

Dear Dick,

Thanks for sending us the committee's questions on DUSEL-Cascades. While we present responses below, we hope the committee has also had a chance to consult the references, <http://www.int.washington.edu/s2/>. References 2, 4, and 5 are publicly available reports addressing the wilderness issue, the UW's public outreach and mitigation strategy, and the SEPA/NEPA and permitting process. Reference 11 discusses the current collaboration and one long-term model for laboratory management. The references also include our detail project development plans, costing, power estimates, conceptual drawings, etc. – important information for the Panel.

What is the other source of your funds required for the borehole? Given that the NSF has indicated grants will be no more than \$500K, we recognize that additional funds will be needed to complete the envisioned work (portal horizontal coring, *in situ* stress test under Cowboy Mountain (the large detector site off the Pioneer Tunnel), and to continue predesign efforts for the underground laboratory (and surface campus). The University of Washington and the Washington State Office of Community, Trade, and Economic Development (CTED) are expected to provide additional support. In addition, other partners discussed below are likely to provide largely “in kind” support enabling us to further leverage any investment made by the NSF. The University of Washington, the Murdock Foundation, and the Washington State CTED have already made substantial contributions: our estimate is about \$600K in actual costs and perhaps \$1M in faculty and technical staff support, to date. PNNL staff did some of the geological fieldwork and performed the U and Th analyses. These and other partners in the collaboration would be asked to continue such help over the next year. Burlington Northern and CTED are also keenly interested in our Cascade Tunnel plans (the final draft was posted April 8 on the web site cited above), and will be asked to contribute to that effort.

Proposal coring costs were based on commercial engineering bids. However, in-house faculty and staff of the UW and its partners could shoulder some portion of that work. The Cascade Tunnel Report is a good model. UW faculty and staff, a collaboration ventilation engineer, and two commercial engineering firms (Shannon & Wilson and Parsons Brinckerhoff) collaborated on this study, reducing the cost.

Other tasks important to the initial coring, which will be handled by the University's DUSEL Office without commercial engineering help, were not listed in the conceptual proposal. These are detailed on the project sheets attached as a separate PDF file.

Several of our partners have extensive expertise in geotechnical exploration, analysis, and modeling. One of these is PNNL. Another is supporting our efforts, but is also leading its own DUSEL proposal. We think one outcome of the NSF Panel Report will be a focusing of talent and effort on a few potential sites. We

DUSEL CASCADES

ID	Task Name	Duration	Start	Finish	Resp.	2006												
						A	M	J	J	A	S	O	N	D	J	F	M	
1	Conceptual Design Proposal submitted to NSF	0 days	Mon 2/28/05	Mon 2/28/05														
2	S2 Selection	0 days	Wed 6/1/05	Wed 6/1/05														
3	Funding - Awarded as result of S2 Selection	0 days	Mon 8/1/05	Mon 8/1/05														
4	Portal Coring for Study	217 days	Mon 5/2/05	Tue 2/28/06		5/2	[Bar]											2/2
5	Portal Field Work	44 days	Mon 5/2/05	Thu 6/30/05		5/2	[Bar]		6/30									
6	Seismic Permit/Testing	65 days	Mon 5/2/05	Fri 7/29/05		5/2	[Bar]			7/29								
7	Acquire Mineral Rights	44 days	Mon 5/2/05	Thu 6/30/05	TCR	5/2	[Bar]		6/30									
8	Botanical Survey	44 days	Mon 5/2/05	Thu 6/30/05	MAC	5/2	[Bar]		6/30									
9	Historical Research Survey	44 days	Mon 5/2/05	Thu 6/30/05	MAC	5/2	[Bar]		6/30									
10	Coring permitting	44 days	Fri 7/1/05	Wed 8/31/05														
11	Coring Water Permit	44 days	Fri 7/1/05	Wed 8/31/05														
12	Drilling RFQ	22 days	Wed 6/1/05	Thu 6/30/05														
13	Drilling Co. Selection	21 days	Fri 7/1/05	Fri 7/29/05														
14	Drilling	65 days	Mon 10/3/05	Fri 12/30/05														
15	Analysis/Report	42 days	Mon 1/2/06	Tue 2/28/06	SW													
16	Cascade Coring for Study	175 days	Mon 5/2/05	Fri 12/30/05		5/2	[Bar]											12/30
17	Cascade Core Permit	44 days	Mon 5/2/05	Thu 6/30/05		5/2	[Bar]		6/30									
18	Drilling RFQ	22 days	Wed 6/1/05	Thu 6/30/05														
19	Drilling Co. Selection	21 days	Fri 7/1/05	Fri 7/29/05														
20	Stress Test	21 days	Mon 10/3/05	Mon 10/31/05														
21	Analysis/Report	44 days	Tue 11/1/05	Fri 12/30/05														
22	BNSF Meeting	22 days	Mon 5/2/05	Tue 5/31/05		5/2	[Bar]		5/31									
23	USFS Meeting	22 days	Mon 5/2/05	Tue 5/31/05		5/2	[Bar]		5/31									
24	Collaboration	174 days	Fri 4/1/05	Wed 11/30/05			[Bar]											11/30
25	B. Hartline Consultant Contract	21 days	Fri 4/1/05	Fri 4/29/05	MAC													
26	J. Marx Consultant Contract	21 days	Fri 4/1/05	Fri 4/29/05	WA													
27	BH/JM/UW visit	22 days	Wed 6/1/05	Thu 6/30/05														

DUSEL CASCADES

ID	Task Name	Duration	Start	Finish	Resp.	2006													
						A	M	J	J	A	S	O	N	D	J	F	M		
28	Eng/Geotech Meeting	22 days	Mon 8/1/05	Tue 8/30/05						8/1			8/30						
29	Outreach Meeting for Visitors Ctr	22 days	Mon 8/1/05	Tue 8/30/05						8/1			8/30						
30	Chelan Co Lecture Series	153 days	Mon 5/2/05	Wed 11/30/05		5/2												11/30	
31	General Collaboration Meeting	43 days	Thu 9/1/05	Mon 10/31/05						9/1								10/31	
32	Pacific NW National Lab Meeting	22 days	Wed 6/1/05	Thu 6/30/05						6/1			6/30						
33	Educational Outreach	0 days	Sun 5/1/05	Sun 5/1/05						◆			5/1						
34	Environmental Outreach	0 days	Sun 5/1/05	Sun 5/1/05						◆			5/1						
35	Statewide Advisory Committee	0 days	Sun 5/1/05	Sun 5/1/05						◆			5/1						
36	Laboratory Building	222 days	Mon 4/25/05	Tue 2/28/06	RKC	5													2/2
37	Assign Project Manager	3 days	Mon 4/25/05	Wed 4/27/05						1/25			4/27						
38	RFQ	22 days	Mon 5/2/05	Tue 5/31/05		5/2							5/31						
39	Predesign Selection	22 days	Wed 6/1/05	Thu 6/30/05						6/1			6/30						
40	Predesign Work	173 days	Fri 7/1/05	Tue 2/28/06						7/1									2/28
41	Science Campus Building	175 days	Mon 5/2/05	Fri 12/30/05	RKC	5/2													12/30
42	Predesign Work	175 days	Mon 5/2/05	Fri 12/30/05		5/2													12/30
43	Visitor Center Building	175 days	Mon 5/2/05	Fri 12/30/05	RKC	5/2													12/30
44	Predesign Work	175 days	Mon 5/2/05	Fri 12/30/05		5/2													12/30
45	Communications	131 days	Mon 5/2/05	Mon 10/31/05		5/2													10/31
46	Community Charette	21 days	Mon 10/3/05	Mon 10/31/05									10/3					10/31	
47	Newsletter	0 days	Mon 5/2/05	Mon 5/2/05						◆			5/2						
48	Add'l contact with Congressional Del.	0 days	Mon 5/2/05	Mon 5/2/05						◆			5/2						
49	Miscellaneous	22 days	Mon 5/2/05	Tue 5/31/05		5/2													5/31
50	Old Cascade Cleanup	22 days	Mon 5/2/05	Tue 5/31/05		5/2							5/31						
51	Consultant Studies	218 days	Fri 4/1/05	Tue 1/31/06															1/31
52	Economic Analysis	152 days	Fri 4/1/05	Mon 10/31/05															10/31
53	Water Availability	218 days	Fri 4/1/05	Tue 1/31/06															1/31
54	Rock Disposal	110 days	Mon 8/1/05	Fri 12/30/05						8/1									12/30
55	Haulage Impact Assessment	110 days	Mon 8/1/05	Fri 12/30/05						8/1									12/30

would ask the laboratory mentioned above to join us and to provide support, were we successful. Conversely, if our proposal fails, we will volunteer to help with one of the surviving efforts.

However, we do hope the NSF recognizes that an important ingredient in successful large-project management is adequate investment in preconstruction exploration and evaluation. The industry has generally concluded that 2-3% of construction costs should be invested in such exploration, as this reduces risks for both the client and contractor, and thus ultimately overall projects costs.

Do you have a management plan, i.e., can you give a few more details as to the responsibilities of the various people involved? We tried to yesterday evening to contact the NSF for clarification of this question, but did not succeed in reaching anyone in time. We were unclear whether the question referred to laboratory management or to the organization of our collaboration during the next year or so. Hence we are responding to both interpretations.

If the question is about laboratory management, we present one possible plan in Reference 11. That plan came about after several meetings with recognized science management groups, particularly URA, which reviewed the plan and made several suggestions. Management costs were also based on URA estimates. However, it seems clear to us that the NSF should lead the process that leads to a manager and management scheme, and we anticipate that this would involve an open, competitive process for selection of an experienced management contractor. In the S-1 process, the community expressed a desire for a management organization that would appoint a strong director who would keep the laboratory responsive to the needs of the scientists.

If this question focuses on the near term, then we have divided our efforts into three parts. The *Science Collaboration* is an open one, with a science council that was formed to make sure we had adequate representation for the various subfields interested in DUSEL. Council members and coordinators are aware that this is an interim structure to help the collaboration prepare a project plan that is responsive to the S-1 report and other community studies. The Council members will help us organize the collaboration according to subfield/DUSEL room, so that there will be an expert body available to review plans. Certain subgroups will need to meet soon, as their advice is needed prior to coring, for example. (See the attached project plan.) If our site is selected for further study, we would like to have a collaboration meeting later this year (possibly in cooperation with other successful sites). We want the Science Collaboration to be flexible and collegial, making room for others as the selection process continues. This is why we stress the interim nature of the structure, as new members should have the same opportunities for participation and leadership as current members. In the long term, we envision this group becoming inclusive and fitting into the laboratory

management plan as the DUSEL Users Group. This is part of the evolution from a UW-initiated conceptual proposal to a national community effort.

The *DUSEL-Cascades Office* was created to provide, at project inception, all of the resources of the University's technical brain trust. Marilyn Cox, Director of Capital Planning for the UW and a key official in the Provost's Office, is the coordinator. She is dedicating a substantial fraction of her time to DUSEL. Lee Huntsman, until recently UW President, is DUSEL spokesman for state affairs, e.g., interactions in Olympia on project funding. T.C. Richmond, of the Washington State Attorney General's Office, and Rod Brown, of the Cascadia Law Group, both experienced environmental and natural-resource lawyers, are our legal and permitting team. Kaleen Cottingham, an environmental lawyer and former Deputy State Lands Commissioner, has been on contract for 1.5 years as our lead in public relations and Forest Service interactions. Additional consultants have been hired to handle water resources and supply, economic analysis, and architectural predesign. The University's Capital Projects team (the group that designs, costs, and schedules all university buildings), the UW Educational Partnership Office, UW Networking, and UW Development also play key roles.

The DUSEL-Cascades Office will eventually become the Washington State link to DUSEL management, responsible for the proper execution of the terms of the USFS use permit, DUSEL health and safety agreements, and the maintenance and adequacy of the surface campus (should the NSF accept the state's offer to build the surface research facilities). We would envision these roles being spelled out in an MOU that becomes part of the Cooperative Agreement between the NSF and the laboratory manager. The State's role would be confined to the areas described, and would not interfere with the relationships between the NSF, manager, Director, and science community.

The *DUSEL-Cascades Proposal Group* is the body that will be responsible for producing the second DUSEL-Cascades proposal. The job of this group is to develop a top-flight proposal from input of the Science Collaboration, DUSEL Office, and the engineering groups that will be handling planning, scheduling, and costing for the underground facility. Two key individuals in this group are Beverly Hartline and Jay Marx, experienced major-project managers who have agreed to help us should we be invited to prepare an engineering proposal. It is likely that Beverly would focus on surface campus issues, the visitor center, and several state-federal relations issues – the issues most closely connected to the DUSEL Office. Jay would advise us on the underground design, construction planning, and costing.

Can you say more about what appears to be very strong public concern? The opposition seems to number considerably more than the 30 or more mentioned in

the proposal, and also seems to be extremely well informed. How do you plan to deal with this? A related concern is that you are very close to a wilderness area: how would you expect this might affect the permitting process and time scale?

We plan to continue our public outreach efforts, and to maintain openness with the community in the development of proposal details, site exploration studies, environmental analysis, and mitigation measures. This outreach effort will be consistent with the NEPA/SEPA and other permitting processes.

The geotechnical consultants that reviewed our site candidates identified Cashmere Mt. as the preferred site in September 2003. Immediately thereafter, on the advice of the University, we began early public involvement. In our first meeting, hosted by Harriet Bullitt, we met a number of local citizens that were actively involved with the environmental groups that had long worked to restore Icicle Creek. (The Bullitt Family runs one of the Northwest's largest environmental foundations (<http://www.bullitt.org>), and Harriet is the Icicle's most senior resident.) That group gave us a list of environmental goals that they and we felt we could meet, then encouraged us to go forward with our effort to involve the public in proposal development, citing DUSEL's potential to help area youth through education and science. This was followed by town meetings, a series of gathering in resident homes along the Icicle, and the many follow-ups meetings listed in Reference 5.

It is unusual for a large-project proponent to engage in intense public outreach at such an early stage of project development. It is known that this approach provides an opportunity for opposition groups to form. However, it has been the University's experience that, by giving opponents an opportunity to express their views early in the process and by providing everyone with full information, the fairness of the process is established. Ultimately it is the fairness of established public processes that leads to broad public support.

This approach can lead to mischaracterizations of projects, as public discussions then begin well before the standard environmental review processes. Some mischaracterizations have occurred, and this is responsible for a substantial fraction of the opposition. But it is our belief that as the project is developed, studies conducted, and the environmental review process completed, most of the opposition will discover that their issues have been addressed. The legitimate concerns that remain can be addressed through a number of standard mitigation steps.

We believe our estimate of 30 core opponents is reasonable. This comes about because the same dozen individuals form the opposition core at many of our public meetings, whether scheduled in Wenatchee or Seattle. However, It is true that this group has galvanized some support within and outside of the local area

via their web site and other activities. The letters we have seen circulated to the university and other groups have come from this core group. The issue of greatest concern is the trucking impact: most of the opponents are residents living on Icicle Creek Road.

You note that the opposition seems to be "extremely well informed." This is due almost entirely to our public outreach efforts. We have spent thousands of hours in the community attending meetings, making presentations and answering questions. We prepared a 300-page pre-proposal as a reference document for citizens and for elected officials, so that detailed and correct information would be freely available. In some cases we hand-carried this document to the homes of anxious opponents. This document formed the basis for a 9-month public study by a local citizens committee. The effort was organized and funded by the Port of Chelan and CTED. Several of the most vocal opponents were included on the committee. The resolution stemming from that study, adopted by the Port's elected commissioners, urged the UW to go forward with its proposal.

We think our efforts have been successful. We have not asked supporters to organize, but have nevertheless received endorsements from the County newspaper, the local junior college faculty, the Port of Chelan commissioners, the county engineering society, the Chambers of Commerce, the Governor, and CTED. These were received after completion of the CTED/Port citizens process described above. We will endeavor to post these on the References web site Thursday morning.

We plan to continue our public outreach efforts, and to maintain transparency in development of proposal details, site exploration studies, environmental analysis, and mitigation measures. This outreach effort is consistent with the NEPA process and will not slow the project.

One should also keep in mind that our public relations efforts are largely distinct from the permitting process, which is conducted by public agencies according to established procedures. Our support at the County and State levels is very strong, we believe. County and state agencies and the USFS are the principal decision makers.

The last 900 m of construction occurs more than one mile deep under a wilderness area. The Wilderness Act addresses activities either on the surface or that affects the wilderness uses or users in some manner. At the depth of over one miles, the tunnel and lab will be undetectable and thus with no impact to the wilderness. In addition, if the Wilderness Act did apply at that depth, we believe the laboratory is consistent with the Wilderness Act. The Wilderness Act acknowledges public (noncommercial) science and education as two of the six

wilderness purposes. DUSEL satisfies the Wilderness Act's "minimal condition," does not interfere with any other allowed uses, and does not violate the surface prohibitions of Section 4c. Note that the ability to core the entire tunnel alignment from outside protected areas was one of the criteria of our original site search. The USFS will address land use issues when it issues the special use permit necessary for construction and operation of the facility.

The conceptual proposal estimate of three years for the permitting process was provided by the USFS's permitting official.

Where is the rock crushing operation located? A specific answer cannot be given until we select among several options for disposing of the rock. The commercial firm that contacted us about taking our rock, Goodfellow Construction, would truck the TBM chips directly to its million-yard pit near Wenatchee. As this is an industrial site, the crushing would presumably be done there.

The Forest Service has expressed interest in using in excess of 20% of our rock on maintenance projects in the upper Icicle Valley, including moving one section of road that floods periodically. They did not describe their plans for crushing, but probably they would crush the rock at the construction site. They also indicated they might claim the remainder of the rock, placing it on their "Super Pit" site off Highway 2 near the town of Plain. As the rock mined from the Super Pit has excess "fines," they would like to crush and mix our rock with the quarry gravel, to produce gravel suitable for road bases. The crushing would be done at the Super Pit.

Perhaps our preferred option for 50% of the rock is to restore the County gravel pit to its original contour, making it into a park, as part of our mitigation. This site is five miles from the portal. The TBM chips would likely be used as is. This option needs further study by an environmental restoration firm to establish feasibility.

We hope these responses are of help.

Best regards,

Wick Haxton
Paula Heron
Bob Holtz
Phil Long
John Wilkerson
Marilyn Cox (for the Provost's Office))