FINDINGS AND RECOMMENDATIONS FOR ISSUANCE OF A SECTION 10(A)(1)(B) INCIDENTAL TAKE PERMIT (PERMIT NUMBER TE064055-0) ASSOCIATED WITH THE DAYBREAK MINE EXPANSION AND HABITAT ENHANCEMENT PROJECT HABITAT CONSERVATION PLAN J.L. STOREDAHL & SONS, INC., CLARK COUNTY, WASHINGTON

I. DESCRIPTION OF THE PROPOSED ACTION

The U.S. Fish and Wildlife Service (Service) proposes to issue an Incidental Take Permit (Permit) to J.L. Storedahl & Sons, Inc. (Storedahl) under the authority of section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (Act), for a period of 25 years. Documents used in the preparation of this statement of Findings and Recommendations include the Draft Daybreak Mine Expansion and Habitat Enhancement Project Habitat Conservation Plan (Sweet *et al.* 2002), Final Daybreak Mine Expansion and Habitat Enhancement Project Habitat Conservation Plan (HCP) (Sweet *et al.* 2003), associated Draft and Final Environmental Impact Statements (EIS) (Services 2002, 2003), public comments received on the draft and final documents, Response to Comments (Service 2003), the Implementation Agreement (IA) (Services 2003), and the Service's Biological and Conference Opinion on the Permit Application (BO) (Service 2004). All of these documents are incorporated by reference as described in 40 CFR § 1508.13.

Under the Permit, Storedahl (referred to as the Permittee) would receive incidental take authorization for certain activities associated with expanded mining and reclamation activities and the processing of sand and aggregate at the existing Daybreak Mine site and adjacent properties owned by Storedahl in Clark County, Washington, as identified in the HCP submitted by the prospective Permittee as part of the Permit application.

The prospective Permittee is requesting coverage under the Permit for a total of 5 species (Covered Species). The Permit would cover incidental take for one threatened fish species, bull trout (*Salvelinus confluentus*), and four currently unlisted species: coastal cutthroat trout (*Oncorhynchus clarki clarki*), pacific lamprey (*Lampetra tridentata*), river lamprey (*Lampetra ayresi*), and Oregon spotted frog (*Rana pretiosa*), should they become listed in the future during the term of the permit. The Permit would become effective to authorize take of the currently unlisted Covered Species concurrent with their listing under the Act. Assurances provided under the "No Surprises" rule at 50 CFR 17.3, 17.22(b)(5) and 17.32(b)(5) would extend to all Covered Species.

The Permit would authorize, for a period of 25 years, the incidental take of Covered Species associated with gravel mining and processing operations at the 300-acre Daybreak Mine located adjacent to the East Fork Lewis River and Dean Creek, a small tributary to the river that runs along the northwest boundary of the site. These lands have been determined to provide, or have the potential to provide, habitat for the Covered Species.

The East Fork Lewis River's gradient abruptly decreases in the vicinity of the Daybreak site to less than one percent, resulting in the deposition of coarse sediment transported by the river from upstream areas. This deposition through geologic time, has resulted in an area rich in gravel resources. Other than agricultural activities, which cleared, filled, and graded the natural surface features of the site, prior excavations and active gravel processing facilities comprise the major existing structural features at the Daybreak Mine site. Previous mining has resulted in the creation of five unnamed ponds that cover an area of approximately 64 acres. Mining and processing at the site began in1968, and the site has operated under a Washington Department of Natural Resources' (WADNR) Surface Mining Permit since 1971. Three previous owners mined gravel from all or part of what are now referred to in the final HCP as existing ponds 1, 2, 4, and 5. Storedahl began gravel mining and processing at the site in 1987 and excavated Pond 3, as well as a portion of Pond 1. All gravel extraction at the Daybreak Mine site concluded by 1992. Gravel is still occasionally stockpiled at the site. The processing area includes the Storedahl Pit Road, storage areas for excavation equipment, aggregate processing equipment, processed sand and gravel, fuel storage tanks, parking areas, temporary haul roads, scales, an office, and maintenance shop.

The expanded mining plan will continue to use the existing plant for processing, stockpiling, and distributing aggregate that will be mined from both on- and off-site locations. The expected life of the on-site mining activities is 10 to 15 years, depending on market conditions and other factors.

Prior to expanding mining activity, all existing forested land not proposed for mining (approximately 8 acres) will be preserved; 20 acres of active forest restoration will continue in the area south of Bennett Road; and about 53 acres of forest will be planted in areas not proposed for mining. An additional 24 acres of forested wetland and riparian habitat will be preserved south of the haul road and in the area south and west of the existing Pond 5. Storedahl will sequentially reclaim areas that are mined at the end of each mining phase. Following mining, approximately 33 acres will be reclaimed as valley-bottom forest in the area of the haul road and the processing area. An additional six acres of forested wetland and riparian habitat will be created along Dean Creek. Storedahl will create approximately 22 acres of forested wetland as the existing ponds 1 through 4 are narrowed and reclaimed. Along the edges of the new ponds, an additional 32 acres of emergent wetland will be created, and somewhat less than one acre of existing emergent wetland in the expanded mining area will be preserved. At the end of the 25-year term of the ITP (following reclamation), there will be approximately 64 acres of open water in the new ponds and 38 acres of open water in the reconfigured existing ponds. These activities will result in a total of approximately 114 acres of valley-bottom forest, 52 acres of forested wetland, 32 acres of emergent wetland, and 102 acres of open water on the 300-acre Daybreak site. These numbers compare to current site conditions of 8 acres of upland forest, 24 acres of forested wetlands, 2 acres of emergent wetlands, and 64 acres of open water (see Table 1).

Expansion of mining activities will extend the surface mine and restoration activities over an additional 178 acres within the approximately 300-acre Daybreak Mine site. These lands are north and east of the existing ponds, and generally further from the East Fork Lewis River. Of this area, gravel extraction will occur on approximately 101 acres. The approximate acreages are based on aerial interpretation and have yet to be ground-truthed by surveying. Mining will be

conducted in phases and, as each mining phase ends, mined areas will be sequentially reclaimed according to conservation measures described in Chapter 4 of the HCP. Following reclamation, there will be approximately 64 acres of created open water, 38 acres of forested and emergent wetland, and 76 acres of native valley-bottom forest vegetation in the expanded mining area.

Concurrent with mining and reclamation in the expanded area, the 64 acres of open water in the existing five ponds will be reduced to approximately 38 acres by creating emergent wetland (4 acres), and forested wetland (22 acres) in place of open water. The remaining 58 acres of the property will be preserved or reclaimed as a mix of native valley-bottom forest and forested wetland.

The table below provides a comparison of existing habitat conditions to proposed habitat conditions.

Table 1. Comparison of existing and proposed habitat acreages.	Existing (acres)	Proposed (acres)
Upland Forest	8	114
Forested Wetlands	24	52
Emergent Wetlands	2	32
Open Water	64	102

Types of Activities Covered

Activities proposed to be covered under the Permit are the otherwise lawful activities which are described in detail in Chapter 3, Sections 4 and 5 of the HCP, and in the BO. These activities generally include the following: gravel mining and attendant activities; gravel processing, including the use of flocculants, coagulants, and polymers; site reclamation activities including, but not limited to, the creation of emergent and open water wetland habitat, riparian and valley-bottom forest restoration, habitat rehabilitation, riparian irrigation and low flow augmentation of Dean Creek, and construction of facilities (i.e., trail and parking lots) to support future incorporation of the site into the open space and greenbelt reserve; and monitoring and maintenance of conservation measures.

Activities specifically not covered in the HCP include the following: (1) pesticide or herbicide use; (2) easement or rights-of-way activities, examples of which include: construction or maintenance of powerlines, associated right-of-way/easement vegetation maintenance (such as clearing of riparian vegetation along a powerline right-of-way), or right-of-way access for construction or maintenance. Any take resulting from these activities would be subject to the prohibitions of section 9 of the Act and would need to be exempted or permitted separately through the section 7 or section 10 processes.

Term of the Permit

The Permit would be in effect for a period of 25 years. Section 6.3 of the IA describes provisions for relinquishment of the Permit. Under these provisions, should the Permittee request relinquishment of its Permit, the Permittee would be obligated to implement all applicable conservation measures on those lands on which mining of sand or aggregate was conducted during the period of time the Permit was in effect. Further, in the event that the Permittee elects to relinquish the Permit prior to completion of mining at the Daybreak Mine, the Permittee will implement Conservation Measure 12 on a pro-rata basis by granting, to an appropriate conservation organization or government entity, fee-simple title to 1.8 acres of land for each acre of covered land that was first disturbed by mining or processing activity conducted during the period of time that the Permit was in effect.

The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation. (The regulations applicable to the Permit are found at 50 CFR §§ 13.27 – 13.29, 222.306, and 15 CFR Part 904.) Such suspension or revocation may apply to the entire Permit or only to specified Covered Species, covered lands, or covered activities. In the event of suspension or revocation, Storedahl's obligations under the IA and HCP will continue to the extent that the Service determines that take of Covered Species occurred under the Permit but such take was not fully mitigated in accordance with the HCP. In such event, mitigation measures shall take place until such take has been mitigated to the maximum extent practicable.

HCP Conservation Strategy

Biological Goals and Objectives

The overall biological goals and objectives of the HCP are to undertake mining and reclamation activities in a manner calculated to create, restore, enhance and preserve the landscape features that function as fish and wildlife habitat and supports fish and wildlife populations.

The specific biological objectives of this HCP include the following:

- Make an appropriate contribution to the conservation of unlisted species covered by the HCP and treat them as if they were listed;
- Provide net benefits, compared to current conditions, for both listed and unlisted species covered by the plan, contributing to the recovery of any species that is now or, in the future, may be listed as threatened or endangered;
- Implement scientifically and technically sound conservation measures and provide monitoring to ensure the HCP is working as intended;
- Recognize uncertainty and incorporate management responses that are adaptive enough to 1) respond to changes in regulations or conditions, 2) incorporate and make use of new scientific information, and 3) address contingencies; and
- Implement a mining and reclamation sequence that allows conservation easements(s) and fee simple conveyance of mined and reclaimed parcel(s) to appropriate, qualified non-

profit organization(s) so that conservation benefits are permanent and ensure adequate funding is provided to carry out the management of these easements.

Mining will take place under a comprehensive program that encompasses 18 conservation measures (Chapter 4 of the HCP). At completion of mining and reclamation, a conservation easement prohibiting future uses that would conflict with fish and wildlife habitat values will be placed on the property, together with the fee simple title conveyed to one or more public or non-profit conservation organizations. An irrevocable endowment of $1 million will be created and accompany the conveyance in fee of the property at time of transfer or completion of the term of the Permit. The funds will be earmarked for habitat monitoring, adaptive management, and responses to changed circumstances within the HCP area. In-kind contributions of labor and/or materials, with a minimum value of $25,000 per year, will be coordinated with the Lower Columbia Fish Recovery Board (LCFRB) to enhance floodplain and habitat functions within the East Fork Lewis River basin in locations outside the applicant's property boundaries. The Permittee will post a bond to cover an avulsion contingency upon initiation of the Permit, and to ensure that funds are available for appropriate responses to an avulsion threat, should it develop.

Certificated water rights in excess of the amount necessary to conduct operations using a proposed "closed loop" process water clarification system will be donated to the Washington State Water Trust. At the completion of processing operations or the term of the Permit, whichever comes first, the balance of the water rights will be transferred to the State Trust.

Under the final HCP, the Permittee will be responsible for implementing the measures and monitoring the site over the 25-year life of the Permit in order to assess whether conservation goals are being achieved. Alternatively, responsibility for monitoring and adaptive management in response to changed conditions during monitoring will transfer to the fee simple recipients at the conclusion of mining and reclamation/enhancement activities or the term of the Permit. These responsibilities will be funded with the investment proceeds from the endowment and/or the corpus of the endowment.

The conservation strategy is further summarized below:

Chapter 4 of the HCP and the BO discuss in detail the suite of 18 conservation measures. The HCP divides the measures into four distinct categories: (1) water quality conservation measures designed to offset or compensate for impacts to surface water quality from mining operations; (2) water quantity conservation measures designed to augment Dean Creek and East Fork Lewis River flows; (3) channel avulsion conservation measures designed to avoid a potential avulsion and offset impacts in the event of an avulsion of the East Fork Lewis River into the existing or proposed gravel ponds, and; (4) species and habitat conservation measures designed to enhance floodplain functions.

Storedahl will implement some measures prior to initiation of mining activities, while other measures will be initiated concurrent with mining activities. The implementation of each conservation measure includes the use of specific monitoring and evaluation measures and consultation with the Services, the LCFRB, and other appropriate agencies, such as the

Washington State Department of Ecology (WDOE), the Washington Department of Fish and Wildlife (WDFW), and Clark County.

Conservation Measures

Table 4-1 of the HCP (provided below) describes the conservation measures and the goal of each measure.

Table 4-1. Description and benefits of conservation measures in the Storedahl HCP.

	Conservation Measures	Description and Benefits
		Water Quality Conservation Measures
CM-01	Wash water clarification process	Install and operate a closed-loop wash water clarification process to: • substantially reduce or eliminate turbidity discharged from the process water and the discharge of process water to receiving waters; • increase transparency of pond water, which could potentially increase the photosynthesis/respiration quotient and increase associated DO concentrations; and • precipitate dissolved phosphorus, resulting in decreased algal growth, decreased deposition of organic matter, and decreased depletion of DO in the ponds from resultant decomposition.
CM-02	Storm Water and Erosion Control Plan and Storm Water Pollution Prevention Plan	Implement a Storm Water and Erosion Control Plan and a Storm Water Pollution Prevention Plan to minimize impacts on surface water quality by: • isolating impacts to surface water from mining and reclamation operations; • containing and pretreating surface runoff and associated sediment inputs to streams through the use of bioswales; • revegetating bare soils; • preventing and managing oil and fuel spills; • installing a conveyor to transport mined aggregate; • maintaining asphalt/gravel surfacing on active roads; • having a water truck and, as necessary, a street sweeper on-site; • decommissioning unused haul roads; and • specifying conditions that would result in the suspension of operations.
		Water Quantity Conservation Measures
CM-03	Donation of Water Rights	Contingent on approval of an application for change of water rights by Ecology, and the implementation of a closed-loop wash water system, donate a portion of the water rights to the State Trust at the completion of conversion to a closed-loop system with the balance being donated at the term of the ITP: • augment groundwater discharge to Dean Creek and the East Fork Lewis River.

Table 4-1. Description and benefits of conservation measures in the Storedahl HCP.

	Conservation Measures	Description and Benefits
CM-04	Water management plan	Complete restoration work to control the water flow from Pond 5, establish a temporary seasonal pump station, and implement a water management plan to: • minimize water use from site ponds; • restrict inflow of Dean Creek to Pond 5; • restrict outflows from Pond 5; • manage pond water levels; and • augment Dean Creek flows and irrigate revegetated buffer along upper Dean Creek.
	Channel Avulsion Conservation Measures	
CM-05	Conservation and habitat enhancement endowment	Create up to a $1,000,000 endowment authorized to: • provide for habitat monitoring, management, and response to unforeseen circumstances (e.g., avulsion); and • supplement CM-12 (Conservation Easement) by providing excess funds from the endowment, at the discretion of the trustee and in consultation with the Services, for enhancement of floodplain functions in the lower East Fork Lewis River basin.
CM-06	Native valley-bottom forest revegetation	Establish an early-successional mixed conifer and hardwood forest within the 100-year floodplain, along the existing and created ponds, and in the upland areas to: • increase resistance to channel migration. Additionally, this conservation measure will: • provide terrestrial wildlife habitat for nesting, dispersal, and foraging; • enhance ecological watershed functions; • provide shade to help moderate water temperatures; • help control erosion from surface runoff; • provide a future source of roots and large woody debris and resultant habitat complexity; • improve habitat for amphibians, birds, and aquatic organisms; • increase availability of terrestrial invertebrate prey items for fish; • enhance linkages among upland and aquatic ecosystems; and • extend the greenbelt of restored habitat along the East Fork Lewis River corridor.
CM-07	Floodplain reestablishment between Dean Creek and the created ponds	Create floodplain terraces for overbank flow and augment the buffer between Dean Creek and the created ponds with soil excavated from the mining area to: • enhance the interactions between the stream and its floodplain; • enhance topsoil to support successful revegetation; and • reduce the likelihood of movement of Dean Creek into the new ponds.

Table 4-1. Description and benefits of conservation measures in the Storedahl HCP.

	Conservation Measures	Description and Benefits
CM-08	Mining and reclamation designs to reduce the risk of an avulsion and to ameliorate negative effects of potential flooding or avulsion of East Fork Lewis River into the HCP Area	Incorporate mining and reclamation designs that: • forego mining in the current channel migration zone and in areas outside the 100-year floodplain that are not separated from the river by established roads; • conduct approximately 86 percent of all surface excavations outside of the pre-settlement channel migration zone, as defined by 140 years of historical observations, and reclaim all excavated areas within the historical channel migration zone to forested or emergent wetland; • reduce existing open water areas from approximately 64 acres to approximately 38 acres by significantly narrowing and reshaping the existing ponds; • create a wider (approximately 4 acres), vegetated buffer between the existing ponds and river channel and between the proposed ponds and the existing ponds (approximately 9 acres); • minimize size of created open water areas and configure new ponds parallel to the river channel; • establish shoreline vegetation communities similar to natural off-channel habitats; • stabilize pond bank areas that are most susceptible to headcutting; • establish a valley bottom forest (CM-06) to reduce erosion potential; and • adaptively manage reclamation activities based on study results of CM-10.
CM-09	Contingency plan for potential avulsion of the East Fork Lewis River into the existing or proposed gravels ponds	Implement a contingency plan to: • reduce the potential for an avulsion of the East Fork Lewis River into the Daybreak site; and • mitigate for negative effects in the event that an avulsion occurs into the ponds.
CM-10	Study of the Ridgefield Pits and East Fork Lewis River	Investigate water temperature, DO, fish use, and geomorphology associated with the nearby Ridgefield Pits to: • assess the influence of pools on fish habitat and fish use; • assess the influence of pools on East Fork Lewis River water temperatures and DO; • assess pool volume, channel shape, and sediment infill rates; and • provide information to refine the contingency plan to minimize negative effects of potential future avulsions into the Daybreak site.
		Species and Habitat Conservation Measures
CM-11	Off-site floodplain enhancement	Provide labor, equipment, and/or materials to public and private non-profit groups to: • enhance floodplain functions related to protection and recovery of the covered species within the East Fork Lewis River basin.

Table 4-1. Description and benefits of conservation measures in the Storedahl HCP.

	Conservation Measures	Description and Benefits
CM-12	Conservation easement and fee-simple transfer	Establish a conservation easement on a discrete parcel of the Daybreak property not proposed for mining or processing and establish a similar conservation easement on the remainder of the property after the completion of reclamation activities. Transfer all Daybreak property (with conservation easement) in fee to one or more public or non-profit organizations together with the endowed funds from CM-05 at the completion of all reclamation to: • preserve the property as fish and wildlife habitat in perpetuity
CM-13	Riparian management zone on Dean Creek	Establish a forested two-zone, 200-foot riparian management area along the southwest bank of Dean Creek to: • provide shade to help minimize water temperatures; • enhance bank stability and promote undercut bank habitat in Dean Creek; • help control erosion from surface runoff; and • provide a future source of roots and large woody debris for habitat complexity.
CM-14	In-channel habitat enhancement in select reaches of Dean Creek	Improve habitat quality and bank stability using natural materials and bio-stabilization to: • reduce the rate of localized bank erosion and sedimentation; • improve off-channel and instream fish habitat for resident and anadromous species; • help maintain clean gravel substrates; • improve low-flow habitat quality by supporting a narrower, deeper channel; and • help prevent potential channel migration into the proposed mining and reclamation site.
CM-15	Shallow water and wetland habitat creation	Create approximately 84 acres of forested and emergent wetland habitat to provide: • habitat suitable for Oregon spotted frogs; • potential habitat for a variety of juvenile fish; and • increased trophic complexity.

Table 4-1. Description and benefits of conservation measures in the Storedahl HCP.

	Conservation Measures	Description and Benefits
CM-16	Control of non-native predatory fishes	Reduce the potential for predation by non-native fishes on Covered Species in the East Fork Lewis River and Dean Creek by: • reducing the quantity of existing habitat available to non-native predatory fishes in the existing ponds by narrowing the ponds; • reducing the quantity of potential habitat available to non-native predatory fishes in the event of an avulsion by narrowing the ponds; • reconfiguring the western berm and installing a single outlet point from Pond 5 to reduce the frequency of backwater flood flows into the pond; • targeted harvest of non-native predatory fishes in the existing ponds to reduce population numbers; • installing rock barriers between the created and existing ponds to restrict fish movement • installing educational signs to warn the public about the dangers of releasing non-native fish species to the ponds and the adjacent stream and river.
M-17	Create habitat suitable for Oregon spotted frogs.	If Oregon spotted frogs are determined to be present in Clark County by WDFW, survey the Daybreak site and if Oregon spotted frogs are present, minimize impacts by: • installing exclusion fences to restrict breeding frogs from mining and reclamation activities; and • timing mining and reclamation activities, to the maximum extent practicable, to avoid impacting breeding frogs.
CM-18	Control public access	Decommission unnecessary roads, create foot trails, and instruct the on-site security agents to restrict trespass in sensitive areas to: • control and minimize destructive vehicle and foot traffic to riparian habitats; and • control and minimize access to covered species from potential poachers.

Monitoring, Reporting and Adaptive Management

The monitoring and evaluation program will serve as the primary means of assessing the success of the HCP conservation measures. The monitoring program requires Storedahl to document and report compliance with the terms of the Permit and serves as the primary means of assessing the effectiveness of the conservation strategies. The monitoring and evaluation program will also provide critical information needed to determine appropriate adaptive management responses related to the conservation measures and mining activities.

Table 5-1 of the HCP (provided below) describes each monitoring and evaluation measure, monitoring frequency, reporting requirement, compliance criteria and the adaptive management response.

Table 5-1. Monitoring and Evaluation Measures for the Storedahl Daybreak Mine HCP.

Monitoring/ Evaluation Measure	Title	Monitoring Frequency	Reporting	Management Criteria	Management Response
MEM-01	Clarification Process Monitoring	• Initial WET testing prior to use of specific dose or chemical in existing system • Daily to quarterly depending on parameter and location • Fish bioassay quarterly • Initial toxicity and bioaccumulation testing of sediments and chemicals in closed-loop system • Annual whole sediment toxicity and bioaccumulation testing	• Annual reports submitted to the Services • Quarterly reports to Ecology	<u>Existing System</u> • Non-toxic WET results • pH between 6.0 and 9.0 for surface water and 6.5 to 8.5 for groundwater • Turbidity less than 25 NTU at compliance point • Dosage and input location optimized <u>Closed-loop system</u> • Non-toxic whole sediments results	• Change flocculant or dose • Modify circulation path of water through the ponds • Accelerate implementation of closed-loop clarification system • Halt wet processing operations
MEM-02	NPDES Monitoring	• Monthly for pH • Twice monthly for turbidity • Quarterly for total suspended solids • Weekly during July through September for temperature	• NPDES reports to Ecology quarterly • Summary presented to Services at 5-year reviews	• pH between 6.0 and 9.0 for surface water and 6.5 to 8.5 for groundwater • Turbidity < 25 NTU at Pond 3 outlet to Pond 5 • Total suspended solids < 40 mg/l	• Modify measures to control storm water runoff • Modify circulation path of water through the ponds • Prevent discharge at Pond 5 to Dean Creek • Halt mining and/or wet processing operations

Table 5-1. Monitoring and Evaluation Measures for the Storedahl Daybreak Mine HCP.

Monitoring/ Evaluation Measure	Title	Monitoring Frequency	Reporting	Management Criteria	Management Response
MEM-03	Water Management Plan Monitoring	• Pond levels and temperature, DO, and discharge will be measured daily from May-Sept at the outlet from Pond 5 or Pond 3 and in Dean Creek just upstream of the Pond 5 outlet	• Raw data submitted to Services annually • Summarized data submitted to Services at 5-year reviews	• Water discharged from the ponds during May through September at or below temperature in Dean Creek as measured upstream of the Pond 5 outlet • Water discharged from the ponds during May through September at or above DO in Dean Creek as measured upstream of the Pond 5 outlet • Pond levels and discharge from the ponds follows specifications of Water Management Plan	• Restrict release if outflow temperature exceeds Dean Creek temperature • Aerate water to increase DO • Modify release schedule in consultation with Services
MEM-04	Pond, Shallow Water, and Shoreline Physical Structure Monitoring	• Post construction following reclamation of each pond and after 5 years	• As-built drawings and report to Services at 5-year reviews	• 32 acres of emergent wetland habitat (water depth between 0 and 3 feet at high water level) • Pond shorelines in the wetland areas with a grade of >5H:1V • Tree crowns 20 to 30 feet in length anchored along perimeter of pond approximately one per 100 feet of shoreline • Root wads anchored to the bottom of the pond at a density of 1 per 2 acres • Rock reefs composed of angular rock with diameters ranging from 1 to 3 feet in clusters of approximately 1 reef per 4 acres	• Additional reclamation or stabilization of existing reclamation as needed to achieve criteria

Table 5-1. Monitoring and Evaluation Measures for the Storedahl Daybreak Mine HCP.

Monitoring/ Evaluation Measure	Title	Monitoring Frequency	Reporting	Management Criteria	Management Response
MEM-05	Vegetation Monitoring	• Annually for 3 years post-revegetation; • After 5 and 10 years following revegetation	• Annually for 3 years and then to Services at 5-year review • Consistent with reclamation permit	• 80% survival of rooted stock • 80% canopy cover of trees (cottonwood, alder, conifers) after 15 years • 30% cover of native shrub in forest after 10 years • 90% native shoreline herbaceous cover after 1 year • 50% native shoreline shrub cover after 3 years and 80% after 5 years	• Determine reason for non-effectiveness and then, if appropriate, correct and replant/reseed
MEM-06	Dean Creek Riparian and Channel Condition Monitoring	• Years 1, 2, 5 and following flows ≥10 year recurrence interval after planting and floodplain rehabilitation are completed Years 1, 2, 5 and following flows ≥10 year recurrence interval after habitat enhancement is completed	• Summarized to Services at 5-year reviews	• 80% shade/canopy from native species • Raw eroding banks ≤25% of total reach after 5 years • Increase in pool or slow water habitat	• Determine reason for non-compliance and/or non-effectiveness and correct, as appropriate
MEM-07	East Fork Lewis River Critical Bank Stability Monitoring	• Visual inspection at least once per year • During 1st low flow season of the HCP and then annually following the high flow seasons for 1st 5 years. Thereafter, survey following observed change or once every 5 years	• Submitted to Services within 10 months of monitoring	• Site G: The distance between the bank and the edge of the road is greater than 80 ft and the overflow channel at point G consistently transmits < 40% of the flow during normal high flows • Site H: Flow has not shifted back into former channel between Sites I and J and no active erosion is observed at Site H following normal high flows	• If erosion exceeds criteria at Site G, implement appropriate engineering solutions along access road • If criteria are exceeded at Site H, implement appropriate engineering solutions along adjacent bank
MEM-07 (cont)	East Fork Lewis River Critical Bank			• Site J (a): Flow has not shifted back into former channel between Sites I and J and no active erosion is observed at Site J following normal	• If criteria are exceeded at Site J, increase monitoring frequency

Table 5-1. Monitoring and Evaluation Measures for the Storedahl Daybreak Mine HCP.

Monitoring/ Evaluation Measure	Title	Monitoring Frequency	Reporting	Management Criteria	Management Response
	Stability Monitoring (cont)			high flows; • Site J (b): erosion rate indicates no threat of breaching Pond 5 for at least 5 years	• If criterion is exceeded, implement appropriate engineering solutions along adjacent bank
MEM-08	Pond Fish Use and Limnological Monitoring	• Existing ponds: Prior to and following targeted largemouth bass harvest • Created ponds: yearly for 3 years following reclamation	• Annual reports submitted to WDFW and the Services	• Largemouth bass abundance reduced • Limnological conditions (temperature, pH, and DO) suitable for salmonids	• Recommend or dissuade future use of ponds by the covered species
MEM-09	Oregon Spotted Frog Monitoring	• Two surveys in February-March for 3 years following confirmation of species presence in Clark County	• Confirmed sightings reported immediately to Clark County, WDFW, and the Services	• Presence/absence of Oregon spotted frogs	• If found, exclusion fencing and/or mining and reclamation activities delayed
MEM-10	Financial Status of Conservation Endowment	• Annually	• Annual reports submitted to the Services	• Deposits and interest are accruing	• Rescind ITP if sand and gravel moved from the site is sold without placing surcharge revenues in the endowment fund

Changed and Unforeseen Circumstances

Changed and unforeseen circumstances are described in Sections 2.1.2.2., 2.1.2.3 and 2.1.2.4 of the HCP and Section 9.1 of the IA. Storedahl is required to provide planned responses to the changed circumstances identified in the HCP in accordance with the Service's "No Surprises" rule at 50 CFR 17.22(b)(5) and 17.32(b)(5). Storedahl, in consultation with the Service, has identified six types of changed circumstances that may occur. Sections 2.1.2.3 and 2.1.2.4 of the HCP and the BO describe the measures Storedahl and the Services will implement in response to the occurrence of these changed circumstances. Identified changed circumstances include wind damage, flooding, channel avulsion, eminent domain affecting lands within the HCP area, permitting by State and local agencies, and changes in the status of species.

Several HCP conservation measures address the potential effects of flooding, including storm water and erosion control (CM-02), channel avulsion conservation measures (CM-04, CM-05, CM-06, CM-07, and CM-08), and control of non-native fish (CM-12). Following flood events, each of these measures will be monitored to ensure that they are effective.

Five channel avulsion conservation measures (CM-04, CM-05, CM-06, CM-07, and CM-08) address the potential for avulsion. Responses to pre- and post-avulsion scenarios will be coordinated with the U.S. Fish and Wildlife Service and NOAA Fisheries (collectively referred to as the Services), WDFW, WADNR, Clark County, and all other appropriate permitting agencies.

The amount of funds necessary to implement the avulsion preventative measures is $465,000, and the amount of funds necessary to implement the avulsion contingency plans (CM-09) is $440,000. Storedahl will post a bond, with a face value of $465,000, to cover avulsion contingency plans upon initiation of the Permit and to ensure that funds are available for appropriate responses to an avulsion threat.

Additional details regarding changed circumstances are located within the HCP and IA. Pursuant to the "No Surprises" rule, the Service will not require any additional land, water, or other natural resources without the consent of Storedahl in the event an unforeseen circumstance occurs. If the Service determines that an unforeseen circumstance has occurred and that additional land, land restrictions, or financial compensation beyond that required under the HCP are needed to conserve the Covered Species, then Storedahl will not be obligated to provide the additional measures without their consent. Pursuant to 50 CFR 17.22(b)(8), the Service retains the authority to revoke the Permit, in response to an unforeseen circumstance or otherwise, if we find the continuation of the take permitted under the Permit would appreciably reduce the likelihood of the survival and recovery of a listed species.

Analysis of Effects

As set forth in more detail below under Section III.2, the Service has determined that the impacts likely to result to listed and unlisted Covered Species that may occur as a result of issuance of the proposed Permit and approval of the HCP would be minimized and mitigated to the maximum extent practicable by measures described in the HCP and the Permit. Chapter 6 of the HCP,

Chapter 3 of the EIS, and the Effects of the Action section of the BO, fully analyze the effects of the proposed action.

Adult and possibly subadult bull trout could potentially use habitat in the East Fork Lewis River for foraging when conditions are suitable, specifically, when forage species are present and water temperature is suitable. Bull trout are not expected to occur in Dean Creek. Juvenile, adult and subadult coastal cutthroat trout could potentially use habitat in the East Fork Lewis River and Dean Creek for migrating and foraging. Additionally, it is assumed that Dean Creek supports spawning and rearing coastal cutthroat trout. No comprehensive surveys have been conducted for Pacific lamprey and river lamprey in the East Fork Lewis River including the reach adjacent to the Storedahl Daybreak Mine site. However, the East Fork Lewis River is within the known range of these species and suitable spawning, rearing, and migrating habitats do exist in the East Fork Lewis River and Dean Creek. Therefore, it is assumed that the East Fork Lewis River and Dean Creek support spawning, rearing and migrating Pacific lamprey and river lamprey. Although not known to be present on the site, there is a potential for the Oregon spotted frog to occur or to colonize the plan area.

The effects of gravel mining, gravel processing, site reclamation and associated conservation measures to the Covered Species were considered in the BO along six general topic areas: effects of sedimentation; temperature effects; effects to groundwater and the hyporheic zone; effects of stranding; effects of inorganic flocculants, coagulants, and polymers; and effects of an avulsion. A summary of the analysis is provided below.

Effects of Sedimentation:

Sediment generated from the covered activities if allowed to enter Dean Creek or the East Fork Lewis River could adversely affect Covered Species. It is expected that coastal cutthroat trout, Pacific lamprey and river lamprey, should they occur in Dean Creek, will move out of the area to avoid sediment plumes, and that their use of the area will be precluded until high sediment levels have subsided. Potential exposure of these species to excess sediment could occur eight to ten hours a day, five days a week, from October through June each year during gravel processing operations (the first 10 to 15 years). The Service conservatively estimates that turbidity levels which would result in adverse effects to coastal cutthroat trout, Pacific lamprey and river lamprey are reasonably certain to occur in Dean Creek below Pond 5 outlet to its confluence with the East Fork Lewis River, a distance of approximately 1700 feet. Direct effects include the disruption and impairment of essential migrating, spawning, and foraging behaviors. Dean Creek currently provides only limited, low quality coastal cutthroat trout, Pacific lamprey and river lamprey spawning and rearing habitats and, therefore, the anticipated effects from sediments as a result of day-to-day gravel mining and processing are likely to have only negligible impacts on populations in the East Fork Lewis River. Turbidity from day-to-day gravel mining, processing, and reclamation activities that would result in adverse effects to bull trout, coastal cutthroat trout, Pacific lamprey and river lamprey are not anticipated to reach the East Fork Lewis River. This assumption is based on the Nephelometric Turbidity Units (NTUs) levels anticipated with the HCP, together with the distance water discharged from Pond 5 must travel through Dean Creek (1700 feet) to reach the East Fork Lewis River.

Temperature Effects:

As a result of conservation measures in the HCP, adverse effects to bull trout, coastal cutthroat trout, Pacific lamprey and river lamprey are not likely to occur from warm surface water in the ponds entering Dean Creek and, subsequently, the East Fork Lewis River. During the warmest periods of the year, water temperatures are expected to decrease and flows are expected to increase in Dean Creek as a result of the implementation of CM-04. Pond water during other periods of the year is decidedly cooler.

Effects to Groundwater and the Hyporheic Zone:

Groundwater from the Daybreak Mine site is, compared to existing conditions, likely to have little negative or positive effect on either the volume of flow in or the overall temperature of Dean Creek and the East Fork Lewis River. The implementation of CM-03 would result in the donation, in perpetuity, of 330 acre-feet per year of groundwater rights or the equivalent of approximately 1.1 cubic feet per second. This amount of groundwater flow would have a small, but positive effect on base flows and water temperatures in the East Fork Lewis River, in turn, indirectly improving, if only slightly, conditions for bull trout, coastal cutthroat trout, Pacific lamprey and river lamprey that may utilize the East Fork Lewis River.

Effect of Stranding:

Coastal cutthroat trout, Pacific lamprey and river lamprey could potentially enter the Daybreak Mine site via Pond 5 during flood flows greater than a 17-year-return period, and an undeterminable percentage of those fish may become stranded as flood flows recede. Depending on the timing of flood flows, adult or juveniles could be stranded in this manner. In general, habitat conditions including temperature, predation, and sedimentation in the existing ponds are assumed not to be suitable. Therefore fish, once trapped, are not expected to survive in the existing ponds for prolonged periods of time.

Effects of Inorganic Flocculants, Coagulants, and Polymers:

Upon permit issuance Storedahl will process gravel using a water treatment system. Chemical additives are used in the water treatment system to improve settling efficiency. Chemical exposure pathways during the first three years of the Permit term consist of additives in solution and additives adsorbed to fine grain particulate and organics. Impacts to covered species in Dean Creek and the East Fork Lewis River are not expected to occur based on previous testing of this system, the assumption that additives will be spent (adhered to fines or organics) in the ponds, and the assumption that additives will not enter the groundwater. Under CM-01, Storedahl will install and operate a closed-loop wash water clarification system within the first three years of the permit term. Once the closed-loop system is operational, the discharge of process water will be almost entirely eliminated, therefore, the "additive in solution" exposure pathway under the interim system will be eliminated.

A second potential exposure route is through an accidental catastrophic release of the additives. Covered species in the immediate vicinity of the spill are more likely to be adversely affected, but it is anticipated that the chemical will be quickly diluted to sub-lethal concentrations as additive mixes with large volumes of water in ponds 1, 2, 3, and 5. Additives will also readily attach to sediments and organics in the ponds and settle out. Lamprey and coastal cutthroat trout that may have entered the existing ponds during flooding events on Dean Creek, described previously, are the only species likely to be present in the existing ponds during normal day-to-day processing operations and, therefore, are most likely to be killed or injured during a chemical spill. Bull trout are not expected to enter the existing ponds because they are not expected to utilize Dean Creek at any time during the life of the plan. Oregon spotted frogs are not known to occur in Clark County and, therefore, are not expected to be present while mining and processing activities are on-going. If present, it is possible that some Oregon spotted frogs may be exposed to chemicals during a spill.

Sediment interacting with chemical additives could be deposited on spawning habitat of coastal cutthroat trout, Pacific lamprey and river lamprey in Dean Creek below Pond 5 resulting in a potential temporary loss of some spawning habitat. Dean Creek currently provides only limited, low quality spawning habitat for coastal cutthroat trout, Pacific lamprey, and river lamprey and, therefore, the anticipated effects from sediments due to a catastrophic spill of additives are likely to have only negligible impacts on coastal cutthroat trout, Pacific lamprey and river lamprey populations in the East Fork Lewis River.

Effects of an Avulsion:

Activities conducted under the HCP are not expected to significantly increase the risk of an avulsion into the existing ponds. However, the final HCP was developed under an assumption that an avulsion into the existing ponds is likely to occur during the 25-year Permit term. Of the three avulsion paths identified in the HCP, the avulsion path at River Mile 9.0 would capture two County pits, erode through the Storedahl Pit Road, and enter the Daybreak Ponds. This avulsion scenario was analyzed in the BO because it is anticipated to have the greatest potential impact on Covered Species.

An avulsion through any or all of the existing ponds has the potential to resuspend all or a portion of the sediment in the existing ponds and transport this material downstream. The Service anticipates the physical effects of sediments on covered fish species and their prey during and immediately following an avulsion event would be similar to those described above, although the overall magnitude and duration of those effects will be dependent on the specific characteristics of any particular avulsion event.

Direct effects to bull trout include the impairment of essential foraging behaviors associated with the direct impacts of elevated sediment levels in the East Fork Lewis River. Direct effects to coastal cutthroat trout include the impairment of essential migrating and foraging behaviors associated with the direct impacts of elevated sediment levels in the East Fork Lewis River. Direct effects to Pacific lamprey and river lamprey include the impairment of essential migrating, spawning, and foraging behaviors associated with the direct impacts of sediment levels in the East Fork Lewis River.

In the BO the effects of gravel mining, gravel processing, site reclamation and associated conservation measures to Oregon spotted frog analyzed two additional topics: 1) habitat effects, and; 2) disturbance/injury/mortality.

Habitat Effects:

As proposed in the final HCP, one of the four delineated wetlands on the 300-acre Daybreak Mine site will be excavated for gravel. This wetland is located in the northwest corner of the property and is approximately 0.25 acres in size. All wetland habitat functions provided by this wetland for amphibians, including Oregon spotted frog, if present, would be lost under the proposed action. Because Oregon spotted frogs are not present at this time, no direct impacts to Oregon spotted frogs are expected to occur as a result of the excavation of this wetland. However, since it will remain a feature on the land for approximately the first 10 years of HCP implementation, it is possible that Oregon spotted frogs could colonize the wetland.

Disturbance/Injury/Mortality:

Predators including large mouth bass and bull frogs are known to occur in the existing ponds. Additionally, there is a potential for other predator species, such as northern pike minnow, to occur. The existence of predator species would result in the death or injury to Oregon spotted frogs if present during the permit term.

Increased heavy equipment traffic is anticipated and may result in death or injury to Oregon spotted frogs. Oregon spotted frogs, if present during the permit term, could be inadvertently killed on haul roads or in areas where excavations are planned. Although such occurrences can not be ruled out, they are expected to be extremely rare based on the current status of Oregon spotted frogs in Clark County, i.e. are not known to presently occur in Clark County.

II. PUBLIC COMMENT

The Services formally initiated an environmental review of the project through publication of a Notice of Intent to prepare an EIS in the Federal Register on December 27, 1999 (64 FR 72318). The notice also announced a 30-day public scoping period during which interested parties were invited to provide written comments expressing their issues or concerns relating to the proposal.

A second Federal Register notice was published on November 22, 2002 (67 FR 70408), announcing a 60-day public comment period for a draft EIS (DEIS), draft HCP with appendices, and a draft IA. The comment period was extended an additional 30 days in direct response to requests from the public; the public was notified of this extension via a postcard mailing to all DEIS recipients. This resulted in a total comment period of 90 days.

Forty-five comment letters were received by the Services pertaining to the DEIS and the draft HCP: 12 from government agencies and elected officials, 1 from an Indian tribe, 11 from public organizations, and 21 from individuals. The Response To Comments section of the FEIS

contains copies of all of those comment letters and the Services's responses. Many of the comments and suggestions were incorporated into the HCP and FEIS.

The FEIS was published in the Federal Register on November 28, 2003 (68 FR 66820), for a 30-day public review and comment period. That period was extended for 30 days in response to requests from the public; the public was notified of this extension via a postcard mailing to all FEIS recipients. Comment letters regarding the FEIS were received by 5 non-governmental organizations, 13 individuals, and 3 state agencies. Summaries and responses to comments are included in the Service's Record of Decision.

III. INCIDENTAL TAKE PERMIT CRITERIA – ANALYSIS AND FINDINGS

1. The taking will be incidental.

The Service finds that the taking of Covered Species under the HCP will be incidental to otherwise lawful activities. The activities for which incidental take coverage are sought under the Permit include gravel mining and attendant activities; gravel processing, including the use of flocculants, coagulants, and polymers; site reclamation activities, including, but not limited, to the creation of emergent and open water wetland habitat, riparian and valley-bottom forest restoration, habitat rehabilitation, riparian irrigation and low flow augmentation of Dean Creek, and construction of facilities (i.e. trail and parking lots) to support future incorporation of the site into the open space and greenbelt reserve; and monitoring and maintenance of conservation measures. Any take of Covered Species resulting from these covered activities will be incidental to, and not the purpose of, these lawful activities.

2. The Permittee will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.

The Service finds that Storedahl will minimize and mitigate the impacts of take of Covered Species to the maximum extent practicable. Storedahl has developed the HCP and IA, pursuant to the incidental take permit requirements codified at 50 CFR 17.22(b)(1) and 50 CFR 17.32(b)(1), which require measures to minimize and mitigate the effects of issuing the permit. Under the provisions of the HCP, the impacts of take will be minimized, mitigated, and monitored in accordance with the Permit requirements of Permit #TE064055-0 through the following measures:

(a) Identification and implementation of incidental take minimization measures to minimize impacts to species covered by the HCP (see Conservation Measures in Chapter 4 of the HCP).

(b) Establishment, enhancement, and active management of the 300-acre site in perpetuity that is managed specifically for the benefit of the species covered by the HCP (see Chapter 4 of the HCP, specifically CM-05 and CM-12).

(c) Establishment of a monitoring and reporting plan to gauge the anticipated biological success and effectiveness of the HCP and to provide information for the Adaptive Management Plan which is designed to improve the biological success of the HCP as new information becomes available or conditions change (see Chapter 5 of the HCP).

(d) Implementation of a funding mechanism which contains assurances that the HCP will be implemented.

The minimization and mitigation measures proposed by the Permittee were developed based on the results of over six years of analysis and negotiations between Storedahl and the Services. Additional review and consultation occurred with three State agencies (WDFW; WDNR, WDOE), in addition to input through the public process. These processes allowed the Services to consider baseline environmental conditions, the types of conservation necessary to avoid and/or address impacts within the Planning Area, and the ability of Storedahl to implement prescriptions and procedures that are practicable in the context of their mining operations. As previously described, the Monitoring Plan will monitor the effectiveness of the conservation program over the life of the Permit and contains provisions to adjust management activities and conservation measures to improve effectiveness.

To make the finding that the conservation measures included in the HCP minimize and mitigate the impacts of take to the maximum extent practicable, the Service must first evaluate whether the conservation measures are rationally related to the level of incidental take anticipated under the plan. In effect, the minimization and mitigation measures need to address the biological needs of the Covered Species in a manner that is commensurate with the impacts to the species allowed under the HCP. The Service believes the level of minimization and mitigation provided for in the HCP compensates for the impacts of take of each Covered Species that will or could potentially occur under the plan.

The day-to-day mining and processing activities on the 300-acre Daybreak site will result in take of coastal cutthroat trout, Pacific lamprey and river lamprey, should they occur, in the form of harassment through the disruption of normal migrating, spawning, and foraging behaviors in Dean Creek associated with the direct impacts of sediment levels. The HCP includes several conservation measures to improve water quality conditions in the on-site ponds, Dean Creek, and the East Fork Lewis River. Specific measures to improve and protect water quality in Dean Creek habitats that could be used by coastal cutthroat trout, Pacific lamprey and river lamprey include a new gravel processing method, a revised storm water and erosion control plan, a storm water pollution prevention plan, reconfiguration of the surface water inlets and outlets from Pond 5 to Dean Creek, and revegetated riparian areas. Improved water quality in Dean Creek will directly benefit coastal cutthroat trout, Pacific lamprey and river lamprey.

An avulsion through the existing Daybreak ponds could cause habitat modifications and, consequently, impaired behavioral patterns that injure or cause mortality to Covered Species, and result in stranding of Covered Species. Because the existing ponds and the risk of an avulsion into them are part of the baseline condition, most of the impacts of an avulsion would not be a result of the HCP. Rather, the HCP will, in the long term, reduce any such impacts by backfilling and reconfiguring the existing ponds to make them more avulsion-ready. However, if

an avulsion occurs early in the HCP's term, some of the short term impacts could be greater as a result of discharge of unconsolidated fill from the ponds. Should this occur, the Service anticipates take for bull trout in the form of harm through the impairment of essential foraging behaviors associated with the direct impacts of elevated sediment levels in the East Fork Lewis River. Take of coastal cutthroat trout will occur in the form of harm through the disruption of normal migrating and foraging behaviors associated with the direct impacts of elevated sediment levels in the East Fork Lewis River. Take of Pacific lamprey and river lamprey in the form of harm will occur through the impairment of essential migrating, spawning, and foraging behaviors associated with the direct impacts of elevated sediment levels in the East Fork Lewis River. Additionally, take of these Covered Species will occur in the form of direct death or injury as a result of fish handling and salvaging activities following an avulsion event into the existing Daybreak ponds. Fish salvage operations will actively disturb individuals if they are captured, however, fish salvage operations will minimize the impacts to stranded fish.

Under the existing baseline conditions, the Daybreak/Ridgefield reach of the East Fork Lewis River is highly dynamic and susceptible to an avulsion, and its corollary, recovery. Under the HCP, infilling and reconfiguring the ponds, together with monitoring and preventive actions, will decrease the likelihood of an avulsion into the ponds and reduce the potential extent of adverse effects of an avulsion, relative to existing baseline conditions. In the long term, reclamation of the existing ponds will make the ponds more avulsion resistant, and reduce the time needed for geomorphic recovery from an avulsion, should it occur. Proposed pond reclamation will reduce the possibility and/or extent of a head cut, and consequently the potential impact on Covered Species and habitat. Monitoring the movement of the river will allow timely implementation of measures to prevent an avulsion. The Permittee will immediately implement a portion of CM-09 to improve the level of protection of the Storedahl Pit Road, thereby, immediately reducing the risk of an avulsion and its subsequent adverse effects.

Take of Oregon spotted frogs, if present, will occur in the forms of harassment and harm through the significant modification and degradation of 0.25 acres of wetland habitat on the Daybreak site. Direct take of Oregon spotted frog in the form of death or injury could result from the presence of predatory fish in the existing ponds, and frog/truck interactions. Under the HCP, 84 acres of forested and emergent wetland habitat will be created that will provide habitat suitable for Oregon spotted frogs. Reclamation activities will also reduce habitat for non-native predatory fishes. Proactive measures will be implemented to eliminate or control the number of non-native predatory fish by removing fish that reside in the existing ponds and by placing educational signs informing the public about the dangers of releasing non-native fish into ponds adjacent to streams, rivers, and wetlands. If on site presence of Oregon spotted frog is determined through required surveys, exclusionary fencing will be erected to prevent frogs from entering areas where active mining and processing operations are occurring and where chemicals are stored. Specific measures to improve and protect water quality in Dean Creek habitats that could be used by Oregon spotted frog include a new gravel processing method, a revised storm water and erosion control plan, a storm water pollution prevention plan, reconfiguration of the surface water inlets and outlets from Pond 5 to Dean Creek, and revegetated riparian areas.

Impacts to the Covered Species are expected to be low or minimal because of the low likelihood of presence or if present, low in numbers, or represent a small portion of total population. The

project activities are expected to avoid or minimize some of the anticipated impacts, thus, impacts of the take are low.

Table 7-3 of the HCP presented the "Allocation of Costs for Daybreak HCP Conservation and Monitoring Measures" including capital and annual costs. Table 3-23 presented in the Response to Comments further breaks the costs down to include capital costs; labor and material, to be completed by Storedahl; operating expenses; and foregone profits, and spreads these costs over the 15-year projected operating life of the expansion and habitat enhancement project and the subsequent 10 years of maintenance and operation. Following mining and reclamation/habitat enhancement, funds from the endowment will be available for the projected 10-year balance of the Permit period and in perpetuity. The $1 million endowment, plus any accrued earnings, will be more than adequate to fund the avulsion contingency property management plan because this amount is more than twice the projected cost of the avulsion protection at $465,000, or the avulsion response at $440,000 under CM-09 (Contingency Plan). In addition, proper management of these funds should provide an annual income of tens of thousands of dollars per year and increased earnings over time. Review of the table demonstrates that the most capital intensive period is the first two years after startup. The first year includes a number of capital projects to accelerate the habitat enhancement, including the construction of the controlled outlet of Pond 5, native valley-bottom revegetation, initiating the existing pond reconfiguration, starting the Dean Creek channel improvement, and updating the status of the Ridgefield Pits. Second year capital costs are dominated by the implementation of the closed-loop clarifier. Costs over and above those for operation without the HCP/Permit conservation measures, including capital for construction, planting, acquisition of equipment, etc. plus the cash for operating expenses will be approximately $345,000 and $800,000 during each of these years, respectively. From year three forward, HCP/Permit related operating expenses are constant and capital costs are relatively minor, except in year five, when a number of additional enhancement projects are anticipated. The year five capital cost is estimated at approximately $390,000.

At the Daybreak Site, Storedahl anticipates mining and processing 1 million tons of aggregate per year. The value of this material once mined, processed and stockpiled on-site is $6 million. Under normal operating conditions, i.e., without the HCP/Permit, the cost of excavating, transporting and processing is $2 per ton; reclamation costs are estimated at $1.50 per ton; and a royalty payment for the reserves are $1.50 per ton for a total of $5 per ton in costs. This would result in a gross annual profit, i.e., before taxes, of $1 million, or 15% of the annual value. The capital and operating costs attributable to the HCP/Permit are $5.6 million over the 15-year life of the mining activity, or on average, approximately $374,000 per year. Once mining is complete, the costs of implementing the HCP over the remaining ten years is much more modest relative to the first fifteen years of operation under the HCP, and these costs are estimated at approximately $500 per year to operate and maintain the water pumps and several thousand dollars per year for a not-for-profit entity to manage the property under the terms of the HCP. As discussed above, the earnings from the endowment should be more than adequate to cover these costs.

Including these costs in the above calculations reduces the gross profit to 10% over the life of the project. During the startup years the profits will be even less. Year one will generate a 5% gross profit, and there will be a loss in year two. The average gross profit over the first 5-years is

estimated at approximately 7%. In addition to the capital and operation costs incurred via the HCP/Permit, it should be noted that Storedahl expects to forego profits of nearly $4.7 million over the life of the project. Storedahl analyzed the suggestion of an additional measure to further minimize and mitigate the impacts of potential take. This measure entailed backfilling the existing ponds with gravel from the expansion area to increase the buffer width between the existing and new ponds. They determined that it would consume approximately 33% of the aggregate reserves in the expansion area with an in-ground value of more than $2.4 million, plus a cost of $3.2 million for excavation, transportation and placement of the gravel backfill for a total cost of $5.65 million. The loss of the reserves and the cost to excavate, transport and place the material in the existing ponds were determined to be prohibitively expensive and impracticable due to cost and failure to meet the objectives of the applicant.

As described in the Services' Record of Decision (Services 2004), several alternatives to the proposed action, including those that did not result in incidental take of Covered Species, were considered, and the proposed HCP was selected as the environmentally preferred alternative. This alternative resulted in the greatest net benefit to the Covered Species due to the extensive set of conservation measures to be implemented, which includes conservation of the project site in perpetuity. Moreover this alternative keeps the applicant onsite and responsive to site problems during the permit term. No other alternative considered would result in this level of financial commitment or species conservation by the applicant.

In consideration of all the above factors, the Service finds that: (a) the mitigation is commensurate with the impacts; (b) the HCP is consistent with the long-term survival and recovery of Covered Species (also see III. 4. below), and; (c) the HCP minimizes and mitigates the effects of take to the maximum extent practicable. These findings are based on the fact that impacts will be low or minimal, and that benefits to the species will be demonstrable, especially compared to existing conditions or those conditions expected to occur absent the HCP.

3. The Permittee will ensure that adequate funding for the plan and procedures to deal with unforeseen circumstances will be provided.

The Service finds that the Permittee will ensure funding adequate to implement the HCP. Storedahl warrants that it has, and will expend, such funds as may be necessary to fulfill its obligation under the HCP and the IA. Storedahl will promptly notify the Service of any material change in Storedahl's financial ability to fulfill its obligations. To ensure notification of any material change in Storedahl's financial ability to discharge its obligations during the life of the Permit, Storedahl will, upon request, convene a meeting with the Service and present current reclamation bond information and the financial status of the conservation endowment fund, and other reasonably available financial information as is mutually agreeable to Storedahl and the Service.

Costs for mitigation measures were developed to cover planned physical activities, as well as contingent responses to potential changed circumstances. The cost estimates were prepared for the various conservation and monitoring measures by the scientists and engineers responsible for their development and reviewed by the Service. Where construction activities are involved, the

engineers' estimates included capital as well as operation and maintenance costs. The total implementation cost was estimated at approximately $11.5 million (Table 7-3 in the HCP).

The amount of funds necessary to implement the avulsion preventative measures is $465,000, and the amount of funds necessary to implement the avulsion contingency plans (CM-09) is $440,000. Storedahl will post a bond, with a face value of $465,000, to cover avulsion contingency plans upon initiation of the Permit and to ensure that funds are available for appropriate responses to an avulsion threat. This money is not be confused with the $1 million endowment, plus any interest accrued, which will be available to cover such preventative measures and contingencies after mining and habitat enhancement measures are completed and the term of the HCP/Permit expires.

Development of the site is sequential and many of the conservation measures will be completed within the first 10 years of the operation, including: startup of the closed-loop treatment system, native valley-bottom forest revegetation, Dean Creek riparian zone and in-channel habitat enhancement, and construction of the controlled outlet to Dean Creek. In addition, reclamation activities carried out concurrent with the sequential mining operation will be covered by a WDNR reclamation permit, and financial assurance to undertake mining reclamation activity must be filed by Storedahl in favor of the WDNR, to account for land disturbance activity anticipated to take place within the next 12 to 24 months [as required by the Washington Surface Mining Act (SMA)].

The Service believes that the revenues expected from Storedahl's mining provide sufficient assurance that the applicant will generate sufficient funding to implement the conservation measures. The Service may consult with the WDNR to ascertain the amount of the bond that will be required under the SMA. The WDNR has indicated that the final HCP will serve as the basis for the reclamation plan required under the SMA.

Although the total estimated value of conservation measures is $11.5 million, this includes projected and potential capital costs, as well as foregone profits, which are included at their market value, rather than just the cost of implementing the conservation measures. For example, the Service believes that donation of water rights does not require financial assurance. The value of the water right, however, if sold on the open market is estimated at nearly half a million dollars. The Service has reviewed the water rights from the Storedahl property and will confer with WDOE. If WDOE authorizes the change and transfer of the water rights for the conservation purposes of the HCP, no further action, other than the transfer by Storedahl, is warranted. If WDOE does not authorize change in use or transfer of the water right, then the Service will confer with Storedahl to determine additional conservation measures that may be utilized. This may include requiring Storedahl to abandon its water right or implement other appropriate conservation measures by the Service. However, such an action would not have the benefits associated with transferring water rights to the State Water Rights Trust for minimum instream flows. This is because gifted water rights retain the same date of priority as the original water right, whereas abandonment of a water right means that the next most mature right then has priority to withdraw or divert water.

Further, much of the cost of the conservation measures is incurred during the course of mining itself. Additionally, the vast majority of conservation measure expenses will be incurred during the first 5-years of operation. Should Storedahl fail to implement the conservation measures in a timely manner, the Service has the ability to revoke the Permit. The Service believes that Storedahl has the financial strength to ensure funding of the conservation measures when they are due to be implemented as set forth in the conservation plan.

4. The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The Service finds that the taking to be authorized under the proposed Permit will not appreciably reduce the likelihood of the survival and recovery of the Covered Species in the wild. The Act's legislative history establishes the intent of Congress that this issuance criterion be identical to a finding of "no jeopardy" pursuant to section 7(a)(2) of the Act and the implementing regulations pertaining thereto (50 CFR 402.02). As a result, the Service has reviewed the HCP under section 7 of the Act. In the BO, the Service has concluded that the issuance of the proposed Permit will not likely jeopardize the continued existence of the five species covered under the Permit. The Service's finding that the Covered Species will not be jeopardized as a result of the take authorized under the proposed permit is discussed in detail in the BO and summarized below.

Bull trout

Implementation of the HCP and issuance of the Permit will not appreciably reduce the likelihood of the survival and recovery of bull trout for the following reasons: (1) no self-sustaining populations are anticipated to be present in this system; (2) no critical habitat has been designated for bull trout, therefore none will be affected; (3) there is an extremely low likelihood of bull trout occurring in the East Fork Lewis River, especially spawning adults or rearing juveniles; (4) take levels anticipated for bull trout under the plan are expected to be extremely low, based on the lack of evidence suggesting foraging bull trout frequently use the East Fork Lewis River, and that such irregular and infrequent use of the East Fork Lewis River by foraging bull trout would coincide with implementation of covered activities harmful to bull trout; and (5) the premise that the conservation measures committed to in the final HCP, directly or indirectly, minimize and mitigate potential impacts from covered activities to this species. The specific conservation measures include the following:

- Installation of a closed-loop wash water clarification system (CM-01 and the implementation of a Storm Water Erosion Control Plan and Storm Water Pollution Control Plan (CM-02) designed to minimize turbidity in water discharged from the Daybreak site from gravel mining and processing activities and storm water run-off.

- Donation of 330 acre feet per year of water rights during May through September to the State Trust, in perpetuity, for the purpose of the enhancement of instream flows in the East Fork Lewis River (CM-03).

- Creation of a million dollar plus interest endowment to provide for habitat monitoring, site management, and response to an avulsion once the permittee has relinquished the 300-acre property in fee title with a conservation easement to one or more conservation-minded group(s) to manage the preserve and manage the property, in perpetuity, for fish and wildlife (CM-12).

- Restoration of 134 acres of mixed conifer and hardwood forests and forested wetlands on the Daybreak site within the 100-year floodplain of the East Fork Lewis River.

Coastal cutthroat trout

After review of the current status of the coastal cutthroat trout; the environmental baseline for the action area; the effects of the proposed action and the cumulative effects; the Service concludes in the BO that should this species be listed in the future, issuance of the Permit will not appreciably reduce the likelihood of the survival and recovery of these species because: (1) no suitable spawning habitat for coastal cutthroat trout exists in the East Fork Lewis River below the Daybreak Mine site; (2) coastal cutthroat trout's utilization of the East Fork Lewis River and tributary streams above and the access to tributary streams below the Daybreak Mine site; (3) the existing quality of coastal cutthroat trout spawning habitat in the plan area (Dean Creek) is poor; (4) the distribution of coastal cutthroat trout is wide-ranging; (5) the portion of coastal cutthroat trout affected by the action is an extremely small portion of the overall range-wide population of coastal cutthroat trout, and; (6) the premise that the conservation measures committed to in the final HCP, directly or indirectly, minimize and mitigate potential impacts as a result of covered activities to this species. The specific conservation measures include the following:

- Installation of a closed-loop wash water clarification system (CM-01) and the implementation of a Storm Water and Erosion Control Plan and Storm Water Pollution Control Plan (CM-02) designed to minimize turbidity in water discharged from the Daybreak site from gravel mining and processing activities and stormwater run-off.

- Donation of 330 acre feet per year of water rights during May through September to the State Trust, in perpetuity, for the purpose of the enhancement of instream flows in the East Fork Lewis River (CM-03).

- Creation of a million dollar plus interest endowment to provide for habitat monitoring, site management, and response to an avulsion (CM-05) once Storedahl has relinquished the 300-acre property in fee title with a conservation easement to one or more conservation-minded group to manage the preserve and manage the property, in perpetuity, for fish and wildlife (CM-12).

- Commitment to provide labor, equipment, and/or materials up to $25,000 per year for 10 years to public and private not-for-profit groups for the enhancement of floodplain functions within the East Fork Lewis River basin related to the protection and recovery of Covered Species (CM-11).

- Establishment of 200-foot riparian management zone along a portion of Dean Creek that borders Storedahl's property (CM-13), restoration of in-channel habitat including bank stabilization and the placement of large woody debris at the rate of 1 piece per 72 feet of channel, and flow augmentation of Dean Creek (CM-04).

- Restoration of 134 acres of mixed conifer and hardwood forest and forested wetlands on the Daybreak site within the 100-year floodplain of the East Fork Lewis River.

- Commitment to reduce and control non-native predatory fish in the existing Daybreak ponds by the target harvest of these species in years 5, 10, and 15 of the HCP, and installation of educational signs informing the public about the dangers to native fish from releasing non-native fish to wetlands and ponds adjacent to streams and rivers.

Pacific lamprey and river lamprey:

After review of the current status of the Pacific lamprey and river lamprey; the environmental baseline for the action area; the effects of the proposed action and the cumulative effects; the Service concludes in the BO that should these species be listed in the future, issuance of the Permit, will not appreciably reduce the likelihood of the survival and recovery of these species for the following reasons: (1) the small amount of suitable spawning habitat (1.5 miles) for Pacific lamprey and river lamprey that exists in the East Fork Lewis River below the Daybreak Mine site; (2) based on current knowledge of lamprey biology, it is assumed that suitable spawning habitat is available in the East Fork Lewis River mainstem and tributaries extending from the end of the tidal influence zone (RM 6.0) to Sunset Falls (RM 31.5); (3) the existing quality of Pacific lamprey and river lamprey spawning habitat in the plan area is poor; (4) the distribution of Pacific lamprey and river lamprey is wide-ranging; (5) the portion of Pacific lamprey and river lamprey affected by the action is an extremely small portion of the overall range-wide population of Pacific lamprey and river lamprey, and; (6) the premise that the conservation measures committed to in the final HCP, directly or indirectly, minimize and mitigate potential impacts as a result of covered activities to this species. The specific conservation measures include the following:

- Installation of a closed-loop wash water clarification system (CM-01) and the implementation of a Storm Water and Erosion Control Plan and Storm Water Pollution Control Plan (CM-02) designed to minimize turbidity in water discharged from the Daybreak site from gravel mining and processing activities and stormwater run-off.

- Donation of 330 acre feet per year of water rights during May through September to the State Trust for the purpose of the enhancement of instream flows in the East Fork Lewis River (CM-03).

- Creation of a million dollar plus interest endowment to provide habitat monitoring, site management, and response to an avulsion (CM-05) once the Permittee has relinquished the property in fee title with a conservation easement to one or more conservation-minded group(s) to manage the preserve and manage the property, in perpetuity, for fish and wildlife (CM-12).

- Commitment to provide labor, equipment, and/or materials up to $25,000 per year for 10 years to public and private no-for-profit groups for the enhancement of floodplain functions within the East Fork Lewis River basin related to the protection and recovery of Covered Species (CM-11).

- Establishment of 200-foot riparian management zone along a portion of Dean Creek that borders Storedahl's property (CM-13) and restoration of in-channel habitat including bank stabilization and the placement of large woody debris at the rate of 1 piece per 72 feet of channel, and flow augmentation in Dean Creek (CM-04).

- Restoration of 134 acres of mixed conifer and hardwood forests and forested wetlands on the Daybreak site within the 100-year floodplain of the East Fork Lewis River.

- Commitment to reduce and control non-native predatory fish in the existing Daybreak ponds by the target harvest of these species in years 5, 10, and 15 of the HCP, and installation of educational signs informing the public about the dangers to native fish from releasing non-native fish to wetlands and ponds adjacent to streams and rivers.

Oregon spotted frog

After review of the current status of the Oregon spotted frog; the environmental baseline for the action area; the effects of the proposed action and the cumulative effects; the Service concludes in the BO that should this species be listed in the future, issuance of the Permit, will not appreciably reduce the likelihood of the survival and recovery of this species because: (1) no documentation that Oregon spotted frog currently exist on the Daybreak Mine site or Clark County; (2) take levels anticipated for Oregon spotted frog under the HCP are expected to be extremely low; (3) the poor quality of potential Oregon spotted frog habitat affected by the action, and; (4) the premise that the conservation measures committed to in the final HCP, directly or indirectly, minimize and mitigate potential impacts as a result of covered activities to this species. The specific conservation measures include the following:

- Installation of a closed-loop wash water clarification system (CM-01) and the implementation of a Storm Water and Erosion Control Plan and Storm Water Pollution Control Plan (CM-02) designed to minimize turbidity in water discharged from the Daybreak site from gravel mining and processing activities and stormwater run-off.

- Creation of a million dollar plus interest endowment to provide for habitat monitoring, site management, and response to an avulsion (CM-05) once Storedahl has relinquished the 300-acre property in fee title with a conservation easement to one or more conservation-minded group to manage the preserve and manage the property, in perpetuity, for fish and wildlife (CM-12).

- Restoration of 134 acres of mixed conifer and hardwood forest and forested wetlands within the 100-year floodplain and the creation 84 acres of forested wetlands and emergent wetlands as part of site reclamation efforts.

- Installation of exclusion fences to restrict Oregon spotted frogs from entering areas where active mining, processing, and site reclamation activities are taking place. Exclusion fences are only necessary when the presence of Oregon spotted frogs are documented for the county and subsequent searches on the Daybreak site find Oregon spotted frogs.

- Commitments to reduce and control non-native fish in the existing Daybreak ponds by the target harvest of these species in years 5, 10, and 15 of the HCP, and installation of educational signs informing the public about the dangers to native fish from releasing non-native fish to wetlands and ponds adjacent to streams and rivers.

5. Other measures, as required by the Director of the Fish and Wildlife Service, as necessary or appropriate for purposes of the plan will be met.

The Service finds that all additional measures required by the Service as necessary or appropriate for the HCP are included in the HCP, IA and/or the Permit. In particular, the IA, an agreement with the Service and Storedahl that governs implementation of the plan, binds the Permittee to fully implement and fund the HCP.

6. The Service has received the necessary assurances that the plan will be implemented.

The Service finds that the HCP and IA provide the necessary assurances that the plan will be carried out by Storedahl. By accepting their Permit, Storedahl is bound to fully implement the provisions of the HCP in accordance with the IA.

IV. GENERAL CRITERIA AND DISQUALIFYING FACTORS—FINDINGS

The Service has no evidence that the Permit application should be denied on the basis of the criteria and conditions set forth in 50 CFR 13.21(b) – (c).

V. RECOMMENDATION ON PERMIT ISSUANCE

Based on the foregoing findings with respect to the proposed action, I recommend approval of the issuance of Permit Number #TE064055-0 in accordance with the HCP and its supporting IA.

Acting Deputy Regional Director
Region 1

References

Sweet, H.R; R2 Resource Consultants, Inc.; IT Corporation; Ecological Land Services; Maul, Foster, and Alongi, Inc; Janice Kelly, Inc.; and Perkins Coie, LLP. 2002. Draft J.L. Storedahl and Sons, Daybreak Mine Expansion and Habitat Enhancement Project, Habitat Conservation Plan and Appendices, Clark County, Washington.

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USFWS and NOAA Fisheries. 2002. Draft Environmental Impact Statement for the Proposed Issuing of a Multi Species Incidental Take Permit for the Daybreak Mine Expansion and Habitat Enhancement Project proposed by J.L. Storedahl and Sons, Inc. November 2002.

USFWS and NOAA Fisheries. 2003. Final Environmental Impact Statement and Response to Comments for the Proposed Issuing of a Multi Species Incidental Take Permit for the Daybreak Mine Expansion and Habitat Enhancement Project proposed by J.L. Storedahl and Sons, Inc. November 2003.

USFWS. 2004. Biological and Conference Opinion for the Proposed Issuance of a Section 10(a)(1)(B) Incidental Take Permit (PRT-TE064055-0) to the J.S. Storedahl and Sons, Inc. for the Daybreak Mine Expansion and Habitat Enhancement Project Habitat Conservation Plan. March 2004.

USFWS and NOAA Fisheries. 2004. Implementing Agreement for the Daybreak Mine Expansion and habitat Enhancement Project Habitat Conservation Plan for Daybreak Mine, Clark County, Washington, Operated and Managed by J.L. Storedahl & Sons, Inc., Owned by Storedahl Properties LLC. March 2004.