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RENEWAL APPLICATION
CHAPTER J
POST-CLOSURE PLAN

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RENEWAL APPLICATION
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POST-CLOSURE PLAN

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1 installed geomechanical instrumentation, sounding the areas, visual inspection and maintenance
2 activities such as scaling, mining, or bolting as required and as described in Renewal Application
3 Appendix M2. In addition, all areas in the underground that are occupied by personnel are
4 checked prior to each day's work activities for accumulations of harmful gases, including
5 methane. Action levels for increasing ventilation to areas that show high levels of harmful gases
6 are specified as described in Renewal Application Chapter F.

7
8 These monitoring programs will be carried out during the period between the closure of the first
9 panel and the initiation of final facility closure for the underground facility. The Permittees have
10 prepared a Volatile Organic Compound Monitoring Plan (VOCMP) which will be implemented
11 to confirm that the annual average concentration of volatile organic compounds (VOCs) in the
12 air emissions from the underground HWDUs do not exceed the VOC concentrations of concern
13 ~~listed in Module IV~~ and Renewal Application Chapter N, Table N-3.1. The VOCMP is provided
14 in Renewal Application Chapter N. The VOCMP includes monitoring design, sampling and
15 analysis procedures and quality assurance objectives. This plan is required to demonstrate
16 compliance with 20.4.1.500 and .900 NMAC (incorporating 40 CFR §264.602 and
17 §270.23(a)(2)).

18
19 The Permittees will collect air samples upstream of all open and closed panels, and down stream
20 of Panel 1 beginning just prior to waste emplacement and proceeding until after certification of
21 the closure of the last underground HWDU.

22
23 The VOCMP uses EPA Compendium Method TO-15. The Permittees have had success with
24 TO-15 at the WIPP if care is taken in placing the sampler to avoid high dust and if stringent
25 cleaning requirements are imposed for the clean canisters. This is necessary because of the
26 extremely low concentrations that are being monitored. The Permittees are evaluating the use of
27 the Fourier Transform Infra-Red (FTIR) technique for monitoring VOCs at WIPP. This method
28 is being used successfully at other locations and has recently been approved by the EPA for
29 measuring the concentration of VOCs in the headspace gases of drums of TRU waste. If FTIR
30 becomes viable, the monitoring plan will be revised and the revisions will be submitted to the
31 NMED for approval prior to implementation.

32
33 The VOCMP will be implemented under a Quality Assurance Plan that conforms to the
34 document entitled "EPA Requirements for Quality Assurance Project Plans for Environmental
35 Data Operations". Quality Assurance criteria required for the target analytes are presented in
36 Table N-4 in Renewal Application Chapter N. Definitions of these criteria are given in Renewal
37 Application Chapter N along with a discussion of other requirements of the Quality Assurance
38 Program including sample handling, calibration, analytical procedures, data reduction, validation
39 and reporting, performance and system audits, preventive maintenance, and corrective actions.

40 41 J-1a Post-Closure Plan after Final Facility Closure

42 A number of regulations deal with the period of time that begins once the WIPP has undergone
43 final facility closure and decommissioning. Under 40 CFR Part 191, the period consists of an
44 active control period and a passive control period; only one hundred (100) years of the active

1 control period can be used in performance assessment. The Land Withdrawal Act (LWA) of
2 1992 requires that the U.S. Department of Energy (DOE) prepare and submit a post-
3 decommissioning land management plan. New Mexico Hazardous Waste Management
4 Regulations, 20.4.1.500 NMAC (incorporating 40 CFR §264.117) requires post-closure care,
5 including monitoring, security, and control of property use. Because of the numerous
6 regulations, the Permittees have prepared a single strategy for post-closure management of the
7 WIPP. This strategy consists of three elements: 1) active controls, 2) monitoring, and 3) passive
8 controls. Only the first and second elements occur within the post-closure period covered by this
9 permit.

10 11 J-1a(1) Active Institutional Controls

12 Once a facility is decommissioned, positive actions (referred to as "active institutional controls")
13 will be taken to assure proper maintenance and monitoring. The EPA, in 40 CFR §191.14(a) has
14 specified that active controls will be maintained for as long as practicable and that no more than
15 one hundred (100) years of active institutional control can be assumed in predictions of long-
16 term performance. This assumption assures that future protection and control does not rely on
17 positive actions by future generations.

18
19 The Permittees' active institutional control program has a primary objective of addressing all
20 applicable requirements, including restoring the WIPP site as nearly as possible to its original
21 condition, and thereby equalizing any preference over other areas for development by humans in
22 the future. Restoration of the WIPP site includes any necessary remedial actions or cleanup of
23 releases resulting from decommissioning. In addition, as part of the active institutional control
24 program implemented under 40 CFR §194.14(a), the Permittees will implement monitoring
25 systems suitable for assessing disposal system performance if such monitoring is feasible.

26
27 The Permittees will implement the active institutional control program as described in more
28 detail below:

29 30 Identification of Active Institutional Control Measures

31
32 A detailed explanation of the active institutional controls selected by the Permittees as part of
33 this first step is provided in Renewal Application Appendix J1 (Active Institutional Controls
34 During Post-Closure). This is the Permittees' reference design for active institutional controls.
35 The reference design will be reviewed periodically and updated by the Permittees as appropriate
36 during WIPP disposal operations. The ongoing review and evaluation ensure that the active
37 institutional controls implemented are appropriate for the conditions that may exist at that time.
38 The Permittees will review the reference design prior to implementation and all affected
39 regulatory agencies will be consulted as part of this review. If updating the reference design
40 proposes any changes in the Post-Closure Plan as described in this Renewal Application, the
41 Permittees shall apply for a permit modification to include those changes, or submit the reference
42 design and revised Post-Closure Plan as part of a routine permit renewal application, as required
43 by 20.4.1.500 NMAC (incorporating 40 CFR 264.118(d)).

1 As part of the active institutional controls program, the Permittees have developed a set of active
2 institutional controls which will be implemented. These are as follows:

- 3
4 • A fence line shall be established to control access to the repository's footprint area (the
5 waste disposal area projected to the surface). A standard wire fence shall be erected
6 along the perimeter of the repository surface footprint. The fence shall have gates placed
7 approximately midway along each of the four sides.

- 8 • An unpaved roadway along the perimeter of the barbed wire fence shall be constructed to
9 provide ready vehicle access to any point around the fenced perimeter, to facilitate
10 inspection and maintenance of the fence line, and to permit visual observation of the
11 repository footprint to the extent permitted by the lay of the land. This roadway shall
12 connect to the paved south access road.

- 13 • To ensure visual notification, the fence line shall be posted with signs having as a
14 minimum, a legend reading "Danger—Unauthorized Personnel Keep Out" and a warning
15 against entering the area without specific permission of the Permittees.

- 16 • Contractual arrangements shall be developed to ensure that periodic inspection and
17 necessary corrective maintenance is conducted on the fence line, its associated warning
18 signs, and the roadway. The Permittees will maintain control over all contractual work
19 and will maintain, in the operating record, the results of all inspections and maintenance
20 activities.

- 21 • Through direct Permittee staffing support and/or contractual arrangements, procedures
22 shall be established to provide routine periodic patrols and surveillances of the protected
23 area by personnel trained in security surveillance and investigation.

- 24 • Mitigating actions will be taken to address any abnormal conditions¹ identified during
25 periodic surveillance and inspections.

- 26 • Reports of activities associated with the post-disposal active access controls shall be
27 prepared in accordance with regulatory requirements for submittal to the appropriate
28 regulatory and legislative authority.

29 Details on meeting these criteria are found in Renewal Application Appendix J1.

30
31 Preparation of a Post-Decommissioning Land Management Plan

32
33 Section 13(b) of the LWA requires the DOE to prepare and submit a plan for managing the land
34 withdrawal area after decommissioning the WIPP facility. This plan will include a description of

¹ "Abnormal conditions" include any natural or human-caused conditions which could affect the integrity of Active Institutional controls required by the Permit or which could affect compliance of the WIPP with applicable RCRA standards.

1 both the active and passive institutional controls that will be imposed after decommissioning is
2 complete. This plan will be prepared in consultation with the Department of Interior and the
3 state of New Mexico. If the land management plan proposes any changes in the Post-Closure
4 Plan as described in this permit, the Permittees shall apply for a permit modification to include
5 those changes, or submit the land management plan and revised Post-Closure Plan as part of a
6 routine permit renewal application, as required by 20.4.1.500 NMAC (incorporating 40 CFR
7 §264.118(d)).
8

9 Preparation of the Active Institutional Control Plan

10
11 An active institutional control plan will be initiated prior to actual plant closure, and will contain
12 all the information needed to implement the active and passive institutional controls for the
13 WIPP facility. Active institutional control planning will be based on the reference design and
14 will take into account the most current information regarding the facility and its vicinity and will
15 make use of state-of-the-art materials and techniques. This plan will include acceptable
16 decontamination levels, sampling and analysis plans, and ~~QA/QC~~ quality assurance/quality
17 control specifications. If such future plan contains provisions different from those in this Post-
18 Closure Plan or Renewal Application Appendix J1 (Active Institutional Controls During Post-
19 Closure), the Permittees shall submit a request for modification of the Post-Closure Plan and the
20 WIPP Permit. The changes must be approved and made part of the revised Permit before the
21 changes are implemented, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR
22 §264.118(d)).
23

24 Implementation of Active Institutional Control Measures

25
26 Most of the active institutional control measures, such as long-term site monitoring and site
27 remedial actions, will be implemented simultaneously with facility closure. However, it may be
28 possible to implement some measures earlier. For example, salt disposal may begin prior to final
29 plant closure. Reclamation and restoration of unused disturbed surface areas has already begun.
30 Guarding and maintenance activities, which are already in place, could evolve into an
31 appropriate type of post-closure activity, ~~subject to appropriate modifications of the Permit.~~
32

33 J-1a(2) Monitoring

34 Post-closure groundwater monitoring will involve a continuation of the monitoring plan in
35 Renewal Application Chapter L ~~as described in Module V.~~ The sampling frequency may be
36 changed to biannually after final facility closure is complete ~~by modification of the Permit as~~
37 ~~approved by the Secretary of the NMED in accordance with 20.4.1.901.B NMAC (incorporating~~
38 ~~40 CFR §270.42).~~ In addition, the final target analyte list specified in Renewal Application
39 Chapter L may be changed ~~by permit modification~~ based on the final volume of waste.
40

1 J-2 Notices Required for Disposal Facilities

2 J-2a Post-Closure Certification

3 Within sixty (60) days of completion of the post-closure care period after final facility closure,
4 the Permittees will submit to the Secretary of the NMED, via registered mail, a certification that
5 post-closure care was performed in accordance with the specifications of the approved post-
6 closure plan. The certification will be signed by the Permittees and by an independent New
7 Mexico registered professional engineer. Documentation supporting the independent registered
8 engineer's certification and a copy of the certification will be furnished to the Secretary of the
9 NMED.

10

11 J-2b Post-Closure Notices

12 Within sixty (60) days after certification of closure of each underground HWDU or final facility
13 closure, the Permittees will submit to the Secretary of the NMED, and to the Eddy County
14 government or other applicable local government agencies, a record of the type, location, and
15 quantity of hazardous wastes disposed of in each underground HWDU as required in
16 20.4.1.500 NMAC (incorporating 40 CFR §264.119).

17