

**BEFORE THE PUBLIC UTILITIES  
COMMISSION OF THE STATE OF  
SOUTH DAKOTA**

**IN THE MATTER OF THE APPLICATION  
OF SCS CARBON TRANSPORT LLC FOR  
AN ENERGY FACILITY PERMIT TO  
CONSTRUCT THE SUMMIT CARBON  
SOLUTIONS PIPELINE**

**SD PUC DOCKET HP22-001**

**PRE-FILED DIRECT TESTIMONY OF RICHARD B. KUPREWICZ  
ON BEHALF OF WEB WATER DEVELOPMENT ASSOCIATION, INC.**

**JUNE 15, 2023**

**Exhibits No. 1 thru 4**

1           **INTRODUCTION**

2   **Q.    Please state your name, position, and business address.**

3    A.    My name is Richard B. Kuprewicz. I am the President of Accufacts Inc.  
4           (“Accufacts”) which is headquartered at 8151 164<sup>th</sup> Ave. NE, Redmond,  
5           Washington 98052.

6   **Q.    Please describe Accufacts.**

7    A.    Accufacts provides pipeline safety expertise in gas and liquid pipeline  
8           investigation, auditing, risk management, siting, construction, design,  
9           operation, maintenance, corrosion engineering, training, control room  
10          management including Supervisory Control and Data Acquisition  
11          (“SCADA”) approaches, leak detection, management review, emergency  
12          response, pipeline safety regulatory development and compliance, and  
13          pipeline incident investigations following too many pipeline tragedies.  
14          In my role as President, I provide independent consulting services and  
15          expert advice on pipeline matters to assist decisionmakers in making  
16          informed decisions concerning pipelines. My clients are local, state, and  
17          federal agencies, non-governmental organizations, members of the public,  
18          and pipeline industry representatives. My work is usually focused on  
19          pipeline operations in unusually sensitive areas, such as areas of high  
20          population density or significant environmental sensitivity.

21 I have testified to Congress and various Public Utility Commissions (PUCs)  
22 / Public Service Commissions (PSCs) on pipeline matters across the country  
23 and authored many papers concerning pipeline issues in both the U.S. and  
24 Canada. I am experienced and knowledgeable concerning various state and  
25 federal pipeline safety regulations, as well as their Canadian and other  
26 foreign country counterparts.

27 **Q. Please summarize your work experience and educational background.**

28 A. My relevant education, background, and experience is summarized in my  
29 Curriculum Vitae included here as Exhibit No. 1. Leveraging information  
30 that demonstrates my qualifications to testify as an expert on this matter are:

- 31 1. I have a BS in chemical engineering and a separate BS in chemistry  
32 from the University of California - Davis, and fifty years experience.
- 33 2. My many years of experience in pipeline operations include right-  
34 of-way negotiations and settlements spanning decades, especially as  
35 this issue relates to pipeline operations in highly congested pipeline  
36 areas where cathodic protection (“CP”) interaction/interference can  
37 and has resulted in pipeline failures.
- 38 3. My extensive experience spans over two decades interacting with  
39 OPS/PHMSA representing the public on the development of  
40 pipeline safety regulations at the federal level based on my pipeline  
41 experience and numerous investigations of pipeline failures, and
- 42 4. A public report authored by me briefly describing the various phases  
43 of CO<sub>2</sub> as well as identifying major shortcomings in current federal

44 pipeline safety regulations concerning CO<sub>2</sub> included as Exhibit No.  
45 2.<sup>1</sup>

46 5. As a Process Supervisor of the Hydrocracker Complex, I was  
47 involved with the operation of a CO<sub>2</sub> unit that processed and  
48 liquified very pure CO<sub>2</sub> gas to liquid for delivery by rail cars and  
49 tank trucks, as well as by an intra-facility liquid CO<sub>2</sub> pipeline for  
50 further processing to dry ice.

51 **Q. On whose behalf are you testifying in this case.**

52 A. I am testifying on behalf of the WEB Water Development Association, Inc.  
53 (“WEB”).

54 **Q. Have you testified before the SDPUC previously?**

55 A. No.

56 **Q. Have you testified before other State or District Utility Commissions?**

57 A. Yes. Some recent examples of such testimony are:

58 • Before the State of Illinois Commerce Commission concerning the  
59 Navigator Heartland Greenway LLC application for authority to  
60 construct and operate a carbon dioxide pipeline, testifying on behalf  
61 of Citizens Against Heartland Greenway Pipeline, McDonough

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<sup>1</sup> Exhibit No.2 - Report to Pipeline Safety Trust and Bold Alliance, “Accufacts’ Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as it Relates to Carbon Capture, Utilization, and Sequestration within the U.S.,” March 23, 2022.

62 County, Christian County, and Hancock County (ICC Docket No.  
63 23-0161). That docket is still ongoing.

64 • For each of the past seven years, before the Mississippi PSC on  
65 behalf of the Mississippi Public Utilities Staff regarding Atmos  
66 Energy Corporation’s annual capital request recently projected to  
67 reach slightly over 900 million dollars through the year 2027, for  
68 system integrity improvements, mainly in gas distribution systems  
69 (Docket No. 2015-UN-049), last report August 2022.

70 • Before the Michigan PSC related to testimony commenting on  
71 Enbridge’s Line 5 liquid transmission pipeline \$500 million  
72 proposed tunnel project under the Mackinaw Straits to replace two  
73 existing Line 5 pipelines situated in the Straits. My testimony  
74 included a recent industry study, accepted into evidence by the  
75 MPSC, identifying a serious deficiency in API Standard 1104  
76 referenced in federal pipeline safety regulations that will be  
77 seriously exacerbated by that project’s highly unique design  
78 proposal placing a 30-inch pipeline that moves propane within a  
79 tunnel on rollers, December 14, 2021. That Docket is still  
80 undergoing further proceedings at the request of the MPSC.

81 • To the Arizona Corporation Commission (“AZCC”) on behalf of the  
82 Utilities Division Staff of the AZCC related to Southwest Gas

83 Corporation’s proposal to replace vintage pre-1970 steel (“VSP”),  
84 7000/8000 Driscopipe plastic pipe, and Customer Owned Yard Line  
85 (“COYL”) replacement programs, Docket No. G-01551A-19-0055,  
86 February 11, 2020.

- 87 • Before the North Dakota PSC on behalf of the Standing Rock Sioux  
88 Tribe, related to the Dakota Access Pipeline  
89 Expansion/Optimization Project in Emmons County, November 1,  
90 2019.
- 91 • Before the ICC on the request to expand the Energy Transfer Crude  
92 Oil Pipeline within Illinois on behalf of Save Our Illinois Land and  
93 the Sierra Club, October 1, 2019.
- 94 • Before a Pennsylvania Public Utilities Commission, or “PAPUC,”  
95 Administrative Law Judge concerning matters related to the Energy  
96 Transfer/Sunoco pipeline companies’ highly volatile liquid  
97 transmission pipelines, known collectively as the Mariner East  
98 Pipeline Projects, on behalf of West Goshen Township, PA, Docket  
99 No. C-2017-2589346 July 18, 2017. I have also submitted testimony  
100 to the PAPUC on pipeline safety matters concerning the Proposed  
101 Joint Settlement, between the Pennsylvania Bureau of Inspection  
102 and Enforcement (“BI&E”) and Sunoco Pipeline L.P. (“SPLP”),

103 Docket No. C-2018-3006534, dated August 15, 2019, on behalf of  
104 West Goshen Township.

105 • Before the District of Columbia Public Service Commission on  
106 behalf of the Office of the Attorney General, providing Testimony  
107 on an Accufacts' Safety Review of Washington Gas Light ("WGL")  
108 DC gas system related to an AltaGas-WGL holdings merger (DC  
109 PSC FC 1142, DOEE OGC case #3609) supporting the Proposed  
110 Settlement Agreement, May 23, 2018.

111 • Before the Minnesota Office of Administrative Hearings for the  
112 Minnesota PUC on behalf of Friends of the Headwaters regarding  
113 an Enbridge Energy, Limited Partnership proposal to replace and  
114 reroute an existing Line 3 with a new, approximately \$7.5 billion  
115 liquid transmission pipeline to move Canadian dilbit<sup>2</sup> (Docket No.  
116 MPUC PL-9/CN-14-916 and MPUC PL-9/PPL-15-137), September  
117 11, 2017.

118 • Before the Nevada PUC on behalf of the Nevada Office of the  
119 Attorney General Bureau of Consumer Protection concerning  
120 Southwest Gas Corporation's new and accelerated pipeline

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<sup>2</sup> Dilbit is short for "diluted bitumen." Bitumen is diluted with a lighter petroleum liquid to allow it flow through pipelines.

121 replacement proposals (totaling almost \$770 million) (Docket Nos.  
122 12-02019 and 12-04005), August 15, 2012.

123 **Q. What is the purpose of your testimony?**

124 A. I was asked to provide pipeline technical assistance on behalf of WEB  
125 concerning the Summit Carbon Solutions Pipeline Proposal (“Summit”) to  
126 the South Dakota PUC as it pertains to possible crossing approach  
127 techniques involving the WEB water pipelines.

128 **Q. Did you prepare or direct the preparation of this testimony and the**  
129 **accompanying WEB Exhibits?**

130 A. Yes.

131 **SUMMARY OF TESTIMONY**

132 **Q. Please summarize your testimony.**

133 A. Based on my background and experience, I will focus my Testimony into  
134 three key areas:

- 135 1. An overview of WEB’s water system related to Summit’s high-  
136 pressure CO<sub>2</sub> hazardous liquid transmission pipelines crossing  
137 WEB’s systems (“Crossings”).
- 138 2. A summary of Summit’s recent Crossings proposal response to  
139 WEB.



140                   3. My specific recommendations concerning the Crossings based on  
141                   my extensive and specialized pipeline experience.

142    **Q        Could you briefly describe the WEB rural water system.**

143    A.        WEB provides potable water to 14 counties in South Dakota and 3 counties  
144            in North Dakota. The water is distributed through a network of ductile iron  
145            main water lines (“Mainlines”) and PVC water lines (“PVC Lines”). The  
146            Mainline ductile iron pipelines are larger diameter higher pressure lines,  
147            currently ranging from 14 to 36-inches in diameter. The PVC Lines are fed  
148            by the Mainlines which range from 1.5 to 16-inches in diameter. The vast  
149            majority of the Crossings will be small diameter PVC Line (2 to 6-inches in  
150            diameter).

151            Based on Summit’s proposed CO<sub>2</sub> route WEB has identified 83 Crossings.  
152            Five of these 83 are Mainline Crossings. The remaining 78 are PVC Lines  
153            and six of the PVC Lines are future Crossings.

154    **Q        What is WEB’s proposal with Summit for the Crossings**

155    A.        WEB first approached Summit about a uniform Crossing agreement as early  
156            as September 2021. Summit did not acknowledge the need for a Crossing  
157            agreement until March of 2022 and did not provide its proposed route until  
158            February 2023. WEB has proposed to Summit that:

159            1. WEB will relocate the PVC Lines so that they are 7 feet below the

- 160 proposed Summit pipelines,
- 161 2. WEB will encase the lowered PVC Line in PVC casing, extending
- 162 at least 100 feet on either side of Summit's pipelines, WEB will also
- 163 encase any PVC Line that is nearer than 100 feet from Summit's
- 164 CO<sub>2</sub> line even if it does not cross the PVC Line; and
- 165 3. Summit will lower its pipeline at the Mainline Crossings so that its
- 166 line is at least 7 feet below the bottom of the Mainline.

167 WEB's proposal to relocate and case the PVC Lines will allow WEB to

168 repair or replace its PVC Lines without going anywhere near the CO<sub>2</sub> line

169 dramatically increasing workers safety. WEB's proposal will also allow

170 Summit to construct its pipeline without adjusting its depth for the PVC

171 Lines. Encasing the PVC Lines will also avoid possible impact to the CO<sub>2</sub>

172 lines should the PVC Lines fail at/near the Crossings. At normal PVC Line

173 pressures, a water line failure would cause cratering near the CO<sub>2</sub> pipelines.

174 Casing would not only avoid direct water impingement on the CO<sub>2</sub> lines and

175 cratering but help to reduce the potential of soil liquification by a water

176 release near the CO<sub>2</sub> pipeline. A picture of the February 2020 Satartia, MS

177 24-inch CO<sub>2</sub> pipeline rupture failure site (See Exhibit No. 3) will clearly

178 demonstrate the potential to cause steel transmission pipeline rupture failure

179 from soil liquification.<sup>3</sup> Excessive rain on a poorly located and monitored  
180 transmission pipeline right-of-way caused a breakaway landslide and CO<sub>2</sub>  
181 transmission pipeline rupture failure at a girth weld and related heat affected  
182 zone. Ruptures are high-rate pipeline releases of many thousands of tons,  
183 that cannot be quickly stopped even if mainline valves are rapidly closed.  
184 No pipeline can be designed utilizing conventional construction techniques  
185 to avoid the impact forces from massive breakaway landslides, as too many  
186 recent transmission pipeline ruptures have clearly demonstrated.

187 WEB is further proposing a minimum separation distance of 7 feet between  
188 the Summit CO<sub>2</sub> line and WEB's pipelines. The WEB PVC Lines could be  
189 lowered by boring, or horizontal directional drilling ("HDD"), with either  
190 option including the added protection of encasing the relocated PVC Lines  
191 with PVC pipe casing. Such casing would ensure that a PVC Line failure  
192 at the Summit Crossings would divert released water away from the Summit  
193 transmission pipeline. It is also important that such casing of the PVC Lines  
194 be PVC to avoid interference with Summit's CP system. PVC casing would  
195 also permit future WEB system activity, such as possible water line repair

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<sup>3</sup> Exhibit No. 3 - Pipeline and Hazardous Material Safety Administration, "Failure Investigation Report – Denbury Gulf Coast Pipelines, LLC – Pipeline Rupture / Natural Force Damage," Figure 2, page 9 of 21.

196 and replacement, without the risk of such activity causing problems at or  
197 near the Summit high pressure pipelines.

198 The WEB Mainlines would be left in place, requiring Summit to either deep  
199 bore or HDD their CO<sub>2</sub> pipelines at the Mainline crossings, while still  
200 maintaining a minimum 7-foot separation distance. WEB would specify the  
201 crossing method to be used by Summit for the Mainlines.

202 **Q. Please provide a brief overview of the Summit's pipeline system that**  
203 **could affect the WEB system.**

204 A. Summit is proposing to add high pressure CO<sub>2</sub> transmission pipelines of  
205 various diameter that could impact the WEB system, ranging from 4 to 8-  
206 inch diameter lines from ethanol plants feeding the system and the main  
207 trunkline of 20 and 24-inch diameter CO<sub>2</sub> pipelines (See Exhibit No. 4).<sup>4</sup>  
208 These Summit pipelines are designed for an MOP of 2183 psig.<sup>5</sup> MOP, or  
209 maximum operating pressure, is a term defined in minimum federal pipeline  
210 safety regulations carrying a specific technical meaning.<sup>6</sup>

211 **Q. What is Summit's recent proposal for the WEB Crossings?**

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<sup>4</sup> Exhibit No. 4 - Summit Carbon Solutions Public Input Meeting of March 2022 presentation, "South Dakota Facilities Overview map," page 9, on South Dakota Public Utilities Commission website.

<sup>5</sup> Before the Public Utilities Commission of the State of South Dakota, "Direct Testimony of Lawrence Meredith, P.E. on behalf of SCS Carbon Transport LLC," February 7, 2022

<sup>6</sup> 49CFR§195.2 Definitions

212 A. Summit has recently provided (as of June 7, 2023) to WEB a different  
213 crossing approach than that which WEB has proposed to Summit:

214 1. Boring of the CO<sub>2</sub> pipelines under Foreign Waterline R.O.W, or  
215 rights-of-way, or Crossings, if approved by the owner utility,

216 2. Recommends a separation/clearance distance of 48 inches through  
217 the full span of the crossing, though smaller separation distances to  
218 12 inches are permitted, and

219 3. Allows for waterline location and depths to be determined by  
220 electronic means subject to “carefully exposing by non-mechanized  
221 equipment when within 24 inches in any direction from the facility.”

222 Summit identifies a “Foreign Waterline R.O.W” in an additional attachment  
223 provided by Summit, that they have labeled as a “Guided Bore Waterline  
224 Crossing” meant to be used to cross exclusion areas, such as stream,  
225 wetland, road, railroad, etc. The implication is that rural water lines could  
226 be part of an exclusion area, though that specific key point needs to be  
227 clarified and documented to avoid any misunderstanding in Crossing  
228 approaches for any final written agreement between the parties.

229 In hazardous pipeline construction and operation, a bore is significantly  
230 different than an HDD. Bores are usually constructed by digging two pits  
231 deep and large enough spanning a sensitive area, to allow boring equipment  
232 to be placed within a “bore pit” so that a straight bore larger in diameter

233 than the pipe is then produced, straight across the area to be crossed into the  
234 receiving pit. Pipe, usually of a heavier wall thickness than the main  
235 pipeline, is then placed and pushed/pulled across the span bore. The pipe  
236 installed in the bore is then joined by above ground welding activity to the  
237 main pipeline through a combination of pipeline bends and segments to the  
238 main pipeline.

239 Another major form of pipeline crossing activity is HDD. The advantage  
240 of HDD is that all activity is done from the surface without the need of pit  
241 trenching. Surface activity is done at one side of a crossing via horizontal  
242 direction drilling from a surface located drill rig that first develops a small  
243 pilot hole drilled across the sensitive area crossing reaching the surface at  
244 an area spanning the sensitive area. This pilot drilled “tunnel” is then  
245 enlarged, depending on the pipe diameter, via subsequent reaming  
246 enlargement passes to increase the hole diameter from both surface  
247 directions as needed. Upon final HDD hole enlargement, the final pipe is  
248 placed within the drill hole/tunnel via surface activities. Because of the  
249 need to arc the pipe, HDDs are usually required to go quite deep depending  
250 on pipe diameter/material to avoid kinking the pipe during its subsequent  
251 placement. HDD can be especially efficient and cost effective for installing

252 plastic pipe over relatively short distances, such as that which would be  
253 needed for the WEB proposed PVC Line relocations.

254 **Q. Do you have specific concerns and observations regarding the Crossing**  
255 **negotiations?**

256 A. Yes. The relocation of the PVC Lines before the Summit pipeline  
257 construction saves Summit the cost and time of boring. HDD for the PVC  
258 Lines with their proposed PVC casing, I believe, are significantly less  
259 expensive to implement than the proposed Summit boring options. In  
260 addition, considerable construction and time savings would be realized by  
261 Summit once PVC Lines are relocated/lowered to permit Summit to install  
262 their CO<sub>2</sub> pipelines via conventional open cut construction techniques  
263 through the area of the PVC Line crossings.

264 Proposed separation distance of 7 feet is reasonable and does not  
265 significantly add to the cost of relocating such small infrastructure, while  
266 separation distances provide greater safety to the CO<sub>2</sub> pipelines, as well as  
267 to the WEB waterlines.

268 Three critical issues are missing from either parties' proposal approach that  
269 must be included in a Crossing Agreement given my pipeline operating and  
270 corrosion experience:

271 1. For the metallic structures of the WEB ductile iron Mainline  
272 crossings, any contract agreement with Summit must clearly specify

273 that Summit is responsible for assuring their pipeline CP system and  
274 the Crossing do not interfere or interact with the WEB Mainline  
275 pipes,

276 2. Summit has attempted to argue a need to standardize their crossing  
277 approach by implying WEB's approach is different than that used in  
278 other water systems within South Dakota, and

279 3. One-call should not be relied upon as a safety approach to prevent  
280 CP interactions that can result in either a WEB pipeline failure or a  
281 Summit CO<sub>2</sub> pipeline rupture.

282 CP interference from poorly designed, operated or maintained CP systems  
283 can reach considerable distances, well beyond the proposed separation  
284 distances presented by either party, if not adequately implemented. Such  
285 CP interference can quickly rip the metal off a ductile iron or a steel pipeline  
286 as such metal loss easily exceeds so called average corrosion rates for pipe.  
287 Such important CP design consideration and Summit's responsibilities in  
288 this important matter should be carefully and clearly spelled out in any  
289 mutual Crossings agreement written contract. The CP design and operation  
290 on the Summit pipelines are the responsibility of the pipeline operator,  
291 Summit, or its successors. Any crossing agreement between WEB and  
292 Summit should also specifically require that Summit's CO<sub>2</sub> pipelines cross  
293 the ductile iron Mainline pipelines at 90 degrees for various reasons.



294           There may be important differences between various water systems within  
295           South Dakota where attempts at such standardization approaches are not  
296           relevant, even dangerous, to Summit's CO<sub>2</sub> pipelines as well as to the water  
297           systems. One-call 48-hour notification intent serves a different purpose and  
298           intent, i.e., to alert all parties of possible construction related activity threats,  
299           and is not intended to deal with CP interference/interaction threats that  
300           require more detailed and possible lengthy discussions to come to a prudent  
301           agreement between the parties.

302   **Q.    Does this conclude your testimony?**

303   A.    Yes.