



The

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

hereby issues

LARGE GROUNDWATER WITHDRAWAL PERMIT

NO. LGWP-2007-0001

to the permittee

MILTON WATER DISTRICT
7 ELM STREET
MILTON, NH 03851
(603-862-4814)

for the withdrawal of the following volumes of groundwater from the following on-site well field for the purpose of community water supply:

Rocky Point Wellfield (Wells 1, 2, 3, & 4) located at the end of _____ in
Milton, New Hampshire _____ 365,760 gallons over any 24-hour period

Date of Issuance: January 3, 2007

Date of Expiration: January 3, 2017

Pursuant to authority in N.H. RSA 485-C:21, the New Hampshire Department of Environmental Services (NHDES), hereby grants this permit to withdraw groundwater from the Rocky Point Wellfield (Wells 1, 2, 3, & 4) subject to the following conditions:

1. The permittee shall comply with the requirements of Env-Ws 388 at all times.
2. Water Conservation: Implement the approved Water Conservation Plan dated January 23, 2006 in accordance with Env-Ws 390.
3. Metering Requirements; Withdrawals from all sources must be metered at all times. The permittee shall read source water meters at least once every 30 days. All meters must be selected, installed, tested, and maintained in accordance with the AWWA M6 manual as referenced in Env-Ws 390. The permittee shall provide NHDES with a certificate of calibration and performance specifications for each meter. The permittee shall document and maintain records of all meter maintenance and calibration activities and submit this information to NHDES in an annual report by January 31 of each year.
4. Monitoring and Requirements

The permittee shall establish and maintain the monitoring and reporting program as described below and as described in Attachment G "Private Well Monitoring Plan" contained in a supplemental report titled "Milton Water District, EPA 1581010, Final Report Response to Comments, Proposed New Rocky Point Well Field" prepared for the Milton Water District by Stantec Consulting Services dated October 16, 2006 (Supplemental Report) and incorporated herein by reference.

a) Water Level Monitoring: The permittee shall complete the following water level monitoring and reporting program.

i) Existing Off-site Overburden Private Wells: Install pressure transducers and data loggers and measure water levels at a frequency of at least every four hours in the following private wells starting six months prior to system startup:

Lot	Address
20070001DW01	

**MONITORING OF TWO ADDITIONAL PRIVATE WELLS REPLACED BY
MONITORING OF WELL OW-22 (20070001MWOW22)**

ii) Existing On-site Overburden Wells: Install a pressure transducer and data logger and measure water levels at a frequency of at least every four hours in the on-site wells designated as wells No. 9 and No. 11 starting six months prior to system startup.

No. 9 = 20070001MWNO9
No. 11 = 20070001MWNO11

iii) New On-site Overburden Well: Install one groundwater monitoring well northeast of the production wells on Milton Water District property near the property boundary for the purpose of collecting groundwater level data and groundwater quality data. Install a pressure transducer and data logger and measure water levels at a frequency of at least every four hours in the new on-site well starting six months prior to system startup. The permittee

WELL OW-21 = 20070001MWOW21

shall propose a new on-site overburden well monitoring location and construction detail to NHDES for approval prior to installation.

- iv) Milton Pond Elevation: Access NHDES Dam Bureau water level elevation records for Milton Pond at the Milton 3 Ponds Dam station and summarize the variation in pond elevation in the annual report referenced below.

If a private well owner denies permission to monitor water levels or if the identified well is not an overburden well, then the permittee shall propose an alternative monitoring location to NHDES for approval. Upon receiving approval from NHDES, the permittee shall install the monitoring well and monitor water levels at the alternative location at the same frequency as the replaced well.

All water level monitoring shall be completed by a person who can demonstrate, by education or experience, competency in collecting and reporting hydrogeologic measurements.

Monitoring well locations and frequencies may be added or changed if the water level data obtained in paragraphs i) to iii) above contradict the information obtained in the permittee's application, or if additional data points are required to assess the potential for adverse impacts to occur.

- b) Water Quality Monitoring: The permittee shall complete the following water quality monitoring and reporting program.

- i) Water Quality Sampling Schedule: The permittee shall conduct two baseline water quality sampling rounds in the spring and fall of 2007 thereafter during the spring and fall of each year for the remainder of the permit.
- ii) Water Quality Sample Analysis: The permittee shall perform analysis on water quality samples in accordance with the water quality monitoring program as described in the Supplemental Report referenced above. Additionally, water quality samples shall be collected from the new on-site overburden well described in 4.a)iii) above during the spring and fall of each year and analyzed at a certified laboratory for volatile organic compounds (VOCs).
- iii) Water Quality Sampling Locations: The permittee shall collect the water quality samples referenced in paragraph i) from the off-site and on-site overburden well locations referenced in paragraphs 4.a)i) through 4.a)iii) above.

All water quality sampling shall be completed by a person who can demonstrate, by education or experience, competency in collecting and recording water quality samples.

Water quality sampling frequency, parameters and locations may be added or changed if the water quality results contradict the information obtained in the permittee's

application, or if additional sampling is required to assess the potential for adverse impacts to occur.

All monitoring data shall be submitted to NHDES annually by January 31 of each year. The submittals shall be in an electronic format and hard copy format. The annual report shall note any relevant observations that may affect water level measurements or water quality results and include all field notes documenting the monitoring activities for the preceding year. All field notes shall be signed and dated by the personnel responsible for collecting measurements.

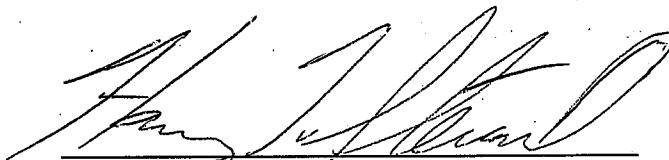
5. Mitigation Requirements

- a) In the event that adverse impacts occur, the permittee shall comply with all of the requirements below and with the impact mitigation and source replacement requirements of Env-Ws 388.
- b) Prior to initiating the large groundwater withdrawal, the permittee shall notify any owner of a private well within the area identified on Figure 2-6, titled "180-Days of Pumping Drawdown, Rocky Point Wellfield", dated February 2006 and revised October 2006 included in the Supplemental Report referenced above. The permittee shall provide copies of certified returned mail receipts to NHDES. The permittee shall explain to owners of wells in the identified area that their well may be influenced by the withdrawal at the Rocky Point Wellfield. The permittee shall provide the homeowner with contact information for both the permittee and NHDES in the event a homeowner believes they may be adversely impacted by the withdrawal.
- c) The permittee shall notify NHDES of any adverse impact within 12-hours of receiving such information. Furthermore, the permittee shall provide potable water for drinking and cooking purposes to a well owner that NHDES has determined to be adversely impacted. The permittee shall have 12 hours to provide drinking and cooking water after being notified of an occurrence of an adverse impact. The permittee shall provide potable water for other domestic uses within 36 hours of being notified of an adverse impact (e.g., lower well pump, install higher capacity well pump, drill a new well, or truck bulk water to the property). A permanent alternative water supply that produces water quality that complies with Federal and State drinking water requirements and a quantity of water that complies with the requirements of RSA 485-C:21 V-c, shall be provided to an adversely impacted water user within 30 days of NHDES determining that a water user had been adversely impacted.

Contracts with companies capable of providing water and well services (including drilling of new wells) must be developed and maintained prior to and after initiating the withdrawal such that in the event that impacts are noted at private wells, mitigation steps can be undertaken expeditiously. Copies of these contracts shall be provided to NHDES prior to initiating the large groundwater withdrawal.

- d) Where the status of unanticipated impact is not clear, the permittee shall gather information needed to quantify the impact and determine its status relative to adverse impact criteria defined under RSA 485-C:21 V-c and provide this information to NHDES within 48 hours of being notified by NHDES. A verified adverse impact shall be mitigated as described in paragraph (c), above.
 - e) NHDES will routinely review the results of all monitoring data, and if water level monitoring data indicates that groundwater is being extracted at a rate that exceeds natural recharge on average, then NHDES will modify the permit in accordance with Env-Ws 388 in order to prevent adverse impacts from occurring.
6. The permittee shall register its new sources of water under the Registered Water User Program and maintain the water use reporting requirements established by RSA 488.
 7. The permittee shall apply for renewal of this permit at least 365 days prior to its expiration date. The permittee shall continue to comply with all conditions in this permit until the permit is renewed or the facility is closed in accordance with all applicable requirements, regardless of whether a renewal application is filed.

Any person aggrieved by any terms or conditions of this permit may appeal in accordance with RSA 21-O:7,IV within 30 days.



Harry T. Stewart, P.E.,
Director Water Division

PROJECT NARRATIVE

**Well Siting Approval/Large Groundwater Withdrawal Permit LGWP-2007-0001
Milton Water District, EPA 1581010
Rocky Point Wellfield
Milton, New Hampshire**

BACKGROUND

Milton Water District (MWD) has submitted documentation to the New Hampshire Department of Environmental Services (NHDES) requesting approval of a large community water source and issuance of a large groundwater withdrawal permit for the withdrawal of up to 365,760 gallons per day (gpd) from the Rocky Point Wellfield. The wellfield consists of four, gravel-packed production wells located approximately 30 feet to 40 feet apart with individual production rates ranging from 50 to 78 gallons per minute (gpm).

MWD is currently served by one active gravel-packed production well located west of Milton Pond in Milton, New Hampshire. The Rocky Point Wellfield is located east of MWD's active source, on a peninsula west of the Salmon Falls River and east of Town House Pond and Milton Pond. The Rocky Point Wellfield was developed by MWD in response to Administrative Order WD 01-32 issued on October 9, 2001 to develop a second water supply source. Test wells were originally installed at Rocky Point in the late 1980's and initially tested in 1990 to evaluate the potential capacity of the wellfield; however, MWD decided not to pursue permitting of the wells at that time.

The potential impact area associated with the Rocky Point Wellfield groundwater withdrawal consists of the peninsula on which the withdrawal is located extending east to the Salmon Falls River and west to Town House Pond and Milton Pond. The peninsula is largely undeveloped except for a manufactured home park and a number of cottages along the shoreline. Ground surface elevations range from approximately 413 feet at Milton Pond to approximately 438 feet at the northern portion of the peninsula. The wellfield is located in the Milton Three Ponds Aquifer consisting of thick stratified drift deposits contained in a bedrock channel trending westerly to roughly north-south, parallel to the Salmon Falls River. Well logs indicate approximately 90 feet of sediments of relatively uniform sands and gravels with little to no clay. The coarsening-upward sequence of sand and gravels imply a deltaic depositional environment. Depth to water is approximately 10 to 15 feet below ground surface in the vicinity of the wellfield and the deepest production well of the four has a total depth of approximately 44 feet.

WITHDRAWAL TESTING AND CONCLUSIONS

An initial withdrawal test in the wellfield was conducted by MWD in November/December 1990. At that time, the wells installed were pumped at 100 gpm for a period of five days to evaluate the potential capacity of the aquifer and, as noted above, permitting of the withdrawal was not pursued by MWD after the wellfield's initial evaluation.

In support of this permit application, a withdrawal testing program was conducted by Stantec Consulting Services, Inc., (Stantec, [formerly Dufresne-Henry]) at the site from December 19, 2005 to December 21, 2005. The purpose of withdrawal testing is to build on the assessment of aquifer yield done in the early 1990s; provide data to estimate long-term sustainable water quantity and quality; observe the response of the aquifer to pumping; evaluate the degree of

hydraulic connection between private water supply wells and Milton Pond; and assess the potential for adverse impacts to water resources and users as a result of the proposed withdrawal.

The withdrawal test program was comprised of three periods, the antecedent (pre-pumping) period, the pumping period, and the recovery period. The test was initially conducted as a step test with incremental increases in pumping rates. The wellfield pumping rate at the start was 100 gallons per minute (gpm) (25 gpm at each well) for 90 minutes; then 200 gpm (50 gpm at each well) for 90 minutes; and finally 254 gpm, with Well 1 and Well 3 pumped at a rate of 50 gpm, Well 2 at 76 gpm and Well 4 at 78 gpm. The pumping rate of 254 gpm for the wellfield was maintained throughout the remaining portion of the pumping period (approximately 45 hours). Within 60 minutes after pumping ended, water levels recovered to approximately 85% of the original (static) levels. Within 24 hours of cessation of pumping, the water levels at the production wells recovered to 95% of static levels. Water level measurements were collected during the test program at on-site locations consisting of seven overburden monitoring wells and off-site at one residential overburden well. Each of the proposed source wells were metered to maintain a constant rate during the withdrawal test and three water quality samples were collected from each production well during the pumping period.

Withdrawal test monitoring results presented in the final report indicate that the proposed wellfield can sustain a withdrawal rate of 254 gpm or 365,760 gpd. This proposed production volume, when combined with the production from MWD's existing source, would meet this system's 20-year projected average daily flow demand of 180,000 gpd and peak daily flow demand of 370,000 gpd. Results of water quality sampling during the withdrawal testing program indicate that each parameter, with the exception of pH, was below applicable Maximum Contaminant Level (MCL) and secondary MCL. Results indicate that the pH of the water produced ranges between 6.2 and 6.6, slightly below the secondary MCL range of 6.5 to 8.5.

PUBLIC INVOLVEMENT

Pursuant to RSA 485-C:21-II through V-a, materials submitted in support of the large volume groundwater withdrawal permit (the preliminary permit application, final report, supplemental materials etc.) were sent (via certified mail) to the municipality and public water suppliers in the potential impact area. The entities that were sent copies of the above-referenced materials are the Town of Milton- Board of Selectmen and Pineland Park Mobile Home Park. No public meetings were requested by either of the notified entities, and no public meetings were held regarding the application for the large groundwater withdrawal permit.

LARGE GROUNDWATER WITHDRAWAL PERMIT MONITORING, REPORTING AND WITHDRAWAL REQUIREMENTS

The large groundwater withdrawal permit requires the permittee to conduct a water level and water quality monitoring program that includes monitoring of off-site residential overburden wells and on-site overburden monitoring wells. General monitoring requirements are summarized below.

- Existing Off-site Overburden Wells - The permit requires that three off-site overburden wells be monitored to assess the potential for and/or detect the occurrence of adverse impacts.

- Existing On-site Overburden Wells - The permit requires that two on-site overburden wells be monitored; one to assess the potential for and/or detect the occurrence of adverse impacts and the other to monitor water levels proximate to the new source wells.
- New On-site Overburden Well - The permit requires that one new on-site overburden wells be installed and monitored to assess the potential for and/or detect the occurrence of adverse impacts upgradient of the wellfield.

An impact mitigation program would be implemented in accordance with conditions of the large volume groundwater withdrawal permit and Env-Ws 388 if an adverse impact is observed and verified. The program would implement actions necessary to mitigate an impact and include reduction in the withdrawal volume including cessation of withdrawal, replacement of impacted sources with an alternative water supply at no initial capital cost to the user, and increases in the monitoring frequency of the withdrawal monitoring network to assess performance of the mitigation program.

MWD is required to submit an annual report in hard copy format to NHDES by January 31 of each year as specified in the permit. As stipulated in the permit, the annual report will include a summary of trends and variability observed in the site monitoring network, all monitoring data and records required by the permit, and an assessment of the potential impacts associated with the withdrawal. The annual report will be made available to the public for review.

A complete description of monitoring and reporting requirements is presented in more detail in the large groundwater withdrawal permit (LGWP-2007-0001) under condition No. 4.