

Maintenance of Environmental Quality Criterion and Indicators

This criterion on the maintenance of environmental quality covers the influences of the mining and energy sectors on the environment, including air, surface water, groundwater, and land. It covers three broad areas of economic activity:

- Extraction - minerals, oil, gas - on-shore and off-shore including all transportation on-site.
- Processing - oil refineries, minerals processing on site, base metal smelting, gold refining, etc.
- Transportation between extraction and refinery/smelter. This includes construction of transportation infrastructure, impacts of the infrastructure's existence irrespective of use (i.e. its footprint), impacts of routine transport activity, and impacts of accidents or spills. The transportation modes included are pipeline, truck, train, and ship. Products are considered to leave this indicators system as they leave the processing plant (refinery, smelter); thus transport of product to the consumer is not included.

Indicator Categories

The indicators below are divided into the following categories:

E 1. Ambient Environmental Indicators. Ambient environmental quality as affected by environmental releases or more generally by the economic activities included in the system, how activity is managed to reduce environmental impact.

E 2. Management of Extraction and Processing. . Management of economic activities included in the system, how activity is managed to reduce environmental impact.

E 3. Reclamation/Remediation/Restoration of all Extraction Sites (Minerals, Oil, Gas).

E 4. Environmental releases, including routine releases into different environmental media and accidental releases.

Note: All the environmental indicators considered by the SMR became priority indicators

E 1. Ambient Environmental Indicators

E 1.1 Compliance status of mines and oil and gas with respect to water quality, under CWA or delegated state/tribal program, by 5th code hydrological unit watersheds; Number of 5th code hydrological unit watersheds with mines and oil and gas

Assigned to Carol Cox Russell; written description of 5th code hydrological unit needed – FS DC office (Bruce Ramsey)

E 1.2 Number of permitted extraction or processing sites where water withdrawal causes environmental problems, relative to total number of permitted sites.

This should capture issues about water production and salinity raised under EI 1.1
Assigned to Bob Green (will start)

E 1.3 Ambient Environmental Quality -- Number of permitted extraction sites where groundwater is contaminated / total number of permitted sites

June 02 note - see if we can find a way to rework this so it becomes a compliance indicator rather than an ambient one.

Assigned to Carol Cox Russell and Richard Miller (OSM)

E 2. Management of Extraction and Processing

E 2.1 Water use, recycling and discharge - Water use efficiency
Sectoral water use, consumption, discharge, loss to evaporation, reinjection.

This makes sense so far for mining, but has not yet been worked out for oil and gas.
Assigned to Lorie Wagner for contact info and data (start it)

E 3. Reclamation/Remediation/Restoration of all Extraction Sites (Minerals, Oil, Gas)

E 3.1 Area reclaimed/remediated/restored relative to reclamation/remediation/restoration scheduled in the permit or as required.

Assigned to Bob Green

E 3.2 Pace of abandoned mine and other extraction sites creation and reclamation/remediation/restoration.

Assigned to Carol Cox Russell

E 4. Environmental Releases

E 4.1 Quantity of release into the environment/Quantity of output

Assigned to Carol Cox Russell