



Linda S. Adams
Secretary for
Environmental Protection

**California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman**

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Arnold
Schwarzenegger
Governor

March 29, 2010

Mr. Scott Conroy, Forest Supervisor
U.S. Department of Agriculture
Rogue River-Siskiyou National Forest
3040 Biddle Road
Medford, OR 97504

Dear Mr. Conroy:

Subject: Comments on the Design Plans of the Repository for the Blue Ledge Mine
Removal Action

File: Blue Ledge Mine, Eileen, California

The following are the Regional Water Board Technical Comments regarding the proposed design for the repository for the contaminated material to be removed from the Blue Ledge Mine, located at Eileen, California and our assessment of the proposed design's ability to perform and comply with Title 27 of the California Code of Regulations (Title 27), which are applicable or relevant and appropriate requirements (ARARs) for this project. These comments are based upon the Blue Ledge Mine Design Drawings for Construction dated February 19, 2010, which we received access to on February 22, 2010, and the Quality Assurance Project Plan (QAPP) and Operations and Maintenance Plan (O&MP), both dated February 19, 2010, which we received via email on March 2, 2010. We also reviewed the August 3, 2009 Waste Rock Classification Technical Memorandum and the Draft Final Removal Action Engineering Evaluation & Cost Analysis, dated April 14, 2009, which were provided to the office at an earlier date.

It is clear that based on the available data the mining wastes from the Blue Ledge Mine would be, at a minimum, a Group B waste as defined in Title 27 Section 22480. The previous sampling shows that the material is currently impacting water quality and creating acid mine drainage, and therefore the material being placed in the repository is a threat to water quality and any repository for such wastes should comply with requirements for Group B wastes. Some of the regulatory references in the August 3, 2009 Waste Rock Classification Technical Memorandum are incorrect, and we have included the correct regulatory references for land disposal regulations enforced by our agency at a later point in this letter, but have not given full comments on this memorandum.

California Environmental Protection Agency

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Given that the waste is, at a minimum, a Group B waste and the natural geologic material underlining the chosen repository site was found by laboratory testing to have a hydraulic conductivity of 1×10^{-5} cm/sec, your repository site is required to install a full liner, leachate collection and recovery system (LCRS), and cover in conformance with Title 27. It should be noted that the underlying geologic material includes gravel, and if the native materials are used for the liner the larger material would need to be removed or laboratory analyses of the hydraulic conductivity would not be valid.

The first six of the following numbered comments have been provided to Pete Jones and your consultants via email, and were based upon our review of the Blue Ledge Mine Design Drawings for Construction dated February 19, 2010; August 3, 2009 Waste Rock Classification Technical Memorandum; and the Draft Final Removal Action Engineering Evaluation & Cost Analysis, dated April 14, 2009. The remaining comments are based upon our review of the QAPP and O&MP.

1. The repository must have a full bottom liner. The lining of only the side slopes is inadequate. The remaining portion of the bottom liner requires at least 2 feet of clay material with a minimum 1×10^{-6} cm/sec hydraulic conductivity and placed with a minimum of 90% relative compaction. The proposed use of a Geosynthetic Clay Liner (GCL) for lining the side slopes constitutes an engineered alternative (Title 27 terminology) to the prescriptive liner; please discuss this in your report (that is, explain why you are using it and demonstrate that it will provide equal or better performance than the 2 feet of clay). If you decide to use the on-site material to manufacture the 2-foot clay liner, then a maximum grain-size for the material that is used for the clay liner material must be designated. Please note that laboratory hydraulic conductivity measurements from a 2-3 inch sample of on-site material containing gravel would not be accurate since the gravel material exceeds the sample size.
2. The GCL used must be a reinforced (stitched) GCL, per our California Department of Water Resources slope stability staff (based on failure of other types of GCL).
3. There must be an evaluation and documentation of whether drainage measures need to be installed behind the side slope liner. There are no wintertime data for subsurface conditions (a normal element for landfill siting), and the site geology (landslide debris) makes it likely that there will be water infiltration upgradient of your repository. If you wish to wait until construction is underway to determine whether drainage measures are necessary then there must be data about the conditions of the repository's constructed slopes during all seasons. We expect that if you should choose not to install drainage measures behind the side slope, such a decision would be supported with appropriate data and an engineering evaluation.
4. As we discussed, the slope stability analyses for the landfill were performed before the use of any geosynthetic liners was proposed. A slope stability analyses is required by Title 27 regulations when geosynthetics are used because geosynthetics

normally end up being the preferential slip plane in a waste management unit. If these analyses have not been updated to reflect the decision to use a geosynthetic liner, please certify the slope stability for the repository as it is being built (including the proposed geosynthetics) and support why the slope stability conditions are not being recalculated to reflect the design changes to the repository.

5. Normally we would not allow deeper rooted vegetation to be used in the vegetation layer of the repository cap. The basis for the vegetative layer design and vegetation choices should be supported by demonstrating that the proposed vegetation will not impact the barrier layer. You also need to consider if there are any native species in the area that have tap roots that could grow deeper than your vegetative layer, as this information will be necessary for post closure maintenance.
6. We still have not seen any of the design calculations or specifications for the repository. Without this information, it is impossible to comment on whether the design features meet the requirements of Title 27. There are specific requirements in Title 27 for items such as the appropriate drainage for the identified design storm used for drainage calculations, and the type and minimum numbers of geotechnical analyses; without the design calculations or specifications for the repository, it is impossible to determine whether these requirements have been met.
7. The QAPP and the O&MP do not include the liner in the project descriptions. Please correct this omission.
8. The QAPP submitted does not cover the required quality assurance/quality control for the repository construction, and the introduction section does not identify that as one of the documents being prepared. There should be a quality assurance/quality control plan covering all aspects of repository construction in conformance with Title 27.
9. Section 2.5 in the O&MP should include the schedule for observing the leachate collection system. This is especially important prior to cap installation when rainwater infiltration is likely and for the first few winters afterward until expected flow levels are known and documented.

The pertinent State Water Board regulations that apply to the repository are from Title 27. The specific sections that apply are the mining regulations in Sections 22470 through 22510. Sections 20080; 20250(b)(1); 20320; 20330(a &d); 20340 (b-e); 20365 (d &e); 20385; 20430; 20950(b&d); 21410; 21710; and financial assurance per Chapter 6 of Subdivision 1 of Division 2 are all incorporated by reference in the Title 27 sections on mining. We have enclosed a copy of the applicable sections of Title 27. These regulations may also be found at:

<http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000>.

Your reporting (via whatever document would be the federal equivalent to the Report of Waste Discharge) should specifically state how you are complying with each of these regulations (for example - Section 22490 (g) is being met with an LCRS designed to meet the minimum requirements of Section 20340(b-e) as seen on drawing XX and pages xx of the design report). A blanket statement that you met the regulations is not adequate; you need to demonstrate how you are meeting the intent of the regulations.

If you have any questions, you may call Gina Morrison of my staff at (707) 576-2501.

Sincerely,

Original Signed by

David F. Leland, P.E.
Supervising Water Resource Control Engineer

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Enclosure: Select Sections of Title 27

cc: Pete Jones, R.G., C.E.G., Region 6 On-Scene Coordinator, USDA Forest Service, Rogue River-Siskiyou National Forest, 645 Washington Street, Ashland, OR 97520 and via email (pajones@fs.fed.us)

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