

START

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United States
Environmental Protection
Agency

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9208203



June 24, 1992



Julie Erickson
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Richland Operations Office
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Richland, WA 99352

Subject: COLUMBIA RIVER BANK SPRINGS DATA FOR THE 100 AREA

Dear Ms. Erickson:

The Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) are in disagreement regarding the adequacy of existing springs/seeps discharge information to perform a risk assessment. This letter illustrates the difference between DOE's and EPA's positions on this issue, and provides several alternatives for DOE consideration that will satisfy EPA's needs for a more solid foundation upon which to base the risk assessment.

Tri-Party Agreement (TPA) milestone M-30-01 calls for DOE to "Submit a report (secondary document) to EPA and Ecology evaluating the impact to the Columbia River from contaminated springs and seeps". Towards fulfilling this milestone, DOE submitted the report Sampling and Analysis of 100 Area Springs DOE/RL-92-12 dated February, 1992.

EPA provided written comments to the report on April 2, 1992. Under the TPA (page 9-8, Figure 9-3), DOE is to submit responses to comments within 30 days. Those responses are now seven weeks overdue. DOE has not requested an extension to the 30-day response period. There were several time-critical issues to discuss regarding EPA's comments, and DOE's failure to respond to those comments in a timely manner has generated a regulatory concern.

An understanding of a rather technical process is needed to understand the difference between DOE's and EPA's positions. The following two paragraphs illustrate the technical aspect of the process. Following that is a presentation of why EPA is concerned with the position DOE has taken.

Contaminated groundwater discharges through seeps and springs along the river bank. This provides a direct exposure and risk to the wildlife and occasional humans who may come into contact with the river bank. In addition the springs and seeps contribute to the contaminant loading of the Columbia River.



Because the springs and seeps are discharging groundwater, contaminant concentrations could be as high as in the groundwater. Bank storage and mixing are additional processes, that to date have been poorly quantified, which may result in reduced exposure concentrations. The river level fluctuates daily in response to variable river discharge from the Priest Rapids Dam. Seasonal and annual fluctuations are also important. When the river level rises higher than the adjacent groundwater, river water flows into the river bank, a process termed bank storage. This river water is in contact with the groundwater and some degree of mixing occurs. As the river water level drops, the seeps resume discharging. Presumably the initial discharge from the seeps is significantly diluted with river water from bank storage. As the river level continues to drop or stabilizes, groundwater constitutes a progressively higher proportion of the spring/seep discharge.

It is EPA's position that until the magnitude of this mixing is better quantified and sufficient empirical data is available to show otherwise, seeps and springs must be assumed to contain groundwater contamination levels. Recently collected data under TPA milestone M-30-01 provided a good start towards defining the distribution of contaminated springs but gives little information on the degree of mixing and dilution in individual springs. The single round of sampling during a relatively high river flow year cannot be extrapolated to years of significantly different flow such as the current dry low-flow conditions.

On June 22, DOE and met with the regulators to discuss future efforts to characterize the springs/seeps. At that meeting DOE stated that the existing data was sufficient and therefore no additional springs/seeps sampling was needed.

DOE's position at that meeting is in conflict with DOE's previous approach to the springs/seeps investigation. It has been well recognized by all three parties that short and long term fluctuations in river level necessitate a monitoring approach rather than a single round of sampling. DOE's recognition of this has repeatedly been demonstrated. The following are four of what could be many examples:

1) In Steve Wisness's letter (91-EPB-027) dated June 28, 1991, regarding spring sampling, "One round of samples (water and sediment) will be collected...In subsequent years, sample only those springs shown to have (or with the potential for, considering bank storage) elevated contaminants."

2) In a handout to regulators on August 1, 1991 entitled Outline for river impact study appendix to work plans: Milestones M-30-01 and M-30-02, One of the goals for these two milestones is "Develop information to plan longer-term spring monitoring program." Under the spring sampling section of that handout, it

is stated "Based on the results of the first year's sampling and information from the data compilation task, a longer-term program for monitoring springs will be developed."

3) In the 100 Area operable unit Work Plans (100-KR-4, Draft E, quoted for example), "Field work will include a round of sampling (water and sediment) from every non-submerged spring and seep...Based on the results of the spring sampling program, information from the annual PNL Hanford Site environmental monitoring program, and the data compilation task, a long-term spring monitoring program can be developed. The springs to be sampled, constituents to be analyzed, and the duration of the program will be specified as part of this long-term monitoring program."

4) In DOE/RL-92-12 Sampling and analysis of 100 area springs dated February, 1992; DOE/RL recommends that "Sampling of springs in the vicinity of the 100 Areas Groundwater Operable Units should be continued". The intent to monitor in the future is also evident in suggested revisions to the sampling procedures. "The revision should be performed prior to the next sampling period".

We propose two alternatives to DOE for consideration that will satisfy our information needs: 1) Agree to use groundwater concentrations in risk assessment calculations of spring/seeps water, or 2) Conduct additional sampling including the anticipated low flow conditions of this fall that provides a technically defensible rationale for using concentrations other than groundwater for the risk assessment. In other words no additional seeps sampling will be required only if groundwater concentrations are presumed for the risk assessment calculations.

Ramifications of each of these two alternatives should be highlighted. If groundwater concentration is used, this may result in an over estimation of risk by direct contact. If the alternative of additional sampling is chosen, the regulators should be allowed to review the description of work for that effort.

DOE could also propose a hybrid approach to the two alternatives. Within the operable units where plumes are known to exist and wells have been or are being installed and monitored, this groundwater data could be used to represent the springs/seeps water concentrations. In probable non-plume areas where well data is not available or planned, confirmatory sampling of the springs/seeps could be conducted to ensure that unknown plumes are not overlooked.

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The Columbia River is an important pathway for ecological and human exposure to Hanford contaminants. All aspects of the river system with its springs and seeps are of high interest to the regulators and the public alike. It is disturbing that after negotiated approaches to data needs and written commitments by DOE to perform work, DOE would suddenly propose to cancel future efforts.

An urgency that is prompting this letter and a requirement for DOE to make a decision acceptable to the regulators is the current unusually dry conditions with subsequent low river flows. Last year the high river levels appear to have caused an elevation in the near-river water table and remobilized contaminants. This year is different. These mobilized contaminants may be discharging via springs at higher concentrations than in the past. If DOE chooses to conduct additional spring/seeps water samples rather than use groundwater contamination levels, it is important for DOE to reach a decision soon. The field team that would mobilize to conduct the sampling needs sufficient advance notice to prepare personnel and equipment. Therefore we request that DOE make a decision and response to this letter by July 1, 1992.

If you have any questions or concerns, please contact me at (509) 376-9884.

Sincerely,

Laurence E. Gadbois

Laurence E. Gadbois
Environmental Scientist

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