LAFARGE
NORTH AMERICA

CEMENT

February 28, 2014

Mr. Kent Sanders
New York State Department of Environmental Conservation
Division of Environmental Permits
625 Broadway
Albany, New York 12233-1750

Re: Lafarge Ravena Facility; Water Withdrawal Permit Application REVISED

Dear Mr. Sanders:

Please find enclosed a **revised** Water Withdrawal Application package for the Lafarge Building Materials, Inc. facility in Ravena, Albany County. The original application was submitted to your office on February 14, 2014. The enclosed package includes a signed Joint Application for Permit form, revised Water Conservation Program form, and a revised Engineer's Report that is also signed and sealed. This revised package has also been submitted electronically to your office.

Information requested to be provided as part of this transmittal letter follows:

(1) Applicant: Lafarge Building Materials, Inc.

(2) Attorney: Whiteman Osterman & Hanna

(3) Consultant: Henningson, Durham & Richardson Architecture and Engineering, P.C.

(4) Public Hearing Locations: Ravena High School, Ravena, NY

(5) Local Newspapers: Albany Times Union

(6) Items/Exhibits Attached

- Applicant Checklist for Water Withdrawal Permit
- Joint Application Form
- Water Withdrawal Application Supplement WW-1 Form
- Water Conservation Program Form for Non-Potable Water Withdrawals
- Engineering Report, including General Maps, Watershed Map, and Latest Annual Water Withdrawal Reporting Forms

U.S. East Business Unit
PO Box 3, Ravena, NY 12143
Office: (518) 756-5028 Fax: (518) 756-9333
www.lafargenorthamerica.com

LAFARGE
NORTH AMERICA

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Please contact me at (518) 756-5026 with any questions, or if you require additional information.

Sincerely,

Sarah Sweeney
Area Environmental and Public Affairs Manager

Enclosures

U.S. East Business Unit
PO Box 3, Ravena, NY 12143
Office: (518) 756-5028 Fax: (518) 756-9333
www.lafargenorthamerica.com

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPLICANT CHECKLIST FOR WATER WITHDRAWAL PERMIT

Complete this form and include with application

Applicant Name: Lafarge Building Materials, Inc. **Facility Name:** Lafarge Building Materials, Inc.

Facility Address: 1916 US 9W **DEC Region:** 4

Project Type (From WW-1): Water Withdrawal

Water Use (From WW-1): Cooling

For Department Use: WWA #:

Item No.	Requirement (*see*, 6 NYCRR § 601.10) http://www.dec.ny.gov/regs/4445.html http://www.dec.ny.gov/lands/94327.html) **	Included or N/A?	Location of Item In Application Package
1	Electronic Copy of Application Package (Recommended)	Included	Resubmitted via email on 2/28/2014
2	Application Transmittal Letter	Included	Beginning of submittal
3	Joint Application Form – signed **	Included	Signed, after Item 2
4	WW-1 Form **	Included	after Item 3
5	Project Authorization for public water supply (PWS) systems, include legal certification form and proof of transportation corporation formation if applicable **	N/A	
6	General Map - Include location of project and other pertinent features.	Included	In Engineering Report
7	Watershed Maps – if applicable	Included	In Engineering Report
8	Contract plans for non-public water supply systems. Plans for PWS systems should be sent directly to NYS Department of Health (DOH)	N/A	
9	Engineering Report - PE signed and sealed **	Included	After Item 10
10	Water Conservation Program Form – signed **	Included	After Item 4
11	Latest Annual Water Withdrawal Reporting Form (for projects involving existing withdrawals)	Included	In Engineering Report, Attach A-D
12	Land Acquisition Maps - if applicable	N/A	
13	Water Analysis - sent directly to DOH if new PWS source	N/A	
14	Project Justification - 8 questions answered	N/A	
15	Canal withdrawal approvals - if applicable	N/A	
16	Great Lakes Basin Diversion - if proposed	N/A	
17	SEQR Form, include Determination if available	N/A	
18	State Historic Preservation Office (SHPO) submission or No Effect Letter from SHPO	N/A	

Reset Form

JOINT APPLICATION FORM

For Permits/Determinations to undertake activities affecting streams, waterways, waterbodies, wetlands, coastal areas and sources of water withdrawal.

New York State

You must separately apply for and obtain separate Permits/Determinations from each involved agency prior to proceeding with work. Please read all instructions.

US Army Corps of Engineers (USACE)

APPLICATIONS TO

1. NYS Department of Environmental Conservation

Check all permits that apply:

- ☐ Stream Disturbance
- ☐ Excavation and Fill in Navigable Waters
- ☐ Docks, Moorings or Platforms
- ☐ Dams and Impoundment Structures
- ☐ 401 Water Quality Certification
- ☐ Freshwater Wetlands
- ☐ Tidal Wetlands
- ☐ Coastal Erosion Management
- ☐ Wild, Scenic and Recreational Rivers
- ☑ Water Withdrawal
- ☐ Long Island Well
- ☐ Aquatic Vegetation Control
- ☐ Aquatic Insect Control
- ☐ Fish Control
- ☐ Incidental Take of Endangered/Threatened Species

☑ I am sending this application to this agency.

2. US Army Corps of Engineers

Check all permits that apply:

- ☐ Section 404 Clean Water Act
- ☐ Section 10 Rivers and Harbors Act
- ☐ Nationwide Permit(s) - Identify Number(s):

_____

_____

Preconstruction Notification - ☐ Y / ☐ N

☐ I am sending this application to this agency.

3. NYS Office of General Services

Check all permits that apply:

- ☐ State Owned Lands Under Water
  - ☐ Utility Easement (pipelines, conduits, cables, etc.)
  - ☐ Docks, Moorings or Platforms

☐ I am sending this application to this agency.

4. NYS Department of State

Check if this applies:

- ☐ Coastal Consistency Concurrence

☐ I am sending this application to this agency.

5. Name of Applicant (use full name)

Lafarge Building Materials, Inc.

Mailing Address: 1916 Route 9W

Post Office City: Ravena

State: NY Zip Code: 12143

Applicant must be:

- ☑ Owner
- ☑ Operator
- ☐ Lessee

(check all that apply)

Taxpayer ID (If applicant is NOT an individual): 22-2452187

Telephone (daytime): 518-756-5026

Email: sarah.sweeney@lafarge.com

6. Name of Facility or Property Owner (if different than Applicant)

Mailing Address

Post Office City

State Zip Code

Telephone (daytime)

Email

7. Contact/Agent Name

Sarah Sweeney

Company Name: Lafarge North America, Inc.

Mailing Address: 1916 US 9W

Post Office City: Ravena

State: NY Zip Code: 12143

Telephone (daytime): 518-756-5026

Email: sarah.sweeney@lafarge.com

8. Project / Facility Name

Lafarge Ravena Cement Plant

Property Tax Map Section / Block / Lot Number: 156.00-2-1.11

Project Location - Provide directions and distances to roads, bridges and bodies of waters:

The Plant and Quarry operate on either side of 9W in the village of Ravena.

Street Address, if applicable: 1916 US 9W

Post Office City: Ravena State: NY Zip Code: 12143

Town / Village / City: Coeymans/Ravena

County: Albany

Name of USGS Quadrangle Map: Delmar

Stream/Water Body Name: Hudson River/ Unnamed surface water

Location Coordinates: Enter NYTMs in kilometers, **OR** Latitude/Longitude

NYTM-E	NYTM-N	Latitude	Longitude
		42.496205	-73.808395

For Agency Use Only DEC Application Number: USACE Number:

RESET

JOINT APPLICATION FORM - PAGE 2 OF 2

Submit this completed page as part of your Application.

9. **Project Description and Purpose:** Provide a complete narrative description of the proposed work and its purpose. Attach additional page(s) if necessary. Include: description of current site conditions and how the site will be modified by the proposed project; structures and fill materials to be installed; type and quantity of materials to be used (i.e., square ft of coverage and cubic yds of fill material and/or structures below ordinary/mean high water) area of excavation or dredging, volumes of material to be removed and location of dredged material disposal or use; work methods and type of equipment to be used; pollution control methods and mitigation activities proposed to compensate for resource impacts; and where applicable, the phasing of activities. **ATTACH PLANS ON SEPARATE PAGES.**

The Lafarge Ravena Plant is submitting a Water Withdrawal Permit Application upon the request of the Department. The Lafarge Ravena Plant and Quarry currently withdrawal water from the Hudson River for cooling water, pump out and use surface and rain water from the Quarry, and use to water from two groundwater well for quench water to temper cooling water discharge.

Proposed Use: ☐ Private ☐ Public ☑ Commercial	Proposed Start Date: NA	Estimated Completion Date: NA

Has Work Begun on Project? ☑ Yes ☐ No If Yes, explain.

The Plant and Quarry currently withdrawal water as described in Engineer's Report.

Will Project Occupy Federal, State or Municipal Land? ☐ Yes ☑ No If Yes, please specify.

10. List Previous Permit / Application Numbers (if any) and Dates:

USACE: 9/30/2013 Permit No. NAN-2013-01195

11. Will this project require additional Federal, State, or Local Permits including zoning changes? ☐ Yes ☑ No If yes, please list:

12. **Signatures.** If applicant is not the owner, both must sign the application.

I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

	Printed Name	Title	Date
Sarah Sweeney Signature of Applicant	Sarah Sweeney	Env./Public Affairs Mgr.	2/28/2014
Michael Kralick Signature of Owner	Michael Kralick	Plant Manager	2/28/2014
Signature of Agent	Printed Name	Title	Date

For Agency Use Only **DETERMINATION OF NO PERMIT REQUIRED**

Agency Project Number _____

_____ (Agency Name) has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative: Name (printed) _____ Title _____

Signature _____ Date _____

New York State Department of Environmental Conservation

Water Withdrawal Application Supplement WW-1

Pursuant to 6 NYCRR Part 601: http://www.dec.ny.gov/regs/4445.html

READ THE INSTRUCTIONS ON PAGE 2 BEFORE COMPLETING THIS FORM

May 2013

FOR DEPARTMENT USE ONLY
Application No.
WWA Number

1. APPLICANT NAME Lafarge North America, Inc.

2. FACILITY NAME Lafarge North America, Inc.

3. PROJECT TYPE
☑ Water Withdrawal ☐ New Public Water Supply Service Area or Extension
☐ Land Acquisition for Public Water Supply ☐ Change in Use of Existing Water Withdrawal

4. WATER USE TYPE
☐ Public Water Supply ☐ Bottled/Bulk Water ☐ Commercial ☑ Cooling ☑ Industrial
☐ Institutional ☑ Mine Dewatering ☐ Oil/Gas Production ☐ Power Production ☐ Recreational
☐ Other:

5. WITHDRAWAL TYPE ☑ Existing ☐ New
If this is an existing public water supply, provide the most recent WSA or WWA Number:
If other than public water supply, list other existing or pending related DEC permits (e.g., SPDES, Mining, Dam):
Mining Permit: #40032, SPDES Permit: # 4-0124-00001/00057

6. WATER WITHDRAWAL SOURCE ☑ Surface Water ☑ Groundwater
Water Body Name(s) Hudson River, Unamed Quarry Surface Water
Nearest Surface Water Body Coeymans Creek
Distance From Well (in feet) 1,500

7. WATER SUPPLY TO OTHER STATES Does this project involve the transport of any fresh water of NYS through pipes, conduits, ditches or canals to any other state?
☑ No ☐ Yes, describe:

8. TRANSPORTATION OF WATER BY VESSEL Does this project involve the transport by vessel of more than 10,000 gallons per day of surface water? (Excludes ballast water necessary for normal vessel activity. A vessel is defined as any floating craft propelled by mechanical power.) ☐ Yes ☑ No

9. WATER WITHDRAWAL AMOUNTS This project involves the withdrawal of up to: 8,600,000 gallons per day Source Name Hudson River
Does the project include a MAJOR DRAINAGE BASIN TRANSFER of water? See map at http://www.dec.ny.gov/lands/56800.html ☑ No ☐ Yes
If yes, ☐ Existing ☐ New From Basin To Basin

10. *REQUIRED EXHIBITS (6 NYCRR Part 601.10)* *Provide the names of the required exhibits applicable to this withdrawal:*

601.10(a) *PROJECT AUTHORIZATION FOR PUBLIC WATER SUPPLY SYSTEMS (e.g. Resolutions, Ordinances)*	NA	***601.10(h)*** *ACQUISITION MAPS (Map of any lands to be acquired as part of project)*	NA
601.10(b) *GENERAL MAP (e.g. Project Location, For Public Water Supplies - water service area boundary)*	General Map	***601.10(i)*** *WATER ANALYSES (Public Water Supplies should submit chemical & bacterial analysis directly to NYSDOH)*	NA
601.10(c) *WATERSHED MAPS (Topographic map with location of withdrawal and any return flow or interbasin diversions).*	Watershed Map	***601.10(j)*** *TREATMENT METHODS (Public Water Supplies - proposed methods to meet NYSDOH standards)*	NA
601.10(d) *CONTRACT PLANS (Public Water Supplies should submit directly to NYSDOH for review and approval)*	NA	***601.10(k)*** *PROJECT JUSTIFICATION (Provide summary statement of answers to the eight justification questions)*	NA
601.10(e) *ENGINEER'S REPORT (Signed by NYS PE, includes project description, water source yields and demands, etc.)*	Engineer's Report	***601.10(l)*** *CANAL WITHDRAWAL APPROVALS (If applicable, provide adequate proof of approval from Canal Authority)*	NA
601.10(f) *WATER CONSERVATION PROGRAM (Completed Water Conservation Program Form)*	Water Conser. Form	***601.10(m)*** *TRANSMITTAL LETTER (Include all contact information for applicant, attorney, engineer, etc.)*	Cover Letter
601.10(g) *ANNUAL REPORTING FORM FOR EXISTING WITHDRAWALS (Most recent submitted annual report)*	Annual Report Forms	***601.10(n)*** *GREAT LAKES-ST. LAWRENCE RIVER WATER RESOURCES COMPACT PROCESS REQUIREMENTS (Only applicable to Public Water Supply diversions from Great Lakes Basin - no other diversion types are allowed).*	NA

Clear Form

Applicant Signature Sarah Sweeney

Name Sarah Sweeney

Title Environmental Manager

Date 2/14/2014

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

WATER CONSERVATION PROGRAM FORM

NON-POTABLE WATER WITHDRAWALS

TO BE COMPLETED AND SUBMITTED AS PART OF A NYSDEC WATER WITHDRAWAL PERMIT APPLICATION
***SEE PAGE 6 FOR FURTHER INTRODUCTION AND INSTRUCTION REGARDING THIS FORM**

If your water facility already has its own written water conservation program, you may submit it as a supplement to this WCPF. If your system is new, indicate the water conservation measures that will be taken when the system is completed (e.g. All sources of withdrawal will be 100% metered).

I. GENERAL SYSTEM INFORMATION

Facility Name: Lafarge Building Materials, Inc.		DEC No. For Dept Use	
Street Address: 1916 US 9W		WWA No. For Dept Use	
Post Office Box: 3	**County:** Albany	**State:** New York	**ZIP:** 12143
Contact Name: Sarah Sweeney			
Street Address: 1916 US 9W			
Post Office Box: 3	**County:** Albany	**State:** New York	**ZIP:** 12143
Applicant's Telephone: 518 756-5026		**Contact's Telephone:** -	

II. SOURCES OF WATER WITHDRAWAL

[State capacity and withdrawal in gallons per minute (**gpm**), gallons per day (**gpd**), or million gallons per day (**mgd**).]

Source Type: **S** = Surface supply, **G** = Groundwater supply, **P** = Purchased supply
Source Status: **R** = Regular use, **S** = Standby use, **E** = Emergency use, **I** = Inactive, **D** = Decommissioned

Source Name	Source Type	Source Status	Tested Capacity	Actual Current Withdrawal	Start-up Year
Hudson River	S	R	8.6 mg	4 mgd	1962
Lafarge Quarry Surface Water	S	R	5 mg	1 mgd	1962
Quench Water Well	G	S	0.6 mg	1 mgd	1962
			mg	mg	
			mg	mg	
			mg	mg	
			mg	mg	
			mg	mg	

III. WATER SOURCES AND METERING

For unmetered systems, please provide your best estimates for water production and/or consumption.

Are all sources of supply (including major interconnections) equipped with master meters?	No
How often are they read?	Intermittently
How often are they calibrated?	The Quarry meter is calibrated quarterly
Are there secondary meters located within the facility or system?	No If yes, how many?
Describe secondary metering system if applicable:	

Water Production for Calendar Year		
Total metered water production:	662,100,000	gallons per year
Average day production (total/days of use):	1,800,000	gallons per day
Maximum day production (largest single day):	5,900,000	gallons per day

What are your future goals and schedule for water metering?

1) Activate meter on Hudson River withdrawal - June 2014
2) Install new Hudson River intake system (screens, pumps, meter) - July 2016
3) Pipe quarry water to plant; install meter-2015

Best Management Practices:

** 100% metering of all sources of water withdrawal.*

** Source and secondary meters must be tested and calibrated annually.*

IV. WATER AUDITING

The process of conducting an audit of a water system will enable the collection of data on how much and where water enters, leaves and is used within a facility or system. Another goal of a water audit is to estimate unaccounted-for water use, which includes: Losses through leaks, improperly-functioning or inoperative system controls and unmetered sources of water. The water audit provides a system with a baseline against which water-conservation measures can be evaluated.

Do you conduct a water audit at least once each year? No If yes, please submit a copy of your latest audit in addition to completing the following section.

** Water Audit for Calendar Year

Total metered water production (from previous section)			Total	662,100,000	
Sources of Water Use		**Metered or Estimated?**			**% of Total**
Process Water		Estimated	subtract	208,500,000	32
Cooling Water		Estimated	subtract	259,700,000	39
Wash Water		Estimated	subtract	15,000,000	2
Sanitary		Estimated	subtract		
Incorporation into Product		Estimated	subtract		
Irrigation		Estimated	subtract		
Other	Road Dust Control, Quench Water	Estimated	subtract	48,200,000	7
Other	SPDES Discharge	Estimated	subtract	61,200,000	9
TOTAL UNACCOUNTED-FOR WATER			Sub-total	**69,500,000**	**11**
Unaccounted-for water breakdown	Meter under-registration		subtract		
	Unrepaired leakage		subtract		
	Other:		subtract		
** Water measurement and accounting techniques are available in NYSDEC's Water Conservation Manual, http://www.dec.ny.gov/lands/39346.html				0	

What are your future goals for water system auditing?

The current method of cement production includes producing slurry to feed the kiln. This is currently the second largest consumer of water in the facility. A new kiln line will become operational in 2016

Best Management Practices:

** At least once each year, a system water audit must be conducted using metered water production and consumption data to determine unaccounted-for water.*

** Keep accurate estimates of unmetered water use.*

** Quantify all authorized water uses by consumption categories.*

V. LEAK DETECTION AND REPAIR

Do you regularly survey your facility for leakage? Yes

Are leaks repaired in a timely manner? Yes

If applicable, do you regularly survey underground piping for water leakage? No

Total length of underground piping	Percent of piping surveyed each year	Length of pipe surveyed each year	Listening equipment used	Year of last survey	Number of leaks found	Number of leaks repaired

What are your future goals for water system leak detection and repair?

Continue inspection and repair of leaks in a timely manner.

Best Management Practices:

** Check any underground water distribution systems for leaks each year.*

** Fix every detectable leak as soon as possible.*

** Have an on-going system rehabilitation program.*

VI. WATER REUSE, RECYCLING AND DROUGHT PLANNING

Does your facility reuse or recycle primary use water? No If yes, describe process:

Until late 2013 the facility harvested storm water and water produced from quarry de-watering for plant consumption. Changes in water handling due to the installation of a new leachate treatment system now prevent that capture and use. A new closed-loop cooling water system will be installed

Does your facility use reclaimed rainwater, storm water runoff or wastewater? No If yes, describe process:

Until late 2013 the facility harvested storm water and water produced from quarry de-watering for plant consumption. Changes in water handling due to the installation of a new leachate treatment system now prevent that capture and use. A new system to collect and use quarry water will be

Describe any equipment or processes that promote the efficient use of water by your facility:

See future goals discussion below

Does your system include storage tanks or ponds to meet short term water demands?

The plant quarry has a large pond that will become the primary source of water for cement

Describe any actions that can be taken to reduce water use during times of drought:

None

What are your future goals for recycling or reducing water usage?

The current method of cement production includes producing slurry to feed the kiln. This is currently the second largest consumer of water in the facility. A new kiln line will become operational in 2016 which will produce cement using a dry system, eliminating the production of slurry and that water

Best Management Practices:

** Reuse or recycle water whenever possible.*

** Employ efficient irrigation techniques*

** Develop a plan to reduce water use during times of drought.*

VI. SIGNATURE PAGE AND DISCUSSION

Facility Name: Lafarge Building Materials, Inc.	WWA No. For Dept Use

Signature: Sarah Sweeney	Signatory: Sarah Sweeney
Title: Area Environmental Mananger	Date: February 14, 2014

***DISCUSSION*:**

Effective February 15, 2011, New York State Environmental Conservation Law (§ECL 15-1501) has required that all applications for a NYSDEC Water Withdrawal Permit include a water conservation program. This Water Conservation Program Form (WCPF) is a required submittal of all such applications.

The WCPF has been set up to cover the following basic elements of a water conservation program: Source Water Inventory, Water Usage and Metering, Water Auditing, Leak Detection/Repair, and Water Use Reduction. The Best Management Practices listed at the bottom of each page represent DEC water conservation policy objectives and should be incorporated into your program development. Additional water conservation measures that are specific to your category of water usage should also be incorporated into your individual program.

Water withdrawal permit applicants can consult the NYSDEC publication entitled "A Survey of Methods for Implementing and Documenting Water Conservation in New York".

The American Water Works Association (AWWA) is also an excellent source of information regarding water conservation practices and procedures. Information ranging from technical manuals to online resources and tools can be found at http://www.awwa.org.

Clear Entire Form

INITIAL WATER WITHDRAWAL PERMIT APPLICATION

LAFARGE NORTH AMERICA, INC.

Lafarge Building Materials, Inc. Ravena Facility

SPDES #: NY 000 5037; DEC #: 4-0124-0001/00057

ENGINEERING REPORT

Prepared for:

Lafarge North America, Inc.

1916 US Route 9W

Ravena, NY 12143

Prepared, Signed and Stamped by:

Dr. Thomas L. Englert, P.E

Henningson, Durham & Richardson

Architecture and Engineering, P.C.

in Association with HDR Engineering, Inc.

One Blue Hill Plaza, 12th Floor

P.O. Box 1509

Pearl River, New York 10965

February 27, 2014

Table of Contents

Initial Water Withdrawal Permit Application, Lafarge North America, Inc.;

SPDES #: NY 000 5037; DEC #: 4-0124-0001/00057

Engineering Report

1.0 GENERAL DESCRIPTION AND HISTORY OF EXISTING PROJECT

The Lafarge North America, Lafarge Building Materials Inc. facility at Ravena, New York (Lafarge Ravena facility) is a manufacturing facility dedicated to the production of Portland cement, the most common type of cement in general use and a basic ingredient of concrete, mortar and grout. The facility is built on a 3,800 acre parcel. Eight hundred acres is used for manufacturing while the remaining 3,000 acres is dedicated to quarry use. The operation includes two raw mills, four cement mills, and two 580-foot long cement kilns. After processing, the cement is pumped into one of sixteen (16) storage silos for bagging, shipping and distribution in bulk trucks. The cement can also be pumped to six (6) buffer silos that are used to supply Lafarge's barge delivery system. The Ravena facility was originally constructed by the Atlantic Cement Company in 1962.

For cooling and slurry makeup during cement production, the Ravena facility in the past has used a variety of sources including treated water from an on-site settling pond treatment system, water pumped from the quarry, and, as a backup, water from the Hudson River. Currently the facility is preparing for the plant modernization project which will reduce the amount of water required to operate the facility and will have other environmental benefits. During the transition to the modernized facility, the Hudson River is the water source being used. The Ravena facility has a current SPDES permit (NY 000 5037) for the withdrawal and discharge of Hudson River water. Water for cooling of equipment is recirculated within the process to minimize use of water resources and to conserve energy.

2.0 GENERAL MAP OF PROJECT

Please refer to Figure 1 for a general map showing the geographical location of the Lafarge Ravena facility, and Figure 2 for an aerial view showing the location of the facility's cooling water intake and discharge structures..

3.0 WATER SOURCE CAPACITIES AND SYSTEM DEMAND CALCULATIONS

3.1 Water Source

The Lafarge Ravena facility has the capability to withdraw cooling water from the Hudson River near its confluence with Coeyman's Creek, surface water from the on-site quarry, and water from two groundwater wells. Water is withdrawn from the river by two pumps with a maximum combined capacity of 6,000 gpm (gallons per minute) or 8.64 million gallons per day (MGD). The maximum capacities of the other sources are 5.0 MGD and 0.6 MGD from the quarry, groundwater wells, respectively, for a maximum system capacity of 14.2 MGD.

The Hudson River is 450 miles (725 km) in length, from Lake Tear of the Clouds in the Adirondacks to the Battery in New York City, and has a drainage basin of 13,400 square miles (34,700 km^2), including the watershed of the Mohawk River, the largest tributary (Howells, 1972). Figure 3 shows the extent of the Hudson River watershed and the location of the Lafarge facility within it. Average annual precipitation in the Hudson River drainage basin is 40 to 48 inches, and average annual runoff is 18 to 24 inches (USGS 2014). About 80% of freshwater flow entering the Hudson does so above the dam at Troy, NY, where measured flow ranges from 2,282 to 45,650 MGD (100 to 2,000 m^3s^{-1}). Long term average fresh water flow in the Hudson River at the Battery has been estimated at 13,531 MGD (20,936 cubic feet per second (Abood et. al 1992). The 155 miles (250 km) of the river south of the dam at Troy is tidal, with an average tidal range of 4.9 feet (1.5 m) and average tidal currents of 1.4 knot (0.7 m s^{-1}). Freshwater

outflow in the tidal portion of the river ranges from 0.02 to 1.0 kt (0.01 to 0.5 m s^{-1}), thus tides provide the majority of fluid transport within the tidal portion of the river (Geyer and Chant 2006). The Hudson River at the location of the Ravena facility is classified as tidal freshwater, with salinities varying from 0.0 to 0.5 ppt depending on freshwater flow (USFWS 2014).

The nearest USGS stream gage on the Hudson River to the Ravena facility is located approximately 11 miles north at Albany, NY. The New York State Department of Environmental Conservation classifies the portion of the river proximate to the Ravena facility as a Class C waterbody, indicating the best usage of these waters is fishing. (6 NYCRR §864.6, §701.11).

Because the Hudson River watershed is large and heavily industrialized, other water withdrawal sites exist upstream from the Ravena facility.

3.2 Description of Cooling Water Intake System

Cooling water is withdrawn from the Hudson River at River Mile 134 via a 30-inch diameter pipe. The withdrawal point is located in the main river channel approximately 150 ft. offshore at 42° 29' 29" N, 73° 47' 07" W (Figure 5). The pipe rises from the bottom where it forms a tee approximately three feet from the surface at mean low water (Figure 4). The tee has an opening on each side covered by ¾ inch screen. Water is pumped from the river using two Layne Northern Co. pumps with a rated capacity of 3,000 gallons per minute (gpm) per pump (Figure 6). Once the water has entered the landside pump house, it is diverted to a US Filter traveling water screen fitted with 3/8-inch mesh (Figure 7). The screens are typically rotated once every 24 hours. During periods of high debris loading, rotation may take place more frequently. Fish and debris on the traveling screen are removed by a pressure spray wash and exit through a collection tray. A pipe from the collection tray conveys the spray wash and any debris and organisms to a landside debris area. Organisms and debris small enough to pass through the screen mesh, are conveyed to the clarifier (settling tank), where sand, silt, and other gross impurities are removed. Once clarified, one of three 125-HP, 1,000 gpm @ 45-ft TDH, Layne Northern Co. pumps pull water from the clarifier tank and pump it approximately 9,100-ft (+380-ft vertically) via a 14 inch pipe to the spherical (Ball) reservoir situated on top of the Pack-house in the main plant (Figure 8). The Ball reservoir maintains pressure throughout the remaining system by controlling

the water level. Water levels in the Ball are supplemented by introducing storm water, groundwater (quarry water), and plant recycled water (via settling ponds). Water stored in the Ball is then distributed throughout the plant. This water is primarily used for cooling of the various machinery components through out the facility. Water that is not consumed (evaporated in the manufacturing process), is collected in a series of settling ponds where it is chlorinated and adjusted for pH. The water is then discharged to a drainage swale that empties into Coeymans Creek. Temperature of the discharge water is recorded prior to discharge to Coeymans Creek. The discharge water then flows from Coeymans Creek to the Hudson River (temperature is monitored upstream and downstream of the discharge in the creek).

3.3 Water Demands

Water usage is summarized herein based on the Lafarge Ravena facility's Water Withdrawal Reporting Forms for calendar years 2009 through 2012 (a A-D). Average daily withdrawal amounts were calculated by dividing monthly total withdrawals by the number of days in each month. Based on this calculation method, the overall average daily water withdrawal at the Ravena facility over the period 2009-2012 was 2.2 million gallons per day (MGD). The maximum monthly daily average water withdrawal over the same period was 5.1 MGD, corresponding to the maximum monthly total withdrawal of 152,968,000 gallons during the month of April 2011. Calculated monthly average daily withdrawals are summarized in Table 1.

Based upon the total reported annual withdrawal of 662,100,000 gallons for calendar year 2012, the Ravena facility uses an estimated 39% of water withdrawn for cooling, 31% for process water, 7% for road dust control and quench water, and 2% as wash water. Ninety percent of water withdrawn is discharged under the facility's SPDES permit, with the remainder being lost due to evaporation, or within the cement manufacturing process and other onsite uses. These water use amounts are detailed on the Water Conservation Program form included with the permit application.

The Ravena facility is about to commence a modernization project that will markedly change the quantity of water required and the means of water withdrawal. That project involves the installation of a new kiln line, new Hudson River intake system, new quarry water capture

system and a new cooling water system. These improvements will reduce the amount of water required to operate the facility and have other environmental benefits. The modernization project is scheduled to be complete by June 2016.

Cooling water is currently the largest single use of water at the facility. During modernization a closed loop cooling water system will be installed. This system will reduce water use by eliminating the current "once-through" cooling water system. Slurry production is currently the second largest use of water in the facility. Currently the facility operates a wet process to manufacture cement. As part of this process water is used to produce a limestone slurry which is fed to the kiln. The new kiln will utilize a dry process and eliminate the need for water to produce slurry.

After modernization the primary source of water for the facility will no longer be the Hudson River. Water harvested from the facility quarry will be piped to the facility and be the primary water supply. Wells will act as the secondary source of water. Withdrawing water from the Hudson River will be done only when the quarry and wells cannot meet the demand. The quantity of Hudson River water that the facility will be allowed to withdraw will be limited by a SPDES permit condition. Currently the facility has the capacity to withdraw up to 8.6 MGD. The new withdrawal limit will be 2.0 MGD. Wedge wire screens will also be installed on the river intake to minimize the potential for impingement and entrainment of aquatic organisms.

3.4 Annual Water Withdrawal Reporting Form

Please see Attachments A through D for copies of the Ravena facility's Annual Water Withdrawal Reporting Forms for operating years 2009 through 2012, respectively.

4.0 EVALUATION OF ALTERNATIVES AND PROJECT JUSTIFICATION

As the Lafarge Ravena facility has been in operation since 1962 and water withdrawals at the facility have been reported for operating years 2009 through 2012, a discussion of alternatives and project justification is not necessary.

5.0 WATER CONSERVATION

Prior to 2014, the Lafarge Ravena facility reused treated water from an onsite settling pond to reduce the use of Hudson River water for once through cooling, process consumptive, and non-consumptive uses. Currently, a new leachate treatment system is being completed that precludes recycling of treated water from the settling pond. Water for cooling of equipment will continue to be recirculated within the process to minimize use of water resources and to conserve energy until the closed cycle cooling system is completed with the modernized facility (June 2016). As illustrated by the maximum monthly average daily withdrawal of 5.1 MGD during 2009-2012, these measures allow the Ravena facility to run well below its nominal maximum withdrawal capacity of 8.64 MGD during all months of the year.

As detailed in section 3.2, the Ravena facility is about to commence a modernization project that will conserve water by markedly reducing the amount of water required to operate the facility. The modernization project is scheduled to be complete by June 2016.

Currently, water withdrawals pumped from the quarry at the Ravena facility are equipped with meters which are calibrated quarterly. A meter on the Hudson River water withdrawal is scheduled to be activated in June 2014 and with the completion of the facility modernization in July 2016 a new metering system for all withdrawals will be in place.

6.0 LITERATURE CITED

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7.0 TABLES

Table 1. Lafarge Building Materials, Inc. Ravena Facility Cooling Water Withdrawal Summary, 2009-2012

Average Daily Withdrawal, MGD				
Month	**2009**	**2010**	**2011**	**2012**
January	1.2	1.5	1.7	1.9
February	1.4	1.9	1.8	1.2
March	1.9	3.8	4.0	1.6
April	2.0	3.0	5.1	1.9
May	0.8	1.1	3.2	1.9
June	2.8	1.5	2.7	2.0
July	2.6	1.2	2.9	2.2
August	2.4	1.4	2.8	2.0
September	2.2	1.5	5.0	2.1
October	0.9	2.9	4.4	2.2
November	1.4	2.0	3.2	1.5
December	2.0	3.0	2.1	1.2
2009-2012 Average Daily Withdrawal				**2.2**
2009-2012 Monthly Maximum Average Daily Withdrawal				**5.1**

8.0 FIGURES

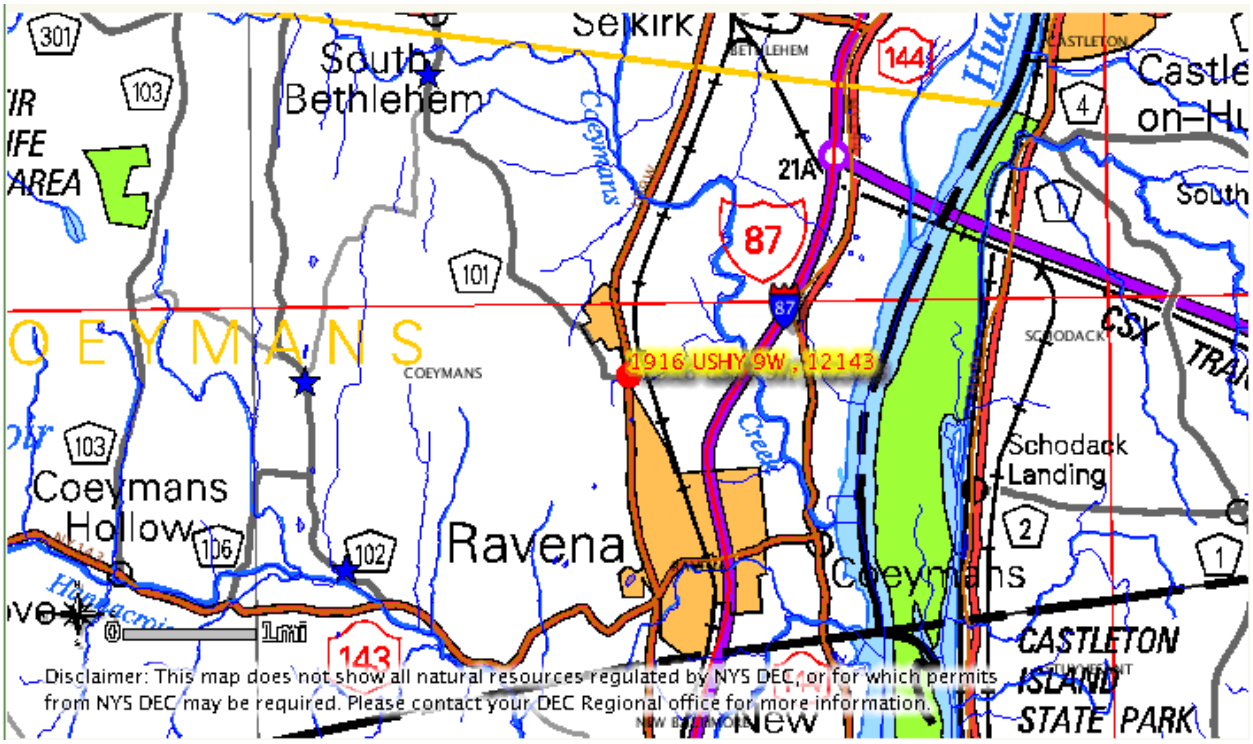
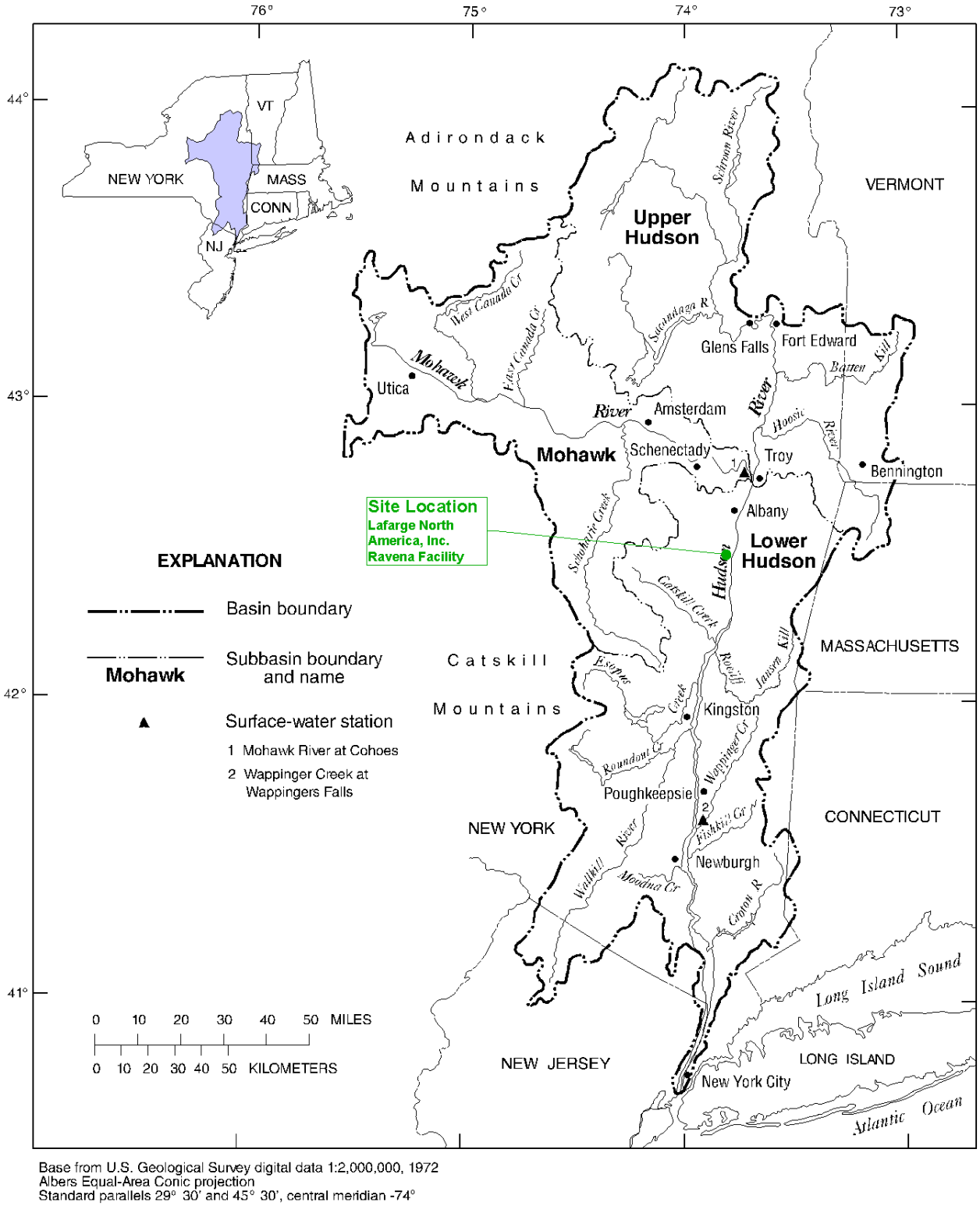


Figure 1. General Map showing location of Lafarge North America Ravena Facility (source: NYSDEC Environmental Resource Mapper)

Figure 2. Lafarge North America, Inc. Ravena Facility Cooling Water Withdrawal and Discharge Locations (source: Google Earth)



Base from U.S. Geological Survey digital data 1:2,000,000, 1972
Albers Equal-Area Conic projection
Standard parallels 29° 30' and 45° 30', central meridian -74°

Figure 3. Location of Lafarge North America, Inc. Ravena facility within the Hudson River Watershed. Adapted from USGS 2013.

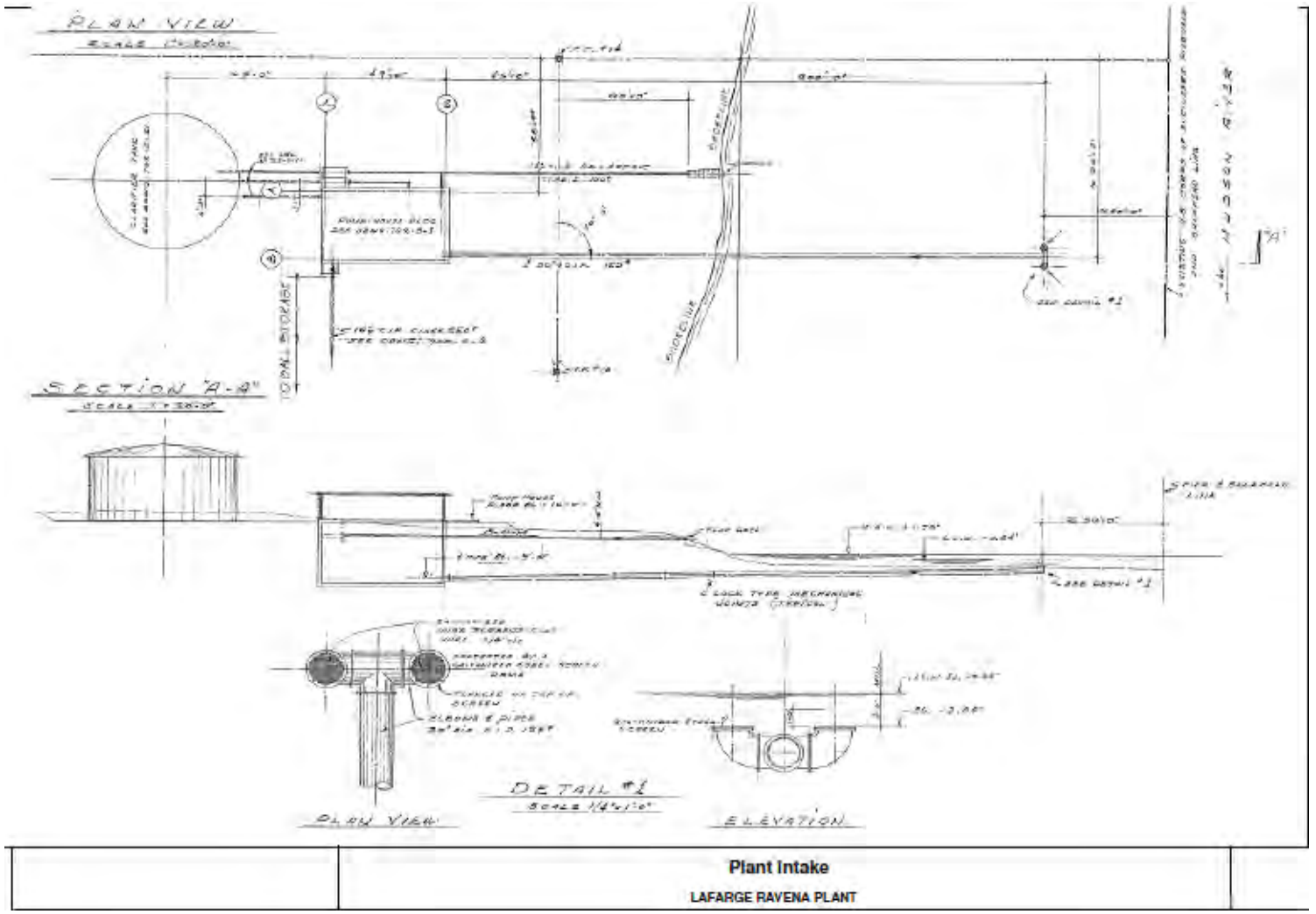


Figure 4. Lafarge Ravena Facility Hudson River cooling water intake structure

Figure 5. General vicinity of Lafarge water intake structure. Photo taken from barge loading facility.

Figure 6: Layne Northern Co. intake pumps at Lafarge intake within Lafarge intake building.

Figure 7: US Filter traveling screens located within Lafarge intake building.

Figure 8: Ball reservoir located on top of Pack-house.

9.0 ATTACHMENTS

Attachment A

Lafarge Ravena Facility

2009 Water Withdrawal Reporting Form

New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form

Due by February 1st for the preceding year

Annual $50 fee (if applicable) submitted: Yes ☒ or N/A ☐

Please see instructions on page 4

Facility Name: Lafarge Bldg. Matls.	Facility Street Address: 1916 Rt 9W						Reporting year: 2009
City: Ravena	Zip: 12143			Town: Coeymans			County: Albany
Contact Name: Paul Rappleyea				Contact Telephone: 518-756-5028			
Source Name: Hudson River	Source Type: S	Well Depth: NA		Capacity: 8.6	Units MGD		
Source Name: Quarry	Source Type: L	Well Depth: NA		Capacity: 5	Units MGD		
Source Name: G29 Well	Source Type: BW	Well Depth: ~ 40 Ft		Capacity: 0.6	Units MGD		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
Source Name:	Source Type:	Well Depth:		Capacity:	Units		
For additional source listings, check this box ☐ and go to page 3		If an "interbasin diversion" occurs, check this box ☐ and go to page 3					
Average Day Withdrawal: 1.8 MGD		Maximum Day Withdrawal: 7.3 MGD		Max or Permitted Capacity: 14.2 MGD			
Submitted by: Paul Rappleyea		Title: Environmental Coordinator		Date: 2/2/10			

Water Withdrawal Category (check all that apply)

- ☐ Agricultural
- ☐ Bottled / Bulk Water
- ☐ Commercial
- ☐ Environmental
- ☒ Industrial
- ☐ Institutional
- ☒ Mine Dewatering
- ☐ Oil / Gas Production
- Power Production:
  - ☐ Fossil Fuel
  - ☐ Nuclear
  - ☐ Other Pwr:
- ☐ Public Water Supply
- Recreation:
  - ☐ Golf Course
  - ☐ Snow Making
  - ☐ Other Rec:
- ☐ Other:

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New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form (continued)

Please see instructions on page 4

Calculation Method: P, M (See instructions on page 4) | For Public Water Supplies Only -- Population Served: | Percent Water Unaccounted For: %

UNITS: Must be gallons per month	January	February	March	April	May	June
Withdrawn	37,427,839	40,229,726	59,071,219	60,498,774	24,298,460	83,091,892
Transferred / Imported						
Consumed	4,297,839	3,999,726	22,751,219	16,808,774	3,408,460	6,379,682
Returned	33,130,000	36,240,000	36,320,000	43,680,000	20,890,000	76,712,200
Diversions In (if any)						
Diversions Out (if any)						
UNITS: Must be gallons per month	July	August	September	October	November	December
Withdrawn	80,698,502	74,891,702	65,967,301	27,183,624	41,754,559	63,024,010
Transferred / Imported						
Consumed	9,256,502	4,889,102	7,199,501	4,173,624	3,234,559	1,739,010
Returned	71,442,000	70,002,600	58,767,800	23,010,000	38,520,000	61,287,000
Diversions In (if any)						
Diversions Out (if any)						

Go to Page 1 to submit form by email

Attachment B

Lafarge Ravena Facility

2010 Water Withdrawal Reporting Form

New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form

2010 Water Withdrawal Information due by February 1st, 2011

Annual $50 fee (if applicable) submitted: Yes ☒ or N/A ☐

Prior to filling out this form please read the instructions on page 4

Facility Name: Lafarge Building Materials	Facility Street Address: 1916 Rt 9W					Reporting year: 2010	
City: Ravena	Zip: 12143		Town: Coeymans			County: Albany	
Contact Name: Paul Rappleyea	Email: paul.rappleyea@lafarge-na.com		Contact Telephone: 518-756-5028				
Source Name: Hudson River	Source Type: S	Well Depth:	Max Rate: 8.6	Units GPM		**Water Withdrawal Category (check all that apply)**	
Source Name: Quench Wells	Source Type: BW	Well Depth: 40 ft	Max Rate: 0.6	Units MGD		☐	Agricultural
Source Name: Lafarge Quarry	Source Type: L	Well Depth:	Max Rate: 5	Units MGD		☐	Bottled / Bulk Water
Source Name: Storm water	Source Type: S	Well Depth:	Max Rate:	Units		☐	Commercial
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☒	Environmental
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☒	Industrial
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Institutional
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☒	Mine Dewatering
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Oil / Gas Production
Source Name:	Source Type:	Well Depth:	Max Rate:	Units			Power Production:
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Fossil Fuel
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Nuclear
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Other Pwr:
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		☐	Public Water Supply
For additional source listings, check this box ☐ and go to page 3		If an "interbasin diversion" occurs, check this box ☐ and go to page 3					Recreation:
2010 Av Day Withdrawal: 2.1 MGD	2010 Max Day Withdrawal: 6.2 MGD		Max Potential Withdrawal Rate, or DEC permit rate 14.2 MGD			☐	Golf Course
Submitted by: Paul Rappleyea	Title: Environmental Coordinator		Date: 1/31/11			☐	Snow Making
						☐	Other Rec:
						☐	Other:

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New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form (continued)

Use this page to report actual usage for the past year

Calculation Method: M / W / P
See instructions/definitions on p.4

For Public Water Supplies Only -- Population Served: ____ Percent Water Unaccounted For: ____ %

UNITS: Must be gallons per month	January	February	March	April	May	June
Withdrawn	47,395,000	53,953,000	117,629,000	88,604,000	35,307,000	44,688,000
Transferred / Imported						
Consumed	22,589,000	38,431,000	28,936,000	26,166,000	12,587,000	5,715,000
Returned	24,806,000	15,522,000	88,693,000	62,439,000	22,720,000	38,973,000
Diversions In/Out if any						
Describe location of returned water						

UNITS: Must be gallons per month	July	August	September	October	November	December
Withdrawn	38,483,000	43,838,000	45,239,000	89,071,000	59,907,000	91,714,000
Transferred / Imported						
Consumed	13,697,000	18,264,000	30,285,000	52,205,000	27,947,000	19,969,000
Returned	24,786,000	25,575,000	14,954,000	36,866,000	31,959,000	74,745,000
Diversions In/Out if any						

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Attachment C

Lafarge Ravena Facility

2011 Water Withdrawal Reporting Form

New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form

2011 Water Withdrawal Information Due By February 1st, 2012

Annual $50 fee (if applicable) submitted: Yes ☒ or N/A ☐

Prior to filling out this form please read the instructions on page 4

Facility Name: Lafarge Building Materials	Facility Street Address: 1916 Route 9W					Reporting year: 2011
City: Ravena	Zip: 12143		Town: Coeymans			County: Albany
Contact Name: Paul Rappleyea	Email: paul.rappleyea@lafarge-na.com		Contact Telephone: (518) 756-5028			
Source Name: Hudson River	Source Type: S	Well Depth:	Max Rate: 8.6	Units MGD		
Source Name: Quench Wells	Source Type: R	Well Depth: 40 ft	Max Rate: 0.6	Units MGD		
Source Name: Lafarge Quarry	Source Type: L	Well Depth:	Max Rate: 5	Units MGD		
Source Name: Storm Water	Source Type: S	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
Source Name:	Source Type:	Well Depth:	Max Rate:	Units		
For additional source listings, check this box ☐ and go to page 3		If an "interbasin diversion" occurs, check this box ☐ and go to page 3				
2011 Ave Day Withdrawal: 3.2 GPD	2011 Max Day Withdrawal: 6.4 GPD		Max Potential Withdrawal Rate, or DEC permit rate 14.2 MGD			
Submitted by: Paul Rappleyea	Title: Environmental Coordinator		Date:			

Water Withdrawal Category (check all that apply)

- ☐ Agricultural
- ☐ Bottled / Bulk Water
- ☐ Commercial
- ☒ Environmental
- ☒ Industrial
- ☐ Institutional
- ☒ Mine Dewatering
- ☐ Oil / Gas Production
- Power Production:
  - ☐ Fossil Fuel
  - ☐ Nuclear
  - ☐ Other Pwr:
- ☐ Public Water Supply
- Recreation:
  - ☐ Golf Course
  - ☐ Snow Making
  - ☐ Other Rec:
- ☐ Other:

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New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management, 625 Broadway, Albany, NY 12233-3508

Water Withdrawal Reporting Form (continued)

Use this page to report actual usage for the past year

Calculation Method: E
See instructions/definitions on p.4

For Public Water Supplies Only -- Population Served: ____ Percent Water Unaccounted For: ____ %

UNITS: Must be gallons per month	January	February	March	April	May	June
Withdrawn	53,175,000	49,967,000	122,906,000	152,968,000	97,781,000	81,380,000
Transferred / Imported						
Consumed	15,245,000	17,026,000	30,592,000	38,762,000	6,757,000	11,537,000
Returned	37,930,000	32,941,000	92,314,000	114,206,000	91,024,000	69,843,000
Diversions In/Out if any						
Describe location of returned water	Coeymans Creek near Ravena					
UNITS: Must be gallons per month	July	August	September	October	November	December
Withdrawn	90,457,000	87,800,000	149,510,000	136,936,000	94,933,000	65,565,000
Transferred / Imported						
Consumed	48,734,000	17,823,000	35,076,000	10,075,000	39,929,000	10,097,000
Returned	41,723,000	69,977,000	114,434,000	126,861,000	55,004,000	55,468,000
Diversions In/Out if any						

Go to Page 1 to submit form by email

Water Withdrawal Reporting Form (continued)

Please see instructions on page 4

Additional Water Sources - Include Source Name, Source Type, Well Depth (if a well), Source Capacity with units used.

Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:
Source Name:	Source Type:	Well Depth:	Max Rate:

Units:

Interbasin Diversions - Fill out this section only if water is being transferred between major drainage basins. To determine basin ID, click the box highlighted in blue ("Click Here To Determine Basin ID"). Enter basin ID. Describe location of originating and receiving sites. (e.g. Town water intake on Smith Lake to Jones Reservoir).

Originating Major Drainage Basin			Receiving Major Drainage Basin	
Click Here To Determine Basin ID	Enter Basin ID Here	→	Click Here To Determine Basin ID	Enter Basin ID Here
Originating Site:		→	Receiving Site:	
		→		

Go to Page 1 to submit form by email

INSTRUCTIONS / DEFINITIONS

Annual Reporting Fee	$50 per year for all uses except for agricultural or public water supply. Please make all checks payable to "NYSDEC". Mail to the address shown at the top of the form.
Agricultural Purpose	The practice of farming for crops, plants, vines and trees, and the keeping, grazing or feeding of livestock, for sale of livestock or livestock products.
Public Water Supply	Supply water to the public. Examples include: municipality, hotel, apartment, restaurant, church, campground, etc.
Source Type	S = Stream or River. L = Pond or Lake. R = Reservoir. BW = Bedrock Well. UW = Unconsolidated Well. SP = Spring. P = Purchased
Max Potential Withdrawal Or Permitted Withdrawal	For public supplies show DEC permitted withdrawal rate. All others show absolute maximum rate that can be withdrawn.
Units, Source	Gallons per minute (gpm), gallons per day (gpd) or million gallons per day (mgd).
Well Name	Name of well water source (e.g. Well No.1, Main Street well).
Well Type	Rock vs. unconsolidated (sand and gravel) well.
Average Day Withdrawal	Total amount withdrawn during the past year, divided by total days withdrawn (e.g. 365,000,000 gallons / 365 days = 1 mgd).
Maximum Day Withdrawal	Largest single day withdrawal rate (e.g. 2.65 mgd) of the source during the past year.
Calculation Method	M - metered readings. W - flow through a weir or flume. P - flow through a pump or pump run time. E - estimated
Withdrawn	Amount of water removed from the source.
Transferred/Imported	Amount of water brought in from or sent to another facility. Includes bulk sales. For Transferred water, use a negative (-) sign.
Consumed	Amount of water not returned (e.g. water incorporated into a product or lost through evaporation). Public water suppliers must use metered sales to customer.
Returned	Amount of water discharged back to the environment or a wastewater system.
Diversions In/Out	Amount of water, if any, diverted from/to another major drainage basin. For Diversions Out, use a negative (-) sign.
Location of Returned Water	State the general area where returned water is discharged. Examples: "Hudson River near Poughkeepsie", "Groundwater near Auburn".
Major Drainage Basins	Report only "Major Basin" transfers. Use internet link (labelled "Click Here To Determine Basin ID") and enter ID into box indicated. Describe location of originating withdrawal and receiving discharge. Be as specific as possible.

Attachment D

Lafarge Ravena Facility

2012 Water Withdrawal Reporting Form

New York State Department of Environmental Conservation
Division of Water, Bureau of Water Resources Management
625 Broadway, Albany, NY 12233-3508

Jan 2013

Water Withdrawal Reporting Form

Due by March 31st each year

Prior to filling out this form, please read the instructions on the last page

This form not for Agricultural Facilities

Section 1

Facility Name Lafarge Building Materials	Facility Street Address 1916 Rt 9W			Reporting Year 2012
City Ravena	Zip 12143	Town Coeymans	County Albany	**Water Withdrawal Category** (Check one)
Contact Name Paul Rappleyea	Email paul.rappleyea@lafarge-na.com		Telephone (518) 756-5028	Agricultural Bottled / Bulk Water Commercial Environmental ✓ Industrial Institutional Mine Dewatering Oil / Gas Production Power Production: Fossil Fuel Nuclear Other Pwr: Public Water Supply Recreation: Golf Course Snow Making Other Rec: Other:

Source Name Hudson River	Source Type S	Well Depth	Max Rate 8.6	Units MGD
Source Name Quench Well	Source Type BW	Well Depth 40	Max Rate 0.6	Units MGD
Source Name Lafarge Quarry	Source Type L	Well Depth	Max Rate 5	Units MGD
Source Name Storm Water	Source Type S	Well Depth	Max Rate	Units
Source Name	Source Type	Well Depth	Max Rate	Units
Source Name	Source Type	Well Depth	Max Rate	Units
Source Name	Source Type	Well Depth	Max Rate	Units

Average Day Withdrawal: 1.8 MGD	Maximum Day Withdrawal: 5.9 MGD	Permitted Withdrawal or Max System Capacity 14.2 MGD

Submitted by: Paul Rappleyea	Title: Sr. Process Eng.	Date: 03/28/2013

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If you submit by this form by email and do not receive a confirmation email, please contact AWQRSDEC@gw.dec.state.ny.us or 518 402-8086.

Section 2

Calculation Method: E M = Metered readings W = Flow through a weir or flume P = Flow through a pipe or pump run times E = Estimated

Units: *Must be in gallons per month*	**January**	**February**	**March**	**April**	**May**	**June**
Withdrawn	60,393,221	35,116,685	48,432,392	55,681,559	58,285,863	58,819,384
Transferred / Imported						
Consumed	21,262,708	22,385,444	9,872,840	24,878,765	26,825,275	31,199,438
Returned	39,130,513	12,731,241	38,559,552	30,802,794	31,433,588	27,619,946
Diversions In / Out, if any						

Units: *Must be in gallons per month*	**July**	**August**	**September**	**October**	**November**	**December**
Withdrawn	68,379,328	61,914,602	63,488,769	66,833,310	46,229,183	38,552,576
Transferred / Imported						
Consumed	34,115,001	27,085,320	28,771,721	30,626,453	35,352,118	10,314,261
Returned	34,264,327	34,829,282	34,717,048	36,206,857	10,877,065	28,238,315
Diversions In / Out, if any						

Describe location of returned water: Coeymans Creek

Section 3

General Map Required

Please submit a map showing location of all withdrawals and any points of return flow. Label all points. **A map is not necessary if one was submitted in a previous year and no changes have occurred.** Precise locations will remain confidential.

A paper copy of a USGS map or other high quality map or an electronically generated map can be faxed, mailed, or emailed. For electronic maps a suggested website is described below:

(1) Go to the USGS National Map site. Type the address of the agricultural facility into the search box.
(2) Zoom in and use any of the map-type choices to best confirm your location.
(3) Designate water withdrawal locations by clicking on the map to add a marker(s).
(4) For surface water withdrawals, use the "Topo" tab.
(5) Add a marker to designate the location of any related dams, weirs, or diversion structures.
(6) Print. Manually label the name of each marked source.

Submit your map to DEC in one of the following ways:

- Print and mail or fax to 518 402-8290.
- Print, scan and email to awqrsdec@gw.dec.state.ny.us.
- Copy electronically and email to awqrsdec@gw.dec.state.ny.us.

Interbasin Diversions

Fill out this section only if water is being transferred between major drainage basins. To determine basin ID, go to the DEC Major Drainage Basins map (http://www.dec.ny.gov/lands/56800.html). Then enter the basin ID by using the drop down menus under Originating and Receiving Major Drainage Basin headings below. Describe the locations of originating and receiving sites in the site description boxes (e.g. Town water intake on Route 12 at northern end of Pleasant Lake to Stony Reservoir near Bear Road).

Originating Major Drainage Basin	Receiving Major Drainage Basin
Originating Site Description	Receiving Site Description

Section 4

Water Conservation and Efficiencies

All permitted water withdrawal systems must have a Water Conservation Program.

Section A: Permitted Public Water Supply Facilities

Are all sources of supply including major interconnections equipped with master meters? Yes No

What percentage of your system is metered? %. Residential charge per 1000 gallons of water: $

How often were customer meters read this past year (e.g. quarterly, yearly)?

Number of water service connections: Total population served:

How many customer meters were recalibrated and/or replaced in the past year?

Miles of pipe in water distribution system: Length of pipe replaced in the past year:

Miles of pipe on which leak detection was performed using sonic listening equipment: Type of equipment used:

How many system-wide water audits were performed in the past year?

What percentage of the water withdrawn was not billed to customers? %. Lost to distribution system leakage? %

Was information about household water saving devices and ways to reduce water use distributed to residential customers? Yes No

Was water conservation information about promoting recycling and reuse distributed to industrial and commercial customers? Yes No

Do you have lawn sprinkling time restrictions (e.g. odd/even days) during periods of peak demand? Yes No

Do you have a plan that takes progressive steps to further reduce outdoor water use during drought conditions with an ordinance or procedure to assure compliance? Yes No

Please review your permit(s) for any specific water conservation conditions and report below on progress made in past year.

Section B: Water Withdrawal Reporting and Registered Facilities (see permitting schedule in NYCRR Part 601.7)

Are all sources of supply including major interconnections equipped with master meters? Yes No

How often were master meters read in the past year?

How often were master meters calibrated in the past year?

Are there secondary meters located within the facility or system? Yes No

Identify other water conservation and efficiency measures currently used in your system (e.g. Best Management Practices such as recycling process and cooling waters, use of drip irrigation and moisture probes, utilizing storm water runoff and reclaimed wastewater or conducting facility water audits):

Lafarge collects storm water and quarry water and uses these to reduce the use of Hudson River water.

Section 5

Instructions/Definitions

Agricultural Purpose	The practice of farming for crops, plants, vines and trees, and the keeping, grazing or feeding of livestock, for sale of livestock or livestock products. Agricultural facilities must use the form titled "Registration and Water Withdrawal Reporting Form for Agricultural Facilities".
Public Water Supply	Supply water to the public. Examples include: municipality, hotel, apartment, restaurant, church, campground, etc.
Source Name	Name of well or surface water body (e.g., Well No. 1, Alcove Reservoir, etc.). List all sources including unused or back-up wells.
Source Type	S = Stream or River. L = Pond or Lake. R = Reservoir. BW = Bedrock Well. UW = Unconsolidated Well (e.g., sand and gravel). SP = Spring. P = Purchased. Use drop down menu.
Well Depth	Total depth in feet below ground surface. Leave blank for surface sources.
Max Rate	Maximum potential withdrawal rate of the water source. Will be equal to or greater than Permitted Rate.
Units (Max Rate)	Gallons per minute (gpm), gallons per day (gpd), or million gallons per day (mgd). Use drop down menu.
Average Day Withdrawal	Total amount withdrawn during reporting year divided by total days withdrawn.
Maximum Day Withdrawal	Largest single day withdrawal rate of the source during the reporting year.
Permitted Rate/Max sys capacity	If unknown, contact NYSDEC at AWQRSDEC@gw.dec.state.ny.us or 518-402-8182. Maximum system capacity is the sum of all sources simultaneously pumping at full rate.
Calculation Method	M = metered readings. W = flow through a weir or flume. P = flow through a pump or pump run time. E = estimated.
Withdrawn	Amount of water removed from all sources. This includes groundwater and/or surface water.
Transferred/Imported	Amount of water brought in from or sent to another facility, includes bulk sales. For transferred water use a negative (-) sign.
Consumed	Amount of water not returned (e.g. water incorporated into a product or lost through evaporation). Public water suppliers must use metered sales to customers. Irrigation is considered "consumed water".
Returned	Amount of water discharged to a water treatment system or discharged back to the environment. Irrigation is not returned water.
Diversions In/Out	Amount of water, if any, diverted from/to another major drainage basin. For Diversions Out, use a negative (-) sign.
Location of Returned Water	State the general area where returned water is discharged. Example: "Hudson River near Poughkeepsie", "Groundwater near Auburn".
Major Drainage Basins	Report only "Major Basin" transfers. Use the internet link available on the form and enter Basin ID into the box indicated (use drop down menu). Describe the location of originating withdrawal and receiving discharge. Be as specific as possible.
Water Audit	A water audit is a thorough examination of the accuracy of water records and system control equipment to determine water system efficiency and to identify, quantify, and verify water and revenue losses. Water audits are beneficial in identifying the amount of unaccounted-for water.