ONEIDA COUNTY DEPARTMENT OF
WATER QUALITY & WATER POLLUTION CONTROL

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Anthony J. Picente, Jr.
County Executive

Steven P. Devan, P.E.
Commissioner

April 29, 2019

Gregg Townsend, P.E.
Regional Engineer
NYS Department of Environmental Conservation
317 Washington Street
Watertown, NY 13601

UNITED PARCEL SERVICE

Carol Lamb-Lafay, P.E.
Director – Bureau of Water Permits
Division of Water
NYS Department of Environmental Conservation
625 Broadway, 4th Floor
Albany, NY 12233

Re: Oneida County Sewer District
Quarterly Progress Report – 1st Quarter 2019

Consent Order No. R6-20060823-67

Dear Mr. Townsend and Ms. Lamb-Lafay:

On behalf of Oneida County, I am providing for your review and comment Oneida County's Quarterly Progress Report for the 1st Quarter – 2019 as required per Section XIII – Reporting Requirements of the Consent Order. This document summarizes the status and progress of work completed between January 1, 2019 and March 31, 2019 in support of Consent Order compliance requirements.

Please feel free to contact me should you have any questions or need additional information.

Sincerely,

THE ONEIDA COUNTY DEPARTMENT OF
WATER QUALITY & WATER POLLUTION CONTROL

Steven P. Devan, P.E.
Commissioner

Enclosure: Quarterly Progress Report – 1st Quarter 2019

ecc: Anthony J. Picente, Jr. – Oneida County Executive
Peter M. Rayhill, Esq. – Oneida County Attorney
Karl E. Schrantz, P.E. – O'Brien & Gere Engineers, Inc.
Howard LeFever, P.E. – GHD Consulting Services, Inc.
Randall Young – NYSDEC
Richard Coriale, P.E. – NYSDEC
David Rarick, P.E. – NYSDEC
Michael O'Neil, P.E. – NYSEFC

SANITARY SEWER COLLECTION SYSTEM
QUARTERLY PROGRESS REPORT
1ST QUARTER – 2019
ONEIDA COUNTY SEWER DISTRICT

NYSDEC Consent Order R620060823-67

Prepared for

Oneida County Department of Water Quality
& Water Pollution Control
Steven P. Devan, P.E., Commissioner
51 Leland Avenue
Utica, NY 13502

April 29, 2019

Cazenovia, NY

Syracuse, NY

Utica, NY

Sanitary Sewer Collection System Quarterly Progress Report 1st Quarter - 2019 Oneida County Sewer District NYSDEC Consent Order R620060823-67

Prepared for:

Oneida County Department of Water Quality & Water Pollution Control

Prepared by:

O'Brien & Gere Engineers, Inc.
101 First Street
4th Floor
Utica, NY 13501

April 29, 2019

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1.0 INTRODUCTION

1.1 HISTORICAL BACKGROUND

The Oneida County Sewer District (District) was formed in 1965 through an act by the former Oneida County Board of Supervisors. It is administered by Oneida County through the Oneida County Department of Water Quality and Water Pollution Control (WQ&WPC), which is responsible for the operation of the District's facilities and personnel. District facilities include 45-miles of interceptor sewers, the Sauquoit Creek Pumping Station (SCPS), the Barnes Avenue Pumping Station, and the Water Pollution Control Plant (WPCP). The District services 15 municipalities, nine of which are within the SCPS Basin. These municipalities own and operate their own collection systems.

1.2 PURPOSE

The New York State Department of Environmental Conservation (NYSDEC) and Oneida County (County) entered a Consent Order (No. R620060823-67) due to sanitary sewer overflows (SSO) at the SCPS. In addition to the required mitigation of those SSOs, the Consent Order, with an effective date of December 12, 2011, requires the submission of Quarterly Progress Reports. The intent of this Quarterly Progress Report is to summarize the work that has been undertaken by the County between January 1, 2019 and March 31, 2019 (1st Quarter of 2019) in support of the Consent Order compliance requirements.

2.0 ENGINEERING INVESTIGATIONS AND EVALUATIONS

During the 1st Quarter of 2019, the County completed the following tasks related to engineering investigations and evaluations.

2.1 COLLECTION SYSTEM

2.1.1 Manhole Inspections

The manhole inspection program was completed in 2012. There were no additional manhole inspections completed during the 1st Quarter of 2019.

2.1.2 Sanitary Sewer Televising

There are approximately 216-miles of sanitary sewer within the SCPS basin (30-miles of District interceptor sewer plus 186-miles of municipal sewer). In 2011, the County contracted with a firm (National Water Main Cleaning Co.) to perform closed circuit televising (CCTV) of these sanitary sewers. Televising data was collected electronically in the field using the nationally standardized Pipe Assessment and Certification Program (PACP) and incorporated into the County's data management software.

The 2011 initial televising contract resulted in approximately 79%, or 171-miles, of the 216-miles of sewers being televised. The remaining 21%, or 47-miles of sewers, were not inspected at that time due to: heavy debris in quantities beyond the scope of the contractual cleaning effort; small diameter pipe inhibiting effective CCTV inspections; lack of easement access to manholes and sewers; and buried manholes. These obstacles are primarily maintenance related and are being addressed through the District-wide Capacity, Management, Operations, and Maintenance (CMOM) program currently in various stages of implementation. Efforts are being made to CCTV and inspect additional sewers as a component of current and future sewer rehabilitation contracts.

During the 1st Quarter 2019, no additional televising was performed. Including the original CCTV contract, and subsequent CMOM and rehabilitation related CCTV, a total of approximately 195-miles of sewer, or 90% of the total sewers in the SCPS basin, have been televised.

2.1.3 Dye Testing

The dye testing program was completed in 2012. There was no additional dye testing performed during 1st Quarter 2019.

2.2 TREATMENT FACILITIES

Investigations, evaluations, and designs have been completed. Upgrades and new construction associated with the WPCP, SCPS, and New Force Main are in various stages of construction. Table 2.1 summarizes how the work has been segregated, and the status of each of the various planned construction contracts. Note: Contract numbers identified for the work at the WPCP and the SCPS/Force Main (C-1 through C-8), do not correlate to the sanitary sewer rehabilitation contracts (Contracts 2-16).

Oneida County Sewer District

Summary of Contracts 1Q 2019

Water Pollution Control Plant and Sauquoit Creek Pumping Station/Force Main

Contract No.	Title of Contract	Components of System Addressed	Status of Design	Status of NYSDEC Review	Status of other Agency Reviews	Estimated Advertisement	Estimated [(1)] Construction Start	Construction Progress	Estimated Construction Complete
1	Incinerator No. 2 Demolition	Demolition of Incinerator No. 2	Final	Approved	n/a	Bidding occurred during 1Q 2016; however, due to the outcome of bids, the demolition was added to Contract 2 by addendum on May 25, 2016.			
2	WPCP Solids Handling Upgrades	2 new egg-shaped digesters, 1 secondary digester w/gas holding cover, new waste activated sludge pumps, refurbish 4 gravity thickeners, new stand-by lime stabilization system, 2 new belt filter presses.	Final	Approved	n/a	Advertised April 4, 2016	Notice to Proceed September 27, 2016	Construction substantially complete in January 2019. Punch lists issued to all four prime contractors. The digesters start-up complete and are producing biogas, which is being used to produce electricity at the microturbines. Contractors are working on finishing their punch-list items in anticipation of final payment. Final startup/commissioning and SCADA programming is ongoing.	April 2019
3A	Electrical Equipment Pre-Purchase (Digester 15kV)	Pre-purchase of major electrical components such as switch gears, transformers, and supporting power distribution equipment.	Final	n/a	n/a	April 2017	Equipment delivery October 2017	Equipment has been installed and tested. Training has been provided to the Owner.	n/a
4	Sauquoit Creek Force Main Upgrades	New 48-inch force main and rehabilitation of the existing force main, new flow metering and flow control vaults.	Final	Approved	Approved	Advertised December 15, 2017	July 2018	Began pipeline construction, negotiated Change Order No. 1 (approx. 9,000 feet of pipeline on piles), ongoing installation of trench support sheeting along railroad ROW, installed first two CARV units, installed sheeted jack/bore pits for CSX crossing (waiting for CSX flagger to complete the work).	March 2021
5	Sauquoit Creek Pumping Station Upgrades	Replacement of existing pump station mechanical screen contained in a new screen building, 2 screenings washer/compactors and conveyor; replacement of existing standby generator capable of operating the station to pump peak flow during a power outage; electrical/HVAC upgrades; flow distribution structure at the WPCP.	Final	Approved	n/a	November 2016	July 2017	Note - Site and buildings impacted by 1/24/2019 ice jam/flooding: New Screenings Building: Facility is generally operational (SCADA, building access/security pending); new emergency generator fully operational; fiber optic duct bank installed (fiber installed by Northland Communications); interim site work completed (final sitework scheduled for Spring/Summer 2019); punch list items. Existing Pumping Station Building: Electrical, HVAC, and plumbing renovations nearly complete. Flood barriers/doors installed. Coordination of control system in support of the pending switchover of pumps to new VFDs and PLCs.	June 2019

Oneida County Sewer District

Summary of Contracts 1Q 2019

Water Pollution Control Plant and Sauquoit Creek Pumping Station/Force Main

Contract No.	Title of Contract	Components of System Addressed	Status of Design	Status of NYSDEC Review	Status of other Agency Reviews	Estimated Advertisement	Estimated [(1)] Construction Start	Construction Progress	Estimated Construction Complete
5.1	Barnes Avenue Pumping Station Upgrades	Relocation of pumping station to south side of CSX Railroad right-of-way; new, smaller, sustainable pumping station sized to accommodate actual flow rates.	0%	n/a	n/a	December 2019	April 2020	CSX continues to be non-responsive to numerous requests for site access via service road under NYS Route 8/12 bridge. Later Q3 2019 design start (pending).	December 2020
6	WPCP Headworks Upgrades	New screening facility and pump station dedicated to sanitary flows from North Utica & Starch Factory Creek Interceptors; repurpose existing raw waste building for combined flow from City of Utica; new grit removal facilities; remodeling of the administrative building including new laboratory, control room, offices, training room, etc.	Final	Approved	Pending National Grid approval, Stage A submitted in February 2016	March 2017	September 2017	Influent Building: Concrete work below grade complete, masonry work ongoing for at-grade portion of building. Roof planks installed. New pumps set in place, installation of new interior piping, HVAC systems, plumbing, and electrical is ongoing. New electrical unit substation has been placed on a pad south of the building. Grit Removal: Grit building concrete masonry complete, grit removal trays installed in Grit Building No. 2 and 3. Grit pumps set in place, interior piping, HVAC, plumbing, and electrical work ongoing. Refurbishment of Grit Building No. 1 is ongoing. Administration Building: Significant rehabilitation of the building is nearly complete (including office space, laboratory, locker rooms, maintenance shop, cafeterias, training rooms, SCADA control room, etc.). Interior HVAC, plumbing, fire suppression, and electrical approximately 95% complete. County staff are anticipated to re-occupy the building in May. Electrical: New receiving structure/tower for 46kV equipment installed. New pre-fabricated Switchgear Building and Generator Buildings received and placed on concrete foundations. Grounding grid complete. New generator fuel system installed, installation of controls system ongoing.	May 2020

Oneida County Sewer District

Summary of Contracts 1Q 2019

Water Pollution Control Plant and Sauquoit Creek Pumping Station/Force Main

Contract No.	Title of Contract	Components of System Addressed	Status of Design	Status of NYSDEC Review	Status of other Agency Reviews	Estimated Advertisement	Estimated [(1)] Construction Start	Construction Progress	Estimated Construction Complete
7	WPCP Primary Treatment Upgrade/Disinfection	New rectangular primary settling tanks to replace existing circular tanks; new high rate disinfection system for wet weather combined sewer flows; new HRD outfall.	Final	Submitted December 9, 2016	n/a	Advertised November 28, 2017	May 2018	HRD: Excavation, pile driving, and concrete slab complete for HRD tank. Concrete wall pouring ongoing for HRD tank. Primary Settling Tanks No. 1 and 2: Demolition of existing tanks complete. Excavation and pile driving for new tanks complete. Concrete slab and wall work complete for Primary Settling Tank No. 1 and 2 equipment gallery area. Concrete slab complete and wall work ongoing for Primary Settling Tank No. 1 and 2 tank area. Disinfection Building: Fire alarm replaced. Building roof replaced. Administration and Operations Building: Demolition of one existing primary sludge degritting unit complete.	December 2021
8	WPCP Secondary Treatment Process Upgrades	Replacement of existing blowers with more efficient units; refurbishment of the existing Blower Building including upgrades to electrical, HVAC, plumbing and structural systems; refurbishment of existing Aeration Tanks including replacement of existing diffusers and structural upgrades, refurbishment of existing Final Settling Tanks including replacement of existing clarifier mechanisms and structural upgrades; new Asset Management Building; upgrades to site wide civil infrastructure including stormwater, fencing and gates; revisions to site electrical system including demolition of existing substation.	95%	Submitted February 2019	n/a	Estimated June 2019	Estimated October 2019	n/a	December 2021

3.0 MANAGEMENT PROGRAMS

3.1 COMPUTERIZED MANAGEMENT AND MAINTENANCE SYSTEM

The County purchased a Computerized Management and Maintenance System (CMMS) software system (Lucity) in 2009. This software is used to manage the sewer system data (mapping, inspections, etc.) obtained to date by the County. At the same time that the software was acquired, the County invested in computer hardware upgrades to support the CMMS. The County's Geographic Information System (GIS) Coordinator manages the system.

The County continues to utilize the CMMS for tracking and documenting sewer rehabilitation work, and uploading and managing new PACP data provided by the County's CCTV and sewer rehabilitation contractors on a regular basis.

The Consultant Team utilizes the CMMS in support of the sanitary sewer rehabilitation design efforts to identify defects and develop rehabilitation methodologies.

3.1.1 Asset Management

The County continues to maximize the use of its current CMMS software. At the same time, the County, with the assistance of the Consultant Team, continues to assess ways to optimize the CMMS with the long-term expanded asset management needs for the wastewater system. In accordance with Schedule C, Section B.4 of the Consent Order, the Consultant Team developed a proposed asset management program for the Department of Water Quality and Water Pollution Control. A Request for Proposal was developed for asset management software which was issued in 4th Quarter of 2018 for potential respondents. Proposals were received and reviewed by the County and Consultant Team. A short list of respondents was subsequently interviewed in the 1st Quarter of 2019. A tentative selection has been made.

3.2 FLOW MONITORING PROGRAM AND HYDRAULIC MODEL

The County worked closely with the Dormitory Authority of the State of New York (DASNY) to secure the $950,000 Economic Development Assistance Program (EDAP) funding allocation to support the extensive flow monitoring program proposed by the County and approved by NYSDEC on August 24, 2012.

The EDAP funds were ultimately made available by DASNY to the County in March 2014. Procurement of the flow monitoring equipment was advertised on June 9, 2014. Contract was awarded on September 10, 2014 to ADS Environmental Services, LLC (ADS). ADS completed the installation of 63 flow meters and five rain gauges in 2015. Two of the meters were installed to monitor flow to the County's Barnes Ave Pumping Station, and three are used to monitor flow in the City of Utica's combined sewers to aid in hydraulic model calibration and confirmation. There are 44 meters located in the Sauquoit Creek Pump Station (SCPS) drainage basin, and 14 meters located outside the SCPS basin. The flow meters and rain gauges have been consistently collecting flow data since their installation.

Flow metering reporting made available to the County by ADS indicates sanitary sewer rehabilitation, including manhole rehabilitation that has been completed to date, may be having a positive effect on the amount of I/I entering the sanitary sewer system. Raw flow monitoring data, consisting of 15-minute measurements of depth and velocity, are reviewed by ADS technicians who are able to assess the reliability of the data, and "scrub" out data that is deemed not accurate based on inconsistencies in the expected predictable relationship between depth, velocity, and rate of flow.

ADS technicians input the cleaned-up data into Sliicer, which is ADS' proprietary flow analyzing software. Sliicer enables the flow monitoring technician to define "typical" rain events for both summer and winter seasons, and analyze the rain event's effect on the flow in the sanitary sewer as measured by the flow monitors. This forms the basis of evaluating the quantity of Rain Derived I/I, or RDII.

The 2017 1st Quarter progress report presented a summary of 2016 and early 2017 rainfall and flow data from ADS that was used to evaluate the potential reductions of RDII in basins where sewer rehabilitation projects were completed. The 2018 1st Quarter progress report presented the evaluation and findings of the hydraulic model calibrations, which were used to compare and evaluate the effectiveness of the I/I removal projects upstream of the SCPS. This 2019 1st Quarter progress report presents an update of the flow monitoring data and RDII analysis for summer 2018 and winter 2019 events.

A critical piece of information that is needed for the effective use of Sliicer, or any other wet-weather analysis tool, is rainfall. Data collected by the rain gauge installed at the SCPS was used for this evaluation and tabular rainfall data from the SCPS rain gauge for January 2017 through January 2019 are included in Appendix A. For comparison purposes, the annual precipitation totals for 2016 to 2018 are shown in the table below, which indicates 2017 and 2018 had higher rainfall totals than 2016.

Annual Precipitation Summary

Year	Annual Precipitation, inches
2016	38.60
2017	53.58
2018	45.38

Utilizing rainfall and flow data from 2017, 2018, and early 2019, Sliicer was used to define the relationship between rainfall and flow in the sewers, also known as flow vs. rainfall, or Q vs. i. The Q vs. i plots are created by placing individual data points on a graph, where the x-axis represents total rainfall depth and the y-axis represents the total RDII volume in the sewer. RDII volume is derived through decomposition of the hydrograph into its component parts of base flow, base infiltration, inflow, and infiltration. Individual storms are plotted on the graph, with each data point representing the total measured rainfall depth and calculated RDII for specific storms. Sliicer then fits a line to the data points, thereby creating the Q vs. i plot. Where flow monitors were installed in the same locations in 2008 as the current installations, a comparison of the slope of the Q vs. i plots can be made for both winter and summer storms. The flatter the slope of the line, the less RDII is entering the sewer.

For the meter locations included in the 2017 1st Quarter progress report (NHD18, NHD20, NHD23, PRS4, PRS5, SCI1, SCI4, and HHI1), the Q vs. i plots compare data from summer 2018 and winter 2019 to 2008 data. Since the 2017 1st Quarter progress report, additional sewer rehabilitation projects were completed in other basins, and the Q vs. i plots for the new meter locations are included in this evaluation for the same periods (meters YKV1, NHD6, and NHD9). The Q vs. i plots for basins where rehabilitation has occurred are included in Appendix B.

A review of the Q vs. i plots indicates that basins where sewer rehabilitation has been completed were generally less reactive to RDII in summer of 2018 and winter of 2019, compared to 2008, before rehabilitation was completed. The exceptions are the plots for NHD18, YKV1A, and the summer plot for SCI1 events. As noted in the 2017 quarterly report, SCI1 represents a meter installed in the Sauquoit Creek Interceptor just downstream from the Village of Clayville, which is at the extreme upstream end of the interceptor. SCI1 summer 2018 shows an increase in RDII (150,000 gallons of RDII for the 2.3-inch storm) from 2008 to 2018. ADS indicated that this condition is due to SCI1 being a basin that is generally not affected by RDII, making pre vs. post-rehabilitation comparisons more difficult. A review of the SCI1 winter 2019 plot seems to support this conclusion, whereas the winter 2008 to winter 2019 RDII reduction is roughly 18,000 gallons of RDII for the 2.3-inch storm.

For meter NHD18, the summer 2018 plot shows an increase in RDII of roughly 60,000 gallons of RDII for the 2.3-inch storm compared to 2008, although the summer 2016 data in the 2017 progress report showed a decrease in RDII. The annual precipitation for 2018 was higher than 2016, which may explain the increase in RDII for

2018. Similarly, the winter plot for NHD18 showed the RDII at the 2.3-inch storm to be nearly identical for 2019 and 2008, although the winter 2017 data showed a decrease in RDII.

For meter YKV1A, the summer 2018 plot shows an increase in RDII of roughly 160,000 gallons for the 2.3-inch storm compared to 2008, and the winter plot for 2019 shows a 200,000 gallon increase in RDII for the 2.3-inch storm compared to 2008. Looking at the individual event data for summer shows that at the smaller rain events, the RDII appears to be less for 2018 than 2008.

While the higher precipitation in 2018 may have contributed to increases in RDII for these locations, there are also some limitations with the Q vs. i plots because they only consider total precipitation for an event and do not necessarily capture the intensity and duration of an event, which may also affect the RDII. For example, if the event had a high intensity over short duration, this could result in a higher RDII compared to a less intense, longer duration event of the same total precipitation.

The quantity of I/I removed due to sewer rehabilitation completed to date can be approximated by calculating the difference between the 2.3-inch rain lines projected to the y-axis. For example, a review of the plots for SCI-4 (meter installed in the Sauquoit Creek Interceptor, just before the SCPS) indicates a reduction of approximately 5.6 million gallons of RDII during winter storms (including rain on snow events), and 5.6 million gallons of RDII during summer storms. This data appears to support the anecdotal reports from County staff regarding fewer overflow events at the SCPS.

3.3 PRIVATE PROPERTY INFLOW AND INFILTRATION REDUCTION PROGRAM

The document titled "Preliminary Planning Document – Private Property Inflow and Infiltration Reduction Program" was submitted to NYSDEC on June 29, 2012 as required by Schedule A - Section B.2 of the Consent Order. The County, working through the Steering Committee, created a working group of appropriate private property inflow and infiltration (PPII)-oriented community representatives to map out a phased implementation plan.

In support of a potential future pilot project to address private property I/I, lateral CCTV has, and continues to be, performed in select locations during the on-going sewer rehabilitation projects. CCTV data is received from the sewer rehabilitation contractor and reviewed for completeness. An engineering Work Order for continuation of the PPII program was submitted to the County in the 1st Quarter of 2019. Authorization is pending.

3.4 CAPACITY, MANAGEMENT, OPERATIONS AND MAINTENANCE PROGRAM

The document titled "Preliminary Planning Document – Proposed CMOM Framework – Sauquoit Creek Pumping Station Basin Communities" was submitted to NYSDEC on June 29, 2012 as required by Schedule A – Section B.3 of the Consent Order. The County, working through the Steering Committee, created a working group of appropriate CMOM-oriented community representatives to map out a phased implementation plan.

Fats, Oils, and Grease (FOG) Program: The OCSD and Oneida County Department of Health (OCDOH) are collaborating on the implementation of the Fats, Oils, and Grease (FOG) program. Inspections of Food Service Establishments (FSEs) continued in 1Q 2019. Inspectors verify that proper plumbing fixtures are in place and that FSEs follow the local and County sewer use ordinance in not releasing fat-laden wash water or cooking oils to the sanitary sewer system. Inspectors look for evidence that FSEs are utilizing best management practices, tracking grease trap maintenance, and keeping grease hauling records. Information on each FSE will be entered in the County CMMS Lucity so that it can be associated with the growing collection system database.

Sauquoit Creek Interceptor Sewer Stabilization (Victoria Drive): The Consultant Team periodically stopped at this substantially completed pipeline stabilization and stream restoration site in late winter to visually observe the condition of the constructed work. Other than some limited final lawn restoration, the work appears to be functioning as designed. The Contractor is scheduled to return in late-May 2019 to finalize punch list work.

4.0 SCHEDULE/MILESTONE DATES

4.1 APPROVED SCHEDULE

The following table represents the approved schedule as defined by the Consent Order (note that there were no changes to this schedule during the 1st Quarter of 2019):

Description	Consent Order, Schedule "A" Date	Status
Engineering Investigations and Evaluations		
Dye Testing and Storm Sewer Report	June 30, 2012	Complete, Submitted June 29, 2012
Manhole Evaluation Report – Phase II	June 30, 2012	Complete, Submitted June 29, 2012
SCPS Evaluation Report	August 31, 2012	Complete, Approved November 28, 2012
WPCP Evaluation Report	August 31, 2012	Complete, Approved November 28, 2012
Treatment System Supplement (Report)	60 days after approval of WPCP Evaluation Report	Complete, Submitted January 25, 2013
Sewer CCTV Inspection Report – Phase II	April 30, 2013	Complete, Submitted April 25, 2013
Sewer CCTV Inspection Report – Phase III	April 30, 2014	Complete, Submitted April 29, 2014
Collection System Supplement (Report)	May 31, 2014 (extension granted to July 1, 2014)	Complete, Submitted June 30, 2014 Approved December 18, 2014
Management Programs		
Flow Monitoring Program	March 31, 2012	Complete, Approved August 24, 2012
Private Property I/I Reduction Program	June 30, 2012	Complete, Submitted June 29, 2012
CMOM Program	June 30, 2012	Complete, Submitted June 29, 2012
PPII Reduction Program Implementation	May 31, 2013	Began implementation in 4th Quarter 2012
CMOM Implementation	May 31, 2013	Began implementation in 4th Quarter 2012
Asset Management Plan	December 31, 2021	In development
Remedial Measures		
Semi-Permanent Alternative-Construction	~~December 31, 2016~~	Modified Consent Order effective 6/28/18 removed the requirement for construction of the semi-permanent alternative.
SSO Mitigation-Consent Order Compliance	December 31, 2021	In progress
Reporting		
Annual Work Plan	January 31, Annually	Submitted annually
Quarterly Progress Report	Quarterly	Submitted quarterly

Note: I/I – Inflow and Infiltration

4.2 MILESTONES

During the 1st Quarter of 2019, the following milestone dates were met:

- Continuing to make progress toward compliance milestones.

4.3 MODIFIED ORDER – JUNE 28, 2018

Description	Consent Order, Schedule "A" Date	Status
Remedial Measures		
Contract 10 – Sanitary Sewer Mainline Rehabilitation Phase V – Whitesboro (V), Whitestown (T) – Completion	August 31, 2018	Certificate of Compliance submitted to NYSDEC August 30, 2018.
Contract 12 – Sanitary Sewer Mainline Rehabilitation Phase VII – Yorkville (V) – Completion	July 31, 2019	Construction in progress.
Contract 13 – Sanitary Sewer Mainline Rehabilitation Phase VIII – New Hartford (T) – Completion	August 31, 2018	Certificate of Compliance submitted to NYSDEC August 30, 2018.
Contract 14 – Sanitary Sewer Mainline Rehabilitation Phase IX – New Hartford (T) – Completion	December 31, 2018	Certificate of Compliance submitted to NYSDEC December 21, 2018.
Contract 16 – Sanitary Sewer Mainline Rehabilitation Phase X –Whitestown (T) – Completion	July 31, 2019	Construction in progress.

5.0 SEWER REHABILITATION

Sewer rehabilitation work financed under CWSRF Project No. C6-6070-08-00, C6-6070-08-10, and C6-6071-02-00 continued to progress. Projects are being tracked by contract number. The rehabilitation contracts are being undertaken in order to reduce the amount of inflow and infiltration entering the system due to defects in interceptor sewers, mainline sewers, lateral connections and manhole structures. Work under these sewer rehabilitation contracts typically includes: a mix of cured-in-place-pipe (CIPP) lining; pipe joint and lateral grouting; open cut repairs; spot repairs; manhole repairs/replacement; and supplemental CCTV inspections. The status and details of the rehabilitation contracts to date are presented in Table 5.1.

Oneida County Sewer District

Summary of Contracts 1Q 2019

Sewer Rehabilitation Contracts

Contract No.*	Title of Contract	Project Location/Description	CWSRF Project No.	Status of Design	Status of DEC/EFC/COUNTY Review	Miles of Rehabilitation[2]	Estimated I/I Reduction (gal/day)	Current Contract Amount [1]	Contractor	Contract Status
2	Sanitary Sewer Manhole Rehabilitation - Phase 2	District-wide: Rehabilitation of approximately 1,278 sanitary sewer manholes.	C6-6070-08-00	Final	Approved	47	5,411,910	$ 1,529,131.73	Green Mountain Pipeline Services	Project Complete; Closed Out
3	Sanitary Sewer Mainline Rehabilitation - Phase 1	Villages of New York Mills, Oriskany, New Hartford, Whitesboro, and Yorkville; Towns of New Hartford and Whitestown	C6-6070-08-00	Final	Approved	13	1,503,360	$ 1,916,428.54	Insituform	Project Complete; Closed Out
4	Sewer Separation - Clinton/Henderson Street, NY Mills	NY Mills: Storm/Sanitary sewer separation.	C6-6070-08-00	Final	Approved	2	264,000	$ 155,007.51	JJ Lane Construction	Project Complete; Closed Out
5	Sewer Repairs and Rehabilitation	Villages of Whitesboro, New Hartford, Yorkville, New York Mills: Storm/Sanitary sewer repairs and rehabilitation; manhole replacement and UV-CIPP lining.	C6-6070-08-00	Final	Approved	1	120,000	$ 411,841.66	Central Paving	Project Complete; Closed Out
6	Sanitary Sewer Mainline Rehabilitation - Phase 2	Villages of New Hartford and Clayville; Towns of New Hartford and Paris; City of Utica	C6-6070-08-00	Final	Approved	15	1,130,000	$ 2,086,525.00	Green Mountain Pipeline Services	Project Complete; Closed out
7	Sanitary Sewer Mainline Rehabilitation - Phase 3	Towns of New Hartford and Whitestown: Glenhaven area (HHI-1 and WHN-31), the area west of the Whitesboro Parkway School and south of Clinton Street area (WHN-33), and Kellogg Road area (NHD-18)	C6-6070-08-00	Final	Approved	13	630,000	$ 2,060,644.00	Green Mountain Pipeline Services	Project Complete; Closed out
8	Sanitary Sewer Mainline Rehabilitation - Phase 4	Town of New Hartford: Paris Road area (NHD-23)	C6-6070-08-00	Final	Approved	14	249,000	$ 1,143,410.78	National Water Main Cleaning Co.	Project Complete: Closed Out
10	Sanitary Sewer Mainline Rehabilitation - Phase 5	Town of Whitestown and Village of Whitesboro: Area west of Henderson St., north of Mud Creek, south of Clinton St. and east of Clinton Rd; and areas of V. of Whitesboro that have not been previously rehabbed.	C6-6070-08-10	Final	Approved	17	1,120,000	$ 3,429,370.00	Green Mountain Pipeline Services	Project Complete; Closed Out

Oneida County Sewer District

Summary of Contracts 1Q 2019

Sewer Rehabilitation Contracts

Contract No.*	Title of Contract	Project Location/Description	CWSRF Project No.	Status of Design	Status of DEC/EFC/COUNTY Review	Miles of Rehabilitation[2]	Estimated I/I Reduction (gal/day)	Current Contract Amount [1]	Contractor	Contract Status
11	Sanitary Sewer Mainline Rehabilitation - Phase 6	Town of New Hartford/Hamlet of Washington Mills: Chapman Rd, Higby Rd., and Mohawk St. as well as side streets in Town of New Hartford (NHD-20).	C6-6070-08-10	Final	Approved	7	260,640	$ 632,029.26	National Water Main Cleaning Co.	Project Complete; Closed Out
12[3]	Sewer Rehabilitation Project	Village of Yorkville: Areas of the Village not previously rehabbed (YKV-1).	C6-6071-02-00	Final	Approved	11	824,832	$ 3,552,280.00	National Water Main Cleaning Co.	Construction in progress.
13	Sanitary Sewer Mainline Rehabilitation - Phase 8	Town of New Hartford: Residential subdivisions along Routes 12B and Merritt Place, situated south of Route 5B and Seneca Turnpike, and north of Sherrill Brook Park (NHD-6).	C6-6070-08-10	Final	Approved	5	280,000	$ 802,838.50	National Water Main Cleaning Co.	Project Complete; Closed Out
14	Sanitary Sewer Mainline Rehabilitation - Phase 9	Town of New Hartford: Commercial district along Seneca Turnpike surrounding Sangertown Square Shopping Mall, south to a residential area situated between Seneca Turnpike and Clinton Rd., and a small residential area south of Clinton Rd. along Merritt Place (NHD-9).	C6-6070-08-10	Final	Approved	7	360,000	$ 995,407.25	National Water Main Cleaning Co.	Construction complete. Closeout documentation pending.
16	Sanitary Sewer Mainline Rehabilitation - Phase 10	Town of Whitestown: Residential area along Westmoreland Rd. and West St., south of the NYS Thruway, and north of Clinton Rd. (WHN-34, WHN-35, WHN-12 & WHN-36).	C6-6070-08-10	Final	Approved	3	270,000	$ 386,042.00	National Water Main Cleaning Co.	Construction in progress.

* - Contract 9 - Flow Monitoring Contract

(1) - Values are subject to change upon submission of final contractor close-out documentation. Some entries are contract bid amounts and will be updated when project closes out.

(2)- In order to estimate the manhole repairs in equivalent miles, the following calculation was used:
In the April 2012, Engineering Report, Sauquoit Creek Pumping Station Basin – Phase I-Mainline Pipe Rehabilitation – Contract No. 3, the length of line to be rehabilitated was 13-miles, and the corresponding flow to be removed is 1,503,360 gal/day, which calculates to 116,000 gpd/mile. Using the same 116,000 gpd/mile figure for Contract No. 2, an estimated 5,411,910 gal/day divided by 116,000 gpd/mile, is equivalent to 47-miles of rehabilitated sewers.

(3) - Formerly Contract 12 - Sanitary Sewer Mainline Rehabilitation - Phase 7. Financed by the Village of Yorkville.

BOLD - Value represents the Engineers estimate

6.0 ASSESSMENT OF REHABILITATION EFFECTIVENESS

See Section 3.2 above for a discussion of the status of flow monitoring and hydraulic model update. Based on the completed work, and using estimated values of inflow and infiltration (I/I) removals provided in the Offset Plan and/or the approved Basis of Design engineering reports for the respective projects, the estimated reductions in I/I for each rehabilitation contract are shown in Table 5.1.

7.0 COMPLETED CAPITAL PROJECTS/FACILITY UPGRADES

Status of all capital projects and facility upgrades is provided in Table 2.1 and Table 5.1.

8.0 I/I OFFSET PROJECTS/NEW FLOWS

During the 1st Quarter of 2019, new additions and subtractions to the I/I Offset Credit Bank were recorded by the County. All amounts are reported in gallons per day (gpd) after the application of the 5:1 offset ratio.

Community	Starting Balance	Credits Added	Location	Credits Used	Ending Balance
Town of New Hartford	1,862,861	0	6 Hosta Ln. (Cherrywood) 328.000-2-26	320	1,862,541
Town of Paris	253,064	0		0	253,064
Town of Whitestown	1,054,274	0		0	1,054,274
Village of Clayville	59,069	0		0	59,069
Village of New Hartford	278,004	0		0	278,004
Village of New York Mills	166,523	0		0	166,523
Village of Oriskany	103,466	0		0	103,466
Village of Whitesboro	1,083,599	0		0	1,083,599
Village of Yorkville	160,282	0		0	160,282
Oneida County Business Park	43,027	0		0	43,027
Oneida County Sewer District	24,710	0		0	24,710
Totals	**5,088,879**	**0**		**320**	**5,088,559**

9.0 KEY PERSONNEL CHANGES

Key personnel changes, as they relate to the SSO Mitigation/Consent Order compliance project, are interpreted to be those staff members whose addition to or deletion from the project would be viewed by the County to either add resources, or be a detriment to progress. Project staff includes County, satellite community, and Consultant Team personnel. The following is a summary of changes.

9.1 COUNTY STAFF

During the 1st Quarter of 2019, there were no changes of key personnel to report.

9.2 SATELLITE COMMUNITY STAFF

During the 1st Quarter of 2019, there were no changes of key personnel to report.

9.3 CONSULTANT TEAM STAFF

During the 1st Quarter of 2019, there were no changes of key personnel to report.

10.0 ADMINISTRATIVE ITEMS

10.1 WORK AUTHORIZATIONS

New work authorizations were not issued during 1st Quarter 2019.

10.2 PROJECT FINANCING

The following listing is from the CWSRF 2019 DRAFT Intended Use Plan (IUP), issued in May 30, 2018, for the County:

CWSRF PROJECT #	PROJECT NAME	TOTAL IUP AMOUNT
C6-6070-08-00 (Long-term financed)	I/I CORR [9 CONTRIBUTING COMMUNITIES] Phase 1 and 2a	(1)$10,078,438 (includes $4M Principal Forgiveness)
C6-6070-08-10 (Balance of unexpended funds from Original C6-6070-08-00 financing)	I/I CORR [9 CONTRIBUTING COMMUNITIES] Phase 1 and 2a	$11,721,562
C6-6070-08-01 (Multi-year)	I/I CORR [SSO - 9 Contributing Communities] Phase 2b, 3, 4, 5, & 6	$28,400,000
C6-6070-08-02 (Long-term financed)	FM, PS REHAB [DESIGN AND PERMITTING PHASE] Phase 5a	(1)$2,524,071
C6-6070-08-03 (Multi-year)	I/I CORR [SSO Phase 4]	$7,663,000
C6-6070-08-04 (Annual List - Short-term financed)	FM Rehab, PS Rehab [CONSTRUCTION PHASE] Phases 5b	$97,000,000
	FM Rehab, PS Rehab [CONSTRUCTION PHASE] Phase 5b	$15,000,000
	Water Infrastructure Grant	$5,000,000
C6-6070-08-05 (Annual List)	STP UP (Phases 6A)	$80,000,000
C6-6070-08-15	STP UP (Phase 6A)	$80,000,000
C6-6070-08-06 (Long-term financed)	STP UP [SOLIDS HANDLING SYSTEMS DESIGN AND CONSTRUCTION]	$35,000,000
C6-6070-08-15 (Multi-year)	STP UP	$87,000,000

(1) - CWSRF Project Financing has closed, is no longer listed in IUP, but reflect the amount Oneida County is now repaying.

10.2.1 FM Rehab, PS Rehab Construction Phase [Phase 5b] C6-6070-08-04

Oneida County and NYSEFC began preparing for the long-term financing of this project in the 1st Quarter of 2019. Closing is anticipated to occur in May 2019.

10.2.2 STP UP [Phase 6a] (CWSRF No. C6-6070-08-05 and C6-6070-08-15) - $160 Million

Bond authorization to increase the financing amount to $160 million was approved by the Oneida County Board of Legislators on November 22, 2017. An application for financing was submitted to NYSEFC on July 9, 2018. Closing on initial financing is dependent on cashflow projections, but is anticipated to be in the 2nd quarter of 2019 in the amount of $80 million.

Sauquoit Pump Station Rain Gauge Data (inches)

Data Provided by ADS Environmental Services

Daily Data	
Date	**Rainfall**
1/1/2017	0.31
1/2/2017	0
1/3/2017	0.62
1/4/2017	0.11
1/5/2017	0
1/6/2017	0.05
1/7/2017	0.03
1/8/2017	0
1/9/2017	0
1/10/2017	0
1/11/2017	0.02
1/12/2017	0.38
1/13/2017	0.02
1/14/2017	0
1/15/2017	0
1/16/2017	0
1/17/2017	0.12
1/18/2017	0.33
1/19/2017	0.08
1/20/2017	0
1/21/2017	0
1/22/2017	0
1/23/2017	0.14
1/24/2017	1.18
1/25/2017	0.07
1/26/2017	0.14
1/27/2017	0.09
1/28/2017	0
1/29/2017	0
1/30/2017	0
1/31/2017	0
2/1/2017	0.14
2/2/2017	0.07
2/3/2017	0.01
2/4/2017	0.05
2/5/2017	0.01
2/6/2017	0.01
2/7/2017	1.03
2/8/2017	0.11
2/9/2017	0.01
2/10/2017	0.03
2/11/2017	0.01
2/12/2017	0
2/13/2017	0
2/14/2017	0.01
2/15/2017	0.29
2/16/2017	0
2/17/2017	0.02
2/18/2017	0
2/19/2017	0
2/20/2017	0
2/21/2017	0
2/22/2017	0
2/23/2017	0
2/24/2017	0.02
2/25/2017	0.95
2/26/2017	0
2/27/2017	0
2/28/2017	0
3/1/2017	0.15
3/2/2017	0
3/3/2017	0
3/4/2017	0
3/5/2017	0
3/6/2017	0
3/7/2017	0.55
3/8/2017	0.34
3/9/2017	0.01
3/10/2017	0
3/11/2017	0
3/12/2017	0
3/13/2017	0
3/14/2017	0
3/15/2017	0
3/16/2017	0.01
3/17/2017	0.26
3/18/2017	0
3/19/2017	0
3/20/2017	0
3/21/2017	0
3/22/2017	0
3/23/2017	0
3/24/2017	0.09
3/25/2017	0.42
3/26/2017	0.01
3/27/2017	0.33
3/28/2017	0.01
3/29/2017	0
3/30/2017	0.08
3/31/2017	1.48
4/1/2017	0.1
4/2/2017	0
4/3/2017	0
4/4/2017	1.47
4/5/2017	0.03
4/6/2017	0.86
4/7/2017	0.38
4/8/2017	0.01
4/9/2017	0
4/10/2017	0
4/11/2017	0.1
4/12/2017	0
4/13/2017	0
4/14/2017	0
4/15/2017	0
4/16/2017	0
4/17/2017	0
4/18/2017	0
4/19/2017	0.76
4/20/2017	0.2
4/21/2017	0.69
4/22/2017	0

4/23/2017	0
4/24/2017	0
4/25/2017	0.15
4/26/2017	0
4/27/2017	0
4/28/2017	0
4/29/2017	0
4/30/2017	0
5/1/2017	0.74
5/2/2017	0.04
5/3/2017	0.11
5/4/2017	0.07
5/5/2017	0.98
5/6/2017	0.33
5/7/2017	0.29
5/8/2017	0.02
5/9/2017	0.02
5/10/2017	0
5/11/2017	0
5/12/2017	0
5/13/2017	0.57
5/14/2017	0.04
5/15/2017	0
5/16/2017	0
5/17/2017	0
5/18/2017	0.06
5/19/2017	0.05
5/20/2017	0
5/21/2017	0.09
5/22/2017	0.44
5/23/2017	0
5/24/2017	0
5/25/2017	0.19
5/26/2017	0.03
5/27/2017	0
5/28/2017	0
5/29/2017	1.53
5/30/2017	0.51
5/31/2017	0.06
6/1/2017	0
6/2/2017	0

6/3/2017	0
6/4/2017	0.16
6/5/2017	1.22
6/6/2017	0.98
6/7/2017	0
6/8/2017	0
6/9/2017	0.2
6/10/2017	0
6/11/2017	0
6/12/2017	0
6/13/2017	0.07
6/14/2017	0.01
6/15/2017	0.1
6/16/2017	0.7
6/17/2017	0
6/18/2017	0.35
6/19/2017	0.36
6/20/2017	0.15
6/21/2017	0.02
6/22/2017	0
6/23/2017	0.23
6/24/2017	0.54
6/25/2017	0.11
6/26/2017	0.05
6/27/2017	0.31
6/28/2017	0.01
6/29/2017	0.12
6/30/2017	0.82
7/1/2017	3.08
7/2/2017	0
7/3/2017	0
7/4/2017	0
7/5/2017	0
7/6/2017	0.72
7/7/2017	0.02
7/8/2017	1.01
7/9/2017	0.01
7/10/2017	0
7/11/2017	0.25
7/12/2017	0.01
7/13/2017	0.41

7/14/2017	1.27
7/15/2017	0.01
7/16/2017	0
7/17/2017	0.8
7/18/2017	0
7/19/2017	0
7/20/2017	0
7/21/2017	0
7/22/2017	0
7/23/2017	0
7/24/2017	0.25
7/25/2017	0.13
7/26/2017	0
7/27/2017	0.23
7/28/2017	0
7/29/2017	0
7/30/2017	0
7/31/2017	0
8/1/2017	0
8/2/2017	0
8/3/2017	0
8/4/2017	0.45
8/5/2017	0.29
8/6/2017	0
8/7/2017	0
8/8/2017	0
8/9/2017	0
8/10/2017	0
8/11/2017	0.01
8/12/2017	0.42
8/13/2017	0
8/14/2017	0.01
8/15/2017	0.16
8/16/2017	0.01
8/17/2017	0
8/18/2017	0.78
8/19/2017	0.07
8/20/2017	0.01
8/21/2017	0.01
8/22/2017	1.17
8/23/2017	0

8/24/2017	0
8/25/2017	0
8/26/2017	0
8/27/2017	0
8/28/2017	0.01
8/29/2017	0
8/30/2017	0
8/31/2017	0
9/1/2017	0
9/2/2017	0.01
9/3/2017	0.74
9/4/2017	0
9/5/2017	0.72
9/6/2017	0.16
9/7/2017	0.02
9/8/2017	0.08
9/9/2017	0
9/10/2017	0
9/11/2017	0.01
9/12/2017	0
9/13/2017	0.01
9/14/2017	0
9/15/2017	0
9/16/2017	0
9/17/2017	0
9/18/2017	0.01
9/19/2017	0
9/20/2017	0
9/21/2017	0
9/22/2017	0.01
9/23/2017	0
9/24/2017	0
9/25/2017	0.01
9/26/2017	0
9/27/2017	0
9/28/2017	0
9/29/2017	0.03
9/30/2017	0.18
10/1/2017	0
10/2/2017	0.01
10/3/2017	0.01
10/4/2017	0.17
10/5/2017	0.05
10/6/2017	0.06
10/7/2017	0.08
10/8/2017	0.3
10/9/2017	0.54
10/10/2017	0
10/11/2017	0.26
10/12/2017	0.03
10/13/2017	0
10/14/2017	0
10/15/2017	0.54
10/16/2017	0.06
10/17/2017	0
10/18/2017	0
10/19/2017	0.01
10/20/2017	0
10/21/2017	0
10/22/2017	0.01
10/23/2017	0
10/24/2017	0.19
10/25/2017	0
10/26/2017	0
10/27/2017	0
10/28/2017	0
10/29/2017	1.85
10/30/2017	1.9
10/31/2017	0.02
11/1/2017	0.6
11/2/2017	0.76
11/3/2017	0.24
11/4/2017	0.01
11/5/2017	0.61
11/6/2017	0.26
11/7/2017	0
11/8/2017	0
11/9/2017	0.15
11/10/2017	0.03
11/11/2017	0
11/12/2017	0
11/13/2017	0.08
11/14/2017	0
11/15/2017	0
11/16/2017	0.04
11/17/2017	0
11/18/2017	0.45
11/19/2017	0.31
11/20/2017	0.16
11/21/2017	0
11/22/2017	0.14
11/23/2017	0.01
11/24/2017	0
11/25/2017	0.05
11/26/2017	0.25
11/27/2017	0.03
11/28/2017	0
11/29/2017	0
11/30/2017	0.19
12/1/2017	0.03
12/2/2017	0
12/3/2017	0
12/4/2017	0
12/5/2017	0.38
12/6/2017	0
12/7/2017	0
12/8/2017	0
12/9/2017	0
12/10/2017	0.04
12/11/2017	0.03
12/12/2017	0.06
12/13/2017	0
12/14/2017	0
12/15/2017	0.05
12/16/2017	0
12/17/2017	0.07
12/18/2017	0
12/19/2017	0.26
12/20/2017	0.14
12/21/2017	0.06
12/22/2017	0
12/23/2017	0.71
12/24/2017	0.06

12/25/2017	0.01
12/26/2017	0
12/27/2017	0
12/28/2017	0
12/29/2017	0
12/30/2017	0
12/31/2017	0
1/1/2018	0
1/2/2018	0
1/3/2018	0.01
1/4/2018	0
1/5/2018	0
1/6/2018	0
1/7/2018	0
1/8/2018	0.03
1/9/2018	0
1/10/2018	0.06
1/11/2018	0.05
1/12/2018	0.7
1/13/2018	0
1/14/2018	0.01
1/15/2018	0
1/16/2018	0
1/17/2018	0
1/18/2018	0
1/19/2018	0.03
1/20/2018	0.59
1/21/2018	0.01
1/22/2018	0.06
1/23/2018	0.32
1/24/2018	0.01
1/25/2018	0
1/26/2018	0
1/27/2018	0.14
1/28/2018	0
1/29/2018	0
1/30/2018	0
1/31/2018	0.02
2/1/2018	0.03
2/2/2018	0
2/3/2018	0.01

2/4/2018	0.01
2/5/2018	0
2/6/2018	0
2/7/2018	0
2/8/2018	0
2/9/2018	0
2/10/2018	0.02
2/11/2018	0
2/12/2018	0
2/13/2018	0.01
2/14/2018	0
2/15/2018	0.09
2/16/2018	0.17
2/17/2018	0
2/18/2018	0.16
2/19/2018	0.94
2/20/2018	0.37
2/21/2018	0.01
2/22/2018	0.23
2/23/2018	0.33
2/24/2018	0.03
2/25/2018	0.54
2/26/2018	0
2/27/2018	0
2/28/2018	0.1
3/1/2018	0.02
3/2/2018	0.1
3/3/2018	0.44
3/4/2018	0.27
3/5/2018	0
3/6/2018	0.01
3/7/2018	0.21
3/8/2018	0.08
3/9/2018	0.13
3/10/2018	0.02
3/11/2018	0
3/12/2018	0
3/13/2018	0.42
3/14/2018	0.23
3/15/2018	0.11
3/16/2018	0

3/17/2018	0
3/18/2018	0
3/19/2018	0
3/20/2018	0
3/21/2018	0
3/22/2018	0
3/23/2018	0
3/24/2018	0
3/25/2018	0
3/26/2018	0
3/27/2018	0.23
3/28/2018	0.06
3/29/2018	1.06
3/30/2018	0.32
3/31/2018	0
4/1/2018	0.13
4/2/2018	0
4/3/2018	0.11
4/4/2018	0.6
4/5/2018	0
4/6/2018	0.07
4/7/2018	0.08
4/8/2018	0
4/9/2018	0
4/10/2018	0
4/11/2018	0.03
4/12/2018	0.44
4/13/2018	0
4/14/2018	0
4/15/2018	0.02
4/16/2018	0.76
4/17/2018	0.02
4/18/2018	0.04
4/19/2018	0.09
4/20/2018	0
4/21/2018	0
4/22/2018	0
4/23/2018	0
4/24/2018	0
4/25/2018	0.66
4/26/2018	0.05

4/27/2018	0.01
4/28/2018	0.06
4/29/2018	0.03
4/30/2018	0.08
5/1/2018	0.2
5/2/2018	0.01
5/3/2018	0.01
5/4/2018	0.41
5/5/2018	0
5/6/2018	0.07
5/7/2018	0
5/8/2018	0
5/9/2018	0
5/10/2018	0.01
5/11/2018	0
5/12/2018	0.01
5/13/2018	0
5/14/2018	0
5/15/2018	0.55
5/16/2018	0
5/17/2018	0
5/18/2018	0
5/19/2018	0.72
5/20/2018	0.24
5/21/2018	0
5/22/2018	0.55
5/23/2018	0
5/24/2018	0.01
5/25/2018	0
5/26/2018	0
5/27/2018	0.29
5/28/2018	0
5/29/2018	0
5/30/2018	0
5/31/2018	0
6/1/2018	0
6/2/2018	0
6/3/2018	0.09
6/4/2018	0.61
6/5/2018	0.01
6/6/2018	0
6/7/2018	0.01
6/8/2018	0
6/9/2018	0
6/10/2018	0
6/11/2018	0
6/12/2018	0
6/13/2018	0.48
6/14/2018	0
6/15/2018	0.02
6/16/2018	0
6/17/2018	0
6/18/2018	0.13
6/19/2018	0
6/20/2018	0
6/21/2018	0
6/22/2018	0
6/23/2018	0.16
6/24/2018	0.2
6/25/2018	0
6/26/2018	0
6/27/2018	0.98
6/28/2018	0.12
6/29/2018	0.01
6/30/2018	0
7/1/2018	0
7/2/2018	0.52
7/3/2018	0
7/4/2018	0
7/5/2018	0
7/6/2018	0.04
7/7/2018	0
7/8/2018	0
7/9/2018	0
7/10/2018	0
7/11/2018	0
7/12/2018	0
7/13/2018	0
7/14/2018	0
7/15/2018	0
7/16/2018	0.72
7/17/2018	0.41
7/18/2018	0
7/19/2018	0
7/20/2018	0
7/21/2018	0
7/22/2018	0.11
7/23/2018	0.14
7/24/2018	0.35
7/25/2018	0.41
7/26/2018	0.03
7/27/2018	0
7/28/2018	0
7/29/2018	0
7/30/2018	0
7/31/2018	0
8/1/2018	0.01
8/2/2018	0.35
8/3/2018	0.11
8/4/2018	0.01
8/5/2018	0
8/6/2018	0
8/7/2018	0
8/8/2018	0.17
8/9/2018	0.08
8/10/2018	0
8/11/2018	0.09
8/12/2018	0
8/13/2018	0.25
8/14/2018	0.79
8/15/2018	0
8/16/2018	0
8/17/2018	0.98
8/18/2018	0.06
8/19/2018	0
8/20/2018	0
8/21/2018	0.2
8/22/2018	0.14
8/23/2018	0.01
8/24/2018	0
8/25/2018	0
8/26/2018	0.02
8/27/2018	0

8/28/2018	0
8/29/2018	0.58
8/30/2018	0.08
8/31/2018	0.09
9/1/2018	0
9/2/2018	0.12
9/3/2018	0.13
9/4/2018	0
9/5/2018	0.02
9/6/2018	0.02
9/7/2018	0
9/8/2018	0
9/9/2018	0
9/10/2018	1.55
9/11/2018	0.66
9/12/2018	0
9/13/2018	0
9/14/2018	0
9/15/2018	0
9/16/2018	0
9/17/2018	0.11
9/18/2018	0.47
9/19/2018	0
9/20/2018	0
9/21/2018	0.25
9/22/2018	0.13
9/23/2018	0
9/24/2018	0
9/25/2018	0.82
9/26/2018	0.39
9/27/2018	0.02
9/28/2018	0.34
9/29/2018	0
9/30/2018	0.01
10/1/2018	0.01
10/2/2018	0.7
10/3/2018	0.01
10/4/2018	0.05
10/5/2018	0.01
10/6/2018	0.02
10/7/2018	0.04

10/8/2018	0
10/9/2018	0
10/10/2018	0
10/11/2018	1.36
10/12/2018	0.01
10/13/2018	0.23
10/14/2018	0
10/15/2018	0.28
10/16/2018	0
10/17/2018	0.21
10/18/2018	0
10/19/2018	0
10/20/2018	0
10/21/2018	0
10/22/2018	0.07
10/23/2018	0.25
10/24/2018	0.14
10/25/2018	0
10/26/2018	0
10/27/2018	1.17
10/28/2018	0.45
10/29/2018	0.28
10/30/2018	0
10/31/2018	0.1
11/1/2018	0.25
11/2/2018	0.32
11/3/2018	0.51
11/4/2018	0.02
11/5/2018	0.22
11/6/2018	0.57
11/7/2018	0
11/8/2018	0
11/9/2018	0.75
11/10/2018	0.09
11/11/2018	0.07
11/12/2018	0
11/13/2018	0.34
11/14/2018	0.06
11/15/2018	0
11/16/2018	0.82
11/17/2018	0.02

11/18/2018	0
11/19/2018	0.03
11/20/2018	0.01
11/21/2018	0.07
11/22/2018	0
11/23/2018	0
11/24/2018	0.23
11/25/2018	0.09
11/26/2018	0.54
11/27/2018	0.98
11/28/2018	0.37
11/29/2018	0.01
11/30/2018	0.04
12/1/2018	0.4
12/2/2018	0.46
12/3/2018	0.12
12/4/2018	0
12/5/2018	0
12/6/2018	0
12/7/2018	0.06
12/8/2018	0
12/9/2018	0
12/10/2018	0
12/11/2018	0
12/12/2018	0.03
12/13/2018	0
12/14/2018	0
12/15/2018	0
12/16/2018	0.19
12/17/2018	0.13
12/18/2018	0
12/19/2018	0
12/20/2018	0.14
12/21/2018	0.36
12/22/2018	0.03
12/23/2018	0
12/24/2018	0.17
12/25/2018	0.1
12/26/2018	0.01
12/27/2018	0.02
12/28/2018	0.9

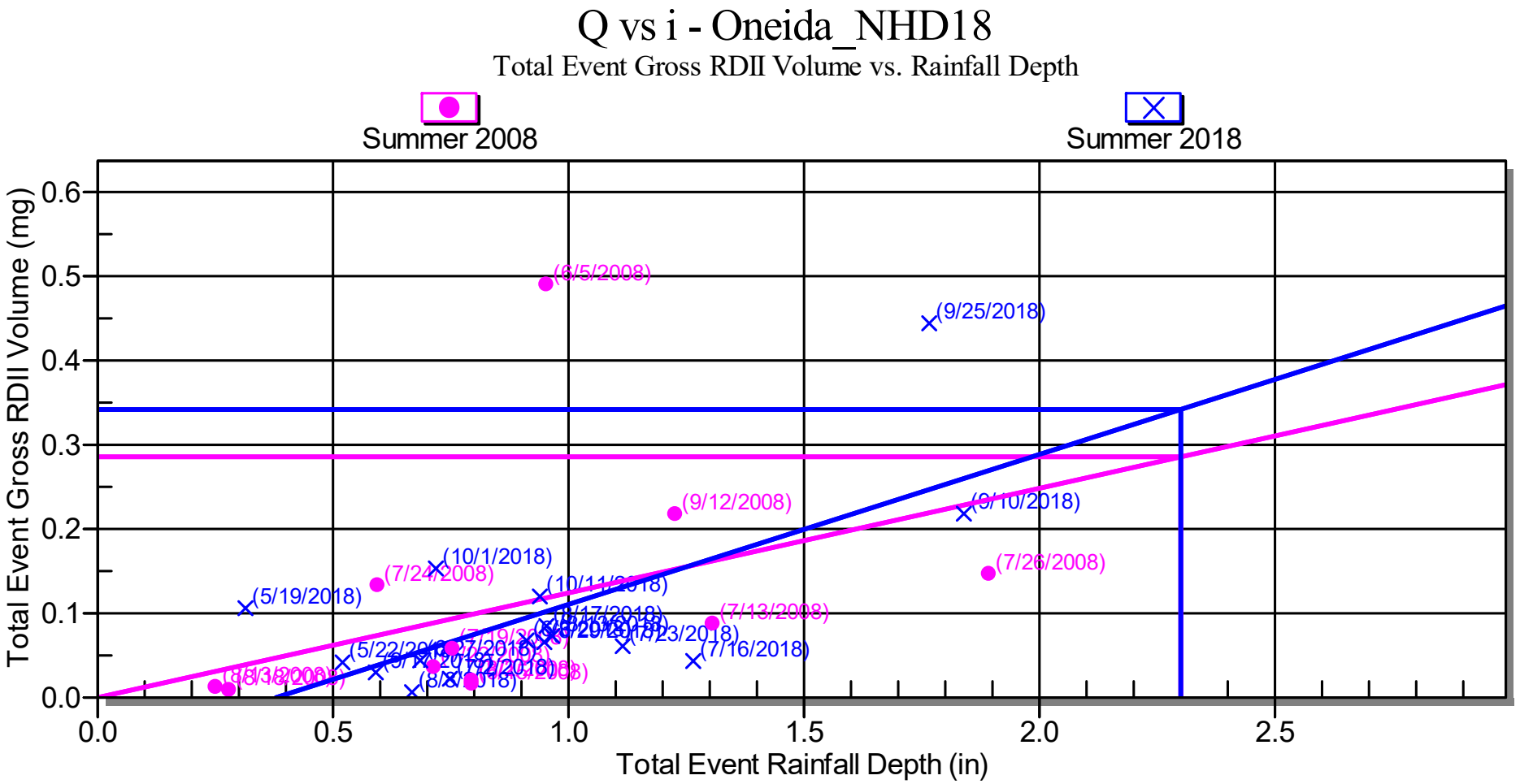
12/29/2018	0.02
12/30/2018	0.03
12/31/2018	0.64
1/1/2019	0.05
1/2/2019	0
1/3/2019	0.13
1/4/2019	0.03
1/5/2019	0
1/6/2019	0.1
1/7/2019	0
1/8/2019	0.32
1/9/2019	0.71

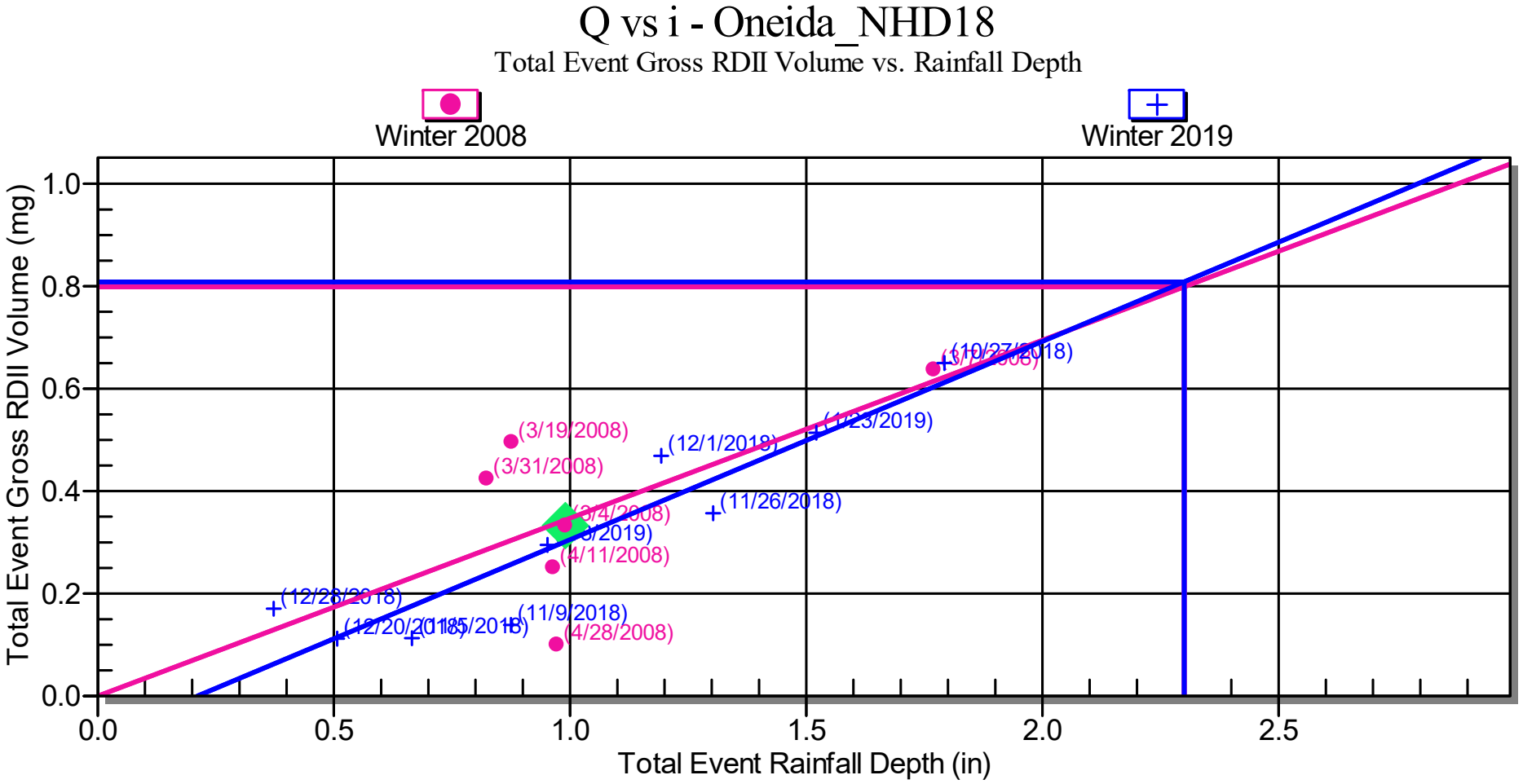
1/10/2019	0
1/11/2019	0
1/12/2019	0
1/13/2019	0
1/14/2019	0
1/15/2019	0
1/16/2019	0
1/17/2019	0
1/18/2019	0.03
1/19/2019	0
1/20/2019	0
1/21/2019	0

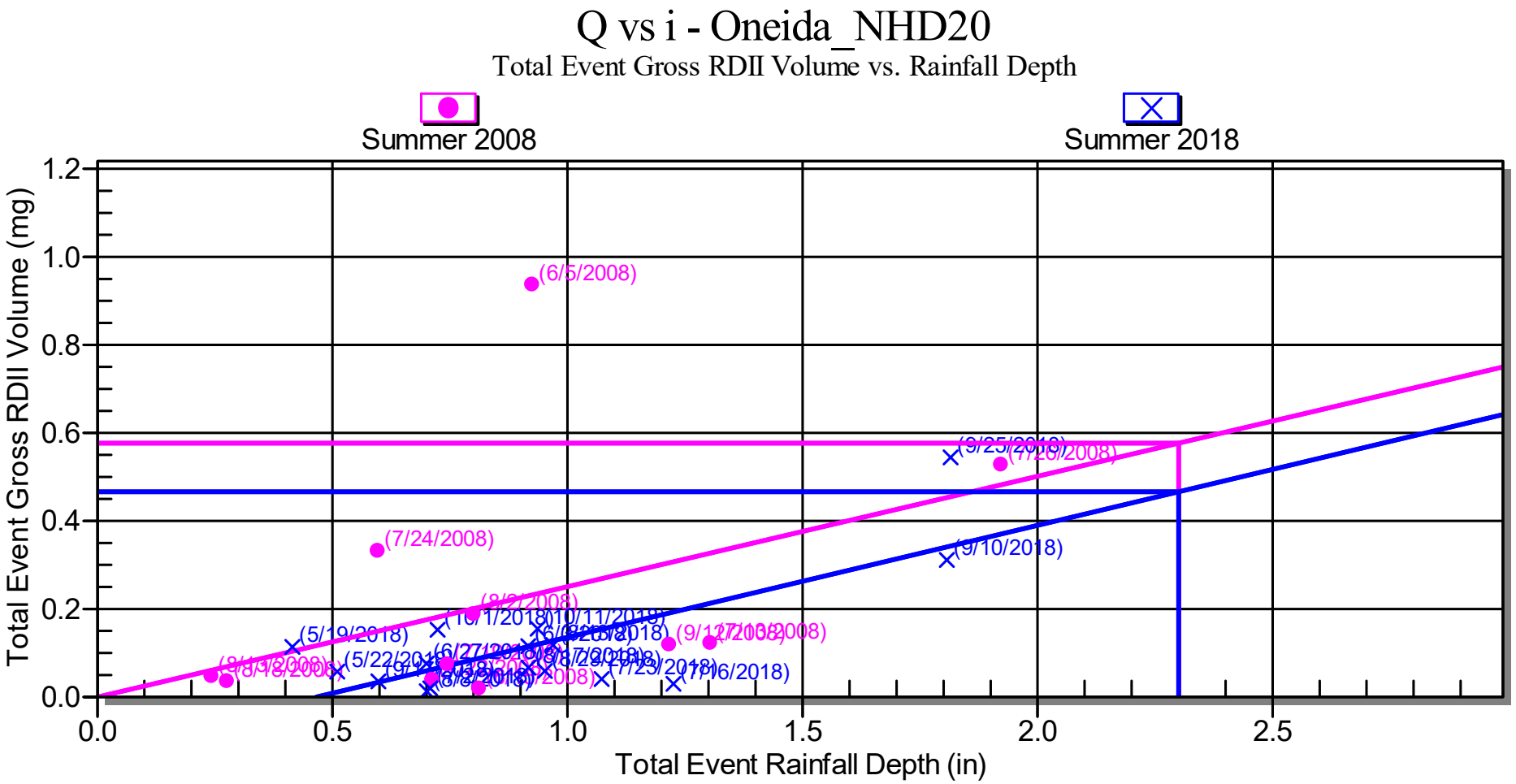
1/22/2019	0.02
1/23/2019	0.01
1/24/2019	0.79
1/25/2019	0.13
1/26/2019	0
1/27/2019	0.05
1/28/2019	0
1/29/2019	0
1/30/2019	0
1/31/2019	0

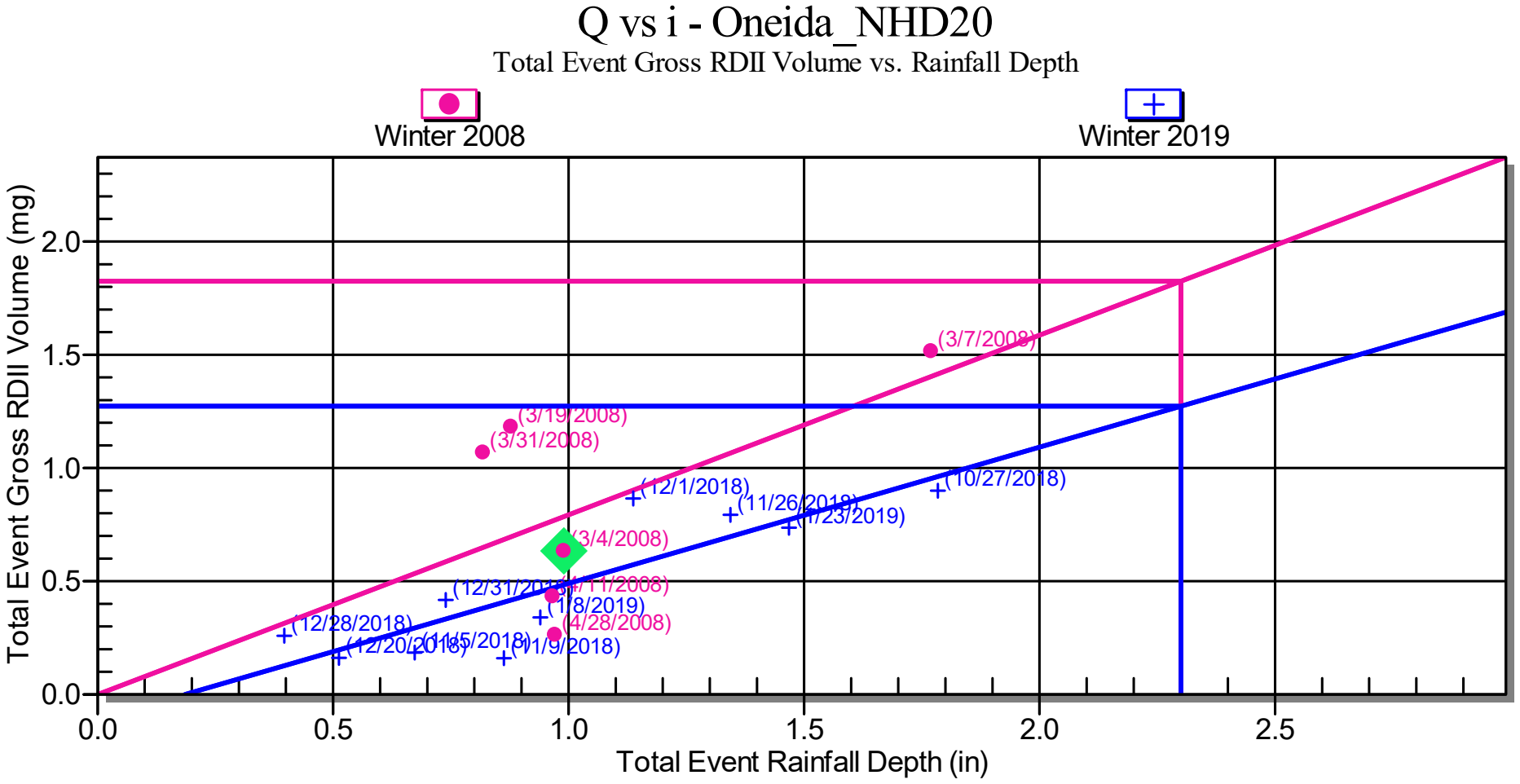
Monthly Summary	
Date	Rainfall
January 2017	3.69
February 2017	2.77
March 2017	3.74
April 2017	4.75
May 2017	6.17
June 2017	6.51
July 2017	8.2
August 2017	3.4
September 2017	1.99
October 2017	6.09
November 2017	4.37
December 2017	1.9
January 2018	2.04
February 2018	3.05
March 2018	3.71
April 2018	3.28
May 2018	3.08
June 2018	2.82
July 2018	2.73
August 2018	4.02
September 2087	5.04
October 2018	5.39
November 2018	6.41
December 2018	3.81
January 2019	2.37

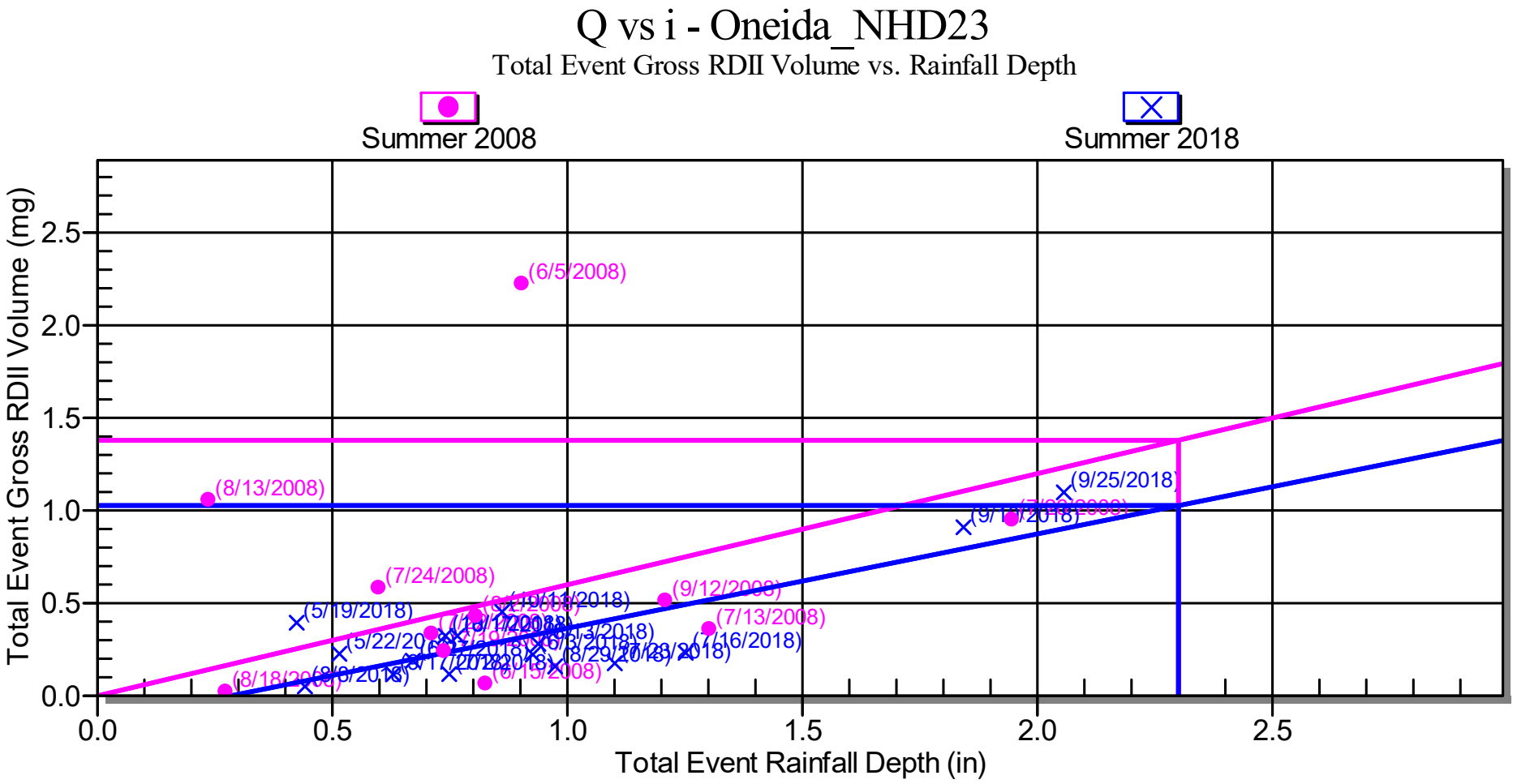
Yearly Summary	
Date	Rainfall
2017	53.58
2018	45.38

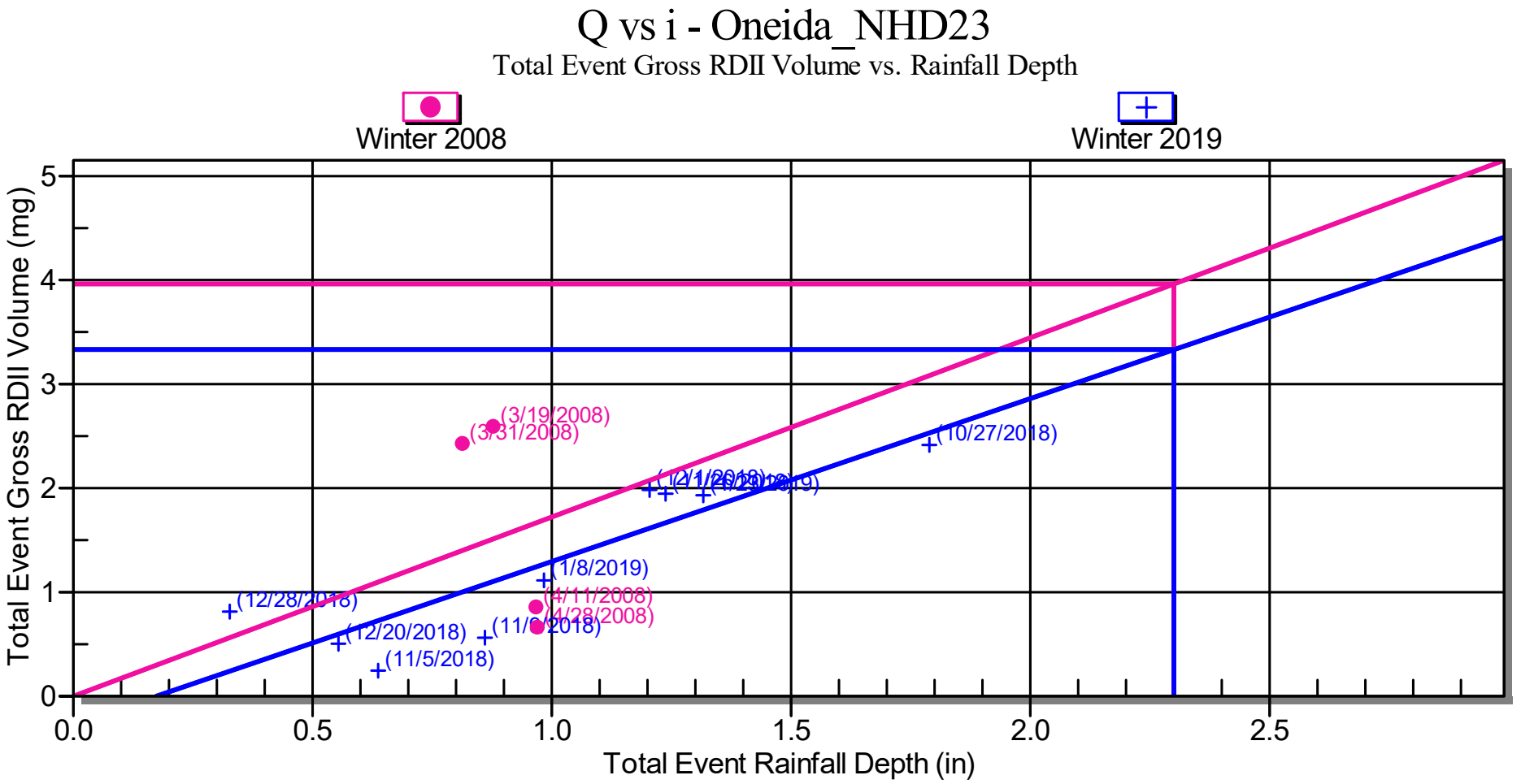

Q vs i - Oneida_NHD18
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.0
0.5
1.0
1.5
2.0
2.5
Total Event Rainfall Depth (in)
(6/5/2008)
(9/25/2018)
(9/12/2008)
(9/10/2018)
(10/1/2018)
(7/24/2008)
(7/26/2008)
(5/19/2018)
(7/13/2008)
(7/16/2018)

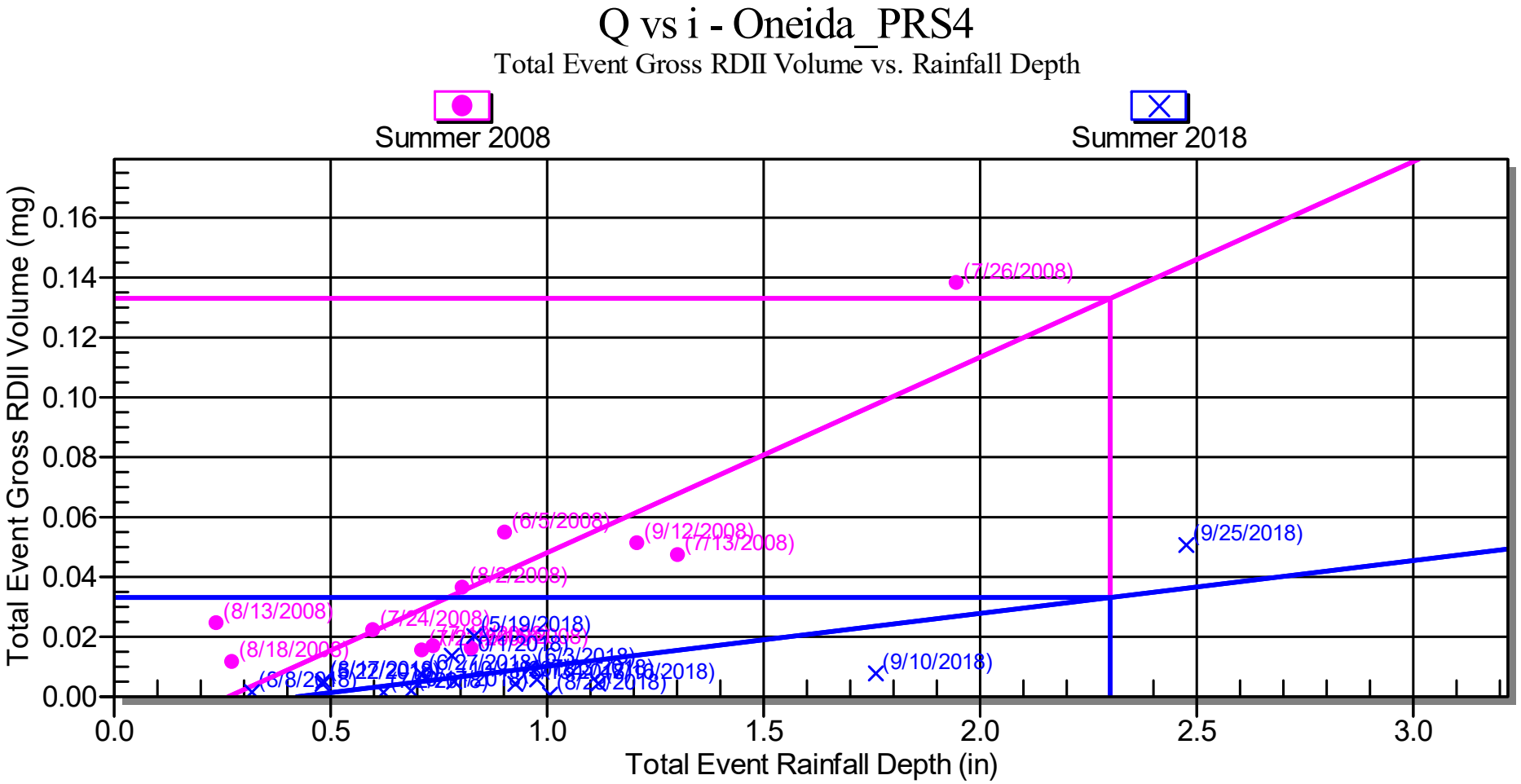

Q vs i - Oneida_NHD18
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.2
0.4
0.6
0.8
1.0
0.5
1.5
2.0
2.5
(3/19/2008)
(3/31/2008)
(4/11/2008)
(4/28/2008)
(12/1/2018)
(11/26/2018)
(11/9/2018)
(12/26/2018)


Q vs i - Oneida_NHD20
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0.5
1.5
2.0
2.5
(6/5/2008)
(7/24/2008)
(9/10/2018)
(5/19/2018)
(7/16/2018)
(7/23/2018)


Q vs i - Oneida_NHD20
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.5
1.0
1.5
2.0
2.5
(3/7/2008)
(3/19/2008)
(3/31/2008)
(12/1/2018)
(11/26/2018)
(10/27/2018)
(3/4/2008)
(12/28/2018)
(1/8/2019)
(4/28/2008)
(11/9/2018)

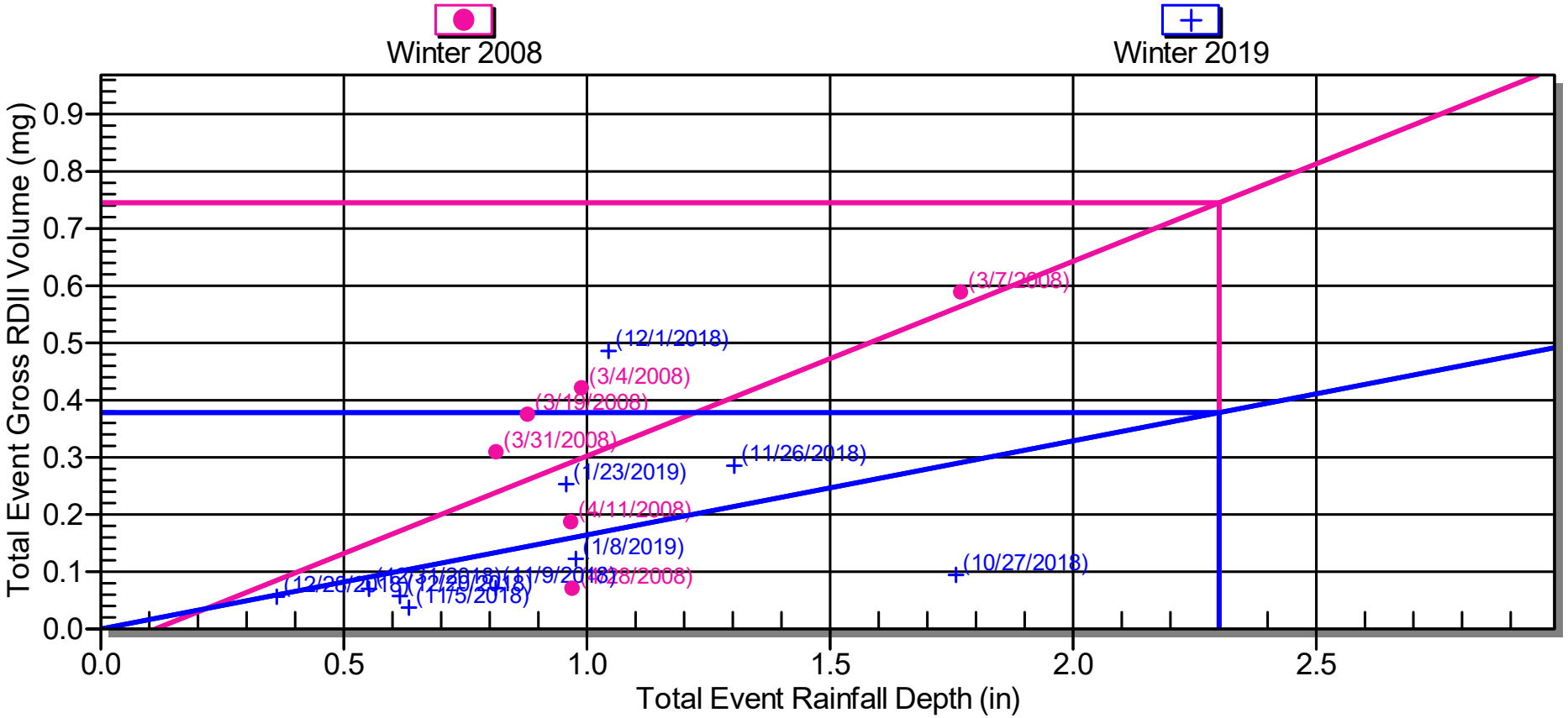

Q vs i - Oneida_NHD23
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.5
1.0
1.5
2.0
2.5
(6/5/2008)
(8/13/2008)
(7/24/2008)
(9/12/2008)
(7/13/2008)
(6/13/2008)
(5/19/2018)
(9/25/2018)
(7/16/2018)

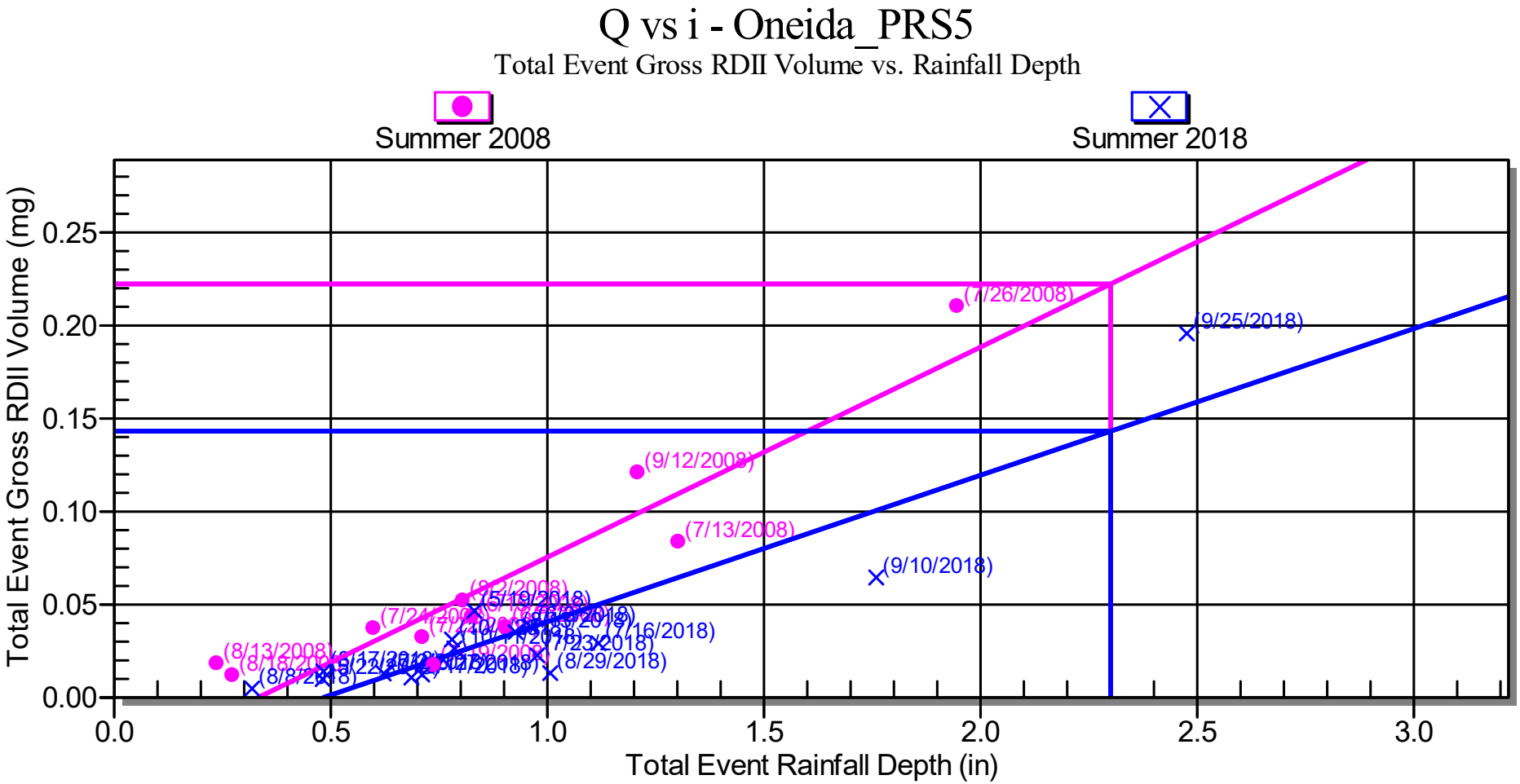

Q vs i - Oneida_NHD23
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0
1
2
3
4
5
0.0
0.5
1.0
1.5
2.0
2.5
(3/19/2008)
(3/31/2008)
(4/11/2008)
(4/28/2008)
(10/27/2018)
(1/8/2019)
(12/28/2018)
(12/20/2018)
(11/5/2018)

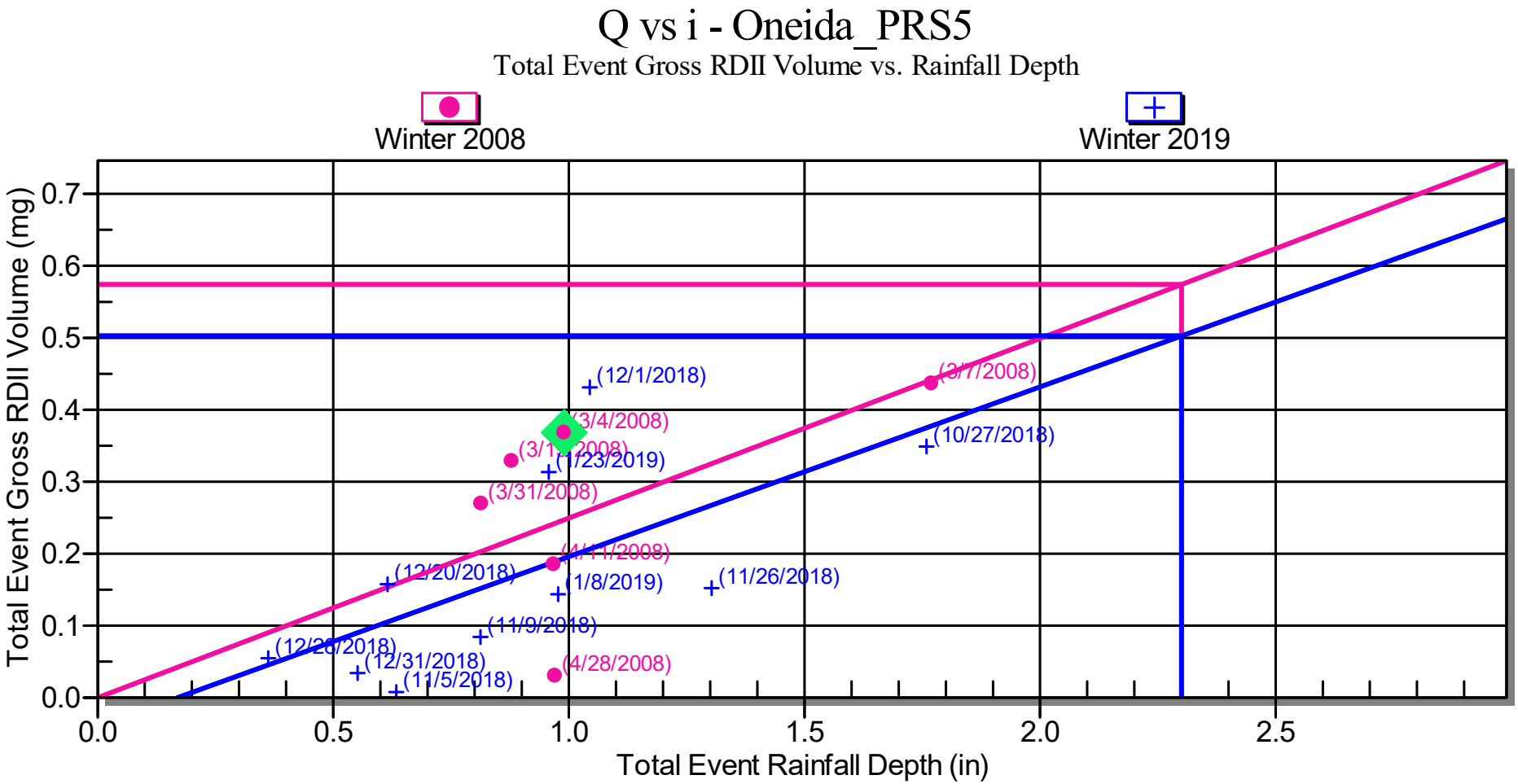

Q vs i - Oneida_PRS4
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Total Event Rainfall Depth (in)
(7/26/2008)
(6/5/2008)
(9/12/2008)
(7/13/2008)
(9/2/2008)
(8/13/2008)
(7/24/2008)
(8/18/2008)
(5/19/2018)
(9/25/2018)
(9/10/2018)

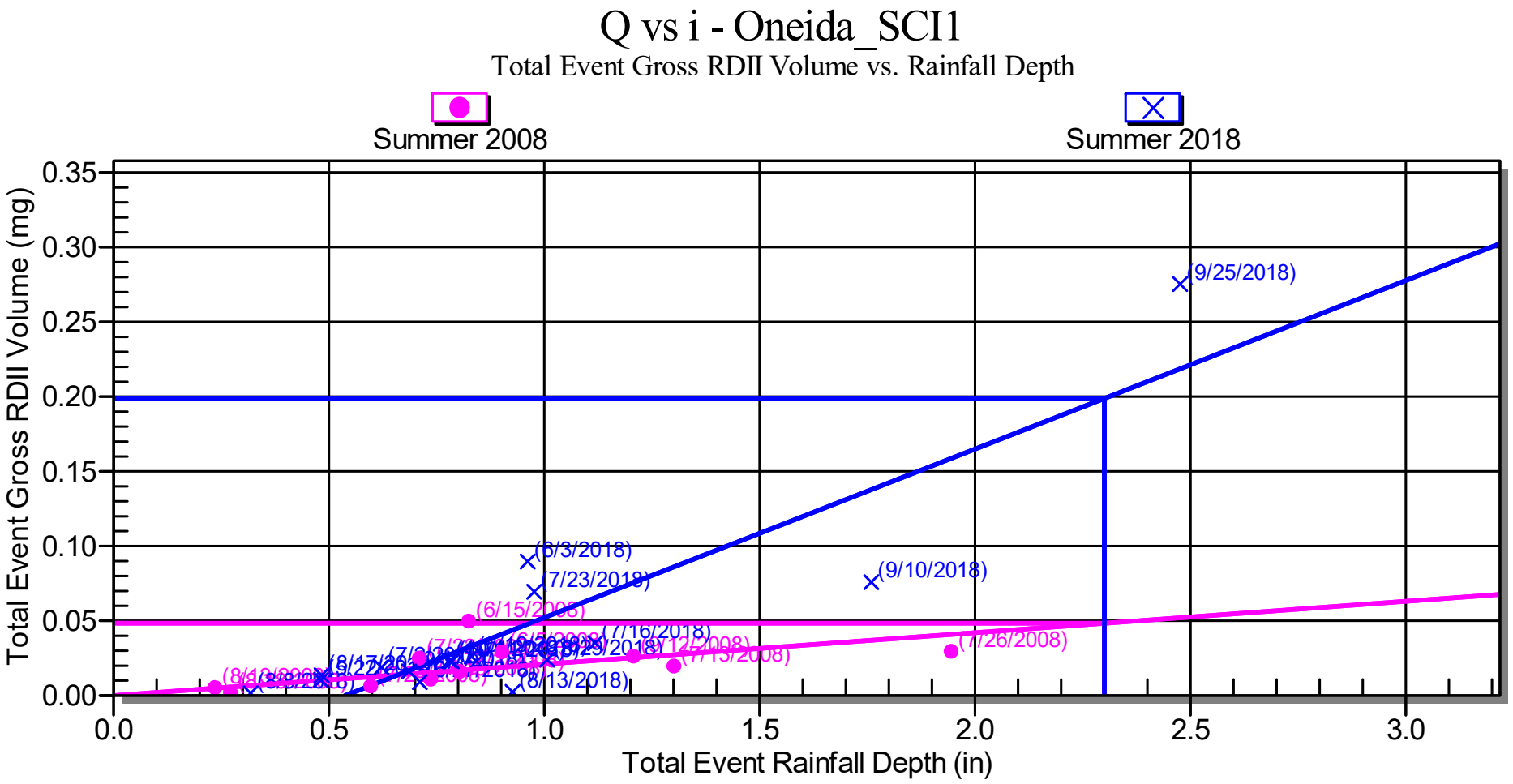
Q vs i - Oneida_PRS4

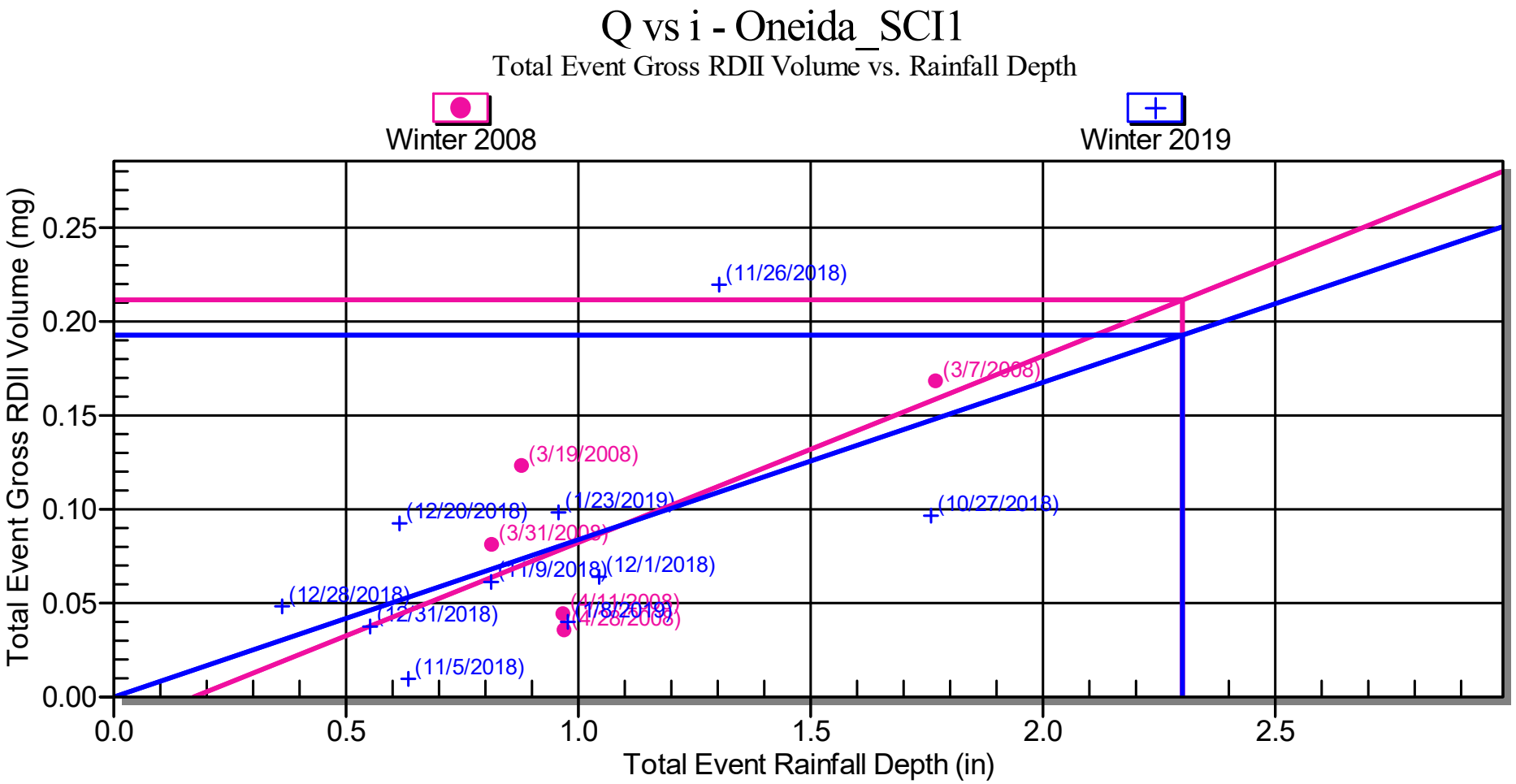
Total Event Gross RDII Volume vs. Rainfall Depth

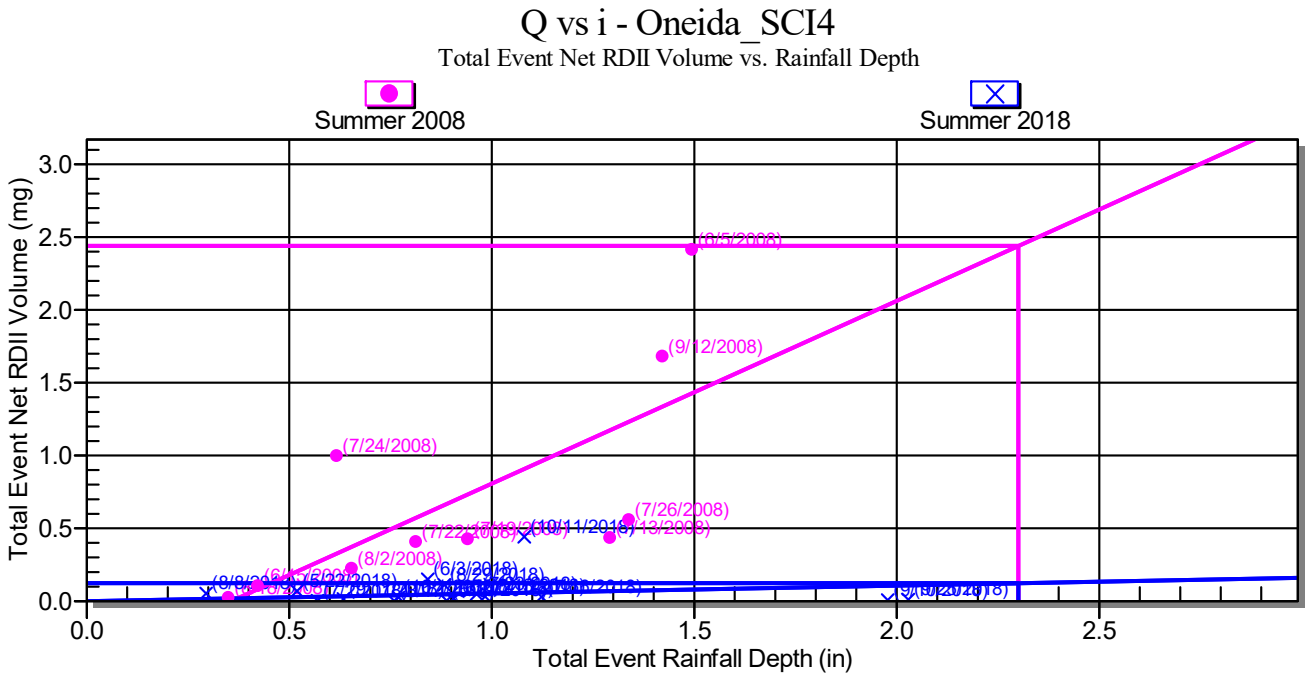



Q vs i - Oneida_PRS5
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
0.00
0.05
0.10
0.15
0.20
0.25
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Total Event Rainfall Depth (in)
(7/26/2008)
(9/25/2018)
(9/12/2008)
(7/13/2008)
(9/10/2018)
(8/13/2008)
(8/29/2018)

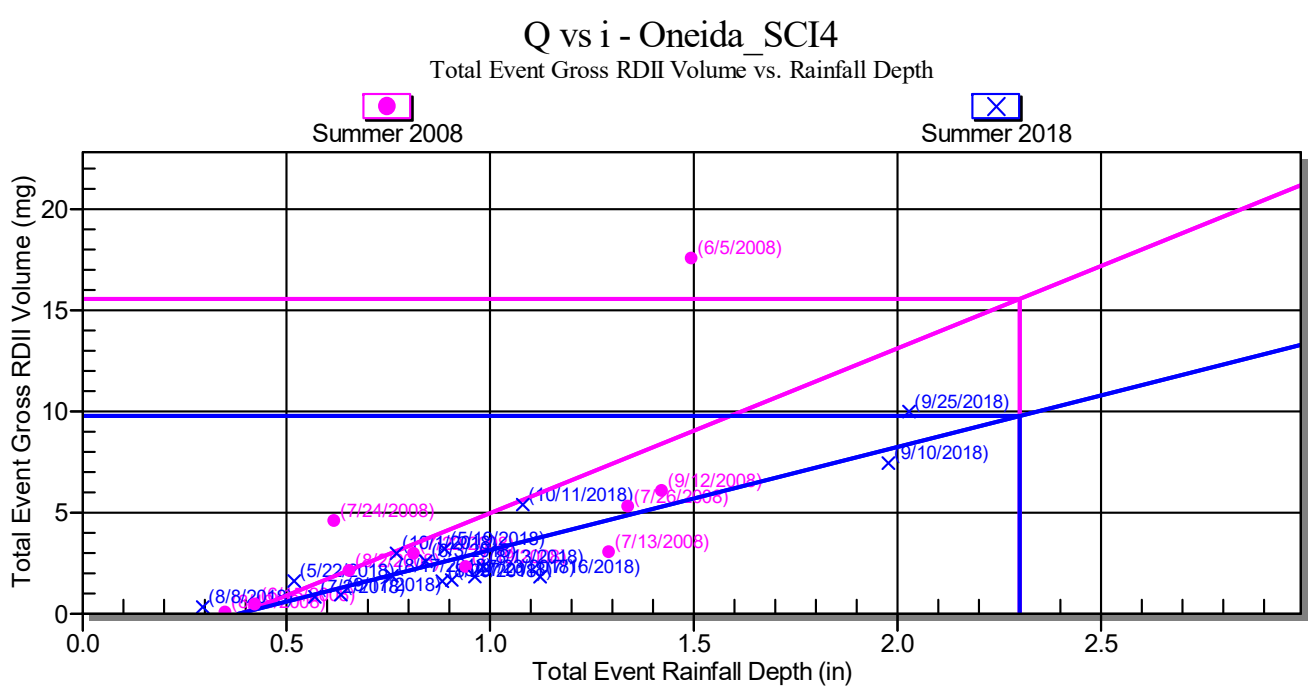

Q vs i - Oneida_PRS5
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.0
0.5
1.0
1.5
2.0
2.5
Total Event Rainfall Depth (in)
(12/1/2018)
(3/7/2008)
(3/4/2008)
(10/27/2018)
(1/23/2019)
(3/31/2008)
(12/20/2018)
(1/8/2019)
(11/26/2018)
(11/9/2018)
(12/31/2018)
(11/5/2018)
(4/28/2008)


Q vs i - Oneida_SCI1
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Total Event Rainfall Depth (in)
(9/25/2018)
(6/3/2018)
(7/23/2018)
(9/10/2018)
(6/15/2008)
(7/16/2018)
(7/26/2008)
(7/15/2008)
(8/13/2018)

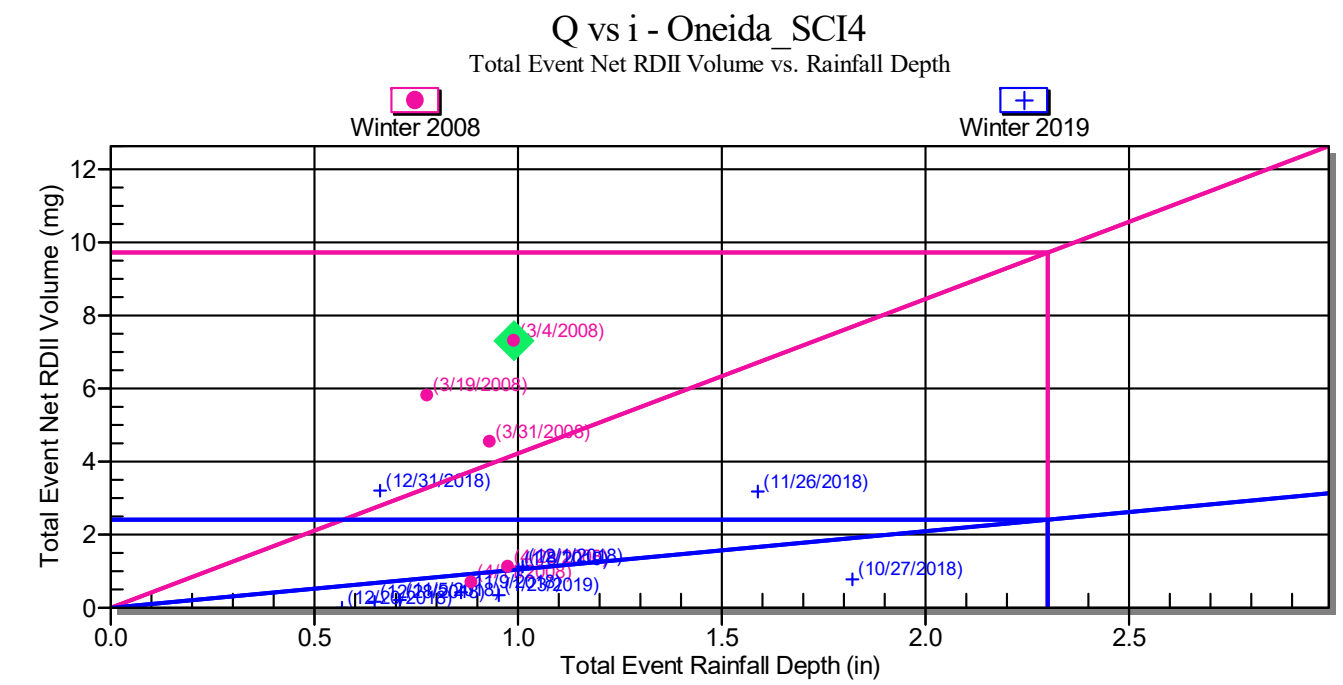

Q vs i - Oneida_SCI1
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
0.00
0.05
0.10
0.15
0.20
0.25
0.0
0.5
1.0
1.5
2.0
2.5
Total Event Rainfall Depth (in)
(11/26/2018)
(3/7/2008)
(3/19/2008)
(12/20/2018)
(1/23/2019)
(10/27/2018)
(3/31/2008)
(11/9/2018)
(12/1/2018)
(12/28/2018)
(12/31/2018)
(4/11/2008)
(4/28/2008)
(11/5/2018)


Q vs i - Oneida_SCI4
Total Event Net RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Net RDII Volume (mg)
Total Event Rainfall Depth (in)
(6/5/2008)
(9/12/2008)
(7/24/2008)
(7/26/2008)
(8/2/2008)
(10/11/2018)
(7/13/2008)
(6/3/2018)

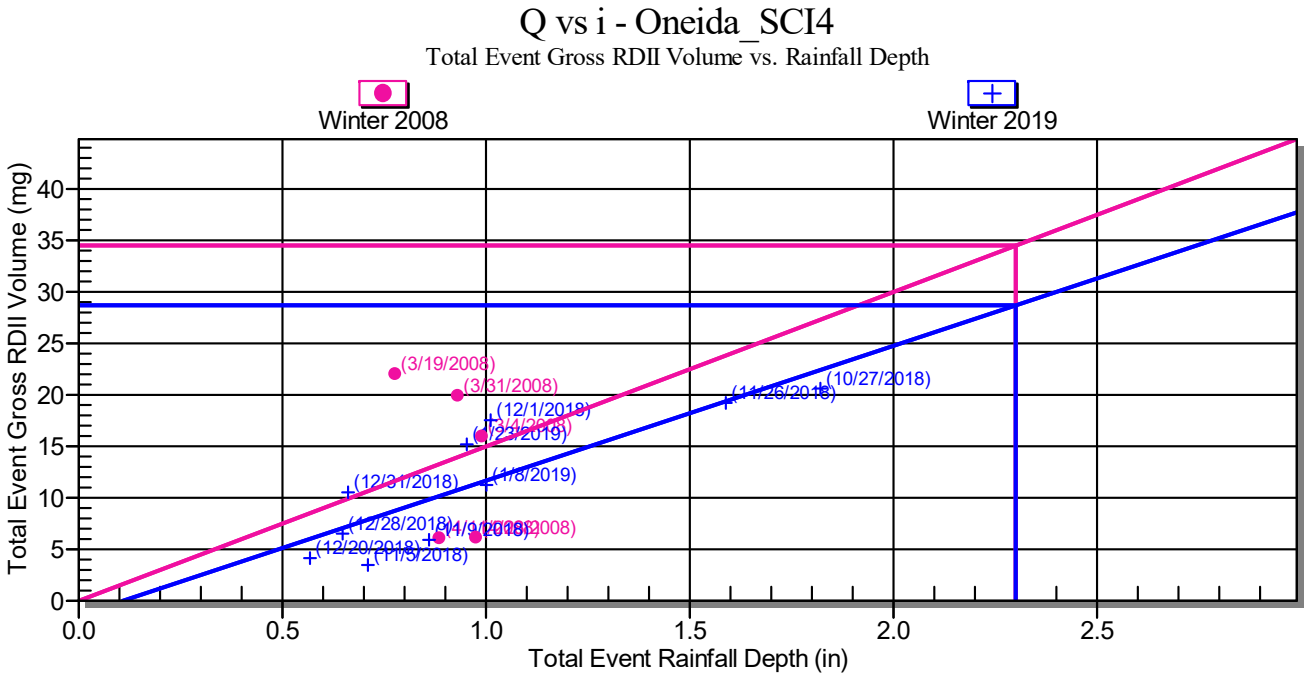
Net


Q vs i - Oneida_SCI4
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
(6/5/2008)
(9/25/2018)
(9/10/2018)
(9/12/2008)
(10/11/2018)
(7/24/2008)
(7/13/2008)

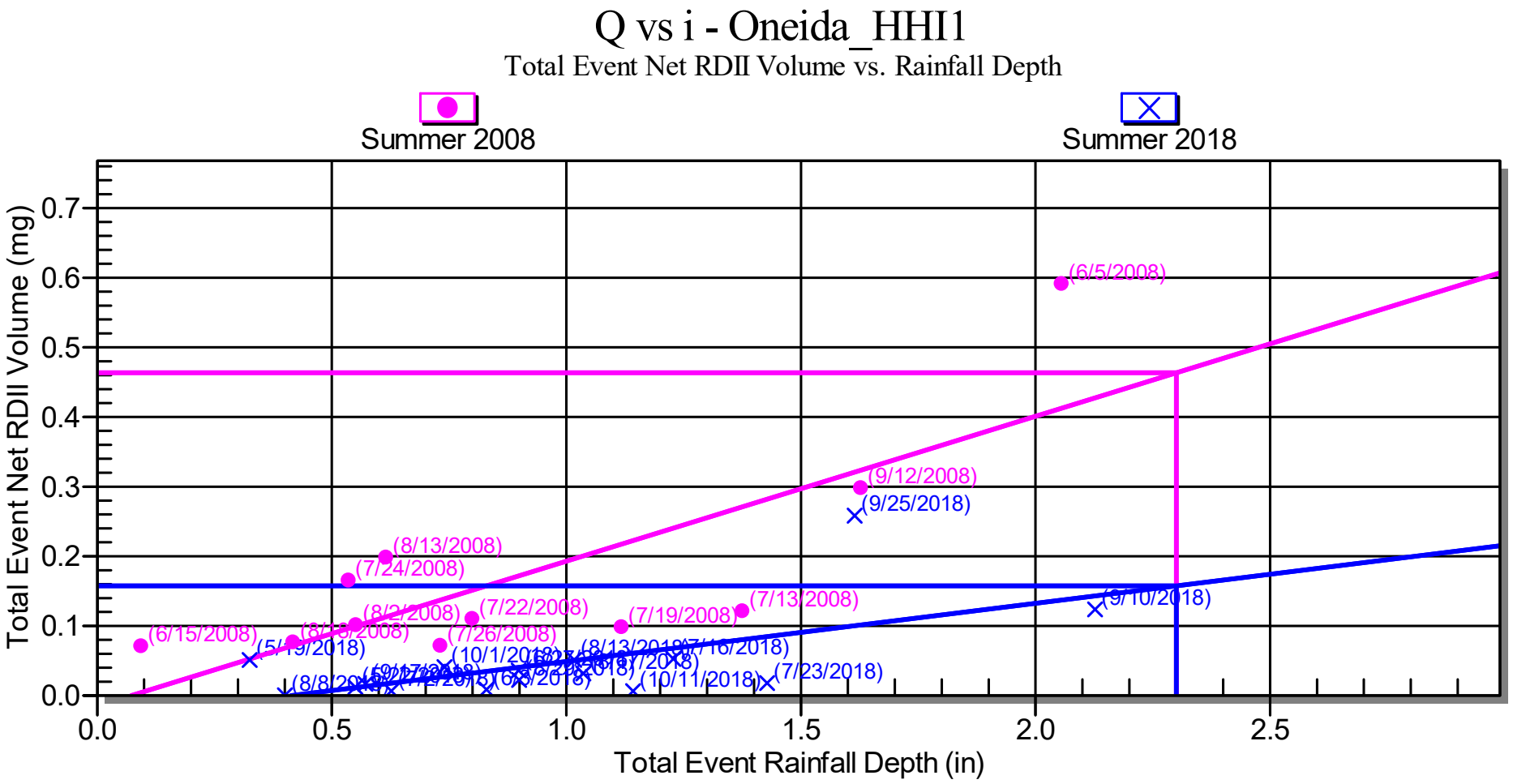
Gross

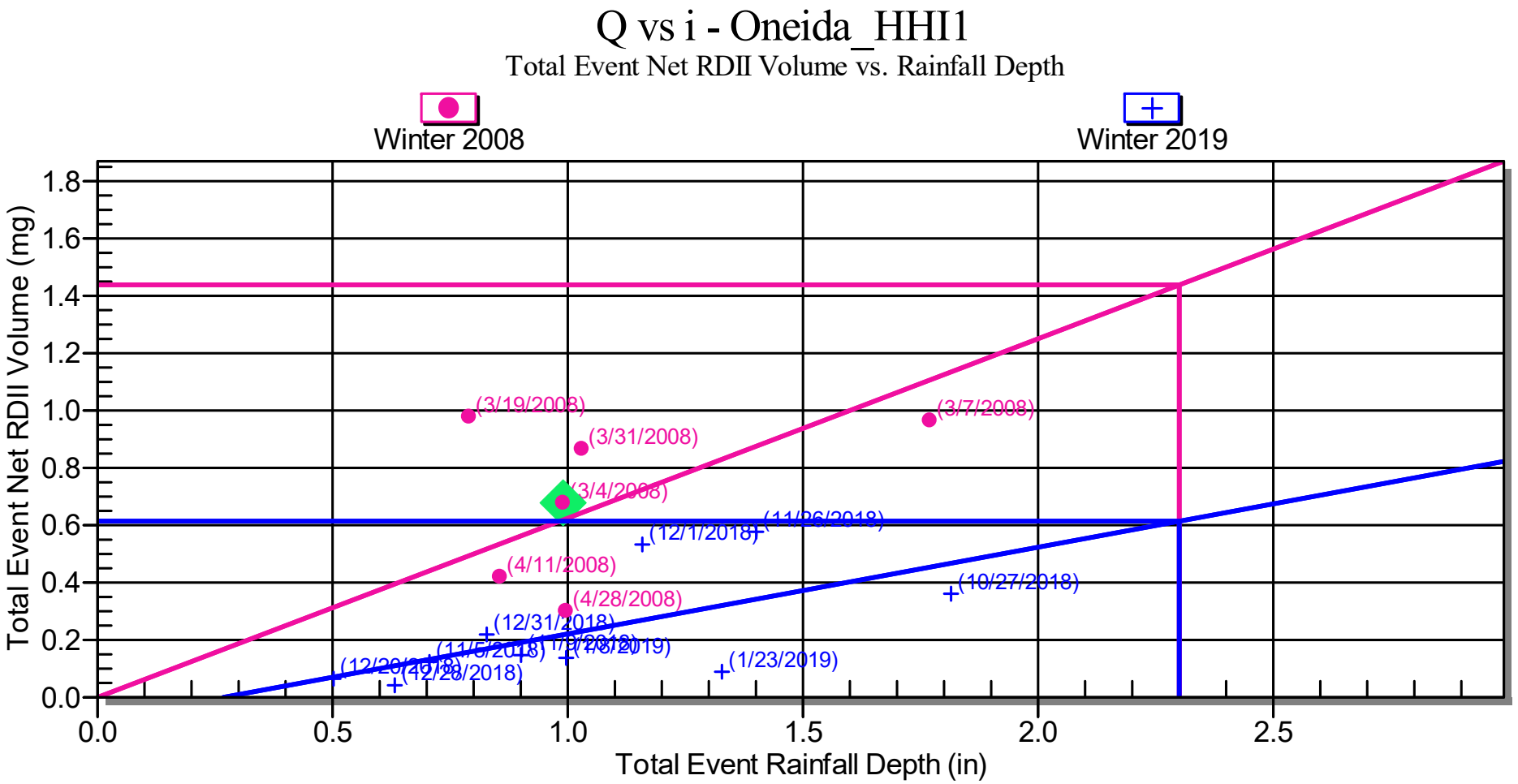

Q vs i - Oneida_SCI4
Total Event Net RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Net RDII Volume (mg)
Total Event Rainfall Depth (in)
(3/4/2008)
(3/19/2008)
(3/31/2008)
(12/31/2018)
(11/26/2018)
(10/27/2018)

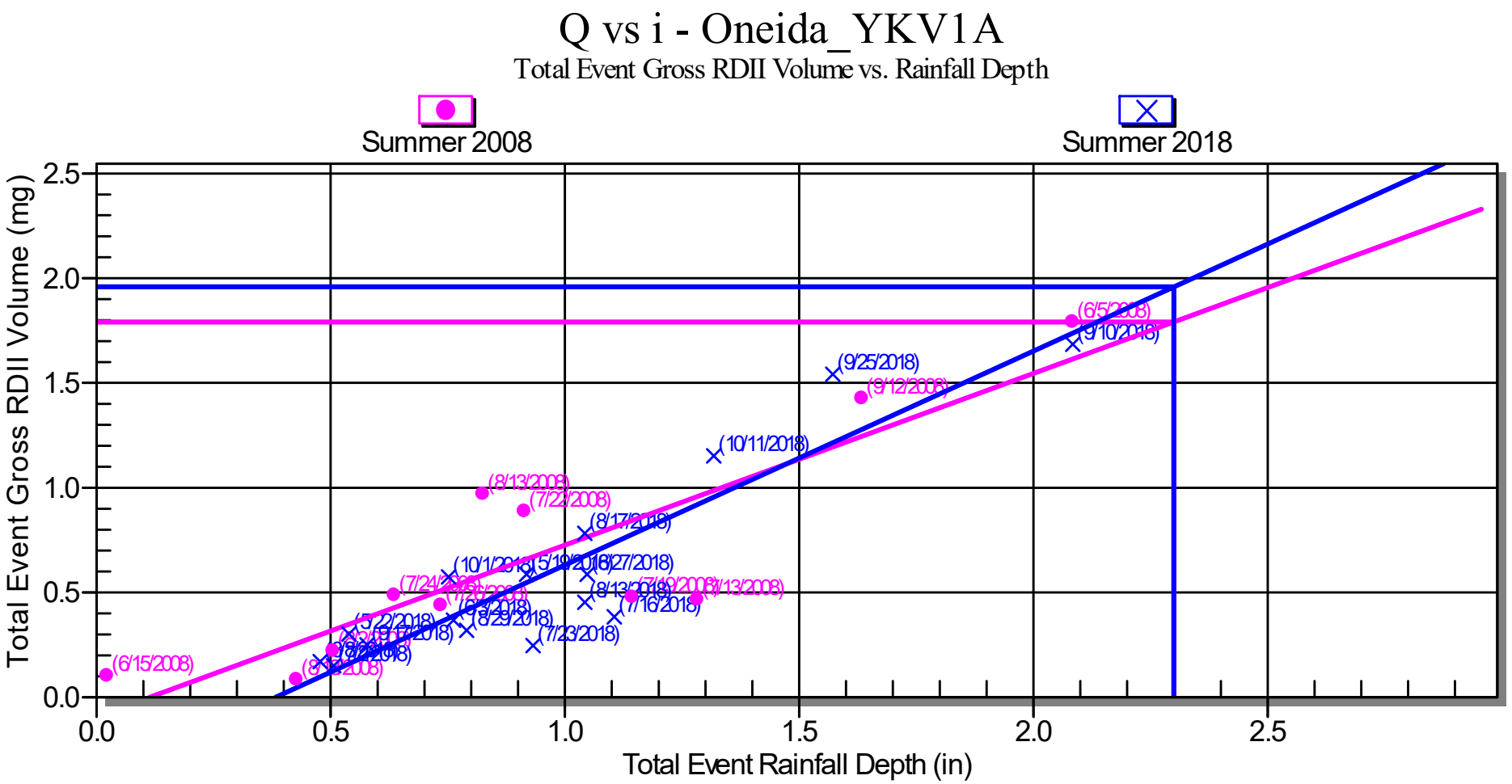
Net

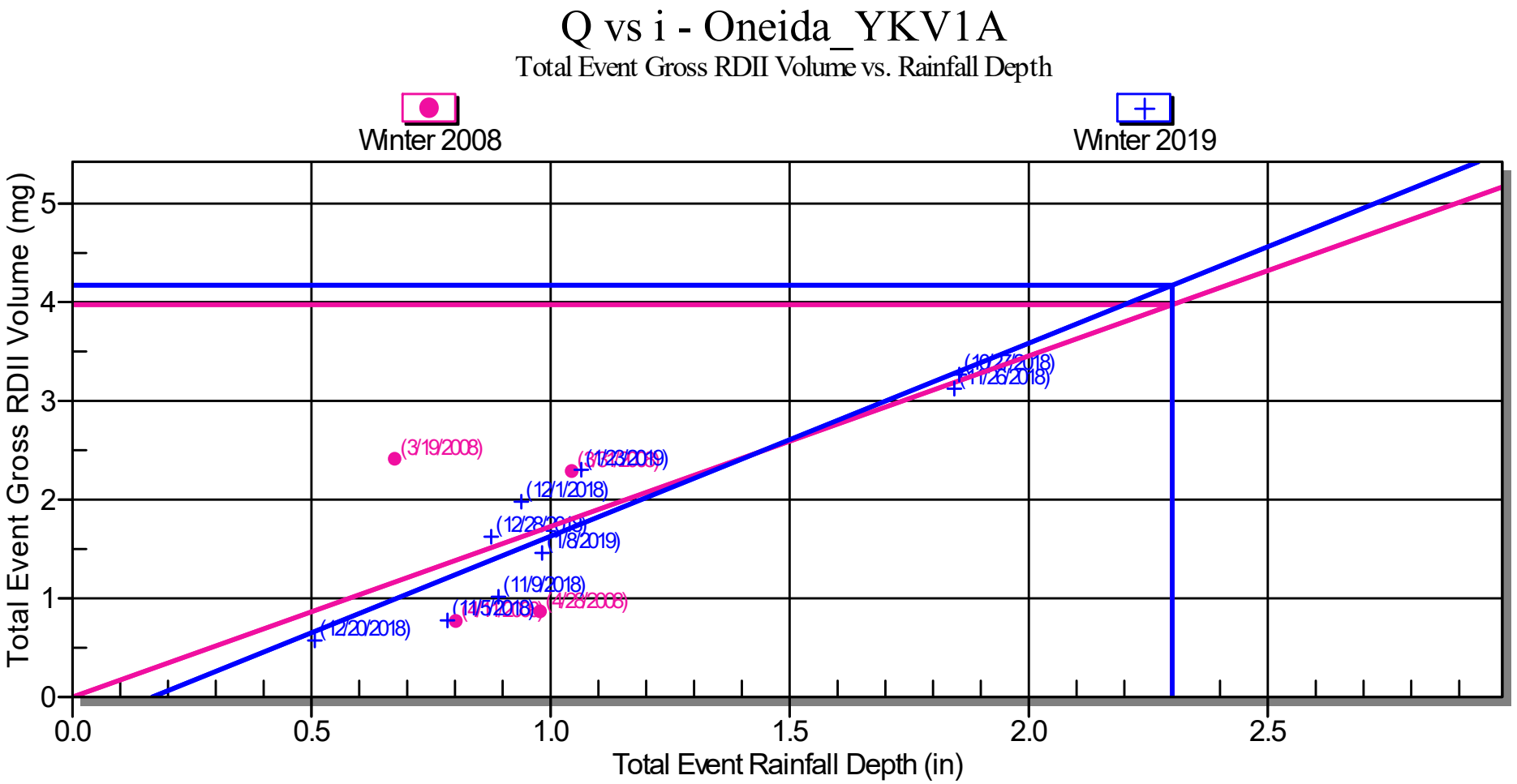

Q vs i - Oneida_SCI4
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
(3/19/2008)
(3/31/2008)
(12/1/2018)
(12/31/2018)
(1/8/2019)
(10/27/2018)

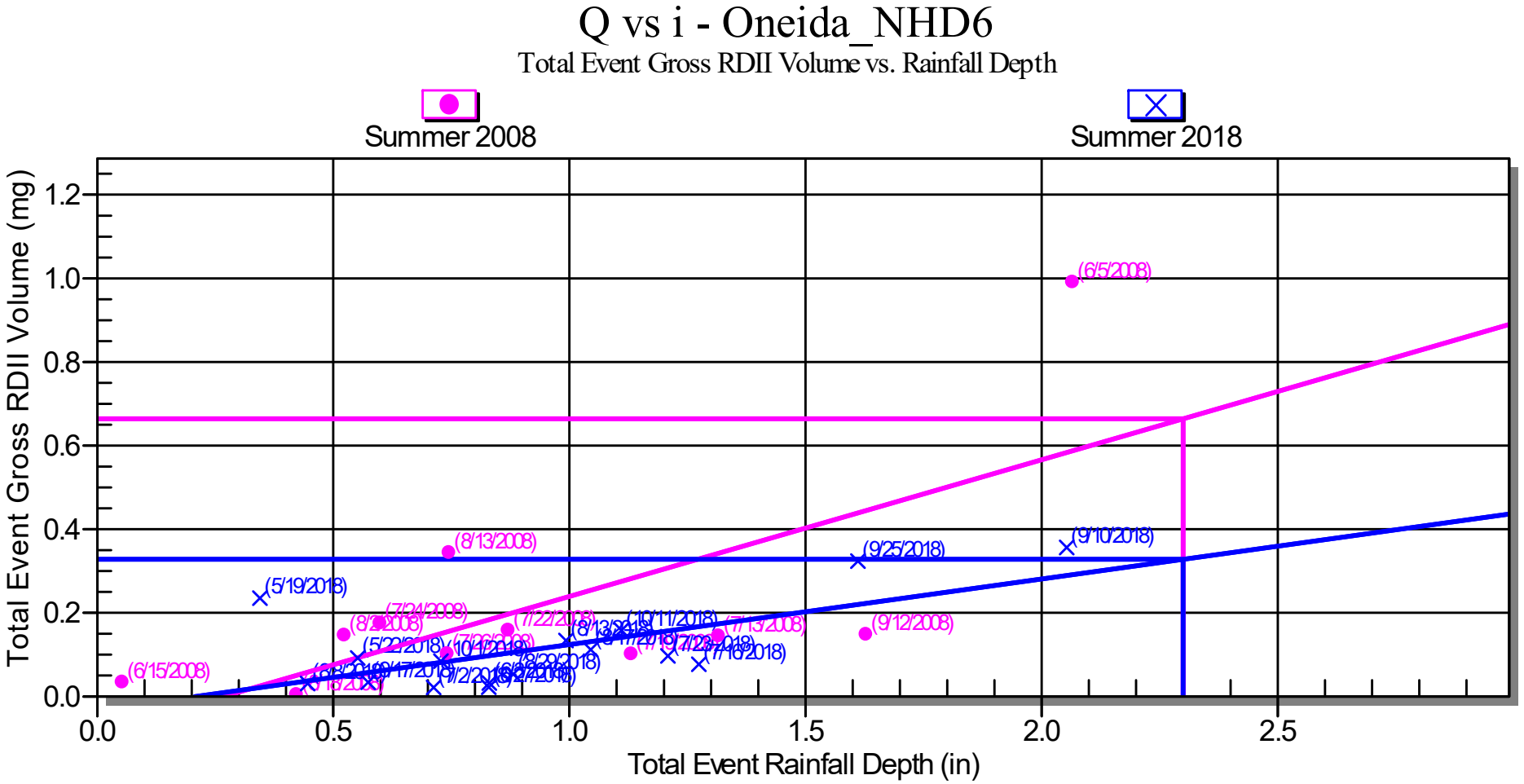
Gross

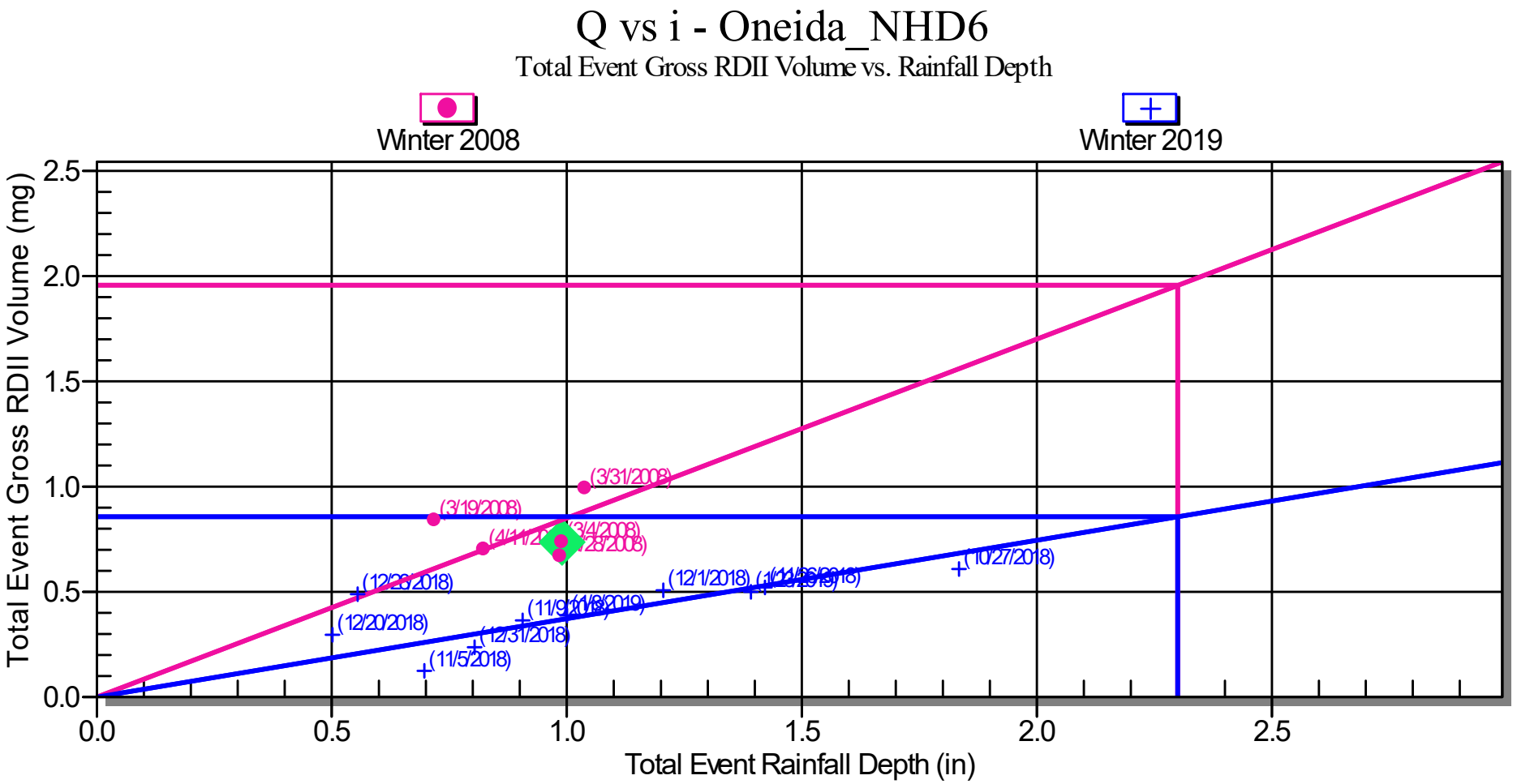

Q vs i - Oneida_HHI1
Total Event Net RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Net RDII Volume (mg)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.0
0.5
1.0
1.5
2.0
2.5
Total Event Rainfall Depth (in)
(6/5/2008)
(9/12/2008)
(9/25/2018)
(8/13/2008)
(7/24/2008)
(7/22/2008)
(7/19/2008)
(7/13/2008)
(9/10/2018)
(6/15/2008)
(5/19/2018)
(7/26/2008)
(10/1/2018)
(10/11/2018)
(7/23/2018)

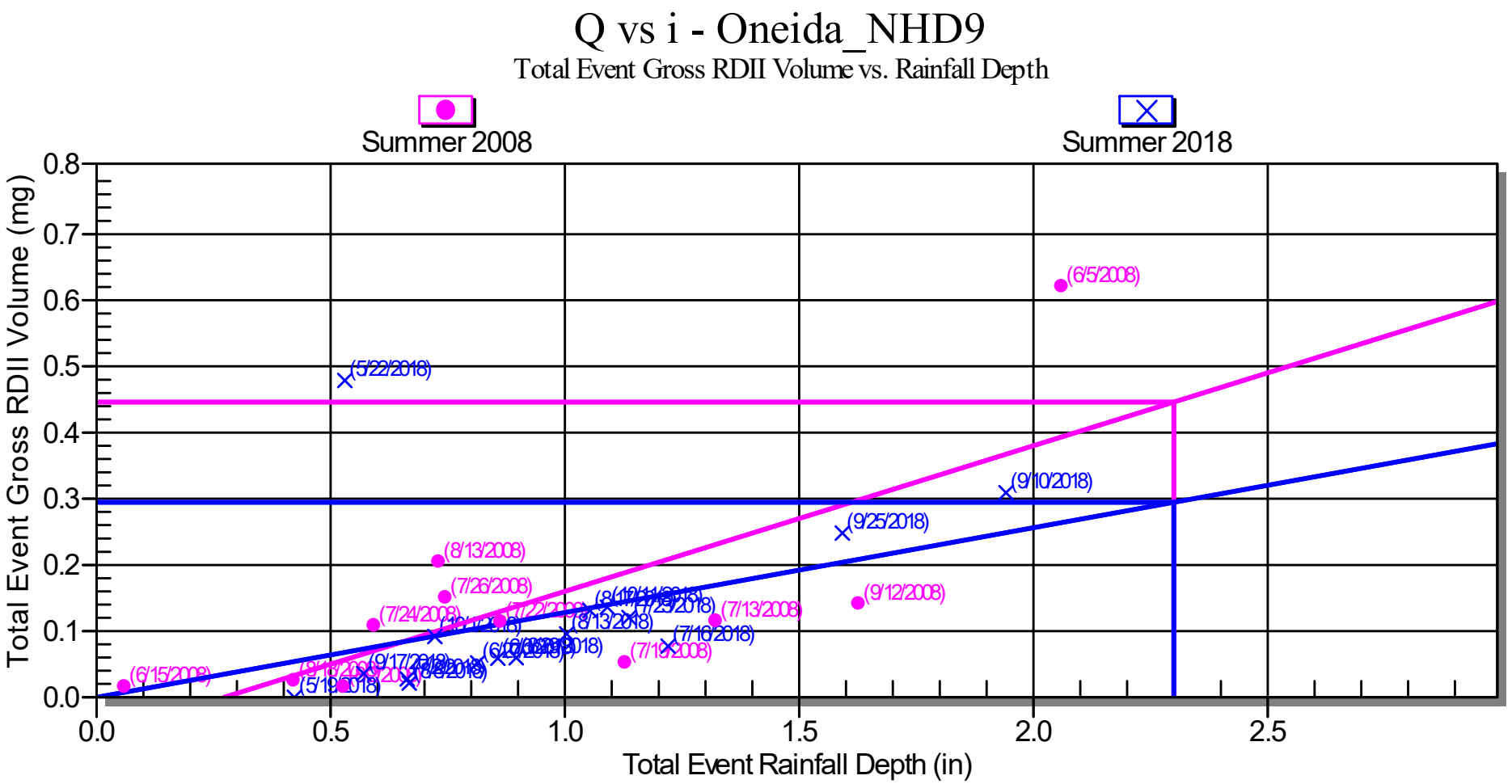

Q vs i - Oneida_HHI1
Total Event Net RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Net RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0.0
0.5
1.0
1.5
2.0
2.5
(3/19/2008)
(3/31/2008)
(3/4/2008)
(4/11/2008)
(4/28/2008)
(3/7/2008)
(12/1/2018)
(10/27/2018)
(12/31/2018)
(1/23/2019)

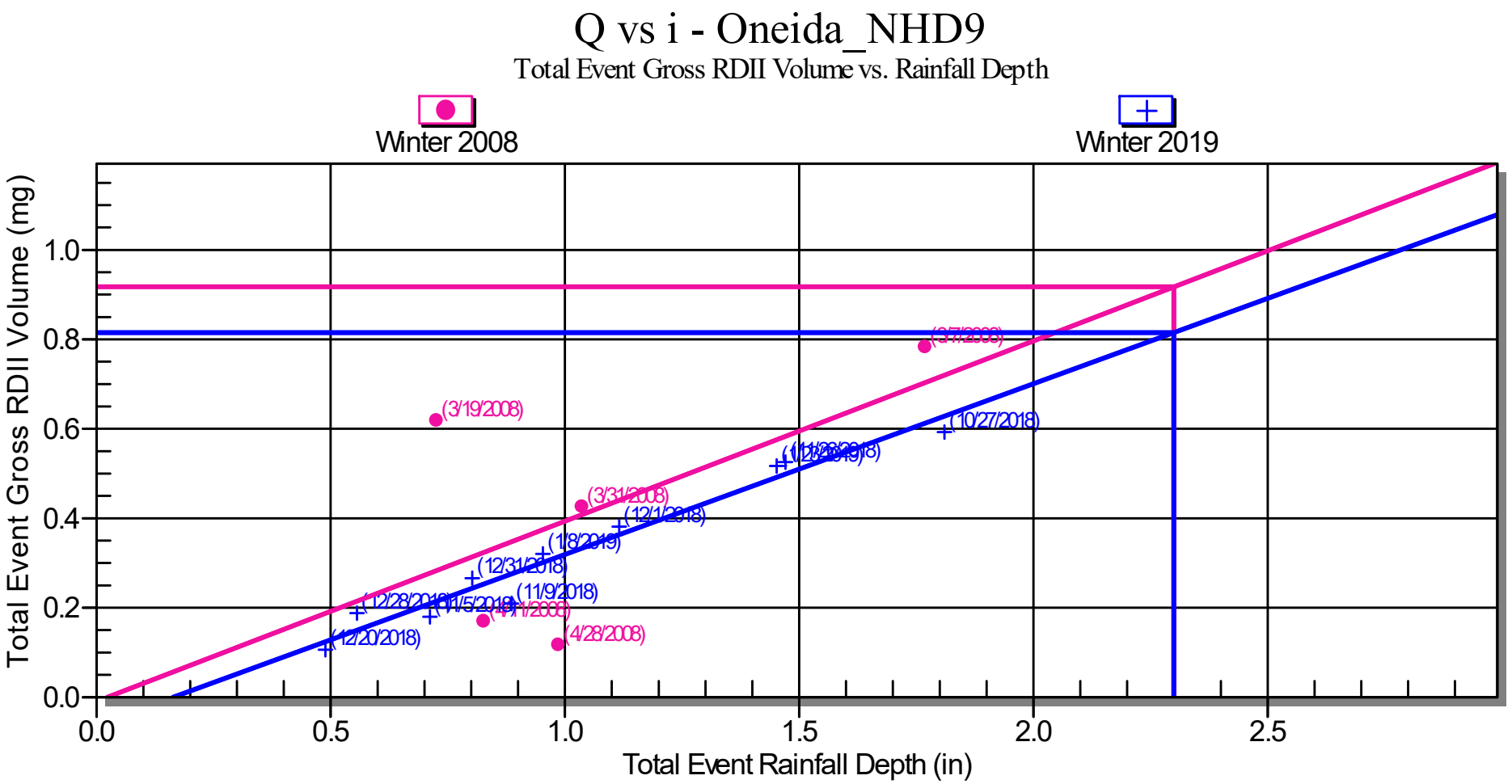

Q vs i - Oneida_YKV1A
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.5
1.0
1.5
2.0
2.5
(6/15/2008)
(8/13/2008)
(7/22/2008)
(9/12/2008)
(6/5/2008)
(9/10/2018)
(9/25/2018)
(10/11/2018)
(8/17/2018)
(10/1/2018)
(5/19/2018)
(7/27/2018)
(7/16/2018)
(7/23/2018)
(8/29/2018)
(5/2/2018)


Q vs i - Oneida_YKV1A
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0
1
2
3
4
5
0.0
0.5
1.0
1.5
2.0
2.5
(3/19/2008)
(4/28/2008)
(12/20/2018)
(12/1/2018)
(11/9/2018)
(1/8/2019)
(11/26/2018)


Q vs i - Oneida_NHD6
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0.5
1.5
2.0
2.5
(6/5/2008)
(8/13/2008)
(9/12/2008)
(6/15/2008)
(5/19/2018)
(9/25/2018)
(9/10/2018)


Q vs i - Oneida_NHD6
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.5
1.0
1.5
2.0
2.5
(3/31/2008)
(3/19/2008)
(12/20/2018)
(11/5/2018)
(12/31/2018)
(12/1/2018)
(10/27/2018)


Q vs i - Oneida_NHD9
Total Event Gross RDII Volume vs. Rainfall Depth
Summer 2008
Summer 2018
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.0
0.5
1.0
1.5
2.0
2.5
(6/5/2008)
(5/22/2018)
(9/10/2018)
(9/25/2018)
(8/13/2008)
(7/26/2008)
(7/24/2008)
(9/12/2008)
(7/13/2008)
(8/13/2018)
(7/16/2018)
(6/15/2008)


Q vs i - Oneida_NHD9
Total Event Gross RDII Volume vs. Rainfall Depth
Winter 2008
Winter 2019
Total Event Gross RDII Volume (mg)
Total Event Rainfall Depth (in)
0.0
0.2
0.4
0.6
0.8
1.0
0.5
1.5
2.0
2.5
(3/19/2008)
(3/31/2008)
(4/28/2008)
(10/27/2018)
(12/1/2018)
(1/8/2019)
(12/31/2018)
(11/9/2018)
(12/20/2018)