Responsiveness Summary

for the
Burlington Northern and Santa Fe Railway Company – Skykomish Site
Skykomish, Washington

Interim Action for the Installation of a Barrier Wall

July 2001

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There is no rationale for the order of comments. They were randomly scanned into this document.

Introduction

An agreed order for interim action was proposed for the installation of an underground barrier wall along the Skykomish River at the Burlington Northern and Santa Fe Railway Company (BNSF) site in Skykomish, Washington. The following documents related to the interim action were available for public review and comment from May 1, 2001 through May 31, 2001: the draft *Interim Action Basis of Design for LNAPL Barrier System* (BOD report); Agreed Order No. DE 01TCPNR-2800; Public Participation Plan; and State Environmental Policy Act (SEPA) Checklist.

Public involvement activities related to this interim action included:

- Distribution of a fact sheet describing the site and interim action activities through a mailing to approximately 500 people, including the community of Skykomish and other interested parties;
- Publication of a paid display ad in *The Herald* on May 1, 2001;
- Publication of notice in the Washington State Site Register, dated May 1, 2001;
- Posting of some documents on the Washington State Department of Ecology (Ecology) web site;
- Distribution of bulletin board fliers throughout the community;
- Providing copies of the above documents through information repositories at Ecology and at the Skykomish Library; and
- Facilitation of a public hearing on May 10, 2001, in order to provide an opportunity for information exchange and to accept formal, verbal comments.

The public was given an opportunity to comment on the preliminary BOD report and the other documents listed above. Any changes that will be made to these documents, as a result of the public comment, will be made in an Addendum that must be agreed to, and signed by, both BNSF and Ecology. The final BOD report will be prepared with Ecology's approval to be consistent with the Addendum. The contractor's Work Plan will be submitted to Ecology and will be noted in a revised work schedule. The final BOD will become the Exhibit B.

Based on the public comments, revisions are being made to the preliminary BOD report. These revisions will not alter the nature of the Interim Action and are therefore not substantive to require an additional 30-day public comment period. Also, another comment period would not be practical due to the constrcution window and time constraints of the school year. The Final BOD will be substantively consistent with the preliminary BOD to install a barrier wall to stop

floating petroleum product to the river. Most of the comments received from the public are pertinent to this proposed Interim Action and have been addressed. A majority of these comments concern septic system issues, access agreements, construction methods, property values and impacts, etc. Discussion is in progress concerning access agreeements. Work is expected to begin in late July or early August 2001 and completed by August 31, 2001.

Background

The Burlington Northern Railroad Maintenance and Fueling Facility in Skykomish was originally owned and operated by the Great Northern Railroad (GNR). GNR owned the property from the late 1890s until 1970 when GNR merged with four other railroads and became Burlington Northern Railroad (BNRR).

Over the more than 80 years the facility was in operation, its primary function was to refuel and maintain locomotives, provide a switching station for electric and steam/diesel locomotives operating between Wenatchee and Skykomish, and to store snow removal equipment.

Fuel for the trains, including diesel and bunker oil, was stored in underground storage tanks at the site until 1974, when BNRR discontinued most fuel handling activities at its Skykomish facility. Currently the BNSF facility is used as a base of operations for track maintenance and snow removal crews.

Based on current available data, the site contamination consists of the following:

- **Soils** – Surface soils on the railyard contain petroleum (diesel and Bunker C), lead, arsenic and PCBs. In some areas of the site, including areas off the railyard, subsurface soils contain petroleum and its components (e.g., polynuclear aromatic hydrocarbons [PAHs) to approximately 15 feet below ground surface.
- **Groundwater** – Both floating and dissolved petroleum are present in groundwater beneath the site and at the Skykomish River.
- **Surface Water** – Petroleum from upland areas is seeping into the river.
- **Sediments** – Petroleum and PAHs are present in sediments along the riverbank at seep locations.

Summary of the Proposed Interim Action

The proposed Interim Action will be constructed in two phases. During Phase 1, BNSF will construct an underground barrier wall, west from the Skykomish Bridge along West River Road.

Monitoring and recovery wells will be installed upgradient and at the ends of the wall to check where petroleum products accumulate.

The length of the underground barrier wall was determined by groundwater modeling, surveying of seep locations, and reported seep observations. It will be about 600 feet long and will extend from the ground surface to at least 3 feet below the lowest observed water level (approximately 15 feet deep).

Groundwater modeling indicates that the wall may raise the groundwater elevation along West River Road about 0.4 foot in a high groundwater scenario. The slurry method used to construct the wall was selected to minimize community impacts and to meet technical requirements.

It is important to note that existing petroleum products will remain in the ground (under the levee) between the wall and the river and may continue to seep into the river for some time after the wall is constructed. During the final cleanup of the site, petroleum between the wall and the river will be evaluated further in consultation with King County (because of levee structural considerations and habitat restoration), if necessary. The wall is intended to stop further petroleum movement (floating product only) through the levee.

Phase 2 of the Interim Action (to take place 6-12 months later) will involve installing product extraction equipment in recovery wells located in underground vaults under West River Road. Before the final extraction system is in place, petroleum will be manually pumped on a regular basis from these recovery wells.

Summary of Revision to the Preliminary BOD Report

Ecology considers the following revisions or addendum memos pertinent to the completeness of the preliminary BOD:

- Sections 2.1.1, and 3.0: Revisions to these sections will reflect that the preferred method to construct the barrier wall will be a cement/bentonite slurry.

- Section 2.2 and Appendix A: Groundwater Modeling: Memorandum from Mike Riley, SSPA, to Halah Voges, ThermoRetec, dated May 10, 2001 will be added to Appendix A

- Other miscellaneaous changes:

- Sections 2.3.4 and 2.5 will be revised to list sidewalks, utilities & septic systems as infrastructure and will specify that such infrastructure must be restored to pre-construction conditions in the event they are damaged during construction. [2.b.i]

- Section 2.6 will be revised to include repair or replacement of septic systems as a possible contingency in the event they fail due to changes in hydrology from the barrier wall. This section will also specify that contingency measures will be implemented as soon as possible after the situation becomes known. [2.b.i. and 2.b.ii.].

- Section 2.5 will be revised to include interior, as well as exterior, inspection/videotaping of structures located within 40 feet of the barrier wall alignment, survey control point installation and monitoring for the levee, utility poles and structures located within 40 feet of the wall, and real-time control points. [2.b.iii. & 13.j].

- Sections 2.5 and 4 will be updated to specify replacement of sidewalks and resurfacing of the roadway during Phase 2. [2.c.ii.].

- Section 2.5 will be updated to include collection of two soil samples from the road base for PCBs analysis. [2.c.iv.].

- Figures 2-1 and 2-6 will be updated to show the staging area in the school yard. A technical memorandum describing the septic system locate work that has been completed will be included in the appendices. [5.b. and 11.c.].

- The decision criteria for determining whether recovery wells will be connected to the recovery system will be added to Section 4. [6.b.].

- Section 3 will be updated to specify that "At a minimum, the Contractor should anticipate testing for wall permeability and strength once every 25 lineal feet or twice per work-shift, whichever is greater. [6.f.].

- Section 2.6 will be revised to state that "the appropriate contingency measures will be implemented after consulting with the affected property owner." [9.g.].

- Section 2.5 will be revised to specify allowable work hours requested by the school district in the event construction continues beyond September 3, 2001. [9.h.].

- Section 3 – The Contractor RFP will be attached as an appendix to the final BOD.

- Section 3 will be updated to state "BNSF will comply with the dangerous waste regulations as an applicable requirement under the Agreed Order." [9.j.].

- Section 1.3., p. 1-2, first paragraph, last sentence. Boulders will be included in the lithology description. [10.f.].\

- Page 2-7, top line. The acronym "CB" will be defined (i.e., Portland cement and bentonite clay). [10.k].

- Page 3-2, first sub-bullet under first bullet will be revised to clarify that all recovery wells (Phase 1) and piping (Phase 2) will be installed within the right-of-way. [10.m.].

- Section 6.1, page 6-1. The word "month" will be inserted after 12. [10.n.].

- Section 6 will reference the sampling methods specified in the 1993 Sampling and Analysis Plan for the site. [10.o.].

- Report formatting will be corrected for the final BOD. [10. p].

- Trench stability calculations will be added as an appendix to the final BOD. Section 3 will be revised to include slurry elevation requirements. [11.a].

- Sections 2.6 and 3.0 will be revised to specify groundwater table conditions under which work would be stopped. [11.b.].

- Section 1.2 will be revised to state: "The Skykomish River is home to endangered species such as bull trout and Chinook salmon." [11.h.].

- The Health and Safety Plan will be attached to the final BOD as an appendix. [11.j].

- Section 2.1.4 and 4 will be revised to state that 8-inch diameter wells will be considered for recovery.

Comments Received and Ecology Responses

1. Comment: (**Larry E. Mc Laughlin – Skykomish**)

   1.a. Concerns about the proposed Interim Action: 1) "Yes those comments stated in the URS Corporation review dated May 24, 2001. 2) Personal as well as public property damage, its de-valuation cost, legal avenues open to the public and private landowners? 3) Where is the EIS Report for this entire operation (project)?"

Response: *1) The URS comments are addressed later in this document (see Comment 6 responses). 2) Ecology is mindful of the public's concerns regarding the potential impact of contamination on* ***property values****. However, Ecology's primary mission is to provide for cleanup of contamination. Ecology generally does not take or require direct cleanup action of liable parties for the purpose of addressing potential property value impacts. However, Ecology is hopeful that a*

final cleanup of the site may help to alleviate the concerns regarding property values. In addition, although Ecology can provide informal advice and assistance regarding the administrative and technical requirements of the Model Toxics Control Act (MTCA), RCW 70.105D, ***Ecology is unable to provide legal advice on specific legal issues.*** *Therefore, to the extent that the comments seek action or specific legal advice from Ecology to address possible legal claims, Ecology cannot provide this action or advice. However, it is important to note that in section RCW 70.105D.040(6) of the MTCA, it provides that "Nothing in this chapter affects or modifies in any way any person's rights to seek or obtain relief under other statutes or under common law, including but not limited to damages for injury or loss resulting from a release or threatened release of a hazardous substance. No settlement by the department or remedial action ordered by a court or the department affects any person's right to obtain a remedy under common law or other statutes."*

3) Two State Environmental Policy Act (SEPA) Determinations of Non-Significance (DNS) have been made for the Interim Actions; one in 1995 and one for the current proposed Interim Action, 2001. Ecology plans to make another threshold determination during the Supplemental Remedial Investigation and Feasibility Study (RI/FS) process this Fall and when the potential adverse impacts and the alternative final cleanup actions are better defined. If Ecology issues a Determination of Significance with respect to the final cleanup (rather than another DNS), then an EIS will be prepared and may be incorporated into the FS.fall In either case, Ecology will ensure a complete evaluation of the environmental impacts of the final cleanup and will later determine if an EIS is required for final cleanup action, pursuant to SEPA rules.

Environmental Impact Statement (EIS) reports are done if Ecology determines that proposed cleanup actions may have significant adverse environmental impacts. The decision to require an EIS does not evaluate whether the beneficial aspects of a proposal outweigh its adverse impacts; instead,it considers whether a proposal has any probable significant adverse environmental impacts.

1.b. Preferred construction method: "It has been my experience that only total removal of contaminated soils or a 60' clean fill retaining wall with 5mm polyurethane seal on both sides down to clean soil depth, will actually have a better stopping effect than your way, and none of the proposed plans including mine are 100% guarantee!! No matter how much you (the State) profess otherwise"

Response: Please remember that the proposed barrier wall is an Interim Action. It is not the final cleanup remedy to stop oil contamination to the river. There may be soil excavation as part of the final cleanup remedy. The proposed

barrier wall is a proven cleanup technology used for containing oil floating on the water table. Ecology's goal is to eventually stop all of the oil from getting into the river.

1.c. Suggestions to minimize community impact: "Make sure you have picked the correct location for the two containment processes you have outlined, and how can you be sure when you have changed the actual contaminated boundaries so many times? Where is the highest concentrated area near the River?"

Response: The wall is being located as close as possible to the river without jeopardizing the structural integrity of the levee and the bridge. Adjustments can be made to the recovery system to accommodate for the locations with the highest volume of oil. There are a number of plume maps for both the oil (light non-aqueous phase liquid [LNAPL]) and the dissolved petroleum. These plumes are different. The dissolved petroleum plume will change with fluctuations in groundwater much more than the oil plume because of differences in viscosity. The oil is less mobile though the plume appears to be stable around this area by the river. It is typical for groundwater plume boundaries to change (on any site) depending on the measurements of oil and dissolved constituents in the monitoring wells taken during groundwater gauging events. Existing Recovery Wells RW-1 and RW-2 at Sixth Street and West River Road are the most productive of the four existing wells. However, the thickest product measurements have been observed near MW-27 on Fourth Street, halfway between the railyard and the river.

1.d. Other comments: "A special meeting to discuss any, and all legal ramifications to the citizens of Skykomish and the Town/School, businesses, etc. *When was the State and the railroad (BNR) legally responsible to come under federally mandated EPA (EIR [EIS]) regulations and rules under which the states must comply? Who said this spill goes back to 1997, <u>that is totally untrue.</u> By the depth and the underground spread this contamination has been going on for years, and I mean more than 20 years. If the State says otherwise (prove me wrong)!!

"Why did it take so long for the State of Washington Dept. of Ecology to do its job when EPA regulations have been in effect for many years? This is too big goliaths (the State of WA and the BNR (Burlington Northern Railroad) having a duel with the outcome and long term effect placed on the citizens of Skykomish, WA. The pee-wee's are hurt the most with the greatest loss."

Response: With respect to your comment regarding legal ramifications, please see response 1.a. above. The releases of petroleum are historical and have been reported and known for decades. There must have been a miscommunication relating to the year 1997. During the 1980s, the United States Environmental Protection Agency (EPA) Superfund program conducted a

Preliminary Assessment of the BNSF Skykomish site. The USEPA does not regulate sites under the Superfund program that are predominantly contaminated with petroleum. In 1988, the Washington State MTCA was established and became effective in 1989. This site was brought in under that the MTCA cleanup process because petroleum is regulated under this law.

Ecology understands that there is frustration about the length of time it is taking to bring closure to the site contamination issues. Ecology is currently dedicating a team of professional staff to help accomplish this. It is Ecology's goal that the citizens are part of the cleanup process and that the cleanup will be completed satisfactorily for them and future generations.

2. Comment: (**Michael Moore, Dick Mitchell, Robert Mackner, Charlotte Mackner and Don Price – Skykomish**)

2.a. **Basis of Design (BOD) 2.2.2 Conclusions (Model Predictions)**
"Since there is no "stagnation" or mounding of water behind the wall, it is not necessary to extend the wall significantly beyond the LNAPL plume or seep locations. In other words, a 600ft wall will effectively contain the oil."

"There is only one monitoring well MW-43 located past the proposed 600 ft wall. The comment above is an assumption. Well MW43's location is not characteristic of the other wells located on West River Rd. Absence of LNAPL at that location is not a sufficient basis for assuming there is no product in that area. Examples of this are wells MW-23 and MW-24 which show no product but LNAPL has been found within a few meters of the well."

"If the citizens of Skykomish are being asked to make an informed decision on the length of the wall, shouldn't the length of the spill be established?"

"If not, do you feel that you are limiting the public's ability to make an informed decision regarding the appropriate length of the wall?"

Response: You raise a good point about the presence or absence of LNAPL in the soils in this area. The length of the wall is based on the presence of LNAPL during groundwater gauging events and observed seeps. Dissolved petroleum will not be addressed by the length of the wall or in this interim action. Also see response 1b. above. No, Ecology does not feel that it is limiting the public's ability to make an informed decision regarding the appropriate length of the wall.

2.b.i. **BOD 2.2.3 Impact to Infrastructure and Adjacent Properties**
"The construction of the barrier wall must not significantly impact the

adjacent infrastructure and residential buildings."

"The sidewalk in construction area is not city property. Homeowners along West River Road have installed the sidewalk."

"If the road is resurfaced after the construction, will the sidewalk be re-constructed?"

Response: Ecology believes this is already required but based on your comment, modifications will be made to the preliminary BOD to specifically require that sidewalks be restored to their original condition..

2.b.ii. "Septic systems are not mentioned as infrastructure, they are listed as a community issue. Septic systems are a significant part of the area infrastructure and should be listed. Septic system failure may not occur until a high water "flood event" happens which could be several years after this barrier wall construction has finished."

"If current septic systems fail will they be replaced with a different type of system which functions properly with the new hydrologic properties of the area?"

Response: In response to your concerns, the preliminary BOD is being modified to require that Septic systems will be mentioned as infrastructure and that if septic systems fail due to changes in hydrology from the barrier wall, they will be repaired or replaced as appropriate with a properly functioning system. As a contingency measure, temporary sanitary facilities, septic pumping, groundwater pumping and even breaching of the wall may be implemented if determined necessary. The contingency measures will be implemented as soon as possible after the situation becomes known.

2.b.iii. "Structures and residences could be susceptible to damage from vibration and settling related to construction activity of the wall."

"A building inspection, including the interior, needs to be conducted at the beginning, end and one year after the wall project is finished, by a licensed, certified building inspector."

Response: Video taping and building inspections by a certified inspector or professional engineer in the State Washington will be included as part of the preparation for the wall installation for structures located within 40 feet of the barrier wall. Also, confirmational monitoring at the end of the project will be conducted. A follow-up inspection will be done sometime during the next year after the final recovery system is in place. The specific time for the inspection will be determined during the phase II recovery system evaluation. All these inspections and actions will be added as a modification to the preliminary BOD.

BNSF will document site conditions in the alignment corridor, the flood control levee, and adjacent private residences before, during, and after barrier construction. This includes installation and monitoring of survey control points to determine whether the contractor's barrier wall installation has caused detrimental impacts to these structures. The plan specifically includes:

Monitoring Program: An optical survey program will be performed. Since ground vibrations are not expected to be of such magnitude to cause settlement or damage, vibrations will not be monitored.

Levee: Survey monitoring stations will be established at three (3) locations along the proposed wall alignment. At each location, two points will be established by driving a 2-foot-long piece of rebar into the levee. The point closest to the wall will be 10 feet north, and the second point will be roughly 20 feet away from the wall. The three stations will be approximately 50 feet from each end of the wall and in the approximate center. Elevations and locations of these points will be established prior to construction. Additional elevation data will be collected during construction at the discretion of the supervising engineer.

Structures: With approval of affected residents, survey points will be established on the corners of adjacent structures (within 40 feet of the barrier wall) in a manner that does not change the aesthetics of the structures. These points will be established and surveyed for horizontal locations and elevations prior to construction, and shortly after the wall is complete. Additional data will be collected during construction at the discretion of the supervising engineer.

Utility Poles: Control points will be established on the utility poles adjacent to the alignment. Survey points will be read before and after construction.

"Real-Time" Control Points: Two sets of control points will be established prior to construction and read as the trenching activity approaches the area. The purpose of the control points is to determine if any changes in the contractor's procedures need to be implemented before reaching the most constricted area of the site.

Figure 1 shows the approximate locations of the survey points described above.

2.c.i. **BOD Section 2.5 Community Issues**

"Concern regarding septic systems, solutions listed as temporary septic pumping, ground water pumping and even subsequent breaching of the wall."

"Septic system replacement to a different type of system which would function with the new hydrologic conditions is not mentioned. All

contingencies are temporary (as in pumping) if the systems are affected they should be replaced/up-graded to a system that does work."

"The example actions and contingency plans do not resolve a septic system problem. Can septic system replacement be listed formally as a remedy for old system failure?"

Response: Yes. See comment 2.b.ii. above.

2.c.ii. "Concern regarding West River Rd. 'The existing asphalt will be removed as necessary to such that the final asphalt elevation meets or is below existing sidewalk/curb elevations.'"

"The current sidewalk/curb on West River Rd. is not level (even below the current road surface level) in many places and has already been damaged by monitoring well placement. The road and sidewalk play an important part in flood control during high water events and heavy snow periods."

"Can the current improvised sidewalk on West River Rd. be replaced with a new sidewalk when the road is resurfaced?"

Response: Yes. See comment 2.b.i. above.

2.c.iii. "BNSF and its contractors will use local businesses to the extent practical."

"There are several unemployed persons in the town who could benefit from temporary work during the project."

"Can any job openings, related to the construction of this barrier wall, be opened to the towns people first."

Response: A response requirement in the Request for Proposal (RFP) to barrier wall contractors indicates:

"Statement of Anticipated Use of Local Businesses. To the extent practicable, please provide an indication of the anticipated use of local businesses and commerce including restaurants, hotels and other retail facilities." It is unlikely that any jobs will be open to the public due to the specialized nature of the work and requirements for 40-hour HAZWOPER training.

2.c.iv. "The citizen's survey conducted by Enviro Issues noted that PCB laden oil was used on the roads as a dust suppressant in the 1940's."

"Can the subsurface road material be tested for PCB's during the construction of the Barrier wall?"

Response: Based on your comment the preliminary BOD will be modified to require that BNSF will collect two soil samples from the road base that is exposed beneath the pavement to test for PCBs. An overall plan to sample for PCBs in other locations will be included in the data gap sampling planned this fall.

2.d.i. **BOD Section 2.6 Barrier Wall Contingency Plan**

"The contingencies listed in this section are insufficient. The three bulleted items listed are emergency response actions that would occur regardless of being listed. The actions listed are short term temporary responses. If any problem did occur, the pumping of septic systems or ground water are temporary if even effective. The "strategic" breaching of the wall does not mean that the soil stratification will be restored to near original conditions to allow for drainage systems to function the same as pre-wall conditions."

"In the event of a high water event or flood, there is no mention of a contingency plan specifically for the School if LNAPL is brought to the surface near the wing wall collection points. There is a history of LNAPL being carried to the surface during times of high ground water."

"Given the flood history of Skykomish, and the new increase of LNAPL that will be collected near the school yard, shouldn't a specific contingency be prepared in the event the operation or safety of the School is compromised by the wall during a high water event?"

Response: See 2.b.ii. above. This response also applies to the school yard.

2.d.ii. "The modeling of the wall shows a potential 5-6" increase in the water table. The current high water table is also listed at 918 ft elevation. This would mean that the current septic systems, for structures on West River Rd., are functioning within 4-6 feet between the ground surface and water table, meaning that 5-6" difference could possibly impact drainage."

"If the normal operation of septic systems is disrupted, will the septic systems replaced with new/different systems designed to work under the new hydrologic conditions?"

Response: The 5- to 6-inch increase is only at the immediate upgradient side of the wall. Fifty feet upgradient from the wall, this increase is only about 1 inch, which would not adversely affect septic systems. Nonetheless, replacing a drainfield is one of the possible contingency measures that may need to be

implemented, depending on the circumstances at the site. Also, for additional comments, see 2.b.ii.

2.e. **BOD Appendix A. Page 4. Model Calibration and Parameter Estimation**

"The models calibration was set on March 9, 1999 and March 28, 2000. This would represent normal ground water flow during that time of the year. Skykomish's history of flooding has shown that LNAPL can be brought to surface."

"Due to the barrier wall construction and placement of wing walls (for LNAPL collection) in close proximity to the School, should a model be generated to show estimate the characteristics of ground water flow, during a high water event, around the or over the wing walls with particular attention being placed on any consequences of LNAPL being brought to the surface in proximity of the School?"

Response: The model does show that the main wall and/or wing walls do not change groundwater flow patterns to any significant extent even during simulated high water conditions. Consequently, there is no greater potential for floods to impact groundwater or LNAPL distribution with the wall than without the wall. Past flooding has not caused LNAPL to rise to ground surface from rising flood waters. The previous oil that came to the surface was due to flooding of the underground skimmer pump vaults that were under construction at the time. This problem has been corrected and we do not anticipate it reoccurring in the future.

2.f.i. **BOD Page 6. Model Sensitivity Analysis**

"The model shows changes in hydraulic conductivity also affecting the flow contribution from Maloney Creek."

"Will this change the flooding characteristics of the creek for the School and residential lots in the Maloney Creek flood area?"

Response: The flow characteristics in Maloney Creek are not affected by the proposed wall. The sensitivity analysis was conducted to merely test the model results based on some of the model parameters. No changes to flow in the creek or to riparian or wetland habitats will occur from construction of the proposed wall.

2.f.ii. "How will the alteration of flow contribution from Maloney Creek effect environmentally sensitive/protected areas located along the creek's banks?"

Response: The flow characteristics in Maloney Creek will not be affected by the proposed wall. Therefore, we do not anticipate any impacts to the sensitive

areas along the creek. See comment 2.f.i above.

2.f.iii. "Will the current wetland characteristics of Maloney Creek be noted before the flow contribution is altered?"

Response: The modeling predicts that the barrier wall will have no effect on the groundwater flow from Maloney Creek; however, the RI/FS will evaluate all of the wetland parameters and ecological features of old Maloney Creek as part of the final cleanup.

2.f.iv. "Historically, during floods, Maloney Creek significantly contributes to the flood effect in Skykomish. What is the contingency plan by BNSF for future flooding or increased flooding due to the alteration of flow from Maloney Creek?"

Response: The modeling predicts that the barrier wall will have no effect on the groundwater flow from Maloney Creek. No changes to flow in the creek or to riparian or wetland habitats will occur from construction of the proposed wall. Therefore, it is not expected that there will be increased flooding.

2.g. **BOD Appendix B. Hydrographs for Existing Wells**

"SPECIAL NOTE: The manner in which data is presented is inconsistent through each of the 11 pages. This is a very small inconsistency but enough to cause confusion among general non-scientifically oriented persons. This one small example is characteristic of many of Thermo Retec's reports."

"Specifically 6 of the 11 pages use a different symbol to denote the same data points. This is a minor example and does not mean the data is not good. However, it does cause unnecessary confusion to readers."

"In the future, can Thermo Retech present data in a consistent manner so that citizens will be able to process it more easily?"

Response: ThermoRetec will make an effort to cross-check maps and figures for consistency puposes.

2.h. **Public Participation Plan 4.0 Public Participation Strategy and Time Line -- School Outreach**

"There has been a significant increase in the level of activity on the parts of the SEC and Skykomish School. The SEC would like to formally create a program to facilitate the active engagement of School children in the various issues related to the clean up process.

"In general, there are very few opportunities for the School attending children in Skykomish to have first hand experience with real world issues directly related to their academic course work. If the SEC were to receive funds to facilitate an Environmental Club, it would provide local children first hand experience in number of issues that directly relate to their overall educational goals. Students would have a direct participatory role in issues such as:

Civics: Local, County, State and Federal Government Process and Law
History: Local Area and Washington State
Science: Environmental Science, Biology, Chemistry, Health, Hygiene, Math, Computer Science and Engineering

This unfortunate contamination problem could be used as a positive force to engage children and stimulate their educational process through direct participation with the various issues surrounding the clean up process."

"A program such as this could also serve as a positive factor in reinforcing community participation and trust in the intent, goals and objectives of the various phases of the clean up program."

"There are a number of value added benefits to both the community and professional organizations involved in this project."

"Can the SEC be funded by State or BNSF to start-up and operate a Skykomish School Environmental Club during the clean up process?"

Response: The SEC will need to explore this worthwhile idea further as to what educational grants are available to schools with this kind of special request. Ecology's Toxics Cleanup Program can help fund the SEC for technical assistance needs but not for a school environmental club. If a specific proposal were developed by interested parties, BNSF would consider it.

3. Comment (**Gary West – Skykomish**)

3.a.i. "**Agreed Order**. Page 5; top paragraph- What is the status of the Final site cleanup?"

Response: Ecology and BNSF are currently preparing a revised work plan for the final site cleanup. This will be referred to as a Supplemental Work Plan to address identified data gaps and will be likely be available for public comment later this fall.

3.a.ii. "Page 10 top half of page- if Mike Shawvers allows the use of his property, he should require others, BNSF, or Dept. of Ecology to be responsible for all permits. Also upon completion of use, the property shall be placed in condition acceptable to Dept of Ecology, Mike Shawvers, and applicable ordinance laws and regulations. All access: use shall comply with Dept. of Ecology, laws, ordinances and regulations and Mike Shawvers. This would include Shoreline Master Plan, SEPA, Critical Area and Grading Ordinances, Etc. They should also compensate Mike for reasonable costs for professional preparation or review of the use of property agreement. I could find sample agreements to look at.

Response: With respect to permits and compliance with applicable laws, see page 12, #13, of the Agreed Order that addresses this issue. If use of Mr. Shawvers' property is required, BNSF shall exercise its best efforts to obtain proper access agreements (that may include compensatory negotiations) Such access agreements are addressed in the Agreed Order (page 10).

3.b.i. **Public Participation Plan**
"Page 2 fourth paragraph- Technical assistance could include assisting Mike Shawvers and others with property use agreements. Also in assuring the area is not adversely impacted during or after the work. In particular, further migration of contaminants."

Response: See comment 1.a and 3.a.ii. above.

3.b.ii. "Page 6; bottom of page- Now with 5 years of additional exposure, re-test should be done for comparison with previous base line results."

Response: The issue regarding retesting indoor air has been recently reviewed. The Washington State Department of Health (WDOH) and Ecology determined that a complete re-test was not necessary at this time. This determination was based on review of the original sampling events. The chemicals detected during that study were related to propane heating oil and many typical household products, including those used in remodeling and cleaning. The sampling showed no direct indication of indoor air exposure to the petroleum product found beneath this site. Some areas may be retested, however, throughout the cleanup process.

Blood testing for additional impact will be evaluated by WDOH and Ecology during the final cleanup. This will be based on any additional information collected with data gaps sampling.

3.b.iii. Page A-1 Middle of page "Will our issues, concerns, suggestions be given responses?"

Response: Yes, they are included in this Responsiveness Summary.

3.c.i. **Basis of Design Document**
"Page 3, SEPA checklist item #6- This 6-12 month delay will cause migration of contaminants due to the anticipated and acknowledged change in hydraulic gradient due to the wall, If as anticipated the level of the contaminant raises by .04', it will migrate"

Response: There will be four existing extraction wells and several new ones to extract oil until the final recovery system is in place. Manual pumping of recovery wells or use of a vacuum truck to collect oil from wells will occur during the 6- to 12-month period needed to monitor barrier wall performance and oil accumulation.

3.c.ii. "Page 3 of the letter dated February 26, 2001 to Louise Bardy from Thermo Retec concerning estimated scope of interim action planned for 2001 BNSF Former Fueling and Maintenance Facility Skykomish Washington Groundwater Monitoring. This sampling must be much more extensive than what has been done to date."

Response: The proposed sampling in that letter and what has been done to date will be expanded upon to fill all the data gaps. This sampling is planned for later this fall and will help form the basis to develop the final cleanup remedies for this site.

4. Comment (**The eight grade class of Skykomish School**)

4.a. "How are you going to deal with oil under the levee and when?"

Response: Any oil remaining under the levee will be dealt with as part of the comprehensive and final cleanup efforts on the whole site. It may be dealt with during site restoration, after the upland areas have been cleaned up or after we are sure that the wall is effective in stopping the oil from getting to the river. Ecology's goal is to reach a comprehensive cleanup action plan by 2003. Cleanup would begin after that.

4.b. "What are you going to do if the oil slides around the barrier wall to the West and back into the river?"

Response: The proposed monitoring well PMW-1 is intended to monitor for this situation and recovery wells are intended to minimize it. However, a contingency plan is in place that will either add bigger or more extraction wells if this situation arises. There may be other measures as well, such as enhancing the recovery system with wells that will influence the flow of groundwater or even a lengthening the wall. If the wall and recovery system are unable to meet the goal of eliminating oil seeps, then alternative ways of supplementing the barrier wall and recovery system would need to be evaluated in the Feasibility Study.

4.c. "If the slurry wall construction method is used, and if the school yard is used as a staging area, rolled up turf should be used when rehabilitating the area, instead of re-seeding, due to the time of year. This application should be guaranteed."

Response: BNSF will replace the staging areas of the school yard with new sod so it is promptly restored to current use.

4.d. "After careful consideration, we believe that the type of wall that should be constructed, is the slurry wall"

Response: Based on technical considerations, Ecology also concurs that the slurry wall should be used. The preliminary BOD is being modified to reflect that the slurry wall will be used.

5. Comment (**G. Rick Aydelotte**)

5.a. "We have gotten no answer if our vegetable gardens are safe. I have stopped growing food."

Response: More extensive soil sampling in yards is planned this fall in order to complete the Remedial Investigation. Based on the results of this sampling, Ecology and the Public Health Seattle & King County or the WDOH will make a determination as to whether the soil is safe for gardening vegetables.

In the meantime, it is safe to use a raised bed for growing vegetables, if additional soil from a known clean source is used – such as commercially bagged or delivered topsoil or a garden-rich soil from outside the impacted area. The sides should be at least 10 inches high and if you plan to grow crops that require a deeper root zone, this should be extended to about 18 inches. Public Health recommends that non-treated lumber or recycled plastic be used and that any commercial soil amendments (fertilizers, compost, additives, etc.) be purchased from a reliable place.

Berries can be collected but should be washed carefully before eating. Wash all produce carefully before eating.

5.b. "Ken the septic guy has expressed serious doubts that our septic systems will remain tenable after dam placement."

Response: Ken Elliott from Public Health Seattle- King County is working closely with Ecology and BNSF regarding this project. Mr. Elliott made formal comments regarding the barrier wall proposal that have been addressed in this document and will result in modifications to the preliminary BOD. For additional comments, see 2.b.ii. above.

5.c. "I am considering injunctive measures from superior court unless we have complete remedy from the railroad."

"I have all but left my house largely because of health concerns."

Response: Final cleanup at the site will comply with MTCA, and the public will be given an opportunity to comment on the final cleanup action plan before it is finalized. With respect to injunctive measures and other legal issues, please see response 1.a. above.

5.d. "1 am required to disclose known hazards to prospective tenants at my rental house 307 West River Drive. This has made this property difficult to rent. It is empty as yet resulting in considerable financial loss to me."

Response: See comment 1.a. above.

5.e. "Property values have also been damaged by this spill, closing community beach access my favorite canoe launch is closed. As well as many deleterious but necessary signs. We are again required to disclose known faults prior to sale. Likely septic failure and the close proximity of a toxic spill make these properties nearly unmarketable as well have stymied the growth of this picturesque little town. I had continually wondered why property values haven't kept up with the rest of King County. I had predicted near waterfront real-estate would have done a lot better."

"I feel I nor anyone in Skykomish should suffer financial losses or ill health due to reckless behavior by Burlington Northern."

Response: See comment 1.a.. above.

5.f. "Paul H. from Enviroserve had spoke to me by phone last Friday. We had a candid conversation. Which would have never of occurred if I had known they were employed by the R.R. When I initially ask him who Enviroserve... worked for he indicated he was working with you. It appears as if the railroad through its agents can't be entirely trusted. Is the same true of data collection regarding toxins found and their concentrations? I mentioned punitive damages should be sought to act as a deterrent against future corporate misbehavior. As well as other information I would of rather not been disclosed to the R.R."

"The R.R. is really quite a polluter. It burned creosote ties poising the air just a few years ago. Oil globules are constantly on the tracks. I believe an uncaring environmental climate remains in the labor force at B.N. its and contractors."

"The minimum we should expect is a full clean up and compensation to those harmed and punitive sanctions to prevent further egregious behavior. We have many corporations and only one world."

Response: It is unfortunate that you felt betrayed by the consultant hired to conduct the interviews. Ecology did not have a staff person available at that time to help with all of the community interviews. BNSF offered to hire a EnviroIssues as their consultant; however, Ecology attended several interviews as time allowed, has scrutinized all the notes taken by EnviroIssues staff, and is following up on all of the comments and questions. It was necessary to contact people in the town in order to get timely input on the barrier wall.

On the issue about trusting data, Ecology randomly takes split samples to verify that the data received from BNSF is representative of site conditions. Ecology too has to rely on the professionalism of the consultants and the environmental labs that interpret and report the data. Nothing is completely known until the cleanup is complete and we can verify all of the work with confirmational sampling.

Final cleanup at the site will comply with MTCA, and the public will be given an opportunity to comment on the final cleanup action plan before it is finalized.

6. Comment (**Skykomish Environmental Coalition**)

6.a. "Many items in the draft [BOD] document were left for discussion/presentation in the final document. These are important items, e.g.: wall construction method, substantive state and local requirements, final number of wells. If these items are not presented until the document is finalized, the public does not have the opportunity to review and comment."

Response: All of the public comments were taken into consideration and based on these comments,changes are being made to the preliminary BOD . The Final BOD report will be substantially consistent with the preliminary BOD. Further, due to time constraints associated with the school year and the construction window, it is neither necessary nor practical to conduct another 30-day public comment period for the Final BOD. This document will be available for your review, but not through a formal public comment period.

6.b. BOD "Section 1.4, pg 1-3, para. 3, What are the decision criteria for determination of hookup or non-hookup of recovery wells to recovery system?"

Response: The criteria will be: Measurable oil accumulation in the well and

recharge of that oil after manual recovery or pumping at a rate sufficient for timed belt skimmer operation.

6.c. BOD "Section 2.3.6, pg 2-3, The document should clearly state who will be responsible for repair of damaged Utilities and in what time frame?"

Response: BNSF will repair or replace any utilities that are damaged during the construction of the barrier wall as soon as possible. The preliminary BOD will be modified to include this contingency. Also, see comment 2.b.ii. above.

6.d. BOD "Section 2.5, pg 2-11, last para, It would be prudent to perform vibration/settlement monitoring during construction to identify potential impacts early in the process and modify procedures as necessary, not just before and after construction activities as proposed."

Response: A professional engineer, licensed in the State of Washington, will oversee construction activities. See comment 2.b.iii. above.

6.e. BOD "Section 2.0, Would it be more efficient to install subsurface recovery piping during Phase I to minimize impacts to citizens and the need to remove fresh paving during Phase II?"

Response: It would not necessarily be more efficient to install the complete system at this time because we do not know yet where the majority of the oil will pool.

6.f. BOD "Section 3.0, How will compliance with performance standards be measured and verified (primarily proper placement of the wall and permeability reduction)?"

Response: The Request for Bid (RFP) to barrier wall contractors requires as part of a work plan submittal, "a Quality Assurance Project Plan (QAPP) with specific testing procedures and frequencies for barrier wall permeability and strength. At a minimum the Contractor should anticipate testing for wall permeability and strength once every 25 lineal feet of installed barrier, or twice per work shift, whichever is greater." In addition, ThermoRetec will provide contractor oversight including Quality Assurance (QA) testing and documentation of the extent of installed barrier.

6.g. "How would the barrier be breached if needed?"

Response: Perforations could be excavated into the wall and backfilled with permeable sand or gravel to allow groundwater flow through the perforation; however, this is a very extreme response, perhaps a last resort, but it is one possible contingency so it was included in the Basis of Design Report.

6.h. "Consider installing at least one monitoring well between the barrier wall and the levy to monitor for product seepage through the barrier after residual product has migrated from beneath the levy."

Response: Monitoring wells may be installed behind the barrier for monitoring purposes at a later time as part of the levee restoration if determined to be necessary; however, there are other methods to monitor effectiveness of the wall. Ecology may designate permanent seep monitoring locations along the river bank based on visual observations as part of the compliance and performance monitoring requirements. Also, town citizens and students may informally help with ongoing obeservations.

6.i. "The Technical Memorandum states "the exterior boundaries of the model area are no-flow boundaries, which means that groundwater flow is generated through constant head, specified flows and recharge within the model area." In my opinion, this language is contradictory. Either a boundary is no flow, general head, or constant head not both or all three. No flow means no flow. Secondly, the memo states "the Skykomish River is treated as a MODFLOW constant head boundary. In the eastern portion of the model where the river is higher, the river contributes flow to groundwater. To the west where the river is lower, the river receives flow from groundwater." The model assumes that water flows from the river to groundwater in the east portion of the model domain, migrates west and flows from groundwater to the river in the western portion of the domain. This implies that groundwater flow in the model domain is driven only by the river.

Typically, flow models are setup whereby the regional groundwater flow is influenced locally by rivers, not driven by rivers. The setting is a narrow, glacio-fluvial sediment filled valley with sediments up to 250 feet thick. The valley is very long and likely has a regional groundwater flow from east to west downgradient with the valley. Locally, the river influences groundwater flow in both the vertical and horizontal plane, but, it is not necessarily the driving force. It is the no flow boundaries on the eastern and western edges of the domain that confuse me. I would think that they should be constant head boundaries or at the very least general head boundaries. This would allow flow into and out of the domain on a regional level with the river influences superimposed.

It may be that the area of interest is limited enough that the model setup is sufficient. However, this issue needs clarified. Are the no flow boundaries at the edges of the domain true no flow boundaries or are they constant heads?

Response: See attached memorandum dated May 10, 2001 from Mike Riley SSPA to ThermoRetec.

7. Comment (**Maggie Wheatley - Skykomish**)

7.a. "I realize that this comment period is intended for comments regarding the oil seeping from the upland areas on the rail yard through the town of Skykomish and into the Skykomish River. However, I'd like to bring up one additional problem related to Burlington Northern and the Skykomish River area. Approximately one mile west of town, at railroad marker post 1733, there are hundreds of creosoted ties and tie butts dumped into the wetlands on each side of the tracks. Most are fully immersed in standing water which directly drains into the Skykomish River. I have no idea how this impacts the water or the environment, but I do know that creosote burns my skin upon contact, and I imagine that it has impacted the surrounding ecosystem of this very large wetland area. I also question the impact on the people who live in the area."

"I would certainly hope that the Department of Ecology would look into this in the near future, as the wetlands are located near a populated area. I had reported this at a town meeting at the beginning of the oil spillage discussion several years back, and to my knowledge no action has been taken."

Response: As the rail tie issue is not related to the BNSF Former Maintenance and Fueling Facility, Skykomish cleanup, Ecology has started a separate initial investigation of this situation that will be tracked initially as ERTS #N518503. We will keep you informed as to the results of the investigation. Rail ties are toxic if stored or dumped in large quantities as they will weather over time and release polynuclear aromatic hydrocarbons (PAHs) to the environment.

8. Comment (**Sharon Reynolds and John Lochmann**)

8.a. "Has the state developed and presented an "Environmental Impact Statement" to the citizens of Skykomish for this entire project?"

Response: An EIS has not been done yet for the entire project. For additional comments see 1.a. above.

8.b. "How are PCB's and lead going to be removed from the rail yard? Shouldn't this be removed and replaced w/clean soil?"

Response: PCBs, petroleum lead and arsenic, will be addressed in accordance with the MTCA during the final cleanup; one possibility is excavation.,

8.c. "The location of the first retaining wall is being placed in the least invasive, not necessarily the best, location. There is surely contamination farther west and east of the wall (proposed). The contamination can't miss the bridge.

Response: The data currently show that there are no oil seeps along the river, east of the bridge. The wall is planned as close as possible to the base of the bridge approach, without affecting the structural integrity of the bridge. This should be adequate to intercept all of the oil that is currently visible in the seeps along the river. Additional work is planned this fall as part of a Supplemental Remedial Investigation (RI) to determine the northeast extent of the plume. See comments 1.b. and 1.c. Remember that this barrier wall is only an Interim Action.

8.d. "Aquifer is the only transportation for the contaminant? We think not. Filtering the aquifer is not the only solution."

Response: The groundwater moving through the aquifer under the town is the main transport mechanism for the free-phase oil, LNAPL. This oil is also smeared in the soils as a result of the rise and fall of the groundwater levels. In this proposed Interim Action, skimming the LNAPL off the groundwater is a focused solution for the oil seeping into the river, but this action does not address the dissolved phase discharging to the river. There will be other cleanup actions in the future to address the soil, groundwater, surface water and any sediment contamination found throughout the site.

8.e. "Why does your area of contamination map change boundaries w/ea. town meeting?"

Response: The plume maps reflect changes of both the LNAPL and the dissolved phase petroleum in the groundwater. This is normal for any site because groundwater is always in flux, it is never stable. We agree that there has been some confusion and difference in interpretation for the boundaries drawn on these maps. This may be a reflection of comparing the free oil plume and the dissolved oil plume maps. For additional comments see 1.c. above.

8.f. "Have all avenues of cleanup been explored for all contaminates? Are

you, BNSF and Dept. of Ecology, trying not to disturb citizens? Is it out of the question to dig up all contaminated soil? What level of clean-up are you looking at? What kind of time frame are you looking at for clean-up of the entire area of contamination?"

Response: The different avenues of cleanup options have not yet been fully explored. They will be outlined and developed in the Feasibility Study that the public will comment on. Ecology then will prepare the Cleanup Action Plan that will determine the final remedies. That too, will be available for public comment.

8.g. "As property owners we are legally bound by law to disclose any contamination our property may be sitting on. This may lower the value of property, including surrounding areas. The entire town is affected by this problem. The responsibility of the clean-up and all of it's ramifications should stay with BNSF (not the state) even after clean-up has been signed off. RE: Property owners should not be held liable for damages by new owners should contaminants be discovered later in years."

Response: Please see response 1.a. above..

8.h. "Who made the state administrator of this problem? The Feds? What is the chain of command here? And how much does BNSF contribute? BNSF should be held responsible for all $$ spent on the clean-up. We should not be using tax dollars to get this problem solved."

"Responsibility and future ramifications should be in black and white before proceeding on anything."

Response: The State is the authority for cleanup under MTCA. The EPA does not regulate petroleum contamination. For additional comments, see 1.d. above. BNSF is the potentially liable party responsible for cleanup costs. The taxpayer's contribution is minimal under the MTCA.. State employee hours and materials spent on this project are reimbursed by BNSF.

9. Comment (**School District – Skykomish**)

9.a. "On behalf of the Skykomish School District (the "School District"), we have reviewed the draft Agreed Order, the interim Action Basis of Design for LNAPL Barrier System (the "Basis of Design"), and the SEPA Checklist and Determination of Non-significance for the Former BNSF Fueling and Maintenance Facility in Skykomish, Washington, and offer

the following comments for your consideration."

"The School District is pleased that BNSF will be taking actions under this Agreed Order that begin to address the long-standing problems caused by contaminant releases from its former fueling and maintenance facility. While the School District welcomes progress in the cleanup, it is concerned that installation of the barrier wall could affect School District property and disrupt school operations. The School District believes the Agreed Order must identify both the specific actions BNSF will take if this occurs, and the deadline for completing those actions."

Response: BNSF and the School District's legal counsel are working to resolve the District's concerns and its request for a contract with BNSF prior to the use of school property for the cleanup action. The Request for Bid (RFP) states "school session resumes on September 4, 2001 (classes run from 7:30 am to 3:30 pm Monday through Friday). In the event work extends beyond August 31, 2001, Contractor shall alter hours of operation to not impact school." For additional comments, see 2.b.ii.

9.b. "This letter states the basis for this and other School District concerns with the proposed interim action, and requests specific actions to address them. We begin, however, by providing some background information regarding the School District and how it may be affected by the interim action. **Skykomish School District's Interest in the Interim Action.** The Skykomish School District's offices are located on 6th Street between Railroad Avenue and West River Road in Skykomish, Washington. This is also the site of the School District's only school, which serves all students in the School District, grades K-12. The school year typically begins in late August or early September. Classes are held each weekday from 7:30a.m. to 3:00p.m. [There will also be a summer school session from July 9, 2001 through August 17, 2001, Monday through Thursday from 8:00a.m. to 11:00a.m. Behind the school building is a large grassy yard that students use for recess, physical education classes, and team sports."

"Since there is no sewage treatment plant in Skykomish, the School District relies on a septic system. The drainfield for the school's septic system is in the yard behind the school. If operation of the proposed barrier wall affects subsurface conditions such that the septic system can no longer function properly, the school will be unusable. Furthermore, since the School District has only one school, there is no alternative location to which the students could be sent. Nor could the School District simply cancel classes while waiting for the problem to be resolved. Under state law, the School District must be open 180 days each year. *See* RCW 28A.150.250. If it cannot meet this requirement, the School District will

denied state funding it would otherwise be entitled to receive. For these reasons, it is essential that the Agreed Order require BNSF to immediately remedy any problems its installation of the barrier wall causes for School District operations."

Response: *See 9.a. response.*

9.c. "**Interference with Operation of School District Septic System**. BNSF proposes to install a barrier wall adjacent to the levee bordering the Skykomish River. The proposed site of the barrier wall is also adjacent to the School District's property."

"The SEPA checklist that BNSF prepared for this interim action discloses that septic systems located on the upgradient side of the proposed barrier system could potentially be impacted by the groundwater mounding that may result from the barrier wall.... [The] groundwater table could potentially rise to a certain level that might impede the proper drainage of the septic systems, or the LNAPL product could interfere with the septic drainfield, which in turn could cause malfunctioning of the septic systems."

See SEPA Checklist at 14. After completing the SEPA checklist, BNSF's consultant developed a model to predict the changes that would occur in groundwater elevation following installation of the barrier wall. BNSF states in the Basis of Design that, based upon this modeling, it does not expect the rise in groundwater elevation to be significant. Nevertheless, the School District remains concerned that its septic system could be damaged as a result of this interim action. If this occurs, BNSF must immediately take action to provide the School District with septic service (In the SEPA conditions it drafted for this project, Ecology stated that "temporary septic system pumping will be performed" if the barrier wall causes the water table to rise. *See* SEPA conditions, bullet 6. However, the School District sees no language in the Basis of Design or in the Agreed Order that makes this condition enforceable)."

Response: *See comment 2.b.ii., 3.a.ii., and 9.a. above.*

9.d. "Despite the results of its modeling, BNSF recognizes that mounding behind the barrier wall may affect operation of the school's septic system. Rather than committing to take a specific action if this happens, however, BNSF proposes in the Basis of Design to assess each potential septic failure or flooding event on a case-by-case basis," and to implement "appropriate contingency measures." *See* Basis of Design at 2-12. By way

of example only, BNSF mentions that these appropriate contingency measures could include septic tank pumping, groundwater pumping, or strategic breaching of the barrier wall. Furthermore, BNSF does not intend to take any action immediately. It states elsewhere that it will first perform "additional groundwater gauging" if it becomes aware of problems with septic system functioning. *See* SEPA Checklist at 15. Only if BNSF determines from the results of this gauging that the barrier wall caused the higher groundwater elevation will it take unspecified actions to control or remedy the situation."

"Allowing BNSF to assess problems with the school's septic system on a case-by-case basis and then to propose a solution could take days, weeks, or months, during which time the school would have to close. As explained above, even a very short-term disruption of this system would have devastating impact on the School District and its students."

"The School District requests that Ecology specify in the Agreed Order actions that BNSF must take if the barrier wall interferes with proper functioning of the School District's septic system. If BNSF proposes to do anything less than replace the existing drainfield, then Ecology should require BNSF to demonstrate that its proposed action will be adequate - specifically, that it will allow continuing use of the septic system without disturbance to the School District. In addition, the Agreed Order should require BNSF to prepare a drainfield replacement plan as a backup. Ecology should also require very specific plans, including, as necessary, property access agreements or easements, drainfield engineering and construction design, identification of available contractors, and estimates of time to completion."

Response: *See comment 2.b.ii., 3.a.ii., and 9.a. above.*

9.e. "In addition, the School District requests that whatever actions Ecology specifies either allow continued use of the existing septic system or provide an alternative *without delay.* For example, one of the options BNSF mentions in the Basis of Design, groundwater pumping to lower groundwater elevation, would not provide the immediate results that are essential to the School District."

Response: *See comment 2.b.ii., 3.a.ii., and 9.a. above.*

9.f. "In addition, the School District requests that the Agreed Order require BNSF to implement these contingency measures immediately after it

becomes aware of any problems in the operation of the septic system. BNSF's proposal to conduct additional groundwater gauging before taking action to correct the problem is unacceptable. The School District fears that BNSF's efforts to perform this gauging and then to interpret the results will simply lead to delays in restoring septic service to the school. The School District has not experienced problems with its septic system in recent years, and there is no reason to suspect that any problems it may encounter after installation of the barrier wall will be attributable to a cause other than the barrier wall. The Agreed Order should require immediate implementation of the contingency plan if the septic system begins to malfunction."

Response: See comment 2.b.ii., 3.a.ii., and 9.a. above.

9.g. "Finally, the School District requests that it be consulted before a specific contingency measure is selected. Among other things, the School District will want to ensure that the method chosen will not interfere with its use of the school yard, either for school purposes or for other scheduled activities."

Response: The School District will be consulted before a specific contingency measure is selected. For additional information, see comment 9.a. above.

9.h. "**Noise.** The Basis of Design acknowledges that installing the wall will be noisy, but states that only that special work schedules "will be considered" if school is in session during installation. *See* Basis of Design at 2-10. It does not specify the actions that will be taken to avoid disrupting classes and other school activities."

"The School District requests that the Agreed Order dictate the measures that BNSF must take, including the work hours it will observe, to avoid interfering with school functions. Again, the School District should be consulted as these measures are being considered to ensure that the measures chosen are appropriate."

Response: Text in the Request for Bid (RFP) from barrier wall contractors states that "The allowable hours for barrier wall construction are 8:00 am until 6:00 pm Monday through Friday, unless Engineer approves alternate hours of operation. School session resumes on September 4, 2001 (classes run from 7:30 am to 3:30 pm Monday through Friday). In the event work extends beyond August 31, 2001, Contractor shall alter hours of operation to not impact school."

9.i. "**Settlement of Buildings**. BNSF has committed to take certain actions to document conditions prior to construction of the barrier wall, including an

elevation survey of building corners or foundations and a videotape survey of the exterior of structures. *See* Basis of Design at 2-11 through 2-12. The information from these surveys will help determine whether the vibrations associated with installing the barrier wall cause settlement or other structural damage. BNSF should be required to hire an independent engineer to conduct these surveys, and they should be conducted immediately before, immediately after, and one year after construction."

"Moreover, while BNSF has committed to performing the surveys, it has not promised to fix any damage it discovers. The School District requests that Ecology make it a requirement of the Agreed Order that BNSF repair any damage to the school resulting from the performance of this interim action."

Response: BNSF will repair any damage as a result of the construction activities relating to the installatin of the barrier wall. For additional comments, see 2.b.iii.

9.j. "**Staging Area.** It is not clear from the documents whether BNSF intends to stockpile excavated materials near the construction site. According to Appendix E of the Basis of Design, BNSF will use a staging area to "prepare slurry mix, stockpile excavated materials, and handle trench spoils for the barrier wall installation." *See* Basis of Design, Appendix E. However, earlier in the document BNSF states that "[e]xcavated materials from the work zone will be immediately moved to the rail yard." *See* Basis of Design at 2-10. If BNSF intends to stockpile excavated, potentially contaminated materials near the construction site, even for a short time, it should specify the measures it will take to ensure that school children and others are not exposed to the materials. The Basis of Design states that BNSF will secure the staging area with temporary fencing, but the School District is not convinced this alone will prevent exposure. For example, children may attempt to climb over the fence. For this reason, any potentially hazardous materials should also be secured inside the fencing.

"The Basis of Design also states that the school yard is the "only available" area to use for staging. The School District notes that BNSF has not sought permission to use the yard in this manner. Before BNSF can commit that it will stage any materials in the school yard, it will have to negotiate an access agreement on terms acceptable to the School District."

Response: See comment 9.a. above. BNSF is negotiating an access agreement with the School District for the use of a portion of the schoolyard for staging equipment. BNSF has proposed several measures to minimize the

potential for anyone to come into contact with any hazardous substances that may be excavated during the interim action, including a temporary fence. Language from the RFP for barrier wall contractors states: "Spoils generated during construction cannot be staged within the barrier wall corridor or the adjacent schoolyard and must be direct-hauled to a staging area on BNSF property south of the project site. The Contractor is responsible for hauling the spoils, staging them in a designated area, and loading them on rail cars for shipment to the disposal site. Spillage of spoils (either soil or fluids) on the City streets will not be allowed." The following is a required subsection in the contractor work plan submittal:

"Temporary security fence measures and site controls to prevent public access to Contractor laydown and work areas, including spoils management and handling areas."

BNSF will comply with the dangerous waste regulations as an appropriate and relevant requirement under the Agreed Order.

10. Comment (**Lorna Goebel -- Skykomish**)

10.a. "The primary concern is that the extent of the oil plume has not been determined, especially its western boundary. The maps keep changing and observations by local citizens historically lead to a more western extent. Since the extent of the plume is not known then it should be drawn on maps indicating that it is not known with certainty or that it is changeable. Use "?s" marks, dashed (--) or "?--?" lines."

Response: Future groundwater plume maps (for both dissolved and free-phase petroleum) will indicate if there is any uncertainty regarding the plume with marks like those described above; however, we believe that there is sufficient data on the location of the oil and the seeps on the river bank to move forward with this interim action.

10.b. "The prospect of having an injection barrier appears to lead to the possibility that gaps might be left in the barrier wall allowing seepage. With the injection method no provisions are made to check against this possibility. With the trench and pour or slurry method of building the wall, you will know that there is a complete wall. If any boulders were encountered, they could be poured over to create a tight seal or broken up and removed. Also, trenching and pouring of the wall will provide minimum disturbance to the people who own adjacent property and the community as a whole."

Response: The points you raise are true. There are, however, pros and cons for both construction methods. The slurry wall has been selected as the preferred

remedy for this interim action.

10.c. "The time between placing the wall and start of recovery operations is too long, especially on the West End of the wall. I propose that a recovery well be drilled immediately after construction of the wall at the proposed inside site on the West End and furthermore that monitoring of this well be done soon after completing and continuing at frequent intervals. This will prevent large amounts of potential seepage of product around the West End wing wall. It is possible that no sizable build up of product will occur at this location, but to not monitor that potential would lead to possible further contamination of the Skykomish River."

Response: Installation of proposed recovery and monitoring wells is included during Phase 1, immediately following barrier wall installation, as detailed in Section 2.1.4 of the Basis of Design Report. It is Phase 2, installation of an automated recovery system (pumps, piping, oil storage facilities, electrical) that is scheduled for 6-12 months after installation of the barrier wall. The wells will be monitored per the Monitoring Program outlined in Section 6 of the Basis of Design Report. Oil recovery will be performed as needed using portable pneumatic pumps or a vacuum truck until a permanent recovery system is constructed.

10.d. "Phase 2 should start immediately after installation to insure that breaching of the wall by product does not occur. I suggest that a recovery well be installed at the west end immediately and additional recovery wells then be installed towards the east. History of current recovery would suggest where to drill the second recovery well and additional wells.

Response: Phase 2 will start 6 to 12 months after the wall installation or earlier based on technical field data. Oil that's accumulated in the wells will be manually pumped on a regular basis until the complete extraction system is in place. It is not yet known where the oil will accumulate that would warrant the permanent location of the extraction wells. Therefore, wells fitted with the automated recovery equipment will be decided during Phase II. Additional wells may be added to the system if needed.

10.e. "The two reasons that I prefer a slurry wall are:
1) This method gives visual proof that the wall has complete coverage and no gaps are left.

2) This method minimizes the time that the residents of that neighborhood and the community are disturbed."

Response: Ecology concurs; the slurry wall is the preferred method.

10.f. "Other comments: [BOD] Page 1-2, Section 1.3, 1st paragraph last sentence: Include boulders in the size description."

Response: Correction noted; appropriate changes will be made.

10.g. BOD "Page 2-6, Section 2.3.1: Titles of Figures 2-4 and 2-5 are not correct."

Response: Comment noted.

10.h. BOD "Figure 2-4: At top of the figure are the directions "E--W," and "A--A'." Then below this is the title centered reading cross-section B-B'. This should read cross-section A-A'."

Response: Comment noted.

10.i. "Figure 2-5: Same error it should read "cross-section B-B'."

Response: Comment noted.

10.j. BOD "Check references to these figures concerning MW-28. My notes show that it has been referred to as being on cross-section B-B'. This is incorrect; it should be A-A'."

Response: Comment noted.

10.k. BOD "Page 2-7, top line. Should read '...Portland cement and bentonite clay (CB).' For the rest of this document you use "CB" to refer to this mixture, so it should be spelled out the first time it is used to include the acronym."

Response: Comment noted and appropriate changes will be made in the modifications to the preliminary BOD report.

10.l. BOD "Page 3-1, Second bullet. If the barrier wall will extend from one to two feet below the existing roadway surface and the ground water level rises to the surface during flooding conditions, what will prevent ground water and floating product from coming over the barrier wall? Monitoring for water levels and the modeling data for this site have only been done since 1990. This period misses the two largest floods since I have owned

property and these were in 1987 and again in 1989. The 1989 flood breached the levee on the East End of town and entered to a depth of a couple feet. If a flood of this proportion occurs, it will probably backup all septic systems in the neighborhood of the wall including the school septic system. In the case of severe flooding Skykomish may be inaccessible for a number of days. In the 1989 flood we were completely cut off to the west by Highway 2 being flooded at Sultan, and near Grotto. To the east you could not get out because Highway 2 was flooded at Turn Water Canyon, before Leavenworth. This condition continued for 2 days to the west and over a week to the east. Therefore advanced planning and staging of a pumping truck in Skykomish must be when flooding is predicted must take place.

Response: The model does show that the main wall and/or wing walls do not change groundwater flow patterns to any significant extent even during simulated high water conditions. Consequently, there is no greater potential for floods to impact groundwater or LNAPL distribution with the wall than without the wall. Past flooding has not caused LNAPL to rise to ground surface from rising flood waters. The previous oil that came to the surface was due to flooding of the underground skimmer pump vaults that were under construction at the time. This problem has been corrected and we do not anticipate it reoccurring in the future.

10.m. BOD "Page 3-2, first sub-bullet under first bullet. There are conflicting statements: The first sentence: 'Approximately 4 future LNAPL recovery wells will be installed upgradient from the wall but within the West River Road right-of-way.' And last sentence '.. and a minimum of 5 feet from the southern edge of the right-of-way.' QUESTION: Which is it? In the right-of-way, or south of the edge of the right-of-way?"

Response: All recovery wells (Phase 1) and piping (Phase 2) will be installed within the right-of-way. To clarify the sentence in question it should read "The barrier wall shall be installed a minimum of 5 feet north of the southern edge of the right-of-way." The performance standard requires the contractor to maintain a 5-foot-wide buffer zone on the southern portion of the right-of-way to allow for future Phase 2 construction activities.

10.n. BOD "Page 6-1 Section 6.1. Insert the word 'month' after 12. This makes it clear what periods of time are being considered.

Response: Comment noted; appropriate change will be made.

10.o. BOD "Page 6-1 Section 6.2. Sampling methods should be spelled out in

detail, with not only how the gauging and sampling will be performed, but also what criteria will prompt action."

Response: Sampling will be performed in accordance with the Sampling and Analysis Plan (SAP) for the site (RETEC 1993). This reference will be added to the preliminary BOD report. The action that Ecology anticipated as a result of these efforts is implementation of the Phase II Recovery System. The criteria that will prompt the concstruction and installation and recovery system is the location where product has pooled against the wall.

10.p. BOD "Page 6-2. Incomplete sentence. After turning 2 pages to page 6-4 is it completed. Better to complete it on page 6-2. There is enough room.

Response: Comment noted.

11. Comment (**Dave Clark [Manager] and Tom Bean [Senior Engineer], King County, Water & Land Resources Division**)

11.a. "The proposal includes trench excavation immediately adjacent to the landward slope of the existing King County levee. The excavation would extend down to an elevation below the adjacent river bed. This could potentially cause structural problems to the levee itself. The design report does not detail the excavation methods or any best management practices that might be used to guard against such structural problems. I believe that King County should be given reasonable opportunity to review and approve or reject a more specific proposal that details construction methodology and quality control measures. The schedule information presented in the design report would not appear to afford such involvement."

Response: The plans for the barrier wall will be prepared and stamped by a professional engineer certified in the State of Washington. For a slurry trench excavation, a minimum slurry elevation of 1 foot below ground surface (bgs) and a minimum slurry density of 73 pounds per cubic foot (pcf) will be required. BNSF calculations (attached) indicate that these restrictions will provide a safe excavation that will not impact the levee.

Any technical information that Ecology receives for the final design will be made available to King County within a reasonable time frame.

11.b. "High river conditions during construction could greatly increase the chance of structural problems within the levee being caused by the proposed excavation. The design report suggests that construction would occur during the months of July and August but the document further suggests that factors such as contractor availability might change that

schedule, I strongly suggest that construction be tied to occur only during low-water conditions. Moreover, I would note that high river conditions can occur at virtually any time in King County. Therefore, I suggest that Construction activity be carefully tailored to weather conditions and forecasts with contingency plans for unexpected high water.

Response: The timing of the installation of the barrier wall (August/September) is intended to avoid high water and coincide with seasonally low river stage. Although river stage can change rapidly in response to upstream precipitation events, 2001 in particular has produced very low flows. Excavation will not be allowed if flooding conditions are predicted on the river or during extreme storm events that could lead to higher than normal river stage and potential flooding. The supervising engineer also will stop excavation if the groundwater table rises above 5 feet below grade surface (bgs).

11.c. "The document mentions an investigation of septic systems in the project vicinity, to occur concurrent with the public review of the design report, that would identify possible conflicts between the proposal and the function of established septic Systems. We request the opportunity to review the results of that investigation, and to further comment on the overall proposal in light of the findings."

Response: There is no indication that the septic drainfields for the school or the residences along West River Road transect the proposed wall alignment. The school drainfield and property along West River Road has been mapped using ground penetrating radar (GPR), underground camera and dye techniques. Several trenches were excavated to the north of the school drainfield and no line transected the proposed wall. Ken Elliott of Seattle-King County Public Health has been providing oversight of the situation and will continue to be involved with this project.

11.d. "The design report suggests that any storm water conveyance pipes that are intercepted by the proposed barrier wall would be allowed to flow through the barrier. Given the relatively porous nature of most storm sewer systems, and the condition of the visible portions of this particular system, we would suggest that this approach would probably allow contaminant flow through the proposed barrier. We suggest that a better approach would be to carefully identify the existing storm conveyance system and to either adjust the barrier wall alignment or relocate the storm system in order to eliminate any such conflict."

Response: The proposal is intended to minimize disruption of utilities and infrastructure. The slurry wall technology permits the contractor to work around existing stormwater facilities rather than removing or relocating those facilities. Storm sewer lines from three different catch basins pass through the wall. The lowest invert elevation of a storm sewer on Fifth Street is 924.76 feet above mean sea level (MSL). As shown in hydrographs presented in Appendix B of the Basis of Design Report, the highest groundwater elevations measured in nearby wells

MW-25 and R-4 during the past 10 years are around 922 feet above MSL. The lowest pipe elevation for catch basins on Sixth Street is 923.2 feet MSL.

Based on these data, we do not expect inflow into storm drain piping in the vicinity of the wall. Although flood events could potentially result in groundwater infiltration into storm drains, the wall would not increase the potential for this occurrence.

11.e. "Given the slope of the water table, as documented in several of the graphics, we question whether the proposed barrier wall alignment will actually capture the contaminants or merely redirect them to the west. We note that alignments used in MODFLOW runs #6 and #7 include west-end walls that would tend to contain sump areas where floating product would pool on the tilted phreatic surface. The proposed alignment lacks such containment."

Response: If the wall redirects lightnon-aqueous phase liquid (LNAPL), it will redirect it along the upgradient side of the wall. One means of collecting the LNAPL is to put in a single large wing wall with product recovery near where the wing wall meets the main wall. This would result in only one location for LNAPL recovery and would result in LNAPL spreading along the entire length of the wall before being removed. Since there is presently no LNAPL observed along the western portion of the wall, using only a single wing wall could cause LNAPL to migrate into areas where it is not presently found.

The alternative presented is for several shorter wing walls. This results in several locations for NAPL recovery with smaller pools at any one point. Consequently, there is less potential for the pools to migrate upgradient and around the wing wall, even though the wing walls are shorter. In addition, the NAPL will only migrate from the point where it reaches the main wall and then migrate a short distance to a wing wall, at which point it will be recovered.

Therefore, the proposed alignment is adequate for the intended objective.

11.f. "Several of the graphics suggest that the east end of the existing plume path might extend beyond the proposed wall alignment. We suggest that the alignment be extended to the east, beyond any reasonable expectation of the contaminant plume's extent."

Response: The barrier wall alignment is based on seep locations along the river bank and test pits excavated along the proposed alignment. The wall will extend as far east as possible without compromising the structural integrity of the abutment for the Fifth Street bridge approach ramp. Further work to delineate the northeast extent of the LNAPL plume east of the bridge will be addressed as part of the Supplemental RI/FS Work Plan for the project, and not as part of this interim action.

11.g. "The design report considers groundwater conditions that are well below flood conditions. We request that flood conditions, and the resulting behavior of the contaminants, be considered and discussed in the design report."

Response: Flood conditions have been considered as part of the modeling that evaluated groundwater at a high river stage and was discussed in the report. Based on the monitoring performed at the site to date, the resulting behavior of contaminants as a result of flooding is a localized reversal of groundwater flow adjacent to the riverbank. Therefore, it is not expected that flooding would result in any increased mobilization of the LNAPL given its high viscosity (it is very immobile). For additional comments, see 2.e.

11.h. "We note that the SEPA documents mention neither bull trout nor chinook salmon, both of which are present in the adjacent river channel and are now actively protected under the Endangered Species Act. We suggest caution to be sure that ESA requirements are fully met."

Response: The SEPA checklist refers to bull trout in Section 5 -- Animals. A correction will be made in the preliminary Basis of Design report that reflects the other Endangered Species Act (ESA) species, Chinook salmon. The National Marine Fisheries Service (NMFS) was contacted to verify that ESA requirements would be fully met for this interim action. No federal decision will need to be made for this project because work will not be done in surface water, work will not adversely affect or "take" any ESA-listed species, and there will be no federal dollars associated with this work.

11.i. "In planning for recovery of bull trout and chinook salmon, as well as for enhancement of other fish and wildlife, we are finding an increasing need to consider setbacks of existing flood control facilities. By virtue of its alignment immediately behind the levee, this proposed barrier wall would seem to limit any levee setback options in this area. As mitigation for foreclosing setback levee options, consideration should be given to design modifications to the existing levee systems such as the addition of large woody debris, native plantings and other features which protect and enhance fish and wildlife resource."

Response: Ecology will work closely with King County during any restoration phases of the comprehensive site cleanup that may affect the levee and/or aquatic habitat.

11.j. "The design report mentions measures that appear to protect against health problems that otherwise might result from contact with the excavation spoils. Given that our agency maintains the adjacent flood control levee, where the oil plume has been observed, please provide more specific information about the potential for health hazards that might result from any emergency maintenance that might be required in this area. No such maintenance is proposed at this time, but our agency does sometimes

respond immediately, as flood conditions require. I request information and advice in this light."

Response: BNSF will have a detailed health and safety plan that addresses property management of contaminated soil as part of the overall cleanup and Consent Decree for the site. For this interim action, a health and safety plan meeting the requirements of WAC 173-340-810 will be attached to the Final BOD, Exhibit B. Also, see WAC – 430. This will be provided to the County and other public agencies and maintenance workers as an example of the kinds of precautions the County may need to consider when conducting work on the levee that could expose contaminated soil. In the interim, should maintenance of the levee be necessary, please inform Ecology and BNSF in advance of such work.

12. Comment (**Richard and Susan Goranson and the Sky River Inn - Skykomish**)

12.a.i. "First, we are pleased that some action is finally being proposed to try to prevent further LNAPL from seeping into the Skykomish River. However, we have a number of specific questions and comments to the proposed action."

"Section 1.3: The basis of design report states that hydraulic conductivity was determined via slug tests. However, such tests are a poor method of determining hydraulic conductivity. Why were pumping tests not used instead?"

Response: Pump tests were not used because in the project area (adjacent to the river), any pumping of groundwater would also result in the pumping of water from the Skykomish River. Such inflow from the river would make pump test results very difficult to interpret. Since groundwater pumping is not proposed as part of this project, the accuracy of slug tests is considered adequate for design purposes. Additionally, the high permeability of the aquifer is not in question. It is this high permeability that the proposed project takes advantage of (i.e., high permeability is the reason that very limited mounding of groundwater behind the wall is expected).

12.a.ii. "Further, the description of the aquifer's properties contains no mention of the storage coefficient, which is an essential parameter for evaluating the aquifer's properties. Indeed, neither the body of the document nor the appendices explain what type of model was used to evaluate the aquifer's parameters. This information should be disclosed."

Response: Please see the design report on page 1 of Appendix A that states, that MODFLOW groundwater flow model was used. Since model simulations were steady state and not transient, storativity is therefore not required for this model simulation.

12.b. BOD "Section 1.4: The Interim Action proposes to 'continue to operate' existing wells only if they 'are able to be preserved during construction of the barrier wall.' We request that Ecology require that existing wells be preserved, or if damaged during construction be replaced, so that the existing recovery system not be impaired or reduced."

Response: The existing recovery system will remain intact or be replaced during the Interim Action. Please see in Section 3 of the Basis of Design Report where it states: "The Contractor shall protect existing recovery wells R-1, R-2, R-3 and R-4 and associated vaults, piping…" In spacing new recovery wells, existing wells (one approximately every 100 feet) were taken into consideration; it is implied by the design drawings that the existing wells, or new wells at their locations, will be part of the final barrier system.

12.c. BOD "*According* to figures 1-3 and 1-4, which purport to depict the LNAPL plume, the eastern "finger" of the plume appears to flow underneath the bridge abutment. What is the foundation of the bridge abutment, and how deep are the footings? It appears that the footings of the bridge have not been adequate to prevent the plume from spreading. Why not?"

Response: See 10.a. regarding the information available for moving ahead with the barrier wall and oil recovery system as an interim cleanup action. The bridge is pile-supported, and there are no footings; however, the eastern extent of the barrier wall is constrained by the approach structure to the bridge. Also, the delineation of the northeastern extent of the plume (east of the bridge) is planned as part of the data gaps that will be included in the Supplemental Remedial Investigation (RI) planned this fall.

12.d. BOD "Section 2.1.1: If jetted slurry is selected as the barrier method, what measures will be taken to insure that a continuous wall, rather than a series of disconnected drill holes, is created?"

Response: If the jetted slurry method were used, the technology could meet the performance specifications of continuous wall, but it has other disadvantages relative to the slurry wall method along West River Road and will not be used.

12.e. BOD "Section 2.11: In the discussion of the barrier system configuration and alignment, the document states that 'no evidence of oil was found in the eastern most test pit near monitoring well MW-25 and recovery well R-4.' This is a little misleading. A finger of the plume is in fact trapped east of those wells. Thus, apparently as planned, the wall must be extended to the east of those wells."

Response: See 11.f. and 12.c. The proposed barrier wall alignment is based on available data, including wells and test pits. The east end will be located as close to the bridge approach as possible, without affecting the structural integrity

of the bridge.

12.f.i. "Section 2.1.3: Barrier wall depth is based in part on the 'known historic low water table elevation,' as determined by water level data collected between 1990 and 2000. This year is drier than any of those years and the water level may well be much lower than in any of the previous eleven years. Accordingly, water levels should be tracked and projections revised continuously this year to account for departures from the historic lows."

Response: Water levels will be tracked, measured, and compared to previous years. Water levels in the project area are measured twice a year as part of the monitoring required for the existing recovery system. Water level measurements collected in November 2000 and March/April 2001 are well within the observed water table fluctuations presented in the hydrographs in Appendix B of the Basis of Design Report. The barrier wall design depth is 3 feet deeper than the lowest observed water table; this 3-foot buffer should be adequate to account for drier than normal conditions.

12.f.ii. "Is there any contingency for deepening the wall if necessary, if in fact water levels prove to be lower than anticipated? If there is no contingency, there should be. If there is such contingency in place, it should be reported in the public documents."

Response: If groundwater depths decrease and stabilize to new levels that have not been observed over the last ten years, then measures will need to be taken to draw the oil to the extraction wells before it gets to the wall. It is not technically feasible or practicable to deepen the wall once it's constructed. For additional comments, see 12.f.i.

12.g. BOD "Section 2.1.4: Recovery wells are proposed to be 6" in diameter. Larger extraction wells offer more flexibility. We request larger-diameter extraction wells."

Response: The proposed 6" diameter skimmer pump recovery well system is adequate and provides sufficient flexibility for the intended purpose of product recovery. However, eight-inch-diameter wells will be considered.

12.h.i. BOD "Figure 2-1: The boundaries of the eastern finger of the plume in Figure 2-1 are larger than in Figures 1-3 and 1-4. Why the disparity? None of these maps are consistent with recently released mapping of the plumes. All the maps must be reconciled, and must reflect the latest and best information."

Response: See comment 8.e. above regarding plume maps.

12.h.ii. BOD "Figure 2-5 this cross-section map shows a dip in groundwater which is not evidenced in earlier maps. Again, the mapping should be consistent."

Response: This cross section appears in the 1996 draft RI report as Figure 5-4 and appears consistent with earlier maps.

12.i. BOD "Section 2-6 (Barrier Wall Contingency Plan): the plan calls for pumping septic tanks if the wall causes flooding. This is not an adequate response. If drainfields are flooded, groundwater will be impaired by the intrusion of human waste. A more comprehensive Contingency plan needs to be in place."

Response: See comment 2.b.ii. above for problems concerning septic systems.

12.j. BOD "Section 3: This section states that the design depth will average 13 feet bgs. However, earlier in the document the wall is described as being 15 feet bgs. Which is it?"

Response: The design depth of the wall is three feet deeper than the lowest observed water table elevation along the proposed alignment. As shown in Figure 2-1 of the Basis of Design Report, the depth of the wall will vary from approximately 12 feet bgs at the west end to 14 feet bgs at the east end due to topographic differences within the area.

12.k.i. "This Interim Action proposes to deal only with the LNAPL plume. When is some action going to be taken to deal with the dissolved product?"

Response: The dissolved product will be dealt with during the comprehensive cleanup for the whole site. Ecology's goal is to present the comprehensive cleanup solutions to the public for their review and comment some time next year.

12.k.ii. "There should be some monitoring between the wall and the river."

Response: One or more monitoring wells between the barrier wall and levee will be considered in the Feasibility Study (FS) and could be part of a compliance monitoring plan for the final cleanup remedy at the site. In addition to the installation of a well, Ecology may designate specific seep sampling locations along the river.

12.l. "What assurances are there that the barrier wall will not force more LNAPL onto the Goranson property? It appears that any rise in groundwater levels will force additional contamination onto the Goranson property, and/or will prevent migration of LNAPL toward the barrier wall. What contingency is there to protect that property, including the drainfields - which run along the water side of the property – from further Contamination in the event that the barrier wall alters plume flow?"

Response: The groundwater modeling predicted that any mounding would likely occur west of the bridge near the school property. The contingencies for properties to the west of the bridge would be the same for those to the east that include temporary sanitary facilities, septic and groundwater pumping. In addition, monitoring wells will be installed adjacent to this property as part of the supplemental RI/FS and data gap work planned for this fall. For additional comments, see 2.b.ii.

12.m. "Given recently released information about the plume's location, we believe additional wells should be placed on the east side of the Skykomish River bridge to further ascertain the extent of the heretofore unexplored zone of the plume."

Response: More soil borings and wells will be installed as part of the data gaps to finish the Remedial Investigation. Those are planned for later this summer or early fall For additional comments, see 11.f.

12.n. "Where is the point of compliance? Is it the river? The levee? This should be identified."

Response: The point of compliance for the site will not be determined until the final Cleanup Action Plan (CAP); however, for this Interim Action, during Phase II, Ecology will evaluate appropriate performance monitoring locations for the wall. Those may include seep locations along the river banks or one or two monitoring wells between the levee and the wall and at the ends of the wall. Some or all of these performance monitoring wells may serve a dual function by adopting them as part of the compliance monitoring well network for the final site cleanup.

12.o. "What is the basis for the location of the proposed PRWs? The spacing of the wells is uneven. Why?"

Response: The proposed recovery wells, together with existing recovery wells along the barrier wall alignment, are spaced at approximately 100-foot intervals. Because the existing wells needed to be incorporated into the alignment, the spacing may not be equal. The four (4) wing walls are designed to distribute oil accumulation and recovery more evenly along the length of the wall. The actual wells used for recovery will be based on the location of pooled product over the next 6 to 12 months.

12.p. "We note that the report states that 'the Contractor is strongly encouraged to use local businesses during Construction including motels. . .' We are looking forward to seeing BN and the Contractor make good on this pledge."

Response: BNSF and the contractor plan to use local businesses and services as much as possible.

12.q. "There may be ready answers to many of our questions. However, the report does not document the basis for a number of the design parameters, leaving one to have to make assumptions that may or may not be true. We agree with Comment #1 by URS, that a number of essential decisions are left for later documents, thus limiting the public's ability to review and comment on them, and the comment by SEC, that data is not presented in a consistent format. It has taken an inordinate amount of time -- years -- to come forward with this Interim Action, and yet the public was given only 30 days to review and comment on it. We request that in the future, notice of any and all proposed actions be provided to each and every property owner in the vicinity to ensure that all affected persons be given full information about the situation and full opportunity to comment."

Response: The 30-day public comment period is based on the MTCA regulations. It is standard procedure for many government actions. For this Interim Action, Ecology was on a fast track to make a draft design report available for public review and to install the wall this summer in order to minimize disruptions once school starts. The public comments of both technical- and health-related concerns have been considered and will be incorporated into the preliminary BOD report. Therefore, based on considerations including- weather constraints, school interruptions, and since the modifications will be incorporated into the preliminary BOD and will not substantilly alter the final BOD report, another comment period will not be scheduled. Notice of the public comment period was given in advance through: a mailing of approximately 500 fact sheets to the Skykomish community and other interested parties, notice in The Herald and the State Site Register, and posting on the Ecology web site.

13.a. **Comments Abstracted from Community Interviews, April/May 2001**

Kids play in the railyard – have bike jumps there; Soil Sement wears away; people walk dogs and tourists take pictures there. Why isn't the railyard fenced off? Can they fence the railyard this summer? Take early action if the soil removal will not be completed this year.

Response: The fence has been under discussion for some time. Plans require the town's Historic Review Board approval for the portion that is in the designated historic district. The town and BNSF's operational division need to discuss and resolve the type of fence before it can be installed. "No trespassing signs" are clearly posted on the railyard. For safety reasons, no one should be on the railyard except BNSF employees and contractors.

13.b. How does the plume area affect those living outside the boundary?

Response: The plume affect on human health outside the plume boundary is minimal. Ecology will be evaluating the remedy for the dissolved phase in the final cleanup of the site.

13.c. Will the town have access to the interviews?

Response: Yes, the interviews were attached to the Public Participation Plan and should be in the repository at the library and through the Skykomish Environmental Coalition (SEC).

13.d. How much effort does it take for monitoring the "socks" on the river? Are the efforts genuine or for show?

Response: BNSF consultants monitor the containment approximately every two weeks. BNSF is evaluating the addition of local assistance for more frequent monitoring. The containment booms and absorbant pads are considered temporary measures. Other spill response methods are being re-evaluated to improve effectiveness of oil containment. The barrier wall is considered an aggressive and permanent actionof oil containment.and will eliminate the flow of oil to the river over time.

13.e. Motor oil was found in a yard near Maloney Creek. Oil sheen is still present. Also, oil was found at a 2 foot depth several years ago while working in the yard. Can this be rechecked?

Response: Yes, The oil boundaries have not been determined yet for areas around Old Maloney Creek and will therefore be sampled during the upcoming data gap sampling later this summer or early fall.

13.f. What are the options for legal representations for residents and the school? Would SEC sponsored representation be possible?

Response: Residents, organizations or businesses need to seek their own legal representative if there are issues that they would like to see pursued. The SEC cannot use the State grant for legal representation. Also, see responses to 1.a. above.

13.g. I would like to see a boring grid throughout town to show property owners who do or do not have problems.

Response: Further sampling for potentially impacted properties will be completed as part of the data gaps for completing the Remedial Investigation.

Those are planned later this summer or early fall.

13.h. Is it safe to have gardens in the plume areas? What about outside the plume? Is it safe to pick berries in town?

Response: Please see comment 5.a. above.

13.i. There are other areas south of the site and along Maloney Creek that had oil spills. I would like to see follow-up on these claims.

Response: These claims will be investigated as part of the data gaps.

13.j. Is BNSF obligated to pay for any repairs done to property if damage occurs as a result of this Interim Action? Will there be a video taken of the building foundations?

Response: Please see comment 2.b.iii. above. As part of the contingency plan, BNSF will pay for or repair any damage as a result of this Interim Action. The structures around the wall alignment will be inspected by a certified building inspector. This contingency will be added to the preliminary BOD.

13.k. Will contaminated water flow under the properties along West River Road after the installation of the wall?

Response: The groundwater modeling predicted that the flow of water would go under the wall, not increase the flow to the west. Contaminated water should not flow under these homes as a result of the wall.

13.l. When will the boat launch be reopened?

Response: At this time, recreation along the banks and within the Skykomish River is believed to be unsafe west of the bridge, in the area of the seeps. It is expected that opening of the boat launch will be reevaluated when the seeps have been stopped and the habitat restoration (including the petroleum trapped between the wall and the river) have been evaluated and addressed.

14. Comment: **(Ken Elliott, Public Health Seattle-King County)**

14.a. "As stated in the April 4, 2001 letter, a drainfield trench which is intersected by the wall could compromise the treatment and disposal of the subject effluent wastestream. Also, designation of a suitable staging area on school property which avoids the drainfield trenche(s) is difficult when the drainfield location is unknown. Note that no driving or parking of vehicles is allowed over the drainfield, due to potential breakage of pipe and likely compaction of surface soils above the trench."

Response: *The drainfield location has since been identified and will not be affected by the proposed staging area.*

14.b. "A drainfield locate attempt was made on May 24, 2001. A probe inserted into the excavated D-Box went 61', but no further. This may mark the end of any drainfield trench, or simply a sharp turn that the probe could not penetrate. An old eyewitness account of the approximately 25-year-old repair suggests two (2) trenches continue west for some distance. Clearly, the west and north edges of the school drainfield must be identified to conclusively show that the staging area, and barrier wall, do not interfere with the drainfield location."

Response: *See comment 14.a. above.*

14.c. "Meanwhile, no further information has been located regarding septic systems for parcels #780780-0705 and –0707 to the East (East side of 6th St.) and Parcel #506080-0060 to the west (first house on West River Dr., west of schoolyard). Homes were built in 1960, 1928, and 1906, respectively, on those three parcels. System type is reportedly on-site cesspool, but no field confirmation has occurred. Any localized, significant groundwater mounding caused by the barrier wall placement may have an adverse impact on the wastewater disposal capacity of these three "cesspool-type" spetic systems."

Response: *Dye tests were done on June 28, 2001 for parcels –0705 and 0707. No dye was observed seeping to the river. Therefore, it can be assumed that these systems will not affect the barrier wall.*

15. Comment: **(Warren Hartz – Index)**

15.a. He is interested if a microbial product could be applied to help clean up the oil. Is there information on the depth of contamination, the thickness of the oil, the nature of the oil and the ground temperature?

Response: *The information regarding the depth of contamination and nature of the oil is in the draft Remedial Investigation (1996) and draft Feasibility Study (1999) which should be located in the site information repository in the King County Library – Skykomish Branch. Information regarding the thickness of the oil is available in a Monthly Report for March 2001 (dated April 15, 2001). Groundwater temperatures (which are a measure of the subsurface temperature) are recorded on field forms during all groundwater sampling events. These data are available in Annual Product Recovery System Reports and the draft RI.*