

Case Closure With Residual Free Product-

Can You Get There From Here?

Yes. But there are no shortcuts. The following article is a summary of essential technical components of any request for case closure at a contaminated site that still has some residual petroleum free product.

The Remediation and Redevelopment (RR) Program uses teams to develop many of the procedures and guidance documents that are important to environmental cleanup and redevelopment of contaminated properties. One such team, the NR 700 Implementation Team, is charged with assisting RR staff in the consistent application of the NR 700 rule series. Each of the DNR's five regions has a member on this team.

Program staff also frequently meet with different stakeholder groups working on investigation and cleanup of contaminated sites, seeking input on RR programs and policies. One such group, the NR 700 Consultants Focus Group, is composed of private environmental consultants who meet quarterly with RR staff to discuss technical items of mutual interest.

About a year ago, the Consultants Focus Group asked the RR Program about the possibilities for case closure at sites with residual free product consisting of petroleum. Normally, sites that are approved for closure with any remaining contamination are those sites with petroleum contamination in the groundwater where natural attenuation is working to slowly reduce the amount of contamination. Petroleum "free product", however, is any petroleum contamination that exists as a separate, floating material that does not readily mix with or dissolve in water. Consultants were wondering:

Could some sites be closed if residual, petroleum free product is present? The consultant's question was given to the NR 700 Implementation Team. Team members had several discussions regarding NR 700 rule requirements that apply to different types of sites with residual free product, and over the course of a year defined the issues that arise when considering case closure at these sites.

In August, 2002, the NR 700 Implementation Team met with the Consultants Focus Group to discuss the primary factors that RR regional case closure committees evaluate when considering case closure with residual petroleum product. The most important concepts from that discussion are summarized here.

1. Does the presence of residual free product prohibit case closure?

No. The NR 700 Implementation Team estimated that about a dozen sites with residual free product are closed by DNR each year.

2. What specific regulations apply to sites with residual free product?

Section NR 708.13, Wis. Adm. Code, which is based on the requirements in the Code of Federal Regulations (40 CFR 280.64), states: "Responsible parties shall conduct free product removal whenever it is necessary to halt or contain the discharge of a hazardous substance or to minimize the harmful effects of the discharge to the air, lands or waters of the state."

In the past, RR staff usually interpreted this to mean that free product causes a continuous discharge and must be "halted" by its removal. More recently, however, after looking at the volume of product already removed as well as the estimated volume of product remaining, the RR Program is also considering other factors. These are:

- the technical feasibility of continued free product removal as evaluated under ss. NR 722.07 and 722.09 (identification and selection of remedial actions), Wis. Adm. Code; and
- the likelihood of continuing discharges of dissolved contaminants into groundwater from weathered free product. In general, RR Program staff considering case closure will first look at prior efforts to remove free product, and then look at the volume of product remaining, the degree of weathering, and groundwater monitoring to evaluate whether there is an ongoing discharge of dissolved contaminants to groundwater. If there is an ongoing discharge to groundwater from the remaining free product, further remedial actions will be needed.

3. How can consultants estimate the extent of free product without significantly increasing the number of monitoring wells?

The DNR advises that the following guidelines may be helpful:

- Collect soil samples from the soil/groundwater interface (termed the "smear zone") to estimate the horizontal and vertical extent of free product. Compare the analytical results from these samples to the values in Table 1 of s. NR 746.06, Wis. Adm. Code. These table values were developed as approximations of soil saturation levels and reflect the likelihood of finding free product on the water table. Use these samples to delineate or map the free product plume. Quarterly groundwater samples in the source area should be used to approximate the depth of free product on the water table, and the seasonal variability in water table elevations.
- Don't be in a rush. Long-term monitoring is a critical component in evaluating the impact of the residual product on groundwater quality. Allow time for the effects of groundwater level fluctuations to become apparent. These are not going to be fast closures.

4. How can consultants get DNR input prior to submitting a case closure request?

For a fee of \$500, consultants should take advantage of the RR Program's technical assistance to get a written opinion, detailed verbal comments or to hold a technical meeting to discuss your site. You can use this assistance to better understand DNR's position on the feasibility of free product remediation or recovery options prior to submitting a closure request.

5. Where can I find a discussion of technical considerations regarding free product and case closure with natural attenuation?

Publication #RR-614, *Guidance On Natural Attenuation For Petroleum Release*, includes several discussions regarding free product. This publication is available on the RR Program web site at www.dnr.state.wi.us/org/aw/rr, using the "Publications" button in the lower left corner of the page. The following topics are covered on the pages listed:

- Page 9 – cleanup to the extent practical;
- Page 13 – identifying the degree and extent of contamination;
- Page 23 – free product removal before evaluating natural attenuation as a remedy;
- Page 24 – mapping the extent of free product;
- Page 27 – how free product affects the calculation of the decay rate;
- Pages 37-39 – requirements for case closure; and
- Page 43 – removal of free product to the extent practicable as required under s. NR 722.09(2) and s. NR 726.05 (2)(b)(1)(e), Wis. Adm. Code.

In Appendix A1:

- Page 13 – phases of contamination and calculation of contaminant mass;
- Page 65 – references for calculating mass of product when a sheen remains;
- Page 67 – delineation of free product in the saturated source zone; and
- Page 78 – estimating contaminant decay affected by the age of free product.

6. What can consultants do to ensure consideration when submitting a case closure request with residual free product?

- Estimate the total volume of free product remaining in the environment. The NR 700 Implementation Team has noted that this step is rarely done by consultants, and is an important consideration in the case closure request.

- Clearly summarize what recovery and/or remedial action efforts have been undertaken to recover free product. Members of the NR 700 Implementation Team estimated that at least half of all case closure requests with residual petroleum free product have not included a discussion on remedial actions that have been taken to address the free product.

- Clearly list and discuss the range of alternatives for recovering or remediating the remaining free product. In the discussion, summarize the technical feasibility and estimated cost of each alternative relative to site-specific conditions (e.g. hydrogeology, risk, and accessibility of product). This helps technical staff and regional closure committees evaluate the level of effort that has been made in relation to the range of alternatives.

Contact Information for the NR 700 Implementation Team and Consultants Focus Group

For more information about the NR 700 Implementation Team, please contact Sally Kefer at sally.kefer@dnr.state.wi.us, or at 608-266-0833. For more information about the Consultants Focus Group, please contact Laurie Egre at laurie.egre@dnr.state.wi.us, or at 608-267-7560.

More About Case Closures - Q&A On Fees

What fees apply to case closure review?

Section NR 749.04, Wis. Adm. Code, requires that all requests for case closure that are reviewed by DNR include a \$750 review fee. In addition, a \$200 fee for listing a site on the GIS Registry applies if residual soil contamination is above the residual contaminant levels (RCLs) in ch. NR 720, Wis. Adm. Code. An additional \$250 fee for listing a site on the GIS Registry applies if groundwater contamination is above the enforcement standards in ch. NR 140, Wis. Adm. Code (please see "GIS Registry Expands To Include Residual Soil Contamination," page 1, *Re News*, September, 2002).

What will happen if DNR finds that a case closure request is seriously incomplete?

If a case closure request is submitted that fails to define the degree and extent of contamination, DNR will apply the \$750 fee to its review of the site investigation report. Another \$750 fee will be due when another closure request is submitted.

What fees would apply if a property owner wanted to have a site removed from the GIS Registry of Closed Remediation Sites?

- For a property owner whose soil and groundwater contaminant levels have decreased and now are below standards, another \$750 case closure review fee applies when the new data is submitted to DNR.
- For an owner who subdivides a property that is on the registry, and wants an uncontaminated parcel removed from the registry, a \$500 fee applies for review of the information he/she submits in requesting the removal of the uncontaminated parcel. Information showing the legal division of the property must be included. In turn, if approved, DNR will provide the owner a general liability clarification letter and modify the registry based on the new property description.
- For an affected neighboring property owner who wants to be removed from the registry before contamination on the source property has reached standards, a \$500 technical assistance fee applies to review of the data from the neighboring property.

Where can I find more information about RR Program Fees?

Please check out the RR Program's "Services and Fees" page on the web site at www.dnr.state.wi.us/org/aw/rr/Services_Fees/index.htm.