Maury Island Gravel Mining Impact Studies

Project Startup Fact Sheet – October 1999

Public Workshops

In addition to the two Fact Sheets, information will be provided in two Public Workshops:

Tuesday October 26

Topic: Review of Work Plan for Maury Island Studies

7 to 9pm at Chautauqua Elementary School Multi-Purpose Room, 9309 SW Cemetery Road, Vashon, Washington.

June 2000

Topic: Results of Maury Island Studies

(Details to be provided at a later date).

Contact Information

Questions about the Maury Island Studies can be directed to:

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This Fact Sheet provides information about studies that the Washington State Department of Ecology (Ecology) has contracted to assess the environmental impacts of gravel mining on Maury Island. The first in a series of three Fact Sheets, it provides a brief overview of the project objectives and the work to be conducted to meet these objectives. Two other Fact Sheets will be issued:

- A *Mid-Study Fact Sheet*, based on interim findings, will discuss how future project tasks will be designed to address data needs.
- A *Project Completion Fact Sheet* will summarize the conclusions of the studies, including predicted impacts to the hydrogeology (groundwater and surface water) and nearshore environment

Background

Northwest Aggregates Company, a subsidiary of Lone Star Northwest, Inc., has applied to increase its rate of gravel extraction from an existing mine located on the eastern shore of Maury Island. This proposed action is currently in review under the State Environmental Policy Act (SEPA) process. A draft Environmental Impact Statement (DEIS) for the site was prepared for King County in July 1999 (Jones and Stokes, 1999). Earlier this year, the state legislature determined that independent studies of the mine's environmental impacts are needed. The legislature gave Ecology the responsibility to manage the studies, which will be conducted under contract with Pacific Groundwater Group of Seattle.

Areas for Investigation

Investigations will be conducted in the following four topic areas to fully assess the impacts of the proposed mining: groundwater, surface water, nearshore environment, and contaminated soils. Each topic is discussed below.

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Because the Maury Island studies are multidisciplinary in nature, they will be conducted by a team of consultants:

Pacific Groundwater Group: Groundwater and soil investigations, project management, and public involvement

Herrera Environmental Consultants: Surface water work and review of predesign engineering studies (stormwater detention/infiltration and soil containment cell)

EVS Consultants: Nearshore assessment work

***Attention Well Owners South of SW 240th Street**

If you live on Maury Island and own a water well, please consider being part of the well survey. The information you provide may be valuable for understanding groundwater flow patterns on the island. All you need to do is to fill out the form on the back of this Fact Sheet. Once we contact you, we'll ask for any information you can provide about the construction of your well. Depending on the depth and location of your well, we may come to your house to obtain a water-level measurement.

Groundwater

The groundwater systems that lie beneath the mine site are well understood because significant work has already been done. Previous investigators have described relationships between shallow aquifers underlying the study area. However, further investigations are needed to better understand how water in the *Principal Aquifer* is recharged, since recharge to this aquifer will probably change as a result of mining.

The current studies will address changes in recharge by characterizing groundwater flow patterns on site and off site. Some of the data required to do so is already available from previous studies; some will be obtained by drilling and installing five new wells—two on site and three off site—at strategic locations. Groundwater flow will also be assessed by measuring water levels in existing on-site and off-site wells. These wells will be located during an extensive field survey.*

Through these and other tasks, the conceptual model of groundwater flow at the site developed by previous investigators will be refined. It will be used to develop two computerized, mathematical models. The first of these, a spreadsheet-based model, will estimate the timing and magnitude of recharge under current and proposed mine conditions. The second will be a numerical groundwater flow model that will ultimately be used to predict and quantify impacts to the *Principal Aquifer* and local wells. After the numerical model has been "calibrated" to field conditions, it will be reviewed by an independent expert so that it is scientifically sound and technically unbiased.

Surface Water

The DEIS and supporting documents report that the site features no surface water but has several springs along its eastern bluff face. These conditions will be verified as part of the current studies. Although information about the location and flow rate of the springs exists, the water quality of the springs needs additional characterization. To meet this objective, water samples from the springs will be collected for analysis of dissolved solids, metals, nitrates, and other chemical constituents. Potential changes in spring flow rates resulting from mine expansion will be assessed using the numerical groundwater flow model.

These data can be used to help measure the impacts of mine expansion to on-site springs, an issue that was not specifically addressed in the DEIS or other site documents.

Nearshore Environment

Investigations for the nearshore environment in Puget Sound will focus on characterizing the habitats and species of fish, bottom-dwelling invertebrates, and marine mammals near the mine site. Critical resources that will be characterized in detail include:

- Fisheries habitat for commercially important species and for threatened or endangered species such as Puget Sound chinook salmon and Pacific herring
- Habitat for benthic, or bottom-dwelling, organisms
- Nearshore sediment quality

The project team plans to document features of the nearshore habitat such as sediment grain size, sediment surface features, and the location and lateral extent of eelgrass patches. Nearshore sediment samples will be collected to provide current information on sediment chemistry and analyzed for trace metals, organic carbon, total solids, hydrocarbons, PCBs, and chlorinated pesticides. This information will serve as a baseline against which future changes in sediment quality may be measured.

The project team will also identify the marine species of concern that are known or expected to use the project area and assess their sensitivities to potential impacts of the project. This information will provide a basis for evaluating potential impacts to communities or populations of these species.

Contaminated Soils

Soil contaminated with arsenic has been found on site. The source of this contamination is believed to be the ASARCO smelter in Tacoma. The nature and extent of this soil contamination has been characterized previously and will be further characterized in the next year. The data show contamination in the upper 18 inches of soil, which will be removed and contained on site under Lone Star's proposal for mine expansion. Sand and gravel from below the upper 18 inches will be mined and taken off site for its intended use under the current proposal. For these studies, the existing soil and soil leaching data will be summarized but no additional investigations are planned. The engineering integrity of the proposed contaminated soil containment system will be reviewed as part of the studies.

Potential Impacts on Nearshore Environment

In addition to characterizing current features of the nearshore environment, the Maury Island Studies will investigate:

- Noise from construction activities
- Turbidity
- Loss of habitat due to piling installation
- Spills or leaks of petroleum hydrocarbons
- Sediment disturbance from propeller wash
- Changes in habitat due to shading by barges
- Accidental spills of sand and gravel
- Piling installation effects on longshore sediment transport

Comment Form

Do you have comments about the information contained in this Fact Sheet? If so, write them on this form, tear it off, and send it to *Dave Garland* at the address shown below. Be sure to include a return address.

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❑ Yes, I own a well and would like to be part of the well survey. You can contact me at the following address and telephone number:

Name _____

Address _____

Phone _____

Water Quality Program
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