Industry Ground Water Protection
Action Plan Development
Interim Guidance Document – June 2006

Action Plan Development (Action 1 of Industry Initiative)

The Industry Groundwater Protection Initiative requires that by July 31, 2006, each member company operating or decommissioning a nuclear power plant will:

"Put in place a company/site-specific action plan(s) to help assure timely detection and effective response to situations involving inadvertent radiological releases in groundwater to prevent migration of licensed radioactive material offsite and quantify impacts on decommissioning."

Generic Guidance:

Each company/site will develop a written action plan utilizing company or site specific methods.

Throughout the development and implementation of the site/company specific action plan(s), risk[1] should be continually evaluated. The higher the risk or potential for off-site groundwater contamination, the shorter the timeframe for completion of the action plan.

Attachment 1 to this document contains additional guidance.

Specific Guidance:

The written action plan should consider the following key elements:

1. Background/Purpose:

   The background section will contain a brief description of the industry issue and an affirmation of the company/site commitment to the NEI Industry Initiative. A brief description of the events surrounding the industry issue would also be appropriate.

2. Objectives:

   The following objectives should be described:

   i. Maintenance or improvement of public trust and confidence in the station commitment to environmental stewardship.
   ii. Identification of potential leakage pathways.
   iii. Assessment of the adequacy of the current groundwater monitoring program.
   iv. Development of a corrective action protocol.
   v. Development of a communication protocol.

[1] In this document, RISK is in reference to the ability to meet or not meet the objectives of the NEI Industry Initiative on Groundwater Protection. Specifically, RISK, as used in this guideline, does not refer to a context of a risk to public health and safety.

3. Organizational and Reporting Structure:

   i. Identify key roles and responsibilities including Radiation Protection, Chemistry, Operations, Engineering, Licensing, Environmental, Public Relations, Emergency Preparedness, and Legal.
   ii. Identify the project lead (or leads, if multiple sites are addressed in the action plan).
   iii. Identify an executive or senior management sponsor.
   iv. Identify external stakeholders.

4. Identify Project Controls

   i. Budget
   ii. Schedule/Contracts

5. Record Keeping

   Describe the method for documenting completion of the action plan. This could be via the station corrective action program or a stand-alone plant document.

6. Action Plan Template:

   i. Identify short term actions to comply with the Industry Initiative.

      1. Identify and revise site procedures to include the communication protocol contained in the Industry Initiative.

      2. Identify the external stakeholders that will be contacted.

      3. Communicate with the external stakeholders. This communication is intended to be prior to 7/31/06 to inform the external stakeholders of the initiative and to solicit their feedback.

      4. Include actions required to complete the Groundwater Questionnaire (i.e. review of the 10 CFR 50.75(g) file, any legal or licensing reviews of responses).

   ii. Identify longer term actions:

      1. Identify site risks based on plant design. This review should include all systems or components that have a credible pathway to groundwater which contain radioisotopes. Examples include: Refueling water storage tanks (if outdoors), spent fuel pools, spent fuel pool leak detection systems, outdoor tanks, outdoor storage of contaminated equipment, buried piping, retention ponds or basins. For each system or component deemed to be at risk, identify existing and possible leak detection methods. This may include existing groundwater monitoring, operator rounds,

leak-detection systems, scheduled hydrostatic testing. Also, identify potential enhancements to leakage detection systems/programs such as increased rounds, remote piping walkdowns, etc. Review the site spills and countermeasures procedures to determine if radiological spills are addressed with respect to groundwater and soil protection. The completion of the site risk review may result in the shortening of the timeframe for completion of the remainder of the action plan if risks are deemed higher than originally anticipated.

2. Update/perform/evaluate the site hydro-geological conditions. This effort should result in an understanding of predominant groundwater gradients based upon current conditions. This effort should also include identification of potential pathways for groundwater migration from on-site locations to off-site locations through the groundwater. Existing hydrology studies (from plant construction), historical environmental studies, license renewal reports, are all inputs to this action item. This action item should also track updates to the site Final Safety Analysis Report hydrology study, as appropriate.

3. Evaluate the existing site risks, leakage detection capability (for each at risk system), and the plant history (50.75(g) file review) against the hydro-geological conditions. Consider placement of groundwater monitoring wells in the down gradient from the plant, and sentinel wells close to higher risk systems or components where leak detection capability is limited.

4. Establish sampling and analysis protocols and analysis lower limits of detection. This effort will be closely tied to the on-going communication protocol development work. Evaluate the existing station or company resources or contracts with outside labs against the increased number of samples. Review existing lab protocols and analytical sensitivities.

5. Establish remediation thresholds. This is site specific and should include migration pathways and concentrations. Remediation thresholds should also consider that credited releases may result in detectible levels of activity in the environment.

6. Establish communication protocols before discovering groundwater contamination. Stakeholders may include site employees, local residents, etc. in addition to State/Local entities.

7. Revise the station ODCM, as necessary, to include the following:

    a. The communication protocol (from the industry initiative) including immediate, 30-day, and annual report items.
    b. New monitoring locations which are to be permanent monitoring locations.
    c. New sampling frequencies.

8. Identify long term, program maintenance items. This action targets activities such as equipment and program maintenance to sustain performance. For example, an action item may be established to perform a self-assessment on the implementation of the program 6 months to a year after changes have been implemented.

Attachment 1

The following was provided as part of the Q&A document from NEI and provides further guidance on development and implementation of site or company specific action plans:

Q: What is the intended scope of the site-specific action plans referred to in the initiative?

A: At a minimum, a site-specific action plan should include the following:

- An assessment of sources of potential groundwater contamination (i.e., gaseous and liquid releases and plant structures, systems and components that contain radioactive liquids) and related pathways to groundwater.

- An assessment of site operating history in regard to routine gaseous and liquid releases and previous occurrences of leaks or spills that represent a potential source(s) of groundwater contamination.

- An assessment of the site geo-hydrology, especially in regard to the location, flow patterns, and interrelationship of surface, sub-surface, and groundwater aquifers.

- An assessment of the site program for radiological monitoring of surface, sub-surface, and groundwater aquifers.

The purpose of the assessments is to identify, prioritize, and schedule enhancements to site programs and procedures as needed to prevent migration of licensed radioactive material offsite and to quantify impacts on decommissioning. At a minimum, this includes programs and procedures for leak/spill prevention and detection, radiological monitoring of surface, sub-surface and groundwater aquifers, and response and remediation in regard to groundwater contamination.

Q: Does the commitment in Item 1 of the initiative, to "identify and schedule implementation of a company/site-specific action plan," specifically require that companies drill more monitoring wells, modify plant systems, structures or components, etc.?

A: Not necessarily. Companies are expected to complete an evaluation of the specific situation at each site to identify and schedule any needed enhancements to meet the objective of helping to assure timely detection and effective response to situations involving inadvertent radiological releases to groundwater. The scope of such enhancements will vary from site to site, depending on such factors as the specific history of previous occurrences involving leaks or spills, the extent and quality of current programs for detecting and preventing leaks, and the efficacy of the current site program for monitoring groundwater.