

**Lower Raritan Watershed Management Area
Land Use, Wastewater & Water Supply Subcommittee
Strategy Worksheet LRLU-S1A3
Strategy Worksheet LRLU-S1B3**

<p>Strategy Name: Ground Water Quality Protection Programs LRLU-S1A3. Develop and implement aquifer quality protection programs so that there is no degradation of aquifers. These programs will address various sources of aquifer contamination as identified by the Raritan Basin Project technical reports, including salt water intrusion. LRLU-S1B3. Develop and implement ground water quality protection programs so that there is no degradation of ground water. These programs will address various sources of ground water contamination as identified by the Raritan Basin Project technical reports.</p>	<p>Strategy Priority: H (H/M/L)</p>
<p>Objectives Addressed by Strategy: LRLU-O1A. By 2012, there shall be no additional degradation or depletion of aquifers from new development or redevelopment. 30% of municipalities in the Lower Raritan will adopt such requirements by 2008; 100% of municipalities will adopt such requirements by 2014. LRLU-O1B. By 2012, new development and redevelopment will not diminish the quality and quantity of ground water. 30% of municipalities in the Lower Raritan will adopt such requirements by 2008; 100% of municipalities will adopt such requirements by 2014 LRLM-O1A. Land use and management practices will maintain ground water at a level that sustains year round stream base flows while providing for both human needs and basic ecosystem functions in the Lower Raritan WMA. LRLI-S1A2. By 2004, understand municipal, county and state capabilities for watershed management in the Lower Raritan WMA to guide watershed strategy development and implementation.</p>	<p>Strategy Schedule: (Begin/End)</p>
<p>Narrative Description of Strategy: The NJDEP Ground Water Quality Standards (NJAC 7:9-6) designate protected uses of ground water, ground water quality criteria to protect those uses, and antidegradation policies (NJAC 7:9-6.7) to ensure that existing ground water quality (that is higher quality than the water quality criteria) is not degraded to the criteria, with the most stringent antidegradation policy (nondegradation) applying to certain watersheds that are extremely sensitive to change. These three components (designated uses, criteria and policies) result in constituent standards pursuant to the Water Pollution Control Act (NJSA 58:10A-1 et seq.) and the Water Quality Planning Act (NJSA 58:11A-1 et seq.). The Standards are the source for numerical criteria for limits on discharges to ground water and standards for ground water cleanups.</p> <p>Ground water contamination occurs from a variety of sources including substances that occur naturally (e.g., iron, calcium and selenium) or from man-made substances including synthetic organic chemicals and hydrocarbons, liquid waste from landfills, and other substances such as heavy metals, road salt, bacteria and viruses. Other sources include improper disposal of used motor oil and other household hazardous materials including batteries, paints and cleaning products. In addition, waste products from septic tanks, pet and other animal wastes can make their way into ground water supplies. Land use activities involving the application of fertilizers and pesticides have the potential to harm ground water quality. When too much fertilizer is applied, the plants cannot absorb it so it makes its way to local streams and ground water. Past industrial practices and storage areas also contribute to ground water contamination.</p> <p>In the "Ground Water in the Raritan Basin" technical report¹, wells that could be at risk for contamination in the WMA due to their proximity to known contaminated sites were identified. In the Lower Raritan, 85 known contaminated sites with known ground water contamination were located within the wellhead protection areas for public water supply wells. NJDEP's Source Water Assessment Program reports, which are due out in 2003, will provide a more detailed assessment of well vulnerability and susceptibility to pollution².</p> <p>The intent of this strategy is to develop aquifer/ground water protection programs to mitigate current contamination and to protect ground water and aquifers from future degradation. A suite of criteria or indicators will be developed to be used to identify degradation or contamination. The criteria will include warning levels to</p>	

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trigger various management actions, which will also be developed as part of the strategy. A detailed map will be developed that shows locations and extent of known contamination. The strategy also includes an action step to develop a field sampling program to characterize areas where there is potential contamination. Mitigation plans shall be developed for areas of known contamination where none currently exist. Specific action steps were developed for areas where salt water intrusion has occurred. In addition, land use ordinances and resolutions will be modified.

Areawide WQM Plan Consistency Determination Issues: None

Action Plan (Steps or Tasks)	Responsible Parties for Planning, Design & Implementation ³	Responsible Parties for Oversight	Resource Needs ⁴	Committed or Recommended Resources	Major Challenges and Opportunities	Evaluation Method & Indicators	Schedule and Milestones for Implementation
1. Identify a suite of criteria or contaminant indicators for determination of degradation or cross contamination of ground water. The criteria shall identify warning levels that will trigger various management actions.	C: R: NJDEP, USGS, water purveyors, LRLU, (if active) ⁵	C: R: LRMC-WRA LRWMG LRWMAC ⁶	L	C: R: Existing resources	Challenge: Agreement on warning levels	Completion of criteria and warning levels	
2. Develop recommended management actions for the warning levels developed in Action Step 1.	C: R: USGS, water purveyors, NJDEP, LRLU	C: R: LRMC-WRA LRWMG LRWMAC	L	C: R: Existing resources	Challenge: Could trigger additional Water Supply Critical Areas	List of management actions	
3. Develop and periodically update a detailed map identifying areas of known ground water contamination (e.g. radioactive isotopes, KCSNJ), based on currently available information.	C: R: NJDEP, water users, municipalities	C: R: NJDEP LRMC-WRA LRWMG LRWMAC	L	C: NJDEP's Source Water Assessment (June 2003) with KCSNJ listings and associated case files, Raritan Project Mapping R: Existing resources, Section 106 funds from NJDEP	Challenges: Identifying actual extent of contamination based on available information Continually updating the map to reflect additional information	Completion of map	

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Action Plan (Steps or Tasks)	Responsible Parties for Planning, Design & Implementation ³	Responsible Parties for Oversight	Resource Needs ⁴	Committed or Recommended Resources	Major Challenges and Opportunities	Evaluation Method & Indicators	Schedule and Milestones for Implementation
4. Develop and implement a field sampling program to characterize potential degradation of aquifers.	C: R: NJDEP, Water purveyors, municipalities, USGS	C: R: NJDEP	M-VH	C: R: Existing resources, CBT Site Remediation funds, Source Water Assessment Program funds	Challenge: A large amount of sampling may be required for a full characterization	Completion of characterization	
5. Develop and implement plans to mitigate the identified areas of degradation/contamination, where no such plans currently exist. Priority shall be given to plans in areas with greater reliance on specific aquifers for water supply.	C: R: NJDEP Site Remediation Program; NJDEP Water Supply Planning Program, responsible parties, USGS	C: R: NJDEP	L-VH	C: R: NJDEP existing resources, CBT Site Remediation funds, responsible party contributions	Challenge: Funding for implementation	Development and implementation of plans for specific sites or areas Data indicating improvement of aquifer quality.	
6. Identify standards for protection of water quality to be included in ordinances and resolutions, such as performance criteria for sensitive areas. Specific methods of protecting water quality shall be identified.	C: R: LRLU, NJDEP	C: R: LRMC-WRA LRWVG LRWVAC	L	C: R: Existing resources, 319 and CBT funds	Opportunity: Improvement of ordinances & resolutions	Identification standards to be included in ordinances & resolutions Identification of protection methods	NJDEP BMP manual - 2002
7. Development and implementation, through ordinances or resolutions, of effective design and zoning standards to regulate land uses that will harm ground water quality and minimize impacts to ground water quality. ⁷	C: R: NJDEP, municipal and county government, development community, NRCS, SCDs, ANJEC, League	C: R: LRMC-WRA LRWVG LRWVAC NJDEP	L-M	C: LRLU-S3A3 & LRLU-S3A4, LRLU-S3A1, LRLU-S4A3, LRLM-S2B3, LRLU-S4C1, LRSW-S1B2, LRSW-S2A3 & LRSW-S2B3, LRLM-S2A3	Challenges: Additional effort required for site plan review Potential for conflict by the regulated community regarding loss	Incorporation of methodology into design standards and master plans by these agencies	By year 2006 most entities will have the necessary data and informative reports that can provide for the implementation of these efforts

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<p>See: LRLU-S3A3 & LRLU-S3A4: Site Plan Provisions to Protect Water Resources LRLU-S3A1: Evaluation of Environmental Impacts of Proposed Development LRLU-S4A3: Reduce Water Quality Impacts from Septic Systems LRLM-S2B3: Inspection & Maintenance of Septic Systems LRLU-S4C1: Incorporation of Water Resources Protection into Transportation Projects LRSW-S1B2: Regulation of Stormwater from New Development to Protect Water Quality LRSW-S2A3 & LRSW-S2B3: Program of Activities to Remove NPS Pollution from Stormwater LRLM-S2A3: Projects to Mitigate NPS Loadings</p> <p>See: LRLI-S1A2: Fill Shortfalls in Regulatory Capacity for steps toward ordinance and resolution implementation</p>	<p>of Municipalities</p>			<p>R: Existing resources, regulatory fee schedules</p>	<p>of developable land</p> <p>Sufficient and qualified staffing for land development review</p> <p>Willingness on the part of review agencies to incorporate these efforts into their development review standards</p>		
<p>8. Develop and implement an educational campaign for county and municipal officials and other appropriate groups regarding the standards, ordinances and</p>	<p>C: R: NJDEP, municipal and county government, development community,</p>	<p>C: R: LRMC-WRA LRWMG LRWMAC NJDEP, local and county agencies,</p>	<p>L-M</p>	<p>C: LRSW-S4C1/LRSW-S4C2/LRLU-S3A6</p> <p>R: Existing resources, e.g.</p>	<p>Challenge: Changing the mind-set of the public, the regulators and the regulated community as</p>	<p>Level of implementation of methods by review agencies</p> <p>Improved submissions by</p>	<p>Many of these efforts can take place now</p> <p>A review and audit by year 2005 should be</p>

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resolutions developed as part of this strategy. See: LRSW-S4C1/LRSW-S4C2/LRLU-S3A6: Improved Knowledge Regarding Stormwater Management and Environmentally Sensitive Development	watershed agencies, educational institutions, NJWSA, water companies, LREO, LRLU, Cook College Office of Continuing Professional Education	LREO, LRLU		water company outreach to customers, program fees	well	the developers regarding use of impervious coverage	performed to determine the effectiveness of implemented educational programs

¹ Raritan Basin Watershed Management Project. Final Report 2002. Ground Water in the Raritan River Basin. http://www.raritanbasin.org/ground_water.htm

² NJDEP Source Water Assessment Program. <http://www.state.nj.us/dep/dsr/swap.html>

³ C = Committed, R = Recommended

⁴ General Estimates: Low = \$5,000 - \$50,000; Moderate = \$50,000 - \$250,000; High = \$250,000 - \$1 million; Very High = over \$1 million

⁵ All qualifiers in #1 (e.g. if active) for subcommittees apply throughout the action plan.

LRLU = Lower Raritan Land Use, Wastewater & Water Supply Subcommittee

LRSW = Lower Raritan Stormwater & Flooding Subcommittee

NJWSA = New Jersey Water Supply Authority

NJDEP = New Jersey Department of Environmental Protection

KCSNJ = Known Contaminated Sites of New Jersey

SCD = Soil Conservation District

⁶ LRMC-WRA = Lower Raritan-Middlesex County Water Resources Association

LRWMA = Lower Raritan Watershed Management Area Committee or equivalent

⁷ Massachusetts Department of Environmental Protection, Drinking Water Program, Model Groundwater Protection District Bylaw or Ordinance (revised January 2002) <http://www.state.ma.us/dep/brp/dws/files/modgwpd.doc>

Montville Township, NJ. <http://www.anjec.org/html/ord-aquifer.htm>

Aquifer District Ordinance Stratham, NH http://www.stormwatercenter.net/Model%20Ordinances/Source_Water_Protection/Aquifer%20district%20ordinance.htm

Groundwater Protection and Siting Ordinance, Hernando County, Florida

http://www.stormwatercenter.net/Model%20Ordinances/Source_Water_Protection/Groundwater%20Protection%20and%20Siting%20Ordinance.htm

Groundwater Source Protection Overlay District, Salt Lake City, Utah

http://www.stormwatercenter.net/Model%20Ordinances/Source_Water_Protection/Groundwater%20Source%20Protection%20Overlay%20District%20.htm

Model Groundwater Ordinance, Groundwater Protection Overlay District

http://www.stormwatercenter.net/Model%20Ordinances/Source_Water_Protection/Model%20Groundwater%20Ordinance.htm

LREO = Lower Raritan Education & Outreach Subcommittee

USGS = United States Geological Survey

NRCS = Natural Resources Conservation Service

ANJEC = Association of New Jersey Environmental Commissions

LRWMG = Lower Raritan Watershed Management Group