

STATE ENVIRONMENTAL REGULATION

Expert Analysis

Green Remediation Principles Coming to New York

“Green” is the mantra for everything from cleaning supplies to construction, automobiles to home heating and cooling. It should not be a surprise, therefore, to learn that “green” is also becoming the standard for treatment of one of environmental law’s most traditional problems: the cleanup of environmentally contaminated real property.

At the end of March, the New York State Department of Environmental Conservation (DEC) proposed a policy that would establish a preference for remediating sites in the most sustainable manner—i.e., green—while still meeting all other legal, regulatory, and program requirements. The draft proposal, “DER-31 / Green Remediation,”¹ was open for public comments until April 30, and a final version can be expected in short order.

When that occurs, the public policy in the State of New York will officially include “green” tools and technology being applied to the cleanup of contaminated real estate, making it clear to everyone that “green” has arrived.

Background

DEC’s proposed policy is aimed at the environmental footprint inherent in remediating a contaminated site, a footprint that it notes can extend not just within the boundaries of the site, but beyond the boundaries to adjacent properties and to the larger environment. The proposed policy points out that the manner in which a cleanup is executed will determine the size of the resulting environmental footprint. DEC’s proposed policy notes that a cleanup remedy may require significant energy and material use, may affect everything from underground aquifers to land use, and may contribute to climate change through the direct or indirect emission of carbon dioxide and other greenhouse gases (GHGs) into the atmosphere. Indeed, as the DEC recognizes, decisions are made throughout the investigation and remediation process, and each decision has, or potentially can have, an impact on the environment.

Into this setting comes “green remediation.” In the draft policy, the DEC defines green remediation as “the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions.” Moreover, it adds, site cleanup

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“is intended to be a holistic approach” and “must be considered in a larger context, as demanded by issues such as climate change, sprawl, and the effects of energy generation and use.”

The DEC also notes in its proposed policy that “cleanup technologies and incentives continue to evolve” and that “green remediation strategies offer significant potential for increasing the net benefit of cleanup, cost savings, and the universe of long term property reuse options without compromising cleanup goals.”

In March, the DEC proposed a policy that would establish a preference for remediating sites in the most sustainable manner.

Interestingly, the DEC acknowledges that many green remediation techniques are not new. Rather, many of these “green techniques” are well-established and have been successfully used at sites undergoing cleanups in New York to yield greater efficiency, cost savings, and reduced impact. The DEC’s proposed policy seeks to use these techniques in a more consistent manner and use more sustainable methods to remediate sites and achieve cleanup goals while still implementing its primary obligation to protect public health and the environment. This policy should result in remedies being selected that clean up sites and at the same time are economically sound, more sustainable, meet long-term needs, and protect valuable state resources.

General Procedures

The draft policy explains that green remediation concepts, tools, and techniques are to be considered throughout every stage of the remedial program, from the initial site characterization that is done to investigate the property, to the implementation of the site cleanup and the long-term site management obligations often employed as part of the selected remedy, with the goal of improving the sustainability of the overall cleanup. The DEC’s Division of

Environmental Remediation (DER), which oversees the investigation and remediation of contaminated sites, is tasked to use this policy “to emphasize the consideration and use of major green concepts, tools, and techniques by remedial parties and DEC staff and contractors to the extent feasible.”

The DEC’s proposed policy seeks to have its staff and the regulated community strive to identify opportunities to increase the sustainability of site cleanup during all segments of the remedial process. Under this policy, cleanup techniques will be selected not only because they are effective, but also because they incorporate sustainable elements.

Significantly, in the proposed policy, the DEC emphasized its commitment to using green remedial techniques by “directing the use of renewable energy and/or the purchase of renewable energy credits (RECs) to offset 100 percent of the electricity required for state funded site cleanups.” For non-state funded cleanups (those paid for by the owners or operators of the sites), the DEC’s proposed policy strongly encourages the use of renewable energy and the purchase of RECs, unless it is impracticable for a particular site or if other green techniques are more applicable.

Remedy Selection

The DEC’s proposed policy recognizes that the greatest benefit to the environment from the use of the green remediation techniques will likely be at the remedy selection phase. Accordingly, the DEC policy notes that when the remedy alternatives are being evaluated for selection, the remedial parties, DER staff, consultants, and contractors should include sustainability/green remediation concepts in that assessment. This evaluation, the DEC notes, is complex, and determining the remedial alternative with the greatest net benefit to the environment or that will minimize GHG emissions may not be easy or obvious. Thus, the DEC’s draft policy provides specific methods to address potential climate impacts of a remedy. These suggested methods include:

- a qualitative assessment of total GHG emissions related to the remedial alternatives being considered;
- an evaluation of how GHG emissions can be minimized during remediation; and
- an evaluation of the cost of purchasing RECs or utilizing onsite renewable energy generation.

The DEC points out that the consideration of sustainability in remedy selection is consistent

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with existing statutes, regulations, and guidance. Moreover, the DEC notes that remedy selection still must comply with applicable regulations, standards, policies, and guidance documents, and all selected remedies still, at a minimum, must “protect public health and the environment, address source removal and control, address groundwater protection and restoration measures, and strive to meet the cleanup goal of the respective program (e.g., pre-release for petroleum spills).”

The draft policy also states that remedies selected under programs subject to the State Superfund Program, Brownfield Cleanup Program, and Environmental Restoration Program² still must be selected in accordance with the nine remedy selection criteria contained in the governing regulations.³ The DEC notes that under those regulations, the evaluation of sustainability primarily occurs as part of the assessment of long-term and short-term effectiveness and long-term permanence of a remedy.

Sustainability also may come into play when evaluating whether a particular remedy can be implemented, its cost-effectiveness, its community acceptance, and the land use impacts it may have. Importantly, the DEC’s draft policy makes it clear that sustainability “will be considered as part of the evaluation of an appropriate remedy,” but “green technology” will not be used to select a “lesser remedy when a more comprehensive remedy is appropriate and feasible.” The DEC’s proposed policy includes a list of characteristics which it believes are likely to be the most green:

- minimizing short-term and long-term ancillary impacts to the environment;
- minimizing the carbon and environmental footprint of the remedy;
- achieving the remedial action objectives more sustainably;
- achieving a complete and permanent cleanup; and
- permanently and significantly reducing the toxicity, mobility or volume of contamination.

Documentation

The draft policy notes that all “green remediation efforts should be documented.” For example, in selecting a remedy, the remedial alternatives analysis and decision documents need to describe the green remediation principles considered and need to include qualitative and quantitative sustainability information generated to support the decision. The documents also must demonstrate that green remediation and sustainability efforts were considered in designing and implementing the remedy. In addition, final engineering reports will have to include a discussion of the green remediation practices and technologies employed throughout the remedial program.

Since the proposed policy requires green remediation principles be taken into consideration throughout the cleanup process, documenting such efforts as part of each periodic review and remedial system optimization review conducted during the site management phase needs to be done. The reports of these reviews need to discuss the green remediation principles employed during the past reporting cycle. The proposed policy also requires a discussion in these reports of any associated quantitative or qualitative reductions in impacts to the environment and recommendations that

can be employed during the next reporting cycle.

Concepts and Techniques

The draft policy specifically contemplates numerous green concepts. These include:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term when choosing a site remedy;
- Reducing direct and indirect GHG and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Using renewable energy sources where possible;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling, and increasing reuse of materials that would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes that balance ecological, economic, and social goals, and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

In addition, the DEC draft policy provides examples of green remediation techniques applicable to all phases of remedial programs, examples applicable to the remedy selection, design and/or construction phases, and examples applicable to site management.

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The range of techniques in the first category includes increasing energy efficiency/minimizing total energy use and direct and indirect carbon dioxide/GHG emissions to the atmosphere; reducing emissions of air pollutants; minimizing habitat disturbance and creating or enhancing habitat or usable land; conserving natural resources; minimizing fresh water consumption and maximizing water reuse during daily operations and treatment processes; preventing long-term erosion, surface runoff, and off-site water quality impacts; preventing unintended soil compaction; minimizing waste or implementing beneficial use of materials that would otherwise be considered a waste; minimizing equipment and truck idling and using sustainably produced biofuels; utilizing clean diesel (new or retrofitted) equipment to reduce emissions; and minimizing both truck travel for disposal and the use of heavy equipment.

The examples of green remediation techniques in the second category are just as broad. These include maintaining, using, mimicking, or enhancing natural processes where possible to effect remediation; encouraging development and evaluation of low-energy alternatives such as enhanced bioremediation, phytoremediation, permeable reactive barriers (PRBs), source

removal with monitored natural attenuation (MNA), enhanced attenuation of chlorinated organics (EACO), engineered wetlands, and remedies that can be driven to MNA or monitoring only (e.g., remedies that will not need external power indefinitely); using renewable energy if possible, or purchasing renewable energy credits; evaluating if a remediation system could be protective with an intermittent energy supply (e.g., pumping or venting only during daytime or adequate winds); encouraging the use of remediation technologies that permanently destroy contamination; and addressing sources more aggressively to reduce long-term operation and maintenance of treatment or containment systems.

Specific green remediation techniques relating to design include designing for efficiency (e.g., sizing motors optimally); designing adaptable systems (e.g., systems that use less energy as the site cleans up); incorporating green building design; reusing existing buildings and infrastructure to reduce waste; reusing and recycling construction and demolition debris and other material; maximizing beneficial use of materials that would otherwise be considered a waste; integrating remedial design with contemplated reuse of site; designing cover systems to be usable (e.g., habitat, recreation, renewable energy generation); designing storm water management or cover systems to recharge aquifers and minimize the creation or replacement of impervious surfaces; using native vegetation requiring little or no irrigation; and reclaiming treated water for beneficial use such as process water or irrigation.

Finally, the DEC suggests examples of green remediation techniques applicable to site management that include focusing on optimization to reduce energy use or time to closure; increasing energy efficiency or minimizing total energy use and carbon dioxide or GHG emissions to the air by replacing equipment, altering operation, or shutting down unnecessary equipment; evaluating the possibility of switching to renewable energy either directly (generated on site, off-grid or grid-tied) or indirectly through a utility (green power purchase program); incorporating sustainability into periodic reviews; assessing if an energy-intensive remedy is still the best remedy for the site; and evaluating the possibility of MNA for sites where this was not originally considered.

Conclusion

Green practices and technologies that are less disruptive to the environment, generate less waste, increase reuse and recycling, and emit fewer GHG and other pollutants into the atmosphere will need to be considered as part of the assessment, investigation, and remediation of contaminated sites and are the next step in the “green” revolution. All parties involved in environmental cleanups should take special note of the final version of the DEC’s draft policy when it is issued, as their cleanups will be impacted by this new policy.

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1. See, http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.
2. 6 NYCRR Part 375.
3. 6 NYCRR Part 375-1.8(f).