

TECHNICAL  
FIELD GUIDANCE

**CORRECTIVE ACTION PLANS**

## NOTES

### **Corrective Action Plans**

#### **GUIDANCE SUMMARY-AT-A-GLANCE**

- # To successfully carry out your clean-up oversight role -- whether of a state- or PRP/RP-directed cleanup -- you must ensure that all parties have a clear understanding of what tasks will be done, what the schedule for completion is, and what results should be achieved.
  
- # It is in your best interest to formally document these expectations in some fashion before the work is begun, and to make sure your documentation is updated to reflect work progress or problems.
  
- # If you are satisfied that a series of brief letters exchanged between the various parties is adequate documentation of the Corrective Action Plan (CAP), then that is acceptable. This informal method might be sufficient, for example, if the spill investigation and cleanup is expected to be relatively straightforward and short term (i.e., less than a few weeks or months). On the other hand, a long-term and particularly complex spill investigation and cleanup might demand a CAP report of some detail to ensure that all parties are clear on what will take place. A more formal CAP is required for all state- and federally funded clean-up projects costing more than \$20,000 and lasting longer than 30 days.

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### 1.5 Corrective Action Plans

To successfully carry out your clean-up oversight role -- whether of a state- or PRP/RP-directed cleanup -- you must ensure that all parties have a clear understanding of what tasks will be done, what the schedule of completion is, and what results should be achieved. We believe that it is in your best interest to formally document these expectations in some fashion before the work is begun, and to make sure your documentation is updated to reflect work progress or problems.

With your own standby or other contractors, most, if not all, of the necessary documentation will emerge out of the contractual process itself (see Part 1, Section 2). Even so, it is advisable to document your conversations with and instructions to your contractors and set up some mechanism through which your contractor acknowledges that they understand the work plan and agree to the terms. With PRP/RPs and their contractors, your files should contain a clear record of your expectations for the spill investigation cleanup to be conducted by the PRP/RP.

For lack of a better term, we'll call this body of documentation a "corrective action plan" or CAP. In doing so, we don't mean to conjure up visions of huge reports and reams of paper unless a particular spill warrants it. If you are satisfied that a series of brief letters exchanged between the various parties is adequate documentation of the CAP, then that is acceptable. This informal method might be sufficient, for example, if the spill investigation and cleanup is expected to be relatively straightforward and short term (i.e., less than a few weeks or months). On the other hand, a long-term and particularly complex petroleum spill investigation and cleanup might demand a Consent Order of some detail to ensure that all parties are clear on what will take place.<sup>1</sup> Each Consent Order should contain specific milestones to be achieved and provide for DEC approval of submitted documents. A more formal CAP (i.e., Consent Order in the case of petroleum spills) is required for all state- and federally funded clean-up projects costing more than \$20,000 and lasting longer than 30 days. A CAP is also required for hazardous substance releases per 6 NYCRR 595.2(e). A CAP need not be submitted to you for pre-approval if the remedial measure is deemed necessary to stabilize or mitigate a potential or actual imminent threat to health or the environment (e.g., if recovery wells must be installed to arrest migration of product toward a water supply well).

#### 1. Content of a CAP

While we have no formal form or format requirements for a CAP, we do have some content **suggestions**. How much of this material you require will depend upon the spill site and situation. A CAP could include information on the following:

- # Background information on the site and spill, such as the location and amount of the spill, cause of the spill, and local geology and hydrogeology, and a description of the investigation that will identify the full extent of the

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<sup>1</sup> *There are no State regulations requiring CAPs for petroleum product spills. Under federal regulations on Underground Storage Tanks implementing agencies may require corrective action plans from owners or operators of petroleum or hazardous substance tanks which have a release. (40 CFR Section 280.66)*

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spill and its effects. A CAP might describe the spill site, the surrounding area, and the emergency response, site investigation, and remedial action, if any, that has already occurred and may be ongoing.

Most of the information will probably be devoted to the investigation of the extent of the spill. You must be convinced that the site investigation is/was adequate to identify the full extent and impact of the spill. Some of this type of information is easily shown through the use of maps and figures, for example: (1) a location map showing the facility boundaries and on-site surface and subsurface structures, the surrounding area, and all topographic and surface drainage features; (2) maps of the areal extent of any floating free product plume, dissolved product plume, and/or soil contamination; (3) water table contour maps illustrating the direction and location of ground-water flow, and the gradient and velocity of ground water at the site; and (4) a map or inventory of all wells located within a 1/4 mile radius downgradient of the site. Descriptions of the local and regional hydrogeology and a geology description may be supported by cross-sections and lithologic logs from borings. Descriptions of aquifers and confining units present in the affected or potentially affected areas might cover the following characteristics of aquifers: transmissivity; hydraulic conductivity; storage coefficient; aquifer thickness; porosity; seasonal water table evaluations; and direction and rate of ground-water flow. Your CAP should include details about any test pits or monitoring wells constructed should be provided as well as the results of all sampling activities (soil, water, and indoor air, as applicable) and analytical results. Any tank tightness test results should also be included. If the tank was removed, the documentation provided should describe the condition of the tank excavation, the condition of the tank, and the disposition of any contaminated soil or free product removed from the excavation or from the tank.

- # An assessment of the surrounding area that focuses on populations and/or resources known to have been or that may be affected by the spill, as well as an assessment of actual/potential exposure and risks to health and the environment.
  
- # The proposed standards that cleanup of the media affected by the spill is to achieve. These clean-up levels should be based upon applicable state or federal health-based standards or other criteria (e.g., background levels), or may represent levels established in a quantitative risk assessment conducted in lieu of any available standards. If the latter, the CAP would provide all data relevant to the risk assessment so the state can complete an independent review. Any corrective action plan that proposes to achieve clean-up levels in excess of a standard or significantly above background, if approved, must also include a monitoring program to ensure that contaminant concentrations remain at or below the established levels. This monitoring program for ground-water cleanups must remain in place for one year. Shorter-term programs are possible when monitoring air and soil contamination.

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- # A discussion of the remedial alternatives considered, the alternative(s) selected, and the schedule for their implementation. This discussion could present the reasoning behind rejecting some of the options, and the rationale for selecting the alternative to be implemented. Remedial measures should be described for each medium affected by the spill. A schedule for implementation should be discussed and should reflect timely action to remedy the spill. The CAP should demonstrate that the parties conducting the cleanup have a clear understanding of what permits and other regulatory approvals are required for the on-site or off-site disposal of any contaminated soil and/or water removed in the course of the cleanup.
  
- # A discussion of how clean-up progress will be measured and monitored and how frequently progress reports will be provided the state.

Review the CAP to evaluate the adequacy of the investigation plan, the recommended clean-up levels, and the chosen remedial technique and its probable effectiveness in reaching those levels. Use your professional judgment and experience in deciding whether to accept, modify, or reject a submitted CAP. There are no hard and fast rules concerning the content or format of the CAP beyond the requirement that it be sufficiently comprehensive such that there will be no doubt about what will be done and when. CAPs may be modified as changes in site conditions dictate. However, to avoid having to modify a CAP because of lack of foresight, you may want to ask yourself the following questions:

- # How permanent are the results achieved by the remedial technology likely to be? What factors will affect the permanence of these results? Is there a reasonable probability that contaminant concentrations could increase after close out of the spill? What is the estimated time frame to meet the clean-up objectives?
  
- # Does the use of this technology create any other pathways for exposure to the contaminants? If so, will the levels of exposure be high enough to present a hazard to human health?

A corrective action plan can be considered adequate if, in your opinion, the selected remedial measures represent a reasonable balancing of permanence, technical feasibility, remaining risk to human health and the environment, and cost-effectiveness. Refer to Part 1, Section 6, Corrective Action, and Section 7, Closing-Out a Spill, for more guidance on making reasonable selections among alternative long-term corrective action technologies and for balancing technical feasibility, risk, and cost-effectiveness.

## 2. Changes to a CAP

You should view a CAP as a living document; that is, it should be modified when new information or conditions warrant it. You should be cautious, however, when considering any request to change substantially the clean-up methods or levels.

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Every CAP should include some plan to provide an ongoing assessment of the effectiveness and efficiency of the implemented cleanup. If, after you examine these progress reports, you feel that the cleanup is not proceeding satisfactorily, notify the PRP/RP or your contractor of what changes or adjustments might have to be made. If the cleanup is PRP/RP-directed, you may also have to indicate that the state will take over the cleanup unless these adjustments are made. Agreements reached to modify the clean-up methods should be reflected in written amendments to the original CAP.

### **3. Review of Responsible Party Contractor Reports**

When you receive materials from the PRP/RP, you should review the submission for its completeness, accuracy, and acceptability, and request modifications and/or additional material, as necessary, when the original submission is judged to be inadequate. The following is intended to guide you in performing your document review role in PRP/RP-directed spill responses.

#### **a. Existing State Policies**

Above, we discussed requirements for the submission of Corrective Action Plans (CAPs) from PRP/RPs. Each CAP will require the PRP/RP to submit a series of reports and progress updates. The dynamics and site-specifics of any single PRP/RP-directed spill response preclude developing one set of guidelines for reviewing the PRP/RP's progress updates and reports. The specific spill characteristics and your own accumulated experience with similar spill situations will have a large effect on your review and evaluation of these reports. You may also have to access other resources that can assist you in making your evaluation. You can discuss the information with other regional spill response staff and your Regional Spill Engineer (RSE). State hydrogeologists are also available to help in this capacity as well, and can be accessed through your RSE and the Central Office of the Bureau of Spill Prevention and Response (BSR).

#### **b. Guidelines for Document Review**

There are advantages, however, to establishing some consistency in our approach to this task. Chief among these advantages is to ensure that progress updates and the other reports received from PRP/RPs are subjected to the same minimum level of scrutiny and assessment. To maintain this minimum level ensure at the least that the following apply:

- # All required submissions were received from the PRP/RP (or its contractor) at or near the agreed-to milestones;
- # The PRP/RP has documented fully the cause of the spill and the chronological events leading up to, and subsequent to the spill, and has responded promptly and effectively to any emergency conditions;

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- # All of the PRP/RP's efforts to define the nature, extent, and impact of any contamination are fully documented and reasonably supported by the data. Exhibit 1.5-1 offers some minimum ground-water investigation report;
- # The sampling and laboratory analysis data submitted by the PRP/RP reflect the use of approved methods and the application of quality assurance/quality control procedures;
- # The PRP/RP has documented (using site maps as appropriate) the location(s) and construction details of any drilled wells or trenches/pits dug as part of the spill investigation or efforts to recover or contain released product;
- # The PRP/RP has documented the effectiveness of efforts to recover released product, the amount of product recovered, and the disposition of any recovered product;
- # The PRP/RP has demonstrated that all solid, liquid, or gaseous residuals and effluents generated in the spill cleanup were handled properly in accordance with local, state, and/or federal requirements (this includes the tank and piping, soils, vapors, and surface or ground water), and that all necessary permits/approvals were obtained;
- # The PRP/RP, to the extent necessary, kept local officials and residents affected by the spill informed of progress to clean up the spill; and
- # The PRP/RP has in place a plan to monitor the operation of, and to maintain, any product containment or recovery system for as long as this system must operate.

Again, these guidelines are regarded as the minimum you should follow for evaluating PRP/RP submissions concerning the conduct of their spill response and cleanup. Additional criteria may be warranted depending upon the type of spill, the nature of the spilled product, the location of the spill, the impact of the spill, and the degree of public interest in the disposition of the spill.

## Exhibit 1.5-1

### Minimum Ground-Water Investigation Report Guidelines

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1. Background Information (from initial investigation information)
    - A. Base map of study area showing site
    - B. Site map showing buildings, tanks, wells, etc.
  2. Investigative Objective(s) - i.e., Identify source, determine extent of contamination, cleanup procedures, potential impacts
  3. Investigative Methodology - i.e., vapor analysis, monitoring wells, test pits, tank tests, etc.
  4. Findings
    - A. Hydrogeologic Data
      1. Soil/Bedrock Description
        - a) Borings logs/monitoring well location map
        - b) Well completion records
      2. Depth to Groundwater
        - a) Water level measurements/dates
      3. Direction of Ground-Water Flow
        - a) Ground water contour map
    - B. Extent of Contamination
      1. Floating Product
        - a) Floating Product Plume/Thickness Map
        - b) Product Identification
      2. Dissolved Product
        - a) Laboratory/field analysis data
        - b) Dissolved plume (ISO-concentration) map
      3. Vapors
        - a) Laboratory/field analysis data
        - b) Vapor plume (Iso-concentration) map
    - C. Potential Impact Areas
  5. Cleanup Action Taken
  6. Results (product recovered, present extent of contamination, etc.)
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