



**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



**BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT & REMEDIATION DIVISION
FEDERAL REMEDIATION PROGRAM**

December 3, 1997

Mr. Mark Evans
U.S. Department of the Navy
Northern Division, Naval Facilities Engineering Command, Code 1823
10 Industrial Way, Mail Stop 82
Lester, PA 19113-2090

Re: Draft Feasibility Study Report
Goss Cove Landfill FS/ PRAP/ ROD
Naval Submarine Base New London, Groton, Connecticut

Dear Mr. Evans:

The Department has received and reviewed the Draft Feasibility Study Report, Goss Cove Landfill FS/ PRAP/ ROD, Naval Submarine Base New London, Groton, Connecticut. This report was submitted on behalf of the Navy by Jean-Luc Glorieux, P.E. of Brown and Root Environmental. It was received by the Department on September 30, 1997. All references in this letter to "CGS" mean the Connecticut General Statutes, while all references to RCSA mean the Regulations of Connecticut State Agencies.

General Comments

The State is concerned that this report does not adequately consider all options for addressing the threat to human health and the environment posed by landfill wastes. Significant amounts of waste are located above the water table, and are subject to infiltration by precipitation. Ground water continues to flow through wastes located below the water table. All of these wastes represent a significant source of pollution to the waters of the State which must be addressed. The Navy states that contaminant migration from waste materials to Goss Cove and the Thames River is not of concern. While contaminant migration from waste material to Goss Cove and to the Thames River and ground water may not be of concern to the Navy, it is of great concern to the Department. Section GW4 of the Ground Water Quality Standards embodies those concerns.

The Navy's conclusion that contaminant migration is not of concern is partially based on ground water flow calculations and contaminant transport modeling which are significantly flawed. In addition, long term ground water monitoring as part of this remedy, and as part of the planned base wide ground water Operable Unit has yet to be conducted. For these reasons, the Navy's conclusion that contaminant migration is not of concern cannot be supported.

The State also feels that the Navy has not adequately demonstrated that the *Presumptive Remedy for CERCLA Municipal Landfills* is applicable in this case. The Navy estimates (Appendix B) that approximately 105,400 cubic yards of waste are present in the landfill. EPA's guidance document entitled "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills" (Office of Solid Waste and Emergency Response Directive No. 9355.0-67FS, dated December, 1996) indicates that "landfills with a content of more than 100,000 cubic yards... would normally not be considered for excavation". The estimated

(Printed on Recycled Paper)

79 Elm Street • Hartford, CT 06106 - 5127

<http://dep.state.ct.us>

An Equal Opportunity Employer

amount of waste present in the landfill only slightly exceeds this guideline. For this reason, the Feasibility Study should fully consider excavation and removal. Please note that if waste is to remain in place, a variance allowing use of an engineered control under Section 22a-133k-2(f)(2) of the Remediation Standard Regulations would be required. Cost of removal in comparison to the cost of implementing an engineered control is one of the criteria that is to be considered in approval of an engineered control.

The impact of landfill waste on Goss Cove and the Thames River, as well as ground water, has not yet been fully evaluated, and will not be fully evaluated until ground water monitoring as part of this remedy and under the base wide ground water operable unit has been conducted. Until the base wide ground water operable unit is completed, any remedial actions at the Goss Cove landfill other than excavation and off site disposal must be considered interim actions.

The State is concerned that capping alone may not meet the requirements of the Remediation Standard Regulations, or of the State's Ground Water Quality Standards. If the Navy chooses to cap the landfill, the Navy will be required to evaluate the continuing impact to ground water from saturated wastes, for which capping provides no benefit. Section GW4 of the Ground Water Quality Standards, which became effective April 12, 1996, states in relevant part that the Department's policy, in areas with a ground water classification of GB, is to regulate discharges to the ground water in order to prevent further degradation of ground water. The Department considers the ground water contamination originating from landfill wastes to be a discharge. If monitoring of ground water quality immediately downgradient of the landfill demonstrates that capping is effective as a source control to eliminate this discharge, then no further remedial action (other than monitoring) may be required to address degradation of ground water. If the Navy is unable to make this demonstration, then leachate collection may be required.

The feasibility study also does not adequately discuss the requirements of the Remediation Standard Regulations (RSRs). Although the report does consider the RSRs, in several instances the report contains incomplete or erroneous interpretations of the requirements. Our specific concerns in this area are detailed below in the Specific Comments.

Specific Comments

1. Page ES-2 Risk Assessment ¶1

The seventh line notes that the Connecticut target cancer risk of 10^{-5} was exceeded. Under Section 22a-133k-2(I) of the Remediation Standard Regulations, the 10^{-5} target cancer risk applies to the cumulative risk posed by polluted soil containing multiple polluting substances. The Target Cancer Risk for individual polluting substances is 10^{-6} , regardless of the number of individual polluting substances. Please revise the text accordingly. This comment applies also on page 1-55, and page 1-60.

2. Page ES-5 Development of Remedial Alternatives ¶3

As discussed above in the General Comments, additional alternatives which include excavation and offsite disposal should also be considered.

The first sentence discusses the use of a cap to meet the State's solid waste landfill closure requirements,

which are equivalent to the requirements of RCRA subtitle D. Since the landfill contains industrial and hazardous wastes, the closure requirements of the State's Hazardous Waste Management Regulations (RCSA §22a-449(c) 100 to 110) apply. In addition, if the Navy intends to consider the cap an engineered control, Section 22a-133k-2(f)(2)(B)(1)(aa) of the Remediation Standard Regulations would require that the cap have a maximum permeability of 10^{-6} cm/sec. A variance allowing use of an engineered control would also be required under Section 22a-133k-2(f)(2).

The third sentence should be deleted, since as Ms. Kymberlee Keckler of EPA points out on pages ii and iv of her comment letter dated October 30, 1997, the ground water flow path way has not been adequately evaluated, and potential effects on the Thames River and Goss Cove, and on on-site ground water, have not been adequately assessed. In addition, a significant portion of the waste in the landfill is located above the water table, representing a potential source of pollution to the waters of the State via infiltration of precipitation.

3. Page ES-7 Long Term Effectiveness and Permanence

The text states that "migration of contaminants from soils is not of primary concern". The State disagrees with this statement, since polluted soils with contaminants at concentrations exceeding the pollutant mobility criteria are present in the landfill. In addition, waste below the water table is a continuing source of ground water contamination. These materials constitute a source of pollution to the waters of the State, which must be addressed by the Navy.

4. Page 1-45 Section 1.4.1.1 Goss Cove Landfill Soil ¶4

The text states that silver in one soil sample marginally exceeded the GB pollutant mobility criteria. The text should also discuss whether the industrial/ commercial direct exposure criteria were exceeded. This comment applies also to the last sentence of the first bullet on page 1-61.

5. Page 1-61 Section 1.4.4 Conclusions

In the last line of the last bullet point, "affects" should be replaced with "effects".

6. Page 2-2 Section 2.1 Remedial Action Objectives

The first paragraph notes that the Connecticut target cancer risk of 10^{-5} was exceeded. Under Section 22a-133k-2(I) of the Remediation Standard Regulations, the 10^{-5} target cancer risk applies to the cumulative risk posed by polluted soil containing multiple polluting substances. The Target Cancer Risk for individual polluting substances is 10^{-6} , regardless of the number of individual polluting substances.

7. Page 2-3 Section 2.1.1 ARARs and TBCs last ¶

The text states that the Regulations offer "exclusions for the soil/ fill above this class of groundwater". It adds that these exclusions would not apply since volatile organics are present in the soil. It is unclear what standards and exclusions are being referred to here. In a GB area, the pollutant mobility criteria apply to soils located above the seasonal high water table. They do not apply to soils below the seasonal high water table,

regardless of the presence or absence of volatile organic compounds in the soil. The regulations do not provide for "exclusions" to the pollutant mobility criteria for soils above the seasonal high water table. However, the regulations do provide several alternatives for complying with the pollutant mobility criteria in a GB area. These include calculating alternative pollutant mobility criteria, or calculating alternative dilution or dilution and attenuation factors. In addition, Section 22a-133k-2(f)(2) provides that the direct exposure and pollutant mobility criteria do not apply to soils which are contained by an engineered control approved by the Commissioner.

Regardless of whether the pollutant mobility criteria apply to soils at this site, contaminated soils and waste will remain below the water table. These represent a source of pollution to the waters of the State, and are considered to be a discharge. The State's policy, as specified in Section GW4 (B) of the Ground Water Quality Standards (adopted April 1, 1996) is to regulate such discharges in GB areas to prevent further degradation of ground water quality.

Please revise this section accordingly.

8. Page 2-5 Table 2-2 State of Connecticut Chemical Specific ARARs

In the Citation column, please correct the phrase in parenthesis to reflect the fact that the Remediation Standard Regulations were established pursuant to CGS §22a-133k, rather than §22a-426.

9. Page 2-7 Table 2-4 State of Connecticut Location Specific ARARs

The statutes regulating Dredging and Erection of Structures and Placement of Fill in Tidal, Coastal or Navigable Waters (CGS 22a-359 to 363) should be included as Applicable. For the Navy's convenience, I have included a table listing the State statutes and ARARs which should be included as ARARs.

10. Page 2-8 Section 2.1.1 ARARs and TBCs

The text states that exceedences of the pollutant mobility criteria for inorganics other than lead and cadmium were based on values which were "conservatively" calculated from the results of mass analyses, rather than upon actual leachate analyses. It should be noted that the regulations require that for inorganics, the results of actual leachate analysis (TCLP or SPLP) must be used to determine compliance with the pollutant mobility criteria. When such calculated results are used in place of actual TCLP or SPLP results, any exceedences noted must be assumed to be real and cannot be dismissed as the result of overly conservative assumptions.

This section does not include a discussion and/ or table regarding compliance with the Direct Exposure Criteria. Please add such a discussion.

In the second paragraph, please delete "ground water pollutant mobility criteria for the protection of surface water", and insert "surface water protection criteria". The volatilization criteria apply also to groundwater at this site.

The last paragraph includes a discussion of the calculation of an alternative dilution factor for the surface

water protection criteria. Section 22a-133k-3(b)(3) of the Regulations provides two different methods for calculating an alternative surface water protection criteria. Alternative A (RCSA §22a-133k-3(b)(3)(A)), which does not require approval by the Commissioner, may be calculated for a substance in Appendix D of the most recent Water Quality Standards (the State's Ambient Water Quality Criteria). The alternative surface-water protection criteria is calculated by multiplying the lower of the human health or aquatic life criterion for such substance in said Appendix D by $[(0.25 \times 7Q_{10})/Q_{\text{plume}}]$ where Q_{plume} is equal to the average daily discharge of polluted ground water from the subject ground-water plume.

Alternative B (RCSA §22a-133k-3(b)(3)(B)) requires written approval from the Commissioner. Under this paragraph, the Commissioner may approve an alternative surface-water protection criterion to be applied to a particular substance at a particular release area. Any person requesting such approval shall submit to the Commissioner: (i) a report on the flow rate, under seven day ten year low flow conditions, of the surface water body into which the subject ground water plume discharges (ii) a report on other surface water or ground water discharges to the surface water body within one-half mile upstream of the areal extent of the ground-water plume, (iii) a report on the in stream water quality, (iv) a report on the flow rate of the ground-water discharge from such release area to the surface water body and the extent and degree of mixing of such discharge in such surface water, and (v) and any other information the Commissioner reasonably deems necessary to evaluate such request. The Commissioner shall not approve an alternative surface-water protection criterion under this subparagraph unless the requester demonstrates that such criterion will protect all existing and proposed uses of such surface water.

The alternative direct exposure criteria calculations presented by the Navy are not in accordance with the requirements of Alternative A, and have not been submitted for approval by the Commissioner in accordance with Alternative B. In addition, the text states that the estimated ground water discharge to the Thames from the Goss Cove Landfill is 3,200 cubic feet per day. As Kymberlee Keckler notes on page ii of her letter dated October 30, 1997, the ground water discharge rate estimated by the Navy is not valid. For this reason, the estimated rate cannot be used to calculate alternative surface water protection criteria.

11. Pages 2-9 Table 2-5 Comparison of Soil Above Groundwater Table to GB Mobility Criteria for Protection of Groundwater

Please delete the shading in the Concentration Range column for 2, 4 dimethyl phenol, as Appendix B of the Regulations does not list a pollutant mobility criterion for that chemical. The correct GB pollutant mobility criterion for total xylenes is 19,500 µg/kg.

The table incorrectly lists the GB pollutant mobility criterion for total 1,2 dichloroethene as 34,000 µg/kg. The applicable GB pollutant mobility criteria are: 14,000 µg/kg for *cis*-1,2 dichloroethene, and 20 µg/kg for *trans*-1,2 dichloroethene. Where the two isomers are not reported separately, the two criteria may not be added to obtain a criterion for total 1,2 dichloroethene. Instead, the lower criterion (14,000 µg/kg) applies to the total results. The concentration range column for total 1,2 dichloroethene in Table 2-5 should therefore be shaded.

Please list the GB pollutant mobility criterion for dieldrin (0.007 mg/kg).

12. Pages 2-13 to 2-14 Table 2-6 Comparison of Groundwater Concentrations to CTDEP Surface Water Protection Criteria

Note 6 to the table indicates that the surface water protection criteria listed for several substances were calculated by multiplying the lower of the human health or the aquatic life criteria listed in the State's water quality standards by a factor of 10. This calculation is not in accordance with the regulations. The calculated surface water protection criteria should be replaced with the surface water protection criteria listed in Appendix D of the Regulations. If the Navy wishes to use alternative surface water protection criteria, they must either be calculated in accordance with Section 22a-133k-3(b)(3)(A) of the Regulations, or calculated and approved by the Commissioner in accordance with Section 22a-133k-3(b)(3)(B) of the Regulations.

13. Page 2-15 Section 2.1.1 ARARs and TBCs ¶2

The first sentence should be deleted. The contaminants present in the vadose zone are not relevant to the surface water protection criteria. Compliance with the surface water protection criteria is determined based on the results of ground water sampling. As discussed above under Specific Comment 10, the Navy has not adequately demonstrated compliance with the surface water protection criteria.

14. Pages 2-16 to 2-17 Table 2-7 Comparison of Groundwater Concentrations to Site- Specific Surface Water Protection Criteria

Note 6 of this table indicates that site specific values were calculated by multiplying the lower of the human health or ambient water quality criteria in the State's Water Quality Standards by a dilution factor of 10. This does not agree with the accompanying text, which states in the last paragraph on page 2-8 that a dilution factor of 118 was calculated for ground water entering the Thames from Goss Cove. Please correct the table. In any case, as noted above in Specific Comment 10, the dilution factors have not been calculated in accordance with the Regulations.

15. Pages 2-20 and 2-21 Section 2.4 General Response Actions

The text states that under the presumptive remedy, the Navy would use the cap as justification to seek a variance from the direct exposure and pollutant mobility criteria. It also states that an engineered control cap meeting the 10^{-6} cm/s permeability *may* be used, and that to meet the State's Solid Waste Management Closure requirements, a cap with a minimum thickness of 2 feet would be required. It should be noted that if the Navy intends to apply for a variance based on the use of an engineered control, the engineered control *must* meet the maximum permeability requirement of 10^{-6} cm/s. The second full sentence on page 2-21 should be deleted, since the Navy has not demonstrated that migration of contaminants through ground water is not of concern. Ground water monitoring will be required. If ground water monitoring detects unacceptable ground water contamination, specific remedial action beyond soil and sediment sampling may be required.

16. Page 2-23 Table 2-9 State of Connecticut Action Specific ARARs and TBCs

Throughout this table, please delete "Potentially" from the Status column.

In the Requirements column, CGS §22a-250 is a Solid Waste statute, rather than a regulation.

The Air Pollution Control Regulations should also include RCSA §22a-174-3 (Stationary Sources), §22a-174-20 (Control of Organic Compound Emissions), and §22a-174-29 (Control of Hazardous Air Pollutants). The State's Hazardous Waste Management Regulations (RCSA §22a-449(c)100 to (c)-110) should also be listed as Applicable.

Please correct the citation for Disposition of PCBs. These should be listed as CGS §22a-467. This comment applies also to table 4-10 on Page 4-25.

The Water Pollution Control Statutes (CGS §22a-430 and 22a-430 b) and the Water Pollution Control Regulations (RCSA §22a-430-1 to 8) would be applicable to any discharge resulting from dewatering or other activities, and should be included in the table.

The Water Diversion Policy Act (CGS §§22a-365 to 378) would be Applicable if dewatering is necessary during excavation.

17. Page 3-5 Section 3.2.2 Minimal Action- Effectiveness

The text states that the pavement will be maintained under "current institutional controls". The text should specify what institutional controls are currently in place.

18. Page 3-6 Section 3.2.3.1 Capping

This section does not include a discussion of leachate collection as one of the components of capping. Capping alternatives must include leachate collection unless the Navy can demonstrate through ground water monitoring that saturated waste is not impacting ground water at the down gradient property line. Please revise the text accordingly.

19. Page 3-8 Section 3.2.3:1 Capping ¶2

The text notes that because contaminated soils are located within 2 feet of the ground surface in areas which would remain grass- covered, this option would not meet the State's requirements for minimum cover thickness at solid waste disposal areas. The text should also state that this alternative would not meet the Remediation Standard Regulations standard to be considered "Inaccessible Soil". Please delete the last sentence, since State and Federal Hazardous Waste Management statutes and regulations are Applicable.

20. Page 4-1 Section 4.2 Development of Alternatives

As discussed above in the General Comments, additional alternatives which include excavation and offsite disposal of land fill wastes should be fully considered. Excavation and Disposal are discussed in Section 3.2.4 on pages 3-9 to 3-10. Both processes are found to be effective and implementable, and are retained for further consideration. However, they are not discussed in Section 4 of the FS. Since the Navy has not demonstrated that capping alone can meet the requirements of the State's Water Quality Standards and other ARARs, as well as protect human health and the environment, an excavation and disposal alternative must

be considered fully.

Please delete the fourth, fifth and sixth sentences of the last paragraph. Alternative 2A (Soil Cap) would not meet the Remediation Standard requirements regarding Direct Exposure. In addition, the Navy has not demonstrated that migration via the ground water pathway, or potential impacts to Goss Cove or the Thames River, are not of concern.

21. Page 4-12 Section 4.3.2 Alternative 2- Capping with Institutional Controls and Monitoring

In the second line of the last paragraph, "displayed" should be replaced by "displaced". This change should also be made in the first bullet point on page 4-16. In the fourth sentence, replace "grass islands in" with "paved areas of".

22. Page 4-13 Section 4.3.2 Alternative 2- Capping with Institutional Controls and Monitoring-
Component 1- Capping

The second paragraph makes a distinction between the areas of the parking lot which will be paved and those which will remain as grassy islands. The text implies that separate cap systems will be placed beneath the islands and paved portions of the parking lot. The text should be revised to clarify that a single, continuous cap will be placed over the entire Goss Cove Landfill. The only differences between the two areas other than that between grass and pavement will be that waste material will be excavated from the grass islands and placed beneath the areas to be paved, and the thickness of the materials underlying the grass and pavement. In the fourth sentence of this paragraph, replace "grass islands in" with "paved areas of".

23. Section 4.3.2 Alternative 2- Capping with Institutional Controls and Monitoring-
Component 2- Institutional Controls

Page 4-17

The meaning of the second sentence of the first paragraph is unclear. The State would expect that environmental land use restrictions would be consistent with the Remediation Standard Regulations. However, the land use restrictions are not obtained from or granted by the State. The State expects that the Institutional Controls for the Goss Cove Landfill would be similar to those currently being developed for the DRMO site.

24. Page 4-19

Please delete the second sentence of the first paragraph. The soil cap envisioned in Alternative 2A does not comply with the Remediation Standard Regulation requirements regarding "inaccessible soil", as defined in Section 22a-133k-1(a)(28). As currently proposed, the cap would consist of a total of 21 inches of material beneath a 3 inch layer of asphalt, and a 2.5 foot thick layer of material above waste in grass covered areas. For soil to be considered "inaccessible", the Regulations require a minimum of 2 feet of material below a 3 inch layer of asphalt pavement, or 4 feet of cover material above waste in areas which are not paved. In addition, this sentence improperly refers to "Alternative Direct Exposure Criteria". It is not necessary to develop alternative direct exposure criteria for soils which will be considered "inaccessible" under the

Regulations, since the direct exposure criteria do not apply to such soils.

The last sentence of the first paragraph refers to "offsite disposal actions". Please define what materials would be removed from the site under Alternative 2A. This sentence should be deleted since this Alternative would not comply with the Remediation Standard Regulation requirements regarding direct exposure to contaminated soils.

Both paragraphs should include a statement that capping, by itself, may not address the requirements of the State's Water Quality Standards, since waste would remain in place below the water table.

25. Pages 4-21 to 4-27 Tables 4-6, 4-8 and 4-10

Several State statutes and regulations are missing from these tables and should be included. Please refer to the attached tables for a complete description. Additional ARARs which should be cited for Alternative 2 are:

Location Specific

Dredging and Erection of Structures and Placement of Fill in Tidal, Coastal or Navigable Waters (CGS § 22a-359 to 363) (Applicable)

Action Specific

Air Pollution Control Regulations- RCSA §22a-174-3 (Stationary Sources), §22a-174-20 (Control of Organic Compound Emissions), and §22a-174-29 (Control of Hazardous Air Pollutants) (Applicable)

Hazardous Waste Management Regulations (RCSA §22a-449(c)100 to (c)-110) (Relevant and Appropriate)

Water Pollution Control Statutes (CGS §22a-430 and 22a-430 b) and the Water Pollution Control Regulations (RCSA §22a-430-1 to 8) (Applicable)

Water Diversion Policy Act (CGS §§22a-365 to 378) (Applicable)

26. Page 4-28 Reduction of Toxicity, Mobility and Volume

Please delete the third sentence since the Navy has not demonstrated that mobility of contaminants is not of concern. The Remediation Standard Regulations regarding pollutant mobility apply unless an engineered control is approved in accordance with the Regulations. One of the purposes of an engineered control cap is to reduce the mobility of contaminants by reducing the amount of precipitation infiltrating through unsaturated waste. In addition, capping alone will not address the significant volume of waste which will remain below the water table.

27. Page 5-1 Section 5.1 Overall Protection of Human Health and the Environment

The second sentence should be modified to reflect the fact that Alternative 2B would comply with the Direct Exposure requirements of the Remediation Standard Regulation requirements, while Alternative 2A would not. This section should also acknowledge that capping alone would not address wastes which would remain in place below the water table. The last sentence should be deleted, since the Thames River and Goss Cove are located in close proximity to the landfill.

28. Page 5-1 Section 5.2 Compliance with ARARs and TBCs

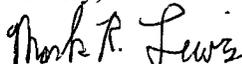
The third sentence should be modified since Alternative 2A would also not comply with the State's Hazardous Waste closure requirements. The Navy has not yet determined whether either Alternative would comply with the requirements of the State's Ground Water Quality Standards.

29. Page 5-1 Section 5.4 Reduction of Toxicity, Mobility, and Volume

Please delete the first sentence, since reduction of contaminant mobility is the primary concern of the pollutant mobility requirements of the Remediation Standard Regulations.

If you have any questions regarding this letter, please contact me at (860) 424-3768.

Sincerely,



Mark R. Lewis
Senior Environmental Analyst
Federal Remediation Program
Permitting, Enforcement & Remediation Division
Bureau of Water Management

Attachment (ARARs Table)

cc: Kymberlee Keckler, US EPA New England, Federal Facilities Section
Richard Conant, NSBNL Environmental Department
Jean- Luc Glorieux, P.E., Brown and Root Environmental

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Hazardous Waste Management: Generator & Handler Requirements- General Standards, Listing & Identification	RCSA §§22a-449(c)100-101	Relevant and Appropriate 2A, 2B	These regulations establish standards for listing and identification of hazardous waste. The standards of 40 CFR §§260-261 are incorporated by reference. Chromium is not exempted from listing as a hazardous waste.	Hazardous waste determinations will be performed for any excavated wastes and the wastes will be managed in accordance with requirements of these regulations, if necessary.
Hazardous Waste Management: Generator Standards	RCSA §22a-449(c)102	Relevant and Appropriate 2A, 2B	This regulation establishes standards for various classes of generators. The standards of 40 CFR §262 are incorporated by reference. Storage requirements given at 40 CFR §265.15 are also included.	Any hazardous waste generated through excavation or other activities will be managed in accordance with the substantive requirements of these regulations.
Hazardous Waste Management: TSDF Standards	RCSA §22a-449(c)104	Relevant and Appropriate 1, 2A, 2B	This regulation establishes standards for treatment, storage, and disposal of hazardous waste, and establishes standards for closure, post closure, and ground water monitoring. The standards of 40 CFR §264 are incorporated by reference. Underground injection of hazardous wastes, and placement of free liquids in landfills are prohibited.	Any hazardous waste which is treated, stored or disposed of on this site as part of the remedy will be managed in accordance with the requirements of this regulation. The remedy will comply with the closure requirements of this regulation. A cap which complies with the requirements of RCRA subtitle C will be required. Ground water monitoring will be included as part of the remedy.
Hazardous Waste Management: Interim Status Facilities and Ground water Monitoring Requirements, Closure and Post Closure Requirements	RCSA §22a-449(c)105	Relevant and Appropriate 1, 2A, 2B	This regulation establishes interim status standards for treatment, storage, and disposal of hazardous waste, and establishes standards for closure, post closure, and ground water monitoring. The standards of 40 CFR §265 are incorporated by reference. The Commissioner may require ground water monitoring based on site specific considerations.	The proposed remedy will comply with the closure requirements of this regulation. A cap which complies with the requirements of RCRA subtitle C will be required. Ground water monitoring will be included as part of this remedial action.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Hazardous Waste Management: Management Standards for Specific Waste Types	RCSA §22a-449(c)106	Relevant and Appropriate 2A, 2B	This regulation establishes standards for specific types of wastes, including waste oil and spent lead acid batteries being reclaimed. The standards of 40 CFR §266 are incorporated by reference.	No wastes of this type will be handled on site as part of this remedy.
Hazardous Waste Management: Land Disposal Restrictions	RCSA §22a-449(c)108	Relevant and Appropriate 2A, 2B	This regulation incorporates by reference the Federal Land Disposal Restrictions given at 40 CFR §268.	The requirements of the Land Disposal Restriction will be complied with if any hazardous waste is disposed of on this site as part of the remedy.
Hazardous Waste Management: Permit Requirements	RCSA §22a-449(c)110	Relevant and Appropriate 2A, 2B	This regulation incorporates by reference the Federal hazardous waste permitting requirements given at 40 CFR §§270 & 124.	If activities which constitute treatment, storage or disposal of hazardous waste onsite are undertaken as part of the remedy, the substantive requirements of these regulations will be met.
Solid Waste Management	RCSA §§22a-209-1 to 15	Relevant and Appropriate 1, 2A, 2B	These regulations establish operating and closure standards for solid waste disposal areas including closure, post-closure, and groundwater monitoring requirements. Note that the definition of Solid Waste is given in CGS §22a-207.	Those portions of the regulations that are more stringent than Federal RCRA Subtitle D regulations will be complied with.
Solid Waste Management	CGS 22a-250	Applicable 2A, 2B	Littering and dumping are prohibited.	All wastes generated during the remedial action will be handled in accordance with the requirements of this statute.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Disposition of PCBs	CGS §22a-467	Applicable 2A, 2B	This statute requires that PCBs be disposed under a permit issued by the Commissioner. PCBs may also be disposed of under a written approval of the Commissioner in a manner which results in the destruction of the PCB or in a manner not inconsistent with the Requirements of the Toxic Substances Control Act (TSCA), listed at 40CFR §761.	All PCB-contaminated materials will be handled in accordance with the substantive requirements of this statute.
Control of Noise Regulations	RCSA §§22a-69-1 to 69-7.4	Applicable 2A, 2B	These regulations establish allowable noise levels.	Noise levels from construction activities are exempt from these requirements. The remedial action shall be designed and constructed so that any noise emitted after construction will meet the substantive requirements of these regulations.
Water Quality Standards	CGS §22a-426	Applicable 1, 2A, 2B	Connecticut's Water Quality Standards were adopted under this statute. They establish specific numeric criteria, designated uses, and anti degradation policies for groundwater and surface water.	The remedial action selected will comply with the requirement that discharges from the landfill not cause any further degradation of ground water quality.
Water Pollution Control	RCSA §§22a-430-1 to 8	Applicable 2A, 2B	These rules establish permitting requirements and criteria for water discharges to surface water, ground water and POTWs.	Any discharges will meet the substantive requirements of these regulations including treatment if necessary.
Water Pollution Control	CGS §22a-430b	Applicable 2A, 2B	This section establishes general permits for many categories of discharges including storm water and dewatering wastewaters from construction activities, and discharges to a POTW from a ground water remediation system. General permits require that the discharge be registered prior to initiating the discharge.	Any discharges, including storm water, will meet the substantive requirements of this statute, including treatment if necessary.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Water Pollution Control	CGS §22a-430	Applicable 2A, 2B	This statute prohibits discharge to the waters of the State without a permit.	Any discharges will meet the substantive requirements of this statute, including treatment if necessary.
Connecticut Water Diversion Policy Act	CGS §§22a-365 to 378	Applicable 2A, 2B	These rules regulate many diversions of the waters of the State. Several broad categories are exempt, including any diversion of less than 50,000 gallons per day and any discharge permitted under CGS §22a-430.	Any non-exempt diversion will be carried out in accordance with the substantive requirements of these statutes.
Air Pollution Control-Stationary Sources	RCSA §22a-174-3	Applicable 2A, 2B	This regulation requires permits to construct and operate stationary sources of emissions, and requires emissions from those sources to meet specified standards. Pollution abatement controls may be required. Specific standards are listed for many pollutants. Any landfill with potential emissions of any particular air pollutant including methane exceeding 5 tons per year requires a permit under subsection 3(a)1(K). Active gas collection systems with emissions controls may be required at landfills.	Any system treatment system component which produces an air discharge will be designed to meet the substantive requirements of the regulations. If the potential methane or other emissions from the landfill exceed 5 tons per year, the remedy will comply with the substantive requirements of subsection 3(a)1(K).
Air Pollution Control-Control of Particulate Emissions	RCSA §22a-174-18	Applicable 2A, 2B	This subsection sets specific standards for particulate emissions. Specific standards include Fugitive Dust (18b), and Incineration (18c). Gas flares are regulated as incinerators.	Any activities involving excavation, landfill cap construction, or landfill gas flaring will be designed to meet the substantive requirements of these regulations so that the numeric criteria are not exceeded.
Air Pollution Control-Sulfur Compound Emissions	RCSA §22a-174-19	Applicable 2A, 2B	This regulation regulates emission of sulfur compounds including sulfur dioxide and hydrogen sulfide. Subsection 19(a)(8) contains specific standards for sulfur compound emissions by gas flares.	Any treatment system component which produces an air discharge will be designed to comply with the substantive requirements of this regulation.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Air Pollution Control- Control of Organic Compound Emissions	RCSA §22a- 174-20	Applicable 2A, 2B	Subsection (f) of this regulation sets standards for emission of organic compounds. Incineration of organic halocarbons is prohibited under subsection (f)(6)(A).	If an air treatment system is required, it will be designed to comply with the substantive requirements of this regulation.
Air Pollution Control- Control of Odors	RCSA §22a- 174-23	Applicable 2A, 2B	This regulation prohibits emission of any substance that constitutes a nuisance because of objectionable odor.	Site remediation activities will be planned to control the release of objectionable odors from the site so that the activities comply with the substantive requirements of the regulation.
Air Pollution Control- Control of Hazardous Air Pollutants	RCSA §22a- 174-29	Applicable 2A, 2B	This regulation establishes testing requirements and allowable stack concentrations for many specific substances.	Direct discharges to the air from the treatment system will be designed to meet the substantive requirements of these regulations so that the numeric criteria are not exceeded.
Regulations for the Well Drilling Industry	RCSA §25- 128-33 to 64	Applicable 2A, 2B	These regulations apply to any new water supply or withdrawal wells. Non- water supply wells must be constructed so they are not a source or cause of ground water contamination. Procedures for abandonment of wells apply to both water supply and non- water supply wells.	If wells are used for construction dewatering, they will be installed in accordance with the substantive requirements of this regulation. Any well abandonments will be conducted in accordance with the substantive requirements of this regulation.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Action Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Registration and Permitting of Wells and Well Drillers	CGS §25-126 thru 131	Applicable 2A, 2B	These regulations require well drillers to be registered and requires permits and fees for each water supply well drilled. Separate registrations apply to water supply and non- water supply wells. Permits are not required for non water supply wells. However, the driller must file a completion report for both water supply and non- water supply wells.	All monitoring wells or other wells will be installed by registered drillers and all substantive requirements of this regulation will be met.
CT Guidelines for Soil Erosion and Sediment Control	CT Council on Soil and Water Conservation	Applicable 2A, 2B	The guidelines provide technical and administrative guidance for the development, adoption and implementation of erosion and sediment control program.	These guidelines will be incorporated into any remedial designs for this site.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Location-specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Regulation of Dredging and Erection of Structures and Placement of Fill in Tidal, Coastal, or Navigable Waters	CGS § 22a-359 through 363	Applicable 2A, 2B	These statutes control activities in navigable waters of the state waterward of the high tide line.	There are no proposed remedial activities in any areas waterward of the high tide line at this site; however, if such activities take place, the substantive requirements of these statutes will be met.
Coastal Management Act	CGS § 22a-90 to 112	Applicable 2A, 2B	This statute requires persons conducting activities within the coastal zone to submit a coastal site plan to the municipality. The municipality uses the coastal site plan to determine whether the proposed activity poses unacceptable impact on coastal resources and future water dependant activities. The municipality may require the applicant to take all reasonable measures to mitigate such adverse impacts.	A coastal site plan will be submitted for review and the remedy will comply with any substantive requirements.

**Naval Submarine Base New London
Goss Cove Landfill
List of State Applicable or Relevant and Appropriate Requirements**

Chemical Specific ARARs				
Requirement	Citation	Status, Relevant Alternatives	Synopsis of Requirement	Action to be Taken to Attain ARAR
Remediation Standard Regulations	RCSA §22a-133k-1 to k-3 (Established pursuant to CGS §22a-133k)	Applicable 2A, 2B	These regulations were adopted on January 30, 1996, under the statutory authority provided by CGS §22a-133k. They provide specific numeric cleanup criteria for a wide variety of contaminants in soil, ground water, and soil vapor. The regulations include a procedure for establishing criteria where none exist for a particular pollutant, and for establishing alternative criteria where those specified in the regulations are not appropriate.	The direct exposure and pollutant mobility criteria will not apply since an engineered control (cap) which complies with the substantive requirements of the regulations will be installed. This interim remedy is not designed to address ground water contamination. However, ground water monitoring will be conducted to determine whether any further remedial action is necessary to address ground water contamination. The final remedy will comply with the requirements regarding ground water, including the surface water protection and volatilization criteria.