

General



State of New Mexico
ENVIRONMENT DEPARTMENT
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February 20, 1998

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DOE OVERSIGHT BUREAU

RE: Comments on January 21, 1998 Presentation of Five Options to address NMED-SWQB Notice of Violation (NOV) Letter of December 4, 1997

This letter communicates comments from NMED-DOE Oversight Bureau on five options proposed by Los Alamos County to address concerns raised by the NMED-SWQB December 4, 1998 NOV issued to Los Alamos County. It is understood by DOE OB that one purpose of the options presented is to satisfy the requirement for corrective action plans for stabilization of the exposed landfill cell, in addition to, the entire landfill slope located above the Sandia wetland such that future releases of refuse materials (e.g., garbage, sediment) into the watercourse and/or Sandia wetlands do not occur. The DOE Oversight Bureau has no regulatory authority. This discussion is not provided or intended to represent the regulatory position of the New Mexico Environment Department. Issues of concern that a corrective action plan for the Los Alamos County landfill should address are outlined below.

Issues of concern:

- 1) High velocity discharges, associated with storm water runoff from the highly impermeable surfaces in TA-3 are causing stream bank erosion and channel incision.
- 2) Unstable soils, placed upon steep hillsides (in excess of the angle of repose), are eroding into the wetlands. This includes the rubble pile, the site of recent breaching and the clean fill pile (approximately 26 acres, extending 3/4 mile down canyon).
- 3) Uncontrolled run-on to the Los Alamos County landfill from LANL, DOE or JCI properties.
- 4) Run-off from PCB contaminated sites located on and near Los Alamos County property.
- 5) Insure all run-off retention ponds are properly sized to capture sediments and reduce future potential for breaching.
- 6) Insure proper implementation of engineered controls, concerning projected 25, 50,



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- and 100 year storm-related flows.
- 7) Insure implementation of a comprehensive Storm Water Pollution Prevention Plan for the Los Alamos County landfill which addresses run-on and run-off controls.

General comments:

None of the proposals, taken singularly, will address all of the issues of concern at the landfill. A more comprehensive plan would incorporate portions of several of the options to address all of the outstanding issues. Each of the five options will be addressed individually, pros and cons will be discussed, and suggestions will be presented to incorporate desirable aspects of each. In addition, suggestions are provided that may address the long-term problems associated with the clean-fill pile.

OPTION 1 EXTEND PIPE

Cons

- The proposed option would cause increased flow velocities further downstream causing higher potential of erosion and channelization in the wetlands.
- The existing culvert may be improperly sized for any increase of additional flow.
- The upper portion of wetland would be denied moisture.
- This does not address erosion problems already existing at the landfill or the wetlands, this merely moves the stream channel incision and stream bank erosion problem downstream.
- Does not address the clean-fill pile issues.
- Does not address site-wide erosion issues.

Pros:

- Rip-Rap apron would protect outlet of pipe.
- Retention pond at base of rubble pile would be improved provided it is properly sized.

Recommendation:

The existing culvert should not be extended any further than necessary to restore the slope of the rubble pie to 4:1 slope and provide a 2 foot base course of clean soil for permanent stabilization. The outlet of the pipe and adjacent stream banks should be protected with Rip-Rap and velocity reducers to dissipate energy resulting from highly erosive flows. The retention pond may no longer be necessary once the slope has been reduced and stabilized but would help reduce excessive storm water run-off and sediment transport into the wetlands.

OPTION 2 RIP-RAP EMBANKMENT

Cons:

- Although stabilization of stream banks with rip-rap is a good thing, this plan is excessive. The upper slopes can be stabilized through contouring without rip-rapping the entire slope.
- This plan could be modified to rip-rap only areas adjacent to the stream channel (threatened by scouring) to cut costs immensely.
- The design does not address rip-rapping under and around culvert (both inlet & outlet) where the problems begin.
- Velocity reduction is needed at the outlet of the pipe, along with protection of the stream banks.
- Does not address the clean-fill pile issues.
- Does not address site-wide erosion issues.

Pros:

- Rip-Rap armoring of the stream banks would reduce the current potential for contaminated (e.g., PCB, metals) wetland soils mobilization.
- This option protects side slopes.

Recommendations:

The slope above the stream bank, could be reduced to the appropriate 4:1 ratio by removing rubble and debris in a series of lifts. This would result in terraces or a continuous, gradual slope extending an appropriate distance from the stream course. Rip-Rap protection of existing stream banks would then be appropriate. Velocity reduction is needed at the outlet of the pipe, along with protection of the stream banks.

OPTION 3 CONCRETE RETAINING WALL

Cons:

- Good idea, except this will probably fail without protective gabion under the outlet and energy dissipaters staggered below the outlet as erosion will eventually undercut the retaining walls.
- While this will collect sediment eroded from above, it does not address the root cause of the erosion of up-hill soils. This will require frequent maintenance (e.g., excess sediment removal).
- Does not address the clean-fill pile issues.
- Does not address site-wide erosion issues.

Pros:

- Banks will be protected from erosion.
- Appears to be designed to trap sediment eroded from slopes above, preventing it from entering the watercourse.

- Improves the existing retention ponds, provided they are properly sized.

Recommendations:

none

OPTION 4 MOVE FLOW LINE

Cons:

- Not a good option as channelization is unwanted in the first place (in regards to the wetlands).
- In addition, water will take the easiest route and may reassert itself to the existing channel or create channel with any large storm event. If this were to happen, any re-contouring may fail and result in increased sedimentation in the wetlands.
- Does not address the clean-fill pile issues.
- Does not address site-wide erosion issues.

Pros:

none

Recommendations:

none

OPTION 5 IMPROVE RETENTION POND/MODIFY CONTOURS

Cons:

- Flows from the culvert are not addressed in this option so the modified contours may be a waste of time and money - they will probably eventually fail.
- Does not address the clean-fill pile issues.
- Does not address site-wide erosion issues.

Pros:

- Retention pond capacity and integrity will be enhanced, if properly sized.
- Contouring of slopes and permanent stabilization above the wetlands is a preferred approach.

Overall Recommendations:

- A combination of properly sized ponds, rip-rap, gabion, energy dissipaters, contouring and possibly retaining walls would be preferred to address the majority of the issues of concern at the Los Alamos County landfill.
- Proper design (e.g., size of retention ponds) is an issue of concern.
- Run-on from the JCI complex, located west of the landfill should be addressed.
- Run-off from the PCB site, PRS 61-002 and potential PCB source 3-059 should be controlled and directed to retention ponds where collected sediments can be properly monitored.
- The landfill in its entirety, needs to be evaluated for storm water controls. Recent

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modifications, undertaken by the county to re-direct storm water run-off to collection ponds demonstrate an increased awareness of and willingness to address this issue.

- A proposal should be presented to address the stabilization of the clean-fill pile. The slope of the pile should be reduced through contours or terracing.
- A Federal 404 permit and State 401 certification would be required prior to the initiation of any work in the watercourse.
- The Environmental Restoration group at LANL is planning to conduct an investigation to determine the rate and extent of contamination currently found in the Sandia Wetlands in FY 98. Any actions which would result in disturbing wetland soils should be co-ordinated with them prior to implementation.

If you have any questions concerning these comments please contact Alice Mayer (672-0447) or Ralph Ford-Schmid at 827-1536.

Sincerely,



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