

From: Hoskin, Sumalee <sumalee_hoskin@fws.gov>
Sent: Wednesday, May 8, 2019 9:01 AM
To: mvp_fws
Subject: Fwd: MVP BA comments matrix
Attachments: 20170118_MVP BA Comment Matrix.xlsx

Categories: MVP FWS HB

Sumalee Hoskin
US Fish & Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Tel: 804-824-2414
Fax: 804-693-9032
Visit us at <http://www.fws.gov/northeast/virginiafield/>

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From: **Jennifer Stanhope** <jennifer_stanhope@fws.gov>
Date: Wed, Jan 18, 2017 at 4:45 PM
Subject: MVP BA comments matrix
To: Stahl, Megan D. <MStahl@eqt.com>, Troy Andersen <troy_andersen@fws.gov>, Sumalee Hoskin <sumalee_hoskin@fws.gov>, Tiernan Lennon <tiernan_lennon@fws.gov>, Sarah Nystrom <sarah_nystrom@fws.gov>
Cc: Taina Pankiewicz <TPankiewicz@envsi.com>, Valerie Clarkston <VClarkston@envsi.com>, <djudy@envsi.com>, Greg Anderson <ganderson@envsi.com>, John Spaeth <jspaeth@envsi.com>

Dear Megan,

Attached are our comments (VAFO and WVFO) on the October 2016 draft BA, provided in an excel file.

Please let us know if you have any questions.

Best,

Jen

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Jennifer Stanhope

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Virginia Field Office

6669 Short Lane

Gloucester, VA 23061

804-824-2408

<https://www.fws.gov/northeast/virginiafield/>

Comment #	BA Page #	Line # or Section, if applicable	Field Office	Comment
1	4	Executive Summary, Pg. 4, Paragraph 4: In addition to this area, the species is also assumed in 62 portals and forested habitat where sampling was not completed due to land access permissions (e.g., portals outside the limits of disturbance [LOD] but within the Action Area for the Project) or incomplete sampling events.	WVFO	How many of those portals are in WV and how many are in VA?
2	5	Executive Summary, Pg. 5, Paragraph 2: he Action Area in Craig Creek extends approximately 15.07 stream kilometers (9.36 mi) downstream of the downstream-most crossing. The Action Area is more than 33 kilometers (21.2 mi) upstream of the nearest James spinymussel occurrence. Based on the location of known populations of this species relative to the crossings at Craig Creek, the Project May Affect– Is Not Likely to Adversely Affect James spinymussel. No individuals are expected to be directly or indirectly harmed or harassed and no James spinymussel designated critical habitat will be impacted by the Project.	VAFO	Have mussel habitat assessments or surveys been conducted in the action area to confirm there are no mussels or suitable habitat? The location of the known population does not provide sufficient evidence that there are no mussels that could be impacted in the action area. Additional information is needed to comment on this determination. In addition, VA DNR-NHP database indicates there is a documented occurrence approximately 21 km downstream of the crossing in Craig Creek. Therefore these numbers need to be updated throughout the BA. We can provide the lat-long for you to calculate the exact stream distance.
3	6	Executive Summary, Pg. 6, Paragraph 4: 10 kilometers (6 mi) of right-of-way (ROW) with potential habitat for smooth coneflower,0.95 kilometer (0.59 mi) of potential running buffalo clover habitat, 0.19 kilometer (0.12 mi) of potential shale barren rock cress habitat, 0.19 kilometer (0.12 mi) of potential small whorled pogonia habitat, and 0.14 kilometer (0.09 mi) of potential Virginia spiraea habitat due to denied land access.	WVFO	How is this being dealt with? We can't concur with a NLAA if surveys haven't been completed. Will plant surveys be completed next season or does EQT plan to assume presence?
4	9	Section 1.4.3.1 West Virginia: A site-specific water withdrawal monitoring plan will be coordinated, developed, and submitted to WVDNR and USFWS for approval to ensure surface water withdrawal operations do not adversely affect the nearest freshwater mussel population.	WVFO	The Service needs to review and approval this plan before we can concur with a NLAA.
5		Table 1. Acres and miles of Project Area searched for federally T&E plant species	VAFO	Update to reflect recent plant survey results.
6	11	Section 2.0 Project Description	WVFO, VAFO	The project description section is very general and doesn't provide enough detailed information. There needs to be sections discussing construction procedures, stream work/waterbody crossing methods, and blasting activities. A majority of this pipeline will be placed within karst areas so site specific blasting plans will need to be developed. Additionally the Service recommends that EQT avoid blasting in karst areas. Describe all construction activities from start to end (from staking to reclaiming). This information will structure our effects analysis. Please revise this project description to provide more detail and discuss the various types of procedures/methods that will be used during construction of the pipeline.
7	12	Section 2.1: special techniques	WVFO, VAFO	Elaborate on these techniques
8	12	Section 2.1: MVP will neck down to a 23-meter (75-ft) construction ROW in streams and wetlands wherever possible	WVFO, VAFO	These areas should be identified
9	13	Construction Timeline: Tree clearing is expected to commence in September 2017 and be completed in April 2018. Pipeline construction will be completed by December 2018	VAFO	Trees need to be cleared outside the TOY restriction. The TOY restriction for tree clearing in VA is April 15 - Sept. 15 beyond 5 miles of a hibernacula and April 1 - Nov. 15 within 5 miles of a hibernacula.
10	14-15	Table 4	VAFO	Would like a layer with the MLV locations. Prefer to locate MLVs above sensitive areas.
11	13	Section 2.5 Facilities and Infrastructure	WVFO, VAFO	There should be a section added on construction procedures that includes things such as clearing and grading, trenching, pipe stringing, bending, and welding, lowering-in and backfilling, hydrostatic testing, etc
12	15	Section 2.5.2 Access Roads	WVFO, VAFO	Need a description of how these new roads will be developed
13	15	Section 2.5.3 Additional Temporary Workspace: hydrostatic test water withdrawal and discharge locations	WVFO, VAFO	We would like information on exactly where the water for hydrostatic testing would come from –the streams being utilized, the amount of water needed, and the timing of withdrawal are of particular concern. The Service recommends that EQT avoid withdrawing water from streams containing federally listed species.
14	15	Section 2.5.3 Additional Temporary Workspace: hydrostatic test water withdrawal and discharge locations	VAFO, WVFO	The Service also recommends that EQT avoid discharging water to streams containing federally listed species.
15	15	Section 2.5.4 Pipe Storage and Contractor Yards:Pipe storage and contractor staging yards for temporary use during construction have been selected and designed to avoid streams, wetlands, and other sensitive habitats where possible.	WVFO, VAFO	This is too vague
16	16	Section 2.5.5 Operation and Maintenance	WVFO, VAFO	There needs to be a section that discusses methods for waterbody crossings e.g. open-cut methods, dry crossings, conventional bore, cofferdams, horizontal directional drill method, wetland crossings etc (prior to the operation and maintenance section)
17	16	Section 2.5.5 Operation and Maintenance: Inspections at highway and railroad crossings will be conducted at least twice a year	WVFO, VAFO	What do pipeline inspections entail? What do inspectors look for?
18	16	Section 2.5.5 Operation and Maintenance: The permanent ROW will be allowed to revegetate and will be maintained by periodic mowing, cutting, and trimming	WVFO, VAFO	Define periodic
19	16	Section 2.5.5 Operation and Maintenance: mowing, cutting, and trimming .	WVFO, VAFO	How will vegetation be cleared... by hand? Mechanically? Please specify.
20	16	Section 2.5.5 Operation and Maintenance: The surface of permanent access roads to these stations will be properly maintained, and appropriate erosion and sediment control will be employed.	WVFO, VAFO	These need to be described
21		Section 2.2.2 Operation and Maintenance: Regular cleaning will be conducted at established pig launcher/receiver sites.	VAFO, WVFO	What kind of spill control measures will be in place?
22	16	Section 2.6: Project Design Features to Avoid and Minimize Impacts to Natural Resources	WVFO, VAFO	There is no description of the pipeline construction and all of the activities that accompany it. This project description is also missing a section on blasting.
23	17	Section 2.6.1 Wetlands and Waterbodies: Waterbody banks will be stabilized and permanent sediment barriers (i.e., silt fence, silt logs) installed within 24 hours of completing in-stream construction activities.	WVFO, VAFO	Define permanent. Will these sediment barriers remain in place after construction?
24	17	Section 2.6.1 Wetlands and Waterbodies: Where the pipeline parallels a waterbody, MVP will attempt to maintain, at minimum, a 4.6-meters (15-ft) section of undisturbed vegetation between the waterbody and construction ROW.	VAFO, WVFO	In waterbodies that support federally listed species (mussels and RLP), increasing this undisturbed vegetation buffer to 100 ft is recommended to avoid or minimize impacts. Please identify waters where this buffer will be less than 100 ft from the permanent ROW/operational easement.

25	17	Section 2.6.1 Wetlands and Waterbodies: Crossing streams using dry crossing methods by pumping or fluming water around if water is flowing at the time of construction .	WVFO, VAFO	These methods need to be described somewhere in the project description
26	17	Section 2.6.1 Wetlands and Waterbodies: Conducting pipeline assembly in upland areas unless the wetland is dry enough to adequately support skids and pipe. Timber mats are used to cross wetlands.	WVFO, VAFO	This activity needs to be described somewhere in the project description
27	17	Section 2.6.1 Wetlands and Waterbodies: Minimizing the amount of necessary construction equipment traffic to that which is needed to clear and grade the ROW, excavate the trench, install the pipeline, backfill the trench, and restore the construction ROW .	WVFO, VAFO	These activities need to be described somewhere in the project description
28	18	Section 2.6.1 Wetlands and Waterbodies: Unless requested by a land management agency, herbicides and pesticides will not be used to maintain any portion of the Project ROW or aboveground facilities	VAFO	This need to be described in the project description, in particular section 2.5.5.
29	18	Section 2.6.1 Wetlands and Waterbodies: Construction equipment, vehicles, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will not be parked, stored, or serviced within a 100-foot radius of any wetland or waterbody.	VAFO, WVFO	In addition to the 100ft radius, All equipment must be checked for leaks by an inspector at the beginning of the day. Leaking equipment must be removed or repaired the same day.
30	18	Section 2.6.1 Wetlands and Waterbodies: Locating as many ATWS as possible at least 15.2 meters (50ft) away from the water's edge.	VAFO, WVFO	In waterbodies that support federally listed species (mussels and RLP), increased this distance to at least 100ft away from the water's edge. Identify waters where this distance will be less than 100 ft from the water's edge and identify any additional protective measures that will be in place.
31	18	Section 2.6.1 Wetlands and Waterbodies: To prevent crushing, entrainment, or entrapment of mussels and fishes, floating intakes will be used, the , the intake end of the pump will contain an appropriately sized screen, and withdrawal rates will be reduced.	VAFO, WVFO	These activities should be described with more detail (screen size, withdrawal rates) in project description. And clarify where water withdrawal is occurring or reference project description.
32	19	Section 2.6.2.1 Bats: MVP will implement conservation measures to avoid, minimize, and mitigate potential adverse effects on Indiana and northern long-eared bats from construction, operation, and maintenance of the Project as follows:	WVFO	This section only discusses avoidance and minimization measures....there is no description of proposed conservation measures/mitigation measures
33	19	Section 2.6.2.1 Bats: Avoid felling of known roosts to the maximum extent practicable.	VAFO, WVFO	State if you plan to fell known roost trees, if so, during what time period? This is affect our analysis. Also, how far is the work area from the known roost trees?
34	19	Section 2.6.2.1 Bats: The pipeline route has been moved > 0.4 kilometer (0.25 mi) to the north of Canoe Cave in Giles County, Virginia to avoid impacting this feature.	VAFO	Has a hydrological and geological analysis been conducted to determine if the reroute will not impact Canoe Cave? This will need to be coordinated with DCR-NH Karst Specialist and VAFO.
35	20	Section 2.6.2.1 Bats: Conduct future maintenance activities that involve tree removal, limb trimming, or pruning between October 1 and March 31 to avoid disturbance to bats, except in cases of human safety. When the seasonal restriction cannot be met, a qualified bat biologist will investigate trees for the presence of bats to avoid a take. Prior to conducting these investigations, coordination will be undertaken with USFWS and other agencies as necessary to ensure the suitability of such a survey.	WVFO	Why October?
36		Section 2.6.2.1 Bats: Control erosion and sediment by using appropriate BMPs (as described previously). Environmental inspectors will be present onsite during construction, and until stabilization after construction. Erosion and sedimentation issues will be addressed immediately.	VAFO, WVFO	The previously described BMPs only agree to those measures near a stream or wetland. To protect karst systems and hibernacula they should be applied to sinkholes, fissures, or areas draining into these or other karst features. The additional requirements for a daily equipment inspection and removal of leaky equipment also apply.
37	21	Section 2.6.3 Federally Listed Aquatic Species: In addition to the measures implemented to protect wetlands and waterbodies as described above, MVP will implement conservation measures to avoid, minimize, and mitigate potential adverse effects on freshwater mussels and fish from construction, operation, and maintenance of the Project as follows	WVFO, VAFO	Include a list of BMPs that will be implemented to avoid impacts from sedimentation/erosion
38	21	Section 2.6.3 Federally Listed Aquatic Species: first bullet	VAFO	Please give yourself credit for the reducing the number of crossings of Craig Creek.
39	22	Section 2.6.3 Federally Listed Aquatic Species: Adhering to state or federal required time-of-year-restrictions for in stream construction	VAFO	Please provide actual dates for TOYR in this document and provide a reference for it here.
40	22	Section 2.6.3 Federally Listed Aquatic Species: Removing freshwater mussels from the stream bed and relocating them upstream outside of the impact area prior to construction	WVFO	Non-listed freshwater mussels?
41	22	Section 2.6.3 Federally Listed Aquatic Species: Removing freshwater mussels from the stream bed and relocating them upstream outside of the impact area prior to construction	VAFO	In which rivers/streams? This information is in the Oct 2016 Mussel Survey report, but not in the BA. The biologists relocating the federally listed mussels need to be pre-approved by the Service and have valid permits.
42	22	Section 2.6.3 Federally Listed Aquatic Species: Installing intake screens at pump inlets to prevent entrainment of aquatic life during dewatering of trenches if the dam and pump crossing method is used and water withdrawal activities.	VAFO	What size intake screen?
43	22	Section 2.6.3 Federally Listed Aquatic Species: Removal of fish from work areas within waterbodies crossed within Virginia per VDGLF's request.	VAFO	Biologists need to be pre-approved by the Service and have a valid permit.
44	40	Section 4	VAFO	Recommend that Candy Darter (see tab "Candy darter" for additional information) and Rusty Patched bumble bee be addressed in BA.
45	40	Section 4	WVFO	Recommend that Elk River crayfish be addressed in BA.
46	47	Table 8: BJD-PO-00004 1 Nicholas County, WV Yes No Portals destroyed before fall 2016 sampling could occur; considered not occupied	WVFO	Destroyed how?
47	48	Table 8: Overlooked Cave, VA Giles Co. Suitable for hibernating bats; follow-up survey scheduled for fall 2016.	VAFO	Awaiting survey results.
48	48	Table 8: Andrew Cave - Thompsons Cave. Not field reviewed; unable to determine suitability or occurrence of bats at this time	VAFO	Do you plan to conduct field review on these portals? This information is needed for our determination.
49	60	Section 4.3.2 - Last paragraph - "The AR will span the River with a bridge, and no instream disturbance or sedimentation is anticipated at this location.	VAFO	Provide details on the construction/instation of the bridge that will span the river.
50	65	Section 4.4.2.1. Occurrence: The nearest known occurrence of James spiny mussel in Craig Creek is approximately 51 stream kilometers (31.7 mi) downstream of the proposed Project crossings.	VAFO	As noted in earlier comment, VA DNR-NHP database indicates there is a documented occurrence approximately 21 km downstream of the crossing in Craig Creek. We can provide the let-long for you to calculate the exact stream distance.

51	66	Section 4.4.2.1. Occurrence: Based on known records (VDGIF WERMS Database http://www.dgif.virginia.gov/gis/werms.asp , Accessed November 24, 2015), specimens have not been collected (despite several previous survey records) nor are likely to occur (due to the relatively long stream distance) in Craig Creek upstream of Johns Creek.	VAFO	Cannot concur with this conclusion because there is potential suitable habitat in Craig Creek downstream in the action area. Were surveys or habitat assessments conducted in the action area? As noted in earlier comment, VA DNR-NHP database indicates there is a documented occurrence approximately 21 km downstream of the crossing in Craig Creek. Therefore these numbers need to be updated throughout the BA. We can provide the let-long for you to calculate the exact stream distance.
52	77	Section 4.8.2.1.1 Occurrence: . Due to land access issues, 0.95 kilometer (0.59 mi) in Webster County remains to be surveyed in 2017 (Table 1).	WVFO	Can't concur without survey results...this applies to all plant species with incomplete survey results.
53	94	Section 4.11.2.2 Occurrence: Due to continuing land access issues, 9.65 kilometers (6 mi) in Montgomery County remains to be surveyed in 2017 (Table 1).	VAFO	Can't concur without survey results...this applies to all plant species with incomplete survey results.
54	98	Section 4.12.2.2 Occurrence: (VA spiraea) . Due to land access issues, 0.14 kilometer (0.09 mi) in Summers County [WV] remains to be surveyed in 2017 (Table 1).	VAFO	Was this surveyed in 2016? It is not mentioned in the Nov 2016 plant survey report.
55	101	Section 5.1 Table 10 Giles, WV	VAFO	Giles County is in VA, not WV.
56	101	Section 5.1 Clearing of forested habitat within the Project Area is anticipated to occur from September 2017 through April of 2018 (Figure 17).	VAFO	TOYR for tree removal within 5 miles of a hibernacula is April 1 - November 15.
57	101	Section 5.1.1 Direct Effects to Individuals: Methods and results of predictive models used to estimated effects on Indiana bats are provided in Appendix C.	WVFO	A description of how take was calculated needs to be included in the BA and it needs to be written in a way that the public can understand it....do not over complicate the take estimate description. Same comments apply to all sections that estimate take for Indiana bats and NLEBs
58	106	Section 5.1.1.1 Winter Season of Hibernation: Because bats also have potential to be harassed from noises during operations of the compressor stations, the analysis also includes an assessment of hibernacula surrounding potential locations of permanent aboveground facilities (i.e., compressor stations);	WVFO	Need to explain how the take analysis works and where these numbers came from
59	106	Section 5.1.1.1 Winter Season of Hibernation: The Project's construction ROW is currently less than 60 meters (197 ft) from the closest Tawney's Cave entrance, but the cave entrances and underground voids will not be altered by construction.	VAFO	Has a hydrological and geological analysis been conducted to support this statement? We will need to review the assessment and the assessment should be coordinated with the DCR-NH Karst Specialist.
60	107	Section 5.1.1.1 Winter Season of Hibernation: Although harm from destruction of winter habitat is unlikely to result from Project actions,...	VAFO	Do no concur with this statement unless a hydrological and geological analysis has been conducted and supports this conclusion.
61	109	Section 5.1.1.3 Summer Season of Reproduction Harm is only possible within forested areas cleared in April, May, and September...	VAFO	We recognize this Section pertains to the summer reason of reproduction, however, the statement is mis-leading, harm is possible during November if within 5 miles of a hibernacula, which is the swarming area.
62	110	Section 5.1.1.4 Spring and Autumn Migration/Transient Period: As discussed above, estimates for summering individuals within Virginia and West Virginia are 0.0002 and 7.295 x10-5 bats per acre, respectively .	WVFO	Where did these numbers come from?
63	110	Section 5.1.1.4 Spring and Autumn Migration/Transient Period: Similar to the approach taken for summer individuals, harassment and harm was calculated by multiplying respective densities of migrant individuals by the aces being cleared within the month of April or September to get a total number of expected bats.	VAFO	Need to adjust the calculation to the number of acres being cleared in November, up to the 15th of the month. Our TOYR for tree clearing w/in 5 miles of a hibernacula is April 1 - November 15.
64	111	Section 5.1.2.1 Winter Season of Hibernation The Project will not directly impact any currently known Indiana bat hibernacula.	VAFO	Do not concur with this statement until we see the results of a hydrological and geological analysis.
65	111	Section 5.1.2.2 Autumn Swarming and Spring Staging: Project development will temporarily reduce forested habitat by 0.21 percent	WVFO, VAFO	It is not a temporary impact when it will take 25+ years for the forest to regenerate and become suitable roosting habitat again....the effects analysis should take into consideration the lifespan of the bat and how many generations will be impacted by the project
66	113	Section 5.1.3.1 Detrimental	WVFO, VAFO	Clearing of a known maternity roost tree during the winter may still result in adverse effects to the colony upon returning the following spring and finding the roost tree and surrounding foraging habitat gone. Although loss of a roost is a natural phenomenon that bats must deal with regularly, the loss of multiple roosts due to forest clearing likely stresses individual bats, as well as the social structure of the colony. Kurta (2005) suggested that reduced reproductive success may be related to stress, poor microclimate in new roosts, a reduced ability to thermoregulate through clustering, or reduced ability to communicate and thus locate quality foraging areas. He further suggested that the magnitude of these impacts would vary greatly depending on the scale of roost loss (i.e., how many roosts are lost and how much alternative habitat is left for the bats in the immediate vicinity of the traditional roost sites). Recovery from the stress of hibernation and migration may be slower as a result of the added energy demands of searching for new roosting/foraging habitat especially in an already fragmented landscape where forested habitat is limited. Pregnant females displaced from preferred roosting/foraging areas will have to expend additional energy to search for alternative habitat, which could result in reduced reproductive success for some females. Females that do give birth may have pups with lower birth weights given the increased energy demands associated with longer flights. Their pups may experience delayed development. These longer flights would also be experienced by pups once they become volant which could affect the survival of these pups as they enter hibernation with potentially reduced fat reserves. Overall, the effect of the loss of roosting/foraging habitat on individual bats from the maternity colonies may range from no effect to death of juveniles. The effect on the colonies may result in a reduced rate of reproduction for that year.
67	113	Section 5.1.3.1 Determental: Trees in the Project Area will be removed from September 2017 through April 2018.	VAFO	Need to implement a TOYR for tree removal from April 1 - November 15 when within 5 miles of a hibernacula.
68	113	Section 5.1.3.1 Determental: Though limited, artificial lighting will be used during construction when completion of tasks warrant continued work outside normal daylight operating hours...	VAFO, WVFO	Recommend the following AMMs: 1) Direct temporary lighting away from suitable habitat during the active season. 2) Use downward-facing, full cut-off lens lights, and direct lighting away from suitable habitat when installing new or replacing existing permanent lights.

69	114	Section 5.2 NLEB: Analyses of effects to NLEB as a result of Project construction and operation are restricted to areas of known or potentially occupied habitat where the species is presumed to be present. These areas include maternity roosts and trees within 150 feet of each roost as well as areas within 0.4 kilometer (0.25 mi) surrounding known or potentially occupied hibernacula.	VAFO, WVFO	Per the 4(d) need to also ensure no incidental take occurs within a hibernaculum. This may include disturbing or disrupting hibernating individuals when they are present as well as the physical or other alteration of the hibernaculum's entrance or environment when bats are not present if the result of the activity will impair essential behavioral patterns, including sheltering.
70	115	Section 5.2 NLEB: Given this schedule, analysis of effects to individuals on considers impacts to this species within the 0.4-kilometer (0.25-mi) buffers surrounding hibernacula where individuals may be impacted during hibernation, spring staging, or autumn swarming.	VAFO, WVFO	Affects analysis needs to also consider the physical alteration of the hibernaculum's entrance or environment.
71	120	Section 5.2.1.1 Winter Season of Hibernation: The cave entrances and underground voids will not be altered by construction.	VAFO, WVFO	Provide data to back up this statement. Has a hydrological and geological analysis been conducted?
72	122	Section 5.2.1.2 Autumn Swarming and Spring Staging: As described in Section 5.2.1.1, the Project Action Area includes three known northern long-eared bat hibernacula; however, few hibernating northern long-eared bats have been observed within these caves during recent surveys.	WVFO, VAFO	NLEB are very hard to detect during winter surveys because they wedge themselves into cracks and crevices, which could make identification difficult and bat counts inaccurate
73	124	Section 5.2.2.1 Winter Season of Hibernation: The Project will not directly impact any currently known NLEB hibernacula.	VAFO	If a geological analysis has not been completed, the project may potentially impact passages connected to Canoe Cave. There may be indirect affects depending on impacts to hydrology and surrounding geology.
74	124	Section 5.2.1.4 Spring and Autumn Migration/Transient Period: Thus, it is assumed that one migrant individual may be harmed and one individual may be harassed from Project construction.	WVFO	This take estimate is for the entire project area (areas within ¼-mile buffers)? EQT still needs to quantify the amount of NLEB habitat loss that is proposed to occur outside of the NLEB buffers and in compliance with the 4d rule.
75	124	Section 5.2.2.3 Summer Season of Reproduction: This represents a temporary loss of 2.01 percent forest and a permanent loss of 0.72 percent of forest within the Action Area.	WVFO	Refer to previous tree removal comment
76	124	Section 5.2.2.3 Summer Season of Reproduction: One of the occupied maternity roosts (Roost 499-1) occurs on private land and has since been removed due to logging events.	WVFO	When did this occur? Was the removal documented?
77	125	Section 5.2.3 Indirect Effects	WVFO	No take is anticipated from indirect effects?
78	125	Section 5.2.3.1 Detrimental	VAFO	See comment above, there may be indirect affects depending on impacts to hydrology and surrounding geology.
79	127	Section 5.3.1.1.1 Effects within the LOD - All collected fishes will be translocated a sufficient distance downstream of the construction area.	VAFO	See previous comment - collections need to by a Service pre-approved, permitted biologist.
80	130	Section 5.3.1.1.1 Effects within the LOD	VAFO	Water withdrawals and discharges for hydrostatic testing should not occur in streams with federally listed species. An alternative analysis for other water sources should be done at these sites. If avoidance is not practical - this will be considered a may affect - likely to adversely affect.
81	131	Section 5.3.1.1.1 Effects within the LOD MVP has developed an emergency spill response and containment plan to minimize the risk of spills and implement procedures minimize and adverse effect, in the event a spill occurs.	VAFO, WVFO	We need to review the spill plan.
82	140	Section 5.4 James spiny mussel: Substantial sedimentation rates in Craig Creek are predicted to extend approximately 15.07 stream kilometers (9.36 mi) downstream of the downstream-most crossing; this is over 33 kilometers (20 mi) upstream of the nearest James spiny mussel occurrence.	VAFO	Near known occurrence.
83	140	Section 5.4.1 through 5.4.4 James spiny mussel effects analysis - The absence of James spiny mussel in the Project or Action Area in the Craig Creek stream areas indicates Project activities will not directly affect individuals of the species	VAFO	Have habitat assessments or surveys been conducted in the action area to confirm absence of JSM or no suitable habitat? Additional information is needed to justify this conclusion or why adverse impacts are not anticipated by sedimentation. Should include TOYR dates for JSM and the other mussels in Section 5.
84	141	Section 5.5 Clubshell: A sedimentation analysis was performed in these watersheds to estimate baseline sediment loading rates and potential sediment loading rates anticipated as a result of Project construction activities. The sedimentation model was used to analyze each stream reach of the Elk River, Little Kanawha River, and Leading Creek, assuming implementation of MVP's E&SC plan (Appendix C).	WVFO	Is there a brief/simplified summary of how the model works prior to this reference? If not please add. Anytime you use a model or do an analysis you need to describe it within the BA....you shouldn't just mention it in the BA and cite an Appendix that provides a complicated description. Our BO needs to be written in a way that the public can understand it so if the BA is written this way it will make our job easier.
85	141	Section 5.5.1 Elk River: this is over 30 kilometers (18.6 mi) upstream of the nearest clubshell population .	WVFO	Nearest known population
86	142	Section 5.5.6 Indirect Effects on Individuals	WVFO	Sedimentation could have indirect effects on individuals...as mentioned in the first section....so flesh this out to explain how you got to this conclusion. This section should discuss the sedimentation model and why adverse impacts are not anticipated
87	142	Section 5.5.7 Indirect Effects on Habitats: The lack of occupied habitat in the Project and Action Area of the three stream crossings indicates indirect effects to suitable habitats will not result in a Take of individuals.	WVFO	This section could be fleshed out a bit more....explain how you got to that conclusion
88	142	Section 5.6.1 Elk River: this is over 30 kilometers (18.6 mi) upstream of the nearest snuffbox population.	WVFO	Keep in mind that surveys have not been done throughout this entire reach
89	143	Section 5.6.4, 5.6.5, 5.6.6, and 5.6.7	WVFO	Same as clubshell comments
90	143	Section 5.7 Northeastern Bulrush	WVFO, VAFO	Can't concur (for all of the listed plants) until surveys have been completed
91	146	Table 15	WVFO	These tables are helpful
92	167	Section 7.1.2.1 Winter Hibernacula: The Project will not directly impact any Indiana bat hibernacula, thus a determination of May Affect-Not Likely to Adversely Affect is appropriate.	VAFO	Do not concur with this statement until we see the results of a hydrological and geological analysis for Tawney Cave.
93	167	Section 7.1.2.2 Habitat Used During Autumn Swarming and Spring Staging: determination of May Affect—Not Likely to Adversely Affect is appropriate.	WVFO	The removal of known swarming habitat could result in adverse effects when bats emerge from hibernation... depending on what time of year tree clearing occurs impacts could be greater
94		Section 7.1.2.2 Habitat Used During Autumn Swarming and Spring Staging: determination of May Affect—Not Likely to Adversely Affect is appropriate.	VAFO	Need to implement a TOYR for tree removal from April 1 - November 15 when within 5 miles of a hibernacula.
95	167	Section 7.1.2.3 Habitat Used During the Summer Season of Reproduction: May Affect—Not Likely to Adversely Affect is appropriate .	WVFO	Habitat removal can result in adverse impacts
96	168	Section 7.2 Northern Long-eared Bats	WVFO	Refer to Indiana bat comments

97	169	Section 7.2.1.3 Summer Resident Northern Long-eared Bats	WVFO	There will still be an adverse impact from tree removal outside these dates.....the 4d rule exempts take outside these dates but it doesn't mean that it won't adversely affect NLEB
98	169	Section 7.2.1.4 Spring and Autumn Migration/Transient Period: It is estimated that 1 migrant individual may be harmed and 1 individual may be harassed from Project construction. Thus, a determination of May Affect—Not Likely to Adversely Affect migrating northern long-eared bats is appropriate.	WVFO	In the first sentence you estimate take but in the second sentence you make a NLAA determination. These sentences contradict one another...please fix.
99	169	Section 7.2.2.1 Winter Hibernacula: The Project will not directly impact any NLEB hibernacula, thus a determination of May Affect-Not Likely to Adversely Affect is appropriate.	VAFO	Do not concur with this statement until we see the results of a hydrological and geological analysis for Canoe Cave.
100	170	Section 7.2.2.3 Habitat Used During the Summer Season of Reproduction	WVFO, VAFO	This should be LAA because known maternity roosts will be lost as well as a large amount of summer roosting habitat. Being in compliance with the 4d rule does not get you to a NLAA
101	170	Section 7.2.2.4 Spring and Autumn Migration/Transitory Period: May Affect—Not Likely to Adversely Affect	WVFO, VAFO	There is no mention of what time of year this will be occurring.....should be a LAA
102	170	Section 7.2.3 Indirect Effects: May Affect—Not Likely to Adversely Affect is appropriate.	WVFO	LAA – large amounts of suitable habitat removal...we know from previous survey results that NLEB are present throughout a large chunk of the project area...the 4d rule buffers only account for a small percentage of our known NLEB habitat.
103	171-172	Section 7.4 James spinymussel	VAFO	Cannot concur with these determinations because there is potential suitable habitat in Craig Creek downstream in the action area and sedimentation may adversely affect the species. Were surveys or habitat assessments conducted in the action area to verify there are no individuals or suitable habitat?
104	177	Section 7.8 Running Buffalo Clover	WVFO	Surveys have not been completed....no comments on the plant section
105	182	Section 8.0 Proposed Voluntary Conservation Measures	VAFO	We are fine with voluntary, but add some language about MVP's commitment to conducting these proposed measures. The final revised USFWS Mitigation Policy was published in the FR on 21 Nov 2016. Also, the final USFWS Compensatory Mitigation Policy was published in FR 27 Dec 2016.
106	182	Section 8.0 Proposed Conservation Measures	WVFO, VAFO	Research alone is not a sufficient conservation measure. Review and incorporate the revised USFWS Mitigation Policy were applicable. Discuss these measures with the Service before revising this section of the BA.
107	182	Section 8.0 Proposed Conservation Measures	VAFO	During our Dec. 8, 2016 meeting we provided some additional conservation measures to incorporate. These include: Protection/Preservation of hibernaculum and its surrounding staging/swarming habitat; protect/preservation of suitable forested habitat adjacent to forest blocks with documented captures, roosts, telemetry, or acoustic detections; and applied research projects that yield specific information that will improve some aspect of the conservation measures. For example, surveys to identify previously unknown maternity colonies or research studies to focus on ways to better protect hibernacula, such as more effective cave gating.
108	182	Section 8.0 Proposed Conservation Measures	VAFO	At the above described Dec. 8, 2016 meeting, we also provided additional conservation measures for RLP, which included: implementing riparian and stream restoration efforts in the logperch range to limit siltation and nutrient releases into receiving waterways; and fund or support the development of road culvert design standards to improve fish passage in watersheds that contain federally listed aquatic species.
109	182	Section 8.1 Bats: therefore, only a limited habitat creation effort is identified in Section 2.6.2.1 above	WVFO	This section only discusses avoidance and minimization measures.
	General		VAFO	Request a shapefile of all areas that have not been surveyed
	General		VAFO, WVFO	BA should be a stand alone document. Project description needs to be put back into the document
	General		VAFO	Recommend a 3rd party monitor be present at stream crossing with federally listed species. Monitor will be familiar the species at the crossing a approved by the Service. Monitor will report directly to the Service an have the ability to halt construction if concerns are not addressed.
	General		VAFO, WVFO	Exact dates for species Time of year restrictions should be in the BA for clarity
	General		VAFO, WVFO	BA needs a table with a list of all the stream crossings and the method of crossing and the location of water withdrawals and discharges.
	General		VAFO, WVFO	Need a spill plan and a karst protection plan
	General		VAFO, WVFO	Provide a description of the sequence of events that will occur from beginning to end of construction.

The candy darter (*Etheostoma osburni*) is currently undergoing the USFWS Species Status Assessment (SSA) process.

Candy darter populations can best be considered as three distinct units, within which individuals are usually found in the following tributaries:

1. Upper Gauley River (WV)
2. Upper Greenbrier River (WV)
3. Middle & Upper New River (VA)

The four streams in Middle & Upper New River (VA) with known occurrences are:

1. Stony Creek (Middle New River, direct tributary)
2. Laurel Creek (feeding into Wolf Creek, and eventually Middle New River)
3. Dismal Creek (feeding into Walker Creek, and eventually Middle New River)
4. Cripple Creek (direct tributary to the Upper New River, above Claytor Dam)

Of these four populations, Stony Creek is unique in that the population is much stronger in terms of abundance and condition. Candy darters are believed to have been extirpated from their historic habitat in VA (which comprised almost all of the Middle & Upper New River and its tributaries) due to habitat loss/degradation. Early in the century much of the region was clear-cut and streams were degraded. Reforestation has restored the condition of many of these streams to the point that it is believed reintroductions of candy darters to their historic habitats could be successful, but the small, fragmented condition of the remaining individuals makes natural recolonization highly unlikely.

MVP's proposed route (October 2016) goes through:

- Upper Gauley River in WV;
- ~ 7 km of the Stony Creek watershed in VA and crosses Stony Creek ~2 km from its confluence with the New River; and
- a large portion of Upper & Lower Sinking Creek watershed in VA, crossing Lower Sinking Creek and running parallel to long stretches of Upper Sinking Creek, where it is only a few hundred meters away from the stream.

We are concerned about potential impacts from sedimentation throughout the watersheds (a significant issue for darters) and direct mortality of individuals in the crossing at Stony Creek. In addition, water withdrawal/discharge locations need to be planned with extreme caution. Water should not be withdrawn from a hybrid/invaded zone and then discharged to a candy darter zone (this applies to both the Gauley and New River watersheds).