U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

03-ED-034

MAR 17 2003

Mr. Tom C. Fitzsimmons, Director
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504

Dear Mr. Fitzsimmons:

TANK FARMS VAPOR EXPOSURE ISSUES

Reference: Ecology letter from S. Lijek to D. L. Noyes, ORP, "Characterization and Toxicity of Tank Farm Air Emissions," dated February 6, 2003.

This letter responds to issues raised by Mr. S. Lijek of the State of Washington Department of Ecology (Ecology) in the above referenced letter regarding tank farms vapors. At the "State of the Hanford Site" public meeting in Kennewick, Washington, on January 29, 2003, members of the public (including current and past tank farm workers) voiced issues to the panel regarding tank farm worker vapor exposures. I called on Mr. Ed Aromi, President of CH2M HILL Hanford Group, Inc. (CHG), to advise members of the public at the meeting and the panel of the various studies carried out by CHG and independent experts to evaluate potential vapor issues. Mr. Aromi indicated that CHG and the U.S. Department of Energy (DOE) were aware of and were addressing the issues in a variety of ways, as discussed later in this letter. During the meeting we volunteered to work with you and your staff to provide Ecology with more information surrounding tank farm vapor issues, which are the responsibility of DOE under the Atomic Energy Act and the Occupational Health and Safety Act.

I want to confirm the extraordinarily high importance that DOE and its contractors place on worker safety. This is true of tank farm related vapors as well as every other aspect of tank farm operations that has possible worker or public safety ramifications. Vapors from tank wastes are a known phenomenon that DOE has dealt with for over a decade, continually improving its understanding of potential release mechanisms and hazards, and using that understanding to better protect its workers (the existence of such vapors is well documented in DOE tank farm related permit applications and in permits issued to DOE by Ecology). In addition to internal and independent external reviews, we have established communication channels that provide workers with a means to report tank related odors and to more easily obtain information related to questions they have, either through their supervisors or via special Intranet communication channels we have created. These means provide rapid and knowledgeable responses from individuals with expertise in the various areas identified as being of concern. We offer workers protective equipment beyond what is required under DOE Orders or worker safety regulations, to ensure their continued protection under both potential and perceived risk situations.

Because we do encourage and provide effective means for workers to report possible exposures and even odors they detect, and because we have solicited their questions to better understand and address their areas of concern, an increasingly significant dialogue has been established. We believe this is good for all parties. Anyone who reports an odor is offered a medical

evaluation. Anyone who reports symptoms is required to have a medical evaluation. In some cases minor, temporary symptoms (such as nasal and throat irritation, headache, and nausea) have been reported, investigated, and actions taken.

Specific actions taken recently to enhance worker awareness of and protection from tank vapors include the following:

- Established a worker-led Chemical Vapors Solution Team to improve hazard identification, controls, and communication and implemented all recommendations made by that team;
- Published answers to the nearly eighty employee questions that have been submitted on a web site available to all employees;
- Commissioned independent industrial hygiene data, monitoring, and toxicological reviews, most recently with Prezant and Associates and Environmental Medicine, Inc., both of whom have validated internal findings that our programs are effective;
- Improved chemical vapor monitoring;
- Improved the industrial hygiene instrumentation available to detect and document any worker chemical exposures;
- Emphasized each worker's opportunity for voluntary respirator use;
- Provided nuisance dust/odor masks to control odors below regulatory thresholds and increase worker comfort; and
- Are continuing to develop and provide improved worker chemical training.

We welcome Ecology input regarding tank farm vapor issues, but are concerned that the reasons Mr. Lijek stated represent a misunderstanding of the issues. I have provided the following response to the concerns expressed in Mr. Lijek's letter.

- *"Ecology continues to receive vapor release reports, suggesting safety concerns about tank emissions have not been resolved."*

  Ecology receives vapor release reports, in part to provide visibility on the actions taken to address any concern a worker may have regarding any unusual odor, vapor release, or exposure. The fact that vapors are released is not an unresolved safety concern; it is a recognized phenomenon inherent in the design and operation of the tanks that is dealt with via monitoring, training, procedures, protective equipment, and open communication channels. The continued vigilance we are seeing on the part of our tank farm workers, as evidenced by those reports, provides an added dimension of protection that helps ensure that if safety concerns do arise, they will be recognized quickly and addressed rapidly and effectively.

- *"Tentative tank headspace data tend to validate the issue that vapor toxicity may be understated."*

While we are unsure what Mr. Lijek meant by his use of the term *tentative*, we do know that we have extensive tank headspace data and that those data give us no indication that vapor toxicity is being understated. Those headspace data, which we use to formulate worker protection plans and actions, are published and available to Ecology.

- *"Ecology is also aware of spontaneous releases that occur without any certain or specific triggering phenomenon. Ecology understands fugitive releases like this occur periodically; these are often problematic because they are unanticipated and workers may be ill prepared for them. Ecology expects such incidents to be well documented in the operating record."*

  Spontaneous releases do not occur without any certain or specific triggering phenomenon. Rather, we experience fugitive vapor emissions from tanks that are triggered by events that change the atmospheric equilibrium in the tank systems; e.g., transient atmospheric conditions. This is because the single-shell tanks operate under atmospheric pressure. The existence of fugitive emissions is recognized in the permits that Ecology issues; it is recognized in our workplace procedures and worker protection programs; and it is an anticipated event when working in the tank farms. Industrial hygiene monitoring is performed in the field to detect vapors. Procedures instruct workers to ventilate enclosed areas (such as instrument cabinets) before inserting any part of their body; to leave an area if vapors are detected; and to report any exposure. Worker training instructs workers to expect and respond to fugitive emissions. As indicated in our environmental permit applications and industrial hygiene monitoring and protection plans, we anticipate emissions during retrieval operations as well. The bottom line is that vapor emissions are well documented although, contrary to Mr. Lijek's expectation in the letter, events will be included in the facility operating record only if the contingency plan is implemented (see Washington Administrative Code 173-303-380). No incident of this severity has occurred to date. All reported exposures are documented in injury reports. Occurrence Reports document exposures as required by our reporting criteria.

- *"Characterization and control of SST and DST emissions must be addressed and resolved prior to initiating a number of activities key to cleaning up the Single-Shell Tanks, operating the Double-Shell Tanks, and delivering feed to the Vitrification Plant.... ORP recognizes this is a characterization issue that impacts Project W-314: The U.S. Department of Energy, Office of River Protection's contractor considers the need to quantify toxic air emissions and/or to install a treatment system for controlling air emissions a 'risk' to the project."*

  This is more serious than other possible misunderstandings in Mr. Lijek's letter for several reasons. First, it misses the point that characterization is ongoing, and fugitive vapor emissions are now and will be controlled within environmental regulatory limits as we are striving to move ahead with cleaning up. Second, the implication that Ecology would delay cleanup actions until fugitive emissions are further characterized and controlled is not justified. The characterization and control of emissions is already addressed in

environmental permitting documents. Ecology has previously reviewed new source reviews and approved permits for vapor emissions from ongoing tank farms activities because emissions were conservatively estimated to be well below any environmental regulatory limits. Monitoring during operations has verified environmental regulatory limits are not being exceeded. New source reviews and permit applications for future activities have ensured, and will continue to ensure, that vapor emissions are within environmental regulatory limits. Third, Project W-314 exhausters were specifically designed to allow installation of abatement control systems if necessary. Construction of Project W-314 is being done under new source reviews provided to Ecology and Ecology approved the necessary permits. Future new source reviews and permit applications will continue to ensure that emissions from equipment installed under Project W-314 will control emissions within environmental regulatory requirements during operation of this equipment.

In closing, we welcome Ecology's taking an independent look at the tank vapor concerns raised by tank farm workers and at the measures we have put into place to address those concerns. We encourage Ecology personnel who may become involved in this review to meet with us and verbalize their observations and questions in an open and collaborative manner.

I look forward to briefing you more fully on the vapor exposure issues at your earliest opportunity. I have requested CHG to arrange a technical briefing for your staff to share the extensive information that is available on the investigations conducted and the protective measures in place to protect our workers from vapor exposures.

If you have any questions, please contact James E. Rasmussen, Director, Environmental Division, (509) 376-2247.

Sincerely,

Roy J. Schepens
Manager

ED:WR

cc: See page 5

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