

**Table 5.7-1 Marsland Expansion Area Operational Effluent and Environmental Monitoring Plan**

Type of Sample	Sample Collection			Sample Analysis		
	Number	Location	Method	Frequency	Frequency	Type of Analysis
<b>AIR</b>						
<b>Particulates</b>	3	On MEA southern boundary	Continuous	Weekly filter change or more frequently as required by dust loading	Quarterly composites of weekly samples	Nat-Uranium, Ra-226, Th-230, Pb-210
	1	In the sector having the highest predicted concentration of airborne particulate	Continuous	Weekly filter change or more frequently as required by dust loading	Quarterly composites of weekly samples	Nat-Uranium, Ra-226, Th-230, Pb-210
	1	At or close to nearest residence(s) <sup>a</sup>	Continuous	Weekly filter change or more frequently as required by dust loading	Quarterly composites of weekly samples	Nat-Uranium, Ra-226, Th-230, Pb-210
	1	Control or background location West of MEA License Boundary <sup>a</sup>	Continuous	Weekly filter change or more frequently as required by dust loading	Quarterly composites of weekly samples	Nat-Uranium, Ra-226, Th-230, Pb-210
<b>Radon Gas</b>	6	Same locations as air particulates <sup>a</sup>	Continuous using RadTrak type DRNF	Continuous	Continuous	Rn-222
<b>WATER</b>						
<b>Groundwater</b>	One each	Wells (within license boundary and 2 km radius <sup>c</sup> <ul style="list-style-type: none"> <li>• Private wells</li> <li>• MEA Brule wells</li> <li>• MEA Ore Zone wells</li> </ul>	Grab	Quarterly	Quarterly	Dissolved and suspended Nat-Uranium, Ra-226, Th-230, Pb-210, Po-210
<b>Surface Water</b>	7 sampling points along the two ephemeral drainages	Surface waters passing through license area (subject to available flow) <sup>b, d</sup>	Grab	Quarterly	Quarterly	Suspended and dissolved Nat-Uranium, Ra-226, Th-230, Pb-210, Po-210

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Type of Sample	Sample Collection			Sample Analysis		
	Number	Location	Method	Frequency	Frequency	Type of Analysis
<b>VEGETATION</b>	3	Grazing areas near the site in different sectors that will have the highest predicted air particulate concentrations during milling operations	Grab	3 times during the grazing season	3 Times	Nat-Uranium, Ra-226, Th-230, Pb-210, Po-210
<b>FOOD</b>	3	Crops	Grab	Time of harvest or slaughter	Annually	Nat-Uranium, Ra-226, Th-230, Pb-210, Po-210
	3	Livestock				
<b>FISH</b>	1	Box Butte Reservoir	Grab	Semi-Annually	Twice	Ra-226, Pb-210
<b>SOIL AND SEDIMENT</b>						
<b>Soil</b>	6	At same locations used for collection of air particulate samples <sup>a</sup>	Grab (0 to 5 cm)	Annually	Annually	Nat-Uranium, Ra-226, Pb-210
<b>Sediment</b>	7 sampling points along each of two ephemeral drainages (total of 7 samples)	Same as surface water sample locations <sup>b, d</sup>	Grab (minimum of 3 samples for each sample composite)	Annually	Annually	Nat-Uranium, Ra-226, Th-230, Pb-210
<b>DIRECT RADIATION</b>						
<b>Continuous</b>	One each	Air monitoring stations <sup>e</sup>	Dosimeter	Continuous	Quarterly	Gamma exposure rate, using Sodium Iodide scintillometer

<sup>a</sup> Figure 2.9-2

<sup>b</sup> Figure 2.7-4

<sup>c</sup> Figures 2.2-4 and 2.9-3

<sup>d</sup> upstream and downstream

<sup>e</sup> The number of gardens planted within a 3 km area around the license boundary

N/A = not applicable

MEA = Marsland Expansion Area