M60050.001631

Cal/EPA

Department of Toxic Substances Control

245 West Broadway, Suite 425 Long Beach, CA 90802-4444

September 5, 1996

Pete Wilson Governor

James M. Strock Secretary for Environmental Protection

Mr. Joseph Joyce
Base Realignment and Closure
Environmental Coordinator
Headquarter Marine Corps
Air Station El Toro
P.O. Box 95001
Santa Ana California 92709-5001

REQUEST FOR APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR LANDFILL SITES, OPERABLE UNITS 2B AND 2C, MARINE CORPS AIR STATION (MCAS) EL TORO

The U.S.Marine Corps (USMC) letter dated July 26, 1996 was received in the Department of Toxic Substances Control (DTSC) office on August 2, 1996. The letter requested DTSC, as the lead agency for the State of California, to identify potential State chemical, location, and action-specific Applicable or Relevant and Appropriate Requirements (ARARs) for Operable Units 2B and 2C (OU-2B and OU-2C). USMC's letter presented background information concerning the operable units, which included information on the four landfill sites, chemicals of potential concern and a minimum of six potential remedial alternatives for each landfill site focusing on the components of the presumptive remedy for a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) municiple landfill.

On August 30, 1996, DTSC has forwarded to USMC ARARs from the following agencies: Regional Water Quality Control Board - Santa Ana Region, California Integrated Waste Management Board, California Air Resources Board, California Department of Health Services, Orange County Health Care Agency and Orange County Fire Authority. We also forwarded to USMC ARARs from the California Department of Fish and Game on September 3, 1996.

This letter is to transmit the enclosed ARARs from South Coast Air Quality Management District dated September 4, 1996. If DTSC receives ARARs from the remaining agencies, we will forward the information.

After completing the requirement in the Federal Facility Agreement (FFA) section 7.6(c), DTSC requests that USMC notify DTSC when USMC solicited again the non-responding agencies.

The ARAR analysis is an iterative process. As the alternatives are more fully described in the Feasibility Study, additional ARARs may be apparent.

If you have any questions, please call me at (310) 590-4891.

Sincerely,

Tayseer Mahmoud
Remedial Project Manager
Southern California Operations
Office of Military Facilities

Enclosure

cc: Ms. Bonnie Arthur
Project Manager
U. S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

Mr. Larry Vitale
Project Manager
California Environmental Protection Agency
Regional Water Quality Control Board
Santa Ana Region
2010 Iowa Avenue, Suite 100
Riverside, California 92507-2409

Mr. Tim Latas
Bechtel National, Inc.
401 West A Street, Suite 1000
San Diego, California 92101-7905

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

September 4, 1996

Department of Toxic Substances Control
Region 4
245 West Broadway, Suite 425
Long Beach, Ca. 90802-4444

Attn: Mr. Tayseer Mahmoud

The AQMD appreciates your request for input into compiling Applicable or Relevant and Appropriate Requirements (ARAR's) for the Marine Corps Air Station El Toro Operable Units 2B (OU-2B) and 2C (OU-2C) as stated in your letter dated August 7, 1996.

The following AQMD Rules and Regulations should be incorporated in the ARAR's:

Regulation IV - Prohibitions

Rule 401 - Visible Emissions
This rule limits any visible emissions from any single source to less than Ringlemann No. 1 or 20 percent opacity for 3 minutes in any hour (Ref. Health and Safety Code 41701).

Rule 402 - Nuisance
This rule prohibits the discharge of any air contaminant or other material (including odorous compounds) that causes injury or annoyance to the public, endangers the comfort, repose, health or safety of the public or causes damage to business or property. In general, a notice of violation may be issued upon receipt of six verified complaints or for any property damage or personal injury (Ref. Health and Safety Code 41700).

Rule 403 - Fugitive Dust

This rule limits on site activities so that the concentrations of fugitive dust at the property line shall not be visible. In addition, PM10 levels shall not exceed 50 micrograms per cubic meter as determined by the difference between upwind and downwind samples collected on high volume particulate matter samplers. These requirements do not apply if the wind gusts exceed 25 miles per hour. The rule also requires every reasonable precaution to minimize fugitive dust and the prevention and cleanup of any material accidently deposited on paved streets. This rule shall not apply during life-threatening situations or during a declared disaster or state of emergency.

Rule 404 - Particulate Matter
This rule limits equipment from discharging particulate emissions in excess of 0.01 to 0.196 grain per cubic foot based on a given volumetric (dry standard cubic feet per minute) exhaust gas flow rate averaged over one hour or one cycle of operation. It excludes steam generators or gas turbines.

Rule 405 - Solid Particulate Matter
This rule limits equipment from discharging particulate emissions in excess of 0.99 to 30 pounds per hour based on a given process weight.

Rule 407 - Liquid and Gaseous Air Contaminants
This rule limits equipment from discharging carbon monoxide emissions in excess of 2000 ppm and sulfur dioxide emissions of 500 ppm or greater averaged over 15 minutes. It excludes stationary internal combustion engines, propulsion of mobile equipment or emergency venting.

Rule 408 - Circumvention
This rule prohibits a person from building, erecting, installing or using any equipment, the use of which reduces or conceals an emission which would otherwise constitute a violation of these rules or Chapter 3 (starting with 41700) of Part 4, of Division 26 of the Health and Safety Code.

Rule 409 - Fuel Combustion Contaminants
This rule limits the emissions of particulate matter from the exhaust of a combustion source (such as a gas turbine) to 0.23 grams per cubic meter (0.1 grains per standard cubic foot) at 12 percent CO2 averaged over 15 minutes. It excludes internal combustion engines.

Rules 431.1, 431.2, 431.3 - Sulfur Content of Gaseous, Liquid or Fossil Fuels
These rules limit sulfur compounds from combustion of gaseous fuels not to exceed 40 ppm, 0.05 percent by weight for liquid fuels and 0.56 pounds of sulfur per million BTU for solid fossil fuels.

Rule 474 - Fuel Burning Equipment-Oxides of Nitrogen
This rule limits the concentration of oxides of nitrogen (as NO2) averaged over 15 minutes, from any non-mobile fuel burning equipment, to a range of 125 to 300 ppm for gaseous fuels and 225 to 400 ppm for solid and liquid fuels depending on equipment size.

Regulation X - National Emission Standards for Hazardous Air Pollutants

This regulation implements the provisions of Part 61, Chapter 1, Title 40 of the Code of Federal Regulations (CFR) under the supervision of the AQMD Executive Officer. It specifies emissions testing, monitoring procedures or handling of hazardous pollutants such as beryllium, benzene, mercury, vinyl chloride and asbestos.

Regulation XI - Source Specific Standards

Rule 1150 - Excavation of Landfill Sites
This rule states that no person shall initiate excavation of an active or inactive landfill without an Excavation Management Plan approved by the Executive Officer of AQMD. The Plan shall provide information regarding the quantity and characteristics of the material to be excavated and transported and shall identify mitigation measures including gas collection and disposal, baling, encapsulating, covering the material and chemical neutralizing.

Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil
This rule limits the emissions of volatile organic compounds (VOCs) from contaminated soil to less than 50 ppm. For contaminated soil with 50 ppm or greater, an approved mitigation plan, describing removal methods and mitigation measures, must obtained from the District prior to proceeding with the excavation. Uncontrolled spreading of contaminated soil is not permitted.

Regulation XIII - New Source Review

This rule applies to any new or modified equipment which may cause the issuance of any nonattainment air contaminant, ozone depleting compound or ammonia. It requires all equipment to be constructed with BACT (Best Available Control Technology). For non attainment emission increases, it requires the emission increases to be offset and substantiated with modeling that the equipment will not cause a significant increase in concentrations of non attainment contaminants.

Regulation XIV - Toxics

Rule 1401 - New Source Review of Carcinogenic Air Contaminants
This regulation specifies limits for cancer risk and excess cancer cases from new stationary sources and modifications to existing stationary sources that emit carcinogenic air contaminants. The rule establishes allowable emission impacts for all such stationary sources requiring new permits pursuant to AQMD Rules 201 or 203. Best Available Control Technology for Toxics (T-BACT) will be required for any system where a lifetime (70 years) maximum individual cancer risk of one in one million or greater is estimated to occur. Limits are calculated using risk factors for specific contaminants.

Best Available Control Technology (BACT) Guidelines document

This document was compiled by AQMD. Although a guideline, it set up BACT requirements for various types of equipment or process. To determine BACT, a cost effectiveness analyses determination must be made for the Alternate Basic Equipment or Process option or the Technologically Feasible option, in that order. Modifications or relocations of existing equipment do not need to be analyzed for Alternative Basic Equipment or Process. The first option which can be shown to be cost effective would then be the required BACT.

If you have any questions regarding these regulations, please call Mr. Ted Kowalczyk at (909) 396-2592.

Very truly yours,

William Thompson
Senior Manager

TK:ARAR

Post-it™ Fax Note 7671	Date 9/3/96	# of pages ▶ 7
To Mr. Joseph Joyce	From Tayseer Mahmoud	
Co./Dept. MCAS ELTORO	Co. DTSC	
Phone # 714 726-3470	Phone # 310 590-4891	
Fax # 714 726-6586	Fax # 310 590-4932	

CALIFORNIA DEPAR

BRAC/IR TEAM
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

FAX COVER SHEET

September 3, 1996

TO: **MR. ROY YEAMAN, DTSC**
cc: **MR. TAYSEER MAHMOUD, DTSC**

FAX NO: **(310) 590-4932**

FROM: Scott A. Flint
Phone: (916) 684-7977

TOTAL PAGES: 6

MESSAGE: Roy,

Here are DFG's potential ARARs for MCAS El Toro, OU-2B and OU-2C sites. I discovered that this letter was not faxed to you properly due to an error in the computer/fax system, I apologize for the delay.

Scott

State of California

MEMORANDUM

To: Mr. Roy Yeaman
Department of Toxic Substances Control
Office of Military Facilities
245 West Broadway, Suite 425
Long Beach, CA 92802-4444

Date: August 26, 1996

From: Department of Fish and Game

Subject: Location-Specific Applicable or Relevant and Appropriate Requirements (ARARs) Marine Corps Air Station El Toro (MCAS El Toro), Operable Units 2B and 2C. (5920/60130/NTX502 00:20)

This is in response to your letter of August 7, 1996 to the Department of Fish and Game (DFG) requesting potential State location specific ARARs for the subject site. DFG appreciates your request for providing State laws and regulations to guide the planned Removal Actions at MCAS El Toro OU-2B and OU2-C

As the lead State agency for toxic cleanup, you are making an inquiry to the Department for purposes of coordination and definition of appropriate State cleanup requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a portion of the site remediation process. This letter will also serve to advise you of the Department's interest in coordinating any natural resource issues as one of the designated State natural resource trustees, which may be necessary should the release(s) of any hazardous materials at the subject sites affect State natural resources, pursuant to CERCLA.

We have not had the opportunity to do an inspection of the sites. However, based upon information attached to your request, Department staff identified potential actions that could affect the following State fish and wildlife resources:

1. California gnatcatcher (*Polioptila californica*)[Federally listed threatened, California Species of Special Concern (CSC)]
2. Coastal cactus wren (*Campylorhynchus brunneicappillus*) (CSC)
3. Orange throated whiptail (*Cnemidophorus hyperythrus*) (CSC)
4. Western spadefoot toad (*Scaphiopus hammondii*) (CSC)
5. Southwestern pond turtle (*Clemmys marmorata pallida*) (CSC)

Listed in the enclosed table are the Fish and Game Code sections that are possible State location-specific ARARs or "to be considered(s)" (TBCs) to ensure compliance with state law for the protection of these species and their habitats. The specific citation and explanation for each listed ARAR and TBC are included.

We have reviewed Enclosure 1, "Project Description and List of Remedial Alternatives" for the various OU-2B and OU-2C Sites in the attachment to your letter. The presumptive remedy for each site

includes landfill capping and installation/maintenance of other specific engineering controls. The removal actions will serve to protect State fish and wildlife resources by preventing exposure to chemical contaminants at each site. While this is true, mitigation will also be required for any impacts to the species and/or habitats which occur as a result of the landfill capping and related construction activities at each site. The Department of Toxic Substances Control and the Department of the Navy should consult with DFG to ensure that impacts and mitigation requirements are properly assessed. In addition, DFG should be included in the Agency review of the Draft Feasibility Study Documents, and DFG staff will be reviewing the site specific environmental information and ecological risk assessments that were completed in the earlier remedial investigation reports for these sites.

Thank you for the opportunity to comment upon the ARARs request. If you have any questions regarding these comments or need additional information, please call me at (408) 649-7195. The DFG BRAC/IR Team staff should be included in any future ARAR related activity or for consultation on wildlife/habitat issues at this site.

Sincerely,

Scott A. Flint
Senior Biologist
Environmental Services Division

Enclosure

SF:sf

cc: Department of Toxic Substances Control

Mr. Tayseer Mahmoud

Department of Fish and Game

Mr. Pete Phillips, Sacramento

Mr. John Turner, Sacramento

Ms. Jennifer Decker, Sacramento

LOCATION SPECIFIC ARARs AND TBCs for MCAS EL TORO
OU-2B Sites 2, 17 and OU-2C Sites 3, 5

Aquatic habitat/species	Action must be taken if toxic materials are placed where they can enter waters of the State. There can be no releases that would have a deleterious effect on species or habitat.	Fish & Game Code sections 5650 (a), (b) & (f)	These code sections prohibit the deposition into State waters of, *inter alia*, petroleum products [Section 5650 (a)], factory refuse [Section 5650 (b)], and any substance deleterious to fish, plants or birds [Section 5650 (f)]. These are substantive promulgated environmental protection requirements. These requirements impose strict criminal liability on violators. [People v. Chevron Chemical Company (1983) 143 Cal App.3d 50.]. This imposition of strict criminal liability imposes a standard that is more stringent than Federal law. The extent to which each subdivision of Section 5650 is relevant and appropriate depends on site specific conditions or details. There is also a scientific/technical reason for inclusion of Section 5650 as a potential location specific ARAR. State and Federal water quality control standards are generally developed, utilizing data, information, and guidance from numerous sources. Federal water quality criteria may allow higher concentrations of chemicals for limited time periods, which can result in conditions which are deleterious to State fish, plants, or birds
Wetlands	Actions must be taken to assure that there is "no net loss" of wetlands acreage or habitat value. Action must be taken to preserve, protect, restore and enhance California's wetland acreage and habitat values.	Fish and Game Commission Wetlands Policy (adopted 1987) included in Fish and Game Code Addenda	This policy seeks to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California. Further, it opposes any development or conversion of wetland which would result in a reduction of wetland acreage or habitat value. It adopts the USFWS definition of a wetland which utilizes hydric soils, saturation or inundation, and vegetable criteria, and requires the presence of at least one of these criteria (rather than all three) in order to classify an area as a wetland. This policy is not a regulatory program and should be included as a TBC.

LOCATION SPECIFIC ARARs AND TBCs for MCAS EL TORO
OU-2B Sites 2, 17 and OU-2C Sites 3, 5

Endangered Species	Action must be taken to conserve endangered species, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish & Game Code sections 2090-2096	These code sections comprise article 4 of chapter 1.5 of the California Endangered Species Act. These sections make provisions concerning Department coordination and consultation with state and federal agencies and with project applicants. These sections do not impose substantive requirements. These sections should be included as TBCs.
Wildlife Species	Action must be taken to prohibit the taking of birds and mammals, including taking by poison.	Fish & Game Code section 3005	This code section prohibits the taking of birds and mammals, including taking by poison. "Taking" is defined by Fish and Game Code section 86 to include killing. "Poison" is not defined in the code but contaminants of concern (heavy metals, herbicides and pesticides) are all poisons by definition. Federal law recognizes that poison may effect an incidental taking. (Defenders of Wildlife v. Administrator, Environmental Protection Agency (1989) 882 F.2d 1295.) This code section imposes a substantive, promulgated environmental protection requirement. Bird and mammal fatalities are not impossible under the circumstances at these sites, particularly if stockpiling results in increased concentrations of contaminants. This section should be included as an ARAR.

LOCATION SPECIFIC ARARs AND TBCs for NCAS EL TORO
OU-2B Sites 2, 17 and OU-2C Sites 3, 5

Wildlife species/habitats	Action must be taken for the general protection and conservation of fish and wildlife resources.	Fish & Game Code section 1600	This code section declares the protection and conservation of fish and wildlife to be an important public interest. This section is a general statement of policy that does not impose a substantive requirement. This section should be included as a TBC.
Streambed	The Department must propose reasonable modifications to public construction projects that would alter the bed, channel or bank of any river, stream or lake and may substantially adversely affect an existing fish or wildlife resource.	Fish & Game Code section 1601	This section requires notification to and action by the Department. It also imposes a substantive requirement to the extent it requires streambed alteration to not substantially adversely affect an existing fish or wildlife resource. The section is relevant to the extent the operations impact the beds, channel or bank of the Napa River. Section 1601 complements the operation of federal ARAR 40 CFR section 231.1, which authorizes the USEPA Administrator to prohibit activity whenever he determines that the discharge of dredge or fill material may have an "unacceptable adverse affect" on fish and wildlife. Section 1601 also complements the operation of federal ARAR 16 USC section 662, which requires the determination of possible damage to wildlife resources and the means and measures that should be adopted to prevent the loss of or damage to such resources caused by proposed streambed alterations. This section should be included as an ARAR.
Streambed	Any streambed may not be altered without first notifying the Department.	Fish & Game Code section 1603	This section requires notification to and action by the Department. Section 1603 also imposes a substantive requirement to the extent it requires streambed alteration to not substantially adversely affect an existing fish or wildlife resource. This section should be included as an ARAR.

LOCATION SPECIFIC ARARs AND TBCs for MCAS EL TORO
OU-2B Sites 2, 17 and OU-2C Sites 3, 5

Aquatic and Wildlife species/habitats	Action may be taken to collect damages for the taking of birds, mammals, fishes, reptiles or amphibians.	Fish & Game Code section 2014	This code section declares that it is policy of the state to conserve its natural resources. It allows the state to recover damages in a civil action against any person or local agency which unlawfully or negligently takes or destroys any bird, mammal, fish, reptile or amphibian protected by the laws of the state. This section should be included as an ARAR.
Endangered Species	Action must be taken to conserve endangered species, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish & Game Code section 2080	This section prohibits the taking, importation or sale of any species, or any part thereof, of an endangered species or a threatened species. This section should be included as an ARAR.
Rare native plants	Action must be taken to conserve native plants, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish & Game Code sections 2080 and 1900 *et seq.*	These code sections make provisions concerning native plant protection, including: criteria for determining endangered plant species; designation of endangered plants by the Fish and Game Commission; research by the Dept.; takings by the Dept. for scientific propagation purposes; other prohibitions on takings; exercise of enforcement authority; arrests and confiscation; carrying out of plant conservation programs by other state departments and agencies; an unauthorized public agency regulations pertaining to agriculture. Sections 1900, 1901, 1904, 1905, 1906, 1907, 1909, 1910, 1911, 1912, and 1913 are procedural and administrative in nature and do not impose any substantive requirements. Section 1908 imposes a substantive requirement for forbidding any "person" to take rare or endangered native plants. If rare or endangered plants are present, then sections 2080 and 1908 should be included as ARARs, and the other sections are TBCs.

State of California

Memorandum

To: Mr. Tayseer Mahmoud
245 West Broadway, Suite 350
Long Beach, CA 90802

Date: August 19, 1996

From: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SANTA ANA REGION
3737 Main Street, SUITE 500, RIVERSIDE, CALIFORNIA 92501-3339
Telephone: CALNET 632-4130 Public (909) 782-4130

Subject: **REQUEST FOR REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) APPLICABLE RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR MARINE CORPS AIR STATION (MCAS) EL TORO OPERABLE UNIT 2B AND 2C (LANDFILLS)**

On August 12, 1996, we received your request that the Santa Ana RWQCB provide its ARARs for MCAS El Toro OU-2 B and OU-2C in compliance with Section 121 (d) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The following is a list of our ARARs:

- **Water Quality Control Plan Santa Ana River Basin,1995 (Basin Plan)**

Citation: Chapter 3, Beneficial Uses

Description: Defines beneficial uses for groundwater beneath MCAS El Toro as: municipal and domestic supply, argricultrual supply, Industrial service supply, and industrial process supply.

Comments: The identification of the groundwater as potential drinking water source (municipal) forms a basis for selection of concentration limits, cleanup levels and treatment levels.

ARAR Status: Applicable, Action

Citation: Chapter 4, Water Quality Objectives

Description: Defines the groundwater quality objectives for non-degradation, taste and odor, bacteria, chemical constituents, toxic substances, radioactivity, and minerals.

Comments: Concentration limits, cleanup levels, treatment levels established for OU-2B and OU-2C must conform to the Basin Plan objectives.

ARAR Status: Applicable, Action, Chemical

Citation: Chapter 5, Implementation, Salt Balance and Assimilative Capacity - Lower Santa Ana Basin

Description: Describes the actions that are necessary to achieve the water quality objectives and protect beneficial uses of the regions surface and groundwaters.

Comments: Applies to control, removal or remedial actions associated with groundwater remediation at OU-2B and OU2-C.

ARAR status - Applicable, Action, Chemical

- **Statement of Policy with Respect to Maintaining High Quality of Waters in California**

Citation: State Water Resources Control Board Resolution No. 68-16

Description: Establishes policy on maintaining high quality of California's surface and groundwaters.

Comments: Affects discharges from treatment systems and migration of contaminated or polluted water into high quality waters.

ARAR status: Applicable, Action, Chemical, Location

- **Sources of Drinking Water Policy**

Citation: State Water Resources Control Board Resolution No. 88-63 and Regional Board Resolution No. 89-42

Description: Defines all ground and surface waters as existing or potential sources of drinking water with a few specified exceptions, (these exceptions are specified in chapter 3, Beneficial Uses, of the Basin Plan)

Comments: The identification of the ground waters beneath OU-2B and OU-2C as potential drinking water sources provides information to determine concentration limits, cleanup levels or treatment levels.

ARAR status - Applicable, Location

- **Porter-Cologne Water Quality Control Act**

Citation: California Water Code § 13000

Description: Defines the legislative intent to attain the highest water quality reasonable, considering all demands being made.

Comments: Basis for selecting background as the clean up goal.

ARAR status: Applicable, Action

Citation: California Water Code § 13176

Description: Requires that the analysis of any material be preformed in a state certified laboratory.

Comments: For all investigations and remedial actions.

ARAR status: Applicable, Action

Citation: California Water Code § 13263

Description: Requires Regional Boards to prescribe waste discharge requirements implementing water quality control plans and consider beneficial uses, water quality objectives, other discharges, and nuisance prevention.

Comments: Removal and remedial actions must comply with substantive requirements.

ARAR status: Applicable, Action, Chemical, Location

Citation: California Water Code § 13750

Description: Requires an intent to drill notice to be filed with the State Department of Water Resources for water wells, monitoring wells, and cathodic protection wells.

Comments: Applies to all well installations.

ARAR status: Applicable, Action

Citation: California Water Code § 13751

Description: Requires well completion reports to be submitted to the State Department of Water Resources.

Comments: Proposals for addressing OU-2B and 2C may include well installation.

ARAR status: Applicable, Action

- **Discharge of Waste to Land, Chapter 15, Title 23, California Code of Regulations Article 5 - Water Quality Monitoring and Response Programs**

Citation: § 2550.0

Description: Applies to any area of land in which waste was discharged. The duration is until the unit has been in compliance with the water quality protection standard for three consecutive years.

Comments: Applies to OU-2B and 2C past landfill operations

ARAR status: Relevant and Appropriate, Action

Citation: § 2550.4

Description: Concentration limits must be established for groundwater, surface water, and the unsaturated zone. They must be based on background, equal to background, or for corrective actions, may be greater than background, not to exceed the lower of the MCL or the concentration technologically or economically achievable.

Comments: Applies to all groundwater, surface water and unsaturated zone contamination sites.

ARAR status: Applicable, Action, Chemical

Citation: § 2550.5

Description: Monitoring points (MPt) and Point of Compliance (POC) - shall be specified in the requirements (ROD). POC is the vertical surface located at the downgradient edge of the unit (in this case the regional plume) extending through the uppermost aquifer. MPts shall be at the POC and other areas as determined by § 2550.7. For contiguous units the POC may be downgradient of an area.

Comments: May apply to the prescriptive remedial action alternative proposal which includes monitoring for migration and contaminant concentration levels.

ARAR status: Applicable, Action, Location

Citation: § 2550.7(b)(3)

Description: Must submit Department of Water Resources well logs to the Regional Board.

Comments: For all wells.

ARAR status: Applicable, Action

Citation: § 2550.7(e)(1)

Description: All monitoring systems to be designed and certified by a registered civil engineer or geologist.

Comments: Applies to OU-2B and 2C monitoring proposals

ARARs status: Applicable, Action

Citation: § 2550.7(e)(13)

Description: Must collect groundwater surface elevation and field parameters each time a well is sampled.

Comment: Applies to groundwater monitoring protocol.

ARAR status: Applicable, Action

Citation: § 2580(a)(d)(e)

Description: Requires maintenance of waste containment facilities and precipitation and drainage controls and contaminated groundwater monitoring throughout the post-closure maintenance period. Requires installation of at least two permenant monuments from which the locaton and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the post closure maintenance period. Describes vegetative cover requirements.

Comment: Applies to landfill closures.

ARAR status: Applicable, Relevant and Appropriate

Citation: § 2581

Description: Requires a final cover constructed in accordance with specific prescriptive standards, to be maintained as long as wastes pose a threat to water quality.

Comment: Groundwater impacts have been identified, which implies a potential threat to water quality.

ARAR status: Applicable, Relevant and appropriate

Citation: § 2597

Description: Closure post-closure maintenance plan to address potential adverse affects on the final cover.

Comment: Applies to closing solid waste disposal sites.

ARAR status: Applicable, Relevant and appropriate

Citation: California Water Code, Chapter 5, Article 1

Description: Requires cleanup and abatement of conditions of pollution or nuisance or threatened pollution or nuisance.

Comments: Applies to all investigation and remedial actions.

ARAR status: Applicable, Action

Policies and Procedures for Investigation and Cleanup and Abatement of discharges Under Water Code Section 13304

Citation: State Water resources Control Board Resoultion No. 92-49

Description: Requires the invedtigation, cleanup and abatement exent to any location affected by a discharge or threatened discharge and sets policies and procedures for all investigations and cleanup and abatement activities.

Comments: This is applicable to investigations and remedial activities at OU-2B and 2C.

ARAR status: Applicable, Action, Chemical, and Location

If you have any questions, please call me at (909) 782-4998.

Sincerely;

Lawrence Vitale
DoD Section

cc: Mr. John Adams, SWRCB, Clean Water Programs

Cal/EPA

California
Environmental
Protection
Agency

*Integrated
Waste
Management
Board*

*8800 Cal Center Dr.
Sacramento CA 95826
(916) 255-2200*

AUG 8 2 1996

Pete Wilson
Governor

James M. Strock
*Secretary for
Environmental
Protection*

Mr. Tayseer Mahmoud
California Environmental Protection Agency
Department of Toxic Substances Control
Office of Military Facilities
Southern California Operations
245 W. Broadway, Suite 350
Long Beach, California 90802-4444

Subject: Applicable or Relevant and Appropriate Requirements (ARARs) for El Toro Marine Corps Air Station (MCAS), Operable Units (OUs) 2B and 2C, Orange County, California

Dear Mr. Mahmoud:

In response to your request, staff of the California Integrated Waste Management Board (Board) has reviewed the following documents:

- Cover letter dated August 7, 1996;
- Project Description and List of Remedial Alternatives;
- ARARs Q's and A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers; and
- MCAS El Toro Potential ARARs for OU-2B, Site 2.

As a result of review, Board staff have compiled the following comments listed below. Board staff comments have been divided into four categories : ARARs, Landfill Gas Monitoring, Landfill Waste Consolidation, Waste Extent Delineation, and Postclosure Land Use.

ARARs

Based on a review of the available information, and previous site visits, it appears that the Sites 2 and 17 (OU-2B). and Sites 3 and 5 (OU-2C) meet the definition of solid waste disposal site pursuant to Public Resources Code Section 40122. Therefore, these sites are subject to the Minimum Standards for Solid Waste Handling and Disposal. A general description of these ARARs is provided below.

The Board has the following statutory and regulatory authority:

- Statutory authority: The Integrated Waste Management Act of 1989, as embodied in Public Resources Code (PRC) Section 40000 *et seq.*

- Regulatory authority: Title 14, California Code of Regulations (14 CCR), Division 7 California Integrated Waste Management Board.

Pursuant to PRC Sections 43021 and 43509, the Board has adopted regulations that include substantive standards for the design, operation, maintenance, closure, and ultimate reuse of solid waste disposal sites. These regulations are primarily contained in the 14 CCR, Division 7, Chapter 3 Minimum Standards for Solid Waste Handling and Disposal, Articles 7.1-7.8 Disposal Site Standards.

The enclosed tables provide 14 CCR ARARs for closure, postclosure maintenance, consolidation and ultimate postclosure land use of solid waste disposal sites. These ARARs are being submitted pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 (d) and the National Contingency Plan.

In addition to the tables, we have included a copy of Board's Local Enforcement Agency Advisory discussing the subject of clean closure which may be used as a guidance document for consolidation or removal activities.

Landfill Gas Monitoring

As previously indicated during Remedial Investigation (RI) report review (Board letter of June 3, 1996), only a limited landfill gas investigation had been conducted (this applies to all four sites). The results of this preliminary investigation indicate that the sites listed above may have low gas generation potential. However, because of a very limited extent of the landfill gas survey conducted as a part of the RI, there is not enough evidence to exempt these sites from landfill gas monitoring requirements. Thus, either a Title 14 California Code of Regulations (14 CCR) landfill gas monitoring network must be established for each of the sites or an in depth landfill gas generation potential survey must be conducted to obtain a formal exemption from landfill gas monitoring requirements.

To conduct an adequate landfill gas survey and possibly obtain an exemption from the landfill gas monitoring and control requirements of 14 CCR, the following elements must be included: internal static pressure measurements, sampling for landfill gas in the interior of the disposal area, and analyzing for natural and trace gases. We have provided general guidance on how to characterize landfill decomposition gases (see attachment "Landfill Gas Investigation Procedures"). Alternative investigation procedures may be proposed.

Landfill Waste Consolidation

As it has been mentioned during the subsequent meetings, a partial waste excavation and relocation are being considered for OU-2B Site 2. This alternative should be included in the list of closure options for this site. As it has been previously indicated, the attached tables address waste consolidation under 14 CCR requirements.

Waste Extent Delineation

Before any design for final cover may be submitted, a field exploration program should be implemented in order to minimize the actual closure area. Such program can be coordinated with the landfill gas survey in order to minimize any associated expenses.

The extent of the waste should be established through exploratory trenches and borings at frequencies sufficient to precisely delineate the actual extent of the waste area. Such determination will help minimize the costs related to final cover installation and postclosure maintenance and maximize the area of native ground surrounding the landfill for purpose of postclosure land development. Additionally, by establishing the waste extent, a more effective landfill gas monitoring system can be constructed.

Because the interface between the refuse fill and native ground usually experiences the most extensive effects of landfill differential settlement (final cover cracking), knowledge of its location may help optimize postclosure monitoring and pinpoint future problem areas.

Postclosure Land Use

It is Board staff's understanding that institutional controls and land use restrictions will be implemented for these solid waste disposal sites. If there is a change in the land use, staff must be notified by the site owner pursuant to California Code of Regulations, Title 14, Section 17796. This requirement is not a land use restriction, it is set forth to ensure that development on solid waste disposal sites is conducted in manner that will ensure the protection of public health and safety and the environment.

Should you have any questions regarding this matter, please call me at (916) 255-1195.

Sincerely,

Peter M. Janicki
Closure and Remediation South
Permitting and Enforcement Division

Enclosures: "Landfill Gas Investigation Procedures" (one page)

Table, "State ARARs for Solid Waste Disposal Site Closure and Postclosure Maintenance" (two pages)

Table, "State ARARs for Solid Waste Disposal Site Excavation and Consolidation" (four pages)

LEA Advisory, "Clean Closure" (three pages)

Landfill Gas Investigation Procedures

To obtain a representative sample of the landfill gas, approximately five samples should be collected per ten acres of disposal site. Characterization wells should be spaced evenly or in hot spots as determined by a surface emissions screening. Wells should be sealed at least six feet from the bottom of the landfill cover to prevent air intrusion and extend to 75 percent of the depth of the waste or to the ground water, whichever is less. For shallow landfills (15 feet or less), the well should be screened the entire length below the seal. Screw joints should be used to prevent sample contamination. The annular space should be back filled with pea gravel or coarse sand which will allow unhindered gas flow without plugging the probe screen slots. The well head should be equipped with appropriate valve and fittings to seal the well while not in use, to perform static pressure tests, and to attach pump and sampling equipment. Fittings should be fusion welded or screwed with teflon tape to prevent leaking.

Prior to sampling a gas probe, the static pressure of the probe should be measured using a magnehelic pressure gage or other comparable device having a sensitivity of 0.2 inches of water column or less. If the static pressure of the probe is within ±1.0 inches of water column from ambient pressure, gas instruments may be connected directly to the probe to determine combustible gas concentration after purging two probe volumes.

To sample the landfill gas, if the static pressure of the probe is greater than ±1.0 inch of water column from ambient pressure, two well volumes should be purged, then samples drawn into a Tedlar bag and immediately tested for methane concentrations with a combustible gas indicator. An additional sample should be drawn into an evacuated stainless steel canister (Summa canister) and analyzed for natural gasses by ASTM method D-1945 and trace gases by EPA Method TO-14 with detection limits for vinyl chloride and benzene of no greater than 0.5 ppb. During the sampling event, the following ambient data should be documented: weather conditions within 72 hours of the sampling event, temperature, and barometric pressure. Sampling should be repeated quarterly for a period of one year.

To ensure that the appropriate samples are taken and sample integrity has been preserved, a monitoring and quality assurance plan should be developed and approved prior to sampling. All health and safety precautions should be addressed in the sampling plan and adhered to during sampling.

State ARARs for Solid Waste Disposal Site Closure and Postclosure Maintenance

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17766 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Emergency Response Plan (ERP): potential emergency conditions that may exceed the design of the site and could endanger the public health or environment must be anticipated. Response procedures for these conditions must be addressed in the RD/RA plans.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760.	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17767 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Security at Closed Sites: all points of access to the site must be restricted, except permitted entry points. All monitoring, control, and recovery systems shall be protected from unauthorized access	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760.	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17773 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Final Cover: the design and construction of the final cover must meet specific prescriptive standards of 23 CCR 2581(a). These include minimum thickness and quality of the construction material. If the prescriptive standard is not feasible then an engineered alternative that meets the performance goals (i.e. limiting infiltration, controlling gas emissions, compatibility with waste) can be proposed.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17774 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Construction Quality Assurance (CQA): a CQA program must be designed and implemented. It must include specific parameters (and for some components specific testing methods) for each component of the final cover	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17776 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Final Grades: the final grades for the covered landfill must meet grading standards provided in 23 CCR 2581, they must be appropriate to control runoff and erosion.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17777 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Final Site Face: the design of the final site face must provide for the integrity of the final cover both under static and dynamic conditions	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17778 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Final Drainage: the design of the final cover must control runon and runoff produced by a 100 year 24 hour storm event and must be prepared according to CQA requirements.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760.	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17779 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Slope Protection and Erosion Control: the design and construction of the slopes must protect the integrity of the final cover and minimize soil erosion.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17781 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Leachate Control During Closure and Post Closure: leachate must be monitored, collected, treated, and discarded appropriately	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8 Scope and Applicability pursuant to 14 CCR 17760. The state does not intend that subsurface leachate monitoring and collecting systems need to be added to existing landfills unless leachate production and or accumulation is evident.	For closing sites

State ARARs for Solid Waste Disposal Site Closure and Postclosure Maintenance

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17783 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Gas Monitoring and Control During Closure and Post Closure. Landfill gases must be collected and analyzed; the concentration of combustible gas at the landfill boundary must be 5% or less, trace gases must not be at levels that cause adverse health or environmental impacts.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8. Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17788 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Post Closure Maintenance: the landfill must be maintained and monitored for no less than 30 years following closure.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8. Scope and Applicability pursuant to 14 CCR 17760	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43020	14 CCR 17796 Chapter 3, Article 7.8 Disposal Site Closure and Postclosure Maintenance	Applicable or Relevant and Appropriate	Post Closure Land Use. Site Closure Design shall show one or more proposed uses of the closed site or show development that is compatible with open space. Changes in postclosure land use must be approved by the appropriate State agency prior to implementation.	Closure or Postclosure Maintenance Standard of Title 14, CCR, Chapter 3, Article 7.8. Scope and Applicability pursuant to 14 CCR 17760.	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43500	14 CCR 18262.3 Chapter 5, Article 3.4 Closure and Postclosure Maintenance Plans	Relevant and Appropriate	Provides the content requirements for closure plans for solid waste disposal sites.	Applies to solid waste disposal sites that received waste after January 1, 1988. Relevant and appropriate for closing sites that did not receive waste after January 1, 1988	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43500	14 CCR 18265.3 Chapter 5, Article 3.4 Closure and Postclosure Maintenance Plans	Relevant and Appropriate	Provides the content requirements for postclosure maintenance plans for solid waste disposal sites.	Applies to solid waste disposal sites that received waste after January 1, 1988. Relevant and appropriate for closing sites that did not receive waste after January 1, 1988	For closing sites
California Integrated Waste Management Act of 1989 PRC 40502 & 43500	14 CCR 18275 Chapter 5, Article 3.4 Postclosure Maintenance Plans	Relevant and Appropriate	Provides the content requirements to obtain certification that the solid waste disposal sites has closed pursuant to state standards	Applies to solid waste disposal sites that received waste after January 1, 1988. Relevant and appropriate for closing sites that did not receive waste after January 1, 1988	For closing sites

14 CCR - California Code of Regulations, Title 14 ARAR - applicable or relevant and appropriate requirement ROD - Record of Decision RD/RA - remedial design/remedial action

State ARARs for Solid Waste Disposal Site Excavation and Consolidation

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17636 Chapter 3, Article 7.3 Disposal Site Records	Applicable	Weight/Volume Records: the weight or volume of waste accepted must be determined to an accuracy of ±10%	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17637 Chapter 3, Article 7.3 Disposal Site Records	Applicable	Subsurface Records: the length and depth of any cut(s) made in natural terrain where fill will be placed and the depth to groundwater must be determined and documented.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17658 Chapter 3, Article 7.4 Disposal Site Improvements	Applicable	Site Security: the perimeter of the landfill must be secured either through barriers or topographic constraints to discourage unauthorized entry	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17659 Chapter 3, Article 7.4 Disposal Site Improvements	Applicable	Access Roads: landfill roads must be reasonably smooth to minimize dust and tracking of materials onto public roads.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17676 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Confined Unloading: Requires limiting unloading area, controlling windblown materials, and deposition at toe of fill.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17677 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Spreading and Compacting: Requires spreading and compacting of refuse in layers.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17678 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Slopes and Cuts: The slope of the working face shall be maintained at a ratio which will allow effective completion of the wastes. The depth of cuts and slopes of trench sides shall not exceed specified horizontal to vertical ratios.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17680 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Stockpiling: Requires stockpiled cover material and unacceptable native materials to be placed so as not to cause problems or interference with site operations.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites

State ARARs for Solid Waste Disposal Site Excavation and Consolidation

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17686 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Intermediate Cover: Requires cover on fill where no additional refuse will be deposited within 180 days	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17686 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Scavenging: Scavenging is prohibited.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17687 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Salvaging Permitted: Salvaging is permitted in a planned and controlled manner.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17688 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Volume Reduction and Energy Recovery: Volume reduction and energy recovery are permitted in planned and controlled manners.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17689 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Processing Area: Processing area shall be confined to greatest degree practicable	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17690 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Storage of Salvage: Salvage material must be safely isolated for storage	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17691 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Removal: Storage time for salvage materials shall be limited to a safe duration.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17692 Chapter 3, Article 7.5 Disposal Site Operations	Applicable	Non-Salvageable Items: Items capable of imposing public health shall not be salvaged without approval by the agency.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites

State ARARs for Solid Waste Disposal Site Excavation and Consolidation

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17701 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Nuisance Control. Each site shall be operated and maintained so as not to create a public nuisance.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17704 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Leachate Control. The operator shall take adequate steps to monitor, collect, treat, and effectively dispose of leachates.	The state does not intend that subsurface leachate monitoring and collection systems need to be installed at existing sites unless there is evidence of leachate production and/or accumulation. Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17705 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Gas Control: Landfill gas control may be required based on the monitoring results.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17706 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Dust Control. The operator shall take adequate measures to minimize the creation of dust.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17707 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Vector and Bird Control: The operator shall take adequate measures to control or prevent the propagation, harborage, or attraction of flies, rodents, or other vectors, and to minimize bird problems.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17708 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Drainage And Erosion Control: Adequate drainage shall be provided. Effects of erosion shall be promptly repaired and steps taken to prevent further occurrence.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17709 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Contact with Water. No solid waste shall be deposited in direct contact with surface water	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17710 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Grading of Fill Surface. Covered surfaces of the disposal area shall be graded to promote run-off and prevent ponding, accounting for future settlement.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites

State ARARs for Solid Waste Disposal Site Excavation and Consolidation

Source	Standard, Requirement, Criterion, or Limitation	ARAR Status	Description	Comment	Associated Site
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17311 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Litter Control: Litter and loose materials shall be routinely collected and disposed of properly.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17713 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Odor Control: The disposal site shall not be a source of odor nuisances.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 17741 Chapter 3, Article 7.6 Disposal Site Controls	Applicable	Burning Wastes: Burning wastes shall be extinguished.	Applies to solid waste disposal sites as defined by Public Resources Code Section 40122.	For consolidation and excavation sites
California Integrated Waste Management Act of 1989 PRC 40502, 43020, 43021 and 43030	14 CCR 18222 Chapter 5, Article 2.2 Reports of Facility Information	Relevant and Appropriate	Report of Disposal Site Information: The planning and procedural requirements necessary to ensure that solid waste is handled and disposed in manners that protect public health and safety and the environment must be conducted.	Applies to operating solid waste disposal sites as defined by Public Resources Code Section 40122	For consolidation sites

14 CCR - California Code of Regulations, Title 14 ARAR - applicable or relevant and appropriate requirement ROD - Record of Decision RI/FS - remedial design/remedial action

INTEGRATED WASTE MANAGEMENT BOARD

LEA ADVISORY

No. 16 September 26, 1994

CLEAN CLOSURE

To All Local Enforcement Agencies

What is "Clean Closure"?

Clean closure of a solid waste disposal site refers to the complete removal of all waste and waste residuals, including contaminated soils. A clean closure is generally defined as being successful when waste materials and residuals are removed to a point where remaining contaminant concentrations are at or below background levels or clean up levels established by the relevant regulatory agencies. Clean closure is an alternative to more conventional closure methods (closure with waste in place) described in Title 14, California Code of Regulations (14 CCR), Division 7, Chapter 3, Article 7.8, and 23 CCR, Division 3, Chapter 15, Article 8. Clean closure may also be considered a remedial action or a step in a remedial action in some cases.

The California Integrated Waste Management Board (Board) has not adopted regulations specifically concerning clean closure. However, the Board's Closure and Remediation Branch has developed a set of guidelines for Board and Local Enforcement Agency (LEA) staff to follow when overseeing a clean closure. The following guidelines should not be construed as regulations. These guidelines, however, are consistent with existing law and regulations and are intended to ensure that public health and safety and the environment are protected from pollution due to the disposal of solid waste. These guidelines are also intended to provide a basis to allow Board and LEA staff of varying background and expertise to deal with clean closure issues in a consistent manner.

What Sites are Candidates for Clean Closure?

Clean closure may be an appropriate alternative for permitted, illegal, or abandoned solid waste disposal sites. Clean closure may also be an appropriate action for sites which closed prior to the current closure regulations, but which are facing a change in land use which may threaten the integrity of the closed site or pose a threat to public health and safety and the environment. Also, clean closure may be an appropriate part of a remedial action for previously closed sites which have developed environmental problems. Sites that generally lend themselves to clean closure include, but are not limited to:

- Small landfills and burn dumps;
- Non-hazardous woodwaste disposal sites;
- Solid and liquid waste treatment and/or processing units; and
- Sites where the cost of clean closure would be less than or equal to the costs of long term monitoring and postclosure maintenance of the site.

What are the Benefits of Clean Closure?

A properly performed clean closure ensures that waste materials and residuals are removed and disposed of in a safe and environmentally sound manner. In addition, clean closing a disposal site can create several advantages for an owner/operator. If done properly, the clean closure of an entire

waste management unit (e.g., a landfill cell or contiguous group of cells) would eliminate the need for the following for that unit: (1) 30 years or more of postclosure maintenance; (2) potential future corrective actions; and (3) Board and LEA inspections of the site. While the clean closure of an illegal disposal site eliminates the necessity for LEA and Board staff inspections, in some areas, particularly rural areas where the use of such sites by local residents has become habitual, continued or even increased inspections may be needed temporarily to prevent reactivation of the illegal disposal site. By clean closing, an owner/operator may also increase the possible postclosure land uses for the site. Furthermore, clean closure plans are typically less involved than conventional closure plans. However, the owner/operator will have to evaluate the potential costs and benefits of clean closure versus those of a conventional closure on a site-by-site basis to determine the viability of this option.

What Does the Clean Closure Process Involve?

The clean closure of a solid waste disposal site is a multiple step process. The steps may include, but are not limited to:

1. Site characterization;
2. Clean closure plan preparation;
3. Review and approval;
4. The actual clean closure; and
5. Verification and approval of the clean closure.

Who Evaluates Clean Closure Proposals?

Adequate advance notification of the appropriate regulatory agencies (Board, Regional Water Quality Control Board [RWQCB], LEA, and in some cases the Air Pollution Control District [APCD] and/or Department of Toxic Substances Control [DTSC] or other agencies as necessary) is necessary to allow review and approval of any proposals as well as observation of the site prior to, during, and after clean closure to verify that the site has been properly clean closed. For clean closures of permitted solid waste disposal sites and those which are subject to 14 CCR, Division 7, Chapter 5, Article 3.4, the review and approval process for clean closure plans is the same as that for conventional closure plans and is described in 14 CCR, Division 7, Chapter 5, Article 3.4. For other sites, the position of coordinating agency for the review and the timeline for the submittal and review of documents by the various agencies should be agreed upon by the agencies at the beginning of each project. The timely submittal of appropriate documentation (e.g., site characterization studies or clean closure plans) allows the approving agencies an opportunity to review and comment on the proposed clean closure prior to the actual clean closure of the site. Failure to involve all of the regulatory agencies early in the clean closure process may lead to lack of final approval of the clean closure of the site and the application of the regulatory requirements described below.

The Board (Closure and Remediation Branch), RWQCB, and LEA must each make a final determination that a solid waste disposal site has been properly clean closed. The determination that a site has been successfully clean closed implies that the potential threats to public health and safety and the environment due to the disposal of solid waste at the site have been mitigated by the clean closure. An owner/operator must provide to these agencies an adequate characterization of the site

and satisfactory evidence that all waste and waste residuals were removed and properly disposed of. If these agencies determine a clean closure was not properly completed, 14 CCR, Division 7, Chapter 3, Article 7.8, and 23 CCR, Division 3, Chapter 15, may apply to the site. If the site was operating on or after January 1, 1988, 14 CCR Division 7, Chapter 5, Articles 3.4 and 3.5 will most likely also apply.

What Information Should be Provided in Clean Closure Proposals?

The minimum components of a clean closure plan should include, but not be limited to:

- Site characterization;
- Excavation and material management;
- Confirmation of waste and degraded material removal; and
- Postclosure maintenance and land use.

The plan should be prepared by a registered civil engineer, a certified engineering geologist, or other qualified person depending on the complexity of the site. The owner /operator should submit all information regarding clean closure proposals, including clean closure plans, to all of the appropriate regulatory agencies.

SITE CHARACTERIZATION

The site characterization phase of the clean closure process is probably the most critical phase as it will determine the suitability of the site for clean closure. A complete site characterization will define the extent and character of the wastes present and the levels and extent of any contamination due to the disposal of waste at the site. A complete site characterization may prevent unplanned for and expensive surprises after the actual clean closure process has been initiated. Depending upon the complexity of the site, it may be necessary or advisable to involve the regulatory agencies prior to or during the site characterization process to ensure that an adequate characterization is performed.

- For sites with known or suspected environmental problems, site characterization may occur under an enforcement order by one or more regulatory agencies who may require submittal of a workplan prior to the site characterization.

- For complicated sites, it may be beneficial to submit the results of the site characterization study to the regulatory agencies for review prior to development of the clean closure plan rather than as part of the clean closure plan.

- For relatively uncomplicated sites, it may be adequate to submit the results of the site characterization with the clean closure plan for review.

The owner/operator should supply the following information regarding the site:

- Name and legal description of the site.
- Description of the historical development of the site.
- Name of legal owner/operator, including title, address, and telephone number.
- Map showing the assessor's parcel number, site plot plan, and parcel map including: legal boundaries of the site and adjacent land use, location of existing and proposed footprint of refuse/waste, location of all structures within a 1000-foot radius of the site, including all existing and proposed (if any) environmental monitoring, collection, and control systems.
- A description of all refuse/waste materials encountered at the site including how the waste was generated and the method of disposal used. Provide type of waste, volume, and dimensions of each disposal area at the site. Include any chemical characterization of the waste if available or if requested by the regulatory agencies.
- If burning of waste occurred at the site, a chemical characterization of the ash.
- Sampling results identifying backgound levels of the constituents of concern.
- A description of the character and extent of any soil or ground water contamination discovered during the site characterization study.
- A description of the geology and soils at the site.
- A description of the occurrence of surface water on and adjacent to the site and an estimate of the depth to ground water at the site.
- A description of all existing and proposed environmental monitoring, collection, and control systems for the site as required by the regulatory agencies.
- Information on the occurrence and character of ground water as required by the RWQCB. This information may include but not be limited to:

  A description of the occurrence and character of ground water on and adjacent to the site.

  A detailed geologic map of the site with cross sections showing the relationships between the refuse/waste and geologic units and ground water levels.

  A conceptual hydrogeologic model for the site.

EXCAVATION AND MATERIAL MANAGEMENT

Excavation and removal of solid waste may be considered a project under the California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA). An environmental document or appropriate exemption under CEQA or NEPA may have to be secured and submitted as part of the clean closure plan prior to approval. All applicable federal, state, and local permits (e.g., grading permits, Fish & Game approvals, OSHA reviews, etc.) should be obtained prior to any excavation.

The owner/operator should supply the following information regarding the site and the proposed clean closure:

- Identification of health and safety issues regarding the proposed site activities and a detailed protocol indicating what measures will be taken to ensure protection of the public health and safety and the environment.
- A plan to evaluate and dispose of any hazardous waste encountered during the clean closure operations.
- An excavation plan.
- A description of the sequence of excavation operations including the proposed removal rate and timeframe for the excavation operation.
- A description of the protocol to be followed in monitoring, collecting and controlling leachate, ground and surface water and landfill gas.
- A description of the proposed sampling and testing protocols for verification of clean closure.
- A description of the transport and fate and/or final disposition of the waste materials and residuals that will be excavated from the site.
- A drainage and winterization plan (when applicable).
- Any mitigation measures as called for in any necessary CEQA or NEPA document.
- Financial assurance for the project as necessary.

CONFIRMATION OF REFUSE/WASTE AND DEGRADED MATERIAL REMOVAL

The following activities should be planned for and implemented:

- Observation and documentation of removal of refuse/waste.
- Documentation verifying the final disposition of all refuse/waste materials.
- Adequate sampling must be performed after excavation to verify the removal of all waste materials and residuals, including interpretation of the test results by a qualified professional.
- Prepare and submit a map with a letter certifying that the constituents of concern concentration levels in the target media are either at or below the clean up limits established for the project.
- Submit a report documenting the activities which have occurred and verifying completion of clean closure to the appropriate regulatory agencies.
- Indicate on the site deed and/or title that the project was completed and where it was located.
- If the constituents of concern clean up level has not been met and further excavation is deemed not practical, develop and implement a remedial action plan for the site.
- If the site cannot be clean closed then closure and postclosure maintenance plans should be developed and submitted for review and approval, prior to implementation.

POSTCLOSURE MAINTENANCE AND LAND USE

One of the advantages of clean closing a solid waste disposal site is that a postclosure maintenance plan should not be needed if the entire site has been successfully clean closed. A

description of the proposed postclosure land use should include:

- The proposed postclosure land use for the site.
- If the clean closure was part of a remedial action, describe any postclosure maintenance activities needed to comply with the implementation of the remedial action plan.
- If the clean closure was not successful, a postclosure maintenance plan and a financial assurance mechanism for postclosure maintenance are needed and should be included with the verification report.

These guidelines are intended to provide useful direction for the clean closure of a variety of site types and site conditions. In some instances, certain portions of the information outlined above may not be applicable to a given site or the level of detail necessary may vary due to site conditions. However, it is necessary for all of the regulatory agencies involved to agree on what information is and is not necessary, and the level of detail required, to allow the owner/operator to prepare the necessary documents and to carry out a clean closure that can be approved by all of the agencies.

Additional Information

If you have any questions regarding clean closure, please contact the Closure and Remediation Branch staff person assigned to your jurisdiction for assistance.

Sincerely,

Douglas Okumura, Deputy Director
Permitting and Enforcement Division

For Back copies of the LEA Advisory call (916) 255-2287

(LEA Advisory # 1, Oct. 6, 1992, Asbestos Containing Waste Disposal)
(LEA Advisory # 2, Feb. 17, 1993, 1992 Legislation Impacts Existing Waste Programs)
(LEA Advisory # 3, June 10, 1993, Site investigation Process for Investigating Closed, Illegal, and Abandoned Disposal Site's)
(LEA Advisory # 4, Sept. 23, 1993, Permitting of Fuel Contaminated Soils Treatment/Processing Facilities)
(LEA Advisory # 5, Dec. 15, 1993, Use of Non Hazardous Contaminated Soil as Daily Cover)
(LEA Advisory # 6, Dec. 16, 1993, Aspergillus, Aspergillosis, and Composting Operations in California)
(LEA Advisory # 7, Dec. 30, 1993, Subtitle D Questions and Answers)
(LEA Advisory # 8, June 24, 1994, General Guidance for Implementing AB 1220 in the Regulation of Solid Waste Disposal Sites, REVISED)
(LEA Advisory # 9, Feb. 10, 1994, Solid Waste Ranking System User Guide: Site Investigation Process (SIP) Part II)
(LEA Advisory #10, Mar. 17, 1994, Procedural Change in Approving Alternative Cover Demonstration Projects Using Geosynthetic Blankets)
(LEA Advisory #11, Mar. 24, 1994, Metallic Discards Management)
(LEA Advisory #12, Mar. 29, 1994, Permitting of Non-Traditional Facilities)
(LEA Advisory #13, May 17, 1994, Wood Waste Landfills)
(LEA Advisory #14, May 25, 1994, Revised Policy and Procedures for Maintaining the Inventory of Solid Waste Facilities Which Violate State Minimum Standards)
(LEA Advisory # 15, June 8, 1994, Completion of Solid Waste Information System Inspection Reports for Disposal Sites and Transfer Stations)