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BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 99-1

SUMAS ENERGY 2 GENERATION
FACILITY

EXHIBIT T ____ (DD-T)

CITY OF SUMAS PREFILED TESTIMONY

WITNESS DAVID DAVIDSON

Q. Please introduce yourself to the Council.

A. My name is David Davidson. I am the City Administrator for the City of Sumas, Washington.

Q. What is the subject of your testimony?

A. I am testifying about two subjects. First, I will describe Sumas' position with respect to the revised SE2 application now before the Council. Second, I will testify with respect to the issue of the modeling of flood impacts associated with the SE2 proposal, and the applicability of the model developed by Sumas during preparation of its Floodplain Management Plan.

Q. Please refresh the Council with respect to your background and your qualifications to speak to these issues.

A. I received a Master's degree in public administration in 1992 and began work as a municipal administrative and planning consultant. I worked in a consultant capacity for the City of Sumas and other small cities until 1997, at which point I took a position as City Administrator for the City of Sumas. During my 8 years of association with Sumas I have focused primarily on planning and public works issues. I have helped the City develop several plans, including a Comprehensive Land Use Plan, Shoreline Master Program, Floodplain Management Plan, Wellhead

1 Protection Program, and Water System Comprehensive Plan. With respect to City's
2 Floodplain Management Plan, I was the project manager as well as the primary
3 author of the plan document and its associated EIS. The flood modeling performed
4 during the process was completed by an engineering consultant, but the text
5 summarizing the modeling results and analyzing impacts of alternatives was written
6 by me. I am also Sumas' representative on the International Task Force that is
7 working on cross-border flooding issues.

8 **Q. What is Sumas' position with respect to the revised SE2 application?**

9 A. The City Council continues to support the SE2 proposal and notes that the revised
10 application squarely addresses the weaknesses of the prior proposal as identified in
11 the City's closing argument last fall. Elimination of the diesel-fired option (and its
12 associated storage tank), coupled with a commitment to full offset of PM10 and
13 NOx result in a project that the City of Sumas supports without reservation.

14 **Q. Moving to the second subject of your testimony, why is Sumas submitting
15 testimony regarding the issue of flood modeling?**

16 A. The City is dismayed by the Council's prior findings relative to the usefulness of the
17 City's flood model for analysis of the SE2 proposal. We believe the Council has
18 given inappropriate weight to Whatcom County's opinion about the inadequacy of
19 existing modeling. We wish to present information that will broaden the Council's
20 perspective with regard to the issue of flood impacts. Some information relates to
21 the plan development process and Whatcom County's involvement within that
22 process. Other information relates to modeling methodologies themselves. Finally,
23 some information relates to the expected severity of the impacts.

24 **Q. Please begin by providing information about the planning process.**

25 A. The process began in 1996. The City applied to the state Department of
26 Community, Trade, and Economic Development (DCTED) for a grant. **Exhibit** ____
(DD-1) is two pages of the grant application, and as can be seen at the top of the
second page, a specific goal of the project was to develop a modeling tool that
would be able to model impacts associated with development proposals. That goal
was at the heart of the process we undertook. After receiving the grant, we
assembled a planning advisory committee and began the process of retaining a
modeling consultant. **Exhibit** ____ (DD-2) is a copy of a memo I wrote just prior to
interviews of prospective consultants. As you can see, our advisory committee
included John Matzinger (Whatcom County Flood Engineer), Ed Regts (engineering
director for the City of Abbotsford), and Richard Grout (Department of Ecology
field office manager). Slightly further into the memo it becomes obvious that the
issue of model technology was very relevant to our decision. Two of the firms
proposed to use 1D unsteady-flow models, and two others proposed 2D steady-flow
models. Among the issues raised in the interview process was the "state of the art"
with respect to 1D unsteady-flow modeling. We learned that 1D unsteady-flow
modeling was as yet rarely used and that Dupage County, Illinois, had faced a
multiple-year struggle in their attempts to have their 1D model results recognized by
the Federal Emergency Management Administration (FEMA), the agency

1 responsible for generating flood insurance rate maps. In contrast, 2D steady-state
2 models were in wider use and were readily accepted by FEMA. Of course, the
3 models most commonly used, both then and now, are the traditional 1D *steady-state*
4 models that have been in use for decades. Recall that 95 percent of flood modeling
5 is still done with traditional 1D steady-state models (Carlton, Ex. 150, p. 5). In the
6 aftermath of the interviews, the advisory committee, including Whatcom County
7 Flood Engineer John Matzinger, recommended that Sumas hire KCM, Inc., who
8 proposed use of the 2D steady-state model FESWMS.

9 **Exhibit** ____ (DD-3) is the minutes of a meeting of the advisory committee that
10 occurred in February 1997. Note that the specific issue of modeling fill within the
11 Sumas industrial area was discussed. As part of that discussion, the three
12 professional engineers in the group (Ed Regts of Abbotsford, John Matzinger of
13 Whatcom County, and Tony Melone of KCM) reached consensus that the filling of
14 the entire industrial area would have an insignificant impact upon flood levels
15 downstream of Sumas, at the Canadian border. The committee marched forward
16 with this knowledge, with the consent of the Whatcom County Flood Engineer.
17 When the planning process was completed, a Draft EIS and plan were circulated to
18 interested parties, including Whatcom County. No comments were received from
19 the County, and the plan was finalized in November of 1997.

20 **Q. Was the relative novelty of the 1D unsteady-flow methodology the only factor
21 influencing the decision to use a steady-flow model?**

22 A. No. Another factor involved the *nature* of the impact expected to be caused by
23 development in the floodplain. In prior evidence (Cooper, Ex. 91, p. 4) we have
24 heard that there are impacts associated with obstructing conveyance capacity within
25 the flood channel, as well as impacts associated with consuming storage capacity
26 within the floodplain. Even during the interview process at the onset of Sumas'
planning, we understood that the conveyance-related impacts associated with
development were of far greater significance in the Sumas setting. The 2D steady-
flow model is superior at the accurate representation of flood flow around features,
as stated by Carlton (Ex. 150, p. 4), and with no dispute from any other witness or
evidence.

Q. Why were the storage-related impacts deemed less important?

A. Because of the size of the Nooksack overflow corridor relative to the Sumas
industrial area. The overflow corridor is over 11 miles long, stretching from
Everson to the Barrowtown Pump Station in Abbotsford, and in a flood like the
1990 event (estimated to be between a 35-year and 50-year event), the floodplain
stretches laterally a distance of half a mile or more over much of that length. Within
such a setting, the displaced storage volume associated with filling the Sumas
industrial area is minuscule compared to the volume of the floodplain itself.

**Q. Facing the same choice today, i.e., whether to use a 1D unsteady-flow model or
a 2D steady-flow model to analyze development in Sumas, would you make the
same decision again?**

1 A. Yes.

2 **Q. Exhibit ___ (DD-3) and some of your earlier comments focus upon expected**
3 **storage-related impacts downstream of Sumas, at the Canadian border and**
4 **beyond. What about storage-related impacts upstream of Sumas, in**
5 **unincorporated Whatcom County?**

6 A. That is a question that has not been clearly addressed in prior evidence. The
7 dominant physical feature that affects flood storage and elevations in the vicinity of
8 SE2 is the Burlington-Northern rail line that separates the industrial area from the
9 commercial and residential districts. The rail embankment is in effect a large weir,
10 at an elevation of about 44 feet above sea level that impounds water in a pool
11 encompassing the SE2 site. The *upstream* storage-related effects of filling the SE2
12 site are limited to the expanse of floodplain associated with that pool, which is an
13 expanse that does not even reach southwest as far as Garrison Road. Further to the
14 southwest, the land is at higher elevations, ultimately reaching an elevation of about
15 85 feet in Everson.

16 **Q. In prior evidence, it was pointed out that the County Comprehensive Flood**
17 **Hazard Management Plan calls for analysis of the Nooksack floodplain and the**
18 **overflow corridor with a 1D unsteady-flow model, and that Sumas' Mayor sits**
19 **on the advisory committee that helped develop that plan. Does Sumas support**
20 **that modeling effort?**

21 A. Yes. The Mayor supported development of that plan, including the proposed
22 modeling. Some of the important management options contemplated for the
23 Nooksack can only be resolved by accounting for the impacts associated with
24 changes in storage capacity within the floodplain. For example, Whatcom County,
25 through the auspices of its affiliated special purpose diking districts, has built miles
26 of dikes along the banks of the Nooksack, which have had the effect of removing
large amounts of storage capacity from the Nooksack River floodplain. The County
plan now contemplates the possibility of lowering or removing some dikes in order
to restore floodplain capacity. As an example more relevant to Sumas, the County
plan also describes the concepts of construction of new capacity within the overflow
corridor in order to attenuate flows reaching Sumas and Abbotsford, and
construction of a levee at Everson that might regulate the overflow in a designed
manner. The 1D unsteady-flow model is crucial to analysis of all the above options,
each of which involves large changes in floodplain storage capacity.

Sumas also hopes that the County's 1D model will provide an accurate hydrograph
of the peak flows that will reach Sumas during various levels of flooding,
particularly during the 100-year flood. With such a hydrograph, we will be able to
easily re-run our detailed 2D model to gain an accurate picture of the extent of the
floodplain, and to analyze impacts of development.

Please understand that different models are built for different purposes and at
different levels of detail. It is not inconsistent for Sumas to support development of
a system-wide 1D model, while at the same time using a much more detailed 2D
model to conduct site-specific analyses in town.

DAVID DAVIDSON

PREFILED TESTIMONY - 4

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1 **Q. You mentioned a plan concept of building new storage capacity in the overflow**
2 **corridor in order to reduce flood impacts in Sumas and Abbotsford. Is this the**
3 **concept referred to by Paula Cooper (Cooper, Tr. 1082) when she estimated the**
4 **economic cost of the SE2 fill?**

4 A. Yes.

5 **Q. Is this concept now in implementation?**

5 A. No. It is thus far only an idea to be studied. The idea is to raise County roads lying
6 between Everson and Sumas in order to impound more water and reduce the flood
7 impacts in Sumas and Abbotsford. As I recall, about 11,000 acre-feet of storage
8 was described, and a rough cost estimate of \$38 million was given as the cost for
9 actual construction, as well as compensation of impacted landowners. This concept
would be implemented years from now, if at all, given the certainty of opposition
from impacted County residents.

10 **Q. With respect to placement of fill in the floodplain, does the County have some**
11 **monetary mitigation policy and program in place today?**

11 A. No. County ordinance allows fill in the floodplain, as do the ordinances of Ferndale
12 and Lynden. Fill permits are issued by Whatcom County for fill sites in the
13 floodplain in County jurisdiction, with no request for compensatory payment, and
14 with no 1D unsteady-flow analysis. The City of Lynden sewer treatment plant
15 expansion and storm water retention ponds were built in the Nooksack floodplain,
16 with no prior modeling of impacts. The County has also not fought significant
developments within the floodplain in other cities. For instance, the Samuel's
furniture store expansion in Ferndale was built in the Nooksack floodway, with no
opposition from the County. Clearly, with respect to this SE2 proposal, the
County's request for analysis and mitigation is inconsistent with prior practice in
other areas of the County.

17 **Q. Are there other County plans that support the notion of development within**
18 **the Sumas industrial area?**

19 A. Yes. The Whatcom County Comprehensive Land Use Plan contains policy
20 statements in support of industrial development in Sumas. An interlocal agreement
21 between Whatcom County and Sumas echoes those policies. And, of course, the
22 Urban Growth Area boundary for Sumas, which included flood-prone land slated
23 for industrial development west of the B-N rail line, was established by Whatcom
24 County ordinance. The balance between need for industrial land and impacts
associated with floodplain development was specifically addressed in the County
plan. The County recognizes that Sumas is surrounded by various resource lands
and critical areas (i.e., floodplain), but also recognizes that for other reasons, Sumas
is a reasonable site for industrial development.

25 **Q. Is there a stricter regulatory framework north of the border in Canada?**

25 A. I don't know the details of the framework north of the border. I know, however,
26 that Abbotsford recently added a 10-inch layer of asphalt along 3,000 feet of road

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that abuts the international border, north and northeast of Sumas. In effect, Abbotsford’s road improvement will cause greater flood storage directly within the City of Sumas. This road overlay, which has substantial storage- and conveyance-related impacts in Sumas, was apparently viewed as insignificant by Abbotsford, which did not bring the project to the attention of Sumas or the International Task Force. Abbotsford has also allowed many dozens of acres of Fraser River floodplain to be filled in order to build the big-box retail outlets just north of Sumas.

Q. Knowing that SE2 has already committed to perform the 1D unsteady-flow model requested by the County, what is the point of all of the above testimony?

A. The point is to provide EFSEC with more of the context surrounding the issue of flooding, so that they are able to later put modeling results into the best perspective. We don’t know how the 1D modeling process will unfold. SE2 witnesses Hsueh-Ju Chang and Douglas Sovern both describe the complexity of the 1D unsteady-flow model development process, and the possibility of difficulties that could delay the availability of results (Exhibit DS-T, p. 3, and Exhibit HC-T, p. 6). The County has spent almost two years creating its 1D unsteady-flow model, and to the best of my knowledge, the model is not yet in use – i.e., the County itself has not, to this date, subjected any development proposal to 1D unsteady-flow modeling. All of this effort is in order to study the relatively insignificant storage-related impacts, when an upper bound of the conveyance-related impacts, which are more relevant in this instance, has already been determined with a state-of-the-art modeling tool – a tool that was developed by Sumas, with the help and advice of Whatcom County, at a cost of one year of effort and \$100,000.

When the dust settles upon this SE2 process, whatever the outcome, Sumas will still be in the business of regulating development within city limits. EFSEC Order #754 serves to undermine the credibility of the tool we developed to help us in this effort. We ask that EFSEC be mindful of these circumstances in its future deliberations. 1D unsteady-flow modeling should not become the new standard required to develop in Washington State.

END OF TESTIMONY