§ 27-1415. Remedial program requirements.

1. Remedial programs. All remedial programs shall be protective of public health and the environment including but not limited to groundwater according to its classification pursuant to section 17-0301 of this chapter; drinking water, surface water and air (including indoor air); sensitive populations, including children; and ecological resources, including fish and wildlife. In all cases, the target risk of residual contamination at a site shall not exceed an excess cancer risk of one in one million for carcinogenic end points and a hazard index of one for non-cancer end points.

2. Investigation. (a) Remedial investigation. A remedial investigation shall fully characterize the nature and extent of contamination at and/or emanating from a brownfield site. Such investigation shall emphasize data collection and sampling and monitoring, as necessary, and includes but is not limited to: characterization of site geologic and hydrogeologic conditions, including groundwater flow, contaminant movement, and the response of the groundwater system to extraction; and assessment of the existing and potential impact of groundwater contamination on private or community water supply wells, surface water quality, air quality, and indoor air quality.

(b) Qualitative exposure assessment. A qualitative exposure assessment shall qualitatively determine the route, intensity, frequency, and duration of actual or potential exposures of humans, fish and wildlife to contaminants. Such assessment must analyze the nature and size of the population currently exposed or which may reasonably be expected to be exposed to the contaminants that are present at or emanating from a site, and shall include a determination of the reasonably anticipated future land use of the site and affected off-site areas and the reasonably anticipated future groundwater use. A qualitative exposure assessment consists of characterizing the exposure setting, identifying current and reasonably foreseeable exposure pathways, and evaluating contaminant fate and transport. Some off-site field investigation to identify and sample any potential areas of contamination may be required to support the exposure assessment.

3. Selection. The remedial program for a site shall be selected upon due consideration of the following factors:

(a) Conformance to standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable, or that are not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with, and with consideration being given to guidance determined, after the exercise of engineering judgment, to be applicable. Such good cause exists if any of the following is present:

(i) the proposed action is only part of a complete program that will conform to such standard or criterion upon completion; or

(ii) conformity to such standard or criterion will result in greater risk to the public health or to the environment than alternatives; or

(iii) conformity to such standard or criterion is technically impracticable from an engineering perspective; or

(iv) the program will attain a level of performance that is equivalent to that required by the standard or criterion through the use of another method or approach.

(b) Overall protectiveness of the public health and the environment.

(c) Short-term effectiveness.

(d) Long-term effectiveness and permanence. A remedial program that achieves a complete and permanent cleanup of the site is to be preferred over a remedial program that does not do so.

(e) Reduction in toxicity, mobility and/or volume of contamination with treatment. A remedial program that permanently and significantly reduces the toxicity, mobility and/or volume of contamination is to be preferred over a remedial program that does not do so. The following is the hierarchy of the remedial technologies ranked from the most preferable to the least preferable: destruction, on-site or off-site; separation/treatment, on-site or off-site; solidification/chemical fixation, on-site or off-site; control and isolation, on-site or off-site.

(f) Implementability.

(g) Cost effectiveness.

(h) Community acceptance.

(i) Land use. The current, intended, and reasonably anticipated future land uses of the site and its surroundings shall be considered in the

selection of the remedy for soil remediation, provided the department determines that there is reasonable certainty associated with such use. If the use proposed for the site does not conform with applicable zoning laws or maps or the reasonably anticipated future use of the site determined by the department pursuant to this section, the department shall disapprove such use. The reasonably anticipated future use of the site and its surroundings shall be documented by the applicant and determined by the department, taking into consideration factors including, but not limited to, those listed below:

(i) Current use and historical and/or recent development patterns.

(ii) Applicable zoning laws and maps.

(iii) Brownfield opportunity areas as designated pursuant to section nine hundred seventy-r of the general municipal law.

(iv) Applicable comprehensive community master plans, local waterfront revitalization plans as provided for in article forty-two of the executive law, or any other applicable land use plan formally adopted by a municipality.

(v) Proximity to real property currently used for residential use, and to urban, commercial, industrial, agricultural, school or day care facilities and recreational areas.

(vi) Any written and oral comments submitted by members of the public on the applicant's proposed use as part of citizen participation activities performed by the applicant pursuant to this title.

(vii) Environmental justice concerns, which for purposes of this title, include the extent to which the proposed use may reasonably be expected to cause or increase a disproportionate burden on the community in which the site is located, including low-income minority communities, or to result in a disproportionate concentration of commercial or industrial uses in what has historically been a mixed use or residential community.

(viii) Federal or state land use designations.

(ix) Population growth patterns and projections.

(x) Accessibility to existing infrastructure.

(xi) Proximity of the site to important cultural resources, including federal or state historic or heritage sites or Native American religious sites.

(xii) Natural resources, including proximity of the site to important

federal, state or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species.

(xiii) Potential vulnerability of groundwater to contamination that might emanate from the site, including proximity to wellhead protection and groundwater recharge areas and other areas identified by the department and the state's comprehensive groundwater remediation and protection program established pursuant to title thirty-one of article fifteen of this chapter.

(xiv) Proximity to floodplains.

(xv) Geography and geology.

(xvi) Current institutional controls applicable to the site.

4. Tracks. The commissioner, in consultation with the commissioner of health, shall propose within twelve months and thereafter timely promulgate regulations which create a multi-track approach for the remediation of contamination, and, commencing on the effective date of such regulations, utilize such multi-track approach. Such regulations shall provide that groundwater use in Tracks 2, 3 or 4 can be either restricted or unrestricted. The tracks shall be as follows:

Track 1: The remedial program shall achieve a cleanup level that will allow the site to be used for any purpose without restriction and without reliance on the long-term employment of institutional or engineering controls, and shall achieve contaminant-specific remedial action objectives for soil which conform with those contained in the generic table of contaminant-specific remedial action objectives for unrestricted use developed pursuant to subdivision six of this section. Provided, however, that volunteers whose proposed remedial program for the remediation of groundwater may require the long-term employment of institutional or engineering controls after the bulk reduction of groundwater contamination to asymptotic levels has been achieved but whose program would otherwise conform with the requirements necessary to qualify for Track 1, shall qualify for Track 1.

Track 2: The remedial program may include restrictions on the use of the site or reliance on the long-term employment of engineering and/or

institutional controls, but shall achieve contaminant-specific remedial action objectives for soil which conform with those contained in one of the generic tables developed pursuant to subdivision six of this section without the use of institutional or engineering controls to reach such objectives.

Track 3: The remedial program shall achieve contaminant-specific remedial action objectives for soil which conform with the criteria used to develop the generic tables for such objectives developed pursuant to subdivision six of this section but may use site specific data to determine such objectives.

Track 4: The remedial program shall achieve a cleanup level that will be protective for the site's current, intended or reasonably anticipated residential, commercial, or industrial use with restrictions and with reliance on the long-term employment of institutional or engineering controls to achieve such level. The regulations shall include a provision requiring that a cleanup level which poses a risk in exceedance of an excess cancer risk of one in one million for carcinogenic end points and a hazard index of one for non-cancer end points for a specific contaminant at a specific site may be approved by the department without requiring the use of institutional or engineering controls to eliminate exposure only upon a site specific finding by the commissioner, in consultation with the commissioner of health, that such level shall be protective of public health and environment. Such finding shall be included in the draft remedial work plan for the site and fully described in the notice and fact sheet provided for such work plan.

5. Source removal and control measures. The following is the hierarchy of source removal and control measures ranked from most preferable to least preferable. For all applicants, the remedial program selected pursuant to this title shall address sources in the following manner:

(a) Removal and/or treatment. All free product, concentrated solid or semi-solid contaminants, dense non-aqueous phase liquid, light non-aqueous phase liquid and/or grossly contaminated soil shall be removed and/or treated; provided however if the removal and/or treatment of all such contamination is not feasible, such contamination shall be

removed or treated to the greatest extent feasible.

(b) Containment. Any source remaining following removal and/or treatment pursuant to this subdivision shall be contained; provided however if full containment is not feasible, such source shall be contained to the greatest extent feasible.

(c) Elimination of exposure. Exposure to any source remaining following removal, treatment and/or containment pursuant to this subdivision shall be eliminated through additional measures, including but not limited to, as applicable, the timely and sustained provision of alternative water supplies and the elimination of volatilization into buildings; provided however if such elimination is not feasible such exposure shall be eliminated to the greatest extent feasible.

(d) Treatment of source at the point of exposure. Treatment of source at the point of exposure, including but not limited to, as applicable, wellhead treatment or the management of volatile contamination within buildings, shall be considered as a measure of last resort.

5-a. Plume stabilization shall be evaluated for all remedies and the further migration of contamination from the site shall be prevented to the extent feasible, including any actions that would be necessary to maintain and monitor such stabilization. In addition, a participant shall prevent the further migration of plumes to the extent feasible.

6. Soil cleanup objectives. (a) The regulations shall include three generic tables of contaminant-specific remedial action objectives for soil based on current, intended or reasonably anticipated future use, including: (i) unrestricted, (ii) commercial and (iii) industrial.

(b) Such objectives shall be protective of public health and the environment pursuant to subdivision one of this section, and the level of risk associated with remedial action objectives for individual contaminants listed in the table or developed by the applicant pursuant to Track 3 shall not exceed an excess cancer risk of one in one million for carcinogenic end points and a hazard index of one for non-cancer end points; provided, however, that if the background soil concentration for a contaminant in rural soils in New York state exceeds such risk level, the contaminant-specific action objective for such contaminant may be established equal to such background concentration. In developing such

tables, the department shall consider:

(i) standards, criteria and guidance which are found by the department to be applicable or relevant and appropriate pursuant to paragraph (a) of subdivision three of this section;

(ii) the behaviors of children;

(iii) the protection of adjacent residential uses;

(iv) contaminants which act through similar toxicological mechanisms or have the potential for additive and/or synergistic effects, and exposure to the same contaminant or group of contaminants from other sources and routes; and

(v) the feasibility of achieving more stringent remedial action objectives, based on experience under the existing state remedial programs, particularly where toxicological, exposure, or other pertinent data are inadequate or nonexistent for a specific contaminant.

(c) The department shall update such tables of contaminant-specific remedial action objectives every five years. The initial tables shall be published in draft form for public comment with a public comment period of one hundred twenty days, and be the subject of at least three public hearings throughout the state. Subsequent tables shall be the subject of at least one public hearing and a public comment period of at least ninety days.

(d) For Track 4, exposed surface soils shall not exceed the generic contaminant-specific remedial action objectives for soil developed for unrestricted, commercial, or industrial use pursuant to this subdivision which conforms with the site's current intended, or reasonably anticipated future use. For purposes of this section "exposed surface soils" shall mean two feet for sites used for residential use and one foot for sites used for commercial or industrial use.

7. Institutional and engineering controls.

(a) The department may approve a proposed remedial work plan that includes institutional controls and/or engineering controls as components of a proposed remedial program provided the remedial work plan includes:

(i) a complete description of any proposed use restrictions and/or institutional controls and the mechanisms that will be used to implement, maintain, monitor, and enforce such restrictions and

controls, both by the applicant and by state and local government;

(ii) a complete description of any proposed engineering controls and any operation, maintenance, and monitoring requirements, including the mechanisms that will be used to continually implement, maintain, monitor, and enforce such controls and requirements, both by the applicant and by state and local government;

(iii) an evaluation of the reliability and viability of the long-term implementation, maintenance, monitoring, and enforcement of any proposed institutional or engineering controls and an analysis of the long-term costs of implementing, maintaining, monitoring and enforcing such controls, including costs that may be borne by state or local governments;

(iv) sufficient analysis to support a conclusion that effective implementation, maintenance, monitoring and enforcement of institutional and/or engineering controls can be reasonably expected;

(v) where required by the department, financial assurance to ensure the long-term implementation, maintenance, monitoring, and enforcement of any such controls; and

(vi) a requirement that any engineering control must be used in conjunction with institutional controls to ensure the continued integrity of such engineering control.

(b) Within one hundred eighty days of commencement of the remedial design or at least three months prior to the date of the anticipated issuance of the certificate of completion, the owner of a brownfield site, and/or any person responsible for implementing a remedial program at such site, where institutional or engineering controls are employed pursuant to this title, shall execute an environmental easement pursuant to title thirty-six of article seventy-one of this chapter.

(c) The owner of a brownfield site at which institutional or engineering controls are employed pursuant to this title shall, unless otherwise provided in writing by the department, annually submit to the department a written statement by an individual licensed or otherwise authorized in accordance with article one hundred forty-five of the education law to practice the profession of engineering, or by such other expert as the department may find acceptable certifying under penalty of perjury that the institutional controls and/or engineering controls employed at such site are unchanged from the previous

certification and that nothing has occurred that would impair the ability of such control to protect the public health and environment, or constitute a violation or failure to comply with any operation and maintenance plan for such controls and giving access to the department to such real property to evaluate continued maintenance of such controls.

(d) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the commissioner in consultation with the commissioner of health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

(e) The commissioner shall create, update, and maintain a database system for public information purposes and to monitor and track all brownfield sites subject to this title. Data incorporated into such system for each site for which information has been collected pursuant to this title shall include, but shall not be limited to, a site summary, name of site owner, location, status of site remedial activity, and, if one has been created pursuant to title thirty-six of article seventy-one of this chapter, a copy of the environmental easement, and a contact number to obtain additional information. Sites shall be added to such system upon the execution of a brownfield site cleanup agreement pursuant to section 27-1409 of this title. If and when an environmental easement is modified or extinguished, the copy of the environmental easement contained in the database shall be updated accordingly. Such database shall be in such a format that it can be readily searched by affected local governments and the public for purposes including but not limited to determining whether an environmental easement has been recorded for a site pursuant to title thirty-six of article seventy-one of this chapter. The database shall be available electronically. Information from this database shall be incorporated into the geographic

information system created and maintained by the department pursuant to section 3-0315 of this chapter.

8. Presumptive remedial strategies. Nothing herein contained shall be deemed to require site-specific remedy selection, and the commissioner shall have the power to develop a list of presumptive remedial strategies that applicants may use to meet the requirements associated with Tracks 1 through 4 of this section. Such remedies may be developed for specific site types and/or contaminants based upon historical patterns of remedy selection and the department's scientific and engineering evaluation of performance data on technology implementation.

9. Use of innovative technologies. The commissioner, in consultation with the commissioner of health, shall consider and encourage the use of innovative technologies which will meet the remedial objectives of this title. Consistent with the provisions of section twelve hundred eighty-five-f of the public authorities law, the commissioner, in consultation with the president of the environmental facilities corporation, shall encourage the development of such technologies.