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40-8905

QUIVIRA MINING COMPANY

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RETURN ORIGINAL TO PDR, HQ.

April 8, 1987

Mr. Pete Garcia
 Licensing Branch 2
 Uranium Recovery Field Office
 U.S. NRC - Region IV
 Box 30225
 Denver, CO 80225

RE: License SUA-1473
 Docket 40-8905

Dear Mr. Garcia:

Please find attached five (5) additional copies of the Radiation Safety and Emergency Response Program Manual and the responses to your comment of February 19, 1987. Also attached are two corrected pages to the manual for insertion into the original copy sent to you March 20, 1987. Table I in the Bioassay Program in Section III of the manual was inadvertently omitted and a typographical error was found in the Transportation Accident Response Guide in Section V. Please insert these pages in the original copy. The additional copies have been corrected.

If you have any questions please contact me.

Sincerely,

James E. Cleveland
 James E. Cleveland
 Staff Environmental
 Specialist

JEC:ms

Attachment as stated

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 C PDR

DESIGNATED ORIGINAL

Certified By Mary C. Hood

Add Info
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U.S. NRC
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VII. ACTION LIMITS

Bioassay results shall be carefully reviewed and appropriate action will be taken if the results exceed predefined levels, and are determined to be correct. If there is doubt as to the correctness of a bioassay result, an investigation will be initiated which may include a conference with the affected employee and or his/her immediate supervisors.

The following table describes the actions and levels which will be taken on those samples deemed legitimate.

TABLE I - CORRECTIVE ACTIONS BASED ON URINARY URANIUM RESULTS

Urinary Uranium Concentration	Interpretation	Actions
Less than 15 µg/l	Uranium concentration and air sampling capabilities are adequate.	None.
15 to 30 µg/l	Uranium concentration and perhaps air sampling capabilities do not provide an adequate margin of safety.*	<ol style="list-style-type: none"> 1. Confirm results (repeat urinalysis). 2. Determine why air samples were not representative and did not show an excessive concentration of airborne uranium. Make corrections. 3. Identify the cause of airborne uranium and initiate additional control measures. 4. Determine whether other workers could have been exposed and perform necessary measurements for them. 5. Consider work assignment limitations to restrict the worker from exceeding a urinary uranium concentration of 30 µg/l.
Greater than 30 µg/l	Uranium concentration and perhaps air sampling capabilities are not acceptable.*	<ol style="list-style-type: none"> 1. Take the actions given above for 15 to 30 µg/l. 2. Continue operations only if it is verified outside that no other worker will exceed a urinary uranium concentration of 30 µg/l. 3. Establish work restrictions for affected employees. ★★
Greater than 30 µg/l for three consecutive specimens or greater than 130 µg/l for any specimen	Possibility of kidney damage to worker.	<ol style="list-style-type: none"> 1. Take the actions given above. 2. Have additional urine specimens tested for albuminuria. ★★★

*Unless the result was anticipated and caused by conditions already accounted for.

**Normal work assignments are applied until confirming sample results are reviewed. If the confirming is greater than 30 ug/l, immediate work restrictions would be applied.

***If any sample is greater than 130 ug/l immediate work restrictions would be applied until confirmation samples are less than 30 ug/l.

The Hot Line is supplied with clean, protective clothing, respirators and tape as well as the washing facility (tents). Drums or plastic bags for "dirty" clothing and waste are also provided at the Hot Line.

2. Air Sampling

Personnel air sampling should be considered for the clean-up crew when handling large spills of ore concentrate. This should be done to assure that the respiratory protective equipment used is adequate and to provide data for exposure evaluations.

During clean-up operations, a high-volume air sampler shall be operated about 25-30 yards downwind from the accident. When no operations are being performed, the sampler shall collect a background sample from an area about 500 yards upwind of the accident.

An example of air sample calculation assuming 50% geometry of an alpha detector is as follows:

$$\text{dpm/m}^3 = \frac{\frac{\text{cpm}}{0.50} \cdot \frac{A_r}{A_c}}{(\text{m}^3)(E)(X)}$$

dpm/m³ = Disintegrations per minute found in one cubic meter of air