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TO: Benito J. Garcia, Chief
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FROM: Bruce Swanton, Program Manager
DOE/LANL Oversight Program

DATE: August 3, 1992

SUBJECT: Clean Closure Standards for HAFB

Attached are the Bureau's standards and procedures for simplified clean closure. Although the Simplified Clean Closure Plan was designed for use in areas of very localized contamination, as opposed to major RCRA sites like the Holloman Air Force Base (**HAFB**) sewage lagoons, the standards described for analytical quality control as well as those for risk assessment apply to any remediation project under review by the Technical Section of the HRMB.

A copy of this document was provided to HAFB in early May. Although this is a more current version, the documents are largely identical.

Guidelines to the HRMB Simplified Clean Closure Plan

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The Hazardous and Radioactive Materials Bureau (HRMB) is providing guidance for the drafting of Simplified Clean Closure Plans (SCCPs) for use in clean closures at sites where contamination can be documented to be limited to small volumes of soil. HRMB will review such documentation to determine if the sites appear to be likely candidates for an accelerated clean closure. Prior to submittal of an SCCP, owners or operators of such sites must provide the information designated in sections IA-IC of Attachment B to this guidance, including, but not limited to:

1) analytical data from soil corings or drill cuttings which are complete with respect to the listing of constituents in Appendix IX to 40 CFR Section (§) 265.94. All analyses must have been performed according to EPA-approved methods [Test Methods for Evaluating Solid Waste; Physical/Chemical Methods; EPA document SW-846];

2) adequate laboratory QA/QC data [SW-846, chapter 1 - see Attachment C to this guidance]; and

3) vertical and horizontal contamination data which adequately delineate the volume of soil proposed to be excavated and verify that no release to groundwater can have occurred.

4) documentation that the proposed clean closure is financially feasible.

Contents of the SCCP

This section discusses which sections of the closure regulations must be included in the SCCP, which sections may be grouped under single headings, and which sections are not relevant. Appendix B to this guidance lists the SCCP table of contents to be used in a simplified closure plan. Each listing is followed by the designation of the chapter in the SCCP in which the information should be presented; e.g., in the first entry below, the waste analysis/waste maximum inventory should be included in SCCP section IA.

§§265.13 Waste analysis can be subsumed under closure maximum waste inventory since no more generation is occurring. (IA)

§265.14 Security. Fencing or other means to prevent unauthorized access must be constructed. (IV)

§265.15 Inspections. For a soil contamination unit, we can accept reasonable minimal inspections as allowed under this section. (IV)

§265.16 The Health & Safety (H&S) plan can be subsumed under closure activities which ensure personal health and safety during closure activities. Include levels of protection, decontamination, etc. The SCCP must include formal training sessions specific to site hazards and health risks. The facility will need signed training lists which specify course contents. Training must be sufficient to ensure facility personnel are able to respond effectively to emergencies. (VI)

§265.17 Requirements for unstable wastes. Subsume under closure activities, Health and Safety section. (VI)

§265.31 Sudden and nonsudden release. Discuss how the site will be protected against runoff or dust excursions. (III)

§265.32 Required equipment. If some facility operations are still in place and functioning, this may be applicable. If no facility operations are functioning, this will not be required in the SCCP other than as the Health & Safety equipment under §265.16. (V)

§265.33 As per the comment above on §265.32.

§265.34 Access to communications or alarm systems. Insure that telecommunications for emergencies are always available onsite. (V)

§265.35 Isle space. If contaminated soil which is a RCRA hazardous waste is to be stored in containers onsite, this applies. (III)

§265.37 Arrangements w/ local authorities. O/O "must . . . make arrangements . . . as appropriate for . . . potential need." If no need for such arrangements exists, this requirement is N/A.

§265.52(b): "If the owner or operator has . . . some other plan, he need only amend that plan . . . [with] provisions that are sufficient to comply with the requirements of this part." The Health & Safety plan and §265.31 may be sufficient for this entire part.

§§265.55, .56 Emergency coordinator/Emergency procedures. These requirements can be subsumed under §265.16, Personnel training. (V)

§265.71, §265.72 and §265.76 are N/A. No wastes can be received from offsite sources.

§265.73 Operating record. For the limited type of facility addressed by this review, the O/O could keep a copy of the closure plan at the site (or the main office of operations, if there is no habitable facility at the site) containing the following [as per §265.73(b)], but excluding items coded "N/A": (IV)

(1) disposition of the hazardous waste as it existed before cleanup activities and the post cleanup goals,
(2) the location of the nominal "chemical landfill",
(3) results of soil analysis prior to cleanup (already done for the initial application for a SCCP),
(4) contingency incidents summary N/A,
(5) inspections results N/A,
(6) additional monitoring N/A,
(7) closure cost estimates (already done for the initial application for a SCCP),
(8) land ban extension waste quantities N/A,

For §.§265(73)(b)(9)-(12), the closure plan must specify that the excavated contaminated soil will be treated as a hazardous waste if 1) TCLP tests for those constituents in Table 1 to §261.24 so indicate, or 2) it is mixed with any constituent listed in Subpart D to §261. The closure plan must also specify the name and contact number of the disposal facility which is intended to be used for disposal of the contaminated soil. If wastes are being removed periodically over the course of the cleanup, the facility must retain manifest copies of material shipped and returned signed by the treatment or disposal facility as per §268.7(a)(2). (IV)

§265.74 Records availability, retention. This part will apply to manifests under §265.73, above. (IV)

§§265.143 Financial assurance for closure is required. The most simple alternative is explained below. (II)

Subpart H - Financial Requirements

§265.143(e) This option is the most suitable for financial assurance and would be suggested in the State-provided guidance. NMED would deal with cases involving smaller facilities without $10M in assets on a case-by-case individual basis.

§265.147(c) Request for variance of liability requirements. In cases where SCCP closures are highly likely, NMED will be open to requests for liability coverage amount variance. NMED will review the health and safety precautions built into the SCCP to ensure that liability coverage is adequate. Pursuant to this regulation, the variance must be requested in writing to the Director of the Water and Waste Management Division, NMED.

Miscellaneous Information

§265.75 Biennial Report. The facility must submit biennial reports pursuant to this regulation.

§265.110(a) The closure plan will be subject to a 30-day public notice, and a public hearing will be held on the closure plan if the public requests such a hearing.

ATTACHMENT A

Risk Assessment Calculations for
Carcinogens and Noncarcinogens

Following are the two types of calculations for acceptable residual soil contaminants based on risk assessment calculations. These calculations assume a daily exposure duration of 8 hours/day, 40 hrs/week. The resulting figure for acceptable contamination (**C**), should be modified to reflect a larger value for C if the daily or weekly exposure is less, and a smaller value for C if the soil ingested is greater than the assumption due to local conditions. The first two equations below are suitable for situations involving only one contaminant, the second two are for multiple contaminant scenarios.

For single, noncarcinogenic contaminants

Where **C**, the acceptable residual soil concentration, C will be equal to the **RfD*** divided by the amount of soil ingested daily per kilogram of body weight (the standard RCRA model for noncarcinogenic contaminant exposure is a 10 kg child ingesting 200 mg soil/day) = 20 mg/kg weight per day:

$$C = \frac{RfD\left(\frac{\text{mg constituent}}{\text{kg*day}}\right)}{20\ \frac{\text{mg soil}}{\text{kg*day}}}$$

RfD is the reference dose. RCRA clean closures require use of the assumption that intake is by direct soil ingestion, so you will want to use the oral intake RfD for noncarcinogens. The Integrated Risk Information System (IRIS) will supply this data [(513 569-7254].

For single, carcinogenic contaminants

Where **C** is the acceptable residual contamination, **R** is the acceptable risk and is generally set at $1x10^{-6}$, **SF** is the carcinogenic slope factor. IRIS data includes this value in the carcinogen, oral intake data section. **DI** is the average daily soil ingestion. This calculation assumes a 70 kg adult consuming 100 mg of soil daily, so the DI is 100 mg/70 kg = 1.42 mg soil/kg weight per day.

$$C = \frac{R}{SF\ (\text{day/mg*kg}) \times 1.42\ \text{mg/(kg*day)}}$$

If the total constituent concentration of any chemical in the residual soil is above the limit calculated, the contaminated media must be removed to a permitted hazardous waste treatment, disposal or storage facility. Site specific factors may allow an adjustment of the assumptions used in the above calculations.

For situations involving multiple contaminants, the risk from each is summed and the total risk from residual contaminants must be acceptable.

For multiple, carcinogenic contaminants

R = Risk and is set at 1 X 10^{-6} incidences of cancer (one incidence in a population of one million). **CDI** = chronic daily intake of the carcinogen not of contaminated soil. CDI is equal to the daily soil intake times the concentration of the individual contaminant. **SF** is the slope factor (same as in the previous example).

$$R_{tot} = (CDI_1 x SF_1) + (CDI_2 x SF_2) + (CDI_3 x SF_3) + \ldots$$

Cleanup levels will be considered adequate with respect to the carcinogens when R_{tot} (total risk) is less than 1 x 10^{-6}.

For multiple, noncarcinogenic contaminants

CDI is as immediately above, **RfD** is as in the first example, above. Calculate the total Chronic Hazard Index as follows:

$$\text{Total hazard index} = CDI_1/RfD_1 + CDI_2/RfD_2 + CDI_3/RfD_3 + \ldots$$

The total hazard index must be less than 1, i.e., 0.99 or less.

All analytical data must be submitted to the New Mexico Environment Department (NMED) and must be accompanied by complete QA/QC data documenting that the laboratory has followed appropriate EPA SW-846, chapter one QA/QC procedures, and SW-846 analytical methods.

Ref: Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part A

ATTACHMENT B

Suggested Table of Contents for the Simplified Closure Plan (SCCP)

Prior to submittal of an SCCP, you must submit parts I and II of this listing. If, after review, the Hazardous and Radioactive Waste Bureau (HRMB) determines that the SCCP process is appropriate for the site in question, HRMB will request you to submit the complete SCCP.

Section	Contents
I.	Feasibility of simplified closure
A.	Extent of contamination [265.112(b)(3)]
B.	Documentation of depth to groundwater
C.	Financial feasibility for clean closure
II.	Financial Assurance Documentation [§265.143(e) suggested]
III.	Security and Inspections [§§265.14, 265.15, 265.31]
IV.	Closure procedures [§265.112(b)(1), 265.112(b)(2), and 265.112(b)(4) through 265.(b)(6)]
V.	Worker Health and Safety [§§265.16, 265.17, 265.32, 265.34, 265.35, 265.52(b), 265.55, 265.56]
VI.	Disposal of hazardous and solid wastes [§265.114]
VII.	Means by which closure will be certified [§265.115]

ATTACHMENT C

Components of an Adequate Laboratory Quality Assurance/Quality Control Plan

New Mexico Hazardous and Radioactive Materials Bureau
Technical Support Group
(505) 827-4300

May 1992

1. All constituents identified above the MDL must be reported.

   The Method Detection Limit is defined as the estimated concentration at which the signal generated by a known constituent is three standard deviations above the signal generated by a blank, and represents the 99% confidence level that the constituent does exist in the sample.

2. The "tune" of the GC/MS for volatile organic constituents must be checked and adjusted (if necessary) each twelve (12) hour shift by purging 50 ng of a 4-bromofluorobenzene (BFB) standard. The resultant mass spectra must meet the criteria given in Table 1 before sample analysis proceeds.

3. The "tune" of the GC/MS for semi-volatile organic constituents must be checked and adjusted (if necessary) each twelve (12) hour shift by injecting 50 ng of a Decafluorotriphenylphosphine (DFTPP) standard. The resultant mass spectra must meet the criteria given in Table 2 before analysis proceeds.

4. For every 20 samples perform and report:

   A. Duplicate spike for organics.

   B. Duplicate sample analysis for inorganics.

   C. Reagent blank, results provided for organic work.

   D. Surrogate and spike recoveries. See item 10.

   E. One check sample at or near the Practical Quantitation Limit for a subset of the parameters.

5. Analytical results must not be "blank corrected."

6. Any deviation from EPA-approved methodology must have a Written Standard Operating Procedure and NMED approval.

7. Detection limits must be generally in line with those listed in Appendix IX to §264.

8. The laboratory must document:

   A. That all samples were extracted, distilled, digested, or prepared (if appropriate) and analyzed within specified holding times.

   B. That if a sample for volatile analysis is received with headspace, this is reported.

   C. The date of sample receipt, extraction and analysis for each sample.

   D. Any problems or anomalies with the analysis should be documented.

   E. That all solids were analyzed dry or that the reported results are corrected to reflect a dry weight basis.

9. The name and signature of the lab manager must appear on each report.

10. The laboratory's historical surrogate and spike recoveries should fall within plus or minus 20% of the true value. The reported surrogate and spike recoveries must fall within: 1. the historical (statistically based) acceptance limits, generated at the laboratory or 2. the limits tabulated by the appropriate method from the current edition of SW-846, whichever limit is narrower. The actual historical recoveries must be submitted to HRMB with the analysis.

11. QA/QC data sheets must explicitly reference lab identification numbers of the lab reports to which the QA/QC data pertain.

TABLE 1

BFB KEY IONS AND ABUNDANCE CRITERIA

Mass	Ion Abundance Criteria
50	15.0 - 40.0 percent of the base peak
75	30.0 - 60.0 percent of the base peak
95	base peak, 100 percent relative abundance
96	5.0 - 9.0 percent of the base peak
173	less than 2.0 percent of mass 174
174	greater than 50.0 percent of the base peak
175	5.0 - 9.0 percent of mass 174
176	greater than 95.0 percent but less than 101.0 percent of mass 174
177	5.0 - 9.0 percent of mass 176

TABLE 2

BFB KEY IONS AND ABUNDANCE CRITERIA

Mass	Ion Abundance Criteria
51	30.0 - 60.0 percent of mass 198
68	less than 2.0 percent of mass 69
70	less than 2.0 percent of mass 69
127	40.0 - 60.0 percent of mass 198
197	less than 1.0 percent of mass 198
198	base peak, 100 percent relative abundance
199	5.0 - 9.0 percent of mass 198
275	10.0 - 30.0 percent of mass 198
365	greater than 1.00 percent of mass 198
441	present but less than mass 443
442	greater than 40.0 percent of mass 198
443	17.0 - 23.0 percent of mass 442

standard forms: a:/closure.492