BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF NORTH DAKOTA

Coyote Creek Mining Company, LLC
Permit NACC-1302
Application

Case No. RC-13-850

AFFIDAVIT OF
DAVID BICKEL

STATE OF NORTH DAKOTA)
)SS.
COUNTY OF BURLEIGH)

David Bickel, being first duly sworn under oath, states as follows:

1. That I am a citizen of the United States of America, of legal age, residing at Bismarck, North Dakota.

2. That I am the owner of the consulting business, Bickel Consulting, LLC, Box 993, Bismarck, North Dakota 58502.

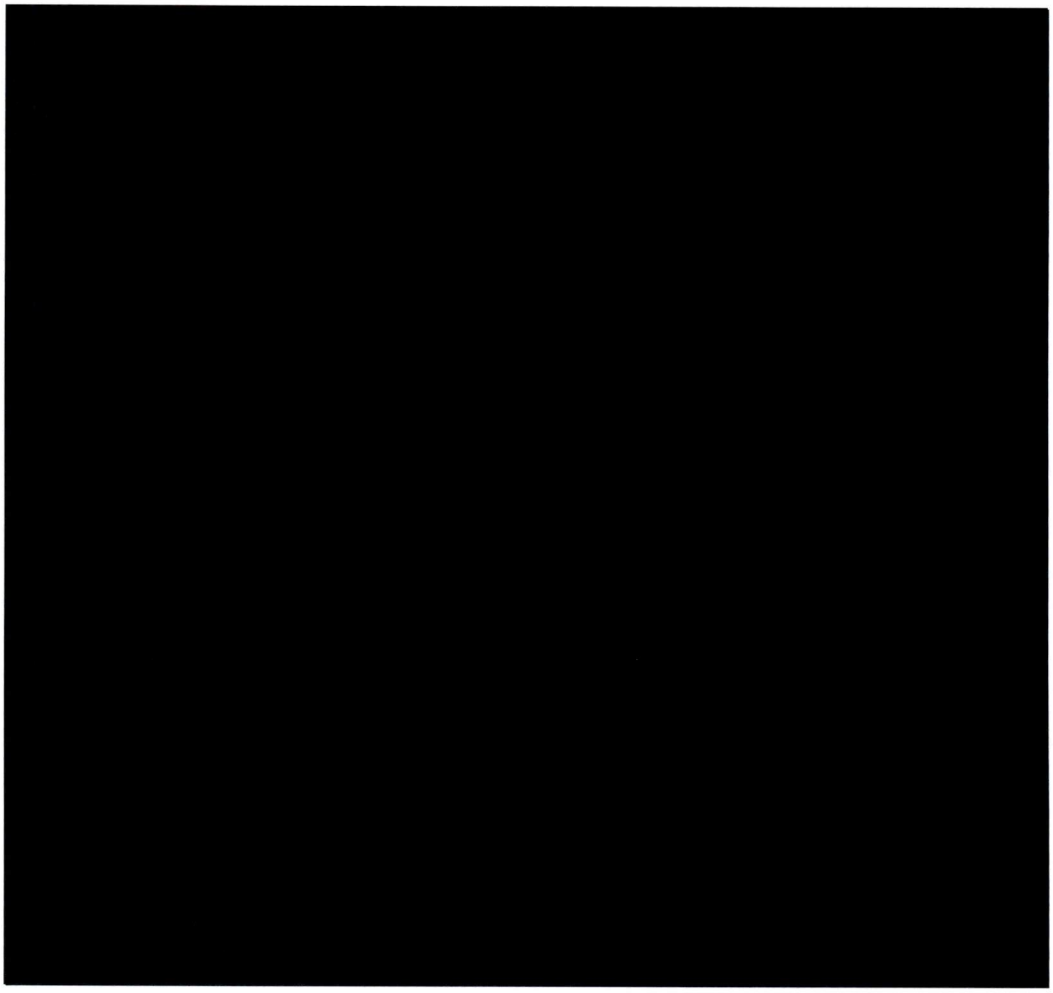
3. That I have a Bachelor's of Science and Master's Degrees from the University of Louisville in biology. My emphasis was in limnology, being the science of the physical, chemical, and biologic interactions in fresh water resources. In addition I have a Ph.D. in geology from Ohio State University.

4. That for 17 years, from 1989 – 2006, I served as the ground water and surface water hydrologist for the Reclamation Division of the North Dakota Public Service Commission. My duties included all aspects of surface and ground water hydrology with respect to coal mines in North Dakota as regulated by the Public Service Commission. My work at the Public Service Commission included

reviewing dozens of alluvial valley floor determinations submitted to the Public Service Commission for approval by staff.

5. I have made several presentations to the federal Office of Surface Mining, Office of Technology Transfer seminars and forums regarding alluvial valley floor (AVF) determinations and other hydrologic topics.

6. That I was retained by Coyote Creek Mining Company to prepare an AVF report for its new proposed Coyote Creek Mine. I commenced my work in May of 2012 and completed the report in August 2013.

7. 

8. The term "subirrigation" is understood to mean the supply of water to plant roots from an underlying alluvial ground-water system such that the vegetation is more productive than in other areas, and that the vegetation continues to grow during the moisture-stress portion of the growing season. Some low lying areas have greater vegetation productivity than adjacent uplands merely because of better soils, improved topography, snow drift accumulation, or occasional flood overflow. These areas are not considered to be subirrigated, and one of the tasks of an AVF study is to distinguish those valley areas whose productivity is a result of subirrigation, and those valley areas whose productivity is a result of water from another source. The water availability criteria for determining an AVF excludes areas that could be developed for subirrigation by establishing deep leaf alfalfa to tap ground water not used by native vegetation. Alluvial Valley Floor Identification Study Guidelines, Office of Surface Mining Reclamation and Enforcement, August 1983, page 11-9-10 (Casey Voigt Exhibit No. 15).

9. Environmental characteristics, agricultural uses and irrigation practices within stream valleys vary in different coal regions of the western United States. Therefore, the specific rationale used for identifying the role and character of alluvial valley floors vary from one region to the next. Draft Reconnaissance Maps to Assist in Identifying Alluvial Valley Floors, West-Central North Dakota, Office of Surface Mining Reclamation and Enforcement, 1985, page 1 (Casey Voigt Exhibit No. 2).

10. The two infrared maps sought to be introduced by Casey Voigt represent only a reconnaissance-level effort and identification of areas which are likely to meet a

definition of alluvial valley floor, and therefore are called potential alluvial valley floors. The intent of the mapping effort was to identify areas which might, at a future date, be designated as alluvial valley floors. Because this is only reconnaissance-level data, it is recognized that detailed data collected from a specific area is needed to more conclusively prove or disprove whether an AVF exists. (Casey Voigt Exhibit No. 2, page 1).

Because the environmental characteristics, agricultural uses and irrigation practices of stream valleys vary in different regions of the West, the specific rationale used for identifying or determining the role and character of an alluvial valley floor varies from region to region. A regional understanding of irrigation and agricultural practices is a pre-requisite to making assessments of alluvial valley floor status. (Voigt Exhibit No. 15, page II-1).

11. If certain stream valleys do not serve a special role in agricultural land use in a particular coal region, or if their role is not a function of water availability, then these streams are not alluvial valley floors within that particular region. (Voigt Exhibit No. 15, page II-13). The emphasis by Mr. Voigt's expert on remote imaging and other reconnaissance techniques focused on a relatively small flood plain area while overlooking regional agricultural practices and regional climatic conditions that are more central to understanding the alluvial valley floor status of Coyote Creek and other streams in the region.

12. [redacted]

13. The availability of Mr. Voigt's alfalfa fields on the Coyote Creek floodplain to produce crops is not the issue. The ability of deep rooted alfalfa to reach the saturated zone on the floodplain is also not the issue. Mr. Voigt and other ranch operations in the area are able to produce hay in uplands, as well as in floodplain areas.

14. The emphasis on 35-year old infrared reconnaissance level photography--rather than evaluation of regional agriculture and direct field observation as I have done, and was also done in the recent AVF studies of Coyote Creek for Dakota Westmoreland, is the difference between my testimony and that of Mr. Voigt's expert. Mr. Voigt's expert continues to postulate on the potential for an AVF, I have demonstrated that no AVF exists.

15. Approximately 30 years of data acquisition and field observation in west central North Dakota by Public Service Commission professionals, Office of Surface Mine professionals, professional environmental scientists; numerous AVF reports for BNI Coal's Center Mine, Falkirk Mining Company's Falkirk Mine, Dakota Westmoreland Company's Beulah Mine, The Coteau Properties Company Freedom Mine, and others have amassed a vast and voluminous data base. In

addition are the thousands of man hours conducted for on the ground field investigation in stream valleys in this region of North Dakota.

16. This data, which also includes decades of subsequent monitoring for mining permit compliance, have shown that early reliance on remote infrared imagery produced a false positive of AVF potential.

17. This data also shows that in this region of North Dakota the patchwork quilt pattern of cropland and hay land is present on the uplands as well as stream valleys. This demonstrates that no AVF exists on Coyote Creek, as determined pursuant to federal Office of Surface and Mining guidelines. (Voigt Exhibit #15, page II-13).

18. My determination, the determination of experts with the Public Service Commission and other outside experts, have all concluded that no AVF exists within the Coyote Creek floodplain.

19. 

[redacted]

Dated this 4th day of February, 2015.

David Bickel

STATE OF NORTH DAKOTA)
)SS.
COUNTY OF BURLEIGH)

Subscribed and sworn to before me this 26 day of February, 2015, by David Bickel.

BETH WALD
Notary Public
State of North Dakota
My Commission Expires Nov. 28, 2020
(SEAL)

Beth Wald

Notary Public
Burleigh County, North Dakota
My Commission Expires:

Exhibit A