

B. Filing with MassDEP – As previously noted, **only** facilities in Massachusetts that were previously unpermitted and discharge to an Outstanding Resource Water (ORW) and High Quality Waters must submit an NOI to MassDEP. In such cases, a completed copy of the NOI must also be sent to:

Massachusetts Department of Environmental Protection
Division of Watershed Management
8 New Bond Street
Worcester, MA 01606

C. Filing with NH DES – All applicants in New Hampshire must also provide a completed copy of their NOI to NH DES at the following address:

New Hampshire Department of Environmental Services
Water Division, Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

III. Suggested Notice of Intent (NOI) Format

A. Facility Information

1. Indicate applicable General Permit for discharge

MAG640000

NHG640000

2. Facility Data

Facility Name Worcester Water Filtration Plant

Street/PO Box 71 Stonehouse Hill Rd. City Holden

State MA Zip Code 01520

Latitude 42°18'6" Longitude 71°52'2"

SIC Code(s) 4941 Water Supply

Type of Business Drinking Water Filtration Plant

3. Facility Mailing Address (if different from Location Address, above)

Facility Name _____

Street/PO Box _____ City _____

State _____ Zip Code _____

4. Facility Owner:
Legal Name City of Worcester, DPW & P
Email lafalamd@worcesterma.gov
Street/PO Box 18 East Worcester St. City Worcester
State MA Zip Code 01604
Contact Person Darin Lafalam Tel # 508-799-1513
Owner is (check one): Federal State Tribal Private
Other (describe) Municipality

5. Facility Operator (if different from above):
Legal Name _____
Email _____
Street/PO Box _____ City _____
State _____ Zip Code _____
Contact Person _____ Tel # _____

6. Currently (Administratively) Covered Under the Expired P WTF General Permit? (Please check yes or no):

Yes No

a) Has a prior NPDES permit (either individual or general permit coverage) been granted for the discharge that is listed on the NOI? Yes No If Yes, Permit Number MAG640052

b) Is the discharge a "new discharger" as defined by 40 CFR Section 122.22? Yes No

c) Is the facility covered by an individual NPDES permit for other discharges? Yes No

If yes, Permit Number: _____

d) Is there a pending NPDES application (either individual or general permit) on file with EPA for this discharge? Yes No

If yes, date of submittal: _____ and Permit Number, if available _____

7. Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? Yes

B. Discharge Information (Attach additional sheets as needed):

1. Name of receiving water into which discharge will occur: Holden 2 Reservoir
Check Appropriate Box: Freshwater Marine Water
State Water Quality Classification Class A
Type of Receiving Water Body (e.g., stream, river, lake, reservoir, estuary, etc.) Reservoir

2. Indicate the frequency of the discharge:

Emergency Only Infrequent (Once/Twice a Year) Intermittent*** Continuous
Other***

***If Intermittent (i.e., occurs sometimes but not regularly as in batch discharge), provide # of days per year the discharge occurs

***If Other, explain Batch discharges 1-8 times a day.

3. Describe the discharge activities for which the owner/applicant is seeking coverage, including process discharges not specifically authorized in the PWTF GP which need to be authorized for discharge (and which attain the effluent limits and other conditions of the general permit.)

(This description should include all treatment methods used on the wastewater prior to discharge including lagoons, baffles, filter presses, etc. If lagoons are used at the facility, please include the number and size of lagoons; the size and elevation of the entry pipe; the time of travel from the entry point of the discharge into the lagoon to the entry point to the receiving waters; and the length of backwash cycle for any combination of filters.)

Intermittent discharge - filter backwash process water.
The process water is settled in a 170,000 gallon storage tank for > 1 hour. The process water is pH adjusted to > 6.5 pH with Calcium Hydroxide. A clari-track vacuum system pumps the settled solids from the bottom of the storage tank to sewer. The discharge to Holden 2 reservoir is drawn from 4 feet up from the bottom of the storage tank.

4. Attach a line drawing or flow schematic showing water flow through the facility including sources of intake water, operations contributing to flow, treatment units, outfalls, and receiving water(s).

Line drawing or flow diagram attached? Yes

5. Identify the source of the water being discharged:

Surface water Groundwater Other (describe)

6. Number of Outfalls 1 Latitude and Longitude to the nearest second for each Outfall. Attach additional pages if necessary.

Outfall # Latitude 42° 18' 08" N Longitude 71° 52' 06" W
Outfall # Latitude _____ Longitude _____
Outfall # Latitude _____ Longitude _____

7. For each outfall, indicate the proposed sampling location(s) for both effluent and ambient water (when applicable) and proposed consistent times of the month for collecting samples:

Outfall # 1
Effluent Sample Location: Composite sample collected from recirculation discharge pumps once per week.

Ambient Sample Location: Holden #2 reservoir gatehouse sampled weekly

Outfall # _____

C. Effluent Characteristics

1. List here and attach additional information (on separate sheet) on any water additives used at the facility. This includes chemicals (including aluminum, iron, or phosphorus-containing chemicals) for pH adjustment, dechlorination, control of biological growth, and control of corrosion and scale in water pipes.

Ozone - dissipates before filtration
Aluminum Sulfate (Alum) - approximately 8ppm dose
Polymer - approximately 2ppm dose
Calcium hydroxide (lime slurry) - pH adjustment, ~ 3ppm dose
Chlorine - approximately 1.4ppm dose on average

2. Report any known remediation activities or water quality issues in the vicinity of the discharge

3. Are aluminum compounds or polymers used as coagulants at this facility?*

Yes No

*If answer is "Yes" and the facility was *not* covered under the PWTF GP that expired on

10/2/14, additional monitoring data and information is required. **Please complete Item III.C.12.**

plant was covered under previous general permit

4. Does the facility use any alum-based products for algae control?*
- Yes_ No

*If answer is "Yes" and the facility was *not* covered under the PWTF GP that expired on 10/2/14, additional monitoring data and information is required. **Please complete Item III.C.12.**

5. Are iron-containing coagulants used at this facility? Yes_ No
6. Does the facility's discharge contain residual chlorine? Yes No

[If Yes, EPA will calculate a Total Residual Chlorine effluent limit for your facility]

7. Does the facility provide treatment to remove arsenic from the raw water source? Yes No
8. a. Are phosphorus-containing chemicals added to the treated water at this facility? Yes No
- b. If answer to 8.a. is Yes, does the facility discharge to Phosphorus-Impaired waters? Yes No
- c. If answer to 8.b. is Yes, provide name of P-Impaired waterbody: _____

9. Does the facility remove radium or other radioactive substances from raw water sources to comply with drinking water standards? Yes No

10. Provide the reported or calculated seven day- ten year low flow (7Q10) of the receiving water 7Q10: _____ cfs

NOTE: For facilities that discharge in New Hampshire, the state permitting authority **must** be contacted at the address listed in Appendix VI of the PWTF GP to determine and/or confirm the 7Q10 and/or dilution factor. For facilities that discharge in Massachusetts, it is highly recommended to contact the relevant state authority (MassDEP) to determine and/or confirm the 7Q10 and/or dilution factor. Attach any calculation sheets used to support the stream flow and dilution factors. See Appendix VII for equations and additional information.

11. For *each* outfall, provide the following discharge information:

Outfall # 1

- a) *Design Flow of Facility (in million gallons per day, MGD):* 50 MGD
This value will determine the facility's daily maximum flow limit, up to a maximum of 1.0 MGD.
- b) *Discharge Flow (in gallons per day, GPD):*
Maximum Daily Flow 525,000 GPD Average Monthly Flow 189,000 GPD
- c) *TSS (mg/l):* Number of samples: 50 (Minimum of 10 samples)

Maximum Daily 30 mg/l Average Monthly 15 mg/l

d) pH (s.u.) : Number of samples: 50 (Minimum of 10 samples)
Minimum 6.55 s.u. Maximum 8.13 s.u.

e) Total Residual Chlorine (ug/l): Number of samples: 50 (Minimum of 10 samples)
Maximum Daily 120 ug/l

NOTE: TRC is only required for discharges which have been previously chlorinated or contain residual chlorine

12. The following section must be completed for any facility that answered "Yes" to Question III.C.3 or III.C.4 (e.g. adds an aluminum-containing chemical to the water being treated and/or discharged) AND was not covered under the previous PWTF GP (which expired on 10/2/14).

a) Collect, analyze and submit **12 effluent samples and 10 ambient surface water samples** from a location upstream of and not affected by the discharge. For facilities in New Hampshire and Massachusetts, each sample should be analyzed for total recoverable Al in micrograms per liter.

All laboratory results shall be submitted on a separate sheet.

- a. The samples shall be composite samples consisting of four grab samples taken at approximately equal intervals on a flow weighted basis during the time at which the discharge is entering the receiving water after the start of the backwash cycle.
- b. For each sampling event, the effluent and surface water samples shall be collected on the same day and during a representative discharge event. The samples shall be no more frequent than weekly and, if time allows in completing the NOI, at monthly intervals and at different flow conditions. If taking the ambient water quality sample from lakes/reservoirs, the 10 samples should be composited vertically.
- c. Discharge flow at the time of effluent sampling should be recorded. Flow conditions at the time of ambient water sampling should be recorded (or estimated from nearest gaging station).
- d. Do not include dilution when recording the results.
- e. See Section 2.1.2.3 and Footnote 12 of Section 2.1.1 for MA facilities (or Section 3.1.2.3 and Footnote 10 of 3.1.1 for NH facilities) for key information on minimum level for analysis and sufficiently sensitive test procedures.
- f. Sampling data that was collected within one year of the effective date of this general permit AND that adheres to all of the requirements above may be submitted in lieu of new samples. This must be denoted with the submitted data.

b) Provide a description of control measures, chemical substitutions, waste handling methods, and operational changes evaluated and/or used by the facility to minimize the discharge of aluminum to surface waters. (Include additional sheet(s), if necessary)

- Optimize backwashes to minimize backwash water.
- Transfer dirtiest water to settling tank; pump to sewer.
- Allow sufficient settling time in Reclamation tank, adjust season.
- Maintain sludge vacuum system to keep working efficiently.
- Pump ~ 10,000 gallons from "Rec" tank to sewer before discharging to reservoir.
- Tried adding Cationic Polymer to "Rec" tank for improved settling.

D. Endangered Species Act Eligibility Information

Using the instructions in Appendix III of the PWTF GP, which of the following criteria apply to your facility?

U.S. Fish and Wildlife Service (USFWS) Criteria: A B C

1. If you selected USFWS criteria B, has consultation with the U.S. Fish and Wildlife Service been completed?

Yes

No

2. If consultation with US Fish & Wildlife Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received?

Yes

No

3. Attach documentation of ESA eligibility for USFWS as required at Part 1.4 and Appendix III of the General Permit. **Documentation attached?** _____

4. For facilities seeking coverage under the Potable Water Treatment Facility General Permit for the *first* time, respond to the following questions to assist in ESA eligibility for NMFS:

a) Indicate if the facility discharges into any of the stretches of the following rivers which can support or provide habitat to either Shortnose or Atlantic Sturgeon:

Merrimack River (from Essex Dam in Lawrence, Downstream (including Haverhill) to mouth of River)

Yes

No

Connecticut River (from Turner's Falls, downstream through Holyoke (including Holyoke Dam region)

Yes

No

Taunton River

Yes

No

Piscataqua River (in NH)

Yes

No

b) Has the facility had any previous formal or informal consultation with NMFS?

Yes

No

If yes, attach the results of the consultation(s).

Documentation attached? _____

E. National Historic Properties Act Eligibility

1. Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge? Yes No

2. Have any State or Tribal Historic Preservation Officers been consulted in this determination? Yes No

If yes, attach the results of the consultation(s). Documentation attached? _____

3. Which of the three National Historic Preservation Act scenarios listed in Appendix II, Section III have you met?
1 2 3

F. Supplemental Information

Please provide any supplemental information, including antidegradation review information applicable to new or increased discharges. Attach any analytical data used to support the application. Attach any certification(s) required by the General Permit.

G. Signature Requirements

The NOI must be signed by the operator in accordance with the signatory requirements of 40 CFR § 122.22 (see below) including the following certification:

I certify under penalty of law that (1) the discharge for which I am seeking coverage under the general permit consists solely of a surface water discharge from a potable water treatment facility; (2) any chemicals used to treat the discharge have been identified in this NOI; and (3) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature  Date 6/5/19
Printed Name and Title EDWARD M. AUGUSTUS, JR., City Manager

Federal regulations require this application to be signed as follows:

1. For a corporation, by a responsible corporate party;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Note: Permits No. MAG640000 and NHG640000 may be found at <http://www3.epa.gov/region1/npdes/pwtfgp.html>

H. “Opt-Out Request” from NetDMR Requirement

1. Check the box if you are applying for an “opt-out request.”
2. Provide a detailed explanation of the technical or administrative factors that support your request to “opt-out” from the requirement to submit DMRs and reports electronically. (Add additional lines, if necessary.)

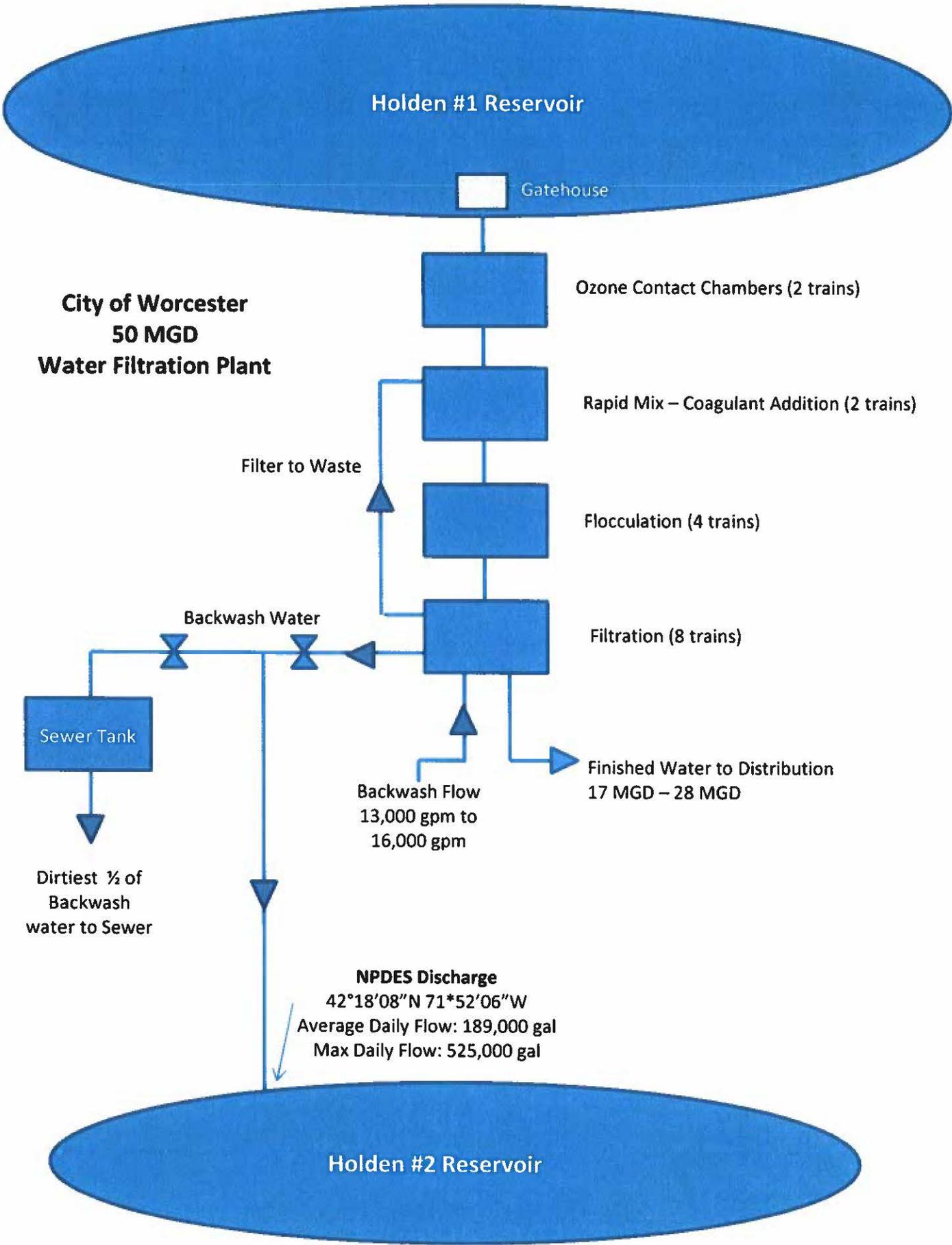
NPDES Potable Water Treatment Facility General Permit (MAG640000)

12.b Control measures employed by our facility to minimize the discharge of Aluminum to surface waters:

- Changed the way we decant from the Reclamation tank, keeping more water in the rec tank between filter backwashes and decanting from a higher elevation in the tank.
- Added a clari-trac vacuum system to the bottom of the Reclamation tank, allowing us to vacuum settled solids to sewer.
- Increased settle times, allowing more time for solids to settle to the bottom of the Reclamation tank.
- Adjust settling times seasonally to optimize settling in the Reclamation tank.
- pH adjust water in the reclamation tank with lime slurry (calcium hydroxide) addition to improve settling.
- Tried ionic polymer addition to improve settling in the Reclamation tank.
- Optimized water treatment to avoid over-treating with alum.
- Increased filter anthracite particle size from 1.1mm to 1.5mm, allowing us to reduce alum dose and backwash frequency.
- Optimize filter backwash time and flow rate, reducing backwash water.
- Increased volume of water pumped from the bottom of the Reclamation tank to sewer each backwash.
- Tried adding PAC (Polyaluminum chloride) to the backwash water to improve settling.
- Periodic manual cleaning of the bottom of the Reclamation tank and inspection of the clari-trac vacuum system.

Outfall
42° 18' 08" N
71° 52' 06" W





Holden #1 Reservoir

Gatehouse

**City of Worcester
50 MGD
Water Filtration Plant**

Ozone Contact Chambers (2 trains)

Rapid Mix - Coagulant Addition (2 trains)

Flocculation (4 trains)

Filtration (8 trains)

Filter to Waste

Backwash Water

Sewer Tank

Dirtiest 1/2 of
Backwash
water to Sewer

Finished Water to Distribution
17 MGD - 28 MGD

Backwash Flow
13,000 gpm to
16,000 gpm

NPDES Discharge
42°18'08"N 71°52'06"W
Average Daily Flow: 189,000 gal
Max Daily Flow: 525,000 gal

Holden #2 Reservoir

NPDES Potable Water Treatment Facility General Permit – MAG0640000

Section 12.a – Supplemental Data

This is not a new NPDES discharge. We have 21-years’ worth of ambient and effluent Aluminum data, which has been reported under our old NPDES General Permit, # MAG640052.

See Aluminum data for below going back to the beginning of 2017. Data includes ambient Aluminum in the effluent discharge reservoir (Holden #2 Reservoir).

Ambient Holden #1		Effluent Holden #2		Ambient Holden #2	
Date	Aluminum (ug/L)	Date	Aluminum (ug/L)	Date	Aluminum (ug/L)
01/03/17	22	01/02/17	626	01/03/17	48
02/03/17	39	02/06/17	888	02/03/17	30
03/07/17	56	03/09/17	1200	03/07/17	32
04/11/17	83	04/03/17	1000	04/11/17	43
05/02/17	60	05/02/17	1420	05/02/17	33
06/06/17	47	06/04/17	1550	06/07/17	32
07/03/17	22	07/03/17	1470	07/06/17	32
08/01/17	9	08/07/17	2840	08/03/17	11
09/05/17	6	09/03/17	2280		
10/03/17	6	10/01/17	1940	10/03/17	5
11/07/17	24	11/06/17	1090	11/07/17	9
12/05/17	18	12/03/17	850	12/05/17	15
01/02/18	28	01/01/18	1060	01/06/18	38
02/06/18	40	02/04/18	1100	02/06/18	31
03/06/18	63	03/04/18	1060	03/06/18	46