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CLEAN WATER ACT SECTION 604(b)
WATER QUALITY PLANNING AND MANAGEMENT PROGRAM

TOWN AND VILLAGE OF ALFRED GROUNDWATER PROTECTION PROJECT

OCTOBER 1993

PREPARED BY THE SOUTHERN TIER WEST
REGIONAL PLANNING AND DEVELOPMENT BOARD
WITH PARTIAL FUNDING PROVIDED BY THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL
CONSERVATION THROUGH SECTION 604(b)
OF THE CLEAN WATER ACT.

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PROJECT SUMMARY

The Southern Tier West Regional Planning and Development Board (STW) has undertaken this project to develop groundwater protection recommendations for the Town and Village of Alfred, New York and to encourage them to move in the direction of developing local protection measures. A Local Task Force was created to facilitate STW's understanding of the local issues and concerns and to act as a communication link to the two Alfred communities. The project included efforts to provide these selected members of the Alfred communities with a basic knowledge about their "unseen" water resource and about the potential threats placed on it by unchecked land use. Also discussed were possible local protection measures.

The result of these efforts was the production of this guide. The guide is intended to provide assistance to local planners, local officials, other local decision-makers and anyone with a concern over water quality should they wish to initiate a groundwater protection program.

This project follows a 1989 STW study that identified land uses, potential recharge areas, and potential contamination sources within a one-mile radius of each of the two Village public supply wells. The information from the past study is included in this binder along with some new information obtained during this study (see Section 2).

The Village wells are actually located in the Town of Alfred. All of the Village is supplied by the Village wells. The Town of Alfred from Alfred Station along Route 244 to the Village line is hooked into the Village's public supply system and purchases water from the Village. The rest of the Town relies on domestic wells. There is still much that is not known about the recharge areas of the aquifer(s) beneath the Town and Village of Alfred. It is known, however, that the municipalities have the ability to affect the quality of each other's water supplies. The Town's population and activity center and the Village are both upgradient of the Village municipal wells and, therefore, both have the ability to contaminate those wells.

Current planning efforts of the Town and Village (and the Town of Almond) which aspire to developing the area as a significant part of the ceramic corridor recognize and stress the importance of water and sewer infrastructure as shared resources if efforts are to be viable. This shared goal can be significant in terms of future cooperative efforts, which could include provision of services (i.e., infrastructure) and also regional (inter-municipal) groundwater protection. Availability of high-quality water is a significant selling point in the recruitment of business and industry and necessary for future residential growth.

Despite a lack of definitive knowledge about recharge area boundaries and other hydrogeologic information, some actions should be taken by the Town and Village, and even Almond. In the case of Alfred, it would be best to be as conservative as possible in protection efforts until the hydrogeology of the area is more specifically defined. A quick survey of remediation costs for contaminated groundwater supplies will show that prevention is well worth the effort. Corrective measures can rapidly escalate into the millions of dollars, not to mention yielding substantial inconveniences to those dependent on the contaminated water supply. There really is no such thing as being overly protective when it comes to groundwater protection, especially when it is a

community's only source of drinking water.

In addition to the previous STW groundwater information, also available are: 1) a few scattered well logs, 2) some geophysical information, 3) topographic maps, 4) soils information, 5) regional USGS reports which give generalized groundwater information, and 6) information on characteristics of sand and gravel river valley aquifers in the Alfred region. These can all supplement the technical information needs of developing protection measures and determining which areas in Alfred need the most protection. By knowing some of this general information, it is possible to at least begin taking precautionary measures.

The materials enclosed in this binder are intended to provide the Town and Village of Alfred with assistance in developing local groundwater protection measures. Groundwater protection must be a local initiative. At the local level protection primarily is achieved through land-use controls, either by restricting or prohibiting activities in the more sensitive recharge areas and the tributary watersheds which provide significant amounts of runoff to the recharge areas. And while land use regulations are geared toward future land uses, in order to be comprehensive in groundwater protection efforts, it is also important to evaluate existing land uses and make sure that proper precautions are taken. Some general recommendations are made in the recommendations section of this guide.

Within the binder are the following:

- Findings and recommendations for the Village and Town of Alfred related to groundwater protection;
- Materials from the previous STW groundwater study and other technical information which may be of assistance;
- Basic informational materials on groundwater/aquifer dynamics and groundwater contamination;
- Brief descriptions of federal, state and county laws already in place that protect groundwater;
- Materials about potential local land-use controls;
- Zoning ordinances and watershed rules and regulations in place in other communities to use as models (including some points to consider when drafting land-use controls to protect groundwater); and
- A listing of contacts for technical assistance, technical information, educational materials, regulatory advice/information, land-use planning development advice/information.

STW hopes that this guide will be useful to the Village and Town of Alfred and strongly encourages the two municipalities to work together to protect the groundwater resource on which they both depend. Groundwater protection efforts are most effective when done on a more regional level as aquifers and their recharge areas do not stop at jurisdictional boundaries.

The potential for groundwater contamination exists in the Town and Village of Alfred. While many of the suggestions provided in this guide may seem politically unpopular in the short-term,

having contaminated groundwater would be even more unpopular. It is far easier to address threats and prevent contamination than to deal with the costs and other problems associated with crisis-type situations. A proper educational program accompanying the development of protection strategies should serve to diffuse concerns over "unnecessary" regulations and assist in gaining the cooperation and encouragement of Town and Village residents, businesses, and officials. More information about types of educational programs can be found in Section 5 (Potential Local Land-Use Controls).

FINDINGS

The following are the Findings for the Town and Village of Alfred Groundwater Protection Project determined with input from the Alfred Local Groundwater Protection Task Force.

WATER SUPPLY:

1) Groundwater from the two village public supply wells is of high quality and adequate quantity.

2) The entire village and the more populated portion of the town (from Alfred Station along Route 244 to the village line) utilize and depend on the two village wells for their water supply. The rest of the town residents and businesses, which are primarily concentrated along Route 21 south of Alfred Station, rely on private wells. Many of these private wells tap shallower aquifers than the municipal wells.

3) Information from a previous STW study exists on potential recharge areas, potential contamination sources, and land uses within a one-mile radius of each of the two village wells.

4) Information on the extent of the recharge area for the village wells is lacking, as well as groundwater travel times and zones of influence for the wells. Information does exist about the general geographic area and river valley aquifer characteristics.

5) Village wells, located in the northwest corner of the Town of Alfred, are situated in the Canacadea Creek valley, a river valley characterized by significant sand and gravel deposits.

6) The village is upstream/upgradient of the activity and population center of the town, as well as the village wells.

7) Groundwater, extending beyond single jurisdictional boundaries, is a shared resource. Independent town and village activities can impact each other's water quality.

LAND USE:

1) Village wells are located in an area zoned for industrial use, although the town is working towards re-siting its industrial zone due to recognition that the existing location is more residential in nature and also poses a threat to the groundwater supplying the public wells.

2) Both the town and village have and strictly enforce zoning, the town having revised its zoning law two years ago. The town is reluctant to go through this revision process again in the near future.

3) The dominant land uses in the Village of Alfred are educational facilities and grounds, residential, and service-oriented business with a zone set aside for research and development along the Canacadea Creek immediately upstream of the Village sewage treatment plant.

4) The dominant land uses in the area of the Town of Alfred on which this project is focusing (the northeast corner) are residential, agricultural, commercial, and small-scale industrial.

5) Some planning and development entities in the Alfred area hope it will grow as a significant part of the ceramic technology corridor. Others are not as pro-industry, seeing the Town and Village of Alfred's future more in terms of being a bedroom community to more industrialized areas such as Hornell and Wellsville. Either way, there is potential incentive for joint development and use of water supplies and wastewater treatment facilities and infrastructure by both the Town and Village of Alfred and the neighboring Town of Almond.

6) Watershed Rules and Regulations were developed for the Village of Alfred in the 1960s with a focus on preventing contamination of its public wells by human excreta, manure, compost, sink wastes, polluted liquids of any kind, dead animals, camps, cemeteries, and any other activities which may result in well contamination. The Allegany County Health Department has the right to mandate the Village's strict enforcement of these rules and regulations.

CONTAMINATION CONCERNS:

1) Only very limited areas around each of the village wells are held in protected use. Potentially threatening land uses in the immediate vicinity of the wells include industry (ceramics), septic systems, a highway garage, above ground petroleum storage tanks, and residual petroleum-contaminated soils from underground storage tanks (tanks were removed and monitoring of contaminant migration is ongoing). Other land-use concerns within distances ranging from one-half mile to two miles from public wells are salt storage piles, a sewage treatment plant in need of upgrades, sand and gravel mining activities, industry (i.e., ceramics), the closed Alfred-Pattons Landfill, and potentially, improperly closed, abandoned oil, gas, and private water wells.

2) The village wastewater treatment plant malfunctions and is under order by NYS DEC to be upgraded.

3) Improperly closed, abandoned gas and oil wells are known to be common in Allegany County and pose threats to groundwater.

4) The village has storm drains which empty into the Canacadea Creek upstream of the village wells. These can transport a variety of pollutants directly to waterways and down into the well vicinity.

GENERAL:

1) There is often a hydraulic connection between surface waters (i.e., creeks) and groundwater.

2) There is nothing in the Allegany County Sanitary Code that specifically addresses wellhead or groundwater protection, and as such, the County's involvement is limited. The Health

Department is, however, involved with it, as it is essential to the protection of public water supplies for which it is responsible.

3) The NYS Department of Environmental Conservation, in both their Upstate New York Groundwater Management Plan and Wellhead Protection Program, gives significant responsibility to local governments for the protection of their groundwater supplies and encourages municipalities to develop local protection programs. Development of wellhead and general groundwater protection measures are, at the present time, strongly suggested by federal, state, and county governments. In the future they may be mandatory, especially public-supply wellhead protection.

4) Prevention of groundwater contamination is much less costly than remediation.

5) A high-quality, plentiful water supply is an economic advantage in the recruitment of industry, business, and residents.

6) There is a positive relationship between the town and village.

7) The Allegany County Regional Planning Board (and its Alfred/Almond Economic Development Task Force) and the Alfred Twenty-First Century Group (A21CG) are entities currently discussing and promoting development of the area, the former being interested in promoting it as part of the ceramic corridor. The A21CG group cites that it offers services to the Town and Village in the areas of community planning, community outreach, and community development.

RECOMMENDATIONS

Based on the Findings, the following are groundwater protection Recommendations developed for the Town and Village of Alfred.

GENERAL:

1) Protect the existing high quality of groundwater as it is important to the health of the town and village residents and necessary for economic growth and recruitment of business, industry, and residents to Alfred.

2) Use an aquifer-wide groundwater protection approach. This should involve both the Village of Alfred and the Town of Alfred in the project's focus area, and should even include the Town of Almond along Route 21. These areas probably tap the same groundwater supplies whether private, municipal, shallow, or deep wells. Land uses in these areas, especially in a downstream orientation (in order, V. of Alfred, T. of Alfred, T. of Almond), have potential to impact each other's water quality. Further determination of recharge areas and other hydrogeologic information will yield a more accurate picture.

3) Protecting potentially viable future municipal well sites should be considered. Residentially zoned areas where significant numbers of private wells might be needed in the future, should use protection measures.

4) Get additional hydrogeologic information about the area (i.e., cone of influence for municipal wells, time of travel, etc.) through hiring a hydrogeologist or utilizing the technical expertise of local universities/schools (faculty and/or geology class projects) to determine better the locations of vulnerable recharge areas to enable more accurately placed land use controls.

5) Carefully plan ceramics corridor activities/land use to incorporate groundwater protection measures.

6) Ensure that NYS DEC and NYS DOH continue their monitoring efforts related to leaching from the closed Alfred-Pattons Landfill.

7) Upgrade the Village of Alfred sewage treatment plant.

8) Expand sewer infrastructure to include portions of the Town of Alfred, especially in the village well vicinity (and even into Almond) to assure that future economic development activities being solicited for the area will pose less of a contamination threat to groundwater.

9) Urge local officials to look at long-term environmental and groundwater protection, and not just short-term economic gain.

10) As per the U.S. EPA Priority Pollutants List (See Section 2), have wells regularly tested for chemicals of concern that are known to be used in Alfred's wellhead/groundwater protection area.

11) See that State Environmental Quality Review Act (SEQRA) reviews pay particular attention to groundwater impacts of proposed activities.

ZONING/LAND USE:

1) Town and Village of Alfred, and even Allegany County, should develop a program to require the submission of well log data from all well drillers. This information would supplement existing information about the hydrogeology of the area and enhance protection efforts by allowing more detailed delineation of areas needing protection.

2) Revise town and village zoning laws to include a groundwater protection overlay district within which measures such as site plan review and performance standards would be included and a fee could be charged to cover costs of reviewing proposed activities for Alfred. An overlay district should take into consideration precautionary measures (restrictions and/or prohibitions) for land uses including septic systems, salt storage, petroleum storage, vehicle maintenance, floor drains, and industrial activities, especially in the vicinity of the village wells and actual/suspected sensitive recharge areas. If an overlay district were created, it should, until additional information yields a more accurate picture of recharge area boundaries, be a one-zone protection overlay district. The configuration of such a district could resemble the map ("Watershed/Suggested Groundwater Protection Overlay District") in Section 2. When additional data is obtained, this single zone may be broken into two or three zones based on variable protection needs.

3) Address other contamination concerns, specifically abandoned oil, gas and private water wells, and activities associated with gravel mining such as petroleum bulk storage, dust control chemicals (calcium carbonate products are used widely with safety), and land reclamation.

4) Evaluate existing land uses to assure that they are in compliance. Existing commercial/industrial facilities within recharge areas should be examined on a facility-by-facility basis by appropriate state or county agencies to determine whether a facility poses a threat to groundwater, whether it is in compliance, and whether monitoring wells should be required. A person engaged in an activity found to have potential to adversely affect groundwater should be required to develop and implement an approved monitoring source reduction plan.

5) For proposed activities, enforce compliance with federal, state, county, and local regulations. Be alert to the existence of certain laws and have a "checklist" so that during review of proposed activities the applicant knows what laws must be complied with. Continued compliance must also be monitored. This is not a redundant exercise. Higher government levels encourage local governments to assume the responsibility since it is their own water supplies at stake and since local governments are the entities most familiar with local situations and concerns.

6) Assure that information on hazardous materials/chemicals being used in protection areas is supplied to all necessary parties (all reporting requirements have been met) and that contingency plans exist where activities warrant them.

7) Combine stormwater control regulations with groundwater protection regulations in order to further minimize transport of sediments, nutrients, metals, organic chemicals, and bacteria to surface water and groundwater. Institute controls on construction activities in recharge areas with respect to erosion and sedimentation. Develop timbering controls in watersheds tributary to recharge areas.

8) Minimize paved surfaces over known/suspected recharge areas.

9) Make changes to portions of existing village and town zoning as follows:

- Add language which shows specific intents/purposes of various sections to include the prevention of contamination of groundwater and surface water.
- Include precautions/regulations relating to appropriate disposal facilities and the appropriate handling and storage of hazardous materials.
- Town should re-evaluate uses currently permitted in the flood plain, e.g., agriculture (chemical use/infiltration and runoff), roads (impervious surfaces, contaminant runoff), golf courses (chemical use/infiltration and runoff), drive-in theaters (impervious surfaces, vehicle fluid runoff), and storage yards for equipment and material (infiltration of contaminants) in terms of potential to impact groundwater in these generally more permeable areas and provide for precautions/best management practices.
- Town of Alfred should relocate their industrial zone as it is currently located in a recharge area.
- Overall, add an overlay protection district as per Zoning/Land Use Recommendation #2.

10) In the event that no other precautions are to be taken, the Village should at least enforce its existing Watershed Rules and Regulations to ensure safety of activities in the vicinity of its public wells.

EDUCATION/VOLUNTARY:

1) Encourage residential, institutional, business, industrial, and agricultural water conservation through education and even through pricing policies to discourage excessive use. This would lessen environmental stresses to the groundwater resource caused by withdrawals, as well as ease discharge volumes and contamination loadings to the wastewater treatment facility and septic systems.

2) With respect to agricultural land uses, encourage the use of integrated pest management, water conservation techniques and best management practices for fertilizer use. Technical advice can be obtained from entities such as the county soil and water conservation district, the local Cornell Cooperative Extension office, and the local soil conservation service.

3) Encourage regular maintenance and upkeep of septic systems in the community.

4) Tap local educational resources in the area to assist in promotion of groundwater protection (i.e., Alfred University geology/environmental science departments) and for technical assistance in site plan reviews.

5) Utilize the Allegany County Regional Planning Board/Alfred-Almond Economic Development Task Force and A21CG as promoters of groundwater protection for area and to assure that groundwater protection is considered in future development plans.

6) The village, as a municipal water supplier, should become involved in the promotion of groundwater awareness and resource protection.

7) Encourage Allegany County to establish a groundwater protection program. Allegany County should consider revising its Health Department's Sanitary Code to include groundwater protection in its programming, and of similar priority to protection of surface water. Groundwater and its recharge areas occupy areas greater than single municipal jurisdictions, and as such, groundwater protection would be more easily administered and enforced at the next higher level of government.

8) Educate village residents/businesses about storm drains, and their outlets. Perhaps engage youth groups in a storm drain stenciling project. This type of project entails marking around storm drains using stencils and paint with statements such as "DON'T DUMP - DRAINS TO CREEK". These stencils have already been developed and can be obtained from NYS Sea Grant Extension.

9) As part of an education program, encourage residents to properly dispose of household toxic materials such as paint, used oil, and cleaning agents.

10) Contact the Rural Water Resources Program for possible no-cost assistance with educational activities, project planning and coordination, development of financing strategies including grantsmanship assistance, and development of water supply protection management plans. (See Section 7 Contact List.)