

**APPENDIX E3  
ANNOTATED OUTLINE FOR  
CONTAINMENT/CAPPING COMPLETION REPORT**

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## **PREFACE**

The following annotated outline provides a potential table of contents for a Containment/Capping Completion Report. This outline is not intended to be prescriptive and should be adjusted as appropriate for the site-specific conditions.

This outline is for guidance only, and is applicable on a case-by-case basis. Some elements of this outline may apply to your site, while other elements may not. Additional elements than are addressed by this outline may also be needed.

**ANNOTATED OUTLINE FOR  
CONTAINMENT/CAPPING COMPLETION REPORT**

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## 1.0 CERTIFICATIONS

### 1.1 Engineer's Certification

*Instructions: The engineer's certification, with the signature and seal of qualified and registered State of California Engineer is generally placed at the beginning of the document.*

### 1.2 Third Party Engineering Certification

*Instructions: In some cases, an independent third party review of the report and the capping activities is required by DTSC. This is generally also placed at the beginning of the document.*

## 2.0 INTRODUCTION AND PROJECT SUMMARY

*Instructions: Provide basic information regarding the site location and history, and a brief summary of the project history. A bullet summary of activities conducted during capping is a useful addition to the introduction section.*

## 3.0 PRE-CAPPING PREPARATION

*Instructions: Summarize any engineering activities that preceded the placement of the cap over contaminated soils.*

### 3.1 Preparatory Grading, Grubbing, and Debris Removal

*Instructions: Describe the activities related to the initial preparation of the impacted area for construction of the cap. This generally includes removal of debris, vegetation, and grading of rough and uneven surfaces. It may also include the construction of access roads or ramps for construction purposes.*

### 3.2 Subsoil Removal

*Instructions: If the removal of subsoil was performed prior to capping, describe the activities in this section. Include the reason for soil removal (e.g., for grading and consolidation purposes, for the removal of soil with metal concentrations above allowable concentrations). If impacted soil is removed, describe the concentrations of contaminants, the regulatory classification of the removed material, and how it was disposed (e.g., landfill).*

#### 4.0 WASTE IMPORTATION AND CONSOLIDATION

*Instructions: If impacted waste from other parts of the site was consolidated in the cap area as part of the remedy, describe these activities in this section. Include a reference to the regulatory process by which waste consolidation was approved, reference to the maximum allowable concentrations of contaminants in such soil, and the protective standards to which the soil is being held (e.g., health risk standards). Also, summarize compaction and debris screening performed (Note: The full compaction details may be summarized in Section 6.0 (Foundation Layer)).*

#### 5.0 DESCRIPTION OF FINAL COVER SYSTEM DESIGN

*Instructions: Briefly summarize the components and design of the cap/cover system. Refer to the approved cap design document.*

#### 6.0 FOUNDATION LAYER

*Instructions: Describe how either the capped waste or imported fill will serve as a foundation layer beneath the cap. Describe preparation, compaction, screening, and grading to be performed on this foundation layer. Describe the quality assurance and quality control procedures used to verify the foundation layer has been constructed according to the approved specifications.*

#### 7.0 CAP LAYERS

*Instructions: Based on the approved design, there may be a range of capping components used in construction of the cap. Describe each of the as-built components used in the cap construction as a separate subheading, as illustrated below.*

- 7.1 Layer 1 (e.g., Clay Layer)
- 7.2 Layer 2 (e.g., Geosynthetic Layer)
- 7.3 Layer 3 (e.g., Vegetative Soil Layer)
- 7.4 Layer 4 (e.g., Asphalt Layer)

#### 8.0 GAS VENTING SYSTEM

*Instructions: If applicable, describe the as-built gas venting system installed as part of the remedy.*

## 9.0 DRAINAGE STRUCTURES

*Instructions: Describe the as-built surface drainage systems installed to prevent erosion and control storm water runoff.*

## 10.0 QUALITY ASSURANCE AND QUALITY CONTROL

*Instructions: Quality assurance and quality control (QA/QC) is an integral part of each stage and component of cap construction, and consequently forms a major part of the Completion Report. Some aspect of QA/QC measures should be described within each section of the report, where necessary. In addition, a separate section or appendix may be appropriate to describe an overall QA/QC program for the cap installation.*

## 11.0 CONTROL MEASURES AND ENVIRONMENTAL MONITORING DURING CONSTRUCTION

### 11.1 Control Measures During Construction

*Instructions: Summarize any measures taken during cap construction to prevent and control impacts from surface water runoff or airborne dust. Describe any problems and measures taken to correct such problems.*

### 11.2 Environmental Monitoring

*Instructions: If environmental monitoring of air or water was performed during construction, summarize the monitoring activities and results. Such monitoring may be described in separate section. This may also include weather data (e.g., wind, temperatures) collected at the site for monitoring purposes.*

## 12.0 SUMMARY AND CONCLUSIONS

*Instructions: A summary and conclusion section of the report can include:*

- *A bulleted recap of the activities conducted during cap installation;*
- *A statement that work was performed in accordance with approved plans and specifications;*
- *Any nonconformance results from the construction should be described, along with a discussion of their significance;*
- *A statement that QA/QC procedures were followed, as supported by testing and inspections; and*
- *Other appropriate information.*

## 13.0 REFERENCES

*Instructions: List citations or document references for most current regulatory and site-specific requirements.*

[DTSC-approved cap design document.]

[Cleanup option decision document]

[Other appropriate references]

[Technical References related to cap design]

## FIGURES

## TABLES

## APPENDICES

*Instructions: Appendices applicable to the type of cap used should be included in the Completion Report. The list of potential appendix topics presented below may or may not be applicable to a given site. Other appendices may also be appropriate for a given site.*

AS-BUILT DRAWINGS

CONSTRUCTION PHOTOGRAPHS

LABORATORY TEST RESULTS

MATERIAL CERTIFICATIONS

CONFORMANCE TESTINGS RESULTS

INSTALLATION SUMMARIES

INSPECTION REPORTS

DAILY AND WEEKLY PROGRESS REPORTS

FIELD MOISTURE/DENSITY TEST RESULTS

NUCLEAR DENSITY TEST

MANUFACTURER'S QUALITY CONTROL DOCUMENTATION

FOUNDATION LAYER TESTING

DEFECT AND REPAIR SUMMARIES

GEOSYNTHETIC MEMBRANE SEAM TESTING AND LOGS

QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

LICENSED SURVEYOR'S CERTIFICATION