

CAMECO RESOURCES
CROW BUTTE OPERATION
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February 12, 2019

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

40-8943

ATTN: Document Control Desk Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Potential Spill Impacting Surface or Groundwater

Dear Document Control:

On February 9, 2019, the Crow Butte Operation (CBO) Central Processing Plant (CPP) Control Room received a wet crossing alarm from the pipeline crossing of English Creek located between Wellhouse 46 and Wellhouse 46A in Mine Unit 8. The Operator responded to the location and inspected the area, finding a small water flow at the base of the berm which contains the pipeline crossing, on the downstream side of the berm. The Operator believed this flow was potentially the result of a pipeline leak in the English Creek crossing and responded by collecting a sample of the flowing water and shutting down the flow to the north wellfield. Additionally, the crossing was isolated from the main pipeline. The Plant Supervisor was contacted and responded to the site. The conductivity of the sample collected from the small water flow was determined to be 747 μmhos . The fluid in the pipeline is believed to be approximately 4000 μmhos , based on sampling of the fluid in the CPP. The Plant Supervisor consulted with the SHEQ Coordinator, the President, Cameco Resources, and the Restoration Manager. The decision was made to provide notification to NRC and NDEQ that a potential spill impacting groundwater or surface water had occurred. A voicemail was left for Mr. Ron Burrows at approximately 1900 on February 9, 2019. Flow in north wellfield was left off and the crossing remained isolated over the weekend.

On Monday, February 11, 2019, CBO continued to investigate the cause of the wet crossing alarm and the source of the small flow of water that was identified at the base of the crossing. Even though north wellfield flow was shut off and the crossing pipe was isolated from the main pipeline following the alarm, the small flow continued throughout the weekend, indicating that the source of the flow was not likely to be a pipeline failure. CBO successfully pressure tested the English Creek crossing pipe, demonstrating pipeline integrity. The nearest, downstream shallow monitor well, SM8-15, was sampled and no impact was indicated by the results of the sample. A small amount of fluid was collected from the secondary pipe at the English Creek crossing, and this fluid had a conductivity of 1161 μmhos , consistent with condensation from the primary pipe that was impacted by the bentonite contained in the secondary pipe, and significantly less than the conductivity of the fluid in the primary pipe (~4000 μmhos). A hole was made in the ice on Impoundment I-3, immediately upstream of the crossing, and a sample was collected. The conductivity of this sample was 715 μmhos . Based on this evidence, CBO concluded that the cause of the wet crossing alarm was condensate from the primary pipe in the English Creek crossing, trapped in the secondary containment pipe. The source of the small water flow at the base of the crossing is a small, natural, ephemeral spring, not a pipeline failure as was originally suspected and reported.

In order to provide context to CBO's response to this incident, it is important to understand the

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environment in which the incident occurred. This crossing was constructed on top of a small, pre-existing earthen dam in the upper reaches of English Creek, which forms Impoundment I-3. This riparian area contains the headwaters of English Creek, and there are numerous small, ephemeral springs throughout the drainage. The riparian area has a “swampy” quality, and is separated from the wellfield by a system of earthen berms to protect the environmentally sensitive area from the impacts of wellfield activities.

The pipeline crossing is the only such crossing of English Creek where pipeline crosses the protective berm system to provide redundancy in the pipeline network. The primary pipeline in the crossing is contained inside of a larger, secondary pipe, which contains the leak detection system. This system provides an audible and visual alarm to the CPP Control Room in the event that moisture is detected in the secondary pipe. The primary and secondary pipes were laid on top of the pre-existing earthen dam, then covered with sufficient dirt to provide protection from frost and other environmental factors.

CBO has attached several pictures at the end of this report to lend clarity to the environmental conditions described above.

If you have any questions or require any further information, please do not hesitate to call me at 1(308)665-2215 ext. 117.

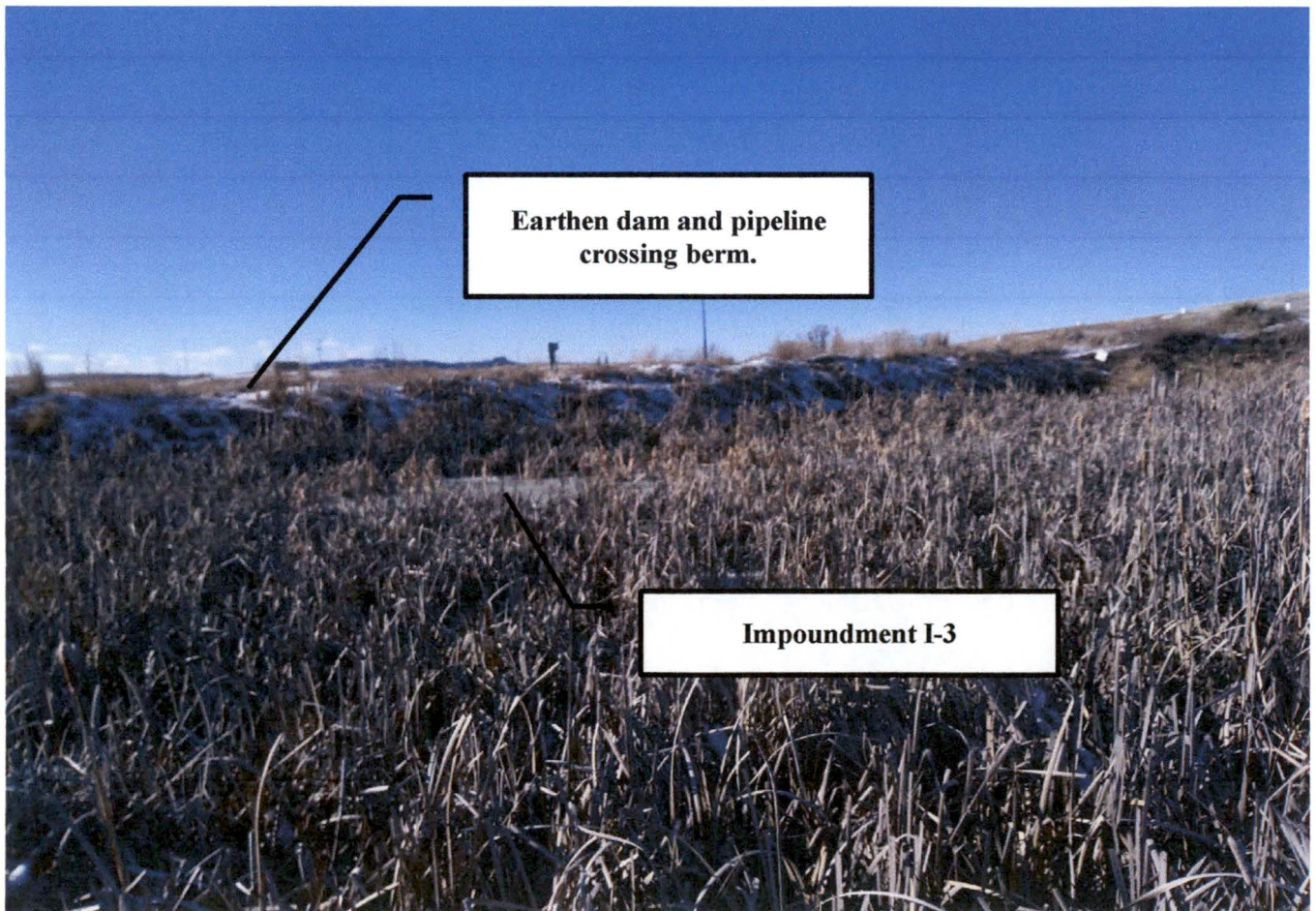
Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

Walter Nelson
SHEQ Coordinator

cc: CBO – File
Ron Burrows-Program Manager
ec: CR-Electronic File



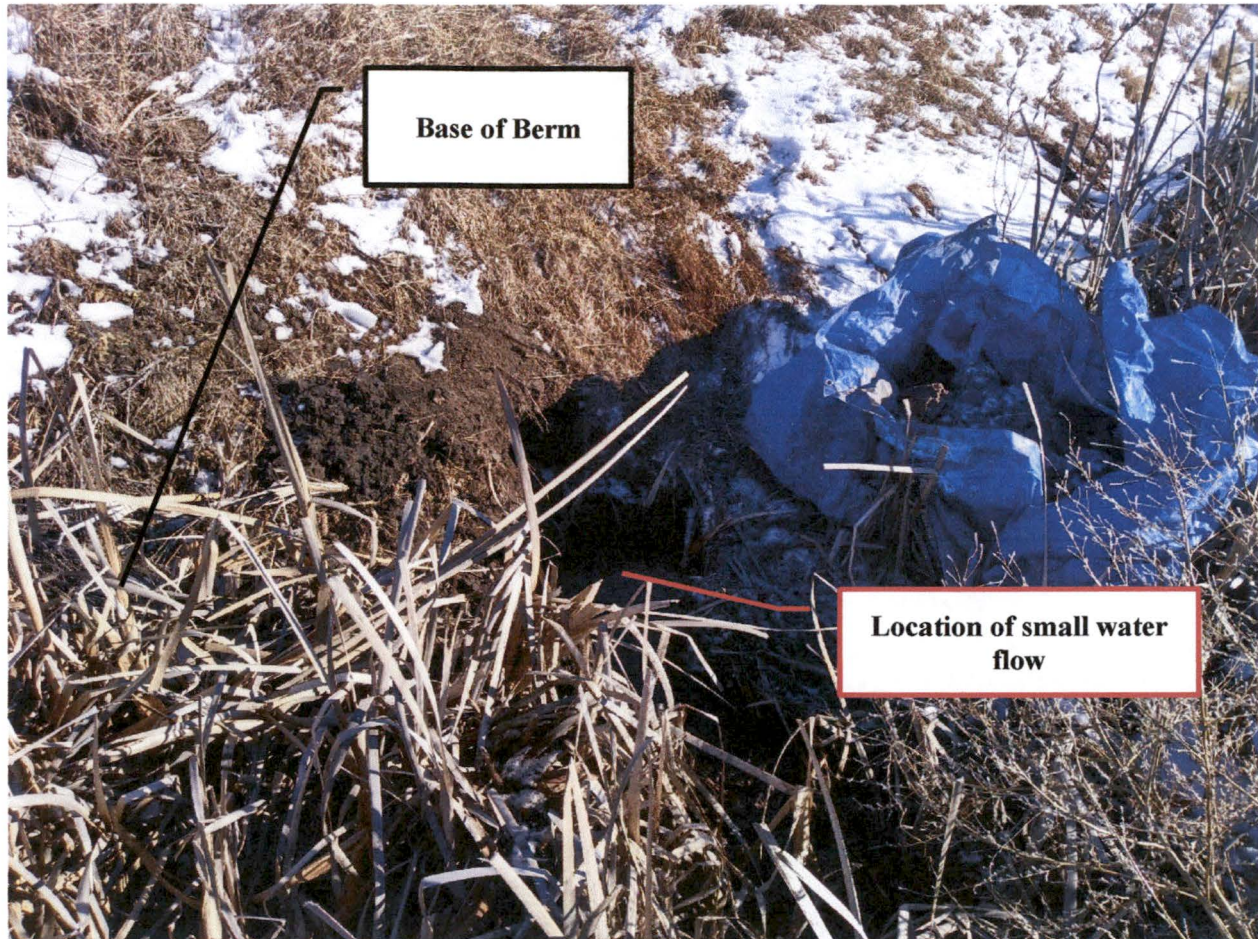
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This photo depicts the English Creek crossing from the upstream side.



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This photo depicts the small flow of water located on the downstream side of the berm after some of the soil around the flow had been removed to try to determine its source.