

**BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION**

**IN THE MATTER OF PUBLIC SERVICE )  
COMPANY OF NEW MEXICO'S )  
ABANDONMENT OF SAN JUAN )  
GENERATING STATION UNITS 1 AND 4 )**

**Case No. 19-00018-UT**

**REBUTTAL TESTIMONY**

**OF**

**DOUGLAS K. COWIN, PG**

**November 15, 2019**

**NMPRC CASE NO. 19-00018-UT  
INDEX TO THE REBUTTAL TESTIMONY OF  
DOUGLAS K. COWIN**

**WITNESS FOR  
PUBLIC SERVICE COMPANY OF NEW MEXICO**

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PNM Exhibit DKC-1 (Rebuttal)

Statement of Qualifications

AFFIDAVIT

**REBUTTAL TESTIMONY  
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1

**I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

3 **A.** My name is Douglas K. Cowin, PG. I am the Department Manager of the  
4 Environmental Remediation Department for Burns & McDonnell. My business  
5 address is 1431 Opus Place, Suite 400, Downers Grove, IL 60515.

6

7 **Q. HAVE YOU FILED PRIOR TESTIMONY IN THIS PROCEEDING?**

8 **A.** I have not. My rebuttal testimony is filed on behalf of Public Service Company of  
9 New Mexico (“PNM”).

10

11 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL  
12 QUALIFICATIONS.**

13 **A.** I received a Bachelor of Science in geology from the University of Illinois,  
14 Champaign-Urbana in 1984. I am a Certified Professional Geologist in Illinois  
15 and Wisconsin. I have worked in numerous states in this country and I have also  
16 worked on projects in Canada, India and in the United Kingdom. I have over  
17 thirty years of experience in investigations and site remediation under various  
18 environmental programs, including Superfund and the Resource Conservation and  
19 Recovery Act (“RCRA”). Most recently, I have been involved in developing  
20 strategies for the management of coal ash and combustion residuals from coal-  
21 fired power plants. A copy of my statement of qualifications is attached as PNM  
22 Exhibit DKC-1 (Rebuttal).



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1                                   **III. COAL COMBUSTION RESIDUALS (CCR)**

2   **Q.    WHAT IS CCR?**

3   **A.**CCR is generated as a result of the combustion of coal, typically in the generation  
4           of electricity. It generally consists of fly ash which is a very fine, powdery  
5           material composed mostly of silica made from the burning of finely ground coal  
6           in a boiler; bottom ash which is an ash particle that is too large to be carried up  
7           into the stacks so it forms in the bottom of the coal furnace; boiler slag which is  
8           molten bottom ash that turns into pellets that have a smooth glassy  
9           appearance; and flue gas desulfurization (“FGD”) material which is produced by  
10          using limestone to control sulfur dioxide emissions from a coal-fired boiler. FGD  
11          material consists of calcium sulfite or calcium sulfate, which is commonly known  
12          as gypsum.

13  
14   **Q.    IS CCR REGULATED BY ANY GOVERNMENTAL AGENCIES?**

15   **A.**Yes. The U.S. Environmental Protection Agency (“EPA”) published its final rule  
16          for the Disposal of Coal Combustion Materials from Electric Utilities (“CCR  
17          Rule”) in the Federal Register on April 17, 2015. This final rule was the  
18          culmination of extensive study on the effects of coal ash on the environment and  
19          public health. The rule establishes that CCR is a non-hazardous waste and sets  
20          forth technical requirements for CCR landfills and surface impoundments under  
21          subtitle D of RCRA. It addresses the risks from CCR disposal which include

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1 leaching of CCR constituents into groundwater, blowing CCR into the air as dust  
2 and catastrophic failure of coal ash surface impoundments.

3  
4 **Q. DOES THE CCR RULE APPLY TO THE OPERATIONS AT THE SAN  
5 JUAN COAL PLANT AND THE SAN JUAN COAL MINE?**

6 **A.** No. Neither the San Juan coal plant nor the San Juan Coal Mine operate surface  
7 impoundments or CCR landfills. Therefore, the CCR Rule is not applicable at  
8 either of these facilities.

9  
10 **Q. HOW IS CCR MANAGED AT THE SAN JUAN COAL PLANT?**

11 **A.** CCR generated at the San Juan coal plant is placed into trucks operated by the  
12 San Juan Coal Mine, which transport the CCR back to the San Juan Coal Mine for  
13 mine reclamation purposes.

14  
15 **Q. IS CCR DISPOSED OF OR STORED AT THE SAN JUAN COAL PLANT?**

16 **A.** No. The CCR generated from the San Juan Coal Plant is used for surface mine  
17 reclamation at the San Juan Coal Mine. In other words, the CCR is returned to  
18 the former surface mine pits where coal was mined. Use of CCR in this manner  
19 actually reduces mine reclamation costs because not as much new fill material is  
20 required for mine reclamation. A portion of the CCR, in the form of gypsum, in  
21 the amount of approximately 200,000 tons per year is sold for beneficial use to a  
22 third party.

23

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1   **Q.    IS THE USE OF CCR FOR SURFACE MINE RECLAMATION AT THE**  
2       **SAN JUAN COAL MINE AN APPROVED USE OF THESE MATERIALS?**

3   **A.**    Yes. The San Juan Coal Mine is required to have a reclamation plan that is  
4       approved by the Energy, Minerals and Natural Resources Department  
5       (“ENMRD”) of the New Mexico Mining and Minerals Division. Use of the CCR  
6       from the San Juan coal plant is specifically approved for mine reclamation at the  
7       San Juan Coal Mine. The mine reclamation plan is intended to reconstruct as  
8       many of the pre-mining conditions at a mine site as practical. The reclamation  
9       plan includes approved post-mining land uses and topography, replacement of  
10      topsoil, the type of vegetation needed to meet post-mining land uses, and any  
11      special mitigation that may be needed to prevent toxic or acid-forming materials  
12      from affecting the long term viability of the final reclamation. Specifically, the  
13      CCR sent to the former surface mine pits for reclamation are placed in mine pits  
14      and covered with at least 10 feet of overburden, which is then covered with  
15      topsoil and seed. This process minimizes CCR contact with surface water. In  
16      addition, because the San Juan Coal Mine is located in an arid region, the  
17      opportunity for the CCR to be impacted from precipitation is lower compared to  
18      wetter climates. Monitoring equipment is placed above and below the CCR in the  
19      mine pits to detect any movement of water into the CCR. Mine operators are  
20      required to post bonds to ensure that mine reclamation is properly performed.

21

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**IV. RESPONSE TO NEE WITNESS HUTSON**

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**Q. HAS NEE WITNESS HUTSON PERFORMED ANY ANALYSIS OF POTENTIAL IMPACTS OF CCR ON THE ENVIRONMENT?**

**A.** NEE Witness Hutson does not indicate that he has performed any analysis of the potential impacts of CCR on the environment. NEE Witness Hutson indicates he has reviewed certain quarterly well monitoring reports and a Nitrate Investigation Report, all of which pertain to the San Juan coal plant and not the San Juan Coal Mine. He also reviewed a 2017 Scientific Investigations Report (“USGS Report”) prepared by the United States Geological Survey in conjunction with the New Mexico Mining and Minerals Division and Natural Resources Department. This report pertains to the San Juan Coal Mine.

**Q. DOES NEE WITNESS HUTSON EXPRESS ANY CONCERNS IN HIS TESTIMONY ABOUT CCR AT THE SAN JUAN COAL PLANT SITE?**

**A.** No.

**Q. DOES NEE WITNESS HUTSON EXPRESS ANY CONCERNS IN HIS TESTIMONY ABOUT CCR AT THE SAN JUAN COAL MINE?**

**A.** Yes. At page 6 of his direct testimony NEE Witness Hutson expressed a concern, which he characterizes as “admittedly in the future, but readily predictable” that CCR used for mine reclamation will eventually come into contact with groundwater and flow toward the Shumway and Westwater Arroyos, and on to



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1 the San Juan River. His support for this concern is the USGS Report which he  
2 says “produced a groundwater flow model of the site that predicted that it would  
3 take hundreds of years for pit water to recover and for contaminants that leach  
4 from the disposed CCR to travel to the arroyos.” NEE Witness Hutson states  
5 “Column leach tests of the CCR being placed in the mine pits and described in the  
6 USGS report showed that aluminum, arsenic, boron, barium, calcium, selenium,  
7 silicon, and vanadium, at a minimum, will leach from the waste when exposed to  
8 water.” This statement, however, should be put into context within the  
9 conclusions of the report.

10  
11 **Q. WHAT DOES THE USGS REPORT ACTUALLY SAY WITH REGARD**  
12 **TO THE CONCENTRATIONS OF CONSTITUENTS IN CCR OVER**  
13 **SUCH A LENGTHY PERIOD OF TIME?**

14 **A.** The USGS Report predicts the *soonest* that CCR particles in the disposal areas  
15 may reach the arroyos would be *1,320 years*, and the *earliest* projected arrival of  
16 CCR particles at the San Juan River is *2,400 years* after the cessation of mining  
17 (USGS Report, p. 87). In addition, the USGS Report (p. 35) actually cites the  
18 results of column leach tests conducted on CCR as demonstrating “low” leachate  
19 concentrations of aluminum, boron, barium, calcium, selenium, silicon, and  
20 vanadium. In other words, these constituents are not released from CCR in high  
21 concentrations when CCR are exposed to ground water. Given the already low  
22 concentrations anticipated by USGS to leach from the CCRs, and the travel  
23 distance from the mine site, these constituents are likely to attenuate to negligible

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1 concentrations in ground water well before reaching the arroyos and the San Juan  
2 River. Attenuation is a natural process which decreases concentrations of  
3 constituents through various chemical and physical mechanisms. For CCR  
4 constituents typical attenuation processes include chemical reactions, dilution, and  
5 sorption.

6  
7 **Q. ON PAGE 7 OF HIS DIRECT TESTIMONY NEE WITNESS HUTSON**  
8 **EXPRESSED CONCERN THAT CCR IS PLACED IN UNLINED PITS IN**  
9 **THE MINE. DO YOU SHARE THESE CONCERNS?**

10 **A.** No, not under the circumstances at the San Juan Coal Mine. Of course, the  
11 mine's regulator has approved the placement of CCR in the mine pits without the  
12 use of synthetic liners. In addition, when you consider that the USGS modeling  
13 estimates that the CCR will not contact groundwater for hundreds of years, the  
14 efficacy of a synthetic liner after such a passage of time is questionable. And  
15 again, the USGS Report (p. 35) states that column leach tests conducted on the  
16 CCRs show "low" constituent concentrations in leachate.

17  
18 **Q. DOES NEE WITNESS HUTSON PROVIDE ANY ESTIMATE OF THE**  
19 **CONCENTRATIONS OF CCR CONSTITUENTS THAT MAY REACH**  
20 **THE ARROYOS OR THE SAN JUAN RIVER?**

21 **A.** He does not. The significance of this is that the mere fact of the presence of  
22 certain constituents does not necessarily present any impacts or threat to human  
23 health or the environment. Nor has he provided baseline comparisons of water

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1 and soil constituents for the area in general. In fact, constituents such as selenium  
2 and calcium, that NEE Witness Hutson characterize as “contaminants,” are  
3 essential nutrients in the human diet and may be found naturally in trace  
4 quantities in water and soil samples. The same is true for sodium, chromium,  
5 selenium and calcium in the surface water sampling results on page 9 of the direct  
6 testimony of NEE Witness Hutson.<sup>1</sup> My point here is that the mere presence of  
7 these constituents does not equate to threats to health or the environment.

8  
9 **Q. WERE YOU PRESENT WHEN THE SAMPLE WAS TAKEN FOR**  
10 **WHICH THE RESULTS ARE SHOWN ON PAGE 9 OF THE DIRECT**  
11 **TESTIMONY OF NEE WITNESS HUTSON?**

12 **A.** I was. The sample was taken from the Shumway Arroyo during a site visit to the  
13 plant and mine on October 28, 2019. That is the only sample that was taken  
14 during the site visit and a duplicate sample was collected by PNM for independent  
15 analysis.

16  
17 **Q. DO YOU HAVE ANY COMMENTS ON THE RESULTS OF THE**  
18 **SURFACE WATER SAMPLE PRESENTED ON PAGE 9 OF THE**  
19 **DIRECT TESTIMONY OF NEE WITNESS HUSTON?**

20 **A.** Yes. NEE Witness Hutson presents the results of the sampling in a table and bolds  
21 the results that exceed the EPA Maximum Contaminant Levels (MCLs) or  
22 Secondary MCLs. This comparison is invalid for several reasons: 1) while

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<sup>1</sup> <https://www.nal.usda.gov/fnic/vitamins-and-minerals>

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1 MCLs are human health-based criteria, Secondary MCLs are cosmetic- or  
2 aesthetic-based levels that do not represent health concerns; 2) the EPA does not  
3 consider Secondary MCLs to be enforceable; 3) by conflating Secondary MCLs  
4 with MCLs, NEE Witness Hutson does not make it clear that no MCLs were  
5 actually exceeded, and Secondary MCLs were exceeded only for chloride, total  
6 dissolved solids [TDS], manganese, and sulfate.

7  
8 **Q. IS IT APPROPRIATE TO COMPARE THE RESULTS OF THESE**  
9 **SAMPLES WITH SECONDARY MCLS?**

10 **A.** No, it is inappropriate in this case to compare the sample analytical results to  
11 Secondary MCLs. Secondary MCLs are not included in New Mexico's surface  
12 water quality standards (20.6.4 NMAC) precisely because they do not represent a  
13 health risk and are not enforceable. When excluding comparisons to Secondary  
14 MCLs, as appropriate, it is apparent that all of the sampling results are below  
15 relevant New Mexico surface water standards. PNM Witness John Hale  
16 addresses these sampling results in more detail.

17  
18 **Q. ARE THERE OTHER CLAIMS BY NEE WITNESS HUTSON**  
19 **CONCERNING THE SURFACE WATER SAMPLING RESULTS THAT**  
20 **ARE INCORRECT?**

21 **A.** Yes. On page 10 of his direct testimony NEE Witness Hutson states that the  
22 surface water sample "can be characterized as a high TDS water with elevated  
23 concentrations of sulfate, sodium, chloride, boron, and lithium." New Mexico has

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1 no applicable surface water standards for TDS, sulfate, sodium, chloride, or  
2 lithium for this surface water. In addition, detected concentrations of boron were  
3 lower than the only applicable criterion (livestock watering) per 20.6.4.99  
4 NMAC. It is therefore inaccurate to characterize the sample as having “elevated  
5 concentrations” of these constituents.

6  
7 **Q. NEE WITNESS HUTSON STATES ON PAGE 10 OF HIS DIRECT**  
8 **TESTIMONY THAT IT IS COMMON TO HAVE ELEVATED LEVELS**  
9 **OF THESE CONSTITUENTS ON AND AROUND FACILITIES THAT**  
10 **HAVE BEEN IMPACTED BY COAL ASH. PLEASE ADDRESS THIS**  
11 **CLAIM.**

12 **A.** Again, there is no basis to support the claim that the sampling results establish  
13 that there are elevated levels of these constituents. In addition, there is no basis to  
14 conclude that coal ash had any impact on the results of the sampling. Aside from  
15 the fact that constituent concentrations in the surface water sample collected from  
16 the Westwater Arroyo were below all relevant surface water quality criteria, any  
17 valid attempt to draw conclusions on the potential impact of coal ash would  
18 involve taking another sample at a location upgradient of the suspected source to  
19 compare against, and collecting a sufficient number of samples from both  
20 locations over a period of time to yield statistically significant results. The results  
21 from the single NEE surface water sample do not demonstrate any impact to  
22 surface water quality from coal ash.

23

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1

**V. CONCLUSION**

2 **Q. WHAT ARE YOUR CONCLUDING OBSERVATIONS ABOUT CCR AND**  
3 **SAN JUAN COAL PLANT AND SAN JUAN MINE?**

4 **A.** CCR is not stored or disposed of at the San Juan Coal Plant. The CCR generated  
5 at the San Juan coal plant are loaded from a transport system into trucks that  
6 transport the CCR to the San Juan Coal Mine for surface mine reclamation, which  
7 is approved and regulated by the ENMRD. The USGS Report indicates that it  
8 will be a millennium or more before any CCR particles in the mine pits may  
9 impact surface water flows. During that time, the CCR constituents that may be  
10 transported from the mine site are likely to be reduced to negligible  
11 concentrations in groundwater well before reaching the arroyos or the San Juan  
12 River. The sampling results presented by NEE are all within any applicable  
13 surface water standards and do not provide any evidence that CCR has impacted  
14 the sampling results.

15

16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

17 **A.** Yes.

GCG#526353

Statement of Qualifications

# PNM Exhibit DKC-1 (Rebuttal)

Is contained in the following 8 pages.

# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION Team Project Role



Doug Cowin manages investigations and site remediation under various environmental programs, including RCRA, CERCLA (Superfund) and state-equivalent programs, Brownfields, Illinois SRP and LUST, and others. Much of his project work has focused on landfill closure, long-term groundwater monitoring design and data analysis, groundwater-surface water interface evaluation, and surface water and sediment quality assessment and remediation. Mr.

Cowin has extensive experience with investigation, evaluation, and cleanup of Superfund sites. In recent years he provided sediment technical expertise to: a group of responsible parties for a PAH-, PCB-, and metals-contaminated river system in the Milwaukee Area of Concern (AOC); another group of responsible parties for a PCB-contaminated creek and wetland system at a closed Superfund Site in Illinois; Environment Canada for a mercury-contaminated sediments AOC in Thunder Bay, Ontario; Transport Canada and Public Works and Government Services Canada (PWGSC) at an upland/sediments site in Victoria Harbour, British Columbia; an agricultural manufacturer for hexachlorocyclohexane (HCH) contaminated sediments in a canal and river system in Yalding, England; a former BASF facility located along the Detroit River in Wyandotte,

Michigan; a confidential Fortune 100 industrial firm for a site located on the Indiana Harbor Canal; and another confidential Fortune 100 industrial firm on the North Saskatchewan River in Alberta, Canada. In addition, he managed Phase 1 and 2 ESAs in Bangalore, India. Most recently, Mr. Cowin has been involved in developing strategies for the management of coal ash and combustion residuals from coal-fired power plants, and reviewing utility client portfolios of coal combustion residuals (CCR) impoundment facilities to optimize groundwater monitoring programs and achieve impoundment closure.

**EDUCATION**

- BS, Geology, University of Illinois, Champaign-Urbana, 1984

**REGISTRATIONS**

- Certified Professional Geologist – IL (#196 000672)
- Certified Professional Geologist – WI (#4588-13)
- National Ground Water Association (NGWA)
- Western Dredging Association (WEDA)
- Sediment Management Work Group (SMWG)

**PROFESSIONAL QUALIFICATIONS**

- OSHA 40-Hour HAZWOPER
- OSHA Site Supervisor
- OSHA 30 Hour Construction Program

<1 YEARS WITH BURNS & MCDONNELL

## CCR Facilities Portfolio Review | Confidential Client Wisconsin

**Lead technical consultant** for review of utility client groundwater monitoring programs for portfolio of CCR disposal facilities to develop optimized strategies for closure of landfills and impoundments. Identified approaches to mitigate turbidity in groundwater samples; improvements to monitoring well design, construction, and development; methods to recognize and address groundwater well integrity issues; improvements to groundwater sampling techniques; optimize well network design; and improvements to data quality and data analysis. Developed measures to improve closure plans, designs, and construction methods to minimize the need for groundwater corrective action.

## Rooftop Photovoltaic Solar Energy System\* | Spraying Systems Wheaton, Illinois

**Client account lead** and solar regulation program resource for a project to install a 350MW PV solar energy system on the rooftop of a large industrial manufacturing facility. The project entailed completion of a FS, evaluation of regulatory program





# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

and incentives, completion of a scope of work, plans and specifications, solicitation of bids, bid review and assistance in contractor selection, construction observation and preparation of a project binder to compile and summarize relevant information for posterity.

## CERCLA RI/FS Project\* | Milwaukee Solvay Coke & Gas Site

Milwaukee, Wisconsin

*Lead technical consultant* for a remedial investigation/ feasibility study of an area of the Kinnickinnic River located within the Milwaukee River AOC. Technical approach used forensic analysis of PAHs and metals to differentiate potential sources of contamination to the river, and assessment of impacts to upstream sediments to narrow the scope of the RI and obtain data to be used in the FS to evaluate background conditions. Phased investigation approach included review of pre-RI data to identify datasets of appropriate quality for use in RI; collection and submittal of sediment samples for chemical, geotechnical, biological analyses and geophysical survey; and review of pre-RI and RI data as well as data from a Great Lakes Legacy Act (GLLA) project immediately upstream of the project site to assess and constrain areas of the river subject to remediation under CERCLA. USEPA approved the RI Report in 2016.

## Sediment Investigation\* | Confidential Client

Edmonton Area, Alberta, Canada

Provided technical support to a confidential Fortune 100 industrial company located along the North Saskatchewan River near Edmonton, Alberta. Tasked with designing a sediment investigation approach to demonstrate the limited impact to the river from historical site operations.

## Technical Support\* | Confidential Client

East Chicago, Indiana

Provided technical support to a confidential Fortune 100 industrial company located along the Indiana Harbor Canal in East Chicago, Indiana. Briefed the company on the current condition of the canal, the status of Great Lakes Legacy Act (GLLA) activities on the canal, dredging operations to be completed on the canal by the U.S. Army Corps of Engineers Chicago District and provided input on company strategies.

## Post-Closure Technical Support\* | Confidential Client

Chicago Area, Illinois

Provided specialized technical consulting services to a confidential group of responsible parties for a PCB-contaminated river and wetland system located on a closed Superfund Site in the north-suburban Chicago area in Illinois. Services include statistical evaluation of site data relative to clean up levels to assess options for responding to 5-year review report that was issued by USEPA.

## Technical and Regulatory Support\* | Confidential Client

Southern California

Provided expert technical and regulatory consulting services to a confidential municipality regarding arsenic-laden sediments held within a reservoir used as a drinking water resource. Evaluations included chemical and physical characterization of



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

sediments, sediment pore water and surface water and preparation of a feasibility study to evaluate regulatory requirements and assess potential sediment management alternatives.

## Environmental Dredging Design | USACE Detroit District Howards Bay Site, Superior, Wisconsin

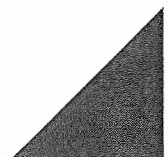
**Quality assurance manager** for an environmental dredging design to address approximately 83,000 cubic yards of sediments contaminated with lead, tributyltin and mercury in Howards Bay, Superior, Wisconsin. Project entailed coordination with USACE and other federal and non-federal partners to effect environmental dredging in tandem with USACE Strategic Navigation Dredging (SND) project. Services included contaminant mapping using Mining Visualization System (MVS); sediment data screening relative to landfill disposal criteria; preparation of 65% and 100% design reports; preparation of 65%, 95% and 100% plans and specifications; preparation of plans for debris management, dredge material dewatering, placement of dredged material and final grading of landfill; preparation of Engineering Considerations and Instructions for Field Personnel (ECIFP); preparation of construction cost estimates and construction schedule; coordination with Internal Technical Review team; and synthesis of environmental dredging design with USACE SND design. Project expanded to include permitting support.

## BASF South Works 9th Tee Dock Repair\* | City of Wyandotte Wyandotte, Michigan

The former BASF South Works facility located along the Detroit River in Wyandotte, Michigan, was redeveloped as a public golf course in the 1990s and is leased by the City of Wyandotte. Approximately 220 feet of bulkhead and underlying dock structure near the 9th Tee of the Wyandotte Shores Golf Course collapsed in the Spring of 2016. Objectives for the project were to limit golf course disruption, provide a sustainable short-term solution consistent with long-term needs of remediation programs and site management and identify a low cost, feasible, readily-implementable approach that will integrate with the planned adjacent Great Lakes Legacy Act (GLLA) sediment remediation project design in the adjacent Detroit River. Provided senior technical review of information / requirements for solicitation for design-build of installation of new sheet pile bulkhead. Bid solicitation included sheet pile and return walls enclosing the underdeck area on the upstream and downstream end of the affected area, filling of void space under the dock with stable fill to stabilize the shoreline in order to prevent future collapse of the historical slab overhanging the river and restoration of the shoreline fence and any golf course features and grass affected by the dock failure.

## Sediment Investigation Design\* | Syngenta Former Syngenta Corporation Facility, Yalding, England

Sediment within a canal, and a privately-owned marina and lock system on the canal, located just downstream of a former chemical manufacturing facility are contaminated with hexachlorocyclohexane (HCH). Surface water concentrations of HCH exceed European water quality standards in the Medway River downstream of the confluence with the canal. Developed a conceptual site model (CSM) and designed a program for characterizing sediment and surface water within the canal and river and provided senior technical leadership on multi-phase field investigations.



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

## Technical and Regulatory Support\* | BP

BP Former ECI Refinery, East Chicago, Indiana

Provided regulatory support to BP related to its ongoing engagement with USEPA Superfund and Great Lakes National Program Office (GLNPO) program staff for the Former ECI Refinery site. Assisted BP in navigating CERCLA regulatory requirements as well as and Great Lakes Legacy Act (GLLA) policy and program requirements. Led preparation of evaluations to monitor slope bank stability during dredging activities in the adjacent Lake George Branch of the Indiana Harbor Canal. Prepared a Remedy Selection Decision Document to identify and screen remedial alternatives to mitigate sheens and stabilize the canal bank. Provided review comments on GLNPO's RI/FS and Basis of Design Report for the Lake George Branch.

## Feasibility Study\* | Transport Canada/Public Works and Government Services Canada

Middle Harbour Fill Site, Victoria, British Columbia

Provided senior technical leadership for the preparation of a FS report to present the results of a comparative analysis of remedial options for soil, groundwater and marine sediments at the site. A summary report was prepared to describe the investigative approaches and findings of historical reports to date. Led the effort to identify and screen General Response Actions (GRAs) applicable to the contaminated media at the site, as well as the preparation of criteria and weightings for technologies evaluation based on effectiveness, implementability, relative cost and other pertinent criteria identified through discussion with Transport Canada and Public Works and Government Services Canada. After identifying technologies to be retained for consideration in assembling remedial options, a set of remedial options was identified for comparative evaluation for each media. The remedial alternative considered most appropriate for soil, groundwater and sediment was identified in the draft FS report.

## Petroleum Pipeline Repair Program\* | Confidential Client

Illinois and Wisconsin

*Technical advisor* for several petroleum pipeline repair projects located beneath rivers, streams or wetland areas along a petroleum pipeline that extends over several hundred miles in Illinois and Wisconsin for a confidential client. Provided technical leadership on designing methods to physically isolate and dewater the affected sections of pipeline to provide a minimum of 2 feet of dry access on each side the pipeline to allow welders to repair the pipeline in a controlled environment. Specific tasks included preparation of construction plans that include selection of shoring systems, dewatering analysis, water treatment design, sediment scour analysis (to identify appropriate backfill) and restoration design. Reviewed all permit applications and interfaced directly with agency personnel. The team assisted the client with land use agreements, provided construction oversight during repair and restoration activities and prepared construction completion reports for each pipeline repair project.

## CERCLA Post-Closure Monitoring Program\* | Confidential Client

Kalamazoo, Michigan

Led technical discussions with USEPA regarding development of an appropriate post-closure groundwater and landfill gas monitoring program for the Willow Boulevard / A-Site Operable Unit of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. The groundwater monitoring program used Vertical Aquifer Screening and rapid-turnaround sample



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

analysis to identify optimal depth intervals for installing monitoring well screens. Criteria are identified for scaling back the scope and frequency of post-closure monitoring depending on groundwater and landfill gas sample analytical results over time.

## Dam Removal Evaluation / Preliminary Design\* | City of Fremont Fremont, Ohio

**Project manager** to the City of Fremont, working with the USACE to fund and implement removal of the Ballville Dam under Section 506 of the Clean Water Act. The program required an analysis of alternatives and options for the City to influence the scope of the removal project. Consulting services were provided to assist in coordinating with the USACE to promote progress of the project and acquire appropriate data needed for the dam removal design, and to assist the City in evaluating whether it is most appropriate to pursue completion of the dam removal project via Section 506 or alternative funding options. Served as project manager for alternatives evaluation and scoping of a phased removal approach.

## CERCLA RI/FS Project\* | Allied Paper, Inc Kalamazoo, Michigan

**Project manager** for RI/FS of a 90-acre operable unit of the Kalamazoo River Superfund site located along Portage Creek. Site had land-disposal facilities containing more than 1 million cubic yards of PCB-contaminated paper residuals. In addition to developing, negotiating and implementing work plans to investigate sediment and other media for target contaminants of concern, provided quality assurance for interim actions which included design and installation of ½ mile of sealed-joint sheetpile along a creek to stabilize a landfill berm; removal of several hundred cubic yards of PCB-containing sediments from the creek floodplain and consolidation within landfill; design and construction of a landfill cap with landfill gas management system over PCB-waste disposal areas; design and construction of a groundwater recovery and treatment system; demolition of dozens of building used historically for paper manufacturing and recycling activities; and restoration of the upland and creek bank areas and reestablishment of native wetland vegetation.

## Removal of Dams and Impounded Sediments\* | Kalamazoo River Study Group (PRP Group)

Allegan County, Michigan

Key participant in the negotiation of the Administrative Orders for a CERCLA Time-Critical Removal Action (TCRA) of the former Plainwell Dam, Plainwell No. 2 Dam and associated impounded segments of the Kalamazoo River, located within the Kalamazoo River AOC. As part of the TCRA on the former Plainwell impoundment, prepared the conceptual design for removal of the Plainwell Dam and sediments, served as quality assurance manager for the design team and provided technical direction on the removal of the Plainwell Dam and Plainwell No. 2 Dam and associated sediments and floodplain soils historically impounded behind the dam.

## CERCLA Remedial Investigation/Feasibility Study\* | Plainwell Paper Company Plainwell, Michigan

**Project manager** for the RI/FS for the 12th Street Landfill OU of the Kalamazoo River Superfund site in Allegan County, for which a record of decision (ROD) was issued in October 2001. PCBs are contained in this paper residuals landfill located on the Kalamazoo River adjacent to the former location of the Plainwell Dam. Led field investigations, including the completion



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

of test pits, soil borings, groundwater monitoring wells and leachate head wells, with two rounds of groundwater and leachate sampling. Prepared the FS using a presumptive remedy approach to streamline the evaluation of remedial alternatives and identify the preferred containment remedy.

## Phase I Environmental Assessment\* | Confidential Client

Milwaukee, Wisconsin

Conducted a Phase I environmental assessment of a food manufacturing facility and 10 associated retail facilities located throughout greater Milwaukee area. The assessment included reviewing current operations with respect to generating, handling, managing and disposal of solid, hazardous and Toxic Substances Control Act (TSCA) wastes; as well as permitting and reporting requirements of the subject facilities to air, wastewater and stormwater regulations.

## Subsurface Investigation and Response Action\* | Confidential Client

Milwaukee, Wisconsin

Managed a subsurface investigation and response action for a manufacturing facility. The response action consisted of vacuum-enhanced groundwater recovery (VER) system to extract dense nonaqueous phase liquid (DNAPL), light nonaqueous phase liquid (LNAPL) and impacted groundwater and a soil-vapor extraction (SVE) system to address adsorbed-phase volatile organic compounds (VOCs) within the unsaturated zone. Long-term monitoring was initiated to confirm natural attenuation of dissolved chlorinated VOCs in groundwater and plume containment within the site boundaries.

## Feasibility Study/Pilot Study\* | Winnebago County

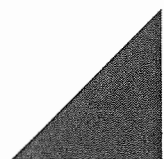
Winnebago County, Wisconsin

Completed a FS report that recommended a pilot test to evaluate the performance of a horizontal groundwater extraction well. The FS included development of a computer model to approximate the well capture zone and assess a site water budget. Implemented a pilot study in which a 1,600-foot-long horizontal well with a 1,200-foot screen was installed to assess groundwater capture. A monitoring network was installed to evaluate the hydraulic effect of the pilot well. Pump tests were conducted to determine the performance of the extraction well and assess the appropriate spacing of other wells. The site remedy included an expanded system of horizontal extraction wells installed per a design based on a groundwater flow model calibrated from the results of site investigations.

## Soil and Groundwater Investigation\* | NIPSCO

Northwest Indiana

**Project manager** for a soil and groundwater investigation of a 2.5-mile right-of-way to be used for the extension of a natural gas pipeline. The project required the completion of test pits and collection of soil and groundwater samples to determine environmental impacts. The client presented investigation results to the Indiana Department of Environmental Management (IDEM) to negotiate completion of the natural gas pipeline.



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

## RCRA Consulting Services\* | 3M

Hartford City, Indiana

Provided consulting services that required preparation for a USEPA RCRA preliminary assessment/visual site inspection (PA/VSI). Represented the facility during the inspection and assisted in follow-up correspondence with USEPA representatives.

## RCRA Closure of Hazardous Waste Storage Areas/Delisting SWMUs\* | Spraying Systems

Wheaton, Illinois

Assisted in preparing and implementing a work plan for closure of hazardous waste storage areas for a RCRA facility. Also, prepared and submitted to the USEPA Region 5 RCRA Enforcement Section technical arguments for delisting solid waste management units (SWMUs) identified in a RCRA preliminary assessment/visual site inspection (PA/VSI) report for a manufacturing facility.

## RCRA Field Investigations\* | NIPSCO

Northwest Indiana

Managed field investigations designed to support the delisting of dozens of Solid Waste Management Units (SWMUs) identified at a large RCRA-regulated NIPSCO facility in northwest Indiana.

## Negotiation of Soil and Groundwater Cleanup Objectives/Closure Report\* | Zexel Decatur, Illinois

Negotiated with the Illinois EPA regarding soil and groundwater cleanup objectives. Prepared a technical documentation report for closure of an aboveground tank formerly used to store hazardous waste at a Decatur facility. Study results determined the hydraulic conductivity of the uppermost hydrostratigraphic unit at the facility allowed for the application of alternative cleanup objectives to close the area, resulting in considerable client savings.

*\*denotes experience prior to joining Burns & McDonnell*



# DOUGLAS K. COWIN, PG - DEPARTMENT MANAGER, ENVIRONMENTAL REMEDIATION

(continued)

## Master Resume Additional Information (For Internal Use Only)

*This page is for internal use only and should be deleted before submitting to a client/teaming partner.*

### **Full Education:**

BS, Geology, University of Illinois – Champaign-Urbana, 1984

### **Registrations/Certifications:**

Certified Professional Geologist – IL (#196.000672)

Certified Professional Geologist – WI (#588-13)

### **Professional Associations:**

American Association of Ports Authorities (AAPA)

National Ground Water Association (NGWA)

Western Dredging Association (WEDA)

### **Training:**

40-Hour OSHA HAZWOPER

OSHA Site Supervisor OSHA

### **Awards:**

List awards

### **Global Practice:**

ENS

### **Office Location:**

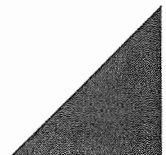
CHI

**Years with Other Firms:** 30

**Burns & McDonnell Anniversary:** 07/01/2019

**Email Address:** [dkcowin@burnsmcd.com](mailto:dkcowin@burnsmcd.com)

**Employee Number:** 40699



**BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION**

**IN THE MATTER OF PUBLIC SERVICE )  
COMPANY OF NEW MEXICO'S )  
ABANDONMENT OF SAN JUAN )  
GENERATING STATION UNITS 1 AND 4 )**

**Case No. 19-00018-UT**

**AFFIDAVIT**

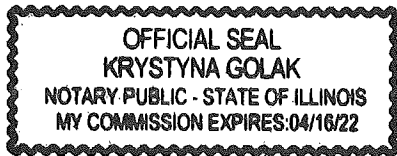
STATE OF ILLINOIS )  
 ) ss  
COUNTY OF DUPAGE )

**DOUGLAS K. COWIN, Department Manager, Environmental Remediation, Professional Geologist, Burns & McDonnell** , upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **Rebuttal Testimony of Douglas K. Cowin** and it is true and correct based on my personal knowledge and belief.

SIGNED this 13<sup>th</sup> day of November, 2019.

  
\_\_\_\_\_  
**DOUGLAS K. COWIN**

**SUBSCRIBED AND SWORN** to before me this 13<sup>th</sup> day of November, 2019.



  
\_\_\_\_\_  
**NOTARY PUBLIC IN AND FOR  
THE STATE OF ILLINOIS**

My Commission Expires: 4/16/2022