Remedial Investigation Checklist

Toxics Cleanup Program

May 2016

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Site Name/FSID:

Report Name:

Date Submitted:

Reviewed By:

Review Date:

Remedial Investigation (RI) Checklist Guidance

The Model Toxics Control Act (MTCA) regulation Washington Administrative Code (WAC) 173-340-350(7) broadly describes the elements necessary to complete a RI. The purpose of a RI is to collect and evaluate sufficient information to fully characterize the nature and extent of contamination at a site.

This RI checklist is considered guidance based on the MTCA cleanup regulation WAC 173-340. Cleanup project managers with the Washington State Department of Ecology (Ecology) have discretion when reviewing and accepting RI reports as site-specific circumstances dictate the necessary scope and breadth of each report.

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Remedial Investigation Report Body

I. Cover Letter. Include a letter describing the submittal and specifying the desired department action or response.

II. Introduction.

a. **General Site Information.** Include contact information for project coordinators (Ecology site manager, consultants, potentially liable persons (PLP), and current owner/operator). Include the site name and identification numbers, general description, and location (e.g., GPS coordinates, assessor parcel number, Quarter Section Township Range, address).

b. **Site History.** Describe site from earliest known time of habitation and/or development. Describe previous owners/operators, past uses of the site, and all potential/known sources (both on-site and off-site) of contamination (e.g., petroleum storage tanks, manufacturing processes, chemical storage, etc.). Include approximate dates or periods of past product and waste spills, identification of the materials spilled, and amount/location of the spill.

c. **Site Use.** Describe current site uses, land use/zoning, and future use plans.

III. Field Investigations

a. **Previous Environmental Investigations.** Discuss prior work performed, samples obtained, why sampling locations were chosen, etc. Cite any previous environmental reports.

b. **Site Characterization.** Discuss current site characterization activities for each site media (surface water/sediments, soils, groundwater systems, air, and cultural history/archeology, if applicable). Name site contaminants of concern (COCs) and discuss why they were chosen for analysis. Describe how prior and current work efforts contribute to the understanding of the nature and extent of contamination.

c. **Sampling/Analytical Results.** Discussion of sampling/analytical results should include contaminants analyzed for in samples from each applicable site media (soil, groundwater, vapor, surface water). Include comparison of the results to the applicable Method (A, B, or C) cleanup level, sampling method, laboratory method, and any special sampling or analytical protocols (silica gel, filtration, etc.). Evaluate the quality of the data.

IV. Conceptual Site Model

a. **Conceptual Site Model (CSM).** Discuss contaminant release, fate and transport, exposure pathways (surface water, groundwater wells, air, direct contact, etc.), and potential receptors (human, aquatic, terrestrial). Describe typical concerns for this type of environmental contamination, and include a discussion of site specific concerns (hydro-geologic setting, receptors, current or future site zoning/land use etc.).

V. Proposed Cleanup Standards

a. **General.** Clearly identify proposed cleanup levels for each media and rationale for selected level. Explain/justify mixing MTCA methods for different media. Must include a demonstration of conditions that require a calculated solution if one is to be use (e.g., background calculations, use of Method B or C, etc.) and show calculation of the cleanup level, including a list of the input parameters. Include point(s) of compliance.

b. **Terrestrial Ecological Evaluation (TEE).** A TEE should be performed, if required, as part of cleanup level selection. Reference WAC 173-340-7491 to see if the site qualifies for an exclusion.

www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm

VI. Summary, Conclusions, and Recommendations

a. **Summary and Conclusions.** Summarize what is known about the site and contamination (updated CSM). Include discussion of COCs that exceed MTCA or are "indicator hazardous substances." Ensure conclusions are supported by the tables and figures included with the report.

b. **Recommendations.** Outline possible interim/remedial actions if appropriate.

Remedial Investigation Figures

General – Figures should include a north arrow, scale, complete legend, measurement units, and annotated clarification as necessary. Figures should not be cluttered and must be legible and explicable. Document text must reference figures and draw conclusions consistent with information presented on figures. Consider using multiple figures when showing large amounts of information.

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I. Vicinity Map(s)

a. Show property in relation to surrounding region. Area covered by Vicinity Map should be proportional to site size.

b. Show other applicable items including (but not limited to): surface topography, natural areas, surrounding land uses, location of groundwater supply and monitoring wells within a one mile radius.

II. Site Map(s)

a. Show overall site layout with site features and existing well, boring, and sampling locations labeled consistently with current and historical site data and sample names used in the report. If multiple names exist for a sampling location or area of the site indicate this.

b. Include COC locations, concentrations, and estimated vertical and horizontal extent of contamination for site media, as applicable. Include waste materials present on site as well as hazardous substance treatment, storage, or disposal areas (show current and historical features).

c. Show geologic/hydrogeologic information including soil types, wells, screened intervals, and water levels (cross sections are useful for showing this information). Show groundwater flow direction and gradient.

d. Show other relevant information including (but not limited to): site and property boundaries, buildings/facilities on site, historical site features, underground storage tanks (USTs), previous excavation/interim action activity, etc.

III. Conceptual Site Model

a. Provide figures showing contaminant release(s), fate and transport, exposure pathways, and potential and/or actual receptors. The lateral and vertical extent of contamination, as currently understood, should be clearly conveyed.

Remedial Investigation Tables

General - Tables should include detailed notes that explain any laboratory or other designations, assumptions, and references. All acronyms used in the table should be defined in a section of the notes even if they are defined in the body of the report, so table information can be quickly understood.

a. **Sampling Information/Laboratory Methods.** Include current and historical sampling methods and numerical cleanup levels, lab methods, reporting limits, and any special sampling protocols with justification or explanation (e.g. silica gel, filtration).

b. **Cleanup Levels.** Include potentially applicable ARAR values and recommended cleanup levels.

c. **Site Data.** Include current and historical analytical and field-measured data. Group by media type. For larger data sets, consider making a summary table of exceedances. Tables should include proposed cleanup levels with any contaminant exceedances clearly indicated using bold font or shading. Non-detectible levels should be noted as 'U' with the numerical laboratory reporting limit (RL) provided rather than 'ND'.

Remedial Investigation Appendices

General. Appendices should contain a description of content and explain how to interpret the information for use. Not all of the following suggestions will apply to all sites.

a. Exploratory logs, well installation diagrams, groundwater sampling logs, and field records.

b. Analytical laboratory report and Quality Assurance/Quality Control report.

c. **Limitations.** Explain any limitations that apply to the work.

d. Details of field and analytical methods used in former and current investigations and remedial activities. If applicable, append Work Plan/Sampling and Analysis Plan/Quality Assurance Project Plan/Health and Safety Plan.

e. Other documents that provide additional context or contribute to the understanding of the site – see suggested report format for additional information.

Miscellaneous Items

a. **Environmental Information Management (EIM).** All sampling data must be uploaded into Ecology's EIM database. This allows Ecology to access data, check results, and/or perform additional analyses. For more information, reference:

www.ecy.wa.gov/programs/tcp/data_submittal/Data_Requirements.htm

b. **Certification (Licensed Professional Stamp).** Engineering, geologic, and hydrogeologic work must be performed under seal of an appropriately licensed professional (RCW 18.43 and 18.220).

c. **Additional information may be requested by Ecology as required to fully define the site.**

d. **Submittal Requirements:** Ecology requests three copies of reports submitted per WAC 173-340-850. Please contact the cleanup project manager for specific submittal requirements.

To request ADA accommodation or materials in a format for the visually impaired, call Ecology at 509-454-7834, Relay Service 711, or TTY 877-833-6341.

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