

**DEPARTMENT OF ECOLOGY
NORTHWEST REGIONAL OFFICE
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Memorandum

May 5, 2001

TO: Ray Hellwig, Director, Ecology Northwest Region
Ann Kenny, Ecology NWRO Shorelines and Environmental Assessment

THROUGH: Kevin Fitzpatrick, Ecology NWRO Water Quality Section Manager

FROM: Dave Garland, Ecology NWRO Water Quality Nonpoint Unit

SUBJECT: *Report of Discussion on 'Slice Model Integration' relating to
"Sea-Tac Airport Master Plan Update Low Streamflow Analysis"
Earth Tech, December 2000*

This is to document a meeting I had on April 20, 2001 with Pony Ellingson and Crispin Prah of Pacific Groundwater Group (PGG) regarding methods of integrating results of the 'slice model' (PGG, June 2000) over the length of the proposed 3rd runway embankment in order to provide improved estimates of embankment drainage. Pony had indicated earlier that the so-called 'slice model' actually consists of several modeling tools which are linked together to provide a cross-sectional estimate of runway embankment drainage. The most important of these models are known as 'Hydrus' and 'Slice'. In general terms, Hydrus accounts for vertical percolation of water through the embankment and Slice divides the percolating water into shallow and deep recharge components and accounts for horizontal transport of infiltrated groundwater to its discharge at the embankment toe.

At our meeting on April 20, Pony recommended that PGG improve the existing drainage estimate by rigorously integrating vertical infiltration over the embankment footprint using Hydrus and perform a more qualitative assessment of the horizontal Slice component. I agreed with Pony that his recommendation would improve the accuracy of the existing embankment drainage estimate and would satisfy Ecology's concerns regarding the accuracy of the drainage estimate presented in "Sea-Tac Airport Master Plan Update Low Streamflow Analysis" (Earth Tech, December 2000). These concerns were expressed in my memo to Kevin Fitzpatrick and Ann Kenny dated March 9, 2001.

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