

Long Term Monitoring Plan Position Paper

A. Purpose and Scope

Define the basis for the IPEC Groundwater Long Term Monitoring Plan (LTMP), and describe the current plans for changes and improvements in the LTMP.

The LTMP must meet the previously developed long term monitoring objectives, which are summarized as follows. A more detailed description of the objectives is shown in Attachment 1.

1. Monitor groundwater flow rate and radionuclide concentrations
2. Monitor groundwater in the vicinity of potential sources of leakage
3. Monitor groundwater to confirm no migration off of the property
4. Monitor existing groundwater plumes

Because the objectives include monitoring in the vicinity of potential sources of leakage and existing groundwater plumes, it is not sufficient to merely review monitoring well data. There must be an integrated review including the following:

- Monitoring well data
- Understanding of the placement of the wells
- Storm Drain Monitoring Program and other Bulletin 80-10 issues
- Continuing review of operations associated with known sources (e.g., fuel pools)
- Knowledge of past spills and potential for below-surface sources of radioactivity (10 CFR 50.75g files)
- Review of current plant operations and maintenance of systems to determine the potential for leakage.

This integrated LTMP review, when including the items listed above, can help to assure groundwater protection. Figure 1 shows the various aspects of an integrated LTMP review.

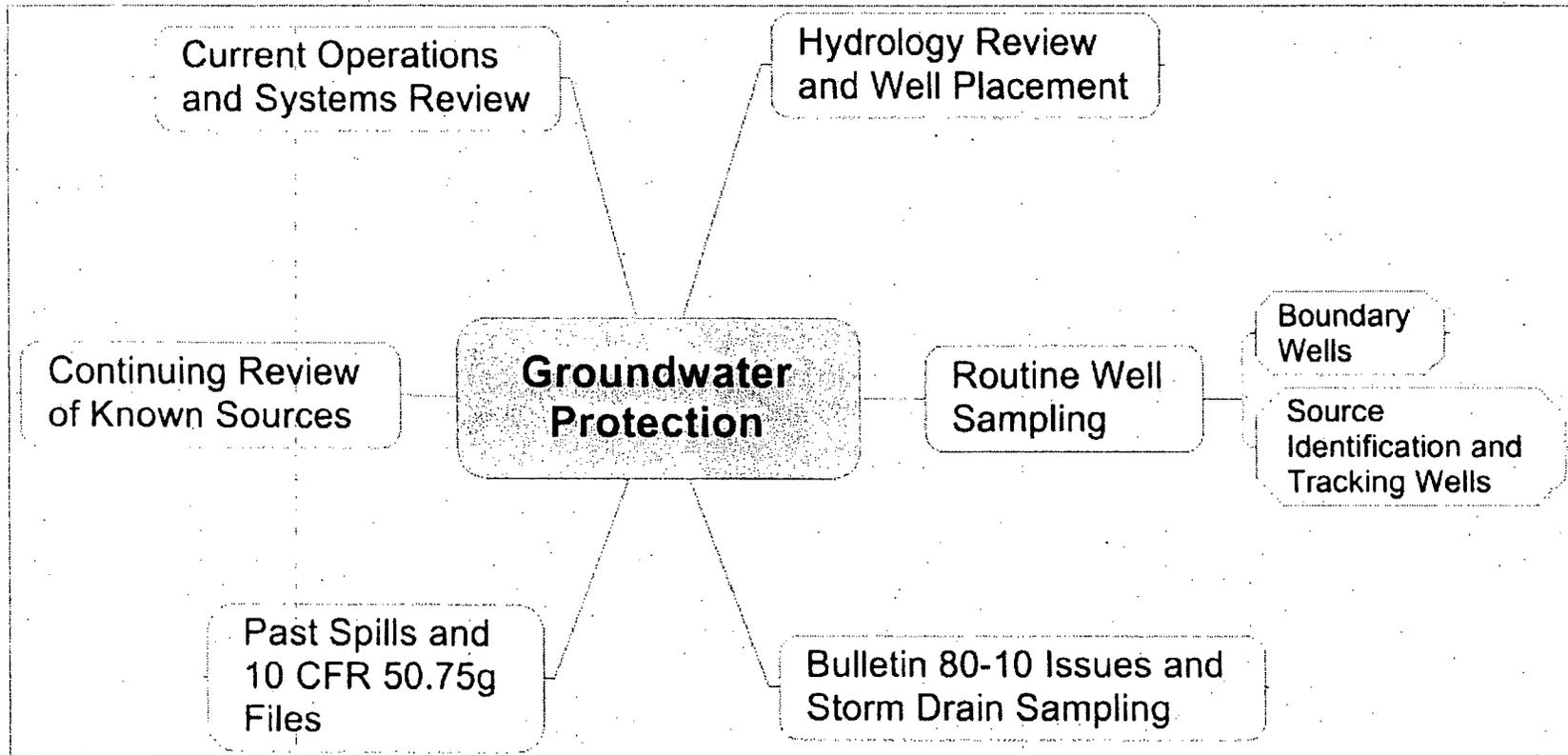


Figure 1 – Integrated Long Term Monitoring Review

B. Existing IPEC Long Term Monitoring Plan (LTMP)

Regulatory and industry guidance documents that relate to the LTMP are listed in Attachment 2. IPEC has developed and complies with procedure IP-SMM-CY-110, "Radiological Groundwater Monitoring Program", which includes the requirements for a long term monitoring program. This procedure lists the monitoring objectives, as follows

1. Monitor status of known groundwater plume
2. Detect & quantify unidentified sources of GW contamination, such as leaks from Systems, Structures and Components (SSCs)
3. Provide data to perform groundwater dose calculations
4. Monitor effectiveness of remediation or intervention actions

IP-SMM-CY-110 further lists investigation/characterization objectives as:

1. Determine the source of groundwater contamination
2. Determine the extent of the radioactive groundwater plume
3. Evaluate corrective/investigative actions, using the corrective action system

The data review and investigation requirements are listed as follows:

Data review:

- Required analyses performed
- Minimum Detectable Concentrations (MDCs) met
- Quality Control (QC) samples satisfactory
- Review unusual results (high or low)
- Review unexpected results (e.g., new nuclides)
- Compare results to investigation level in Attachment 8.5 of the procedure
 - i. For well LAF-002, any positive detection of H-3 or Sr-90 (*Note that a positive detection is where the result is greater than or equal to 3 times the 1 sigma uncertainty*)
 - ii. MW-40, 51, 52, and 107: > 1000 pCi/L H-3 or > 2 pCi/L Sr-90, and any positive detection of other plant related nuclides
 - iii. MW-60, 62, and 63: > 2000 pCi/L H-3 or > 2 pCi/L Sr-90, and any positive detection of other plant related nuclides
 - iv. All remaining wells: Any positive detection of nuclides that exceed 2 times the average from previous year, and the positive detection must be > 1000 pCi/L H-3 or >2 pCi/L Sr-90.

Actions/reviews after start of investigation (consider each item if appropriate)

- Review trends over a longer period of time
- Review condition report for spills or incidents
- Review recent rainfall data
- Contact Lab to check QC, volume, MDCs met, etc.
- Resample

- Consider an increase in sample frequency
- Initiate a condition report and involve other departments as needed.
- Consider remediation of groundwater or source (soil)

C. Review of the IPEC LTMP

IPEC's requirements in procedure IP-SMM-CY-110 are adequate to effectively monitor the groundwater, in accordance with the four basic objectives previously stated:

1. Monitor groundwater flow rate and radionuclide concentrations
2. Monitor groundwater in the vicinity of potential sources of leakage
3. Monitor groundwater to confirm no migration off of the property
4. Monitor existing groundwater plumes

One of the important aspects of the review of groundwater program is the consideration of historical activities and events, as they relate to the LTMP. Entergy has a network of programs that interrelate, each having a separate function, yet still supporting the LTMP. Attachment 2 describes historical events and requirements, related documents, and their applicability to ongoing groundwater monitoring.

D. Program Improvements

While the current methods of groundwater monitoring and review are adequate, additional efforts are needed in order to ensure a consistent review which will rely less on individual expertise and more on institutional programs. These recommendations will also include involvement of the appropriate departments and/or program owners for programs supporting the groundwater monitoring.

Planned Improvement No. 1:

Change trigger level to an improved statistically based value once sufficient analysis data is obtained for the wells.

Note that the current method of using 2 times the average for that site is conservative and may result in a high number of triggers of the investigation process. This is considered to acceptable in the short term and after 1 full year (6 to 8 sets of quarterly data???) Per GZA???) of data is available at these locations; the trigger level value will be re-evaluated.

Planned Improvement No. 2:

Formalize the groundwater data review so that a quarterly review is undertaken and documented, and that review evaluates the well sample results and other data using a repeatable methodology (e.g., checklist format). It is anticipated that site personnel would provide data from existing program documentation to support this quarterly review.

- Groundwater sample results
- Storm drain sample results
- Potential new leaks and spills (via the Condition Reporting System)
- Parameters that would cause changes to known leaks (such as water level changes in fuel storage pools)
- Review of 10 CFR 50.75(g) files as necessary to review anomalous results

Planned Improvement No. 3:

After at least one year of data (6 to 8 sets of quarterly data??? Per GZA??) has been collected on the wells listed as active in procedure IP-SMM-CY-110, the frequency and number of wells being sampled and evaluated will be re-evaluated. Consider more specific guidance to increase frequency based on operations near known sources with higher potential for leakage. For example, consider increased frequency near fuel storage pools when moving fuel and utilizing the fuel transfer canal.

This re-evaluation will involve expertise from both the plant (radiological and operational) and from the hydrogeological consultants. The goal of this re-evaluation is to ensure that IPEC is obtaining information at sufficient frequency to detect potential leaks and to monitor known plumes, yet does not obtain unnecessary data.

E. Conclusion:

The LTMP as it now exists at IPEC (IP-SMM-CY-110), is an effective document to monitor the existing GW plumes, detect new sources of radiologically contaminated water to the GW environment, and it provides sufficient information to allow the performance of dose calculations. The LTMP is supported by other programs such as the Bulletin 80-10 Program, 10 CFR 50.75(g), the Plant Condition Reporting System, and others. Three improvements are planned to help institutionalize the program reviews.

Attachment 1: List of long term monitoring objectives:

1. Monitor groundwater flow rate and radionuclide concentrations to both detect and characterize current and potential future off Site groundwater contaminant migration to the Hudson River, both via direct groundwater discharge to the river and through infiltration into the Discharge Canal, from abnormal radionuclide releases of liquid effluents, so as to allow computation of potential radiation dose to the public from these releases;
2. Monitor groundwater proximate to Systems, Structures and Components (SSCs) which exhibit a credible probability of resulting in a visually undetected release of radionuclides to the subsurface carrying an activity level of significance;
3. Monitor groundwater along the property boundary to confirm that contaminated groundwater is not migrating off of the property to locations other than the river; and
4. Monitor the groundwater plumes identified on-Site to demonstrate overall reductions in total activity over time as is consistent with the requirements of Monitored Natural Attenuation (MNA), the selected remediation for the IPEC Site.

Attachment 2 – Relationship between Historical Events and Requirements and Applicability to Ongoing Groundwater Monitoring

Historical Events and Requirements	Related Documents	Applicability to ongoing GW monitoring
10 CFR 50.75(g) – requires documentation of spills and leaks for future use in decommissioning.	50.75(g) file onsite, EN-RP-113	Used as required to evaluate anomalous GW sample results.
IE Bulletin 80-10 – requires plant systems be reviewed for the potential to cross-contamination normally clean systems.	IE Bulletin 80-10; IPEC 80-10 Program, Rev. 0, 1-31-2006; EN-CY-108, Rev. 1, Monitoring of Non-Radioactive Systems (Entergy corporate procedure); EN-RP-113, “Response to Contaminated Spills/Leaks”; Bulletin 80-10, IPEC Focused Self-Assessment; O-CY-1510, Rev. 5, IPEC Storm Drain Sampling.	Ongoing storm drain sampling program; results stored in Win-CSMS database. Review of storm drain sample results is performed as results are available. In addition, storm drain sample results summary is reviewed as part of the quarterly GW monitoring integrated review.
Groundwater sample results database	The groundwater sampling database is maintained in an electronic format.	GW database used to determine the range of expected values, to compare to other data points in time and location, and to produce investigation flags for anomalous results.
Operational History	In addition to 50.75(g) file, other records include the condition reporting system, operator logs, reports, maintenance records, etc.	Used as required to evaluate anomalous GW sample results. In addition, the condition reporting system is reviewed for evidence of leaks or spills as part of the quarterly GW monitoring integrated review.
Known issues, such as Unit 1 fuel pool leakage.	Existing reports and evaluations, condition reports, corrective action system.	The effect of known leakage on GW sample results is evaluated when reviewing anomalous GW sample results. In addition, as part of the quarterly GW monitoring integrated review, any changes to the known sources are reviewed. This would include parameters such as water level changes, demineralization changes, component/fuel movement, etc.

Attachment 3: Documents Reviewed

Regulatory and industry guidance documents were reviewed, along with IPEC and Entergy procedures, program documents, and reports to ensure that the LTMP is in alignment with existing guidance.

- NEI-07-07, "NEI Industry Ground Water Protection Initiative – Final Guidance Document", August 2007.
- ANI Guidance 07-01, "Potential for Unmonitored and Unplanned Off-site releases of radioactive material", March 2007.
- NRC IE Bulletin 80-10, "Contamination of Nonradioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release to Environment", May 1980.
- NRC Information Notice 2006-3, "Ground Water Contamination due to Undetected Leakage of Radioactive Water".
- NRC Information Notice 2004-05, "Spent Fuel Pool Leakage to Onsite ground Water".
- NRC Inspection Manual, Inspection Procedure 83746, Part 52, "Offsite Dose Calculation Manual (ODCM)".
- IPEC Procedure, O-CY-1510, Rev. 3, "IPEC Storm Drain Sampling", November 2007.
- IPEC Procedure, IP-SMM-CY-110, "Radiological Groundwater Monitoring Program, Rev. 0"
- IPEC 80-10 Program, Rev. 0, 1-31-2006
- IPEC Focused Self-Assessment, 2007, IE Bulletin 80-10.
- Entergy Procedure, EN-RP-113, "Response to Contaminated Spills/Leaks, Rev. 2".
- Quarterly Long-Term Monitoring Report No. 1, 2007, Quarters 2, 3, and 4, GZA.
- Quarterly Long-Term Monitoring Report No. 2, 2008, Quarter 1, GZA.