

## SUMMARY OF ALTERNATIVES EVALUATION CRITERIA

Remedial alternatives are evaluated using the eight criteria listed below. These criteria were adapted from North Carolina Department of Environment, Health, and Natural Resources, Inactive Hazardous Sites Branch, Registered Environmental Consultant Program Guidelines, August 2004.

- Overall protection of human health and the environment;
- Compliance with Federal, State, and Local Regulations;
- Long-term effectiveness;
- Reduction in toxicity, mobility, or volume;
- Short-term effectiveness;
- Implementability;
- Cost; and
- Community acceptance.

These criteria are further defined by factors and sub-criteria which will be briefly discussed in the following sections.

### Protection of Human Health and the Environment

The evaluation of the overall protection of human health and the environment for each alternative is based on a composite of factors assessed under other evaluation criteria. The criteria specifically considered are short-term effectiveness, long-term effectiveness, permanence, and compliance with applicable laws and regulations. Each alternative should address how each source of contamination is to be eliminated, reduced or controlled, and how site risk are to be reduced.

### Short-Term Effectiveness

The short-term effectiveness of a remedial alternative is evaluated relative to its effect on human health and the environment during the implementation of the remedial action. Potential risks to community, potential impacts on workers, the effectiveness and reliability of protective measures, potential environmental impact of the remedial action and the effectiveness/reliability of the mitigation measures during implementation, etc. are some of the factors considered in these criteria.

### Long-Term Effectiveness and Performance

Long-term effectiveness and permanence of a remedial alternative are evaluated with respect to the following factors: magnitude of residual risk to human health and environment from the untreated or residual waste at the completion of remedial activities; an assessment of type, degree, and adequacy of long-term management (engineering controls, monitoring, maintenance, etc.) required for untreated or residual waste; an assessment of the long-term reliability of long-term management to provide continued protection from the untreated/residual waste; and the potential need for replacement of the remedy and continuing need for repairs to maintain the performance of the remedy.

### Reduction of Toxicity, Mobility, or Volume

This evaluation criteria addresses the degree to which remedial actions employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous waste. The factors considered in this evaluation include: the treatment processes; the amount of waste that will be treated; the degree of expected reduction in toxicity, mobility, or volume; the degree to which the treatment will be reversible; and type and quantity of treatment residuals that will remain after treatment.

### Implementability

Implementability refers to the technical and administrative feasibility of implementing an alternative, and the various materials and services required during its implementation. Examples of such factors for implementation of an alternative include: ability to construct, operate and monitor; time required to obtain necessary permits and approval; availability of equipment, material, contractor, etc.

### Cost

Estimated costs developed for a remedial alternative are approximately between -30 to +50 percent and will be based on a conceptual engineering/design. These costs will be used as guidance in evaluating the remedial alternative and will be prepared based on variety of sources including quotes from vendors/contractors, cost estimating guides, and experience from prior experiences. These evaluation criteria will include capital costs, operation and maintenance (O&M) costs, and present worth analysis.

### Compliance with Federal, State, and Local Requirements

Each alternative will be evaluated for its compliance with requirements/regulations under primarily State (Registered Environmental Consultant Program). However, Federal and Local Laws/Regulations will be complied as appropriate.

### Community Acceptance

Potential community positions on remedial alternatives, either based on past experience or best judgment will be used in the remedy selection process.