Responses to Comments in Letter CP1 from Margaret Eckenfelder, Assistant Deputy Minister, British Columbia Ministry of Water, Land and Air Protection

Note: The responses listed below are organized by individual pre-filed testimony. They are numbered to correspond to the numbers shown in the right-hand margin of the preceding pre-filed testimony.

Pre-Filed Testimony of David V. Bates

1-5. These comments are outside the scope of this SEIS. Air quality impacts were evaluated in the February 2001 FEIS.

Pre-Filed Testimony of Jerry G. Lilly

1. SE2's expert witness (Frank Brittain) indicated that SE2 has not yet begun its final design for noise control and that the sound power levels in the Second Revised ASC were only preliminary and probably conservatively high. Therefore, publication of preliminary modeling results in the Second Revised ASC would be of little value. Instead, Section 3.4 of the SEIS has been revised to recommend a special condition in the SCA requiring SE2 to submit preliminary design packages (and predictive modeling based on the actual design) for review and approval prior to plant startup. These packages would confirm whether the plant would comply with all numerical noise limits for low-frequency noise, tones, and A-weighted noise

2. The predictive modeling and post-startup ambient monitoring should address pure tones. Section 3.4 of the SEIS has been revised to recommend a special condition in the SCA requiring SE2 to comply with the state of Oregon's ambient limits for pure tones.

3. The predictive modeling and post-startup monitoring should include noise-sensitive receivers representing dwellings in both the U.S. and British Columbia. Section 3.4 of the SEIS has been revised to reflect this recommendation.

4. The results of the post-startup monitoring should be published as soon as the data are verified, and SE2 should be required to implement any corrective mitigation as soon as practical. Section 3.4 of the SEIS has been revised to recommend special conditions in the SCA to address these expedited schedules.

5. Post-startup noise monitoring for pure tones should focus on periods where background noise is low. Section 3.4 of the SEIS has been revised to reflect this recommendation.

6. Please see response to Comment 1.

Pre-Filed Testimony of Michael F. Lepage

1-7. These comments are outside the scope of this SEIS.

Pre-Filed Testimony of R. Allan Dakin

1. The applicant has committed to developing a groundwater monitoring program to evaluate the impact of this pumping on private and commercial wells in both Washington and British Columbia. Whereas the applicant does not anticipate that the effects would be significant beyond a mile from the Sumas well fields, it would conduct additional testing to evaluate and refine the theoretical zone of interference, and seek permission from owners to provide monitoring in any areas where there is a potential for adverse impacts.

2. The water rights for the city of Sumas include mitigation for reduction in streamflow to Johnson Creek. This mitigation was developed by the Washington Department of Ecology based on streamflow monitoring during a 7-day-long aquifer test. Elsewhere within the theoretical zone of drawdown interference, the aquifer is relatively deep and/or not in contact with surface waters. To the extent that the city's use of its water rights would reduce the amount of water in the aquifer, this would ultimately also reduce regional baseflow. However, the city's total water rights constitute only a small part of the total aquifer and the total flow in the Johnson Creek surface water basin, and surface discharge points are presumably at the Sumas River, which is a considerable distance from the city's wells. Consequently, the resultant reduction to baseflow resulting from water consumption by the S2GF would not likely be detectable. Therefore, assuming the actual area of drawdown interference (once it had been established by additional testing) does not extend below any stream channels, a monitoring program would not likely be capable of detecting any reduction in baseflow that could be attributed to this use. Jones & Stokes concurs that there would be no viable means of mitigating any reduction in baseflow, other than to reduce pumping from the aquifer, either at the city's well fields or from some other well or point of surface water withdrawal.

3. The applicant has indicated that the wells to be monitored would be identified based on a) a well survey (in Washington and British Columbia) to locate all wells within at least 1 mile of the city well fields, and b) additional hydrogeologic testing to better evaluate the zone of drawdown interference. The applicant has also indicated that it would investigate any reported adverse effects when advised of them, rather than waiting for a year, and it would develop an appropriate and timely mitigation. The applicant also described the types of mitigation measures that could be implemented, and specified the frequency of monitoring, both before and after the plant startup. As indicated in the SEIS, groundwater monitoring would be performed quarterly in all wells (where access is granted) within the predicted zone of interference for 1 year before project startup, and monthly for a year thereafter. The frequency of monitoring would be adjusted as

warranted thereafter, and would be subject to EFSEC review and approval. See response to Comment 2 with respect to monitoring surface water.

4. It should be recognized that the increased pumping required for this project or any other use that the city of Sumas makes of its water rights would not affect the groundwater quality; this could be only controlled at the source of the contamination, which is predominantly associated with agricultural operations in the uplands northwest of Sumas, primarily in Canada. There is a potential that increased pumping could locally change groundwater flow rates sufficiently to have a small effect on the timing of a plume of nitrate contamination reaching (or leaving) a nearby well. However, for a variety of reasons summarized below, it may not be reasonable to expect SE2 to assume responsibility for such fluctuations.

   - Based on a 1999 study by Environment Canada, a large percentage of the wells in the aquifer northwest of Sumas already contain nitrate at concentrations above the drinking water quality standards. Environment Canada also found that nitrate levels are generally increasing and estimated that if all contamination ceased today, it would take up to 50 years for the nitrate to pass out of the aquifer. These findings indicate that there is a strong possibility that nitrate concentrations in any given well in the area could increase over time, regardless of groundwater extractions at the Sumas city wells.

   - Based on extensive hydrogeological studies by the U.S. Geological Survey and Environment Canada, a large number of variables preclude the possibility of determining whether increased pumping would increase or decrease nitrate concentrations in any given well. Similarly, a number of variables would preclude being able to determine whether an observed increase or decrease in concentration was the result of an increase in pumping. Notably, other factors that would have much greater influence on increasing nitrate concentrations in a given well include rainfall or irrigation, which infiltrate the soil and carry nitrates down to the water table; a higher water table, which reduces the distance that nitrates must travel to reach the aquifer; groundwater pumping in the immediate vicinity of the well in question; use of residential septic systems; and most importantly, the upgradient applications of nitrate-rich fertilizers, manure, or nitrate enhanced irrigation water. It would not be feasible to determine what mechanisms caused the nitrate concentration to increase or decrease in any given well at any given time without fully understanding each of the above factors, fully characterizing the hydrogeology of the aquifer, delineating every nitrate plume, and documenting all potential sources of contamination that could lead to a change in nitrate contamination.

   Increased pumping would have no effect on the processes described above. Rather, it would result in slightly increasing the rate of groundwater flow along with any nitrate contamination dissolved in the groundwater. Therefore, a nitrate plume upgradient of a well could reach that well somewhat sooner than it would if there had been no increase in pumping; likewise, the increase in pumping would also cause the plume to pass somewhat faster. Although an increase in pumping may influence the timing of such an

impact, it would not cause it to occur. Moreover, the city of Sumas holds the water rights and presumably will use them, thereby increasing future pumping, regardless of whether it sells water to SE2.

Pre-Filed Testimony of Robert B. Caton

1-7. These comments are outside the scope of this SEIS.

Pre-Filed Testimony of Yaroslav Shumuk

1. The modeling that the applicant is performing will be based on the selected storms rather than a storm frequency approach. The applicant will also run the model using flows that are roughly 150% of the peak rates at the Deming gage on the Nooksack River to evaluate the potential for especially severe flooding. At this time, the applicant has not indicated that it would run the model for larger floods equivalent to the 200- or 500-year events. However, there is no real basis for calibration of such modeling as the record of flooding has not included such large events. Also, once the site has been overtopped, it would not likely contribute significantly to any further impacts. Since the facility would be designed to be just above the 100-year flood, any increased impact from the site during larger floods would be relatively minor compared with the impact of a flood that only reached the crest of the site fill.

2. The unsteady-state model has yet to be completed. The applicant has indicated that it will address rerouting of flows as well as loss of overbank storage. Also, the applicant has indicated that it will use the model to evaluate the effectiveness of any mitigation measures, if such measures are warranted. However, given the size of the floodplain relative to the size of the proposed facility, it is expected that there would not be a significant impact, particularly if mitigation measures are implemented to address the loss of such capacity.

3. Please see response to Comment 2.

4. The modeling being performed by the applicant will take into consideration recent fills at other sites in the area, and will therefore address cumulative effects to date. Given the very large size of the floodplain relative to the footprint of the proposed facility, the impact from this site would not likely be noteworthy. If mitigation is required based on the unsteady-state modeling, the resultant impact after mitigation would be even less. While filling of this site would likely contribute to a cumulative impact if a much larger area were to be filled, the contribution still would not likely be noteworthy.

5. The applicant has committed to providing reasonable mitigation for any significant impacts identified by the unsteady-state model. Potential mitigation measures would be evaluated using the unsteady-state model.

6. The applicant has indicated that it would use the unsteady-state model to develop an appropriate mitigation proposal, taking into consideration how much compensating storage would be required and where it would need to be located. The difficulty with accomplishing this would likely depend on how much mitigation would be required, which has yet to be determined. The second step, finding a landowner that would be willing to allow the compensation to occur on his or her property, could be difficult to accomplish. However, this too would likely depend on how much actual mitigation would be required to compensate for the fill placement on site.