**CEM EXAM TOPICS** (Revised 06/2022)

The following list provides prospective CEMs with a guideline for the scope of the multiple

choice 4-hour CEM exam. We have provided references where applicable and appropriate,

however, we assume that for most topics, prospective CEMs have access and are familiar with

any relevant NDEP and US EPA guidance that addresses that topic.

I. UST/AST

a. State Petroleum Fund

i. NAC 445C.200 – 445C.390

ii. Policy Resolutions <https://ndep.nv.gov/environmental-cleanup/petroleum-fund/board-policy-resolutions>

1. CEM Cost Guidelines <https://ndep.nv.gov/environmental-cleanup/petroleum-fund/cost-guidelines-rates>

b. State and Federal UST/AST regulations

i. 40 CFR 280

ii. NAC 459.9921 - 999

II. Remediation

a. Documents

i. EPA document titled How to Evaluate Alternative Cleanup Technologies

for Underground Storage Tanks, <https://www.epa.gov/ust/how-evaluate-alternative-cleanup-technologies-underground-storage-tank-sites-guide-corrective>

b. NAC 445A.226 - 22755 (action levels)

c. NAC 445A.227 (a-k)

d. NAC 459.973 - 9743 (Voluntary Cleanup Program)

III. Nevada geology and hydrogeology (see reference websites at bottom of document)

IV. RCRA

a. 40 CFR

i. 261

ii. 262

iii. 264 (Subpart B-F, I, J)

iv. 265 (Subpart B-F, I, J),

V. Emergency Response

a. Use of US DOT Emergency Response Guidebook

b. NV spill response notification requirements NAC 445A.345 - 347

c. NDEP Guidelines for Discovery Events <https://ndep.nv.gov/environmental-cleanup/site-cleanup-program/site-cleanup-guidance>

VI. General understanding of the following federal laws: TSCA, FIFRA, NEPA, CWA,

CERCLA, SDWA, CAA

a. Overall purpose

b. Types of media and/or chemicals each covers.

VII. Health and Safety, PPE

a. Procedures

b. Levels

c. Types of equipment

d. Decontamination

VIII. Wells

a. Types

b. Construction

c. Characteristics

d. NV regulations

i. NAC 445A.844 - 849

ii. NAC 445A.856 - 858

iii. NAC 445A.891 - 896

IX. Superfund Regulations

a. 40 CFR 302, 312, 355, 370

b. Purpose

X. Certification Programs

a. Standards of Practice

b. NAC 459.970 - 9729

XI. Risk Assessment and Toxicology

a. Purpose of risk assessments

b. When and how risk assessments are used

c. Be familiar with ASTM Standard Guide for Risk Based Corrective Action

Applied at Petroleum Release Sites, E 1739-95

d. Familiarity with common toxicological terms (e.g. LD50, dose response curve)

XII. Sampling and Analysis

a. Field equipment

b. Analytical methods

c. Field procedures

XIII. Common types of projects in NV (Be able to describe how they would be completed,

pertinent regulations, field issues, technical/scientific reason on why they are

problems)

a. Petroleum cleanups

b. Tank removals

c. Sampling

d. Mining issues

e. Remediation

XIV. Characteristics of common pollutants at NV site cleanups (what types of

characteristics)

a. Fate and transport in the subsurface

b. Effective remediation techniques

c. Toxicity

XV. AAI’s/Phase I Environmental Site Assessments

a. What are they

b. When are they used

c. Topics within Phase I

d. 40 CFR 312

XVI. Other

a. Basic math and geometry (volumes, areas, how to do unit conversions)

b. Use of USGS Topographic Quads

c. EPA’s Basic Concepts in Environmental Science

The exam will be given from 9:00am – 1:00pm. The exam has a total of about 200 questions.

The examination is **CLOSED BOOK**. There is only **ONE** correct answer for each question.

Scientific calculators will be provided. No personal calculators will be allowed.

**The above outline covers suggested areas of study for the exam and is NOT all inclusive.**

**Suggested Geology and Hydrogeology References:**

Water-Supply Paper 2220, USGS <https://pubs.er.usgs.gov/publication/wsp2220>

<http://pubs.usgs.gov/sir/2006/5127/PDF/SIR2006_5127.pdf>

<http://pubs.usgs.gov/sir/2006/5100/>

<http://pubs.usgs.gov/sir/2004/5131/sir2004-5131.pdf>

<https://pubs.er.usgs.gov/publication/wri964087>

<https://pubs.er.usgs.gov/publication/wsp2320A>

<https://pubs.er.usgs.gov/publication/wsp2320B>

<https://www.dtsc.ca.gov/PublicationsForms/upload/Aquifer_Testing_Guidance_Final.pdf>

How To Evaluate Alternative Cleanup Technologies For Underground Storage Tank Sites: A Guide For

Corrective Action Plan Reviewers Chapter X In-Situ Groundwater Bioremediation and Chapter XII

Enhanced Aerobic and Bioremediation. (EPA 510-B-94-003; EPA 510-B-95-007; and EPA 510-R-04-

002). <https://www.epa.gov/ust/how-evaluate-alternative-cleanup-technologies-underground-storage-tanksites-guide-corrective>

Ground Water Issue, Calculation and Use of First-Order Rate Constants for Monitored Natural

Attenuation Studies, EPA 2002, EPA/540/S-02/500,

<http://www.atsdr.cdc.gov/mrls/index.html>

Interstate Technology & Regulatory Council Bioremediation of DNAPLs Team (2005) Overview of In Situ

Bioremediation of Chlorinated Ethene DNAPL Source Zones. Washington, DC.

<https://frtr.gov/costperformance/pdf/remediation/BioDNAPL-1.pdf>

USEPA Drinking Water Contaminants.