

CROW BUTTE RESOURCES, INC.

Technical Report Marsland Expansion Area



4.1.2.1 Airborne Uranium Emissions

One process area at the proposed MEA where small quantities of airborne uranium particulates have the potential for occurring is the resin transfer station, where minor spills may occur. The loaded IX resin is transferred to a truck for transport to the CPF for completion of uranium recovery. Spills can occur during resin transfer, and this is where exposure to uranium particulates is possible. All spills will be cleaned up as soon as possible to prevent the wet materials from drying and creating the potential for airborne particulates. Spills associated with resin transfer would involve the impregnated resin itself. The uranium is still bound to the resin at this stage, reducing the potential of employee exposure.

Maintenance activities on piping containing pregnant lixiviant could also result in the release of radon and uranium. Any spills or releases during maintenance of these potential sources would be cleaned up promptly to prevent drying of the material and creation of particulates subject to dispersion. All non-routine operations or maintenance activities where the potential exists for significant exposure to radioactive materials, and for which there is no SOP, require a Radiation Work Permit (RWP). The RWP ensures that the applicable radiological safety measures are used by the workers, and identifies the type of personnel monitoring that would be required for determining radiation exposure (i.e., internal and external radiation).

One stationary sample point would be established near the resin transfer station and sampled monthly for potential airborne uranium particulates. Monitoring activities for routine operations, maintenance activities, and spill cleanups are discussed in Section 5.7.

4.1.2.2 Wellfield Radon Emissions

Injection wells are generally closed and pressurized, but are periodically vented, releasing radon to the atmosphere. Production wells will be continually vented to the surface, but water levels will typically be low and radon venting will be minimal. All of the well releases will be outside of buildings and directly vented to the atmosphere.

Wellhouses are vented, with exhaust fans located in the wall directly opposite the entryway. This allows personnel to immediately verify that the vent is operational. In addition, all wellhouse vents are inspected daily. Direct release to the atmosphere from the wellhouses results in rapid dispersion of the radon emissions. For the majority of the year (except during extreme cold weather), the doors will remain opened when the buildings are accessed, allowing for additional ventilation of the building during entry by personnel.

Wellfield and wellhouse offgassing is not considered a significant source of radon or a safety issue. This statement is supported by monitoring at the current CPF. Radon individual exposure levels from 1994 through 2006 for Crow Butte employees ranged from 5 to 16 percent of the occupational exposure limit of 4 working level months. Exposure to radon is reported as working level months, a unit commonly used in occupational environments and refers to exposure to a set concentration of radon and its associated progeny. Radiological exposure pathways are discussed in Section 7.3.

4.1.2.3 Satellite Plant Radon Emissions

At the CPF, a combination of passive and active ventilation systems keeps radon and radon progeny levels ALARA. An evaluation of these systems is presented in Appendix Y. The

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