



WEST VIRGINIA SECRETARY OF STATE

MAC WARNER

ADMINISTRATIVE LAW DIVISION

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NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED
BY THE WEST VIRGINIA LEGISLATURE

AGENCY: Environmental Protection Secretarys Office TITLE-SERIES: 60-03
RULE TYPE: Legislative Amendment to Existing Rule: Yes Repeal of existing rule: No
RULE NAME: Voluntary Remediation and Redevelopment Rule
CITE STATUTORY AUTHORITY: W. Va. Code § 22-22-3

The above rule has been authorized by the West Virginia Legislature.

Authorization is cited in (house or senate bill number) Senate Bill 163

Section §64-3-1. Department of Environmental Protection. Passed On 2/16/2018 12:00:00 AM

This rule is filed with the Secretary of State. This rule becomes effective on the following date:

April 1, 2018

This rule shall terminate and have no further force or effect from the following date:

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TITLE 60
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION, SECRETARY'S OFFICE

SERIES 3
VOLUNTARY REMEDIATION AND REDEVELOPMENT RULE

§60-3-1. General.

1.1. Scope. -- This Legislative rule establishes the eligibility, procedures, standards, and legal documents required for voluntary remediation activities and brownfield revitalization.

1.2. Authority. -- W. Va. Code §§ 22-22-3 and 22-22-4(c).

1.3. Filing Date. -- March 20, 2018.

1.4. Effective Date. -- April 1, 2018.

§60-3-2. Definitions.

Unless the context clearly requires a different meaning, the definitions contained in W. Va. Code §§ 22-22-2 and 22-22B-2 apply to this rule, in addition to those definitions set forth below:

2.1. "Act" means the Voluntary Remediation and Redevelopment Act, W. Va. Code § 22-22-1, et seq.

2.2. "Anthropogenic background" means concentrations of chemicals that are present in the environment due to human activities unrelated to operation at the site.

2.3. "Applicant" means a person who is applying or has applied to participate in the Voluntary Remediation Program.

2.4. "Brownfields Revolving Fund applicant" means a person who is applying or has applied to participate in the Voluntary Remediation Program for a brownfield property and who is seeking or has obtained site assessment or remediation moneys from the Brownfields Revolving Fund.

2.5. "Carcinogen" means any substance which can cause cancer.

2.6. "Cumulative site risk" means the summation of risks to a human receptor or ecological receptor from one or more contaminants released at the site over a period of time.

2.7. "Day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.

2.8. "De minimis risks" means those risks that are so trivial that they would not require remediation under this rule.

2.9. "Ecological receptors of concern" means specific ecological communities, populations, or individual organisms protected by federal, State, or local laws and regulations or those local populations which provide important natural or economic resources, functions, and values.

2.10. "Ecosystem" means an integrated, self-functioning system consisting of interactions among both the biotic community and abiotic environment within a specified location in space and time. Sizes of ecosystems may vary considerably.

2.11. "Endangered or threatened species" means any plant or animal species identified as endangered or threatened pursuant to federal, State, or local laws.

2.12. "Exposure" means contact by an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lungs, gut) and available for absorption.

2.13. "Exposure factors" means values used to estimate exposure in risk assessment, such as the number of days per week that a person may expect exposure or the amount of contaminated media that a person might incidentally ingest per day.

2.14. "Exposure pathway" means the physical course a chemical or pollutant takes from its source to the organism exposed.

2.15. "Exposure route" means the way a chemical or physical agent comes in contact with a receptor (e.g., by eating [ingestion], breathing [inhalation], or touching [dermal contact]).

2.16. "Fate and transport" means the behavior and movement of a chemical through an environmental medium.

2.17. "Free product" means regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water). These substances include liquid petroleum products such as gasoline, kerosene, diesel fuel, or oil, and any hazardous substance either listed in § 101(14) of CERCLA or defined in § 1004 of RCRA. For petroleum hydrocarbons, the term nonaqueous phase liquid includes both liquid phase and residual phase hydrocarbons. Liquid phase product is capable of flowing downward and/or laterally into wells or excavations. Typically, free product exists as a pool or mound floating on the water table or resting on an impermeable soil layer. Residual phase product does not generally flow as a liquid; it occurs as globules within fractures or pores of soil or bedrock.

2.18. "Gross remediation costs" means the direct costs associated with remediation of a site and paid by the remediator. Gross remediation costs include the fees paid to the licensed remediation specialist and contractors, equipment expenses and rental, disposal costs, permit fees, remediation site personnel costs, and all other expenses directly related to achieving applicable standards at the site.

2.19. "Habitat" means the area or type of environment in which an organism or biological population naturally lives or is found.

2.20. "Hazard index" means the sum of the hazard quotients for multiple substances and/or multiple exposure pathways.

2.21. "Hazard quotient" means the value which quantifies noncarcinogenic risk for one chemical for one receptor population over a specified exposure period. The hazard quotient is equal to the ratio of a chemical-specific intake to the reference dose.

2.22. "Hourly rate" means the gross annual salary plus fringe benefits paid to an employee, plus the indirect cost rate calculated as a percentage of salary (as negotiated and established with the Federal

Government through the U.S. Department of the Interior, National Business Center, in accordance with 2 C.F.R. § 225), divided by 2080.

2.23. “Implementability” means the technical and administrative feasibility of an action, as well as the availability of needed goods and services.

2.24. “Industrial land use” means land used for commercial establishments, manufacturing plants, public utilities, mining, distribution of goods or services, administration of business activities, research and development facilities, warehousing, shipping, transporting, remanufacturing, stockpiling of raw materials, storage, repair and maintenance of commercial machinery or equipment, and waste management.

2.25. “Leaching potential” means the potential for soluble constituents to be dissolved and filter through the soil by a percolating fluid.

2.26. “Lowest Observed Adverse Effect Level or LOAEL” means the lowest concentration or dose evaluated in a test that causes statistically significant adverse effects in experimental trials.

2.27. “Natural background” means ambient concentrations of chemicals that are present in the environment and have not been influenced by humans (e.g., iron, manganese).

2.28. “New information” means any information the Department obtains directly or indirectly from any person after the Secretary issues a Certificate of Completion, but does not include information the Department received in the application for participation in the Voluntary Remediation Program, including any site assessment during the execution of the Voluntary Remediation Agreement or any work plan developed under such an agreement, or other information available to the Department under the Voluntary Remediation Program prior to the execution of the Certificate of Completion. The Secretary may consider information that does not qualify as new information along with new information, if necessary, to determine whether any of the conditions for reopening set out in section 16 of this rule have occurred.

2.29. “No further action” means a site is eligible to receive a Certificate of Completion on the basis of site assessment sampling or sampling data developed under a Voluntary Remediation Agreement which demonstrates that the site meets all applicable standards.

2.30. “No Observed Adverse Effect Level or NOAEL” means the highest concentration or dose evaluated in a test that does not cause statistically significant adverse effects in experimental trials.

2.31. “Primary employee” means a voluntary remediation project manager, engineer, or scientist employed by the Secretary in negotiating, facilitating, overseeing, or confirming a voluntary remediation project. The term does not include secretaries, paralegals, clerks, technicians, or others who serve to support the activities of the primary employee.

2.32. “Probabilistic risk assessment” means a risk assessment performed using a mathematical technique that produces a distribution of values for a calculated term by solving for that term in successive iterations. Each successive iteration requires the selection of a single input value from defined distribution(s) for each of the terms used to derive the calculated term.

2.33. “Readily apparent harm” means visual evidence of stressed biota attributable to the release at the site, including, but not limited to, fish kills or abiotic conditions, or the visible presence of oil, tar, or other non-aqueous phase contaminant in soil over an area equal to or greater than two acres, or over an area equal to or greater than 1,000 square feet in sediment.

2.34. “Reasonably anticipated future use” means potential future land and water uses which have a credible chance of occurrence.

2.35. “Reasonable potential” means a scenario with a credible chance of occurrence without considering extreme or highly unlikely circumstances.

2.36. “Receptors (human)” means humans potentially exposed to contaminants released from the site.

2.37. “Reopener” means one or more of the grounds for setting aside some or all of a Certificate of Completion and reopening a Voluntary Remediation Agreement that is specified in section 16 of this rule.

2.38. “Residential land use” means any real property or portion thereof which is used for housing human beings. This term includes property used for schools, day care centers, nursing homes, or other residential-style facilities or recreational areas.

2.39. “Risk-based concentrations” means concentration levels developed by the Secretary for individual chemicals that correspond to a specific incremental cancer risk level of 1×10^{-6} for residential land use and 1×10^{-5} for industrial land use or a hazard quotient of 1. These concentrations are to be used as de minimis standards.

2.40. “Saturation concentration” means the maximum possible quantity of a substance that can dissolve in a standard volume of a specific solvent (e.g., water) under standard conditions of temperature and pressure.

2.41. “Site assessment” means characterization of a site through an evaluation of its physical and environmental characteristics (e.g., subsurface geology, soil properties and structures, hydrology, and surface characteristics) to determine if a release has occurred; the levels of the chemical(s) of concern in environmental media; and the likely physical distribution of the chemical(s) of concern. The site assessment involves the collection of data as needed on groundwater and surface water quality, land and resource use, and potential receptors, which information is used to support remedial action decisions.

2.42. “Site assessment costs” means costs incurred in connection with site assessment activities including, but not limited to: waste disposal costs, professional fees and expenses of those evaluating contamination, the cost of identifying a site history and prior land use, the cost of archaeological investigations, and attorneys’ fees incurred in evaluating a site or negotiating a Voluntary Remediation Agreement.

2.43. “Systemic toxicant” means a harmful substance or agent that may enter the body and injure an organ or organ system and have an effect other than causing cancer. Most chemicals that produce systemic toxicity do not cause a similar degree of toxicity in all organs, but usually demonstrate major toxicity to one or two organs.

2.44. “Total dissolved solids” means all material that passes through the standard glass fiber filter as provided in the current edition of Standard Methods for the Examination of Water and Wastewater.

2.45. “Trade secrets” means any information protected from disclosure pursuant to the West Virginia Freedom of Information Act, W. Va. Code § 29B-1-4(a)(1).

2.46. “Voluntary Remediation Program” means the program for the voluntary assessment and remediation of sites under the Act.

2.47. “Weight-of-evidence approach” means the process by which measurement endpoints are related to an assessment endpoint to evaluate whether a significant risk of harm is posed to the environment. The approach is planned and initiated at the problem formulation stage and results are integrated at the risk characterization stage.

§60-3-3. Eligibility.

3.1. Eligibility criteria for Voluntary Remediation Program. – Any site is eligible to participate in the Voluntary Remediation Program, except the following:

3.1.a. Any site that is subject to a unilateral order issued by the U.S. Environmental Protection Agency (EPA) pursuant to §§ 104 through 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9604 - 9606;

3.1.b. Any site that has been listed or is proposed to be listed on the National Priorities List developed by EPA pursuant to Title I of CERCLA, unless EPA has formally delisted it;

3.1.c. Any site that is subject to a unilateral enforcement order under § 3008 or § 7003 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6928 or § 6973;

3.1.d. Any site that is subject to a unilateral enforcement order for corrective action issued pursuant to any provision of Chapter 22 of the West Virginia Code; or

3.1.e. Any site where the release that is subject to remediation was created through gross negligence or willful misconduct by the applicant.

3.2. Eligibility Determination. – In deciding the acceptability of an application, the Secretary shall determine whether the eligibility criteria of this section have been satisfied.

§60-3-4. Application to Participate in Voluntary Remediation Program.

4.1. Contents of Application. – Any person who desires to participate in the Voluntary Remediation Program shall submit to the Secretary, on a form provided by the Secretary, an electronic application which shall contain, at a minimum, the following information:

4.1.a. The applicant’s name, which includes the applicant’s legal name and any other aliases or other names by which the applicant is known or under which the applicant does business;

4.1.b. The applicant’s address, which includes the current address at which the applicant can be reached by mail and, in the event that Post Office delivery is not feasible, the applicant shall also provide a description of his or her current address that will enable the Secretary to locate the applicant;

4.1.c. The applicant’s financial capabilities, which includes, but is not limited to, information that demonstrates the applicant has, or has secured access to, financial resources that are adequate to successfully complete the voluntary remediation and satisfy any contractual obligations entered into by the applicant that relate to the voluntary remediation;

4.1.d. The applicant’s technical capabilities, which includes, at a minimum, information that the applicant is contracting or has contracted with a licensed remediation specialist to perform the work required;

4.1.c. A general description of the site, which includes, at a minimum, the following:

4.1.e.1. A written description of the site that includes any city, county, and street addresses and adjacent landmarks, buildings, waterways, former uses, or other identifying information;

4.1.e.2. The deed book number and page number of the site property as contained in the office of the County Clerk;

4.1.e.3. County tax map references;

4.1.e.4. A map delineating the boundaries of the site;

4.1.e.5. Horizontal coordinates of a reference point to the site, such as the center of the site or main entrance, which location data shall have a horizontal accuracy within 12.2 meters (40 feet) in accordance with the U.S. Department of the Interior's U.S. Geologic Survey National Map Accuracy Standards;

4.1.e.6. Any other identifying information that will serve to clearly and concisely identify the property;

4.1.e.7. Information of which the applicant is aware concerning the nature and extent of any known contamination at the site and immediately contiguous to the site, or wherever the contamination came to be located; and

4.1.e.8. Information demonstrating the applicant's legal right to perform the work required for participation in the program (e.g., title report, deed, or access agreement).

4.1.e.9. Where an application covers two or more non-contiguous locations, the applicant shall provide this information for each location.

4.1.f. A site assessment prepared by a licensed remediation specialist, which includes information that identifies all actual or potential contaminants reasonably expected to be at and near the site, the nature and extent of the contamination, and potential receptors and pathways for contaminant migration. In no case, however, shall the Secretary deny an application on the grounds that the site assessment is inadequate if the site assessment satisfies the requirements contained in W. Va. Code § 22-22-4(e). Where the Secretary determines that additional site assessment information is necessary, the Secretary and the applicant may address submission of the necessary additional information in the Voluntary Remediation Agreement; and

4.1.g. Other information as requested by the Secretary.

4.2. Application Fee.

4.2.a. Each applicant shall pay an application fee in accordance with this subsection. The applicant shall mail the application fee, in the form of a check made payable to the West Virginia Department of Environmental Protection for deposit into the Voluntary Remediation Administrative Fund, accompanied by a transmittal letter stating the site name and address. The application fee shall be mailed at the time the application is filed electronically. The Department must receive both the application and application fee before it will take any action on the application.

4.2.b. Should the applicant withdraw the application prior to the Secretary's determination of eligibility, the Department shall refund to the applicant one-half of the application fee paid by the applicant.

4.2.c. If the Secretary rejects the application and applicant does not resubmit a revised application within 25 days, the Secretary shall refund one-half the application fee within 30 days of the rejection of the application.

4.2.d. The applicant shall calculate the application fee based upon the points assigned to the property using the following criteria:

4.2.d.1. Size of Property. The total square feet of surface area of the property to be covered by the application, rounded to the nearest 1,000 square feet. For properties less than one acre, the assigned points are 10; for properties of one acre or more but less than five acres, the assigned points are 20; and for properties of five acres or more, the assigned points are 30;

4.2.d.2. Years of Operation. The number of years that the property was operated for any non-residential activity. Partial years of operation should be treated as complete years of operation. For properties operated 10 years or less, the assigned points are 10; for properties operated more than 10 years but less than 20, the assigned points are 20; and for properties operated 20 years or more, the assigned points are 30;

4.2.d.3. NAICS Code. Using the North American Industry Classification System published by the U.S. Office of Management and Budget as it applies to the activities that have been conducted on the property, if the property falls within NAICS Subsector Codes 316 (Leather and Allied Product Manufacturing), 322 (Paper Manufacturing), 324 (Petroleum and Coal Products Manufacturing), 325 (Chemical Manufacturing), 326 (Plastics and Rubber Products Manufacturing), 331 (Primary Metal Manufacturing), 332 (Fabricated Metal Product Manufacturing), 333 (Machinery Manufacturing), 334 (Computer and Electronic Product Manufacturing), 335 (Electrical Equipment, Appliance, and Component Manufacturing), 336 (Transportation Equipment Manufacturing), or 339 (Miscellaneous Manufacturing), the assigned points are 30; if the property falls within NAICS Subsector Codes, 113 (Forestry and Logging), 211 (Oil and Gas Extraction), 212 (Mining (except Oil and Gas)), 213 (Supporting Activities for Mining), 221 (Utilities), 311 (Food Manufacturing), 312 (Beverage and Tobacco Product Manufacturing), 313 (Textile Mills), 314 (Textile Product Mills), 315 (Apparel Manufacturing), 321 (Wood Product Manufacturing), 323 (Printing and Related Support Activities), 327 (Nonmetallic Mineral Product Manufacturing), 337 (Furniture and Related Product Manufacturing), 486 (Pipeline Transportation), 488 (Support Activities for Transportation), 511 (Publishing Industries (except Internet)), or 562 (Waste Management and Remediation Services), the assigned points are 20; and if the property falls within any other NAICS Subsector Code, the assigned points are 10. If any activity falls in more than one of these groupings, the applicant shall use the category which results in the greatest number of points being assigned;

4.2.d.4. For any of these criteria, if the applicant does not know the correct category, the applicant shall apply the category resulting in the greatest number of points;

4.2.d.5. Applying the criteria described above, where the total number of points is 30 or 40, the application fee shall be \$1,000; 50 or 60, the application fee shall be \$3,000; and 70, 80, or 90, the application fee shall be \$5,000; and

4.2.d.6. If the application covers two or more non-contiguous locations, the application fee shall be \$5,000, provided that the locations under consideration display similar contaminant profiles and similar surface and subsurface characteristics. The applicant shall construe similar surface/subsurface characteristics to be limited to upland, riparian/wetland, karst, or other similar land forms as approved by

the Secretary. If any of the individual locations includes a surface area greater than two acres, the applicant must submit a separate application and fee for that site.

4.3. Confidentiality. – Information obtained by the Department pursuant to this rule is available to the public, unless the Secretary certifies that the information is confidential. The Secretary may make such certification where any person shows, to the satisfaction of the Secretary, that the information or parts thereof, if made public, would divulge methods, processes, or activities entitled to protection as trade secrets.

4.4. Action on Application. – The Secretary shall act upon all applications within 45 days of receipt, unless the applicant and the Secretary both agree on an extension of time and confirm the same in writing. The Secretary may approve the application, reject the application, or accept the application subject to correction. The Secretary shall give the applicant a reasonable amount of time to make corrections specified by the Secretary.

4.5. An applicant may appeal the Secretary's rejection of an application to the Environmental Quality Board in accordance with W. Va. Code § 22B-1-7.

§60-3-5. Licensed Remediation Specialists.

5.1. Professional Responsibilities of Licensed Remediation Specialists.

5.1.a. Any individual who wishes to practice as a licensed remediation specialist in the State of West Virginia must hold a valid remediation specialist license. Each individual has the burden of demonstrating to the Secretary's satisfaction that he or she meets the requirements for licensing.

5.1.b. It is the licensed remediation specialist's duty to protect the safety, health, and welfare of the public in the performance of his or her professional duties. If he or she is unable to meet this duty, the licensed remediation specialist may either sever the relationship with the client or employer or refuse professional responsibility for the work plan, report, or design. If the relationship is severed, the applicant shall notify the Department within 72 hours of the severing of the relationship.

5.1.c. Specific areas of professional responsibility of the licensed remediation specialist are as follows:

5.1.c.1. The licensed remediation specialist is responsible for any release of contaminants during assessment and remediation activities undertaken pursuant to and contemplated in the approved remediation agreement, work plans, or reports. The act of moving contaminants within a site in the course of remediation activities is not considered a release;

5.1.c.2. Where a release of contaminants in excess of those identified in the work plan occurs at the site during remediation activities, the licensed remediation specialist shall immediately notify the Department, unless the release does not exceed reportable quantities found in 40 CFR Part 302;

5.1.c.3. A licensed remediation specialist shall only perform assignments for which the specialist is qualified by training and experience in those specific technical fields;

5.1.c.4. A licensed remediation specialist shall be objective in work plans, reports, and opinions and avoid any conflict of interest with employer, clients, and suppliers;

5.1.e.5. A licensed remediation specialist shall not solicit or accept gratuities, directly or indirectly, from contractors, agents, or other parties dealing directly with the employer or client in regard to professional services the licensed remediation specialist is performing at the work site;

5.1.e.6. A licensed remediation specialist shall not accept any type of bribe, falsify or permit misrepresentation of professional qualifications, intentionally provide false information to the Secretary, or knowingly associate with one who is engaging in business or professional practices of fraudulent or dishonest nature; and

5.1.e.7. A licensed remediation specialist shall not charge any special fees above usual and customary professional rates for being licensed.

5.1.d. The Secretary may revoke a license, suspend a license for not more than five years, or impose lesser sanctions as appropriate for acts or omissions in violations of this rule or W. Va. Code § 22-22-1, et seq.

5.2. Application for licensure. – Any individual who wishes to obtain a license to practice as a licensed remediation specialist must submit a complete and accurate application to the Secretary on forms supplied by the Secretary. The applicant shall submit an application fee, as specified in Table 60-3A of this rule, with the application. In order to qualify for the licensed remediation specialist examination, the applicant must demonstrate to the Secretary that he or she meets the following eligibility requirements:

5.2.a. Minimum Education Requirements: All individuals applying for a license shall meet the requirements of one of the following tracks:

5.2.a.1. Standard Track: The individual has earned a baccalaureate, masters, or doctorate degree from an accredited educational institution in one of the following areas: biology, chemistry, earth sciences, environmental sciences, geology, hydrogeology, microbiology, soil sciences, toxicology, scientific sub-disciplines of public health, risk assessment, hazardous waste management, engineering, or in a curriculum the Secretary determines is equivalent. The charter or accreditation of the recognized educational institution must have been effective as of the date the individual's degree(s) was granted; or

5.2.a.2. Alternative Track: The individual has earned at least a high school diploma, but does not meet the requirements for the standard track.

5.2.b. Minimum Experience Requirements: Each individual shall demonstrate to the Secretary's satisfaction that he or she meets the requirements for relevant professional experience, which means that the applicant has performed work of a professional grade and character that indicates the individual is competent to perform professional services pursuant to the requirements of the Act.

5.2.b.1. Relevant professional experience includes, at a minimum, practical knowledge of the following:

5.2.b.1.A. Remediation activities;

5.2.b.1.B. Procedures necessary to remediate a site;

5.2.b.1.C. Management of contaminants at a site, including, but not limited to:

5.2.b.1.C.1. Site investigation;

5.2.b.1.C.2. Health and safety protocol; and

5.2.b.1.C.3. Quality assurance.

5.2.b.1.D. Feasibility studies; and

5.2.b.1.E. Remedial design.

5.2.b.2. **Standard Track:** The individual must have six years of relevant professional experience, one of which is supervisory or project management related.

5.2.b.3. **Alternative Track:** The individual must have ten years of relevant professional experience, one of which is supervisory or project management related.

5.2.b.4. In addition to the practical knowledge criteria pursuant to paragraph 5.2.b.1 of this rule, the Secretary will also consider the following criteria in evaluating whether an individual's remediation and practical experience, considered both individually and collectively, constitute sufficient relevant professional experience:

5.2.b.4.A. Proficiency;

5.2.b.4.B. Broad knowledge of the various remediation technologies;

5.2.b.4.C. Number of individuals and disciplines of other professionals supervised or coordinated;

5.2.b.4.D. Duration of employment;

5.2.b.4.E. Nature of work performed (including, but not limited to, whether such experience includes work at sites where subsurface investigations have occurred); and

5.2.b.4.F. Any other factors the Secretary deems relevant.

5.2.b.5. The individual applying for licensing shall also provide the Secretary with three professional references, each of which, at a minimum, address the individual's range of practical knowledge and professional experience with regard to providing professional services under the Act.

5.2.b.6. Work performed during a period of full-time undergraduate study at an educational institution is considered part of the educational program, but is not considered acceptable professional experience; provided, that the Secretary may accept work performed for periods of at least two and one-half consecutive months per calendar year when not enrolled as a full-time student, during or incidental to undergraduate education as relevant professional experience, if the individual did not receive college credits for that work.

5.2.c. **Credits:** Individuals who have earned degrees from recognized educational institutions in addition to those required to meet the minimum educational requirements set forth in subdivision 5.2.a. may request that the Secretary credit some or all of that additional education toward the requirements for relevant professional experience in accordance with the following:

5.2.c.1. **Standard Track:** One year credit for each master's degree and two years credit for a doctorate degree, if the degrees are from a recognized educational institution in one of the academic areas identified in paragraph 5.2.a.1;

5.2.c.2. **Alternative Track:** One-half year credit for each associate's degree in one of the academic areas identified in paragraph 5.2.a.1; and

5.2.c.3. The Secretary will grant to an individual up to two years maximum credit for additional education under the Standard Track, or up to one year maximum credit for additional education under the Alternate Track.

5.3. **Licensing Examination:** The Secretary is responsible for implementing the following requirements, at a minimum, of the licensed remediation specialist examination:

5.3.a. **Frequency and Scheduling:** The Secretary shall administer a licensing examination at least every six months to all individuals who have met the requirements for licensure. Examinations shall be held at the time(s) and location(s) set by the Secretary. The Secretary shall provide public notice at least 15 days prior to the application due date for the next scheduled examination;

5.3.b. **Examination Format and Content:** Examinations shall test the individual's overall regulatory understanding and overall technical understanding. Overall regulatory understanding means an understanding of the relevant State and federal environmental regulations and related written policies. Overall technical understanding means demonstrating an understanding of basic concepts and methods in those scientific and technical fields related to assessment, containment, and remediation actions;

5.3.c. The Secretary shall prepare the licensing examination;

5.3.d. The Secretary shall initially develop a minimum of three separate examinations. The Secretary shall not repeat one single examination until he or she has given the other two examinations;

5.3.e. After the Secretary has used any of the individual examinations twice, he or she shall prepare a minimum of three new examinations;

5.3.f. An individual may take an examination only if he or she has paid the applicable examination fee established by this rule. The applicant shall pay the examination fee, as specified in Table 60-3A of this rule, after the Secretary has confirmed his or her eligibility to take the exam. The applicant shall pay the examination fee in full by check made payable to the West Virginia Department of Environmental Protection for deposit into the Voluntary Remediation Administrative Fund. The examination fee is non-refundable, except when the applicant shows, to the Secretary's satisfaction, that his or her failure to appear for the examination was due to circumstances beyond his or her reasonable control, in which case the applicant may either request a refund or request that the Secretary hold open his or her application until he or she can take a subsequent examination. The applicant shall take the make-up examination within two years of the Secretary's approval of the applicant's written application.

5.3.g. **Examination Procedures and Rules:** Each individual shall present some form of photographic identification prior to taking the test. The Secretary shall determine whether the applicant may use any books, notes, memoranda, scratch paper, non-programmable calculators, or other materials during the examination. No individual may discuss the examination or other procedures during or after the examination, and no individual may make copies of the examination;

5.3.h. The Secretary shall establish the passing score prior to administering the examination;

5.3.i. **Examination Results:** The Secretary shall grade the examinations and deliver the results to each individual within 30 days of the examination. The Secretary will not return the examination papers to the individual.

5.3.j. **Reapplication for Examination:** Individuals who fail to achieve a passing score on the examination may take a subsequent examination subject to the following procedures:

5.3.j.1. An individual shall be allowed to take a subsequent examination that is scheduled to occur on a date not more than two years after the date the Secretary approved the individual's written application, upon receipt by the Secretary of the following items:

5.3.j.1.A. A letter stating the individual's intention to take the subsequent examination;
and

5.3.j.1.B. The appropriate examination fee.

5.3.j.2. Individuals who seek to take a subsequent examination that is scheduled for a date that is greater than two years after the date the Secretary approved the individual's written application must submit the following prior to taking the examination:

5.3.j.2.A. The licensing application as per the procedures set forth in subsection 5.2; and

5.3.j.2.B. The full application fee described in subsection 5.2.

5.3.k. **Waiver of Examination.** – If an individual requests a waiver of the examination for licensure as a remediation specialist, the application shall include any and all information that the applicant wants the Secretary to consider including, but not limited to, relevant licenses and certifications. The Secretary may issue a one-time waiver of the examination for the purpose of submitting an application for a Voluntary Remediation Agreement. This waiver is only valid for six months after its effective date. No person shall implement a remediation work plan unless and until the remediation specialist has passed the examination. However, to be eligible for a waiver, these individuals shall meet all other requirements for licensing, including, but not limited to, education, relevant professional experience, and practical knowledge.

5.3.k.1. The applicant shall submit an examination fee regardless of whether the applicant is requesting a waiver of the examination.

5.3.l. **Reciprocity.** – A licensed remediation specialist in another state may be licensed as a remediation specialist in West Virginia without examination, provided that the licensing state recognizes West Virginia licensure.

5.3.l.1. The applicant shall submit an examination fee regardless of whether reciprocity applies.

5.4. **License renewal.**

5.4.a. A licensed remediation specialist in good standing may renew his or her license every two years. The Secretary shall consider a renewal application filed in accordance with all appropriate timeframes, which includes the appropriate license renewal fee found in Table 60-3A, a complete renewal application. A renewal application shall include evidence of continuing education in the environmental

remediation field. Such evidence may include two education credits from a U.S. EPA-approved course or any other equivalent experience acceptable to the Secretary.

5.4.b. The Secretary will provide a license renewal notice to the licensed remediation specialist 90 days prior to his or her license expiration. Any individual who fails to renew his or her license shall not continue to practice as a licensed remediation specialist after the day of license expiration. Any individual who fails to renew his or her license within 30 days after the expiration must reapply for examination and is subject to the same requirements as a new applicant.

5.4.c. An individual who has timely completed all of the license renewal requirements will receive a renewed license and may continue to practice as a licensed remediation specialist prior to receiving the renewed license.

5.4.d. Where the applicant has timely filed a renewal application but the Secretary determines that grounds exist for non-renewal of the license, the Secretary shall follow the same procedure for suspension or revocation of licenses set forth in subsection 5.5 of this rule and, pending a final decision by the Secretary on such renewal, the license shall remain in effect.

5.5. Suspension and Revocation of Licenses. The provisions set forth in this subsection are in addition to and shall not limit the procedures regarding enforcement orders contained in W. Va. Code § 22-22-12.

5.5.a. Criteria for suspension or revocation of license. – A license issued to a licensed remediation specialist may be suspended or revoked for the following reasons:

5.5.a.1. For fraud by the licensed remediation specialist in the license application process;

5.5.a.2. For fraud or intentional misrepresentation by the licensed remediation specialist in the performance of any work required in a work plan or pursuant to a Voluntary Remediation Agreement; or

5.5.a.3. For any act by the licensed remediation specialist in violation of the Act or this rule.

5.5.a.4. Any circumstances that justify revocation of a license under this rule may also justify the non-renewal of a license.

5.5.b. Issuance of Notice of Intent. – If the Secretary finds that sufficient grounds exist to suspend or revoke the license of a licensed remediation specialist, prior to the suspension or revocation, the Secretary shall notify the licensed remediation specialist of his or her intent to suspend or revoke the license. The Secretary shall provide the licensed remediation specialist with a Notice of Intent to Suspend or Revoke by U.S. certified mail, return receipt requested. The Notice shall set forth the specific reasons for the proposed suspension or revocation and shall state that the licensed remediation specialist may request either an informal conference or a hearing on the proposed suspension or revocation pursuant to the Administrative Procedures Act, W. Va. Code § 29A-5-1, et seq. The purpose of the informal conference and the contested case hearing is to determine the rights, duties, interests, and privileges of the licensed remediation specialist. The Secretary may appoint an impartial hearing officer to conduct an informal conference or contested case hearing.

5.5.c. Request for Informal Conference or Contested Case Hearing. – The licensed remediation specialist has 30 calendar days from the receipt of the notice to make a written request for an informal conference or contested case hearing. A request is deemed served on the day it is deposited in the U.S. mail. Failure to respond will result in the imposition of the proposed suspension or revocation. The licensed remediation specialist has a right to an informal conference prior to a formal hearing. The licensed

remediation specialist may request an informal conference or a contested case hearing, but the request for and holding of an informal conference does not preclude the licensed remediation specialist from requesting a contested case hearing following the disposition reached in the informal conference.

5.5.c.1. The issuance of a notice of intent to suspend or revoke the license of a licensed remediation specialist shall not prevent the licensed remediation specialist from rendering services under the Voluntary Remediation Program pending a final decision from the Secretary following an informal conference and, if requested, a contested case hearing.

5.5.d. In all proceedings under this section, the licensed remediation specialist may be represented by counsel. The Secretary shall send all notices required by this rule to counsel in the same manner as he or she provides them to the licensed remediation specialist.

5.5.e. Informal conference. – If the licensed remediation specialist requests an informal conference within the 30-day period, the Secretary shall schedule the conference to be held within 30 days of the request in accordance with the following requirements:

5.5.e.1. The Secretary shall notify the licensed remediation specialist and the primary representative of the Department who was involved in the decision to suspend or revoke the licensed remediation specialist's license of the time and place of the informal conference. In scheduling the location of the informal conference, the Secretary shall consider the location of the licensed remediation specialist's business and any particular sites that may have given rise to the decision to revoke or suspend;

5.5.e.2. The Secretary shall notify the licensed remediation specialist of the informal conference at least 15 calendar days prior to the date of the informal conference; and

5.5.e.3. The Secretary may continue the informal conference upon the agreement of the licensed remediation specialist and for good cause shown.

5.5.f. Informal Conference Procedures. – An informal conference, as provided by this rule, is intended to be an informal discussion of the facts which gave rise to the issuance of the decision to suspend or revoke a license. The Secretary shall conduct the conference in the following manner:

5.5.f.1. The Secretary shall be guided by, but need not strictly apply, the West Virginia Rules of Civil Procedure; however, the Secretary shall follow the West Virginia Rules of Evidence as applied in civil cases in the circuit courts of this State;

5.5.f.2. A record of the informal conference is not required but any party may request that a record be made at that party's expense. Any other parties to the conference may obtain copies of the record at their own expense;

5.5.f.3. During an informal conference, the licensed remediation specialist may submit to the Secretary any evidence or demonstration of mitigating circumstances as to why the Secretary should alter the decision to suspend or revoke the license; and

5.5.f.4. At any review proceedings that may occur later, no evidence as to any oral statement made by one party at the informal conference may be introduced as evidence by another party, nor may any statement be used to impeach a witness, unless the statement is or was available as competent evidence independent of its introduction during the informal conference.

5.6. Written Decision.

5.6.a. If the licensed remediation specialist and the Secretary are able to reach an agreement, the Secretary shall prepare a written decision signed by the licensed remediation specialist and the Secretary implementing the decision reached in the informal conference.

5.6.b. If the licensed remediation specialist and the Secretary are unable to reach an agreement within 30 calendar days following the informal conference, the Secretary shall issue and furnish to the licensed remediation specialist a written decision affirming, modifying, or dismissing the initial proposal to suspend or revoke the license and give the specific reasons for the decision. The Secretary shall send notice of his or her decision to the licensed remediation specialist by U.S. certified mail return receipt requested.

5.6.c. Within 30 calendar days of the receipt of the Secretary's written decision, the licensed remediation specialist may demand a formal hearing as provided herein to determine his or her rights and privileges. The licensed remediation specialist must serve a request in writing upon the Secretary within 30 days of receipt of the written decision. A request is deemed served on the day it is deposited in the U.S. mail. Failure to request a formal hearing on the written decision within the time specified shall cause the decision to become a final unappealable order of the Secretary.

5.7. Contested Cases, Right to a Formal Hearing. – As set forth above, within 30 calendar days after notification of a written decision rendered as a result of an informal conference, the licensed remediation specialist may request a formal hearing before the Secretary in accordance with the Administrative Procedures Act, W. Va. Code § 29A-5-1, et seq. If requested, the Secretary shall grant the request and schedule a contested case hearing.

5.8. Appeals. – An appeal from any final order or ruling entered in a contested case in accordance with this rule shall be to the Circuit Court of Kanawha County in accordance with the provisions of the Administrative Procedures Act, W. Va. Code § 29A-5-4.

5.9. Alternative Procedure. – When imminent or substantial harm is threatened or posed at a voluntary remediation site which, in the Secretary's opinion, is attributable to the negligence or incompetence of the licensed remediation specialist at the site, the Secretary may, in lieu of the notice of intent under subdivision 5.5.b. of this rule, issue an order in accordance with W. Va. Code § 22-22-12(a)(1). If the licensed remediation specialist files a request for reconsideration as provided in W. Va. Code § 22-22-12(b), the Secretary shall conduct a contested case hearing within ten days of the filing of the request.

§60-3-6. Voluntary Remediation Agreement.

6.1. Any person who desires to participate in the Voluntary Remediation Program shall execute a Voluntary Remediation Agreement with the Secretary. The form agreements contained in Appendix 60-3A and 60-3B meet the requirements of this section. The Secretary and the applicant may agree to additional provisions and modifications consistent with this rule. Except as provided in subsection 6.4 of this rule, the Voluntary Remediation Agreement shall provide for the following:

6.1.a. The services of a licensed remediation specialist for the supervision of all activities described in the agreement, including the supervision of remediation contractors;

6.1.b. The recovery of all reasonable costs incurred by the Department attributable to the implementation of the agreement. Recoverable costs shall include the following:

6.1.b.1. Costs incurred in review and oversight of work plans and reports submitted pursuant to the agreement;

6.1.b.2. Costs incurred as the result of field activities attributable to the agreement; and

6.1.b.3. Costs incurred by the Department in implementing and overseeing activities under the agreement, which costs shall be determined by the number of hours worked under the agreement by each primary employee multiplied by 3.5 times the hourly rates of the employee and then adding the direct expenses incurred by the employee.

6.1.b.4. The Department shall bill all recoverable costs by separate invoice.

6.1.c. A schedule for the payment of recoverable costs;

6.1.d. A description of any work plan or report that the applicant is to submit under the agreement for the Secretary's review, including the final report, which shall provide all information necessary for the Secretary to verify that the applicant has completed all work contemplated by the agreement: provided, that at the discretion of the applicant, the applicant may submit for the Secretary's approval work plans describing the work to be performed at the site with the execution of the agreement;

6.1.e. The identification of appropriate tasks, deliverables, and schedules for the submission of any work plans and other deliverables and for the performance of the remediation;

6.1.f. A listing of all environmental statutes and rules for which compliance is mandated;

6.1.g. A listing of the technical standards as provided in the Voluntary Remediation Program Guidance Manual to be applied in evaluating the site assessment, the work plans, and reports, with reference to the proposed future land use to be achieved;

6.1.h. A listing of the applicable standards to be achieved at the site;

6.1.i. Where applicable, a description of any engineering or institutional controls and any land use covenant to be imposed for the property;

6.1.j. The reopening of the Voluntary Remediation Agreement upon consent of the parties or the occurrence of one or more of the conditions described in section 15 of the Act; and

6.1.k. The modification of the Voluntary Remediation Agreement upon the agreement of the parties.

6.1.l. The licensed remediation specialist may perform field adjustments which achieve equal performance: provided, that he or she notifies the Department of the field adjustment within 15 days.

6.2. The Voluntary Remediation Agreement shall recognize the right of the applicant to terminate the agreement, in its sole discretion, upon 15 days advance written notice of termination to the Department and shall include provisions for the recovery of costs incurred by the Department before the notice of termination is issued.

6.3. Where the applicant intends to demonstrate that the site meets all applicable standards without further remediation, in lieu of the requirements of subsection 6.1 of this rule, the Voluntary Remediation Agreement shall provide for the following:

6.3.a. The payment of an agreed sum to cover all reasonable costs incurred by the Department attributable to the agreement in excess of fees submitted with the permit application;

6.3.b. A listing of all environmental statutes and rules for which compliance is mandated;

6.3.c. A listing of the technical standards as determined in the Voluntary Remediation Program Guidance Manual that are applied in evaluating the site assessment with reference to the proposed future land use to be achieved;

6.3.d. A listing of the applicable standards to be achieved at the site;

6.3.e. The reopening of the agreement upon the occurrence of one or more of the conditions described in section 15 of the Act; and

6.3.f. Where applicable, a description of any engineering or institutional controls and any land use covenant to be imposed for the property.

6.4. The Voluntary Remediation Agreement shall reflect the Secretary's determination of eligibility in accordance with section 3 of this rule.

6.5. At the discretion of the applicant, the Voluntary Remediation Agreement may address all or only a portion of a site. At the discretion of the Secretary, the Voluntary Remediation Agreement may cover two or more non-contiguous sites; provided, that the sites display similar contaminant profiles and similar surface and subsurface characteristics. Similar surface and subsurface characteristics shall be limited to upland, riparian/wetland, karst, or other similar land forms as approved by the Secretary.

6.6. Where the applicant is a person other than the current owner of the site and the Voluntary Remediation Agreement contemplates the imposition of a land use covenant as provided in section 13 of this rule, the agreement shall have appended to it a provision signed by the current owner(s) of the site authorizing and agreeing to cooperate in the execution and filing of a land use covenant in accordance with the Voluntary Remediation Agreement.

6.7. Upon execution of the Voluntary Remediation Agreement by the parties, the Secretary shall not initiate any enforcement action against the applicant or any person described in section 18 of the Act for the contamination that is the subject of the agreement, unless there is an imminent threat to the public. The Secretary shall not initiate an enforcement action against any applicant from the time the application is filed until the Voluntary Remediation Agreement is signed, so long as the applicant acts in good faith to negotiate a reasonable agreement.

6.8. At the applicant's discretion, he or she may, in the interest of minimizing environmental contamination and promoting effective cleanups, begin cleanup of soil and groundwater before the Secretary approves the Voluntary Remediation Agreement, provided, that he or she notifies the Secretary in writing.

§60-3-7. Public Involvement/Public Notification.

The public notification and public involvement requirements of this section apply to all Voluntary Remediation Program applicants. Additional public notification and public involvement requirements for applicants receiving Brownfields Revolving Fund moneys are detailed in subsection 15.7 below.

7.1. **Public Notice of Applications for Voluntary Remediation Projects.** – Upon receipt of an application to conduct a voluntary remediation under the Act, the Department shall publish a summary of the application by both a press release distributed through the Department’s Public Notice Mailing List and to media outlets serving the general area where the remediation is proposed, as well as a legal advertisement in a newspaper of general circulation in the area where the site is located. Information contained in the summary shall include:

7.1.a. The name and business address of the applicant, including a street address or route number;

7.1.b. Geographic location of site and, if one exists, the locally used name of the area;

7.1.c. Current and former uses of the site;

7.1.d. Present and suspected contaminants on site;

7.1.e. Proposed methods to remediate the site;

7.1.f. Proposed methods to control possible health exposure;

7.1.g. Location and address where interested persons may review application;

7.1.h. Name, address, and telephone number of applicant contact for questions from interested individuals; and

7.1.i. Name, address, and telephone number of Department contact where comments and questions can be received.

7.2. **Public Inspection of Voluntary Application.** – Upon request, any member of the public may inspect and copy a voluntary remediation application filed with the Department at the Department’s Charleston headquarters and in the municipal or county commission offices where the remediation is proposed. Copies of the application also may be placed in the county library.

7.3. **Public Involvement/Public Notification in Development of Remediation Goal.**

7.3.a. In the development of remediation goals pursuant to subdivisions 9.3.d and 9.4.a of this rule, the Secretary shall require a 30-day comment period and informational meeting.

7.3.b. To notify the public of the start of the 30-day comment period, the applicant shall:

7.3.b.1. Publish once a week for four consecutive weeks an advertisement in a local newspaper of general circulation in the county where the remediation is occurring.

7.3.b.1.A. The advertisement shall be, at a minimum, four inches by four inches.

7.3.b.1.B. The advertisement shall contain information as set forth in subsection 7.1 of this rule, as well as the date, time, and location of the informational meeting.

7.3.b.2. The applicant shall send a copy of the advertisement to the municipality, the county commission, and either the county and/or municipal land use agency or the area’s Regional Planning and Development Council created under W. Va. Code § 8-25-5.

7.3.b.3. The informational meeting shall be held in the community where the remediation is occurring by day 21 of the 30-day comment period; provided, that a minimum of 15 days' notice is given for the meeting. The informational meeting shall address how remediation concerns apply to the site, including site risk issues such as key exposure assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risks.

7.3.c. The applicant shall respond to comments received during the comment period and submit both the comments and the responses to the Secretary.

7.3.d. The Secretary shall review the comments and applicant's responses when making a decision. The Secretary shall notify the parties who provided comments during the comment period of his or her decision.

§60-3-8. Risk Protocol.

This section establishes a risk protocol for conducting human health and ecological risk assessments. It describes general requirements for risk assessments and specific requirements for baseline human health and ecological risk assessments, residual risk assessments, and application of probabilistic risk assessment methods.

8.1. General Requirements for Risk Assessments. – Risk assessments shall consider existing and reasonably anticipated future human exposures and significant adverse effects to ecological receptors of concern in accordance with this rule.

8.1.a. Risk assessments may be conducted using either deterministic (single point value) or probabilistic risk assessment methodologies as agreed to in the Voluntary Remediation Agreement.

8.1.b. Risk assessments, to the extent practicable, shall consider the range of probabilities of risks potentially occurring, the range of size of populations likely to be exposed, current and reasonably anticipated future land and water uses, and quantitative and/or qualitative descriptions of uncertainties in accordance with subsections 8.1 and 8.2 of this rule.

8.1.c. Appropriate sources of toxicity information include the following:

8.1.c.1. For human health risk assessments, in order of preference:

8.1.c.1.A. U.S. EPA Integrated Risk Information System (IRIS);

8.1.c.1.B. U.S. EPA Superfund Health Risk Technical Support Center (SHRTSC) provisional peer reviewed toxicity criteria; and

8.1.c.1.C. Other scientifically valid documents or information developed from governmental or non-governmental sources and approved by the Secretary.

8.1.c.2. For ecological risk assessments:

8.1.c.2.A. U.S. EPA ECOTOX Database;

8.1.c.2.B. U.S. EPA IRIS Database;

8.1.c.2.C. U.S. EPA HEAST Database;

8.1.c.2.D. U.S. EPA Region 3 BTAG Screening Benchmarks;

8.1.c.2.E. U.S. Fish and Wildlife Service Technical Reports;

8.1.c.2.F. Oak Ridge National Laboratory Toxicological Benchmark Technical Reports;

8.1.c.2.G. ATSDR Toxicological Profiles;

8.1.c.2.H. Other peer-reviewed technical publications; and

8.1.c.2.I. Other scientifically valid documents or information developed from governmental or non-governmental sources and approved by the Secretary.

8.1.d. Risk assessments may include the use of fate and transport models subject to the Secretary's approval of the model and the data to be used for the parameters specified in the model.

8.1.d.1. The Secretary shall ensure that any fate and transport model approved for use is capable of simulating those site conditions and contaminant properties that might have a significant impact on site-specific contaminant fate or transport.

8.1.d.2. Risk assessments shall include sensitivity analyses of models and data used as model parameters. Sensitivity analyses shall be based on the range of conditions which have historically occurred or may be likely to occur at the site.

8.1.d.3. For models not included in Department guidance documents, risk assessments shall include a description, including published references if available.

8.1.d.4. Where available, the Department shall give preference to the use of peer-reviewed models and data for which on-site validation is demonstrated.

8.1.e. The use of population risk estimates in addition to individual risk assessments is provided for as follows:

8.1.e.1. For human health risk assessments, risk estimates shall initially be made at the level of the individual. A population-based risk assessment may be conducted where the applicant determines it would be practicable and of assistance in evaluating the appropriateness of the remedial action; and

8.1.e.2. For ecological risk assessments, the applicant shall make risk estimates: (A) at the individual level where any endangered and threatened species is significantly impacted by the proposed activities at the site; and (B) at the level of the population for all ecological receptors of concern exposed to contaminants at the site.

8.2. Sampling Protocol, Data Requirements, and Sampling Methods. – The applicant shall use sampling approaches, data quality requirements, and statistical methods set forth in the Voluntary Remediation Program Guidance Manual as approved by the Secretary to support the risk assessment and remedy selection process.

8.2.a. Characterization of Site Contamination. – The applicant shall collect and analyze a sufficient number of environmental media samples so as to provide a reasonable characterization of the nature and distribution of site contaminants. The number and location of the samples collected shall be of sufficient

quantity and quality to calculate the appropriate exposure point concentration as defined in subparagraph 8.4.b.3.B and subdivision 8.5.c of this rule.

8.2.b. **Media to be Sampled.** – The applicant shall collect and analyze samples from those media that are reasonably anticipated to have been impacted from contaminants at the site, considering the nature of the site operations and the nature of the contaminants of potential concern at the site.

8.2.c. **Contaminants for Analyses.** – The applicant may not need to analyze all samples for the same contaminants. The applicant shall analyze collected samples for those contaminants that are reasonably anticipated to be encountered, considering the nature of the site operations and the nature of the substances used or disposed of at the site.

8.2.d. **Data Validation.** – The applicant shall validate the quality of the analytical data to be used by review of at least ten percent (10%) of the data or some other percentage agreed to by the Secretary in accordance with standard EPA protocols. Standard EPA protocols for validation may require modification, with the Secretary's approval, depending on the type of analyses performed (e.g., Contract Laboratory Protocol or SW-846).

8.2.e. The 95th percentile upper confidence limit on the mean concentration or the maximum value of the site contaminant concentration data shall be a reasonable estimate of a plausible exposure point concentration for this contaminant. If a contaminant can be shown to have dissimilar distributions of concentrations in different areas, then the areas should be subdivided. For example, "hot spots" may be considered separately.

8.3. **Quantification of cumulative risks posed by multiple exposure pathways.** (Reserved)

8.4. **Baseline Human Health Risk Assessments (BHHRA).** – The applicant may use a BHHRA to provide a characterization of the risks to human health posed by contaminants at the site, given a full evaluation of site-specific conditions.

8.4.a. The applicant may use the BHHRA either to:

8.4.a.1. Assess the need for remedial action considering site-specific conditions; or

8.4.a.2. Demonstrate the acceptability of current site conditions with respect to the remediation standards specified in this rule.

8.4.b. BHHRAs shall include, but are not limited to, the following information:

8.4.b.1. A conceptual site model showing contaminant sources, release mechanisms, transport routes and media, potential human receptor populations, and reasonable potential exposure scenarios based on current and reasonably anticipated land and water uses;

8.4.b.2. Data quality objectives for the human health risk assessment based on the conceptual site model;

8.4.b.3. An exposure assessment that evaluates the potential for and magnitude of human exposure, considering both the current and reasonably anticipated future land and water uses at and in close proximity to the site. An exposure assessment shall include:

8.4.b.3.A. An exposure pathway analysis which identifies complete exposure pathways from contaminants to receptor populations, identifying the nature and extent of site contamination, the presence or absence of media that could transport the site contamination, the presence or absence of receptor populations that could be exposed to the contamination, and the likely exposure routes; and

8.4.b.3.B. A quantification of the magnitude of the exposure (in accordance with Department guidance documents) if, following the performance of the exposure pathway analysis, the potential exists for exposure of receptor populations to site contaminants. At a minimum, the applicant shall develop exposure levels that approximate an estimate of central tendency and reasonable upper bound of the exposure distribution.

8.4.b.4. The applicant shall perform a toxicity analysis if he or she identifies and quantifies the potential for human exposure to site contaminants in accordance with subparagraph 8.4.b.3.B of this rule. The toxicity analysis shall include a summary of current information regarding the carcinogenic and non-carcinogenic effects of the identified contaminants of concern, as well as current slope factors and reference doses from the sources described in subdivision 8.1.c of this rule.

8.4.b.5. Risk Characterization. – If the potential exists for human exposure to site contaminants, the applicant shall integrate the exposure quantification information with the dose-response assessment (toxicity analysis) to provide a characterization of the potential risks present at the site. The risk characterization shall include a quantification of risks from individual contaminants. The applicant shall include a quantification of cumulative risks posed by multiple contaminants using the most sensitive exposure pathway for each constituent. The risk characterization shall analyze the following:

8.4.b.5.A. Non-Carcinogenic Risk: In quantifying risks from individual systemic toxicants at the site, the applicant shall develop a hazard quotient for each contaminant. In quantifying the risks from cumulative exposure to multiple contaminants at the site, the applicant shall develop a hazard index for exposures to multiple contaminants. In developing the hazard index for multiple contaminants, the applicant shall assume additivity only for those contaminants that affect the same target organ or act by the same method of toxicity; and

8.4.b.5.B. Carcinogenic Risk: In quantifying risks from carcinogens at the site, the applicant shall estimate the excess lifetime cancer risk above and beyond the risk associated with background exposures. The risk estimates are presumed to be additive unless an alternative mechanism is appropriate.

8.4.b.5.C. The applicant shall include, as appropriate, a discussion of any available facility-specific human health studies and consideration of any other non-quantified (qualitative) risks in the risk characterization described herein.

8.4.b.6. Uncertainty Analysis: As part of performing the site-specific risk assessment under this section, the applicant shall identify the qualitative, and to the extent practicable, the quantitative uncertainty embodied in the analysis. The applicant shall also identify the likelihood of overestimating or underestimating risk for each element of the analysis. At a minimum, this shall include consideration of:

8.4.b.6.A. The analytical characterization of the site;

8.4.b.6.B. The exposure assessment, including the size of the potentially exposed population; and

8.4.b.6.C. The dose-response assessment, including the toxicological criteria used in the analysis.

8.5. Baseline Ecological Risk Assessment. – The applicant may perform a site-specific de minimis screening ecological evaluation as specified in subsection 9.5 of this rule as part of the site investigation to determine if a complete exposure pathway exists and there are ecological receptors of concern. If, after this evaluation, the applicant identifies a potentially significant complete exposure pathway, then the applicant shall complete the uniform ecological evaluation as specified in subsection 9.6 of this rule to determine if site concentrations exceed benchmark levels. If the applicant proposes remediation goals that exceed benchmark levels, then the Secretary may require, at his or her discretion, a baseline ecological assessment to evaluate potential risks to ecological receptors and to develop appropriate remediation standards based on these risks. If the Secretary requires a baseline ecological risk assessment, it shall address, but not be limited to, the following information:

8.5.a. Problem Formulation. The application shall identify the purpose (goals) of the assessment and define the problem. This step includes identification of potential contaminants of concern, potential ecological effects, potential ecological receptors of concern, potential exposure pathways, and initial assessment and measurement endpoints, all with respect to current and reasonably anticipated future land and water uses. The applicant shall develop a conceptual site model to depict how the site conditions might affect ecological components of the natural environment;

8.5.b. Data Quality. The applicant shall develop data quality objectives for the site based on the conceptual site model;

8.5.c. Exposure Analysis. The applicant shall perform an exposure assessment that evaluates the potential for and magnitude of ecological effects to receptors of concern, considering current and reasonably anticipated future conditions at the site. Exposure is analyzed by describing the source and releases, the distribution of the stressor in the environment, and the extent and pattern of contact or co-occurrence. The end product of this analysis is an exposure profile which summarizes the magnitude and spatial and temporal patterns of exposure for the scenarios described in the conceptual site model;

8.5.d. Ecological Response Analysis. The applicant shall develop an ecological response analysis that includes a summary of current information regarding the toxicological and ecological effects of the identified contaminants of ecological concern, as well as ecological benchmark values. Appropriate sources of toxicity information are identified in paragraph 8.1.c.2 of this rule;

8.5.e. Ecological Risk Characterization. If the potential exists for significant ecological risks due to exposure to site contaminants, the applicant shall integrate the exposure quantification information in subdivision 8.5.c of this rule with the ecological response analysis to provide a characterization of the risks presented at the site, considering current and reasonably anticipated future land and water uses. The risk characterization shall include a quantitative evaluation of ecological risks potentially associated with the site, a weight-of-evidence analysis of risk, a discussion of available site-specific ecological studies, and consideration of the non-quantified (qualitative) risks as appropriate; and

8.5.f. Uncertainty Analysis. The applicant shall use, as appropriate, qualitative and/or quantitative uncertainty analyses for each element of the risk assessment.

8.6. Residual Risk Assessments (RRA). – The applicant shall consider, in residual human health and ecological risk assessments, conditions that will be present at the site following implementation of the proposed remedy, should one be needed.

8.6.a. In a situation where the applicant has conducted a baseline risk assessment and found that no further action is necessary, the baseline risk assessment may serve as the residual risk assessment.

8.6.b. A RRA shall include an assessment of the risks under current and reasonably anticipated future land and water use scenarios, given:

8.6.b.1. The exposure conditions that will be present following remediation and the concentrations of untreated constituents or treatment residuals remaining at the conclusion of any excavation, treatment, or off-site disposal; and/or

8.6.b.2. The exposure conditions that will result following implementation of any institutional or engineering controls necessary to manage risks from treatment residuals or untreated hazardous constituents.

8.6.c. The applicant shall conduct the RRA following the same basic steps outlined in subsections 8.4 and 8.5 of this rule, except that the conditions used to define the site shall reflect post-remediation conditions, including site-specific numeric remediation standards and site-specific exposure conditions that incorporate any engineering and institutional controls proposed as part of the remedial action.

8.7. Probabilistic Assessment: The applicant may apply probabilistic techniques to human health and ecological risk assessments. At a minimum, before the commencement of a probabilistic risk assessment, the applicant shall discuss with the Secretary the sources and characteristics of the distributions proposed for use in the assessment. The probabilistic risk assessment shall include, but not be limited to, information regarding:

8.7.a. All formulae used to estimate exposure point values, toxicity (cancer slope factor, reference dose) values, ecological benchmark values, hazard indices, and incremental lifetime cancer risks;

8.7.b. A combination of input parameters expressed as either point estimates or distributions. For each input parameter expressed as a distribution, the applicant shall provide the following information:

8.7.b.1. The shape of the full distribution;

8.7.b.2. To the extent practicable, the mean, standard deviation, minimum, 5th percentile, 10th percentile, median, 90th percentile, 95th percentile, and maximum of the specified distribution;

8.7.b.3. Justification for the use of each distribution clearly explaining the rationale for its use and the rejection of other relevant distributions; and

8.7.b.4. The extent to which input distributions and their parameters capture and separately represent both stochastic variability and knowledge uncertainty. This information shall comprise a portion of, but not be a replacement for, a comprehensive discussion in the body of the baseline risk assessment of the qualitative and quantitative sources of uncertainty.

8.7.c. A description of any correlations between or among input variables that are known or expected to have the practical effect of significantly affecting the risk assessment;

8.7.d. For each output distribution resulting from the probabilistic risk assessment, the following information:

8.7.d.1. The shape of the full distribution and location of the acceptable risk level; and

8.7.d.2. To the extent practicable, the mean, standard deviation, minimum, 5th percentile, 10th percentile, median, 90th percentile, 95th percentile, and maximum of the specified distribution.

8.7.e. A probabilistic sensitivity analysis for all key input distributions conducted so as to distinguish, to the extent possible, the effects of variability from the effects of uncertainty in the input variables;

8.7.f. Justification for the selection of any point estimate value incorporated into the probabilistic assessment and the rationale for its selection and for the rejection of other relevant point estimate values;

8.7.g. Probabilistic methods may be applied to:

8.7.g.1. Environmental media contaminant concentration data;

8.7.g.2. Transport and fate modeling;

8.7.g.3. Exposure estimation;

8.7.g.4. Ecological response estimation; and/or

8.7.g.5. Risk characterization.

8.7.h. The plausible upper-bound exposure condition is equal to approximately the 90th percentile of the exposure distribution. The central-tendency exposure case is the 50th percentile of the exposure distribution. Risk assessments utilizing only deterministic (single point value) methods shall provide both central tendency and plausible upper-bound estimates of exposures and risk.

§60-3-9. Remediation Standards.

This section shall be used for developing risk-based soil and groundwater remedial objectives for site remediation. The purpose of these procedures is to provide for the adequate protection of human health and the environment relative to the current and the reasonably anticipated future uses of the site while incorporating site-related information, to the extent practicable, which may allow for more cost-effective site remediation based on identified site risks.

9.1. Types of Remediation Standards. – Each applicant who responds to the release of a contaminant at a site shall select and attain compliance with one or a combination of the following remediation standards in subdivision 9.1.a and one or a combination of the remediation standards in subdivision 9.1.b:

9.1.a. Human Health:

9.1.a.1. A De Minimis Risk-Based Standard is one in which contaminant levels pose no substantial risks to human health based on any current or reasonably anticipated future land and water use as provided in subsection 9.2 of this rule. If these levels are below natural background, background levels will be considered the de minimis levels;

9.1.a.2. A Uniform Risk-Based Standard is one which uses pre-approved analytical methodologies established by the Secretary to input exposure factors and other site-specific variables to calculate compound-specific remediation levels that will be protective of human health based on any current or reasonably anticipated future land and water use, as provided in subsection 9.3 of this rule. If these levels

are below anthropogenic background levels, the background levels will be considered the uniform risk-based levels;

9.1.a.3. A Site-Specific Risk-Based Standard is one which uses a site-specific analysis of present contamination and develops a remedial approach that considers the remedy selection criteria in subdivision 9.8.a of this rule and is protective of human health based upon any current or reasonably anticipated future land and water use; or

9.1.a.4. The applicant may use a combination of the remediation standards to implement a site remediation plan and may choose to use the Site-Specific Risk-Based Standard whether or not the applicant has made efforts to attain the De Minimis or Uniform Risk-Based Standards.

9.1.a.5. In all cases, the presence of free product at a site requires remediation.

9.1.b. Ecological:

9.1.b.1. A De Minimis Ecological Screening Evaluation is an evaluation of the nature and extent of contaminants to determine if potential exposure pathways are completed. If contaminants and ecological receptors of concern do not form complete exposure pathways, no significant risk to ecological receptors is assumed.

9.1.b.2. A Uniform Ecological Evaluation is an assessment where contaminant concentrations are compared to benchmark values which reflect no significant risks to ecological receptors of concern. If these benchmark values are below anthropogenic background levels, the background levels will be considered the Uniform Ecological Standard. Where an applicant proposes a remediation standard based on other existing standards which exceed the benchmark levels, and the Secretary determines those other existing standards are not protective of ecological receptors of concern, the Secretary may require a site specific ecological risk assessment in order to establish remediation standards.

9.1.b.3. A Site-Specific Ecological Risk-Based Standard which, based on a site-specific analysis of present contamination, develops a remedial approach that considers the remedy criteria in subdivision 9.8.a of this rule and is protective of ecological receptors of concern for the current or reasonably anticipated future land and water use.

9.1.b.4. The applicant may use a combination of the remediation standards to implement a site remediation plan and may propose to use the Site-Specific Risk-Based Standard whether or not the applicant has made efforts to attain the De Minimis Risk-Based Standards.

9.2. Human Health - De Minimis Standard. - The De Minimis Standard establishes contaminant levels that do not present a substantial risk to human health. If, on the basis of the site assessment, the site meets these standards, the applicant shall perform no further remedial action or characterization, and the site is eligible for issuance of a Certificate of Completion by the Secretary or by a licensed remediation specialist as provided in this rule. If at any time during characterization or remedial action, the applicant shows that the site meets the De Minimis Standard, the applicant shall perform no further action, and the site is eligible for issuance of the Certificate of Completion.

9.2.a. De Minimis Standards for Soils. - The De Minimis Standards for both surface (less than two feet depth) and subsurface (greater than two feet depth) soils shall be the higher numerical value of values set out in paragraphs 9.2.a.1 or 9.2.a.2, and must not exceed the value set out in paragraph 9.2.a.3 unless the applicant shows, to the satisfaction of the Secretary, that migration of soil contaminants to groundwater will not result in an exceedance of De Minimis Groundwater Standards.

9.2.a.1. Risk-Based Concentrations (RBCs) for Human Health for Residential or Industrial Site Uses that Consider Direct Contact Exposures (ingestion, dermal, and inhalation). – When risk-based concentrations exceed soil saturation concentrations (CSAT), soil saturation concentrations are considered alternatives to RBCs. All RBCs are presented in Table 60-3B.

9.2.a.2. Natural background levels for each constituent as determined by sampling and statistical analyses completed using methods and/or data sources approved by the Secretary.

9.2.a.3. De Minimis Soil Standards for the migration of each constituent from soil to groundwater presented in Table 60-3B.

9.2.b. De Minimis Standards for Groundwater. – The De Minimis Standards for groundwater shall be determined as follows:

9.2.b.1. Groundwater contaminant concentration limits established in the Legislative Rule entitled “Requirements Governing Groundwater Standards” (47CSR12);

9.2.b.2. For those contaminants where a concentration limit has not been established in 47CSR12, the higher numerical value of the following:

9.2.b.2.A. The Risk-Based Concentrations (RBCs) for human health for residential site uses will be used as presented in Table 60-3B; or

9.2.b.2.B. Natural background levels for each constituent as determined by sampling and statistical analyses completed using methods and/or data sources approved by the Secretary.

9.2.c. Carcinogens. – For individual known or suspected carcinogens, the applicant shall establish remediation standards derived under subdivisions 9.2.a and 9.2.b of this rule at levels which represent an excess upper-bound lifetime cancer risk of one in one million (1×10^{-6}) for residential land uses and one in one hundred thousand (1×10^{-5}) for industrial land uses.

9.2.d. Systemic Toxicants. – For individual systemic toxicants, remediation standards shall represent levels to which the human population could be exposed without appreciable risk of deleterious effect, where the hazard quotient shall not exceed 1.

9.2.e. If a contaminant exhibits both carcinogenic and non-carcinogenic effects, then the applicant shall use the more protective risk-based standard (i.e., the lower of the two values) as the remediation standard.

9.2.f. Should soil or groundwater concentrations meet de minimis levels and no exposure pathways exist in addition to those considered in the De Minimis Table 60-3B, then the applicant shall take no further action, and the Secretary may issue the Certificate of Completion.

9.3. Human Health - Uniform Risk-Based Standard. – This standard sets forth uniform, approved methodologies, exposure factors, and other input variables needed to calculate site risks for residential or nonresidential land uses. The Secretary recognizes that there may be instances where the pre-established input variables may not be applicable to a site, and thus will allow for site-specific variables to replace the default variables with adequate technical justification. Typical parameters that may require site-specific input include soil attenuation factors, site-specific hydrogeologic properties, and institutional controls used to manage potential exposure to site contamination.

9.3.a. **Uniform Risk-Based Standards for Surface Soils/Sediments.** – The applicant shall derive surface soil remediation standards for residential or industrial land uses by applying site-specific information to the equations and constants from the Department’s Uniform Risk-Based Guidance or other equations and constants approved by the Secretary considering reasonably anticipated future land and water use.

9.3.b. **Uniform Risk-Based Standards for Subsurface Soils.** – The applicant shall derive subsurface soil remediation values based on:

9.3.b.1. Migration potentials;

9.3.b.2. Leaching potentials; and

9.3.b.3. Soil saturation concentrations. – The equations and constants described in the Department’s Uniform Risk-Based Guidance or other equations and constants approved by the Secretary.

9.3.c. **Uniform Risk-Based Standard for Groundwater.** – The applicant shall derive groundwater remediation values based on:

9.3.c.1. **The Potential for the Groundwater to Serve as a Source of Drinking Water.** – The applicant shall not consider as a current or potential drinking water source either groundwater that has a background total dissolved solids content greater than 2500 milligrams per liter (mg/l), or groundwater that the applicant can demonstrate, to the Secretary’s satisfaction, is not being used as a drinking water source, cannot be used for future drinking water sources, and is not hydrologically connected to an aquifer being used for drinking water; and

9.3.c.2. **Migration Potentials.** – The applicant shall apply the equations and constants described in the Department’s Uniform Risk-Based Guidance or other equations and constants approved by the Secretary.

9.3.d. **Carcinogens.** – For individual known or suspected carcinogens, the applicant shall establish remedial standards derived under subdivisions 9.3.a, 9.3.b, and 9.3.c of this rule at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one in one million (1×10^{-4} to 1×10^{-6}). If carcinogenic risk greater than 1×10^{-6} is considered for development of residential remediation goals or greater than 1×10^{-5} , for development of industrial remediation goals, the applicant shall provide public notification as specified in subsection 7.3 of this rule.

9.3.e. **Systemic Toxicants.** – For individual systemic toxicants, remedial standards derived under subdivisions 9.3.a, 9.3.b, and 9.3.c of this rule shall represent levels to which the human population could be exposed without appreciable risk of deleterious effect, where the hazard quotient shall not exceed 1.

9.3.f. If a contaminant exhibits both carcinogenic and non-carcinogenic effects, then the applicant shall use the more conservative risk-based standard (i.e., the lower of the two values) as the remediation standard.

9.3.g. **Cumulative Site Risk.** – Cumulative upper-bound estimate of site risk per receptor from exposure to known or suspected carcinogens shall not exceed one in ten thousand (1×10^{-4}). Where multiple systemic toxicants affect the same target organ or act by the same method of toxicity, the upper-bound estimate of hazard index shall not exceed 1, or 10 where it is not determined whether multiple systemic toxicants affect the same organ.

9.3.h. Should the site meet uniform risk-based soil or groundwater concentrations, the applicant shall take no further action with regard to those media.

9.4. Human Health - Site-Specific Risk-Based Standard. – The applicant shall determine Site-Specific Risk-Based Standards using one or a combination of a BHHRA as described in subsection 8.4 of this rule or a RRA as described in subsection 8.6 of this rule. In establishing the remediation standard under this section, the applicant shall consider the potential for exposure to site contaminants under current and reasonably anticipated future land and water use and the application of institutional and engineering controls.

9.4.a. Carcinogens. – For individual known or suspected carcinogens, the applicant shall establish remedial standards derived under subsection 9.4 at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one in one million (1×10^{-4} to 1×10^{-6}). If the applicant considers carcinogenic risk greater than 1×10^{-6} for individual carcinogens for development of residential remediation goals, or greater than 1×10^{-5} for development of industrial remediation goals, then the applicant shall provide public notification as specified in subsection 7.3 of this rule.

9.4.b. Systemic Toxicants. – For individual systemic toxicants, remedial standards shall represent levels to which the human population could be exposed without appreciable risk of deleterious effect, where the hazard quotient shall not exceed 1. Where multiple systemic toxicants affect the same target organ or act by the same method of toxicity, the hazard index shall not exceed 1, or 10 where it is not determined whether multiple systemic toxicants affect the same organ.

9.4.c. If a contaminant exhibits both carcinogenic and non-carcinogenic effects, then the applicant shall use the more protective risk-based standard (i.e., the lower of the two values) as the remediation standard.

9.4.d. If probabilistic risk assessment methods are used in establishing the remedial standards or demonstrating the acceptability of the proposed remedial alternative, exposure levels shall approximate the 90th percentile of the exposure distribution.

9.4.e. Groundwater. – The applicant shall establish remedial standards for groundwater using the following considerations:

9.4.e.1. Potential receptors based on the current and reasonably anticipated future use of groundwater;

9.4.e.2. The potential for groundwater to serve as a drinking water source, as defined in paragraph 9.3.c.1 of this rule;

9.4.e.3. Site-specific sources of contaminants;

9.4.e.4. Natural environmental conditions affecting the fate and transport of contaminants, such as natural attenuation processes, as determined by scientific methods set forth in the Department's Voluntary Remediation Program Guidance Manual; and

9.4.e.5. Institutional and engineering controls.

9.4.f. Soil. – The applicant shall establish remedial standards for soil/sediments using the following considerations:

9.4.f.1. Potential receptors based on the current and reasonably anticipated future use of the site;

9.4.f.2. Site-specific sources of contaminants;

9.4.f.3. Natural environmental conditions affecting the fate and transport of contaminants, such as natural attenuation processes, as determined by scientific methods set forth in the Department's Voluntary Remediation Program Guidance Manual; and

9.4.f.4. Institutional and engineering controls.

9.4.g. The Secretary shall incorporate the equations and constants for risk-based standards into a guidance document, along with other relevant information for establishing and applying the standards to specific sites. The Secretary shall revise the guidance document from time to time as needed to incorporate scientific advancements and new or alternative risk assessment and methods. The guidance document, any subsequent revisions, and any alternative risk assessment methods proposed by an applicant shall be reviewed by independent scientists recognized as experts in relevant risk assessment disciplines. The Secretary shall incorporate, as appropriate, the comments of scientific reviewers into the guidance document or decisions regarding risk-based standards or methods.

9.5. Ecological - De Minimis Screening Evaluation. – This standard sets forth uniform, pre-approved methodologies, exposure assumptions, and other input variables needed to evaluate whether complete exposure pathways exist for aquatic and terrestrial ecological receptors of concern. The Secretary recognizes that there may be instances where the pre-established input variables may not be applicable to a site, and thus will allow for site-specific variables to indicate whether an ecological risk assessment is needed.

9.5.a. Typical parameters that the applicant shall consider when evaluating whether or not to perform an ecological risk assessment include, but are not limited to, the following:

9.5.a.1. An evaluation of whether a complete exposure pathway exists. If no complete exposure pathway exists because either the contamination is restricted in movement or there are no ecological receptors of concern, then no ecological risk exists (e.g., if the majority of the site is paved with roads and buildings, no pathway exists);

9.5.a.2. Some sites may be screened out and not require evaluation given their size, estimated risk to ecological receptors, or lack of valued ecological receptors, including threatened or endangered species;

9.5.a.3. Consideration of local conditions in order to assess whether a site is degrading an aquatic environment. In cases where the site does not present an ecological risk over and above "local conditions" and further release of contaminants into the aquatic environment has been stopped, there will not be a need for further evaluation;

9.5.a.4. A definition of what level of ecological resource is considered valued; and

9.5.a.5. If for each contaminated media, harm is readily apparent and a condition of significant risk of harm to the site biota and habitats clearly exists, further ecological risk characterization would be redundant and is not required. The applicant can then proceed directly to the remedy evaluation.

9.5.b. The following are conditions which may be considered indicators of the need for an ecological risk assessment:

9.5.b.1. Stressors have migrated off-site and become widely distributed in the environment;

9.5.b.2. Wildlife or ecological resources of concern are exposed or have potential for significant exposure to stressors from a site, either on or off-site;

9.5.b.3. Remediation of stressors at a site has the potential to expose ecological resources of concern to further impacts;

9.5.b.4. A potential exists for indirect or cumulative impacts to ecosystems of concern;

9.5.b.5. Rare or sensitive species of concern are potentially impacted;

9.5.b.6. Adverse ecological effects have been observed in an otherwise high quality habitat; and

9.5.b.7. Projected land use involves sensitive ecosystems.

9.5.c. Should the ecological screening evaluation indicate no complete exposure pathways or other conditions specified in subdivision 9.5.a. of this rule exist, or the site meets the Screening Ecological Evaluation Guidance, the applicant shall take no further action, and the Secretary may issue the Certificate of Completion.

9.6. Ecological - Uniform Ecological Evaluation. – The Uniform Ecological Evaluation establishes benchmark levels that do not present a significant risk to potential ecological receptors. If, during initial screening, the applicant finds the site meets these standards, the applicant shall take no further remedial action or perform further characterization, and the site is eligible for issuance of a Certificate of Completion by the Secretary. If at any time during characterization or remedial action the applicant shows that the site meets the Uniform Ecological Evaluation, the applicant shall take no further action, and the Secretary may issue the Certificate of Completion. If site contaminants exceed benchmark criteria, the applicant may propose remediation goals protective of ecological receptors of concern. If the applicant chooses to remediate to benchmark levels, he or she shall use the following:

9.6.a. Uniform Standards for Soils (0-4 feet) shall be the highest of the following numerical values:

9.6.a.1. Benchmarks for relevant ecological receptors that consider direct contact exposures, as presented in Department guidance documents; or

9.6.a.2. Natural or anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using methods and/or data sources approved by the Secretary.

9.6.b. Uniform Standards for Sediments (0-6 inches) shall be the highest of the following numerical values:

9.6.b.1. Benchmarks for relevant ecological receptors that consider direct contact exposures, as presented in Department guidance documents; or

9.6.b.2. Natural or anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using methods and/or data sources approved by the Secretary.

9.6.c. Uniform Standards for Surface Water shall be the highest of the following numerical value:

9.6.c.1. Applicable State water quality criteria, as established in the Legislative Rule entitled “Requirements Governing Water Quality Standards” (47CSR2); or

9.6.c.2. For those contaminants where State water quality criteria have not been established, the applicant shall use the following:

9.6.c.2.A. Applicable NOAEL (No Observable Adverse Effect Level), if available, or LOAEL (Lowest Observable Adverse Effect Level) values, as presented in Department guidance documents; or

9.6.c.2.B. Natural background levels for each constituent as determined by sampling and statistical analyses completed using methods approved by the Secretary.

9.6.d. Uniform Standards for Groundwater. – Where groundwater is expected to impact surface water, the uniform standards for groundwater shall be the highest of the following numerical value:

9.6.d.1. Applicable State water quality criteria, as established in the Legislative Rule entitled “Requirements Governing Water Quality Standards” (47CSR2); or

9.6.d.2. For those contaminants where State water quality criteria have not been established, the applicant shall use the following:

9.6.d.2.A. Applicable NOAEL (No Observable Adverse Effect Level) if available, or LOAEL (Lowest Observable Adverse Effect Level) values, as presented in Department guidance documents; or

9.6.d.2.B. Background levels for each constituent as determined by sampling and statistical analyses completed using methods approved by the Secretary.

9.7. Ecological - Site-Specific Risk-Based Standard. – The applicant shall develop Site-Specific Risk-Based Standards using the procedures and factors established by this subsection.

9.7.a. In establishing the remediation standard under this subsection, the applicant shall consider the potential for exposure of ecological receptors of concern to site contaminants under current and reasonably anticipated future land and water use and the application of institutional and engineering controls.

9.7.b. For individual toxicants, remedial standards shall represent levels to which sensitive (i.e., threatened or endangered) ecological population(s) could be exposed without appreciable risk of deleterious effect, where the hazard index shall not exceed one. For non-sensitive ecological receptors, the applicant shall use a weight-of-evidence approach to establish acceptable remedial standards.

9.7.c. If the applicant uses probabilistic risk assessment methods in establishing the remedial standards or demonstrating the acceptability of the proposed remedial alternative, exposure levels shall approximate the 90th percentile of the exposure distribution.

9.7.d. The applicant shall establish remedial standards for soil, sediment, surface water, or groundwater using the following considerations:

9.7.d.1. Potential receptors of concern based on the current and reasonably anticipated use of the site;

9.7.d.2. Site-specific sources of contaminants;

9.7.d.3. Natural environmental conditions affecting the fate and transport of contaminants, such as natural attenuation processes, as determined by scientific methods set forth in the Voluntary Remediation Program Guidance Manual; and

9.7.d.4. Institutional and engineering controls.

9.7.e. The Secretary shall incorporate the equations and constants into a guidance document, along with other relevant information for establishing and applying such standards to specific sites. The Secretary shall revise the guidance document from time to time as needed to incorporate scientific advancements and new or alternative risk assessment methods. The guidance document, any subsequent revisions, and any alternative risk assessment methods proposed by an applicant will be reviewed by independent scientists recognized as experts in relevant risk assessment disciplines. The Department shall incorporate, as appropriate, the comments of scientific reviewers into the guidance document.

9.8. Remediation Measures. – The applicant may attain any of the remediation standards through one or more remediation activities that can include treatment, removal, engineering or institutional controls, and natural attenuation including, but not limited to, innovative or other demonstrated measures.

9.8.a. Remedy Evaluation. – In selecting a remedial action from among alternatives that achieve the goal of cost effective protection of human health and the environment, the applicant shall balance the following factors, ensuring that no single factor predominates over the others. The applicant shall select the remedy that protects human health and the environment using the following criteria:

9.8.a.1. The effectiveness of the remedy in protecting human health and the environment;

9.8.a.2. The reliability of the remedial action in achieving the standards over the long term;

9.8.a.3. Short-term risks to the affected community, those engaged in the remedial action effort, and to the environment posed by the implementation of the remedial action;

9.8.a.4. The acceptability of the remedial action to the affected community;

9.8.a.5. The implementability and technical practicability of the remedial action from an engineering perspective;

9.8.a.6. Meets protectiveness goal at lowest cost; and

9.8.a.7. Considers net environmental benefits of the remedial action.

9.9. Natural Attenuation. – The applicant may request that the Secretary approve a remediation plan based upon natural processes of degradation and attenuation of contaminants. A request submitted to the Secretary under this subsection shall include a description of site-specific conditions, including written documentation of projected groundwater use in the contaminated area based on current State or local government planning efforts, the technical basis for the request, and any other information requested by the

Secretary to thoroughly evaluate the request. In addition, the person making the request must demonstrate to the satisfaction of the Secretary:

9.9.a. That the contaminant has the capacity to degrade or attenuate under the site-specific conditions;

9.9.b. That the contaminant area, such as a groundwater plume or soil volume, is not increasing in size or, because of natural attenuation processes, that the rate of contaminant degradation is demonstrably more rapid than the rate of contaminant migration, and that all sources of contamination and free product have been controlled or removed where practicable;

9.9.c. That the time and direction of contaminant travel can be predicted with reasonable certainty;

9.9.d. That contaminant migration will not result in any violation of applicable groundwater standards at any existing or reasonably foreseeable receptor;

9.9.e. If the contaminants have migrated onto adjacent properties, the owner must demonstrate that:

9.9.e.1. Such properties are served by an existing public water supply system dependent on surface waters or hydraulically isolated groundwater, or

9.9.e.2. The owners of the properties have consented in writing to allow contaminant migration onto their property.

9.9.f. That, if the contaminant plume is expected to intercept surface waters, the groundwater discharge beyond the sediment/water interface will not possess contaminant concentrations that would result in violations of standards for surface waters contained in the Legislative Rule entitled "Requirements Governing Water Quality Standards" (47CSR2);

9.9.g. That the person making the request will implement a groundwater monitoring program sufficient to document the degradation and attenuation of contaminants and contaminant by-products within and down-gradient of the plume and to detect contaminants and contaminant by-products prior to their reaching any existing or foreseeable receptor. The monitoring program shall provide for placing one or more monitoring wells at least one year's time of travel upgradient of the receptor, and at least one monitoring well at a location no farther away from the leading edge of the contaminated groundwater at the site than the contamination is likely to travel in five years. The applicant may satisfy the requirement for groundwater monitoring upon successful completion of all of the following, as determined by the Secretary:

9.9.g.1. Installation of an adequate number of appropriately located groundwater monitoring wells;

9.9.g.2. Collection of a minimum of four years of semiannual groundwater monitoring data for site-related contaminants to demonstrate the site meets conditions as specified in subdivision 9.9.b; and

9.9.g.3. Use of an attenuation model approved by the Secretary and calibrated using the aforementioned data. The model must be capable of reliably estimating the extent of contaminant impacts to groundwater;

9.9.h. That all necessary access agreements needed to monitor groundwater quality pursuant to subdivision 9.9.g of this section have been or can be obtained; and

9.9.i. That the proposed remediation plan would be consistent with all other environmental laws.

§60-3-10. Work Plan.

10.1. Submittal of Work Plans. – The applicant or the applicant's licensed remediation specialist or contractor shall submit to the Secretary electronic copies of the appropriate work plans and reports as required by the parties' Voluntary Remediation Agreement.

10.2. Action on Work Plans.

10.2.a. The Secretary may, based upon accuracy, quality, and completeness, either approve or disapprove a work plan or report submitted by the applicant or the applicant's licensed remediation specialist or contractor.

10.2.b. The Secretary shall notify the applicant in writing within five days of his or her disapproval of the proposed work plan. The written notice shall contain the specific reasons that the Secretary disapproved the work plan or report and a description of the additional information the Secretary needs in order to approve the work plan or report.

10.2.c. If the Secretary disapproves a work plan or report as submitted, the applicant must resubmit the work plan or report or terminate the agreement pursuant to W. Va. Code § 22-22-9.

10.3. Timing of Submittal and Review.

10.3.a. The Secretary shall either approve or disapprove all work plans and reports in writing within 30 days of receipt (or within a shorter period if specified in the parties' Voluntary Remediation Agreement) and send the approval or disapproval to the applicant within that 30-day period. The parties may mutually agree to an extension of time for the Secretary to approve or disapprove the work plans or reports, in which case, the parties shall confirm the extension in writing.

10.3.b. If the applicant resubmits work plans or reports, the Secretary shall approve or disapprove the resubmitted work plans or reports in writing within 30 days of receipt (or within a shorter period if specified in the parties' Voluntary Remediation Agreement), and send the approval or disapproval to the applicant within that 30-day period. Any action taken on resubmitted work plans or reports must be confirmed in writing and received by the applicant within the 30-day period for acting on a resubmitted application, or within such shorter time specified in the parties' Voluntary Remediation Agreement. The parties may mutually agree to an extension of time for the Secretary to approve or disapprove resubmitted work plans or reports, in which case, the parties shall confirm the extension in writing. If the Secretary does not approve resubmitted work plans or reports, then the Secretary and the applicant may mutually agree, in writing, to a schedule for additional review of the resubmitted work plans or reports.

10.3.c. If the Secretary does not approve or disapprove work plans or reports within 30 days of receipt or within a shorter time as specified in the parties' Voluntary Remediation Agreement, or if the Secretary does not approve or disapprove resubmitted work plans or reports within 30 days of receipt or within a shorter time as specified in the parties' Voluntary Remediation Agreement, then the work plans or reports will be deemed approved, unless the Secretary determines that the work plans or reports are materially inaccurate.

10.4. Notice. – Any notice required to be given under the provisions of this section shall be in writing and sent electronically with proof of receipt required, or as specified in the parties' Voluntary Remediation Agreement. Notice is complete upon receipt.

10.5. Completeness and Quality of Work Plans. – In reviewing work plans for quality and completeness, the Secretary may require the work plans to include all of the following:

10.5.a. Documentation of the investigation conducted by the applicant in preparing the work plan;

10.5.b. A description of assessments and other work, if any, to be performed by the applicant to further determine the nature and extent of the actual or threatened release;

10.5.c. A description of risk assessments, if any, to be conducted by the applicant to show the appropriateness of the proposed remedy for the site;

10.5.d. A statement of work to be conducted to accomplish the proposed remediation in accordance with the risk protocol and remediation standards established under sections 8 and 9 of this rule, and a schedule for the implementation of all tasks set forth in the proposed statement of work;

10.5.e. The applicant's verification sampling plan to determine the adequacy of the remediation; and

10.5.f. Other necessary supporting plans or information as deemed appropriate by the party conducting the remediation.

§60-3-11. Final Report.

11.1. This section sets forth the requirements for the submittal and contents of the final report for a site. The applicant may prepare and submit the final report when the applicant has met all applicable standards developed for the site.

11.2. The applicant may subdivide sites for the purpose of preparing final reports.

11.3. The final report shall include all data and information needed to document and verify that the site meets all applicable standards and that the applicant has completed all activities specified in the Voluntary Remediation Agreement. The applicant shall place in appendices to the final report all supporting documentation, such as sample collection records, field monitoring data, laboratory reports, relevant correspondence, and permits. The applicant may include maps, drawings, photographs, tables, and other aids to visualization and data presentation. The applicant shall submit an electronic copy of the final report.

11.4. The applicant may incorporate by reference earlier reports, plans, and/or other relevant documents into the final report by reference, if he or she has previously submitted these items to the Department, in which case, the applicant shall provide a complete bibliographic reference for each document being incorporated by reference.

11.5. The applicant shall provide the names, addresses, telephone numbers, and email addresses (if available) of the current owners and operators of the site, the owners and/or operators conducting the remediation (if different), and the licensed remediation specialist. The applicant shall also provide individual names and titles for management contacts for each listed firm or organization.

11.6. The applicant shall clearly identify the site location by providing the street address, legal description (including lot and block numbers), and a site location map.

11.7. The applicant shall describe ongoing work, such as site cover or treatment system operation and maintenance or groundwater or surface water monitoring, including descriptions of planned activities and schedules. Where ongoing work continues after issuance of the Certificate of Completion, the applicant shall include provision for recovery of costs incurred by the Department in implementing and overseeing remediation activities.

11.8. The applicant shall append to the final report copies of the documents recorded or to be recorded if institutional controls, such as deed restrictions or land use covenants, are part of the remediation program. The applicant shall also provide, in electronic format, a site map showing the area(s) subject to institutional controls.

11.9. The applicant, the applicant's authorized agent, and the licensed remediation specialist shall certify in writing the completeness and accuracy of the final report. The form of this certification shall be as follows:

I hereby certify that the information presented in this report is, to the best of my knowledge and belief, true, accurate, and complete, having been prepared under a system and organization designed to produce true, accurate, and complete information.

If the authorized agent and the licensed remediation specialist are the same, a single signature will be sufficient.

§60-3-12. Certificate of Completion.

12.1. Completion of Remediation.

12.1.a. A voluntary remediation is complete when the site meets applicable standards and all work has been completed as contemplated in the Voluntary Remediation Agreement.

12.1.b. When a site meets applicable standards and the applicant has completed all work required by the Voluntary Remediation Agreement to meet applicable standards, the licensed remediation specialist shall issue a final report to the applicant. The report shall explain how the applicant has demonstrated compliance with the requirements of the Voluntary Remediation Agreement.

12.1.c. The applicant to whom the licensed remediation specialist has issued a final report may do either of the following:

12.1.c.1. Request a Certificate of Completion from the Secretary, as provided in subsection 12.2 of this rule; or

12.1.c.2. Request a Certificate of Completion from the licensed remediation specialist, when applicable, as provided in subsection 12.4 of this rule.

12.2. Issuance of Certificate of Completion by the Secretary.

12.2.a. Upon receiving the request provided in paragraph 12.1.c.1 of this rule, the Secretary shall evaluate the final report provided by the applicant and determine, within 60 days, whether the licensed

remediation specialist properly issued the final report. When reviewing a final report, the Secretary shall only consider whether:

12.2.a.1. The site meets applicable standards for those areas of the site and for those contaminants identified in the Voluntary Remediation Agreement; and

12.2.a.2. The applicant has complied with the Voluntary Remediation Agreement and any approved work plans for the site.

12.2.b. If the Secretary agrees that the licensed remediation specialist properly issued the final report, the Secretary shall issue a Certificate of Completion within 60 days of receipt of the applicant's request for a Certificate of Completion.

12.2.c. If the Secretary does not agree that the licensed remediation specialist properly issued the final report, the Secretary shall, within the 60-day review period provided for review of a request for Certificate of Completion, provide written notification to the applicant stating in detail the reasons why he or she does not deem the report properly issued and indicating any further action the applicant must take in order for the Secretary to issue the Certificate. Upon receipt of the notification, the applicant may:

12.2.c.1. Instruct the licensed remediation specialist to take the further action identified by the Secretary; or

12.2.c.2. Terminate the Voluntary Remediation Agreement.

12.3. Contents of the Certificate of Completion.

12.3.a. The Certificate of Completion shall attach or incorporate the following:

12.3.a.1. A description of the site to which the Certificate of Completion pertains;

12.3.a.2. A list of the contaminants of concern for which the site meets applicable standards;

12.3.a.3. The Voluntary Remediation Agreement under which the site was remediated and/or evaluated;

12.3.a.4. The final report of the licensed remediation specialist; and

12.3.a.5. Any land use covenant or deed restriction imposed for purposes of meeting applicable standards including, where applicable, a description of any institutional or engineering controls employed at the site for purposes of meeting applicable standards.

12.3.b. The Certificate of Completion shall provide that:

12.3.b.1. The site that is described in the Certificate of Completion meets the applicable standards as provided in section 9 of this rule;

12.3.b.2. The applicant and the persons identified in section 18 of the Act (A) are relieved of liability to the State for the release that caused the contamination that was the subject of the voluntary remediation, and the State shall not institute any civil, criminal, or administrative action arising from the release and resulting contamination as long as the site continues to meet applicable standards in effect at

the time the Certificate was issued; and (B) shall not be subject to citizen suits or contribution actions with regard to the contamination that was the subject of the Voluntary Remediation Agreement;

12.3.b.3. Where the agreement imposes an obligation that continues beyond the effective date of the Certificate and those obligations are no longer satisfied, with the result that the site no longer meets the applicable standards approved for the remediation or continued compliance with the applicable standard is threatened, the Secretary shall initiate action to insure the site is brought into compliance in accordance with section 14 of this rule or rescind the covenant contained in this Certificate as it would apply to the then-current owner or operators of the site and their successors and assigns;

12.3.b.4. Except as provided in paragraph 12.3.b.3 of this rule, the Secretary may revoke a Certificate of Completion or instead require further remediation of any site described in the Certificate of Completion only where the Secretary has determined that a reopener has been triggered in accordance with section 16 of this rule. Where a Certificate is revoked under this provision, it is revoked only as to the then-current owner or operator of the site and their successors and assigns, except in the case where fraud was committed in demonstrating attainment at the site as provided in subdivision 16.1.a of this rule. In this latter case, the Certificate is revoked as it would apply to any person; and

12.3.b.5. The duties and benefits of the Certificate of Completion are transferable to successors and assigns of the applicant, subject to the obligations of any land use covenant referred to in the Certificate of Completion.

12.3.c. The Certificate of Completion contained in Appendix 60-3C meets the requirements of this section. The applicant and the Secretary may agree to additional provisions and modifications which differ from the form in Appendix 60-3C, but which are consistent with this rule.

12.4. Certificates of Completion Issued by Licensed Remediation Specialists.

12.4.a. A licensed remediation specialist may issue a Certificate of Completion for any site that complies with the De Minimis Standards set forth in subsections 9.2 and 9.5 of this rule, provided that the licensed remediation specialist issues a final report and gives the Secretary notice of his or her intention to issue a Certificate of Completion for the site.

12.4.b. A Certificate of Completion issued by a licensed remediation specialist shall comply with subsection 12.3 of this rule.

12.4.c. The Secretary may object to the issuance of a Certificate of Completion by a licensed remediation specialist within 30 days of receipt of notice of the Certificate's issuance, as provided in subdivision 12.4.a. of this rule. If the Secretary objects to issuance of the Certificate, the applicant may take any of the actions allowed under subdivision 12.2.c. of this rule. If the Secretary fails to object within the 30-day period, the licensed remediation specialist may issue the Certificate of Completion.

12.5. Effective Date.

12.5.a. A Certificate of Completion issued by the Secretary shall become effective when signed by the Secretary or, where applicable, upon the filing of any land use covenant required by the Certificate, whichever shall last occur.

12.5.b. A Certificate of Completion issued by a licensed remediation specialist shall become effective when signed by the licensed remediation specialist after notice to the Secretary in accordance with

subsection 12.4 of this rule, or, where applicable, upon the filing of any land use covenant required by the Certificate, whichever shall last occur.

§60-3-13. Land Use Covenants.

13.1. Any limitation on the use of a property that is required in order to meet applicable environmental standards shall be contained in a land use covenant. The use restrictions may include prohibiting residential development of some or all of the site or requiring maintenance of engineering or institutional controls.

13.2. Contents of a land use covenant

13.2.a. A land use covenant shall:

13.2.a.1. State that the instrument is an environmental covenant executed pursuant to the Uniform Environmental Covenants Act, W. Va. Code § 22-22B-1, et seq.;

13.2.a.2. Contain a legally sufficient description of the real property subject to the covenant;

13.2.a.3. Describe the activity and use limitations on the real property;

13.2.a.4. Identify every owner of record of a fee interest in the property;

13.2.a.5. Identify every holder of the land use covenant within the meaning of W. Va. Code § 22-22B-2(6);

13.2.a.6. Contain the notarized signature(s) of the agency, every holder, and, unless waived by the agency, every owner of the fee simple of the real property subject to the covenant;

13.2.a.7. Identify the name and location of any administrative record for the work performed under the Act and this rule at the real property subject to the covenant;

13.2.a.8. State whether the applicant used residential or non-residential exposure assumptions to comply with a site-specific remediation standard;

13.2.a.9. Provide requirements for notice within 10 days following transfer of a specified interest in, or concerning proposed changes in use of, applications for building permits for, or proposals for any site work affecting the contamination on, the property subject to the covenant;

13.2.a.10. Contain a provision that the applicant and its assigns and successors are relieved of all civil liability to the State for the release of contaminants and remediation activities, as long as the property meets applicable standards in effect at the time the covenant was issued; and

13.2.a.11. Contain a map indicating the area or areas to which specific activity and use limitations apply.

13.2.b. A land use covenant may:

13.2.b.1. Provide a brief narrative description of the contamination and remedy, including the contaminants of concern, the pathways of exposure, limits on exposure, and the location and extent of the contamination;

13.2.b.2. Grant rights of access to the property for purposes of implementation or enforcement of the covenant;

13.2.b.3. Provide requirements for periodic reporting describing compliance with the covenant;

13.2.b.4. Provide limitations on amendments or termination of the covenant in addition to those specified in W. Va. Code §§ 22-22B-9 and 22-22B-10; and

13.2.b.5. Provide rights of the holder in addition to the holder's right to enforce the covenant pursuant to W. Va. Code § 22-22B-11.

13.2.c. In addition to other conditions for approval of an environmental covenant, the Secretary may require those persons he or she specifies as having interests in the real property to sign the covenant.

13.3. The applicant for participation in the Voluntary Remediation Program shall record the land use covenant in the deed book of each county in which any portion of the site is located, return the original recorded document to the Secretary, and provide a certified copy of the recorded covenant to each of the parties named in subsection 13.5 of this rule.

13.4. The land use covenant form contained in Appendix 60-3D meets the requirements of this section. The holders and the Secretary may agree to additional provisions or modifications that are not inconsistent with this rule, the Voluntary Remediation and Redevelopment Act, or the Uniform Environmental Covenants Act.

13.5. The applicant, property owner, or responsible party, as applicable, shall provide a copy of the land use covenant to:

13.5.a. Each person who signed the covenant;

13.5.b. Each person holding a recorded interest in the real property subject to the covenant;

13.5.c. Each person in possession of the real property subject to the covenant;

13.5.d. Each municipality or other unit of local government in which real property subject to the covenant is located; and

13.5.e. Any other person the agency requires.

13.6. The applicant shall provide geographic information system (GIS) data in either ESRI® shapefile or a computer aided drafting format adequate to accurately delineate the area or areas to which specific land use restrictions or institutional controls apply.

13.6.a. All GIS location data shall have a horizontal accuracy within 12.2 meters (40 feet) in accordance with the U.S. Department of the Interior's U.S. Geologic Survey National Map Accuracy Standards.

13.6.b. All spatial data shall be in one of the three following coordinate systems:

13.6.b.1. Universal Transverse Mercator (UTM) North American Datum 1983 (NAD83) zone 17 North – meters (preferred);

13.6.b.2. Geographic (Latitude and Longitude) 1984 World Geodetic System (WGS84), or

13.6.b.3. West Virginia State Plane Coordinate System, North or South zone as appropriate, NAD27 or NAD83 – US Survey feet or meters.

13.7. The validity of a covenant is not affected by failure to provide a copy of the covenant as required under section 13.5 of this rule.

13.8. The duration, amendment, and termination of a land use covenant shall be governed by the Uniform Environmental Covenants Act, W. Va. Code § 22-22B-1, et seq.

§60-3-14. Procedure where Certificate of Completion or Land Use Covenant is Violated.

14.1. If at any time the Secretary determines that an obligation imposed by the Certificate of Completion or by any land use covenant issued pursuant to the Act is not being satisfied with the result that the site no longer meets the approved remediation standard or continued compliance with the remediation standard is threatened, the Secretary shall issue notice of the determination by providing written notice through certified/registered mail to the current owner or operator of the site. The notice shall identify the obligations that are not being satisfied and the appropriate corrective action that must be taken.

14.2. The covenant set forth in the Certificate of Completion and the provisions regarding relief from liability in any land use covenant shall no longer apply to the current owner or operator of the site and their successors and assigns upon the expiration of 60 days from the date of issuance of notice as provided in subsection 14.1 of this rule, unless prior to that time the current owner or operator takes action to assure that all obligations imposed by the Certificate are satisfied.

§60-3-15. Brownfields Revolving Fund.

15.1. The Secretary may disburse money from the Brownfields Revolving Fund to an eligible applicant for site assessment or remediation of a brownfield, or for other eligible activities to the extent monies are available in the Brownfields Revolving Fund.

15.2. Eligible Applicants. – A person may apply for a loan from the Brownfields Revolving Fund if the applicant meets all of the following conditions:

15.2.a. The site meets the eligibility requirements for the Voluntary Remediation Program outlined in subsection 3.1 of this rule;

15.2.b. The applicant is able to certify that neither the applicant him- or her-self nor any member of his or her immediate family caused or contributed to the contamination on the site;

15.2.c. The applicant shall provide documentation demonstrating that the applicant:

15.2.c.1. Has a legal right to remediate the subject property through ownership or a legal access agreement;

15.2.c.2. Is authorized to incur debt and enter into a legally binding loan agreement;

15.2.c.3. Has the ability to repay the loan; and

15.2.c.4. Is in compliance with the U.S. EPA's All Appropriate Inquiry Rule to claim liability protection as a bona fide prospective purchaser (BFPP), contiguous property owner (CPO), or innocent landowner (ILO).

15.3. Ineligible Applicants. – An applicant is ineligible for Brownfields Revolving Fund moneys if any of the following is true:

15.3.a. Applicant was previously suspended, debarred, or declared ineligible for federal assistance programs; or

15.3.b. Applicant is currently delinquent in taxes, loan payments, or other indebtedness to the State of West Virginia or any political subdivision.

15.4. Loan Applications.

15.4.a. As provided in W. Va. Code § 22-22-5(a), after conducting a pre-application conference with the Secretary, any person who satisfies the criteria set forth in subsection 15.2 of this rule may apply to the Secretary for a loan to perform a site assessment or remediation at a brownfield site. The application shall be on a form prescribed by the Secretary.

15.4.b. The Secretary shall act upon a completed Brownfields Revolving Fund loan application within 45 days of receiving it. The Secretary may approve the application, reject the application, or accept the application subject to correction. The Secretary shall provide the applicant a reasonable amount of time to make corrections specified by the Secretary.

15.4.c. The Secretary shall memorialize each loan in a written document that identifies the amount of the loan, the interest rate, and the repayment schedule.

15.5. Loan Conditions. – The Secretary shall include the following conditions in the document memorializing the loan:

15.5.a. The applicant shall periodically report to the Secretary all expenditures of Brownfields Revolving Fund loan funds.

15.5.b. Where the applicant is the owner of the property upon which the site assessment is to be performed, the applicant shall execute a deed of trust or provide any other collateral of equal or greater value to secure the loan.

15.5.c. Where the applicant is not the owner of the property upon which the site assessment is to be performed, the applicant shall provide appropriate collateral to secure the loan.

15.6. Repayment.

15.6.a. The applicant shall repay the loan at a rate of interest determined by the Secretary at the time he or she approves the application. The loan shall be low interest.

15.6.b. The applicant shall repay the loan in equal installments over a period of no longer than ten years, as allowed by the Secretary.

15.7. Additional Public Involvement and Public Notification Requirements.

15.7.a. The applicant shall pay any costs the Department incurs in carrying out the provisions of this subsection.

15.7.b. Public Notice of Application for the Voluntary Remediation Program. – The applicant shall produce and circulate a public notice of its application to the Voluntary Remediation Program in accordance with subsection 7.1 of this rule, which shall also include the following:

15.7.b.1. A summary of the proposed future use of the site; and

15.7.b.2. A summary of the public's right under the Act to become involved in the development and remediation and reuse of the site, as well as the time, date, and location of an informational meeting the applicant will hold with regard to the application.

15.7.b.3. The applicant shall publish the public notice once a week for four consecutive weeks in a local newspaper of general circulation in the county where the brownfield remediation is proposed.

15.7.c. Public Notice Provided by the Secretary. – The Secretary shall provide the Public Notice of Application outlined in paragraphs 15.7.b.1 through 15.7.b.3 above to:

15.7.c.1. The municipality and county commission where the site is located; and

15.7.c.2. The county and/or municipality land use agency or the area's Regional Planning and Development Council created by W. Va. Code § 8-25-5.

15.7.c.3. The Secretary may provide the summary to the U.S. EPA, the U.S. Army Corps of Engineers, the State Bureau for Public Health, and other State or federal agencies that may have an interest in the remediation project.

15.7.d. Signage. – The applicant shall erect a sign on the brownfield site that:

15.7.d.1. Informs that community the site is entering the State's Voluntary Remediation Program;

15.7.d.2. Is placed on the property so that it is clearly visible and legible and is at least three feet by four feet in dimension; and

15.7.d.3. Includes the telephone number and address of the Department's Office of Environmental Remediation.

15.7.e. Comment Period and Informational Meeting on Public Notice of Application. – The applicant shall provide a 30-day public comment period and hold an informational meeting on the application. The public notice and comment period shall meet the following conditions:

15.7.e.1. The 30-day comment period will begin either on the initial date of publication of the Public Notice of Application or upon erection of a sign on the brownfield site, whichever occurs last.

15.7.e.2. The informational meeting shall occur in the community where the brownfield is located by day 21 of the 30-day comment period. The applicant shall provide a minimum of 15 days' notice for the meeting. The informational meeting shall address how remediation concerns apply to the site, including site risk issues such as key exposure assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risks.

15.7.f. **Public Participation in Remediation and Reuse Planning.** – Any person may ask to be involved in the development of the brownfield remediation and reuse plan by making the request to participate in writing to the Secretary during the 30-day comment period. Any person who files a request may participate in the development of the remediation and reuse plan in person or by representative.

15.7.g. **Public Involvement Plan.** – The applicant shall establish a Public Involvement Plan if requested by the public, county, municipality, or Secretary. The applicant, in consultation with the persons requesting to be involved in the remediation and reuse of a brownfield site, shall develop the Public Involvement Plan within 30 days of receiving notice from the Secretary that a Public Involvement Plan has been requested. The Public Involvement Plan shall include, but is not limited to, the following:

15.7.g.1. Provisions for further meetings in the community; and

15.7.g.2. Opportunities for participants to review and comment on each work plan, as well as review and comment on the Voluntary Remediation Agreement before it is finalized and accepted by the Secretary.

15.7.g.3. The applicant shall submit the Public Involvement Plan to the Secretary for review and approval prior to its implementation.

15.7.g.4. The approved Public Involvement Plan shall remain in effect until the Secretary issues the Certificate of Completion, or until the applicant withdraws from the Voluntary Remediation Program.

15.7.g.5. The Secretary shall consider comments from participants, as well as the applicant's responses to comments, regarding the Voluntary Remediation Agreement, work plans, and reports prior to accepting the submission of these documents.

15.7.h. **Technical Assistance.** – At any time during the life of the Public Involvement Plan, participants other than the applicant may petition the Secretary for technical assistance related to:

15.7.h.1. Reviewing site-related documents;

15.7.h.2. Explaining technical information to stakeholders;

15.7.h.3. Providing assistance in communicating the concerns of stakeholders to the appropriate persons; or

15.7.h.4. Any other areas deemed appropriate by the Secretary.

15.7.h.5. Upon receipt of a petition for technical assistance, the Secretary and applicant, by mutual agreement, will develop a technical assistance component to the Public Involvement Plan. The Secretary and the applicant shall consider comments from participants in the development of the technical assistance component.

15.7.g. **Notice of Certificate of Completion.** – Upon the Secretary's issuance of the Certificate of Completion, he or she shall notify the municipality, county commission, and county or municipal land use agency or the area's Regional Planning and Development Council created by W. Va. Code § 8-25-5.

§60-3-16. Reopener Provisions.

16.1. If at any time the Secretary determines that one of the reopener conditions in the Act has been triggered, he or she shall issue notice of his or her determination by providing written notice through certified/registered mail to the initial remediator and the current occupant, and any other person who has asked to be notified of any actions regarding the site.

16.2. The Certificate of Completion previously issued for the site shall become null and void upon the expiration of 60 days from the date of issuance of notice as provided in subsection 16.1, unless prior to such time at least one of the following occurs:

16.2.a. Where the initial remediator seeks to maintain the Certificate of Completion then in effect, the initial remediator shall:

16.2.a.1. Reopen and revise the Voluntary Remediation Agreement to the extent necessary to return the site to its previously agreed to state of remediation; or

16.2.a.2. Reopen and revise the Voluntary Remediation Agreement to the extent necessary to achieve an alternative appropriate standard as determined by the Secretary;

16.2.b. Where some person other than the initial remediator seeks to maintain the Certificate of Completion then in effect, the person shall enter into a Voluntary Remediation Agreement with the Secretary in accordance with the requirements of this rule that contains provisions necessary to assure that the property meets the state of remediation previously agreed to or another appropriate standard as determined by the Secretary.

APPENDIX 60-3A

WEST VIRGINIA VOLUNTARY REMEDIATION AGREEMENT FOR
NO FURTHER ACTION INVESTIGATION ACTIVITIES

I. INTRODUCTION

1. The West Virginia Department of Environmental Protection (WVDEP), by its Secretary, and _____ (Applicant) hereby enter into this Voluntary Remediation Agreement (Agreement), pursuant to the Voluntary Remediation and Redevelopment Act, W. Va. Code § 22-22-1, et seq. (the Act), for the purpose of investigating and, if warranted, remediating the property that is the subject of this Agreement (the Site).
2. The parties agree to the following terms and conditions as satisfying the requirements of the Act for the investigation and remediation of the Site. Applicant reserves all rights it may have under common law, the West Virginia Code, and federal statutes to seek contribution or indemnity. WVDEP reserves all rights it may have under common law, the West Virginia Code, and federal statutes to seek contribution or indemnity from persons other than Applicant and those persons identified in W. Va. Code § 22-22-18.
3. By entering into this Agreement, Applicant neither admits nor denies liability for the conditions on the Site.

II. STATEMENT OF ELIGIBILITY

4. The Secretary has determined that the application submitted by Applicant is complete and that Applicant is eligible to participate in the Voluntary Remediation Program [ADD FOR BROWNFIELDS LOCATIONS: *and that the Site qualifies as a Brownfields Revolving Fund site*]. However, neither the Secretary's determination of eligibility nor the entry into this Agreement precludes any finding by the Secretary at a later date that the Site poses an imminent and substantial threat to human health or the environment within the meaning of W. Va. Code § 22-22-7(d). In addition, if the Secretary determines that Applicant withheld or misrepresented information that would be relevant to Applicant's eligibility, the Secretary may withdraw from this Agreement.

III. PARTIES BOUND

5. This Agreement applies to and is binding upon Applicant, its officers, secretaries, principals, employees, agents, successors, subsidiaries, and assigns and upon WVDEP, its employees, agents, and successors. The signatories to this Agreement certify that they are fully authorized to execute and legally bind the parties they represent.
6. Applicant shall provide a copy of this Agreement to any subsequent owners or successors before Applicant transfers any ownership rights.

IV. DEFINITIONS

7. "Day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.

8. "No further action" means a site is eligible to receive a Certificate of Completion on the basis of site assessment sampling or sampling data developed under a Voluntary Remediation Agreement which demonstrates that the site meets applicable standards.
9. "Rule" means the Voluntary Remediation and Redevelopment Rule, 60CSR3, promulgated pursuant to W. Va. Code §§ 22-22-3 and 22-22-4.
10. "Site" has the meaning ascribed to it in the Act and, for purposes of this Agreement, means the property located in _____, West Virginia, and is more particularly described in the Application for Participation in the Voluntary Remediation Program submitted to WVDEP and accepted by letter dated _____. A map depicting the site boundaries and including _____ acres is attached and incorporated herein as Exhibit A.
11. All other terms contained in this Agreement shall be used in the manner as defined by W. Va. Code § 22-22-2 and the Rule.

V. STATEMENT OF PURPOSE

12. This Agreement sets forth necessary terms and conditions to satisfy the requirements of the Act for the investigation and, if warranted, the remediation of the Site.
13. The activities conducted by Applicant under this Agreement are subject to approval by WVDEP as provided herein. Applicant shall provide all necessary information for the Site. The activities conducted by Applicant shall be consistent with this Agreement, all applicable laws and rules, and any appropriate guidance documents.

VI. EVALUATION OF SITE ASSESSMENT

14. Applicant has submitted a site assessment as a part of the application. The site assessment was accompanied by a final report prepared by _____, a licensed remediation specialist, which states that the Site meets the applicable standard described in Paragraph 15 of this Agreement.
15. The parties agree that the applicable standard(s) for this Site, consistent with Section 9 of the Rule, is as follows:

[Insert appropriate standard(s) and, where applicable, a description of any engineering or institutional controls for this Site, as agreed upon by the parties.]

16. The statutes and rules with which compliance is mandated in connection with the investigation or remediation of this Site are as follows:

[Add or delete statutes or regulations as appropriate.]

- (a) Air Pollution Control Act, W. Va. Code § 22-5-1, et seq.;
- (b) Water Pollution Control Act, W. Va. Code § 22-11-1, et seq.;
- (c) Groundwater Protection Act, W. Va. Code § 22-12-1, et seq.;
- (d) Hazardous Waste Management Act, W. Va. Code § 22-18-1, et seq.;
- (e) Section 103(a) of Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9603(a);
- (f) Section 304 of Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11001 to 11050;

- (g) Occupational Safety and Health Act, 29 U.S.C. § 651 to 678;
 - (h) Resource Conservation and Recovery Act, 42 U.S.C. § 6901, et seq. and its State counterpart, the West Virginia Solid Waste Management Act, W. Va. Code § 22-15-1, et seq.;
 - (i) Toxic Substances Control Act, 15 U.S.C. § 2601, et seq.; and
 - (j) Any applicable rule or regulation promulgated thereunder.
17. WVDEP has reviewed the final report and the site assessment submitted as a part of the application to participate in the Voluntary Remediation Program and has concluded that the Site meets the applicable standard described in Paragraph 15 of this Agreement. [IF APPLICABLE: *Include a description of the technical standards applied in evaluating the site assessment with reference to proposed future land uses.*]
18. Nothing herein shall be construed as restricting the inspection or access authority of WVDEP under any law or rule.

VII. RECORD PRESERVATION

19. Applicant agrees to preserve, for a minimum of three (3) years from the effective date of this Agreement, all documents required by this Agreement and any other documents generated or used to prepare the documents required by this Agreement. Upon request by WVDEP, Applicant shall make available to WVDEP the records or copies thereof.

VIII. RESERVATION OF RIGHTS

20. WVDEP and Applicant reserve all rights and defenses they may have pursuant to any available legal authority unless expressly waived herein.
21. Nothing herein is intended to release, discharge, or in any way affect any claims, causes of action, or demands in law or equity which the parties may have against any person, firm, partnership, or corporation not a party to this Agreement for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release, or disposal of any materials, hazardous substances, hazardous waste, contaminants, or pollutants at, to, or from the Site. The parties to this Agreement expressly reserve all rights, claims, demands, and causes of action they have against any and all other persons and entities who are not parties to this Agreement, and as to each other for matters not covered hereby.
22. Applicant reserves the right to seek contribution, indemnity, or any other available remedy against any person found to be responsible or liable for contributions, indemnity, or otherwise for any amounts which have been or will be expended by Applicant in connection with the Site.
23. WVDEP acknowledges that, pursuant to W. Va. Code § 22-22-18, Applicant, upon receipt of the Certificate of Completion, is not liable for claims for contribution concerning matters addressed in the Voluntary Remediation Work Plan.

IX. [IF APPLICABLE] PUBLIC NOTIFICATION/INVOLVEMENT

24. *[For Brownfields Revolving Fund applicants, insert provision requiring compliance with approved Public Involvement Plan, where appropriate.]*

X. ADMINISTRATIVE COSTS

25. Applicant agrees to reimburse WVDEP for all of its reasonable administrative costs associated with this Agreement in the amount of \$ _____ within thirty (30) days of the effective date of this Agreement with a check made payable to the West Virginia Department of Environmental Protection for deposit into the Voluntary Remediation Administrative Fund and be mailed along with a transmittal letter stating the Site name and address to the West Virginia Department of Environmental Protection; Attention: _____, _____, West Virginia. Reimbursable costs under this provision shall be those costs for which reimbursement is required under the Rule.

XI. [IF APPLICABLE] LAND USE COVENANTS

26. *[Insert provisions describing restrictions on future use of property and attach copy of land use covenant that is to be recorded for the Site.]*

XII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

27. The effective date of this Agreement is the date on which the Applicant receives notice that the Secretary has signed it.
28. The parties may amend this Agreement by mutual agreement. Amendments shall be in writing and effective when Applicant receives notice that the Secretary has signed it.
29. If the Secretary determines that there is an imminent threat to the public, he or she may unilaterally modify or amend this Agreement.

XIII. TERMINATION AND SATISFACTION

30. Upon completion of the final report prepared by the LRS, Applicant may seek a Certificate of Completion from the Secretary. Upon receipt of a request for a Certificate of Completion, the Secretary shall determine whether the Site meets applicable standards for those areas of the Site and for those contaminants identified in this Agreement and whether Applicant has complied with this Agreement and any approved work plans for the Site. Upon making this determination, the Secretary shall issue a Certificate of Completion which conforms substantially to Appendix 60-3C of the Rule. Where this Agreement requires a land use covenant, the Certificate of Completion shall not become effective until it is properly filed with the Clerk of the County Commission of the county in which the property is located.

If the Secretary determines that the certificate should not be issued because Applicant has not completed the work required by this Agreement and any approved work plans or because the Site does not meet applicable standards, the Secretary shall initiate the procedures relating to denial of a Certificate as provided in the Rule.

31. The provisions of this Agreement are satisfied and this Agreement shall terminate when the Secretary issues the Certificate of Completion.

XIV. REOPENER

32. Upon agreement of the parties or upon occurrence of one or more of the conditions of W. Va. Code § 22-22-15, this Agreement may be reopened in accordance with the provisions of W. Va. Code § 22-22-15.

XV. GOVERNING LAW

33. This Agreement shall be governed by the laws of the State of West Virginia.

Applicant

Printed Name: _____

Title: _____

Signature Date

West Virginia Department of Environmental Protection

By: _____

Title: _____

Signature Date

[Include if Applicant is not owner of the Site and Agreement calls for land use covenant:]

_____, as owner of the Site referenced in the above Agreement, hereby acknowledges that this Agreement requires the imposition of a land use covenant and, in consideration of the benefits accruing to the Site from this Agreement, I hereby agree to the imposition of such land use covenant and agree to cooperate in the execution and filing of the land use covenant.

Owner Name: _____

Signature Date

APPENDIX 60-3B

WEST VIRGINIA VOLUNTARY REMEDIATION AGREEMENT FOR
INVESTIGATION AND REMEDIATION ACTIVITIES

I. INTRODUCTION

1. The West Virginia Department of Environmental Protection (WVDEP), by its Secretary, and _____ (Applicant) hereby enter into this Voluntary Remediation Agreement (Agreement), pursuant to the Voluntary Remediation and Redevelopment Act, W. Va. Code § 22-22-1, et seq. (the Act), for the purpose of investigating and remediating the property that is the subject of this Agreement (the Site).
2. The parties agree to the following terms and conditions as satisfying the requirements of the Act for the investigation and remediation of the Site. Applicant reserves all rights it may have under common law, the West Virginia Code, and federal statutes to seek contribution or indemnity. WVDEP reserves all rights it may have under common law, the West Virginia Code, and federal statutes to seek contribution or indemnity from persons other than Applicant and those persons identified in W. Va. Code § 22-22-18.
3. By entering into this Agreement, Applicant neither admits nor denies liability for the conditions on the Site.

II. STATEMENT OF ELIGIBILITY

4. The Secretary has determined that the application submitted by Applicant is complete and that Applicant is eligible to participate in the Voluntary Remediation Program [ADD FOR BROWNFIELDS LOCATIONS: *and that the Site qualifies as a Brownfields Revolving Fund site*]. However, neither the Secretary's determination of eligibility nor the entry into this Agreement precludes any finding by the Secretary at a later date that the Site poses an imminent and substantial threat to human health or the environment within the meaning of W. Va. Code § 22-22-7(d). In addition, if the Secretary determines that Applicant withheld or misrepresented information that would be relevant to Applicant's eligibility, the Secretary may withdraw from this Agreement.

III. PARTIES BOUND

5. This Agreement applies to and is binding upon Applicant, its officers, secretaries, principals, employees, agents, successors, subsidiaries, and assigns and upon WVDEP, its employees, agents, and successors. The signatories to this Agreement certify that they are fully authorized to execute and legally bind the parties they represent. No change in ownership, corporate, or partnership status of Applicant shall in any way alter its status or responsibilities under this Agreement unless Applicant or WVDEP withdraws from this Program as provide herein.
6. Applicant shall provide a copy of this Agreement to any subsequent owners or successors before Applicant transfers any ownership rights. Applicant shall provide a copy of this Agreement to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Agreement, within fourteen (14) days after the effective date of this Agreement or within fourteen (14) days of the date of retaining their services.

IV. DEFINITIONS

7. "Day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.
8. "No further action" means a site is eligible to receive a Certificate of Completion on the basis of site assessment sampling or sampling data developed under a Voluntary Remediation Agreement which demonstrates that the site meets applicable standards.
9. "Rule" means the Voluntary Remediation and Redevelopment Rule, 60CSR3, promulgated pursuant to the Act.
10. "Site" has the meaning ascribed to it in the Act and, for purposes of this Agreement, means the property located in _____, West Virginia, and is more particularly described in the Application for Participation in the Voluntary Remediation Program submitted to WVDEP and accepted by letter dated _____. A map depicting the site boundaries and including _____ acres is attached and incorporated herein as Exhibit A.
11. All other terms contained in this Agreement shall be used in the manner as defined by W. Va. Code § 22-22-2 or the Rule.

V. STATEMENT OF PURPOSE

12. This Agreement sets forth necessary terms and conditions to satisfy the requirements of the Act for the investigation and remediation of the Site.
13. The activities conducted by Applicant under this Agreement are subject to approval by WVDEP as provided herein. Applicant shall provide all necessary information for the Site. The activities conducted by Applicant shall be consistent with this Agreement, all applicable laws and rules, and any appropriate guidance documents.

VI. WORK TO BE PERFORMED

14. All work to be performed by Applicant pursuant to this Agreement shall be under the direction and supervision of a licensed remediation specialist (LRS). Applicant may designate the licensed remediation specialist as Applicant's project manager pursuant to Paragraph 33. Prior to the initiation of Site work, Applicant shall notify WVDEP, in writing, of the name and title of the licensed remediation specialist, if different from the licensed remediation specialist designated in the application, and of any contractors and/or subcontractors to be used in carrying out the terms of this Agreement.
15. Applicant shall submit an electronic copy of a voluntary remediation work plan which, when implemented, provides for the attainment of the applicable standard specified in Paragraph 17 of this Agreement.

[OPTIONAL LANGUAGE – If applicable:

Prior to the filing of the application and prior to the execution of this Agreement, Applicant has undertaken work at the Site. The LRS has accepted and approved the following documents in support of the requirements of the Act for the investigation and remediation of the Site:]

[List documents and reports submitted.]

[OPTIONAL LANGUAGE – If applicable:

For the purposes of remediation and preparing Final Reports, Applicant may divide the Site into separate areas, and use different human health and ecological remediation standards (e.g., De Minimis, Uniform Risk-Based, and Site-Specific Risk-Based) for these individual areas. Applicant currently contemplates that the Site will be subdivided into the following areas:]

[Provide description of the subdivided areas.]

16. The voluntary remediation work plans submitted with this Agreement include the following:

[OPTIONAL LANGUAGE – If applicable:

List work plans by Site or Subdivided Areas.]

[OPTIONAL LANGUAGE – If applicable:

No voluntary remediation work plans are submitted with this Agreement.]

17. The parties agree that the applicable standard(s) for this Site, consistent with Section 9 of the Rule, is as follows:

[IF APPLICABLE: *Insert applicable standard(s) and, where applicable, a description of any engineering or institutional controls for this Site, as agreed upon by the parties. List by site or subdivided areas, if applicable.]*

[IF NOT APPLICABLE:

The parties agree that the applicable standard(s) for this Site will be determined upon the Secretary's approval of the work plan(s) and report(s) described in Paragraph 19 of this Agreement. The parties agree that the future determination of standard(s) will be described in a modification to the Agreement.]

18. The statutes and rules with which compliance is mandated in connection with the investigation or remediation of this Site are as follows:

[Add or delete statutes or regulations as appropriate.]

- (a) Air Pollution Control Act, W. Va. Code § 22-5-1, et seq.;
- (b) Water Pollution Control Act, W. Va. Code § 22-11-1, et seq.;
- (c) Groundwater Protection Act, W. Va. Code § 22-12-1, et seq.;
- (d) Hazardous Waste Management Act, W. Va. Code § 22-18-1, et seq.;
- (e) Section 103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9603(a)
- (f) Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11001 to 11050;
- (g) Occupational Safety and Health Act, 29 U.S.C. § 651 to 678;
- (h) Resource Conservation and Recovery Act, 42 U.S.C. § 6901, et seq. and its State counterpart, the West Virginia Solid Waste Management Act, W. Va. Code § 22-15-1, et seq.;
- (i) Toxic Substances Control Act, 15 U.S.C. § 2601, et seq.; and
- (j) Any applicable rule or regulation promulgated thereunder.

VII. SUBMITTAL AND APPROVAL OF WORK PLANS OR REPORTS

19. Applicant shall submit electronic copies of the following work plans or reports in accordance with the schedule provided in this Agreement:

[List work plans and/or reports to be submitted. Do not include final report.]

When Applicant plans additional work plans or reports as a follow-up to initial or subsequent activities, Applicant shall submit electronic copies of the future work plans, reports, and schedules in accordance with a modification to this Agreement.

20. The Secretary may, based upon accuracy, quality, and completeness, either approve or disapprove a work plan or report submitted by Applicant.
21. If the Secretary disapproves a work plan or report, the Secretary must, within five (5) days of its disapproval, notify Applicant in writing that he or she has disapproved its work plan or report. The written notice shall include a list specifying the reasons that the Secretary disapproved the work plan or report and shall specify all additional information the Secretary needs in order to approve the work plan or report.
22. If the Secretary disapproves a work plan or report as submitted, Applicant must resubmit the work plan or report or terminate this Agreement as provided in Paragraph 74.
23. Except for the final report as described in the Rule and Paragraph 28 of this Agreement, the Secretary shall either approve or disapprove all work plans and reports within thirty (30) days of receipt *[shorter period may be specified]*. The Secretary shall take action on a work plan or report and send confirmation in writing to Applicant within the thirty (30)-day period *[shorter period may be specified]*. The parties may mutually agree to an extension of time for the Secretary to approve or disapprove the work plans or reports, and confirm the extension in writing.
24. After Applicant resubmits the work plans or reports, the Secretary shall approve or disapprove the resubmitted work plans or reports in writing within thirty (30) days of receipt *[shorter period may be specified]* and send the approval or disapproval to the applicant within that 30-day period. The parties may mutually agree to an extension of time for the Secretary to approve or disapprove resubmitted work plans or reports, in which case, the parties shall confirm in writing. If the Secretary does not approve resubmitted work plans or reports, then the Secretary and Applicant may mutually agree, in writing, to a schedule for additional review of the resubmitted work plans or reports.
25. If the Secretary does not approve or disapprove work plans or reports or resubmitted work plans or reports within thirty (30) days of receipt by the Secretary *[shorter time may be specified]*, then the work plans or reports are deemed approved unless the Secretary determines the work plans or reports are materially inaccurate.
26. Any notice required to be given under the provisions of this Agreement shall be in writing and sent electronically with proof of receipt required. Notice is complete upon receipt.
27. If Applicant desires to proceed with the implementation of the approved work plan, Applicant must notify the Secretary in writing not more than ninety (90) days after the work plan is approved. After providing the notice, Applicant shall initiate the work detailed in the voluntary remediation work plan according to the schedule as set forth in the Secretary's notice of approval. Upon the Secretary's receipt of notice that Applicant intends to proceed, the fully approved

voluntary remediation work plan is deemed incorporated into and made an enforceable part of this Agreement.

28. Upon completion of the work contemplated by all work plans, Applicant shall submit to the Secretary an electronic copy of the final report prepared by the licensed remediation specialist, along with a request for a Certificate of Completion as required in the Rule. The final report shall include all information necessary for the Secretary to verify that Applicant has completed all work contemplated by the work plan and provided all information required by the Rule. Upon receiving the request for a Certificate of Completion, the Secretary shall evaluate the final report provided by Applicant, and determine, within sixty (60) days, whether the LRS properly issued the final report.

[IF APPLICABLE: VIII. PUBLIC NOTIFICATION/INVOLVEMENT]

29. *[For Brownfields Revolving Fund applicants, insert provision requiring compliance with approved Public Involvement Plan, where appropriate.]*

IX. ADDRESSES FOR ALL CORRESPONDENCE

30. The parties shall send all documents required by this Agreement, including reports, approvals, notifications, disapprovals, and other correspondence electronically to the following addresses or to alternate addresses as Applicant or WVDEP may designate in writing.

- a. Documents to be submitted to WVDEP should be sent to:

West Virginia Department of Environmental Protection
Division of Land Restoration
601 57th Street SE
Charleston, WV 25304
Phone: 304-926-0455
Email: DEPOERFileCopy@wv.gov

With a copy of all documents sent to the WVDEP project manager:

[Insert Project Manager's Name]
[Insert Address]
Phone: *[Insert Phone Number]*
Email: *[Insert Email Address]*

- b. Documents to be submitted to Applicant should be sent to:

Attn: *[Insert Name]*
[Insert Address]
Phone: *[Insert Phone Number]*
Email: *[Insert Email Address]*

With a copy of all documents sent to the LRS:

[Insert LRS Name]
[Insert Address]
Phone: *[Insert Phone Number]*

Email: *[Insert Email Address]*

X. COMPLIANCE WITH APPLICABLE LAWS

31. All work undertaken by Applicant pursuant to this Agreement shall be performed in compliance with all applicable federal, state, and local laws, ordinances, and regulations, including, but not limited to, all Occupational Safety and Health Administration, Department of Transportation, and Resource Conservation and Recovery Act regulations. Applicant shall be responsible for obtaining all permits which are necessary for the performance of any work hereunder.
32. Completion of the work performed in accordance with this Agreement shall satisfy all applicable remediation requirements of Chapter 22 of the West Virginia Code, including the following: the Surface Coal Mining and Reclamation Act, W. Va. Code § 22-3-1, et seq.; the Air Pollution Control Act, W. Va. Code § 22-5-1, et seq.; the Water Pollution Control Act, W. Va. Code § 22-11-1, et seq.; the Groundwater Protection Act, W. Va. Code § 22-12-1, et seq.; the Solid Waste Management Act, W. Va. Code § 22-15-1, et seq.; the Underground Storage Tank Act, W. Va. Code § 22-17-1, et seq.; and the Hazardous Waste Management Act, W. Va. Code § 22-18-1, et seq.

XI. PROJECT MANAGER/LICENSED REMEDIATION SPECIALIST

33. The WVDEP Project Manager for the Site is identified in Paragraph 30 of this Agreement. Applicant has designated *[Insert name of licensed remediation specialist]* (LRS #*[Insert LRS license number]*) as Applicant's licensed remediation specialist and *[IF APPLICABLE: Insert Project Manager Name as]* Project Manager for the Site. The licensed remediation specialist is responsible for the supervision of all activities under this Agreement. The WVDEP project manager is the WVDEP-designated representative at the Site. To the maximum extent possible, Applicant and WVDEP shall direct all communications and all documents (including reports, approvals, and other correspondence) concerning the activities performed pursuant to the terms and conditions of this Agreement through the project managers. During the implementation of this Agreement, the project managers shall, whenever possible, operate by consensus and shall attempt in good faith to resolve disputes informally through discussion of the issues. Each party has the right to change its respective project manager or licensed remediation specialist and shall notify the other party of the change within seventy-two (72) hours.
34. Work at the Site shall not stop solely due to the absence of Applicant's or WVDEP's project manager or licensed remediation specialist from the Site. Applicant's project manager, licensed remediation specialist, or licensed remediation specialist's supervisor shall reasonably be available by telephone while work is being performed. Applicant shall designate a person to be in charge who will be available onsite when field work is being performed.

XII. QUALITY ASSURANCE

35. Applicant shall use quality assurance, quality control, and chain of custody procedures in accordance with the Quality Assurance Project Plan approved for use by WVDEP throughout any work plan sample collection and analysis activities pursuant to this Agreement, unless WVDEP agrees otherwise.
36. Applicant shall provide the WVDEP project manager with reasonable advance notice of all sampling and analysis as detailed in the work plan. To provide quality assurance and maintain quality control, Applicant shall:

- (a) Use laboratories certified by WVDEP;
- (b) Ensure that all sampling and analyses are performed according to U.S. EPA methods, the approved Quality Assurance Project Plan, or other methods deemed satisfactory by WVDEP; and
- (c) Ensure that any laboratories used by Applicant for analyses participate in a documented Quality Assurance/Quality Control Program that complies with U.S. EPA guidance documents. As part of such a program, and upon request by WVDEP, such laboratories shall perform analyses of samples provided by WVDEP to demonstrate the quality of analytical data for each such laboratory.

[OPTIONAL LANGUAGE – If applicable:

Applicant may use a mobile laboratory (if it is certified by WVDEP) with the advance written approval of the WVDEP project manager.]

- 37. In the event any laboratory fails to perform the activities required above, WVDEP reserves the right to reject any data not gathered pursuant to the requirements listed above, and to require that Applicant utilize a different laboratory.

XIII. SAMPLING AND DATA/DOCUMENT AVAILABILITY

- 38. Upon request by WVDEP, Applicant shall make available to WVDEP the results of all sampling, including raw data and/or tests or other data generated by Applicant or on Applicant's behalf. WVDEP shall make available to Applicant the quality-assured results of sampling and/or tests or other data similarly generated by WVDEP.
- 39. At the request of WVDEP, Applicant shall permit an authorized representative of WVDEP to take samples of wastes, soils, air, surface water, and groundwater at the Site. For each sample taken, the authorized representative shall provide Applicant a receipt describing the sample obtained and, if requested, a portion of each sample equal in weight or volume to the portion retained.

XIV. ACCESS

- 40. To the extent that the Site or other areas where work is performed hereunder is presently owned or controlled by parties other than those bound by this Agreement, Applicant shall obtain, or use its best efforts to obtain, access agreements from the present owners. Best efforts shall include, at a minimum, a certified letter from Applicant to the present owner of the property requesting access agreements to permit Applicant or any authorized representative of the WVDEP access to the property. The access agreement shall provide access for authorized representatives of WVDEP as specified below. In the event Applicant cannot obtain access agreements, Applicant shall so notify WVDEP, which may then, at its discretion, assist Applicant in gaining access.
- 41. Upon presentation of proper credentials, Applicant shall provide authorized representatives of WVDEP access to the Site and other areas where work is to be performed under this Agreement at all reasonable times. WVDEP's access shall be related solely to the work being performed on the Site and shall include, but not be limited to: inspecting records, operating logs, and contracts related to the Site; reviewing the Applicant's progress in carrying out the terms of this Agreement; and conducting any tests, inspections, and sampling as WVDEP may deem necessary consistent with this Agreement. Applicant shall permit WVDEP's authorized representatives to inspect and

copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, which pertain to this Agreement over which Applicant exercises control. All persons with access to the Site pursuant to this Agreement shall comply with any applicable health and safety plans.

42. Nothing herein shall be construed as restricting the inspection or access authority of WVDEP under any law or regulation.

XV. RECORD PRESERVATION

43. Applicant agrees to preserve, during the pendency of this Agreement, and for a minimum of three (3) years after its termination, all documents required by this Agreement and any other documents generated or used to prepare the documents required by this Agreement. Upon request by WVDEP, Applicant shall make available to WVDEP the records, or copies thereof.
44. Applicant may assert a confidentiality claim for any information submitted pursuant to this Agreement on the grounds that information, or parts thereof, if made public would divulge methods, processes, or activities entitled by the West Virginia Freedom of Information Act, W. Va. Code § 29B-1-1, et seq. to protection as trade secrets. If no confidentiality claim accompanies the information when it is submitted to WVDEP, WVDEP may make it available to the public without further notice to Applicant. Applicant agrees not to assert any confidentiality claim with regard to any physical or analytical data regarding environmental conditions at the Site.

XVI. DISPUTE RESOLUTION

45. The parties shall use their best efforts to, in good faith, resolve all disputes or differences of opinion informally. The period of informal resolution shall not exceed thirty (30) days from the time that either party commences informal resolution by verbally citing the dispute with reference to this paragraph to the other party, unless the parties agree otherwise in writing. If, however, the parties are unable to resolve the dispute informally, Applicant may, no later than ten (10) calendar days after the expiration of the informal dispute resolution period, request a hearing, in writing, with the Secretary, which request shall set forth the nature of the dispute and Applicant's proposed remedy.
46. Within 60 days from the date the Secretary receives Applicant's request, the Secretary or the Secretary's designee, acting as a hearing examiner, shall hold a hearing on the parties' dispute. In conducting the hearing, the Secretary or the Secretary's designee, acting as a hearing examiner, shall follow the procedures contained in the West Virginia Administrative Procedures Act, W. Va. Code § 29A-5-1, et seq.
47. If Applicant is aggrieved by the Secretary's decision, Applicant may either appeal the Secretary's decision in accordance with the provisions in W. Va. Code § 29A-5-4 or withdraw from this Agreement.
48. Until the dispute is resolved, all parties shall halt any actions concerning that element of work in dispute. The parties shall incorporate into the work plan the resolution of the dispute, which becomes an enforceable part thereof. The parties shall extend the time schedule for the work in dispute by the amount of time needed for resolution. Applicant shall complete elements of work and/or obligations not affected by the dispute in accordance with the schedule contained in the work plan.

49. The parties shall immediately incorporate, if necessary, elements of work and any actions required as a result of the dispute resolution into the appropriate plan or procedure, and into this Agreement. Applicant shall proceed with all remaining work according to the modified plan or procedure.

XVII. FORCE MAJEURE

50. Applicant shall perform all work and reporting required by this Agreement within the time limits set forth herein, unless performance is delayed by events which constitute a force majeure. "Force Majeure" means conditions or circumstances beyond the reasonable control of Applicant which could not have been overcome by due diligence and shall include, without limitation, acts of God, action or inaction of other governmental agencies, or administrative or judicial tribunals or other third parties, or strikes or labor disputes (provided, that Applicant is not required to concede to any labor demands), which prevent or delay Applicant from complying with the work plan.
51. Applicant shall notify WVDEP by telephone within three (3) working days and by writing no later than seven (7) working days after any event, which Applicant contends is a Force Majeure. The notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken or to be taken by Applicant to minimize the delay, and the timetable by which these measures will be implemented. Applicant has the burden of demonstrating that the event is a Force Majeure. The Secretary shall make the final decision of whether an event is a Force Majeure and immediately communicate his or her decision to Applicant.
52. If a delay is attributable to a Force Majeure, the parties shall extend, in writing, the time period for performance under this Agreement by the amount of time that is attributable to the event constituting the Force Majeure.

XVIII. RESERVATION OF RIGHTS

53. WVDEP and Applicant reserve all rights and defenses they may have pursuant to any available authority unless expressly waived herein.
54. Nothing herein is intended to release, discharge, or in any way affect any claims, causes of actions, or demands in law or equity which the parties may have against any person, firm, partnership, or corporation not a party to this Agreement for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release, or disposal of any materials, hazardous substances, hazardous waste, contaminants, or pollutants at, to, or from the Site. The parties to this Agreement expressly reserve all rights, claims, demands, and causes of action they have against any and all other persons and entities who are not parties to this Agreement, and as to each other for matters not covered hereby.
55. Applicant reserves the right to seek contribution, indemnity, or any other available remedy against any persons found to be responsible or liable for contributions, indemnity, or otherwise for any amounts which have been or will be expended by Applicant in connection with the Site.
56. WVDEP reserves the right to bring an action, including an administrative action, against Applicant for any violation of statutes or rules except for the specific violations or releases that are being remediated in the work plan.
57. WVDEP reserves the right to withdraw its approval of the work plan at any time during Applicant's implementation of the work plan if:

- (a) WVDEP determines that Applicant has failed to substantially comply with the terms and conditions of this Agreement or the work plan;
- (b) Applicant declines to implement the work plan after being notified of its approval by the WVDEP, or
- (c) WVDEP determines that any contaminant or regulated substance on the site has become an imminent or substantial threat to human health or the environment.

Upon WVDEP's withdrawal of its approval, this Agreement shall be terminated and WVDEP reserves the right to bring any action to enforce any statute or regulation under Chapter 22 of the West Virginia Code, including an action regarding the violations or releases that were the subject of this Agreement.

58. WVDEP acknowledges that, pursuant to W. Va. Code § 22-22-18, Applicant, upon receipt of the Certificate of Completion, is not liable for claims for contribution concerning matters addressed in this Agreement or any related work plan.

XIX. ADMINISTRATIVE COSTS

59. Applicant agrees to reimburse WVDEP for all of its reasonable administrative costs associated with implementation of this Agreement at the rate of 3.5 times the hourly rate of the primary employee assigned to the Site plus the actual and direct expenses of the employee. Within sixty (60) calendar days of the approval of the work plan, WVDEP shall send Applicant an itemized list of estimated in-house costs that WVDEP expects to incur under this Agreement. Applicant agrees that a reasonable estimate of WVDEP contractor costs will be provided as described in the following paragraph. Itemization will be in standard WVDEP format. The estimated costs may include the preparation of the itemized list of administrative costs. Applicant has the right, upon request, to examine any documentation in WVDEP's possession used to develop the itemized list of costs. Applicant shall make the request in writing, which WVDEP must receive within two (2) weeks from the date Applicant receives the estimate of costs.
60. WVDEP agrees to allow Applicant to review and comment on the scope of work and associated cost estimates for outside contractors prior to WVDEP's authorization of the contractor to proceed with the associated work. WVDEP will strive where possible to use cost effective and qualified outside contractors. "Outside contractors" are defined as individuals, partnerships, or corporations paid by WVDEP to assist in the oversight of the activities performed under this agreement (e.g., risk assessment), but shall not include WVDEP employees. WVDEP shall submit to Applicant cost estimates and invoices from outside contractors within two (2) weeks from the date WVDEP receives the cost estimate or invoice. Applicant shall raise any and all objections regarding cost estimates or invoiced work to WVDEP within two (2) weeks from the date Applicant receives the forwarded estimates/invoices from WVDEP or within two (2) weeks of the receipt by Applicant of any back-up documentation of the said cost estimates/invoices that are contained in WVDEP files and requested by Applicant, whichever shall last occur. Notwithstanding any other provision of this Agreement, the process for the review of and objection to any cost estimates pursuant to this paragraph may extend the period otherwise provided in this Agreement for WVDEP review of the submitted work plan or report by no more than an additional thirty (30) days.
61. Applicant shall pay these costs in accordance with the following provisions. WVDEP shall periodically send an accounting of contractor, subcontractor, and laboratory costs to Applicant.

The accounting shall itemize all costs incurred by WVDEP for the previous calendar quarter. Applicant shall pay said amount within _____ days of receipt of the accounting. WVDEP shall also periodically send an accounting of WVDEP's primary employee time charged to this Site to Applicant. Applicant shall pay said amount within _____ days of receipt of the accounting.

62. Checks shall be made payable to the West Virginia Department of Environmental Protection for deposit into the Voluntary Remediation Administrative Fund and mailed along with a transmittal letter stating the Site name and address to:

West Virginia Department of Environmental Protection
Attention: Director, Division of Land Restoration
601 57th Street SE
Charleston, WV 25304

Applicant shall also send electronically a copy of the check and transmittal letter to the WVDEP project manager.

XX. NOTICE OF BANKRUPTCY

63. Applicant shall notify WVDEP of its intention to file a bankruptcy petition as soon as Applicant has knowledge of its intention to file bankruptcy or no later than seven (7) days prior to the actual filing of a voluntary or involuntary bankruptcy petition.

XXI. INDEMNIFICATION

64. Applicant agrees to indemnify and hold harmless the State of West Virginia, its agencies, departments, agents, and employees from and all claims or causes of action arising from, or on account of, acts or omissions of Applicant, its officers, employees, receivers, trustees, agents, or assigns, in carrying out the activities pursuant to this Agreement.

XXII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

65. The effective date of this Agreement is the date on which Applicant receives the notice that the Secretary has signed it.
66. The parties may amend this Agreement by mutual agreement. Amendments shall be in writing and effective when Applicant receives notice that the Secretary has signed it.
67. If the Secretary determines that there is an imminent threat to the public, he or she may unilaterally modify or amend this Agreement.

XXIII. EXTENSIONS OF TIME PERIODS

68. Any written response is deemed timely performed if hand delivered or postmarked by the last day of any time period prescribed herein. Whenever a party has the right or is required to do some act or make some response within a prescribed period after the service of a notice or other paper and the notice or paper is served by U.S. mail, three (3) days shall be added to the prescribed period.
69. Whenever any party is called upon to respond or otherwise act in a certain number of days, and if the final day occurs on a Saturday, Sunday, or legal holiday (whether State or national), the time

limitation shall automatically extend to the next business day after the Saturday, Sunday, or legal holiday.

- 70. Any time periods specified in this Agreement may be extended only by agreement of the parties in writing.

XXIV. TERMINATION AND SATISFACTION

- 71. Upon completion of the final report prepared by the LRS, Applicant may seek a Certificate of Completion from the Secretary. Upon receipt of a request for a Certificate of Completion, the Secretary shall determine whether the Site meets applicable standards for those areas of the Site and for those contaminants identified in this Agreement and whether Applicant has complied with this Agreement and any approved work plans for the Site. Upon making this determination, the Secretary shall issue a Certificate of Completion which conforms substantially to Appendix 60-3C of the Rule. Where this Agreement requires a land use covenant, the Certificate of Completion shall not become effective until it is properly filed with the Clerk of the County Commission of the county in which the property is located.

If the Secretary determines that the certificate should not be issued because Applicant has not completed the work required by this Agreement and any approved work plans or because the Site does not meet applicable standards, the Secretary shall initiate the procedures relating to denial of a certificate as provided in the Rule.

- 72. The provisions of this Agreement are satisfied and this Agreement shall terminate when the Secretary issues the Certificate of Completion.
- 73. Nothing in this Agreement shall restrict the State of West Virginia from seeking other appropriate relief to protect human health or the environment from pollution or contamination at or from this Site not remediated in accordance with this Agreement.
- 74. Applicant may, in its sole discretion, terminate this Agreement by providing to the Secretary fifteen (15) days advance written notice of termination. Only those costs incurred or obligated by the Secretary before the notice of termination is received are recoverable if the Agreement is terminated. If Applicant terminates this Agreement, then Applicant shall pay WVDEP's costs associated with the voluntary remediation within thirty-one (31) days after receiving notice that the costs are due and owing.

XXV. [IF APPLICABLE] LAND USE COVENANTS

- 75. [IF LAND USE COVENANT APPLICABLE:
Insert provisions describing restrictions on future use of property and attach copy of land use covenant that is to be recorded for the Site.]

[IF LAND USE COVENANT NOT APPLICABLE:
This site does not require a land use covenant.]

[IF LAND USE COVENANT UNDETERMINED:
The parties agree that restrictions may be required on the future use of the Site. Once the parties have determined the restrictions, they shall prepare, and Applicant shall record, an appropriate land use covenant for the Site.]

XXVI. REOPENER

76. Upon agreement of the parties or upon occurrence of one or more conditions of W. Va. Code § 22-22-15, this Agreement may be reopened in accordance with the provisions of W. Va. Code § 22-22-15.

XXVII. PRECEDENCE OF AGREEMENT

77. In the event that conflict arises among the terms and conditions of this Agreement, the Statement of Work, or the approved work plan, this Agreement shall govern and the terms and conditions hereunder shall determine the parties' rights and responsibilities.

XXVIII. GOVERNING LAW

78. This Agreement shall be governed by the laws of the State of West Virginia.

Applicant

Printed Name: _____

Title: _____

Signature Date

West Virginia Department of Environmental Protection

By: _____

Title: _____

Signature Date

[Include if Applicant is not owner of the Site and Agreement calls for a land use covenant:]

_____, as owner of the Site referenced in the above Agreement, hereby acknowledges that the Agreement requires the imposition of a land use covenant and, in consideration of the benefits accruing to the Site from the Agreement, I hereby agree to the imposition of a land use covenant and agree to cooperate in the execution and filing of the land use covenant.

Owner Name: _____

Signature Date

APPENDIX 60-3C

**STATE OF WEST VIRGINIA
VOLUNTARY REMEDIATION PROGRAM
CERTIFICATE OF COMPLETION AND COVENANT**

[*Applicant*] entered into a Voluntary Remediation Agreement with the Secretary of the Department of Environmental Protection, dated _____ (Agreement). The Agreement was entered into to address the release of any contaminants at _____ (Site) located at _____, in _____ District, _____ County, West Virginia. The following documents are incorporated as a part of this Certificate and Covenant:

- The application dated _____ and the site assessment submitted with the application
- The Agreement dated _____ and modifications 1-[#], dated as follows:
- A map depicting the Site (See Exhibit A)
- A list of the contaminants of concern for which the remediation standards specified in the Agreement have been met (See Exhibit B)
- The final report submitted for the Site dated _____, issued by a licensed remediation specialist
- [*If applicable:*] A description of any institutional or engineering controls that were used to achieve a remediation standard (See Exhibit C)
- [*If applicable:*] The land use covenant that is to be recorded for this Site (See Exhibit D)

This Certificate of Completion is issued pursuant to W. Va. Code § 22-22-13 to [*Applicant*] in recognition of the completion of the work required under the Agreement.

Pursuant to W. Va. Code §§ 22-22-7(f), 22-22-13, 22-22-14, and 22-22-18, the Secretary of the West Virginia Department of Environmental Protection (hereinafter, "WVDEP"), in the name of and on behalf of the State of West Virginia, now covenants not to bring any civil, criminal or administrative action or claim, resulting from or based upon the release or threatened release of contaminants that were the subject of the Voluntary Remediation Agreement. This covenant shall bar actions against [*Applicant*], [*Applicant*]'s successors and assigns, and those persons identified in W. Va. Code § 22-22-18, from all public and private claims arising under Chapter 22 of the West Virginia Code or rules adopted thereunder in connection with the release or threatened release that was the subject of the Voluntary Remediation Agreement. This covenant shall not apply to [*Applicant*]'s predecessors in title.

CONDITIONS

This Certificate and the covenant it contains are subject to the terms and conditions set forth below:

1. The following conditions, contained in W. Va. Code § 22-22-15, which may cause the Voluntary Remediation Agreement to be reopened:

- (a) fraud was committed in demonstrating attainment of a standard at the site that resulted in avoiding the need for further remediation of the site;
- (b) new information confirms the existence of an area of previously unknown contamination which contains contaminants that have been shown to exceed the standards applied to the previous remediation at the site;
- (c) the level of risk is increased significantly beyond the established level of protection at the site due to substantial changes in exposure conditions, such as, a change in land use, or new information is obtained about a contaminant associated with the site which revises exposure assumptions beyond the acceptable range. This condition applies only where the level of risk is increased by a factor of at least five or the hazard index exceeds 1, or 10 where multiple systemic toxicants do not affect the same organ;
- (d) the release occurred after the effective date of this Article on a site not used for industrial activity prior to the effective date of this Article; the remedy relied, in whole or in part, upon institutional or engineering controls instead of treatment or removal of contamination; and treatment, removal or destruction has become technically and economically practicable; or
- (e) the remediation method failed to meet the remediation standard or combination of standards.

For purposes of this paragraph, "new information" means any information obtained directly or indirectly by the department from any person after issuance of a Certificate of Completion, but does not include information the department has received in the application for participation in the Voluntary Remediation Program, including any site assessment, [*optional: during the execution of the Voluntary Remediation Agreement or any work plan developed under such an agreement*] or other information available to the department under the Voluntary Remediation Program prior to the execution of the Certificate of Completion. Information that does not qualify as new information may be considered by the Secretary along with new information if necessary, to determine whether any of the conditions for reopening set out in section 16 of this rule, have occurred.

Where one of the foregoing conditions is found to exist for a portion but not all of the Site, this certificate and covenant shall continue to apply to all portions of the Site that were unaffected by the occurrence of that condition.

2. To the extent that the Agreement or any of the documents referenced in this certificate impose obligations that continue after the execution of this certificate, there shall be continued compliance with such obligations.

3. This certificate and covenant do not preclude the State of West Virginia from taking any unilateral action at the Site, under any existing or future statutory authority, to protect human health and the environment; provided however, in no event shall the State have a right of recovery against [*Applicant*] or any other person to whom the covenant herein applies to the extent that such right of recovery arises under Chapter 22 of the West Virginia Code, and relates to matters covered by the Agreement.

4. This certificate and covenant do not preclude the State from seeking recovery of such sums as the [*Applicant*] has agreed to pay WVDFP under the Agreement.

WHEREFORE, the Secretary of the Department of Environmental Protection, on behalf of the State of West Virginia, issues this certificate and covenant, with all aforementioned privileges, responsibilities, conditions and reservations, this date of _____, to *[Applicant]*.

Secretary, Department of Environmental Protection

APPENDIX 60-3D

LAND USE COVENANT

This is an environmental covenant executed pursuant to the Voluntary Remediation and Redevelopment Act, West Virginia Code Chapter 22, Article 22, and the Uniform Environmental Covenants Act, West Virginia Code Chapter 22, Article 22B, to restrict the activities on, and uses of, the following described property:

[Insert legally sufficient description of the real property subject to the covenant. If the description is longer than one page, it may be included as an attachment.]

Activities on and uses of the above described property that may result in excessive human exposure or in the release of a contaminant that was contained as part of the remedial action related to this covenant are prohibited. Those activities and uses include, but are not limited to:

[Insert list of prohibited activities.]

The current owner(s) of record of the property, and the owner contact information, are:

[Insert identity and address of all owners of record.]

Any person, including a person that owns an interest in the real property, the state or federal agency determining or approving the environmental response project pursuant to which an environmental covenant is created, or a municipality or other unit of local government may be a holder of an environmental covenant. The following are all of the holders of this covenant:

[Insert identity and address of all holders.]

The facts regarding the remediation response project at this property are: *[Provide a brief narrative description of the contamination and remedy, including the contaminants of concern, the pathways of exposure, limits on exposure and the location and extent of the contamination and state whether residential or non-residential exposure assumptions were used to comply with a site-specific remediation standard.]*

The owner(s) of the property shall provide written notice to the Secretary of the Department of Environmental Protection within 10 days following transfer of a specified interest in the property subject to this covenant, changes in use of the property, application for building permits regarding the property, or proposals for any site work affecting the contamination on the property.

The *[owner(s) or applicant(s)]* shall conduct inspections of the property to monitor compliance with this Land Use Covenant at least *[insert number time(s)]* per year, and shall submit two (2) signed copies of the inspection monitoring report to the WVDEP, DLR headquarters in Charleston, within thirty (30) days of the inspection.

This covenant relieves the applicant and subsequent successors and assigns from all civil liability to the state as provided under West Virginia Code Article 22 of Chapter 22 and shall remain in effect so long as the property complies with the applicable standards in effect at the time this covenant was issued.

This covenant shall not be amended, modified or terminated except by written instrument executed by and between the owner at the time of the proposed amendment, modification or termination, and the

Secretary of the West Virginia Department of Environmental Protection, or his successor in accordance with regulations promulgated by the Secretary or his successor. Within 5 days of executing an amendment, modification or termination of this Land Use Covenant, the owner shall record such amendment, modification or termination with the Clerk of the [County] Commission, and within 5 days thereafter, the owner shall provide a true copy of the recorded amendment, modification or termination to the Secretary of the Department of Environmental Protection.

The administrative record for the environmental response project reflected in this covenant is maintained in the [insert the name and address of the appropriate agency office] and is entitled [insert title of administrative record].

The West Virginia Department of Environmental Protection is granted full right of access to the property for the purpose of implementation or enforcement of this covenant.

All restrictions and other requirements described in this covenant shall run with the land and shall be binding upon all holders and their grantees, lessees, authorized agents, employees or persons acting under their direction or control.

IN WITNESS WHEREOF, the following holders have executed this covenant on the dates indicated.

SIGNED: _____ Date

I, _____, a Notary Public in and for the County of _____, State of _____, do hereby certify that the holder(s) whose (name is) (names are) signed above, this day executed this document in my presence or this day acknowledged same to be the true act and deed of said holder(s).

Given under my hand this the _____ day of _____, 20__.

My commission expires _____.

Notary Public

Secretary, Department of Environmental Protection _____ Date

I, _____, a Notary Public in and for the County of _____, State of _____, do hereby certify that _____, whose name is signed to the writing above as the representative of the agency, has this day executed this document in my presence or this day acknowledged same to be the true act and deed of said holder.

Given under my hand this the _____ day of _____, 20__.

My commission expires _____.

Notary Public

The Clerk will return the recorded document to:

Director
WVDEP, DLR
601 57th Street SE
Charleston, WV 25304

[The document must contain the notarized signature(s) of the agency, every holder and, unless waived by the agency, every owner of the fee simple of the real property subject to the covenant.]

[Repeat the Signature and Notary materials as many times as needed. If several holders sign before the same Notary, their signatures may be listed together and only one Notarization, referring to all such holders, will be needed for those signatures.]

[This covenant, and any amendment or termination of this covenant, must be recorded in every county in which any portion of the real property subject to the covenant is located. For purposes of indexing, a holder shall be treated as a grantee.]

TABLE 60-3A

LICENSED REMEDIATION SPECIALIST FEES

APPLICATION FEE	\$300.00
BIENNIAL RENEWAL FEE	\$200.00
EXAMINATION FEE	\$250.00

60CSR3

Table 60-3B

CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Acetaldehyde	75-07-0	1.2E+01	c	3.7E+02	nc	2.6E+00	c	5.2E-04
Acetochlor	34255-82-1	1.3E+03	nc	2.5E+04	nc	3.5E+02	nc	2.8E-01
Acetone	67-64-1	6.1E+04	nc	1.1E+05	Csat	1.4E+04	nc	2.9E+00
Acetonitrile	75-05-8	8.7E+02	nc	3.7E+03	nc	1.3E+02	nc	2.6E-02
Acetophenone	98-86-2	2.5E+03	Csat	2.5E+03	Csat	1.9E+03	nc	5.8E-01
Acrolein	107-02-8	1.6E-01	nc	6.5E-01	nc	4.2E-02	nc	8.4E-06
Acrylamide	79-06-1	2.4E-01	c	7.1E+01	c	5.0E-02	c	1.1E-05
Acrylonitrile	107-13-1	2.7E-01	c	1.3E+01	c	5.2E-02	c	1.1E-06
Alachlor	15972-60-8	9.7E+00	c	6.3E+02	c	2.0E+00	gws	1.6E-03
Alar	1596-84-6	3.0E+01	c	2.0E+03	c	4.3E+00	c	9.5E-04
Aldicarb	116-06-3	6.3E+01	nc	1.3E+03	nc	3.0E+00	gws	7.5E-04
Aldicarb sulfone	1646-68-4	6.3E+01	nc	1.3E+03	nc	2.0E+00	gws	4.4E-04
Aldrin	309-00-2	3.9E-02	c	3.6E+00	c	9.2E-04	c	1.5E-04
Aluminum	7429-90-6	7.7E+04	nc	1.0E+06	max	2.0E+04	nc	3.0E+04
Aniline	62-53-3	9.5E+01	c	6.2E+03	c	1.3E+01	c	4.6E-03
Antimony and compounds	7440-36-0	3.1E+01	nc	8.3E+02	nc	7.8E+00	nc	3.5E-01
Arsenic	7440-38-2	4.3E-01	c	3.5E+01	c	1.0E+01	gws	2.9E-01
Assure	76579-14-8	5.7E+02	nc	1.1E+04	nc	1.2E+02	nc	1.9E+00
Atrazine	1912-24-9	2.4E+00	c	1.5E+02	c	3.0E+00	gws	2.0E-03
Azobenzene	103-33-3	5.8E+00	c	4.7E+02	c	1.2E-01	c	8.3E-04
Barium and compounds	7440-39-3	1.5E+04	nc	4.0E+05	nc	2.0E+03	gws	8.2E+01
Baygon	114-26-1	2.5E+02	nc	6.1E+03	nc	7.8E+01	nc	2.5E-02
Baythroid	68359-37-5	1.6E+03	nc	3.2E+04	nc	1.2E+02	nc	3.1E+01
Bentazon	25057-89-0	1.9E+03	nc	3.8E+04	nc	5.7E+02	nc	1.2E-01
Benzaldehyde	100-52-7	1.2E+03	Csat	1.2E+03	Csat	1.9E+03	nc	4.3E-01

60CSR3

CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Benzene	71-43-2	1.2E+00	c	5.7E+01	c	5.0E+00	gws	2.6E-03
Benzidine	92-87-5	5.3E-04	c	1.5E-01	c	1.1E-04	c	2.8E-07
Benzoic acid	65-65-0	2.5E+05	nc	1.0E+06	max	7.6E+04	nc	1.8E+01
Benzyl alcohol	100-51-6	6.3E+03	nc	1.3E+05	nc	2.0E+03	nc	4.8E-01
Benzyl chloride	100-44-7	1.1E+00	c	5.8E+01	c	8.9E-02	c	9.8E-05
Beryllium and compounds	7440-41-7	1.6E+02	nc	4.5E+03	nc	4.0E+00	gws	3.2E+00
1,1'-Biphenyl	92-52-4	5.1E+01	nc	2.1E+02	nc	8.3E-01	nc	8.7E-03
Bis(2-chloroethyl)ether	111-44-4	2.4E-01	c	1.3E+01	c	1.4E-02	c	3.6E-06
Bis(2-chloroisopropyl)ether	108-80-1	5.1E+00	c	3.1E+02	c	3.6E-01	c	1.3E-04
Bis(chloromethyl)ether	542-88-1	8.9E-05	c	3.9E-03	c	7.2E-05	c	1.7E-08
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	3.9E+01	c	2.5E+03	c	8.0E+00	gws	1.4E+00
Bromodichloromethane	75-27-4	3.1E-01	c	1.4E+01	c	1.3E-01	c	3.6E-05
Bromoform (tribromomethane)	75-25-2	2.0E+01	c	9.1E+02	Csat	3.3E+00	c	8.7E-04
Bromomethane	74-83-9	7.3E+00	nc	3.3E+01	nc	7.5E+00	nc	1.9E-03
Bromophos	2104-96-3	3.4E+02	nc	5.5E+03	nc	1.8E+01	nc	7.7E-02
1,3-Butadiene	106-99-0	6.1E-02	c	3.2E+00	c	1.8E-02	c	9.9E-06
1-Butanol	71-36-3	4.7E+03	nc	7.6E+03	Csat	5.3E+02	nc	1.1E-01
Butylate	2008-41-5	3.2E+03	nc	4.5E+04	nc	2.1E+02	nc	2.0E-01
n-Butylbenzene	104-51-8	1.1E+02	Csat	1.1E+02	Csat	1.0E+03	nc	3.2E+00
Butyl benzyl phthalate	85-68-7	2.9E+02	c	1.9E+04	c	1.6E+01	c	2.4E-01
Cadmium and compounds	7440-43-9	3.7E+01	nc	5.8E+02	nc	5.0E+00	gws	3.8E-01
Caprolactam	105-60-2	3.1E+04	nc	5.0E+05	nc	9.9E+03	nc	2.5E+00
Carbaryl	63-25-2	6.3E+03	nc	1.3E+05	nc	1.8E+03	nc	1.7E+00
Carbon disulfide	75-15-0	7.4E+02	Csat	7.4E+02	Csat	8.1E+02	nc	2.4E-01
Carbon tetrachloride	56-23-5	7.0E-01	c	3.2E+01	c	5.0E+00	gws	1.9E-03
Carbosulfan	55285-14-8	6.3E+02	nc	1.3E+04	nc	5.1E+01	nc	1.2E+00
Chlorant	118-75-2	1.4E+00	c	8.9E+01	c	1.8E-01	c	1.5E-04

60CSR3

CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Chlordane (Technical)	12789-03-6	1.9E+00	c	1.6E+02	c	2.0E+00	gws	1.4E-01
Chloroacetic acid	79-11-8	1.3E+02	nc	2.5E+03	nc	4.0E+01	nc	8.1E-03
4-Chloroaniline	106-47-8	2.7E+00	c	1.8E+02	c	3.7E-01	c	1.6E-04
Chlorobenzene	108-90-7	2.9E+02	nc	7.6E+02	Csat	1.0E+02	gws	6.8E-02
Chlorobenzilate	510-15-6	4.9E+00	c	3.2E+02	c	3.1E-01	c	1.0E-03
p-Chlorobenzoic acid	74-11-3	1.9E+03	nc	3.8E+04	nc	5.1E+02	nc	1.3E-01
2-Chloro-1,3-butadiene	126-99-8	1.1E-02	c	4.7E-01	c	1.9E-02	c	9.8E-06
1-Chlorobutane	109-69-3	2.5E+02	nc	7.3E+02	Csat	2.0E+02	nc	8.1E-02
Chloroethane	75-00-3	2.1E+03	Csat	2.1E+03	Csat	2.1E+04	nc	5.9E+00
Chloroform	67-66-3	3.4E-01	c	1.5E+01	c	2.2E-01	c	5.1E-06
Chloromethane	74-87-3	1.2E+02	nc	5.0E+02	nc	1.9E+02	nc	4.9E-02
4-Chloro-2-methylaniline	95-69-2	5.4E+00	c	3.5E+02	c	7.0E-01	c	4.0E-04
beta-Chloronaphthalene	91-58-7	5.0E+03	nc	6.7E+04	nc	3.3E+02	nc	1.7E+00
o-Chloronitrobenzene	88-73-3	1.8E+00	c	1.2E+02	c	2.4E-01	c	2.2E-04
p-Chloronitrobenzene	100-00-5	6.3E+01	nc	1.3E+03	nc	1.1E+01	c	1.0E-02
2-Chlorophenol	95-57-8	3.4E+02	nc	5.5E+03	nc	2.7E+01	nc	2.2E-02
o-Chlorotoluene	95-49-8	4.5E+02	nc	9.1E+02	Csat	9.0E+01	nc	8.8E-02
Chlorpyrifos-methyl	5598-13-0	6.3E+02	nc	1.3E+04	nc	1.2E+02	nc	5.4E-01
Chromium III	16065-83-1	1.2E+05	nc	1.0E+06	max	2.2E+04	nc	4.0E+07
Chromium VI	18549-29-9	3.1E-01	c	1.3E+02	c	3.5E-02	c	6.7E-04
Cobalt	7440-48-4	2.3E+01	nc	6.9E+02	nc	6.0E+00	nc	2.7E-01
Copper and compounds	7440-50-8	3.1E+03	nc	8.3E+04	nc	8.0E+02	nc	2.8E+01
Crotonaldehyde	123-73-9	8.2E-02	c	4.1E+00	c	8.2E-03	c	1.7E-06
Cyanazine	21725-46-2	6.5E-01	c	4.2E+01	c	5.8E-02	c	4.1E-06
Cyanide and compounds	74-90-8	2.3E+01	nc	1.7E+02	nc	2.0E+02	gws	2.0E+00
Cyanogen	450-19-5	7.6E+01	nc	2.3E+03	nc	2.0E+01	nc	
Cyanogen bromide	506-68-3	7.0E+03	nc	2.1E+05	nc	1.8E+03	nc	

60CSR3

CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Cyclohexane	110-82-7	1.2E+02	Csat	1.2E+02	Csat	1.3E+04	nc	1.3E+01
Cyclohexanone	108-94-1	5.1E+03	Csat	5.1E+03	Csat	1.4E+03	nc	3.4E-01
Gyhalothrin/Karate	68089-85-8	3.2E+02	nc	6.3E+03	nc	1.0E+02	nc	6.8E+01
Cypermethrin	52315-07-8	6.3E+02	nc	1.3E+04	nc	2.0E+02	nc	3.2E+01
Dacthal	1861-32-1	6.3E+02	nc	1.3E+04	nc	1.2E+02	nc	1.5E-01
Dalapon	75-99-0	1.9E+03	nc	3.8E+04	nc	2.0E+02	gws	4.1E-02
DDD	72-54-8	2.3E+00	c	1.5E+02	c	3.2E-02	c	7.5E-03
DDE	72-55-9	2.0E+00	c	1.8E+02	c	4.6E-02	c	1.1E-02
DDT	50-29-3	1.9E+00	c	1.5E+02	c	2.3E-01	c	7.7E-02
Diazinon	333-41-5	4.4E+01	nc	8.9E+02	nc	1.0E+01	nc	6.5E-02
Dibenzofuran	132-64-9	7.8E+01	nc	2.3E+03	nc	7.9E+00	nc	1.5E-01
1,4-Dibromobenzene	106-37-6	4.1E+02	nc	3.1E+03	nc	4.7E+01	nc	4.5E-02
Dibromochloromethane	124-48-1	5.3E+00	c	7.8E+02	c	5.7E-01	c	2.3E-04
1,2-Dibromo-3-chloropropane	96-12-8	5.7E-03	c	7.0E-01	c	2.0E-01	gws	8.7E-05
1,2-Dibromoethane	106-93-4	3.9E-02	c	1.8E+00	c	5.0E-02	gws	1.4E-05
Dibutyl phthalate	84-74-2	6.3E+03	nc	1.3E+05	nc	9.0E+02	nc	2.3E+00
Dicamba	1918-00-9	1.9E+03	nc	3.8E+04	nc	5.7E+02	nc	1.5E-01
1,2-Dichlorobenzene	95-50-1	3.8E+02	Csat	3.8E+02	Csat	6.0E+02	gws	5.8E-01
1,4-Dichlorobenzene	106-46-7	2.8E+00	c	1.2E+02	c	7.5E+01	gws	7.2E-02
3,3'-Dichlorobenzidine	91-94-1	1.2E+00	c	7.9E+01	c	1.3E-01	c	8.2E-04
1,4-Dichloro-2-butene	764-41-0	2.3E-03	c	1.0E-01	c	1.3E-03	c	5.6E-07
Dichlorodifluoromethane	75-71-8	9.4E+01	nc	4.0E+02	nc	2.0E+02	nc	3.0E-01
1,1-Dichloroethane	75-34-3	3.8E+00	c	1.7E+02	c	2.8E+00	c	7.8E-04
1,2-Dichloroethane	107-06-2	5.0E-01	c	2.3E+01	c	5.0E+00	gws	1.4E-03
1,1-Dichloroethylene	75-35-4	2.4E+02	nc	1.1E+03	nc	7.0E+00	gws	2.5E-03
1,2-Dichloroethylene (cis)	156-59-2	1.7E+01	nc	8.1E+01	nc	7.0E+01	gws	2.1E-02
1,2-Dichloroethylene (trans)	156-60-5	1.3E+02	nc	5.7E+02	nc	1.0E+02	gws	3.1E-02

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
2,4-Dichlorophenol	120-83-2	1.9E+02	nc	3.8E+03	nc	4.6E+01	nc	5.4E-02
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	94-82-6	5.1E+02	nc	1.0E+04	nc	1.2E+02	nc	1.1E-01
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	7.0E+02	nc	1.6E+04	nc	7.0E+01	gws	1.8E-02
1,2-Dichloropropane	78-87-5	1.1E+00	c	4.9E+01	c	5.0E+00	gws	1.7E-03
1,3-Dichloropropene	542-75-6	1.9E+00	c	9.9E+01	c	4.7E-01	c	1.7E-04
2,3-Dichloropropanol	616-23-9	1.9E+02	nc	3.8E+03	nc	5.9E+01	nc	1.3E-02
Dichlorvos	62-73-7	1.9E+00	c	1.2E+02	c	2.6E-01	c	8.1E-05
Dicyclopentadiene	77-73-6	1.4E+00	nc	5.8E+00	nc	6.3E-01	nc	2.2E-03
Dieldrin	60-57-1	4.2E-02	c	3.8E+00	c	7.2E-04	c	2.9E-05
Diethylene glycol, monobutyl ether	112-34-9	1.9E+03	nc	3.6E+04	nc	5.0E+02	nc	1.3E-01
Diethylene glycol, monoethyl ether	111-90-0	3.8E+03	nc	7.3E+04	nc	1.2E+03	nc	2.4E-01
Di(2-ethylhexyl)adipate	103-23-1	4.5E+02	c	3.0E+04	c	4.0E+02	gws	2.9E+01
Diethyl phthalate	84-66-2	5.1E+04	nc	1.0E+06	max	1.5E+04	nc	6.1E+00
Diethylstilbestrol	56-53-1	1.8E-03	c	1.0E-01	c	5.1E-05	c	2.8E-05
Difenzoquat (Avenge)	43222-48-6	5.1E+03	nc	1.0E+05	nc	1.6E+03	nc	2.5E+02
1,1-Difluoroethane	75-37-5	1.4E+03	Csat	1.4E+03	Csat	3.3E+04	nc	2.8E+01
Diisopropyl methylphosphonate	1445-75-6	5.3E+02	Csat	5.3E+02	Csat	1.6E+03	nc	4.5E-01
3,3-Dimethoxybenzidine	119-90-4	3.4E-01	c	2.2E+01	c	4.7E-02	c	5.8E-05
N-N-Dimethylaniline	121-69-7	9.6E+01	nc	8.3E+02	Csat	1.0E+01	nc	3.7E-03
2,4-Dimethylaniline	95-68-1	2.7E+00	c	1.8E+02	c	3.7E-01	c	2.1E-04
2,4-Dimethylaniline hydrochloride	21436-96-4	9.4E-01	c	6.1E+01	c	1.3E-01	c	1.2E-04
3,3-Dimethylbenzidine	119-93-7	4.9E-02	c	3.2E+00	c	6.5E-03	c	4.3E-05
2,4-Dimethylphenol	105-67-9	1.3E+03	nc	2.5E+04	nc	3.6E+02	nc	4.2E-01
2,6-Dimethylphenol	576-26-1	3.8E+01	nc	7.6E+02	nc	1.1E+01	nc	1.3E-02
3,4-Dimethylphenol	95-65-8	6.3E+01	nc	1.3E+03	nc	1.8E+01	nc	2.1E-02
4,6-Dinitro-o-cyclohexyl phenol	131-89-5	1.3E+02	nc	2.5E+03	nc	2.3E+01	nc	7.7E-01
1,2-Dinitrobenzene	528-29-0	6.3E+00	nc	1.3E+02	nc	1.9E+00	nc	1.8E-03

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
1,3-Dinitrobenzene	99-65-0	6.3E+00	nc	1.3E+02	nc	2.0E+00	nc	1.8E-03
1,4-Dinitrobenzene	100-25-4	6.3E+00	nc	1.3E+02	nc	2.0E+00	nc	1.8E-03
2,4-Dinitrophenol	51-28-5	1.3E+02	nc	2.5E+03	nc	3.9E+01	nc	4.4E-02
Dinitrotoluene (Technical Grade)	25321-14-6	1.2E+00	c	7.9E+01	c	1.6E-01	c	2.2E-04
2,4-Dinitrotoluene	121-14-2	1.7E+00	c	1.1E+02	c	2.4E-01	c	3.2E-04
2,6-Dinitrotoluene	606-20-2	3.6E-01	c	2.4E+01	c	4.9E-02	c	6.7E-05
Dinoseb	88-85-7	6.3E+01	nc	1.3E+03	nc	7.0E+00	gws	6.1E-02
1,4-Dioxane	123-91-1	5.4E+00	c	4.0E+02	c	4.6E-01	c	9.4E-05
Diphenylamine	122-39-4	1.6E+03	nc	3.2E+04	nc	3.1E+02	nc	5.8E-01
1,2-Diphenylhydrazine	122-66-7	6.8E-01	c	4.4E+01	c	7.8E-02	c	2.5E-04
Diquat	85-00-7	1.4E+02	nc	2.8E+03	nc	2.0E+01	gws	3.7E-01
Disulfoton	298-04-4	2.5E+00	nc	5.1E+01	nc	5.0E-01	nc	9.4E-04
1,4-Dithiane	505-29-3	5.4E+02	nc	5.7E+03	nc	5.3E+01	nc	2.6E-02
Diuron	330-54-1	1.3E+02	nc	2.5E+03	nc	3.6E+01	nc	1.5E-02
Endosulfan	115-29-7	4.5E+02	nc	1.0E+04	nc	3.1E+01	nc	4.2E-01
Endothall	145-73-3	1.3E+03	nc	2.5E+04	nc	1.0E+02	gws	2.4E-02
Endrin	72-20-8	1.9E+01	nc	3.8E+02	nc	2.0E+00	gws	8.1E-02
Epichlorohydrin	106-89-8	2.0E+01	nc	8.9E+01	nc	2.0E+00	nc	4.5E-04
Ethion	563-12-2	3.2E+01	nc	6.3E+02	nc	4.3E+00	nc	8.5E-03
2-Ethoxyethanol	110-80-5	5.3E+03	nc	6.4E+04	nc	3.4E+02	nc	6.8E-02
Ethyl acetate	141-78-6	6.7E+02	nc	2.8E+03	nc	1.4E+02	nc	3.1E-02
Ethylbenzene	100-41-4	6.2E+00	c	2.8E+02	c	7.0E+02	gws	7.8E-01
Ethylene diamine	107-15-3	6.3E+03	nc	1.2E+05	nc	4.9E+02	nc	1.1E-01
Ethylene glycol	107-21-1	1.3E+05	nc	1.0E+06	max	4.0E+04	nc	8.1E+00
Ethylene glycol, monobutyl ether	111-76-2	6.3E+03	nc	1.3E+05	nc	2.0E+03	nc	4.1E-01
Ethylene thiourea (ETU)	96-45-7	5.1E+00	nc	1.0E+02	nc	1.6E+00	nc	3.6E-04
Ethyl ether	60-29-7	2.1E+03	nc	1.0E+04	nc	1.1E+03	nc	2.4E-01

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Ethyl methacrylate	97-63-2	1.1E+03	Csat	1.1E+03	Csat	6.3E+02	nc	1.5E-01
Fenamiphos	22224-92-6	1.8E+01	nc	3.2E+02	nc	4.4E+00	nc	4.3E-03
Fluometuron	2164-17-2	8.2E+02	nc	1.6E+04	nc	2.4E+02	nc	1.9E-01
Fluorine (Soluble Fluoride)	7782-41-4	4.7E+03	nc	1.4E+05	nc	4.0E+03	gws	6.0E+02
Fomesafen	72178-02-0	2.9E+00	c	1.9E+02	c	3.9E-01	c	1.3E-03
Genofos	944-22-9	1.3E+02	nc	2.5E+03	nc	2.4E+01	nc	4.7E-02
Formaldehyde	50-00-0	1.8E+01	c	7.9E+02	c	4.3E-01	c	8.7E-05
Formic Acid	64-18-6	3.1E+01	nc	1.3E+02	nc	6.3E-01	nc	1.3E-04
Furan	110-00-9	9.1E+00	nc	4.2E+01	nc	5.3E+00	nc	2.0E-03
Furazolidone	67-45-8	1.4E-01	c	9.3E+00	c	2.0E-02	c	3.9E-06
Furfural	98-01-1	2.2E+02	nc	4.3E+03	nc	3.8E+01	nc	8.1E-03
Glycidaldehyde	765-34-4	2.4E+01	nc	2.8E+02	nc	1.7E+00	nc	3.3E-04
Glyphosate	1071-83-6	6.3E+03	nc	1.3E+05	nc	7.0E+02	gws	3.1E+00
Heptachlor	76-44-8	1.4E-01	c	1.1E+01	c	4.0E-01	gws	3.3E-02
Heptachlor epoxide	1024-57-3	7.1E-02	c	6.2E+00	c	2.0E-01	gws	4.1E-03
Hexabromobenzene	87-82-1	1.5E+02	nc	3.4E+03	nc	1.1E+01	nc	6.2E-02
Hexachlorobenzene	118-74-1	2.2E-01	c	1.3E+01	c	1.0E+00	gws	1.3E-02
Hexachlorobutadiene	87-86-3	1.3E+00	c	1.7E+01	Csat	1.4E-01	c	2.7E-04
HCH (alpha)	319-84-6	8.6E-02	c	5.6E+00	c	7.2E-03	c	4.2E-05
HCH (beta)	319-85-7	3.0E-01	c	2.0E+01	c	2.5E-02	c	1.6E-04
HCH (gamma) Lindane	58-89-9	5.7E-01	c	4.4E+01	c	2.0E-01	gws	1.2E-03
HCH-technical	608-73-1	3.0E-01	c	2.0E+01	c	2.5E-02	c	1.5E-04
Hexachlorocyclopentadiene	77-47-4	1.9E+00	nc	8.0E+00	nc	5.0E+01	gws	1.5E-01
Hexachlorodibenzo-p-dioxin mixture (HxCDD)	Various	1.0E-04	c	9.4E-03	c	1.3E-05	c	1.7E-05
Hexachloroethane	67-72-1	2.0E+00	c	9.1E+01	c	3.3E-01	c	2.0E-04
Hexachlorophene	70-30-4	1.9E+01	nc	3.8E+02	nc	6.0E+00	nc	8.1E+00
1,6-Hexamethylene diisocyanate	822-06-0	3.4E+00	nc	1.4E+01	nc	2.1E-02	nc	2.1E-04

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
n-Hexane	110-54-3	1.4E+02	Csat	1.4E+02	Csat	1.5E+03	nc	1.0E+01
Hexazinone	51235-04-2	2.1E+03	nc	4.2E+04	nc	6.4E+02	nc	2.9E-01
HMX	2691-41-0	3.9E+03	nc	1.1E+05	nc	1.0E+03	nc	1.3E+00
Hydrazine	302-01-2	2.3E-01	c	2.2E+01	c	1.1E-03	c	
Hydrogen sulfide	7783-06-4	1.0E+06	max	1.0E+06	max	4.2E+00	nc	
p-Hydroquinone	123-31-9	9.0E+00	c	5.9E+02	c	1.3E+00	c	8.8E-04
Iron	7439-89-6	5.5E+04	nc	1.0E+06	max	1.4E+04	nc	3.5E+02
Isobutanol	78-83-1	1.0E+04	Csat	1.0E+04	Csat	1.7E+03	nc	3.4E-01
Isophorone	78-69-1	5.7E+02	c	3.7E+04	c	7.8E+01	c	2.6E-02
Isopropalin	33820-53-0	1.1E+03	nc	2.6E+04	nc	2.9E+01	nc	6.7E-01
Isopropylbenzene (Cumene)	98-82-8	2.7E+02	Csat	2.7E+02	Csat	4.5E+02	nc	7.4E-01
Isopropyl methyl phosphonic acid	1832-54-8	6.3E+03	nc	1.3E+05	nc	2.0E+03	nc	4.3E-01
Lead*	7439-92-1	4.0E+02	nc	1.0E+03	nc	1.5E+01	gws	1.4E+01
Lead (tetraethyl)	78-00-2	7.8E-03	nc	2.3E-01	nc	1.3E-03	nc	4.7E-06
Lithium	7439-93-2	1.5E+02	nc	4.7E+03	nc	4.0E+01	nc	1.2E+01
Malathion	121-75-5	1.3E+03	nc	2.5E+04	nc	3.9E+02	nc	1.0E-01
Maleic anhydride	108-31-6	5.3E+03	nc	1.2E+05	nc	1.9E+03	nc	3.8E-01
Manganese (non-food)	7439-96-5	3.5E+03	nc	8.0E+04	nc	8.5E+02	nc	5.5E+01
Mephostelan	950-10-7	5.7E+00	nc	1.1E+02	nc	1.8E+00	nc	2.6E-03
Mepiquat	24307-26-4	1.9E+03	nc	3.8E+04	nc	6.0E+02	nc	2.0E-01
Mercury (elemental and inorganic)	7439-97-6	3.1E+00	Csat	3.1E+00	Csat	3.0E+00	gws	1.0E-01
Mercury (methyl)	22961-92-6	7.8E+00	nc	2.3E+02	nc	2.0E+00	nc	
Methacrylonitrile	126-98-7	7.6E+00	nc	1.9E+02	nc	1.9E+00	nc	4.3E-04
Methanol	67-56-1	1.1E+05	Csat	1.1E+05	Csat	2.0E+04	nc	4.1E+00
Methidathion	950-37-5	5.3E+01	nc	1.3E+03	nc	1.9E+01	nc	4.7E-03
Methoxychlor	72-43-5	3.2E+02	nc	6.3E+03	nc	4.0E+01	gws	2.2E+00
Methyl acetate	79-20-9	2.3E+04	nc	2.9E+04	Csat	5.3E+03	nc	1.1E+00

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Methyl acrylate	96-33-3	1.6E+02	nc	6.6E+02	nc	4.2E+01	nc	8.9E-03
Methyl Tertiary Butyl Ether (MTBE)	1634-04-4	5.0E+01	c	2.3E+03	c	1.4E+01	c	3.2E-03
2-Methylaniline (o-toluidine)	95-53-4	3.0E+00	c	2.0E+02	c	4.3E-01	c	1.9E-04
2-Methyl-4-chlorophenoxyacetic acid	94-74-6	3.2E+01	nc	6.3E+02	nc	7.5E+00	nc	2.0E-03
4-(2-Methyl-4-chlorophenoxy) butyric acid	94-81-5	6.3E+02	nc	1.3E+04	nc	1.5E+02	nc	5.8E-02
2-(2-Methyl-4-chlorophenoxy) propionic acid	93-65-2	6.3E+01	nc	1.3E+03	nc	1.6E+01	nc	4.6E-03
4,4'-Methylenebisbenzeneamine	101-77-9	3.4E-01	c	2.2E+01	c	4.7E-02	c	2.1E-04
4,4'-Methylene bis(2-chloroaniline)	101-14-4	1.2E+00	c	3.5E+02	c	1.6E-01	c	1.8E-03
4,4'-Methylene bis(N,N'-dimethyl)aniline	101-61-1	1.2E+01	c	7.7E+02	c	4.8E-01	c	2.6E-03
Methylene bromide	74-95-3	2.5E+01	nc	1.1E+02	nc	8.0E+00	nc	2.0E-03
Methylene chloride	75-09-2	5.8E+01	c	3.3E+03	Csat	5.0E+00	gws	1.3E-03
Methylenebisphenyl diisocyanate	101-68-8	8.5E+05	nc	1.0E+06	max			
Methyl ethyl ketone	78-93-3	2.8E+04	nc	2.8E+04	Csat	5.6E+03	nc	1.2E+00
Methyl isobutyl ketone	108-10-1	3.4E+03	Csat	3.4E+03	Csat	1.2E+03	nc	2.8E-01
Methyl methacrylate	80-62-6	2.4E+03	Csat	2.4E+03	Csat	1.4E+03	nc	3.0E-01
2-Methyl-5-nitroaniline	99-55-8	6.0E+01	c	3.9E+03	c	3.2E+00	c	4.6E-03
Methyl parathion	298-00-0	1.6E+01	nc	3.2E+02	nc	4.5E+00	nc	7.4E-03
2-Methylphenol	95-46-7	3.2E+03	nc	6.3E+04	nc	9.3E+02	nc	7.5E-01
3-Methylphenol (Cresol)	108-39-4	3.2E+03	nc	6.3E+04	nc	9.3E+02	nc	7.4E-01
4-Methylphenol	106-44-5	6.3E+03	nc	1.3E+05	nc	1.9E+03	nc	1.5E+00
Methyl styrene (mixture)	25013-15-4	3.3E+02	nc	3.9E+02	Csat	2.3E+01	nc	3.8E-02
Methyl styrene (alpha)	99-83-9	5.0E+02	Csat	5.0E+02	Csat	7.8E+02	nc	1.2E+00
Metolaclor (Dual)	51218-45-2	9.5E+03	nc	1.9E+05	nc	2.7E+03	nc	3.2E+00
Metribuzin	21087-64-9	1.9E+03	nc	3.2E+04	nc	4.9E+02	nc	1.5E-01
Mirex	2385-85-5	3.6E-02	c	3.1E+00	c	8.8E-04	c	6.3E-04
Molybdenum	7439-98-7	3.9E+02	nc	1.2E+04	nc	1.0E+02	nc	2.0E+00
Monochloramine	10599-90-3	7.8E+03	nc	2.3E+05	nc	2.0E+03	nc	

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Naled	300-76-5	1.2E+02	nc	1.3E+03	nc	1.1E+01	nc	4.9E+03
Nickel and compounds	7440-02-0	1.5E+03	nc	4.3E+04	nc	3.9E+02	nc	2.6E+01
Nitrate	14797-55-8	1.3E+05	nc	1.0E+06	max	1.0E+04	gws	
Nitrite	14797-65-0	7.8E+03	nc	2.3E+05	nc	1.0E+03	gws	
2-Nitroaniline	88-74-4	6.3E+02	nc	1.2E+04	nc	1.3E+02	nc	8.0E-02
Nitrobenzene	98-95-3	5.5E+00	c	2.4E+02	c	1.4E-01	c	9.2E-05
Nitrofurantoin	67-20-9	4.4E+03	nc	3.9E+04	nc	1.4E+03	nc	6.1E-01
Nitrofurazone	59-87-0	4.2E-01	c	2.7E+01	c	6.0E-02	c	5.4E-05
Nitroglycerin	55-63-0	6.3E+00	nc	1.3E+02	nc	2.0E+00	nc	8.5E-04
2-Nitropropane	79-46-9	1.5E-02	c	6.4E-01	c	2.1E-03	c	5.4E-07
N-Nitrosodi-n-butylamine	924-16-3	1.0E-01	c	7.6E+00	c	2.7E-03	c	5.5E-06
N-Nitrosodiethanolamine	1116-54-7	1.9E-01	c	1.3E+01	c	2.8E-02	c	5.6E-06
N-Nitrosodiethylamine	55-18-5	8.1E-04	c	2.4E-01	c	1.7E-04	c	5.0E-08
N-Nitrosodimethylamine	62-75-9	2.0E-03	c	4.8E-01	c	1.1E-04	c	2.7E-08
N-Nitrosodiphenylamine	86-30-6	1.1E+02	c	7.2E+03	c	1.2E+01	c	6.7E-02
N-Nitroso di-n-propylamine	621-64-7	7.8E-02	c	5.1E+00	c	1.1E-02	c	8.1E-06
N-Nitroso-N-methylethylamine	10595-95-6	2.0E-02	c	1.4E+00	c	7.1E-04	c	2.0E-07
N-Nitrosopyrrolidine	930-55-2	2.6E-01	c	1.7E+01	c	3.7E-02	c	1.4E-05
m-Nitrotoluene	99-08-1	6.3E+00	nc	1.3E+02	nc	1.7E+00	nc	1.6E-03
o-Nitrotoluene	88-72-2	3.2E+00	c	3.0E+02	c	3.1E-01	c	3.0E-04
p-Nitrotoluene	99-99-0	3.4E+01	c	2.2E+03	c	4.3E+00	c	4.0E-03
NuStar	85509-19-9	4.4E+01	nc	8.9E+02	nc	1.1E+01	nc	1.8E+00
Oryzalin	19044-88-3	3.2E+03	nc	6.3E+04	nc	3.1E+02	nc	1.5E+00
Oxadiazon	19666-30-9	3.2E+02	nc	6.3E+03	nc	4.7E+01	nc	4.8E-01
Oxemyl	23135-22-0	1.8E+03	nc	3.2E+04	nc	2.0E+02	gws	4.4E-02
Oxyfluorfen	42874-03-3	1.9E+02	nc	3.8E+03	nc	3.2E+01	nc	2.5E+00
Paraquat dichloride	1910-42-5	2.8E+02	nc	5.7E+03	nc	3.0E+01	nc	1.2E+00

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Parathion	56-38-2	3.8E+02	nc	7.6E+03	nc	8.6E+01	nc	4.3E-01
Pentachlorobenzene	608-93-5	5.0E+01	nc	6.8E+02	nc	2.0E+00	nc	1.6E-02
Pentachloronitrobenzene	82-68-8	2.7E+00	c	2.5E+02	c	1.2E-01	c	1.5E-03
Pentachlorophenol	87-86-5	1.0E+00	c	5.2E+01	c	1.0E+00	gws	1.0E-02
Perchlorate and perchlorate salts	Various	5.5E+01	nc	1.6E+03	nc	1.4E+01	nc	
Permethrin	52648-93-1	3.2E+03	nc	6.3E+04	nc	1.0E+03	nc	2.4E+02
Phenol	108-95-2	1.9E+04	nc	3.8E+05	nc	5.8E+03	nc	3.3E+00
m-Phenylenediamine	108-48-2	3.8E+02	nc	7.6E+03	nc	1.2E+02	nc	3.2E-02
p-Phenylenediamine	106-50-3	1.2E+04	nc	2.4E+05	nc	3.8E+03	nc	1.0E+00
2-Phenylphenol	90-43-7	2.9E+02	c	1.9E+04	c	3.1E+01	c	4.2E-01
Phosphine	7803-51-2	2.3E+01	nc	7.0E+02	nc	5.7E-01	nc	
Phosphorus (white)	7723-14-0	1.6E+00	nc	1.2E+01	Ceat	4.0E-01	nc	1.5E-03
p-Phthalic acid	100-21-0	6.3E+04	nc	1.0E+06	max	1.9E+04	nc	6.8E+00
Phthalic anhydride	85-44-9	1.3E+05	nc	1.0E+06	max	3.9E+04	nc	8.5E+00
Polybrominated biphenyls	59536-65-1	1.8E-02	c	1.2E+00	c	2.6E-03	c	
Polychlorinated biphenyls (PCBs)	1336-36-3	3.4E-01	c	3.1E+01	c	5.0E-01	gws	7.8E-02
Aroclor 1016	12674-11-2	5.5E+00	nc	1.6E+02	nc	2.2E-01	c	2.1E-02
Aroclor 1221	11104-28-2	2.8E-01	c	1.9E+01	c	7.9E-03	c	1.3E-04
Aroclor 1232	11141-16-5	2.2E-01	c	1.4E+01	c	7.9E-03	c	1.3E-04
Aroclor 1242	53469-21-9	3.1E-01	c	2.6E+01	c	7.9E-03	c	1.2E-03
Aroclor 1248	12672-29-6	3.1E-01	c	2.7E+01	c	7.9E-03	c	1.2E-03
Aroclor 1254	11097-68-1	3.2E-01	c	2.8E+01	c	7.9E-03	c	2.1E-03
Aroclor 1260	11096-82-5	3.3E-01	c	3.0E+01	c	7.9E-03	c	5.5E-03
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	83-32-9	4.1E+03	nc	7.0E+04	nc	2.4E+02	nc	2.5E+00
Acenaphthylene	208-96-8	4.2E+03	nc	8.0E+04	nc	3.2E+02	nc	3.3E+00
Anthracene	120-12-7	2.3E+04	nc	7.0E+05	nc	1.8E+03	nc	5.8E+01

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Benzo[a]anthracene	56-55-3	2.1E-01	c	6.8E+01	c	1.2E-02	c	4.2E-03
Benzo[b]fluoranthene	205-99-2	1.6E-01	c	4.3E+01	c	3.4E-02	c	4.1E-02
Benzo[k]fluoranthene	207-08-9	1.5E+00	c	4.3E+02	c	3.4E-01	c	4.0E-01
Benzo[g,h,i]perylene	191-24-2	1.8E+03	nc	3.3E+04	nc	6.0E+02	nc	2.3E+03
Benzo[a]pyrene	50-32-8	1.5E-02	c	4.3E+00	c	2.0E-01	gws	2.3E-01
Chrysene	218-01-9	1.6E+01	c	4.3E+03	c	3.4E+00	c	1.2E+00
Dibenz[a,h]anthracene	53-70-3	1.6E-02	c	4.3E+00	c	3.4E-03	c	1.3E-02
Fluoranthene	206-44-0	2.4E+03	nc	4.4E+04	nc	8.0E+02	nc	8.9E+01
Fluorene	86-73-7	2.9E+03	nc	6.2E+04	nc	1.5E+02	nc	2.7E+00
Indeno[1,2,3-cd]pyrene	193-39-5	1.6E-01	c	4.3E+01	c	3.4E-02	c	1.3E-01
1-Methylnaphthalene	90-12-0	2.4E+01	c	3.9E+02	Csat	1.1E+00	c	6.0E-03
2-Methylnaphthalene	91-57-6	3.1E+02	nc	9.3E+03	nc	3.6E+01	nc	1.9E-01
Naphthalene	91-20-3	4.1E+00	c	1.8E+02	c	1.7E-01	c	5.4E-04
Phenanthrene	85-01-8	2.3E+04	nc	7.0E+05	nc	6.0E+03	nc	2.0E+02
Pyrene	129-00-0	2.3E+03	nc	6.6E+04	nc	7.9E+01	nc	8.6E+00
Prometon	1610-18-0	9.5E+02	nc	1.9E+04	nc	2.5E+02	nc	1.2E-01
Prometryn	7287-19-6	2.5E+02	nc	5.1E+03	nc	6.0E+01	nc	9.0E-02
Propachlor	1918-16-7	8.2E+02	nc	1.6E+04	nc	2.5E+02	nc	1.5E-01
Propanil	709-98-8	3.2E+02	nc	6.3E+03	nc	9.2E+01	nc	4.5E-02
Propargite	2312-35-8	1.3E+03	nc	2.5E+04	nc	1.6E+02	nc	1.2E+01
n-Propylbenzene	103-66-1	2.6E+02	Csat	2.6E+02	Csat	6.6E+02	nc	1.2E+00
Propylene glycol	57-55-6	1.0E+05	max	1.0E+05	max	4.0E+05	nc	8.1E+01
Propylene glycol, monoethyl ether	1599-02-4	3.9E+04	Csat	3.9E+04	Csat	1.4E+04	nc	2.8E+00
Propylene glycol, monomethyl ether	107-98-2	4.2E+04	nc	1.1E+05	Csat	3.2E+03	nc	6.5E-01
Pursuit	81335-77-5	1.8E+04	nc	3.2E+05	nc	4.7E+03	nc	4.1E+00
Pyridine	110-86-1	5.8E+01	nc	6.6E+02	nc	5.3E+00	nc	1.8E-03
Quinoline	91-22-5	1.8E-01	c	1.2E+01	c	2.4E-02	c	7.8E-05

60CSR3

CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
RDX (Cyclonite)	121-82-4	6.1E+00	c	5.3E+02	c	7.0E-01	c	2.7E-04
Resmethrin	10453-86-8	1.9E+03	nc	3.8E+04	nc	6.7E+01	nc	4.2E+01
Ronnel	299-84-3	3.8E+03	nc	9.0E+04	nc	2.0E+02	nc	1.8E+00
Rotenone	83-78-4	2.5E+02	nc	5.1E+03	nc	5.1E+01	nc	3.2E+01
Selenious Acid	7783-00-8	3.9E+02	nc	1.2E+04	nc	9.9E+01	nc	
Selenium	7782-49-2	3.9E+02	nc	1.2E+04	nc	5.0E+01	gws	2.6E-01
Silver and compounds	7440-22-4	3.9E+02	nc	1.2E+04	nc	9.4E+01	nc	8.0E-01
Simazine	122-34-9	4.5E+00	c	3.0E+02	c	4.0E+00	gws	2.0E-03
Sodium azide	26628-22-8	3.1E+02	nc	9.3E+03	nc	8.0E+01	nc	
Sodium diethyldithiocarbamate	148-18-9	2.0E+00	c	1.3E+02	c	2.9E-01	c	1.6E-04
Strontium, stable	7440-24-6	4.7E+04	nc	1.0E+06	max	1.2E+04	nc	4.2E+02
Strychnine	57-24-9	1.9E+01	nc	3.8E+02	nc	5.9E+00	nc	6.5E-02
Styrene	100-42-5	8.7E+02	Csat	8.7E+02	Csat	1.0E+02	gws	1.1E-01
tert-butanol	75-65-0	1.4E+03	nc	4.2E+04	nc	3.6E+02	nc	7.4E-02
2,3,7,8-Tetrachlorodibenzodioxin (TCDD/dioxin)	1746-01-6	5.2E-06	c	4.7E-04	c	3.0E-05	gws	1.5E-05
1,2,4,5-Tetrachlorobenzene	95-94-3	1.7E+01	nc	1.9E+02	nc	9.6E-01	nc	4.5E-03
1,1,1,2-Tetrachloroethane	630-20-6	2.1E+00	c	9.7E+01	c	5.7E-01	c	2.2E-04
1,1,2,2-Tetrachloroethane	79-34-5	6.4E-01	c	3.1E+01	c	7.8E-02	c	3.0E-05
Tetrachloroethylene (PCE)	127-18-4	2.5E+01	c	1.7E+02	Csat	5.0E+00	gws	2.3E-03
2,3,4,6-Tetrachlorophenol	66-90-2	1.9E+03	nc	3.8E+04	nc	2.4E+02	nc	1.5E+00
p,a,a,a-Tetrachlorotoluene	5216-25-1	2.1E-02	c	1.4E+00	c	5.7E-04	c	1.9E-06
Tetrahydrofuran	109-99-9	2.0E+04	nc	1.1E+05	nc	3.4E+03	nc	7.5E-01
Thallium and compounds	7440-28-0	7.8E-01	nc	2.3E+01	nc	2.0E+00	gws	1.4E-01
Thiobencarb	28249-77-6	6.3E+02	nc	1.3E+04	nc	1.6E+02	nc	5.5E-01
Thiocyanates	Various	1.6E+01	nc	4.7E+02	nc	4.0E+00	nc	
Tin and compounds	7440-31-5	4.7E+04	nc	1.0E+06	max	1.2E+04	nc	3.0E+03
Toluene	108-88-3	8.2E+02	Csat	8.2E+02	Csat	1.0E+03	gws	6.9E-01

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Toluene-2,4-diamine	95-60-7	1.7E-01	c	1.1E+01	c	2.4E-02	c	7.6E-06
Toluene-2,5-diamine	95-70-5	3.0E+00	c	2.0E+02	c	4.3E-01	c	1.3E-04
Toluene-2,6-diamine	823-40-5	1.9E+03	nc	3.8E+04	nc	6.0E+02	nc	1.9E-01
p-Toluidine	106-49-0	1.8E+01	c	1.2E+03	c	2.5E+00	c	1.1E-03
Toxaphene	8001-35-2	4.9E-01	c	3.2E+01	c	3.0E+00	gws	4.6E-01
1,2,4-Tribromobenzene	615-54-3	2.8E+02	nc	3.0E+03	nc	2.0E+01	nc	2.9E-02
Tributyltin oxide (TBTO)	56-35-9	1.9E+01	nc	3.8E+02	nc	5.7E+00	nc	2.9E+02
2,4,6-Trichloroaniline	634-93-5	1.9E+00	nc	3.8E+01	nc	4.0E-01	nc	3.6E-03
1,2,4-Trichlorobenzene	120-82-1	2.4E+01	c	2.8E+02	nc	7.0E+01	gws	2.0E-01
1,1,1-Trichloroethane	71-55-6	6.4E+02	Csat	6.4E+02	Csat	2.0E+02	gws	7.0E-02
1,1,2-Trichloroethane	79-00-5	1.2E+00	c	5.8E+00	nc	5.0E+00	gws	1.6E-03
Trichloroethylene (TCE)	79-01-6	5.0E-01	c	2.0E+01	nc	5.0E+00	gws	1.8E-03
Trichlorofluoromethane	75-69-4	7.9E+02	nc	1.2E+03	Csat	1.1E+03	nc	7.3E-01
2,4,5-Trichlorophenol	95-95-4	6.3E+03	nc	1.3E+05	nc	1.2E+03	nc	4.4E+00
2,4,6-Trichlorophenol	88-06-2	4.9E+01	c	1.3E+03	nc	4.1E+00	c	1.5E-02
2,4,5-Trichlorophenoxyacetic Acid	93-76-5	6.3E+02	nc	1.3E+04	nc	1.6E+02	nc	6.8E-02
2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1	5.1E+02	nc	1.0E+04	nc	5.0E+01	gws	2.8E-02
1,1,2-Trichloropropane	598-77-6	1.7E+02	nc	1.1E+03	nc	2.6E+01	nc	1.0E-02
1,2,3-Trichloropropane	96-18-4	5.1E-03	c	2.2E+00	c	7.5E-04	c	3.2E-07
1,2,3-Trichloropropene	96-19-5	7.8E-01	nc	3.3E+00	nc	6.2E-01	nc	3.1E-04
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	9.1E+02	Csat	9.1E+02	Csat	5.7E+04	nc	1.4E+02
1,2,4-Trimethylbenzene	95-63-6	6.2E+01	nc	2.2E+02	Csat	1.5E+01	nc	2.1E-02
1,3,5-Trimethylbenzene	108-67-8	1.8E+02	Csat	1.8E+02	Csat	1.2E+02	nc	1.7E-01
Trimethyl phosphate	512-56-1	2.7E+01	c	1.8E+03	c	3.9E+00	c	8.6E-04
1,3,5-Trinitrobenzene	99-35-4	2.2E+03	nc	6.0E+04	nc	5.9E+02	nc	2.1E+00
Trinitrophenylmethyltriframine (Tetryl)	479-45-8	1.6E+02	nc	4.6E+03	nc	3.9E+01	nc	3.7E-01
2,4,6-Trinitrotoluene	118-96-7	2.1E+01	c	9.2E+02	nc	2.5E+00	c	1.5E-02

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CONTAMINANT	CAS No.	Residential Soil ^{1,4} (mg/kg)	Value Basis ⁵	Industrial Soil ^{1,4} (mg/kg)	Value Basis ⁵	Ground Water ^{2,4} (ug/L)	Value Basis ⁵	Migration to Water ^{3,4} (mg/kg)
Vanadium and compounds	7440-62-2	5.5E+00	nc	1.6E+02	nc	1.2E+00	nc	1.2E+00
Vinclozolin	50471-44-8	1.8E+03	nc	3.2E+04	nc	4.4E+02	nc	3.4E-01
Vinyl acetate	108-05-4	9.7E+02	nc	2.7E+03	Csat	4.1E+02	nc	8.7E-02
Vinyl bromide	593-60-2	1.3E-01	c	5.6E+00	c	1.8E-01	c	5.1E-05
Vinyl chloride (lifetime)	75-01-4	5.7E-02	c			2.0E+00	gws	6.9E-04
Vinyl chloride (adult)	75-01-4			2.2E+01	c	2.0E+00	gws	6.9E-04
Warfarin	81-81-2	1.9E+01	nc	3.8E+02	nc	5.6E+00	nc	5.9E-03
Xylenes	1330-20-7	2.6E+02	Csat	2.6E+02	Csat	1.0E+04	gws	9.9E+00
Zinc and Compounds	7440-66-6	2.3E+04	nc	7.0E+05	nc	6.0E+03	nc	3.7E+02
Zinc phosphide	1314-64-7	2.3E+01	nc	7.0E+02	nc	5.9E+00	nc	
Zineb	12122-67-7	3.2E+03	nc	6.3E+04	nc	9.9E+02	nc	2.9E+00

Notes.

¹Where appropriate, the residential and industrial soil values consider ingestion and dermal exposure to soil and inhalation exposure to contaminants moving from soil to ambient air.

²Groundwater standards promulgated under 47CSR12 are provided, where available. Standards that are unavailable under 47CSR12 are based on a risk-based methodology that considers ingestion, dermal, and inhalation exposure arising from the domestic use of groundwater.

³The migration from soil to groundwater values shall be applied unless it is shown to the satisfaction of the Secretary that migration of soil contaminants to groundwater will not result in an exceedance of the De Minimis Groundwater Standards.

⁴The concentrations in this table shall be applied where the exposure pathways described in footnotes 1, 2, and 3 are the major contributors to risks identified in the site assessment. If other exposure pathways are identified, the acceptable concentrations shall be determined only in consultation with the Secretary, considering all exposure pathways, and all other requirements of the regulations.

⁵Basis of standard. c – cancer effect, nc – noncancer effect, max – calculated risk-based concentration exceeds maximum possible contaminant level of 1×10^6 mg/kg, Csat – calculated risk-based concentration exceeds residual saturation level, gws – West Virginia Groundwater Quality Standards from 47CSR12.

⁶Lead – Residential soil based on Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (July 1994), U.S. EPA OSWER Directive 9355.4-12. Industrial soil based on the U.S. EPA documents Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soils (December 1996) and Frequently Asked Questions (FAQs) on the Adult Lead Model (April 1999).