

**ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE**

And

**DOMINION TRANSMISSION, INC.
SUPPLY HEADER PROJECT**

Q62 Attachment 1

Karst Features in Madison Cave Isopod Area

Q62 Attachment 1

Karst Features in the Madison Cave Isopod Priority Area Within 300 feet of the Atlantic Coast Pipeline and Supply Header Project

AP-1, Near Milepost	Karst Feature ID	Feature Type	Risk Level ^a	Distance and Direction from Workspace or Access Road (feet)	Workspace Type ^b	Presence Assumed for Madison Cave Isopod (Y/N) ^c	Impacts and Conservation Measure(s) ^{d,e}
125.7	A029-2	Sinkhole, no throat or drainage	Moderate	204, west	Temp TS	No	No impact to Madison Cave isopod expected
125.7	A029-1	Sinkhole, no throat or drainage	Moderate	147, west	Temp TS	No	No impact to Madison Cave isopod expected
127.8	A057-1	Large throat, drainage	High	19, west	Temp ROW	Yes	25-foot no activity buffer, ESC measures
128.1	A057-2	Sinkhole, no throat, possible drainage	Moderate	46, east	Perm ROW	No	No impact to Madison Cave isopod expected
128.1	A057-3	Sinkhole, no throat or drainage	Low	169, east	Perm ROW	No	No impact to Madison Cave isopod expected
128.1	A057-4	Sinkhole, no throat or drainage	Low	153, east	Perm ROW	No	No impact to Madison Cave isopod expected
128.1	A057-5	Sinkhole, no throat or drainage	Low	176, east	Perm ROW	No	No impact to Madison Cave isopod expected
128.1	A057-6	Sinkhole, no throat or drainage	Low	206, east	Perm ROW	No	No impact to Madison Cave isopod expected
129.7	A072-2	Sinkhole, no throat	Moderate	76, east	Temp ATWS	No	No impact to Madison Cave isopod expected
129.7	A075-1	Sinkhole, no throat	Moderate	41, west	Temp ATWS	No	No impact to Madison Cave isopod expected
130.6	A083-1	Sinkhole, no throat, has drainage	Moderate	147, west	Temp ROW	No	No impact to Madison Cave isopod expected
131.1	A086-2	Sinkhole, throat filled with cinder blocks	Moderate	118, southeast	Perm ROW	No	No impact to Madison Cave isopod expected
131.1	A086-1	Solution conduit	Low	0	Temp ROW	No	No impact to Madison Cave isopod expected; Blind conduit no mitigation necessary
131.1	A086-3	Sinkhole, no throat	Low	242, southeast	Perm ROW	No	No impact to Madison Cave isopod expected
131.4	A086-4	Sinkhole, failed farm pond, no throat	Low	114, southeast	Perm ROW	No	No impact to Madison Cave isopod expected
131.8	A092-1	Sinkhole, no throat	Low	17, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.2	A096-1	Solution conduit, drainage	Low	0	Perm ROW	No	No impact to Madison Cave isopod expected; Buffer and avoid if possible, otherwise install reverse graded filter for mitigation
132.7	A096-2	Solution conduit	Low	0	Perm ROW	No	No impact to Madison Cave isopod expected; Blind conduit no mitigation necessary
132.8	A096-3	Sinkhole, subordinate sink in larger structure	Moderate	229, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.8	A096-4	Sinkhole, subordinate sink in larger structure	Moderate	203, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.9	A096-5	Sinkhole, soil filled throat	Moderate	53, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.9	A096-6	Sinkhole, no throat	Low	143, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.9	A096-7	Sinkhole, collapsed sink	Low	34, east	Perm ROW	No	No impact to Madison Cave isopod expected
132.9	A096-8	Open throat, sinking stream, deep conduit	High	0	Temp ROW	Yes	25-foot no activity buffer, ESC measures
133.0	A097-1	Sinkhole, trash	Low	21, east	Perm ROW	No	Not required

Q62 Attachment 1 (continued)

Karst Features in the Madison Cave Isopod Priority Area Within 300 feet of the Atlantic Coast Pipeline and Supply Header Project

AP-1, Near Milepost	Karst Feature ID	Feature Type	Risk Level ^a	Distance and Direction from Workspace or Access Road (feet)	Workspace Type ^b	Presence Assumed for Madison Cave Isopod (Y/N) ^c	Impacts and Conservation Measure(s) ^{d,e}
133.9	A105-1	Sinkhole, throat with drainage	High	0	Perm ROW	Yes	Impacts to 25 foot buffer are anticipated; Install graded filter if avoidance to feature is not possible
134.1	A106-1	Sinkhole, in farmland, closed with drainage	High	0	Perm ROW	No	No impact to Madison Cave isopod expected; Install graded filter
137.2	A131-1	Sinkhole, in cornfield, receives drainage	High	0	Temp TS	No	No impact to Madison Cave isopod expected; Install graded filter
137.3	A132-2	Sinkhole, in pasture, receives drainage	High	0	Perm ROW	Yes	Impacts to 25 foot buffer are anticipated; Install graded filter
140.1	A140-1	Sinkhole, hayfield	Low	0	Temp ATWS	No	No impact to Madison Cave isopod expected, Isolate from work area and buffer if possible, otherwise install graded filter
140.1	A140-4	Surface drain	High	152, north	Temp ATWS	Yes	25-foot no activity buffer, ESC measures
140.1	A140-2	Cave, Cochran's #3	High	168, north	Temp ATWS	Yes	25-foot no activity buffer, ESC measures
140.2	A142-1	Sinkhole	Low	260, northeast	Perm ROW	Yes	25-foot no activity buffer, ESC measures
140.2	A142-3	Subordinate sink	Moderate	168, northeast	Perm ROW	Yes	25-foot no activity buffer, ESC measures
140.2	A142-2	Sinkhole	Low	0	Perm ROW	Yes	Impacts to 25 foot buffer are anticipated; Install graded filter if avoidance to feature is not possible
140.2	A142-5	Cave, Cochran's #2 ^e	High	340, northeast	Perm ROW	Yes	25-foot no activity buffer, ESC measures
140.2	A142-4	Cover collapse sink	Moderate	135, northeast	Perm ROW	Yes	25-foot no activity buffer, ESC measures
140.3	A146-1	Sinkhole, drainage	Low	68, west	Temp TS	No	No impact to Madison Cave isopod expected
140.9	A148-1	Sinkhole, in pasture, closed, receives drainage	High	0	Perm ROW	No	No impact to Madison Cave isopod expected; Install graded filter
141.0	A148-2	Sinkhole, in pasture, closed, receives drainage	High	0	Temp ROW	No	No impact to Madison Cave isopod expected; Install graded filter
143.2	A153-1	Former sink, failed farm pond	Moderate	38, southwest	Temp ROW	No	No impact to Madison Cave isopod expected
144.9	A159.AR-1	Sinkhole, trash	Low	68, northeast	Perm ROW	No	No impact to Madison Cave isopod expected
144.9	A159.AR-2	Sinkhole, debris filled	Low	0	Perm ROW	No	No impact to Madison Cave isopod expected; Install graded filter
145.0	A159.AR-3	Sinkhole, drainage	High	0	Perm ROW	No	No impact to Madison Cave isopod expected; Install graded filter
145.6	A162-1	Sinkhole, in cornfield, throat filled with construction debris	High	30, east	Temp TS	No	No impact to Madison Cave isopod expected
145.7	A162-2	Sinkhole, throats, receives drainage	Moderate	66, east	Temp TS	Yes	25-foot no activity buffer, ESC measures
145.8	A162-3	Sinkhole, throats full of farm waste,	Moderate	187, east	Temp TS	No	No impact to Madison Cave isopod expected

Q62 Attachment 1 (continued)

Karst Features in the Madison Cave Isopod Priority Area Within 300 feet of the Atlantic Coast Pipeline and Supply Header Project

AP-1, Near Milepost	Karst Feature ID	Feature Type	Risk Level ^a	Distance and Direction from Workspace or Access Road (feet)	Workspace Type ^b	Presence Assumed for Madison Cave Isopod (Y/N) ^c	Impacts and Conservation Measure(s) ^{d,e}
		receives drainage					
145.9	A165-2	Sinkhole, soil filled throats, receives drainage	Moderate	141, northeast	Temp TS	Yes	25-foot no activity buffer, ESC measures
145.9	A165-1	Sinkhole, throats, receives drainage	High	0	Perm ROW	Yes	25-foot no activity buffer, ESC measures; Install graded filter if needed
146.3	D006-1	Sinkhole, throats, receives drainage	Moderate	90, east	Temp TS	Yes	25-foot no activity buffer, ESC measures
147.9	D040-1	Spring	Low	38, west	Temp ROW	Yes	25-foot no activity buffer, ESC measures
148.6	A002-2	Sinkhole, receives drainage	Moderate	0	Perm ROW	Yes	Impacts to 25 foot buffer are anticipated; ; Install graded filter if avoidance to feature is not possible
148.7	A002-3	Sinkhole, with spring, receives drainage	Moderate	44, west	Temp ROW	Yes	25-foot no activity buffer, ESC measures
149.3	A003-2	Sinkhole, receives drainage	Moderate	5, west	Temp ROW	Yes	25-foot no activity buffer, ESC measures
149.3	A003-3	Sinkhole, receives drainage	High	0	Perm ROW	Yes	25-foot no activity buffer, ESC measures
^a	Based on Karst Survey Report.						
^b	Perm ROW – Permanent Right of Way Temp ROW – Temporary Right of Way Temp ATWS – Temporary Additional Temporary Workspace Temp TS – Temporary Topsoil Segregation Area						
^c	Based on feature type and location within the Madison Cave isopod priority area.						
^d	Additional ESC measures are described in Section 2.8.2.9, Attachment F, and Section 5.12.4.						
^e	Cochran’s Cave #2 included, even though more than 300 feet from workspace as it is a known Madison Cave isopod habitat.						