WEST VIRGINIA

SECRETARY OF STATE

KEN HECHLER

ADMINISTRATIVE LAW DIVISION

Form #3

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OFFICE OF WEST VIRGINIA SECRETARY OF STATE

NOTICE OF AGENCY APPROVAL OF A PROPOSED RULE AND FILING WITH THE LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

AGENCY: Bureau of Environment-Div. Environmental Protection Director's Office TITLE NUMBER: 60

CITE AUTHORITY 22-22-3

AMENDMENT TO AN EXISTING RULE: YES____ NO X

IF YES, SERIES NUMBER OF RULE BEING AMENDED: ________

TITLE OF RULE BEING AMENDED: ________

IF NO, SERIES NUMBER OF NEW RULE BEING PROPOSED: 3

TITLE OF RULE BEING PROPOSED: ~~60~~

THE ABOVE PROPOSED LEGISLATIVE RULE HAVING GONE TO A PUBLIC HEARING OR A PUBLIC COMMENT PERIOD IS HEREBY APPROVED BY THE PROMULGATING AGENCY FOR FILING WITH THE SECRETARY OF STATE AND THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE FOR THEIR REVIEW.

Laidley E McCoy

Authorized Signature
Laidley Eli McCoy, Ph.D.

BUREAU OF ENVIRONMENT
10 McJunkin Road
Nitro, WV 25143-2506

CECIL H. UNDERWOOD
GOVERNOR

LAIDLEY ELI MCCOY, PH.D.
COMMISSIONER

February 5, 1997

Ms. Judy Cooper
Director, Administrative Law Division
Office of the Secretary of State
Capitol Complex
Charleston, West Virginia 25305

RE: 60CSR3 - "Voluntary Remediation and Redevelopment Rule"

Dear Ms. Cooper:

This is to advise you that I am giving approval for filing with your office and Legislative Rulemaking notice of Agency Approval of the above-referenced rule.

Your cooperation in this regard is very much appreciated. If you have any questions or require additional information, please feel free to contact Ken Ellison, 558-5929 or Mark Scott at 759-0515.

Sincerely yours,

Laidley Eli McCoy, Ph.D.
Commissioner

LEM:cc

Attachment

cc: Mark Scott
Ken Ellison
Carrie Chambers

DATE: February 5, 1997

TO: LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

FROM: BUREAU OF ENVIRONMENT/DIVISION ENVIRONMENTAL PROTECTION/DIRECTOR'S OFFICE

LEGISLATIVE RULE TITLE: 60CSR3

1. Authorizing statute(s) citation 22-22-1

2. a. Date filed in State Register with Notice of Hearing

   December 30, 1996

   b. What other notice, including advertising, did you give of the hearing?

   *ENVIRONMENTAL PROTECTION'S IN-DEPTH NEWSLETTER

   *PRESS RELEASE SENT STATE WIDE

   c. Date of Hearing(s) January 29, 1997

   d. Attach list of persons who appeared at hearing, comments received, amendments, reasons for amendments.

   Attached XX No comments received

   e. Date you filed in State Register the agency approved proposed Legislative Rule following public hearing: (be exact)

   February 5, 1997

   f. Name and phone number(s) of agency person(s) to contact for additional information:

   Ken Ellison - Office Waste Management /558-5929

   Mark Scott - Deputy Director - Division Environmental Protection

   759-0515

3. If the statute under which you promulgated the submitted rules requires certain findings and determinations to be made as a condition precedent to their promulgation:

a. Give the date upon which you filed in the State Register a notice of the time and place of a hearing for the taking of evidence and a general description of the issues to be decided.

N/A

b. Date of hearing: N/A

c. On what date did you file in the State Register the findings and determinations required together with the reasons therefor?

N/A

d. Attach findings and determinations and reasons:

Attached

BUREAU OF ENVIRONMENT
DIVISION OF ENVIRONMENTAL PROTECTION
DIRECTOR'S OFFICE

BRIEFING DOCUMENT

Rule Title: 60CSR3 - "VOLUNTARY REMEDIATION AND REDEVELOPMENT"

A. AUTHORITY: WV Code 22-22-1

B. SUMMARY OF RULE:

The Voluntary Remediation and Redevelopment Rule establishes requirements for establishing an administrative program for both brownfields revitalization and voluntary remediation, including application procedures; establishes procedures for the licensure of remediation specialists; establishes procedures for community notification and involvement; establishes protocol for conducting risk assessments and establishing risk-based standards; establishes risk-based standards; establishes the development of guidance documents for chemical and site specific information; and establishes forms and procedures for voluntary remediation agreements, certificate of completion, and land use covenants.

C. STATEMENT OF CIRCUMSTANCES WHICH REQUIRE RULE:

W. Va. Code §22-22-3 requires promulgation of legislative rules necessary to carry out the requirements and the legislative intent of the Voluntary Remediation and Redevelopment Act, that went into effect on July 1, 1996.

D. FEDERAL COUNTERPART REGULATIONS - INCORPORATION BY REFERENCE/DETERMINATION OF STRINGENCY:

There is no Federal Counterpart Regulation

E. CONSTITUTIONAL TAKINGS DETERMINATION:

"In accordance with §22-1A-1 and 3(c), the Director has determined that this rule will not result in taking of private property within the meaning of the Constitutions of West Virginia and the United States of America."

F. CONSULTATION WITH THE ENVIRONMENTAL PROTECTION ADVISORY COUNCIL:

NONE

APPENDIX B

FISCAL NOTE FOR PROPOSED RULES

Rule Title: 60CSR3 - Voluntary Remediation and Redevelopment

Type of Rule: X **Legislative** ____ **Interpretive** ____ **Procedural**

Agency Division of Environmental Protection
Director's Office

Address #10 McJunkin Road

Nitro, West Virginia 25043-2506

1. Effect of Proposed Rule

	ANNUAL		FISCAL YEAR		
	INCREASE	DECREASE	CURRENT	NEXT	THEREAFTER
ESTIMATED TOTAL COST	$	$ N/A	$ -0-	$ 300,000	$ 500,000
PERSONAL SERVICES				160,000	300,000
CURRENT EXPENSE				100,000	50,000
REPAIRS & ALTERNATIONS				5,000	10,000
EQUIPMENT				30,000	50,000
OTHER				5,000	40,000

2. **Explanation of above estimates:** Estimate 50 sites per year, with average total fees of $10,000 per site. Personal Services include four-person years next fiscal year and increasing to seven-person years thereafter. The current expense costs are primarily "contractual" costs to develop tests, applicant resource manuals, technical guidance documents, training seminars, and risk communication protocol. The equipment costs primarily reflect computer hardware and software required to conduct overview of risk assessments.

3. **Objectives of these rules:** To comply with the rulemaking authority pursuant to 22-22-3. This authority establishes an administrative program for brownfield revitalization and voluntary remediation. The rule establishes mechanisms and guidance for a person to voluntarily submit an application to remediate contaminated or potentially-contaminated property. Following the successful compliance with all applicable standards, the site becomes eligible for a Certificate of Completion.

Rule Title: 60CSR3 - Voluntary Remediation and Redevelopment

4. Explanation of Overall Economic Impact of Proposed Rule.

A. Economic Impact on State Government.

None. Fees will be collected on a "recoverable cost" basis from voluntary remediation program applicants. Appropriations to the Brownfield Revolving Loan Fund is not mandatory.

B. Economic Impact on Political Subdivisions; Specific Industries; Specific groups of Citizens.

This rule does not impose any fees of any kind unless a person voluntarily submits an application to enter the Voluntary Remediation Program.

C. Economic Impact on Citizens/Public at Large.

None

Date: 12/29/96

Signature of Agency Head or Authorized Reprensentative

Laidley Eli McCoy

WEST VIRGINIA

VOLUNTARY REMEDIATION AND REDEVELOPMENT RULE

TITLE 60, SERIES 3

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LEGISLATIVE RULE
BUREAU OF ENVIRONMENT
DIVISION OF ENVIRONMENTAL PROTECTION
DIRECTOR'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 and brownfield cleanups.

1.2. Authority. -- W. Va. Code §22-22-3.

1.3. Filing Date. --

1.4. Effective Date. --

§60-3-2. Definitions. Terms defined in the Act are accorded the same definition in this rule.

Unless the context in which used clearly requires a different meaning, the definitions contained in W. Va. Code §22-22-2 shall apply to the terms in this rule in addition to the definitions expressly set forth in this rule. For ease of reference, some of the statutory definitions are repeated in this section.

2.1. **Abandoned Property.** -- Real property for which the current owner cannot be determined or cannot be located or property which has been forfeited to or acquired by the state for the nonpayment of taxes pursuant to state law.

2.2. **Act.** -- The Voluntary Remediation and Redevelopment Act, W.Va. Code §22-22-1 et seq.

2.3. **Analytical Expenses.** -- Those direct costs associated with laboratory analysis of samples associated with a voluntary remediation.

2.4. **Anthropogenic Background.** -- Concentrations of chemicals that are present in the environment due to human activities unrelated to operation at the site.

2.5. **Applicable Standards.** -- Standards described in section 9 of this rule. Such standards include any exposure controls used at a site to meet the acceptable risk level for that site, at the time of the remediation or in the future.

2.6. **Applicant.** -- A person who is applying or has applied to participate in the voluntary remediation program.

2.7. **Brownfield.** -- Any industrial or commercial property which is abandoned or not being actively used by the owner as of the effective date of this article, but shall not include any site subject to a unilateral enforcement order under §104 through §106 of the Comprehensive Environmental Response, Compensation and Liability Act, 94 Stat. 2779, 42 U.S.C. §9601, as amended, or which has been listed or proposed to be listed by the United States environmental protection agency on the priorities list of Title I of said act, or subject to a unilateral enforcement order under §3008 or §7003 of the Resource Conservation Recovery Act" or any unilateral enforcement order for corrective action under this chapter.

2.8. **Brownfield Applicant.** -- A person who is applying or has applied to participate in the voluntary remediation for a Brownfield property and:

2.8.a. Who is seeking or has obtained a site assessment loan from the Brownfields Revolving Fund; or

2.8.b. Who will use funds from the State of West Virginia or any county or municipality thereof in the assessment or remediation of the property.

2.9. **Carcinogen.** -- Any substance which can cause cancer.

2.10. **Cumulative Site Risk.** -- 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.

2.11. **Day or Day Calendar.** -- The 24-hour period between 12:00 A.M. - 12:00 A.M.

2.12. **De Minimis Risks.** -- Those risks that are so trivial that they would not require remediation under this rule.

2.13. **Director.** -- The director of the division of environmental protection or such other person to whom the director has delegated authority or duties pursuant to this rule.

2.14. **Ecological Receptors of Concern.** -- 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.

2.15. **Ecosystem.** -- 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.

2.16. **Endangered and Threatened Species.** -- Any plant or animal species identified as endangered or threatened pursuant to federal, state, or local laws.

2.17. **Engineering Controls.** -- Remedial actions directed exclusively toward containing or controlling the migration of contaminants through the environment. These include, but are not limited to, slurry walls, liner systems, caps, leachate collection systems, and groundwater recovery trenches.

2.18. **Exposure.** -- Contact of 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.

2.19. **Exposure Factors.** -- Values used to estimate exposure in risk assessment, such as the number of days per week that exposure is expected to occur, or the amount of contaminated media that a person might incidentally ingest per day.

2.20. **Exposure Pathway.** -- A complete exposure pathway consists of a source or release from a source, a transport/exposure medium (e.g., air) or media (in cases of intermediate transfer), an exposure point, and an exposure route.

2.21. **Exposure Route.** -- The way a chemical or physical agent comes in contact with a receptor (e.g., by eating [ingestion], breathing [inhalation], or touching [dermal contact]).

2.22. **Fate and Transport.** -- The behavior and movement of a chemical through an environmental media.

2.23. **Gross Remediation Costs.** -- 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.

2.24. **Habitat.** -- The area or type of environment in which an organism or biological population normally lives or occurs.

2.25. **Hazard Index.** -- The sum of the hazard quotients for multiple substances and/or multiple exposure pathways.

2.26. **Hazard Quotient.** -- 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.

2.27. **Hourly Rate.** -- The gross annual salary (excluding benefits paid to an employee) divided by 2080.

2.28. **Implementability.** -- The technical and administrative feasibility of an action as well as the availability of needed goods and services.

2.29. **Inactive property.** -- Real property that has previously been used for commercial or industrial purposes but is no longer actively used for such purposes.

2.30. **Industrial Land Use.** -- 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, transport, remanufacturing, stockpiling of raw materials, storage, repair and maintenance of commercial machinery or equipment, and waste management.

2.31. **Institutional Controls.** -- Legal or contractual restrictions on property use that remain effective after the remedial action is completed and are used to meet applicable standards. The term may include, but not limited to, deed and water use restrictions.

2.32. **Leaching Potential.** -- The potential for soluble constituents to be dissolved and filter through the soil by a percolating fluid.

2.33. **LOAEL or Lowest Observed Adverse Effect Level.** -- The lowest concentration or dose evaluated in a test that causes statistically significant adverse effects in experimental trials.

2.34. **LRS or Licensed Remediation Specialist.** --An individual certified by the director pursuant to rules adopted under Section 3 of Article 22 as qualified to perform professional services and to supervise the remediation of contaminated sites.

2.35. **Natural Background.** -- Ambient concentrations of chemicals that are present in the environment and have not been influenced by humans (e.g., iron, manganese).

2.36. **NOAEL or No Observed Adverse Effect Level.** -- The highest concentration or dose evaluated in a test that does not cause statistically significant adverse effects in experimental trials.

2.37. **New Information.** -- Any information obtained directly or indirectly by the division from any person after issuance of a certificate of completion, but does not include information the division has 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 division 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 director 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.

2.38. **No Further Action.** -- 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.

2.39. **Operator.** -- The person responsible for the overall operation of a facility site. For purposes of this rule, a person who executes a voluntary remediation agreement with the director may be deemed an operator for the purpose of carrying out the activities required by the agreement.

2.40. **Potential to Migrate.** -- Refers to the ability of contaminants to migrate from a source or soil to groundwater.

2.41. **Primary Employee.** -- A voluntary remediation project manager, engineer or scientist employed by the director 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.

2.42. **Prime Rate.** -- The base rate on corporate loans posted by at least 75% of the nation's 30 largest banks.

2.43. **Probabilistic Risk Assessment.** -- 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.

2.44. **Readily Apparent Harm.** -- If any one of the following criteria are observed at the site:

2.44.a. Visual evidence of stressed biota attributable to the release at the site, including, but not limited to, fish kills or abiotic conditions; or

2.44.b. 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.

2.45. **Reasonably Anticipated Future Use.** -- Potential future land and water uses which have a credible chance of occurrence.

2.46. **Reasonably Potential.** --A scenario with a credible chance of occurrence without considering extreme or essentially highly unlikely circumstances.

2.47. **Receptors (Human).** -- Humans potentially exposed to contaminants released from the Site.

2.48. **Remedial Action.** -- To cleanup, mitigate, correct, abate, minimize, eliminate, control and contain or prevent a release of a contaminant into the environment in order to protect the present or future public health, safety, welfare, or the environment, including preliminary actions to study or assess the release.

2.49. **Reopener.** -- One or more of the grounds for setting aside some or all of a certificate of completion and reopening a voluntary agreement that is specified in section 16 of this rule.

2.50. **Residential Land Use.** -- Any real property or portion thereof which is used for housing of human beings. This term includes property used for schools, day care centers, nursing homes, or other residential-style facilities or recreational areas.

2.51. **Revolving Fund.** -- The Brownfields Revolving Fund established in W.Va. Code, §22-22-6(b).

2.52. **Risk-based Concentrations.** -- Concentration levels developed by thedirector 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 with the De Minimis Standard.

2.53. **Saturation Concentration.** -- The maximum possible quantity of a substance which can go into solution of a given liquid (e.g., water) at a given temperature and pressure.

2.54. **Site.** -- Any property or portion thereof which contains or may contain contaminants and is eligible to participate in the voluntary remediation program as provided under this article.

2.55. **Site Assessment.** -- Characterization of a site through an evaluation of its physical and environmental context, (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 collects data as needed on ground water and surface water quality, land and resource use, potential receptors and generates information to support remedial action decisions.

2.56. **Site Assessment Costs.** -- 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 costs of archaeological investigations, and attorneys fees incurred in evaluating a site or negotiating a voluntary remediation agreement.

2.57. **Systemic Toxicant.** -- A harmful substance or agent that may enter the body and injure an organ or organ system and having 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.

2.58. **Total Dissolved Solids.** -- 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.

2.59. **Trade Secrets.** -- Any information protected from disclosure under W. Va. Code §29B-1-4(1).

2.60. **Trophic Level.** -- The biological energy transfer level; the position in a trophic pyramid or food chain.

2.61. **Voluntary Remediation.** -- A series of measures that are self-initiated by a person to identify and address potential sources of contamination of property and to establish that the property complies with applicable remediation standards. Brownfield remediation is a subset of voluntary remediation.

2.62. **Voluntary Remediation Program.** -- The program for the voluntary assessment and remediation of sites under the Act.

2.63. **Weight-of-Evidence Approach.** -- 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 pursuant to §§ 104 through 106 of the Comprehensive Environmental Response, Compensation and Liability Act;

3.1.b. Any site that has been listed or proposed to be listed on the National Priorities List developed by the U.S. Environmental Protection Agency pursuant to Title I of the Comprehensive Environmental Response, Compensation and Liability Act; provided that any site that has been formally delisted by the Environmental Protection Agency is eligible to participate in the voluntary remediation program;

3.1.c. Any site that is subject to a unilateral enforcement order under § 3008 or § 7003 of the Resource Conservation and Recovery Act;

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 which is subject to remediation was created through gross negligence or willful misconduct by the applicant.

3.2. Eligibility Criteria for Brownfield Sites. -- A site may participate in the voluntary remediation program as a brownfields property if:

3.2.a. The site meets the requirements of subsection 3.1 of this rule;

3.2.b. The applicant did not cause or contribute to contamination on the site; and

3.2.c. The site meets either of the following:

3.2.c.1. As of July 1, 1996, the site is an industrial or commercial property which is abandoned; or

3.1.c.2. As of July 1, 1996, the site is an industrial or commercial property that is not being actively used by the owner.

3.3. Eligibility Determination. In deciding the acceptability of an application the director shall determine whether the eligibility criteria of this section have been satisfied.

3.4. Appeal of Rejection of Application.

3.4.a. The applicant may appeal the rejection of the application by filing a notice of appeal with the Environmental Quality Board in accordance with the provision of W.Va. Code §22B-1-7.

3.4.b. For purpose of this appeal, the record of proceedings as referenced in §22B-1-7 shall consist of the application, all correspondence between the director and the applicant relating to the application and other documents and correspondence in the applicable files of the director relating to this matter.

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

4.1. Pre-application Conference for Brownfield Applicants. A brownfield applicant shall confer with the director and comply with the loan procedures contained in section 15 of this rule before submitting an application to participate in the voluntary remediation program.

4.2. **Contents of Application.** Any person who desires to participate in the voluntary remediation program shall submit to the chief of the Office of Waste Management an application on a form provided by the director which shall contain, at a minimum, the following information:

4.2.a. The applicant's name. This shall include 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;

4.2.b. The applicant's address. This shall include 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/her current address that will enable the director to locate the applicant;

4.2.c. The applicant's financial capabilities. This shall include, 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;

4.2.d. The applicant's technical capabilities. This shall include, at a minimum, information that the applicant is or has contracted with a licensed remediation specialist to perform the work required;

4.2.e. For brownfield applicants, a Notice of Intent to Remediate in accordance with subsection 7.1 of this rule, and a certification that he/she, his/her spouse or other member of his/her immediate family did not cause or contribute to the contamination on the property;

4.2.f. A general description of the site. This shall include, at a minimum, the following:

4.2.f.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;

4.2.f.2. The deed book number and deed number of the site property;

4.2.f.3. County tax map references;

4.2.f.4. Geographic information system data adequate to accurately delineate the voluntary remediation site. All spatial data submitted by the applicant will be in one of three coordinate systems:

4.2.f.4.A. Universal transverse mercator (UTM) zone 17 NAD datum. (Preferred);

4.2.f.4.B. Geographic (Latitude and Longitude); or

4.2.f.4.C. State plane coordinates NAD 27 datum.

4.2.f.5. All geographic information system location data will have a horizontal accuracy within 12.2 meters

(40 feet) in accordance with the US department of the Interior US Geologic Survey National Map Accuracy Standards;

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

4.2.f.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;

4.2.f.8. Where an application covers two or more non-contiguous locations, this information shall be provided for each location.

4.2.g. 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, may an application be denied 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 director determines that additional site assessment information is necessary, the submission of such additional information may be addressed in the voluntary remediation agreement.

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

4.2.i. Other information as requested by the director.

4.3. Application Fee.

4.3.a. Each applicant shall pay an application fee in accordance with this section. The fee is to be submitted at the time the application is filed in the form of a check payable to the Voluntary Remediation Administrative Fund.

4.3.b. Should the applicant withdraw the application at anytime prior to the determination of eligibility by the director, the applicant shall receive a refund of one-half the application fee paid.

4.3.c. If the director rejects the application and applicant does not re-submit a revised application within 25 days, the director shall refund one-half the application fee within 30 days of the rejection of the application.

4.3.d. The application fee to be paid shall be calculated based upon the points assigned to the property using the following criteria:

4.3.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 1 acre, the assigned points are 10; for properties of one acre or more but less than 5 acres, the assigned points are 20; for properties of 5 acres or more, the assigned points are 30;

4.3.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.

4.3.d.3. SIC Code. Using the Standard Industrial Classification published by the U.S. Department of Commerce as it applies to the activities that have been conducted on the property, if the property falls within SIC Codes 26 (Paper and Allied Products), 28 (Chemicals and Allied Products), 29 (Petroleum Refining), 30 (Rubber and Miscellaneous Products), 31 (Leather and Leather Products), 33 (Primary Metals), 34 (Fabricated Metal Products), 35 (Industrial and Commercial Machinery), 36 (Electronic and Other Electrical Equipment), 37 (Transportation Equipment), 38 (Measuring, Analyzing and Controlling Equipment); or 39 (Miscellaneous Manufacturing), the assigned points are 30; if the property falls within SIC Codes 10 through 14 (Mining), 20 (Food), 21 (Tobacco Products), 22 (Textiles), 24 (Lumber and Wood Products except Furniture), 27 (Printing and Publishing), 32 (Stone, Clay, Glass and Concrete), 46 (Pipelines), or 49 (Electric, Gas and Sanitary Services), the assigned points are 20, and if the property falls within any other SIC Code, the assigned points are 10. If any activity falls in more than one of these groupings, the category which results in the greatest number of points being assigned shall be used;

4.3.d.4. For any of these criteria, if the correct category is not known, the category resulting in the greatest number of points shall be assumed to apply;

4.3.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

4.3.d.6. If the application covers 2 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. Similar surface/subsurface characteristics shall be construed to be limited to upland, riparian/wetland, karst or other similar land forms as approved by the director. If any of the individual locations includes a surface area greater than 2 acres, a separate application and fee must be submitted for that site.

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

4.5. Action on Application. -- The director shall act upon all applications within 45 days of receipt, unless an extension of time is mutually agreed upon between the director and the applicant, and confirmed in writing.

§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 shall have the burden of demonstrating to the director'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 owner of the subject property shall notify the division within 72 hours of the severing of the relationship Specific areas of professional responsibility are as follows:

5.1.b.1. The licensed remediation specialist is responsible for any release of contaminants during 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 shall not be considered to be a release;

5.1.b.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 division unless the release does not exceed reportable quantities found in 40 CFR Part 302;

5.1.b.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.b.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.b.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 being performed at the work site;

5.1.b.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 director; or knowingly associate with one who is engaging in business or professional practices of fraudulent or dishonest nature; and

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

5.1.c. The director 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.

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 director on forms supplied by the director. An application fee, as specified in Table 60-3A of this rule, shall be submitted with the application. In order to qualify for the licensed remediation specialist examination, the applicant must demonstrate to the director that the following eligibility requirements have been met:

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 subdisciplines of public health, risk assessment, or hazardous waste management, engineering, or in a curriculum determined to be equivalent by the director. 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 director's satisfaction that he or she meets the requirements for relevant professional experience. Qualifying relevant professional experience must be 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 shall include, 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 director 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 director deems relevant.

5.2.b.5. The individual applying for licensing shall also provide the director 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 and is not considered acceptable professional experience; provided, however, that the director 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 5.2.a. may request that the director 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 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 5.2.a.1; and

5.2.c.3. The director 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 director shall be responsible for implementing the following requirements, at a minimum, of the licensed remediation specialist examination:

5.3.a. Frequency and Scheduling: The director 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 director. The director shall provide public notice at least 15 days prior to the application due date for the next scheduled examination;

5.3.b. Examination Format/Content: Examinations shall test the individual's overall regulatory understanding, and overall technical understanding. Overall regulatory understanding means an understanding of the relevant West Virginia Division of Environmental Protection regulations and related written policies and Federal environmental regulations. 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 director shall prepare the licensing examination;

5.3.d. The director shall initially develop a minimum of three separate examinations. No single examination shall be repeated until the other two examinations have been given;

5.3.e. After any of the individual examinations have been used twice, the director shall prepare a minimum of three new examinations;

5.3.f. An individual may take an examination only if the applicable examination fee established by the director has been paid. The examination fee, as specified in Table 60-3A of this rule, shall be submitted after an applicant's eligibility to take the exam has been confirmed with the application. Payment shall be made in full by check or money order payable to the West Virginia Division of Environmental Protection. The examination fee is non-refundable, except in the following circumstances:

5.3.f.1. An individual whose failure to appear for the examination is found, by the director, to be due to circumstances beyond the individual's reasonable control, shall receive a refund or may request that the application be held open until the individual can take a subsequent examination that occurs within two years of the date the director approved the individual'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 director shall identify whether he or she 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, and no individual may make copies of the examination;

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

5.3.i. Examination Results: The director shall grade the examinations, and the results shall be mailed to each individual within 30 days of the examination. The examination papers will not be returned 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 director approved the individual's written application, upon receipt by the director 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 director approved the individual's written application must submit the following:

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

5.3.j.2.B. The full application fee described in 5.2 prior to taking the examination.

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 desires to be considered including but not limited to relevant licenses and certifications. The director may issue a one time waiver of the examination for the purpose of submitting an application for a Voluntary Remediation Agreement. This waiver shall only be valid for six months after the effective date of the rule. No remediation workplan shall be implemented 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. An examination fee must be submitted regardless of whether the applicant is requesting a waiver of the examination.

5.3.1. 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.

5.3.1.1. An examination fee must be submitted regardless of whether reciprocity applies.

5.4. License renewal.

5.4.a. A licensed remediation specialist in good standing may have his/her license renewed every two years. A renewal application filed in accordance with all appropriate time frames which includes the appropriate license renewal fee found in Table 60-3A will be considered 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 US EPA-approved course or any other equivalent experience acceptable to the director.

5.4.b. The director 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 their license may not continue to practice as a licensed remediation specialist after the day of license expiration. Any individual who fails to renew their license within 30 days of the expiration must reapply for examination and is subject to the same requirements as a new applicant.

5.4.c. An individual who has completed in a timely manner 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 by registered mail.

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

5.5. Suspension and Revocation of Licenses.

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;

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

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

5.5.b. Issuance of Notice of Intent -- If the director finds that sufficient grounds exist to suspend or revoke the license of a licensed remediation specialist, prior to the suspension or revocation, the director shall notify the licensed remediation specialist of the director's intent to suspend or revoke the license. The director shall provide the licensed remediation specialist with a Notice of Intent to Suspend or Revoke by 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 an informal conference or a contested case hearing as provided in Article 5 of Chapter 29A of the West Virginia Code on the proposed suspension or revocation. 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 director 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 the day it is deposited in the United States mail. Failure to respond will result in the imposition of the proposed suspension or revocation. The licensed remediation specialist shall have 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 director 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. All notice required by this rule shall be sent to counsel in the same manner as is required to be provided to the licensed remediation specialist.

5.5.e. Informal conference. -- If an informal conference is requested within the thirty day period, the director shall schedule the conference to be held within 30 days in accordance with the following requirements:

5.5.e.1. The director shall notify the licensed remediation specialist and the primary representative of the Division of Environmental Protection 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 compliance officer 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 director 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 director may continue the informal conference upon the agreement of the licensed remediation specialist or for good cause shown.

5.5.f. Informal Conference Procedures. An informal conference, as provided by these regulations, 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 director shall conduct the conference in the following manner:

5.5.f.1. The director shall be guided by, but need not strictly apply, the West Virginia Rules of Civil Procedure and West Virginia Rules of Evidence;

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 party to the conference may obtain copies of the record at his expense;

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

5.5.f.4. At any review proceedings which 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 director are able to reach an agreement, the director shall prepare a written decision signed by the licensed remediation specialist and the director implementing the decision reached in the informal conference.

5.6.b. If the licensed remediation specialist and the director are unable to reach an agreement, within 30 calendar days following the informal conference, the director 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 notice of decision by the director shall be sent to the licensed remediation specialist by certified mail return receipt requested.

5.6.c. Within 30 calendar days of the receipt of the director's written decision, the licensed remediation specialist may demand a formal hearing as provided herein to determine the rights and privileges of the licensed remediation specialist. The licensed remediation specialist must serve a request in writing upon the director within 30 days of receipt of the written decision. A request is deemed served on the day it is deposited in the United States 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 director.

5.7. Contested Cases, Right to a Formal Hearing. As set forth above, within thirty (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 director in accordance with the Administrative Procedures Act, W.Va. Code §29A-5-1 et seq. If requested the director 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 these regulations shall be to the Circuit Court of Kanawha County in accordance with the provisions of the Administrative Procedures Act, W.Va. Code §29A-5-1 et. seq.

5.9. Alternative Procedure. When imminent or substantial harm is threatened or posed at a voluntary remediation site which in the director's opinion is attributable to the negligence or incompetence of the licensed remediation specialist at the site, the director may, in lieu of the Notice of Intent under subdivision 5.5.b. of this rule, make the suspension or revocation of the license or licensed remediation specialist, effective immediately, in which case the director shall provide the licensed remediation specialist with an opportunity for a contested case hearing within 5 days of such determination.

§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 director of the Division of Environmental Protection. 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 Division of Environmental Protection attributable to the implementation of the agreement in excess of fees submitted with the permit application. 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;

6.1.b.3. Such other costs incurred by the Division of Environmental Protection in implementing and overseeing activities under the agreement;

6.1.b.4. All recoverable costs shall be billed against any deposit and subsequently by separate invoice; and

6.1.b.5. Recoverable costs shall be determined by the number of hours worked under the agreement by each primary employee multiplied by 2.5 times the hourly rate of each such employee and then adding the direct expenses incurred by each such employee.

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

6.1.d. A description of any work plan or report that is to be submitted under the agreement for review by the director, including the final report which shall provide all information necessary to verify that all work contemplated by the agreement has been completed: provided, however, that at the discretion of the applicant, work plans describing the work to be performed at the site may be submitted for approval by the director 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 determined in the guidance document 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 16 of the Act;

6.1.k. The modification of the voluntary remediation agreement upon the agreement of the parties; and

6.1.l. Field adjustments which achieve equal performance may be implemented by the licensed remediation specialist provided he or she notifies the division within 15 days.

6.2. The voluntary 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 Division of Environmental Protection and shall include provisions for the recovery of costs incurred by the Division of Environmental Protection before the notice of termination is issued.

6.3. The voluntary remediation agreement may provide a mechanism for alternate dispute resolution between the parties to the agreement, including, but not limited to arbitration or mediation of any disputes under the agreement.

6.4 For a site 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:

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

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

6.4.c. A listing of the technical standards as determined in the guidance document that are applied in evaluating the site assessment with reference to the proposed future land use to be achieved;

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

6.4.e. The reopening of the agreement upon the occurrence of one or more of the conditions described in section 16 of this rule; and

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

6.5. The voluntary remediation agreement shall reflect the director's determination of eligibility in accordance with section 3 of this rule.

6.6. 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 director 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 construed to be limited to upland, riparian/wetland, karst or other similar land forms as approved by the director.

6.7. 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.

6.8. Upon execution of the voluntary remediation agreement by the parties, the director 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. Upon final adoption of this rule, the director intends to issue a policy statement to the effect that no enforcement action shall be initiated 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.

6.9. 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 voluntary remediation agreement is approved provided that he or she notifies the director.

§60-3-7. Public Involvement/Public Notification. -- Except to the extent incorporated by reference in subdivision 7.12.b, the requirements of subsections 7.1 through 7.8 of this section shall apply only to brownfield applicants as that term is defined in section 2 of this rule. The provisions of subsections 7.9 through 7.12 of this section shall be applicable only to applicants who are not brownfield applicants.

7.1. Notice of Intent to Remediate. -- All brownfield applicants shall file a Notice of Intent to Remediate a brownfield site with the director. The notice shall be part of and filed with the application to perform a brownfield remediation.

7.1.a. The Notice of Intent to Remediate shall contain, to the extent known, the following:

7.1.a.1. The name and business address of the brownfield applicant, including street address or route number;

7.1.a.2. Geographic location of site and any name by which the site is locally known;

7.1.a.3. Current and former uses of site;

7.1.a.4. Proposed future use of site;

7.1.a.5. Present and suspected contaminants on site;

7.1.a.6. Proposed methods to remediate the site;

7.1.a.7. Proposed methods to control possible health exposure;

7.1.a.8. Location address of where interested persons may review the notice;

7.1.a.9. Name, address and telephone number of brownfield applicant contact for questions from interested individuals; and

7.1.a.10. Name, address and telephone number of Division of Environmental Protection contact where comments and questions can be received.

7.2. Division of Environmental Protection Notice to the Public.

7.2.a. Upon receipt of a Notice of Intent to Remediate, the Division of Environmental Protection shall publish a summary of the notice in a Division of Environmental Protection publication of general circulation. Information contained in the summary shall meet the requirements set forth in subsection 7.1 of this rule.

7.2.b. The summary also shall include information on the public's right under the Voluntary Remediation and Redevelopment Act to become involved in the development of the remediation and reuse plans for the site.

7.2.c. The Division of Environmental Protection shall issue a news release summarizing the Notice. The news release shall be sent to media outlets serving the general area where the remediation is proposed.

7.2.d. The Division of Environmental Protection also may post the Notice and information required under this section on the Division of Environmental Protection's Internet Website.

7.3. Notice to Governmental Agencies.

7.3.a. Upon receipt of a Notice of Intent to Remediate, the director shall notify the municipality and the county commission where the site is located.

7.3.b. Notice shall be issued to the county and/or municipal land use agency, or the area's Regional Planning and Development Council created under Chapter 8, Article 25 of the West Virginia Code.

7.3.c. Notice may be issued to the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, state Bureau for Public Health and other state or federal agencies that may have an interest in the remediation project.

7.3.d. The director shall notify the government agencies identified in this section of the Division of Environmental Protection's final decision on a Certificate of Completion.

7.4. Notice of Intent to Remediate Comment Period and Information Meeting.

7.4.a. The director shall require a 30-day comment period and information meeting on all Brownfield Notices of Intent to Remediate filed with the Division of Environmental

Protection. Costs incurred under this section shall be paid by the brownfield applicant.

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

7.4.b.1. Erect a sign on the proposed brownfield site informing the community the site is being considered for participation in the state's brownfield program, under the Voluntary Remediation and Redevelopment Act;

7.4.b.2. The sign must be placed on the property so it is clearly visible and legible, and shall be, at a minimum, three feet by four feet;

7.4.b.3. The sign shall state: "This site is under consideration for environmental cleanup and participation in the state's brownfield program under the Voluntary Remediation and Redevelopment Act;"

7.4.b.4. The sign shall include the telephone number and address of the Division of Environmental Protection's brownfield office;

7.4.b.5. Publish a commercial box advertisement in a local newspaper of general circulation in the county where the brownfield remediation is proposed once a week for four consecutive weeks;

7.4.b.6. The advertisement shall be, at a minimum, four inches by four inches;

7.4.b.7. The advertisement shall contain information as set forth in subsection 7.1 of this rule, plus the time, date and location of the information meeting;

7.4.b.8. The brownfield applicant shall send a copy of the advertisement to the municipality and the county commission, the county and/or municipal land use agency, or the area's Regional Planning and Development Council created under Chapter 8, Article 25 of the West Virginia Code;

7.4.b.9. The Division of Environmental Protection shall draft the advertisement and send it to the brownfield applicant for publication; and

7.4.b.10. The brownfield applicant shall submit certified and notarized proof of publication to the Division of Environmental Protection no later than four weeks after the last publication date. The certification of publication shall be made part of the final brownfield remediation agreement file.

7.4.c. The information meeting is to occur by day 21 of the 30-day comment period, provided that a minimum of 15 days notice is given for such meeting. The information meeting shall address how remediation issues are applied to the site, site risk issues including key risk assessment assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risks.

7.4.d. The information meeting shall occur in the community where the proposed brownfield remediation is to occur.

7.5. Public Inspection of Brownfield Notice of Intent to Remediate.

7.5.a. A Brownfield Notice of Intent to Remediate filed with the Division of Environmental Protection shall be available for public inspection and copying.

7.5.b. The Notice shall be available upon request at the Division of Environmental Protection's Office of Waste Management in Charleston, and in the municipal and/or county commission offices where the remediation is proposed. Copies of the Notice also may be placed in the county library.

7.6. Request to Participate in Remediation and Reuse Planning.

7.6.a. Any person may ask to be involved in the development of a brownfield remediation and reuse plan.

7.6.b. Requests to participate in a brownfield remediation and reuse plan shall be made in writing to the director during the 30-day comment period.

7.6.c. Each person who files a request may participate in the development of the remediation and reuse plan, in person or by representative.

7.7. Brownfield Public Involvement Plan.

7.7.a. The brownfield applicant shall establish a Public Involvement Plan if requested by the public, county, municipality, or the director.

7.7.b. The brownfield applicant, in consultation with the persons requesting to be involved in the remediation and reuse of a brownfield site, shall develop a Public Involvement Plan within 30 days of receiving notice from the director that a request to participate, as provided in subsection 7.6 of this rule, has been received.

7.7.c. The brownfield applicant shall submit the Public Involvement Plan to the director for his/her review and approval prior to its implementation.

7.7.d. The Public Involvement Plan shall include, but is not limited to:

7.7.d.1. Provisions for further meetings in the community; and

7.7.d.2. Opportunities for participants to review and comment on each work plan as well as review and comment on the voluntary agreement before it is finalized and accepted by the director.

7.7.e. The director shall consider comments from participants and the brownfield applicant's responses to comments regarding the voluntary agreement, work plans, and reports before deciding whether to approve the submission.

7.7.f. Means of communicating with a community, may include, but is not limited to:

7.7.f.1. Brownfield applicant point-of-contact with public;

7.7.f.2. Establish and maintain mailing and telephone list of interested individuals;

7.7.f.3. Newsletter;

7.7.f.4. Doorstep notice to residents and businesses;

7.7.f.5. Newspaper, radio, and television advertisements;

7.7.f.6. News releases to local media;

7.7.f.7. Presentations to local civic organizations; and

7.7.f.g. Citizen advisory panel for development of remediation and reuse plan.

7.7.g. The Public Involvement Plan shall remain in effect until the Certificate of Completion is issued, or until the brownfield applicant withdraws from the brownfields program.

7.8. Technical Assistance. -- At any time during the life of the Public Involvement Plan, the participants other than brownfield applicants may petition the director for technical assistance related to:

7.8.a. Review of site-related documents;

7.8.b. Explaining technical information to panel members;

7.8.c. Translating technical information into language understandable to non-technical persons;

7.8.d. Providing assistance in communicating the concerns of the non-brownfield applicant members of the panel to the appropriate persons; or

7.8.e. Such other areas deemed appropriate by the director.

7.8.e.1. Upon receipt of such petition, the director and the brownfield applicant, by mutual agreement, will develop a technical assistance component to the Public Involvement Plan. Comments from other participants shall be considered in the development of such component. The applicant shall be responsible for expenses incurred in this process.

7.9. Public Notice of Applications for Voluntary Remediation Projects. -- Except as to applications from brownfield applicants, upon receipt of an application to conduct a voluntary cleanup under the Act, the Division of Environmental Protection shall publish a summary of the application in a Division of Environmental Protection publication of general circulation. Information contained in the summary shall include:

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

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

7.9.c. Current use of site;

7.9.d. Suspected contaminants on site;

7.9.e. Proposed methods to clean up site;

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

7.9.g. Location address of where interested persons may review application;

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

7.9.i. Name, address and telephone number of Division of Environmental Protection contact where comments and questions can be received.

7.9.i.1. The Division of Environmental Protection shall issue a news release summarizing the application. The news release shall be sent to media outlets serving the general area where the remediation is proposed.

7.10. Public Inspection of Voluntary Application.

7.10.a. A voluntary cleanup application filed with the Division of Environmental Protection shall be available for inspection and copying by the public.

7.10.b. The application shall be available upon request at the Division of Environmental Protection's Office of Waste Management in Charleston and in the municipal and/or county commission offices where the remediation is proposed. Copies of the application also may be placed in the county library.

7.11. Public Involvement for Site Remediation Loans.

7.11.a. In the event an applicant to participate in the voluntary remediation program becomes a brownfield applicant, he/she shall be required to comply with subsections 7.4, 7.6, 7.7, and 7.8 of this rule.

7.12. Public Involvement/Public Notification in Development of Remediation Goal.

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

7.12.b. To notify the public of the start of the 30-day comment period, the applicant shall comply with paragraphs 7.4.b.5; 7.4.b.6; 7.4.b.7; 7.4.b.8; 7.4.b.9; 7.4.b.10; and subdivisions 7.4.c and 7.4.d of this rule.

7.12.c. The applicant shall respond to comments received during the comment period and submit the responses to the director and any commenters.

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

§60-3-8. Risk Protocol.

This section establishes a risk protocol for conduct of 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 any of the following:

8.1.c.1. For human health risk assessments:

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

8.1.c.1.B. U.S. EPA Health Effects Summary Tables (HEAST);

8.1.c.1.C HEAST Alternative Method;

8.1.c.1.D U.S. EPA Superfund Health Risk Technical Support Center (SHRTSC) provisional criteria;

8.1.c.1.E. Other U.S. EPA Documents acceptable to the director;

8.1.c.1.F. Other scientifically valid sources of information as published in peer-reviewed scientific literature, including but not limited to sources such as the

Agency for Toxic Substances and Disease Registry's (ATSDR's) toxicological profiles; and

8.1.c.1.G. Data developed in accordance with a peer-reviewed scientific testing protocol and approved by the director.

8.1.c.2. For ecological risk assessments:

8.1.c.2.A. U.S. EPA AQUIRE Data Base;

8.1.c.2.B. U.S. EPA IRIS Data Base;

8.1.c.2.C. U.S. EPA HEAST Data Base;

8.1.c.2.D. U.S. EPA ASTER Data Base;

8.1.c.2.E. U.S. EPA PHYTOTOX Data Base;

8.1.c.2.F. U.S. EPA Terrestrial Toxicity Data Base (TERRATOX);

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

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

8.1.c.2.I. Other U.S. EPA documents acceptable to the director;

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

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

8.1.c.2.L. Data developed in accordance with a peer-reviewed scientific testing protocol and approved by the director.

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

8.1.d.1. The director shall insure 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. Sensitivity analyses of models and data used in model parameters shall be included in risk assessments. Sensitivity analyses shall be based on the range of conditions which historically occurred at the site.

8.1.d.3. For models not included in division guidance documents, a description shall be included in the risk assessments.

8.1.d.4. Where available, the division shall give preference to the use of 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, risk estimates shall be made: (I) at the individual level where any endangered and threatened species is significantly impacted by the proposed activities at the site; and (ii) 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 appropriate sampling approaches and data quality requirements and statistical methods as approved by the director to support the risk assessment and remedy selection process.

8.2.a. Characterization of site contamination. A sufficient number of environmental media samples shall be collected and analyzed as to provide a reasonable characterization of the nature and distribution of site contaminants. The number and location of the samples to be 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. Samples shall be collected and analyzed 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. Not all samples will need to be analyzed for the same contaminants. Samples collected shall be analyzed 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 quality of the analytical data to be used shall be validated by review of at least ten percent of the data or some other percentage agreed to by the director in accordance with standard EPA protocols. Standard EPA protocols for validation may need to be modified, with the director's approval, depending on the type of analyses performed (e.g., Contract Laboratory Protocol or SW-846).

8.2.e. The following statistical approach may be used to demonstrate that a sample population is representative of a larger population: the 95th percentile upper confidence limit on the mean or the maximum value of the site contaminant concentration data shall be a reasonable estimate of a plausible upper-bound value 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). A BHHRA may be used 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 BHHRA may be used 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 reasonably 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 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 shall be performed. The nature and extent of site contamination, the presence or absence of media that could transport such site contamination, the presence or absence of receptor populations that could be exposed to the contamination, and the likely exposure routes shall be identified; and

8.4.b.3.B. If, following the performance of the exposure pathway analysis, the potential exists for exposure of receptor populations to site contaminants, the magnitude of the exposure shall be quantified in accordance with division guidance documents. At a minimum, exposure levels that approximate an estimate of central tendency and reasonable upper bound of the exposure distribution shall be developed.

8.4.b.4. A toxicity analysis shall be performed if the potential for human exposure to site contaminants is identified and quantified 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 exposure quantification information shall be integrated 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. 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, a hazard quotient shall be developed for each contaminant . In quantifying the risks from cumulative exposure to multiple contaminants at the site, a hazard index for exposures to multiple contaminants shall be developed. In developing the hazard index for multiple contaminants, additivity shall be assumed only for those contaminants that affect the same target organ and act by the same method of toxicity;

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

8.4.b.5.C. A discussion of any available facility-specific human health studies, and consideration of any other non-quantified (qualitative) risks shall be included as appropriate.

8.4.b.6. Uncertainty Analysis: As part of performing the site-specific risk assessment under this section, the qualitative, and to the extent practicable, the quantitative uncertainty embodied in the analysis shall be identified. The likelihood of overestimating or underestimating risk shall be identified 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. A site-specific De Minimus screening ecological evaluation as specified in subsection 9.5 of this rule may be performed by the applicant 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, a potentially significant complete exposure pathway is identified, 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, at the director's discretion, a baseline ecological assessment may be required to evaluate potential risks to ecological receptors and to develop appropriate remediation standards based on these risks. If a baseline ecological risk assessment is determined to be necessary, it shall address, but not be limited to, the following information:

8.5.a. Problem Formulation. The purpose (goals) of the assessment shall be identified and the problem defined. 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. A conceptual site model shall be developed to depict how the site conditions might affect ecological components of the natural environment;

8.5.b. Data Quality. Data quality objectives for the site based on the conceptual site model shall be developed;

8.5.c. Exposure Analysis. 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 shall be performed. 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. An ecological response analysis shall be developed which 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 exposure quantification information in subdivision 8.5.c of this rule shall be integrated 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. Qualitative and/or quantitative uncertainty analyses shall be used as appropriate for each element of the risk assessment.

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

8.6.a. In a situation where a baseline risk assessment has been conducted and where no further action is the proposed remedy, the base line 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 waste 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 RRA shall be conducted 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: Probabilistic techniques may be applied to human health and ecological risk assessments. At a minimum, before the commencement of a probabilistic risk assessment, the applicant shall discuss with the director 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 following information shall be provided:

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; and

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. Human toxicity estimation;

8.7.g.5. Ecological response estimation; or

8.7.g.6. 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. Thepurpose 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 regulated substance at a site shall select and attain compliance with one or a combination of the following remediation standards:

9.1.a. Human Health:

9.1.a.1. A De Minimis Risk-Based Standard is one in which contaminant levels that pose no significant 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 director 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, such 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 efforts have been made to attain the De Minimis or Uniform Risk-Based standards.

9.1.b. Ecological:

9.1.b.1. A De Minimus 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 -- 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, such 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 director feels those other existing standards are not protective of ecological receptors of concern, he or she 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 efforts have been made 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 significant risk to human health. If on the basis of the site assessment, these standards are found to be met, no remedial action or further characterization is required and the site is eligible for issuance of a Certificate of Completion by the director or by a Licensed Remediation Specialist as provided by in this rule. If at any time during characterization or remedial action the site is shown to meet the De Minimis standard, no further action is required 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 (<2ft depth) and subsurface (>2ft depth) soils shall be the highest numerical value of the following:

9.2.a.1. Risk-Based Concentrations (RBCs) for human health for residential or industrial site uses that consider direct contact exposures are presented in Table 60-3B;

9.2.a.2. Risk-based concentrations for human health for residential or industrial site uses that consider other exposure pathways are as follows:

9.2.a.2.A. [Reserved]

9.2.b. De Minimis Standards for Groundwater. The De Minimis standards for groundwater shall be the highest numerical value of the following:

9.2.b.1. Groundwater contaminant concentration limits established in Title 46-Series 12 of the Code of State Rules (46CSR12);

9.2.b.2. For those contaminants where a concentration limit has not been established in 46CSR12, 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.3. Natural background levels for each constituent as determined by sampling and statistical analyses completed using director approved methods and/or data sources.

9.2.c. Carcinogens. For individual known or suspected carcinogens, remediation standards shall be established at levels which represent an excess upper-bound lifetime cancer risk of one in one million ($1x10^{-6}$) 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 noncarcinogenic effects, then the more conservative risk-based standard (i.e., the lower of the two values) shall be used as the remediation standard.

9.2.f. Should soil or groundwater concentrations meet De Minimis levels, no further action shall be required and the Certificate of Completion can be issued.

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 director 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. Surface soil remediation standards for residential or industrial land uses shall be derived by applying site-specific information to the equations and constants from the director's Uniform Risk-Based Guidance or other equations and constants approved by the director considering reasonably anticipated future land and water use.

9.3.b. Uniform Risk-Based Standards for Subsurface Soils. Subsurface soil remediation values shall be derived 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 director's Uniform Risk-Based Guidance or other equations and constants approved by the director shall be applied.

9.3.c. Uniform Risk-Based Standard for Groundwater. Groundwater remediation values shall be derived based on:

9.3.c.1. Current or reasonably anticipated future land and water use;

9.3.c.2. The potential for the groundwater to serve as a source of drinking water. Groundwater that has a background total dissolved solids content greater than 2500 milligrams per liter (mg/l), or where the applicant can demonstrate to the director's satisfaction that the aquifer is not being used, cannot be used for future drinking water sources, and is not hydrologically connected to an aquifer being used for drinking water shall not be considered a current or potential source of drinking water; and

9.3.c.3. Migration potentials. The equations and constants described in the director's uniform Risk Based Guidance shall be applied.

9.3.d. Carcinogens. For individual known or suspected carcinogens, remedial standards derived under subdivisions 9.3.a, 9.3.b, and 9.3.c of this rule shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one in one million ($1x10^{-4}$ to $1x10^{-6}$). If carcinogenic risk greater than $1x10^{-6}$ is considered for development of residential remediation goals or greater than 1×10^{-5}, for development of industrial remediation goals, public notification shall be required as specified in subsection 7.12 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 one.

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

9.3.g. Cumulative Site Risk. Cumulative site risk per receptor from exposure to known or suspected carcinogens shall not exceed one in ten thousand ($1x10^{-4}$); and 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.

9.3.h. Should Uniform Risk-Based soil or groundwater concentrations be met, no further action shall be required and the Certificate of Completion can be issued.

9.4. Human Health-Site-Specific Risk-Based Standard. Site-Specific Risk-Based Standards will be determined 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 potential for exposure to site contaminants under current and reasonably anticipated future land and water use and the application of institutional and engineering controls shall be considered.

9.4.a. Carcinogens. For individual known or suspected carcinogens, remedial standards derived under this section shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one million ($1x10^{-4}$ to $1x10^{-6}$). If carcinogenic risk greater than $1x10^{-6}$ for individual carcinogens is considered for development of residential remediation goals, or greater than 1×10^{-5} for development of industrial remediation goals, public notification shall be required as specified in subsection 7.12 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 one. 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 noncarcinogenic effects, then the more conservative risk-based standard (i.e., the lower of the two values) shall be used 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. Remedial standards for groundwater shall be established 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.2 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 appropriate scientific methods; and

9.4.e.5. Institutional and engineering controls.

9.4.f. Soil. Remedial standards for soil shall be established using the following considerations:

9.4.f.1. Potential receptors based on the current and reasonably anticipated 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 approved scientific methods; and

9.4.f.4. Institutional and engineering controls.

9.4.g. The director shall incorporate the equations and constants for risk-based standards into a guidance document, along with other relevant information for establishing and applying such standards to specific sites. The guidance document shall be revised 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 will be reviewed by independent scientists recognized as experts in relevant risk assessment disciplines. The director shall incorporate as appropriate the comments of scientific reviewers into the guidance document or decisions regarding risk-based standards or methods. These services will be contracted through arrangements made by the director with a nonprofit organization governed by a board of directors representing the diverse interests of West Virginia.

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 director 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 shall be considered when evaluating whether or not to perform an ecological risk assessment include but are not limited to the following:

9.5.a.1. Evaluate 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, lack of valued ecological receptors, including threatened or endangered species;

9.5.a.3. Local conditions should be considered for assessing 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. Define 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 no significant risk of harm to the site biota and habitats clearly does not exist, 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 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 exist or other conditions specified in subdivision 9.5.a. of this rule or the Screening Ecological Evaluation Guidance are met, no further action shall be required and the Certificate of Completion can be issued.

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, these standards are found to be met, no remedial action or further characterization is required and the site is eligible for issuance of a Certificate of Completion by the director or by a Licensed Remediation Specialist. If at any time during characterization or remedial action the site is shown to meet the Uniform Ecological Evaluation, no further action is required and the Certificate of Completion can be issued. If site contaminants exceed benchmark criteria, the applicant can propose remediation goals protective of ecological receptors of concern. If the applicant chooses to remediate to benchmark levels, the following shall be used:

9.6.a. Uniform Standards for Soils/Sediments. The Uniform Standards for surface (<2 ft. depth) soils shall be the highest of the following numerical value:

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

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

9.6.b. Uniform Standards for Surface Water. The Uniform standards for surface water shall be the highest of the following numerical value:

9.6.b.1. Federal Ambient or State Water Quality Criteria;

9.6.b.2. For those contaminants where a Federal or State Water Quality Criteria has not been established, applicable NOAEL (No Observable Adverse Effect Level) or LOAEL (Lowest Observable Adverse Effect Level) values will be used, as presented in division guidance documents; or

9.6.b.3. Anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using director-approved methods and/or data sources.

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

9.6.c.1. Federal Ambient or State Water Quality Criteria;

9.6.c.2. For those contaminants where a Federal or State Water Quality Criteria has not been established, applicable NOAEL (No Observable Adverse Effect Level) or LOAEL (Lowest Observable Adverse Effect Level) values will be used, as presented in division guidance documents; or

9.6.c.3. Anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using director-approved methods and/or data sources.

9.7. Ecological-Site-Specific Risk-Based Standard. Site-Specific Risk-Based Standards shall be developed using the procedures and factors established by this section.

9.7.a. In establishing the remediation standard under this section, 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 shall be considered.

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, a weight-of-evidence approach shall be used to establish acceptable remedial standards.

9.7.c. 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.

9.7.d. Remedial standards for soil, sediment, surface water, or groundwater shall be established 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 approved scientific methods; and

9.7.d.4. Institutional and engineering controls.

9.7.e. The director 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 guidance document shall be revised 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 division shall incorporate as appropriate the comments of scientific reviewers into the guidance document. These services will be contracted through arrangements made by the director with a nonprofit organization governed by a board of directors representing diverse interests of West Virginia.

9.8. Remediation measures. Any of the remediation standards may be attained through one or more remediation activities that can include treatment, removal, engineering or institutional controls, and natural attenuation and 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 following factors shall be balanced ensuring that no single factor predominates over the others. The remedy that protects human health and the environment shall be selected 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. Any person may request that the director approve a remediation plan based upon natural processes of degradation and attenuation of contaminants. A request submitted to the director under this paragraph 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 director to thoroughly evaluate the request. In addition, the person making the request must demonstrate to the satisfaction of the director:

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 such 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 46 CSR 1;

9.9.g. That the person making the request will put in place a groundwater monitoring program sufficient to track 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. Such 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 shall be placed at a location no farther away from the leading edge of the contaminated groundwater at the site than such contamination is likely to travel in five years;

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 corrective action 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 director the appropriate work plans and reports as required by the parties' voluntary remediation agreement.

10.2. Action on Work Plans.

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

10.2.b. If the director disapproves a work plan or report, the director must, within 5 days of its disapproval, notify the applicant in writing that its work plan or report has been disapproved. Such written notice shall include a list specifying the reasons that the work plan or report was disapproved, and shall specify all additional information needed for the work plan or report to obtain approval.

10.2.c. If the director 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 director shall either approve or disapprove all work plans and reports within 30 days of receipt or within a shorter period if specified in the parties' voluntary remediation agreement. Any such action taken on a work plan or report must be confirmed in writing and received by the applicant within the 30-day period or within such shorter period specified in the parties' voluntary remediation agreement. An extension of time for approval or disapproval of work plans or report may be mutually agreed to between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing.

10.3.b. If work plans or reports are resubmitted, the director shall approve or disapprove the resubmitted work plans or reports within 30 days of receipt or within such shorter period specified in the parties' voluntary remediation agreement. 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. An extension of time or action on resubmitted work plans or reports may be mutually agreed to between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing. If resubmitted work plans or reports are not approved by the director, then the director 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 work plans or reports are not approved or disapproved within 30 days of receipt by the director or within such shorter time specified in the parties' voluntary remediation agreement, or if resubmitted work plans or reports are not approved or disapproved within 30 days of receipt by the director or within such shorter time specified in the parties' voluntary remediation agreement, then the work plans or reports will be deemed approved unless such work plans or reports are determined to be materially inaccurate.

10.4. Notice. Any notice required to be given under the provisions of this section must be in writing and sent via United States certified mail, 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 director may require such work plans to include each 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 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.

§6-3-11. Final Report.

11.1. This rule sets forth the requirements for the submittal and contents of the Final Report for a voluntary remediation program. The Final Report may be prepared and submitted when all applicable standards developed for the site have been met.

11.2. Sites may be subdivided for the purpose of preparing Final Reports.

11.3. The Final Report shall include all data and information needed to document and verify that all applicable standards have been met and that all activities specified in the Voluntary Remediation Agreement have been completed. Supporting documentation, such as sample collection records, field monitoring data, laboratory reports, relevant correspondence, and permits, should be placed in one or more appendices to the Final Report. The use of maps, drawings, photographs, tables, and other aids to visualization and data presentation is encouraged.

11.4. Earlier reports, plans, and/or other relevant documents may be incorporated into the Final Report by reference if these items previously have been submitted to the Division. In such cases a complete bibliographic reference shall be provided for each document being incorporated by reference

11.5. The names, addresses, telephone numbers, and facsimile transmission numbers shall be provided for the current owners and operators of the site, the owners and/or operators conducting the remediation (if different), and the licensed remediation specialist. Individual names and titles for management contacts for each listed firm or organization also shall be provided.

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

11.7. Ongoing work, such as site cover or treatment system operation and maintenance or groundwater or surface water monitoring, shall be described. This shall include descriptions of planned activities and schedules.

11.8. If institutional controls, such as deed restrictions or land use covenants, are part of the remediation program, copies of appropriate documents to be recorded shall be appended to the Final Report. A site map showing the area(s) subject to institutional controls shall be provided.

11.9. The completeness and accuracy of the Final Report shall be certified, in writing, by an authorized agent of the applicant and by the licensed remediation specialist. 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 a 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 all work required by the voluntary remediation agreement to meet applicable standards has been completed, the licensed remediation specialist shall issue a final report to the applicant. Such report shall explain how the compliance with the requirements of the voluntary remediation agreement has been demonstrated.

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

12.1.c.1. Request a certificate of completion from the director, 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 director.

12.2.a. Upon receiving the request provided in paragraph 12.1.c.1 of this rule, the director must evaluate the final report provided by the applicant, and determine, within sixty days, whether the final report was properly issued by the licensed remediation specialist. When reviewing a final report, the director 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 director agrees that the final report was properly issued, a certificate of completion shall be issued by the director within 60 days of receipt of a request for a certificate of completion from the applicant.

12.2.c. If the director does not agree that the final report was properly issued, he must promptly provide written notification to the applicant stating in detail the reasons why the report was not deemed properly issued and indicating the further action that must be taken to allow the certificate to be issued. Upon receipt of such notification, the applicant may:

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

12.2.c.2. Appeal the director's decision to the Environmental Quality Board in accordance with the provisions of W. Va. Code §22B-1-7; or

12.2.c.3. 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 description of the contaminants for which applicable standards are met at the site;

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 6 of this rule;

12.3.b.2. The applicant and the persons identified in section 18 of the Act (1) 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 (2) 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 such obligations are no longer satisfied with the result that the applicable standards approved for the site are no longer being met, or continued compliance with the applicable standard is threatened, the director shall initiate action to insure the site is brought into compliance in accordance with section 14 of this rule to 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, a certificate of completion may be revoked or, in lieu thereof, further remediation may be required of any site described in the certificate of completion only where the director has determined that a reopener has been triggered in accordance with section 16. Where a certificate is revoked under this provision, it shall be revoked only as to the then current owner or operator of the site, 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 which 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 transferrable 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. Any certificate of completion issued under the voluntary remediation program shall be in a form similar to Appendix 60-3C of 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 minimus standards set forth in subsections 9.2 and 9.5 of this rule, provided that a final report is issued and the director is given notice of the licensed remediation specialist's 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 director 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 director 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 director 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 director shall become effective when signed by the director 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 director 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 standards shall be contained in a land use covenant. Such use restrictions may include prohibiting residential development of some or all of the site, or requiring maintenance of engineering or institutional controls.

13.2. Each land use covenant shall contain the following:

13.2.a. A reference to the voluntary remediation agreement;

13.2.b. A provision that the applicant, and his 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;

13.2.c. Directions to the Clerk of the County Commission to return the covenant to the director with evidence that it has been recorded;

13.2.d. A statement indicating whether residential or non-residential exposure assumptions were used to comply with a site-specific remediation standard;

13.2.e. A provision which allows the director to enforce the restrictions contained in the land use covenant; and

13.2.f. A provision which states that the restrictions and other requirements described in the land use covenant shall run with the land and shall be binding upon any future owners and their grantees, lessees, authorized agents, employees or persons acting under their direction or control.

13.3. Land use covenants shall not contain any requirements or obligations other than those necessary to allow the site to meet applicable standards.

13.4. The director shall cause the land use covenant to be recorded in the deed book of the county in which the site is located. A form similar to that found in Appendix 60-3D or 60-3E shall be used. A copy of the recorded land use covenant shall be forwarded by the director to the applicant and, where the applicant is not the owner of the property, to the owner who executed the land use covenant.

13.5. Land use covenants may be modified or released if the modification or release is in writing, signed by the director and the owner at the time of such modification or release, and filed in the office of the Clerk of the County Commission in the county in which the property is located. Circumstances which would justify the modification or release of a land use covenant may include, but are not limited to, the following:

13.5.a. Environmental conditions at the site change in such a manner that the restrictions imposed by the land use covenant are no longer required in order to meet applicable standards;

13.5.b. Further remediation has occurred at the site to such an extent that the exposure assumptions used for the site are no longer applicable; or

13.5.c. The applicable standard changes in such a manner that the restrictions imposed by the land use covenant are no longer required.

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

14.1. If at any time the director 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 remediation standard approved for the site is no longer being met, or continued compliance with the remediation standard is threatened, the director shall issue notice of such determination by providing written notice through certified/registered mail to the current owner or operator of the site. Such notice shall identify the obligations that are not being satisfied and the appropriate corrective action that must be taken.

14.2. Any person aggrieved by the director's determination under subsection 14.1 of this rule may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code §22B-1-7.

14.3. 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, or 60 days from issuance of a final order of the Environmental Quality Board affirming the action of the director where an appeal is taken as provided in subsection 14.2 of this rule, unless prior to such time the current owner or operator takes action to assure that all obligations imposed by the Certificate are satisfied.

§60-3-15. Loans from Brownfields Revolving Fund.

15.1. Loan Applications.

15.1.a. Any person who satisfies the criteria set forth in subsection 3.2 of this rule may apply, after conferring with the director as provided in W. Va. Code §22-22-5(a), to the director for a loan to perform a site assessment at a brownfield site. The application shall be on a form prescribed by the director which, at a minimum, shall require the following information:

15.1.a.1. Name of applicant and business;

15.1.a.2. Name of current owner(s) of record of the property;

15.1.a.3. Size and location of property;

15.1.a.4. Description of past and current uses of property;

15.1.a.5. Nature of contamination; and

15.1.a.6. Financial capability of applicant.

15.1.b. The director shall act upon a completed application within 60 days of receiving it. The director may approve the application, reject the application, or accept the application subject to correction. The applicant shall be given a reasonable amount of time to make corrections specified by the director.

15.1.c. Each loan shall be memorialized in a written document that identifies the amount of the loan, the interest rate, and the repayment schedule.

15.2. Qualifying Activities:

15.2.a. Money may be loaned to an applicant from the Revolving Fund for the site assessment of a brownfield property; or

15.2.b. Money may be loaned to an applicant from the Revolving Fund for activities at brownfield sites other than site assessments to the extent monies are appropriated to, or received by, the Revolving Fund for purposes other than site assessments.

15.3. Loan Conditions.

15.3.a. The director shall require periodic reports from each applicant of all expenditures of funds loaned to the applicant from the Brownfield Revolving Fund;

15.3.b. Where the applicant is the owner of the property upon which the site assessment is to be performed, the director shall require a deed of trust to be executed or any other collateral of equal or greater value to secure the loan; and

15.3.c. Where the applicant is not the owner of the property upon which the site assessment is to be performed, the director shall require appropriate collateral to secure the loan, except where the applicant is a development authority or other public entity.

15.4. Repayment.

15.4.a. Loans shall be repaid at a rate of interest determined by the director at the time the application is approved. The loans shall be low interest. For a public entity, the interest rate shall be from 0% to 3%. For a private entity the interest rate shall be the prime rate less three percent; and

15.4.b. Loans shall be repaid in equal installments over a period of no longer than 10 years, as allowed by the director.

§60-3-16. Reopener Provisions.

16.1. A voluntary remediation agreement shall be reopened in accordance with the procedures set forth in this section upon a determination by the director that one or more of the following conditions has occurred:

16.1.a. Fraud was committed in demonstrating attainment at the site with regard to a standard set forth in the voluntary remediation agreement or in these rules that resulted in avoiding the need for further remediation at the site;

16.1.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;

16.1.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:

16.1.c.1. 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 it is not determined whether multiple systemic toxicants affect the same organ.

16.1.d. The release that is addressed by the voluntary remediaton agreement occurred after July 1, 1996, on a site not used for industrial activity prior to that date and (1) the remedy relied, in whole or in part, upon institutional or engineering controls instead of treatment or removal of contamination; and (2) treatment, removal or destruction has become technically and economically practicable; or

16.1.e. The remediation method failed to meet the remediation standard or combination of standards identified in the voluntary remediation agreement or these rules.

16.2. If at any time the director determines that one of the reopener conditions in subsection 16.1 has been triggered, the director shall issue notice of such 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.

16.3. Any person aggrieved by the director's determination under subsection 16.2, may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code §22B-1-7.

16.4. 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 or 60 days from issuance of a final order of the Environmental Quality Board where an appeal is taken as provided in subsection 16.2, unless prior to such time at least one of the following occurs:

16.4.a. Where the initial remediator seeks to maintain the certificate of completion then in effect, the initial remediator shall:

16.4.a.1. Enter into an agreement with the director to reopen and revise the voluntary agreement to the extent necessary to return the site to its previously agreed to state of remediation; or

16.4.a.2. Agree to reopen and revise the voluntary agreement to the extent necessary to achieve an alternative appropriate standard as determined by the director;

16.4.b. Where some person other than the initial remediator seeks to maintain the certificate of completion then in effect, such person shall:

16.4.b.1. Enter into a voluntary agreement with the director in accordance with the requirements of these rules which contains such provisions as are necessary to assure that the property meets the state of remediation previously agreed to or another appropriate standard as determined by the director.

§60-3-17. Appeals of Rulings of the Director.

17.1. If at any time the director 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 remediation standard approved for the site is no longer being met, or continued compliance with the remediation standard is threatened, the director shall issue notice of such determination by providing written notice through certified/registered mail to the current owner or operator of the site. Such notice shall identify the obligations that are not being satisfied and the appropriate corrective action that must be taken.

17.2. Any person aggrieved by the director's determination under subsection 17.1 of this rule may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code §22B-1-7.

17.3. 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 17.1 of this rule, or 60 days from issuance of a final order of the Environmental Quality Board affirming the action of the director where an appeal is taken as provided in subsection 17.2 of this rule, unless prior to such time the current owner or operator takes action to assure that all obligations imposed by the Certificate are satisfied.

APPENDIX 60-3A

WEST VIRGINIA VOLUNTARY REMEDIATION AGREEMENT FOR NO FURTHER ACTION INVESTIGATION ACTIVITIES

[For Brownfields and Non-Brownfields Sites]

I. INTRODUCTION

1. The West Virginia Division of Environmental Protection (WVDEP), by its director, 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").

II. JURISDICTION

2. This Agreement is entered into by and between the WVDEP, by its director, and ________________, applicant, pursuant to W.Va. Code §22-22-7.

3. The Parties agree to the following terms and conditions as satisfying the requirements of the Act for the investigation and remediation of the site. The applicant reserves all rights it may have under common law, the West Virginia Code and federal statutes to seek contribution or indemnity. The 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 the applicant and those persons identified in W. Va. Code §22-22-18.

4. By entering into this Agreement, the applicant neither admits nor denies liability.

III. STATEMENT OF ELIGIBILITY

5. The director 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 site]. However, neither the director's determination of eligibility nor the entry into this Agreement precludes any finding by the director 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 it is determined that applicant withheld or misrepresented information that would be relevant to the applicant's eligibility, the director may withdraw from this Agreement.

IV. PARTIES BOUND

6. This Agreement shall apply to and be binding upon the applicant, its officers, directors, 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.

7. The applicant shall provide a copy of this Agreement to any subsequent owners or successors before ownership rights are transferred.

V. DEFINITIONS

8. "Day" or "calendar day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.

9. "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.

10. "Rules" means those rules adopted by the director of the Division of Environmental Protection pursuant to the Voluntary Remediation and Redevelopment Act, W. Va. Code §§22-22-1 through 22-22-21.

11. "Site" shall be used in the manner as defined by W.Va. Code §22-22-2 and for purposes of this Agreement means the property located in ____________________, West Virginia, and is more particularly described in the Application for Participating in the Voluntary Remediation Program attached and incorporated herein as Exhibit "A".

12. All other terms contained in this Agreement shall be used in the manner as defined by W.Va. Code §22-22-2 or the rules.

VI. STATEMENT OF PURPOSE

13. 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.

14. The activities conducted by the 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 the applicant shall be consistent with this Agreement, all applicable laws and regulations and any appropriate guidance documents.

VII. EVALUATION OF SITE ASSESSMENT

15. 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.

16. The parties agree that the applicable standard for this site, consistent with [insert cite to rule relating to remediation standards] is as follows:

[Insert appropriate standard and, where applicable, a description of any engineering or institutional controls for this site, as agreed upon by the Parties.]

17. The statutes and regulations for which compliance is mandated in connection with the investigation or remediation of this site are as follows:

[Insert appropriate list of statutes and rules.]

18. The 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 16 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.]

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

VIII. RECORD PRESERVATION

20. The applicant agrees to preserve, for a minimum of three 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, the applicant shall make available to WVDEP such records, or copies of any such records.

IX. RESERVATION OF RIGHTS

21. WVDEP and applicant reserve all rights and defenses they may have pursuant to any available legal authority unless expressly waived herein.

22. 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.

23. The 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 the applicant in connection with the site.

24. 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.

X. PUBLIC NOTIFICATION/INVOLVEMENT

25. [For brownfield applicants, insert provision requiring compliance with approved-public involvement plan, where appropriate]

XI. ADMINISTRATIVE COSTS

26. Applicant agrees to reimburse WVDEP for all of its reasonable administrative costs associated with this Agreement in the amount of $______________________ within 30 days of the effective date of this Agreement with a check made payable to the Voluntary Remediation Fund and be mailed along with a transmittal letter stating the site name and address to the West Virginia Division of Environmental Protection; Attention: ____________________, ______________, West Virginia. Reimbursable costs under this provision shall be those costs for which reimbursement is required under the rules.

XII. [IF APPLICABLE] LAND USE COVENANTS

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

XIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

28. The effective date of this Agreement shall be the date on which the applicant receives notice that this Agreement has been signed by the director of WVDEP.

29. This Agreement may be amended by mutual agreement of WVDEP and the applicant. Amendments shall be in writing and shall be effective when the applicant receives notice that the amendment has been signed by the director of WVDEP.

30. If the director determines that there is an imminent threat to the public, he or she may unilaterally modify or amend this Agreement.

XIV. TERMINATION AND SATISFACTION

31. Upon completion of the final report prepared by the licensed remediation specialist, the applicant may seek a Certificate of Completion from the director. Upon receipt of a request for a Certificate of Completion, the director shall determine that the site meets applicable standards for those areas of the site and for those contaminants identified in the voluntary remediation agreement and that the applicant has complied with the voluntary remediation agreement and any approved work plans for the site. Upon making this determination, the director shall issue a Certificate of Completion which conforms substantially to Appendix 60-4C of the rule. Where a land use covenant is required by this Agreement, such 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 director determines that the certificate should not be issued because the work required by this Agreement and any approved work plans has not been completed or because the site does not meet applicable standards the director shall initiate the procedures relating to denial of a certificate as provided in the rules.

32. The provisions of this Agreement shall be satisfied and this Agreement shall end when the director issues the Certificate of Completion.

XV. REOPENER

33. This Agreement may be reopened upon agreement of the parties or upon occurrence of one or more of the conditions of W.Va. Code §22-22-15 and the rules implementing that section.

XVI. GOVERNING LAW

34. This Agreement will be governed by the laws of the State of West Virginia.

____
APPLICANT

____
DATE

WEST VIRGINIA DIVISION OF
ENVIRONMENTAL PROTECTION

By: ______________________________

Title: ______________________________

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 said Agreement requires the imposition of a land use covenant and, in consideration of the benefits accruing to the site from said Agreement, I hereby agree to the imposition of such land use covenant and agree to cooperate in the execution and filing of such land use covenant.

______________________________ ______________________

Owner Date

APPENDIX 60-3B

WEST VIRGINIA VOLUNTARY REMEDIATION AGREEMENT FOR INVESTIGATION AND REMEDIATION ACTIVITIES

[For Brownfields and Non-Brownfields Sites]

I. INTRODUCTION

1. The West Virginia Division of Environmental Protection (WVDEP), by its director, 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").

II. JURISDICTION

2. This Agreement is entered into by and between the WVDEP, by its director, and ________________, applicant, pursuant to W.Va. Code §22-22-7.

3. The Parties agree to the following terms and conditions as satisfying the requirements of the Act for the investigation and remediation of the site. The applicant reserves all rights it may have under common law, the West Virginia Code and federal statutes to seek contribution or indemnity. The 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 the applicant and those persons identified in W. Va. Code §22-22-18.

4. By entering into this Agreement, the applicant neither admits nor denies liability.

III. STATEMENT OF ELIGIBILITY

5. The director has determined that the application submitted by applicant is complete and that applicant is eligible to participate in the voluntary remediation program. However, neither the director's determination of eligibility nor the entry into this Agreement precludes any finding by the director 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 it is determined that applicant withheld or misrepresented information that would be relevant to the applicant's eligibility, the director may withdraw from this Agreement.

IV. PARTIES BOUND

6. This Agreement shall apply to and be binding upon the applicant, its officers, directors, 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 the applicant shall in any way alter its status or responsibilities under this Agreement unless applicant or WVDEP withdraws from this Program.

7. The applicant shall provide a copy of this Agreement to any subsequent owners or successors before ownership rights are transferred. The applicant shall provide a copy of this Agreement to all contractors, sub-contractors, laboratories, and consultants which are retained to conduct any work performed under this Agreement, within 14 days after the effective date of this Agreement or within 14 days of the date of retaining their services.

V. DEFINITIONS

8. "Day" or "calendar day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.

9. "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.

10. "Rules" mean those rules adopted by the director of the Division of Environmental Protection pursuant to the Voluntary Remediation and Redevelopment Act, W. Va. Code §22-22-1.

11. "Site" shall be used in the manner as defined by W.Va. Code §22-22-1 and for purposes of this Agreement means the property located in ____________________, West Virginia, and is more particularly described in the Application for Participating in the Voluntary Remediation Program attached and incorporated herein as Exhibit "A".

12. All other terms contained in this Agreement shall be used in the manner as defined by W.Va. Code §22-22-2 or the rules.

VI. STATEMENT OF PURPOSE

13. This Agreement sets forth necessary terms and conditions to satisfy the requirements of the Act for the investigation and remediation of the site.

14. The activities conducted by the 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 the applicant shall be consistent with this Agreement, all applicable laws and regulations and any appropriate guidance documents.

VII. WORK TO BE PERFORMED

15. All work to be performed by the applicant pursuant to this Agreement shall be under the direction and supervision of a licensed remediation specialist. The licensed remediation specialist may be designated by applicant as applicant's project manager pursuant to Paragraph 34. Prior to the initiation of site work, the applicant shall notify WVDEP, in writing, regarding 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.

16. Applicant shall submit a Voluntary Remediation Work Plan which when implemented provides for the attainment of the applicable standard specified in Paragraph 18 of this Agreement.

17. The Voluntary Remediation Work Plan submittal shall include the following:

[To be developed on a site-by-site basis]

18. The parties agree that the applicable standard for this site, consistent with Section 9 of the rule, is as follows:

[Insert applicable standard and, where applicable, engineering or institutional controls for this site, as agreed upon by the Parties.]

19. The statutes and regulations for which compliance is mandated in connection with the investigation or remediation of this site are as follows:

[Insert appropriate list of statutes and rules.]

VIII. SUBMITTAL AND APPROVAL OF WORK PLANS OR REPORTS

20. The applicant shall submit the following work plans or reports in accordance with the schedule provided in this Agreement:

[List of work plans and/or reports to be submitted]

21. The director may, based upon accuracy, quality, and completeness, either approve or disapprove a work plan or report submitted by applicant.

22. If the director disapproves a work plan or report, the director must, within 5 days of its disapproval, notify the applicant in writing that its work plan or report has been disapproved. Such written notice shall include a list specifying the reasons that the work plan or report was disapproved, and shall specify all additional information needed for the work plan or report to obtain approval.

23. If the director disapproves a work plan or report as submitted, the applicant must resubmit the work plan or report or terminate this Agreement as provided in Paragraph 22.

24. The director shall either approve or disapprove all work plans and reports within 30 days of receipt [shorter period may be specified]. Any such action taken on a work plan or report must be confirmed in writing and received by the applicant within the 30-day period [may be shorter period specified]. An extension of time for approval or disapproval of work plans or report may be mutually agreed to by and between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing.

25.. After work plans or reports are submitted, the director shall approve or disapprove the resubmitted work plans or reports within 30 days of receipt, or within such shorter period specified in the partie's voluntary remediation agreement. Any action taken on resubmitted work plans or reports must be confirmed in writing and received by the applicant within the thirty (30)-day period for acting on a resubmitted application, or within such shorter time specified in the parties' voluntary remediation agreement. An extension of time or action on resubmitted work plans or reports may be mutually agreed to between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing. If resubmitted work plans or reports are not approved by the director, then the director and the applicant may mutually agree, in writing, to a schedule for additional review of the resubmitted work plans or reports.

26. If work plans or reports are not approved or disapproved within 30 days of receipt by the director [shorter time may be specified], or if resubmitted work plans or reports are not approved or disapproved within 30 days of receipt by the director [shorter time may be specified], then the work plans or reports will be deemed approved unless such work plans or reports are determined to be materially inaccurate.

27. Notice. Any notice required to be given under the provisions of this section must be in writing and sent via United States certified mail [alternate method may be specified]. Notice is complete upon receipt.

28. If the applicant desires to proceed with the implementation of the approved work plan, the applicant must notify the director in writing not more than 90 days after the work plan is approved. After providing such notice, the applicant shall initiate the work detailed in the Voluntary Remediation Work Plan according to the schedule as set forth in the director's Notice of Approval. Upon the director's receipt of notice that the applicant intends to proceed, the fully

approved Voluntary Remediation Work Plan shall be deemed incorporated into and made an enforceable part of this Agreement.

29. Upon completion of the work contemplated by the work plan, the applicant shall submit to the director the final report prepared by the licensed remediation specialist. The final report shall include all information necessary to verify that all work contemplated by the work plan has been completed and all information required by the rules.

IX. PUBLIC NOTIFICATION/INVOLVEMENT

30. [For brownfield applicants, insert provision requiring compliance with approved Public Involvement Plan, where appropriate].

IX. ADDRESSES FOR ALL CORRESPONDENCE

31. Documents, including reports, approvals, notifications, disapprovals, and other correspondence, to be submitted under this Agreement, may be sent by certified mail, return receipt requested, hand delivery, overnight mail or by courier service to the following addresses or to such addresses as the applicant or WVDEP may designate in writing.

Documents to be submitted to WVDEP should be sent to:

WV Division Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, West Virginia 25301

Phone No. (304)558-5929

Documents to be submitted to the applicant should be sent to:

____

____

____

Attn:___________________________

Phone No. ____________________

XI. COMPLIANCE WITH APPLICABLE LAWS

32. All work undertaken by the 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. The applicant shall be responsible for obtaining all permits which are necessary for the performance of any work hereunder.

33. 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 §§22-10-1 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.

XII. PROJECT MANAGER/LICENSED REMEDIATION SPECIALIST

34. On or before the effective date of this Agreement, WVDEP shall designate a project manager. The applicant shall designate a licensed remediation specialist and a project manager. The licensed remediation specialist may be the project manager. The licensed remediation specialist shall be responsible for the supervision of all activities under this Agreement. The WVDEP project manager will be the WVDEP designated representative at the site. To the maximum extent possible, communications between the applicant and WVDEP and all documents (including reports, approvals, and other correspondence) concerning the activities performed pursuant to the terms and conditions of this Agreement shall be directed 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 such change within seventy-two (72) hours.

35. The absence of the applicant's or WVDEP's project manager or licensed remediation specialist from the site shall not be cause for the stoppage of work. The applicant's project manager or his supervisor or licensed remediation specialists shall reasonably be available by telephone while work is being performed. The applicant shall designate a person to be in charge who will be available on-site when field work is being performed.

XIII. QUALITY ASSURANCE

36. The 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 under this Agreement, unless WVDEP agrees otherwise.

37. 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, the applicant shall:

a) Use laboratories certified by WVDEP;)
b) Ensure that all sampling and analyses are performed according to US EPA methods, the approved Quality Assurance Project Plan, or other methods deemed satisfactory by WVDEP; and

c) Ensure that any laboratories used by the applicant for analyses participate in a documented Quality Assurance/Quality Control program that complies with US 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.

38. 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 the applicant utilize a different laboratory.

XIV. SAMPLING AND DATA/DOCUMENT AVAILABILITY

39. The applicant shall, upon request, make the results of all sampling, including raw data and/or tests or other data generated by the applicant, or on the applicant's behalf, available to WVDEP. WVDEP shall make available to the applicant the quality-assured results of sampling and/or tests or other data similarly generated by WVDEP.

40. At the request of WVDEP, the 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 the applicant a receipt describing the sample obtained and, if requested, a portion of each sample equal in weight or volume to the portion retained.

XV. ACCESS

41. 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, the 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 such property requesting access agreements to permit applicant or any authorized representative of the WVDEP access to such property. Such agreement shall provide access for authorized representatives of the WVDEP as specified below. In the event such access agreements are not obtained, the applicant shall so notify the WVDEP, which may then, at its discretion, assist the applicant in gaining access.

42. Upon presentation of proper credentials, authorized representatives of the WVDEP shall be provided access by the applicant to the site and other areas where work is to be performed under this Agreement at all reasonable times. Such 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 progress of the applicant in carrying out the terms of this Agreement; conducting such tests, inspections and sampling as WVDEP may deem necessary consistent with paragraphs XII and XIII of this Agreement. The 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 the applicant exercises control. All persons with access to the site Pursuant to this Agreement shall comply with the health and safety plans.

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

XVI. RECORD PRESERVATION

44. The applicant agrees to preserve, during the pendency of this Agreement, and for a minimum of three 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, the applicant shall make available to WVDEP such records, or copies of any such records.

45. Applicant may assert a confidentiality claim for any information submitted pursuant to this Agreement on the grounds that such information, or parts thereof, if made public would divulge methods, processes, or activities entitled to protection as trade secrets. If no such confidentiality claim accompanies the information when it is submitted to the WVDEP, it may be available to the public by WVDEP without further notice to the applicant. Applicant agrees not to assert any confidentiality claim with regard to any physical or analytical data regarding environmental conditions at the site.

XVII. DISPUTE RESOLUTION

46. The parties shall use their best efforts to, in good faith, resolve all disputes or differences of opinion informally. If, however, disputes arise concerning this Agreement which the parties are unable to resolve informally, the applicant may present written notices of

such dispute to WVDEP and set forth specific points of dispute and the position of the applicant. This written notice shall be submitted no later than 5 calendar days after the applicant discovers the project managers are unable to resolve the dispute. The applicant's project manager will notify WVDEP project manager immediately by phone or other appropriate methods of communication, prior to written notice, when she/he believes the parties are unable to resolve a dispute. If both parties agree, disputes may be submitted to an impartial third party for non-binding mediation.

47. Any unresolved disputes arising out of or relating to this contract, or the breach thereof, shall be settled by arbitration and judgment on the arbitrator's decision may be entered in any court having jurisdiction. The applicant shall notify WVDEP in writing of any unresolved disputes which it believes requires arbitration. Within 5 days, the parties shall agree to an arbitrator. If the parties fail to agree to an arbitrator, the arbitration shall be administered by the American Arbitration Association. In selecting a mediator or arbitrator, the parties shall attempt to select persons with experience in environmental matters, including but not limited to licensed remediation specialists.

48. The applicant shall make a written submission in support of its position to the agreed arbitrator within 10 days of the arbitrator's selection, and the other party may make a written response in support of its position within 7 days thereafter. Upon notice to the parties, the arbitrator may request additional information or make specific inquiry of either party. Within 30 days of the initial written submission under this paragraph, the arbitrator shall render a decision on the dispute and notify each of the parties of the decision.

49. Until the dispute is resolved, any actions concerning that element of work in dispute shall be halted. The resolution of the dispute shall be incorporated into the work plan and made an enforceable part thereof. The time schedule for the work in dispute shall be extended by the amount of time needed for resolution. Elements of work and/or obligations not affected by the dispute shall be completed in accordance with the schedule contained in the work plan.

50. Elements of work and any actions required as a result of such dispute resolution shall immediately be incorporated, if necessary, into the appropriate plan or procedure, and into this Agreement. The applicant shall proceed with all remaining work according to the modified plan or procedure.

XVIII. FORCE MAJEURE

51. The applicant shall cause all work or required reporting to be performed within the time limits set forth herein, unless performance is delayed by events which constitute a force majeure. "Force Majeure" shall mean 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,

however, applicant shall not be required to concede to any labor demands), which prevent or delay applicant from complying with the work plan.

52. The applicant shall notify WVDEP by calling with 3 calendar days and by writing no later than 7 calendar days after any event which the applicant contends is a force majeure. Such notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken or to be taken by the applicant to minimize the delay, and the timetable by which these measures will be implemented. The applicant shall have the burden of demonstrating that the event is a force majeure. The decision of whether an event is a force majeure shall be made by the director, or the director's designate. The decision shall be immediately communicated to the applicant.

53. If a delay is attributable to a force majeure, the time period for performance under this Agreement shall be extended, in writing, by the amount of time that is attributable to the event constituting the force majeure.

XVIX. RESERVATION OF RIGHTS

54. WVDEP and applicant reserve all rights and defenses they may have pursuant to any available authority unless expressly waived herein.

55. 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.

56. The 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 the applicant in connection with the site.

57. The WVDEP reserves the right to bring an action, including an administrative action, against applicant for any violations of statutes or regulations except for the specific violations or releases that are being remediated in the work plan.

58. The WVDEP reserves the right to withdraw its approval of the work plan at any time during the implementation of the work plan if:

a) WVDEP determines that the applicant has failed to substantially comply with the terms and conditions of this Agreement or the work plan;

b) The applicant declines to implement the work plan after being notified of its approval by the WVDEP; or

c) WVDEP determines that a hazardous substance or petroleum has become an imminent or substantial threat to human health or the environment.

Upon 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.

59. The 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.

XX. ADMINISTRATIVE COSTS

60. Applicant agrees to reimburse WVDEP for all of its reasonable administrative costs associated with implementation of this Agreement at the rate of 2.5 times the hourly rate of the primary employee assigned to the site plus the actual and direct expenses of such employee. Within 60 calendar days of the approval of the work plan, WVDEP shall send the applicant an itemized list of estimated costs that WVDEP expects to incur under this Agreement. Itemization will be in standard WVDEP format, an example of which is attached. The estimated costs may include the preparation of the itemized list of administrative costs.

61. Applicant shall pay these costs on the following schedule. Applicant shall pay to WVDEP $________, within 30 days of the effective date of this Agreement. Said amount shall be credited against the first accounting. WVDEP shall periodically send an accounting of contractor, subcontractor and laboratory costs to applicant. Said accounting shall itemize all costs incurred by WVDEP for the previous __________. 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 should be made payable to the Voluntary Remediation Fund and mailed along with a transmittal letter stating the site name and address to the West Virginia Division of Environmental Protection: Attention:_________________________, __________, West Virginia. In addition, a copy of the check and transmittal letter should be mailed to the WVDEP project manager.

XXI. NOTICE OF BANKRUPTCY

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

XII. INDEMNIFICATION

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

XXIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

65. The effective date of this Agreement shall be the date on which the applicant receives notice that this Agreement has been signed by the director of WVDEP.

66. This Agreement may be amended by mutual agreement of WVDEP and the applicant. Amendments shall be in writing and shall be effective when the applicant receives notice that the amendment has been signed by the director of WVDEP.

67. If the director determines that there is an imminent threat to the public, he or she may unilaterally modify or amend this Agreement.

XXIV. EXTENSIONS OF TIME PERIODS

68. Any written response shall be 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 on him and the notice or paper is served upon him by mail, 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), such time limitation shall automatically extend to the next business day after such Saturday, Sunday, or holiday.

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

XXV. TERMINATION AND SATISFACTION

71. Upon completion of the final report prepared by the licensed remediation specialist, the applicant may seek a Certificate of Completion from the director. Upon receipt of a request for a Certificate of Completion, the director shall determine that the site meets applicable standards for those areas of the site and for those contaminants identified in the voluntary remediation agreement and that the applicant has complied with the voluntary remediation agreement and any approved work plans for the site. Upon making this determination, the director shall issue a Certificate of Completion which conforms substantially to Appendix 60-3C of the rules. Where a land use covenant is required by this Agreement, such 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 director determines that the certificate should not be issued because work required by this Agreement and any approved work plans has not been completed or because the site does not meet applicable standards, the director shall initiate the procedures relating to denial of a certificate as provided in the rules.

72. The provisions of this Agreement shall be satisfied and this Agreement shall terminate when the director 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. The applicant may in its sole discretion terminate this Agreement by giving 15 days advance written notice of termination. Only those costs incurred or obligated by the director before the notice of termination is received are recoverable if the Agreement is terminated. If the applicant terminates this Agreement, then the applicant shall pay WVDEP's costs associated with the voluntary remediation within 31 days after receiving notice that the costs are due and owing.

XXVI. [IF APPLICABLE] LAND USE COVENANTS

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

XXVII. REOPENER

76. 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 W. Va. Code §22-22-15 and the rules implementing that section.

XXVIII. PRECEDENCE OF AGREEMENT

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

XXIX. GOVERNING LAW

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

____
Applicant

Date ______________________________

WEST VIRGINIA DIVISION OF
ENVIRONMENTAL PROTECTION

By: ______________________________

Title: ______________________________

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 said Agreement requires the imposition of a land use covenant and, in consideration of the benefits accruing to the site from said Agreement, I hereby agree to the imposition of such land use covenant and agree to cooperate in the execution and filing of such land use covenant.

______________________________ ____________________
Owner Date

APPENDIX 60-4C

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

[Applicant] entered into a Voluntary Remediation Agreement with the director of the Division 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 __________________________
- A map depicting the site (See Exhibit A)
- A list of the contaminants 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 director of the West Virginia Division 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 division from any person after issuance of a Certificate of Completion, but does not include information the division 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 division 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 director 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 the WVDEP under the Agreement.

WHEREFORE, the director of the Division 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].

____
Director, Division of Environmental Protection

APPENDIX 60-3D

LAND USE COVENANT

[To be used where applicant is not the owner of the property covered by the Voluntary Remediation Agreement]

[Applicant] has entered into a Voluntary Remediation Agreement (hereinafter referred to as "the Agreement") with the Division of Environmental Protection for the State of West Virginia pursuant to the Voluntary Remediation and Redevelopment Act, W.Va. Code §§ 22-22-1 through 22-22-21 (hereinafter referred to as "the Act"), for certain property, located at [address of facility] in ____________ District, __________ County, West Virginia and more particularly described in a deed of record in the office of the Clerk of the County Commission of ___________ County, West Virginia. In the Agreement, the current owner of this property, [insert name], hereinafter referred to as "Owner," has agreed to the imposition of the restrictions on this property, as required by the Agreement. The Agreement allows certain levels of contamination to remain on the property and requires a land use covenant be recorded in the office of the Clerk of the ________ County Commission for the purposes of protecting public health and the environment and to prevent interference with the performance, operation and maintenance of any remedial actions required by the Agreement.

NOW THEREFORE, the following restrictions shall apply to this property:

1. The Owner shall prohibit all activities on the property which may interfere with the remedial action required by the Agreement.

2. The Owner shall prohibit all activities that may result in human exposures above those specified by the Agreement or that would result in the release of a contaminant that was contained as part of the remedial action. These activities include, but are not limited to:

[Insert list of prohibited activities]

3. The Owner shall restrict the uses of the property to:

[Description of how property will be used, consistent with the uses described in the Agreement]

4. The Owner shall provide written notice to the director of the Division of Environmental Protection of the intent to transfer any interest in the property.

5. The Owner shall not convey any title, easement, or other interest in the property without adequate and complete provision for the continued implementation, operation and maintenance of any remedial action that has been implemented on the property pursuant to the Agreement and without assuring prevention of the releases and exposures described in the provisions of paragraph 2, above.

6. The Owner shall grant the West Virginia Division of Environmental Protection and its designated representatives the right to enter the property at reasonable times for the purpose of monitoring compliance with the Agreement, and the Certificate of

Completion, including the right to take samples, inspect the operation to evaluate the effectiveness of remedial activities, and inspect records all as provided in the Agreement.

7. The Division of Environmental Protection may enforce the restrictions set forth in this Land Use Covenant by legal action in a court of appropriate jurisdiction.

8. In accordance with the provisions of the Act regarding land use covenants, W. Va. Code §22-22-15, and in addition to any rights or duties contained in the Certificate of Completion, this Land Use Covenant relieves the applicant, its successors and assigns, the Owner and any subsequent successors and assigns of the Owner, and any person identified in W. Va. Code §22-22-18 from all civil liability to the state as provided under the Act so long as the property complies with the applicable standards identified in the Agreement.

9. The restrictions and other requirements described in this Land Use Covenant shall run with the land and shall be binding upon any future owners, successors or assigns and their authorized agents, employees or persons acting under their direction or control. Subject to subsequent written modification or release signed by the director and the owner at the time of such modification or release, and filed in the office of the Clerk of the County Commission of the county where these covenants have been recorded, this Land Use Covenant shall continue in perpetuity.

10. If any provision of this Land Use Covenant is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof. All such other provisions shall continue unimpaired and in full force and effect.

11. This Land Use 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 director of the West Virginia Division of Environmental Protection, or his successor in accordance with regulations promulgated by the director 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 director of the Division of Environmental Protection.

[Optional] The undersigned persons executing this Land Use Covenant on behalf of the Owner represent and certify that they are duly authorized and have been fully empowered to execute and deliver this Land Use Covenant.

IN WITNESS WHEREOF, the said Owner of the above-described property and the director of the Division of Environmental Protection have caused this Land Use Covenant to be executed this ____ day of ____________, 19__.

SIGNED:

______________________________ ______________________________

Property Owner

Director, Division of Environmental Protection

I, ________________, a Notary Public in and for the State and County aforesaid, do hereby certify that ________________, whose name is signed to the writing above, bearing date the ______ day of ________________, 19__, has this day acknowledged same to be his true act and deed.

Given under my hand this the _____ day of ______________, 19__

My commission expires ______________________________

____

Notary Public

I, ________________, a Notary Public in and for the State and County aforesaid, do hereby certify that ________________, whose name is signed to the writing above, bearing date the ______ day of ________________, 19__, has this day acknowledged same to be his true act and deed.

Given under my hand this the _____ day of ______________, 19__

My commission expires ______________________________

____

Notary Public

[Include instructions to the Clerk directing that the recorded document be returned to the director of the DEP.]

APPENDIX 60-3E

LAND USE COVENANT

[To be used where applicant is the owner of the property covered by the Voluntary Remediation Agreement].

[Applicant] has entered into a Voluntary Remediation Agreement (hereinafter referred to as "the Agreement") with the Division of Environmental Protection for the State of West Virginia pursuant to the Voluntary Remediation and Redevelopment Act, W.Va. Code §§ 22-22-1 through 22-22-2 (hereinafter referred to as "the Act"), for certain property, located at [address of facility] in ____________ District, __________ County, West Virginia and more particularly described in a deed of record in the office of the Clerk of the County Commission of ___________ County, West Virginia. Paragraph __ of the Agreement requires [applicant], as the owner of said property, to file a Land Use Covenant with the Clerk of the [County] Commission. The Agreement allows certain levels of contamination to remain on the property and requires a land use covenant be recorded in the office of the Clerk of the ________ County Commission for the purposes of protecting public health and the environment and to prevent interference with the performance, operation and maintenance of any remedial actions required by the Agreement.

NOW THEREFORE, as [applicant], hereinafter referred to as "Owner," and the director have provided in the Agreement, the following restrictions shall apply to this property:

1. The Owner shall prohibit all activities on the property which may interfere with the remedial action required by the Agreement.

2. The Owner shall prohibit all activities that may result in human exposures above those specified by the Agreement or that would result in the release of a contaminant that was contained as part of the remedial action. These activities include, but are not limited to:

[Insert list of prohibited activities]

3. The Owner shall restrict the uses of the property to:

[Description of how property will be used, consistent with the uses described in the Agreement]

4. The Owner shall provide written notice to the director of the Division of Environmental Protection of the intent to transfer any interest in the property.

5. The Owner shall not convey any title, easement, or other interest in the property without adequate and complete provision for the continued implementation, operation and maintenance of any remedial action that has been implemented on the property pursuant to the Agreement and without assuring prevention of the releases and exposures described in the provisions of paragraph 2, above.

6. The Owner shall grant the West Virginia Division of Environmental Protection and its designated representatives the right to enter the property at reasonable times

for the purpose of monitoring compliance with the Agreement, and the Certificate of Completion, including the right to take samples, inspect the operation to evaluate the effectiveness of remedial activities, and inspect records all as provided in the Agreement.

7. The Division of Environmental Protection may enforce the restrictions set forth in this Land Use Covenant by legal action in a court of appropriate jurisdiction.

8. In accordance with the provisions of the Act regarding land use covenants, W. Va. Code §22-22-15 and in addition to any rights or duties contained in the Certificate of Completion, this Land Use Covenant relieves the Owner and any subsequent successors and assigns of the Owner any person identified in W. Va. Code §22-22-18 from all civil liability to the state as provided under the Act so long as the property complies with the applicable standards identified in the Agreement.

9. The restrictions and other requirements described in this Land Use Covenant shall run with the land and shall be binding upon any future owners, successors or assigns and their authorized agents, employees or persons acting under their direction or control. Subject to subsequent written modification or release signed by the director and the owner at the time of such modification or release, and filed in the office of the Clerk of the County Commission of the county where these covenants have been recorded, this Land Use Covenant shall continue in perpetuity.

10. If any provision of this Land Use Covenant is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof. All such other provisions shall continue unimpaired and in full force and effect.

11. This Land Use 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 director of the West Virginia Division of Environmental Protection, or his successor in accordance with regulations promulgated by the director 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 director of the Division of Environmental Protection.

[Optional] The undersigned persons executing this Land Use Covenant on behalf of the Owner represent and certify that they are duly authorized and have been fully empowered to execute and deliver this Land Use Covenant.

IN WITNESS WHEREOF, the said Owner of the above described property and the director of the Division of Environmental Protection have caused this Land Use Covenant to be executed this ____ day of _____________, 19__.

SIGNED:

___________________________ ___________________________________

Property Owner Director, Division of Environmental Protection

I, __________________, a Notary Public in and for the State and County aforesaid, do hereby certify that _________________, whose name is signed to the writing above, bearing date the ______ day of __________________, 19__, has this day acknowledged same to be his true act and deed.

Given under my hand this the _____ day of _______________, 19__

My commission expires _________________________________

____

Notary Public

I, __________________, a Notary Public in and for the State and County aforesaid, do hereby certify that _________________, whose name is signed to the writing above, bearing date the ______ day of __________________, 19__, has this day acknowledged same to be his true act and deed.

Given under my hand this the _____ day of _______________, 19__

My commission expires _________________________________

____

Notary Public

[Include instructions to the Clerk directing that the recorded document be returned to the director of the DEP.]

TABLE 60-3A

LICENSED REMEDIATION SPECIALIST FEES

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

TABLE 60-3B

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST
E=EPA-NCEA Regional Support provisional value O=Other EPA documents.

Basis: C=carcinogenic effects
N=Noncarcinogenic effects
S=West Virginia Groundwater Quality Standards

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Acephate	30560191	4.00E-03 I		8.70E-03 I			7.7 C	6600 C	73 C
Acetaldehyde	75070		2.57E-03 I		7.70E-03 I		94 N		
Acetochlor	34256821	2.00E-02 I					730 N	41000 N	1600 N
Acetone	67641	1.00E-01 I					3700 N	200000 N	7800 N
Acetone cyanohydrin	75865	7.00E-02 H	4.00E-02 A				2600 N	140000 N	5500 N
Acetonitrile	75078	6.00E-03 I	1.43E-02 A				220 N	12000 N	470 N
Acetophenone	98862	1.00E-01 I	5.71E-06 W[1]			x	0.042 N	200000 N	7800 N
Acifluorfen	62476599	1.30E-02 I					470 N	27000 N	1000 N
Acrolein	107028	2.00E-02 H	5.71E-06 I				730 N	41000 N	1600 N
Acrylamide	79061	2.00E-04 I		4.50E+00 I	4.55E+00 I		0.015 C	13 C	0.14 C
Acrylic acid	79107	5.00E-01 I	2.86E-04 I				18000 N	1000000 N	39000 N
Acrylonitrile	107131	1.00E-03 H	5.71E-04 I	5.40E-01 I	2.38E-01 I		0.12 C	110 C	1.2 C
Alachlor	15972608	1.00E-02 I		8.00E-02 H			2 S	720 C	8 C
Alar	1596845	1.50E-01 I					5500 N	310000 N	12000 N
Aldicarb	116063	1.00E-03 I					37 N	2000 N	78 N
Aldicarb sulfone	1646884	1.00E-03 I					37 N	2000 N	78 N
Aldrin	309002	3.00E-05 I		1.70E+01 I	1.71E+01 I		0.004 C	3.4 C	0.038 C
Ally	74223646	2.50E-01 I					9100 N	510000 N	20000 N
Allyl alcohol	107186	5.00E-03 I					180 N	10000 N	390 N
Allyl chloride	107051	5.00E-02 W[1]	2.86E-04 I				1800 N	100000 N	3900 N
Aluminum	7429905	1.00E+00 E[1]					37000 N	1000000 N	78000 N
Aluminum phosphide	20859738	4.00E-04 I					15 N	820 N	31 N
Amdro	67485294	3.00E-04 I					11 N	610 N	23 N
Ametryn	834128	9.00E-03 I					330 N	18000 N	700 N
m-Aminophenol	591275	7.00E-02 H					2600 N	140000 N	5500 N
4-Aminopyridine	504245	2.00E-05 H					0.73 N	41 N	1.6 N
Amitraz	33089611	2.50E-03 I					91 N	5100 N	200 N
Ammonia	7664417		2.86E-02 I				1000 N		
Ammonium sulfamate	7773060	2.00E-01 I					7300 N	410000 N	16000 N
Aniline	62533		2.86E-04 I	5.70E-03 I			10 N	10000 C	110 C
Antimony and compounds	7440360	4.00E-04 I					6 S	820 N	31 N
Antimony pentoxide	1314609	5.00E-04 H					18 N	1000 N	39 N
Antimony potassium tartrate	304610	9.00E-04 H					33 N	1800 N	70 N
Antimony tetroxide	1332316	4.00E-04 H					15 N	820 N	31 N
Antimony trioxide	1309644	4.00E-04 H					15 N	820 N	31 N
Apollo	74115245	1.30E-02 I					470 N	27000 N	1000 N

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST
E=EPA-NCEA Regional Support provisional value O=Other EPA documents.

Basis: C=carcinogenic effects
N=Noncarcinogenic effects
S=West Virginia Groundwater Quality Standards

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Aramite	140578	5.00E-02 H		2.50E-02 I	2.49E-02 I		2.7 C	2300 C	26 C
Arsenic	7440382	3.00E-04 I					11 N	610 N	23 N
Arsenic (as carcinogen)	7440382			1.50E+00 I	1.51E+01 I		0.045 C	38 C	0.43 C
Arsine	7784421		1.43E-05 I				0.52 N		
Assure	76578148	9.00E-03 I					330 N	18000 N	700 N
Asulam	3337711	5.00E-02 I					1800 N	100000 N	3900 N
Atrazine	1912249	3.50E-02 I		2.22E-01 H			3 S	260 C	2.9 C
Avermectin B1	65195553	4.00E-04 I					15 N	820 N	31 N
Azobenzene	103333			1.10E-01 I	1.08E-01 I		0.61 C	520 C	5.8 C
Barium and compounds	7440393	7.00E-02 I	1.43E-04 A				2000 S	140000 N	5500 N
Baygon	114261	4.00E-03 I					150 N	8200 N	310 N
Bayleton	43121433	3.00E-02 I					1100 N	61000 N	2300 N
Baythroid	68359375	2.50E-02 I					910 N	51000 N	2000 N
Benefin	1861401	3.00E-01 I					11000 N	610000 N	23000 N
Benomyl	17804352	5.00E-02 I					1800 N	100000 N	3900 N
Bentazon	25057890	2.50E-03 I					91 N	5100 N	200 N
Benzaldehyde	100527	1.00E-01 I				x	610 N	200000 N	7800 N
Benzene	71432		1.71E-03 E[1]	2.90E-02 I	2.90E-02 I	x	5 S	2000 C	22 C
Benzenethiol	108985	1.00E-05 H					0.37 N	20 N	0.78 N
Benzidine	92875	3.00E-03 I		2.30E+02 I	2.35E+02 I		0.00029 C	0.25 C	0.0028 C
Benzoic acid	65850	4.00E+00 I					150000 N	1000000 N	310000 N
Benzotrichloride	98077			1.30E+01 I			0.0052 C	4.4 C	0.049 C
Benzyl alcohol	100516	3.00E-01 H					11000 N	610000 N	23000 N
Benzyl chloride	100447			1.70E-01 I		x	0.062 C	340 C	3.8 C
Beryllium and compounds	7440417	5.00E-03 I		4.30E+00 I	8.40E+00 I		4 S	13 C	0.15 C
Bidrin	141662	1.00E-04 I					3.7 N	200 N	7.8 N
Biphenthrin (Talstar)	82657043	1.50E-02 I					550 N	31000 N	1200 N
1,1-Biphenyl	92524	5.00E-02 I					1800 N	100000 N	3900 N
Bis(2-chloroethyl)ether	111444			1.10E+00 I	1.16E+00 I	x	0.0092 C	52 C	0.58 C
Bis(2-chloroisopropyl)ether	39638329	4.00E-02 I		7.00E-02 H	3.50E-02 H	x	0.26 C	820 C	9.1 C
Bis(chloromethyl)ether	542881			2.20E+02 I	2.17E+02 I	x	0.000049 C	0.26 C	0.0029 C
Bis(2-chloro-1-methylethyl)ether	0			7.00E-02 W[1]	7.00E-02 W[1]		0.96 C	820 C	9.1 C
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02 I		1.40E-02 I			4.8 C	4100 C	46 C
Bisphenol A	80057	5.00E-02 I					1800 N	100000 N	3900 N
Boron (and borates)	7440428	9.00E-02 I	5.71E-03 H				3300 N	180000 N	7000 N
Boron trifluoride	7637072		2.00E-04 H				7.3 N		

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							Risk-Based Concentrations		
						V	Ground	Soil Ingestion	
		RfDo	RfDi	CPSo	CPSi	O	Water	Industrial[2]	Residential
Contaminant	CAS	mg/kg/d	mg/kg/d	kg-d/mg	kg-d/mg	C	µg/L	mg/kg	mg/kg
Bromodichloromethane	75274	2.00E-02 I		6.20E-02 I		x	0.17 C	920 C	10 C
Bromoethene	593602				1.10E-01 H	x	0.096 C		
Bromoform (tribromomethane)	75252	2.00E-02 I		7.90E-03 I	3.85E-03 I	x	2.4 C	7200 C	81 C
Bromomethane	74839	1.40E-03 I	1.43E-03 I			x	8.7 N	2900 N	110 N
4-Bromophenyl phenyl ether	101553	5.80E-02 O[1]					2100 N	120000 N	4500 N
Bromophos	2104963	5.00E-03 H					180 N	10000 N	390 N
Bromoxynil	1689845	2.00E-02 I					730 N	41000 N	1600 N
Bromoxynil octanoate	1689992	2.00E-02 I					730 N	41000 N	1600 N
1,3-Butadiene	106990				9.80E-01 I	x	0.011 C		
1-Butanol	71363	1.00E-01 I					3700 N	200000 N	7800 N
Butyl benzyl phthalate	85687	2.00E-01 I					7300 N	410000 N	16000 N
Butylate	2008415	5.00E-02 I					1800 N	100000 N	3900 N
sec-Butylbenzene	135988	1.00E-02 E[1]				x	61 N	20000 N	780 N
tert-Butylbenzene	104518	1.00E-02 E[1]				x	61 N	20000 N	780 N
Butylphthalyl butylglycolate	85701	1.00E+00 I					37000 N	1000000 N	78000 N
Cacodylic acid	75605	3.00E-03 H					110 N	6100 N	230 N
Cadmium and compounds	7440439	5.00E-04 I	5.71E-05 W[1]		6.30E+00 I		5 S	1000 N	39 N
Caprolactam	105602	5.00E-01 I					18000 N	1000000 N	39000 N
Captafol	2425061	2.00E-03 I		8.60E-03 H			7.8 C	6700 C	74 C
Captan	133062	1.30E-01 I		3.50E-03 H			19 C	16000 C	180 C
Carbaryl	63252	1.00E-01 I					3700 N	200000 N	7800 N
Carbofuran	1563662	5.00E-03 I					40 S	10000 N	390 N
Carbon disulfide	75150	1.00E-01 I	2.00E-01 I			x	1000 N	200000 N	7800 N
Carbon tetrachloride	56235	7.00E-04 I	5.71E-04 E[1]	1.30E-01 I	5.25E-02 I	x	5 S	440 C	4.9 C
Carbosulfan	55285148	1.00E-02 I					370 N	20000 N	780 N
Carboxin	5234684	1.00E-01 I					3700 N	200000 N	7800 N
Chloral	75876	2.00E-03 I					73 N	4100 N	160 N
Chloramben	133904	1.50E-02 I					550 N	31000 N	1200 N
Chloranil	118752			4.03E-01 H			0.17 C	140 C	1.6 C
Chlordane	57749	6.00E-05 I		1.30E+00 I	1.29E+00 I		2 S	44 C	0.49 C
Chlorimuron-ethyl	90982324	2.00E-02 I					730 N	41000 N	1600 N
Chlorine	7782505	1.00E-01 I					3700 N	200000 N	7800 N
Chlorine dioxide	10049044		5.71E-05 I				2.1 N		
Chloroacetaldehyde	107200	6.90E-03 O[1]					250 N	14000 N	540 N
Chloroacetic acid	79118	2.00E-03 H					73 N	4100 N	160 N
2-Chloroacetophenone	532274		8.57E-06 I				0.31 N		

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	V O C	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
4-Chloroaniline	106478	4.00E-03 I					150 N	8200 N	310 N
Chlorobenzene	108907	2.00E-02 I	5.71E-03 A			x	100 S	41000 N	1600 N
Chlorobenzilate	510156	2.00E-02 I		2.70E-01 H	2.70E-01 H		0.25 C	210 C	2.4 C
p-Chlorobenzoic acid	74113	2.00E-01 H					7300 N	410000 N	16000 N
4-Chlorobenzotrifluoride	98566	2.00E-02 H					730 N	41000 N	1600 N
2-Chloro-1,3-butadiene	126998	2.00E-02 A	2.00E-03 H			x	14 N	41000 N	1600 N
1-Chlorobutane	109693	4.00E-01 H				x	2400 N	820000 N	31000 N
Chlorodibromomethane	124481	2.00E-02 I		8.40E-02 I		x	0.13 C	680 C	7.6 C
1-Chloro-1,1-difluoroethane	75683		1.43E+01 I			x	87000 N		
Chlorodifluoromethane	75456		1.43e+01 I			x	87000 N		
Chloroethane	75003	4.00E-01 E[1]	2.86E+00 I			x	8600 N	820000 N	31000 N
2-Chloroethyl vinyl ether	110758	2.50E-02 O[1]				x	150 N	51000 N	2000 N
Chloroform	67663	1.00E-02 I		6.10E-03 I	8.05E-02 I	x	0.15 C	9400 C	100 C
Chloromethane	74873			1.30E-02 H	6.30E-03 H	x	1.40 C	4400 C	49 C
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 H			0.15 C	120 C	1.4 C
4-Chloro-2-methylaniline	95692			5.80E-01 H			0.12 C	99 C	1.1 C
beta-Chloronaphthalene	91587	8.00E-02 I					2900 N	160000 N	6300 N
o-Chloronitrobenzene	88733			2.50E-02 H		x	0.42 C	2300 C	26 C
p-Chloronitrobenzene	100005			1.80E-02 H		x	0.59 C	3200 C	35 C
2-Chlorophenol	95578	5.00E-03 I					180 N	10000 N	390 N
2-Chloropropane	75296		2.86E-02 H			x	170 N		
Chlorothalonil	1897456	1.50E-02 I		1.10E-02 H			6.1 C	5200 C	58 C
o-Chlorotoluene	95498	2.00E-02 I				x	120 N	41000 N	1600 N
Chlorpropham	101213	2.00E-01 I					7300 N	410000 N	16000 N
Chlorpyrifos	2921882	3.00E-03 I					110 N	6100 N	230 N
Chlorpyrifos-methyl	5598130	1.00E-02 H					370 N	20000 N	780 N
Chlorsulfuron	64902723	5.00E-02 I					1800 N	100000 N	3900 N
Chlorthiophos	60238564	8.00E-04 H					29 N	1600 N	63 N
Chromium III and compounds	16065831	1.00E+00 I	5.71E-07 W[1]				37000 N	1000000 N	78000 N
Chromium VI and compounds	18540299	5.00E-03 I			4.20E+01 I		180 N	10000 N	390 N
Chromium (total)							100 S		
Cobalt	7440484	6.00E-02 E[1]					2200 N	120000 N	4700 N
Copper and compounds	7440508	4.00E-02 E[1]					1500 N	82000 N	3100 N
Crotonaldehyde	123739	1.00E-02 W[1]		1.90E+00 H	1.90E+00 W[1]		0.035 C	30 C	0.34 C
Cumene	98828	4.00E-02 I	2.57E-03 H				1500 N	82000 N	3100 N
Cyanides:	0								

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Barium cyanide	542621	1.00E-01 W[1]					3700 N	200000 N	7800 N
Calcium cyanide	592018	4.00E-02 I					1500 N	82000 N	3100 N
**Chlorine cyanide	506774	5.00E-02 I					1800 N	100000 N	3900 N
Copper cyanide	544923	5.00E-03 I					180 N	10000 N	390 N
Cyanazine	21725462	2.00E-03 H		8.40E-01 H			0.08 C	68 C	0.76 C
Cyanogen	460195	4.00E-02 I					1500 N	82000 N	3100 N
Cyanogen bromide	506683	9.00E-02 I					3300 N	180000 N	7000 N
Cyanogen chloride	506774	5.00E-02 I					1800 N	100000 N	3900 N
Free cyanide	57125	2.00E-02 I					200 S	41000 N	1600 N
Hydrogen cyanide	74908	2.00E-02 I	8.57E-04 I				730 N	41000 N	1600 N
Potassium cyanide	151508	5.00E-02 I					1800 N	100000 N	3900 N
Potassium silver cyanide	506616	2.00E-01 I					7300 N	410000 N	16000 N
Silver cyanide	506649	1.00E-01 I					3700 N	200000 N	7800 N
Sodium cyanide	143339	4.00E-02 I					1500 N	82000 N	3100 N
Thiocyanate	0	2.00E-02 E[1]					730 N	41000 N	1600 N
Zinc cyanide	557211	5.00E-02 I					1800 N	100000 N	3900 N
Cyclohexanone	108941	5.00E+00 I				x	30000 N	1000000 N	390000 N
Cyclohexlamine	108918	2.00E-01 I					7300 N	410000 N	16000 N
Cyhalothrin/Karate	68085858	5.00E-03 I					180 N	10000 N	390 N
Cypermethrin	52315078	1.00E-02 I					370 N	20000 N	780 N
Cyromazine	66215278	7.50E-03 I					270 N	15000 N	590 N
Dacthal	1861321	1.00E-02 I					370 N	20000 N	780 N
Dalapon	75990	3.00E-02 I					200 S	61000 N	2300 N
Danitol	39515418	2.50E-02 I					910 N	51000 N	2000 N
DDD	72548			2.40E-01 I			0.28 C	240 C	2.7 C
DDE	72559			3.40E-01 I			0.20 C	170 C	1.9 C
DDT	50293	5.00E-04 I		3.40E-01 I	3.40E-01 I		0.20 C	170 C	1.9 C
Decabromodiphenyl ether	1163195	1.00E-02 I				x	61 N	20000 N	780 N
Demeton	8065483	4.00E-05 I					1.5 N	82 N	3.1 N
Diallate	2303164			6.10E-02 H		x	0.17 C	940 C	10 C
Diazinon	333415	9.00E-04 H					33 N	1800 N	70 N
Dibenzofuran	132649	4.00E-03 E[1]					150 N	8200 N	310 N
1,4-Dibromobenzene	106376	1.00E-02 I				x	61 N	20000 N	780 N
1,2-Dibromo-3-chloropropane	96128		5.71E-05 I	1.40E+00 H	2.42E-03 H	x	0.2 S	41 C	0.46 C
1,2-Dibromoethane	106934		5.71E-05 H	8.50E+01 I	7.70E-01 I	x	0.05 S	0.67 C	0.0075 C
Dibutyl phthalate	84742	1.00E-01 I					3700 N	200000 N	7800 N

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Dicamba	1918009	3.00E-02 I					1100 N	61000 N	2300 N
1,2-Dichlorobenzene	95501	9.00E-02 I	4.00E-02 A			x	600 S	180000 N	7000 N
1,3-Dichlorobenzene	541731	8.90E-02 O[1]				x	600 S	180000 N	7000 N
1,4-Dichlorobenzene	106467		2.29E-01 I	2.40E-02 H		x	75 S	2400 C	27 C
3,3'-Dichlorobenzidine	91941			4.50E-01 I			0.15 C	130 C	1.4 C
1,4-Dichloro-2-butene	764410				9.30E+00 H	x	0.0011 C		
Dichlorodifluoromethane	75718	2.00E-01 I	5.71E-02 A			x	390 N	410000 N	16000 N
1,1-Dichloroethane	75343	1.00E-01 H	1.43E-01 A			x	810 N	200000 N	7800 N
1,2-Dichloroethane (EDC)	107062		2.86E-03 E[1]	9.10E-02 I	9.10E-02 I	x	5 S	630 C	7 C
1,1-Dichloroethylene	75354	9.00E-03 I		6.00E-01 I	1.75E-01 I	x	7 S	95 C	1.1 C
1,2-Dichloroethylene (cis)	156592	1.00E-02 H				x	70 S	20000 N	780 N
1,2-Dichloroethylene (trans)	156605	2.00E-02 I				x	100 S	41000 N	1600 N
1,2-Dichloroethylene (mixture)	540590	9.00E-03 H				x	55 N	18000 N	700 N
2,4-Dichlorophenol	120832	3.00E-03 I					110 N	6100 N	230 N
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 I				x	70 S	20000 N	780 N
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 I					290 N	16000 N	630 N
1,2-Dichloropropane	78875		1.14E-03 I	6.80E-02 H		x	5 S	840 C	9.4 C
2,3-Dichloropropanol	616239	3.00E-03 I					110 N	6100 N	230 N
1,3-Dichloropropene	542756	3.00E-04 I	5.71E-03 I	1.75E-01 H	1.30E-01 H	x	0.077 C	330 C	3.7 C
Dichlorvos	62737	5.00e-04 I	1.43E-04 I	2.90E-01 I			0.23 C	200 C	2.2 C
Dicofol	115322			4.40E-01 W[1]			0.15 C	130 C	1.5 C
Dicyclopentadiene	77736	3.00E-02 H	5.71E-05 A			x	0.42 N	61000 N	2300 N
Dieldrin	60571	5.00E-05 I		1.60E+01 I	1.61E+01 I		0.0042 C	3.6 C	0.04 C
Diesel emissions	0		1.43E-03 I				52 N		
Diethyl phthalate	84662	8.00E-01 I					29000 N	1000000 N	63000 N
Diethylene glycol, monobutyl ether	112345		5.71E-03 H				210 N		
Diethylene glycol, monoethyl ether	111900	2.00E+00 H					73000 N	1000000 N	160000 N
Diethylformamide	617845	1.10E-02 H					400 N	22000 N	860 N
Di(2-ethylhexyl)adipate	103231	6.00E-01 I		1.20E-03 I			400 S	48000 C	530 C
Diethylstilbestrol	56531			4.70E+03 H			0.000014 C	0.012 C	0.00014 C
Difenzoquat (Avenge)	43222486	8.00E-02 I					2900 N	160000 N	6300 N
Diflubenzuron	35367385	2.00E-02 I					730 N	41000 N	1600 N
1,1-Difluoroethane	75376		1.14E+01 I			x	69000 N		
Diisopropyl methylphosphonate (DIMP)	1445756	8.00E-02 I					2900 N	160000 N	6300 N
Dimethipin	55290647	2.00E-02 I					730 N	41000 N	1600 N
Dimethoate	60515	2.00E-04 I					7.3 N	410 N	16 N

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3,3'-Dimethoxybenzidine	119904			1.40E-02 H			4.8 C	4100 C	46 C
Dimethylamine	124403		5.71E-06 W[1]				0.21 N		
2,4-Dimethylaniline hydrochloride	21436964			5.80E-01 H			0.12 C	99 C	1.1 C
2,4-Dimethylaniline	95681			7.50E-01 H			0.09 C	76 C	0.85 C
N-N-Dimethylaniline	121697	2.00E-03 I					73 N	4100 N	160 N
3,3'-Dimethylbenzidine	119937			9.20E+00 H			0.0073 C	6.2 C	0.069 C
N,N-Dimethylformamide	68122	1.00E-01 H	8.57E-03 I				3700 N	200000 N	7800 N
1,1-Dimethylhydrazine	57147			2.60E+00 W[1]	3.50E+00 W[1]		0.026 C	22 C	0.25 C
1,2-Dimethylhydrazine	540738			3.70E+01 W[1]	3.70E+01 W[1]		0.0018 C	1.5 C	0.017 C
2,4-Dimethylphenol	105679	2.00E-02 I					730 N	41000 N	1600 N
2,6-Dimethylphenol	576261	6.00E-04 I					22 N	1200 N	47 N
3,4-Dimethylphenol	95658	1.00E-03 I					37 N	2000 N	78 N
Dimethyl phthalate	131113	1.00E+01 H					370000 N	1000000 N	780000 N
Dimethyl terephthalate	120616	1.00E-01 I					3700 N	200000 N	7800 N
1,2-Dinitrobenzene	528290	4.00E-04 H					15 N	820 N	31 N
1,3-Dinitrobenzene	99650	1.00E-04 I					3.7 N	200 N	7.8 N
1,4-Dinitrobenzene	100254	4.00E-04 H					15 N	820 N	31 N
4,6-Dinitro-o-cyclohexyl phenol	131895	2.00E-03 I					73 N	4100 N	160 N
2,4-Dinitrophenol	51285	2.00E-03 I					73 N	4100 N	160 N
Dinitrotoluene mixture	0			6.80E-01 I			0.099 C	84 C	0.94 C
2,4-Dinitrotoluene	121142	2.00E-03 I					73 N	4100 N	160 N
2,6-Dinitrotoluene	606202	1.00E-03 H					37 N	2000 N	78 N
Dinoseb	88857	1.00E-03 I					7 S	2000 N	78 N
di-n-Octyl phthalate	117840	2.00E-02 H					6 S	41000 N	1600 N
1,4-Dioxane	123911			1.10E-02 I			6.1 C	5200 C	58 C
Diphenamid	957517	3.00E-02 I					1100 N	61000 N	2300 N
Diphenylamine	122394	2.50E-02 I					910 N	51000 N	2000 N
1,2-Diphenylhydrazine	122667			8.00E-01 I	7.70E-01 I		0.084 C	72 C	0.8 C
Diquat	85007	2.20E-03 I					20 S	4500 N	170 N
Direct black 38	1937377			8.60E+00 H			0.0078 C	6.7 C	0.074 C
Direct blue 6	2602462			8.10E+00 H			0.0083 C	7.1 C	0.079 C
Direct brown 95	16071866			9.30E+00 H			0.0072 C	6.2 C	0.069 C
Disulfoton	298044	4.00E-05 I					1.5 N	82 N	3.1 N
1,4-Dithiane	505293	1.00E-02 I					370 N	20000 N	780 N
Diuron	330541	2.00E-03 I					73 N	4100 N	160 N
Dodine	2439103	4.00E-03 I					150 N	8200 N	310 N

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg d/mg	CPSi kg d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Endosulfan	115297	6.00E-03 I					220 N	12000 N	470 N
Endothall	145733	2.00E-02 I					100 S	41000 N	1600 N
Endrin	72208	3.00E-04 I					2 S	610 N	23 N
Epichlorohydrin	106898	2.00E-03 H	2.86E-04 I	9.90E-03 I	4.20E-03 I		6.8 C	5800 C	65 C
1,2-Epoxybutane	106887		5.71E-03 I				210 N		
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03 I					180 N	10000 N	390 N
Ethion	563122	5.00E-04 I					18 N	1000 N	39 N
2-Ethoxyethanol acetate	111159	3.00E-01 A					11000 N	610000 N	23000 N
2-Ethoxyethanol	110805	4.00E-01 H	5.71E-02 I				15000 N	820000 N	31000 N
Ethyl acrylate	140885			4.80E-02 H			1.4 C	1200 C	13 C
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02 I					910 N	51000 N	2000 N
Ethyl acetate	141786	9.00E-01 I					33000 N	1000000 N	70000 N
Ethylbenzene	100414	1.00E-01 I	2.86E-01 I			x	700 S	200000 N	7800 N
Ethylene cyanohydrin	109784	3.00E-01 H					11000 N	610000 N	23000 N
Ethylene diamine	107153	2.00E-02 H					730 N	41000 N	1600 N
Ethylene glycol	107211	2.00E+00 I					73000 N	1000000 N	160000 N
Ethylene glycol, monobutyl ether	111762		5.71E-03 H				210 N		
Ethylene oxide	75218			1.02E+00 H	3.50E-01 H		0.066 C	56 C	0.63 C
Ethylene thiourea (ETU)	96457	8.00E-05 I		1.19E-01 H			0.57 C	480 C	5.4 C
Ethyl ether	60297	2.00E-01 I				x	1200 N	410000 N	16000 N
Ethyl methacrylate	97632	9.00E-02 H					3300 N	180000 N	7000 N
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05 I					0.37 N	20 N	0.78 N
Ethylnitrosourea	759739			1.40E+02 W[1]			0.00048 C	0.41 C	0.0046 C
Ethylphthalyl ethyl glycolate	84720	3.00E+00 I					110000 N	1000000 N	230000 N
Express	10120	8.00E-03 I					290 N	16000 N	630 N
Fenamiphos	22224926	2.50E-04 I					9.1 N	510 N	20 N
Fluometuron	2164172	1.30E-02 I					470 N	27000 N	1000 N
Fluoride	7782414	6.00E-02 I					4000 S	120000 N	4700 N
Fluoridone	59756604	8.00E-02 I					2900 N	160000 N	6300 N
Flurprimidol	56425913	2.00E-02 I					730 N	41000 N	1600 N
Flutolanil	66332965	6.00E-02 I					2200 N	120000 N	4700 N
Fluvalinate	69409945	1.00E-02 I					370 N	20000 N	780 N
Folpet	133073	1.00E-01 I		3.50E-03 I			19 C	16000 C	180 C
Fomesafen	72178020			1.90E-01 I			0.35 C	300 C	3.4 C
Fonofos	944229	2.00E-03 I					73 N	4100 N	160 N
Formaldehyde	50000	2.00E-01 I			4.55E-02 I		7300 N	410000 N	16000 N
Formic Acid	64186	2.00E+00 H					73000 N	1000000 N	160000 N

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	V O C	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Fosetyl-al	39148248	3.00E+00 I					110000 N	1000000 N	230000 N
Furan	110009	1.00E-03 I					37 N	2000 N	78 N
Furazolidone	67458			3.80E+00 H			0.018 C	15 C	0.17 C
Furfural	98011	3.00E-03 I	1.43E-02 A				110 N	6100 N	230 N
Furium	531828			5.00E+01 H			0.0013 C	1.1 C	0.013 C
Furmecyclox	60568050			3.00E-02 I			2.2 C	1900 C	21 C
Glufosinate-ammonium	77182822	4.00E-04 I					15 N	820 N	31 N
Glycidaldehyde	765344	4.00E-04 I	2.86E-04 H				15 N	820 N	31 N
Glyphosate	1071836	1.00E-01 I					700 S	200000 N	7800 N
Haloxyfop-methyl	69806402	5.00E-05 I					1.8 N	100 N	3.9 N
Harmony	79277273	1.30E-02 I					470 N	27000 N	1000 N
HCH (alpha)	319846			6.30E+00 I	6.30E+00 I		0.011 C	9.1 C	0.1 C
HCH (beta)	319857			1.80E+00 I	1.80E+00 I		0.037 C	32 C	0.35 C
HCH (gamma) Lindane	58899	3.00E-04 I		1.30E+00 H			0.2 S	44 C	0.49 C
HCH-technical	608731			1.80E+00 I	1.79E+00 I		0.037 C	32 C	0.35 C
Heptachlor	76448	5.00E-04 I		4.50E+00 I	4.55E+00 I	x	0.4 S	13 C	0.14 C
Heptachlor epoxide	1024573	1.30E-05 I		9.10E+00 I	9.10E+00 I	x	0.2 S	6.3 C	0.07 C
Hexabromobenzene	87821	2.00E-03 I				x	12 N	4100 N	160 N
Hexachlorobenzene	118741	8.00E-04 I		1.60E+00 I	1.61E+00 I	x	1 S	36 C	0.4 C
Hexachlorobutadiene	87683	2.00E-04 H		7.80E-02 I	7.70E-02 I	x	0.14 C	730 C	8.2 C
Hexachlorocyclopentadiene	77474	7.00E-03 I	2.00E-05 H			x	50 S	14000 N	550 N
Hexachlorodibenzo-p-dioxin mixture	19408743			6.20E+03 I	4.55E+03 I		0.000011 C	0.0092 C	0.0001 C
Hexachloroethane	67721	1.00E-03 I		1.40E-02 I	1.40E-02 I	x	0.75 C	4100 C	46 C
Hexachlorophene	70304	3.00E-04 I					11 N	610 N	23 N
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	3.00E-03 I		1.10E-01 I			0.61 C	520 C	5.8 C
1,6-Hexamethylene diisocyanate	822060		2.86E-06 I				0.10 N		
n-Hexane	110543	6.00E-02 H	5.71E-02 I			x	350 N	120000 N	4700 N
Hexazinone	51235042	3.30E-02 I					1200 N	67000 N	2600 N
Hydrazine, hydrazine sulfate	302012			3.00E+00 I	1.71E+01 I		0.022 C	19 C	0.21 C
Hydrogen chloride	7647010		5.71E-03 I				210 N		
Hydrogen sulfide	7783064	3.00E-03 I	2.85E-04 I				110 N	6100 N	230 N
Hydroquinone	123319	4.00E-02 H					1500 N	82000 N	3100 N
Imazalil	35554440	1.30E-02 I					470 N	27000 N	1000 N
Imazaquin	81335377	2.50E-01 I					9100 N	510000 N	20000 N
Iprodione	36734197	4.00E-02 I					1500 N	82000 N	3100 N
Iron	7439896	3.00E-01 E[1]					11000 N	610000 N	23000 N
Isobutanol	78831	3.00E-01 I				x	1800 N	610000 N	23000 N

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							Risk-Based Concentrations		
						V	Ground	Soil Ingestion	
		RfDo	RfDi	CPSo	CPSi	O	Water	Industrial²	Residential
Contaminant	CAS	mg/kg/d	mg/kg/d	kg·d/mg	kg·d/mg	C	µg/L	mg/kg	mg/kg
Isophorone	78591	2.00E-01 I		9.50E-04 I			71 C	60000 C	670 C
Isopropalin	33820530	1.50E-02 I					550 N	31000 N	1200 N
Isopropyl methyl phosphonic acid	1832548	1.00E-01 I					3700 N	200000 N	7800 N
Isoxaben	82558507	5.00E-02 I					1800 N	100000 N	3900 N
Kepone	143500			1.80E+01 E[1]			0.0037 C	3.2 C	0.035 C
Lactofen	77501634	2.00E-03 I					73 N	4100 N	160 N
Lead	7439-92-1						15 S	1000 R[1]	400 R[2]
Linuron	330552	2.00E-03 I					73 N	4100 N	160 N
Lithium	7439932	2.00E-02 E[1]					730 N	41000 N	1600 N
Londax	83056996	2.00E-01 I					7300 N	410000 N	16000 N
Malathion	121755	2.00E-02 I					730 N	41000 N	1600 N
Maleic anhydride	108316	1.00E-01 I					3700 N	200000 N	7800 N
Maleic hydrazide	123331	5.00E-01 I					18000 N	1000000 N	39000 N
Malononitrile	109773	2.00E-05 H					0.73 N	41 N	1.6 N
Mancozeb	8018017	3.00E-02 H					1100 N	61000 N	2300 N
Maneb	12427382	5.00E-03 I					180 N	10000 N	390 N
**Manganese and compounds	7439965	2.30E-02 I	1.43e-05 I				840 N	47000 N	1800 N
Mephosfolan	950107	9.00E-05 H					3.3 N	180 N	7 N
Mepiquat chloride	24307264	3.00E-02 I					1100 N	61000 N	2300 N
Mercuric chloride	7487947	3.00E-04 I					11 N	610 N	23 N
Mercury (inorganic)	7439976	3.00E-04 H	8.57E-05 H				2 S	610 N	23 N
Mercury (methyl)	22967926	1.00E-04 I					3.7 N	200 N	7.8 N
Merphos	150505	3.00E-05 I					1.1 N	61 N	2.3 N
Merphos oxide	78488	3.00E-05 I					1.1 N	61 N	2.3 N
Metalaxyl	57837191	6.00E-02 I					2200 N	120000 N	4700 N
Methacrylonitrile	126987	1.00E-04 I	2.00E-04 A				3.7 N	200 N	7.8 N
Methamidophos	10265926	5.00E-05 I					1.8 N	100 N	3.9 N
Methanol	67561	5.00E-01 I					18000 N	1000000 N	39000 N
Methidathion	950378	1.00E-03 I					37 N	2000 N	78 N
Methomyl	16752775	2.50E-02 I					910 N	51000 N	2000 N
Methoxychlor	72435	5.00E-03 I					40 S	10000 N	390 N
2-Methoxyethanol acetate	110496	2.00E-03 A					73 N	4100 N	160 N
2-Methoxyethanol	109864	1.00E-03 H	5.71E-03 I				37 N	2000 N	78 N
2-Methoxy-5-nitroaniline	99592			4.60E-02 H			1.5 C	1200 C	14 C
Methyl acetate	79209	1.00E+00 H					37000 N	1000000 N	78000 N
Methyl acrylate	96333	3.00E-02 A					1100 N	61000 N	2300 N

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2-Methylaniline hydrochloride	636215			1.80E-01 H			0.37 C	320 C	3.5 C
2-Methylaniline	95534			2.40E-01 H			0.28 C	240 C	2.7 C
Methyl chlorocarbonate	79221	1.00E+00 W[1]					37000 N	1000000 N	78000 N
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 I					370 N	20000 N	780 N
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 I					18 N	1000 N	39 N
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03 I					37 N	2000 N	78 N
Methylcyclohexane	108872		8.57E-01 H				31000 N		
Methylene bromide	74953	1.00E-02 A				x	61 N	20000 N	780 N
Methylene chloride	75092	6.00E-02 I	8.57E-01 H	7.50E-03 I	1.64E-03 I	x	5 S	7600 C	85 C
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 H		1.30E-01 H	1.30E-01 H		0.52 C	440 C	4.9 C
4,4'-Methylenebisbenzeneamine	101779			2.50E-01 W[1]			0.27 C	230 C	2.6 C
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611			4.60E-02 I			1.5 C	1200 C	14 C
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 I			x	0.035 N		
Methyl ethyl ketone	78933	6.00E-01 I	2.86E-01 I			x	1900 N	1000000 N	47000 N
Methyl hydrazine	60344			1.10E+00 W[1]			0.061 C	52 C	0.58 C
Methyl isobutyl ketone	108101	8.00E-02 H	2.29E-02 A				2900 N	160000 N	6300 N
Methyl methacrylate	80626	8.00E-02 H					2900 N	160000 N	6300 N
2-Methyl-5-nitroaniline	99558			3.30E-02 H			2 C	1700 C	19 C
Methyl parathion	298000	2.50E-04 I					9.1 N	510 N	20 N
2-Methylphenol (o-cresol)	95487	5.00E-02 I					1800 N	100000 N	3900 N
3-Methylphenol (m-cresol)	103394	5.00E-02 I					1800 N	100000 N	3900 N
4-Methylphenol (p-cresol)	106445	5.00E-03 H					180 N	10000 N	390 N
Methyl styrene (mixture)	25013154	6.00E-03 A	1.14E-02 A			x	60 N	12000 N	470 N
Methyl styrene (alpha)	98839	7.00E-02 A				x	430 N	140000 N	5500 N
Methyl tertbutyl ether (MTBE)	1634044	5.00E-03 E[1]	8.57E-01 I			x	180 N	10000 N	390 N
Metolaclor (Dual)	51218452	1.50E-01 H					5500 N	310000 N	12000 N
Metribuzin	21087649	2.50E-02 I					910 N	51000 N	2000 N
Mirex	2385855	2.00E-04 I		1.80E+00 W[1]			0.037 C	32 C	0.35 C
Molinate	2212671	2.00E-03 I					73 N	4100 N	160 N
Molybdenum	7439987	5.00E-03 I					180 N	10000 N	390 N
Monochloramine	10599903	1.00E-01 I					3700 N	200000 N	7800 N
Naled	300765	2.00E-03 I					73 N	4100 N	160 N
2-Naphthylamine	91598			1.30e+02 E[1]			0.00052 C	0.44 C	0.0049 C
Napropamide	15299997	1.00E-01 I					3700 N	200000 N	7800 N
Nickel and compounds	7440020	2.00E-02 I					100 S	41000 N	1600 N
Nitrapyrin	1929824	1.50E-03 W[1]					55 N	3100 N	120 N

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						V	Ground	Soil Ingestion	
		RfDo	RfDi	CPSo	CPSi	O	Water	Industrial[2]	Residential
Contaminant	CAS	mg/kg/d	mg/kg/d	kg d/mg	kg d/mg	C	µg/L	mg/kg	mg/kg
Nitrate	14797558	1.60E+00 I					10000 S	1000000 N	130000 N
Nitric oxide	10102439	1.00E-01 W[1]					3700 N	200000 N	7800 N
Nitrite	14797650	1.00E-01 I					1000 S	200000 N	7800 N
2-Nitroaniline	88744	6.00E-05 W[1]	5.71E-05 H				2.2 N	120 N	4.7 N
3-Nitroaniline	99092	3.00E-03 O[1]					110 N	6100 N	230 N
4-Nitroaniline	100016	3.00E-03 O[1]					110 N	6100 N	230 N
Nitrobenzene	98953	5.00E-04 I	5.71E-04 A			x	3.4 N	1000 N	39 N
Nitrofurantoin	67209	7.00E-02 H					2600 N	140000 N	5500 N
Nitrofurazone	59870			1.50E+00 H	9.40E+00 H		0.045 C	38 C	0.43 C
Nitrogen dioxide	10102440	1.00E+00 W[1]					37000 N	1000000 N	78000 N
Nitroguanidine	556887	1.00E-01 I					3700 N	200000 N	7800 N
4-Nitrophenol	100027	6.20E-02 O[1]					2300 N	130000 N	4800 N
2-Nitropropane	79469		5.71E-03 I		9.40E+00 H		210 N		
N-Nitrosodi-n-butylamine	924163			5.40E+00 I	5.60E+00 I		0.012 C	11 C	0.12 C
N-Nitrosodiethanolamine	1116547			2.80E+00 I			0.024 C	20 C	0.23 C
N-Nitrosodiethylamine	55185			1.50E+02 I	1.51E+02 I		0.00045 C	0.38 C	0.0043 C
N-Nitrosodimethylamine	62759			5.10E+01 I	4.90E+01 I		0.0013 C	1.1 C	0.013 C
N-Nitrosodiphenylamine	86306			4.90E-03 I			14 C	12000 C	130 C
N-Nitroso di-n-propylamine	621647			7.00E+00 I			0.0096 C	8.2 C	0.091 C
N-Nitroso-N-methylethylamine	10595956			2.20E+01 I			0.0031 C	2.6 C	0.029 C
N-Nitrosopyrrolidine	930552			2.10E+00 I	2.13E+00 I		0.032 C	27 C	0.3 C
m-Nitrotoluene	99081	1.00E-02 H				x	61 N	20000 N	780 N
o-Nitrotoluene	88722	1.00E-02 H				x	61 N	20000 N	780 N
p-Nitrotoluene	99990	1.00E-02 H				x	61 N	20000 N	780 N
Norflurazon	27314132	4.00E-02 I					1500 N	82000 N	3100 N
NuStar	85509199	7.00E-04 I					26 N	1400 N	55 N
Octabromodiphenyl ether	32536520	3.00E-03 I					110 N	6100 N	230 N
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02 I					1800 N	100000 N	3900 N
Octamethylpyrophosphoramide	152169	2.00E-03 H					73 N	4100 N	160 N
Oryzalin	19044883	5.00E-02 I					1800 N	100000 N	3900 N
Oxadiazon	19666309	5.00E-03 I					180 N	10000 N	390 N
Oxamyl	23135220	2.50E-02 I					200 S	51000 N	2000 N
Oxyfluorfen	42874033	3.00E-03 I					110 N	6100 N	230 N
Paclobutrazol	76738620	1.30E-02 I					470 N	27000 N	1000 N
Paraquat	1910425	4.50E-03 I					160 N	9200 N	350 N
Parathion	56382	6.00E-03 H					220 N	12000 N	470 N

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Pebulate	1114712	5.00E-02 H					1800 N	100000 N	3900 N
Pendimethalin	40487421	4.00E-02 I					1500 N	82000 N	3100 N
Pentabromo-6-chloro cyclohexane	87843			2.30E-02 H			2.9 C	2500 C	28 C
Pentabromodiphenyl ether	32534819	2.00E-03 I					73 N	4100 N	160 N
Pentachlorobenzene	608935	8.00E-04 I				x	4.9 N	1600 N	63 N
Pentachloronitrobenzene	82688	3.00E-03 I		2.60E-01 H		x	0.041 C	220 C	2.5 C
Pentachlorophenol	87865	3.00E-02 I		1.20E-01 I			1 S	480 C	5.3 C
Permethrin	52645531	5.00E-02 I					1800 N	100000 N	3900 N
Phenmedipham	13684634	2.50E-01 I					9100 N	510000 N	20000 N
Phenol	108952	6.00E-01 I					22000 N	1000000 N	47000 N
m-Phenylenediamine	108452	6.00E-03 I					220 N	12000 N	470 N
p-Phenylenediamine	106503	1.90E-01 H					6900 N	390000 N	15000 N
Phenylmercuric acetate	62384	8.00E-05 I					2.9 N	160 N	6.3 N
2-Phenylphenol	90437			1.94E-03 H			35 C	30000 C	330 C
Phorate	298022	2.00E-04 H					7.3 N	410 N	16 N
Phosmet	732116	2.00E-02 I					730 N	41000 N	1600 N
Phosphine	7803512	3.00E-04 I	8.57E-05 I				11 N	610 N	23 N
Phosphoric acid	7664382		2.86E-03 I				100 N		
Phosphorus (white)	7723140	2.00E-05 I					0.73 N	41 N	1.6 N
p-Phthalic acid	100210	1.00E+00 H					37000 N	1000000 N	78000 N
Phthalic anhydride	85449	2.00E+00 I	3.43E-02 H				73000 N	1000000 N	160000 N
Picloram	1918021	7.00E-02 I					500 S	140000 N	5500 N
Pirimiphos-methyl	29232937	1.00E-02 I					370 N	20000 N	780 N
Polybrominated biphenyls	0	7.00E-06 H		8.90E+00 H			0.0076 C	6.4 C	0.072 C
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00 I			0.5 S	7.4 C	0.083 C
Aroclor 1016	12674112	7.00E-05 I					2.6 N	140 N	5.5 N
Aroclor 1254	11097691	2.00E-05 I					0.73 N	41 N	1.6 N
Polychlorinated terphenyls (PCTs)	0			4.50E+00 E¹			0.015 C	13 C	0.14 C
Polynuclear aromatic hydrocarbons	0								
Acenaphthene	83329	6.00E-02 I					2200 N	120000 N	4700 N
Anthracene	120127	3.00E-01 I					11000 N	610000 N	23000 N
Benz[a]anthracene	56553			7.30E-01 E¹	6.10E-01 E¹		0.092 C	78 C	0.88 C
Benzo[b]fluoranthene	205992			7.30E-01 E¹	6.10E-01 E¹		0.092 C	78 C	0.88 C
Benzo[k]fluoranthene	207089			7.30E-02 E¹	6.10E-02 E¹		0.92 C	780 C	8.8 C
Benzo[a]pyrene	50328			7.30E+00 I	6.10E+00 W¹		0.200 S	7.8 C	0.088 C
Carbazole	86748			2.00E-02 H			3.4 C	2900 C	32 C

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							Risk-Based Concentrations		
						V	Ground	Soil Ingestion	
		RfDo	RfDi	CPSo	CPSi	O	Water	Industrial[2]	Residential
Contaminant	CAS	mg/kg/d	mg/kg/d	kg·d/mg	kg·d/mg	C	µg/L	mg/kg	mg/kg
Chrysene	218019			7.30E-03 E[1]	6.10E-03 E[1]		9.2 C	7800 C	88 C
Dibenz[ah]anthracene	53703			7.30E+00 E[1]	6.10E+00 E[1]		0.0092 C	7.8 C	0.088 C
Fluoranthene	206440	4.00E-02 I					1500 N	82000 N	3100 N
Fluorene	86737	4.00E-02 I					1500 N	82000 N	3100 N
Indeno[1,2,3-cd]pyrene	193395			7.30E-01 E[1]	6.10E-01 E[1]		0.092 C	78 C	0.88 C
Naphthalene	91203	4.00E-02 W[1]					1500 N	82000 N	3100 N
Pyrene	129000	3.00E-02 I					1100 N	61000 N	2300 N
Prochloraz	67747095	9.00E-03 I		1.50E-01 I			0.45 C	380 C	4.3 C
Profluralin	26399360	6.00E-03 H					220 N	12000 N	470 N
Prometon	1610180	1.50E-02 I					550 N	31000 N	1200 N
Prometryn	7287196	4.00E-03 I					150 N	8200 N	310 N
Pronamide	23950585	7.50E-02 I					2700 N	150000 N	5900 N
Propachlor	1918167	1.30E-02 I					470 N	27000 N	1000 N
Propanil	709988	5.00E-03 I					180 N	10000 N	390 N
Propargite	2312358	2.00E-02 I					730 N	41000 N	1600 N
Propargyl alcohol	107197	2.00E-03 I					73 N	4100 N	160 N
Propazine	139402	2.00E-02 I					730 N	41000 N	1600 N
Propham	122429	2.00E-02 I					730 N	41000 N	1600 N
Propiconazole	60207901	1.30E-02 I					470 N	27000 N	1000 N
Propylene glycol	57556	2.00E+01 H					730000 N	1000000 N	1000000 N
Propylene glycol, monoethyl ether	52125538	7.00E-01 H					26000 N	1000000 N	55000 N
Propylene glycol, monomethyl ether	107982	7.00E-01 H	5.71E-01 I				26000 N	1000000 N	55000 N
Propylene oxide	75569		8.57E-03 I	2.40E-01 I	1.29E-02 I		0.28 C	240 C	2.7 C
Pursuit	81335775	2.50E-01 I					9100 N	510000 N	20000 N
Pydrin	51630581	2.50E-02 I					910 N	51000 N	2000 N
Pyridine	110861	1.00E-03 I					37 N	2000 N	78 N
Quinalphos	13593038	5.00E-04 I					18 N	1000 N	39 N
Quinoline	91225			1.20E+01 H			0.0056 C	5 C	0.053 C
Resmethrin	10463868	3.00E-02 I					1100 N	61000 N	2300 N
Ronnel	299843	5.00E-02 H					1800 N	100000 N	3900 N
Rotenone	83794	4.00E-03 I					150 N	8200 N	310 N
Savey	78587050	2.50E-02 I					910 N	51000 N	2000 N
Selenious Acid	7783008	5.00E-03 I					180 N	10000 N	390 N
Selenium	7782492	5.00E-03 I					50 S	10000 N	390 N
Selenourea	630104	5.00E-03 H					180 N	10000 N	390 N
Sethoxydim	74051802	9.00E-02 I					3300 N	180000 N	7000 N

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S=West Virginia Groundwater Quality Standards

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg d/mg	CPSi kg d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Silver and compounds	7440224	5.00E-03 I					180 N	10000 N	390 N
Simazine	122349	5.00E-03 I		1.20E-01 H			4 S	480 C	5.3 C
Sodium azide	26628228	4.00E-03 I					150 N	8200 N	310 N
Sodium diethyldithiocarbamate	148185	3.00E-02 I		2.70E-01 H			0.25 C	210 C	2.4 C
Sodium fluoroacetate	62748	2.00E-05 I					0.73 N	41 N	1.6 N
Sodium metavanadate	13718268	1.00E-03 H					37 N	2000 N	78 N
Strontium, stable	7440246	6.00E-01 I					22000 N	1000000 N	47000 N
Strychnine	57249	3.00E-04 I					11 N	610 N	23 N
Styrene	100425	2.00E-01 I	2.86E-01 I			x	100 S	410000 N	16000 N
Systhane	88671890	2.50E-02 I					910 N	51000 N	2000 N
2,3,7,8-TCDD (dioxin)	1746016			1.56E+05 H	1.16E+05 H		0.000005 S	0.00037 C	0.0000041 C
Tebuthiuron	34014181	7.00E-02 I					2600 N	140000 N	5500 N
Temephos	3383968	2.00E-02 H					730 N	41000 N	1600 N
Terbacil	5902512	1.30E-02 I					470 N	27000 N	1000 N
Terbufos	13071799	2.50E-05 H					0.91 N	51 N	2 N
Terbutryn	886500	1.00E-03 I					37.00 N	2000 N	78 N
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04 I				x	1.8 N	610 N	23 N
1,1,1,2-Tetrachloroethane	630206	3.00E-02 I		2.60E-02 I	2.59E-02 I	x	0.41 C	2200 C	25 C
1,1,2,2-Tetrachloroethane	79345			2.00E-01 I	2.03E-01 I	x	0.052 C	290 C	3.2 C
Tetrachloroethylene (PCE)	127184	1.00E-02 I		5.20E-02 E[1]	2.03E-03 E[1]	x	5 S	1100 C	12 C
2,3,4,6-Tetrachlorophenol	58902	3.00E-02 I					1100 N	61000 N	2300 N
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 H		x	0.00053 C	2.9 C	0.032 C
Tetrachlorovinphos	961115	3.00E-02 I		2.40E-02 H			2.8 C	2400 C	27 C
Tetraethyldithiopyrophosphate	3689245	5.00E-04 I					18 N	1000 N	39 N
Tetraethyl lead	78002	1.00E-07 I					0.0037 N	0.2 N	0.0078 N
1,1,1,2-Tetrafluoroethane	811972	I	2.29E+01			x	140000 N		
Thallic oxide	1314325	7.00E-05 W[1]					2.6 N	140 N	5.5 N
Thallium	0						2 S		
Thallium acetate	563688	9.00E-05 I					3.3 N	180 N	7 N
Thallium carbonate	6533739	8.00E-05 I					2.9 N	160 N	6.3 N
Thallium chloride	7791120	8.00E-05 I					2.9 N	160 N	6.3 N
Thallium nitrate	10102451	9.00E-05 I					3.3 N	180 N	7 N
Thallium selenite	12039520	9.00E-05 W[1]					3.3 N	180 N	7 N
Thallium sulfate	7446186	8.00E-05 I					2.9 N	160 N	6.3 N
Thiobencarb	28249776	1.00E-02 I					370 N	20000 N	780 N
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 H					1100 N	61000 N	2300 N

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg d/mg	CPSi kg d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
Thiofanox	39196184	3.00E-04 H					11 N	610 N	23 N
Thiophanate-methyl	23564058	8.00E-02 I					2900 N	160000 N	6300 N
Thiram	137268	5.00E-03 I					180 N	10000 N	390 N
Tin and compounds	0	6.00E-01 H					22000 N	1000000 N	47000 N
Toluene	108883	2.00E-01 I	1.14E-01 I			x	1000 S	410000 N	16000 N
Toluene-2,4-diamine	95807			3.20E+00 H			0.021 C	18 C	0.2 C
Toluene-2,5-diamine	95705	6.00E-01 H					22000 N	1000000 N	47000 N
Toluene-2,6-diamine	823405	2.00E-01 H					7300 N	410000 N	16000 N
p-Toluidine	106490			1.90E-01 H			0.35 C	300 C	3.4 C
Toxaphene	8001352			1.10E+00 I	1.12E+00 I		3 S	52 C	0.58 C
Tralomethrin	66841256	7.50E-03 I					270 N	15000 N	590 N
Triallate	2303175	1.30E-02 I					470 N	27000 N	1000 N
Triasulfuron	82097505	1.00E-02 I					370 N	20000 N	780 N
1,2,4-Tribromobenzene	615543	5.00E-03 I				x	30 N	10000 N	390 N
Tributyltin oxide (TBTO)	56359	3.00E-05 I					1.1 N	61 N	2 N
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 H			2.3 C	2000 C	22 C
2,4,6-Trichloroaniline	634935			3.40E-02 H			2 C	1700 C	19 C
1,2,4-Trichlorobenzene	120821	1.00E-02 I	5.71e-02 H			x	70 S	20000 N	780 N
**1,1,1-Trichloroethane	71556	3.50E-02 E[1]	2.86E-01 W[1]			x	200 S	72000 N	2700 N
1,1,2-Trichloroethane	79005	4.00E-03 I		5.70E-02 I	5.60E-02 I	x	5 S	1000 C	11 C
Trichloroethylene (TCE)	79016	6.00E-03 E[1]		1.10E-02 W[1]	6.00E-03 E[1]	x	5 S	5200 C	58 C
Trichlorofluoromethane	75694	3.00E-01 I	2.00E-01 A			x	1300 N	610000 N	23000 N
2,4,5-Trichlorophenol	95954	1.00E-01 I					3700 N	200000 N	7800 N
2,4,6-Trichlorophenol	88062			1.10E-02 I	1.09E-02 I		6.1 C	5200 C	58 C
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02 I					370 N	20000 N	780 N
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03 I					50 S	16000 N	630 N
1,1,2-Trichloropropane	598776	5.00E-03 I				x	30 N	10000 N	390 N
1,2,3-Trichloropropane	96184	6.00E-03 I		7.00e+00 I		x	0.0015 C	8.2 C	0.091 C
1,2,3-Trichloropropene	96195	5.00E-03 H				x	30 N	10000 N	390 N
1,1,2-Trichloro-1,2,2- trifluoroethane	76131	3.00E+01 I	8.57E+00 H			x	59000 N	1000000 N	1000000 N
Tridiphane	58138082	3.00E-03 I					110 N	6100 N	230 N
Triethylamine	121448		2.00E-03 I				73 N		
Trifluralin	1582098	7.50E-03 I		7.70E-03 I			8.7 C	7400 C	83 C
1,2,4-Trimethylbenzene	95636	5.00e-02 E[1]				x	300 N	100000 N	3900 N
1,3,5-Trimethylbenzene	108678	5.00e-02 E[1]				x	300 N	100000 N	3900 N
Trimethyl phosphate	512561			3.70E-02 H			1.8 C	1500 C	17 C

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Risk-Based Concentrations: Ground Water µg/L	Soil Ingestion: Industrial[2] mg/kg	Soil Ingestion: Residential mg/kg
1,3,5-Trinitrobenzene	99354	5.00E-05 I					1.8 N	100 N	3.9 N
Trinitrophenylmethylnitramine	479458	1.00E-02 H					370 N	20000 N	780 N
2,4,6-Trinitrotoluene	118967	5.00E-04 I		3.00E-02 I			2.2 C	1900 C	21 C
Uranium (soluble salts)	7440611	3.00E-03 I					110 N	6100 N	230 N
Vanadium	7440622	7.00E-03 H					260 N	14000 N	550 N
Vanadium pentoxide	1314621	9.00E-03 I					330 N	18000 N	700 N
Vanadium sulfate	36907423	2.00E-02 H					730 N	41000 N	1600 N
Vernam	1929777	1.00E-03 I					37 N	2000 N	78 N
Vinclozolin	50471448	2.50E-02 I					910 N	51000 N	2000 N
Vinyl acetate	108054	1.00E+00 H	5.71E-02 I				37000 N	1000000 N	78000 N
Vinyl bromide	593602		8.57E-04 I			x	5.2 N		
Vinyl chloride	75014			1.90E+00 H	3.00E-01 H	x	2 S	30 C	0.34 C
Warfarin	81812	3.00E-04 I					11 N	610 N	23 N
m-Xylene	1.08E+05	2.00E+00 H	2.00E-01 W[1]			x	1400 N	1000000 N	160000 N
o-Xylene	9.55E+04	2.00E+00 H	2.00E-01 W[1]			x	1400 N	1000000 N	160000 N
p-Xylene	1.06E+05		8.57E-02 W[1]			x	520 N		
Xylene (mixed)	1.33E+06	2.00E+00 I				x	10000 S	1000000 N	160000 N
Zinc	7.44E+06	3.00E-01 I					11000 N	610000 N	23000 N
Zinc phosphide	1.31E+06	3.00E-04 I					11 N	610 N	23 N
Zineb	1.21E+07	5.00E-02 I					1800 N	100000 N	3900 N

Except where noted, all concentrations were obtained from USEPA Region III Risk Based Concentration Table (July 1996). The toxicity factors presented in this table may be modified for use in the development of uniform or site-specific standards.

These concentrations shall be applied where the soil ingestion pathway is the major contributor to risks identified in the site assessment. If other exposure pathways are identified, the acceptable concentrations shall be determined only in consultation with the Director, considering all exposure pathways, and all other requirements of the regulations. However, remediation of free product shall be required.

[1]Used at the discretion of the WVDEP

[2]Industrial risk based concentrations for carcinogens were multiplied by 10 to yield a concentration based on 1×10^{-5} risk

R[1] Value used in: "Interim Guidance on Screening Levels for Hazardous Substances Discovered During Site Assessments Under the Delaware Hazardous Substance Cleanup Act." Delaware DNREC, October 1995 and Connecticut "Remediation Standard Regulations." 22a-133k-3, December, 1995.

R[2] "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities." USEPA OSWER Directive # 93554-12, July 1994.

Transcript on public hearing for 60CSR3
Voluntary Remediation and Redevelopment
Hearing was held on January 29, 1997

Brian Farkas: Good evening. My name is Brian Farkas and I am the public information officer for the Division of Environmental Protection.

We are here this evening in Nitro, West Virginia, to discuss a proposed rule dealing with the Voluntary Remediation and Redevelopment Act.

Sitting at the table to my right, your left, is Ken Ellison, who is the Deputy Chief of the Office of Waste Management. This rule is being promulgated by the Office of Waste Management.

Tonight's public meeting ends the comment period on this rule. It was advertised 30 days ago. It was advertised in DEP's ***inDEPth*** newsletter and we also send a news release to all media across the state of West Virginia.

The rule is 60-CSR-3, Voluntary Remediation and Redevelopment Act. It is authorized under West Virginia Code, Chapter 22-22-1, which is the Voluntary Remediation and Redevelopment Act. The summary of the rule is The voluntary Remediation and Redevelopment Rule establishes requirements for establishing and administrative program for both brownfields revitalization and voluntary remediation, including application procedures; establishes procedures for licensure of remediation specialists; establishes procedures for community notification and involvement; establishes protocol for conducting risk assessments and establishing risk-based standards; establishes risk-based standards; establishes the development of guidance documents for chemical and site specific information; and establishes forms and procedures for voluntary remedation agreements, certificate completion , and land use covenants.

We'll operate tonight's hearing in three phases. I've just gone through the first phase, which is an introduction of the rule and a summary of the rule. Phase 2 is we will open the microphone for comments from the audience. At the conclusion of that phase, we will close the formal part of the hearing, then open is up for questions and answers from the audience.

Very briefly, this rule was developed... it's actually a unique way. It is the first time in the Division's history, of course the Division is only four years old, that the agency actually went out to those people who might be affected by this rule and asked them to work with the agency in developing the rule.

So, for the past six months, there has been a committee of 20-plus people who have met regularly, at times it seemed every other day, and they drafted all the provisions that you have before you in this rule.

And for that, the Division thanks everybody who worked on the committee.

When we close the hearing, Ken Ellison, who again is the deputy chief of the Office of Waste Management, will be available to answer any questions and explain what the next step is with this rule.

And with that, we will go to the comment section.

This is the sheet I use to take comments. If you would like to make a comment and haven't signed this sheet, it's at the front door.

And, Brenda Harper has requested time to speak.

Brenda Harper: The Manufacturers Association will be submitting both written and oral comments.

First of all, the Manufacturers Association is encouraged and pleased by the process that DEP has established in the consensus building, rule-making model. And we hope that this model is repeated again and again because the process has brought forth good science and good reason and good understanding.

People who would not normally understand regulations now have and understanding. The expertise that has been brought to the table by both sides of this arena is to be commended and saluted. I believe the wave of tomorrow is that we build consensus by understanding.

The Manufacturers Association has tried to be very loyal to their consensus agreement at the table. As part of that, we have unwavering confidence in the broad ranging benefits of this program that has caused our members to enthusiastically support the development of it and to put many hours in this.

We have tried to maintain the consensus and when we have put in comments to demonstrate that, most of the back section of the rule, of our comments, are taken page-by-page of the original filing by DEP and have noted misspelled words, numbering sequencing problems, cross referencing problems, where one section is cited and that section wasn't there. There was one section 3 and no one knew what section 3 was because of 3.1. We have tried to be loyal to that commitment.

We have tried to only direct our comments to be editorially in nature and be completely consistent with the consensus. There were issues brought out by our members that if it stepped into the substantive areas, where not included in these comments. We have been loyal by checking that through the DEP steering committee, and the subcommittee chairs to be sure we have maintained that.

We hope that the filing of the final rule will come forthwith so we can meet the time frame to meet the statutory requirement.

I want to thank the Department of Environmental Protection for taking the risk in doing things differently.

Farkas: Brenda was the only person who officially signed up to speak. I there anybody who would like to make a comment on the record?

With that the formal part of tonight's hearing, I will close it out by saying thank you for coming to the hearing.

DEP

Division of Environmental Protection
Sign-In

	Name	Address	I would like to comment
1.	Sharon K Roberts	4 Charlo Acres Hurricane WV 25526	
2.	David A. Stewart	4 Charlo Acres Hurricane WV 25526	
3.	Mike McThomas	Robinson + McElwee Box 1791 Chas	
4.	Tim Mallan	AEP 301 Virginia St. E. Chas.	
5.	Frank Young	Rt. 1 Box 108 Ripley WV 25271	
6.	Brenda Harper	WVMA, 2001 Quarrier St. Chas. WV	✓
7.	Fred Decker	WVONGA Charleston WV	
8.	Joe Pettey	IOGA WV Charleston WV	
9.	Gibson V. Barbee	110 Franklin Rd SE - Box 13 - Roanoke Va 24042	
10.	Bob Wilson	2206 S. Main Blacksburg VA	
11.	Bob Parkins	Ste 101 Methodist Bldg Wheeling 26003	
12.	[illegible]	Charleston Gazette	
13.	Lantz G. Rankin	Rt. 1, Box 616 Danville, WV 25053	
14.	Helen Gibbins	League of Women Voters 6128 Gideon Rd. Huntington WV 25705	
15.	Lynn Hartman	305 Highland Av S. Charleston WV 25303	
16.	Jim Bodamer	7999 Strawhorn Dr. Mechanicsville, VA 23116	
17.	Mary Ellen O'Farrell	Appalachian Environmental Stewardship Com. 1010 Valley Rd Chas WV 25302	
18.	Bill Goode	1116 Smith St. Chas 25301	
19.			

DEP

Division of Environmental Protection
Sign-In

	Name	Address	I would like to comment
1.	PAT BARKER	1321 B Quarrier ST Chas. WV 25301	
2.	W. Radcliff	10 McJunkin Rd Nitro	
3.	Mike Clowser	2114 Kanawha Blvd. E Chas 25311	
4.	[illegible]	PO Box 669 Charl	25323
5.	Ally Turner	Spilman Thomas & Battle	
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DEP

Division of Environmental Protection
Sign-In

Name	Address	I would like to comment
1. Kelly Charnock	Shaffer + Shaffer 2116 Kanawha Blvd. Charleston	
2. Jerome E Williams	110 Franklin Rd. SE. Roanoke, VA 24042 Norfolk & Southern Railway	
3. Mary Anderson	1423 Grove St., Huntington, WV 25701-4027	
4. Ron Potesta	PO Box 519, Nitro, WV 25314	
5. Wm Pinnell	Rt 4 Box 747 Buckhannon, WV 26201	
6. Marge Carpenter	218 Taunton BLVD MEDFORD NJ 08055	
7. Paul Hill	2300 MacCorkle Ave. SE Charleston, WV 25304	
8. Mindy Yeager	1410 Sattes Circle Nitro WV 25143	
9. Greg Tieman	368 McNabb Elkview WV 25071	
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DAMES & MOORE

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January 29, 1997

Mr. Ken Ellison
Office of Waste Management
1356 Hansford Street
Charleston, WV 25305

Dear Mr. Ellison:

Dames & Moore is submitting this comment on the proposed Voluntary Remediation and Redevelopment Rule which was filed with the Secretary of State on December 30, 1996. Section 5.1.b.1. states "The licensed remediation specialist is responsible for any release of contaminants during remediation activities undertaken pursuant to and contemplated in the approved remediation agreement, work plans or reports." The sentence provides for unlimited liability on the part of the professional, regardless of that person's responsibility and of whom may have caused the spill. The entire sentence should be stricken and replaced with "The licensed remediation specialist shall maintain professional errors and omissions insurance coverage in the amount of $500,000." Few, if any, professional organizations with a risk management assessment process would accept an unlimited liability.

Dames & Moore appreciates the opportunity to submit this comment.

Sincerely,

DAMES & MOORE

William E. Chambers
Associate

WEC/vs

Allegheny Power
Planning & Compliance
Business Unit
800 Cabin Hill Drive
Greensburg, PA 15601-1689
(412) 837-3000 FAX: (412) 838-6888

January 23, 1997

WV Department of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25305
Attn: Ken Ellison

Re: Voluntary Remediation and Redevelopment Rule

Dear Mr. Ellison:

These comments on the proposed subject rule are submitted by Allegheny Power who generates, transmits and distributes electrical energy to customers throughout the northern half of West Virginia. Allegheny, having participated in the development of this rule through the West Virginia Manufacturers Association, supports the Department's effort to implement the voluntary remediation program because it provides for a rational approach for improving West Virginia's environment and economy. We appreciate the efforts that you and the Department expended in drafting a generally reasonable and workable regulation and we are looking forward to working with you in equitably implementing the rule.

As a general comment, Allegheny believes a provision should be added to the rule allowing for waiver of groundwater protection practices (as defined by 47 CSR 38 and 47 CSR 58)where it can be demonstrated by the owner/operator that there will be no incremental increase in risk to human health or the environment. We propose the following language be added to the rule: <u>A waiver of groundwater protection practices may be approved by the director on a case-by-case basis where it can be demonstrated by the owner/operator that there will be no incremental increase in risk to human health or the environment.</u> It makes no economic nor environmental sense to install liner systems under expansions to existing operating facilities such as coal combustion byproduct disposal sites where the environment or human health will not be harmed.

Additionally we offer several specific comments which we believe will generally improve the regulation:

Section 60-3-2. Definitions

1. 2.9 Carcinogen. Carcinogen is defined as any substance which can cause cancer. We suggest that this definition is too broad in that most any substance has the potential to cause cancer. A more definitive definition would be: <u>Any substance which can cause cancer as established by the EPA Carcinogen Assessment Group</u>.

2. Two definitions that appeared in the Steering Committee's original draft should be included in the regulation: gross negligence and willful misconduct. These actions preclude eligibility for participating in brownfields and voluntary remediations in accordance with section 3.1.e and therefore should be defined.

Section 60-3-3. Eligibility

1. We suggest that a provision be added to this section allowing for reopening and renegotiation of existing consent orders and/or administrative orders that are in effect at the time the rule is finalized. Such an addition would allow an owner to benefit from application of risk assessment techniques in establishing cleanup standards.

Section 60-3-8. Risk Protocol

1. 9.6.c. Uniform Standards for Groundwater. This provision provides for the application of surface water quality criteria to groundwater expected to impact surface water. We suggest that any such application consider the assimilative capacity of the receiving stream and that surface water quality standards not be applied where water quality standards will not be violated.

Thank you for the opportunity to comment.

Sincerely,

Richard Herd

IOGA
WEST VIRGINIA

RECEIVED
JAN 29 1997
DEP-OFFICE OF WASTE MANAGEMENT

January 28, 1997

Dr. Eli McCoy, Director
West Virginia Division of Environmental Protection
10 McJunkin Road
Nitro, West Virginia 25143

Re: Proposed Voluntary Remediation and Redevelopment Rule, 46 CSR 60

Dear Dr. McCoy:

On behalf of the Independent Oil and Gas Association of West Virginia (IOGA) we offer our support for the Proposed Voluntary Remediation and Redevelopment Rule which was filed with the Secretary of State on December 30, 1996. Although there are a number of changes that should be made to the rule for clarification purposes, we believe that the concepts set forth in the proposed rule reflect the consensus that was reached by the Steering Committee convened by the Director of the Division of Environmental Protection.

IOGA is pleased to have served on the Steering Committee and on the Standards Subcommittee and to have lent its support to the consensus building process. We recognize, however, that the work of the Committee is not completed until the guidance documents that are contemplated by the proposed rule have been prepared. We understand that the Standards Subcommittee is to meet in the near future to begin this process and we look forward to making a positive contribution to this important effort.

IOGA urges the DEP Director to assure that the development of guidance for the voluntary remediation program is promptly pursued and implemented.

We appreciate the opportunity to provide these comments and to participate in the development of West Virginia's voluntary remediation program.

Very truly yours,

Don Supcoe, President

INDEPENDENT OIL & GAS ASSOCIATION OF WEST VIRGINIA
410 Washington Street, East, Suite 301 Charleston, WV 25301-1522 Phone (304) 344-9867 · Fax (304) 344-5836

American Electric Power
1 Riverside Plaza
Columbus, OH 43215 2373
614 223 1000

AMERICAN ELECTRIC POWER

Ken Ellison
West Virginia Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, West Virginia 25305

RECEIVED
JAN 29 1997

January 28, 1997

Dear Mr. Ellison:

Re: Voluntary Remediation and Redevelopment Proposed Rule

American Electric Power (AEP) is pleased to submit the attached comments on West Virginia Division of Environmental Protection's proposed Voluntary Remediation and Redevelopment Proposed Rule, 60-CSR-3, dated December 30, 1996. As a leading supplier of electrical energy and a major property owner, AEP has a vested interest in the revitalization of "brownfield" properties and understands that before these sites can be put back into productive use, they must first be protective of human health and the environment.

To encourage the development of "brownfield" properties, the voluntary program must be cost effective and use realistic assumptions regarding human and environmental exposure to hazardous substances. Cleanup standards should not be any more stringent than those standards developed under other federal or state programs.

For the most part, the proposed rule meets the above criteria. However, there are portions of the rule that we believe go beyond that which is required to protect human health and the environment.

We appreciate the opportunity to provide you with the attached comments and hope that you consider them prior to issuing a final rule. If you should have any questions on the attached comments, please contact Jim Pappas at (614) 223-1257.

Sincerely,

Thomas R Zelina

Thomas R. Zelina, Manager
Waste Management Section
Environmental Services

Attachment

cc: (all w/attachments)
T. P. Mallan
J. Pappas
T. W. Lohner

WVDEP Voluntary Remediation and Redevelopment Program
Comments on Proposed Rule

Section 60-3-2. Definitions

2.9. Carcinogen.- The definition for carcinogen is too broad. As written, it would include substances that can cause cancer in mice and rats, but not man and would also include substances which fail the Ames test. EPA uses a hierarchy to define a carcinogen and has recently revised this hierarchy in its proposed carcinogen risk assessment guidelines. The new EPA guidelines establish three categories for classifying potential carcinogens: "known/likely," "cannot be determined," and "not likely" to replace the six alphanumeric categories. They also call for a narrative description of each of the three categories, including the strengths, weaknesses, and uncertainties of the contributing evidence. The proposed West Virginia rule needs to be more specific in defining carcinogen and should, at a minimum, reference the EPA definition for carcinogen. The following language is recommended:

> Carcinogen - Any substance which can cause cancer as established by the EPA Carcinogen Assessment Group.

2.14. Ecological Receptors of Concern.- This definition needs to delete the reference to individual organisms or specifically state that the reference to individual organisms only applies to endangered species as defined by the Endangered Species Act. As written, the definition is ambiguous enough to allow one to use the rule to protect an individual animal, such as a fish or a bird, which is not appropriate for this rule. The following definition is recommended:

> Ecological Receptors of Concern - Specific ecological communities, populations, or in the case of species listed in accordance with the federal Endangered Species Act, individual organisms.

Section 60-3-8. Risk Protocol

8.5. Baseline Ecological Risk Assessment. - The order of the progressively more comprehensive ecological risk assessments does not appear to be appropriate. As first described on page 46, an applicant is to do a Site-Specific De Minimis Screening Ecological Evaluation. If, after this evaluation, a potentially significant complete exposure pathway is identified, the applicant is to complete a Uniform Ecological Evaluation. If benchmark levels are exceeded, then the applicant is to perform a Baseline Ecological Assessment at the director's discretion. On page 51, (9.1.b. Ecological:), a De Minimis Ecological Screening Evaluation and a Uniform Ecological Evaluation are again referred to, as is a Site-Specific Ecological Risk-Based Standard. It is not clear where the Site-Specific Ecological Risk-Based Standard is to be applied. Since the De Minimis Screening Ecological Evaluation is referred to as "site-specific", do the risk-based standards apply to this evaluation? One would expect that the risk-based standard would apply to a site-specific risk assessment, which appears to be the Baseline Ecological Assessment referred to on page 46. If this is the case, then the "site-specific" reference to the De Minimis Screening Evaluation should be deleted.

Section 60-3-9. Remediation Standards.

9.1.a. Human Health. - Table 60-3B contains the proposed De Minimis risk-based human health standards for both industrial and residential exposure scenarios. These values are derived from EPA Region III risk-based screening levels for groundwater and soil. These values are very conservative and are based on conservative estimates of inhalation, soil, water and fish consumption, exposure duration, and exposure frequency. The use of such values may appear to be an expedient way of adopting De Minimis standards to protect human health. These values can be considered De Minimis for the most part, however, given sufficient financial resources, most applicants would not use these values as the basis for remediation. It is likely that, given an exceedance of a De Minimis standard, the applicant would derive a site-specific value to use to determine the appropriate level of remediation. However, site-specific derivations of risk-based cleanup values can be expensive, therefore, those applicants with less money will be penalized. They will be forced to clean up to De Minimis levels that are much more stringent than levels that could have been derived on a site-specific basis.

After this rule has been finalized, the DEP should continue to derive more state specific De Minimis standards for use under this program.

9.2.a. De Minimis Standards for Soils. - The De Minimis standards are in some instances more stringent than cleanup standards developed for some Superfund sites. Either the De Minimis standards should be removed from the proposed rule and placed in a guidance document or a statement should be added to the rule clarifying that the De Minimis standards should not be used as applicable or relevant and appropriate requirements (ARARs) for CERCLA sites. The De Minimis standards should only be used at sites that are being cleaned up under the Voluntary Remediation and Redevelopment rule.

Table 60-3B includes constituents that are not chemicals of concern. Boron, iron, manganese, and molybdenum should be deleted from the list.

The proposed residential PCB soil cleanup standard of 0.083 mg/kg is more stringent than the TSCA PCB cleanup standard of 10 ppm for new spills in nonrestricted areas. In addition, the proposed industrial PCB soil cleanup standard of 7.4 mg/kg is more stringent than the TSCA PCB cleanup standard of 25 ppm for new spills in restricted areas. It is unreasonable to adopt PCB cleanup standards under the voluntary cleanup program that are more restrictive than those PCB cleanup standards enforced under TSCA.

9.6.b. Uniform Standards for Surface Water. - This section contains a reference to "Federal Ambient or State Water Quality Criteria". Since State Water Quality Standards must be at least as stringent as Federal Standards, references to "Federal Ambient" are redundant and should be deleted.

9.6.c. Uniform Standards for Groundwater. - Regarding ground water discharges to surface water bodies, the rules should not require that surface water quality standards be met in the groundwater. Such a requirement is inconsistent with the Clean Water Act. The rule should, instead, state that the surface water quality standards must be met in the water body receiving the groundwater recharge.

RECEIVED

JAN 29 1997

OEP OFFICE OF WASTE MANAGEMENT

Frank Young
Rt. 1, Box 108
Ripley, WV 25271
304-372-3945 FAX-372-3946
January 23, 1997

Ken Ellison, WVDEP
Office of Waste Management
1356 Hansford St.
Charleston, WV 25305

RE: Brownfields Rules Comments.

Dear Mr. Ellison:

I am a member of the Brownfields Rules Steering Committee and the Financial and Legal subcommittee of that steering committee.

To preserve consensus in the Public Involvement area of the proposed rules, I offer the following:

I have read the proposed rules. I have communicated with other Steering Committee members.

On Page 39 of the proposed rules, sections 7.12 and 7.12.a., 7.12.b., 7.12.c. and 7.12.d. all seem only to apply to Voluntary Remediation in connection with projects where the goal is development of Residential Remediation levels.

My reading of 22-22-3 is that public involvement rules are applicable to all Voluntary Remediation sites involving risk assessments, not just those with a Residential Remediation goal.

The rule as proposed, then, appears to omit / preclude the Public Involvement requirements for projects that do not include Residential Remediation Goals, and does not, therefore, comport with the requirements of 22-22-3 of the law.

To preserve the spirit of consensus, I therefore ask that the rules be amended to require Public Involvement procedures at all Voluntary Remediation sites, regardless of the remediation goal.

I want to support the rule package, but cannot do so as the Public Involvement sections I refer to above are currently written. I would support this portion of the rules were the change request I have made in the just previous paragraph made a part of the rules.

I expect to be present at the rules hearing on January 29th. I look forward to seeing you and perhaps discussing the issue further at that time.

Thank you.

Sincerely,
Frank Young
Frank Young

Philadelphia, PA

Facsimile Cover Sheet

Please Deliver ASAP!

To

Charles MacQueen - (304)357-0572
Darrell Rolston - (304)345-4665
Michael Clowser - (304)342-1074
Ted Caudill - (606)329-3920
Ann Bradley - (304)344-9566
Fred Decker - (304)357-3479
Leonard Knee - (304)347-1196
Lantz Rankin - (304)756-3840
Anthony Fredrick - c/o Jim Kotcon
Joseph C. Pettey - (304)824-3311
Frank Young - (304)372-3946
Jim Kotcon - (304)293-2872
Chuck Wyrostok - via mail
Mary Ellen O'Farrell - via mail
Brenda Nichols Harper - 304/342-4552
William P. Pinnell - (304)558-1289
Lou Schmitt - (304)367-2727
Ron Potesta - (304)755-2636
Mary Anderson - via mail
Wendy Radcliff - (304)759-0526
Jim Martin - via mail
Jack Burlingame/William B. Goode - (304)340-4275
Pat Barker - (304)346-8981
Mike Dorsey - (304)558-1423
Ken Ellison - (304)558-0256
Brian Farkas - (304)759-0526
Bill Adams - (304)759-0526
Lynn Hartman - via mail

From: Jim Bodamer
Company:
Phone: 215/299-6572
Fax: 215/299-6947

Date: 01/28/97
Pages including this cover page:

IF YOU EXPERIENCE PROBLEMS WITH THIS TRANSMISSION PLEASE CALL PEGGY MCGARRY 215/299-6037

TO: VRRDA Steering Committee

FROM: Standards Subcommittee

DATE: January 28, 1997

SUBJECT: Public Involvement for Application of Industrial Standards to Non-Brownfield Sites

The Standards Subcommittee met on January 20, 1997 to resolve an issue raised by Jim Kotcon concerning public involvement where industrial use standards are applied to voluntary remediation sites (see attached memo from Kotcon to Ellison dated January 9, 1997). The Standards Subcommittee resolved this issue by recommending the following underlined language be added to sections 9.3.d. and 9.4.a. of the proposed rule:

> Section 9.3.d. Carcinogens. For individual known or suspected carcinogens, remedial standards derived under sections 9.3.a, 9.3.b, and 9.3.c of this rule shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one million ($1x10^{-4}$ TO $1X10^{-6}$). If carcinogenic risk greater than $1x10^{-6}$ is considered for development of residential remediation goals <u>or greater than $1x10^{-5}$ for development of industrial remediation goals,</u> public notification shall be required as specified in section 7.12 of this rule.

> Section 9.4.a. Carcinogens. For individual known or suspected carcinogens, remedial standards derived under sections 9.3.a, 9.3.b, and 9.3.c of this rule shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one million ($1x10^{-4}$ TO $1X10^{-6}$). If carcinogenic risk greater than $1x10^{-6}$ is considered for development of residential remediation goals <u>or greater than $1x10^{-5}$ for development of industrial remediation goals,</u> public notification shall be required as specified in section 7.12 of this rule.

> Also, in order to correct a typographical error, the word "shall" has been removed from the second line of Sections 9.3.d and 9.4.a (...carcinogens, remedial standards derived under...).

Section 7.12.a has been revised as follows:

> In the development of remediation goals pursuant to Sections 9.3.d. and of this rule, the director shall require a 30-day comment period and information meeting to address those remediation goals.

Furthermore, to clarify the type of information to be provided to the public during the information meeting required and to be consistent with the Act, the Standards Subcommittee recommends the following language be added to the end of proposed Section 7.4.c.:

> The information meeting shall address how remediation issues are applied to the site, site risk issues including key risk assessment assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risk.

By revising the proposed Rule to include the above mentioned recommended language, the Standards Subcommittee members have reached consensus on this issue.

Ashland

Ashland Petroleum Company Division of Ashland Inc.

ENVIRONMENT, HEALTH & SAFETY DEPARTMENT

RECEIVED

JAN 29 1997

CERTIFIED MAIL

January 28, 1997

West Virginia Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25305
Attn: Ken Ellison

RE: Comments on the proposed Voluntary Remediation and Redevelopment Rule

Dear Ken:

I would like to thank the WV DEP for allowing me to participate in this consensus rulemaking effort. Ashland is a strong proponent for using the stakeholders and consensus building process for developing efficient and effective regulations. Furthermore, I would like to apologize to you and the members of the Standards subcommittee and Steering committee for being unable to complete the process. As often happens, conflicts arise unexpectedly and when they come in the form of the United States Environmental Protection Agency, priorities are quickly realigned. On behalf of the West Virginia Oil Marketers and Grocers Association and Ashland Petroleum Company, the following comments pertain to the proposed Voluntary Remediation and Redevelopment Rule.

First, I would like to compliment the DEP for initiating such an effort as this and you personally for providing coordination. Second, I would also like to compliment the members of the Steering committee and each subcommittee for working diligently and honorably in drafting such complex regulations. It is my opinion that the direction of the rulemaking, i.e., toward risk-based decision-making, is a favorable outcome in light of the ever increasing demands placed on our resources, both natural and financial.

General substantive comments will be discussed expressing concern with the proposed fees, followed by less substantive comments primarily related to grammar and typographical errors.

Fees

In general, the proposed rule imposes numerous fees on the applicant (i.e., application, DEP reimbursement using a 2.5 multiplier, mandating use of a LRS, public involvement and notice and even a provision for public technical assistance). Admittedly, when considered individually, the fees appear to be justifiable. However, when you get your calculator out, they tally up to a considerable expenditure even for a small, simple site. Especially in light of the fact that it is expected that most of the applicants seeking program entry will have avoided previous site

Headquarters:
P.O. Box 391
Ashland, KY 41114
(606)329-3333

remediation primarily due to economic considerations. Given the voluntary nature of the rulemaking and its potential benefits to the public as a whole, it is suggested that alternative funding be found, if needed, in order to lessen the financial burden on the applicant and encourage program participation. The proposed loan provisions, although useful, do not adequately compensate for the expected expense of program participation.

It is also suggested, that in order to assist a potential applicant, a matrix could be developed listing the program fees and typical amounts to be expected at sites of various size and complexity. I know that this may be difficult, but it would be valuable to the applicant to realize the approximate level of financial commitment expected prior to entering the program. It would also limit the number of applicants that withdraw from the program after making application, thus saving DEP staff time and resources.

The proposed application fees have escalated to the point, that taking into consideration all the other fees assessed the applicant, they are now a disincentive to small, family-owned gasoline retail facilities. For example, a site which is less than one acre and not included in any of the applicable SIC codes, but that has been in one location for at least 20-years, will be subject to a $3000 application fee.

Additionally, the $300 application fee for the LRS followed by a $250 examination fee are unparalleled and unwarranted. The application and examination fees for the professional engineers certification are less than $100 combined. How can $550 be justified? The license renewal fee appears to be in line with fees for other professional licenses.

Grammar, Errors and Other Suggestions

Section 2.12 - suggestion, add "under this rule" to definition of Deminimis Risks.

Section 2.27. - grammar, change "Implement Ability" to "Implementability."

Section 5.1.a. - grammar, strike "licensed" from "valid licensed remediation specialist license."

Section 5.3.j.2. - error, substitute "written application" for "written examination."

Section 6.1.b.3. - error, add ")" after "services"

Section 7.4.b.4. - suggestion, include the telephone number and address of the DEP's brownfield office, when available.

Section 7.7.d.1. - grammar, add "and" after the semicolon.

Section 7.7.d.2. - grammar, replace the semicolon with a period.

Section 7.7.e. - grammar, replace the semicolon with a period.

Section 7.7.f. - grammar, strike "which" and insert "is" between "but" and "not"

Section 8.1.c.3.B. - suggestion, why should a sensitivity analysis be based on conditions which historically occurred at a site? Shouldn't it be based on conditions presently occurring at the site?

Section 8.1.c.3.C. - suggestion, add "providing justification for use of an alternative model and a comparison to existing approved models."

Section 8.1.c.4.a. - suggestion, provide definition of "individual" referred to by the human health risk assessments.

Section 8.2.d. - error, change "a least" to "at least"

Section 8.4.b.4. - error, there is no Section 8.4.b.3.2 as referred to.

Section 9.3.d. - grammar, strike "shall" at "standards shall derived"

Section 9.4.a. - grammar, strike "shall" at "standards shall derived"

Section 9.7.d.3. - error, change "be" to "by"

Section 13.4.a. - error, change "covenant re no" to "covenant are no"

Section 13.5.c. - grammar and error, insert "use" between "land" and "covenant," and change "covenant re no" to "covenant are no"

Section 15.3.c. - error, change "ste" to "site"

Finally, I suggest that if it is not already planned, a table of contents be developed for the proposed rule to make it more user-friendly.

Sincerely,

Ted L. Caudill, PE

cc: Jan Vineyard/OMGA
Rich Freeman/Ashland Petroleum Company
Greg Smith/Ashland Petroleum Company

vrracom.doc

LEAGUE OF WOMEN VOTERS OF WEST VIRGINIA
6128 GIDEON RD • HUNTINGTON, WV 25705 • TELEPHONE 304-736-3287

RECEIVED
JAN 27 1997
DEP-OFFICE OF WASTE MANAGEMENT

January 25, 1997

Mr. Ken Ellison
Office of Waste Management
1356 Hansford St.
Charleston, WV 25305

Dear Mr. Ellison,

First, on behalf of the League of Women Voters of WV, I wish to congratulate you, the chairs, and the committees who have been working on the Brownfields regulations on your hard work and cooperation. The League supported the enactment of Brownfields legislation in hopes that abandoned industrial sites could be redeveloped rather than always breaking new ground for economic development.

We are pleased that you added to the regulations public involvement in industrial siting on the Brownfields sites. Without planning and zoning in most of WV, there needs to be a vehicle for the public to voice its concerns and make constructive suggestions.

We wonder if any thought had been given to adding a "bad actors" clause in the regulations.

We hope that the regulations will move smoothly through the legislative oversight process.

Sincerely,

Helen Gibbins

Helen Gibbins, President
LWVWV

RECEIVED

JAN 24 1997

Jan. 16, 1997

To: Ken Ellison
Office Of Waste Management
1356 Hansford Street
Charleston, WV 25305

From: Anthony Frederick

I have not received the proposed brownfield rules, 60-CSR-3, up for public comment. If it is at all possible I would like a copy of those rules. I did however have the opportunity to view Jim Kotcon's copy and would like to make a suggestion.

The public needs to be made aware of the risk assessments for industrial sites. In particular industrial sites where industrial standards rather than les deminimis standards are used to determine cleanup levels. I would suggest the brownfield rules include a section similar to the one included in the brownfields law, section 22-22-3(f)!10). This should be included to allow the public to be notified of any adverse effects caused by the remediation process.

Please consider this modification to the brownfield rules. Thank you.

Jan. 9, 1997

TO: Ken Ellison
Office Of Waste Management
1356 Hansford Street
Charleston, WV 25305
FROM: James Kotcon JBK
RE: Comments on Brownfields Rules

Please consider the following issues with regard to the proposed brownfields rules, 60-CSR-3. While I will have some minor editorial comments to suggest in the future, one major policy issue justifies immediate attention so that consensus on it may be reached during the comment period.

Specifically, I refer to the public involvement portions of the rule with reference to risk assessments. Section 22-22-3 (f) (10) of the brownfields law requires that a risk protocol "shall include public notification and involvement provisions so that the public can understand how remediation standards are applied to a site and provide for clear communication of site risk issues, including key risk assessment assumptions, uncertainties, populations considered, the context of site risks to other risks, and how the remedy will address site risks".

This provision clearly specifies that public involvement is required for clean ups involving risk assessments. The rule currently only specifies public involvement when residential use standards are to be achieved, but is silent on public involvement where industrial use standards are applied to voluntary remediation sites. Thus the rule clearly omits a provision required in the statute.

Furthermore, this omission of public involvement is out of step with the public involvement requirements of most other states and the EPA's recommended guidance on deferral to states of CERCLA cleanups. In fact, this omission even conflicts with the recent report from the National Research Council, supported by the National Association of Manufacturers, which concludes that risk characterization processes "<u>must have an appropriately diverse participation or representation of the spectrum of interested and affected parties</u>..." (Understanding Risk: Informing Decisions In A Democratic Society. 1996. National Research Council. National Academy of Sciences).

I therefore urge that the rule be amended to add requirements for public involvement during risk asessments for voluntary remediations at industrial land use sites. I believe that this is an imperative step to assure that local communities can participate in decision-making that affects them so that societal values are reflected in agency decisions and policies. I further believe that such an addition would be beneficial to industry so that they can appropriately, proactively and positively involve their neighbors and thereby avoid much of the conflict and distrust that characterizes other regulatory decision-making. I can not support the rule as it currently is written, but I believe that attention to this issue can resolve the problem to the satisfaction of all concerned. Please contact me to discuss this issue further or to let me know your response. Thank you.

cc:
DEP Brownfields Steering Committee
Environmental Protection Advisory Council

Jan. 29, 1997

TO: Ken Ellison
Office Of Waste Management
1356 Hansford Street
Charleston, WV 25305
FROM: James Kotcon *James Kotcon*
RE: Comments on Brownfields Rules

I am writing to affirm my concurrence with the changes proposed by the standards subcommittee regarding public involvement in risk assessments for industrial land use changes (7.4.c., 7.12.a., 9.3.d., and 9.4.a). While a more comprehensive approach may often be necessary at sites with complex risk assessments, the proposed amendment is a reasonable balance between assuring public input and assuring efficient voluntary cleanups. I will support the brownfields rule with these changes.

Please also consider the following additional comments.

1. I concur with proposed changes raised in a discussion with Jim Bodamer regarding the definition of cumulative site risk (2.10) and exposure pathway (2.20), since these are editorial changes that improve clarity without altering the accepted meanings. I also agree with the editorial changes he is proposing for sections 8.5.c, 8.6, 9.1.a.2, 9.2.a.3, and 9.4. These changes correct omissions from the rule or add needed references to connect with other sections.

2. One change that has been proposed is to limit the definition of systemic toxicant (2.55) to explicitly exclude carcinogens. While this is conceptually reasonable, some contaminants act through both carcinogenicity and systemic toxicity. Thus, if the proposed change in definition is accepted by DEP, the rule will also need to be amended to assure that, for compounds with both systemic and carcinogenic activity, the most protective standards shall apply. A series of new subsections stating this concept could be added, specifically, after 9.2.c, 9.3.e, and 9.4.b and renumbering remaining sections accordingly. Adding all of these changes would be an improvement over the existing rule because it would clarify the application of assumptions in setting clean up standards.

3. The rule establishes a minimal level of fees to run the program. While there is always grumbling about the level of fees, an explicit provision of the Act is that the fees will cover the cost of the program. An inadequately funded program will strangle the forthcoming benefits of brownfields redevelopment by leading to administrative delays and inadequate review to assure a responsible and responsive program. While the fees established in the proposed rule are higher than in those surrounding states that subsidize their brownfields programs, they are comparable to other states with a self-sustaining program as was envisioned by the Legislature. I certainly do not support a bloated bureaucracy, but a program operated with inadequate or underpaid staff simply cannot respond to the technical complexities of modern risk assesment methodologies. This program needs trained soil scientists, certified ecologists and professional toxicologists to maintain a minimal semblance of integrity. The carefully crafted compromise in the draft rule represents a reasonable balance between providing an adequate program while avoiding

unneeded expense for applicants with minimal oversight needs. I beleive that a careful analysis of DEP's needs in personnel, outside expertise, and operating expenses for this program would justify an increase, not a decrease, in fee levels. Any significant reduction in fees would threaten the consensus over this rule.

4. The DeMinimis standards, referenced in Table 60-3B, establish risk-based clean up levels based on a soil ingestion pathway only. Thus, the levels are not protective of contaminants where other exposure routes present the dominant risk. For example, contaminants that are highly volatile or leachable may be inhaled or ingested through contaminated groundwater. It will be important that the numbers in the table not be overused and that, as indicated in the footnote to the Table, if other exposure pathways are identified, more stringent cleanup requirements should be required under the rule. While the state of the art in the science is simply not adequate to assign a deminimis risk number under all possible pathways for all listed contaminants, the DEP should move forward expeditiously to incorporate standards as soon as possible for as many additional compounds and pathways as can reliably be established. This will help resolve the implicit and widely held, but incorrect, assumption that the soil ingestion numbers are the final word for all contaminants in all situations.

Thank you for the opportunity to comment.

Jan. 29, 1997

TO: Ken Ellison
Office Of Waste Management
1356 Hansford Street
Charleston, WV 25305

FROM: James Kotcon

RE: Additional Comments on Brownfields Rules

Please consider the following additional comment with regard to the proposed brownfields rules, 60-CSR-3.

Section 9.3.c.2 appears to have lost a portion of a sentence from earlier drafts. As currently written it is grammatically incomplete and places a much broader restriction on groundwater uses than was originally intended. I urge that the words "shall not be considered a current or potential source of drinking water" be reinserted after the words "drinking water" on the last line of the section. The phrase "cannot be used" should refer to the potential for future use as a drinking water source, rather than for any use at all. Therefore, I urge that the words "for future drinking water sources, and..." be added after "cannot be used". Alternatively, I would urge that the DEP add some reference to the term "beneficial use" as defined in the Groundwater Act, 22-12-3 (b), in order to assure consistency with the Groundwater Act.

Finally, I believe that it is important that the word "and" remain in this section of the rule to assure that all of these conditions must be demonstrated in order to establish remediation standards less stringent than drinking water standards. Simply demonstrating one of these conditions is not adequate to meet the intent of the Groundwater Act.

Thank you for considering these additional comments.

1010 Valley Rd.
Charleston WV
25302
1-20-97

Dear Ken -

It has come to my attention that the Brownfields Public Involvement sub-committee has not fully addressed some of the issues raised by voluntary remediation activities with reference to risk assessments.

Section 22-22-3(f)(10) of the statute requires that a risk protocol shall include public notification & involvement for cleanups involving risk assessment. The rule, however, specifies public involvement when residential use standards are to be achieved, but not where industrial use standards are applied to voluntary remediation sites.

Let's amend the rule to add these requirements, so that the rule will be more faithful to the law, & so that public involvement will be more comprehensive & thus more effective. This in turn will benefit industry, as well as local communities, by eliminating reasons for suspicion & mistrust on the part of citizens toward potential developers & their plans.

Please let me know what you think of this -

Mary Ellen O'Farrell

COMMENTS OF THE WEST VIRGINIA MANUFACTURERS ASSOCIATION ON PROPOSED RULE IMPLEMENTING THE VOLUNTARY REMEDIATION AND REDEVELOPMENT ACT

WEST VIRGINIA MANUFACTURERS ASSOCIATION
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CHARLESTON, WEST VIRGINIA
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COMMENTS OF THE
WEST VIRGINIA MANUFACTURERS ASSOCIATION
ON PROPOSED RULE IMPLEMENTING THE
VOLUNTARY REMEDIATION AND REDEVELOPMENT ACT

I. INTRODUCTION

The West Virginia Manufacturers Association submits these comments on the proposed Voluntary Remediation and Redevelopment Rule, 60 CSR 3, filed by the Commissioner of the Bureau of Environment with the Secretary of State on December 30, 1996. The WVMA is proud of the major role it has played in support of the negotiation and passage of the Voluntary Remediation and Redevelopment Act ("the Act"). The WVMA believes that the Act and this proposed rule offer enormous potential for West Virginia, both through the revitalization of underutilized industrial properties and through encouraging voluntary remediation at active facilities. It is the Association's unwavering confidence in the broad ranging benefits of this program that has caused our members to enthusiastically support the development of this proposed rule through the work of the Steering Committee. Particularly in the work of the Standards Subcommittee, our members have provided technical support and resources that have been critical to the development of the proposed rule.

While the WVMA has identified a number of comments on the proposed rule, we believe these comments to be largely editorial in nature and completely consistent with the consensus that has been reached by the Steering Committee in the preliminary rulemaking process. These comments are offered as a means of clarifying and enhancing the rule, particularly for those companies or environmental professionals who have not participated extensively in the rulemaking process, and, therefore, may need to have the intent of certain provisions explained in greater detail than may be necessary for others.

The WVMA compliments the members of the Steering Committee and all those who have participated in the development of this consensus proposed rule. The WVMA also applauds the Division of the Environmental Protection for its commitment to consensus rulemaking. The willingness of all stakeholder representatives to listen to the positions and concerns of others and to work together to establish a technically sound and implementable remediation program is a significant accomplishment for our State, and the WVMA has been pleased to be a part of this effort.

Our comments on the proposed rule are contained in the following paragraphs.

II. GENERAL COMMENTS

A. Need for Uniformity in Appeal Procedures

The proposed rule addresses appeals of various issues in a number of areas. We believe the intent of the Steering Committee was to incorporate existing procedures for appeals to the Environmental Quality Board in each case, even though the person(s) with standing to appeal may vary. For this reason reference is made in Sections 3.4.a, 14.2, 16.3 and 17.2 to the provisions of W.Va. Code § 22B-1-7. Corresponding language does not appear, however, in Sections 12.2.c.2. So that the appeal process with regard to the Director's determination on any final report is clear, we recommend the inclusion of the phrase "in accordance with the provisions of W.Va. Code § 22B-1-7," after the phrase "Environmental Quality Board" in Section 12.2.c.2.

B. Application Review/Agreement Negotiation Process

There is no guarantee under the proposed rule that, by filing an application and payment of an appropriate fee, an applicant will be assured of having a voluntary remediation agreement executed by the DEP. The reaching of the agreement is still dependent upon the cooperation of the agency. The WVMA urges the agency, in its response to comments, to state its commitment to the negotiation of voluntary remediation agreements in an expeditious manner, and within the 30-day time period provided in the statute, wherever possible.

C. Application Fees

On the issue of application fees, the WVMA urges the DEP to provide a rationale for the application fee structure as it presents this proposed rule to the Legislature. An analysis of fees charged in comparable programs by other states would be helpful to the extent that it shows that the fees assessed under the proposed rule are consistent with the fees charged under other state programs. We believe this is necessary to gain a broad base of support for the proposed rule and to provide legislators with adequate information to guide their decision.

D. Development of Guidance to Implement Proposed Rule

The Risk Protocol and Remediation Standards sections of the proposed rule refer to guidance documents that will be developed by DEP and used to implement the program. It is our understanding that the Director intends to reconvene the Standards Subcommittee in late February to help draft those guidance documents and that the members of the Standards Subcommittee have agreed to provide this support. The WVMA asks the DEP to confirm in its response to comments that it intends to develop the necessary guidance documents in the near future, with input of those on the Standards Subcommittee. Such guidance should be developed as an interpretive rule, to allow the opportunity for public notice and comment before it becomes final.

III. COMMENTS ON SPECIFIC SECTIONS

A. Section 2 - Definitions

1. *Section 2.10 - Cumulative Site Risk* - As currently written, the definition of Cumulative Site Risk in the proposed rule relates to determining cumulative impact on "an organism."

This section and others (see, e.g., Section 2.21) should be changed to more clearly indicate that both human and ecological impacts are to be considered. The use of these terms would be consistent with other definitions that refer to "receptors" rather than "organisms." (An exception would be Section 2.14, which uses the term "organism" to define "ecological receptors of concern"). Therefore, we suggest a revision to these definitions to clarify this point as follows:

> Cumulative Site Risk - - 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.
>
> Exposure Route - - 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. *__Section 2.20 - Exposure Pathway__* - This definition describes the elements that are necessary for a complete exposure pathway, which is one of the factors which must be considered in performing an appropriate risk assessment. However, the definition never clearly indicates that all the identified elements are necessary for a complete exposure pathway. Therefore, for clarification purposes, the WVMA recommends that the third and fourth sentences of the proposed definition be deleted and replaced with the following:

> A complete exposure pathway consists of a source or release from a source, a transport/exposure medium (e.g., air) or media (in cases of intermediate transfer), an exposure point, and an exposure route.

3. *__Section 2.33 - L.R.S. or Licensed Remediation Specialist__* - This definition tracks the language of the Act at W. Va. Code § 22-22-2(n). However, given the personal nature of the licensing process and requirements that must be satisfied, and references elsewhere in the Act, it is clear that the licenses are to be issued to individuals and not to "persons" as that term is broadly

defined in the Act. We believe this was the position of the Steering Committee in adopting the licensing rules. Therefore, we recommend that the phrase "a person" used in this definition be replaced with "an individual" and that the DEP provide a statement in its rationale in support of the final rule which indicates that licenses are to be issued to individuals and not to firms or corporations.

4. *Section 2.55 - Systemic Toxicant* - The definition speaks to harmful substances or agents which may enter the body and injure an organ or organ system. The nature of the injury from a systemic toxicant would clearly not include any carcinogenic injury. To clarify this point, which we believe is understood but not expressly stated in this definition, we suggest that the first sentence of the definition be revised to read as follows:

> A harmful substance or agent that may enter the body and injure an organ or organ system and having an effect other than causing cancer.

B. Section 3 - Eligibility

1. *Section 3.1.b.* - To the extent a site has been listed on the National Priorities List, but, is no longer on the NPL because the remediation has been completed and all appropriate requirements have been satisfied for the site's removal from the NPL, we believe that such site should not be precluded from participating in the voluntary remediation program. This point can be made by deleting the phrase "has been" in Section 3.1.b and replacing it with "is." The effect will be to allow sites that have completed the very rigorous Superfund process to qualify for the voluntary remediation program if they can otherwise satisfy the state requirements. It would also allow participation by owners of sites that were proposed for the NPL and were found not to be sufficiently contaminated to require being placed on the NPL. In that event, the mere fact that there had been a proposal for listing should not disqualify the site.

With regard to this subsection, we also ask the DEP to confirm in its response to comments that inclusion on the CERCLIS list does not constitute a proposal for listing on the NPL. There are a series of steps that must be taken before a site can be added to the NPL; among those is a requirement that the site be listed in a *Federal Register* publication. 40 C.F.R. §300.425 We suggest that the DEP confirm that a site is not proposed for listing until it has been proposed in a *Federal Register* publication.

As the DEP is aware, many sites listed on the CERCLIS list have been found not to be contaminated or are insufficiently contaminated to qualify as Superfund sites. It would be unfortunate if such sites were prohibited from remediation under the State program simply because they were added to the CERCLIS list.

2. *Section 3.1.b* - The regulations reference excluded sites as those which are subject to "unilateral enforcement orders" issued by EPA and the state under specified environmental programs. The statute uses the term "final" in describing such orders. See W.Va. Code § 22-22-2(ee). In order to clarify what we believe to be the intent of this language, we suggest that the DEP indicate in its response to comments that the mere issuance of a notice of violation or a notice of noncompliance to a site by the agency would not trigger a disqualification from the voluntary remediation program because it is not a "final order."

3. *Sections 3.1.a. 3.1.c. and 3.1.d* - We ask the DEP to confirm in its response to comments that sites that were subject to a unilateral enforcement order in the past but are no longer subject to such an order are eligible to participate in the voluntary remediation program. We believe this would clarify the intent of the language of Sections 3.1.a, 3.1.c, and 3.1.d. This clarification would ensure that sites previously under a unilateral enforcement order to conduct a site assessment

or remediation, if such sites had met all of the requirements of the order to the satisfaction of the enforcement agency involved, could participate in the voluntary remediation program because the site would no longer be subject to a unilateral enforcement order.

4. *Section 3.1.e* - The WVMA supports the clarification of the "gross negligence or willful misconduct" exclusion as being limited to conduct "by the applicant." We believe it would be unreasonable to interpret this exclusion otherwise. To bar participation in the program by a party who had no involvement in the prior contamination of the property, even if that contamination resulted from conduct which might be deemed gross negligence or willful misconduct, would frustrate the purpose of the Act. We applaud this clarification in the rule.

C. Section 4 - Application to Participate

1. *Section 4.5* - The proposed rule does not contain a provision which is a counterpart to § 22-22-4(g) of the Act which sets a deadline for the Director's action on the application. Although it may not be necessary to include this provision in the rule, we believe it would be helpful to give the applicant more direct notice of the time frame within which a response to the application should be expected. Therefore, we propose the inclusion of an additional subsection, to read as follows:

> 4.5. Action on Application -- The Director shall act upon all applications within 45-days of receipt, unless an extension of time is mutually agreed upon between the Director and the applicant, and confirmed in writing.

2. *Appeal of Application Rejection* - Consistent with comments provided elsewhere in this document, we believe it is important to clarify the procedures to be followed in the appeal of a decision of the Director under the program. With regard to the rejection of the application, the Act specifically provides that the applicant may appeal this determination to the Environmental Quality

Board. See W. Va. Code § 22-22-4(h). For purposes of clarifying when and how this appeal is to be processed, we urge the addition of the following language in § 4 of the proposed rule:

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

3. *Section 4.2.g* - This provision states that a site assessment must be submitted with the application to participate in the program and provides some description of what that assessment must entail. The statute makes clear that the site assessment must be performed by a licensed remediation specialist. See W.Va. Code § 22-22-4(b). To assure that persons reading the rule are not misled on this point, we suggest that the phrase "prepared by a licensed remediation specialist" be inserted after the phrase "a site assessment" at the beginning of this provision.

D. Section 5 - Licensed Remediation Specialist

1. *Section 5.1.b.* - This provision details the responsibilities of licensed remediation specialists. In the first sentence, the L.R.S.'s duty "to protect the safety, health and welfare of the public" is identified. There is further discussion of this duty in the proposed rule, but it appears beginning with the third sentence of Section 5.1.b.1. At that point the rule addresses the possible severance of the relationship between the site owner and the L.R.S. if the L.R.S. is unable to satisfy his or her duty. Because provisions relating to the duty of the L.R.S. to protect public safety, health and welfare should appear in the same subsection, it is suggested that the two sentences at the end of Section 5.1.b.1 be moved and inserted at the conclusion of the first sentence in § 5.1.b.

We further note in the two sentences referenced above, if a relationship has been severed the owner of the property is required to give the Division notification within 72 hours. This language may be inconsistent with the language of the proposed voluntary remediation agreement forms which appear as appendices to the proposed rule. Under the form, the applicant is to give the agency notification of any change in the licensed remediation specialist within five days. See § II, par. 34, Appendix 60-3B.

2. *Section 5.3.1* - This section allows the Director to license an individual as a licensed remediation specialist in West Virginia if that person is also licensed in a state that recognizes West Virginia's licensure of LRSs under this program. We believe that the Steering Committee intended to allow the Director to waive the examination portion of the L.R.S. requirements for such person, but not the other obligations, such as sufficient education and experience. In particular, the L.R.S. applicant should have a knowledge of West Virginia's voluntary remediation program. We suggest that the Director confirm in his response to comments that the waiver provided by Section 5.3.1. is not a complete waiver from all L.R.S. requirements.

3. *Section 5.4.a.* - This provision discusses the criteria for renewal of a license. It states that a renewal application "shall include evidence of continuing education in the environmental remediation field." As an example of the type of information that should be included in the renewal application, the provision goes on to indicate that such evidence "may include two education credits from a U.S. EPA-approved course or any other equivalent experience acceptable to the Director." We believe that the phrase "equivalent experience acceptable to the Director" is very broad and may not provide sufficient guidance to an L.R.S. who is seeking to satisfy continuing education requirements. It is recommended that the Director, in the response to comments, indicate a willingness to provide some sort of guidance statement or policy document identifying the type of equivalent experience or other educational courses which would be deemed "acceptable" to satisfy this requirement.

4. *Section 5.4.d.* - This section requires the Director to inform an applicant in writing of the reasons for denying renewal of the license to the L.R.S. However, this section does not contain a provision allowing an appeal of the Director's adverse decision. The WVMA believes this was an oversight and that the right of an appeal was intended in these circumstances as well as in the suspension or revocation of a license. For this reason, we suggest this provision be revised to read as follows:

> Where there has been an application timely filed for renewal of a license and the Director determines that grounds exist for non-renewal of the license, the Director shall follow the same procedure as provided for suspension or revocation of licenses in § 5.5 of this rule and, pending a final decision by the Director on such renewal, the license shall remain in effect.

5. *Section 5.5* -The procedures specified in Section 5 deviate to some extent from the procedures in the Act relating to enforcement orders, found in W. Va. Code 22-22-12(b). Therefore, for clarification purposes, it is suggested that introductory language be included for Section 5.5 which recognizes that the procedures set forth therein are in addition to the procedures contained in the statute. We recommend that the following language be inserted at the beginning of Section 5.5:

> The provisions set forth in this subsection shall be in addition to those procedures regarding enforcement orders contained in W.Va. Code 22-22-12.

E. Section 6 - Voluntary Remediation Agreement

1. *Section 6.1.b.* - A review of Section 6.1.b, especially Section 6.1.b.4, suggests that "recoverable costs" that may be assessed against the applicant are determined by multiplying 2.5 times the hourly rate of the primary employee plus the actual and direct expenses of that employee. We have identified two deficiencies in this language. First, recoverable costs should be a function of 3 factors: the hourly rate of a primary employee, the number of hours worked on a specific project by

such primary employee, and the constant, 2.5. The proposed language of Section 6.1.b.4 does not mention the hours worked by the primary employee. Second, the definition of "primary employee" found in Section 2.39 clarifies that "the term does not include secretaries, paralegals, clerks, technicians or others who serve to support the activities of the primary employee." Presumably, the costs associated with support staff are never recoverable by the Director, as they are considered overhead and are figured into the hourly rate multiplier. Despite this definition, confusion may arise from the fact that Section 6.1.b.3 expressly excludes secretarial and other support services from those costs that the DEP can recover, while Sections 6.1.b.1 and 6.1.b.2 do not have a similar exclusion. This suggests that costs associated with support staff could be recovered for those that were identified in Sections 6.1.b.1. and 6.1.b.2.

To address these deficiencies, the WVMA suggests that Sections 6.1.b.3 and 6.1.b.4 be revised and a new Section 6.1.b.5 be added as follows:

> 6.1.b.3. Such other costs incurred by the Division of Environmental Protection in implementing and overseeing activities under the agreement;
>
> 6.1.b.4. All recoverable costs shall be billed against any deposit and subsequently by separate invoice; and
>
> 6.1.b.5. Recoverable costs shall be determined by the number of hours worked under the agreement by each primary employee multiplied by 2.5 times the hourly rate of each such employee and then adding the direct expenses incurred by each such employee.

The suggested changes are intended to clarify that fees are only assessed for the primary employees' work and any expenses incurred by that employee, and that the hourly rate takes into consideration overhead such as rent, support staff and other such expenses.

2. *Section 6.1.b.4 - Hourly Rate* - The term "hourly rate" is not defined in the Act. The rule should specify how the hourly rate will be determined for purposes of Section 6.1.b.4. We suggest the inclusion of the following definition in Section 2 of the proposed rule:

> **__. Hourly rate.** -- The gross annual salary (excluding benefits paid to an employee) divided by 2080.

3. *Section 6.1.h. - Submission of Works Requirements of the Agreement* - Section 6.1.h refers to "listing of the applicable standards to be calculated at the site". We believe the intent of this provision is that the voluntary remediation agreement is to contain the cleanup levels that will be met at the site. Therefore, the word "calculated" should be changed to the word "achieved."

F. Section 7 - Public Involvement/Public Notification

1. *Scope*- Based upon our review of the proposed rule and our members' participation on the Steering Committee, it is the WVMA's understanding that certain provisions of Section 7 were to apply only to sites for which an application had been filed by a "Brownfield applicant," as that term is defined in the proposed rule. See Section 2.8. This would encompass Sections 7.1 through 7.8 of the proposed rule. The remainder of Section 7 is to apply to sites that are the subject of applications filed by applicants other than Brownfield applicants. The only exception to these general statements is if any requirement in Sections 7.1 through 7.8 is incorporated into the requirements applicable to applicants other than Brownfield applicants. See, e.g., Section 7.12.b., which incorporates by reference several provisions of Section 7.4. Because of the critical nature of this distinction, we urge the DEP to consider the inclusion of general language at the beginning of Section 7 which describes the scope of the various subsections. To this end, we suggest that the following language be inserted after the title to this section:

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

> Except to the extent incorporated by reference in subsection 7.12.b, the requirements of subsections 7.1 through 7.8 of this section shall apply only to Brownfield applicants as that term is defined in Section 2 of this rule. The provisions of subsections 7.9 through 7.12 of this section shall be applicable only to applicants who are not Brownfield applicants.

2. *Section 7.4.c* - The WVMA supports the proposal of the Standards Subcommittee to include in this subsection language consistent with the Act which describes the substance of the information to be provided at the information meeting. This revision can be accomplished by inserting the following language at the end of proposed Section 7.4.c:

> The information meeting shall address how remediation issues are applied to the site, site risk issues including key risk assessment assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risks.

3. *Section 7.8* - For clarification, we suggest that the term "non-Brownfield applicant participants" be replaced with the phrase "participants other than Brownfield applicants."

4. *Section 7.12* - The WVMA endorses the changes that have been recommended to this section by the Standards Subcommittee. See memorandum of Standards Subcommittee to Steering Committee dated January 28, 1997. Consistent with those revisions, Sections 7.12 and 7.12.a should read as follows:

> 7.1.2. Public Involvement/Public Notification in Development of Remediation Goals
>
> 7.12.a. In the development of remediation goals pursuant to sections 9.3.d and 9.4.a of this rule, the director shall require a 30-day comment period and information meeting.

G. Section 8 - Risk Protocol

1. *Section 8.1.c.3* - This provision, which discusses the use of fate and transport models, has not been properly numbered. As a new main topic under "Risk Protocol" and "General

Requirements for Risk Assessments" (Section 8.1), it should be designated 8.1.d., and the subsections thereof renumbered accordingly. Similarly, Section 8.1.c.4, which discusses the use of population risk estimates, should also be the beginning of a new major heading under "General Requirements of Risk Assessments" with the designation 8.1.e. Appropriate changes in the numbering of these subsections are reflected in the attachment to these comments.

2. *Section 8.4* - This provision discusses baseline human health risk assessments. Some reorganization of this section is recommended to clarify the provisions relating to the purpose of baseline risk assessments and the elements of baseline risk assessments. To distinguish these points, we recommend that Section 8.4.a begin with the phrase "The BHHRA may be used either to:" and that the two provisions following be relabeled as Sections 8.4.a.1 and 8.4.a.2. A separate subsection should be designated for the provision which begins "BHHRAs shall include, but are not limited to . . . ." We suggest that this section be designated as Section 8.4.b. It is not necessary to relabel the subsections thereafter. These renumbering changes are reflected in the attachment to these comments.

3. *Section 8.5.c.* - The discussion of exposure analysis contained in this provision addresses ecological effects from conditions that will be present at the site "following implementation of the proposed remedial action." We believe this language is inappropriate in this section, which addresses the elements of the Baseline Ecological Site Assessment. The conditions of the site "following implementation of the proposed remedial action" are correctly addressed in Section 8.6. We, therefore, recommend that the first sentence in this subsection be revised to read as follows:

> 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 shall be performed . . .

4. *Section 8.6* - We understand the intent of § 8.6 is to avoid unnecessary duplication of risk assessments. We further understand that it is fully within the option of the applicant to pursue any risk assessment. Because these are two significant points with respect to the implementation of the rule, we urge the DEP to consider revising § 8.6 to clarify them. To this end, we propose that the second sentence of § 8.6 be revised to read as follows:

> In a situation where a baseline risk assessment has been conducted and where no further action is the proposed remedy, the base line risk assessment may serve as the residual risk assessment.

H. Section 9 - Remediation Standards

1. *Section 9.1.a.2* - This section, which addresses Uniform Risk-Based Standards for human health, does not contain any discussion of background concentrations of contaminants. However, in Section 9.1.a.3 the following language appears:

> If these levels are below anthropogenic background levels, such background levels will be considered the uniform risk-based levels.

The above-quoted language appears to be misplaced in the section regarding site-specific risk based standards (9.1.a.3). We recommend that the quoted language be inserted as a second sentence at the end of Section 9.1.a.2. to be consistent with the provisions for background made in section 9.1.b.2 of the Uniform Ecological Standard.

2. *Section 9.2.a.* - This provision addresses the de minimis remediation standards for soils. In Section 9.2.a.1 reference is made to Table 60-3B, which is described as containing risk-based concentrations that reflect "direct contact exposures and protection of underlying groundwater quality." In a footnote on page 17 of Table 60-3B the following language appears:

> These concentrations shall be applied where the soil ingestion pathway is the major contributor to risks identified in the site assessment. If other exposure

> pathways are identified, the acceptable concentrations shall be determined only in consultation with the Director, considering all exposure pathways, and all other requirements of the regulations. However, remediation of free products shall be required.

As noted by this language, an appropriate clean-up level for the protection of underlying groundwater quality, to the extent this represents an exposure pathway which is a major contributor to the risk identified in the site assessment, cannot be obtained from Table 60-3B. To provide clarification on this point it is suggested that § 9.2.a.1 be restructured to read as follows:

> § 9.2.a.1. Risk-based concentrations (RBCs) for human health for residential or industrial site uses that consider direct contact exposures are presented in table 60-3B;
>
> § 9.2.a.2. Risk-based concentrations for human health for residential or industrial site uses that consider protection of underlying groundwater are as follows:
>
> § 9.2.a.2.A **[Reserved]**

3. *Section 9.2.a.3.* - Paragraph numbering for this section and the succeeding sections appears to be incorrect as it does not relate to a separate De Minimus standard for soils, but rather, establishes De Minimus standards for groundwater. Therefore, this section should be redesignated as Section 9.2.b and the succeeding paragraphs renumbered accordingly. These changes have been made on the attachment to these comments.

4. *Section 9.3.c.2.* - Groundwater remediation values are set after consideration of the potential of groundwater for use as a drinking water supply. Section 9.3.c.2. implies that any future use of an aquifer must be protected, even if it could not be used as a drinking water source. To clarify that it is the drinking water use that is protected, the last part of Section 9.3.c.2. should be changed by deleting the words "cannot be used, and" and inserting the words "is not reasonably anticipated to be used as a drinking water source, or".

5. *Section 9.3.d.* - The WVMA supports the proposed revisions of this section that have been recommended by the Standards Subcommittee. This change is reflected in a memorandum from the Standards Subcommittee to the Steering Committee dated January 28, 1997. An additional change to this section to correct a typographical error is the deletion of the word "shall" in the second line of this subsection.

6. *Section 9.3.f.* - To clarify the discussion of cumulative site risk, we recommend that the phrase "per receptor" be inserted at the end of the first line in this section.

7. *Sections 9.3.f., 9.4.b. and 16.1.c.1.* - Where there is no information that multiple systemic toxicants affect more than one organ, the assumption should be that a hazard index of ten will be used to determine the cumulative site risk. In order to reflect this in the rule, Sections 9.3.f, 9.4.b. and 16.1.c.1. should be changed so that the last clause reads as follows:

> . . . or 10 where it is not determined whether multiple systemic toxicants affect the same organ.

8. *Section 9.4* - The site-specific standard established under Section 9.4 describes the factors that must be taken into consideration in developing risk assessments. However, it is does not identify the types of risk assessment for human health that may be done, which are the baseline human health risk assessment (BHHRA) described in Section 8.4, or the residual risk assessment (RRA) described in Section 8.6. To connect and cross-reference the risk assessment provisions in Section 8 with the standard-setting of Section 9, WVMA suggests that the heading and first sentence of Section 9.4 be rewritten as follows:

> 9.4 Human Health - Site-Specific Risk-Based Standard. Site-Specific Risk-Based Standards will be determined using one or a combination of a BHHRA as described in section 8.4 of this rule or a RRA as

> described in section 8.6 of this rule. In establishing the remediation standard . . .

9. *Section 9.4.a.* - The same changes as recommended to § 9.3.d should be included in this section.

10. *Section 9.4.c* - Some pollutants may exhibit both carcinogenic and noncarcinogenic effects. In such event, the rule should explain which of the two exposure risk factors applies. This could be accomplished by adding Section 9.4.c., as follows:

> 9.4.c. If a contaminant exhibits both carcinogenic and noncarcinogenic effects, then the more conservative risk-based standard (i.e., the lower of the two values) shall be used as the remediation standard.

11. *Sections 9.5.a.2.and 9.5.a.3.* - Both these sections contain extraneous comment that was intended to be illustrative and that is not appropriate for inclusion in the rule. Accordingly, the WVMA suggests that the last two sentences of Section 9.5.a.2 and the last sentence of Section 9.5.a.3 be deleted.

12. *Section 9.9.g.* - The groundwater monitoring plan required for natural attenuation is intended to require monitoring upgradient of receptors of concern, in order to give warning of the advance of a groundwater plume before the contamination reaches the receptor, and downgradient of the leading edge of the plume, in order to confirm that the plume is not advancing faster than expected. However, Section 9.9.g does not state that requirement as clearly as it might. Therefore, the WVMA suggests putting a period after the first use of the word "receptor", deleting the rest of the paragraph, and replacing it with the following:

> Such 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 shall be placed at a location no farther away from the leading edge of the contaminated groundwater at the site than such contamination is likely to travel in five years.

I. Section 11 - Final Report

1. *Section 11.8* - This provision contemplates submission of a completed land use covenant, with proof that it has been properly recorded, at the time the final report is developed and before issuance of a certificate of completion. This would require the remediator to have filed the land use covenant before he has received a certificate of completion. Doing so is contrary to Section 12.b.5., which allows filing the land use covenant after the final report, but before the certificate of completion becomes effective. The WVMA suggests that the first sentence of Section 11.8 be amended to delete the words "confirming that such institutional controls have been properly recorded", and by substituting in their place the phrase "to be recorded."

J. Section 12 - Certificate of Completion

1. *Section 12.2.b* - This provision requires the Director to issue a certificate of completion within 30 days of issuance of a final report. However, the language as written leaves open the amount of time the Director may take to review the final report. We believe this omission is an oversight and does not reflect the intent of the Steering Committee. For this reason, we suggest that Section 12.2.b be revised to clarify the time frame for the Director's action, as follows:

> 12.2.b. If the Director agrees that the final report was properly issued, a certificate of completion shall be issued by the Director within 30 days of receipt of a request for a certificate of completion from the applicant.

2. *Section 12.4* This provision does not reflect the circumstances under which the certificate of completion may be issued by the LRS. We believe that this is an oversight and based upon discussions by the Steering Committee we believe it was the intent to allow the LRS to issue certificates of completion where the applicable standard for the site was the de minimus standard. The WVMA suggests that Section 12.4.a. be amended as follows:

> 12.4.a. A licensed remediation specialist may issue a certificate of completion for any site that complies with the de minimus standards set forth in Sections 9.2 and 9.5 of this rule, provided that a final report is issued and the Director is given notice of the licensed remediation specialist's intention to issue a certificate of completion for the site.

K. Section 13 - Land Use Covenants

1. *Section 13.4* - Unnecessary language has been inadvertently included in this section and should be deleted. Specifically, language from the third sentence in this subsection, which begins "circumstances which would justify the modification . . ." to the end of Section 13.4.c should be deleted. The same language appears, correctly, in Section 13.5 of the proposed rule.

IV. TYPOGRAPHICAL ERRORS AND INCORRECT CROSS-REFERENCES

In our review of the proposed rule, the WVMA has identified a number of typographical errors as well as several instances in which incorrect cross-references have been made. For ease of reference a mark-up of the proposed rule identifying errors and cross-references by hand-written notation is attached to these comments. We urge the DEP to include these corrections in the final rule.

V. CONCLUSION

The West Virginia Manufacturers Association appreciates the opportunity to provide these comments on the Proposed Voluntary Remediation and Redevelopment Rule. It has truly been a significant accomplishment to develop such a complex rule in a six-month period. We believe the revisions suggested by these comments are necessitated by the compressed time that was allowed for negotiation of this rule. With these proposed changes, however, the WVMA believes that a reasonable and effective rule will have been developed and is pleased to have played part in that development. We look forward to the implementation of West Virginia's voluntary remediation program.

Karen Price

Karen S. Price, President
West Virginia Manufacturers Association
January 29, 1997

exposure pathway describes a unique mechanism by which an individual or population is exposed to chemicals or physical agents at or originating from a site. Each exposure pathway includes a source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source, a transport/exposure medium (e.g., air) or media (in cases of intermediate transfer) also is included.

2.21. Exposure Route. -- The way a chemical or physical agent comes in contact with an organism (e.g., by eating [ingestion], breathing [inhalation], or touching [dermal contact]).

2.22. Fate and Transport. -- The behavior and movement of a chemical through an environmental media.

2.23. Gross Remediation Costs. -- 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.

2.24. Habitat. -- The area or type of environment in which an organism or biological population normally lives or occurs.

2.25. Hazard Index. -- The sum of the hazard quotients for multiple substances and/or multiple exposure pathways.

2.26. Hazard Quotient. -- 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.

Implementability

2.27. ~~Implement Ability~~. -- The technical and administrative feasibility of an action as well as the availability of needed goods and services.

2.28. Inactive property. -- Real property that has previously been used for commercial or industrial purposes but is no longer actively used for such purposes.

greater than two acres, or over an area equal to or greater than 1,000 square feet in sediment.

2.43. Reasonably Anticipated Future Use. -- Potential future land and water uses which have a credible chance of occurrence.

2.44. Reasonably Potential. --A scenario with a credible chance of occurrence without considering extreme or essentially highly unlikely circumstances.

2.45. Receptors (Human). -- Humans potentially exposed to contaminants released from the Site.

2.46. Remedial Action. -- To cleanup, mitigate, correct, abate, minimize, eliminate, control and contain or prevent a release of a contaminant into the environment in order to protect the present or future public health, safety, welfare, or the environment, including preliminary actions to study or assess the release.

2.47. Reopener. -- One or more of the grounds for setting aside some or all of a certificate of completion and reopening a voluntary agreement that is specified in section 16 of this rule.

2.48. Residential Land Use. -- Any real property or portion thereof which is used for housing of human beings. This term includes property used for schools, day care centers, nursing homes, or other residential-style facilities or recreational areas.

2.49. Revolving Fund. -- The Brownfields Revolving Fund established in W.Va. Code, §22-22-6(b).

2.50. Risk-based Concentrations. -- Concentration ~~levels~~ developed by the director for individual chemicals that correspond to a specific incremental cancer risk level of 1 x 10^{-6} for residential land use and 1 x 10^{-5} for industrial land use ~~or a~~ hazard quotient of 1. These concentrations are to be used with the De Minimis Standard.

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

4.1. Pre-application Conference for Brownfield Applicants. A brownfield applicant shall confer with the director and comply with the loan procedures contained in section 15 of this rule before submitting an application to participate in the voluntary remediation program.

4.2. Contents of Application. Any person who desires to participate in the voluntary remediation program shall submit to the chief of the Office of Waste Management an application on a form provided by the director which shall contain, at a minimum, the following information:

4.2.a. The applicant's name. This shall include 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;

4.2.b. The applicant's address. This shall include 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/her current address that will enable the director to locate the applicant;

4.2.c. The applicant's financial capabilities. This shall include, 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;

4.2.d. The applicant's technical capabilities. This shall include, at a minimum, information that the applicant is or has contracted with a licensed remediation specialist to perform the work required;

4.2.e. For brownfield applicants, a Notice of Intent to Remediate in accordance with section 7.1 of this rule, and a certification that he/she, his/her spouse or other member of

4.2.f.8. Where an application covers two or more non-contiguous locations, this information shall be provided for each location.

4.2.g. A site assessment 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, may an application be denied 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 director determines that additional site assessment information is necessary, the submission of such additional information may be addressed in the voluntary remediation agreement.

4.2.h. Other information as requested by the director.

4.3. Application Fee.

4.3.a. Each applicant shall pay an application fee in accordance with this section. The fee is to be submitted at the time the application is filed in the form of a check payable to the Voluntary Remediation Administrative Fund.

4.3.b. Should the applicant withdraw the application at anytime prior to the determination of eligibility by the director, the applicant shall receive a refund of one-half the application fee paid.

4.3.c. If the director rejects the application and applicant does not re-submit a revised application within ~~twenty-five (25) days~~ 25 days the director shall refund one-half the application fee within ~~thirty (30)~~ 30 days of the rejection of the application.

4.3.d. The application fee to be paid shall be calculated based upon the points assigned to the property using the following criteria:

4.3.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

4.3.d.6. If the application covers 2 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. Similar surface/subsurface characteristics shall be construed to be limited to upland, riparian/wetland, karst or other similar land forms as approved by the director. If any of the individual locations includes a surface area greater than 2 acres, a separate application and fee must be submitted for that site.

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

§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 licensed remediation specialist license. Each individual shall have the burden of demonstrating to the director'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. Specific areas of professional responsibility are as follows:

5.1.b.1. The licensed remediation specialist is responsible for any release of contaminants during 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 shall not be considered to be a release. If he or she

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 director on forms supplied by the director. An application fee, as specified in Table 60-3A of this rule, shall be submitted with the application. In order to qualify for the licensed remediation specialist examination, the applicant must demonstrate to the director that the following eligibility requirements have been met:

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 subdisciplines of public health, risk assessment, or hazardous waste management, engineering, or in a curriculum determined to be equivalent by the director. 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. ~~Alternate~~ 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 director's satisfaction that he or she meets the requirements for relevant professional experience. Qualifying relevant professional experience must be 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 shall include, 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. ~~Alternate~~ 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 section ~~5.2.a.2~~ 5.2.b.1 of this rule, the director 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 director deems relevant.

5.2.b.5. The individual applying for licensing shall also provide the director 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 and is not considered acceptable professional experience; provided, however, that the director 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 5.2.a. may request that the director 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 5.2.a.1;

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

5.2.c.3. The director 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 director shall be responsible for implementing the following requirements, at a minimum, of the licensed remediation specialist examination:

5.3.a. Frequency and Scheduling: The director 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 director. The director shall provide public notice at least fifteen days prior to the application due date for the next scheduled examination;

5.3.b. Examination Format/Content: Examinations shall test the individual's overall regulatory understanding, and overall technical understanding. Overall regulatory understanding means an understanding of the relevant West Virginia Division of Environmental Protection regulations, and related written policies and Federal environmental regulations. 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 director shall prepare the licensing examination;

5.3.d. The director shall initially develop a minimum of three separate examinations. No single examination shall be repeated until the other two examinations have been given;

5.3.e. After any of the individual examinations have been used twice, the director shall prepare a minimum of three new examinations;

5.3.f. An individual may take an examination only if the applicable examination fee established by the director has been paid. The examination fee, as specified in Table 60-3A of this rule, shall be submitted after an applicant's eligibility to take the exam has been confirmed with the application. Payment shall be made in full by check or money order payable to the West Virginia Division of Environmental Protection. The examination fee is non-refundable, except in the following circumstances:

7.1.a.6. Proposed methods to remediate the site;

7.1.a.7. Proposed methods to control possible health exposure;

7.1.a.8. Location address of where interested persons may review the notice;

7.1.a.9. Name, address and telephone number of brownfield applicant contact for questions from interested individuals; and

7.1.a.10. Name, address and telephone number of Division of Environmental Protection contact where comments and questions can be received.

7.2. Division of Environmental Protection Notice to the Public.

7.2.a. Upon receipt of a Notice of Intent to Remediate, the Division of Environmental Protection shall publish a summary of the notice in a Division of Environmental Protection publication of general circulation. Information contained in the summary shall meet the requirements set forth in section 7.1 of this rule.

7.2.b. The summary also shall include information on the public's right under the Voluntary Remediation and Redevelopment Act to become involved in the development of the remediation and reuse plans for the site.

7.2.c. The Division of Environmental Protection shall issue a news release summarizing the Notice. The news release shall be sent to media outlets serving the general area where the remediation is proposed.

7.2.d. The Division of Environmental Protection also may post the Notice and information required under this section on the Division of Environmental Protection's Internet Website.

7.3. Notice to Governmental Agencies.

7.7.d. The Public Involvement Plan shall include, but is not limited to:

7.7.d.1. Provisions for further meetings in the community;

7.7.d.2. Opportunities for participants to review and comment on each work plan as well as review and comment on the voluntary agreement before it is finalized and accepted by the director;

7.7.e. The director shall consider comments from participants and the brownfield applicant's responses to comments regarding the voluntary agreement, work plans, and reports before deciding whether to approve the submission;

7.7.f. Means of communicating with a community, which may include, but are ~~not~~ limited to:

7.7.f.1. Brownfield applicant point-of-contact with public;

7.7.f.2. Establish and maintain mailing and telephone list of interested individuals;

7.7.f.3. Newsletter;

7.7.f.4. Doorstep notice to residents and businesses;

7.7.f.5. Newspaper, radio, and television advertisements;

7.7.f.6. News releases to local media;

7.7.f.7. Presentations to local civic organizations; and

7.7.f.g. Citizen advisory panel for development of remediation and reuse plan.

7.7.g. The Public Involvement Plan shall remain in effect until the Certificate of Completion is issued, or until the brownfield applicant withdraws from the brownfields program.

7.8. Technical Assistance. -- At any time during the life of the Public Involvement Plan, the non-brownfield applicant participants may petition the director for technical assistance related to:

7.8.a. Review of site related documents;

7.8.b. Explaining technical information to panel members;

7.8.c. Translating technical information into language understandable to non-technical persons;

7.8.d. Providing assistance in communicating the concerns of the non-brownfield applicant members of the panel to the appropriate persons; or

7.8.e. Such other areas deemed appropriate by the director.

7.8.e.1. Upon receipt of such petition, the director and the brownfield applicant, by mutual agreement, will develop a technical assistance component to the Public Involvement Plan. Comments from other participants shall be considered in the development of such component. The applicant shall be responsible for expenses incurred in this process.

7.9. Public Notice of Applications for Voluntary Remediation Projects. -- Except as to applications from brownfield applicants, upon receipt of an application to conduct a voluntary cleanup under the Act, the Division of Environmental Protection shall publish a summary of the application in a Division of Environmental Protection publication of general circulation. Information contained in the summary shall include:

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

he/she shall be required to comply with sections 7.4, 7.6, 7.7, and 7.8 of this rule.

7.12. Public Involvement/Public Notification in Development of Residential Remediation Goal.

7.12.a. Where required by sections 9.3.d and 9.4.a of this rule, the director shall require a 30-day comment period and information meeting to address residential remediation goals.

7.12.b. To notify the public of the start of the 30-day comment period, the applicant shall comply with sections 7.4.b.5; 7.4.b.6; 7.4.b.7; 7.4.b.8; 7.4.b.9; 7.4.b.10; 7.4.c.; and 7.4.d of this rule.

7.12.c. The applicant shall respond to comments received during the comment period and submit the responses to the director and any commenters.

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

§60-3-8. Risk Protocol.

This section establishes a risk protocol for conduct of 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.c.2.D. U.S. EPA ASTER Data Base;

8.1.c.2.E. U.S. EPA PHYTOTOX Data Base;

8.1.c.2.F. U.S. EPA Terrestrial Toxicity Data Base (TERRATOX);

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

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

8.1.c.2.I. Other U.S. EPA documents acceptable to the director;

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

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

8.1.c.2.L. Data developed in accordance with a peer-reviewed scientific testing protocol and approved by the director.

8.1.d. ~~8.1.c.3.~~ Risk assessments may include the use of fate and transport models subject to director ~~division~~ approval of the model and the data to be used for the parameters specified in the model.

8.1.d.1. ~~8.1.c.3.A.~~ The director ~~division~~ shall insure 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. ~~8.1.c.3.B.~~ Sensitivity analyses of models and data used in model parameters shall be included in risk assessments. Sensitivity analyses shall be based on the range of conditions which historically occurred at the site.

8.1.d.3.
~~8.1.c.3.C~~. For models not included in division guidance documents, a description shall be included in the risk assessments.

8.1.d.4.
~~8.1.c.3.D~~. Where available, the division shall give preference to the use of models and data for which on-site validation is demonstrated.

8.1.e.
~~8.1.c.4~~. The use of population risk estimates in addition to individual risk assessments is provided for as follows:

8.1.e.1.
~~8.1.c.4.A~~. 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.
~~8.1.c.4.B~~. For ecological risk assessments, risk estimates shall be made: (i) at the individual level where any endangered and threatened species is significantly impacted by the proposed activities at the site; and (ii) 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 appropriate sampling approaches and data quality requirements and statistical methods as approved by the director to support the risk assessment and remedy selection process.

8.2.a. Characterization of site contamination. A sufficient number of environmental media samples shall be collected and analyzed as to provide a reasonable characterization of the nature and distribution of site contaminants. The number and location of the samples to be collected shall be of sufficient quantity and quality to calculate the appropriate exposure point concentration as defined in sections 8.4.b.3.B and 8.5.c of this rule.

8.2.b. Media to be sampled. Samples shall be collected and analyzed 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. Not all samples will need to be analyzed for the same contaminants. Samples collected shall be analyzed 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 quality of the analytical data to be used shall be validated by review of a least ten percent of the data or some other percentage agreed to by the director in accordance with standard EPA protocols. Standard EPA protocols for validation may need to be modified, with the director's approval, depending on the type of analyses performed (e.g., Contract Laboratory Protocol or SW-846).

8.2.e. The following statistical approach may be used to demonstrate that a sample population is representative of a larger population: the 95th percentile upper confidence limit on the mean or the maximum value of the site contaminant concentration data shall be a reasonable estimate of a plausible upper-bound value 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)

as provided in Section 9.4.c. of this rule.

8.4. Baseline Human Health Risk Assessments (BHHRA). A BHHRA may be used to provide a characterization of the risks to human health posed by contaminants at the site, given a full evaluation of site-specific conditions. The BHHRA may be used either to:

8.4.a.

[Start new paragraph]

8.4.a.1

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

8.4.a.2.

~~8.4.b.~~ Demonstrate the acceptability of current site conditions with respect to the remediation standards specified in

8.4.b.

this rule. 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 reasonably 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 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 shall be performed. The nature and extent of site contamination, the presence or absence of media that could transport such site contamination, the presence or absence of receptor populations that could be exposed to the contamination, and the likely exposure routes shall be identified; and

8.4.b.3.B. If, following the performance of the exposure pathway analysis, the potential exists for exposure of receptor populations to site contaminants, the magnitude of the exposure shall be quantified in accordance with division guidance documents. At a minimum, exposure levels that approximate an estimate of central tendency and reasonable upper bound of the exposure distribution shall be developed.

8.4.b.4. A toxicity analysis shall be performed if the potential for human exposure to site contaminants is identified and quantified in accordance with section 8.4.b.3.~~A~~.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 section ~~8.4.a~~. 8.1.c.1. of this rule.

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. A site-specific De Minimus screening ecological evaluation as specified in section 9.5 of ~~the Remediation Standards~~ this rule may be performed by the applicant 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, a potentially significant complete exposure pathway is identified, then the applicant shall complete the uniform ecological evaluation as specified in Section 9.6 of this rule to determine if site concentrations exceed benchmark levels. If the applicant proposes remediation goals that exceeds benchmark levels, then, at the director's discretion, a baseline ecological assessment may be required to evaluate potential risks to ecological receptors and to develop appropriate remediation standards based on these risks. If a baseline ecological risk assessment is determined to be necessary, it shall address, but not be limited to, the following information:

8.5.a. Problem Formulation. The purpose (goals) of the assessment shall be identified and the problem defined. 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. A conceptual site model shall be developed to depict how the site conditions might affect ecological components of the natural environment;

8.5.b. Data Quality. Data quality objectives for the site based on the conceptual site model shall be developed;

8.5.c. Exposure Analysis. An exposure assessment that evaluates the potential for and magnitude of ecological effects to receptors of concern considering the conditions that will be present at the site following implementation of the proposed remedial action shall be performed. 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. An ecological response analysis shall be developed which 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 section 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 exposure quantification information in section 8.5.c of this rule shall be integrated 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. Qualitative and/or quantitative uncertainty analyses shall be used as appropriate for each element of the risk assessment.

8.6. Residual Risk Assessments (RRA). Conditions that will be present at the site following implementation of the proposed remedy, should one be needed, shall be considered in residual human health and ecological risk assessments as provided in section 9.4.b of this rule. 8.6.a. [begin new subsection] In the situation where no further action is the proposed remedy, the baseline risk assessment shall serve as the residual risk assessment. 8.6.b [begin new subsection] 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. ~~8.6.a.~~ The exposure conditions that will be present following remediation and the concentrations of untreated waste constituents or treatment residuals remaining at the conclusion of any excavation, treatment, or off-site disposal; and/or

8.6.b.2 ~~8.6.b.~~ 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 [new subsection] The RRA shall be conducted following the same basic steps outlined in sections 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: Probabilistic techniques may be applied to human health and ecological risk assessments. At a minimum, before the commencement of a probabilistic risk assessment, the applicant shall discuss with the director 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 following information shall be provided:

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.g.5. Ecological response estimation; or

8.7.g.6. 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 regulated substance at a site shall select and attain compliance with one or a combination of the following remediation standards:

9.1.a. Human Health:

9.1.a.1. A De Minimis Risk-Based Standard is one in which contaminant levels that pose no significant risks to human health based on any current or reasonably anticipated future land and water use as provided in Section 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 director 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 section 9.3 of this rule;

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 efforts have been made 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 significant risk to human health. If on the basis of the site assessment, these standards are found to be met, no remedial action or further characterization is required and the site is eligible for issuance of a Certificate of Completion by the director or by a Licensed Remediation Specialist as provided by in this rule. If at any time during characterization or remedial action the site is shown to meet the De Minimis standard, no further action is required 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 (<2ft depth) and subsurface (>2ft depth) soils shall be the highest numerical value of the following:

9.2.a.1. Risk-Based Concentrations (RBCs)for human health for residential or industrial site uses that consider direct contact exposures and protection of underlying groundwater quality, as presented in Table 60-3B;

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

9.2.b. ~~9.2.a.3.~~ De Minimis Standards for Groundwater. The De Minimis standards for groundwater shall be the highest numerical value of the following:

9.2.b.1. ~~9.2.a.3.A.~~ Groundwater contaminant concentration limits established in Title 46-Series 12 of the Code of State Rules (46CSR12);

9.2.b.2. ~~9.2.a.3.B.~~ For those contaminants where a concentration limit has not been established in 46CSR12, 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.3.

~~9.2.a.3.C~~. Natural background levels for each constituent as determined by sampling and statistical analyses completed using director approved methods and/or data sources.

9.2.c.

~~9.2.b~~. Carcinogens. For individual known or suspected carcinogens, remediation standards shall be established at levels which represent an excess upper-bound lifetime cancer risk of one in one million ($1x10^{-6}$) for residential land uses and one in one hundred thousand (1×10^{-5}) for industrial land uses.

9.2.d

~~9.2.c~~. 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.

~~9.2.d~~. Should soil or groundwater concentrations meet De Minimis levels, no further action shall be required and the Certificate of Completion can be issued.

Human Health -

9.3. 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 director 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. Surface soil remediation standards for residential or industrial land uses shall be derived by applying site-specific information to the equations and constants from the director's Uniform Risk-Based Guidance or other equations and constants approved by the director considering reasonably anticipated future land and water use.

9.3.b. Uniform Risk-Based Standards for Subsurface Soils. Subsurface soil remediation values shall be derived 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 directors Uniform Risk-Based Guidance or other equations and constants approved by the director shall be applied.

9.3.c. Uniform Risk-Based Standard for Groundwater. Groundwater remediation values shall be derived based on:

9.3.c.1. Current or reasonably anticipated future land and water use;

9.3.c.2. The potential for the groundwater to serve as a source of drinking water. Groundwater that has a background total dissolved solids content greater than 2500 milligrams per liter (mg/l), or where the applicant can demonstrate to the director's satisfaction that the aquifer is not being used, cannot be used, and is not hydrologically connected to an aquifer being used for drinking water; and

9.3.c.3. Migration potentials. The equations and constants described in the directors uniform Risk Based Guidance shall be applied.

9.3.d. Carcinogens. For individual known or suspected carcinogens, remedial standards shall derived under sections 9.3.a, 9.3.b, and 9.3.c of this rule shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one in one million (1x10-4 to 1x10-6). If carcinogenic risk greater than 1x10-6 is considered for development of residential remediation goals, public notification shall be required as specified in section 7.12 of this rule.

9.3.e. Systemic Toxicants. For individual systemic toxicants, remedial standards derived under sections 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 one.

9.3.f. Cumulative Site Risk. Cumulative site risk from exposure to known or suspected carcinogens shall not exceed one in ten thousand ($1x10^{-4}$); and 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 multiple systemic toxicants do not affect the same organ.

9.3.g. Should Uniform Risk-Based soil or groundwater concentrations be met, no further action shall be required and the Certificate of Completion can be issued.

9.4. Human Health – Site-Specific Risk-Based Standard. Site-Specific Risk-Based Standards shall be developed using the procedures and factors established by this section. In establishing the remediation standard under this section, 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 shall be considered.

9.4.a. Carcinogens. For individual known or suspected carcinogens, remedial standards shall derived under this section~~s~~ ~~9.3.a, 9.3.b, and 9.3.c of this rule~~ shall be established at levels which represent an excess upper-bound lifetime risk of between one in ten thousand to one million (1x10-4 to 1x10-6). If carcinogenic risk greater than 1x10-6 for individual carcinogens is considered for development of residential remediation goals, public notification shall be required as specified in section 7.12 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 one. 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 multiple systemic toxicants do not affect the same organ.

along with other relevant information for establishing and applying such standards to specific sites. The guidance document shall be revised 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 will be reviewed by independent scientists recognized as experts in relevant risk assessment disciplines. The director shall incorporate as appropriate the comments of scientific reviewers into the guidance document or decisions regarding risk-based standards or methods. These services will be contracted through arrangements made by the director with a nonprofit organization governed by a board of directors representing the diverse interests of West Virginia.

9.5. Ecological -- De Minimis Screening ~~Ecological~~ 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 director 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 shall be considered when evaluating whether or not to perform an ecological risk assessment include but are not limited to the following:

9.5.a.1. Evaluate 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, lack of valued ecological receptors, including threatened or endangered species. This helps screen out minor sites of no practical ecological value and prevent "parking lot ecology." The exception to this would be the case where endangered species are receptors of concern;

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 exist or other conditions specified in section 9.5.a. of this rule or the Screening Ecological Evaluation Guidance are met, no further action shall be required and the Certificate of Completion can be issued.

Ecological -

9.6. 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, these standards are found to be met, no remedial action or further characterization is required and the site is eligible for issuance of a Certificate of Completion by the director or by a Licensed Remediation Specialist. If at any time during characterization or remedial action the site is shown to meet the Uniform Ecological Evaluation, no further action is required and the Certificate of Completion can be issued. If site contaminants exceeds benchmark criteria, the applicant can propose remediation goals protective of ecological receptors of concern. If the applicant chooses to remediate to benchmark levels, the following shall be used:

9.6.a. Uniform Standards for Soils/Sediments. The Uniform Standards for surface (<2 ft. depth) soils shall be the highest of the following numerical value:

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

9.6.a.2. Anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using director-approved methods and/or data sources.

9.6.b. Uniform Standards for Surface Water. The Uniform standards for surface water shall be the highest of the following numerical value:

9.6.b.1. Federal Ambient or State Water Quality Criteria;

9.6.b.2. For those contaminants where a Federal or State Water Quality Criteria has not been established, applicable NOAEL (No Observable Adverse Effect Level) or LOAEL (Lowest Observable Adverse Effect Level) values will be used, as presented in division guidance documents; or

9.6.b.3. Anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using director-approved methods and/or data sources.

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

9.6.c.1. Federal Ambient or State Water Quality Criteria;

9.6.c.2. For those contaminants where a Federal or State Water Quality Criteria has not been established, applicable NOAEL (No Observable Adverse Effect Level) or LOAEL (Lowest Observable Adverse Effect Level) values will be used, as presented in division guidance documents; or

9.6.c.3. Anthropogenic background levels for each constituent as determined by sampling and statistical analyses completed using director-approved methods and/or data sources.

9.7. Ecological – Site-Specific Risk-Based Standard. Site-Specific Risk-Based Standards shall be developed using the procedures and factors established by this section.

9.7.a. In establishing the remediation standard under this section, 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 shall be considered.

9.7.b. For individual toxicants, remedial standards shall represent levels to which sensitive (i.e., threatened 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 director shall either approve or disapprove all work plans and reports within 30 days of receipt or within a shorter period if specified in the parties' voluntary remediation agreement. Any such action taken on a work plan or report must be confirmed in writing and received by the applicant within the 30-day period or within such shorter period specified in the parties' voluntary remediation agreement. An extension of time for approval or disapproval of work plans or report may be mutually agreed to between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing.

10.3.b. ~~After~~ If work plans or reports are resubmitted, the director shall approve or disapprove the resubmitted work plans or reports within 30 days of receipt or within such shorter period specified in the parties' voluntary remediation agreement. 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. An extension of time or action on resubmitted work plans or reports may be mutually agreed to between the applicant and the director. If an extension of time is mutually agreed to by the director and applicant, it must be confirmed in writing. If resubmitted work plans or reports are not approved by the director, then the director 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 work plans or reports are not approved or disapproved within 30 days of receipt by the director or within such shorter time specified in the parties' voluntary remediation agreement, or if resubmitted work plans or reports are not approved or disapproved within 30 days of receipt by the director or within such shorter time specified in the parties' voluntary remediation agreement, then the work plans or reports will be

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 6 of this rule;

12.3.b.2. The applicant and the persons identified in section 18 of the Act ~~are~~ (1) 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 (2) 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 such obligations are no longer satisfied with the result that the applicable standards approved for the site are no longer being met, or continued compliance with the applicable standard is threatened, the director shall initiate action to insure the site is brought into compliance in accordance with section 14 of this rule to 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;

the licensed remediation specialist may issue the certificate of completion.

12.5. Effective Date.

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

12.5.b. A certficiate of completion issued by a licensed remediation specialist shall become effective when signed by the licensed remediation specialist after notice to the director in accordance with section 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 standards shall be contained in a land use covenant. Such use restrictions may include prohibiting residential development of some or all of the site, or requiring maintenance of engineering or institutional controls.

13.2. Each land use covenant shall contain the following:

13.2.a. A reference to the voluntary remediation agreement;

13.2.b. A provision that the applicant, and his 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;

13.2.c. Directions to the Clerk of the County Commission to return the covenant to the director with evidence that it has been recorded;

13.2.d. A statement indicating whether residential or non-residential exposure assumptions were used to comply with a site-specific remediation standard;

13.2.e. A provision which allows the director to enforce the restrictions contained in the land use covenant; and

13.2.f. A provision which states that the restrictions and other requirements described in the land use covenant shall run with the land and shall be binding upon any future owners and their grantees, lessees, authorized agents, employees or persons acting under their direction or control.

13.3. Land use covenants shall not contain any requirements or obligations other than those necessary to allow the site to meet applicable standards.

13.4. The director shall cause the land use covenant to be recorded in the deed book of the county in which the site is located. A form similar to that found in Appendix 60-3D or 60-3E shall be used. A copy of the recorded land use covenant shall be forwarded by the director to the applicant and, where the applicant is not the owner of the property, to the owner who executed the land use covenant. Circumstances which would justify the modification or release of a land use covenant may include, but are not limited, to the following:

13.4.a. Environmental conditions at the site change in such a manner that the restrictions imposed by the land use covenant are no longer required in order to meet applicable standards;

13.4.b. Further remediation has occurred at the site to such an extent that the exposure assumptions used for the site are no longer applicable; or

13.4.c. The applicable standard changes in such a manner that the restrictions imposed by the land use covenant are no longer required.

13.5. Land use covenants may be modified or released if the modification or release is in writing, signed by the director and the owner at the time of such modification or release, and filed in the office of the Clerk of the County Commission in the county in which the property is located. Circumstances which would justify the modification or release of a land use covenant may include, but are not limited to, the following:

13.5.a. Environmental conditions at the site change in such a manner that the restrictions imposed by the land use covenant are no longer required in order to meet applicable standards;

13.5.b. Further remediation has occurred at the site to such an extent that the exposure assumptions used for the site are no longer applicable; or

13.5.c. The applicable standard changes in such a manner that the restrictions imposed by the land covenant are no longer required.

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

14.1. If at any time the director 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 remediation standard approved for the site is no longer being met, or continued compliance with the remediation standard is threatened, the director shall issue notice of such determination by providing written notice through certified/registered mail to the current owner or operator of the site. Such notice shall identify the obligations that are not being satisfied and the appropriate corrective action that must be taken.

14.2. Any person aggrieved by the director's determination under section 14.1 of this rule may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code §22B-1-7.

14.3. 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

15.2. Qualifying Activities:

15.2.a. Money may be loaned to an applicant from the Revolving Fund for the site assessment of a brownfield property; or

15.2.b. Money may be loaned to an applicant from the Revolving Fund for activities at brownfield sites other than site assessments to the extent monies are appropriated to, or received by, the Revolving Fund for purposes other than site assessments.

15.3. Loan Conditions.

15.3.a. The director shall require periodic reports from each applicant of all expenditures of funds loaned to the applicant from the Brownfield Revolving Fund;

15.3.b. Where the applicant is the owner of the property upon which the site assessment is to be performed, the director shall require a deed of trust to be executed or any other collateral of equal or greater value to secure the loan; and

15.3.c. Where the applicant is not the owner of the property upon which the ~~ste~~ site assessment is to be performed, the director shall require appropriate collateral to secure the loan, except where the applicant is a development authority or other public entity.

15.4. Repayment.

15.4.a. Loans shall be repaid at a rate of interest determined by the director at the time the application is approved. The loans shall be low interest. For a public entity, the interest rate shall be from 0% to 3%. For a private entity the interest rate shall be the prime rate less three percent; and

15.4.b. Loans shall be repaid in equal installments over a period of no longer than 10 years, as allowed by the director.

§60-3-16. Reopener Provisions.

remediator and the current occupant, and any other person who has asked to be notified of any actions regarding the site.

16.3. Any person aggrieved by the director's determination under Section 16.2, may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code § §22B-1-7.

16.4. 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 section 16.1 or 60 days from issuance of a final order of the Environmental Quality Board where an appeal is taken as provided in section 16.2, unless prior to such time at least one of the following occurs:

16.4.a. Where the initial remediator seeks to maintain the certificate of completion then in effect, the initial remediator shall:

16.4.a.1. Enter into an agreement with the director to reopen and revise the voluntary agreement to the extent necessary to return the site to its previously agreed to state of remediation; or

16.4.a.2. Agree to reopen and revise the voluntary agreement to the extent necessary to achieve an alternative appropriate standard as determined by the director;

16.4.b. Where some person other than the initial remediator seeks to maintain the certificate of completion then in effect, such person shall:

16.4.b.1. Enter into a voluntary agreement with the director in accordance with the requirements of these rules which contains such provisions as are necessary to assure that the property meets the state of remediation previously agreed to or another appropriate standard as determined by the director.

§60-3-17. Appeals of Rulings of the Director.

17.1. If at any time the director 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 remediation standard approved for the site is no longer being met, or continued compliance with the remediation standard is threatened, the director shall issue notice of such determination by providing written notice through certified/registered mail to the current owner or operator of the site. Such notice shall identify the obligations that are not being satisfied and the appropriate corrective action that must be taken.

17.2. Any person aggrieved by the director's determination under section 17.1 of this rule may appeal such ruling to the Environmental Quality Board in accordance with the provisions of W. Va. Code S 22B-1-7.

17.3. 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 section 17.1 of this rule, or 60 days from issuance of a final order of the Environmental Quality Board affirming the action of the director where an appeal is taken as provided in section 17.2 of this rule, unless prior to such time the current owner or operator takes action to assure that all obligations imposed by the certificate are satisfied.

IV. PARTIES BOUND

6. This Agreement shall apply to and be binding upon the applicant, its officers, directors, 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.

7. The applicant shall provide a copy of this Agreement to any subsequent owners or successors before ownership rights are transferred.

V. DEFINITIONS

8. "Day" or "calendar day" means the 24-hour period between 12:00 A.M. - 12:00 A.M.

9. "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.

10. "Rules" means those rules adopted by the director of the Division of Environmental Protection pursuant to the Voluntary Remediation and Redevelopment Act, W. Va. Code §§22-22-1 through 22-22-21.

11. "Site" shall be used in the manner as defined by W.Va. Code §22-22-2 and for purposes of this Agreement means the property located in __________________, West Virginia, and is more particularly described in the Application for Participating in the Voluntary Remediation Program attached and incorporated herein as Exhibit "A".

12. All other terms contained in this Agreement shall be used in the manner as defined by W.Va. Code §22-22-2 or the rules.

VI. STATEMENT OF PURPOSE

13. 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.

14. The activities conducted by the 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 the applicant shall be consistent with this Agreement, all applicable laws and regulations and any appropriate guidance documents.

VII. EVALUATION OF SITE ASSESSMENT

15. 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.

16. The parties agree that the applicable standard for this site, consistent with [insert cite to rule relating to remediation standards] is as follows:

[Insert appropriate standard and, where applicable, a description of any engineering or institutional controls for this site, as agreed upon by the Parties.]

17. The statutes and regulations for which compliance is mandated in connection with the investigation or remediation of this site are as follows:

[Insert appropriate list of statutes and rules.]

18. The 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 16 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.]

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

VIII. RECORD PRESERVATION

20. The applicant agrees to preserve, for a minimum of three 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, the applicant shall make available to WVDEP such records, or copies of any such records.

IX. RESERVATION OF RIGHTS

21. WVDEP and applicant reserve all rights and defenses they may have pursuant to any available legal authority unless expressly waived herein.

22. 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.

23. The 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 the applicant in connection with the site.

24. 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.

X. PUBLIC NOTIFICATION/INVOLVEMENT

25. [For brownfield applicants, insert provision requiring compliance with approved-public involvement plan, where appropriate]

XI. ADMINISTRATIVE COSTS

26. Applicant agrees to reimburse WVDEP for all of its reasonable administrative costs associated with this Agreement in the amount of $____________________ within ~~thirty (30)~~ 30 days of the effective date of this Agreement with a check made payable to the Voluntary Remediation Fund and be mailed along with a transmittal letter stating the site name and address to the West Virginia Division of Environmental Protection; Attention: ____________________, ____________, West Virginia. Reimbursable costs under this provision shall be those costs for which reimbursement is required under the rules.

XII. [IF APPLICABLE] LAND USE COVENANTS

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

XIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

28. The effective date of this Agreement shall be the date on which the applicant receives notice that this Agreement has been signed by the director of WVDEP.

29. This Agreement may be amended by mutual agreement of WVDEP and the applicant. Amendments shall be in writing and shall be effective when the applicant receives notice that the amendment has been signed by the director of WVDEP.

30. If the director determines that there is an imminent threat to the public, he or she may unilaterally modify or amend this Agreement.

XIV. TERMINATION AND SATISFACTION

31. Upon completion of the final report prepared by the licensed remediation specialist, the applicant may seek a Certificate of Completion from the director. Upon receipt of a request for a Certificate of Completion, the director shall determine that the site meets applicable standards for those areas of the site and for those contaminants identified in the voluntary remediation agreement and that the applicant has complied with the voluntary remediation agreement and any approved work plans for the site. Upon making this determination, the director shall issue a Certificate of Completion which conforms substantially to Appendix 60-4C of the rule. Where a land use covenant is required by this Agreement, such 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 director determines that the certificate should not be issued because the work required by this Agreement and any approved work plans has not been completed or because the site does not meet applicable standards the director shall initiate the procedures relating to denial of a certificate as provided in the rules.

32. The provisions of this Agreement shall be satisfied and this Agreement shall end when the director issues the Certificate of Completion.

XV. REOPENER

33. This Agreement may be reopened upon agreement of the parties or upon occurrence of one or more of the conditions of W.Va. Code §22-22-15 and the rules implementing that section.

XVI. GOVERNING LAW

34. This Agreement will be governed by the laws of the State of West Virginia.

____
APPLICANT

____
DATE

Division of Environmental Protection Response to public comments on the proposed Voluntary Remediation and Redevelopment Act.

Comment: Include the phrase "in accordance with the provisions of W. Va. Code § 22B-1-7" after the phrase "Environmental Quality Board" in Section 12.2.c.2.

DEP Response: DEP agrees to add the phrase so that appeals of DEP decisions will be handled consistently throughout the document.

Comment: Requests the DEP to state its commitment to negotiate the voluntary remediation agreements in an expeditious manner, and within the 30-day time period provided in the statute, wherever possible.

DEP Response: Clearly the DEP has no intent to delay the negotiation of voluntary remediation agreements which will result in the remediation of contaminated sites. The DEP will negotiate the voluntary remediation agreements as expeditiously as possible. To expedite the process the applicants also have an obligation to become knowledgeable of the requirements of the VRRA rule and commit to initially submitting accurate and complete information.

Comment: Development of guidance documents referenced in the Risk Protocol and Remediation Standards Sections of the rule.

DEP Response: The DEP is committed to drafting the guidance documents with support from the Standards Subcommittee members. A meeting has been scheduled in late February to begin this process. The DEP agrees that these documents should be filed as an interpretive rule to allow for public notice and comment before the guidance documents are utilized. The DEP is also committed to seeking review by independent scientists recognized as experts in relevant risk assessment disciplines pursuant to section 9.4.g. of the VRRA rule. The DEP fully supports the intent of these provisions to continuously review and improve the scientific methodologies and knowledge base as a necessary prerequisite to increasing the public's confidence in the DEP's implementation of the VRRA rule.

Comment: Revision to the "cumulative site risk", "exposure route" and "exposure pathway" definitions.

DEP Response: The DEP will revise the definitions as discussed by members of the Standards Subcommittee to clarify the intent.

Comment: Replace the word "persons" with the phrase "an individual" in the definition of "Licensed Remediation Specialist".

DEP Response: The DEP will make the recommended change. The DEP agrees that "persons" is defined broadly in the VRRA and is inappropriate for the purpose of the licensing process. The DEP believes it was clearly intended for the Licensed Remediation Specialist to demonstrate advanced knowledge of site assessment and remediation principles and practices. This can only be demonstrated on an individual basis. An individual who meets the requirements for licensure can leave the firm or corporation or be transferred to unrelated duties and, therefore, the only logical way the intent of the rule can be met is for the licensing process to apply only to the individual.

Comment: Revision to the definition of "systemic toxicant".

DEP Response: The DEP will revise the definition in conjunction with an associated comment to add new subsections 9.2.e, 9.3.f., and 9.4.c. to clarify that if a contaminant exhibits both carcinogenic and noncarcinogenic effects, then the lower of the two risk-based standards shall be used as the remediation standard.

Comment: Revise section 3.1.b to allow sites that have completed the very rigorous Superfund process to qualify for the voluntary remediation program if they can otherwise satisfy the state requirements.

DEP Response: The DEP will revise the section by clarifying that sites that have been delisted by EPA will be eligible for the voluntary remediation program as recommended. The DEP believes that it was clearly intended for all sites which have "been listed or proposed to be listed by the United States environmental protection agency on the priority list of Title I of said act" to be excluded from participation in the voluntary remediation program. However, sites that have completed remediation in the Superfund program may be formally delisted and would not meet the intent of this exclusion.

Comment: DEP should clarify that inclusion on the CERCLIS list does not constitute a proposal for listing on the NPL.

DEP Response: The DEP agrees that EPA does not interpret the CERCLIS list as a proposal for listing the sites on the National Priority List (NPL). The CERCLIS list is a comprehensive database that tracks all sites where some evidence or complaint has indicated that contamination may be or is known to be present. DEP agrees that EPA has a very well documented series of steps to add a site to the NPL.

Comment: Request for DEP to clarify that a notice of violation or notice of noncompliance would not trigger disqualification.

DEP Comment: A notice of violation, a notice of noncompliance or a consent order would not cause disqualification. The DEP believes the intent was to disqualify only those sites where a unilateral enforcement order has been issued. However, this should not be interpreted to mean that a hastily prepared application can shelter a person from a unilateral enforcement action. It will be the intent of the DEP to reject any application where the DEP was taking reasonable actions to complete investigations and issue a unilateral enforcement order. The DEP may also reject an application if a federal requirement precludes eligibility of the site. Since most of DEP unilateral enforcement orders are carried out in accordance with EPA authorized programs, this provision would also prevent the voluntary remediation program from being used as a shelter from being issued a unilateral enforcement order. This will cease to be an issue following acceptance of an application where the voluntary remediation agreement will address compliance with all state and federal laws.

Comment: Request for DEP to clarify that sites which are no longer subject to unilateral enforcement orders may participate in the voluntary remediation program.

DEP Response: The DEP has a formal process for closing DEP unilateral enforcement orders following successful compliance with the provisions of the order. It will be the intent of DEP to allow the participation of sites in the voluntary remediation program that have successfully complied with the unilateral enforcement orders and have received DEP close out confirmation.

Comment: Time frame for the Director's action on the application should be repeated in the rule.

DEP Response: The DEP accepts the comment and will incorporate the language.

Comment: Clarify that an appeal of the rejection of an application as allowed pursuant to 22-22-4(h) can be processed with the Environmental Quality Board.

DEP Response: The DEP will add the recommended language as a revised 4.2.h. to provide for the appeal to the Environmental Quality Board. However, the DEP does not believe that this language prevents the applicant and DEP from establishing other appropriate mechanisms of dispute resolution in the voluntary remediation agreement.

Comment: Add phrase to clarify that the site assessment must be prepared by a licensed remediation specialist (LRS).

DEP Response: The DEP will add the phrase "prepared by a licensed remediation specialist" to section 4.2.g. DEP agrees with the commenter that it should be clear to everyone that site assessments must be performed by a LRS or the application will be rejected.

Comment: Move two sentences to a different section so that provisions relating to the duty of the LRS will appear in the same subsection.

DEP Response: The DEP will move the sentences.

Comment: Rule provides for 72 hours for the owner of the property to notify the DEP that the relationship with the LRS has been severed while the voluntary remediation agreement form in the appendices provides for 5 days.

DEP Response: The DEP will change the form to provide for 72 hours. The requirement calls only for notification and DEP believes that 72 hours is sufficient time to let the agency become aware that the site work has stopped because of the departure of the LRS.

Comment: Request that the DEP confirm that the waiver provided in 5.3.l. is not a complete waiver from all LRS requirements.

DEP Response: The DEP agrees with the commenter. The reciprocity provision provided in 5.3.l. applies only to the "examination" and not to the other obligations such as sufficient education and experience. Please note that section refers to the letter l and not the number 1 in 5.3.1.

Comment: DEP should provide some sort of guidance statement or policy document identifying the type of equivalent experience or other educational courses which would be deemed "acceptable" for LRS continuing education.

DEP Response: DEP will provide guidance that better defines the acceptable "evidence of continuing education in the environmental remediation field". DEP recognizes that this guidance should be available in time for the LRS to obtain acceptable training by the renewal date.

Comment: Recommends a revision of section 5.4.d that grants the same appeal process for the denial of license renewal as was provided for the suspension and revocation of a license.

DEP Response: The DEP will revise the section as recommended. DEP agrees with the commenter that the LRS should have the same right of appeal if license renewal is denied.

Comment: Procedures specified in section 5 deviate to some extent from the procedures in 22-22-12(b) relating to enforcement orders.

DEP Response: The authority for the Director to revoke or suspend a license is granted in 22-22-11(j). The provisions of sections 5 in the rule establishes the "criteria" for the suspension or revocation of LRS license. Section 12 of the Act establishes actions the Director can take against a LRS "if the Director, upon inspection, investigation or through other means observes, discovers or learns that a licensed remediation specialist has violated the provisions of this article or any rules promulgated hereunder." The DEP believes that Sections 11 and 12 of the Act were intended to address separate issues and, therefore, it is appropriate if section 5 of the rule deviates from the procedures in section 12 of the Act. The DEP does not believe it is appropriate to incorporate the commenter's recommended language.

Comment: Recoverable costs should be a function of three factors: the hourly rate of a primary employee, the number of hours worked on a specific project by such primary employee, and the constant 2.5. The proposed language of 6.1.b.4. does not mention the hours worked by the primary employee. The commenter proposes language to correct the deficiency. Also, language in 6.1.b.3. should be made similar to language in 6.1.b.1. and 6.1.b.2. to avoid confusion in recovering the cost for support staff.

DEP Response: DEP will incorporate the commenter's recommended language. DEP agrees that the intent of the Steering Committee was to determine recoverable costs as a function of the three factors and that the number of hours worked on a specific project by the primary employee factor was inadvertently left out. DEP also agrees that the 2.5 factor was intended to be the mechanism in which secretarial and support staff costs would be recovered and that is why these positions were specifically excluded from the definition of "primary employee."

Comment: The term "hourly rate" is not defined.

DEP Response: The DEP will adopt the recommended definition of "hourly rate."

Comment: Section 6.1.h. refers to "listing of the applicable standards to be calculated at the site". The commenter recommends replacing the word calculated with the word achieved.

DEP Response: The DEP will make the recommended change.

Comment: Recommends the inclusion of general language at the beginning of section 7 which describes the scope of the various subsections.

DEP Response: The DEP will include the recommended language. DEP agrees that since public participation/public notification provisions were authorized under three separate sections or subsections in the law, the general language recommended reflects the intent of the Steering Committee on this issue.

Comment: Replace the term "non-Brownfield applicant participants" with the phrase "participants other than Brownfield applicants."

DEP Response: The DEP will make the recommended change.

Comment: Supports the Standards Subcommittee recommendation to include language to section 7.4.c. which describes the substance of the information to be provided at the information meeting.

DEP Response: Several commenters supported the Standards Subcommittee recommendation. DEP will add the recommended language which states "The information meeting shall address how remediation issues are applied to the site, site risk issues including key risk assessment assumptions, uncertainties, populations considered, the context of site risk to other risks, and how the remedy will address site risks."

Comment: Supports the language revision in sections 7.1.2. and 7.12.a recommended by the Standards Subcommittee.

DEP Response: Several commenters supported the recommended language revision that corresponds with changes recommended for sections 9.3.d and 9.4.a. of the rule. DEP will make the recommended language revisions to sections 7.12. and 7.12.a.

Comment: Provisions within Section 8.1.c.3. should be renumbered.

DEP Response: The DEP will make the recommended changes. DEP agrees that the renumbering is needed to properly organize the subject matter.

Comment: Reorganization of the section 8.4. is needed and a phrase should be added to distinguish between the provisions.

DEP Response: The DEP will make the recommended changes. DEP agrees that the reorganization is needed to clarify the intent of the section.

Comment: Revise the first sentence in section 8.5.c. to reflect a Baseline Ecological Site Assessment.

DEP Response: The DEP will make the recommended change. DEP agrees that the language that represents the conditions of the site "following implementation of the proposed remedial action" are correctly addressed in Section 8.6.

Comment: Recommends a revision of section 8.6 to clarify that there is no intent to unnecessarily duplicate risk assessments.

DEP Response: The DEP will add section 8.6.a. as recommended to state "In a situation where a baseline risk assessment has been conducted and where no further action is the proposed remedy, the base line risk assessment may serve as the residual risk assessment."

Comment: Recommends that a sentence that has been misplaced in section 9.1.a.3(site specific risk-based standard) be added to section 9.1.a.2.(uniform risk-based standard for human health) to be consistent with the provisions of section 9.1.b.2.(uniform ecological standard).

DEP Response: The DEP will make the recommended change.

Comment: Recommends that section 9.2.a.1. be restructured to clarify that Table 60-3B currently provides risk-based concentrations only where the soil ingestion pathway is the major contributor to risks identified in the site assessment, and that risk-based concentrations for human health for residential or industrial site uses that consider protection of underlying groundwater be reserved for future rule promulgation.

DEP Response: The DEP will revise the language to reserve the section of the rule for Risk-based Concentrations (RBCs) for human health for residential or industrial sites uses that consider other exposure pathways which could be found to be a major contributor to the risk identified in site assessments and not just the protection of underlying groundwater. The risk-based concentrations provided in Table 60-3B were adopted from current EPA guidance. The EPA guidance clearly establishes that the risk-based concentrations are calculated based on the soil ingestion pathway and are not applicable if other exposure pathways are determined to be the major contributors to risk. The DEP has commited to work with the Standards Subcommittee to develop the equations and constants necessary to calculate risk-based concentrations for other exposure pathways. DEP agrees that due to time and resource constraints the only option is to reserve this section of the rule.

Comment: Recommends restructuring section 9.2.a.3 and the subsequent paragraphs to reflect the De Minimus standards for groundwater.

DEP Response: The DEP will make the recommended change. DEP agrees that the sections relating to De Minimus standards for soils and the De Minimus standards for groundwater should be clearly designated in the rule.

Comment: Recommends revision of section 9.3.c.2. to clarify that it is the drinking water use that is protected. Related comment urges adding a reference to the term "beneficial use" in order to assure consistency with the Groundwater Act.

DEP Response: The DEP will revise the section to be grammatically complete and to clarify intent by adding the words "for future drinking water sources, and" after the words "cannot be used" and by adding the words "shall not be considered a current or potential source of drinking water" after the words "drinking water" on the last line of the section. The Groundwater Protection Act uses the phrase "beneficial use" to guide the Environmental Quality Board in establishing standards. The DEP believes the VRRA rule is consistent with the Groundwater Protection Act and that a reference to the phrase "beneficial use" may confuse readers with regard to which agency has responsibility for implementing the beneficial use concept.

Comment: Recommend additional language in section 9.3.d. and 9.4.a. regarding public notification/public involvement in risk assessments where industrial land use standards are applied to voluntary remediation sites.

DEP Response: The DEP will make the changes recommended by the Standards Subcommittee in the memorandum dated January 28,1997. The change adds the words "or greater than $1x10^{-5}$ for development of industrial remediation goals" after the words "residential remediation goals" in the last sentence of both sections. This change will address the concern of several commenters who referenced the requirement of section 22-22-3(f)(10) in the Act. The changes to sections 9.3.d. and 9.4.a. are directly related to the changes that have previously been addressed in this document for sections 7.4.c. and 7.4.12.a.

Comment: Recommends adding the phrase "per receptor" at the end of the first sentence in section 9.3.f.

DEP Response: The DEP will make the recommended change. DEP agrees that the change clarifies the discussion of cumulative site risk. Please note that the proposed section 9.3.f is now 9.3.g.

Comment: Recommends changing the last clause in sections 9.3.f., 9.4.b. and 16.1.c.1. to clarify that where there is no information that multiple systemic toxicants affect more than one organ, the assumption should be that a hazard index of ten will be used to determine the cumulative site risk.

DEP Response: The DEP will make the recommended change. DEP agrees that the recommendation clarifies the assumption used to determine the cumulative site risk.

Comment: Recommends that the heading and first sentence of section 9.4 be rewritten to connect and cross-reference the risk assessment provisions in section 8 with the standard-setting of section 9.

DEP Response: The DEP will make the recommend change.

Comment: Recommends adding language to explain which of the two exposure risk factors applies when a pollutant exhibits both carcinogenic and noncarcinogenic effects.

DEP Response: The DEP will make the recommended change by adding new sections 9.2.d., 9.3.f. and 9.4.c that state "If a contaminant exhibits both carcinogenic and noncarcingenic effects, then the more conservative risk-based standard (i.e., the lower of the two values) shall be used as the remediation standard."

Comment: Recommends removing extraneous comment from sections 9.5.a.2 and 9.5.a.3. that are not appropriate for inclusion in the rule.

DEP Response: The DEP will make the recommended changes.

Comment: Recommends revision to section 9.9.g. to clarify that the groundwater monitoring plan required for natural attenuation is intended to require monitoring upgradient of receptors of concern, in order to give warning of the advance of a groundwater plume before the contamination reaches the receptor, and downgradient of the leading edge of the plume, in order to confirm that the plume is not advancing faster than expected.

DEP Response: DEP will make the recommended revision. DEP agrees with the commenters description of the intent of the groundwater monitoring plan and agrees that the recommended revision clarifies the intent.

Comment: Recommends changing language in section 11.8 to work appropriately with the language in 12.b.5 (DEP assumes that the commenter intended to refer to section 12.5.b. since there is no section 12.b.5).

DEP Response: The DEP will make the recommended change. The revision will allow the applicant to receive the certificate of completion before filing the land use covenant, but the certificate of completion will not become effective until after the land use covenant has been filed pursuant to 12.5.b. The DEP believes that this revision reflects the intent to give the applicant the opportunity to determine that all requirements had been met and a certificate of completion would be issued before the land use covenant is filed, but, also allows the provisions of the certificate of completion to be disregarded until the land use covenant is filed.

Comment: Recommends that the section 12.2.b. be revised to reflect the time frame for the Director's action on the Certificate of Completion.

DEP Response. DEP will make the recommended revision by deleting the phrase " that determination" and replacing it with the phrase " receipt of a request for a certificate of completion from the applicant."

Comment: Recommends that section 12.4 be revised to reflect the circumstances under which the certificate of completion may be issued by the LRS

DEP Response: The DEP will make the recommended change. DEP agrees with the commenter that the revision reflects the intent of the Steering Committee to allow the LRS to issue certificates of completion for any site that is in compliance with the De Minimus standard set forth in sections 9.2 and 9.5, provided that a final report is issued and the Director is given notice of the LRS's intention to issue a certificate of completion for the site. The DEP historically has received numerous requests to review site assessments performed primarily for property transactions. Many of these sites are likely candidates for receiving certificates of completion for achieving the De Minimus standard. The requirements placed on the LRS by this rule are believed to adequate to allow the LRS to issue the certificate of completion.

Comment: Recommend unnecessary language be deleted from section 13.4 because the same language correctly appears in section 13.5.

DEP Response: The DEP will make the recommended change.

Comment: Typographical errors and incorrect cross-references should be corrected.

DEP Response: Several commenters provided assistance in identifying the typographical errors and incorrect cross-references. DEP has reviewed these comments and will make the changes.

Comment: Recommends that the Director state in the response to comments that the jurisdiction for remediation under this program extends to stream beds and lake bottoms and to the remediation of contaminated buildings and other structures or equipment that may be located on the real property to be remediated.

DEP Response: DEP agrees with the commenter that the definition of "site" and "property" would extend the jurisdiction of this program to stream beds and lake bottoms and to the remediation of contaminated buildings and other structures or equipment that may be located on the real property to be remediated. It should be noted that section 6.1.f. of the rule requires " a listing of all environmental statutes and rules for which compliance is mandated". Other existing statutory mandates would likely become a major factor in the negotiation of the voluntary remediation agreement. Because of the limited time available for the DEP to respond to these comments, DEP is not prepared to state whether or not federal requirements exist which would preclude the eligibility pursuant to 22-22-4(f)(1) of the Act.

Comment: Recommends that the DEP add language to 5.1.b.4. that states an LRS shall not be considered to have a conflict if the specialists are serving in that capacity for their employers.

DEP Response: The DEP agrees that the LRS is not considered to have a conflict of interest with their employer simply because the LRS is serving in that capacity for their employer. The rule provides for enforcement mechanisms and the suspension and revocation of license for any LRS that violates the provisions of the Act or the rule. The DEP will pursue enforcement and/or suspend or revoke the license of any LRS where an investigation determines that the act of being employed by the applicant has caused a situation where the LRS would be unable or unwilling to comply with the provisions of the law and rule.

Comment: Recommends the "adoption of a cap or this mechanism as exists for the application fees" to be applied to section 6.1.b. which requires the recovery of all reasonable costs incurred by the DEP attributable to the implementation of the voluntary remediation agreement.

DEP Response: Section 22-22-7(c) of the Act states that "A voluntary remediation agreement must provide for cost recovery of all reasonable costs incurred by the division in review and oversight of the person's work plan and reports as a result of field activities or attributable to the voluntary remediation agreement." The DEP is not authorized to "cap" the cost recovery amount expended for mandated activities which would, in effect, create an unfunded mandate for the state. The rule does provide for the ability of the applicant to track the expenditures of the DEP and thus hold the DEP accountable to the "reasonable costs" provision. Section 6.1.b.4. requires that "all recoverable costs shall be billed against any deposit and subsequently by separate invoice." The rule gives guidance on what constitutes reasonable cost and the billing by invoice mechanism provides for the identification of those costs.

Comment: Recommends that the certificate of completion be issued on behalf of the State of West Virginia, and not just DEP, or in the alternative, DEP should provide a mechanism by which DEP seeks the approval or ratification of the certificate by other agencies.

DEP Response: Section 22-22-18(a) which defines the liability that is relieved by the certificate of completion states that the "person...shall be relieved of further liability for the remediation of the site under this chapter." Chapter 22 only applies to the environmental authorities under the jurisdiction of the DEP. DEP does not believe that the Voluntary Remediation and Redevelopment Act authorizes the

DEP to release a person from the liability originating from other state agency authorities.

Comment: Recommends deleting the reference to individual organisms in the definition of "ecological receptors of concern" or specifically state that the reference to individual organisms only applies to endangered species as defined by the Endangered Species Act.

DEP Response: The DEP interprets this comment to be primarily in opposition to identifying individual organisms that are protected by state or local laws and regulations as ecological receptors of concern because the commenter suggests that it would be acceptable to identify individual organisms identified by the Endangered Species Act. The existing definition was discussed in detail by the Standards Subcommittee and DEP believes that the Subcommittee intended to recognize any local or state laws in addition to the federal Endangered Species Act. DEP does not agree to change the definition.

Comment: Recommends adding clarifying language to the definition of "operator" so that persons will receive the benefit of the protections under the Act for voluntary remediation of such incidents as spills during transportation.

DEP Response: The DEP agrees that the recommended change is consistent with the intent of the Act to encourage voluntary cleanup . DEP will add a definition of the term "operator" which "means the person responsible for the overall operation of a facility site. For purposes of this rule, a person who executes a voluntary remediation agreement with the director may be deemed an operator for the purpose of carrying out the activities required by the agreement." Because of the nature of many of these transportation type incidents, it should be noted that the agency will likely initially respond using the appropriate authorities necessary to bring the situation under control.

Comment: Recommends that DEP should consider a mechanism by which the remediator can gain access to property that it no longer owns.

DEP Response: The DEP will facilitate the remediation of contaminated sites in every way that it can.

Comment: The order of the progressively more comprehensive ecological risk assessments does not appear to be appropriate.

DEP Response: The commenter references ecological risk assessment language in both section 8, Risk Protocol, and section 9, Remediation Standards. Section 8 establishes a risk protocol for conduct of ecological risk assessments. This section describes general requirements for risk assessments and specific requirements for baseline ecological risk assessments. Section 9 is to be used for developing risk-based soil and groundwater remedial objectives for site remediation. The De Minimis Risk-Based Standard for human health establishes conservative numerical levels that do not pose a significant threat to human health. However, there are no similar numerical levels available for a De Minimus ecological standard. Instead, the De Minimus Ecological Screening Evaluation determines 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. This approach obviously requires site specific information. The DEP does not believe it is appropriate to delete the "site-specific" reference to the De Minimus Screening Ecological Evaluation on page 46 as the commenter has suggested.

Comment: Recommends that the De Minimis standards should be removed from the proposed rule and placed in a guidance document or a statement should be added to the rule clarifying that the De Minimus standards should not be used as applicable or relevant and appropriate requirements (ARARs) for CERCLA sites.

DEP Response: The DEP does not agree that moving the De Minimus standards to a guidance document would have any effect on EPA's interpretation of ARARs. Additionally, the DEP does not agree that CERCLA cleanups would necessarily have to achieve the De Minimus levels. The National Contingency Plan provides for the determination of remediation levels similar to the determination of Site Specific Risk-based Standards in this rule. There is no reason to believe that EPA's consideration of state ARARs would focus only on the De Minimus standards.

Comment: Constituents that are not chemicals of concern should be deleted from Table 60-3B. The PCB standard should be changed to the TSCA PCB standard.

DEP Response: The Standards Subcommittee discussed in detail whether the EPA Region III risk-based screen level table should be amended by deleting or substituting some of the constituents. It was decided that due to the time restrictions the table would be adopted in whole and development of standards specific to West Virginia would be addressed in the near future. DEP will not make the recommended change.

Comment: References to both the State Water Quality Criteria and Federal Ambient standards is redundant since state standards can be no more stringent than federal standards.

DEP Response: The DEP believes that the intent of the VRRA is to comply with all existing state and federal standards that are applicable. Since the adoption of state standards can lag behind the federal standards, there may be instances where the requirement would not be redundant. DEP will not make the recommended change.

Comment: Recommends that section 9.6.c. be revised to reflect that the surface water quality standards must be met in the water body receiving the groundwater recharge.

DEP Response: The DEP believes that the commenters proposal will require a site-specific analysis of present contamination at a site which is available to the applicant by using the Site-Specific Risk-Based Standard. DEP will not make the recommended change to the Uniform Standards for Groundwater.

Comment: Recommends that a provision be added to the rule allowing for a waiver of groundwater protection practices where it can be demonstrated by the owner/operator that there will be no incremental increase to risk to human health or the environment. Commenter states that it makes no economic nor environmental sense to install liner systems under expansions to existing operating facilities such as coal combustion byproduct disposal sites where the environment or human health will not be harmed.

DEP Response: The DEP does not believe that the Voluntary Remediation and Redevelopment Act gives the agency the authority to make the change recommended by the commenter. The reference to the construction or expansion to an existing operating facility is interpreted by the DEP to be more appropriately addressed in the applicable permitting laws and rules. Provisions for the "deviation" from existing groundwater quality for a specific site may be found in the Groundwater Protection Act at § 22-12-5(f). DEP will not make the recommended change.

Comment: Recommends changing the definition of cancer to "any substance which can cause cancer as established by the EPA Carcinogen Assessment Group." Commenter suggests that the rule definition is too broad in that most any substance has the potential to cause cancer.

DEP Response: The DEP reviewed the use of the term "carcinogen" in the rule and noted that in section 9.2.c. the language specifies "known or suspected carcinogen". DEP believes the current rule was drafted based on the current definition and, given the current time constraints, can not determine the current status of the EPA Carcinogen Assessment Group activities and what impact the change in definition would have on the proposed rule. DEP will not make the recommended changes.

Comment: Recommends that the Steering Committee's draft definitions of "gross negligence" and "willful misconduct" should be included in the rule.

DEP Response: The Steering Committee thoroughly discussed this issue. The consensus of the group was to leave these two legal standards undefined in the rule. The discussion focused on the existing case law defining these standards. The issue seemed to boil down to the positions that: 1. Applicable case law should define these standards instead of an environmental rule, and 2. Applicable case law does not provide guidance for environmental harm but instead speaks only to harm to human health or damage to property. The consensus seemed to be that if a person performed a willful act that harmed the environment in a manner that would equate similarly to applying the standards to human health or property damage, the DEP would deny eligibility and the issue could, if necessary, be clarified in the judicial system.

Comment: Recommends a provision be added to allow for reopening and renegotiation of existing consent orders and/or administrative orders that are in effect at the time the rule is finalized.

DEP Response: The Act clearly denies eligibility to sites subject to unilateral administrative enforcement orders. DEP currently considers requests to renegotiate consent orders and, therefore, does not believe it is necessary to make the recommended change.

Comment: Recommends striking the sentence in section 5.1.b.1. that states "The licensed remediation specialist is responsible for any release of contaminants during remediation activities undertaken pursuant to and contemplated in the approved remediation agreement, work plan or reports." and replacing it with "The licensed remediation specialist shall maintain professional errors and omissions insurance coverage in the amount of $500,000." Commenter states that the sentence in the rule provides for unlimited liability on the part of the professional, regardless of that person's responsibility and of whom may have caused the spill.

DEP Response: The Steering Committee thoroughly discussed the issue raised by the commenter and agreed to add the phrase "and contemplated in" to the sentence to better clarify the intent. The sentence in the rule with the exception of the added phrase is restated exactly from the Act. The DEP believes that the consensus of the group on this issue was that the current sentence in the rule does not cause "unlimited liability on the part of the professional". Instead, the added phrase helps to clarify that the professional is only responsible for any release of contamination that is a result of remediation activities designed by the professional and implemented with oversight by the professional. The DEP does not believe that the professional will be held responsible for any releases of contaminants caused by unknown circumstances such as abandoned drums for which remediation was not contemplated in the remediation agreement or work plans. The DEP believes that the intent of the Act and the rule is to hold the LRS or "professional" responsible for developing high quality, successful remediation plans and for providing such oversight as is required to insure that the remediation activities are carried out in full compliance with the provisions of the remediation agreement and work plans. The DEP recognizes that this rule will have an impact on some current practices where the professional is not retained to oversee other contractors perform the work. However, the impact of the Act and the rule to cause professional oversight of all remediation activities is consistent with the intent to place more accountability on the applicant and LRS to conduct competent, high quality remediation activities with less DEP oversight compared to remediation that is performed by contractors that are not subject to the provisions contained in the Act and the rule. It is DEP's belief that the professional's clients have historically held professionals responsible for any releases caused by the professional's work plans and, therefore, the rule does not cause an increase in the amount of liability on the part of the professional. DEP does agree that the rule will likely impact the nature of the contractual arrangements between the professional and the applicants with regard to oversight of remediation activities. DEP will not make the recommended change.

Comment: Three comments were received regarding fees. In general the comments ranged from a suggestion to find alternative funding to lessen the financial burden on the applicant to a comment to provide the rationale for the application fee structure in the rule to a comment expressing the belief that a careful analysis of DEP's needs in personnel, outside expertise, and operating expenses for this program would justify an increase, not a decrease, in fee levels.

DEP Response: The Steering Committee crafted the existing fee structure to comply with the provisions of § 22-22-4(c) which states "The director shall promulgate a legislative rule establishing a reasonable application fee." and § 22-22-6(a) which states "The director shall promulgate legislative rules in accordance with the provisions of chapter twenty-nine-a of this code establishing a schedule of voluntary remediation fees applicable to persons who conduct activities subject to the provisions of this article. The fees may include an appropriate assessment of other program costs not otherwise attributable to any specific site but necessary for the administrative activities required to carry out the provisions of this article." Additionally, the Steering Committee recommended a carefully crafted rule to comply with the provision of § 22-22- 7(c) which states "A voluntary remediation agreement must provide for cost recovery of all reasonable costs incurred by the division in review and oversight of the person's work plan and reports as a result of field activities or attributable to the voluntary remediation agreement, which are in excess of the fees submitted by the applicant along with a schedule of payments." Clearly, the law did not intend that a general assessment of fees occur but instead intended for the cost of the program to be covered by the persons conducting activities in the voluntary remediation program.

The challenge for the Steering Committee was to determine the "reasonable" program cost associated with the program duties or activities set forth in the rule. The Steering Committee initially drafted a fee schedule that had a single application fee to recover costs associated with determining an applicant's eligibility and that scheduled the recovery of costs associated with negotiating the voluntary remediation agreement using the same fee -for- service mechanism developed to recover the reasonable costs for review and oversight of the workplans and reports. This initial draft was revised when some members believed that the Act stipulated that the costs of negotiating the voluntary remediation agreement could only be recovered from the application fee. The DEP believes there was consensus among the Steering Committee that the application fee schedule should then distinguish between 3 categories of sites by applying the following criteria: 1. Size of property; 2. Years of operation; and 3. SIC Code. Varying points were applied to the criteria and the point total results in application fees of $1000, $2000 and $5000. These criteria were believed to reasonably distinguish between the likely degree of complexity in reviewing an application for eligibility and negotiating the voluntary remediation agreement for various sites. The Steering Committee also discussed the nature of work to be preformed by the DEP at sites with varying degrees of complexity in determining eligibility and negotiating the voluntary remediation agreement, i.e., a determination must be made of all statutes and rules that apply to the site for which compliance is mandated . Any provision that is left out of the voluntary remediation agreement will not be covered by the Certificate of Completion. It was also recognized that the flexibility provided in the Act and the rule allows a person with an approved application to approach the DEP with minimal site assessment information and have the expectation that the DEP will work very closely with the applicant and their LRS to determine exactly what additional work should be performed at the site. The potential for the applicant working closely with the state is supported by a state official from the Massachusetts voluntary cleanup program who stated that applicants were requesting state participation because the Massachusetts LRSs, who were concerned about liability, were more demanding than the state officials.

The difficulty faced by the Steering Committee was determining what type of flat fee schedule would cover these varying costs that the DEP will likely encounter. DEP agrees with the commenter that believes the fees established in this rule are comparable to other states with self-sustaining programs. A review of information describing state voluntary cleanup programs showed that of those states using an application fee schedule, fees ranged from $1000 to $5000. Tennessee has a $5000 "participation fee" to enroll in the program; Vermont has a $500 application fee and a $5000 initial deposit; Illinois has a $5000 "initial fee"; Indiana has a $1000 application fee; and Texas has a $1000 initial application fee. Many of the states do not use an application fee schedule but instead recover all oversight costs on a fee-for-service basis such as the neighboring states of Ohio and Pennsylvania. It is interesting to note that in Ohio, where the state oversight role has been largely privatized through use of the Licensed Site Professionals, the LSPs were reported to have been charging $25,000 surcharges per site in addition to the normal contract fees.

The DEP believes that the Steering Committee members agreed that this rule, especially the adoption of risk-based remediation standards, reflects a significant development in public policy. Many discussions detailed the broad ranging benefits of this rule and, equally important, the concerns of achieving the proper balance between accelerated cleanups/redevelopment and the protection of human health and the environment. Accordingly, DEP believes that the current fee structure is carefully crafted to provide for a Voluntary Remediation Program that is an integral part in gaining the public's confidence that the appropriate balance will be achieved.

Comment: Requests justification of the $300 LRS application fee and the $250 examination fee.

DEP Response: The costs associated with the licensing process are established by the extensive requirements of the rule. DEP must make a comprehensive check of the person's qualifications and allow for and participate in due process appeals on each of the decisions rendered in the licensing process. The DEP must initially develop a minimum of three separate examinations and shall administer a licensing examination at least every six months. Additionally, DEP must develop and maintain databases to notify individuals of examination scores and to give a 90 day license renewal notice. DEP anticipates contracting for the development of examinations and believes that the total cost of the licensing program justifies the fees recommended by the Steering Committee.