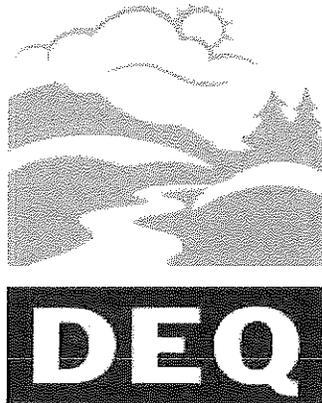


**OREGON  
ENVIRONMENTAL QUALITY  
COMMISSION MEETING  
MATERIALS 09/11/1992**



**State of Oregon  
Department of  
Environmental  
Quality**

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## ENVIRONMENTAL QUALITY COMMISSION

Special Meeting on Chemical Mining  
August 7, 1992

The Environmental Quality Commission met at 9:30 a.m., Friday, August 7, 1992, to consider the independent contractor's report which responded to specific technical questions regarding selected provisions of the proposed rules on chemical mining. The Commission also considered Department recommendations for amendments to the December 13, 1991, draft rules and adoption of the amended rules. The following Commission members were present:

Chair William Wessinger  
Vice Chair Emery Castle  
Commissioners Whipple, Lorenzen and McMahan

Also present were Fred Hansen, Director, Department of Environmental Quality, Larry Knudsen, Assistant Attorney General, Oregon Department of Justice and other DEQ staff.

Chair Wessinger called the meeting to order. Director Hansen provided a brief description of the process leading up to this action and recommendation. Harold Sawyer, Director's Office, provided a chronology of the rule making process and Request for Proposal (RFP). Mr. Sawyer talked about issues arising from the report prepared by the RFP recipient, TRC Environmental Consultants, Inc. Mr. Sawyer referred to a table listing issues and identifying policy options and Department recommendations for each issue. The issues are listed below:

1. Adding the RFP policy statements to the rules.
2. Clarifying interpretation of the guideline sections and seeking approval of equivalent or better standards.
3. Modifying the description of liner requirements.

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4. Maintaining the requirement for removal of cyanide from tailings before disposal, and reuse of recovered cyanide.
5. Maintaining requirements for detoxification of heaps prior to closure.
6. Modifying requirements to eliminate potential redundancy resulting from cumulative effects of the rule provisions.
7. Expanding provisions for independent third-party contractors to provide inspection services during operations.
8. Adding clarification about land use compatibility determination.

Chair Wessinger indicated that he would allow the environmental and industry groups to make presentations to the Commission.

The environmental group consisted of **Larry Tuttle**, The Wilderness Society; **Jean Cameron**, Oregon Environmental Council (OEC); and **Gary Brown**, Concerned Citizens for Responsible Mining. Mr. Tuttle said the rule redundancies allowed flexibility and ensured protection for the future. In regard to liner systems, he said too much reliance has been placed on primary liners. Mr. Tuttle indicated that an error occurred on page 6 of the TRC report and in the staff report. He handed out a corrected version of page 6 and said that by mistakenly reversing the tabulations, TRC understated the value of the Oregon Administrative Rules (OAR) 340 triple liner lower components. Mr. Tuttle spoke about the liner systems, tailings treatment and closure of heap and tailings facilities.

Ms. Cameron indicated that the OEC generally supported the Department's proposed rules and additional language. She indicated that OEC disagreed with the Department on disposal of mill tailings. Ms. Cameron suggested that language about removing heavy metals be added back from the first draft rules, that cyanide levels be changed to below 20 parts per million (ppm), that cyanide standards be retained and that the Department's proposed rules were not redundant. She added that OEC had a disagreement with the staff's rules for open pit closure and indicated that options a and d of the proposed rules provided the most security. Ms. Cameron said the costs were not unfair and that land is worth more than gold. She said she believed the sites have the potential to become Superfund sites.

Commissioner Lorenzen asked about the operating history of open heap leaching.

Mr. Brown replied that spills and leaks had been documented and acid mine drainage had occurred.

The industry group spoke next. The group consisted of **Dave Barrows**, representing the Oregon Mining Council; **Jerry Fish**, attorney for the Oregon Mining Council; and **Bill Cobb**, CH<sub>2</sub>M/Hill. Mr. Barrows said the rule redundancy was a critical issue and that it was not appropriate to include requirements that achieve little or no environmental benefit. He expressed concern that the Department did not see this as a critical issue. Mr. Barrows said economics are very important. He said that Mr. Tuttle's characterization of the mining industry during the legislative session was not accurate; Mr. Barrows said that the mining industry had been positive participants.

Mr. Fish said the rules should reflect mining as a system and not by component. He said extra expenditures are not necessary and urged the Commission to examine the technical issues. Mr. Fish indicated there were four changes he would like made to the Department's September proposed rules.

1. **Liners:** approve TRC's alternate system; not layer by layer. Commissioner Lorenzen asked about the definition of a leak. Mr. Cobb suggested the Department hire a contractor to monitor construction of the pad liner. Commissioner Lorenzen indicated he was bothered about the possibility of a leak and that little history existed about how well liners work. Mr. Cobb said that materials submitted to TRC from the mining industry in Nevada indicated no failures using a 12-inch clay liner. Commissioner Lorenzen asked how a leak would be detected. Mr. Cobb responded that using a series of piping networks, leak detection can show flaws in the top liner system. Commissioner Lorenzen said that leak detection parameters are important and asked if the industry can risk leakage in the top-level liner. Mr. Cobb indicated the industry would like to have the minimum bottom liner reduced to 12 inches, and the TRC proposal approved.
2. **Cyanide removal and reuse.** Mr. Fish said the Department's proposed requirement for reuse of cyanide should be deleted. He said this technology is new and expensive. Reuse of cyanide requires additional water and power in addition to the increased transportation of caustic and acid materials.
3. **Covers.** Mr. Fish suggested that if no hazardous waste was found and materials were not acid generating, hazardous waste covers should not be required.

Commissioner Lorenzen asked about heavy metals in the pad. Mr. Cobb said that heavy metals are in rocks already. He said that metals were not a problem unless acid was generated. Commissioner Lorenzen asked about heavy metals escaping into the groundwater. Mr. Cobb responded that the bottom liner of the pad would be designed to prevent this from occurring. Commissioner Lorenzen asked about heavy metals escaping in absence of acid-generating materials; Mr. Cobb responded that this would be unlikely.

4. **Methods.** Mr. Fish suggested that alternative facilities that satisfy Commission policy be described in the rules. Mr. Cobb said that in regard to mining areas becoming Superfund sites, practices used now are much more improved from past practices. He said that responsible waste management practices are used. Commissioner Lorenzen asked if Mr. Cobb was familiar with a magazine article written by Stephen M. Voynick, "The Gold Boom," *Rock Gem Magazine*, August, 1992, p. 37, about a heap leach mine in Colorado. Mr. Cobb responded that he was not familiar with the article.

Director Hansen introduced Dr. John Schanz, Jr. Dr. Schanz is an Adjunct Professor of Mineral Economics at the Colorado School of Mines and appeared at the request of the Department. Dr. Schanz indicated he had not been involved with the Department's staff report but did assist in reviewing the RFP. Commissioner Castle asked Dr. Schanz to comment on the environmental history of heap leach mining.

Dr. Schanz said he reviewed the consultant's report in regard to experience with heap leach mining. He particularly noted the heap leach technology is relatively new and long-term experience with environmental effects does not exist. Dr. Schanz said the Commission is setting a regulatory process for heap leach mining to meet health, safety and environmental protection concerns. If a failure occurred, a fail-safe system must be in place. He said a clear minimum threshold of safety should be established. Dr. Schanz indicated the Department's proposed rules are not a redundant set of procedures but a sequential set of rules to provide protection from the effects of chemical mining.

Dr. Schanz talked about containment, leakage detection with timing, volume and response, and containment of the entire system with a series of responses. He said that with ten years of design and operation, some leak detection was possible. Dr. Schanz added that current experiences did not address closure. Dr. Schanz indicated the proposed rules do not eliminate all risk nor present the least cost.

Commissioner Lorenzen asked about specific closure of heap leach mines. Dr. Schanz replied that in the five to ten years of mining operations, not many have gone the full cycle and that no historical experience exists.

The Commission then acted on the proposed options:

- Issue 1. Option a, including policy statements with editing to fit context of rules, was approved.
- Issue 2. Option a, amendments clarifying interpretation of guidelines sections and the ability to seek approval of equivalent or better alternatives, was approved.
- Issue 3. This issue (liners) was discussed after Issue Nos. 4, 5, 6, 7 and 8.
- Issue 4. After discussion about reuse and removal of cyanide, the Commission elected to modify the rules to eliminate the requirement for reuse and instead allow destruction of cyanide as an alternative to removal and reuse. The specific amendment to OAR 340-43-070(1) is as follows:

**340-43-070**

- (1) Mill tailings shall be treated by cyanide removal, ~~and~~ re-use, or destruction prior to disposal to reduce the amount of cyanide introduced into the tailings pond to the lowest practicable level. ~~[Chemical oxidation or other means shall be additionally used, if necessary, prior to disposal to reduce the WAD cyanide level in the liquid fraction of the tailings.]~~ The permittee shall conduct laboratory column tests on mill tailings to determine the lowest practicable concentration to which the WAD cyanide (weak-acid dissociable cyanide as measured by ASTM Method D2036-82 C) can be reduced. In no event, shall the permitted WAD cyanide concentration in the liquid fraction of the tailings be greater than 30 ppm.
- Issue 5. a. Maintaining requirements for detoxification of heap prior to closure was approved.
- b. Maintaining the requirements of the December 13, 1991, rules for cover of the heap as part of the closure requirements was approved.

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- Issue 6. The Commission approved retaining all requirements of the rules noting that the various requirements complimented each other and were not redundant.
- Issue 7. Expanded provisions for independent third-party contractor to provide inspection services during operations was approved.
- Issue 8. a. Added clarification regarding land use compatibility determination was approved.
- b. Housekeeping changes to correct errors, references, numbering and to provide clarity were approved.

In regard to Issue No. 3 on liners, the Commission indicated they would like the Department to develop additional wording. The Commission suggested the wording clearly convey that alternative liner systems can be approved if the environmental protection by each liner system component specified in the rule (primary liner, leak detection system, secondary liner) is achieved, either within the component or on a cross-component basis.

Commissioner Castle moved approval of the Department's proposed chemical mining rules with modifications as noted above and with wording still to be developed on liners pursuant to the Commission's direction; Commissioner Lorenzen seconded the motion. The motion was unanimously approved.

Mr. Knudsen noted the motion did not adopt the rules but established the Commission's decision and position on the issues. Director Hansen suggested a telephone conference call be scheduled so that the Commission could give final approval to the revised rule wording on liners and adopt final rules.

There was no further business, and the meeting adjourned at 3:45 p.m.