4-1-2013

Conflict Assessment and Environmental Dispute Resolution Process Design Addressing Deposition of Naturally Occurring Asbestos at Swift Creek, Whatcom County, Washington

Douglas Naftz

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Students taking *Environmental Conflict Resolution* conduct a conflict assessment based on a student-selected real-life environmental or natural resource conflict. They analyze the nature, source and history of the conflict, identify potential stakeholders and potential issues. If the conflict is, or has been, subject to a dispute resolution process, the student writes a case study identifying best practices and lessons learned, and gives suggestions of what could have been done differently and why (looking back). If the conflict is not currently, and has not been, subject to a dispute resolution process, the student designs a dispute resolution process (looking forward). Some students do a combined case study and future process design.

Students' papers posted on the EDR Program website include an Executive Summary. For case studies (looking back), this highlights the best practices and lessons learned. For dispute resolution process designs (looking forward), this provides a summary of the essential process components. The primary purpose of posting these student assessments is to disseminate the "best practices" and "lessons learned" in each paper.

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- For questions about factual issues, the reader is encouraged to refer to underlying resource documents.

Environmental Dispute Resolution Program
Wallace Stegner Center for Land, Resources & Environment
S.J. Quinney College of Law, University of Utah
332 S. 1400 E, Room 101, Salt Lake City, UT 84112-0730
http://www.law.utah.edu/projects/edr/

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Douglas Naftz

Environmental Conflict Resolution
April, 2013

CONFLICT ASSESSMENT AND ENVIRONMENTAL DISPUTE RESOLUTION PROCESS DESIGN ADDRESSING DEPOSITION OF NATURALLY OCCURRING ASBESTOS AT SWIFT CREEK, WHATCOM COUNTY, WASHINGTON

Douglas Naftz*

I. BACKGROUND

A. The Geology and Geography of Naturally Occurring Asbestos from the Swift Creek Landslide

Sometime in the 1930s, an ancient, slow-moving landslide was re-activated on the western slope of Sumas Mountain in the northwestern corner of Washington State.[1] Although it is unknown what precipitated the re-activation of this prehistoric landslide—perhaps seismic events or soil saturation[2]—the geologic effects of the landslide have been well documented because of the presence of chrysotile asbestos (commonly

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* © Douglas Naftz, J.D. 2014, The University of Utah S.J. Quinney College of Law; B.S. Cellular Biology & B.A. Environmental Planning and Policy 2009, Western Washington University. Douglas is currently an associate attorney in the Environmental, Energy and Natural Resources Practice Group at Parsons Behle & Latimer in Salt Lake City, Utah. This Conflict Assessment and Environmental Dispute Resolution Process Design was written while the author was a J.D. Candidate, University of Utah S.J. Quinney College of Law. Special thanks to Michele Straube, Director, Environmental Dispute Resolution Program, Wallace Stegner Center for Land, Resources and the Environment for providing valuable advice throughout the development of this conflict assessment and dispute resolution process design. I would also like to thank my undergraduate adviser, Jean O. Melious, J.D., Professor, Western Washington University, who first introduced me to the issues at Swift Creek while I was an undergraduate, and has provided valuable insight ever since.

[1] KERR WOOD LEIDAL ASSOCS., SWIFT CREEK BACKGROUND AND MANAGEMENT ALTERNITIVES: REPORT TO WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT 2-3 (2008).

[2] *Id.* at 4-3.

referred to as naturally occurring asbestos, or "NOA") in the landslide sediment.[3] In addition to NOA, the landslide sediment also contains high concentrations of heavy metals, including: nickel and magnesium.[4] The Swift Creek Landslide, as it has come to be known, liberates a massive amount of sediment as it slowly creeps down the rocky, wooded slope of Sumas Mountain, toppling trees and moving boulders with ease as it slowly churns downhill.[5] The Swift Creek Landslide deposits over 100,000 cubic yards of asbestos-laden sediment annually into Swift Creek[6]—enough sediment to fill approximately 8,333 dump trucks.[7] Although the Swift Creek Landslide has persisted since the 1930s, experts have predicted that the landslide will continue for the next 400–600 years[8] and have stated that it "represents a functionally unlimited sediment supply."[9]

Much of the asbestos-laden sediment released by the Swift Creek Landslide is carried by Swift Creek—whose headwaters are located near the toe of the landslide—across three miles of agricultural land near Everson, Washington, before being deposited into the Sumas River.[10] From its intersection with Swift Creek, the Sumas River meanders north

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[3] *See, e.g.*, Tovah M. Bayer & Scott Linneman, *The Nature and Transport of the Fine-grained Component of Swift Creek Landslide, Northwest Washington*, 36 EARTH SURF. PORCESS. LANDFORMS 624 (2011).

[4] PACIFIC SURVEYING AND ENGINEERING, INC., WHATCOM COUNTY DEP'T OF PUB. WORKS, SWIFT CREEK SEDIMENT MANAGEMENT PLAN PROPOSED DESIGN 1 (March 30, 2011), *available at* http://www.whatcomcounty.us/pds/plan/sepa/pdf/swift-creek-sediment-mgmt-plan-final-20110330.pdf.

[5] For a visual representation of the Swift Creek Landslide, watch the time-lapse video of the slide captured by the Western Washington University Geology Department. http://landslide.geol.wwu.edu/?tab=about.

[6] PACIFIC SURVEYING AND ENGINEERING, INC., *Supra* note 4 at 1.

[7] Assuming an average haul capacity of a standard tandem axel dump truck is 12 cubic yards. EARTH HAULERS, INC., FREQUENTLY ASKED QUESTIONS, http://www.earthhaulers.com/faqs.html#standardload (last visited Feb. 7, 2013).

[8] *See* KERR WOOD LEIDAL ASSOCS., *supra* note 1 at 2-3.

[9] *See* KERR WOOD LEIDAL ASSOCS., *supra* note 1 at i.

[10] PACIFIC SURVEYING AND ENGINEERING, INC., *Supra* note 4 at 1.

approximately fifteen miles before crossing into Canada, where it eventually flows into the Fraser River.[11]

In the decades following the reactivation of the Swift Creek Landslide in the 1930s, federal, state, and local entities routinely dredged Swift Creek to alleviate the buildup of landslide sediments that clogged the creek and increased flood risk in the Swift Creek floodplain.[12] In 2005, however, the Environmental Protection Agency ("EPA") recommended that Whatcom County Public Works officials suspend dredging at the site, based on findings that the sediment is hazardous because asbestos concentrations greater than 1 percent were identified in creek sediments.[13] According to the Washington Department of Health, it is estimated that approximately two million cubic yards of sediment have been dredged and removed from Swift Creek to be used as free fill material in various projects throughout Whatcom County.[14]

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[11] DIV. OF HEALTH ASSESSMENT AND CONSULTATION, AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVS., HEALTH CONSULTATION: SWIFT CREEK SEDIMENT ASBESTOS WHATCOM COUNTY, WASHINGTON 4 (2006) [hereinafter 2006 HEALTH CONSULTATION].

[12] For a complete history of historical dredging and sediment removal activities at Swift Creek *see* Jean O. Melious, *The Emerging Legal Problem of Naturally Occurring Asbestos and Washington State's Swift Creek Conundrum*, 2 SEATTLE J. OF ENVTL. L. 125, 139–47 (2012).

[13] *See* ECOLOGY & ENV'T, INC., U.S. ENVTL. PROT. AGENCY, SUMMARY REPORT OF EPA ACTIVITIES, SWIFT CREEK ASBESTOS SITE, WHATCOM COUNTY, WASHINGTON 2-3, 8-1 (2007), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Final+Report.pdf (Identifying EPA's recommendation to suspend further sediment removal in response to the Army Corps of Engineers' permit to dredge Swift Creek in 2005. Following their negative comments, EPA subsequently studied the Swift Creek asbestos, finding asbestos concentrations in excess of the 1% regulatory threshold.).

[14] WASHINGTON STATE DEPARTMENT OF HEALTH & AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, HEALTH CONSULTATION: EVALUATION OF HEALTH STATISTICS AND PUBLIC HEALTH DATA GAPS RELATED TO EXPOSURE TO NATURALLY OCCURRING ASBESTOS FROM SWIFT CREEK 11 (2008) [hereinafter 2008 PUBLIC HEALTH DATA GAPS]

The County carried out the last large-scale dredging event at Swift Creek in the summer of 2005.[15] Dredged sediment from this event has not been moved from the site, and sediment piles on either side of the creek have been graded, functioning as a makeshift earthen levee.[16] Fences have also been installed at various access points near the piles accompanied by warning signs advising people not to enter or disturb landslide sediments.[17] However, there is ample evidence that local residents have not heeded these warnings, and continue to recreate on or near the sediment piles at Swift Creek.[18] In addition, there have been no known cases of asbestosis or lung cancer attributed to Swift Creek sediments; perhaps due in part to the thirty to forty year latency period that can occur between exposure to asbestos and manifestation of asbestos-related cancer in humans.[19]

B. Risk Quantification and Agency Action at Swift Creek and Beyond

Asbestos is known to be a human carcinogen, according to the Agency for Toxic Substances and Disease Registry ("ATSDR"), all types of asbestos, including the chrysotile species found at Swift Creek, cause cancer.[20] In an effort to quantify the human health risk associated with exposure to asbestos-containing sediment, EPA initiated several phases of investigation at Swift Creek in 2006 including: site reconnaissance, integrated assessment, activity-based sampling and analysis, and risk

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[15] *See* Melious, *supra* note 12 at 148.

[16] *See* 2006 HEALTH CONSULTATION at 5 (2006).

[17] *Id.*

[18] *Id. See also* Figure 1, Part V *infra* (displaying a photograph taken by the author of a woman walking two dogs on the Swift Creek sediment piles with a warning sign in the foreground).

[19] *Id.* at 11 (stating that there can be a long latency period of 30 years or more between exposure to asbestos and development of lung cancer); *See also*, WASH. DEP'T OF HEALTH, SUMAS MOUNTAIN/SWIFT CREEK ASBESTOS CLUSTER INVESTIGATION 10 (Feb. 22, 2008) (specifying that rates for lung and bronchial cancer as well as mesothelioma were lower than the rates observed for the state overall).

[20] AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVS., TOXICOLOGICAL PROFILE FOR ASBESTOS 1 (2001), *available at* http://www.atsdr.cdc.gov/toxprofiles/tp61.pdf.

evaluation. [21] The site characterization identified average asbestos concentrations of 1.7 percent and maximum concentrations of 4.4 percent in dredged sediment, well above the regulatory threshold of 1 percent by weight. [22] Activity-based sampling, which consisted of asbestos measurements recorded during various activities typically performed at the site (walking, jogging, and biking), resulted in exposure to elevated levels of asbestos fibers in all activities tested.[23] Finally, EPA's risk evaluation, which was based on the results of activity-based sampling, identified that exposure to asbestos fibers from the activities tested "may lead to an increased level of long-term risk."[24]

Based on findings from the 2006 study, EPA initiated a removal action at the Swift Creek site under its statutory authority pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") in November 2007.[25] EPA's "time-critical removal action" at the Swift Creek site consisted primarily of regrading and bank stabilization of the asbestos-laden dredge piles adjacent to the creek, as well as

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[21] ECOLOGY & ENV'T, INC., U.S. ENVTL. PROT. AGENCY, SUMMARY REPORT OF EPA ACTIVITIES, SWIFT CREEK ASBESTOS SITE, WHATCOM COUNTY, WASHINGTON 2-5 (2007), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Final+Report.pdf.

[22] *Id.* at 1; *see also* ANTHONY PERRY, U.S. EPA, A DISCUSSION OF ASBESTOS DETECTION TECHNIQUES FOR AIR AND SOIL: REPORT PREPARED FOR OFFICE OF SUPERFUND REMEDIATION AND TECHNOLOGY INNOVATION 6 (2004) (discussing the regulatory threshold for asbestos containing material of one percent asbestos, by weight).

[23] ECOLOGY & ENV'T, INC., U.S. ENVTL. PROT. AGENCY, SUMMARY REPORT OF EPA ACTIVITIES, SWIFT CREEK ASBESTOS SITE, WHATCOM COUNTY, WASHINGTON 1 (2007), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Final+Report.pdf.

[24] *Id.*

[25] James Peterson, ECOLOGY & ENV'T, INC., SWIFT CREEK ASBESTOS SITE TIME-CRITICAL REMOVAL ACTION REPORT EVERSON, WASHINGTON 2-3 (2008), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Swift+CK+Removal+Rpt+Final_Apr2008.pdf.

application of a dust suppressant to mitigate against asbestos exposure from the piles resulting from dispersion associated with wind erosion.[26]

Since the completion of the time-critical removal action in November 2007, EPA has continued sampling Swift Creek Landslide sediment adjacent to Swift Creek as well as the Sumas River. Following flood events along Swift Creek and the Sumas River in 2009, EPA quantified asbestos concentrations in bank and upland sediments along the Sumas River all the way to the Canadian border. During this sampling event, EPA identified asbestos in every sample taken, including upland sediment concentrations of 26.75 percent asbestos at the northern-most sampling location less than a mile south of the Canadian border.[27] These data indicated that asbestos could concentrate during flood events, and spurred additional activity based sampling by EPA in the Sumas River floodplain.[28]

In 2010, activity-based sampling was carried out at near flood deposits at three different locations along the Sumas River.[29] During this study, test subjects equipped with safety equipment and respirators carried out work-related tasks such as: digging, hauling, raking, spreading and mowing.[30] Samples from personal air monitors of the participants were collected and analyzed for asbestos fibers in the lab.[31] Similar to the findings in 2006, activity-based sampling resulted in detection of elevated levels of asbestos fibers in personal air monitors, [32] suggesting risks associated with exposure to flood sediments in the Sumas River, miles downstream from Swift Creek.

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[26] *Id.*

[27] UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION 10, OFFICE OF ENVIRONMENTAL ASSESSMENT, SOIL SEDIMENT AND SURFACE WATER SAMPLING SUMAS MOUNTAIN NATURALLY-OCCURRING ASBESTOS SITE WHATCOM COUNTY, WASHINGTON Figure 1 (2009).

[28] *Id.* at 7–9; JULIE WROBLE, UNITED STATES PROTECTION AGENCY, REGION 10, OFFICE OF ENVIRONMENTAL ASSESSMENT, BULK SAMPLING AND ANALYSIS ACTIVITY BASED SAMPLING SURFACE WATER SAMPLING WHATCOM COUNTY, WASHINGTON 3 (2011), *available at* http://www.epa.gov/region10/pdf/sites/sumasmountain/asbestos_monitoring_report_april2011.pdf.

[29] *Id.* at 6.

[30] *Id.* at 7.

[31] *Id.* at 7–8.

[32] *Id.* at 14.

Following the activity-based sampling efforts in 2010, EPA released a risk evaluation memorandum summarizing the results of the activity-based sampling.[33] The risk evaluation memorandum identified several activity-based samples containing asbestos concentrations resulting in excess lifetime cancer risk of greater than one in ten thousand, which is the lower bound of the "acceptable range" used by EPA to consider response or remedial actions at a given hazardous waste site.[34] Accordingly, EPA recommended that "[r]esidents and farm workers should avoid contact with sediments from Swift Creek or the Sumas River in areas downstream of the slide area; avoid tracking sediments into homes or vehicles; and when in doubt, assume that flood deposits contain asbestos."[35]

A recent epidemiological study completed in 2012, after the 2011 risk evaluation was completed by EPA, suggests that Swift Creek sediments might be even more toxic than previously thought. In their study, Cyphert et al., exposed mice to asbestos from various areas including: Swift Creek; El Dorado Hills, CA; Libby, MT; and Ontario, Canada.[36] Cyohert et al. determined that the relatively small asbestos fibers present at Swift Creek rendered them more toxic to mice than asbestos fibers from the other sites that were tested.[37] As a result, the authors of the study cautioned that this data "suggests that there may be cause for concern for people at risk of being exposed to NOA from the Sumas Mountain Landslide."[38]

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[33] Memorandum from Julie Wroble, Environmental Protection Agency, Region 10 Toxicologist to Elly Hale, Environmental Protection Agency, Remedial Project Manager (March 24, 2011), *available at* http://www.epa.gov/region10/pdf/sites/sumasmountain/asbestos_risk_evaluation_memo_march2011.pdf.

[34] *Id.* at 7, Table 4. As described in the memorandum, the "acceptable risk range" used by EPA is excess lifetime cancer risk between one in a million and one in ten thousand. That is, risks less than one in a million are usually considered acceptable, while cancer risks greater than one in ten thousand typically require response or mitigation.

[35] *Id.* at 9.

[36] Jamie M. Cyphert et al., *Sumas Mountain Chrysotile Induces Greater Lung Fibrosis in Fischer 344 Rats Than Libby Amphibole, El Dorado Tremolite, and Ontario Ferroactinolite*, 130 TOXICOLOGICAL SCIENCES 405, 406 (2012) (discussing the increased toxicity of asbestos fibers from Sumas Mountain compared to other well-known asbestos sites).

[37] *Id.*

[38] *Id.*

C. A Seam Between Regulatory Authorities

Since large-scale dredging of Swift Creek was suspended in 2005, the County has only intermittently dredged sediment from Swift Creek to mitigate flood risk.[39] In addition, the site has not been listed on the CERCLA National Priorities List ("NPL")—which is in most cases a prerequisite for CERCLA remedial action at a hazardous waste site—because its rural character will not provide it with a high enough Hazard Ranking System ("HRS") score to prioritize cleanup.[40] This "seam between regulatory authorities" as described by Melious,[41] puts those who might be exposed to asbestos-laden sediments from the Swift Creek Landslide in a dubious position. Following EPA intervention at the site in 2005, local residents have seen their home and property values plummet,[42] while at the same time they continue potential exposure to asbestos-containing sediments in lieu of a large-scale remedial effort at the site.

Recently, however, in early 2013, the County released a Draft Environmental Impact Statement ("Draft EIS") identifying and discussing remedial alternatives that could be implemented at Swift Creek to mitigate the transport and deposition of asbestos-containing sediment downstream into the Sumas and eventually into Canada.[43] The Draft EIS was prepared

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[39] WASHINGTON STATE DEPARTMENT OF HEALTH, ADVISORY FOR SWIFT CREEK NATURALLY OCCURRING ASBESTOS 3 (September 2008), *available at* http://www.co.whatcom.wa.us/health/pdf/swift_creek_advisory.pdf (stating that, "Swift Creek is dredged annually in order to prevent flooding").

[40] *See* Melious, *supra* note 12 at 160–61 (indicating that Swift Creek has yet to be listed on the NPL, and that it is not likely that it would receive a high enough HRS to warrant listing on the NPL).

[41] *Id.* at 156, 180.

[42] Transcript of Swift Creek Meeting at Glen Echo Community Club 36 (Nov. 20, 2007) [hereinafter Public Meeting Transcript], *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Swift+Creek+Meeting+Transcript_Nov2007.pdf.

[43] *See generally* PLANNING AND DEVELOPMENT SERVICES WHATCOM COUNTY, WASHINGTON, DRAFT ENVIRONMENTAL IMPACT STATEMENT: SWIFT CREEK SEDIMENT MANAGEMENT ACTION PLAN (SCSMAP) AND SCSMAP PHASE 1 PROJECT PLAN (2013) [hereinafter DRAFT EIS], *available*

by the County pursuant to the Washington State Environmental Policy Act ("SEPA"), which requires EIS preparation for proposed agency "action," which includes "[n]ew and continuing activities (including projects and programs entirely or partly financed, assisted, conducted, regulated, licensed, or approved by [state or local] agencies."[44] The remedial alternatives identified by County in the EIS included a Swift Creek Sediment Management Action Plan ("SCSMAP") and a no-action alternative.[45] Specifically, the SCSMAP included the following strategies: constructing setback levees to contain Swift Creek sediment and control flood risk; construction of in-stream sediment traps to reduce downstream migration of asbestos-containing sediment; construction of sediment basins to slow runoff velocity and allow storage of asbestos-containing sediment after it has been collected in, and transported from, the nearby sediment traps.[46]

However, as noted by the Draft EIS, and other pervious geotechnical studies aimed at identifying engineering solutions to address sediment deposition from the Swift Creek Landslide, the regulatory and financial challenges to implementing such a solution are multifarious.[47] Although the Draft EIS, clearly contemplates that there are added layers of regulatory and legal complexity associated with the hazardous nature of the asbestos present in Swift Creek sediment,[48] it simultaneously misstates the CERCLA liability inherently attached to the proposed SCSMAP. The County's failure to understand applicability of CERCLA to the proposed alternatives identified in the Draft EIS is illustrated in the following passage,

> toxic and hazardous waste cleanup rules [under CERCLA] . . . do not apply to Swift Creek because it is a natural phenomenon. Manipulation of sediment under SCSMAP

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at http://www.co.whatcom.wa.us/pds/plan/sepa/pdf/02-sc-draft-eis-20130215.pdf.

[44] WASH. ADMIN. CODE § 197-11-714 (2013).

[45] DRAFT EIS at 2-11.

[46] *Id.* at 2-20–2-30.

[47] *Id.* at 1-3 (indicating that there is uncertainty regarding regulatory and jurisdictional authority with regard to Swift Creek sediment); *Id.* at 2-20 (identifying the SCSMAP project as currently unfunded).

[48] *Id.* at 1-3 (specifying that "uncertainty remains as to agency and regulatory jurisdictional authority of Swift Creek and Swift Creek-source sediment.").

> strategies could invoke toxic and hazardous waste rules if Swift Creek were to be designated as a CERCLA . . . cleanup site. . . . [since] an official designation and ranking of Swift Creek as a federal or state cleanup site has not occurred, discussion of Swift Creek sediment management under CERCLA . . . is outside the purview of this Draft EIS.[49]

The preceding quote within the EIS is a misstatement of the law—CERCLA liability does not require NPL listing to attach. In fact, as previously discussed, EPA has already exercised its CERCLA authority in an emergency removal action at the site.[50] Furthermore, as identified in existing case precedent, CERCLA liability attaches with respect to naturally occurring material—like NOA—at the precise moment that it is moved from its natural location.[51] Therefore, all of the project actions identified in the Draft EIS outside of the non-action alternative would result in CERCLA liability,[52] since the majority of the actions proposed under the SCSMAP involve moving asbestos-containing sediment from the creek channel to adjacent areas.

In addition to misstating liability under CERCLA, the Draft EIS also glosses over the costs associated with implementing the SCSMAP at Swift Creek. In fact, the Draft EIS does not explicitly mention cost, only specifying that the project is currently unfunded.[53] However, the Sediment Management Plan, a document prepared by the County in 2011 that preceded the Draft EIS, does discuss project cost.[54] As estimated in the

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[49] *Id.* at 3–94.

[50] *See supra* text accompanying notes 25–26.

[51] *See* United States v. Wash. Dep't of Transp. 716 F. Supp. 2d 1009, 1115 (W.D. Wash. 2010) (conferring arranger liability on a state agency who designed and operated a storm drainage system, which deposited contaminants from a road into the environment); United States v. Iron Mountain Mines, Inc., 812 F.Supp 1528, 1548–49 (E.D. Calif. 1992) (holding that the exception under CERCLA for naturally occurring substances did not apply to naturally occurring substances exposed to the environment by mining activity).

[52] For a detailed discussion of CERCLA liability at Swift Creek *see* Melious, *supra* note 12 at 156–64.

[53] *See* DRAFT EIS at 2-20.

[54] *See* PACIFIC SURVEYING AND ENGINEERING, INC., *Supra* note 4 at 6, 16.

2011 Sediment Management Plan, the cost of sediment management alternatives (many of which are the same or similar to those proposed under the SCSMAP) is predicted to be approximately ten million dollars.[55] However, the cost analysis carried out in the 2011 Sediment Management Plan does not contemplate costs associated with disposal and transport of asbestos-laden sediment to hazardous waste facilities,[56] which could easily multiply project costs beyond those discussed in the 2011 Sediment Management Plan.

Transportation and disposal costs associated with periodic dredging of asbestos-containing sediment out of the creek channel or adjacent sediment traps to a nearby long-term storage site were previously estimated by environmental consultants hired by EPA.[57] The consultants estimated the cost of annual removal and transport 100,000 cubic yards of asbestos-containing sediment between $1.54 and $1.96 million per year, depending on how far the sediment is transported (ranging from one to ten miles from Swift Creek).[58] It is important to note that this estimate was calculated under the assumption that the sediment would be not considered "solid waste" under federal and state regulatory definitions.[59] In the event that the asbestos-containing sediment is defined as solid waste under applicable state or federal regulations, the costs associated with sediment transport and disposal would likely increase significantly.[60] In any case, even an additional annual cost of $1.5 million for transport and disposal of sediment from sediment traps to sediment basins near the creek, would likely be difficult for the County to sustain for an indefinite period, as the Swift Creek Landslide is projected to deposit sediment into Swift Creek for the next 400–600 years.[61]

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[55] *Id.* at 1.

[56] *Id.*

[57] *See* ECOLOGY & ENV'T, INC., SWIFT CREEK REPOSITORY BASIC DESIGN AND COST ESTIMATE 4-1–5-1, (2007), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Final+Report.pdf

[58] *Id.* at 5-1.

[59] *Id.* at 4-2.

[60] *Id.* at 2-1.

[61] *See* Melious, *supra* note 12 at 164.

Conspicuously, the Draft EIS fails to fully analyze alternatives other than the no action alternative or the SCSMAP.[62] For example, although "floodplain acquisition" is identified as a non-project flood hazard management strategy,[63] it is not analyzed separately as a project alternative. As previously discussed, costs associated with the required periodic transport and disposal of asbestos-containing sediment from the sediment traps under the SCSMAP are likely to be onerous. Thus, a land acquisition alternative, similar to the one previously identified by Melious,[64] might actually result in lower costs to the County over prolonged time horizons. Accordingly, a land acquisition alternative should be made available to decision-makers and the public who could use this information to make a meaningful comparison of the expected risks, benefits, and costs of the SCSMAP, a land acquisition regime, and the no action alternative.

Thus, although the EIS has not been finalized, it arguably raises more questions than it answers, given the regulatory and jurisdictional uncertainties associated with implementing a long-term sediment management solution at Swift Creek.

D. The Changing Tides of Asbestos Risk Perception in Canada

Although there has been plenty of public outrage voiced by local landowners following the 2005 recommendation by EPA to suspend dredging of Swift Creek due to concerns associated with NOA, the vast majority of concern has occurred on the U.S. side of the border with Canada.[65] As previously specified, Swift Creek flows into the Sumas River, which flows across fifteen miles of agricultural land in northwestern Washington before eventually crossing the border into Canada.[66] The transport and deposition of Swift Creek asbestos from the United States into Canada by the Sumas River has been well documented in the scientific

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[62] *See* DRAFT EIS at 2-11.

[63] *Id.* at 3-21.

[64] *See* Melious, *supra* note 12 at 176–80 (discussing the viability of property acquisition as a potential solution to the risks presented by Swift Creek sediment).

[65] *See infra* text accompanying notes 103 & 151 (discussing home and property owner outrage associated with government agency handling of the issues created by deposition of asbestos-containing sediment along Swift Creek and the Sumas River).

[66] 2006 HEALTH CONSULTATION at 4.

literature.[67] Although the rate of Swift Creek sediment deposition entering Canada has yet to be quantified by scientists,[68] previous scientific studies that linking asbestos concentration with concentration of other heavy metals also found in Swift Creek sediment indicate a significant amount of Swift Creek sediment flows into southern British Columbia via the Sumas River.[69]

Much of the scientific literature from Canada concerning Swift Creek sediments focuses on agricultural or wildlife impacts of asbestos and the associated heavy metals from the Swift Creek Landslide.[70] However, recent media attention associated with the dangers of chrysotile asbestos in Canada,[71] combined with EPA health studies and quantification of asbestos

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[67] *See, e.g.*, Tovah M. Bayer & Scott Linneman, *supra* note 3; Emma P. Holmes et al., *Processes Affecting Surface and Chemical Properties of Chrysotile: Implications for Reclaimation of Asbestos in the Natural Environment*, 92 CAN. J. SOIL SCI. 229 (2010); Ione M. Smith et al., *Trace Metal Concentrations in an Intensive Agricultural Watershed in British Columbia, Canada*, 46 J. AM. WATER RES. ASS'N 1455 (2007). *See also* DRAFT EIS, *supra* note 43 at 3-16–3-19 (summarizing several scientific studies showing asbestos deposition from Swift Creek into Canada via the Sumas River).

[68] *See* Tovah M. Bayer & Scott Linneman, *supra* note 3 at 624–25 (noting that "[a]nnual estimates of bedload in Swift Creek have been made based on the dredged material; however, estimates of the total transported load are unavailable because no attempts have been made to quantify the suspended sediment load.").

[69] *See* DRAFT EIS, *supra* note 43 at 3-17–3-18 (citing SCHREIER & NGUYEN, LINKING TRACE METALS WITH ASBESTOS FIBERS IN A RURAL ENVIRONMENT AFFECTED BY SERPENTINIC SEDIMENTS, 121 (1984)) (identifying a correlation between magnesium concentrations in asbestos-containing sediment and distance from the Swift Creek landslide); Ione M. Smith et al., *Trace Metal Concentrations in an Intensive Agricultural Watershed in British Columbia, Canada*, 46 J. AM. WATER RES. ASS'N 1455 (2007) (identifying elevated concentrations of chromium and nickel in sediments throughout the mainstem of the Sumas River in the United States and Canada, specifying "[t]he source of these metals is the naturally occurring asbestos landslide in the headwaters of Swift Creek.")".

[70] *Id.*

[71] *See infra* text accompanying notes 74–82.

in sediment all the way up to the Canadian border,[72] and toxicology studies suggesting that Swift Creek asbestos might be more toxic than the asbestos found in Libby, Montana,[73] suggests that asbestos deposition along the Sumas River in Southern British Columbia could evolve into a high priority public health issue in the near future.

The toxicological characterization of chrysotile asbestos has been far more politicized in Canada compared to the United States, probably as a result of the presence and influence of chrysotile asbestos mining interests in the country.[74] In fact, until 2011, the Canadian government actively subsidized the Chrysotile Institute (formerly known as the Asbestos Institute)—an advocacy group established to promote the use and export of chrysotile asbestos.[75] The industry's influence over epidemiological pronouncements by the Canadian government is illustrated by a recent controversy surrounding a report commissioned by Health Canada on chrysotile asbestos. Publication of the report was withheld by Health Canada for over a year.[76] In response to postponed publication of the report, the chairman of the group, a British scientist, stated, "The unexplained long delay in publishing the Canadian report illustrate that chrysotile risk is still

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[72] *See supra* text accompanying note 27.

[73] *See supra* text accompanying notes 36–38.

[74] *See* Althia Raj, Asbestos Exports: Opposition *Parties Call on Government to Ban the Sale of Dangerous Substance Abroad*, HUFFINGTON POST POLITICS: CANADA, NOV. 1, 2011, *available at* http://www.huffingtonpost.ca/2011/11/01/asbestos-exports-opposition-parties-call-on-government-to-ban-sale-abroad_n_1069224.html?view=print&comm_ref=false.

[75] *See* Tim Povtak, *Canada Closing its Chrysotile Institute, Signaling End of Country's Asbestos Industry*, ASBESTOS.COM, April 30, 2012, *available at* http://www.asbestos.com/news/2012/04/30/canada-chrysotile-institute-asbestos/; Laurie Kazan-Allen, *No More Tax Dollars for Chrysotile Institute?*, INTERNATIONAL BAN ASBESTOS SECRETARIAT, MARCH 6, 2011, *available at* http://ibasecretariat.org/lka-more-tax-dollars-chrysotile-institute.php.

[76] *See* Roger Collier, *Asbestos Panel Chair Mystified by Secrecy Surrounding Report*, 180 CANADIAN MEDICAL ASSOC. J. 1100, 1100–01 (2009).

a political issue, but the [data] table and other aspects of the report illustrate the wide measure of agreement that now exists on the science."[77]

In the years following the release of the Health Canada chrysotile report, the political pressure on Canada to eliminate its support of its domestic chrysotile asbestos industry mounted. For example, despite advice from Health Canada, in 2011 Canada continued its efforts to block listing of chrysotile asbestos in the Rotterdam Convention—an international treaty that establishes disclosure requirements associated with international trade of listed substances.[78] After years of ignoring scientific evidence identifying chrysotile asbestos as a human carcinogen, in 2012 the Canadian government reversed course and withdrew support for the chrysotile industry.[79] This political sea change occurred largely as a result of newly elected Premier of Quebec Pauline Marois' decision to cancel a loan to re-open the country's only remaining chrysotile mine,[80] combined with dwindling support from conservative members of Parliament who had historically supported the once-powerful chrysotile industry.[81] As a result, chrysotile asbestos mining ended and the export of chrysotile ground to a halt, with diminishing hope of ever resuming again.[82]

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[77] T.L. Ogden, *Canadian Chrysotile Report Released—At Last*, 55 THE ANNALS OF OCCUPATIONAL HYGIENE 307, 309 (2009).

[78] *See* Steve Reenie, *Canada Blocks Asbestos From Hazardous Chemicals List at UN Summit*, TORONTO STAR, June 22, 2011, *available at* http://www.thestar.com/news/canada/2011/06/22/canada_blocks_asbestos_from_hazardous_chemicals_list_at_un_summit.html; CBC, *Asbestos Advice From Health Canada Rejected by Government*, HUFFINGTON POST POLITICS: CANADA, June 14, 2011, *available at*,

[79] Steven Chase & Les Perreaux, *Ottawa Does U-Turn on Asbestos Mining*, THE GLOBE AND MAIL, Sept. 4, 2012, *available at* http://www.theglobeandmail.com/news/politics/ottawa-does-u-turn-on-asbestos-mining/article4545704/.

[80] *Id.*

[81] Andy Blatchford & Jennifer Ditchbrun, *Asbestos Cracks Conservative Party Unity: Harper Government Position on Export Causes Internal Rift*, HUFFINGTON POST POLITICS: CANADA, Nov. 20, 2011, *available at* http://www.huffingtonpost.ca/2011/11/20/asbestos-tory-conservative-party-harper_n_1104028.html.

[82] Steven Chase & Les Perreaux, *Ottawa Does U-Turn on Asbestos Mining*, THE GLOBE AND MAIL, Sept. 4, 2012, *available at* http://www.theglobeandmail.com/news/politics/ottawa-does-u-turn-on-

These developments allowed Canada to end its policy of preventing chrysotile from inclusion as a regulated substance in the Rotterdam Convention,[83] paving the way for its possible listing on at the sixth meeting of the Conference of the Parties to the Rotterdam Convention, held in Geneva, Switzerland from April 28 through May 10, 2013.[84]

The shifting political tides associated with chrysotile asbestos in Canada, combined with the recent epidemiological study identifying the increased toxicity of Swift Creek asbestos compared to other types of NOA,[85] suggests that the issue of transboundary deposition of NOA into Canada from Swift Creek has become an especially ripe issue on the Canadian side of the border. Accordingly, despite previously ignoring this public health issue, the Canadian government, along with the provincial government of British Columbia, now likely possesses the political capital to confront the issue of NOA deposition across the Canadian border from the United States. Theoretically, such pressure from the Canadian government could be harnessed by those affected by Swift Creek sediments in the United Sates to catalyze or accelerate efforts by local and federal authorities in the United States to develop and implement a permanent

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asbestos-mining/article4545704/; The Canadian Press, *Canadian Asbestos: Once-Mighty Industry Suspends Work for First Time in 130 Years*, HUFFINGTON POST POLITICS: CANADA, Nov. 24, 2011, *available at* http://www.huffingtonpost.ca/2011/11/24/canadian-asbestos-exports-quebec_n_1112140.html.

[83] The Huffington Post Canada, *Asbestos In Canada: Feds Will no Longer Resist Listing Substance as Hazardous Chemical*, HUFFINGTON POST POLITICS: CANADA, Sept. 14, 2012, *available at* http://www.huffingtonpost.ca/2012/09/14/absestos-canada-quebec-hazardous-rotterdam_n_1885185.html.

[84] SIXTH MEETING OF THE CONFERENCE OF THE PARTIES TO THE ROTTERDAM CONVENTION, http://www.pic.int/TheConvention/ConferenceoftheParties/Meetingsanddocuments/COP6/tabid/2908/language/en-US/Default.aspx (last visited Feb. 13, 2013).

[85] *See* Jamie M. et al., *Sumas Mountain Chrysotile Induces Greater Lung Fibrosis in Fischer 344 Rats Than Libby Amphibole, El Dorado Tremolite, and Ontario Ferroactinolite*, 130 TOXICOLOGICAL SCIENCES 405, 412–13 (2012).

solution to prevent further human exposure to NOA from the Swift Creek Landslide.

E. Movement Toward Developing a Comprehensive Solution at Swift Creek

Despite EPA's risk evaluations, which concluded that Swift Creek sediments resulted in an increased risk of cancer, and the recent peer-reviewed epidemiological study identifying Swift Creek asbestos as more toxic than asbestos from the Libby, Montana Superfund Site, significant removal, remedial, or mitigation efforts have not yet been executed at Swift Creek. As identified in previous research by Melious, the NOA at Swift Creek presents a highly complex and multifaceted problem that is not easily solved by current environmental regulatory regimes in the United States.[86] Furthermore, although the recent Draft EIS released by the County identifies the SCSMAP as a potential alternative and solution to the issue, the narrow scope of the EIS and its lack of sophistication regarding liability issues, combined with the fact that the project is currently unfunded, arguably raises more questions than it answers. The shortcomings of the Draft EIS illustrate the importance of collaboration between local, state, and federal agencies along with other stakeholders in the development, funding, and implementation of a permanent comprehensive sediment management solution at Swift Creek.

Accordingly, this conflict assessment and environmental dispute resolution ("EDR") process design attempts to create a framework that could be used to successfully implement a singular long-term comprehensive sediment management plan at Swift Creek. Section II of this report, *Conflict Assessment*, identifies the issues in dispute at Swift Creek, analyses the best alternative to a negotiated agreement ("BATNA") for each identified stakeholder group, analyzes and identifies potential conveners who might be used to implement the process design, and identifies potential challenges to collaboration at Swift Creek.

Section III of this report, *Process Design*, proposes a consensus-based process to implement a comprehensive sediment management plan at Swift Creek. The first component of the process design at Swift Creek involves risk communication and education regarding NOA, first within the

[86] *See generally* Melious, *supra* note 12 (identifying the problem of NOA at Swift Creek as occupying a seam between existing regulatory regimes and proposing possible solutions).

communities immediately exposed to Swift Creek sediment, then to the broader local communities who are interested in the issue or might come into contact with Swift Creek sediment during recreational or other activities. The second component of the Swift Creek process design involves implementation of a hybrid collaborative National Environmental Policy Act ("NEPA") process that, once completed, is monitored under a stakeholder driven community involvement initiative, to ensure that the selective alternative selected in the collaborative NEPA process is properly implemented. Together, the components of this process design provide a framework that can be used to address and implement a permanent comprehensive sediment management plan at Swift Creek, which necessarily involves the participation and cooperation of affected citizens in the United States and Canada, along with multiple local, state, federal, and foreign agencies.

II. CONFLICT ASSESSMENT

As identified in Part I, the legal, scientific and multijurisdictional complexity posed by Swift Creek sediments, combined with the high cost of implementing a long-term solution, make it a good candidate for collaboration. In fact, the Regional Administrator for EPA Region 10 suggested as much at a public meeting with stakeholders at Swift Creek, stating, "EPA alone does not have the authority to solve this problem. As you can see from the number of government representatives here today, and there's quite a few, it will require a collaborative effort to find a safe, economic solution."[87] In addition, it is also possible that increasing concerns associated with asbestos exposure on the Canadian side of the border could help overcome recent federal inaction at Swift Creek, which could be used to generate momentum toward a consensus-based collaborative process aimed at identification and implementation of a comprehensive sediment management strategy at the site.

In this Part of the report, Section A identifies the issues in dispute at Swift Creek, and Section B consists of a stakeholder analysis which includes a tabular breakdown of each stakeholder's substantive, process, and relationship interests, in addition to an analysis of the BATNA for each identified stakeholder group.

A. Identification of Issues in Dispute

[87] *See* Public Meeting Transcript, *supra* note 42, at 6–7.

1. Risk Analysis

The health risks associated with NOA at Swift Creek have not yet been fully quantified. Early in the conflict, the 2006 Health Consultation published by the Washington State Department of Health ("WDOH") and the ATSDR concluded that "[a]n indeterminate public health hazard exists from potential exposure to Swift Creek sediments." [88] However, a subsequent Health Consultation published by the same agencies in 2008 concluded that, [a] public health hazard exists for people conducting activities regularly on dredge piles."[89] The consultation also noted that, "[a]n unacceptable cancer risk (exceeding 1 x 10^{-4} or 1 excess cancer in 10,000 exposed people) results from some activities while other exposures were not quantified because of data gaps."[90] Finally, the consultation admitted that, "[r]isk estimates may in fact be underestimated because exposures may occur at other locations such as indoor environments of residences near Swift Creek."[91] In 2011 EPA published a risk evaluation memorandum based on activity-based sampling conducted on asbestos-containing sediment in the Sumas River floodplain.[92] The 2011 risk evaluation memo identified cancer risks "above the high end of EPA's risk management range of 1 x 10^{-6} to 1 x 10^{-4}" and reiterated previous statements made by WDOH and ATSDR, that local residents should avoid contact with Swift Creek or Sumas River sediments.[93]

However, as previously specified,[94] Cyphert et al. published an epidemiological study suggesting that Swift Creek asbestos was more toxic than other sources of NOA—namely the type of asbestos found at the

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[88] 2006 HEALTH CONSULTATION, at 15.

[89] 2008 PUBLIC HEALTH DATA GAPS, at 13.

[90] *Id.*

[91] *Id.*

[92] JULIE WROBLE, UNITED STATES PROTECTION AGENCY, REGION 10, OFFICE OF ENVIRONMENTAL ASSESSMENT, BULK SAMPLING AND ANALYSIS ACTIVITY BASED SAMPLING SURFACE WATER SAMPLING WHATCOM COUNTY, WASHINGTON 9 (2011), *available at* http://www.epa.gov/region10/pdf/sites/sumasmountain/asbestos_monitoring_report_april2011.pdf.

[93] *Id.*

[94] *See supra* text accompanying notes 36–38.

Libby, Montana Superfund Site.[95] The Cyphert et al. study was published after the most recent EPA risk evaluation memo. According to the Cyphert et al. study, the EPA has reviewed the data published in the article,[96] however, the agency has yet to comment on the findings, nor have they used this new data to adjust their risk evaluation equations upward.

The evolution of risk analysis determinations at Swift Creek represents another example of a classic theme in environmental regulation: the push and pull between developing science regarding environmental risks and regulatory decision-making. Despite the uncertainty present at Swift Creek, which is compounded by the long latency period between asbestos exposure and disease, it is clear that risk is present, and something needs to be done. Although risk analysis will likely never be complete at Swift Creek, additional risk analysis could be completed in the process design for collaboration, which could be used to more accurately characterize the risks posed by asbestos deposition in Canada, and build on the recent Cyphert et al. study—two components of risk that are crucial for collaboration, yet still not fully developed.

2. Risk Perception

There is ample evidence that local residents living near Swift Creek do not perceive Swift Creek sediment to pose a risk to their health, despite posted warning signs and pamphlet mailings by WDOH.[97] Such evidence is apparent in reports from the site,[98] testimony from residents at a public meeting convened by EPA,[99] as well as photographic evidence.[100] In

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[95] Cyphert et al., *supra* note 36 at 406.

[96] Cyphert et al., *supra* note 36 at 405.

[97] *See*, 2006 HEALTH CONSULTATION, at 24 (showing posted warning signs near Swift Creek levees containing NOA); WASHINGTON STATE DEPARTMENT OF HEALTH, ADVISORY FOR SWIFT CREEK NATURALLY OCCURRING ASBESTOS 3 (September 2008), *available at* http://www.co.whatcom.wa.us/health/pdf/swift_creek_advisory.pdf (2008 mailing to residents near Swift Creek)

[98] *See* 2006 HEALTH CONSULTATION, at 6, 27 (identifying the presence of a child's big wheel toy in the middle of a field containing NOA adjacent to asbestos-laden levee).

[99] *See* Public Meeting Transcript, *supra* note 42, at 59 (statement of resident who has lived near Swift Creek since 1960 and does not believe warnings that NOA can be harmful to his health).

addition, several stakeholders involved in the Swift Creek conflict, including those from State, County, and the private sectors have been unwilling to define the risks posed by Swift Creek asbestos as a risk to human health.[101] Thus, even though EPA, ATSDR, WDOH, and an epidemiology study by Cyphert et al. have all identified Swift Creek sediment as a human health hazard, the latent nature of disease associated with asbestos exposure has caused many to discount the health risks associated with NOA at Swift Creek.

In addition, it is likely that the lack of asbestos-related illness or death at Swift Creek (possibly due to the latent nature of asbestos-related disease) has also contributed to the delay in cleanup action at the site. When contrasted with the Libby, Montana asbestos site, where a large scale removal action was carried out by EPA in response to hundreds of deaths and thousands of illnesses attributed to asbestos exposure,[102] the absence of illness or death at Swift Creek has likely resulted in decreased urgency for local, state, and federal agencies to proactively design and implement a comprehensive sediment management plan at the site. However, waiting too long to implement a solution at Swift Creek may compound the problem, because the local population has been known to behave in ways that may increase exposure and risk.

3. Diminution of Property Values

Another of the major issues surrounding the conflict at Swift Creek is the diminution of property values in close proximity to deposition of NOA. This issue has been expressed in the 2007 public meeting convened by

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[100] *See infra* Figure 1, Part V (displaying a woman walking her dogs atop Swift Creek levee known to contain NOA in plain view of posted warning sign).

[101] *See* REBEKAH J. HOOK, ASBESTOS-LADEN SOIL: A CASE STUDY ANALYSIS OF SWIFT CREEK 65–67 (Western Wash. Univ. 2011) (summarizing stakeholder interview responses).

[102] Matthew Brown, *Libby, Montana Asbestos Cleanup Reaches Major Milestone with Mountaintop Park*, HUFFPOST GREEN, July 15, 2012, *available at* http://www.huffingtonpost.com/2012/07/16/libby-mt-montana-asbestos-deaths-park_n_1674318.html (indicating that there have been 400 deaths and over 1,700 illnesses attributed to asbestos contamination in Libby, MT).

EPA[103] as well as by multiple stakeholders in confidential interviews conducted by Hook.[104] Moreover, the issue of property values is not likely to be only a peripheral issue that is affected by the eventual actions taken at Swift Creek, rather, this issue could potentially be a primary issue that dictates at least one alternative that has been discussed at the site.[105] This alternative involves purchase of private property along Swift Creek to be used for settling and storage of sediment containing NOA, and has been posed by Melious[106] as well as some of the stakeholders in confidential interviews conducted by Hook.[107] Thus, the issue of property values, and potential acquisition of private property for use in a comprehensive sediment management solution at Swift Creek could become a major issue that may well dictate the success or failure of a collaborative consensus-based EDR process at Swift Creek.

4. How Clean is Clean?

The issue of "how clean is clean?" is likely to dictate the ultimate selection of a comprehensive sediment management plan at Swift Creek via consensus-based decision-making, and will necessarily depend on the stakeholder's perception of risk at the site. As previously discussed, various stakeholders have differing views regarding the risk posed by NOA at Swift Creek.[108] Therefore, it is possible that the issue of cleanup standards at Swift Creek could evolve with risk communication. However, it is important to point out that environmentalists in the region have recently insisted on application of the highest possible cleanup standards for industrial mercury contamination in marine sediments at a nearby hazardous waste site in Bellingham Bay, Washington,[109] yet, it is unclear the extent to

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[103] *See* Public Meeting Transcript, *supra* note 42, at 19 (Mike Parker, a homeowner who owns land adjacent to Swift Creek who stated, "my land is worthless. I couldn't sell it. Who's going to buy it? . . . nobody in their right mind [would buy it] with this hanging over us.").

[104] *See* HOOK, *supra* note 101 at 66–67 (identifying responses from a member of County government and the private sector who identified property value as an issue associated with Swift Creek asbestos).

[105] *See* discussion, *supra* notes 62–64 and *infra* note 120.

[106] *See* Melious, *supra* note 12 at at 175–79.

[107] *See* HOOK, *supra* note 101 at 65–67

[108] *See* discussion, *supra* Part II.A.2.

[109] John Stark, *Mercury Cleanup Set to Begin on Bellingham Waterfront*, THE BELLINGHAM HERALD, Feb. 24, 2013, *available at*

which these (or similar) groups would be interested in influencing cleanup standards at Swift Creek.[110] Nonetheless, it is possible that similar demands could be made by local and regional environmental groups when considering the range of cleanup or remediation options at Swift Creek.

Due to the uniqueness of the asbestos-containing sediment issue at Swift Creek, there is a distinct lack of precedent regarding cleanup and disposal standards. Accordingly, this lack of regulatory precedent could be utilized by stakeholders within a collaborative process as an opportunity to devise creative cleanup and disposal strategies at the site.

5. Regulatory Jurisdiction

Regulatory jurisdiction has been a major stumbling block at Swift Creek.[111] As previously discussed, EPA has previously exercised CERCLA authority at the site through a 2007 removal action.[112] In addition, the County has jurisdiction at the site, and has prepared a Draft EIS identifying a sediment management strategy for Swift Creek.[113] The Army Corps of Engineers ("COE") also has regulatory authority over any dredging permits issued at the site under section 404 of the Clean Water Act ("CWA").[114] Moreover, the state has regulatory jurisdiction over solid and hazardous

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http://www.bellinghamherald.com/2013/02/24/2890729/mercury-cleanup-set-to-begin-on.html.

[110] This hypothesis is based on the fact that most of the concern with mercury contamination in Bellingham Bay has been voiced by a two interrelated local environmental groups—RE Sources for Sustainable Communities, and the Bellingham Baykeeper, which is housed within RE Sources for Sustainable Communities as a core program. Therefore, it is possible that, although these non-profit groups are located within 30 miles of the Swift Creek Landslide, they may not be interested in cleanup standards at Swift Creek, because their primary area of concern are environmental issues within the City of Bellingham and Bellingham Bay.

[111] *See* Melious, *supra* note 12 at 155–56 (identifying regulatory and jurisdictional issues at Swift Creek between local, state, and federal officials as a "seam between the authorities").

[112] *See* discussion, *supra* notes 25–26.

[113] *See* discussion, *supra* notes 43–56.

[114] *See* Melious, *supra* note 12 at 147–50

waste disposal at the site.[115] Finally, should the Canadian Government get involved as a result of health concerns along the Sumas River in southern British Columbia, the U.S. State Department would also likely get involved regarding the transboundary nature of the problem.[116] Accordingly, it will be necessary for the various local, state, federal, and international entities involved in the Swift Creek conflict to reach agreement regarding division of authority over the design and implementation of a comprehensive sediment management plan by way of consensus-based collaboration at Swift Creek.

The jurisdictional division of authority and corresponding regulatory authority between these various entities must necessarily be determined before a consensus-based collaborative decision-making process is initiated. This will ensure that an agency (or multiple agencies) will not prematurely exercise independent authority at Swift Creek outside of the collaborative process. Conversely, interagency determination of authority will also ensure that an individual agency will not drag its feet and resist decisions made within the collaborative process. Perhaps the best way to address the issue of jurisdictional authority would be to appoint a single agency as the lead agency within the collaborative process. However, it is difficult to identify which agency would assume this position, therefore, identification of the lead agency should be an early priority in the collaborative process described in Section III, *infra*.

6. Project Cost

Cost is arguably the single largest issue looming over a consensus-based development of a comprehensive sediment management strategy at Swift Creek. Although the County has published a Draft EIS proposing various alternatives for a comprehensive sediment management solution at

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[115] *See See* ECOLOGY & ENV'T, INC., SWIFT CREEK REPOSITORY BASIC DESIGN AND COST ESTIMATE 2-1–2-2, (2007), *available at* http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/sumasmtndocs/$FILE/Final+Report.pdf

[116] *See* U.S. Department of State, *Environmental Quality and Transboundary Issues*, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS, http://www.bellinghamherald.com/2013/02/24/2890729/mercury-cleanup-set-to-begin-on.html (last visited Apr. 8, 2013).

the site, the Draft EIS admits that such a solution is currently unfunded.[117] As previously analyzed, the sediment management alternatives discussed in the Draft EIS are projected to be in the neighborhood of $10 million.[118] When the costs associated with disposal and transport of asbestos-laden sediment to nearby disposal facilities are considered, the project costs could easily balloon beyond those discussed in the 2011 Sediment Management Plan.[119] The additional cost of transport and disposal of asbestos-containing sediment illustrates an important point regarding the interrelated nature of project cost, risk analysis, and cleanup standards at the site. Since disposal criteria have not been produced for NOA, risk analysis will play an important role in determining cleanup standards at the site. In addition, the cleanup standards will dictate the cost of the disposal method implemented for the asbestos-containing sediment (e.g. hazardous waste disposal site versus capping the sediment with soil).

In addition to the engineering-based solution discussed in the Sediment Management Plan, Melious calculated the total cost of land acquisition within a quarter-mile buffer zone around Swift Creek at $7,673,790, based on the total assessed value of each property in 2007.[120] Although an eventual comprehensive sediment management plan at Swift Creek could involve a combination of the engineering solution as well as property acquisition, one or the other, or a different solution entirely, project cost will likely play a primary role in the decision-making process. Accordingly, it is probable that a comprehensive sediment management solution will necessarily involve funding from a range of local, state, federal, and, possibly, international, sources.[121] Similar to the uncertainty associated with

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[117] *See* Draft EIS, *supra* note 43 at 2-20.

[118] *See* discussion, *supra* notes 54–56.

[119] *See* discussion, *supra* notes 56–61.

[120] *See* Melious, *supra* note 12 at 175–79. Note that total assessed value includes the value of built structures as well as any natural resource values that may exist on the parcel.

[121] This possibility is contemplated by one of the anonymous interviewees who spoke to Hook representing a federal agency and suggested that a solution at Swift Creek would involve a multi-prong approach combining flood prevention, engineering controls, institutional controls, and risk communication. Accordingly, such an approach requires participation by multiple local, state, and federal agencies. *See* HOOK, *supra* note 101 at 65. Furthermore, Melious discusses several funding sources including: The Army Corps of Engineers, CERCLA (EPA), the State Model

cleanup standards, the lack of funding available to design and implement a comprehensive sediment management solution at Swift Creek is also likely to encourage collaboration. Accordingly, it is likely that funding could be pieced together through the collaborative process from a variety of local, state, federal, and international entities.

B. Stakeholder Analysis

This subsection summarizes what has been learned through the conflict assessment process, incorporating information gathered from three primary sources: (1) The transcript of a 2007 public meeting convened by EPA at the Glen Echo Community Club in Whatcom County, Washington; (2) confidential stakeholder interviews conducted by Rebekah J. Hook in her case study analysis of Swift Creek; and (3) personal interviews conducted by the author in 2009. The stakeholder analysis table that follows is organized in tabular format, which allows for simple comparison of each stakeholder's substantive, process, and relationship interests, as well as BATNA.

Substantive interests are the factual goals or objectives that each party wishes to obtain. These include both objective interests, which refer to things that can be seen or quantified, including money, land, personal property, and the like; as well as subjective interests, which are non-tangible, and usually consist of emotional or value-based interests. Process interests are associated with having or creating the opportunity to be heard or have a voice. Relationship interests correspond to the dynamics between the people in a collaboration; often, these relationships are continuing and ongoing. Finally a party's BATNA represents the best possible individual outcome that can be achieved outside of negotiation or collaboration.

Toxics Control Act, and the City and County. *See* Melious, *supra* note 12 at 156–79.

Stakeholder Analysis Table

	Property Owners Near Swift Creek/Sumas River (U.S. and Canadian)	**U.S. Environmental Protection Agency**	**U.S. Army Corps of Engineers**	**State and Local Agency Officials**	**Local Environmental Groups**	**The Canadian Government**	**The U.S. State Department**	**Washington Congressional Representatives**
Substantive Interests	Property value Land use concerns Property tax concerns (in the face of falling property value) Flood Risk Long-term sediment management Landslide (sudden) risk (for those close to Swift Creek Landslide) Health concerns/ children's health risk Limit CERCLA liability Farming concerns (heavy metals in landslide sediments) Trespass concerns Recreation concerns	Human health risk Project cost (share of cost) Risk communication Regulatory concerns (associated with transport of hazardous asbestos-containing material under CERCLA) Flood risk increasing exposure to NOA Species concerns (landslide sediment impacts on Salmon) Wetlands impacts Long-term sediment management Transboundary impacts (liability)	Flood risk Engineering solution to sediment management Cost/share of funding Legal authority to move landslide sediments Safe/proper disposal of landslide sediments	Human health risk Risk communication Property value (taxes) Perception of the area as a safe place to live/work/recreate Multi-prong long-term solution (engineering, flood prevention, and land use controls) Project cost Possible use of eminent domain or property acquisition Agricultural and business impacts Transboundary impacts (liability) CERCLA liability Species concerns Wetlands impacts Long-term sediment management	Ensuring a clean environment for human health and recreational purposes Species concerns (landslide sediment impacts on Salmon and other species due to presence of NOA and heavy metals in landslide sediment) Application of the highest possible cleanup standards Establishing proper regulatory precedent for NOA	Health of Canadian citizens Determining the risks posed by Swift Creek asbestos on the Canadian side of the border Agricultural productivity (heavy metals deposition) National sovereignty Possible wetlands impacts (due to presence of heavy metals in sediment) Species concerns	Maintaining a good diplomatic relationship with Canada Maintaining precedent regarding transboundary contamination concerns Consideration of U.S. interests	Remaining in elected office Protecting constituents Budget concerns associated with taking out earmarks Avoid negative press

	Property Owners Near Swift Creek/Sumas River (U.S. and Canadian)	U.S. Environmental Protection Agency	U.S. Army Corps of Engineers	State and Local Agency Officials	Local and Regional Environmental Groups	The Canadian Government	The U.S. State Department	Washington Congressional Representatives
Process Interests	Fast efficient resolution (desire to end status quo of inaction) Want concerns to be heard and acknowledged by the agencies (Local/State/Federal) in charge Value a singular (rather than fragmented) process (which has not been the case thus far)	Desire to follow agency guidelines and federal requirements regarding collaborative decision-making at Swift Creek Build capacity for all stakeholders through education and outreach Identifying all possible stakeholders before initiating collaborative decision-making	Likely has a desire to be involved in an engineering solution, but not in a leadership role Likely to apply cost-benefit analysis to the solution selected	Want to ensure they retain decision-making authority over property within their jurisdiction Fast efficient resolution (desire to end status quo of inaction) Consideration of solutions identified within the 2013 Draft EIS	Want a place at the negotiating table	Desire to ensure Canadian interests are considered throughout the collaborative process Fast efficient resolution (desire to end status quo of inaction)	Balance relationship with Canada and U.S. interests Care not to establish precedent that could affect U.S. environmental interests in the future	If Congressional money is needed, political capital is required to obtain it Ensuring funding is well spent (cost-benefit)
Relationship Interests	Build a relationship with EPA and other federal agencies involved (there is currently mistrust) Maintain relationship with state and local agency officials Inclusion of concerned Canadian homeowners (and possibly Canadian Government)	Build a relationship with residents as well and maintain existing relationship with state and local agencies Find an effective entity to convene collaborative process Ensure transparency and adherence to federal and agency guidelines Assume leadership role within the group Establish and maintain ground rules	Maintain a working relationship with EPA Remain available to provide technical engineering expertise to the group Ensure that decisions reached are technologically feasible and can be implemented by the Army Corps	Maintain existing relationships with federal agencies Ensure local interests are being heard	Build relationship with local state and federal agencies at Swift Creek Align with homeowners who are concerned about health impacts of NOA (perhaps mothers of children near Swift Creek) Ensure that local environmental interests are considered in the decision-making process	Maintain neighborly relationship with the U.S. Desire not to alienate trust of citizens affected by asbestos-containing sediment	Maintain neighborly relationship with Canada Desire not to alienate trust of citizens affected by entering into an unfair agreement with Canadian government	Desire not to alienate constituents

	Property Owners Near Swift Creek/Sumas River (U.S. and Canadian)	**U.S. Environmental Protection Agency**	**U.S. Army Corps of Engineers**	**State and Local Agency Officials**	**Local Environmental Groups**	**The Canadian Government**	**The U.S. State Department**	**Washington Congressional Representatives**
BATNA Analysis	Do not participate in (or abandon) collaborative decision-making at Swift Creek, and continue to discount health risks while hoping that: • no ill-effects arise down the road • EPA and the State will not impose liability for moving hazardous waste in the past/present/future • Hope that Federal agencies bail them out of flood risk Abandon property and lose all investments made near Swift Creek or Sumas River (file for bankruptcy)	Continue sporadic health studies when budget permits. Study cohorts of individuals exposed for long periods. Encourage land use and other low-cost local efforts to reduce exposure to NOA Conduct HRS scoring at the site to see if it is eligible for listing on the NPL Defer to state/local government for long term solutions while maintaining CERCLA regulatory authority Take CERCLA enforcement action against anyone who moves asbestos-laden sediment	Only offer assistance at Swift Creek in times of flooding	Move forward with Swift Creek Draft EIS in the face of regulatory and financial uncertainty Identify new funding sources for comprehensive sediment management solution at Swift Creek Continue to educate locals on the dangers of NOA and mitigation strategies used to reduce exposure Identify low cost mitigation efforts to reduce citizen exposure to asbestos containing sediments	Determine the scope and applicability of Endangered Species Act concerns associated with NOA exposure to Pacific Salmon Partner with state and local officials to help communicate risks of NOA to locals and those who recreate near Swift Creek and the Sumas River Lobby local and federal politicians for money to advance cleanup efforts	Utilize alternate diplomatic or international legal channels to achieve remediation at Swift Creek or on the Canadian side of the border	Negotiate directly with Canada in order to find a solution Defend potential international legal action brought by Canada	Work unilaterally with constituents to identify and fund solutions to asbestos problems at Swift Creek Ignore the problem due to the fact that few constituents are impacted by Swift Creek sediments (relative to population in other areas of the state) Only offer aid after Swift Creek/Sumas River has flooded

III. PROCESS DESIGN

This section of the report proposes an EDR process design for Swift Creek that can be used to develop and implement a comprehensive sediment management solution through consensus-based collaboration among stakeholders. Section A includes a brief discussion of the opportunities for collaboration presented by the Swift Creek conundrum. Section B identifies some of the challenges to collaboration at Swift Creek. Finally, Section C discusses the individual components of the collaborative EDR process design, which include: risk communication, collaborative NEPA, and community involvement.

The first component of the EDR process design at Swift Creek is risk communication. As previously identified,[122] perception of risk associated with NOA in Swift Creek sediments is a barrier to collaboration, and needs to be addressed before solutions to the situation can be found and before the remaining components of the EDR process design can be implemented. The second component of the EDR process design at Swift Creek is implementation of a collaborative NEPA process to discover and analyze the range of alternatives available to comprehensively address the issues caused by Swift Creek sediments. Finally, the last component of the EDR process design at Swift Creek is to utilize community involvement strategies to maintain participation and input of the stakeholders once the selected comprehensive sediment strategy is implemented.

Combined, these three components of the EDR process design for the Swift Creek conflict will educate and inform local citizens, organize agency action, identify a scientifically and legally sound comprehensive sediment management plan, and ensure transparency and a constant flow of information to concerned citizens and landowners throughout the entire effort.

A. Opportunity for Collaboration

Although the conflict at Swift Creek is multifaceted and scientifically complex, there are several reasons why a consensus-based collaborative decision-making process is likely to be the most effective way to identify and implement a comprehensive solution in the Swift Creek and Sumas River flood plains. First, as identified by Melious, the fact that the issues at

[122] *See* discussion, *supra* Part II.A.2

Swift Creek do not fit neatly into an existing regulatory regime might actually foster cooperation and creativity in developing and implementing a solution to the problem.[123] As previously identified,[124] this sentiment was echoed by then-EPA Region 10 Regional Administrator Elin Miller who recognized the potential for collaboration at Swift Creek during the public meeting in 2007 when she stated, "EPA alone does not have the authority to solve this problem. As you can see from the number of government representatives here today, and there's quite a few, it will require a collaborative effort to find a safe, economic solution."[125]

Furthermore, as illustrated in the BATNA analysis compiled in the *Stakeholder Analysis Table* in Part II.B, none of the identified stakeholders has a particularly strong BATNA. This is largely due to the multijurisdictional nature of the issue, in addition to the high cost of implementing a comprehensive sediment management solution at Swift Creek. As a result, it is unlikely any one stakeholder possesses the authority or funding to design and implement a comprehensive long-term solution to the issues posed by asbestos-containing sediment at Swift creek. Therefore, the BATNA analysis provides a convincing argument for collaboration and suggests that the synergistic effort of a collaborative process will be much more effective than an individual or bilateral attempt at addressing the complex issues at Swift Creek. Finally, the previously identified multifaceted regulatory, jurisdictional, and funding challenges[126] combine to render unilateral or bilateral decision making at Swift Creek nearly impossible. For these reasons, it is likely that consensus based collaboration is the most effective method for designing and implementing a comprehensive sediment management solution at Swift Creek.

B. Challenges to Collaboration

As previously identified, cost, risk perception, and determining which agencies have regulatory authority at Swift Creek are the largest challenges to collaboration.[127] However the unique challenges of regulatory uncertainty also provide an opportunity for collaboration. As specified by Melious in reference to the regulatory uncertainty at Swift Creek, "[a]lthough a seam

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[123] *See Id.*
[124] *See* discussion, *supra* Part II
[125] *See* Public Meeting Transcript, *supra* note 42, at 6–7.
[126] *See* discussion, *supra* Part II.A.
[127] *See* discussion, *supra* Part II.A.

between the authorities is an uncomfortable location, it does dictate cooperation and may lead to creativity."[128]

The first and most important challenge that must be overcome before designing and eventually implementing a comprehensive sediment management solution at Swift Creek is changing risk perception. As previously discussed, there is ample evidence that home and property owners in the Swift Creek and Sumas River floodplains do not view NOA as a health risk. If this important stakeholder group continues to ignore the health risks posed by NOA, it will be difficult to get them to participate fully in the collaborative process, which could severely jeopardize the chances that a comprehensive sediment management solution is successfully implemented at Swift Creek. In addition, the risk communication process is an important step toward encouraging involvement from the Canadian landowners that are impacted by asbestos deposition from the Sumas River. By including affected Canadians in the risk communication process, it is more likely that the Canadian Government, and as a result, the U.S. State Department, gets involved at Swift Creek, which could increase funding opportunities and nudge stakeholders (especially federal regulatory agencies) toward collaboration.

C. Components of the Collaborative EDR Process Design at Swift Creek

The three individual components of the collaborative EDR process design at Swift Creek include: risk communication, collaborative NEPA, and community involvement. Each of these components will be discussed in the subsections that follow.

1. Risk Communication

As identified by Peter Sandman, [t]he most important fact about risk communication is the incredibly low correlation between a risk's 'hazard' (how much harm it's likely to do) and its 'outrage' (how upset it's likely to make people)."[129] Accordingly, Sandman categorizes risk communication into four distinct groups: (1) "precaution advocacy" – when risk is high and

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[128] *See* Melious, *supra* note 12 at 156.

[129] Peter M. Sandman, *Introduction to Risk Communication and Orientation to this Website*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (last visited Mar. 15, 2013), http://www.psandman.com/index-intro.htm.

outrage is low; (2) "outrage management" – when hazard is low and outrage is high; (3) "crisis communication" – when hazard is high and outrage is also high; and (4) "sweet spot" – when hazard and outrage are both intermediate.[130]

(i) Precaution Advocacy at Swift Creek

Based on Sandman's rubric, the conflict at Swift Creek falls squarely into the first category—precaution advocacy. This is because the local residents immediately affected by Swift Creek sediments have largely discounted the health risks associated with asbestos reported by EPA and Cyphert et al.[131] Therefore, the risk communication component of the Swift Creek EDR process design will implement strategies to educate local citizens as well as the broader public about the risks associated with NOA from Swift Creek sediments.

As noted by Sandman, "[p]eople usually underestimate familiar risks."[132] This helps explain why local landowners have discounted the risks associated with NOA at Swift Creek. The familiarity factor of risk perception was on full display during the 2007 public meeting where several homeowners stated that they didn't see NOA as a risk at Swift Creek. This sentiment is encapsulated in a statement by local landowner Richard Powell, who said,

> I'm speaking for myself, but others may have the same sentiment, [I] don't believe your fuzzy science. I'm living proof. I've been here since the '60s. I've played in it [referencing Swift Creek sediment], worked in it, hauled it, ate it as a kid, and I have not suffered any ill health. And that's what people see, they don't believe you and they don't like to be told what to do.[133]

In the eyes of local homeowners, the sediment carried off of the Swift Creek landslide is very familiar. The familiarity with Swift Creek

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[130] *Id.*

[131] *See* discussion, *supra* Part II.A.2.

[132] Peter M. Sandman, *Managing Risk Familiarity*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (Nov. 3, 2012), http://www.psandman.com/col/familiarity.htm.

[133] *See* Public Meeting Transcript, *supra* note 42, at 59.

sediments, combined with the latent nature of asbestos related cancer, which can take upwards of 30 years or more to develop in humans, makes it easy to discount the risks identified by EPA—an agency viewed by locals as a distant federal entity from the big city who, with a single batch of soil samples, suddenly turned their small community upside down overnight.

Although there is high risk and low outrage associated with the asbestos in Swift Creek sediments, EPA's identification of Swift Creek sediment as hazardous led to an associated high risk, high outrage issue at Swift Creek. This issue is flood risk. Even though there has always been a risk of flooding at Swift Creek due to blockage from landslide sediments, this problem had previously been controlled by periodic dredging. With a moratorium on large scale dredging in place since 2005, flood risk has steadily increased at the site, as landslide sediments continue to build up in Swift Creek. Although the majority of homeowners discounted the threat of NOA at Swift Creek, they consistently identified flood risk as a growing concern at Swift Creek.[134]

This phenomenon is also described by Sandman, who refers to it as "memorability." According to Sandman, "[i]ncreased memorability leads to increased outrage and therefore to increased precaution-taking."[135] Flood risk is memorable to local property owners near Swift Creek because they have experienced the damage of previous flood events first hand. Following flood events in the 1970s, landowners were not able to use their property of agricultural purposes for multiple years afterword, due to the heavy metals content of the landslide sediment.[136] Therefore, although there is increased

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[134] *See id.* at 43 (local business employee Gerry Millman stating, Has anybody done a risk analysis on when the flood that we all know is going to com on public health or property damage?"); *See id.* at 54–55 (local homeowner Tammy Rawls stating, "[i]t [Swift Creek] is going to flood because we haven't dredged anything out of the creek and it's filled up more, so it is going to flood . . . so what do we do?"); *See id.* at 60–61 (local homeowner Chuck Gelwicks stating, "[i]t's not a matter of if this creek is going to jump its banks [because of what EPA did] . . . it's a matter of when it jumps the bank. . . . Who is going to take responsibility for it?").

[135] Peter M. Sandman, *Managing Risk Familiarity*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (Nov. 3, 2012), http://www.psandman.com/col/familiarity.htm.

[136] *See* DRAFT EIS at 3-93 (indicating that agricultural areas where flooding has deposited Swift Creek sediment has resulted in sterilization of

outrage and increased precaution-taking with respect to flood risk at Swift Creek, there needs to be a corresponding increase in outrage with respect to the asbestos-containing sediment. As predicted by Sandman, this will enable local home and property owners to fully realize the risk associated with NOA so that the appropriate sediment management and mitigation strategies can be implemented at Swift Creek.

(ii) The GAAMM Model of Precaution Advocacy

As hypothesized by Sandman, the most effective way to increase outrage with respect to a specific risk is to reduce perceived familiarity with the hazardous substance.[137] One of the classic substances that Sandman has subjected to precaution advocacy (a high risk, low outrage situation) is radon.[138] Like asbestos, radon is a colorless, odorless, and invisible (to the naked eye) carcinogenic substance (when airborne) with a potentially high latency period between exposure and disease manifestation.[139] These factors combine to make both asbestos and radon risks that can easily, but mistakenly, be discounted by the populations exposed to them. As determined by Sandman, the best way to educate individuals threatened by radon was to encourage them to conduct in-home testing.[140] Furthermore Sandman determined that the most effective means of changing behaviors (getting homeowners to test for radon) was to educate them about the risks. As specified in a study by Sandman, even different levels of education offered (from basic information, to advanced) were enough to encourage homeowners to seek out testing on their own.[141]

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soil, which can only be returned to productivity after years of continual amendment with uncontaminated soil).

[137] *See Id.*

[138] Peter M. Sandman, *Introduction to Risk Communication and Orientation to this Website*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (last visited Mar. 15, 2013), http://www.psandman.com/index-intro.htm.

[139] *Id.*

[140] *See* Neil D. Weinstein, Judith E. Lyon, & Peter M. Sandman, *Experimental Evidence for Stages of Health Behavior Change: The Precaution Adoption Process Model Applied to Home Radon Testing*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (April 18, 2001), http://www.psandman.com/articles/stages.htm.

[141] *Id.*

Similarly, at Swift Creek local and federal agencies need to do a better job educating local home and business owners of the risks posed by NOA. Surely, everyone in the area knows that there is a problem, they just do not fully understand it or do not believe the statements released by EPA, WDOH, the County, or ATSDR. To get the message out, Sandman suggests applying the GAAMM Model of precaution advocacy messaging.[142] Under this strategy, GAAMM stands for: Goals, Audiences, Appeals and barriers, Media and messengers, and Messages.[143]

Within Sandman's framework, "Goals" correspond to the desired outcome.[144] In the case of Swift Creek, the goal is to change homeowner behavior toward Swift Creek asbestos. The "Audience" refers to those targeted by the goal selected.[145] At Swift Creek this includes stakeholders who do not identify NOA from Swift Creek sediments as a risk as well as those who may not know about the sediment in the first place. Under Sandman's strategy, "Appeals" refers to the things that predispose the audience toward the targeted goals, while "Barriers" are everything that predisposes the audience against the identified goals.[146] The likely appeals at Swift Creek are health risks—namely lung cancer—specifically, children's health risk. Conversely, the likely barriers present at Swift Creek are familiarity and a dearth of actual documented asbestos-related illness in the area. "Media" corresponds to media conducive to the selected appeals that can reach the target audience, while "Messengers" corresponds to individuals that fit both the audiences and appeals.[147] Due to the nature and scope of the problem, the appropriate media to get the message out at Swift Creek is likely face to face interaction, while the messenger role is probably best filled by a well-known and well-respected local agency official. Finally, under Sandman's framework "Messages" represent a carefully

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[142] *See* Peter M. Sandman, *Precaution Advocacy Messaging Strategy: The GAAMM Model*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (2007), http://www.psandman.com/handouts/sand38a.pdf.

[143] *Id.*

[144] *Id.*

[145] *Id.*

[146] *Id.*

[147] *Id.*

drafted communication containing the appeals previously identified and conveyed by the messenger.[148]

(iii) Implementing the GAAMM Model of Precaution Advocacy at Swift Creek: Phase One

Based on Sandman's GAAMM model for precaution advocacy, the proper strategy at Swift Creek would be best initiated with a survey delivered by mail regarding flood risk in the area. Since the asbestos-containing sediment is a known barrier to communication with the target audience, a survey about flood risk—a known concern of property owners in the area—would improve response rates. The survey would begin by asking questions about perceptions regarding flood risk, but it would then transition to subsequent questions regarding perceived risk of asbestos-containing sediment, as it relates to flood risk. The wording of questions transitioning toward asbestos risk could also be used as an educational tool. For example, statistics from the Cyphert et al. study or the Libby, Montana asbestos case could be incorporated into the survey questionnaire as a subtle means of informing landowners of the risks posed by Swift Creek sediments.

The survey responses could then be tallied and categorized into groups from high perceived risk to low perceived risk. These groupings could then be used to organize small focus groups to discuss flood risk and sediment risk, where local officials (messengers) could be used to convey the underling appeal that, along with flood risk, asbestos is a real hazard to health within the community that needs to be addressed immediately (through mitigation measures), and in the future (comprehensive sediment management).

One effective messaging strategy identified by Sandman to increase outrage and decrease familiarity with a specific risk is to use individuals previously afflicted with a familiar risk as "spokespeople."[149] Thus, it could be an effective messaging tactic within the focus groups to bring in a property owner afflicted with asbestos-related disease from Libby Montana to make an appeal to the individual groups who do not perceive Swift Creek

[148] *Id.*

[149] Peter M. Sandman, *Managing Risk Familiarity*, THE PETER SANDMAN RISK COMMUNICATION WEBSITE (Nov. 3, 2012), http://www.psandman.com/col/familiarity.htm.

asbestos as a risk to human health. Additionally, another effective strategy would be to get a researcher involved in the Cyphert et al. study to give a short, but easy to understand, presentation on their epidemiological findings associated with asbestos from Swift Creek—complete with images of the lung tissue of mice exposed to Swift Creek asbestos fibers.

Combined, the GAAMM strategy of using flood risk as a hook and convening individual focus groups with effective messengers—those who have suffered from asbestos-related disease from environmental exposure and scientists currently studying health effects of Swift Creek asbestos—could be implemented as an effective strategy to increase outrage and decrease perceived familiarity with Swift Creek asbestos in the community. Once the small group stage involving local home and property owners who live and work in close proximity to the Swift Creek and Sumas River floodplains has been completed, a second phase involving educating the broader community could be initiated.

(iv) Implementing the GAAMM Model of Precaution Advocacy at Swift Creek: Phase Two

This second phase of risk communication at Swift Creek would use the same GAAMM framework as the first phase, however, in addition to the messengers used in the initial phase, the primary messengers of the second phase could be focus group members who changed their previous perceptions of the risks associated with NOA in Swift Creek sediments in the first phase of precaution advocacy. Using local property owners who have recently changed their perceptions of risk pertaining to NOA could be a very effective strategy, since these individuals, many of whom are likely to be well-known within the community, will have more credibility than scientists or local agency employees. Moreover, these individuals could conduct risk communication focus groups in the homes of those participating in the second phase of risk communication.

This two-phased strategy applying Sandman's GAAMM model for precaution advocacy is likely to be an effective means of educating local property owners and the community at large of the risks posed by asbestos-containing sediments in the Swift Creek and Sumas River floodplains. Furthermore, when implementing the risk communication strategy at Swift Creek, the Canadian border should not be seen as a barrier, rather it should be looked upon as an opportunity. As previously stated, the issues

associated with Swift Creek have not been well-publicized in Canada.[150] Therefore, risk communication efforts will be especially important north of the border. As previously discussed, recent political shifts in Canada have opened the window for concerns associated with Swift Creek asbestos could encourage collaborative participation by Canadian citizens and the Canadian government, with the U.S. State Department likely being drawn in as a result of the transboundary nature of the issue. The resulting increase in outrage on both sides of the border from these efforts lays a solid foundation for community support of a consensus-based collaborative NEPA process to identify and implement a long-term comprehensive sediment management strategy at Swift Creek.

2. Collaborative NEPA at Swift Creek

The collaborative NEPA process will be implemented as a means of generating a planning document, or EIS, for the comprehensive sediment management strategy to permanently remediate or mitigate the ongoing asbestos contamination at Swift Creek. Unlike the recent Draft EIS, which was initially drafted solely by consultants for the County before being disseminated for public review and comment, collaborative NEPA can be used to identify alternatives for an environmental action from day one. In this process, stakeholders are actively involved in identifying and discussing various project alternatives from the beginning, increasing the chances of successful project implementation and reducing the probability that individual stakeholder groups will turn to litigation to slow or prevent a project. The subsections that follow articulate the collaborative NEPA process designed for implementation at Swift Creek.

(i) Convener Analysis

Although EPA arguably has the most authority at Swift Creek based on its regulatory authority under CERCLA, thus far the agency has not been able to develop or maintain a positive relationship with local residents or local businesses directly affected by deposition of NOA by Swift Creek and the Sumas River. Distrust between EPA and local citizens was plainly apparent during a public meeting convened by the agency in 2007. During the meeting, several citizens voiced displeasure with the way the agency had handled the conflict. One comment to EPA, in particular, by a local

[150] *See* discussion, *supra* Part I.C.

landowner, Dave Smith, encapsulates community displeasure with EPA's handling of the situation since it became involved in 2005:

> If you're so concerned about our health, how come all the people that live on the stream haven't been contacted to go to the doctor to see if we have asbestosis or not? . . . It's a frustrating deal when you see all the work that people have put into their land to just sit there and let some commission [referring to EPA] say we can't do nothing with it, we're just going to let it flood your property and take it away.[151]

Based on transcripts from the 2007 public meeting, many landowners are frustrated with the way EPA has handled the issues at Swift Creek. Before EPA was involved, Swift Creek was dredged to control flood risk, and the dredged sediment was given away as free fill.[152] After EPA became involved, large-scale dredging ceased, flood danger increased, and property values plummeted.[153] At the same time, many residents discounted the risks associated with NOA as reported by EPA. Finally, EPA would only periodically come to Swift Creek, usually with scientists donning protective "moon suits" to sample for asbestos and leave, only to later release reports announcing the human health risks of exposure to Swift Creek sediments. Accordingly, it became very easy for landowners to blame all of the problems associated with Swift Creek on a singular federal agency, with whom they had previously had no contact and virtually nothing in common.

Therefore, when selecting an entity to convene a collaborative decision-making process at Swift Creek, it will be very important to consider the history of the conflict. Even though EPA may have the most legal authority over the sediment at Swift Creek, its success as a convener is hamstrung by past animosity harbored by local landowners. Accordingly, perhaps the best entity for convening a consensus-based collaborative decision-making effort at Swift Creek is the County, specifically, Whatcom County Public Works. This local agency has a long history at Swift Creek, and was previously responsible for dredging the creek to mitigate flood risk

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[151] *See* Public Meeting Transcript, *supra* note 42, at 15–16.

[152] *See* discussion, *supra* Note 14 (estimating that approximately two million cubic yards of Swift Creek sediment has been removed and used throughout the County as fill material).

[153] *See* Public Meeting Transcript, *supra* note 42, at 19.

at the site.[154] Because the County is likely to play a role in the risk communication component of the process design,[155] it is possible that, should the County be selected as convener, they could begin work before the risk communication stage. This could work to encourage participation in the risk communication stage of the collaboration because local residents are more likely to personally know or be familiar with agency officials from Whatcom County Public Works, making it more likely that the agency could bring all possible community stakeholders to the table.

As a point of clarification, it is possible that the convener is a different entity than the lead agency for the collaborative NEPA process discussed in Part III.C.2.iii, *infra*. This is due to two important distinctions—one temporal and one legal. As will be explained in the collaborative NEPA discussion that follows in Part III.C.2.iii, the NEPA lead agency must be a federal agency. It is likely that this agency will be determined based on stakeholder collaboration activities leading up to implementation of collaborative NEPA—primarily the risk communication component of the collaborative process described in Part III.C.1, *supra*. Conversely, the convener should be selected prior to the initiation of the collaborative NEPA process, and as discussed in Part III.C.2.i, perhaps even before the risk communication stage. Accordingly, it is possible, perhaps even probable, that the convener will be a different entity or agency than the NEPA lead agency in the collaborative NEPA component of the Swift Creek EDR process design.

(ii) Stakeholders

As identified in Part II.B there are nine identified stakeholder groups that should be included in the EDR process design at Swift Creek.[156] Each of these groups should be given the opportunity to be included as a full participant in the consensus-based collaborative NEPA process. Since it is possible that landowner interests might diverge, there should likely be two groups of homeowners, one U.S. and one Canadian. Furthermore, each of these homeowner groups should be limited to three homeowner representatives selected from the risk analysis phase. Once appointed, the representatives will be expected to report back to their neighbors and collect and organize any concerns they may voice throughout the collaborative

[154] *See* Melious, *supra* note 12 at at 143–147
[155] *See* discussion, *supra* Part III.C.1.
[156] *See* discussion, *supra* Part II.B.

NEPA process. Since the other groups are likely to have singular interests, they should each consist of one representative, however the individual Washington State congressional representatives can each appoint a staff member as a representative to represent their individual interests. The stakeholder groups include the following:

- Property owners in the U.S. and Canada affected, or potentially affected by Swift Creek sediment
- The U.S. EPA
- The U.S. Army Corps of Engineers
- State and Local Agency Officials (primarily Whatcom County Public Works, but could include others)
- Local and regional environmental groups
- The Canadian government
- The U.S. State Department
- Washington State Congressional Representatives

(iii) Collaborative NEPA Process and Stages at Swift Creek

As previously identified, the lack of complete regulatory authority to address the Swift Creek conflict is likely to foster the collaborative development of a safe, economically sound comprehensive sediment management solution at the site.[157] Although Whatcom County recently published a Draft EIS identifying potential sediment management solutions at Swift Creek, this document is unlikely to result in the implementation of the identified preferred alternative due to the myriad legal and regulatory issues associated with transport and disposal of hazardous asbestos-containing material under CERCLA.[158] Therefore, the most probable means of identifying and implementing a comprehensive sediment management solution at Swift Creek is through a consensus-based collaborative NEPA process involving all of the stakeholders who have interests associated with sediment management in the Swift Creek and Sumas River floodplains. Such a solution is less vulnerable to legal action, either by way of a lawsuit from a stakeholder group or individual regulatory action by a local, state, or federal agency.

[157] *See* discussion, *supra* Part III.A.
[158] *See* discussion, *supra* note 47.

(a) Applicability of NEPA

The Supreme Court has interpreted NEPA section 102(2)(C) as a procedural requirement mandating that federal agencies submit an EIS for major federal actions affecting the environment.[159] Specifically, the Council on Environmental Quality ("CEQ"), which is the agency tasked with promulgating regulations pursuant to NEPA, has identified factors to determine when the "intensity" of a given project is likely to have a "significant" effect on the environment, requiring an EIS before the agency commences the project.[160] The ten intensity factors identified in NEPA regulations are:

> (1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. (2) The degree to which the proposed action affects public health or safety. (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. (8) The degree to which the action may adversely affect districts, sites, highways, structures, or

[159] *See* Aberdeen & Rockfish R.R. v. Students Challenging Regulatory Agency Procedures (SCRAP), 409 U.S. 1207, 1210 (1972) ("Section 102(2)(C) . . . requires an impact statement 'in every recommendation or report on proposals for . . . major Federal actions significantly affecting the quality of the human environment.").

[160] *See* 40 C.F.R. § 1508.27 (2012).

> objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. (10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.[161]

A comprehensive sediment management solution at Swift Creek would likely meet at least six of the ten intensity factors identified in the NEPA regulations. The first two factors are met because a comprehensive sediment management solution at Swift Creek could result in beneficial and adverse impacts and affects public health and safety. This is because, while a sediment management strategy could be beneficial to a large number of individuals in the Swift Creek and Sumas River floodplains, possible dredging and disposal activities could concentrate asbestos-containing sediments in specific areas, and might have adverse environmental impacts in discrete areas. Furthermore, as previously discussed, the effects on the quality of the human environment have already proven to be controversial at Swift Creek—satisfying the fourth factor. In addition, the fifth factor is also satisfied, because the dangers posed by Swift Creek asbestos have already been determined by EPA to pose unique risks. Finally, the tenth factor is also satisfied at Swift Creek, because the likely results of a comprehensive sediment management strategy would involve dredging or movement of asbestos-contaminated sediment from the creek channel to a nearby storage area, which as previously discussed, threatens a violation of federal regulatory requirements under CERCLA.[162]

Therefore, it is highly likely NEPA applies to implementation of a comprehensive sediment management solution at Swift Creek, due to the intensity of the likely environmental impacts resulting from implementation of a comprehensive sediment management plan at the site. Accordingly, an EIS is required for the major federal actions contemplated at Swift Creek under the collaborative NEPA process.

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[161] *Id.* at § 1508.27(b)(1)–(10).
[162] *See* discussion, *supra* notes 48–52.

(b) Benefits of Collaborative NEPA

In 2012 CEQ reiterated its commitment to collaborative NEPA in a memorandum calling on agencies to commit to employing "collaboration to minimize and potentially avoid environmental and natural resource conflicts as well as to enhance the use of environmental conflict resolution to manage and resolve conflicts that arise."[163] In addition, the memorandum added that collaborative NEPA supports goals of government transparency, minimizes delays, and reduces costs to government.[164] Therefore, the memorandum provides a clear indication that the current administration is committed to collaborative NEPA, making it more likely that the lead federal agency will be inclined to implement it at Swift Creek.

According to CEQ, some of the benefits of collaborative NEPA include: fairer process, better integration of different legal and permitting requirements, conflict prevention, improved fact-finding, easier implementation, and reduced litigation.[165] Each of these benefits are important at Swift Creek, which is a conflict involving the participation of multiple local, state and federal agencies, potentially litigious property owners, a myriad of legal and permitting requirements, and looming CERCLA liability that affects selection and implementation of a comprehensive sediment management solution at the site. Accordingly, collaborative NEPA is likely to work at Swift Creek because the affected parties are much more likely to achieve a better outcome at Swift Creek working together rather than by pursuing individual interests unilaterally.[166]

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[163] Jeffery D. Zients, Office of Management and Budget & Nancy H. Sutley, Council on Environmental Quality, *Memorandum on Environmental Collaboration and Conflict Resolution* (Sept. 7, 2012), *available at* http://energy.gov/sites/prod/files/OMB_CEQ_Env_Collab_Conflict_Resolution_20120907-2012.pdf.

[164] *Id.*

[165] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 4–5 (2007).

[166] *See id.* at 7; *see also* 40 C.F.R. § 1501.6 (2012) (specifying that the one of the purposes of NEPA is to encourage agency collaboration early in the process).

In addition, CEQ also specifies that collaborative NEPA works best "when there is sufficient decision space among alternatives."[167] That is, when the 'best' or 'most effective' outcome is unknown. This is also the case at Swift Creek, where anything from an engineering solution blocking the landslide itself, to a series of asbestos settling ponds, to the exercise of land use and zoning controls and eminent domain, or any combination of these or other possible unknown solutions might represent the 'best' overall sediment management solution at the site. Finally, CEQ indicates that collaborative NEPA is likely to be successful in instances when lead agencies are undertaking actions that affect other governmental agencies.[168] Accordingly, CEQ guidance encourages lead agencies to designate local, state, and other federal agencies that share jurisdiction or expertise as "cooperating agencies."[169] As identified by the Assistant Director of Whatcom County Public Works, Jon Hutchings, during the 2007 public meeting, the number of agencies with authority at Swift Creek is "like a hydra, the heads are moving."[170] Organizing agencies under a single federal lead agency with associated cooperating agencies is an effective strategy to manage the hydra into a workable hierarchy within the collaborative NEPA process.

(c) Designing the Collaborative NEPA Process at Swift Creek

Because the factual situation at Swift Creek lends itself well to the collaborative NEPA process, the next step is to design a collaborative NEPA process that can be implemented at Swift Creek. CEQ identifies a five-phased approach toward managing complex multi-party public disputes. According to CEQ, this five-phased approach involves: "(1) assessment and planning; (2) convening and initiating; (3) sharing interests and exchanging information; (4) seeking agreement through deliberation and negotiation; and (5) decision-making and implementation (including monitoring and evaluation)."[171] Phases one and two have previously been addressed in Sections II and III.B.2.(i)–(ii) of this report; therefore, the focus of this section will be centered on designing phases three through five of the collaborative NEPA process.

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[167] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 8 (2007)

[168] *Id.*

[169] *Id.*; 40 C.F.R. § 1501.6 (2012).

[170] *See* Public Meeting Transcript, *supra* note 42, at 57.

[171] *Id.* at 14.

Phase three of the collaborative NEPA process—sharing interests and exchanging information—will be critical to the success of any collaborative process at Swift Creek. This is because the inherent complexity of the conflict, combined with the intuitional expertise and knowledge of the stakeholders and agencies involved, are likely to result in the exchange of large amounts of information. The use of joint fact-finding will be an important component of the third phase of the collaborative NEPA process. This is because, as previously indicated, uncertainty exists with respect to the extent of transboundary asbestos deposition in Canada, the exact level of risk posed by Swift Creek asbestos, and the applicable cleanup standards for NOA.[172] Once the stakeholders agree on joint fact-finding methods for obtaining better information to fill in the aforementioned data gaps they will have a solid foundation upon which the rest of the collaborative NEPA process can be built.

A general lack of fact-finding and information exchange is apparent within the County's current Draft EIS, which fails to mention the Cyphert et al. epidemiological study, contains basic-level misstatements of CERCLA liability at Swift Creek,[173] and ignores potential land use and zoning solutions previously posed as remedial alternatives at the site.[174] The fact that these basic facts and ideas are not even mentioned in the Draft EIS suggests that they were not considered during the initial phases of the document's development. The absence of this information limits the development of alternatives later on, and results in an incomplete analysis that is subject to subsequent challenge or litigation by outside groups.[175] The incompleteness of the Draft EIS illustrates the importance of joint fact-finding early in the NEPA process: if there are significant holes in the underlying data, the entire EIS will be weakened, making it less likely that the various project alternatives identified can be compared on an even playing field.

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[172] *See* discussion, *supra* Part II.A.

[173] *See* discussion, *supra* note 47.

[174] *See* Melious, *supra* note 12 at 175–80 (discussing potential land use and land acquisition solutions at Swift Creek).

[175] *See* COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 5 (2007) (identifying reduced litigation as one of the benefits of collaborative NEPA).

Due to the nature of the consensus-based collaborative NEPA process designed for Swift Creek, it is important that all members of the stakeholder group achieve the same level of understanding regarding the relevant factual information at Swift Creek. The following subjects represent the most important basic information that each stakeholder in the group should understand after the joint fact-finding process, and throughout the remaining phases of collaborative NEPA: Current conditions at Swift Creek and the Sumas River, the hazards and risks to human health and the environment posed by landslide sediments, the relevant regulatory standards and legal issues likely to affect proposed alternative actions at Swift Creek, and the potential solutions already identified by the County in the Draft EIS and other recent studies. This knowledge is vital for an informed decision-making process and will be critical when brainstorming and analyzing project alternatives in the remaining phases of the collaborative NEPA process.

Once a solid baseline of information is generated and exchanged among the stakeholders, the convener can organize sessions with the lead agency where individual stakeholder interests are shared.[176] Although sharing of interests can be achieved in many different ways, an effective strategy for Swift Creek might be to convene a series of roundtable discussions attended by small groups of stakeholders who brainstorm their shared interests and choose the best ones to bring in front of the entire group for discussion. This process increases the efficiency of the brainstorming process, while still ensuring that all interests of each stakeholder group are heard and analyzed in both a small and large group setting.

The fourth phase—seeking agreement through deliberation and negotiation—is the most important phase, and is considered the heart of the collaborative NEPA process.[177] The design of this phase could dictate the success or failure of the entire process. The first important consideration of the fourth phase is to get agreement on an initial negotiating schedule. This is important because it will be imperative that all of the stakeholder representatives are present at each negotiation session due to the fact that all decisions will be made based on group consensus. The next important step is establishing ground rules for the negotiation. Ground rules will be approved by consensus during the initial negotiation of the parties, and will

[176] *Id.* at 11–12.
[177] *See Id.* at 15.

be committed to writing and distributed to all participants. However, key ground rules will include: not interrupting others; zero tolerance for personal attacks; respecting the opinions, viewpoints and options generated by other participants; agreement by consensus only; staying on topic; mandatory meeting attendance; limits on contact with the media; and joint group enforcement of the ground rules.[178]

Once ground rules have been established, an indefinite number of negotiating sessions will commence with the goal of reaching consensus regarding the development of comprehensive sediment management alternatives at Swift Creek. Consensus-based collaboration will be used at each step of the NEPA process beginning with the publication of the Notice of Intent ("NOI") in the Federal Register.[179] Following publication of the NOI, the next step in the NEPA process is scoping. Scoping is used to determine the range of issues that will be addressed by the EIS as a result of the proposed action.[180] The scoping process at Swift Creek will be used to define the extent of the problem that will be addressed by a comprehensive sediment solution at the site. For example, will possible remediation alternatives be limited to the Swift Creek and Sumas River floodplains, or will they include areas where Swift Creek sediments were transported and used as fill elsewhere in the County?

Following the scoping process, comprehensive sediment management alternatives will need to be developed by the group.[181] As specified by NEPA regulations, established by CEQ, the alternatives analysis component of NEPA "is the heart of the environmental impact analysis."[182] NEPA regulations require agencies preparing an EIS to "[r]igorously explore and

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[178] For a general discussion of ground rules and examples of ground rules, *see* SUSAN L. CARPENTER & W.J.D. KENNEDY, MANAGING PUBLIC DISPUTES: A PRACTICAL GUIDE FOR GOVERNMENT, BUSINESS, AND CITIZENS' GROUPS 117–124.

[179] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 20 (2007) (identifying the reduced litigation as one of the benefits of collaborative NEPA).

[180] *Id.*; *see also* 40 C.F.R. § 1501.7 (2012) (identifying the requirements of the scoping process under NEPA.

[181] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 21 (2007).

[182] 40 C.F.R. § 1502.14 (2012).

objectively evaluate all reasonable alternatives."[183] For the alternatives that are eliminated from consideration during the NEPA process, the reasons for their elimination must be discussed within the EIS.[184] Another important requirement of alternatives analysis that will be applicable at Swift Creek is for the group to consider alternatives that might extend beyond the jurisdictional authority of the stakeholders participating in the collaborative NEPA process.[185]

Such a situation could potentially occur at Swift Creek due to the numerous jurisdictional issues that are likely to arise involving multiple local, state, and federal and international agencies when developing comprehensive sediment management solutions. Because it is not feasible to include every possible local, state, federal, or international agency that might have jurisdictional authority over a specific segment of one of the alternatives identified in the collaborative process (since it is impossible to predict alternatives before they are proposed), it will be important to identify potential jurisdictional issues as they arise, and allow the group to confront them together with flexibility to consider temporarily expanding group negotiations to include the agency in question during subsequent negotiations until they are no longer needed.

Collaboration with respect to development and selection of alternatives will be crucial to the success of the collaborative NEPA process at Swift Creek. The alternatives developed during the consensus-based collaborative process will likely include a mix of engineering, land use, mitigation, and remediation, and other options. Once the potential alternatives have been agreed upon, the preferred alternative will need to be selected.[186]

Following the development of project alternatives and selection of the preferred alternative, the group will need to analyze the impacts of the alternatives, including direct and indirect effects expected under each alternative.[187] As specified by CEQ, this step inherently involves technical analysis, forming the scientific and analytic basis for comparison of the

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[183] *Id.* at § 1502.14(a).
[184] *Id.*
[185] *Id.* at § 1502.14(c).
[186] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 21 (2007).
[187] *Id.* at 22; 40 C.F.R. § 1502.14(e) (2012).

alternatives.[188] Therefore, another joint fact-finding process, agreed upon by the parties, might be necessary to fully explore the impacts of each alternative.[189] In addition, this is a potential area where cooperating agencies could be used as subject-matter experts (for example, EPA and COE could fill this role with respect to certain scientific or engineering issues). The next step in the NEPA process involves determining the need for mitigation with respect to each alternative.[190] Like the analysis of environmental impacts of the alternatives, the mitigation step is also an area where joint fact-finding and agencies as subject-matter experts can be employed.[191]

The final three stages of the collaborative NEPA process involve publication of the draft and final EIS and solicitation and review of public comments, issuing the Record of Decision ("ROD") for the project, and implementation of the plan.[192] As specified by CEQ, the draft and final EIS review phase could involve collaboration when describing the various alternatives and the preferred alternative to the public, as well as the receipt and review of public comments.[193] The legal authority for issuing a ROD cannot be delegated by the lead agency; therefore, this step of the collaborative NEPA process is exactly the same as the traditional NEPA process,[194] however, it will be important that the stakeholder group recognizes that this is nothing more than a formality, and that their consensus-based agreements will not be altered by the lead agency. Finally, during the implementation phase the group will transition from active negotiation pursuant to the collaborative NEPA process, to progress monitoring during the implementation stage of the project.[195]

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[188] 40 C.F.R. § 1502.14(e) (2012).

[189] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 21 (2007).

[190] *Id.*; 40 C.F.R. § 1502.1(e) (2012).

[191] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 21 (2007).

[192] *Id.* at 22–23.

[193] *Id.*

[194] *Id.* at 23.

[195] *Id.*

(d) Applicability of the Federal Advisory Committee Act to the Collaborative NEPA Process at Swift Creek

The Federal Advisory Committee Act ("FACA") is a statute regulating the establishment, operation, and termination of advisory committees within the executive branch of the federal government.[196] As indicated by CEQ, federal advisory committees "ensure[] that advice provided to the Federal agency is developed through a structured, transparent, and inclusive public process."[197] The rigorous and formalized FACA process makes it more likely that a successful collaboration completed under the statute will be looked upon as a credible process. In addition, the FACA requirements are also closely aligned with best practices in the EDR field, and collaborative processes generally.[198] However, as CEQ also notes, agency requirements under FACA can be onerous.[199] Despite the additional requirements under FACA, it is likely the best course of action for the development of a comprehensive sediment management strategy at Swift Creek, due to the importance of local, state, and citizen stakeholder input throughout the process.

FACA is likely to be applicable to the collaborative NEPA EDR process design at Swift Creek because, as identified by CEQ, the following criteria are met: (1) a federal agency will establish the group; (2) the group will include at least one member who is not a permanent or full time employee of the federal government, or elected official of state, tribal, or local government; and (3) the result of collaboration is group advice to the federal agency.[200] Since the NEPA lead agency will be a federal agency, FACA will become applicable when the advisory committee, or stakeholder group, is formed.[201] Because the NEPA lead agency will be establishing a group of stakeholders that includes local home and property owners, concerned citizens, environmental groups, and non-elected local and state employees who will provide group advice regarding the collaborative NEPA process at Swift Creek, FACA is likely to be applicable to the collaborative NEPA process design at Swift Creek. Although, it might be possible to design a collaborative NEPA process in such a way to avoid

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[196] *Id.* at 90.
[197] *Id.*
[198] *Id.*
[199] *Id.*
[200] *Id.* at 91.
[201] *See* 5 U.S.C. App. 2 § 4 (2006).

FACA,[202] the nature of the conflict at Swift Creek necessitates constant group communication and consensus-based decision-making, making FACA an important component of the process.

Since FACA likely applies to the collaborative NEPA process at Swift Creek, it will be important to ensure that the requirements established under the statute are followed. Accordingly, it will first be necessary to develop a charter, and publish a notice alerting the public of the creation of an advisory committee.[203] Furthermore as identified by CEQ, the following measures must also be taken to ensure compliance with FACA requirements: balance the points of view by the members of the committee as they pertain to its function; publish meeting announcements in the Federal Register before each meeting; keep meetings open to the public, unless the agency determines that the meeting can be closed; allow the public to present or submit comments; keep minutes for each meeting; make documents used by the committee available to the public; and maintain committee records for the entire life of the committee. Finally, a designated federal officer must be appointed to manage the committee.[204]

Although many of the FACA requirements are already built into the collaborative NEPA process, there are some requirements that add additional, potentially time-consuming and costly components to the collaborative NEPA process. However, the transparency, structure and inclusivity ensured under the statute is likely to produce a more credible and desirable end result than would be possible if FACA was avoided by the lead agency. Therefore, the application of FACA to the collaborative NEPA process at Swift Creek is expected to strengthen the resulting comprehensive sediment management plan produced by the group, making it more likely to be implemented, and less likely to be challenged in court.

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[202] For example, this could be accomplished if the NEPA lead agency formed a group that included private interested parties and then sought their individual (and not collective) advice, such a group would not be subject to FACA. *See* COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 91 (2007).

[203] *See* 5 U.S.C. App. 2 § 9 (2006).

[204] COUNCIL ON ENVIRONMENTAL QUALITY, COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS 92 (2007).

(e) Continued Community Involvement Following Collaborative NEPA at Swift Creek

It is important to note that collaboration will continue, even after active negotiation has been completed, and the EIS has been produced pursuant to the collaborative NEPA process. Community involvement in the implementation stage should include principles of community-based environmental monitoring, with local landowners playing an important role in monitoring progress and success of the comprehensive sediment management plan selected in the collaborative NEPA process. Accordingly, after selecting a preferred alternative to be implemented at Swift Creek, the stakeholder group should determine easily observable or measurable metrics that could be used to quantify success or failure of the comprehensive sediment management strategy. In addition, the group should also reach consensus regarding mechanisms triggered by failure of the plan, and develop steps to be taken in response (for example, further negotiations, or activation of additional funding sources to address the problem).

IV. CONCLUSION

In conclusion, Swift Creek presents an unprecedented mixture of complex scientific, geologic, environmental, economic, and sociological issues. Combined, these issues slip into a "seam between the authorities," making them very difficult to address under the existing regime of environmental law in the United States. As recognized by Melious, as well as the former EPA Region 10 Regional Administrator, Elin Miller the presence of a "seam between authorities" that is not contemplated by existing legal solutions might actually foster the application of a creative collaborative process designed to develop and implement a permanent comprehensive sediment management solution at Swift Creek. In fact, it is quite possible that the *only* way to extract the issues associated with NOA at Swift Creek out of the "seam between authorities" might be to utilize collaborative decision-making to pull them from the regulatory abyss.

With this in mind, this report proposes a three-phased strategy of risk communication, collaborative NEPA, and community involvement during site cleanup as a means of identifying and implementing a workable, comprehensive sediment management solution at Swift Creek. Although the facts at Swift Creek are likely to continue to evolve as natural conditions and scientific understanding of the issues slowly advance, this general

framework provides an adaptable consensus-based collaborative solution to the multifaceted problems created by asbestos-containing sediment at Swift Creek.

V. APPENDIX

Figure 1: *Resident walking dogs on hazardous asbestos sediment piles adjacent to Swift Creek. The Swift Creek Landslide can be seen in the background.*