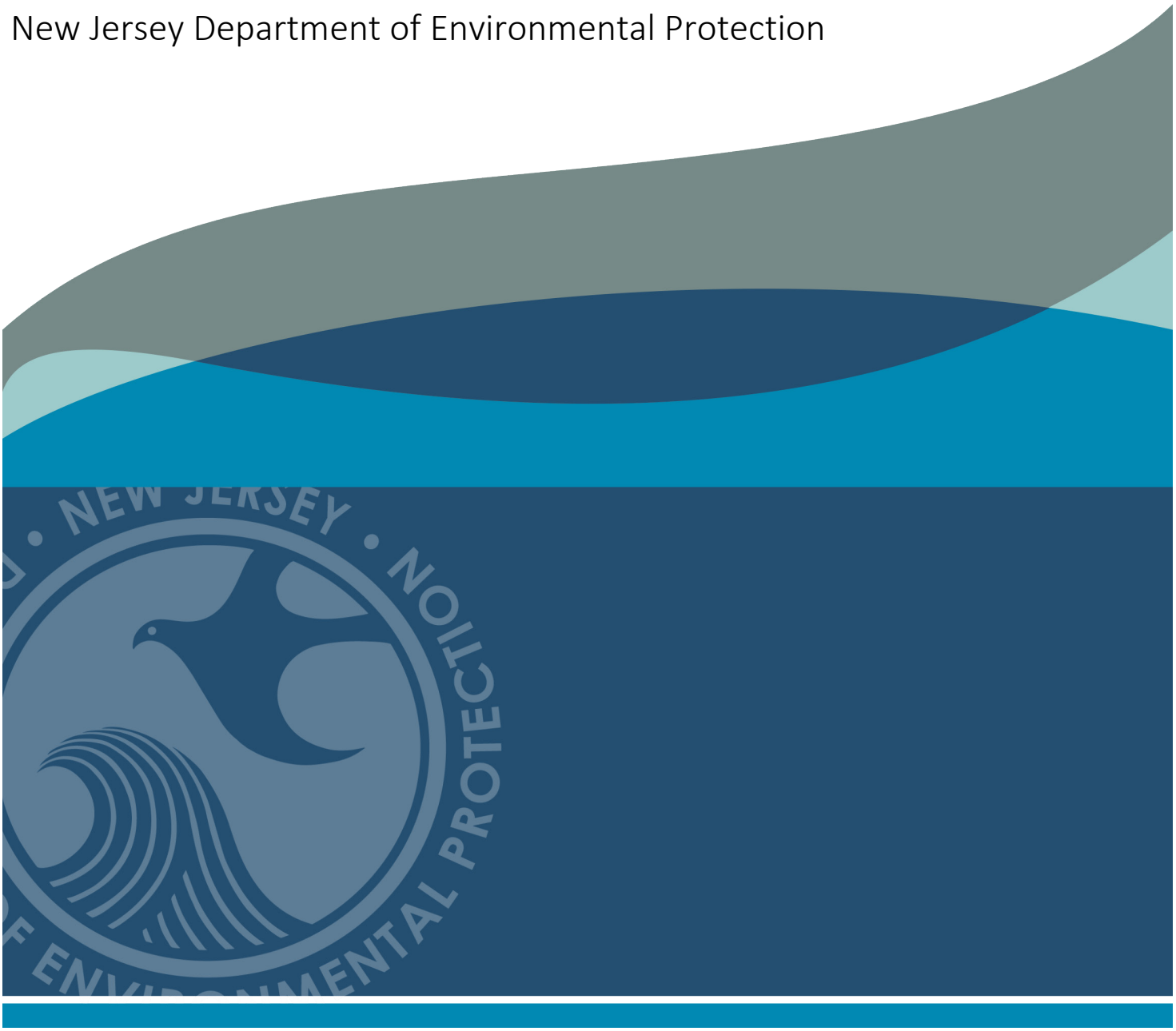
Ground Water Remedial Action Permit Guidance Document

Contaminated Site Remediation & Redevelopment Program

New Jersey Department of Environmental Protection



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Appendices

I. Intended Use of Guidance Document

This guidance is designed to assist the person responsible for conducting the remediation (PRCR) to determine when a Ground Water Remedial Action Permit (RAP) Application should be submitted and by whom and to assist in navigating the Ground Water RAP process. This guidance will be used by many different people involved in the remediation of a contaminated site, such as permit applicants, permittees, Licensed Site Remediation Professionals (LSRPs), non-LSRP environmental consultants and other environmental professionals. Therefore, the generic term "investigator" will be used to refer to any person, including the remediating party itself, that uses this guidance to remediate a contaminated site on behalf of a remediating party.

In applying administrative guidance, the New Jersey Department of Environmental Protection (NJDEP or Department) recognizes that professional judgment may result in a range of interpretations on the applications of the guidance to site conditions. The deviations from this guidance should be documented in the submittal. This guidance is not intended to supersede any rule or regulation.

This administrative guidance was prepared with stakeholder input. The following people were on the committee who prepared this document:

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II. Purpose

Ground water is a receptor pursuant to N.J.A.C. 7:26E-1.8 and 1.14. The Ground Water Quality Standards (GWQS) establish classes of ground water according to the hydrogeologic characteristics of the ground water resource and the designated use(s) to be maintained, restored, and enhanced within each

classification area. Designated uses include maintenance of special ecological resources, provision of and conversion to potable water (drinking water), agricultural and industrial water supply, and other reasonable uses.

A Ground Water RAP establishes the regulatory mechanism for operating and maintaining long term ground water remedial actions, including monitoring their effectiveness, and sets the schedule for the submittal of biennial certifications. A Ground Water RAP is needed whenever ground water contamination exceeding the Ground Water Remediation Standards (GWRS) (N.J.A.C. 7:26D-2.2) remain after a ground water remedial action has been demonstrated to be protective of human health and safety and the environment. A Ground Water RAP always includes a Classification Exception Area (CEA) and may include an engineering control (N.J.A.C 7:26C-7.1(a)). If the CEA is related to historic fill or Historically Applied Pesticides (HAP), or both, then a Ground Water RAP Application is not required. However, an CEA/WRA Fact Sheet Form is required for an CEA related to historic fill or HAP, or both. It is recommended that the CEA/Well Restriction Area (WRA) Fact Sheet Form for historic fill or HAP, or both, be submitted with the Soil RAP Application, if applicable. An CEA is not required for ground water contamination associated with an off-site source or from naturally occurring conditions.

An Initial Ground Water RAP can be obtained when all conditions outlined in this guidance document are demonstrated. This document provides guidance on submitting a successful Ground Water RAP Application.

Notes:

i. In addition to reading this document, read the instructions for the Ground Water RAP Application forms (https://www.nj.gov/dep/srp/srra/forms/) prior to submitting a Ground Water RAP Application. Be advised that all RAP Application forms have an "Other Information Provided" section that can be used for professional judgment justification, variances from rules, deviations from guidance, etc.

ii. The investigator should be cognizant of mandatory and regulatory timeframes when performing the work needed to meet the conditions for an Initial Ground Water RAP. See the July 20, 2020 Remedial Action Extension Requests and Timeframe Reminders and January 4, 2021 Remediation Timeframe Notifications Listservs as they relate to this matter (https://www.nj.gov/dep/srp/srra/listserv_archives/).

iii. A separate Initial Ground Water RAP Application, CEA/WRA Fact Sheet Form, and Ground Water Monitoring Plan (GWMP) are recommended, but not required, for each distinct source area/ground water contaminant plume at the site. This recommendation is based on several reasons, including CEA durations that will vary by contaminants of concern, smaller GWMP, and potentially fewer modifications to a Ground Water RAP, which helps streamline the review of the Ground Water RAP Application. Please contact BRAP at (609) 984-2990 for any questions on this recommendation.

III. When to Submit a Ground Water Remedial Action Permit Application

Monitored Natural Attenuation (MNA) and Active Remediation System are the two types of Ground Water RAPs that can be obtained from the Department. MNA is when natural attenuation processes have been demonstrated to be effective at degrading or destroying ground water contamination remaining at a site as discussed in the MNA Technical Guidance document. Active Remediation System is when a

physical process/on-going ground water remedy has been demonstrated to be effective at degrading, destroying or removing ground water contamination remaining at a site.

For cases with a Technical Impracticability (TI) determination, the long-term monitoring will be performed under an Active Remediation System Ground Water RAP. The Department understands that there may be certain situations where the conditions listed in the Ground Water RAP Application for Active Remediation Systems below cannot be met and may be a part of an TI Determination that should be made in conjunction with the TI Guidance document. For a Ground Water RAP that involves TI, it is strongly recommended that a joint technical consultation occur with both the Bureau of Ground Water Pollution Abatement (BGWPA) and the Bureau of Remedial Action Permitting (BRAP) prior to application submission (https://www.nj.gov/dep/srp/srra/technical_consultation/).

The Ground Water RAP Application can be submitted once a ground water remedial action has been implemented and determined to be protective as follows:

1. Ground Water RAP Application for MNA:

   a. For an MNA Ground Water RAP, the long-term remedy involves the on-going monitoring of ground water contamination and natural attenuation processes. All sources of ground water contamination associated with the CEA are being addressed as discussed in the MNA Technical Guidance.

   b. Ground water monitoring has demonstrated that MNA is an appropriate remedy for ground water. This should include a minimum of eight (8) rounds of performance monitoring ground water data collected over at least a 2 year period to demonstrate a decreasing trend of contaminant concentrations and to support MNA. Of these 8 rounds, four consecutive quarterly ground water monitoring events are necessary to evaluate spatial and temporal distribution. This ground water monitoring should not include ground water data collected before or during an active remedy. If an in-situ treatment was conducted, consistent with the In Situ Design and Performance Monitoring Technical Guidance, the first round of data to be used to document MNA should be obtained after the in-situ remedy is complete and data demonstrate that any active remediation reagents (exclusive of catalysts, carriers, etc.) have been depleted. Refer to the associated guidance within the Department's MNA Technical Guidance and In Situ Design and Performance Monitoring Technical Guidance documents for more information.

   c. MNA of free product and residual product is prohibited (see N.J.A.C. 7:26E-5.1(e)). All free product and residual product, as determined to be present in accordance with N.J.A.C. 7:26E-2.1(a)14, in the unsaturated and saturated zones has been treated or removed for all area(s) of concern (AOCs) associated with the CEA. Areas in the vicinity of monitoring wells that have had a history of free product should be thoroughly investigated prior to the conclusion of the remedial action and the submission of a Ground Water RAP Application for MNA. Maps and cross-sections depicting the farthest extent of free and residual product, as well as all prior and current sources of ground water contamination, should be provided in the Remedial Action Report (RAR). Investigations should have been performed throughout the mapped free and residual product area. This includes the area within the effective radius of influence of any prior active remediation that was performed for that area and outside the effective radius if the mapped extent of product extends beyond the areas remediated (i.e., post-remedial sampling). Guidance for determining if NAPL product is present is found in the Department's Ground Water Technical Guidance: Site Investigation, Remedial Investigation, and Remedial Action Performance Monitoring (Ground Water SI/RI/RA Technical Guidance), In Situ Remediation: Design Considerations and

Performance Monitoring Technical Guidance, Soil and Soil Leachate Remediation Standards for the Migration to Ground Water Exposure Pathway Basis and Background, and the Evaluation of Extractable Petroleum Hydrocarbons in Soil Technical Guidance documents.

All information describing how free and residual product have been addressed should be contained within the RAR submitted, and if necessary, Section K of the Ground Water RAP Application for MNA. The Ground Water RAP Guidance and Section 8 of the In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance provide additional guidance on what should be included in the RAR. See the Department's September 2, 2020, listserv regarding free and residual product and RAPs.

d. All soil contamination in the unsaturated zone has been remediated to the applicable numeric or narrative standards, as appropriate, for the Soil Remediation Standard for the Migration to Ground Water (SRS-MGW) exposure pathway for all AOCs associated with the CEA.

e. Pursuant to N.J.A.C. 7:26E-4.3(a), all ground water contamination has been horizontally and vertically delineated to the GWRS consistent with the Department's Ground Water SI/RI/RA Technical Guidance document and the Department's policy statements. Modeling/extrapolation of the ground water contamination/plume may be acceptable at the remedial investigation phase, but **is not** acceptable at the conclusion of the remedial action; as indicated in Section IV of the Department's Policy Statement: Interpretation of Technical Requirements for Site Remediation Requirement to "complete the remedial investigation" (see Section XII for where to find this policy statement), delineation must be established through collection of actual ground water samples in all directions with justification as to how delineation is complete.

   Vertical delineation of the ground water contamination should be completed at or as close as possible downgradient of the former AOC/source area/excavation area, consistent with the Ground Water SI/RI/RA Technical Guidance. If the ground water contaminant plume has migrated away from the former AOC/source area/excavation area, then additional vertical delineation may be necessary to establish plume geometry. Vertical profiling of a source area well may satisfy the vertical delineation requirements, if the well construction is appropriate for this purpose (i.e., sufficient saturated screen length).

   If an aquitard (e.g., confining layer) is encountered while performing vertical delineation, ground water sampling should occur as close as possible to the aquitard interface before sampling within the aquitard. Should ground water contamination exist immediately above the aquitard, then investigation is needed to show that contamination is not vertically migrating or diffusing into the aquitard. The amount of investigation will depend on several factors including, but not limited to, the characteristics of the confining layer (e.g., hydraulic conductivity, thickness, lateral extent relative to the plume), vertical flow gradients, and the magnitude and distribution of the contamination. In some situations, confirmatory sampling may be needed below the aquitard.

   If the ground water contamination is in bedrock, then bedrock should be adequately characterized, and ground water contamination delineated consistent with Section 3.4 of the Department's Ground Water SI/RI/RA Technical Guidance document.

   Ground water sampling should be performed in accordance with Section 6.9 of the Department's Field Sampling Procedures Manual, Chapter 6 and deviations documented as appropriate.

f. The ground water plume is **not** impacting the sentinel well(s). A "clean" (below the GWRS) sentinel well is required for the monitoring of the fate and transport of the ground water

contaminant plume. An alternate method may be appropriate if a sentinel well is not possible (e.g., surface water sampling). Technical justification should be provided to support the location selected for the sentinel well(s), such as delineation and fate and transport modeling. Be advised that the further away the sentinel well is installed then the more receptors that may need to be evaluated since the CEA should be drawn to clean sampling/sentinel points at the remedial action stage. Please see the Department's Ground Water SI/RI/RA Technical Guidance document.

g. The ground water remedial action is demonstrated to be protective of public health and safety and the environment. This includes an evaluation of all potential receptors as required by the Technical Requirements for Site Remediation (TRSR), N.J.A.C. 7:26E and all applicable guidance.

   Vapor Intrusion (VI): As noted in Section 2.1.1 of the Department's Vapor Intrusion Technical (VIT) Guidance document, when determining which buildings should be investigated, the trigger distances are applied from the edge of the ground water plume based on linear interpolation of the ground water data as defined by exceedances of the VI Ground Water Screening Levels. It is not appropriate to apply the VI sampling trigger distance based solely on the location of a monitoring well. The investigator should not conclude that the VI pathway is incomplete based on the collection of a ground water sample at a distance less than the prescribed criterion. The trigger distances are based on the migration of vapors through the vadose zone irrespective of the presence of contaminated ground water within that distance. The criteria are also applied exclusively to the horizontal or vertical distance from the contaminated ground water plume.

   Door-to-Door Survey/Potable/Irrigation Well Sampling: When ground water flow direction is variable, the door-to-door survey and potable/irrigation well sampling trigger distance should be 500 feet in all directions.

h. Any engineering control(s) necessary, including VI mitigation system(s) or Point of Entry Treatment (POET) water system(s), has been implemented. See N.J.A.C. 7:26E-1.8 for the definition of an engineering control.

   Be advised that POET Systems or VI mitigation systems that have been installed as a result of ground water contamination should be included in the Ground Water RAP, and should be accounted for in the Financial Assurance (FA) established (unless the site is exempt from the FA requirements). An VI mitigation or POET system that was not installed as part of the remediation (i.e., was not installed as a requirement to address site related contamination) is not considered an engineering control for the site.

Note: FA, if required, has been established for the operation, maintenance, and monitoring of any engineering control(s) necessary for the duration the engineering control(s). If it is determined that the engineering control will be required in perpetuity, then this time period equates to a rolling 30-year period that FA will be required. Refer to Section VI below for additional information on FA.

2. Ground Water RAP for Active Remediation Systems:

   a. For an Active Remediation System Ground Water RAP, the long-term remedy involves the continuous active treatment of ground water contamination, including free and residual product. The Department is accepting traditional ground water remediation systems (e.g., pump and treat systems) as well as other remedial options such as in-situ technologies utilizing injections (e.g., chemical oxidation, bioremediation) and reactive barriers, as a long-term remedial action eligible for an Active Remediation System Ground Water RAP. The following ground water remedial actions are only considered short-term interim remedial measures (IRMs)/remedies that are not

appropriate for an Active Remediation System Ground Water RAP: free product recovery in the form of socks/sorbent pads, High Intensity Targeted (HIT)/Enhanced Fluid Recovery (EFR) events, and/or manual recovery (e.g., bailing) of free product in impacted wells. These methods of free product recovery are only acceptable as short-term IRMs when source material (i.e., residual product in soil) is being investigated and remediated.

If remedial injections associated with in situ technologies are to be a part of an Active Remediation System Ground Water RAP, then the injections should be performed at an appropriate frequency (e.g., weekly, monthly, quarterly). The Department will only issue an Initial Active System Ground Water RAP for applications that include a Department (BGWPA) approved Discharge To Ground Water (DGW) Permit-By-Rule Authorization Request for a long-term ongoing duration injection (greater than 2 years). In addition, an appropriate monitoring well network should be installed, including downgradient, side-gradient, and vertical sentinel wells, to monitor for any vertical and horizontal mobilization of contaminants due to the injections pursuant to N.J.A.C. 7:26E-5.6(b)8 and the In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance and the Ground Water - SI/RI/RA Technical Guidance documents.

b. Ground water monitoring has demonstrated that the active remedy is appropriate for ground water. At the time of the Ground Water RAP Application, the active ground water remediation system must be effectively operating and functioning as designed. This should include the collection of a minimum of four (4) consecutive quarterly rounds (total of 1 year) of ground water data following the full operation of the system.

c. All free and/or residual product in the unsaturated zone has been treated or removed and all free and/or residual product in the saturated zone is being treated or has been treated/removed for all AOCs associated with the CEA (see N.J.A.C. 7:26E-5.1(e)). Active Remediation System Ground Water RAP Applications that include the long-term treatment of free or residual product should contain a RAR that addresses the full characterization, delineation, and remediation of the source of the contamination, and demonstrates the effectiveness of the remedy that addresses the long-term treatment of any free and residual product. Product that is technically impracticable to treat or remove should be contained. See the top of this section as it relates to cases with a TI determination.

d. All soil contamination in the unsaturated zone has been remediated to the applicable numeric or narrative standard, as appropriate, for the SRS-MGW exposure pathway for all AOCs associated with the CEA.

e. Pursuant to N.J.A.C. 7:26E-4.3(a), all ground water contamination has been horizontally and vertically delineated to the GWRS. Be advised that modeling/extrapolation of the ground water contamination/plume may be acceptable at the remedial investigation phase, but **is not** acceptable at the conclusion of the remedial action; as indicated in Section IV of the Department's Policy Statement: Interpretation of Technical Requirements for Site Remediation Requirement to "Complete a Remedial Investigation" (see Section XII for where to find this policy statement), delineation must be established through collection of actual ground water samples in all directions with justification as to how delineation is complete.

   Vertical delineation of the ground water contamination should be completed at or as close as possible downgradient of the former AOC/source area/excavation area, consistent with the Ground Water SI/RI/RA Technical Guidance. If the ground water contaminant plume has migrated away from the former AOC/source area/excavation area, then additional vertical delineation may be

necessary to establish plume geometry. Vertical profiling of a source area well may satisfy the vertical delineation requirements, if the well construction is appropriate for this purpose (i.e., sufficient saturated screen length).

If an aquitard (e.g., confining layer) is encountered while performing vertical delineation, ground water sampling should occur as close as possible to the aquitard interface before sampling within the aquitard. Should ground water contamination exist immediately above the aquitard, then investigation is needed to show that contamination is not vertically migrating or diffusing into the aquitard. The amount of investigation will depend on several factors including, but not limited to, the characteristics of the confining layer (e.g., hydraulic conductivity, thickness, lateral extent relative to the plume), vertical flow gradients, and the magnitude and distribution of the contamination. In some situations, confirmatory sampling may be needed below the aquitard.

If the ground water contamination is in bedrock, then bedrock should be adequately characterized, and ground water contamination delineated consistent with Section 3.4 of the Department's Ground Water SI/RI/RA Technical Guidance document.

Ground water sampling should be performed in accordance with Section 6.9 of the Department's Field Sampling Procedures Manual, Chapter 6 and deviations documented as appropriate.

f. The ground water plume is **not** impacting the sentinel well(s). All Ground Water RAPs are required to have a "clean" (below the GWRS) sentinel well for the monitoring of the fate and transport of the ground water plume. An alternate method may be appropriate if a sentinel well is not possible (e.g., surface water sampling).

g. The ground water remedial action is demonstrated to be protective of public health and safety and the environment. This includes an evaluation of all potential receptors as required by N.J.A.C. 7:26E and all applicable guidance.

   VI: As noted in Section 2.1.1 of the Department's VIT Guidance document, when determining which buildings should be investigated, the trigger distances are applied from the edge of the ground water plume based on linear interpolation of the ground water data as defined by exceedances of the VI Ground Water Screening Levels. It is not appropriate to apply the VI sampling trigger distance based solely on the location of a monitoring well. The investigator should not conclude that the VI pathway is incomplete based on the collection of a ground water sample at a distance less than the prescribed criterion. The trigger distances are based on the migration of vapors through the vadose zone irrespective of the presence of contaminated ground water within that distance. The criteria are also applied exclusively to the horizontal or vertical distance from the contaminated ground water plume or product contaminated area.

   Door-to-Door Survey/Potable/Irrigation Well Sampling: When ground water flow direction is variable, the door-to-door survey and potable/irrigation well sampling trigger distance should be 500 feet in all directions.

h. Any engineering control(s) necessary, including VI mitigation system(s) or Point of Entry Treatment (POET) water system(s), has been implemented. See N.J.A.C. 7:26E-1.8 for the definition of an engineering control.

   Be advised that POET Systems or VI mitigation systems that have been installed as a result of ground water contamination should be included in the Ground Water RAP, and should be accounted for in the FA established (unless the site is exempt from the FA requirements). An VI mitigation or POET system that was not installed as part of the remediation (i.e., was not installed

as a requirement to address site related contamination) is not considered an engineering control for the site.

Note: FA, if required, has been established for the operation, maintenance, and monitoring of any engineering control(s) necessary for the duration the engineering control(s). If it is determined that the engineering control will be required in perpetuity, then this time period equates to a rolling 30-year period that FA will be required. Refer to Section VI below for additional information on FA.

3. LSRP Retention:

All RAPs must be issued by the Department prior to the LSRP issuance of a Response Action Outcome (RAO) pursuant to N.J.A.C. 7:26C-Appendix D. An LSRP shall be retained to manage, supervise, or perform the requirements of the RAP for the duration of the RAP pursuant to N.J.S.A. 58:10C-19. Note that all permittees are required to comply with the RAP; however, the Department will contact the permittee with "Primary Contact for Permit Compliance" as indicated on the Ground Water RAP Application first for initial compliance issues with the RAP followed by contact with other permittees as necessary.

The Department considers the LSRP who submits the RAP Application to be the LSRP retained for the RAP after the RAO is issued. If the LSRP is dismissed by the permittee or dismisses him/herself for the RAP any time after the issuance of the RAO, the LSRP shall submit the Licensed Site Remediation Professional Notification of Retention or Dismissal Form online and the permittee(s) shall retain another LSRP within 45 days pursuant to N.J.A.C. 7:26C-2.3. A permittee that fails to retain a new LSRP within 45 days will be deemed out of compliance and subject to potential enforcement actions.

Note: Certain Traditional Oversight Cases do require retention of an LSRP pursuant to N.J.A.C. 7:26C-2.3(a). For Traditional Oversight Cases, contact the Bureau of Case Management (BCM) at (609) 633-1455 to determine if a Ground Water RAP and LSRP is required for those cases.

IV. Permittees

1. Permittees for a Ground Water RAP include, but are not limited to:
    a. PRCR; this includes any person who has received a Restricted or Limited Restricted Use No Further Action (NFA) Letter
    b. Statutory Permittee
    c. Owner and operator of an underground storage tank facility
    d. Owner and operator of an industrial establishment
    e. Any person in any way responsible for a discharge
    f. Any other person that will be assuming responsibility for permit compliance, such as operators or tenants

    Note: See N.J.A.C. 7:26C-2.2 and 7.4 for the full list.

2. If there is more than one permittee pursuant to above, each entity/person, as a co-permittee, is jointly and severally liable for:
    a. Compliance with the conditions of an RAP pursuant to N.J.A.C. 7:26C-7.7 and 7.8
    b. Payment of all RAP fees pursuant to N.J.A.C. 7:26C-4

c. Payment of penalties for violations of an RAP pursuant to N.J.A.C. 7:26C-9

d. Maintenance of FA for engineering controls pursuant to N.J.A.C. 7:26C-7.10

3. Once the Ground Water RAP has been issued, the PRCR can only be changed/modified if the PRCR no longer exists and documentation is submitted. If the contact information (contact name, phone number, and email address) for the PRCR needs to be updated, use the RAP Contact Information Change form (available at www.nj.gov/dep/srp/srra/forms/). Additional permittees may be added to an RAP at any time by submitting a Ground Water RAP Modification Application (Addendum A).

4. Administrative Guidance Regarding Permittee Documentation for Ground Water RAP Applications:

   a. PRCR No Longer Exists: If an PRCR cannot be found for a Ground Water RAP Initial (NFA Letter) or Modification (NFA Letter or RAO) Application**,** then document a good faith effort to locate the PRCR who received the NFA letter or RAO; this includes but is not limited to, the use of certified letters, business databases, phone logs, and internet searches.

      If the PRCR who received the NFA letter or RAO no longer exists, provide appropriate documentation; this includes but is not limited to, bankruptcy court filings (e.g., Notices of Discharge, approved bankruptcy plans, etc.), and business database printouts. If it is documented that the PRCR does not exist, then the Department will not include that entity as a permittee on the Ground Water RAP.

   b. Signatures: Prior to the submission of a Ground Water RAP Application, there may be circumstances where a signature cannot be obtained. In these situations, a copy of the completed permit application excluding the signature should be provided to the entity whose signature cannot be obtained. A copy of the letter transmitting the permit application to the missing entity must be included with the application submitted to the Department. The Department will then put the entity as a permittee on the Ground Water RAP in accordance with N.J.A.C. 7:26C-7.

   c. Contact Information: All contact information provided in the Ground Water RAP Application should be for the PRCR and current property owner, not the agent/person with power of attorney to sign this application on behalf of the PRCR and current property owner. "Care of" (C/O) is not acceptable unless it is for a special circumstance (e.g., condo association, or person requiring special assistance); if this is the case, then explain why and provide additional documentation as necessary.

   d. Property Owner/Tax Database: Verify the property owner's name and address via checking a property tax database. The Department uses the following tax databases to cross-check the submittal: eTaxmaps.com and https://tax1.co.monmouth.nj.us/cgi-bin/prc6.cgi?district=1301&ms_user=monm. If there is a discrepancy from what is in these tax databases (e.g., tax database not yet updated and the municipal tax office was called to verify information), then provide an explanation in Section K (Other Information) of the Ground Water RAP Application.

   e. Addendum Pages to RAP Application (Modification, Transfer/Change of Property Ownership, and Termination): All Addendum pages for Additional PRCRs and owners that are listed on an RAP should be completed for all subsequent RAP Applications submitted.

V. Classification Exception Area (CEA)

Ground water CEA means any such area defined by the GWQS, N.J.A.C. 7:9C-1.6 and is an institutional control pursuant to N.J.A.C. 7:26E-1.8. An CEA proposal is required for the remedial investigation to be complete pursuant to N.J.A.C. 7:26E-4.3(a)7. Establishing an CEA at the remedial investigation stage can be accomplished by submitting an CEA/WRA Fact Sheet Form with the Remedial Investigation Report for the site. Modeling/extrapolation of the ground water contamination/plume is not acceptable at the remedial action stage where delineation must be established through collection of actual ground water samples in all directions with justification as to how delineation is complete as indicated in Section III above. Establishment of an CEA at the RI stage does not trigger the submittal of a Ground Water RAP Application.

1. CEA Revisions and New CEAs (if not previously established at the RI stage): The following items should be included with new or revised CEA proposals at the remedial action stage:
    a. Check property block and lot numbers to ensure that the current block and lot numbers for the CEA are being used.
    b. The boundaries of the CEA shape should be drawn to the required clean (at or below the applicable GWRS) ground water sampling points in all directions at the remedial action stage unless sufficient information exists that supports a smaller CEA footprint.
    c. The vertical depth of the CEA listed on the CEA/WRA Fact Sheet Form should be based on clean (at or below the applicable GWRS) vertical ground water sampling data for the site.
    d. It is recommended to provide more than one cross-section map (parallel and perpendicular to ground water flow direction for unconsolidated formations and strike and dip for bedrock) to show the stratigraphy/geology beneath the site.
    e. Total Synthetic Organic Chemicals [SOCs or Tentatively Identified Compounds (TICs)] equals the sum of Volatile Organic (VO) TICs plus Semi-Volatile Organic (SVO) TICs and should be listed on the CEA/WRA Fact Sheet Form as such. The highest individual TIC used to calculate the Total TICs should be the highest of the VO or SVO TICs. Note that a contaminant of concern that has a GWRS should not be included when calculating the Total TIC. If you are removing a contaminant of concern from the Total VO or SVO TIC list, then the next individual TIC with the highest concentration should be added to ensure a total of 15 for each VO and SVO TIC list, if applicable.
    f. Two rounds of ground water data below the GWRS for each contaminant of concern that account for seasonal fluctuation is required to remove that contaminant from the CEA.
    g. The Department considers any sample where the GWRS/Method Detection Limit (MDL) cannot be achieved for a contaminant of concern to be an exceedance for that contaminant that should be included in the CEA.

These CEA revisions should be made on the CEA/WRA Fact Sheet Form submitted concurrently with the Ground Water RAP Application.

2. CEA Expiration: If the expiration of the CEA is nearing (or has passed) for a Ground Water RAP, then the investigator should sample ground water to demonstrate that:
    - the GWRS have been attained pursuant to N.J.A.C. 7:26C-7.9(f) and the Ground Water RAP can be terminated; or

- ground water contamination remains above the GWRS requiring revision of the CEA and modification of the Ground Water RAP.

If the CEA has expired for a Ground Water RAP, then the Ground Water RAP should either be modified or terminated within 180 days of CEA expiration based on analytical ground water data. See the Ground Water RAP Modification and Termination sections below as it relates to the matter.

Refer to the CEA Guidance document for additional information on establishing, revising, and the lifting/removing of CEAs.

VI. Financial Assurance

FA is required if the remedial action includes an engineering control as defined in N.J.A.C. 7:26E-1.8. For Ground Water RAPs, this generally includes a remedial ground water or VI engineering control. If the remedial action does not include an engineering control, then FA is not required for the Ground Water RAP.

1. When FA is Required:

   FA must be established and submitted with the Ground Water RAP Application unless all permittees are exempt from establishing FA pursuant to N.J.A.C. 7:26C-7.10(c). If one or more permittees is required to establish FA, and one or more of the permittees is exempt from this requirement, the non-exempt permittee(s) shall have the requirement to establish the full amount of the FA required. The following persons do not have an obligation to establish FA:

   a. a government entity, including Departments, Agencies, and public universities;

   b. a person who is not otherwise liable for cleanup and removal costs pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11, who purchased a contaminated site prior to May 7, 2009, and is remediating, or has remediated, the contaminated site pursuant to N.J.S.A. 58:10-23.11g.d;

   c. a person who undertakes remediation at their primary or secondary residence;

   d. the owner or operator of a childcare center who performs remediation at the licensed childcare center;

   e. the PRCR at a public or private school, including charter schools; and

   f. the owner or operator of a small business who is responsible for performing a remediation at his or her business property. N.J.A.C. 7:26C-1.3 defines a "Small Business" as a business entity that does not acquire property for development or redevelopment, and that, during the prior three tax years, employed not more than 50 full-time employees or the equivalent thereof, and qualifies as a small business concern within the meaning of the federal "Small Business Act," 15 U.S.C. section 631 et seq.

      Note: The certification to any of the above claims as provided on the Ground Water RAP Applications may require further documentation to prove that you meet one of these eligible entities.

   An FA instrument is typically not required when the current property owner is a homeowner association or condominium association, and the association's annual budget includes the operation, maintenance, and monitoring of the engineering control(s) at the site [N.J.A.C. 7:26C-

5.3(e)]. A copy of the association's annual budget that includes a separate line item identifying the appropriation of funds for the operation, maintenance, and monitoring of the engineering control should be provided with the Ground Water RAP Application and any subsequent Ground Water Remedial Action Protectiveness/Biennial Certification Forms submitted for the site. If the Association is ever unable to meet this requirement, then the PRCR is required to establish the FA for the Ground Water RAP if they are not exempt pursuant to N.J.A.C. 7:26C-7.10(c).

If it is determined that FA must be established for the site, then a completed Remediation Cost Review and RFS-FA Form which describes how the LSRP estimated the amount of the FA should be submitted with the Ground Water RAP Application. This form can be found at www.nj.gov/dep/srp/srra/forms. Attach the original FA instrument(s) if available or a copy if the person is using an existing Remediation Funding Source (RFS) instrument as FA.

2. FA Instruments:

The following financial instruments are acceptable as FA:

a. a Remediation Trust Fund in accordance with N.J.A.C. 7:26C-5.4;

b. an Environmental Insurance Policy in accordance with N.J.A.C. 7:26C-5.5*;

c. a Line of Credit in accordance with N.J.A.C. 7:26C-5.6;

d. a Letter of Credit in accordance with N.J.A.C. 7:26C-5.7; and

e. a Surety Bond in accordance with N.J.S.A. 58:10-19c(1).

Note: A Self-Guarantee is not acceptable as FA.

*Environmental Insurance Policy Requirements: N.J.A.C. 7:26E-5.5 allows for an insurance policy to act as FA. Insurance policies are reviewed on a case-by-case basis for compliance with the requirements outlined in N.J.A.C. 7:26C-5.5. In general, insurance companies will not issue a new policy for this purpose, but many PRCRs are conducting remediation with funds from a pre-existing insurance policy. In such cases, the older policy often does not meet the requirement of N.J.A.C. 7:26E-5.5(a)7, i.e., that the Department be listed as the insured. The policy itself must be changed or an official rider added to the policy to add the Department as an additional insured. Also, there must not be any deductibles or exclusions. The willingness of insurance companies to update a policy to meet the requirements varies widely in the industry. If the insurance company is not willing to change the policy, then another financial instrument must be used.

Refer to the "Remediation Funding Source (RFS) Cost Guidance" for model FA documents at https://nj.gov/dep/srp/guidance/rfsguide/; scroll down to "Financial Assurance (FA) – (*to be used for Remedial Action Permits only*)" where documents for the correct models are provided (e.g., "Remediation Trust Fund Agreement for FA", "Line of Credit Agreement for FA", etc.). **Using the Remediation Funding Source models will not be accepted.**

3. Calculating FA:

The investigator is responsible for determining the amount of funds needed to operate, maintain, and monitor the engineering control(s) at the site, including permit fees, for as long as the engineering control(s) are needed, up to thirty (30) years (minimum of $30,000 for a 30-year period) pursuant to N.J.A.C. 7:26C-5.2(e) and 7.10.

The costs are evaluated over the duration that the engineering control will be in place. For a site

with simple engineering controls (e.g., VI mitigation system), the minimum calculation would be $30,000. For sites with more complicated controls (e.g., remediation treatment systems), the cost may be higher. For complicated sites, commercially available software may be used to calculate FA (e.g., RACER, Cost Pro).

4. Present Value Calculation:

   The investigator may elect to use a Present Value (PV) calculation and discount rate to determine the amount of FA to be established. The Department requires that all assumptions for the calculation be disclosed, and justification/explanation of the applied assumptions be provided.

   A published rate (e.g., the most recent Nominal or Real Discount rates from Appendix C of the Federal Office of Management and Budget (OMB) Circular No, A-94 may be used as an approximate discount rate. This OMB Circular No. A-94 Appendix C provides different rates for periods of 3 years, 5 years, 7 years, 10 years, 20 years, and 30 years.

   For a permanent ground water engineering control, the rate should be based on 30 years. For non-permanent engineering controls, the discount rate corresponding to the appropriate time period may be used.

   PV uses the estimated interest over 30 years to reduce the amount of FA to be posted. The "discount rate" is the average rate of interest expected over the 30-year period.

   Example:

   The investigator concludes that the minimum $30,000 should be sufficient for a site. The investigator is using a trust fund as the FA for the site. The investigator contacts the trust fund trustee to determine the interest rate. The trustee says the interest rate is 1.36% for the firm's account. The investigator uses the following formula:

   $ amount to be posted = Original FA Value / (discount rate)^{30}

   $(amount to be posted) = $30,000 / (1.0136)^{30}

   The amount to be posted for FA is $20,000.

   The investigator instructs the permit applicant and the trustee to use the FA model Remediation Trust Fund Agreement and establish a trust fund for $20,000. The investigator submits the trust fund agreement, calculations, and justification attached to a Remediation Cost Review and RFS/FA Form with the Ground Water RAP Application.

   Be advised that, if PV calculations are used, the Department may draw down on the FA at any time.

5. Using Part of an Existing RFS Instrument as FA:

   In this scenario, one instrument is maintained for both RFS and FA until all AOCs have been remediated and an RAO can be issued for the case. Annual cost reviews and biennial certifications are required and must indicate "Using RFS as FA" under Section C of all the Remediation Cost Review and RFS/FA Forms submitted.

   If an investigator is using an existing RFS instrument as the FA for the site, then all three of the following criteria must be met:

a. The amount of funds needed to operate, maintain, and monitor the engineering control(s) at the site must be a minimum of $30,000 for a 30-year time frame.

b. The amount of the funds in the existing RFS is equal to the amount of the funds required to be posted for both RFS and FA.

c. The RFS must not be in the form of a self-guarantee. If the RFS is in the form of a self-guarantee, you cannot use the existing RFS, but must obtain a separate financial mechanism for FA.

6. Transitioning an Existing RFS Instrument to FA:

To transition an existing RFS instrument to FA, the following criteria must be met:

a. The LSRP will be issuing an RAO (i.e., RAO-A for all AOCs for the case or an RAO-E for the entire site) following the issuance of the Ground Water RAP for which the RFS will be used as FA. In other words, there are no remaining AOCs which require remediation at the site. If there are remaining AOCs, RFS is still required, and the RFS cannot be transferred to the RAP.

b. The amount of the funds in the RFS instrument is equal to the amount of the funds required to be posted for FA at the time the Ground Water RAP Application is submitted. If the amount of the funds in the RFS is either greater than or less than the amount required for FA, the person must follow the requirements at N.J.A.C. 7:26C-5.11 to either increase or decrease the funds PRIOR TO the submission of the Ground Water RAP Application.

c. The RFS must not be in the form of a self-guarantee or line of credit. If the RFS is in the form of a self-guarantee or line of credit, the permittee cannot use the existing RFS, but must obtain a separate FA mechanism.

If an investigator is using an existing RFS as FA and had previously submitted the Remediation Cost Review and RFS-FA Form in order to adjust the amount of the RFS so that it is equal to the FA, the investigator may submit a copy of that form with the Ground Water RAP Application.

Also, the RFS Instrument (Letter of Credit, Remediation Trust Fund or Environmental Insurance Policy) must be changed from the RFS Model format to the FA Model format. For Letter of Credit, this will entail an amendment from the bank to change the language and/or amount. For a Remediation Trust Fund, the Trustee and Grantor may sign and submit an amendment to the Remediation Trust Fund Agreement for the Department to sign (for most agreements, Section 16 of the Remediation Trust Fund Agreement allows this). Alternatively, a new Remediation Trust Fund Agreement can be drafted and the Department can return the old Remediation Trust Fund Agreement. Lines of credit may not be amended, and new line of credit agreements must be submitted.

In general, transitioning a financial instrument from a Remediation Funding Source to FA is not a simple process, and it may be easier to submit a new financial instrument and request release of the RFS once the RAO is issued.

7. Change in FA Instrument:

If there is a change in the type of FA, then the Department will not authorize the release of an existing FA instrument until a new FA instrument is established and approved pursuant to N.J.A.C.

7:26C-5.11. The change of the FA instrument type is not considered a modification to the permit; however, if a letter of credit is replaced by a different financial instrument type, then annual valuation requirements will apply (even though they will not be in the RAP Schedule table). A Remediation Cost Review and RFS/FA Form is required to document any FA instrument change; it is recommended that the Remediation Cost Review and RFS/FA Form be submitted with the next Ground Water Remedial Action Protectiveness/Biennial Certification Form due for the site to support the change in the FA instrument. Note changing from one FA mechanism type to a new FA mechanism of the same type (i.e., Letter of Credit to a new Letter of Credit) is still considered a Change in FA instrument and requires a Remediation Cost Review and RFS/FA Form as noted above.

8. Change in FA Amount:

   There are instances in which the amount of FA might change (e.g., change in engineering control). When the amount of FA decreases, Department pre-approval is needed pursuant to N.J.A.C. 7:26C-5.11(b). When the amount of FA increases, then Department pre-approval is not needed pursuant to N.J.A.C. 7:26C-5.11(c). To implement any change in FA, submit the following:

   a. Remediation Cost Review and RFS/FA Form; it is recommended that the Remediation Cost Review and RFS/FA Form be submitted with the Ground Water Remedial Action Protectiveness/Biennial Certification Form due for the site to support the change in the FA amount.

   b. Cost estimates, calculations, and rationale.

   c. New financial instrument or amendment to existing financial instrument. In cases where a financial institution insists on sending the instrument or amendment directly, attach a copy. Ensure that the financial institution is sending to the correct address and that the financial institution is using the Program Interest (PI) # on the instruments or amendments. If it is discovered that the financial institution used the wrong address or did not use the PI #, notify the Department.

9. Disbursements from FA Instruments:

   There is some confusion caused by N.J.A.C. 7:26C-7.10(f), which suggests that permittees may draw down on FA. Only the Department may draw down on FA, and the Department may do so when the permittee has failed to comply with the permit requirements.

   FA must be maintained for the duration of the permit so any disbursement from a FA instrument would require an immediate increase to the FA back to the original amount.

10. Using One FA Instrument for Different Program Interest (PI) #s or RAP Types:

    It is acceptable to post one financial instrument for the total FA for two or more RAPs. Be advised that if the Department needs to draw down on FA for one of the permits, the Department will draw the entire amount, not just the amount that applies to the non-compliant permit. FA will have to be re-established for the other permits.

11. Using More Than One FA Instrument:

    It is acceptable to use more than one financial instrument to post FA.

VII. Initial Ground Water Remedial Action Permit

1. The PRCR shall obtain an Initial Ground Water RAP for the following:
   a. to support a Restricted or Limited Restricted Use RAO;
   b. to support a Post-NFA determination; the permit application will not be processed until all RAP annual fees and the Remedial Action Protectiveness/Biennial-Certification fees, including any past dues fees, have been paid in full;
   c. subdivision of the property subject to an existing Ground Water RAP unless the permit application is for a subdivision and the AOC/source area is limited to just one sub-divided parcel; or
   d. for other reasons (e.g., pursuant to N.J.A.C. 7:26C-14.3 for chromate chemical production waste).
2. To apply for an Initial Ground Water RAP, the statutory permittee shall submit the following required items:
   a. a hard copy ***and*** electronic copy of the completed RAP Initial Application – Ground Water using the current form available at www.nj.gov/dep/srp/srra/forms/. N.J.A.C. 7:26C-7.5(c)1 and (d)1;
   b. the appropriate RAP Application fee. N.J.A.C. 7:26C-7.5(c)7 and (d)8;
   c. a Ground Water RAR, approved by either the Department or LSRP, that demonstrates the effectiveness of the ground water remedial action to be monitored under the Ground Water RAP (see Sections III.1 and 2 above for what is required for a MNA and Active Remediation System Ground Water RAP, respectively). Submission of the RAR is now required through the online service (www.nj.gov/dep/online/) and should be submitted prior to submitting the Ground Water RAP Application. For Post-NFA cases, submit an electronic copy of the RAR on the required CD and any other pertinent reports/letters (e.g., Remedial Action Workplan (RAW) Approval Letters). N.J.A.C. 7:26C-7.5(c)3i and (d)4i.

      The Ground Water RAR shall meet the requirements of N.J.A.C. 7:26E-5.7(b). Ideally, the Soil RAR should be submitted before or with the Ground Water RAR. In addition, the Ground Water RAR shall include:

      - a description of the ground water remedial action for the AOC(s) associated with the Ground Water RAP Application;
      - a table summarizing the ground water sampling results by monitoring well and temporary well point (including depth of sample collection), including all historical/current ground water sampling data for all monitoring wells, temporary well points (including sample depths), contaminants of concern, ground water elevation (depth to water) data for the site, and ground water sample collection method (see Appendix 1 for table example);
      - a site map(s) depicting AOCs/source area(s)/excavation area(s), utilities, all monitoring wells and temporary well points on it, and shows how horizontal and vertical delineation of the ground water contamination was completed. Maps should also clearly indicate the areas where active remediation was conducted (e.g., soil removal actions/excavations, areas of in situ treatment, etc.);

- ground water contour maps for all the sampling events used to support the ground water remedial action;
- a table summarizing the monitoring well construction details [below ground surface (bgs)] for all site-related monitoring wells and temporary well points (former and current);
- detailed logs for all wells and borings conducted at the site;
- a discussion of vertical/horizontal delineation of the ground water contamination at the site, including evaluation of preferential pathways (e.g., utilities);
- a detailed discussion of how receptors were addressed (i.e., potable and irrigation wells, Tier 1 Well Head Protection Area (WHPA), VI, ecological receptors, etc.);
- a discussion if any product was found and how it was addressed. Include a detailed description of the remedial actions conducted at each AOC, maps, and cross-sections as applicable identifying the extent of product, any data that supports the delineation, and post-remedial sampling;
- ground water field sampling summary sheets for all the sampling events used to support the ground water remedial action; and
- a discussion of professional judgment and any variances from rules or deviations from guidance pursuant to N.J.A.C. 7:26E-1.6(b)4 and 1.7, if applicable.

Notes:

i. Every effort should be made to include appropriate source area monitoring point(s), including inside buildings when necessary. If a permanent well cannot be installed, then temporary well points should be used to document contamination. Multi-depth sampling should be conducted per the Ground Water - SI/RI/RA Technical Guidance, particularly when contaminants are present that have a density greater than water, regardless of concentration. Multi-depth sampling points should be conducted perpendicular to the ground water flow direction to evaluate contaminant distribution and identify the core of the plume and to generate transect maps. Transect maps should be based on the size of the source area and anticipated extent of contamination. See the Ground Water - SI/RI/RA Technical Guidance document for additional information.

ii. The Department's In-Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance document has additional discussion on RAPs (Section 7.3), and data evaluation, interpretation and how data should be submitted to the Department (Section 8).

d. Electronic copies of the supplemental information listed in Section F of the Initial RAP Application – Ground Water as applicable. N.J.A.C. 7:26C-7.5(c);

e. A completed CEA/WRA Fact Sheet Form, available at www.nj.gov/dep/srp/srra/forms/. N.J.A.C. 7:26C-7.5(c)2 and (d)2;

f. An GWMP and Schedule:

MNA Ground Water RAPs: An GWMP and schedule designed to monitor the characteristics and movement of contaminated ground water, to calibrate the model used to estimate the eventual extent of contaminated ground water, and to assess the effectiveness of the ground

water remedy, including a clean downgradient sentinel well, and any other additional wells necessary to document natural attenuation processes. N.J.A.C. 7:26C-7.5(c)4.

The LSRP should use Department guidance (i.e., MNA Technical Guidance, Ground Water SI/RI/RA Technical Guidance, and Characterization of Contaminated Ground Water Discharge to Surface Water Technical Guidance documents, Field Sampling Procedures Manual, as appropriate) to determine the wells to be sampled, the sampling frequency, the sampling method/depth, sampling parameters, and which receptors need to be monitored. Sampling frequency should be increased when receptors are in the vicinity of the CEA. Sentinel well samples should be analyzed for all contaminants of concern at the site. The parent contaminant of concern and associated degradation compounds should be included as sampling parameters in the GWMP.

The sampling frequency outlined below has been designed to evaluate the continued viability of MNA as a protective remedy. This recommended GWMP consists of more frequent sampling during the early stages to confirm predicted contaminant degradation rates, and a reduction to less frequent sampling during later stages if degradation proceeds as predicted.

Recommended Monitoring Well Sampling Frequency

Situation	Performance Well Sampling Frequency	Sentinel Well Sampling Frequency
Permit issued	Annual years 1-4 *	½ travel time to nearest receptor or annually, whichever is more frequent
After 4 years	Biennial years 5-8 *	½ travel time to nearest receptor or biennially, whichever is more frequent
After 8 years	**BTEX**: Every 8 years for the remainder of the permit. **Contaminants other than BTEX greater than 10 times GWQS**: every 4 years **Contaminants other than BTEX less than 10 times GWQS**: every 8 years for remainder of the permit	½ travel time to nearest receptor or the same frequency as the performance wells, whichever is more frequent

*** Progression through this sampling schedule is appropriate only if contaminant degradation is occurring as predicted during each monitoring event, and the remedy remains protective of receptors. If contaminant degradation is not occurring as predicted, the applicability of the MNA remedy must be reevaluated in accordance with the MNA guidance.**

Active Remediation System Ground Water RAPs: An GWMP and schedule designed to evaluate the active ground water remedial action in order to:

i. Optimize the system's performance as the remediation progresses; and

ii. Determine whether:

(1) The plume of contaminated ground water is migrating horizontally or vertically into an aquifer zone adjacent to or below the plume of contaminated ground water; or

(2) The plume of contaminated ground water is contained and therefore not reaching any sentinel well(s), and the ground water remedial action is performing as designed. [N.J.A.C. 7:26C-7.5(d)5]

The LSRP should use Department guidance (i.e., Ground Water SI/RI/RA Technical Guidance, In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance, Characterization of Contaminated Ground Water Discharge to Surface Water Technical Guidance documents, Field Sampling Procedures Manual, as appropriate) to determine the wells to be sampled, the sampling frequency, the sampling method/depth, sampling parameters, and which receptors need to be monitored. Sampling frequency should be increased when receptors are in the vicinity of the CEA. Sentinel well samples should be analyzed for all contaminants of concern at the site. The parent contaminant of concern and associated degradation compounds should be included as sampling parameters in the GWMP. Post-remedial sampling should be included in the GWMP for Active Ground Water RAPs for free/residual product. [N.J.A.C. 7:26E-5.2(a)]

Notes:

i. AOC/source area monitoring wells should be placed at or as close as possible downgradient of the former AOC/source area/excavation area.

ii. Justification should be provided for the monitoring well array in the proposed GWMP (i.e., receptors, why a monitoring well with ground water contamination above the GWRSs was not included in the GWMP).

iii. Be advised that two rounds at or below the GWRS for a contaminant of concern that account for seasonal fluctuation is required to remove that contaminant as a sampling parameter from a monitoring well. See Section XI below for additional information on this topic.

iv. The Department considers any sample where the GWRS/MDL cannot be achieved for a contaminant of concern to be an exceedance for that contaminant that should be properly addressed, including sampling and delineation as necessary.

v. A clean (at or below the applicable GWRS) downgradient sentinel well(s) is required for all Ground Water RAPs. An alternate method may be appropriate if a sentinel well is not possible (e.g., surface water sampling).

vi. At least three monitoring wells that account for triangulation should be included in the GWMP so ground water contour maps can be generated for the Ground Water RAP.

vii. The sample timing for the monitoring wells in the GWMP should reflect the time of the year expected to exhibit the highest levels of contamination based on the results of historic ground water data.

viii. The development of the GWMP should consider the Department's Field Sampling Procedures Manual and the In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance document such as:

- Discrete sampling methods such as passive diffusion bags and low-flow sampling should not be used in sentinel wells with a saturated screen length greater than five feet unless vertical profiling is conducted during each sampling event. These sampling methods are inappropriate due to the uncertainty of the depth at which the contaminant front would potentially arrive at the well.
- For wells other than sentinel wells, long term monitoring with a depth discrete sampling method targeting the most impacted depth interval may be appropriate if the well was previously vertically profiled. However, sometimes it may be appropriate to reprofile depending on data. Please see Section 6.9.5 of the Field Sampling Procedures Manual.

ix. Ground water sampling in accordance with the proposed GWMP should be implemented once a Ground Water RAP Application has been submitted. Any additional ground water data collected while a Ground Water RAP Application is pending that affects the appropriateness of the proposed remedial action should be provided to the Department when available. Please contact BRAP at (609) 984-2990 for how to submit any additional ground water data collected for the Ground Water RAP Application.

g. An electronic copy of the VI Long-Term Monitoring Plan or Change in Use Evaluation Plan, or both, if applicable. Refer to the Department's VIT Guidance document as it relates to the VI Long-Term Monitoring Plan. The Change in Use Evaluation Plan (i.e., Sub-Slab Soil Gas Contamination > Residential Soil Gas Screening Levels for Non-Residential Structure) should consist of annual building inspections to ensure the site use has not changed where a VI investigation would be necessary. N.J.A.C. 7:26C-7.5(c)4 and (d)5;

h. An Operation, Maintenance, and Monitoring (OMM) Plan for any engineering control, including VI mitigation system(s) or POET water treatment systems(s), as applicable. N.J.A.C. 7:26C-7.5(c)4 and (d)5;

i. An electronic copy of each NFA letter the Department issued for the ground water at the site, if applicable. N.J.A.C. 7:26C-7.5(c)3ii and (d)4ii;

j. An electronic copy of the completed Remediation Cost Review and RFS/FA Form with a detailed cost estimate, if applicable. See Section VI above for further details on FA. N.J.A.C. 7:26C-7.5(c)6 and (d)7; and

k. A Geographic Information System (GIS) compatible map (shape file) showing the area covered by the CEA (email to srpgis_cea@dep.nj.gov). N.J.A.C. 7:26C-7.3(c)1.

Note: All electronic copies should be provided in Adobe Portable Document Format (PDF) file format on a compact disc (CD). All the documents required above can be combined into a single Adobe PDF file.

3. The following actions are required of the permittee(s) once the Department issues a Ground Water RAP for a site:

   a. Continue operation, maintenance, and monitoring of the remedial action as required in the

Ground Water RAP; and

b. Submit a completed Ground Water Remedial Action Protectiveness/Biennial Certification Form (available at www.nj.gov/srp/srra/forms) biennially (every two years) as indicated by the Ground Water RAP Schedule. The form should be accompanied by a short summary of the progress/effectiveness of the ground water remedial action; recent and historical ground water sampling data collected at the site; and any other additional documentation necessary to demonstrate that the ground water remedial action remains protective of human health and safety and the environment. N.J.A.C. 7:26C-7.7 and 7.9.

Notes:

i. If the monitoring wells in the Ground Water RAP/GWMP are inaccessible for some reason, then the Department recommends sampling the monitoring wells as soon as possible, but maintaining the Ground Water RAP schedule and noting the issue in the Ground Water Remedial Action Protectiveness/Biennial Certification Form due for the site. The next Ground Water Protectiveness/Biennial Certification Form due should include the missing and regularly scheduled ground water sampling data.

ii. Be advised that submittal of Ground Water Remedial Action Protectiveness/Biennial Certification Forms should continue on the same permit schedule with any revisions to the Ground Water RAP.

VIII. Ground Water Remedial Action Permit Modification

The Ground Water RAP Modification Application should be submitted immediately after completion of any of the changes listed below. N.J.A.C. 7:26C-7.12(b).

1. The permittee(s) shall apply for a modification of the Ground Water RAP when any of the following occur:
   a. Change in the CEA for the site pursuant to N.J.A.C. 7:26C-7.12(b)1;
   b. Change in the GWMP for the site pursuant to N.J.A.C. 7:26C-7.12(b)1;
   c. Change from Active Remedy to MNA or MNA to Active Remedy pursuant to N.J.A.C. 7:26C-7.12(b)1;
   d. Change in the VI Long-Term Monitoring Plan or Change in Use Evaluation Plan, or both, for the site pursuant to N.J.A.C. 7:26C-7.12(b)1;
   e. Change in the OMM Plan for the VI engineering control(s)/mitigation system(s) or POET water systems that are currently in place for the contaminated site pursuant to N.J.A.C. 7:26C-7.12(b)1;
   f. Permittee address change pursuant to N.J.A.C. 7:26C-7.12(b)3;
   g. Adding an Additional PRCR to the Ground Water RAP; or
   h. Any other reason in accordance with N.J.A.C. 7:26C-7.12(c).
2. To apply for a Ground Water RAP Modification, submit the following required items:
   a. A hard ***and*** electronic copy of the completed RAP Modification Application – Ground Water using the current form available at www.nj.gov/dep/srp/srra/forms/. N.J.A.C. 7:26C-7.5(c)1;

b. The appropriate RAP Application fee. N.J.A.C. 7:26C-7.5(c)7;

c. A hard ***and*** electronic copy of the cover letter explaining the reason(s) for the Ground Water RAP Modification Application with the documentation necessary to support the modification. This documentation is not considered a key document and should not be submitted through the online portal. If the RAO for this AOC has not been issued, then contact BRAP at (609) 984-2990 for guidance. N.J.A.C. 7:26C-7.12(b);

d. Electronic copies of the supplemental information listed in Section F of the RAP Modification Application – Ground Water as applicable. N.J.A.C. 7:26C-7.5(c);

e. A completed CEA/WRA Fact Sheet Form, available at www.nj.gov/dep/srp/srra/forms/, if applicable. N.J.A.C. 7:26C-7.5(c)2 and (d)2;

f. An GWMP, if applicable. N.J.A.C. 7:26C-7.5(c)4 and (d)5;

g. An electronic copy of the VI Long-Term Monitoring Plan or Change in Use Evaluation Plan, or both, if applicable. N.J.A.C. 7:26C-7.5(c)4 and (d)5;

h. An OMM Plan for any engineering control, including VI mitigation system(s) or POET water treatment systems(s), as applicable. N.J.A.C. 7:26C-7.5(c)4 and (d)5;

i. An electronic copy of the completed Remediation Cost Review and RFS/FA Form with a detailed cost estimate, if applicable. See Section VI above for further details on FA. N.J.A.C. 7:26C-7.5(c)6 and (d)7; and

j. An GIS compatible map (shape file) showing the area covered by CEA (email to srpgis_cea@dep.nj.gov), if applicable. N.J.A.C. 7:26C-7.3(c)1.

Notes:

i. All electronic copies should be provided in Adobe PDF file format on an CD. All the documents required in subsection VIII.2 immediately above can be combined into a single Adobe PDF file.

ii. The Ground Water RAP Modification Application may not be processed until all RAP annual fees, including any past due fees, have been paid in full, and all previously required RAP Applications have been submitted (e.g., RAP Transfer/Change of Property Ownership Application).

iii. Ensure that past due Ground Water Remedial Action Protectiveness/Biennial Certification Forms have been submitted in accordance with the RAP Schedule.

iv. The PRCR that is currently identified on an RAP can only be changed/removed if that entity no longer exists and appropriate documentation is submitted to the Department supporting that conclusion. See Section IV.4.a above for what is appropriate documentation. If it is documented that the PRCR does not exist, then the Department will not include that entity as a permittee on the Ground Water RAP.

v. Replacement monitoring wells should be installed within 10 feet of the former well location or a Ground Water RAP Modification Application should be submitted with supporting documentation (i.e., ground water data collected from the monitoring well to be replaced and the new location to demonstrate that the replacement well is a representative sampling point) to modify the GWMP.

vi. Active Remedy to MNA: The Ground Water RAP for the active remedy will remain until the performance criteria outlined in the existing RAP have been attained and it has been demonstrated that MNA is the appropriate ground water remedial action for the site pursuant to the MNA

Guidance document (e.g., eight rounds of ground water samples). Note that the active remediation system should remain operational when free product and residual product remains, or ground water contaminant levels are indicative of product remaining at the site. Discussion of the transition from the active remedy to MNA and any data collected should be included in the Ground Water Remedial Action Protectiveness/Biennial Certification Form submitted for the site.

vii. MNA to Active Remedy: The Ground Water RAP will remain MNA until it has been properly demonstrated that the active remediation system is the appropriate ground water remedial action for the site. For Active Remediation System Ground Water RAPs, a minimum of one year of quarterly ground water sampling should be collected during active remediation to demonstrate that the active remediation system is effectively operating and functioning as designed. Discussion of the transition from the MNA to active remedy and any data collected should be included in the Ground Water Remedial Action Protectiveness/Biennial Certification Form submitted for the site.

viii. In Situ Remedial Technologies for Ground Water RAPs: An investigator may determine that implementing an in situ remedial technology is appropriate after a Ground Water RAP was issued. In this situation, the investigator is expected to implement performance monitoring procedures based on the guidance in Sections 5 and 6 of the In Situ Design and Performance Monitoring Technical Guidance regardless of whether that would entail a greater sampling frequency or other additional monitoring that is not included in the Ground Water RAP's GWMP.

For an MNA Ground Water RAP, if the final remedial goal is still to complete the remedial action using MNA after a short-term in situ treatment is completed, the permittee must, pursuant to N.J.A.C 7:26C-7.7(a)1viii (general RAP conditions), report that additional remediation was conducted. The date in situ treatment is completed and all monitoring results for the in situ remedial action should be reported with the Ground Water Remedial Action Protectiveness/Biennial Certification Form submitted when the data first becomes available.

Discharges authorized under one 180-day duration PBR discharge approval letter, or other remedial actions of similar tenure, would be considered short-term treatment to enhance the MNA ground water remedial action and a Ground Water RAP Modification Application does not need to be submitted (i.e., N.J.A.C 7:26C-7.12(b) is not applied in this situation). If the treatment has adverse effects, such as negative changes to the ground water contaminant plume extent (e.g., significant plume displacement) or adding additional contaminants to the plume that are still present above standards when the next biennial evaluation is completed, the investigator is expected to submit a Ground Water RAP Modification Application as required per N.J.A.C 7:26C-7.12(b). However, for nonhazardous pollutants introduced or characteristic impacted by an approved DGW (e.g., sodium or pH, respectively), a Ground Water RAP Modification Application may not be needed if: 1) monitoring data indicate the impacts are localized, no other receptors are impacted, and concentration trends indicate levels are in the process of returning to pretreatment conditions and 2) data documenting the above conditions are submitted in each Ground Water Remedial Action Protectiveness/Biennial Certification Form due after the in situ treatment was initiated. See the In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance document as it relates to the matter.

If the MNA ground water remedial action is to be changed to long-term use of an active in situ remedial technology or a remedial action that includes engineering controls, a Ground Water RAP Modification Application is required to change the Ground Water RAP from MNA to Active Remedy as stated above.

Discussion of the in situ remedial technology and any data collected should be included in the Ground Water Remedial Action Protectiveness/Biennial Certification Form submitted for the site.

IX. Ground Water Remedial Action Permit – Transfer/Change of Property Ownership

The permittee(s) shall submit to the Department an RAP Transfer/Change of Property Ownership Application form (available at www.nj.gov/dep/srp/srra/forms/) with the applicable fee within 60 days after the sale or transfer of the property pursuant to N.J.A.C. 7:26C-7.11.

1. To apply for an RAP Transfer/Change of Property Ownership Application, submit the following required items:
   a. A hard ***and*** electronic copy of the completed RAP Transfer/Change of Property Ownership Application using the current form available at www.nj.gov/dep/srp/srra/forms/. N.J.A.C. 7:26C-7.11(c);
   b. The appropriate RAP Application fee. N.J.A.C. 7:26C-7.5(b)7; and
   c. An electronic copy of the completed Remediation Cost Review and RFS/FA Form with a detailed cost estimate, if applicable. See Section VI above for further details on FA. N.J.A.C. 7:26C-7.10 and 7.11(c)5iii.

Notes:

i. All electronic copies should be provided in Adobe PDF file format on an CD.

ii. When the title of a property transfers, the Department considers that a transfer/change of property ownership. Please see Section IV.4.d above as it relates to verification of the property owner/tax database.

iii. The new property owner must sign on as a co-permittee before the former owner is removed from the permit. Any FA that was established by the former property owner will not be released until a new form of FA is established and in place.

iv. The Transfer/Change of Property Ownership Application may not be processed until all RAP annual fees have been paid in full, including any past due fees, and all previously required RAP Applications have been submitted (e.g., the PRCR or interim owner(s) should have submitted a modification or transfer application).

v. If the contact information (contact name, phone number, and email address) for the PRCR needs to be updated, use the RAP Contact Information Change form (available at www.nj.gov/dep/srp/srra/forms/).

vi. Contact BRAP at (609) 984-2990 with any questions on scenarios that are not covered in the RAP Transfer/Change of Property Ownership Application form.

X. Ground Water Remedial Action Permit Contact Information Change

1. The permittee(s) shall submit to the Department an RAP Contact Information Change Form (available at www.nj.gov/dep/srp/srra/forms/) to make the following free administrative changes to a Ground Water RAP:
   a. to change the fee billing contact person/information for a Ground Water RAP;
   b. to change the contact information (contact person, phone number, and email address) only for

the PRCR and the Property Owner currently identified on the Ground Water RAP; and

c. to change the co-permittee designated as the Primary Contact for Permit Compliance; see Section III above for an explanation of the designation of Primary Contact for Permit Compliance.

2. To apply for an RAP Contact Information Change, submit a hard and electronic copy of the completed RAP Contact Information Change Form using the current form available at www.nj.gov/dep/srp/srra/forms/.

Notes:

i. All electronic copies should be provided in Adobe PDF file format on an CD.

ii. These administrative updates will be made in the Department's computer database (NJEMS) for the Ground Water RAP only and the Department will not be issuing a revised Ground Water RAP for the site.

iii. To make changes in the address of the PRCR or the Property Owner, the permittee(s) must submit a Ground Water RAP Modification Application (available at http://www.nj.gov/dep/srp/srra/forms) to modify the Ground Water RAP pursuant to N.J.A.C. 7:26C-7.12(b)3.

iv. The PRCR that is currently identified on a Ground Water RAP can only be changed/modified if the PRCR no longer exists and documentation is submitted; this situation would require the submission of a Ground Water RAP Modification Application to modify the Ground Water RAP.

XI. Termination of a Ground Water Remedial Action Permit:

1. The following are reason(s) for a termination of a Ground Water RAP to be submitted pursuant to N.J.A.C. 7:26C- 7.13:

   a. Site remediated to applicable GWRSs*;

      *The permittee must collect at least two rounds of ground water samples below the GWRSs such that the time between sampling events accounts for seasonal fluctuations in the ground water table and the number of ground water samples collected is representative of the entire horizontal and vertical extent of the ground water CEA pursuant to N.J.A.C. 7:26C- 7.9(f). These two rounds of ground water samples should be collected at least 90 days apart. Targeting the month/season with the historic high contaminant concentrations should account for one of those two ground water sampling rounds conducted.

      All monitoring wells, including the sentinel well(s), in the approved GWMP should be sampled at the same time for both required ground water sampling events. Both required ground water sampling events should be analyzed for all parameters contained in the approved GWMP.

   b. Subdivision of a property that has an existing Ground Water RAP. N.J.A.C. 7:26C- 7.13(c); or

   c. Other (provide reason).

2. To apply for a Ground Water RAP Termination, submit the following items:

   a. A hard ***and*** electronic copy of the completed Ground Water RAP Termination Application Form using the current form available at www.nj.gov/dep/srp/srra/forms/. N.J.A.C. 7:26C-7.5(b)1;

b. The applicable RAP Application fee. N.J.A.C. 7:26C-7.5(b)7;

c. A hard copy ***and*** electronic copy of the cover letter explaining the reason(s) for the Ground Water RAP Termination Application;

d. Electronic copies of the supplemental information (i.e., ground water sampling results table, lab data, maps, field sampling sheets) listed in Section E of the RAP Termination Application – Ground Water;

e. Indeterminate VI Pathway Status - Electronic copy of the sub-slab soil gas sampling results for each building along with a scaled site map depicting the building and sub-slab soil gas sampling locations on it, if applicable;

f. Change in Use Evaluation Plan for Sub-Slab Soil Gas Contamination > Residential Soil Gas Screening Levels for Non-Residential Structure - Electronic copy of the sub-slab soil gas sampling results for each building along with a scaled site map depicting the building and sub-slab soil gas sampling locations on it, if applicable.

g. VI Long-Term Monitoring Plan - Electronic copy of the sub-slab soil gas and indoor air sampling results for each building along with a scaled site map depicting the building and sub-slab soil gas and indoor air sampling locations on it, if applicable; and

h. VI Engineering Control/Mitigation System - Electronic copy of the sub-slab soil gas and indoor air sampling results for each building along with a scaled site map depicting the location of the building, the VI engineering control/mitigation system type/design, and the sub-slab soil gas and indoor air sampling locations on it, if applicable.

Notes:

i. All electronic copies should be provided in Adobe PDF file format on an CD.

ii. The Ground Water RAP Termination Application will not be processed until all RAP annual fees, including any past due fees, have been paid in full, and all previously required RAP Applications have been submitted.

iii. The final two rounds of ground water sampling to support termination of the Ground Water RAP should be conducted with a volume averaged purge sampling method, when possible. Additionally, any sampling conducted to support a regulator decision (such as termination of a Ground Water RAP) should not be collected with polyethylene tubing due to its adsorption-desorption capacity. One exception to this recommendation is the use of polyethylene bladders in bladder pumps. These points are discussed in further detail in Section 6.9.6.3.1 of the Department's Field Sampling Procedures Manual.

iv. Indeterminate VI Pathway Status: If the site use does not change (i.e., current operations use, handle, or store the same investigative contaminants of concern), then note that the Indeterminate VI Pathway status for a building may only be removed based on completing the VI investigation and confirming, during two sampling rounds at least 4 months apart, that contaminant levels are below the appropriate VI Soil Gas Screening Levels for soil gas and Indoor Air Remediation Standards for indoor air (if indoor air sampling is required) at the building. The VI investigation will follow all provisions of the Department's VIT Guidance document. If soil gas concentrations remain above the Residential VI Soil Gas Screening Levels for a non-residential structure, then see Note v below as it relates to this scenario

v. VI Long-Term Monitoring Plan and VI Engineering Control/Mitigation System: Only terminate an VI mitigation system or Long-Term Monitoring Plan with Department approval based on contaminant levels below the appropriate VI Soil Gas Screening Levels for soil gas and VI Remediation Standards for indoor air during 2 sampling rounds. The sampling events should be at least 4 months apart with at least one round performed during the heating season to determine if the mitigation is no longer necessary. This post mitigation sampling is required pursuant to N.J.A.C. 7:26E-5.2(a) to confirm the effectiveness of the remedial action. Turn the mitigation system back on between sampling events to maintain the protectiveness from potential impacts to people in the building. See Section 6.6 of the Department's VIT Guidance document as it relates to the matter.

vi. Sub-Slab Soil Gas Contamination > Residential Soil Gas Screening Levels for Non-Residential Structure: The institutional control (i.e., CEA) for this situation may only be removed based on contaminant levels below the Residential VI Soil Gas Screening Levels for soil gas at the building, during two sampling rounds at least 4 months apart. The samples must be collected consistent with the Department's VIT Guidance document. If the site use does change, then an VI investigation in accordance with the Department's VIT Guidance document must be completed for the building.

XII. Potentially Applicable Guidance Documents:

The below referenced potentially applicable guidance documents can be found at: https://nj.gov/dep/srp/guidance/.

1. Remedial Action Permit for Ground Water Checklist and Helpful Hints
2. MNA Technical Guidance
3. Final Guidance on Designation of Classification Exception Areas (See CEA Guidance Webpage)
4. Vapor Intrusion Technical Guidance
5. Ground Water Technical Guidance: Site Investigation, Remedial Investigation, and Remedial Action Performance Monitoring
6. Technical Guidance for Preparation and Submission of a Conceptual Site Model
7. NJDEP Policy Statement: Interpretation of Technical Requirements for Site Remediation requirement to "complete the remedial investigation"
8. Sheen Remediation Guidance
9. Off-Site Source Ground Water Investigation Technical Guidance
10. Commingled Plume Technical Guidance Document
11. Administrative Guidance for Addressing Unknown Off-Site Sources of Contamination
12. Technical Impracticability Guidance for Ground Water
13. IEC-GAC POET Specifications
14. Remedial Action Permit Requirements for RCRA GPRA 2020, CERCLA & Federal Facility Sites under Traditional DEP Oversight
15. Well Search Guidance

16. Public Notification & Outreach Guidance
17. Submission and Use of Data in GIS Compatible Formats Pursuant to Technical Requirements for Site Remediation
18. Field Sampling Procedures Manual
19. Low-Flow Purging and Sampling Guidance
20. Investigating Impacts from Contaminated Sites to a Surface Water
21. Ecological Evaluation Technical Guidance
22. Electronic Compendium of Selected NJDEP Environmental Standards – SWQS, N.J.A.C. 7:9B; GWQS, N.J.A.C. 7:9C; DWQS, N.J.A.C. 7:10; and SRS, N.J.A.C. 7:26D
23. Implementation of November 25, 2015 Interim Ground Water Quality Criteria, PQLs and Standards
24. Remediation Funding Source (RFS) Cost Guidance (including FA information)
25. In Situ Remediation: Design Considerations and Performance Monitoring Technical Guidance
26. Characterization of Contaminated Ground Water Discharge to Surface Water Technical Guidance

Appendix 1
Model Table for Historic Ground Water Sampling Results by Monitoring Well

Sample ID & Well Construction Details	Sampling Date	Sampling Method	Monitoring Well Gauging Data				Sampling Results - Contaminants of Concern					Comments (e.g. pre-remedial action, post remedial action, sheen, sampling depth, etc.)
			Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Product (feet)	Ground Water Elevation						
						NJDEP Ground Water Quality Standards						
						NJDEP Vapor Intrusion Ground Water Screening Level						
MW-1 (screened __-__ fbg) Overburden or Bedrock (Pick one)												
												Pre-remedial action
												Post-remedial action
MW-2 (screened __-__ fbg) Overburden or Bedrock (Pick one)												
												Pre-remedial action
												Post-remedial action
MW-3 (screened __-__ fbg) Overburden or Bedrock (Pick one)												
												Pre-remedial action
												Post-remedial action

Notes:

Appendix 2
Acronyms

AOC	Area of Concern
BCM	Bureau of Case Management
BGWPA	Bureau of Ground Water Pollution Abatement
BRAP	Bureau of Remedial Action Permitting
CEA	Classification Exception Area
C/O	Care of
CD	Compact Disc
DGW	Discharge To Ground Water
EFR	Enhanced Fluid Recovery
FA	Financial Assurance
GIS	Geographic Information System
GWMP	Ground Water Monitoring Plan
GWQS	Ground Water Quality Standard
GWRS	Ground Water Remediation Standard
HAP	Historically Applied Pesticides
HIT	High Intensity Targeted
IRM	Interim Remedial Measure
LSRP	Licensed Site Remediation Professional
MNA	Monitored Natural Attenuation
NFA	No Further Action
NJDEP	New Jersey Department of Environmental Protection or Department
OMB	Office of Management and Budget (Federal)
OMM	Operation, Maintenance, and Monitoring
PDF	Portable Document Format
PI	Program Interest
POET	Point of Entry Treatment
PRCR	Person Responsible for Conducting the Remediation
PV	Present Value

TI	Technical Impracticability
RAO	Response Action Outcome
RAP	Remedial Action Permit
RAR	Remedial Action Report
RAW	Remedial Action Workplan
RFS	Remediation Funding Source
SVO	Semi-Volatile Organic
SOC/TIC	Total Synthetic Organic Chemical/Tentatively Identified Compounds
SRS-MGW	Soil Remediation Standard for the Migration to Ground Water
TRSR	Technical Requirements for Site Remediation
VI	Vapor Intrusion
VIT	Vapor Intrusion Technical
VO	Volatile Organic
WHPA	Well Head Protection Area
WRA	Well Restriction Area