STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

March 16, 2010

Mr. Charles R. Lie
Terra Associates Inc
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Phone conversation follow-up
Hogan's Corner Prim Laundry, VCP ID# NW1899

Dear Mr. Charles Lie:

Thank you for submitting your report(s) for Ecology's advice. Ecology appreciates your initiative in pursuing a voluntary cleanup under the Model Toxics Control Act.

The Washington State Department of Ecology's Toxics Cleanup Program has reviewed the following information regarding Hogan's Corner located at 5501 25th Ave NE, Seattle:

1. Interim Action Summary Report Hogan's Corner, dated February 1st 2010, prepared by Terra Associates, Inc.

2. Groundwater Summary Report Hogan's Corner, dated March 1st 2010, prepared by Terra Associates, Inc.

3. Phone conversation and emails concerning the cleanup standard for soil at the Site and Ecology's requirements for the Remedial Investigation and Feasibility Study (RI/FS)

Based upon the information listed above, Ecology has determined that, at this time:

1. With the close proximity of Ravenna Park, it is in Ecology's opinion that MTCA Method A cleanup standard for soil is not appropriate for this Site.

2. For this Site a simplified terrestrial ecological evaluation (Table 749-1) should be conducted. Information collected from this evaluation can then be used in developing and evaluating cleanup action alternatives and in selecting a cleanup action under WAC 173-340-350 through 173-340-390.

3. Terra Associates has requested information concerning what Ecology is requiring in the RI/FS. I have attached an annotated outline that will facilitate your preparation and my review of an FS.

Please note that because your actions were not, or will not be conducted under a consent decree with Ecology, this letter is not a settlement by the state under RCW 70.105D.040(4) and is not binding on the agency. Further action could be required at your site regardless of how strictly you follow Ecology's advice.

The opinions presented by Ecology in this letter are made only with respect to the information provided in the reports, documents, and telephone conversations listed above. This opinion is only applicable to the specified site (or area of site) and may not be used to justify action at another site (or area of the site.)

Ecology does not assume any liability for any release, threatened release or other conditions at the site, or for any actions taken or omitted by any person or his\her agents or employees with regard to the release, threatened release, or other conditions at the site.

Again, thank you for taking the initiative to voluntarily address the contamination at your site. Your efforts are recognized by Ecology as a positive step in our work to protect human health and the environment in Washington State.

If you have any questions regarding this letter, please contact me at 425-649-4446.

Sincerely,

Dale Myers
Toxics Cleanup Program

Initials
Enclosures (1) Feasibility Study (FS) Outline

cc: Mr. Gary Tomlinson
Tomlinson Inc
C/O Morris PIHA
PO Box 53290
Bellevue, WA 98105

Feasibility Study (FS) Outline
June 2009

The following annotated outline is a schematic of elements to be included in a FS report. It is only one of many possible outlines, and is not intended to replace MTCA's specific requirements as presented in WAC 173-340-350, and associated sections.

The main purposes of this outline are therefore to:

- Provide a standardized format that will facilitate the preparation and review of FS reports. As already stated, it is not the only format that will satisfy MTCA.

- Clarify the procedure for completing that portion of an FS commonly known as the disproportionate cost analysis (DCA). This one element engenders more confusion and controversy than the rest of the FS process combined.

Note that an FS need not be done if a cleanup involving complete removal is already being planned.

Annotations are denoted by Italicized text in parenthesis

I. **INTRODUCTION**
(If the FS is part of an RI/FS document, then only the purpose of the FS needs to be stated. Otherwise provide a concise summary of the RI; use figures if at all possible.)

- **Purpose** (*develop and evaluate cleanup action alternatives as basis for selecting cleanup action)*

- **Site Identification and Surroundings** (*site name, VCP number, site definition, property(s) identified, neighborhood setting; physiographic setting/topography)*

- **Property Development and History** (*past, current and future uses; roads, utilities)*

- **Natural Conditions** (*geology, surface water, ground water, natural habitat)*

- **Contaminant Occurrence and Movement** (*release sources/ mechanisms; distribution and movement in all affected media)*

II. **AREAS REQUIRING CLEANUP**
(This section reiterates what needs to be cleaned up, why it needs to be cleaned up, and where it needs to be cleaned up)

- **Soil Cleanup: Chemicals of concern, exposure pathways, exceedances, areas/volumes requiring cleanup, point of compliance.** (*limited text, table with cleanup levels, distribution best shown with figures – both plan view and cross section, describe soil volumes, soil type, and any special conditions)*

- **Ground water Cleanup** (*same as above*)

- **Other Media Cleanup** (*same as above*)

III. IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES

(This section may or may not be needed. It is not required by MTCA, but may be useful as a means to eliminate specific technologies from further consideration. A variety of criteria can be chosen for screening, but typical factors are cost, effectiveness, and implementability. A table format is best for the screening)

(Shell may wish to prepare a standard remedial technologies appendix for use in all feasibility studies. This could simplify the screening process by having a ready-made description of all technologies that realistically could be used at service station sites.)

IV. SELECTION AND DESCRIPTION OF CLEANUP ALTERNATIVES

(Here is where distinct alternatives are established and described only – no comparison. Some text is useful, but the bulk of the description is best put into a table with accompanying figures.)

(MTCA requires:

- *A reasonable number and type of alternatives*
- *Alternatives that protect human health and the environment by eliminating, reducing, or otherwise controlling risks*
- *Alternatives that have the standard point of compliance for all affected media, unless they are not technically possible or are disproportionately costly for the benefit obtained.*
- *At least one permanent cleanup action alternative, unless it is not technically possible or is disproportionately costly for the benefit obtained.)*

(Ecology expectations for cleanup (WAC 173-340-370) should also be considered in formulating the alternatives, even though these expectations are not explicit evaluation criterion.)

- **Cleanup Action Objectives** (*These are not required by MTCA, nor are they evaluation criteria under MTCA, but may be helpful in clarifying what the remedy needs to accomplish.*)

- **Alternative 1** (*Describe: actions, costs and schedule, other considerations such as habitat, land use)*

- **Alternatives 2, 3, 4, etc..**

V. DETAILED EVALUATION OF ALTERNATIVES

(best put into tabular format with numerical values for weighting criteria, important to have figure showing cost versus environment benefit for disproportionate cost analysis.)

(A cleanup action must meet these minimum requirements [WAC 173-340-360(2)(a)]:

Threshold requirements

- *Protect human health and the environment*
- *Comply with cleanup standards*
- *Comply with applicable state and federal laws*
- *Provide for compliance monitoring*

Other requirements

- *Use permanent solutions to the maximum extent practicable*
- *Provide for a reasonable restoration time frame*
- *Consider public concerns*

Project-specific requirements

- *Engineering criteria established for the specific project, as appropriate)*

- **Comparison with Threshold Criteria** *(Determine if alternatives meet threshold requirements. Only alternatives that meet these requirements advance to the next stage of comparison)*

- **Comparison with "Use Permanent Solutions to the Maximum Extent Practicable" (PMEP) Criterion** *(Ecology prefers permanent solutions, which are essentially those in which cleanup standards can be met without further action at the site.)*

  Determining PMEP – Disproportionate Cost Analysis (DCA) *(this is the method to determine the most practicable permanent solution, or to demonstrate the cleanup action is a permanent solution to the maximum extent practicable. In practice the analysis compares costs and benefits and allows selection of an alternative that provides the greatest relative benefit at least cost.)*

  Test

  "Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative." WAC 173340-360 (3)(e)(i)

  Procedure

  A. *The alternatives are compared with the evaluation criteria listed below. The comparison may be quantitative or qualitative and require the use of best professional judgment.* ***However, at this time Ecology's northwest regional office favors a quantitative analysis. Quantitative factors should be applied to both***

weighting of the evaluation criteria and to the ranking of alternatives for each criterion. The basis for the criteria weighting and the alternative rankings should be clearly explained and supported. *An example table showing weighting factors and rankings is attached at the end of this document.*

B. *The most practicable permanent alternative is the baseline against which other alternatives are compared. The results of the comparison are best displayed in a graph which shows relative environmental benefit on one axis and cost on another. An example is attached at the end of this document.*

Evaluation Criteria
(following are the required comparison criteria for the DCA. Cost is not listed since it is an obvious criterion)

Protectiveness
Permanence
Effectiveness over the long term
Management of short-term risks
Technical and administrative implementability

Consideration of public concerns
(for VCP sites, there is no direct opportunity for the public to comment on planned cleanup actions. However, information is available to public on the Ecology website regarding the multi-site pilot project, and the public could comment on any planned actions)

(A more complete definition of each of these criteria is in WAC 173-340-360(3)(f)

- **Comparison with "Reasonable Restoration Time Frame" Criterion** *(this criterion requires that a cleanup action be completed within a reasonable amount of time - WAC 173-340-360(4).By completed, MTCA means cleanup levels have been met at the point of compliance. Making a restoration time frame longer is not allowed when there are practicable actions available that can reduce the amount of time.*

Factors to use determining whether the time frame is reasonable
(the following basic factors are outlined in MTCA. There are also special provisions for specific situations in Section -360. Ecology prefers immediate cleanups, but sometimes accepts up to 5 years for good cause. Anything beyond this needs an extremely persuasive analysis)

Potential Risk
(how risky is the existing situation based on type, extent and toxicity of contamination, and sensitivity of surrounding land uses now and in the future.)

Practicality of Achieving Shorter Time Frame
Availability of Alternate Water Supplies
(if impact on a local water supply is a major issue, this factor would need to be specifically considered)
Likely Effectiveness and Reliability of Institutional Controls
(this factor would only need to be considered where contaminants are being left in place as part of a final cleanup)
Ability to Control and Monitor Contaminant Migration
(how sure can we be sure about contaminant movement over time)
Potential for Contaminant Degradation Over time
(can we be sure the contaminants will degrade based on evidence from other sites)

VI. CONCLUSIONS

(focus in this section on the results of the analysis and the consequent proposed cleanup action)

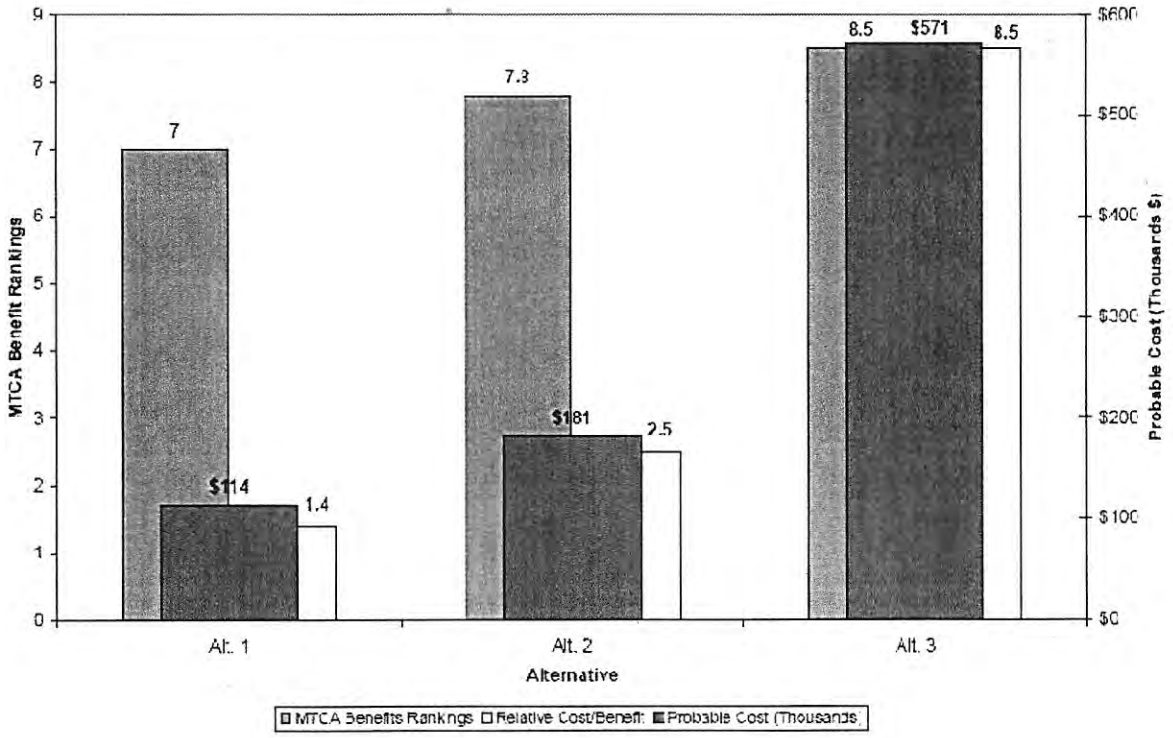
VI. REFERENCES

APPENDICES
- Alternative Cost Estimates

Example of DCA portion of FS

Table 1. Detailed Evaluation of Alternatives and Applied Technologies			
Alternative Number	**Alternative 1**	**Alternative 2**	**Alternative 3**
Description, and Ranking	Soil Containment, Incidental Excavation, Off-Site Disposal, and Institutional Controls	Soil Containment, Partial Excavation, Off-Site Disposal, and Institutional Controls	Excavation, Off-Site Transport, and Disposal Area of Containment (sq ft)
Area of Containment (sq ft)	31,500	29,000	0
Volume of Soil Removal (cy)	100	400	2,500
Overall Alternative Ranking	7	7.8	8.5
Compliance with MTCA Threshold Criteria			
Protection of Human Health and the Environment	Yes – Alternative will protect human health and the environment.	Yes – Alternative will protect human health and the environment.	Yes – Alternative will protect human health and the environment.
Compliance with Cleanup Standards	Yes –Active remedial measures (removal and containment) are used for soils not complying with cleanup standards.	Yes – Active remedial measures (removal and containment) are used for soils not complying with cleanup standards.	Yes – Active remedial measure (removal) is used for soils not complying with cleanup standards.
Compliance with Applicable State and Federal Laws	Yes – Alternative complies with applicable laws.	Yes – Alternative complies with applicable laws.	Yes – Alternative complies with applicable laws.
Provision for Compliance Monitoring	Yes – Alternative includes provisions for compliance monitoring (i.e., compliance soil sampling during removal and long-term groundwater monitoring).	Yes – Alternative includes provisions for compliance monitoring (i.e., compliance soil sampling during removal and long-term groundwater monitoring).	Yes – Alternative includes provisions for compliance monitoring (i.e., compliance soil sampling during removal).
Restoration Time Frame	Restoration time frame is 1 to 2 years for design and construction. Long-term monitoring of 5 years or more may be required to ensure compliance.	Restoration time frame is 1 to 2 years for design and construction. Long-term monitoring of 5 years or more may be required to ensure compliance.	Restoration time frame is 1 to 2 years for design and construction.
Evaluation Criteria			
Protectiveness (30% Weighted Factor):	This alternative will achieve overall protection (7).	This alternative will achieve overall protection (8).	This alternative will be most protective for the Site (9).
Permanence (20% Weighted Factor):	Impacted soils are contained. Some incidental removal of impacted soils required for road construction. This alternative is not as permanent as Alternatives 2 or 3 (7).	Alternative reduces the volume of impacted material by removal of most impacted soils. Remaining impacted soils are contained (8).	Alternative reduces the volume of impacted material by completely removing, to greatest degree technically feasible, impacted surface and subsurface soils throughout the Site (9).
Long-Term Effectiveness (20% Weighted Factor):	Alternative makes most use of containment, with some removal and off-site disposal (7).	Alternative makes use of partial removal and off-site disposal, with containment for the remaining area (8).	Alternative makes greatest use of removal and off-site disposal (9).
Short-Term Risk Management (10% Weighted Factor):	Less disturbance of impacted soils, effective short-term (8).	More disturbance of impacted soils, less effective short-term (7).	Most disturbance of impacted soils, least effective short-term (6).
Implementability (10% Weighted Factor):	Most Implementable; it may require temporary access restrictions during excavation. Access restrictions will be required over the entire Site permanently (8).	Implementable; it may require temporary access restrictions during excavation. Access restrictions will be required over the entire Site permanently (8).	Implementable; it may require temporary access restrictions during excavation (7).
Public Concerns (10% Weighted Factor):	Alternative does not remove all impacted soils from Site. May not be desirable due to permanent access restrictions (5).	Alternative does not maximize removal and disposal of impacted soils. Another public concern may be during the excavation activities because of the temporary access restrictions (7).	Alternative maximizes removal and disposal of impacted soils. The only public concern may be during the excavation activities because of the temporary access restrictions (9).
Cost:	$114,000	$181,000	$571,000

Figure 7. Disproportional Cost Analysis Rankings



Note: The relative Cost/Benefit value in the above graph is a qualitative value determined by the client.

Benefit Summary		Alt 1		Alt 2		Alt 3	
Factor	Weighting	Rank	Value	Rank	Value	Rank	Value
Protectiveness	0.3	7	2.1	8	2.4	9	2.7
Permanence	0.2	7	1.4	8	1.6	9	1.8
Long-Term Effectiveness	0.2	7	1.4	8	1.6	9	1.8
Short- Term Risk	0.1	8	0.8	7	0.7	6	0.6
Implementability	0.1	8	0.8	8	0.8	7	0.7
Public Concerns	0.1	5	0.5	7	0.7	9	0.9
Sum	1	7		7.8		8.5	