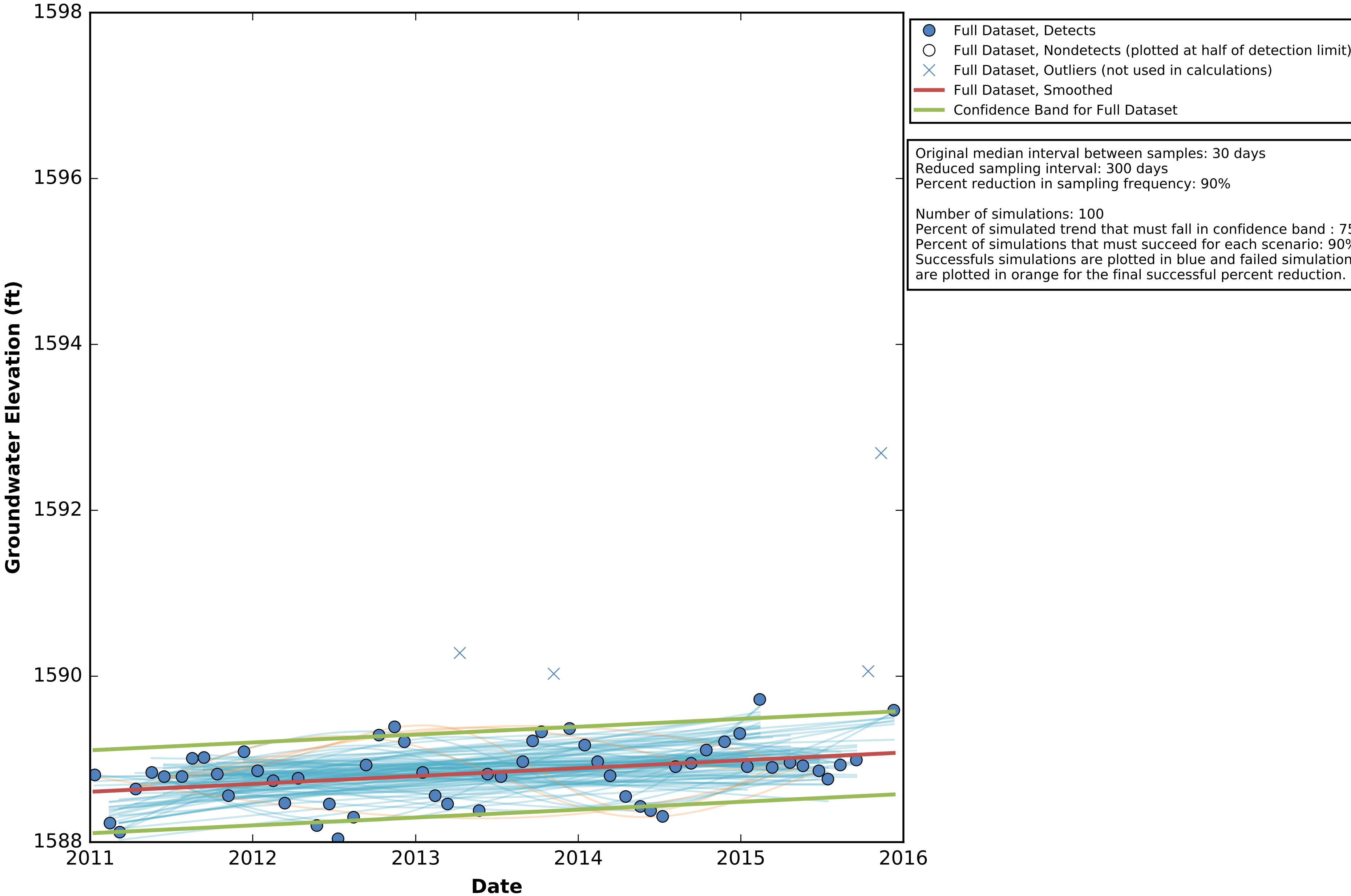
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in MW-K5
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-329

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

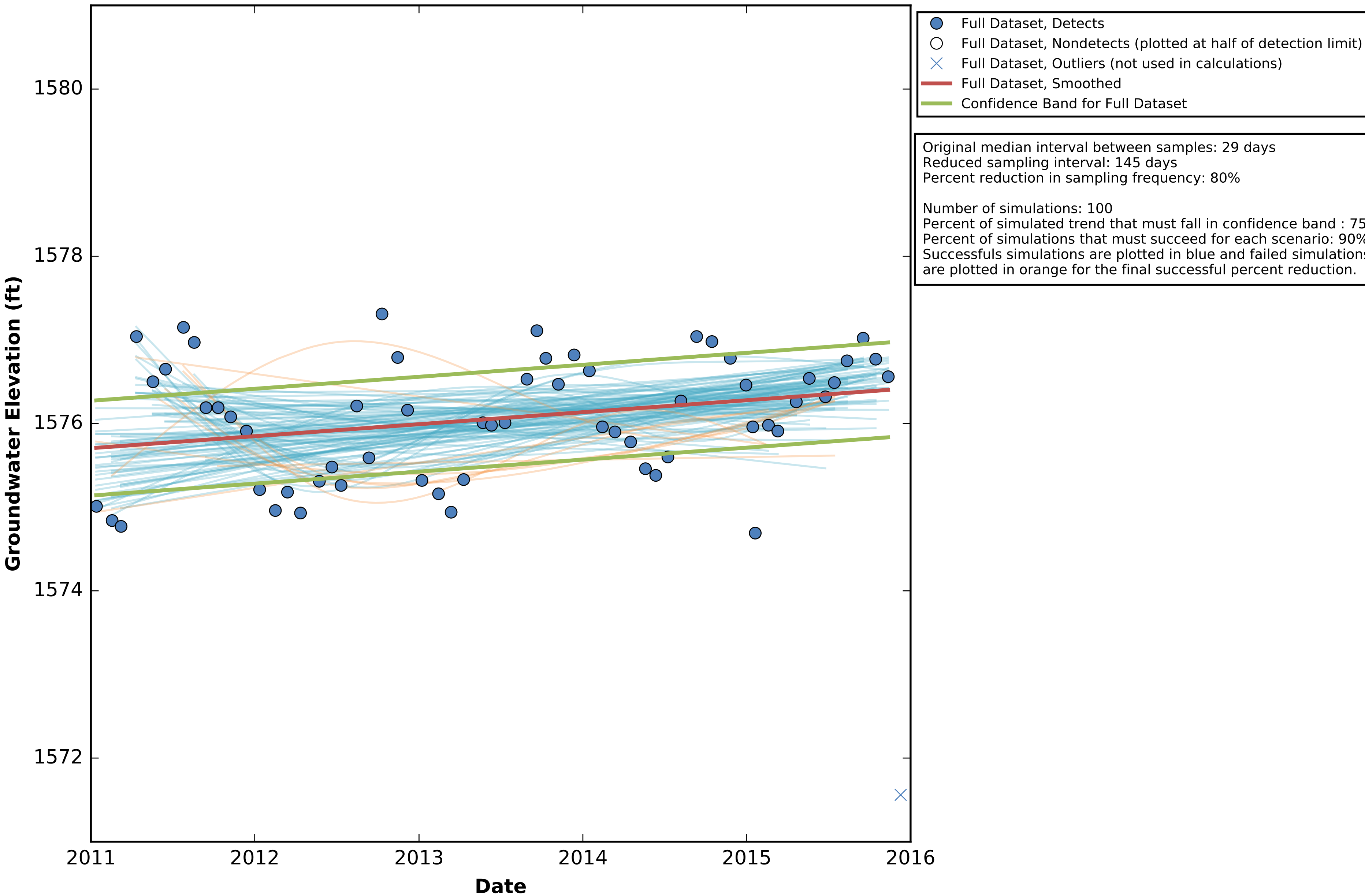
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-101R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-330

Drafter: ERG Date: 04/29/2016 Contract Number: 21-38800A Approved: Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 145 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

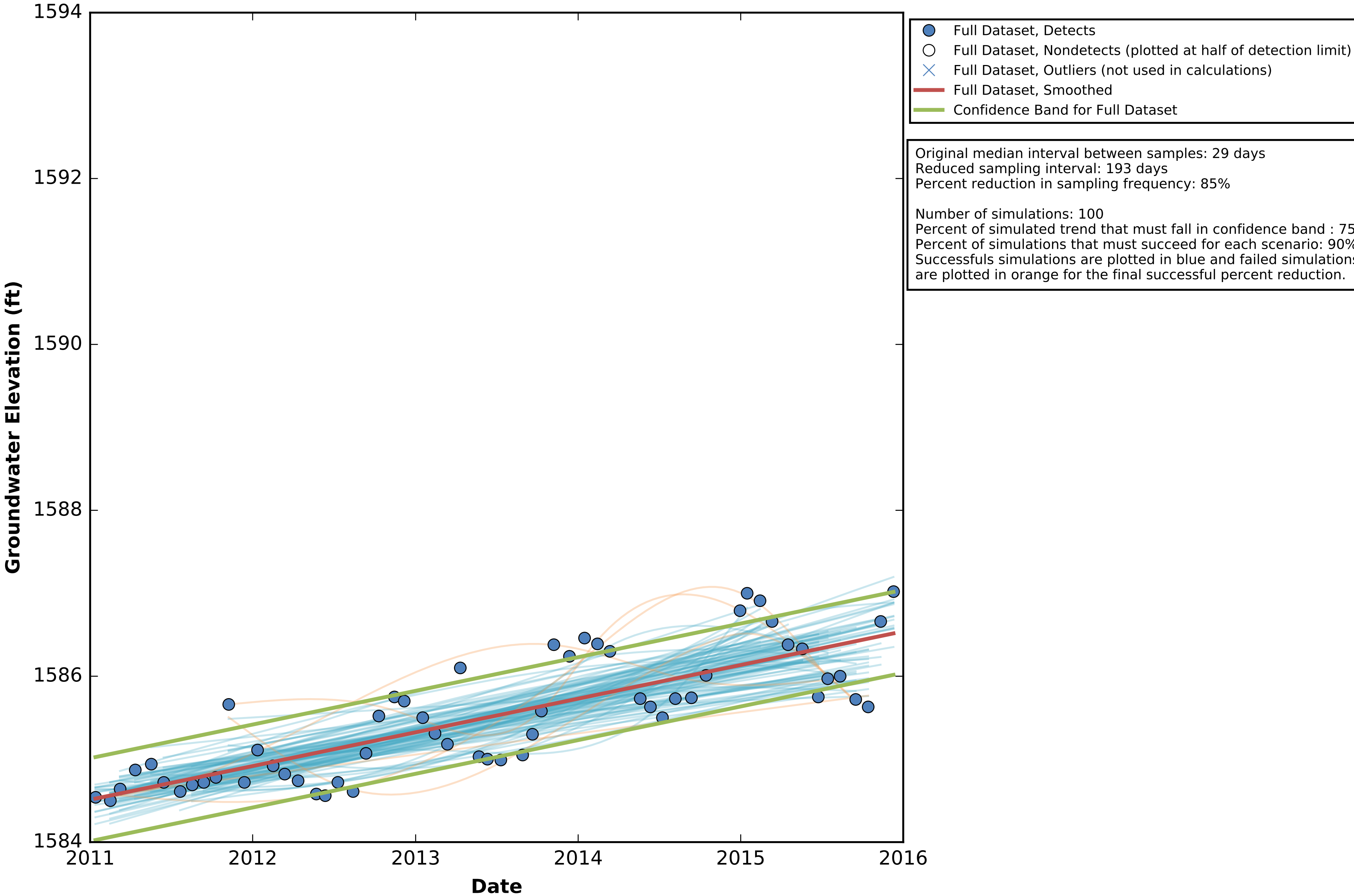
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-103
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-331

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 193 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

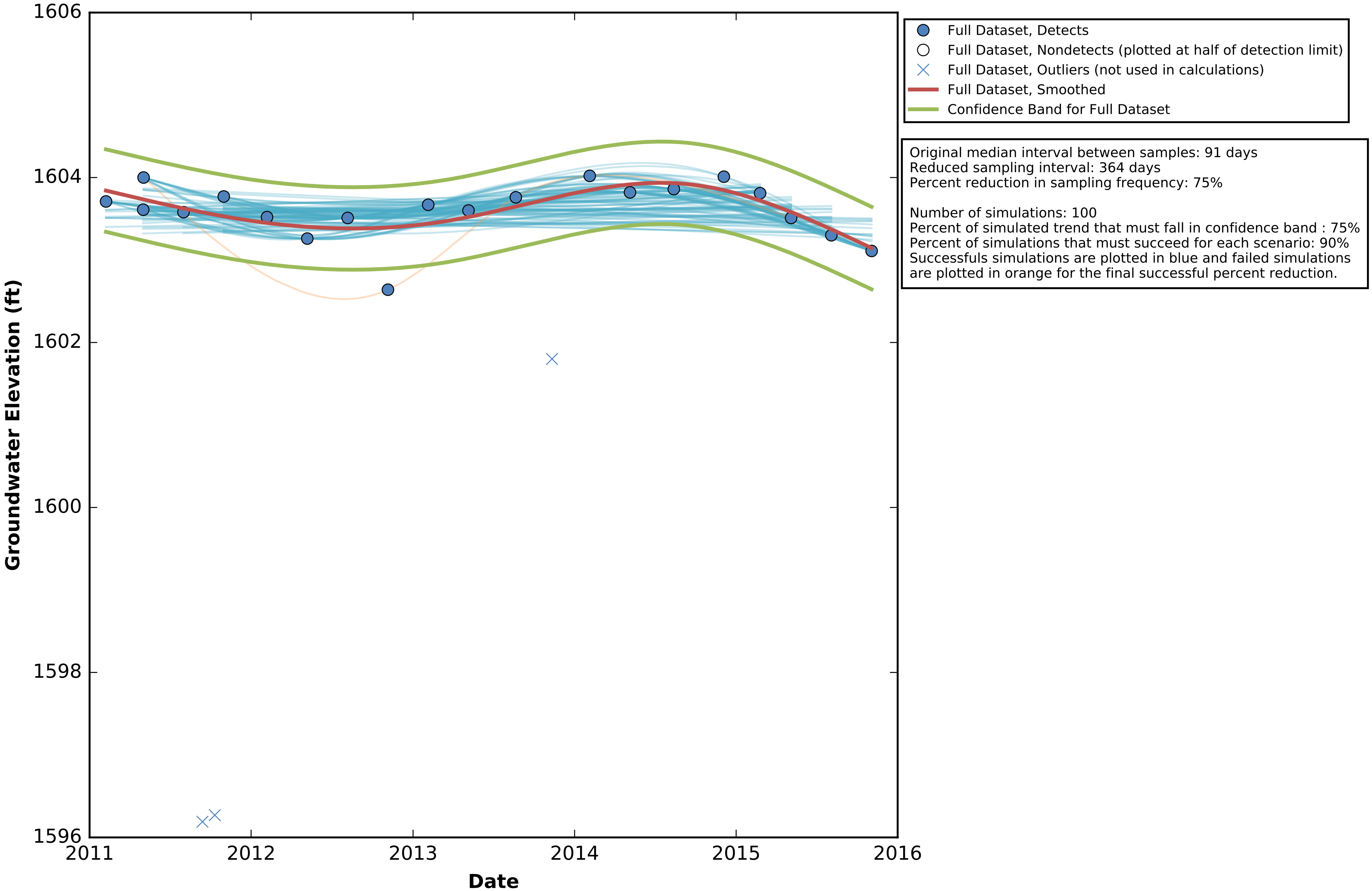
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-122
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-332

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



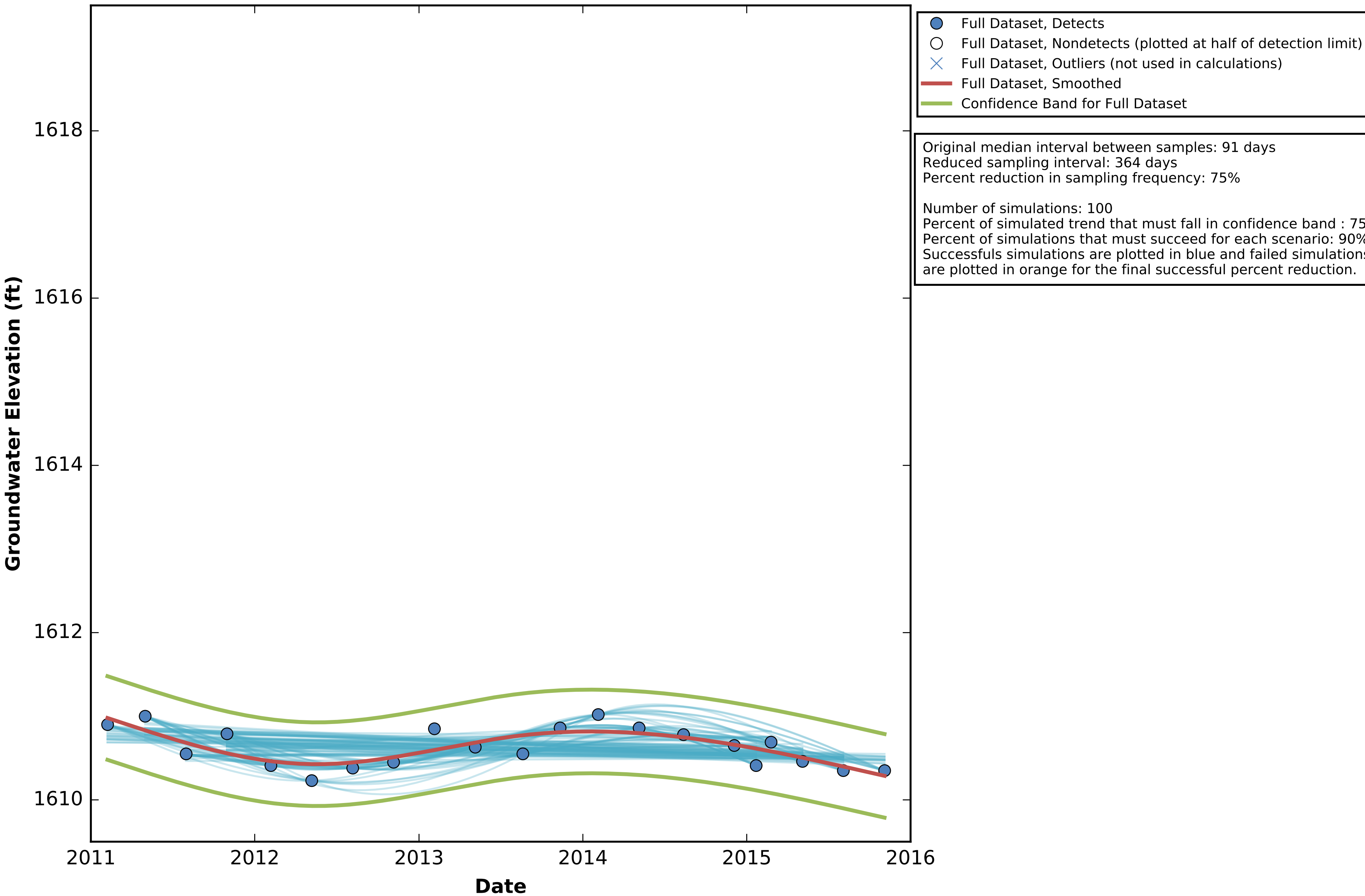
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-123
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-333

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

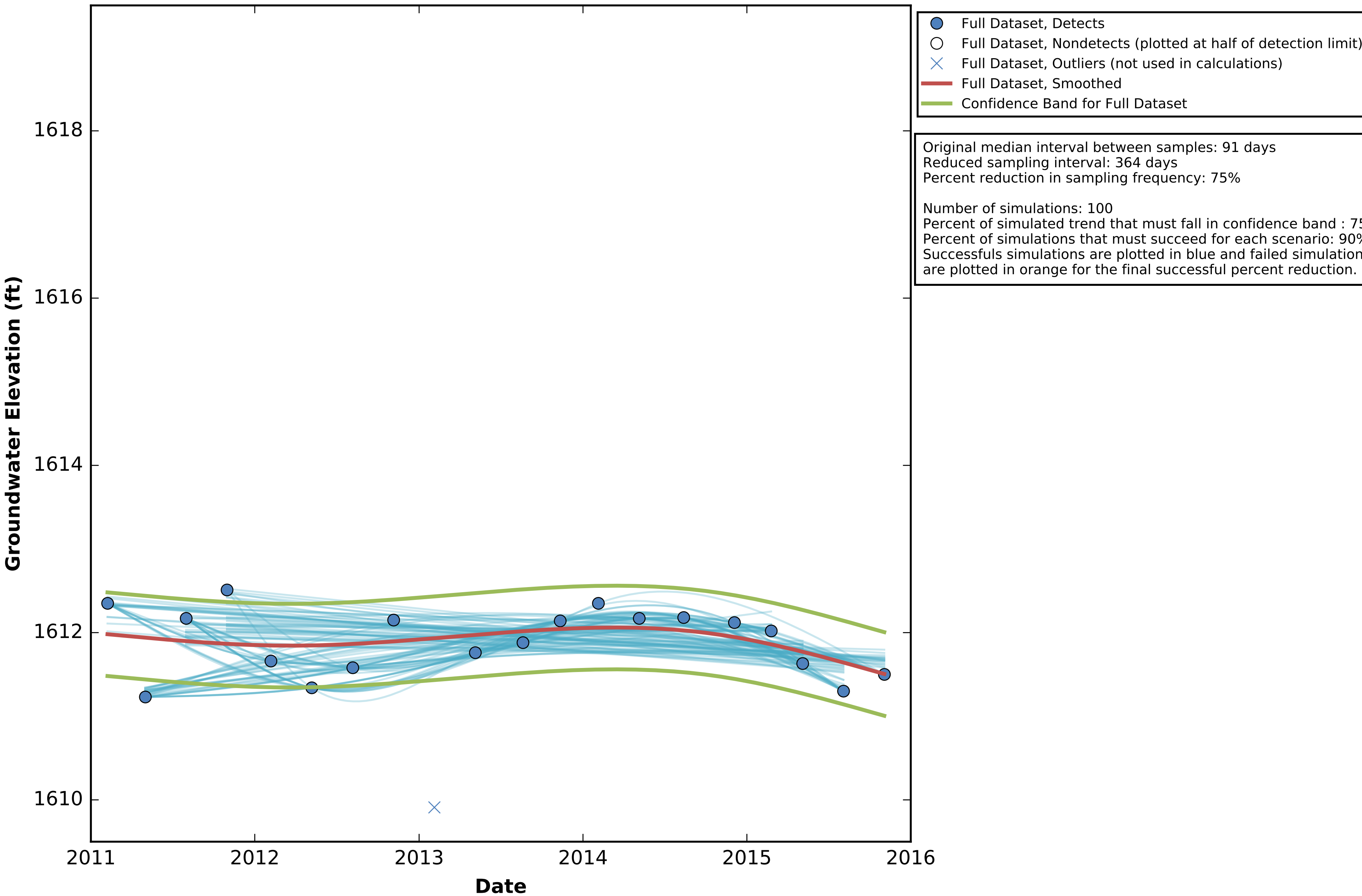
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-124
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-334

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

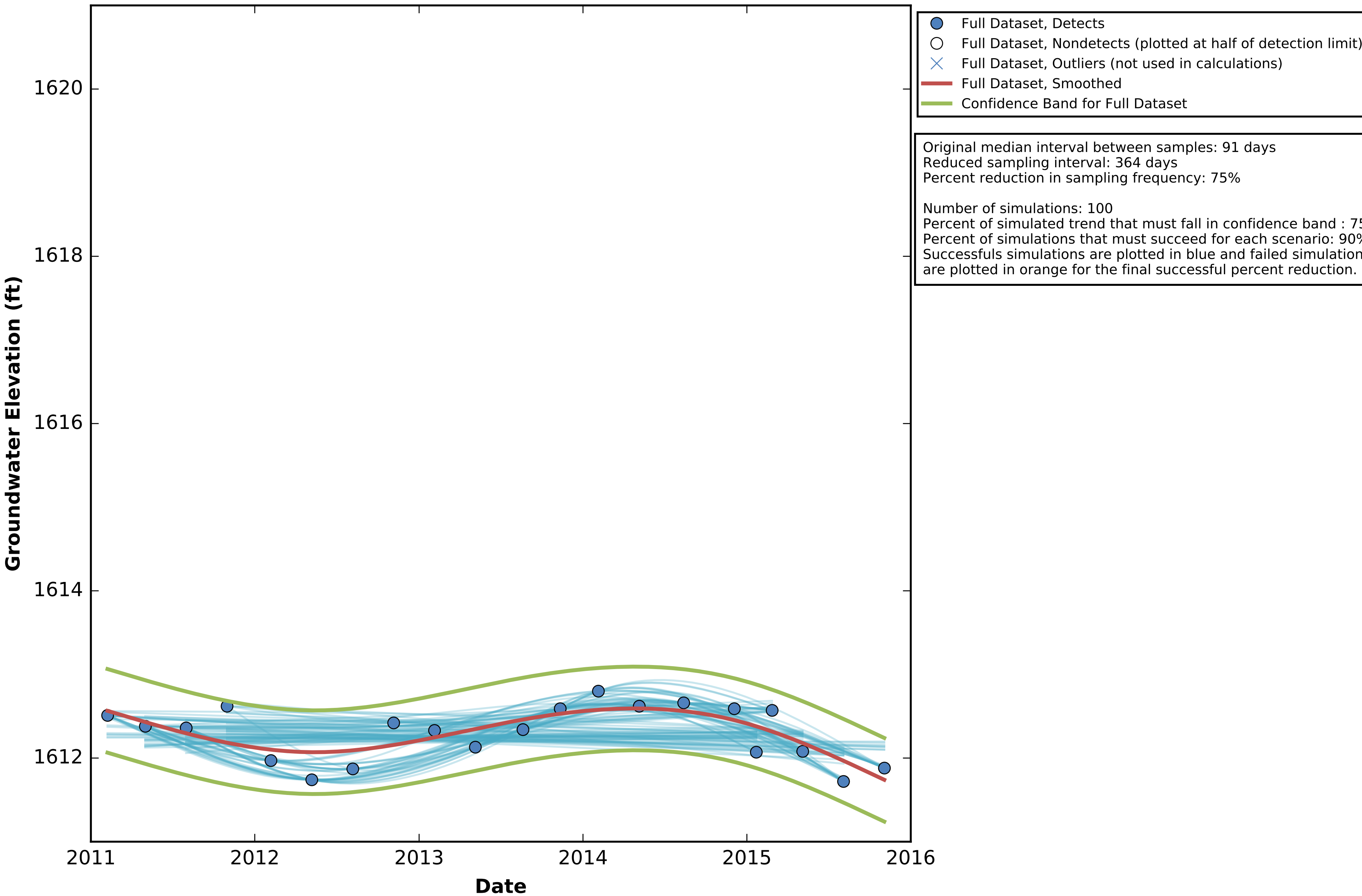
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-125
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-335

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

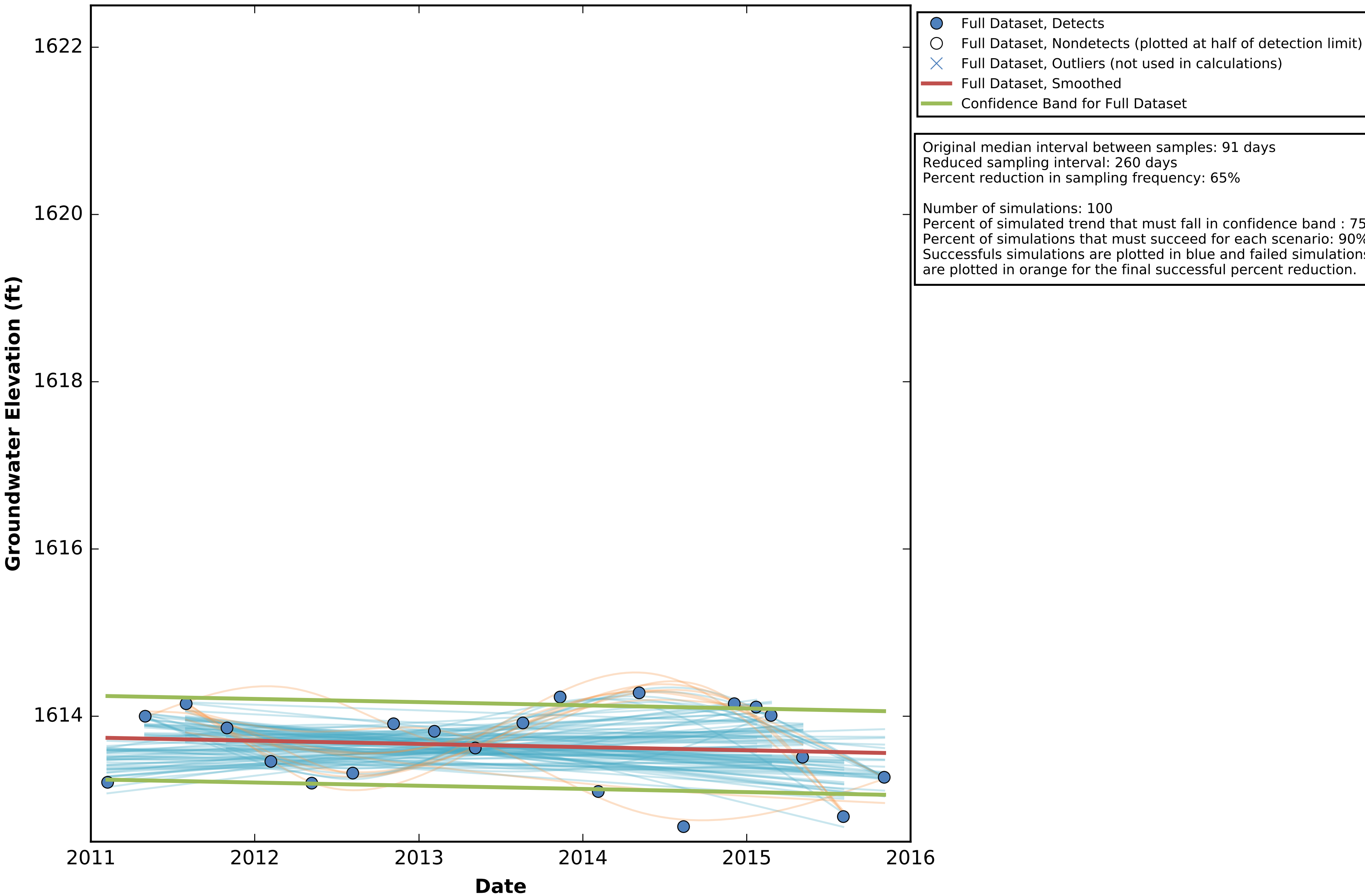
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-126
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-336

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

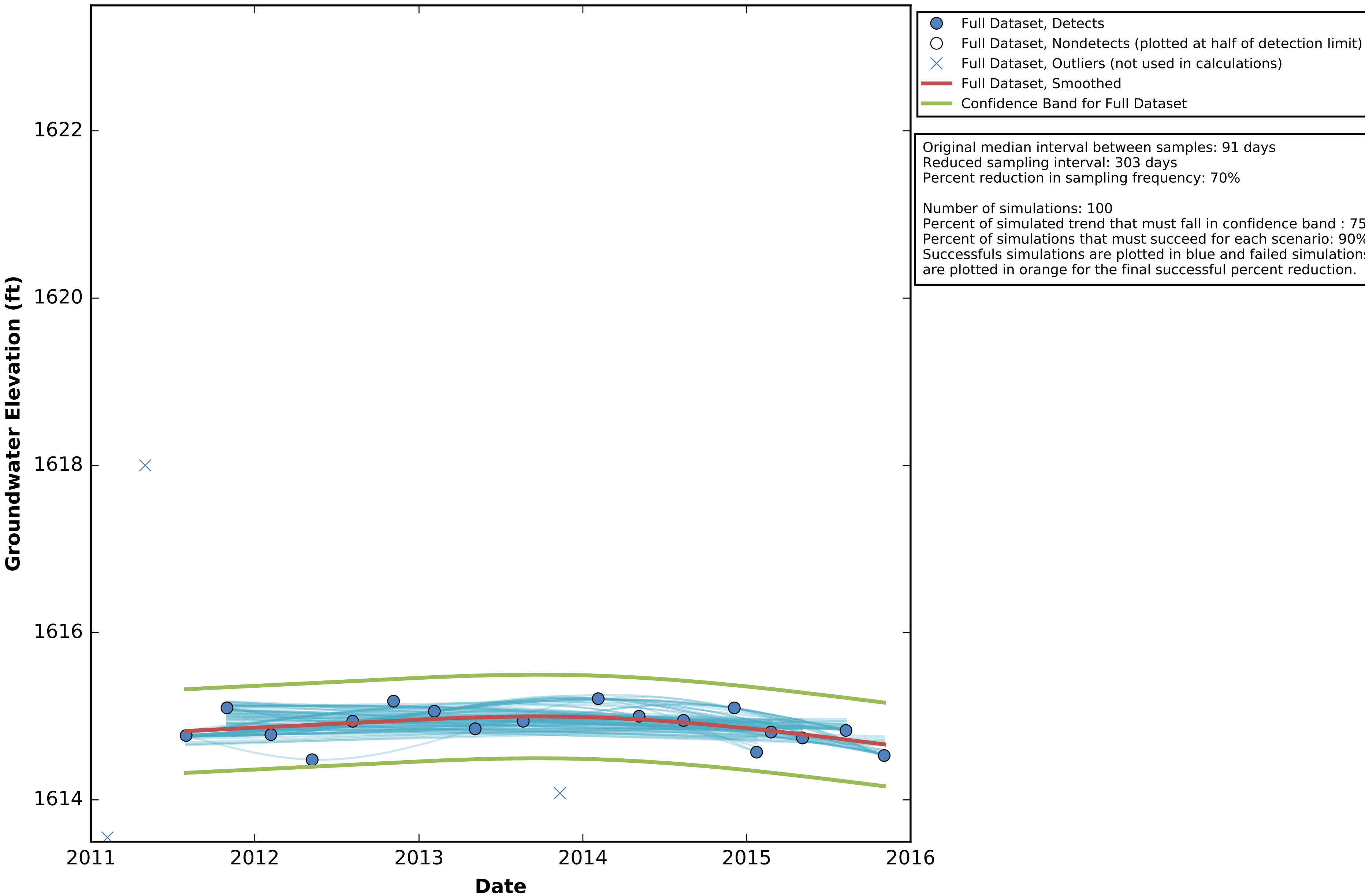
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-127
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-337

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

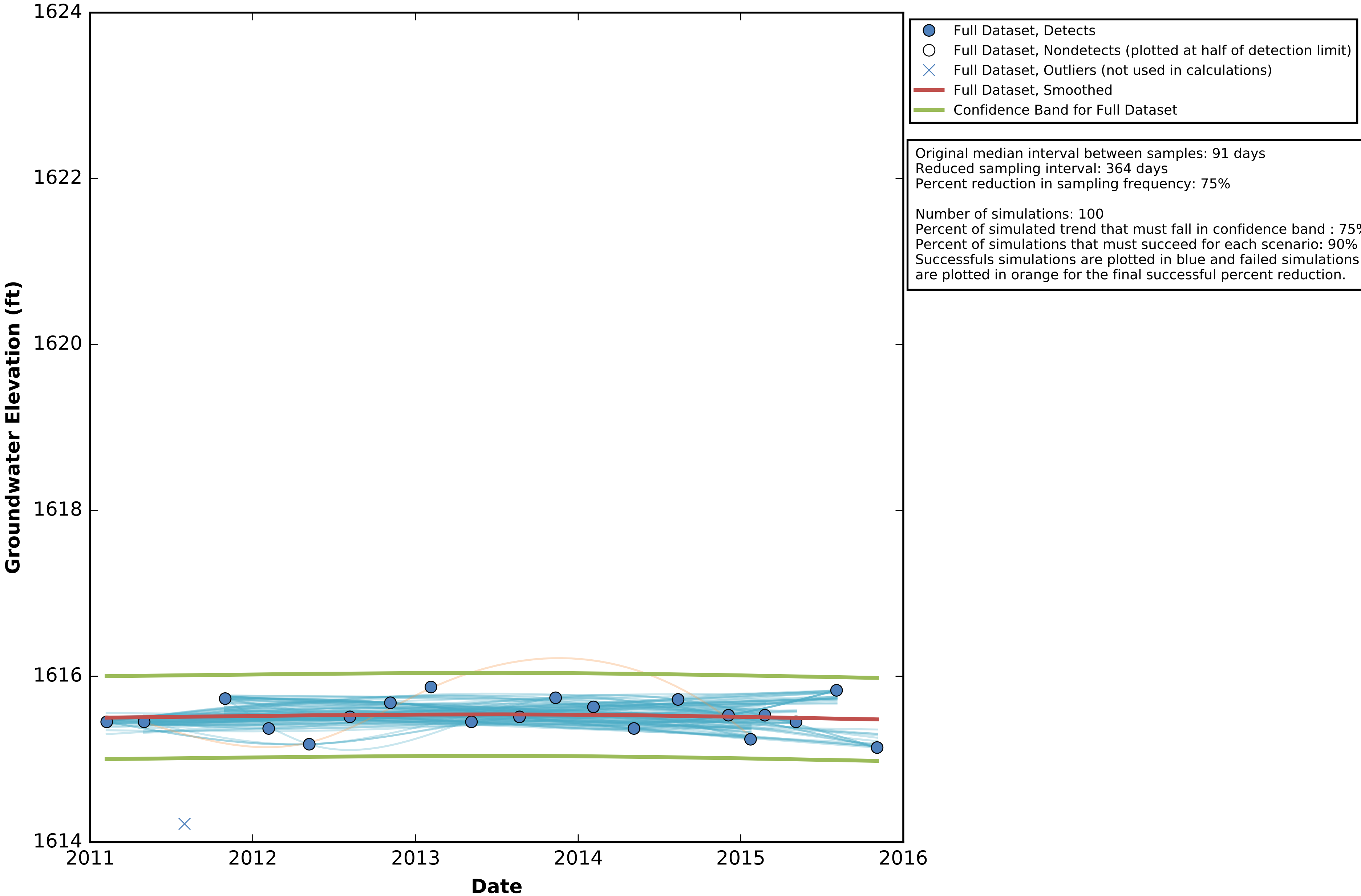
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-128
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-338

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

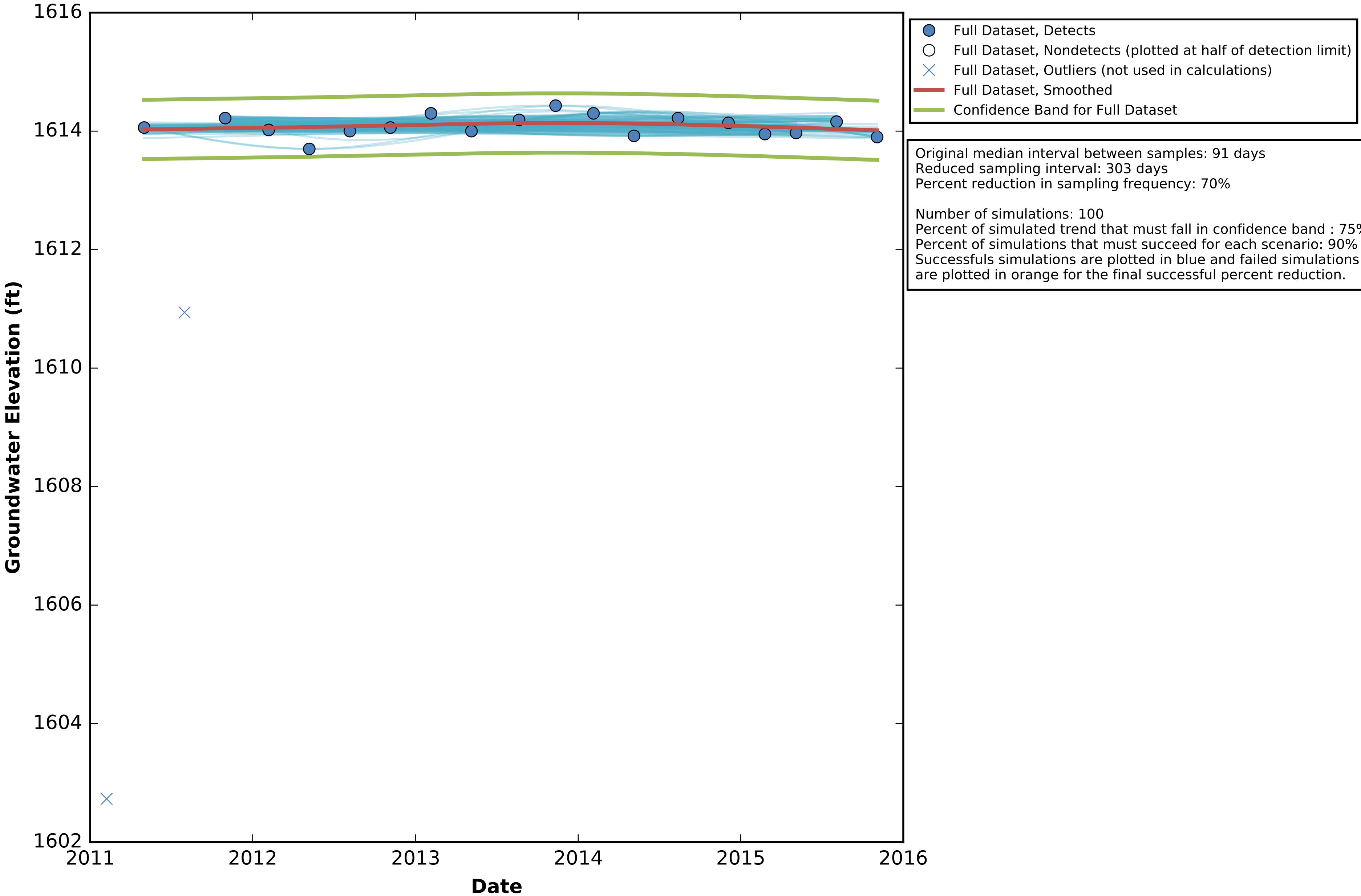
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-129
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-339

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

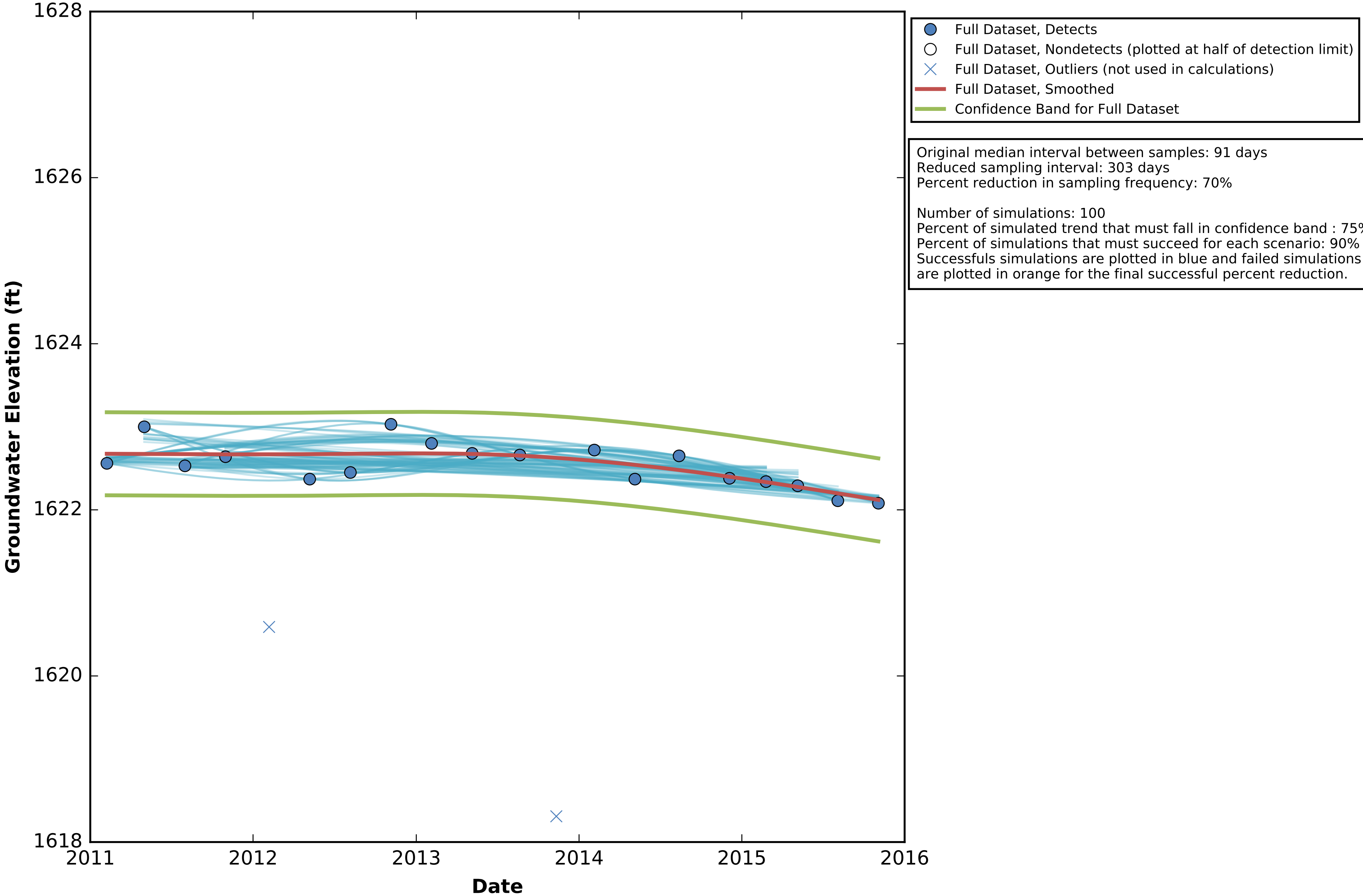
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-130
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-340

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 303 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

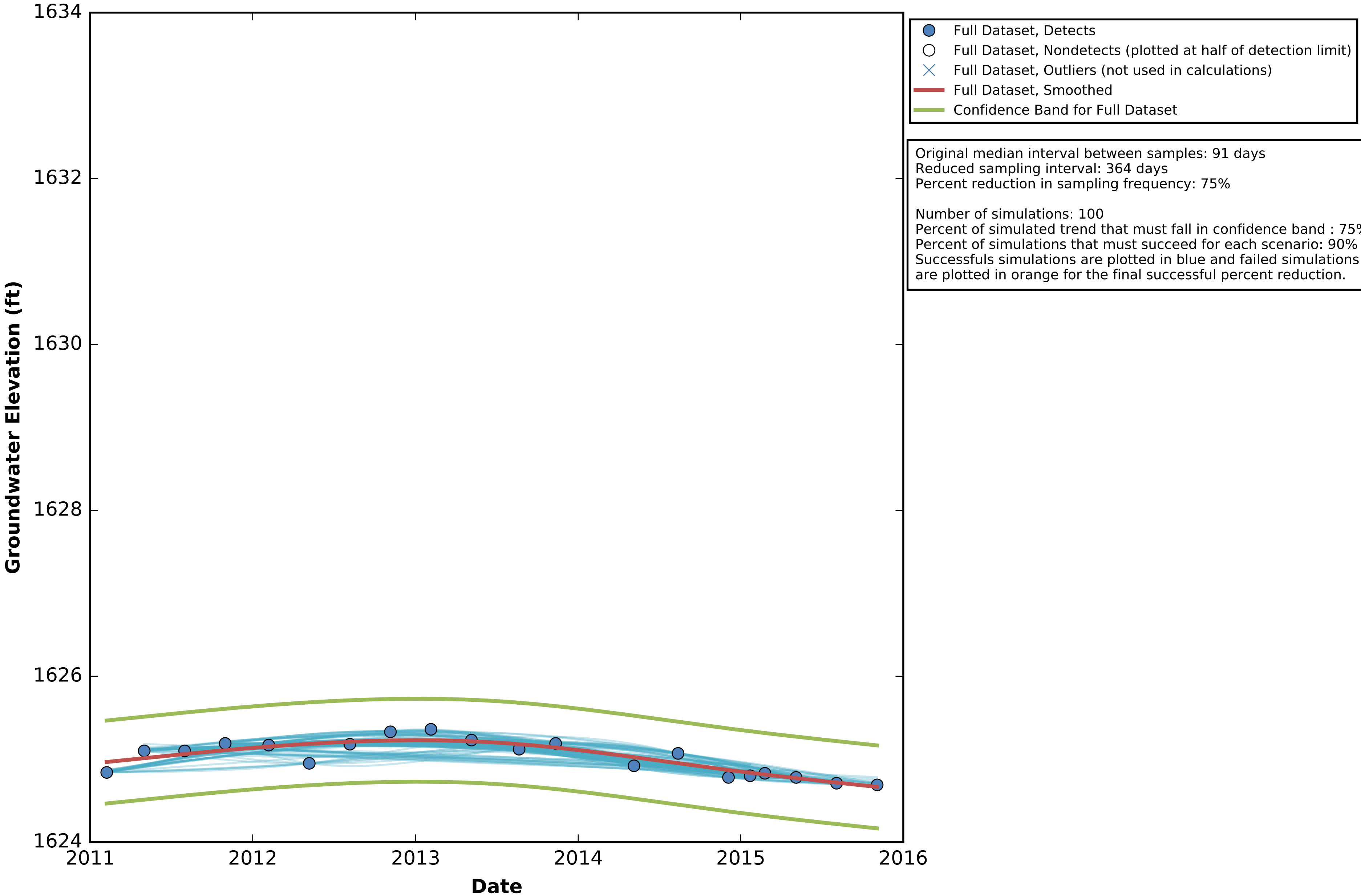
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-131
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-341

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 364 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

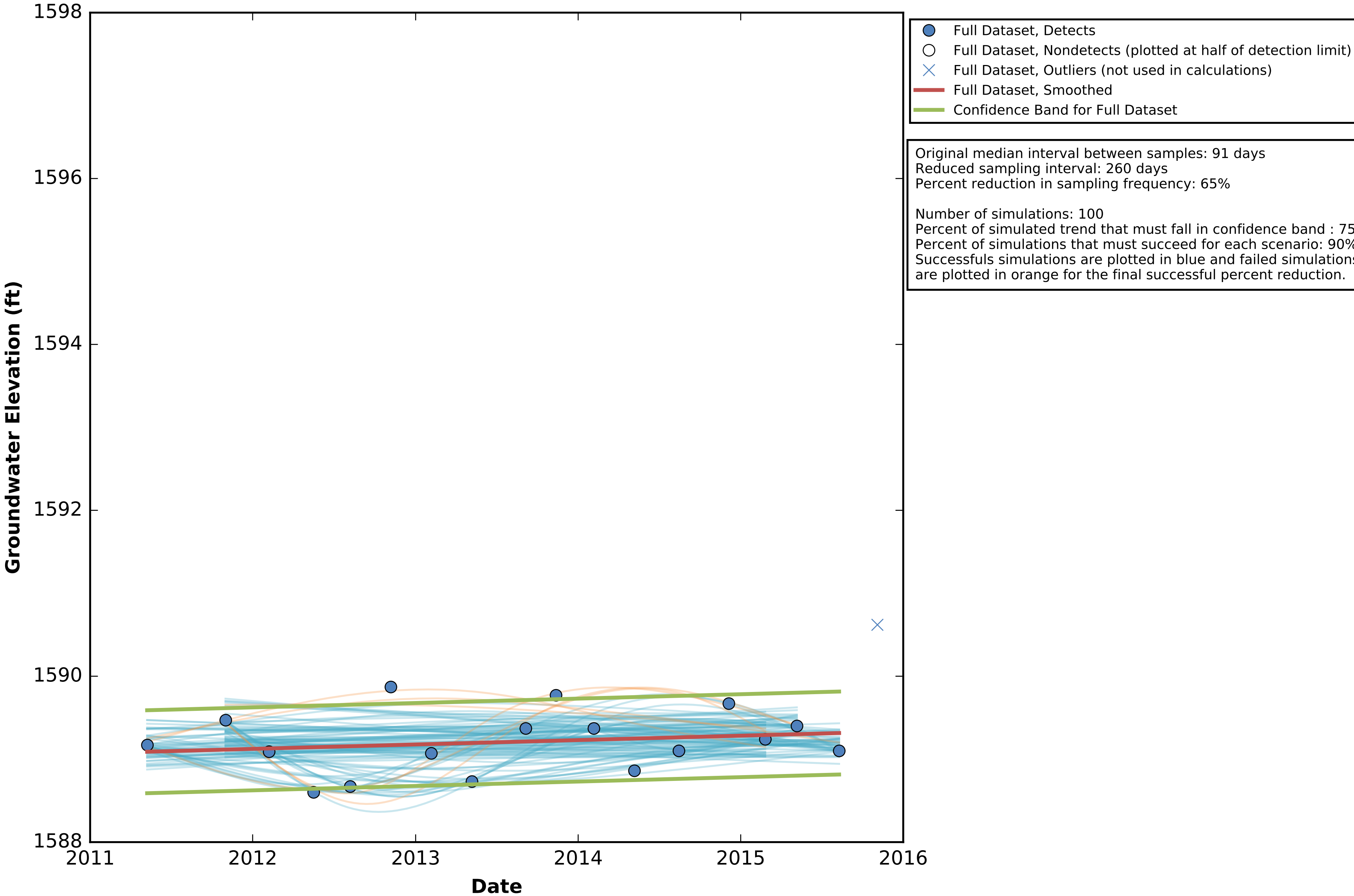
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-132
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-342

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

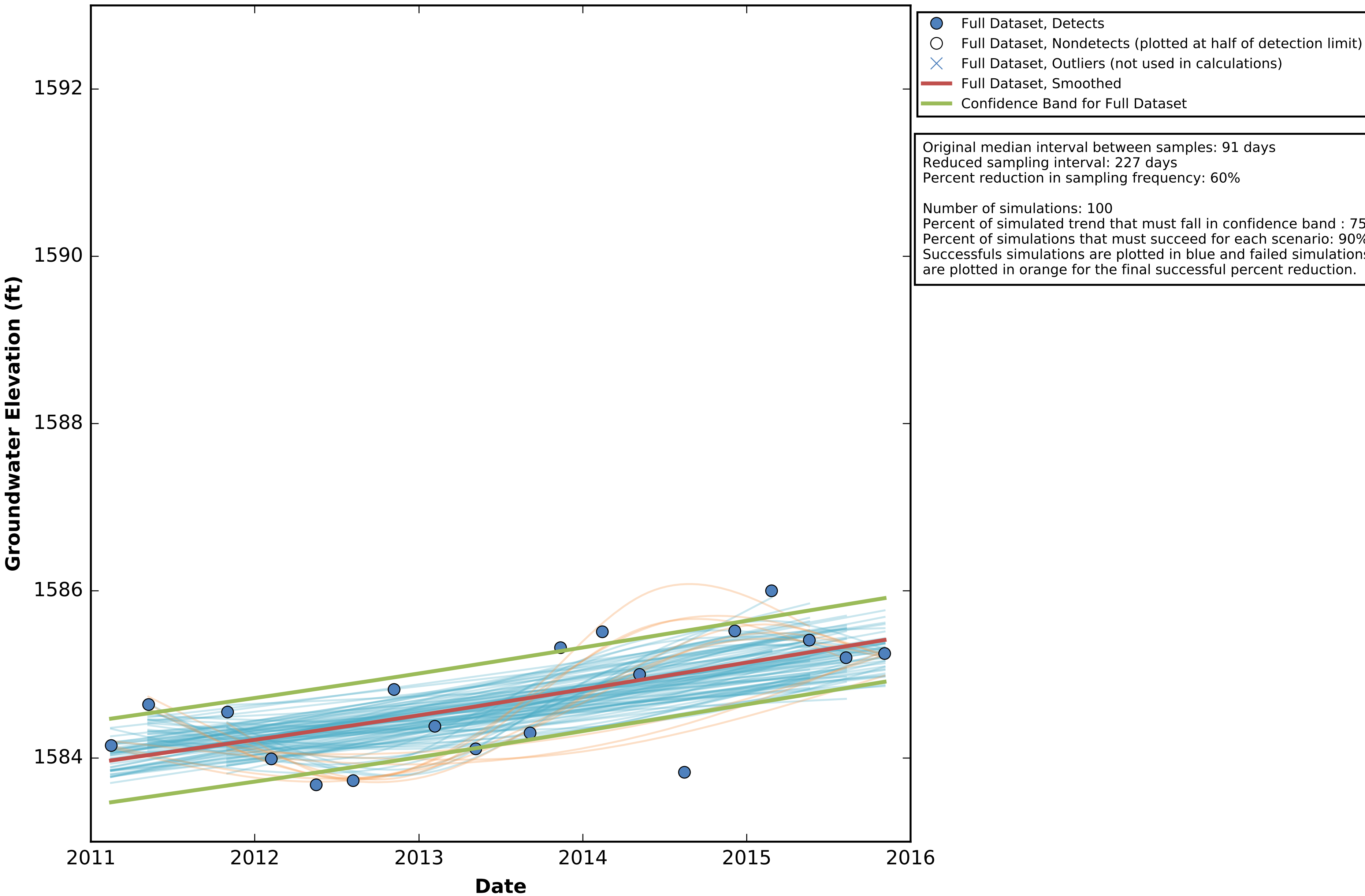
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-135A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-343

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 227 days
Percent reduction in sampling frequency: 60%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

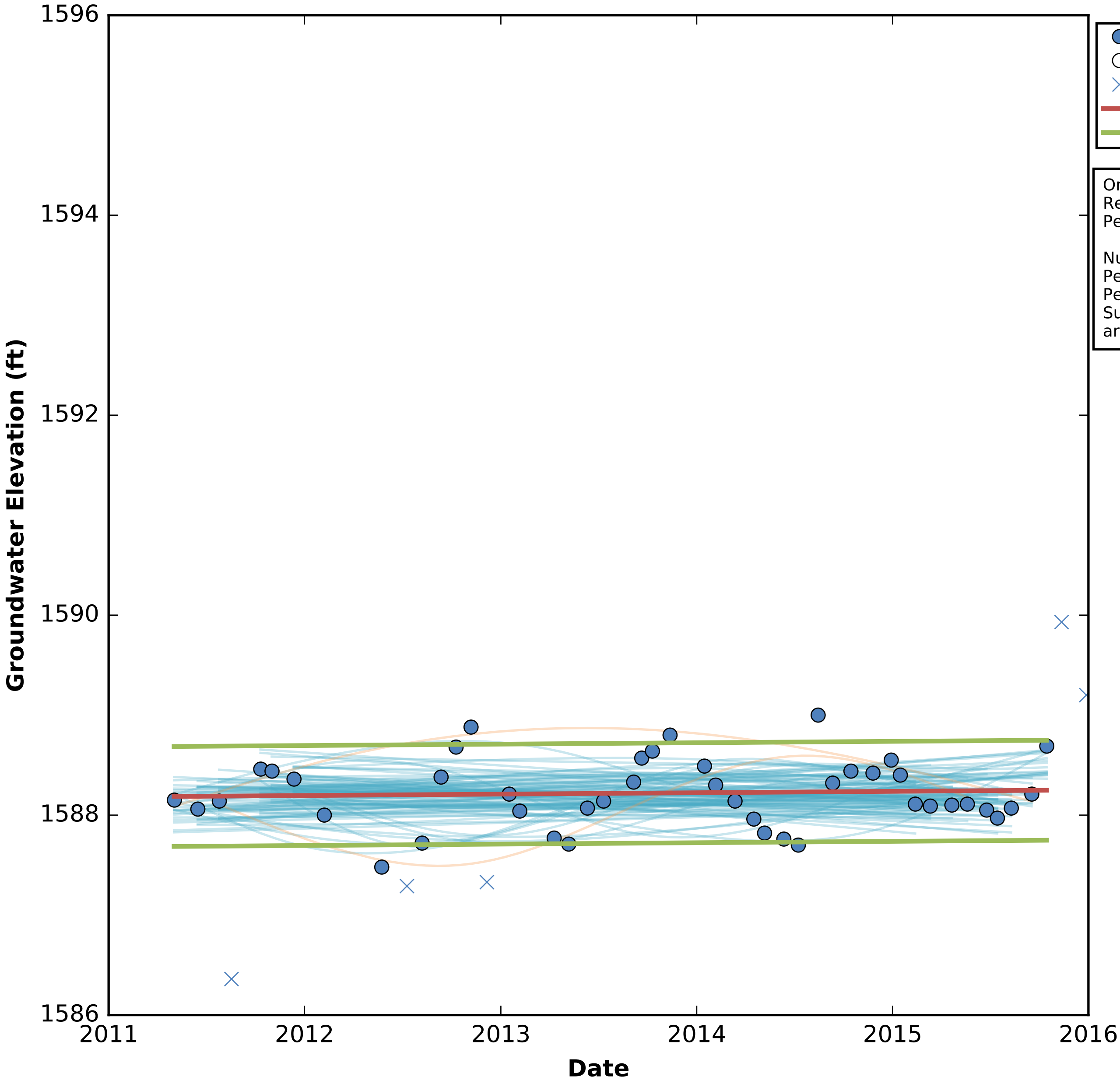
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-136
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-344

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 34 days
Reduced sampling interval: 226 days
Percent reduction in sampling frequency: 85%

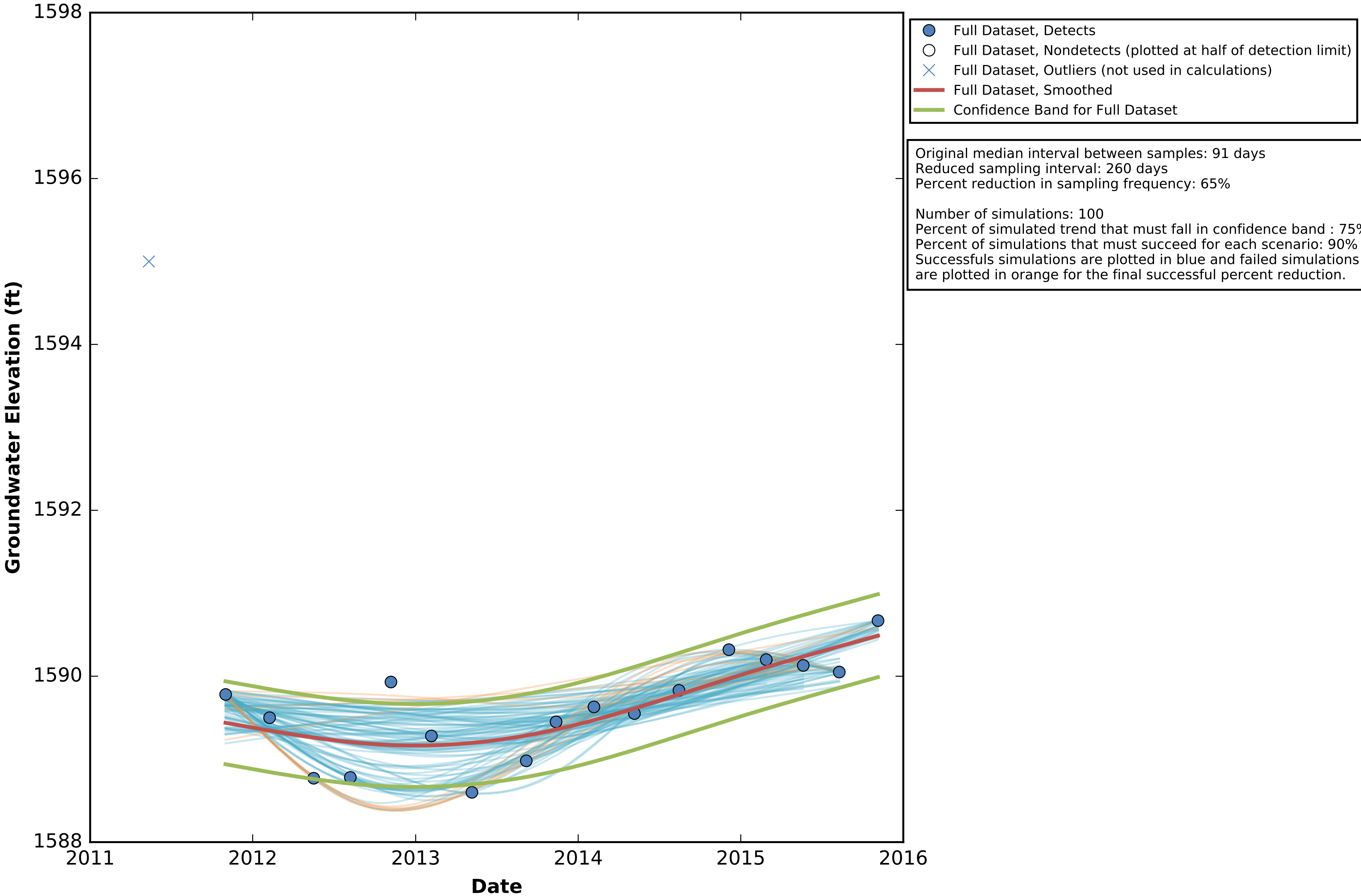
Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

Iterative Thinning Results for Groundwater Elevation in PC-144
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-345

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 91 days
Reduced sampling interval: 260 days
Percent reduction in sampling frequency: 65%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

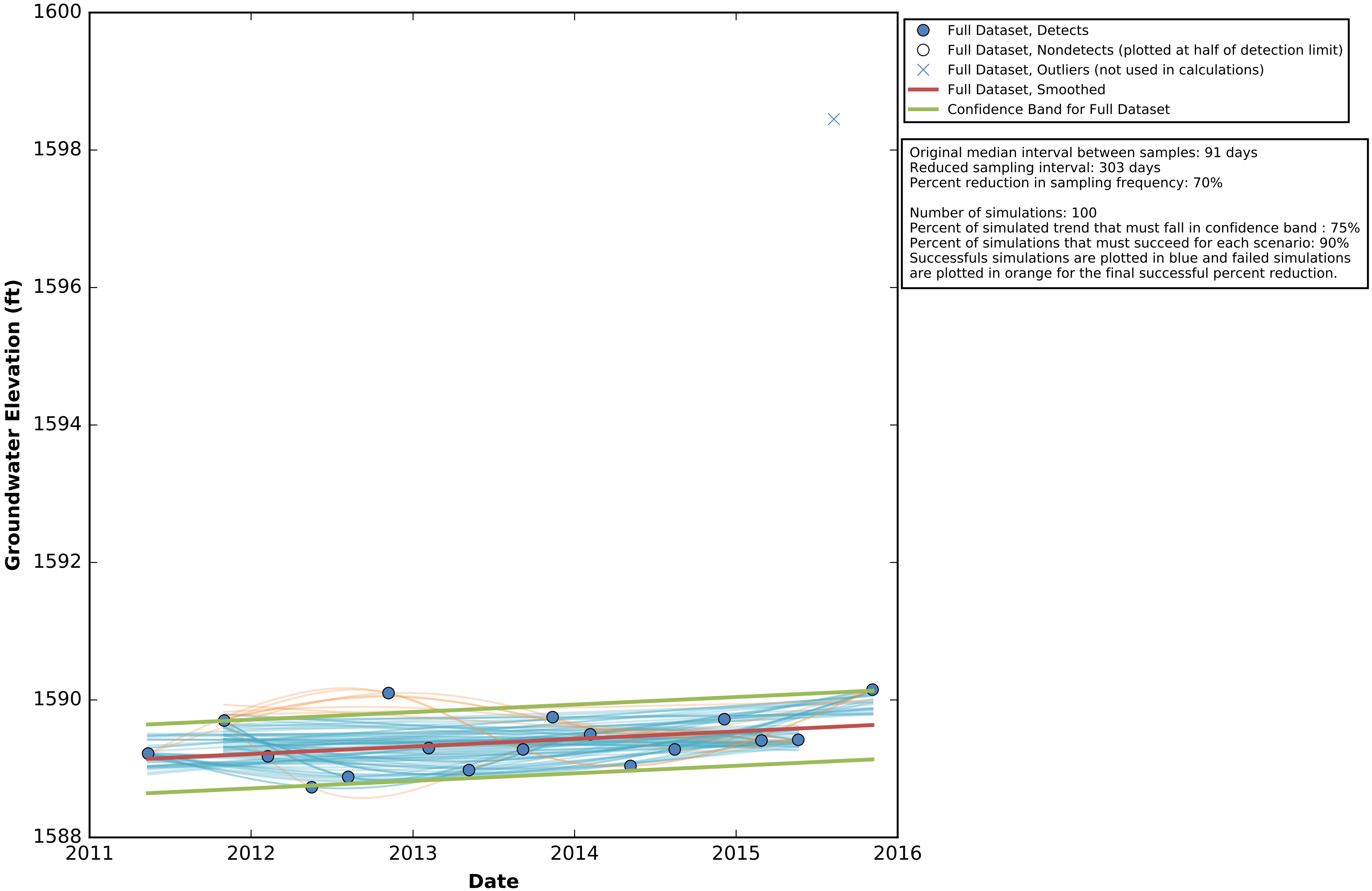
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-148
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-346

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



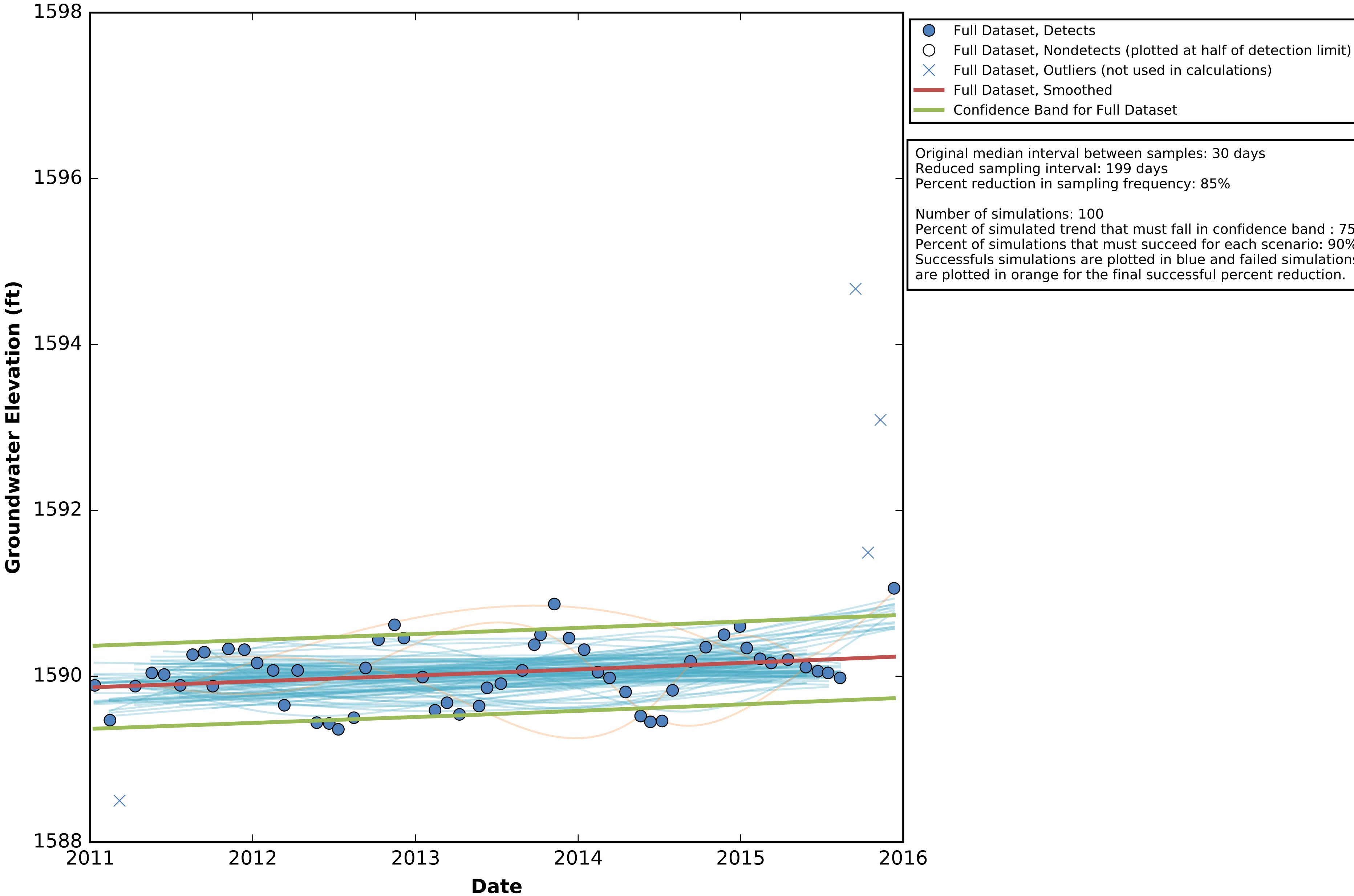
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-149
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-347

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 199 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

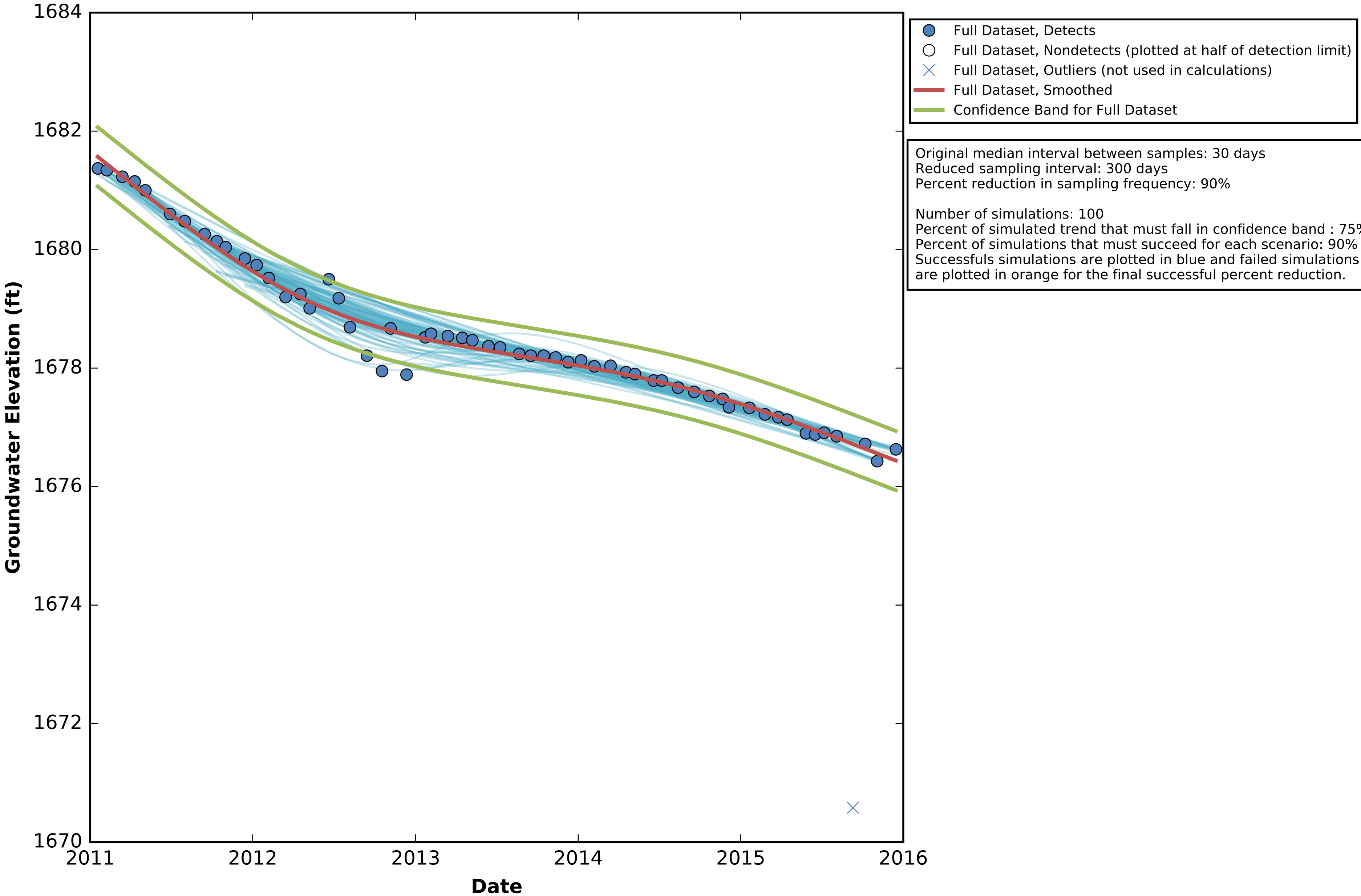
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-18
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-348

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 300 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

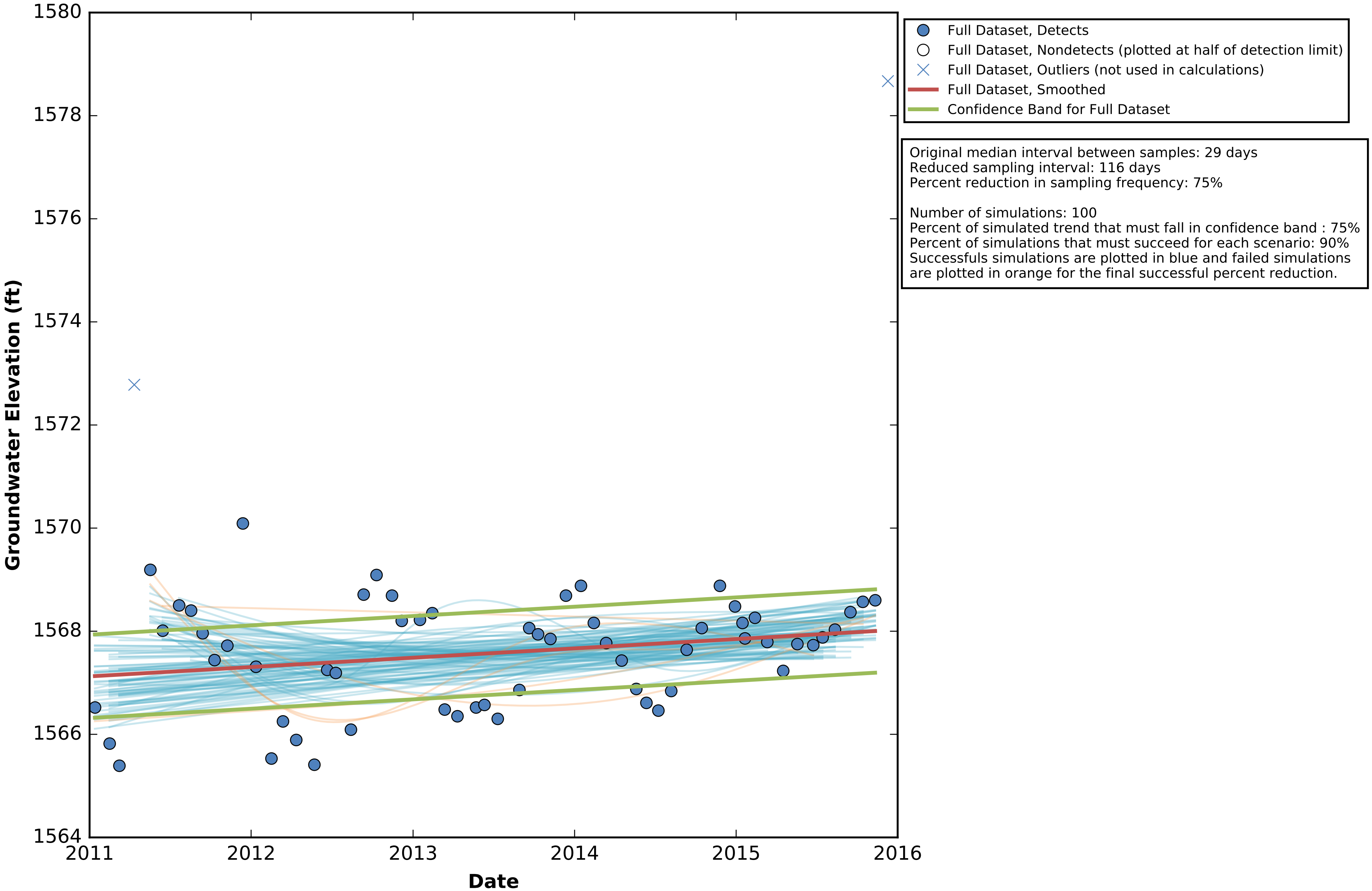
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-37
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-349

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

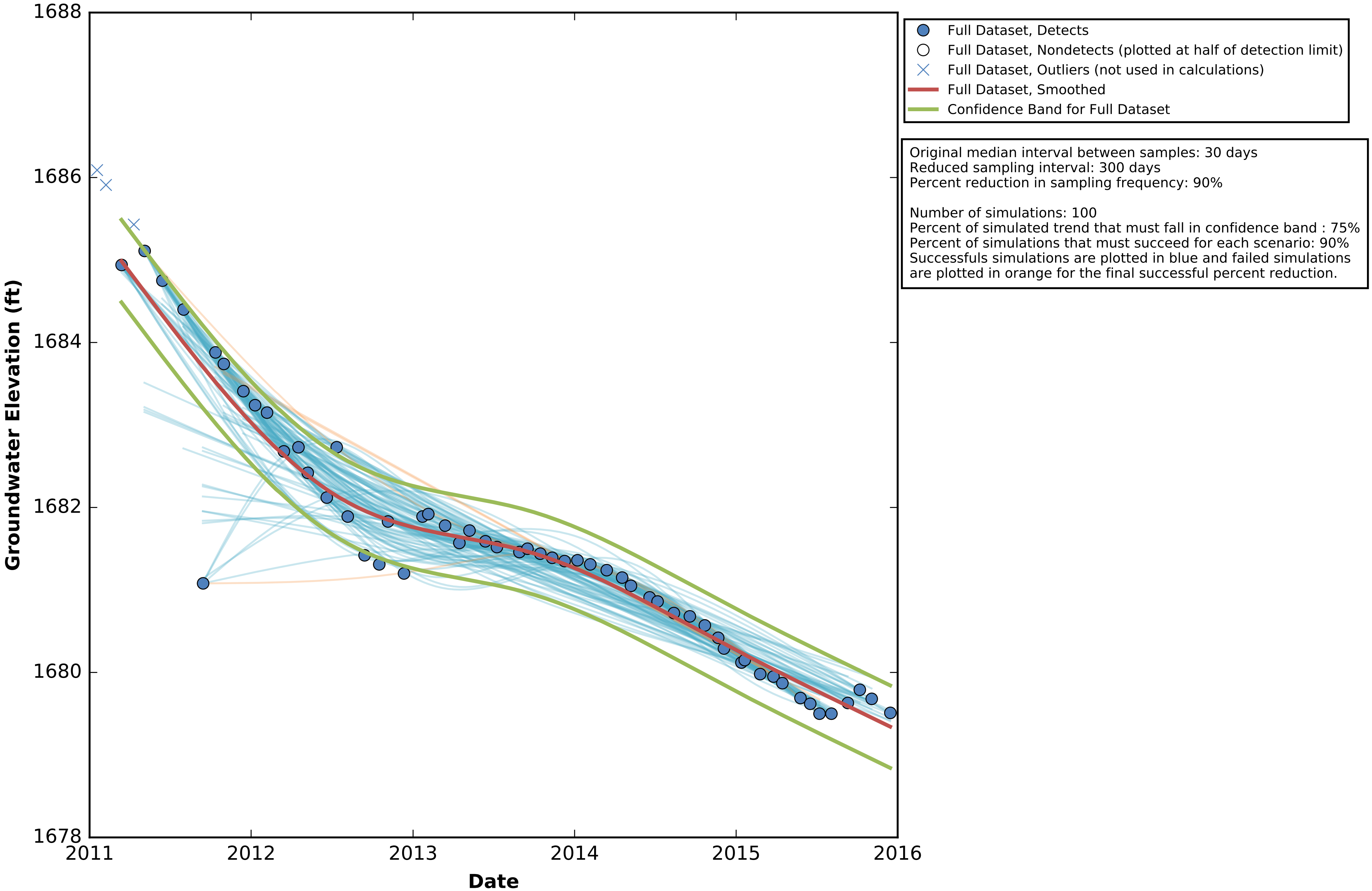
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-53
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-350

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



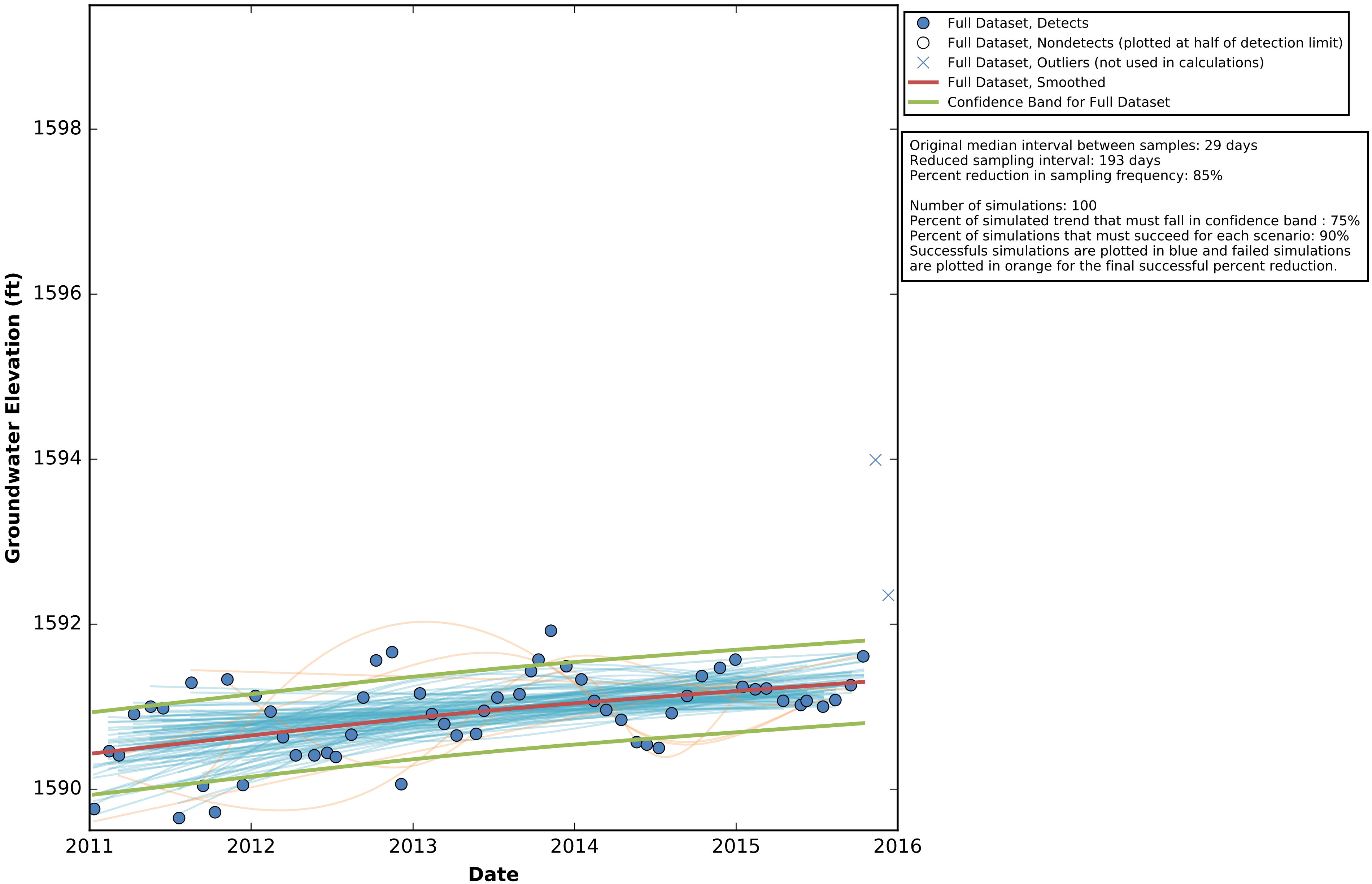
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-54
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-351

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



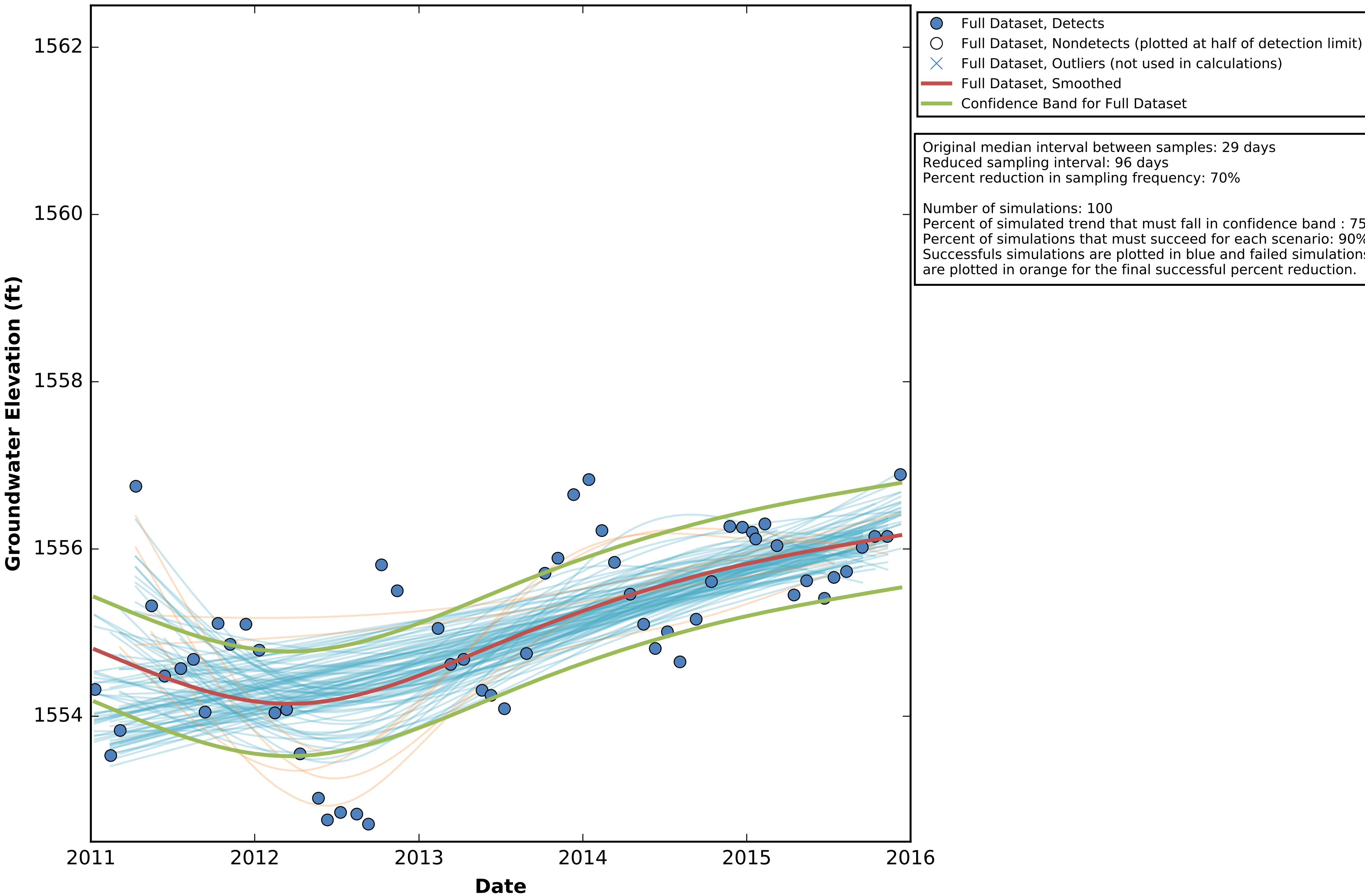
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-352

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

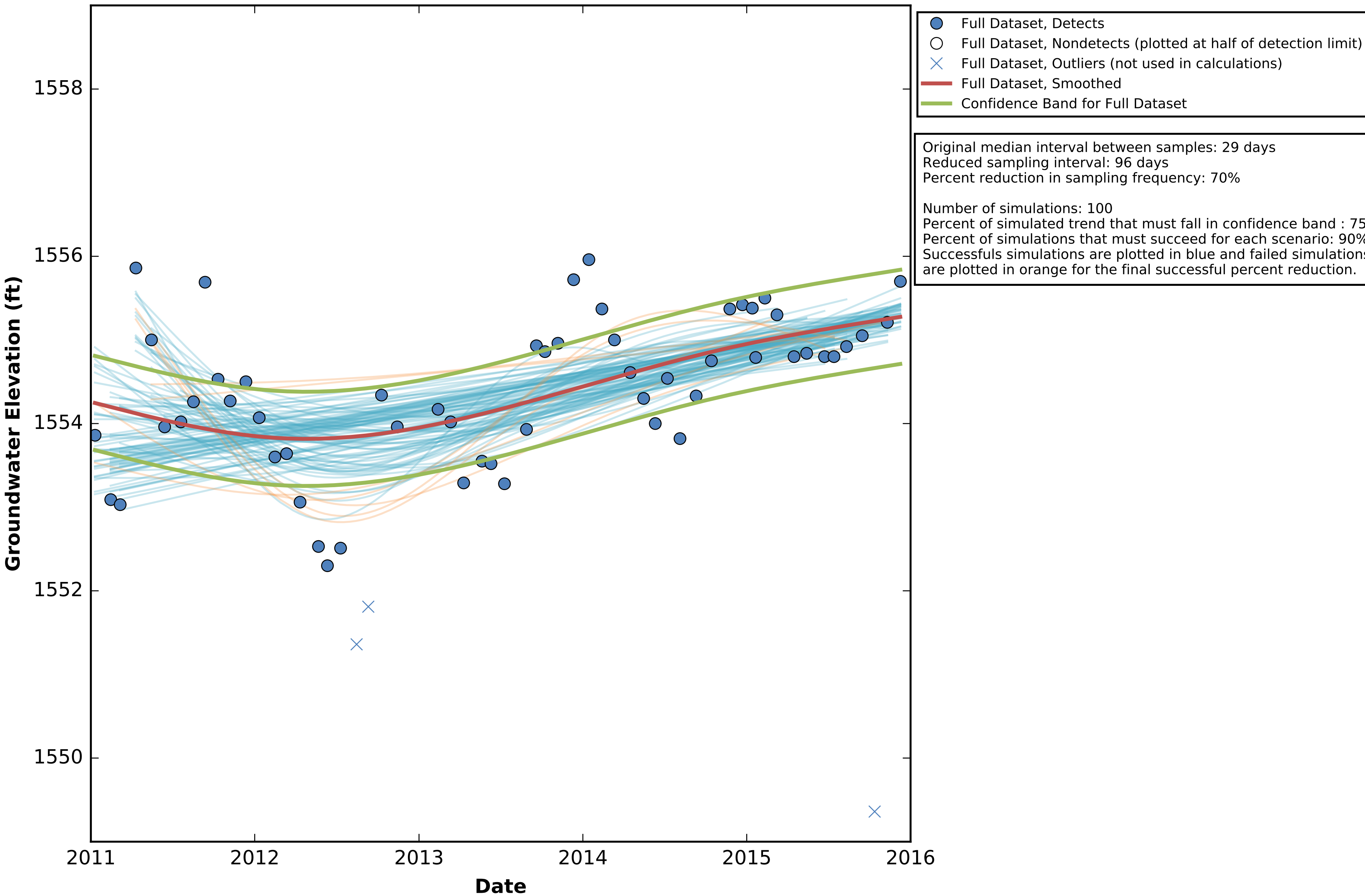
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-353

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

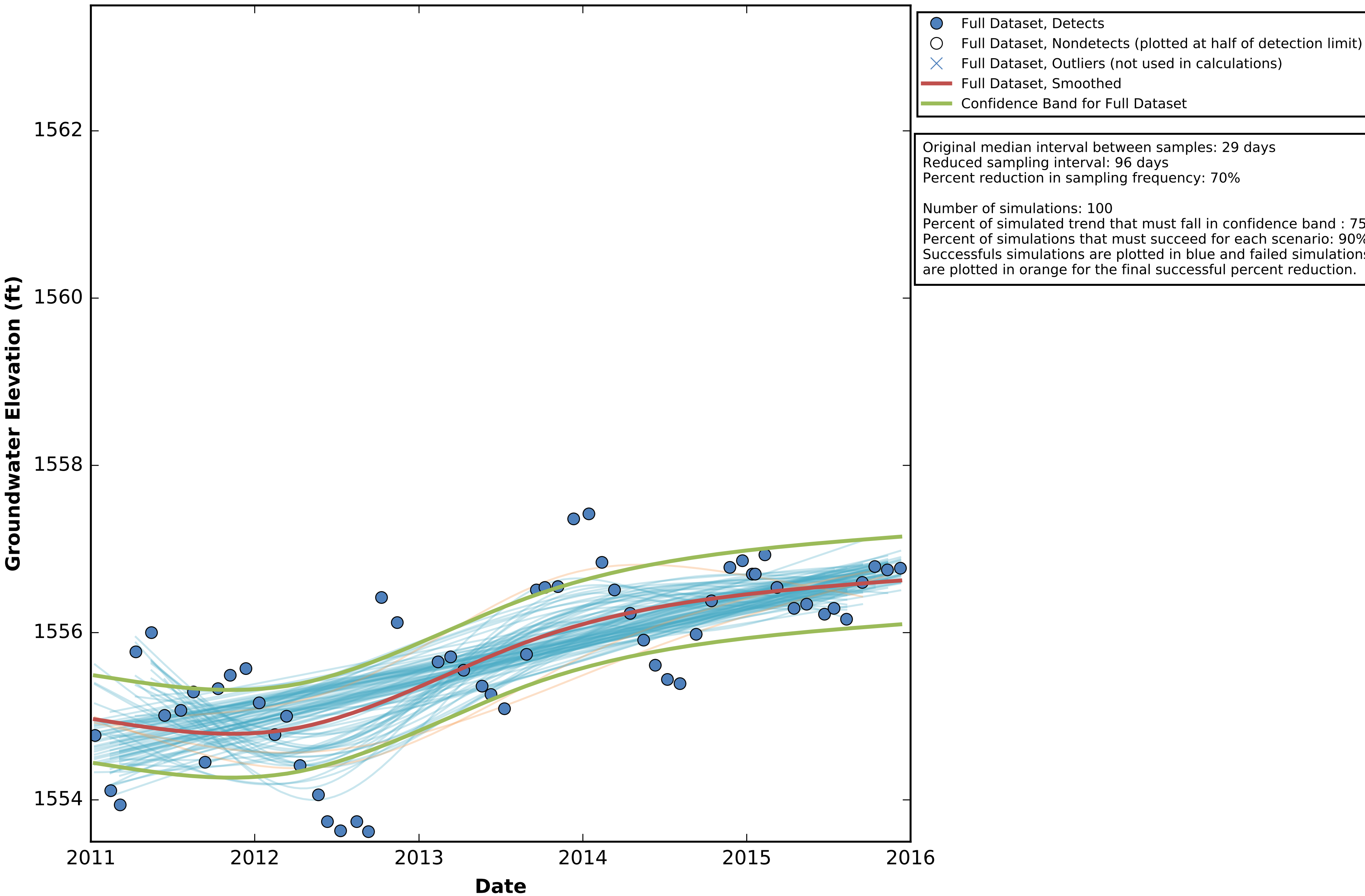
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-354

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

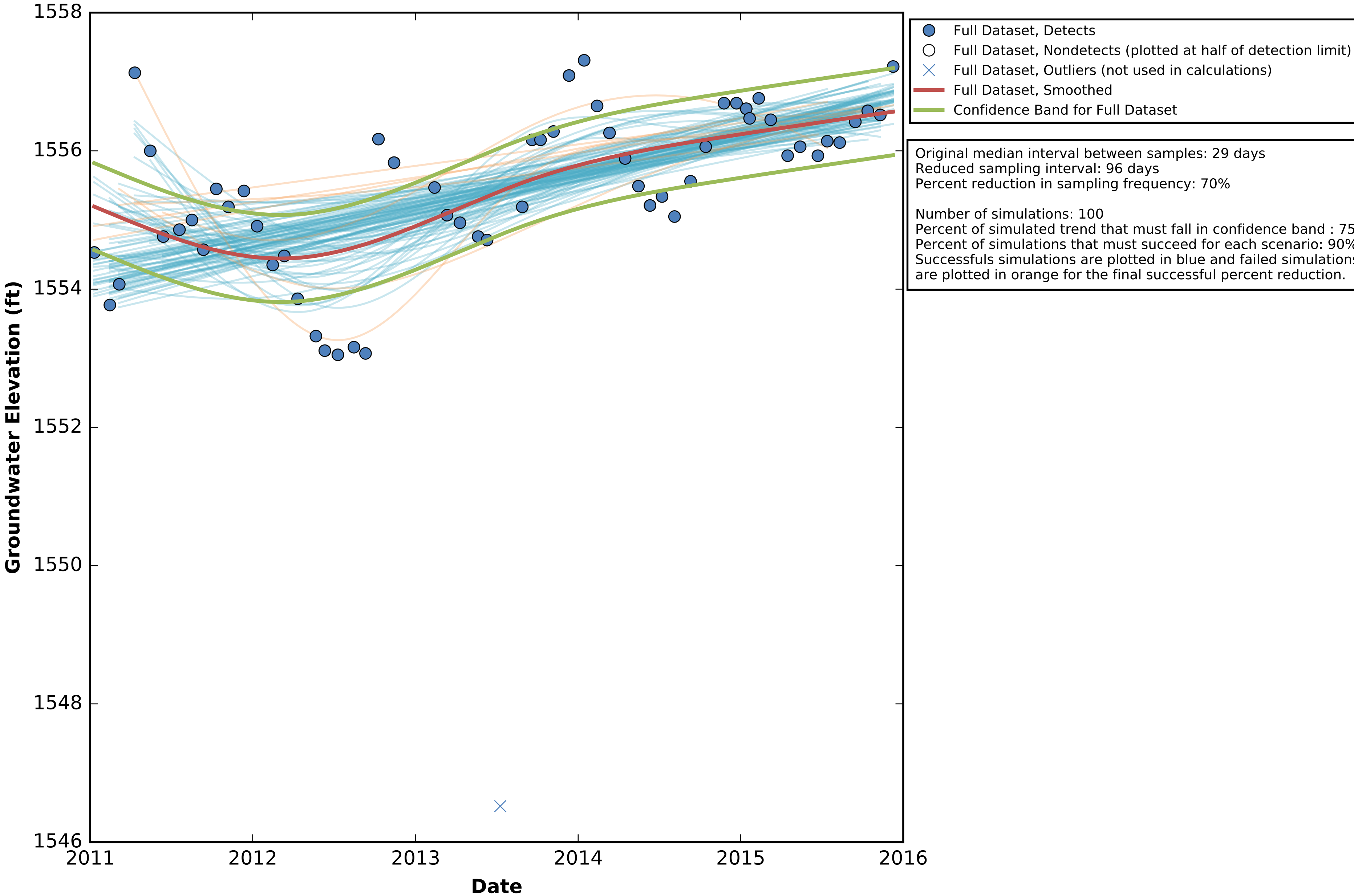
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-59
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-355

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

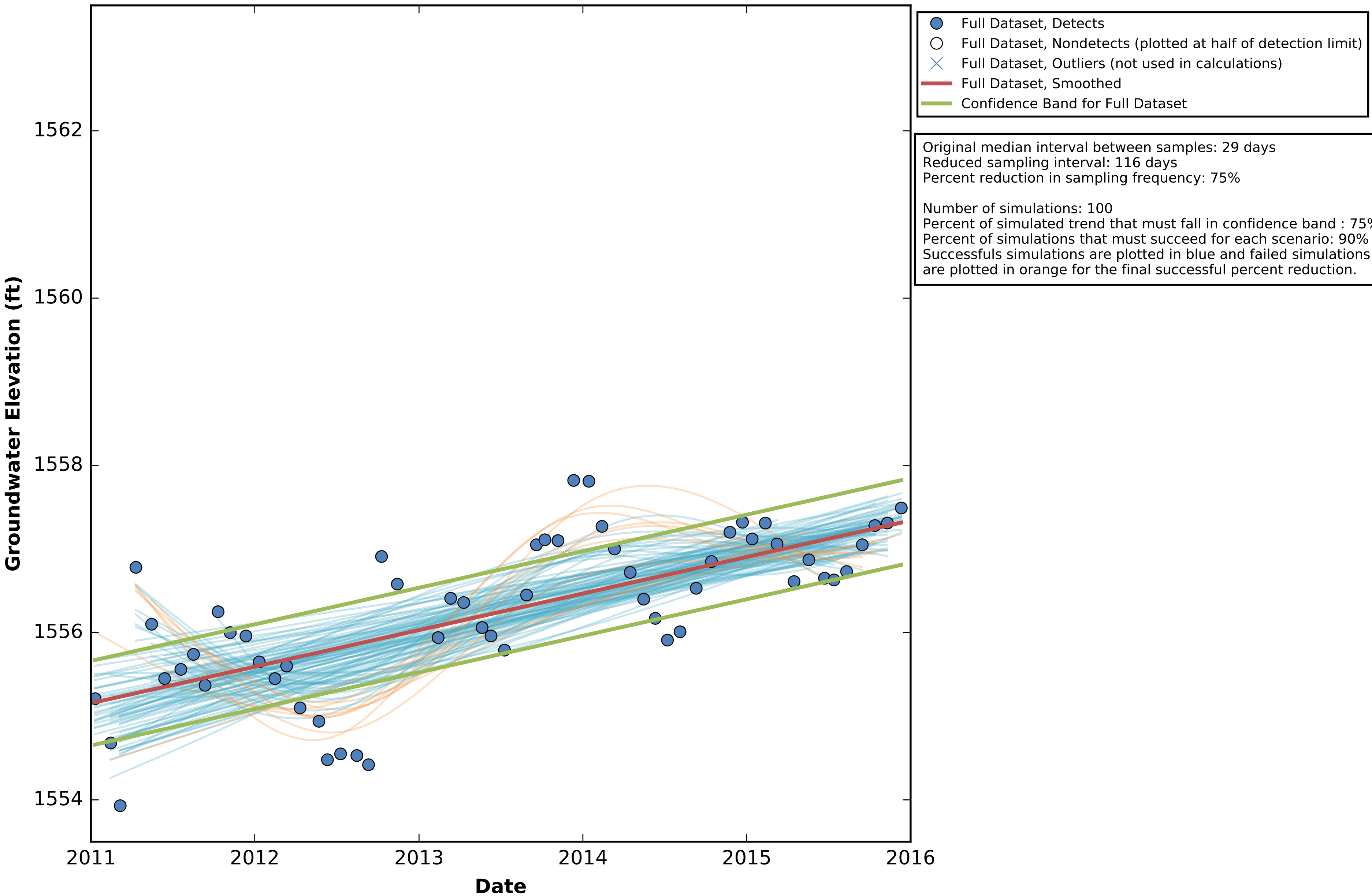
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-60
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-356

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations
are plotted in orange for the final successful percent reduction.

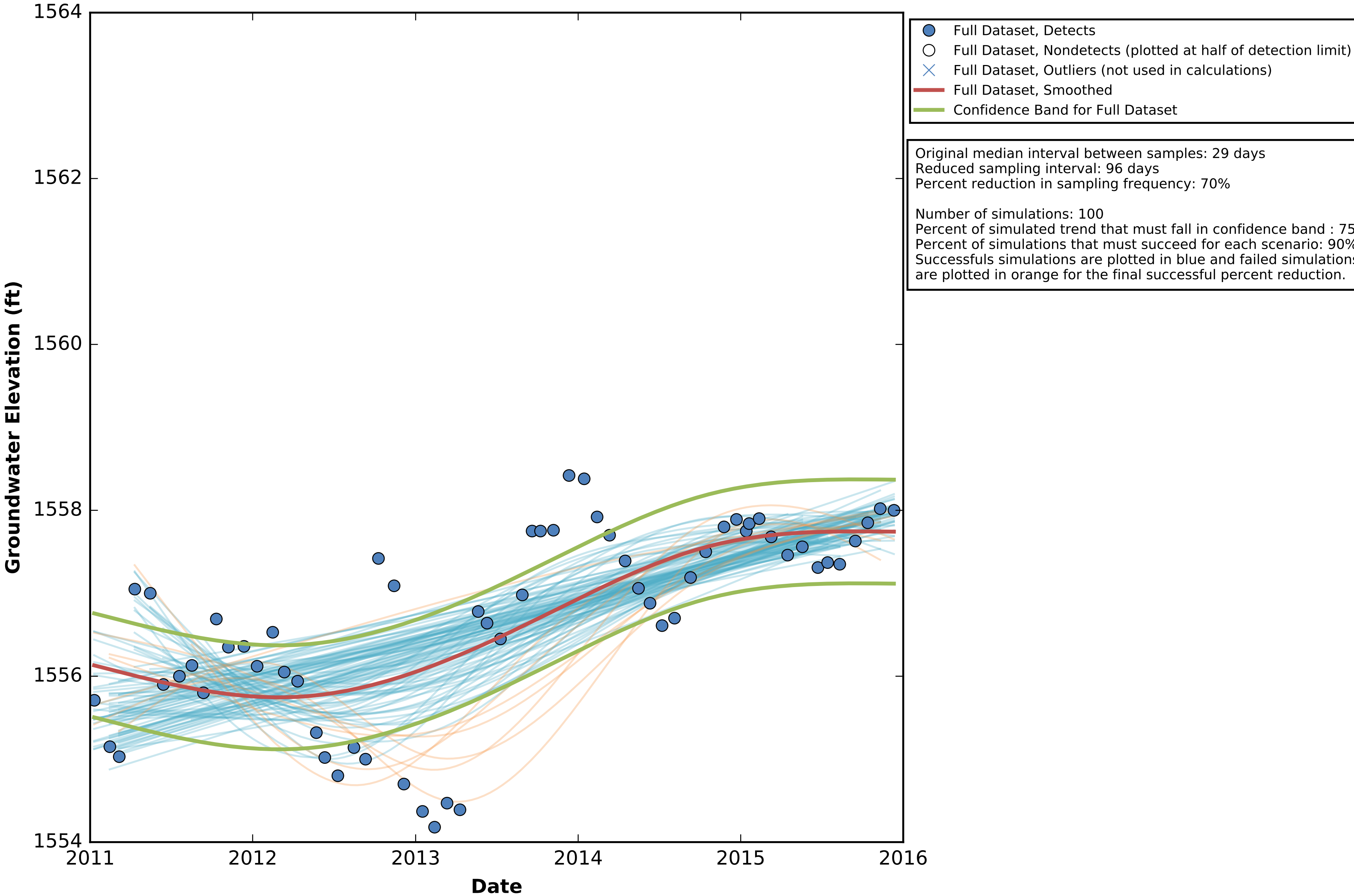
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-62
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-357

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 96 days
Percent reduction in sampling frequency: 70%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

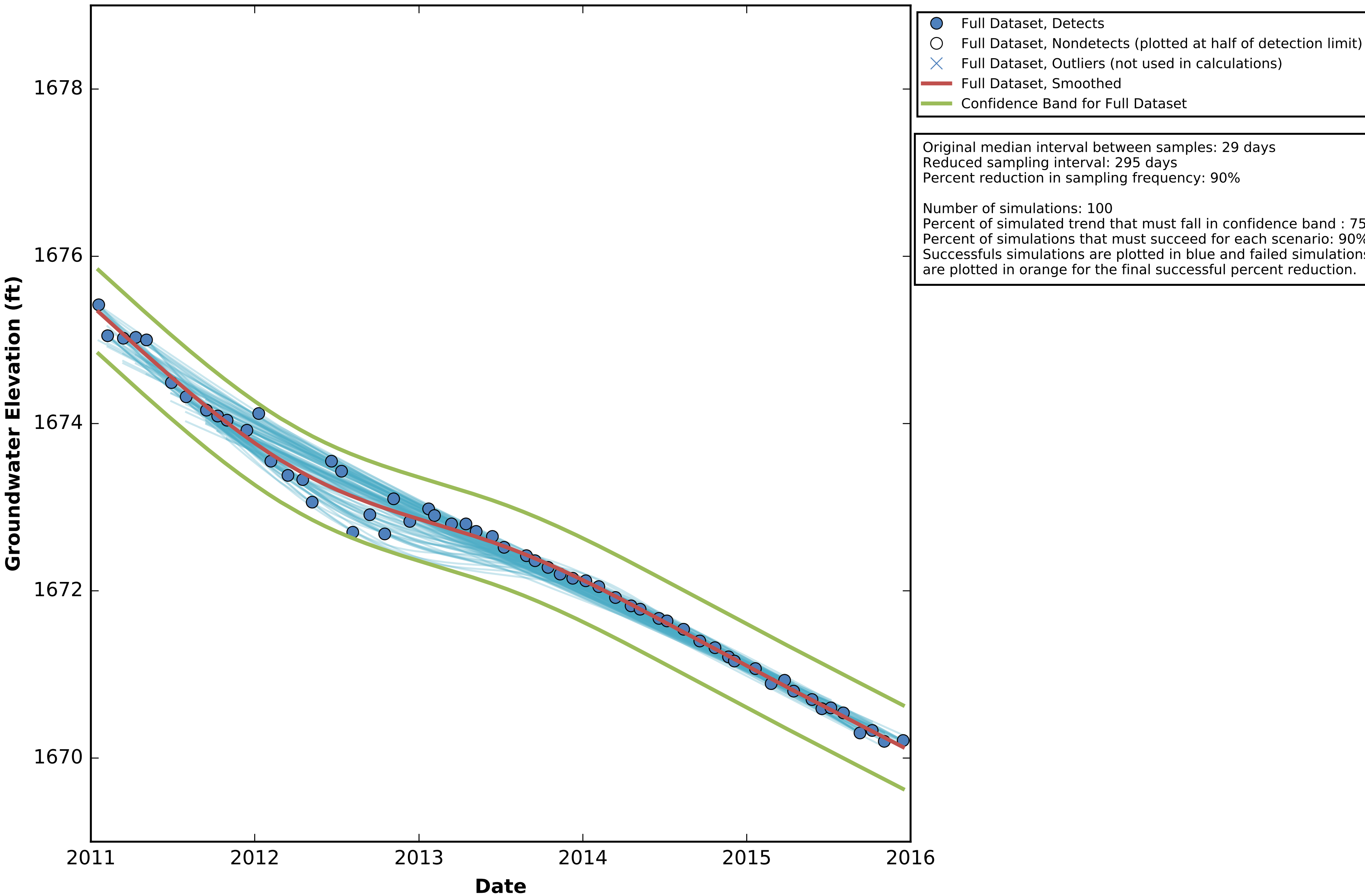
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-358

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 295 days
Percent reduction in sampling frequency: 90%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

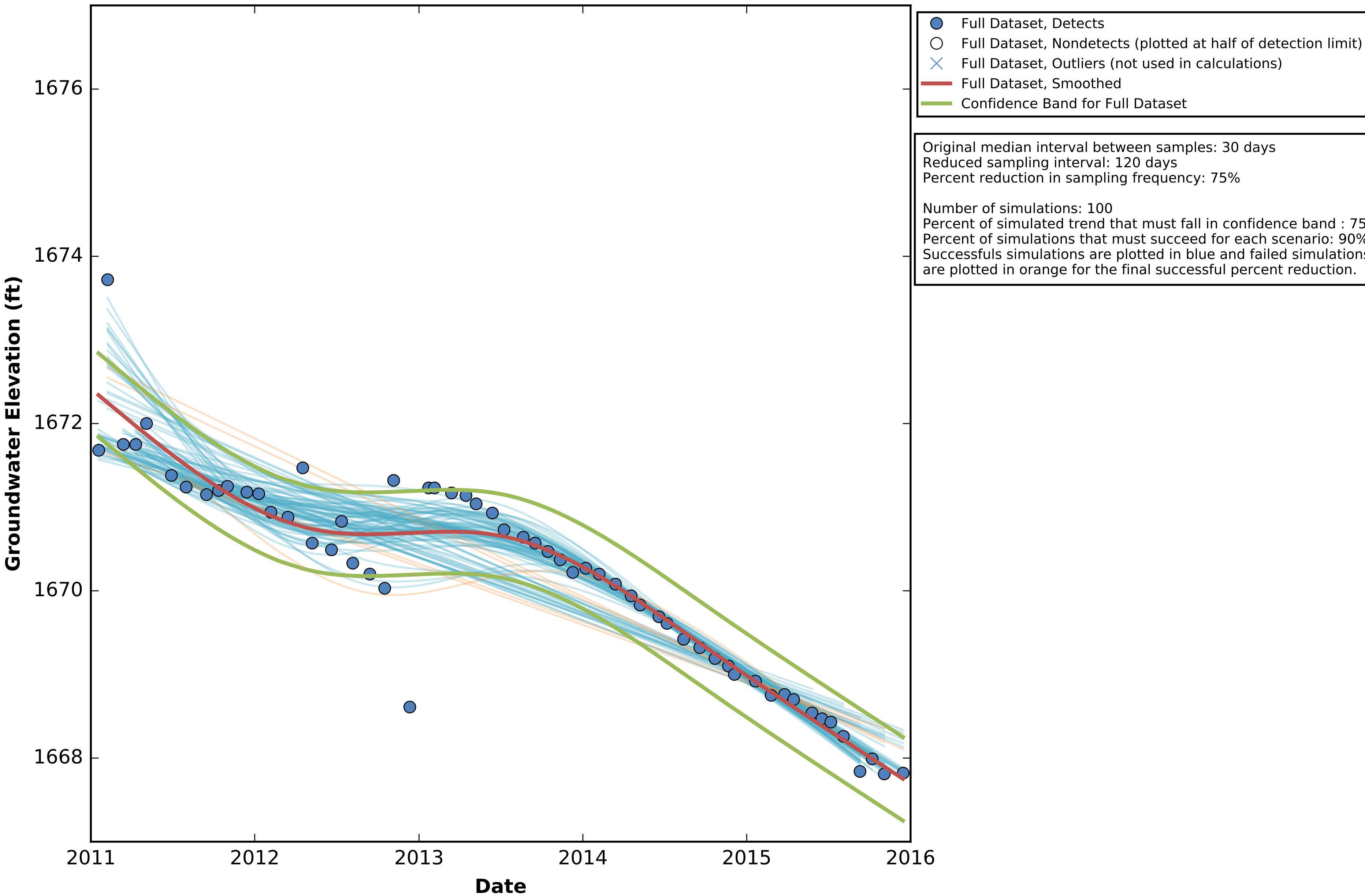
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-359

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 120 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

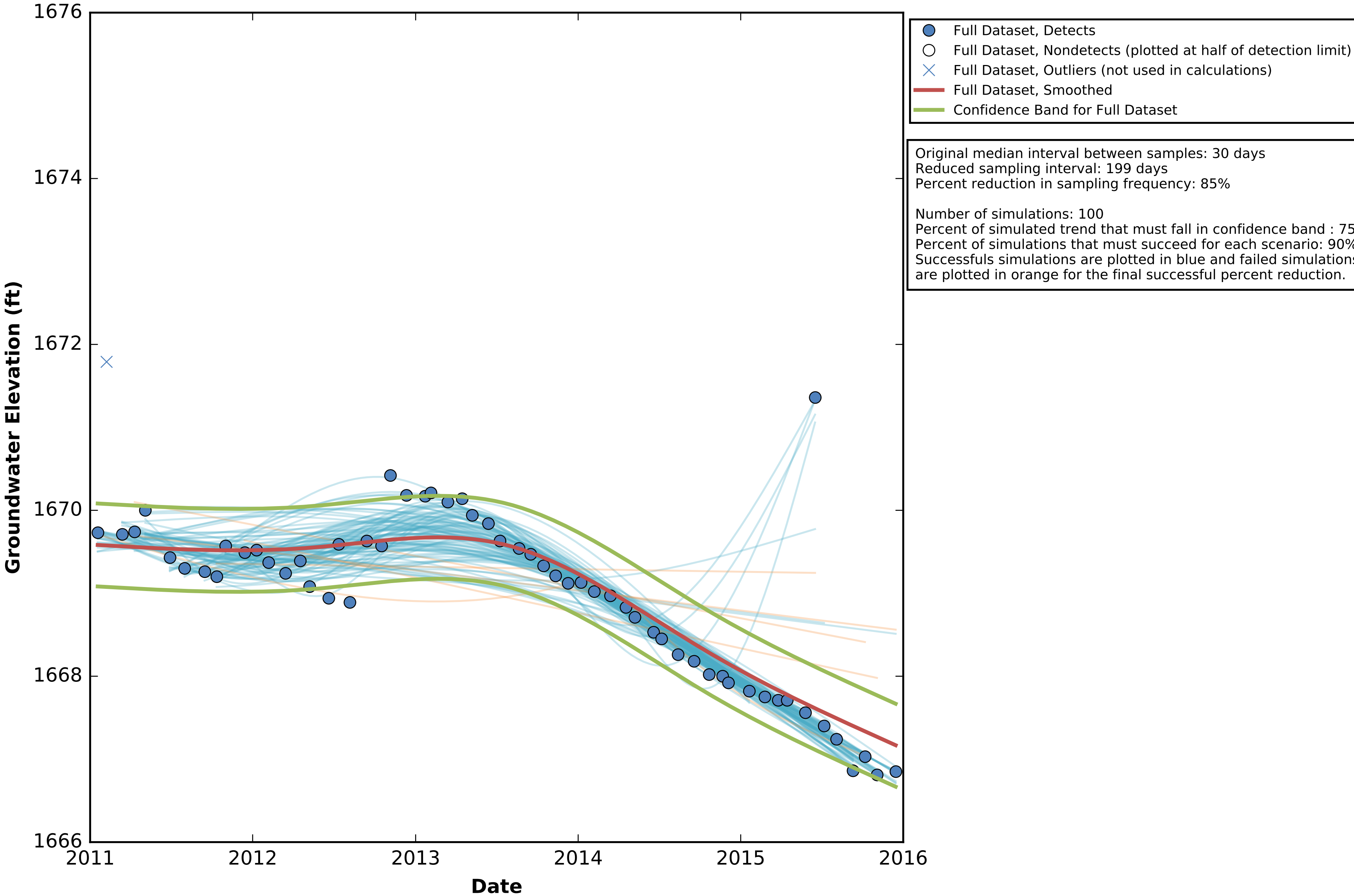
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-360

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 30 days
Reduced sampling interval: 199 days
Percent reduction in sampling frequency: 85%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

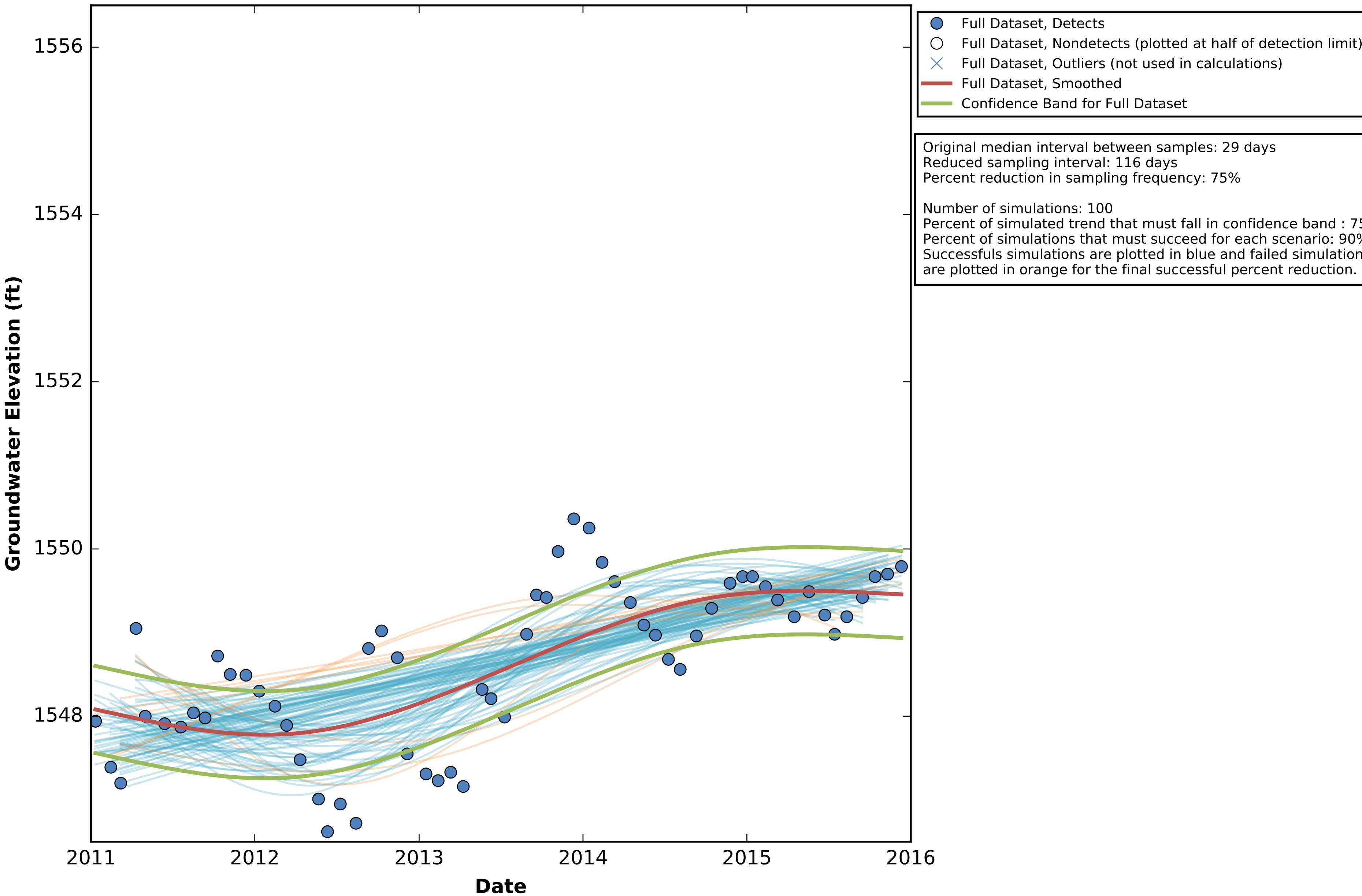
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-361

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

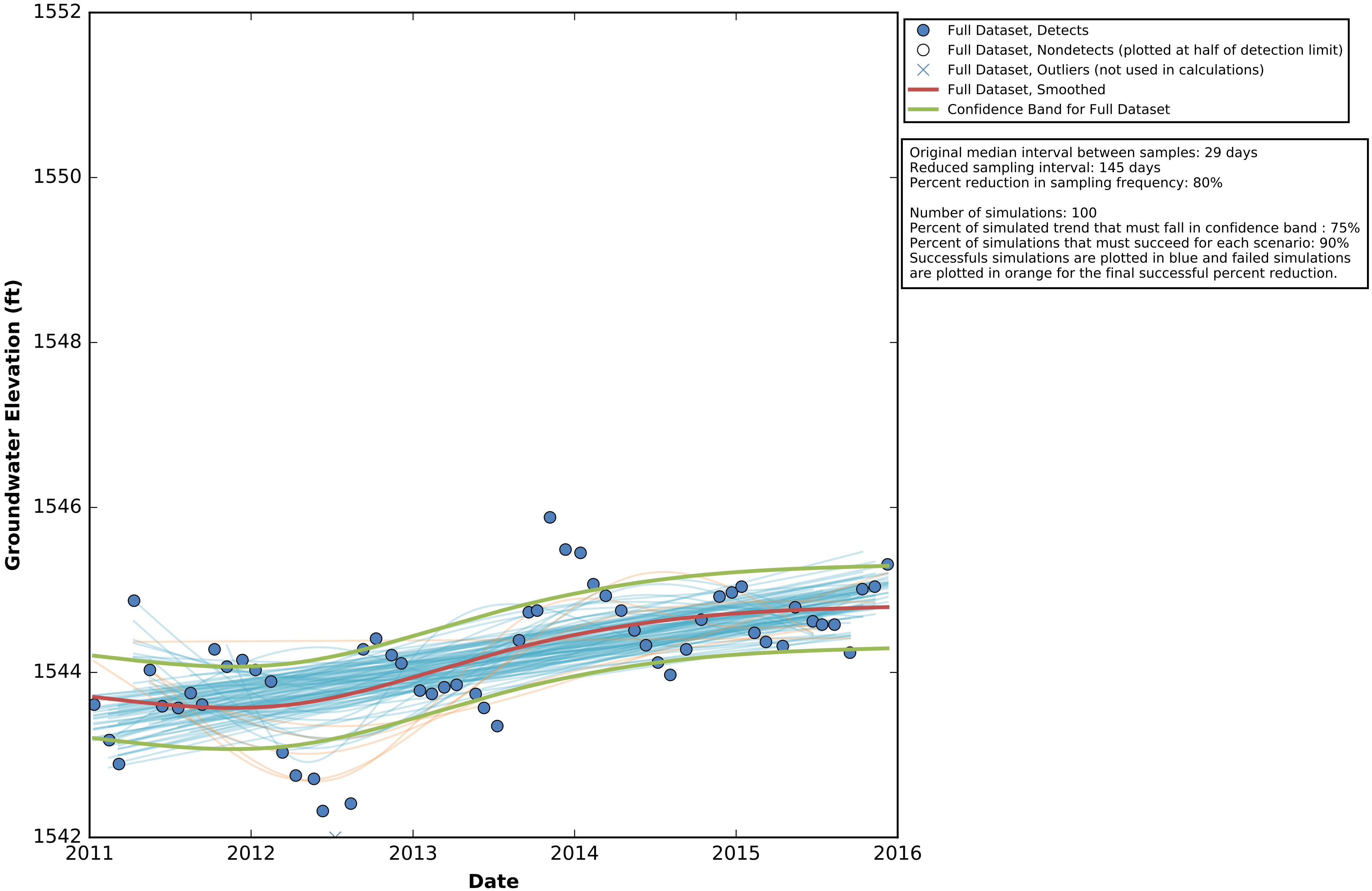
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-86
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-362

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



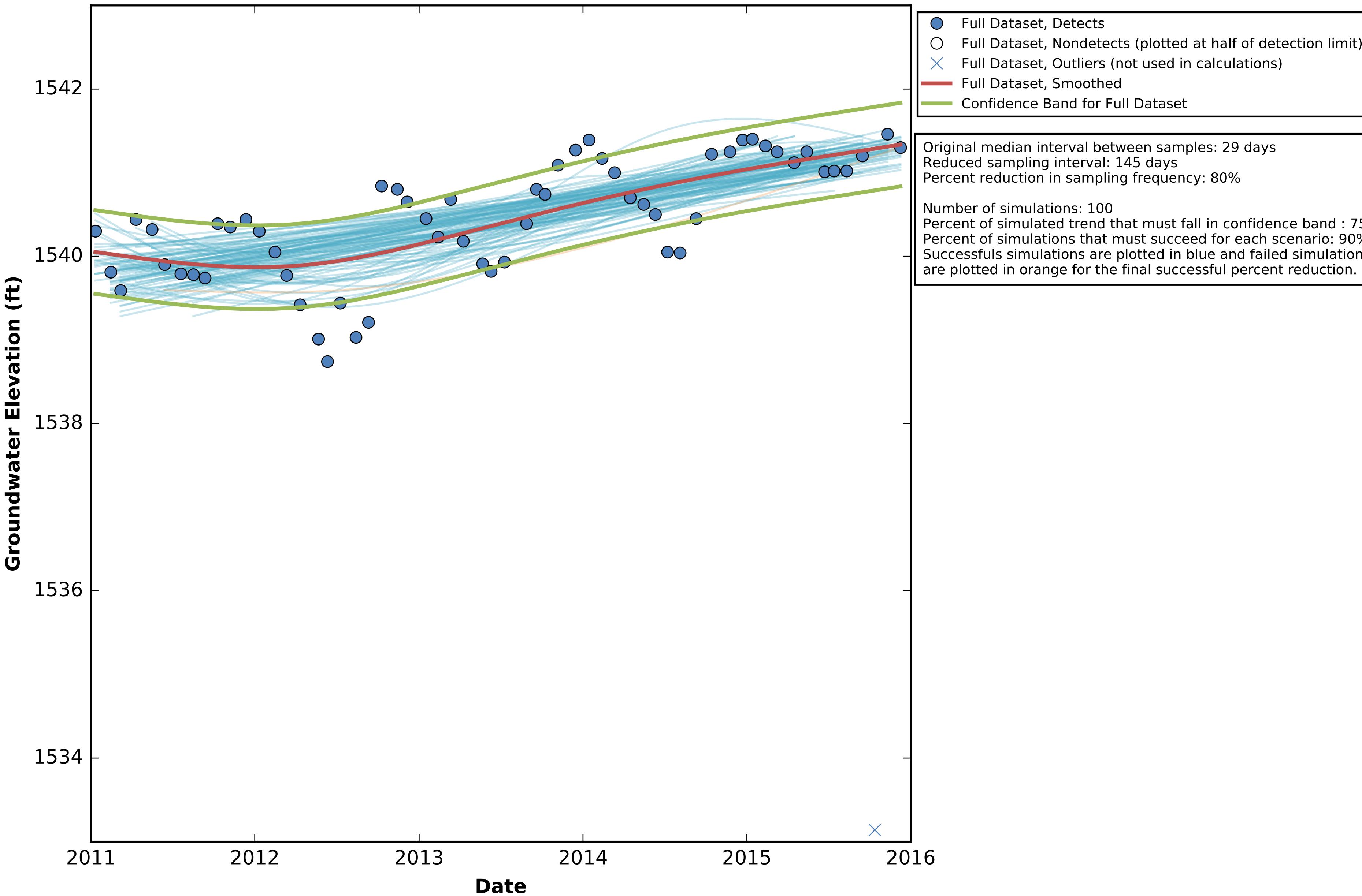
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-90
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-363

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 145 days
Percent reduction in sampling frequency: 80%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

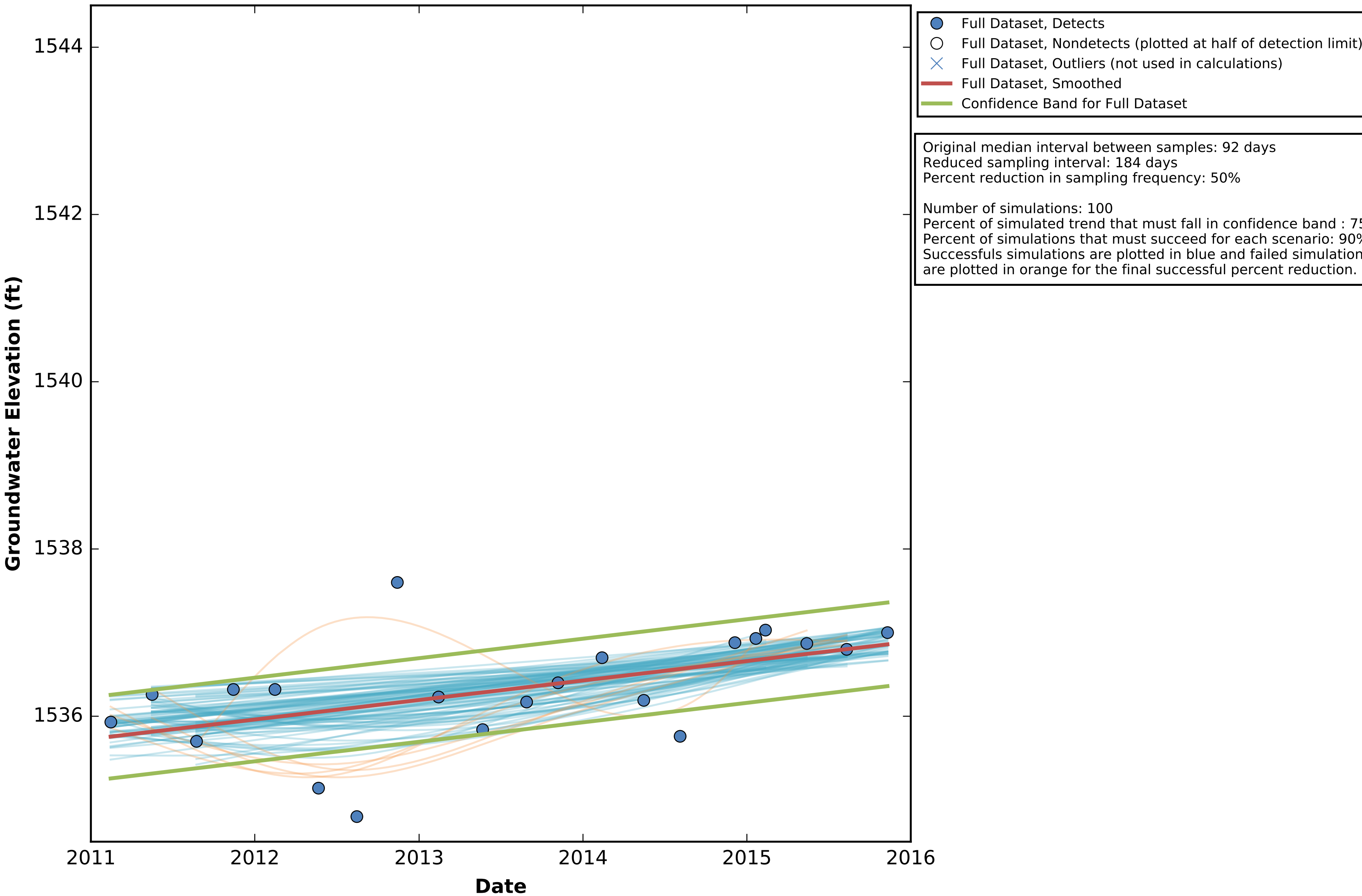
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-91
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-364

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 92 days
Reduced sampling interval: 184 days
Percent reduction in sampling frequency: 50%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

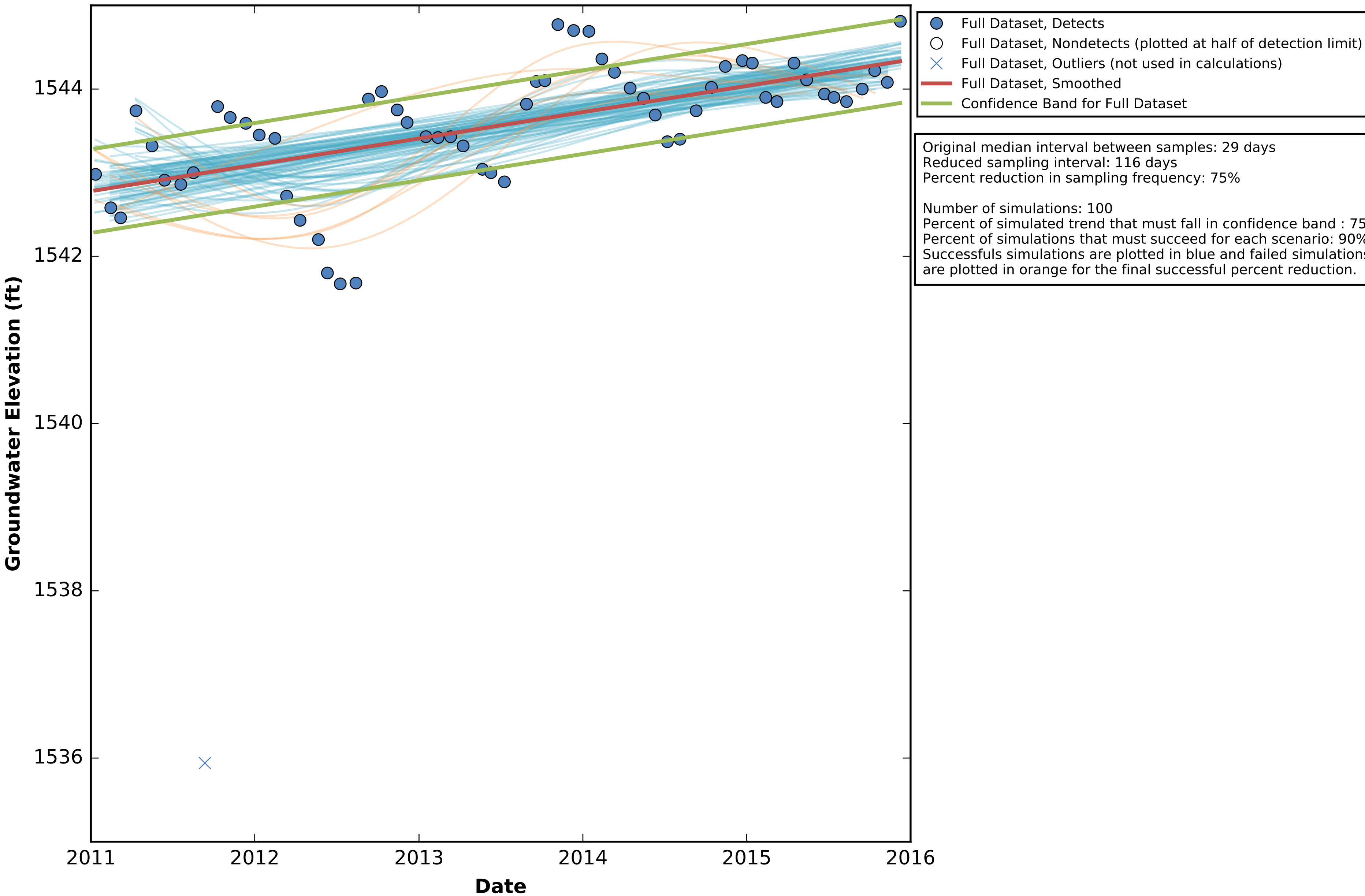
RAMBØLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-94
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-365

Drafter: ERG | Date: 04/29/2016 | Contract Number: 21-38800A | Approved: | Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



Original median interval between samples: 29 days
Reduced sampling interval: 116 days
Percent reduction in sampling frequency: 75%

Number of simulations: 100
Percent of simulated trend that must fall in confidence band : 75%
Percent of simulations that must succeed for each scenario: 90%
Successfuls simulations are plotted in blue and failed simulations are plotted in orange for the final successful percent reduction.

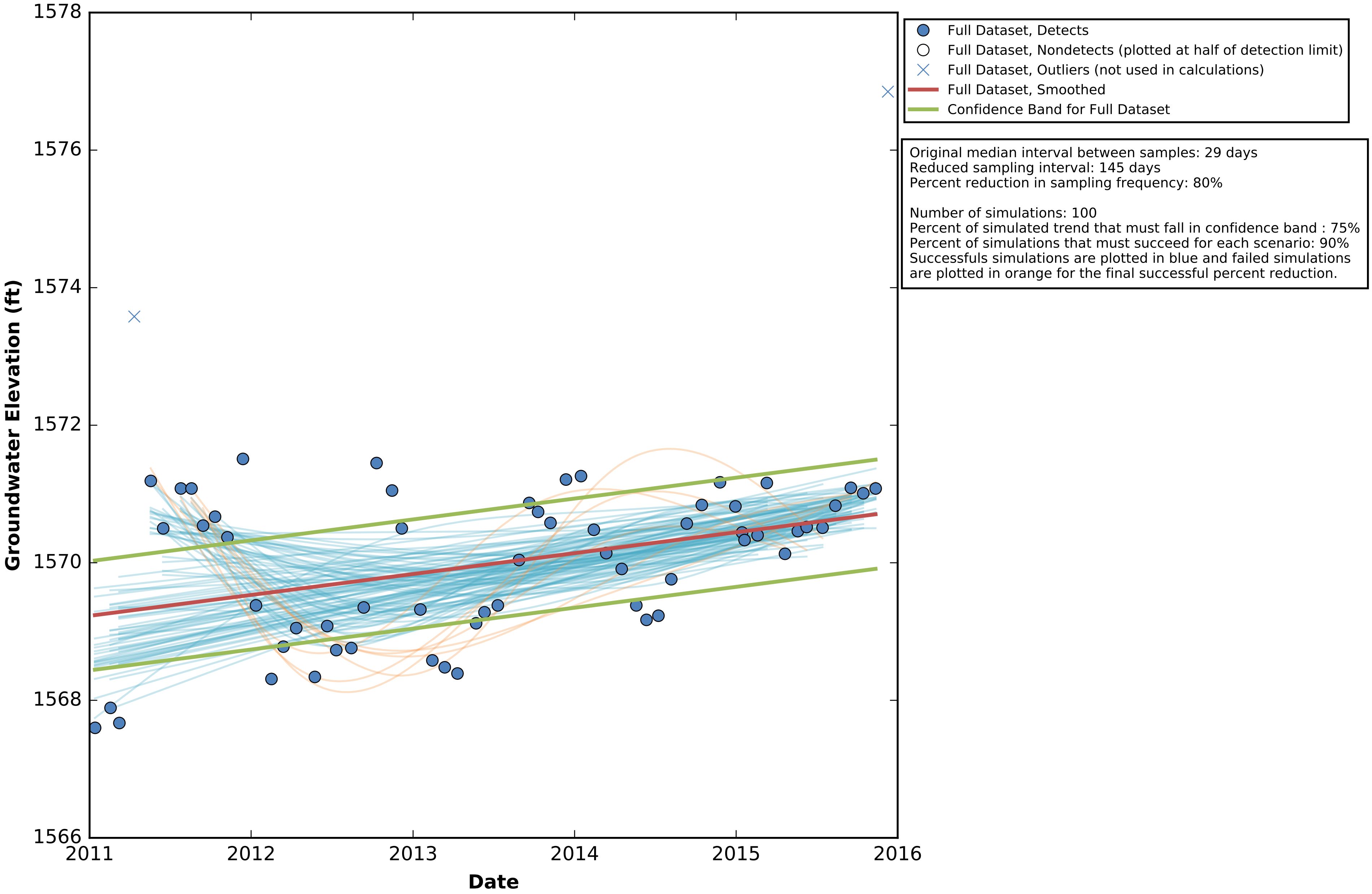
RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-97
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-366

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

Path: ramboll\projects\NERT\MonitoringOptimization\iterativethin.py



RAMBOLL ENVIRON

Iterative Thinning Results for Groundwater Elevation in PC-98R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-367

Drafter: ERG	Date: 04/29/2016	Contract Number: 21-38800A	Approved:	Revised:

APPENDIX C

COMPARISONS OF TOTAL CHROMIUM AND HEXAVALENT CHROMIUM TRENDS
(AVAILABLE ELECTRONICALLY ON CD)

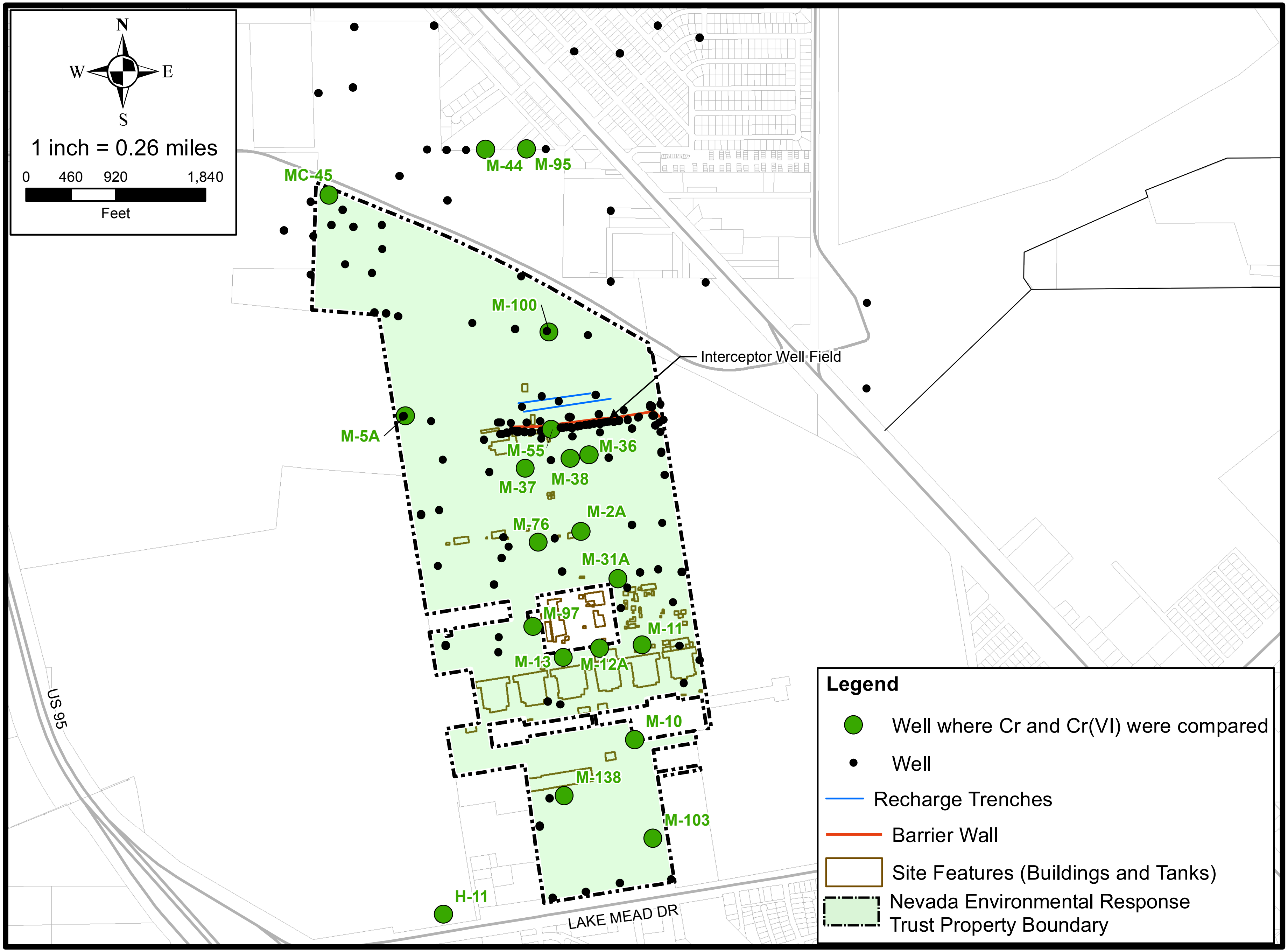
APPENDIX C: COMPARISONS OF TOTAL CHROMIUM AND HEXAVALENT CHROMIUM TRENDS

Appendix C contains:

1. A map showing the locations of the 20 monitoring wells where total and hexavalent chromium trends were compared (page *i*); and

2. Plots of total and hexavalent chromium concentrations in 20 monitoring wells (Figures C-1 through C-20).

The plots of total chromium and hexavalent chromium data were used to evaluate the relationship between these two analytes at individual monitoring wells, as described in Section 4.3.2 in the report text. Total chromium and hexavalent chromium were compared at all locations in the current monitoring program where sufficient datasets for both analytes existed. Data compared was collected during the period between 10/1/1998 and 12/31/2015.



RAMBOLL ENVIRON

DRAFTED BY: RS | DATE: 4/27/2016

WELLS WHERE CHROMIUM AND HEXAVALENT CHROMIUM MEASUREMENTS WERE COMPARED

Nevada Environmental Response Trust Site

Henderson, Nevada

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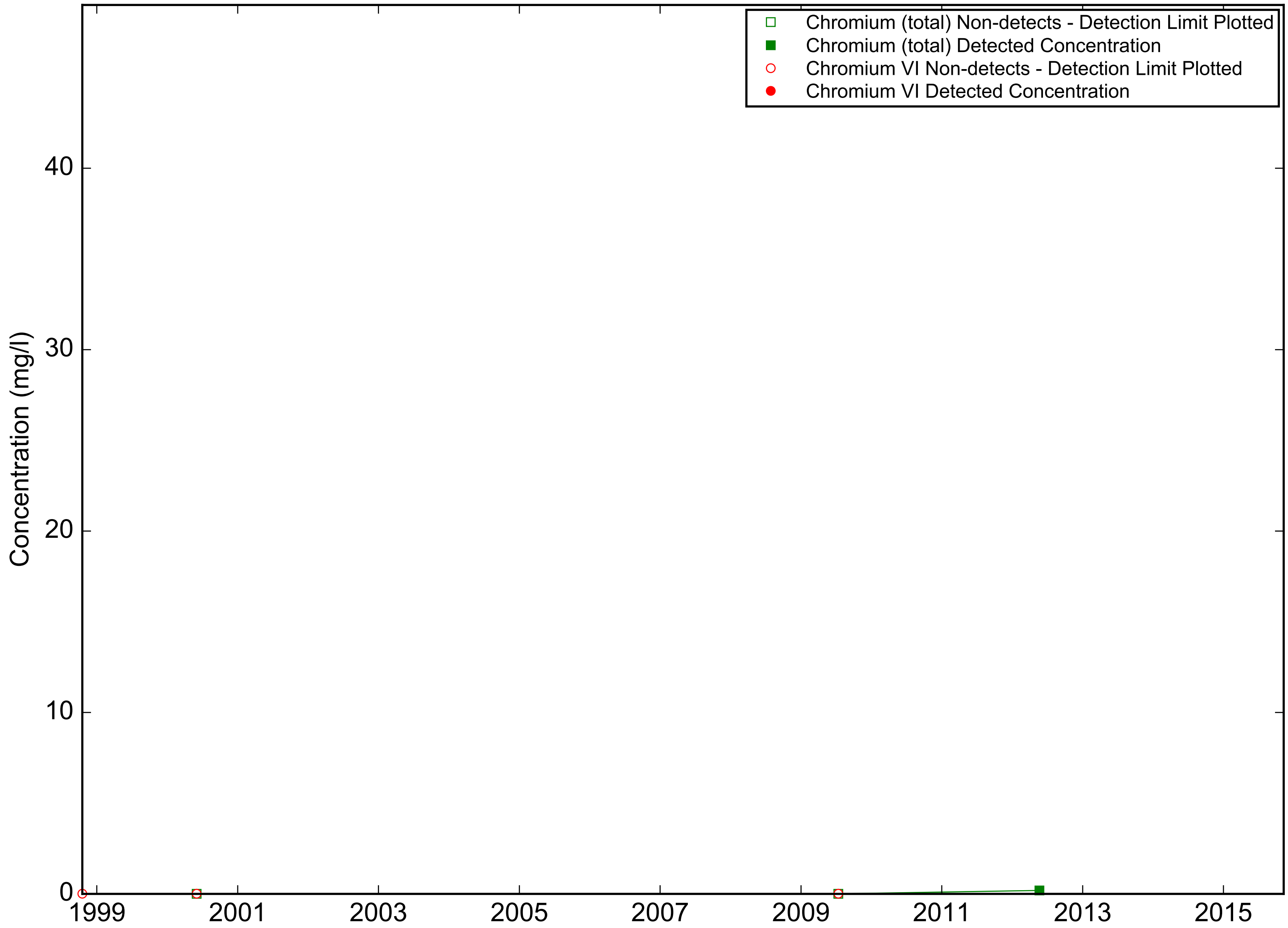

RAMBOLL ENVIRON

Chromium Concentrations in Well H-11
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-1

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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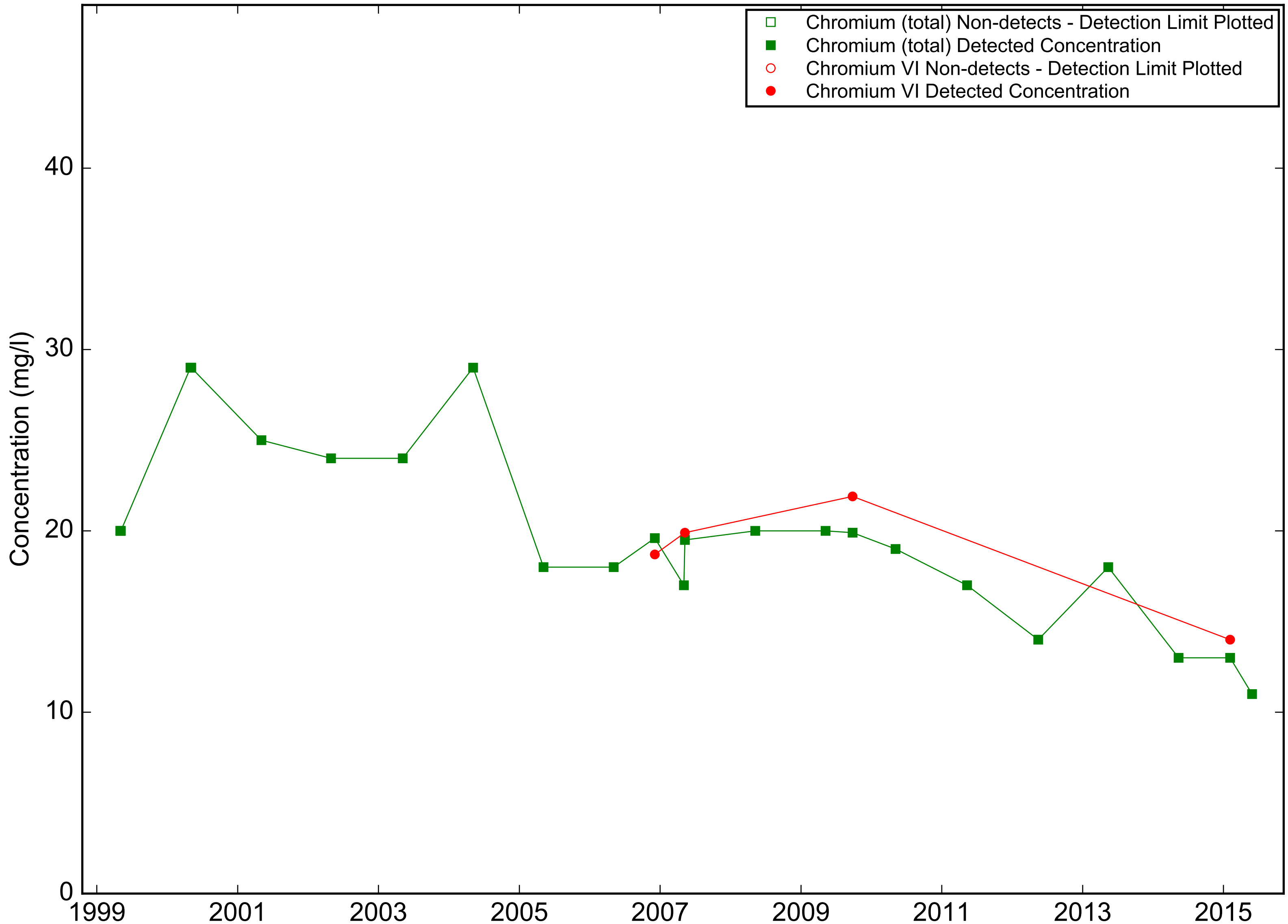
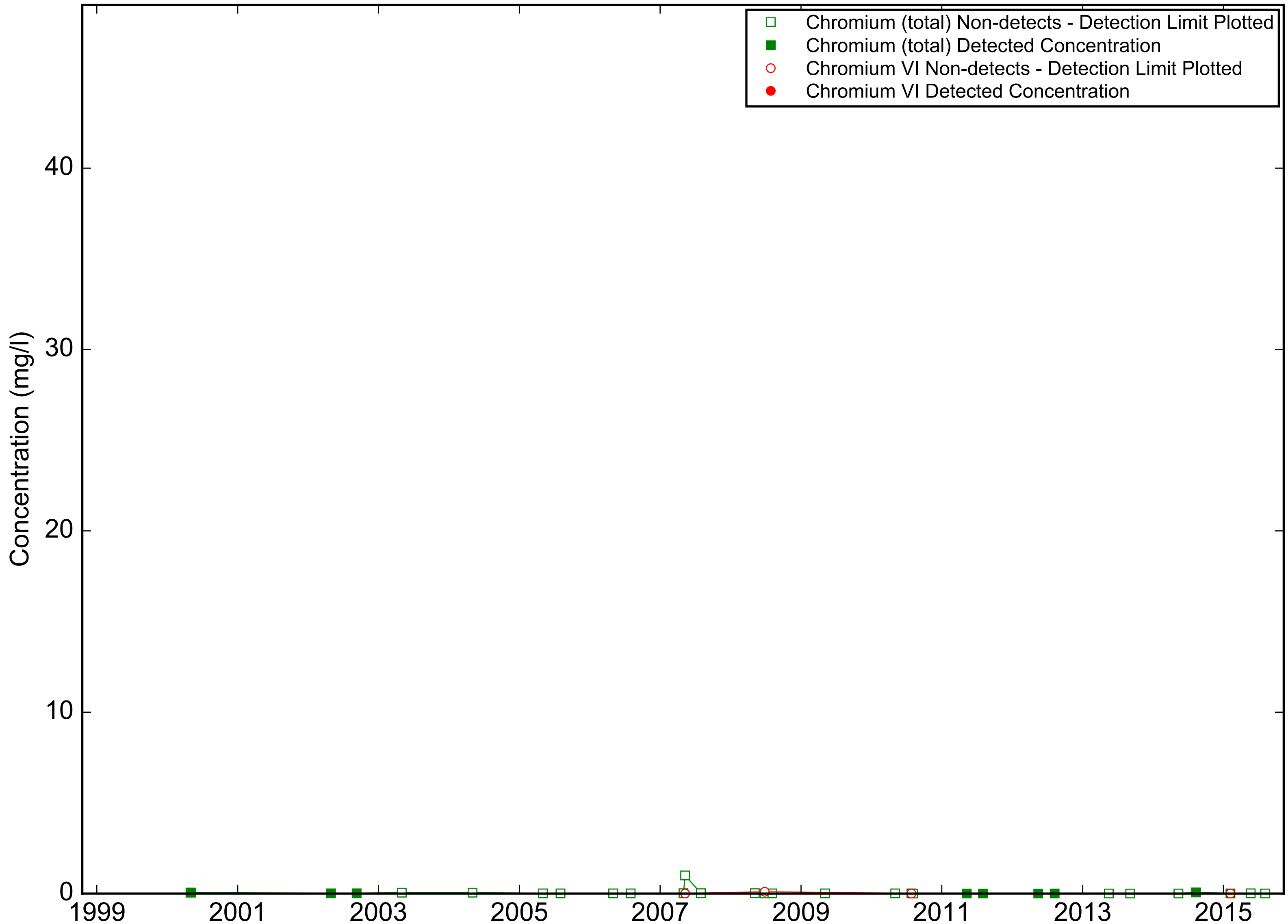


RAMBOLL ENVIRON

Chromium Concentrations in Well M-2A
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-2

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:



RAMBOLL ENVIRON

Chromium Concentrations in Well M-5A
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-3

Drafter: JH	Date: 04/29/2016	Contract Number: 2138800A	Approved:	Revised:

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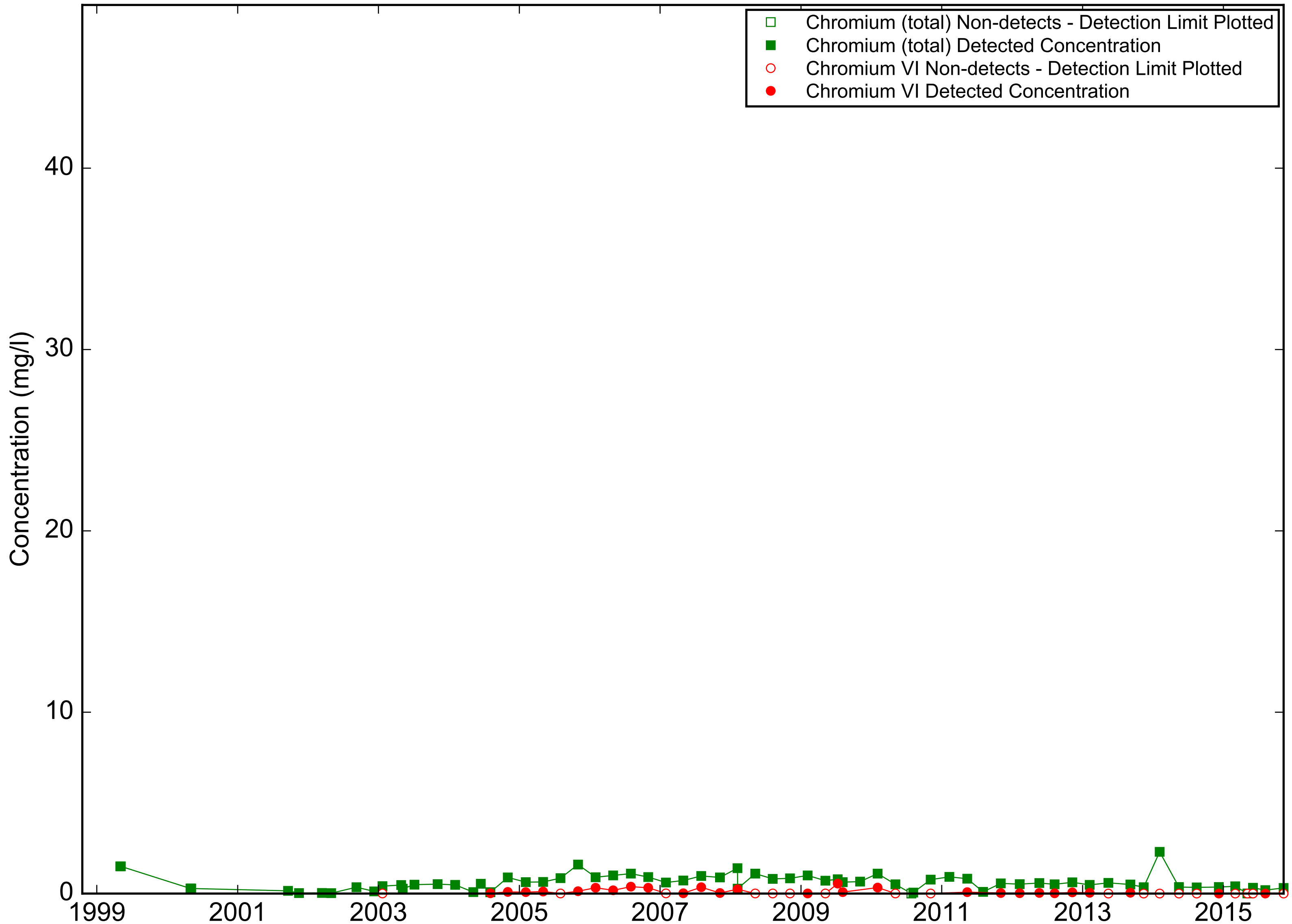

RAMBOLL ENVIRON

Chromium Concentrations in Well M-10
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-4

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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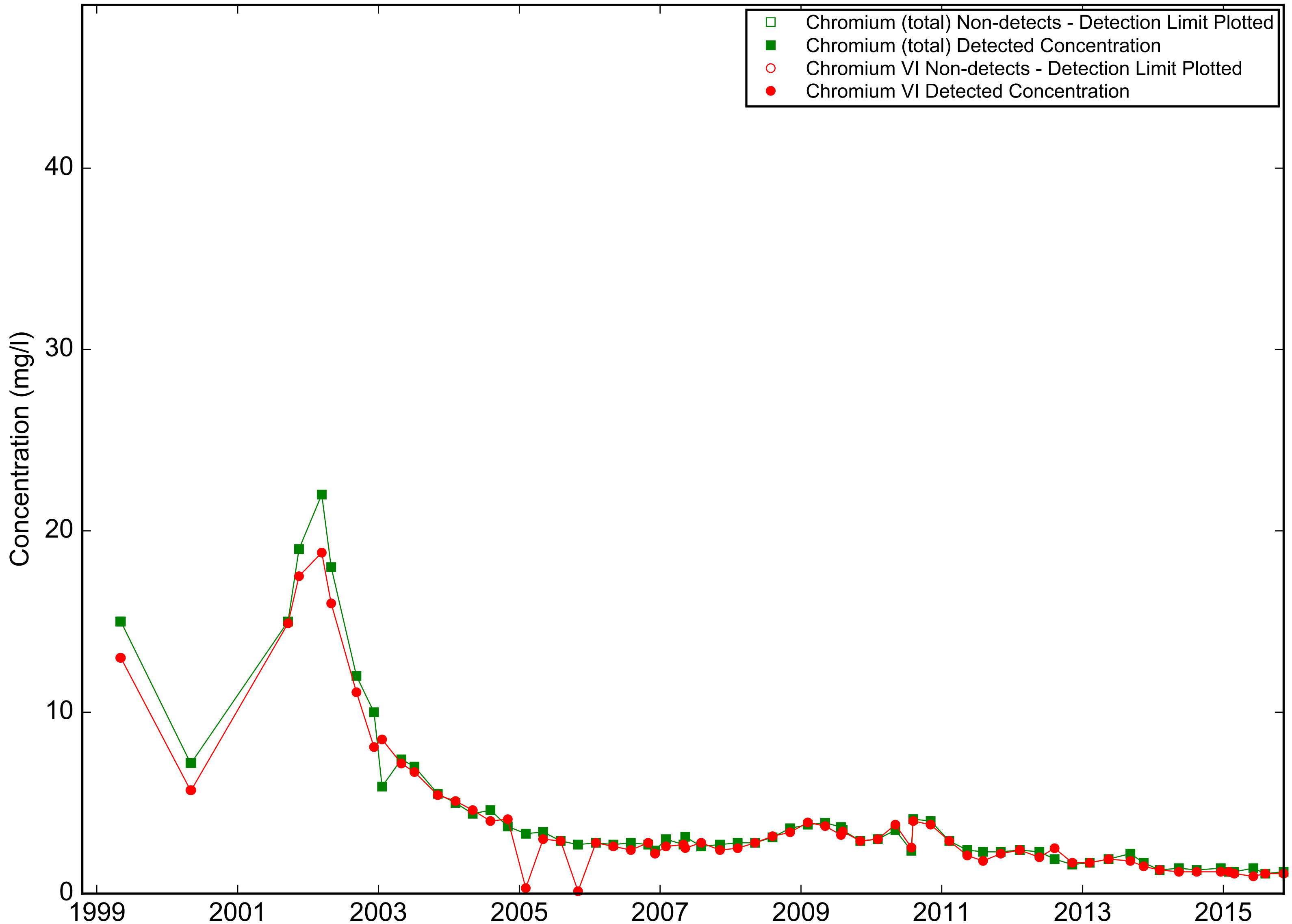

RAMBOLL ENVIRON

Chromium Concentrations in Well M-11
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-5

Drafter: JH	Date: 04/29/2016	Contract Number: 2138800A	Approved:	Revised:

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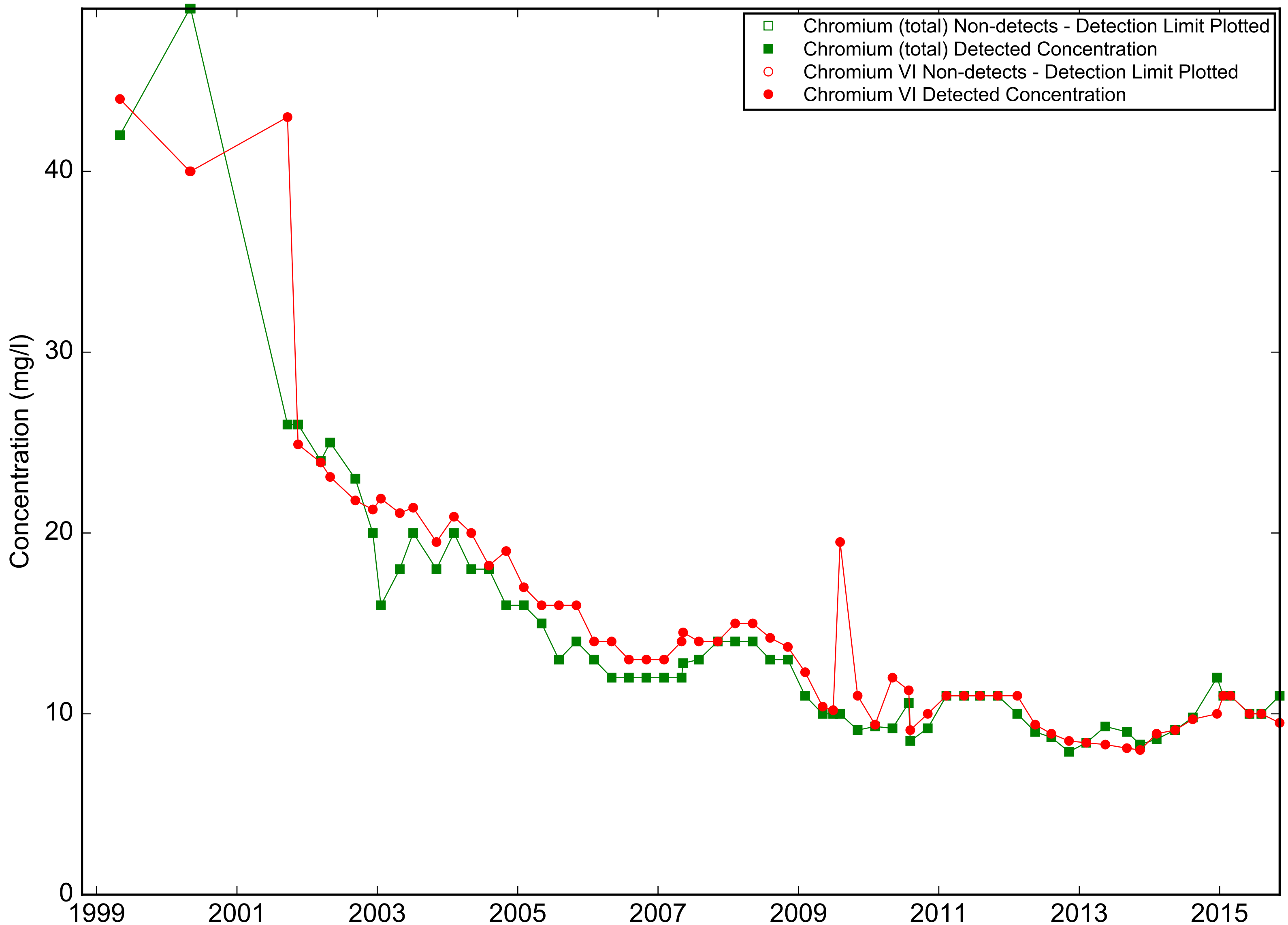

RAMBOLL ENVIRON

Chromium Concentrations in Well M-12A
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-6

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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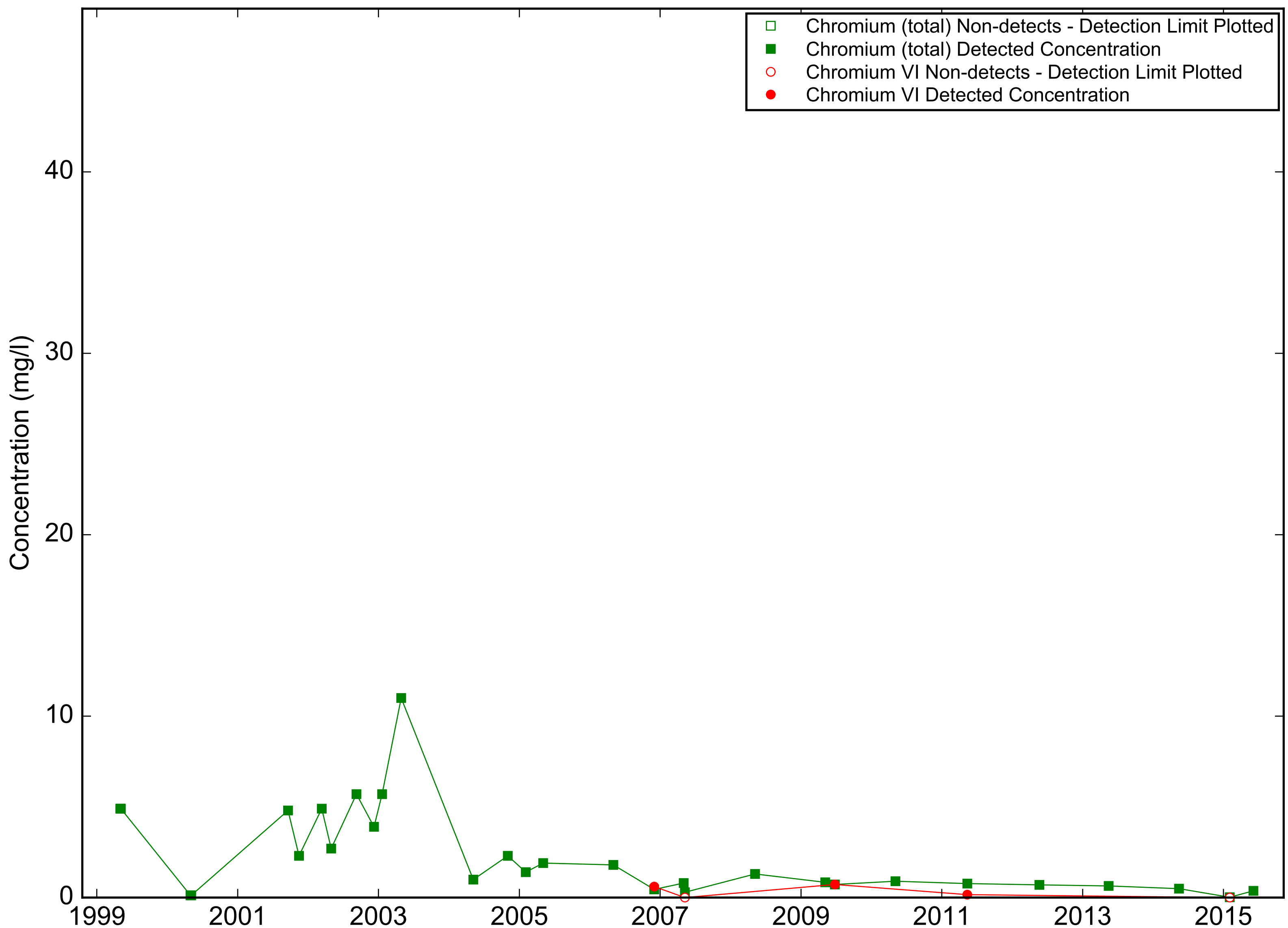

RAMBOLL ENVIRON

Chromium Concentrations in Well M-13
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-7

Drafter: JH	Date: 04/29/2016	Contract Number: 2138800A	Approved:	Revised:

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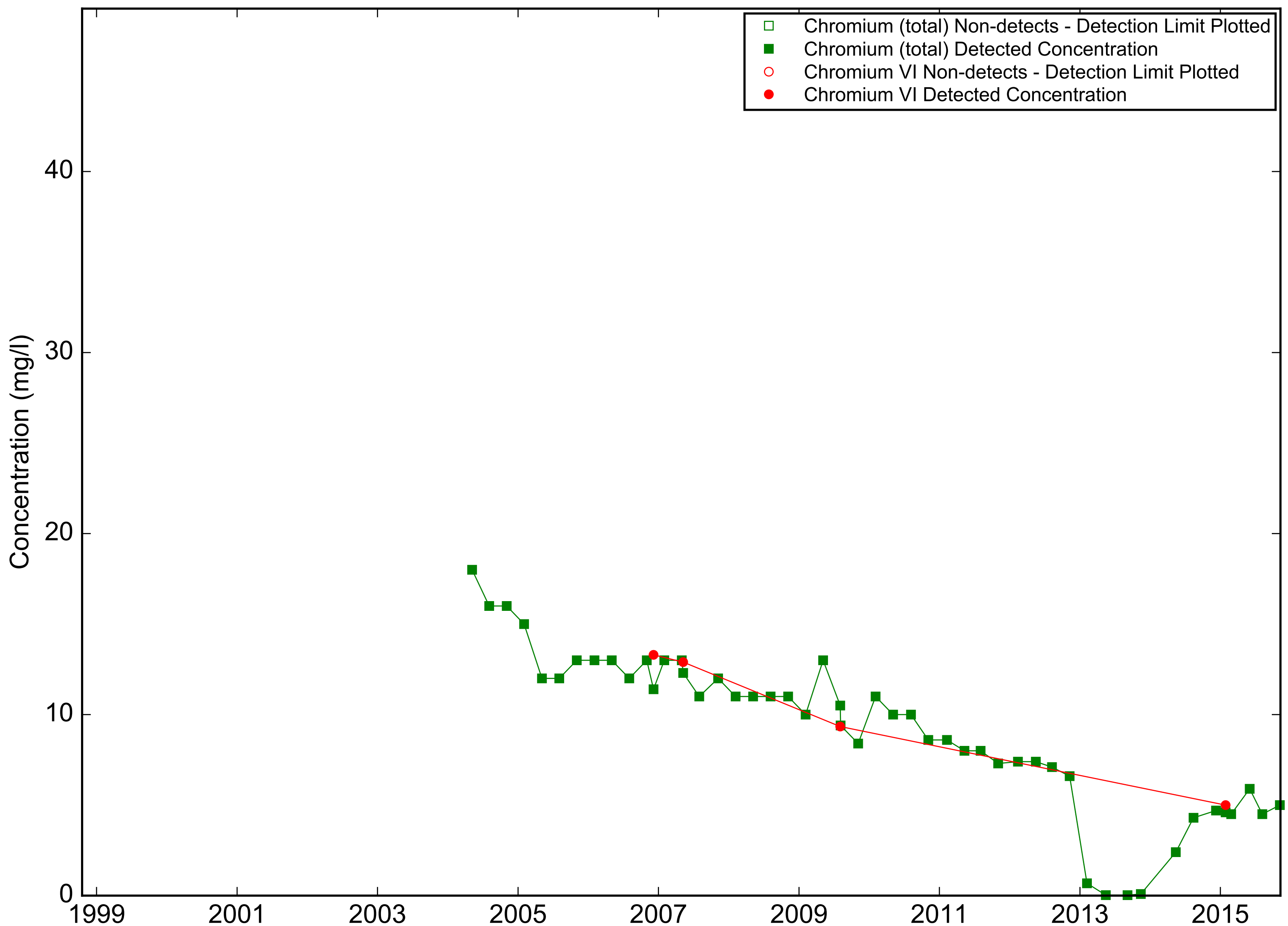

RAMBOLL ENVIRON

Chromium Concentrations in Well M-31A
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-8

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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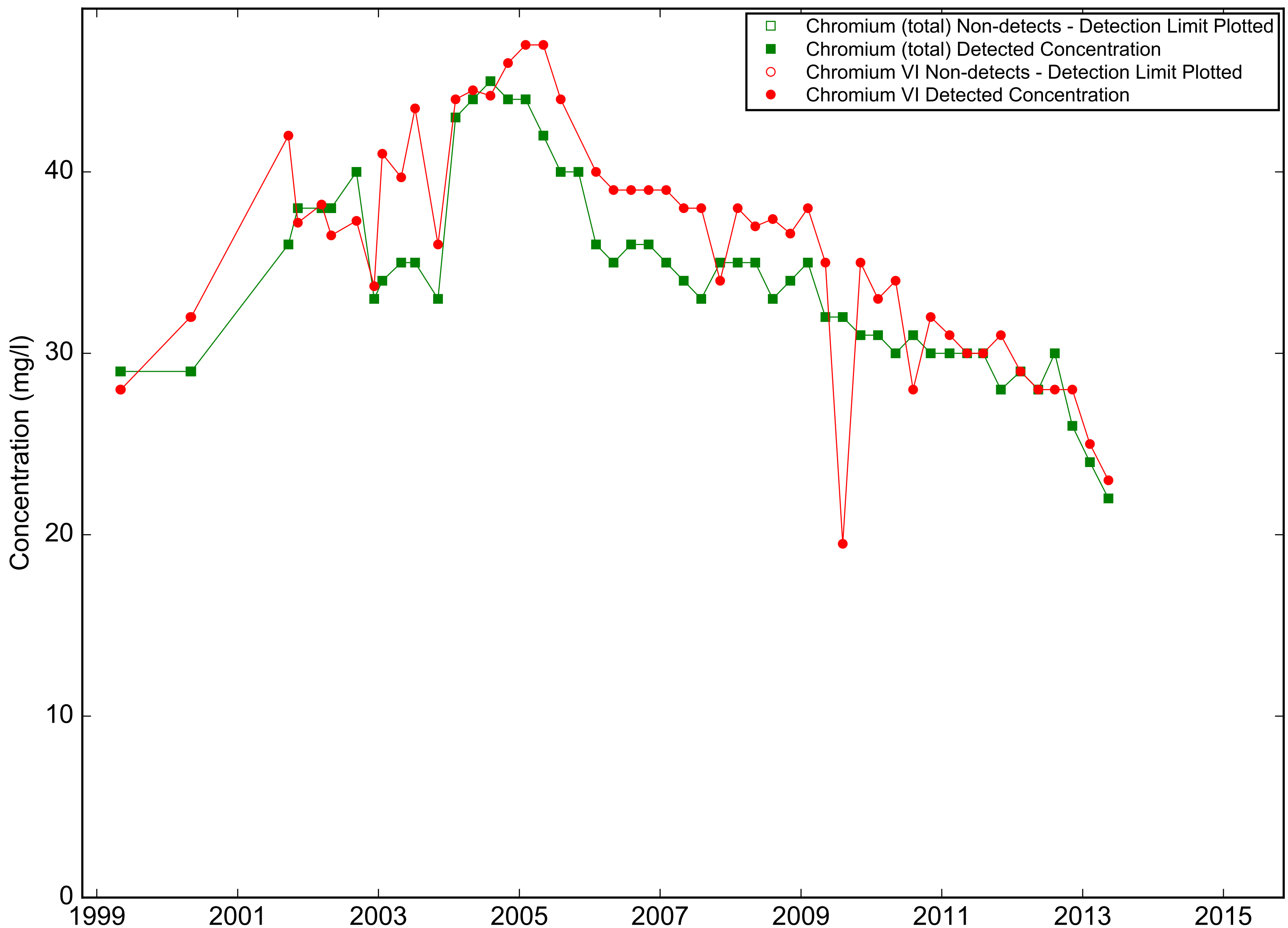

RAMBOLL ENVIRON

Chromium Concentrations in Well M-36
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure

C-9

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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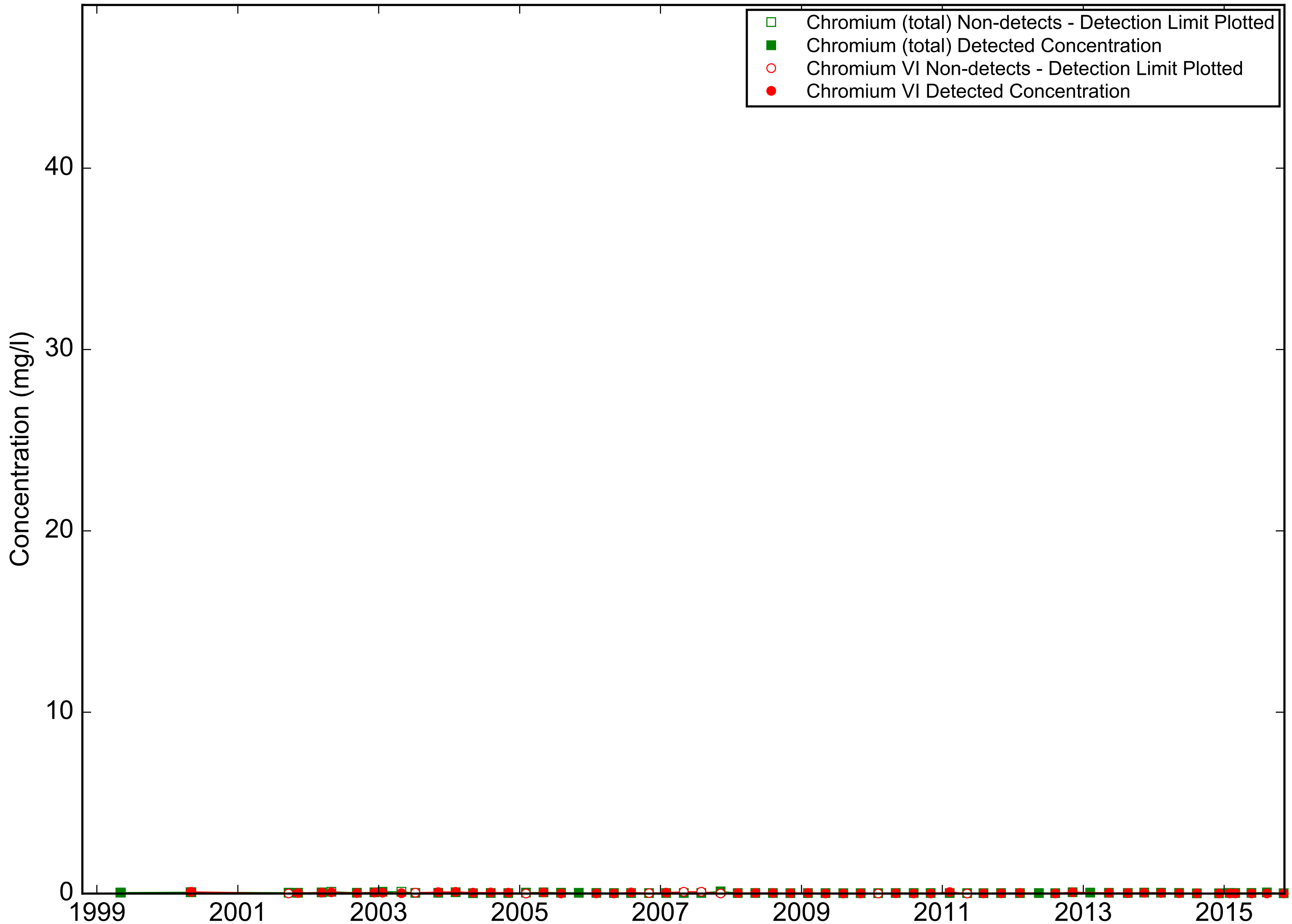

RAMBOLL ENVIRON

Chromium Concentrations in Well M-37
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-10

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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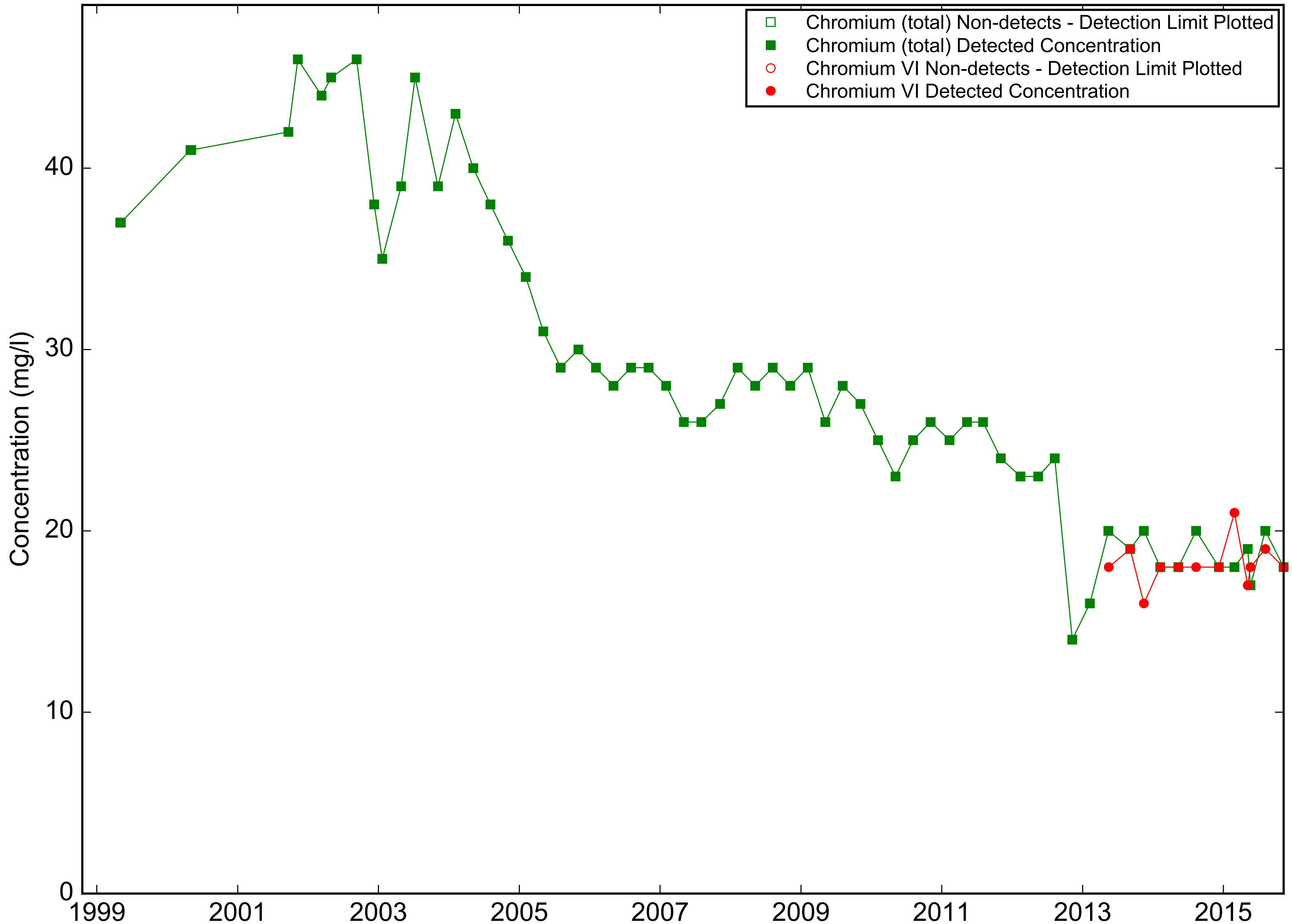

RAMBOLL ENVIRON

Chromium Concentrations in Well M-38
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-11

Drafter: JH	Date: 04/29/2016	Contract Number: 2138800A	Approved:	Revised:

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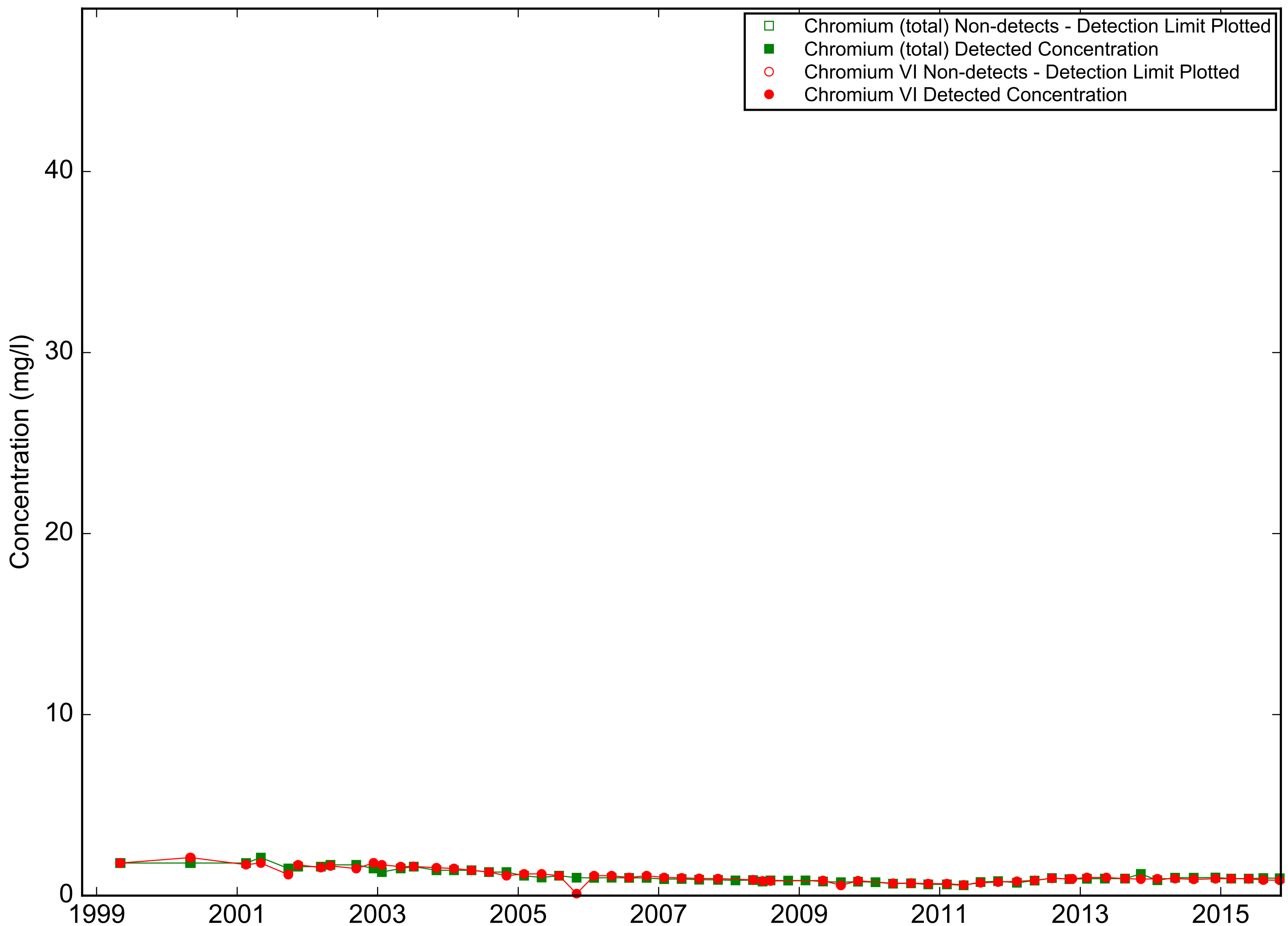

RAMBOLL ENVIRON

Chromium Concentrations in Well M-44
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-12

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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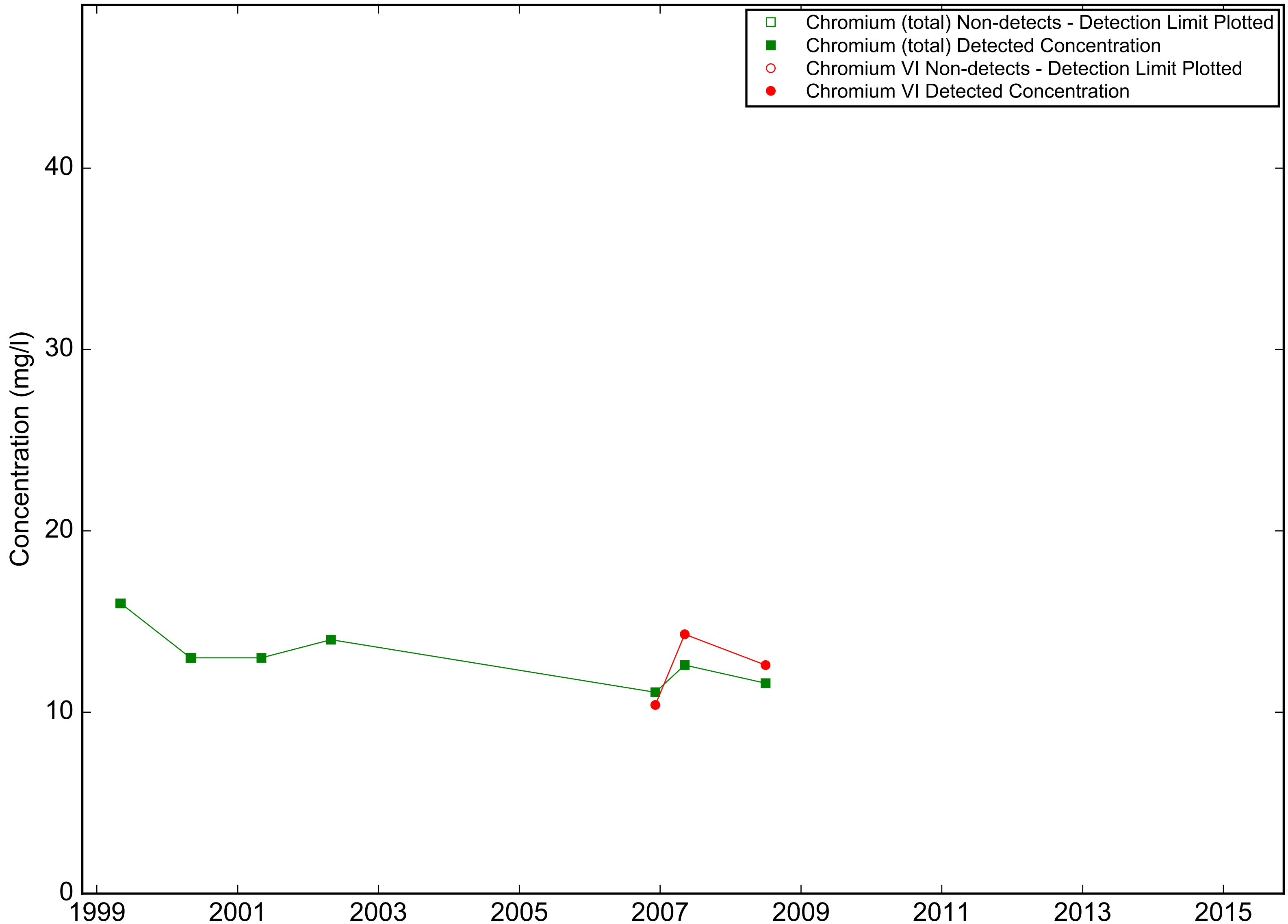

RAMBOLL ENVIRON

Chromium Concentrations in Well M-55
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-13

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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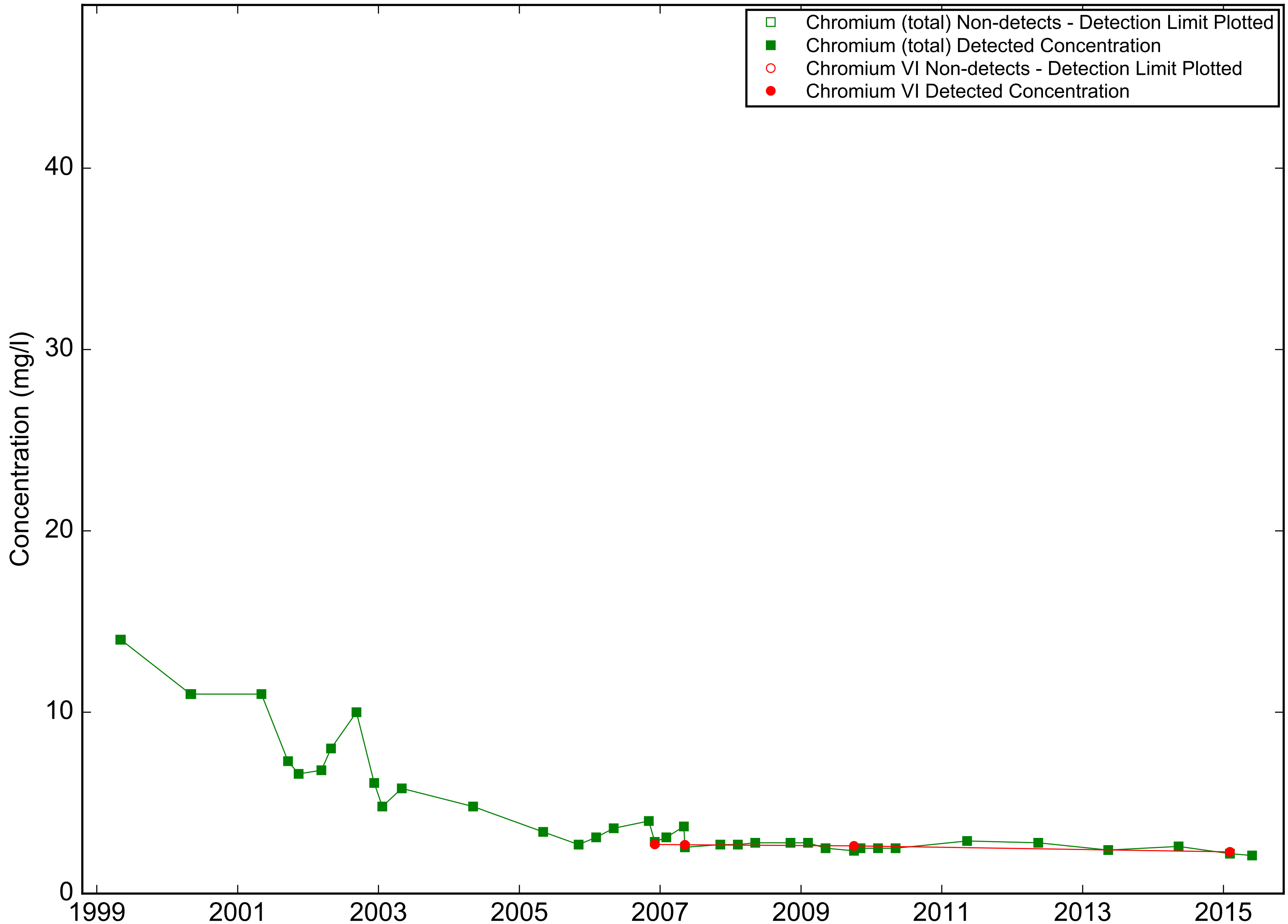

RAMBOLL ENVIRON

Chromium Concentrations in Well M-76
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-14

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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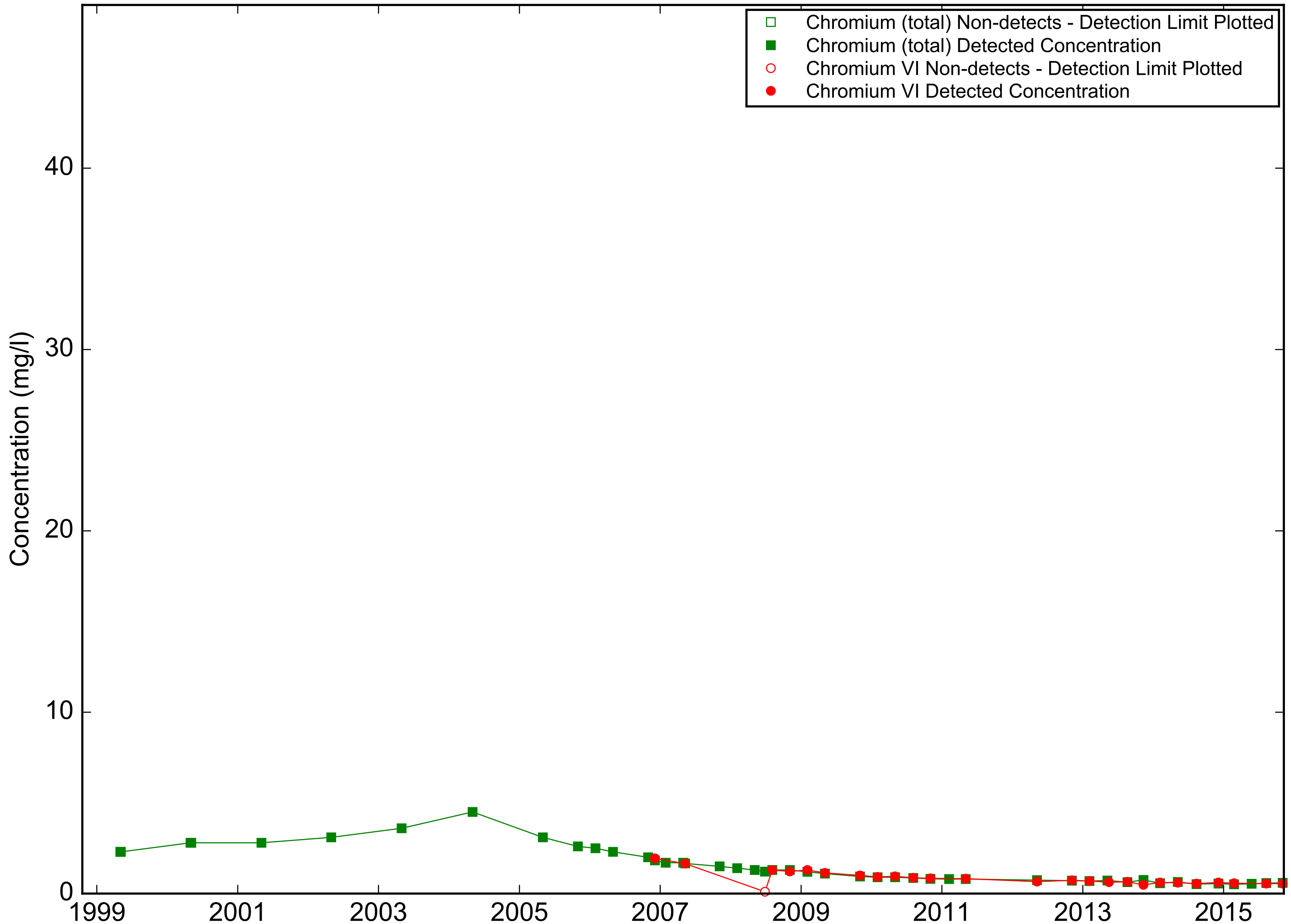

RAMBOLL ENVIRON

Chromium Concentrations in Well M-95
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-15

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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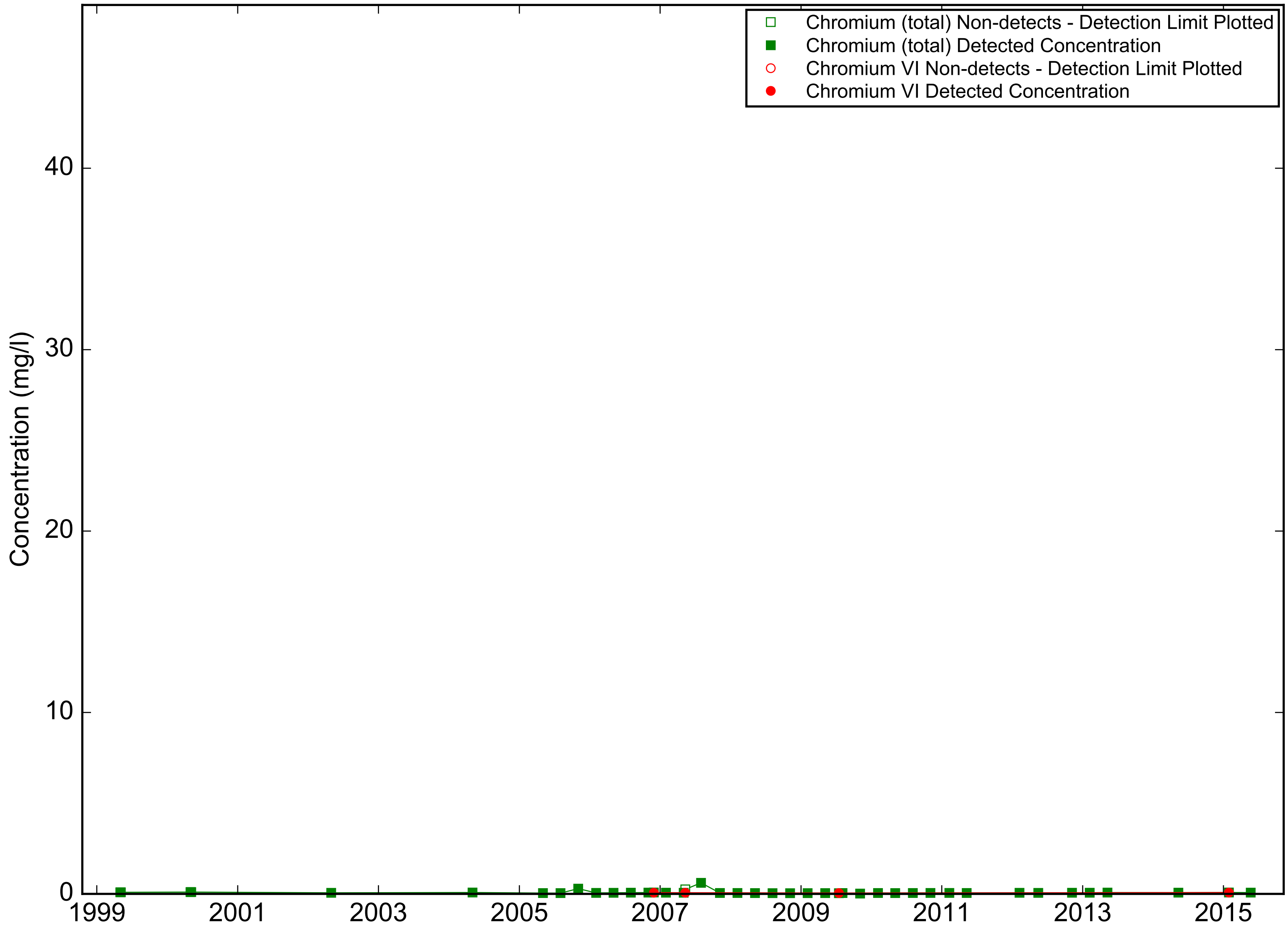

RAMBOLL ENVIRON

Chromium Concentrations in Well M-97
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-16

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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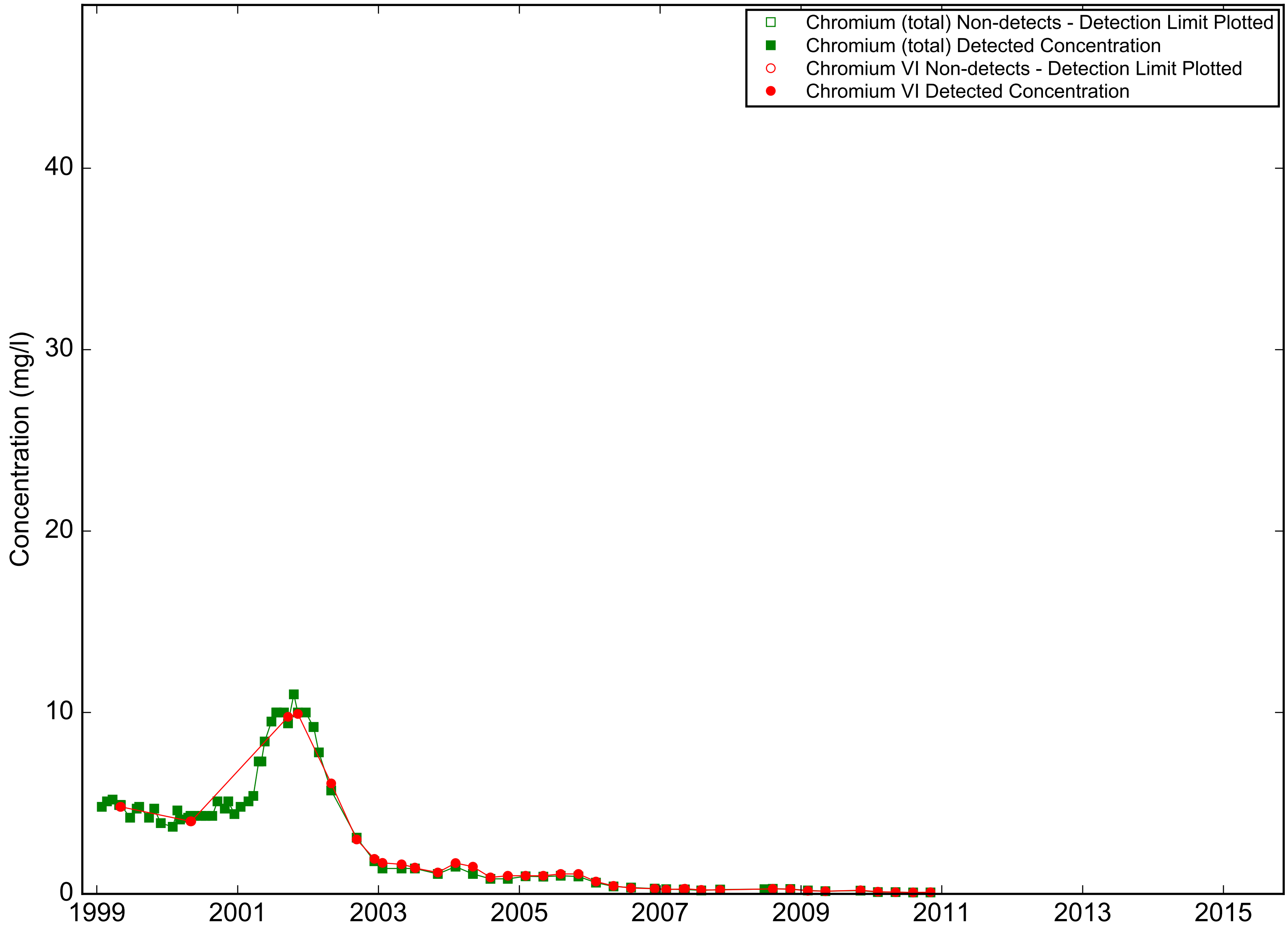

RAMBOLL ENVIRON

Chromium Concentrations in Well M-100
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-17

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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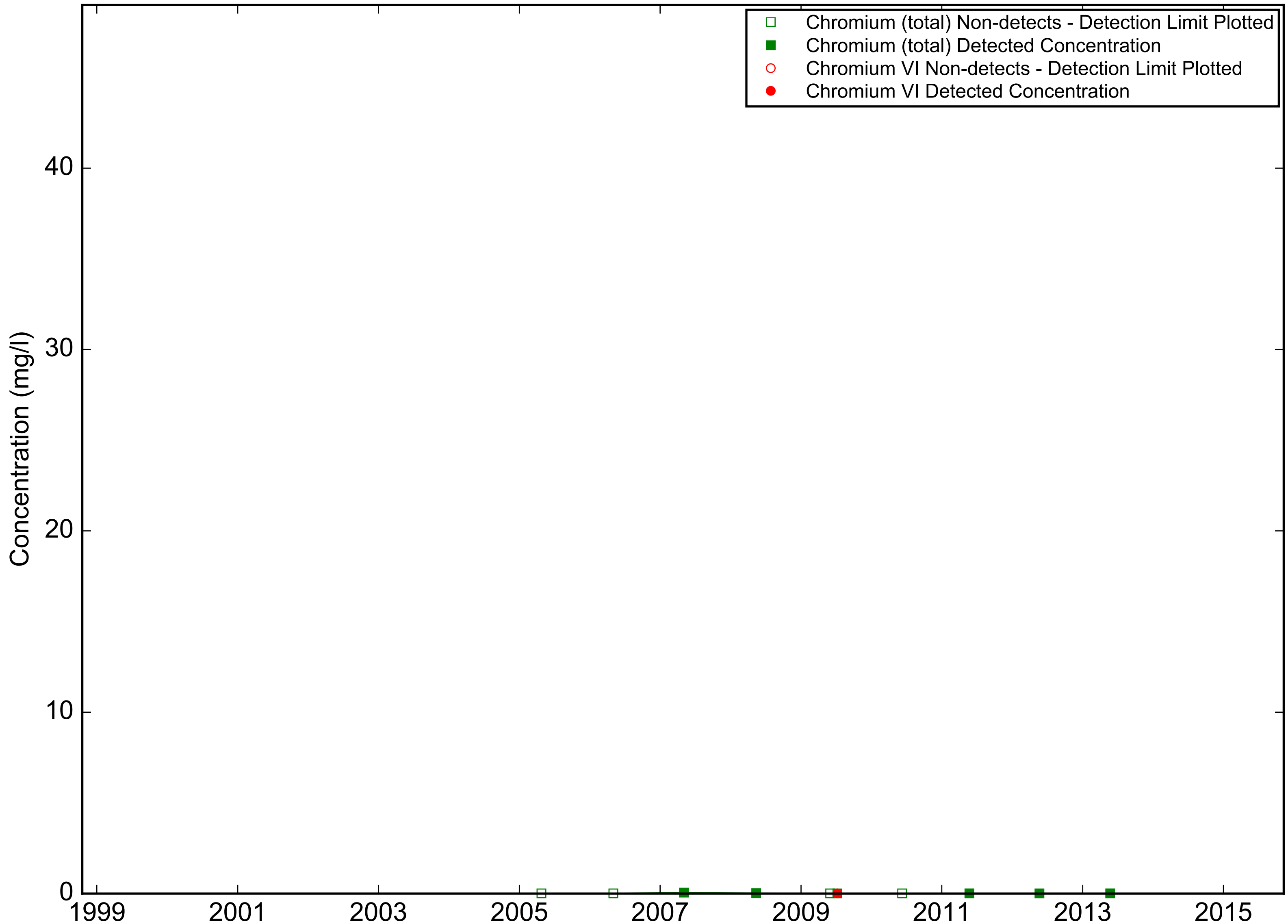

RAMBOLL ENVIRON

Chromium Concentrations in Well M-103
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-18

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

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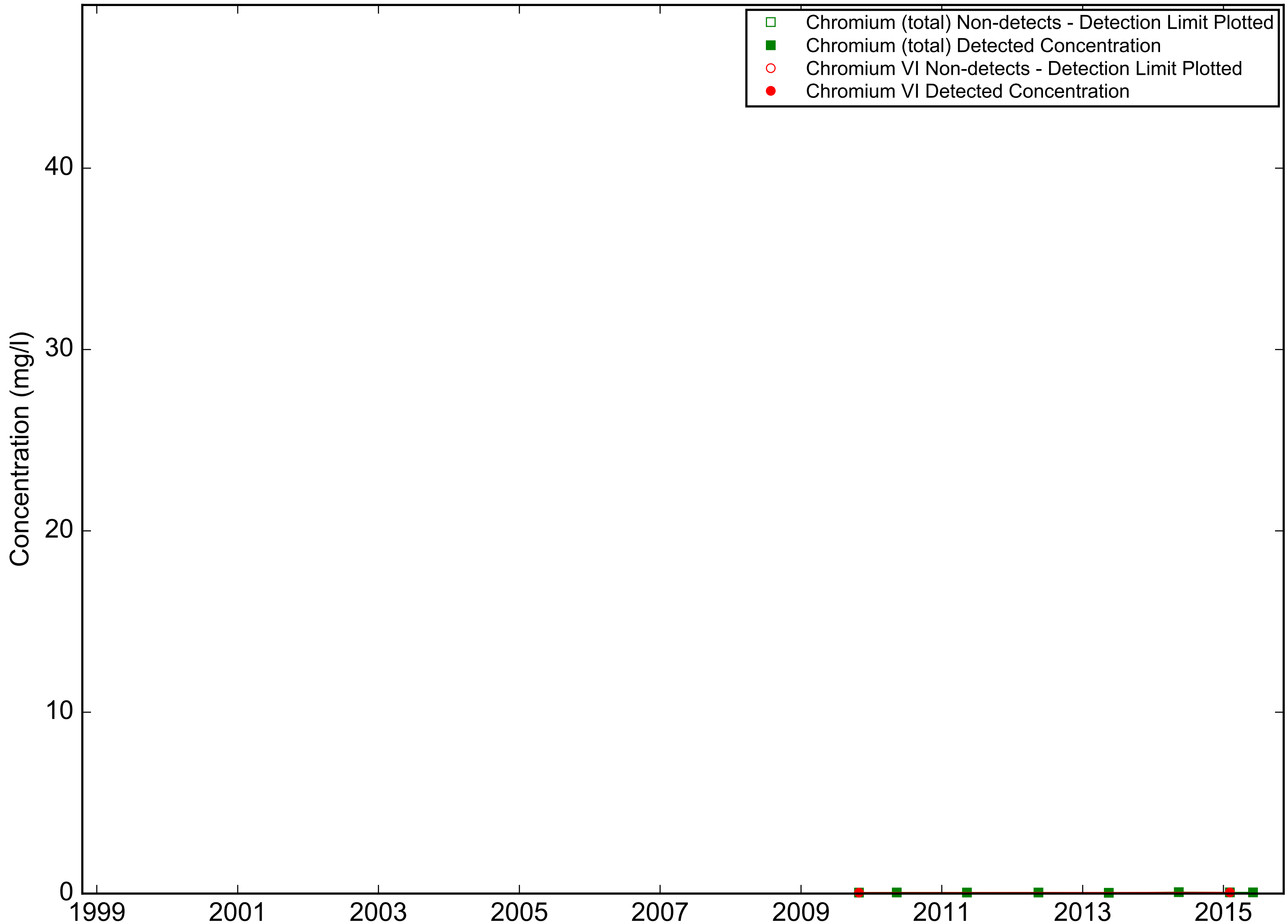

RAMBOLL ENVIRON

Chromium Concentrations in Well M-138
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-19

Drafter: JH	Date: 04/29/2016	Contract Number: 2138800A	Approved:	Revised:

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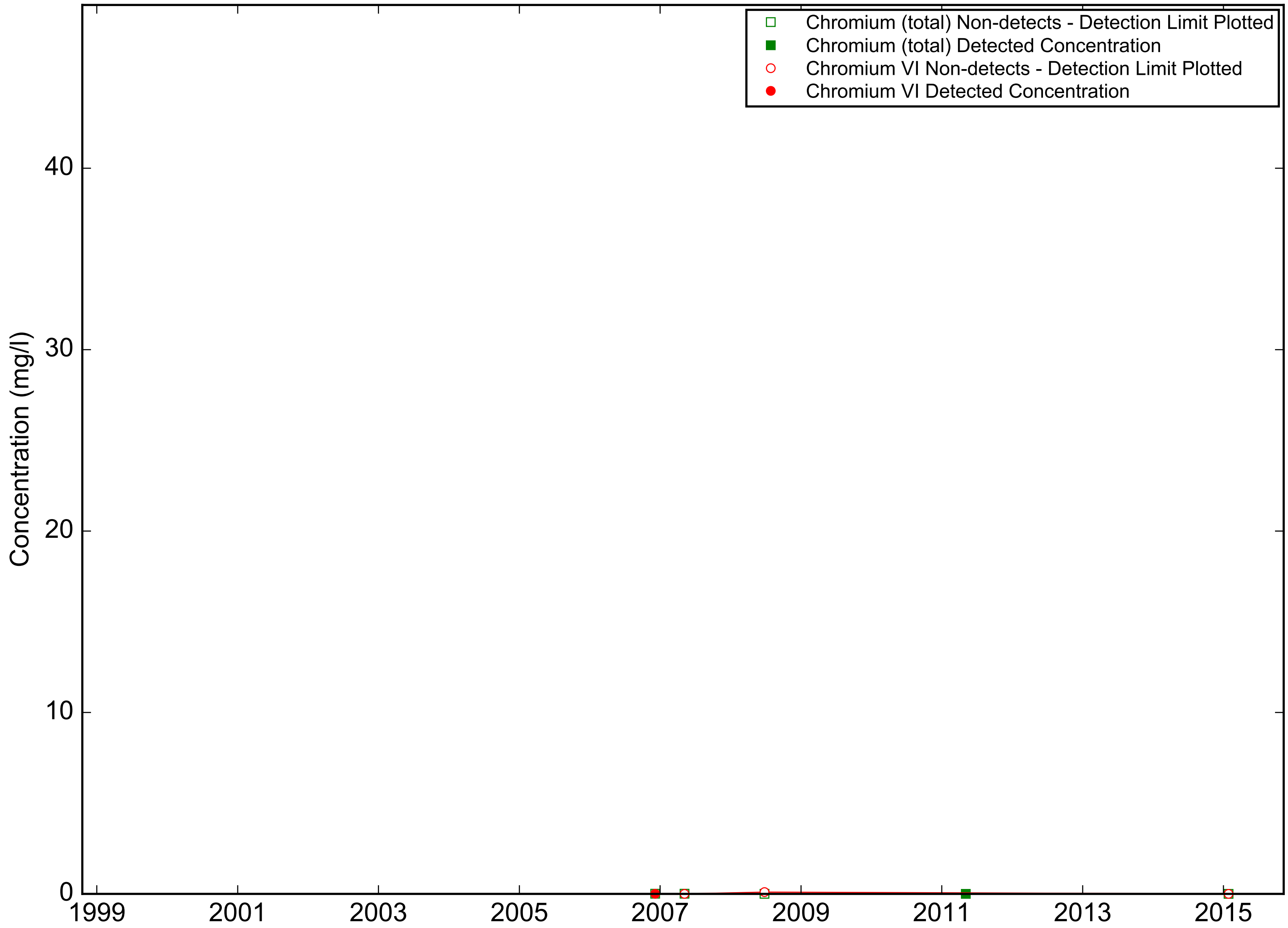

RAMBOLL ENVIRON

Chromium Concentrations in Well MC-45
2016 Groundwater Monitoring Optimization Plan
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
C-20

Drafter: JH | Date: 04/29/2016 | Contract Number: 2138800A | Approved: | Revised:

APPENDIX D

ELECTRONIC DATA DELIVERABLES (EDDS)
(AVAILABLE ELECTRONICALLY ON CD)

APPENDIX E

FIELD GUIDANCE DOCUMENT (FGD) FOR ENVIRONMENTAL WELL DECOMISSIONING
(AVAILABLE ELECTRONICALLY ON CD)

NERT FIELD GUIDANCE DOCUMENT NO. 012

ENVIRONMENTAL WELL DECOMMISSIONING

RAMBOLL ENVIRON

NERT FIELD GUIDANCE DOCUMENT NO. 012

ENVIRONMENTAL WELL DECOMMISSIONING

Prepared By:	Tommy Winger
Peer Reviewed By:	Chris Ritchie, PE
Approved By:	John M. Pekala, PG, CEM
Applicable To:	Nevada Environmental Response Trust Site Henderson, Nevada
Effective Date:	April 29, 2016
Revision Notes:	0 First Issuance
Documents Used as Reference During Preparation:	American Society for Testing and Materials (ASTM). 2012. D5299: Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities. Nevada Division of Water Resources (DWR). 2012. NAC 534: Underground Water and Wells United States Environmental Protection Agency (USEPA). 1975. Manual of Water Well Construction Practices. Office of Water Supply. EPA-570/9-75-001.

CONTENTS

1. INTRODUCTION

This Field Guidance Document (FGD) describes procedures for the decommissioning, abandoning, or closing of environmental monitoring wells at the Nevada Environmental Response Trust (NERT) Site that will be conducted by or under the oversight of Ramboll Environ personnel. The purpose of well decommissioning is to properly remove and seal unsuitable, damaged or unused wells to prevent surface water or contamination from impacting the aquifer and prevent cross-contamination of aquifers that may have been penetrated by the well borehole.

Although this FGD describes procedures for well decommissioning for this project, it should be understood that there may be details of this type of work not specifically discussed in this FGD that would be followed by personnel trained in these techniques. Certain types of wells (e.g., multiple nested wells installed within a single borehole, artesian wells, and deep water production wells with more than one screened interval) warrant special consideration, planning, and methods of decommissioning. Specific requirements for these types of wells, projects and activities will be reviewed by the Ramboll Environ Project Manager and any additional requirements will be defined in a project-specific Work Plan, sampling plan, and/or FGDs. To ensure that well decommissioning is performed in a safe and competent manner, Ramboll Environ personnel involved in field activities should be sure that they understand the scope of work and the level of detail necessary for each field activity prior to mobilizing to perform the work.

All personnel performing on-site operations with the potential for exposure to hazardous substances or health hazards are required to be 40-hour trained in accordance with Code of Federal Regulations (CFR) 1910.120 and will meet the personnel training requirements in accordance with 29 CFR 1910.120(e).

The drilling contractor shall be a licensed water well driller, in accordance with local and state requirements, and a qualified drilling contractor for the decommissioning of groundwater monitoring wells for environmental purposes.

Before work begins, well decommissioning permits must be obtained from the appropriate agency as necessary. Prior to the start of work, an underground utility check will be performed if drilling is anticipated. An underground utility check will, at a minimum, consist of contacting the local utility alert service, e.g., Underground Service Alert (USA), if available. Typically, subsurface clearance should also be conducted by a private utility locating company contacted specifically to clear individual boring locations. Under certain circumstances, including at sites with deeply buried, unknown, or multiple underground utilities, as well as at high risk sites such as oil refineries and other heavy industrial facilities, manual utility clearance using hand auger or air knife methods should also be performed.

This FGD is a guidance document and does not supersede Ramboll Environ Health and Safety procedures or Site-Specific Health and Safety Plan (HASP) requirements. All Ramboll Environ employees shall follow the guidelines, rules, and procedures contained in site-specific HASPs prior to adopting any procedures recommended in this FGD. The Ramboll Environ Project Manager and Task Leader must ensure that all project personnel review and sign the applicable HASP, and that the completed HASP and relevant project information is maintained in the project file. The signatures of the Project Manager and Task Leader indicate approval of the methods and precautions outlined in the HASP. The Ramboll Environ Project Manager and Task Leader will also be responsible for seeing that project personnel involved in field activities follow the procedures outlined in this and other applicable FGDs.

2. EQUIPMENT/MATERIALS

Below is a general checklist of equipment that may be required for the typical decommissioning of environmental wells using pressure grouting and overdrilling methods. This checklist includes a summary of general equipment typically required for well closure efforts and should not be considered exhaustive. The drilling contractor generally will supply the equipment and materials necessary for well closure. Additional equipment may be specified in the project-specific HASP. However, Ramboll Environ oversight personnel should understand the equipment and materials that are required for the driller to complete the scope of work. Equipment and materials that may be needed to conform to this FGD include:

- Health and Safety Plan
- Site information (maps, contact numbers, previous field logs, etc.)
- Well construction information and diagrams
- Drilling rig and associated equipment, such as tremie pipe, and grout mixing and pumping equipment to allow overdrilling of well casing and removal of filter pack materials (supplied by drilling contractor)
- Appropriate sealing materials[1] (supplied by drilling contractor) are specified by the State of Nevada Division of Water Resources and should be selected based on specific state rules or guidance documents, well type, well condition and groundwater quality. Appropriate sealing materials may consist of concrete grout, cement grout, neat Portland cement, bentonite grout/slurry, or hydrated bentonite chips.
- Potable water source
- Tools and equipment to remove surface completion (i.e., flush mount or stickup) and expose and remove the upper three to five feet of well casing
- Pressure grouting fittings and equipment if double-cased wells are to be decommissioned in place (supplied by drilling contractor)
- Equipment to contain displaced groundwater if double-cased wells to be decommissioned in place (supplied by drilling contractor)
- Electronic water level indicator (Solinst or similar)
- Decontamination supplies (e.g. phosphate-free detergent [Alconox or similar])
- Drum(s) or roll-off bin(s)to collect soil cuttings and decontamination water (usually supplied by drilling contractor)
- Drum/bin labels

[1] Local and/or State regulations or guidance may define proper mixing ratios or limitations to create the sealing materials. It should be noted that in some states, sealing materials and procedures need to be approved by regulatory agencies before actual decommissioning of certain wells (e.g. wells with no records, wells that are contaminated with hazardous constituents, wells that are affected by salt intrusion, wells installed in unconsolidated formations that are screened in more than one aquifer, wells which cannot be cleared of all obstructions throughout the entire length and diameter of the well, multiple cased wells).

- Personal Protective Equipment (PPE), typically PPE will consist of:
  - Long-sleeved shirt and long pants
  - Steel-toed boots
  - Hardhat
  - Nitrile gloves
  - Safety glasses with side shields
  - Hearing protection
  - Other protective equipment as required by Health and Safety Plan
- Field Forms (if required, a project-specific Field Logbook may substitute for the Well Abandonment Log)
- Any applicable Permit for Well Abandonment/Decommissioning

3. PROCEDURES

Environmental monitoring wells are typically decommissioned either by sealing the well casing and filter pack materials using grout or another appropriate sealing material applied under pressure (pressure grouting), or by overdrilling the well casing to remove filter pack materials, followed by complete removal of the well casing and subsequent sealing of the borehole using grout or another appropriate sealing material. In some instances, it is acceptable to perforate the well casing and well screen in-place followed by tremie or pressure grouting. Following are general guidelines for the closure of wells using these methods in accordance with the Nevada State Division of Water Resources, as well as planning and general activities applicable to well decommissioning.

3.1 Planning Considerations

For sites managed under a regulatory program or where registration of the wells was required for installation, agency approval may be necessary prior to decommissioning the well. In many cases, a permit must be obtained for the decommissioning of a groundwater well and the decommissioning is to be performed by contractors licensed as a water or environmental well driller (as appropriate) in the State where the work is being performed. Nevada Division of Water Resources requires an Affidavit to Abandon Monitoring Well(s) and a completed Well Driller's Plugging Report.

Prior to decommissioning of groundwater wells, available well construction details and information on the local geology and hydrogeology should be compiled and reviewed. The complexity of the well construction, the local geology, and the presence or risk of aquifer contamination are factors to consider in planning the closure of a well.

In addition, it is important to understand whether the well (water or soil) is impacted with contaminants at the time of removal to aid in evaluating whether soil cuttings or well water that is displaced during the abandonment process needs special handling in addition to being containerized for subsequent characterization and disposal.

3.2 Pre-Field Work Preparation Guidelines

Prior to mobilization, Ramboll Environ or the licensed driller, as required by local and State requirements, shall procure the required Affidavit to Abandon Monitoring Wells from the Nevada Division of Water Resources. Copies of such permits shall be maintained in the project file for the duration of the project. In addition, depending on the well(s) location, other permits (such as an encroachment permit) may be required to access the work area.

At a minimum, the following tasks should be completed to prepare field staff for what may be expected during implementation of the work:

- Review and sign the site-specific HASP;
- Coordinate and obtain permission for site access;
- Complete a subsurface clearance activities if overdrilling methods will be used;
- Review project-specific Quality Assurance Project Plan (QAPP), where applicable; and

- Review and discuss with the Project Manager or Task Leader the proposed Work Plan/sampling plan or sampling strategy.

In addition, prior to initiating the well closure activities, Ramboll Environ oversight personnel should field verify the well identity and construction against available documentation (Site Plans, Well Construction Logs, etc.)? It is imperative that a positive well identification be made prior to decommissioning using well labels, site plans and maps, and well construction records to ensure that the correct well is decommissioned.

Field measurements may include:

- Water level and total depth measurements using an electronic water level indicator and/or
- Borehole geophysics or downhole camera surveys can be used to confirm well construction details (e.g., screened interval) and assess the well's condition.

3.3 General Pre-Well Decommissioning Activities

Prior to well decommissioning, Ramboll Environ oversight personnel should measure and record the depth to water and total well depth using an electronic water level indicator. If required, borehole geophysics or downhole camera surveys should be completed before initiating well closure activities. The field data and findings of the pre-well closure activities should be recorded in the field notebook or log.

3.4 Well Decommissioning by Overdrilling and Removal of Well Materials

The Nevada Division of Water Resources prefers that environmental wells are decommissioned by removing all well materials from the subsurface prior to grouting, if possible. In these cases, wells are typically decommissioned by overdrilling the well casing to remove the filter pack materials, followed by removal of the well casing and subsequent sealing of the borehole using grout or another appropriate sealing material. Overdrilling and removal of well materials most commonly require use of a hollow-stem auger (HSA) drill rig. While HSA is usually the most appropriate and cost effective drilling method, depending on site conditions, other methods such as mud or air rotary drilling can be used. In general, overdrilling with HSA is preferred because it allows the filter pack materials to be drilled out and contained, followed by removal of the intact well casing. Overdrilling with mud or air rotary drilling breaks up the well casing, the annular seal and the filter pack, and removes the well materials from borehole with the circulating drilling fluid.

Note that overdrilling of wells installed with cement grout annular seals requires larger diameter tooling than the original borehole and special attention to ensure the tooling remains plumb over the borehole and successfully removes all of the well materials.

Since HSA is the most commonly used method for decommissioning by overdrilling, the general steps for this method of well decommissioning are outlined below.

- During well decommissioning, Ramboll Environ oversight personnel should communicate regularly with the driller to understand and document significant changes in material penetrated, drilling conditions, hydraulic pressure, and drilling action. Ramboll Environ oversight personnel should be present during drilling and removal of the well casing and screen to observe and record materials as they are removed and/or added to the borehole, including times, quantities, and depths. Observations and field data should be recorded in the field notebook.

- Prior to overdrilling, the above ground protective casing or vault box should be removed.
- The driller will use the drill rig to insert rods into the well casing to the terminal depth of the well. The rod within the casing is intended to limit damage to the well casing or screen by the rotating drill bit and augers.
- Once the rod has been inserted the full length of the well casing and screen, overdrilling the total depth of the well can commence. Note that the HSA must be of sufficient diameter to provide clearance for the well casing and avoid twisting, breaking, or otherwise damaging the well materials, which can result in delays; it is recommended that the inside auger diameter be 2 inches larger than the well diameter. Should damage to the casing or screen be observed (e.g., presence of PVC shavings in soil cuttings); this should be noted in the field notebook.
- During overdrilling soil cuttings brought to the surface by the auger should be noted by Ramboll Environ oversight personnel. The driller shall place the materials into 55-gallon drums or other appropriate container for management. If the soils and groundwater are known to not be contaminated, state or regulatory program requirements should be consulted to determine if soil cuttings must contained.
- Once the HSA has been advanced to the total depth of the well, the driller will remove the rod and clear the borehole. Often the removal of the rod will facilitate or take place concurrently with the removal of the well casing and screen.
- The driller will remove the entire length of screen and casing and Ramboll Environ oversight personnel should measure and record the length of well screen and casing removed in the field notebook.
- If the casing and screen are not easily removed with the use of the rod, the driller may place a slip-cap on the end of the well casing, secure it with bolts, and lift it with the aid of the drill rig.
- Should a well casing break during removal and not be recoverable, regulatory program-specific guidelines and requirements or well decommissioning permit requirements should be followed. This may include communications with the Project Manager and/or Task Leader, regulators and/or the client. Ultimately, any casing left in-place should be completely surrounded by sealing material so the closed well will not act as a potential vertical conduit for contaminants from the surface or from surrounding aquifer formations. Alternatives for completing the closure of the broken well casing include:
  - Breaking-up the in-place casing using a smaller diameter drill bit or auger, or
  - Tremie or Pressure grouting the in-place casing and open borehole.
- Following removal of the well casing and screen, the well driller shall then plug the well from the total depth of the well to 50 feet above the uppermost saturated

groundwater stratum or to within 20 feet of the surface of the well with the approved grout (neat cement, cement grout, bentonite chips or bentonite grout containing not less than 20 percent sodium bentonite by weight of water.) A surface plug consisting of neat cement, cement grout, or concrete grout will then be installed from a depth of at least 20 feet below ground surface (bgs) to the surface and the surface repaired to match the surrounding ground surface. This should be accomplished by placing grout in continuous lifts from the bottom of well borehole to the ground surface. Depending on the well decommissioning permit conditions or regulatory program specific guidelines and requirements, grout may be poured through the auger, from the surface (typically if the well is dry and no deeper than approximately 30 feet), or through a tremie pipe; the Project Manager and/or Task Leader should be consulted during the planning stage for direction on this matter. When using a tremie pipe, it is generally recommended that the tip of the tremie pipe remain below the surface of the grout throughout the grouting process to prevent freefall, bridging, and dilution of sealing materials.

- If a tremie pipe is used, the driller will assemble the grout delivery system (tremie pipe, grout mixer), set the containment system for displaced groundwater (if needed), and insert the tremie pipe to the bottom of the well borehole. The driller will begin delivering grout into the well at a relatively low pressure and flow rate, to allow some of the groundwater within the borehole to flow through the remaining filter pack into the surrounding formation, proceeding upward from the bottom of the well.
- As the level of the grout nears the surface, displaced groundwater that has not flowed into the surrounding formation may flow up the borehole. Displaced groundwater should be captured in the containment system (if necessary) and pumped into 55-gallon drums or other appropriate container for management. Once the grout level has reached the surface, grouting should be halted.
- The driller should place additional grout into the well borehole if significant settlement occurs as the grout sets. In some states, it is required that the driller returns to the well no sooner than 24 hours nor later than 72 hours and fill all settling in the well with appropriate grouting materials.
- Ramboll Environ oversight personnel should calculate the well borehole volume and compare it to the volume of grout used to seal the well borehole to ensure that no bridging or void spaces have been created. The volume of grout used should exceed the calculated well borehole volume. These calculations and the actual volume of grout used should be noted on the field notebook.

3.5 In-Place Well Decommissioning

When well construction details are understood and installation records are readily available, and well materials do not break free, in-place well decommissioning by tremie grouting or pressure grouting is acceptable, in accordance with NAC 534. Tremie grouting refers to the process of sealing the well casing and filter pack materials using a tremie pipe to emplace grout or another appropriate sealing material. Tremie grouting is often used to decommission the following types of wells:

- Shallow and/or small-diameter cased environmental wells with simple construction details;

- Wells that do not break free of their surface seal and stuck in the borehole;

If well conditions do not allow tremie grouting, in-place well decommissioning will be completed by pressure grouting. Pressure grouting refers to the process of sealing the well casing and filter pack materials with use of a pump in addition to tremie pipe to emplace grout or another appropriate sealing material under an applied pressure. Pressure grouting is often used to decommission the following types of wells:

- Shallow and/or small-diameter cased environmental wells with simple construction details;
- Wells that do not break free of their surface seal and become stuck in the borehole;
- Deep cased wells with one screened interval;
- Open borehole (uncased) bedrock wells. In such case where well materials are installed in the bedrock borehole, it is common to destroy or ream the borehole prior to pressure grouting. Consult the Project Manager or Task Leader for direction during the planning stage on these additional requirements and procedures.
- Inclined or horizontal wells.

In certain cases additional measures may be required to properly place sealing materials. These cases include wells with long screens across multiple water-bearing zones; wells having an annular seal that was improperly placed during construction; and wells with void spaces present (or potentially present) in the unscreened or double cased interval of the well. In such cases, the driller may perforate the casing using a cutting tool prior to grouting to ensure that the sealing material fills the annular space outside the well casing.

The general steps for in-place well decommissioning by tremie grouting and pressure grouting are outlined below.

- During well decommissioning, Ramboll Environ oversight personnel should communicate regularly with the driller to remain informed on progress and any problems encountered. Ramboll Environ oversight personnel should be present during well decommissioning to observe and record all procedures and materials used including times, quantities, and depths. Observations and field data should be recorded in the field notebook.

- The well shall be cleared of any dedicated pump, pipe, debris, and other obstructions.

- Generally, the above ground protective casing or vault box should be removed and the upper portion of the well casing (e.g., three to five feet below ground surface depending on permit requirements) should be severed and removed prior to grouting. In certain cases (presence of coarse grained materials in the upper five feet), the above ground protective casing or vault box should be removed immediately after the completion of grouting.

- Prior to grouting, the driller shall perforate that portion of the unscreened casing which extends from the bottom of the well to not less than 50 feet above the top of the uppermost saturated groundwater stratum, or to the surface of the well. That portion of the casing must be perforated not less than four times per each 2 linear feet to allow the plugging fluid to penetrate the annular space and the geologic formation. The perforations made in each 2 linear feet of the casing must be made along a horizontal plane of the well bore.

- The driller will assemble the grout delivery system (tremie pipe, a grout mixer, funnel, pump for pressure grouting), set the containment system for displaced groundwater (if needed), and insert the tremie pipe to the bottom of the well. The driller will begin delivering grout into the well slowly to allow some of the groundwater within the casing to flow through the screened interval into the surrounding formation, proceeding upward from the bottom of the well, being sure to prevent freefall, bridging, and dilution of sealing material. The well driller shall then plug the well from the total depth of the well to 50 feet above the uppermost saturated groundwater stratum or to within 20 feet of the surface of the well with the approved grout (neat cement, cement grout, bentonite chips or bentonite grout containing not less than 20 percent sodium bentonite by weight of water.) A surface plug consisting of neat cement, cement grout, or concrete grout will then be installed from a depth of at least 20 feet bgs to the surface.

- If the well is decommissioned by pressure grouting methods, prior to grouting the driller will assemble the required fittings around the top of the well casing to allow for a water-tight seal and monitoring of grout pressure from the top of the well casing. Grouting will then commence under pressure. The State of Nevada does not regulate the pressure used, however typically pressure grouting is performed at a pressure of at least 25 pounds per square inch (psi) for a minimum of 5 minutes or until pump refusal. This delivery generally ensures that the grout is forced through the screened interval, thereby filling voids in the filter pack and sealing the borehole into the surrounding formation.
- As the level of the grout nears the surface, displaced groundwater that has not flowed into the surrounding formation will flow up the well casing. Displaced groundwater should be captured by a containment system and pumped into 55-gallon drums or other appropriate container for management, unless the groundwater is not impacted, and state or regulatory program requirements do not require that displaced groundwater be contained. Once the grout level has reached the surface, grouting should be halted.

- If there is evidence that water-draining formations, or water-bearing formations of different water quality or hydraulic head were encountered during the original monitoring well construction and the casing does not break free, and if bentonite chips are used as the plugging material, the driller must, in addition to the requirements of this section, perforate the casing as needed and place neat cement across each confining formation so that the plugging fluid penetrates the annular space and the geologic formation in that interval. Furthermore, if the lithology and water bearing formations are unknown or poorly understood, bentonite chips must not be used as the plugging material. The driller must plug the monitoring well with neat cement so the plugging fluid penetrates the annular space and the geologic formation.

- The driller should place additional grout into the well borehole if significant settlement occurs as the grout sets. In some states, it is required that the driller returns to the well no sooner than 24 hours nor later than 72 hours and fill all settling in the well with additional grouting materials.

- After the wellhead is removed, it is typical to install a "cap" composed of the grouting material over the borehole that is greater than the diameter of the borehole after which the area should be backfilled with clean fill material, compacted as necessary, and the surface should be restored to match the surrounding ground surface (both elevation and surface cover).

- Ramboll Environ oversight personnel should compare the volume of grout used to seal the well to the well casing volume to ensure that no void spaces have been created within the casing. The volume of grout used should exceed the well casing volume.

3.6 General Post-Well Decommissioning Activities

All equipment that has come into contact with soil, groundwater, and/or grout should be decontaminated. Decontamination liquids and solids should be collected and contained in appropriate containers for management. Any containers of displaced groundwater or decontamination water generated during this process should be sealed, labeled, stored in a safe location, and profiled for appropriate off-site disposal.

4. PRECAUTIONS AND OTHER CONSIDERATIONS

Certain precautions should be taken to ensure safety during the implementation of this FGD. It is important to always remain alert and aware of your surroundings. All personnel performing on-site operations with the potential for exposure to hazardous substances or health hazards are required to be 40-hour trained in accordance with Code of Federal Regulations (CFR) 1910.120 and will meet the personnel training requirements in accordance with 29 CFR 1910.120(e). The drilling contractor shall be a licensed driller in accordance with local and state requirements, and a qualified drilling contractor for the decommissioning of groundwater wells.

Where required, drilling and/or well decommissioning permits are to be procured by the driller prior to mobilization. In addition, well decommissioning or closure forms and documentation are to be submitted to the permitting entity by the driller (refer to Attachment A for requirements for some States). Ramboll Environ should obtain from the driller copies of the driller's well abandonment records after well decommissioning.

The activities described in this FGD require the implementation of a site-specific Health and Safety Plan to inform personnel of the hazards associated with this work and to describe the methods that will be employed to mitigate those hazards. The Health and Safety Plan must be prepared and approved by the Project Manager and the local Health and Safety Coordinator prior to initiating field work

5. RECORDKEEPING

Information collected during well decommissioning may be recorded on individual field forms. If the project requires it, a project-specific Field Logbook may replace individual field forms. Following review by the Project Manager, the original field records will be kept in the project file. The Well Abandonment Log, which is included in Attachment A to this FGD, may be used to document the decommissioning activities. This log includes well abandonment and closure details, as well as well construction information.

Information specific to well decommissioning that should be recorded on the Well Abandonment Log or in the field notebook includes:

- Well ID.
- Positive well identification procedures.
- Name of licensed well driller and license number.
- Well borehole volume.
- Brief description of well decommissioning procedures.
- Type of material used to abandon the well and volume used.
- Casing removed/left in place.
- Any problems encountered and how they were addressed.
- An inventory of investigation-derived wastes generated during the decommissioning.
- A description of any surface reparations made.

APPENDIX A
WELL ABANDONMENT LOG

RAMBOLL ENVIRON
2200 Powell Street, Suite 700
Emeryville, California 94608
(510) 655-7400
Fax (510) 655-9517

WELL ABANDONMENT LOG

PRELIMINARY FIELD DRAFT REVIEW PENDING

PROJECT NAME: ______________________________ FIELD PERSON: ______________________________

PROJECT NUMBER: ______________________________ PROJECT MANAGER: ______________________________

PROJECT LOCATION: ______________________________ DATE: ______________________________

WELL LOCATION: ______________________________
____
____

WELL NUMBER: ______________________________

DATE START: ______________________________

DATE END: ______________________________

GEOLOGIST: ______________________________

DRILLER: ______________________________

DRILLING CO: ______________________________

HELPER: ______________________________

RIG TYPE: ______________________________

TYPE OF BIT: ______________________________
(OR ID/OD OF AUGERS)

DRILLING METHOD: ______________________________

ORIGINAL WELL CONSTRUCTION

(Attach Well Construction Diagram)

Well Casing Depth: ______ft. Material: ______ Diameter: _____in. Boring Depth: ____

Filter Pack Depth: ______to ______ft. Well Bore Diameter: ______in.

Screen Depth: _____to _____ft. Material: ______________________________

Conductor Depth: ______________________ Conductor Diameter: ______________________

WELL CLOSURE

Overdrill Depth: ______

Reamed Borehole Diam: ____________ in. Volume of Reamed Boring: _________gals.

Amount of Casing Removed: _________ ft. Amount of Screen Removed: _________ft.

Depth of Conductor Removed: ________ ft. Condition of Surface Seal: ______________

Agency Inspector (Name, Agency, Phone Number, Address): ______________________________
____

GROUT MIX

Grout Mixed by (COMPANY, LOCATION): ______________________________

Cement: ______________________ 94 Pound Sacks

Bentonite: ______________________ Pounds (____ pounds per sack)

Water: ______________________ Gallons (____ gallons per sack of cement)

Sand: ______________________

Volume of Grout Mixed: ________gals.

Volume of Grout Placed in Borehole: ________gals.

REASON FOR ANY DISCREPANCY BETWEEN VOLUME OF GROUT AND BOREHOLE: ______________________
____
____

APPENDIX F

GROUNDWATER WELL INSPECTION LOG
(AVAILABLE ELECTRONICALLY ON CD)

GROUNDWATER WELL INSPECTION LOG

PRELIMINARY FIELD DRAFT

PROJECT NAME: NERT	FIELD PERSON:
PROJECT NUMBER:	PROJECT MANAGER:
PROJECT LOCATION: Henderson, Nevada	DATE:

WELL ID:	
WELL LOCATION DESCRIPTION:	CASING DIAMETER (IN)/TYPE:
	DEPTH TO WATER (FT BELOW TOC):
	TOTAL DEPTH (FT BELOW TOC):
	STICK-UP (FT):
ACCESS CONSTRAINTS:	
WELL TYPE: MONITORING / EXTRACTION / PRODUCTION / OTHER:	
SURFACE COMPLETION: ABOVEGROUND / FLUSHMOUNT STOVEPIPE / TRAFFIC BOX / VAULT / OTHER:	
SURROUNDING SURFACE: ASPHALT / CONCRETE / BARE GROUND / OTHER:	
TYPE OF WELL CAP:	IS WELL LOCKED? Y / N
PHOTO IDs:	

DAMAGE: ____

____

____

____

____

OTHER OBSERVATIONS: ____

____

____

____

____