STATE SUPERFUND UNIT (SSU) MAP GUIDANCE

The General Guidance below should be followed for all maps and/or figures submitted to the SSU. The map-specific guidance applies as necessary based on the scale of the project, site-specific conditions, and level of documentation requested by the State Superfund Unit.

General Guidance:

All submitted maps should include:

- North arrow
- Date created
- Graphic scalebar
- Township, range, section, and quarter-section
- Latitude/longitude expressed in decimal degrees on the WGS84 datum.
- Legend identifying features not directly labeled on map

All maps should have an appropriate background reference layer (i.e. USGS Topo, aerial photograph, site/facility feature schematic, etc.) for easy visual reference of located features. Name, date, and source of background image should be identified.

If the map includes a numbered coordinate grid, the coordinate system and datum of the grid should be identified. The method used to determine all coordinates plotted should be identified (such as type of survey conducted, or interpolation method used).

All maps and map labels should be legible and at a scale appropriate to easily read displayed information

- Map sizes typically submitted are 8½" x11" and 11"x17".
- If the map contains a large amount of detail, 24"x36" can be used. Work with SSU contact prior to printing this size.

Facility Location Map:

Map should depict facility location with respect to the surrounding area.

- Map should be based on a USGS 7.5' Quadrangle
- Surface water bodies and topography should be identified

Facility Plan-View Map:

Map(s) should depict the entire site/facility, including:

a) Property boundaries,
b) Buildings/structures,
c) Above or below ground tanks/utilities,
d) Surrounding, adjacent and/or impacted properties,
e) Potential source areas,
f) Potentially impacted receptors,
g) any other pertinent features (include CECRA Facility Boundary if boundary has been determined).

Sample Location Map:

Map(s) should show the location of all sampling points. Prepare separate maps for each different type of sampling, including:

a) Monitoring wells/piezometers,
b) Surface soil sampling,
c) Soil borings,
d) Soil gas and groundwater survey probe locations,
e) Any other sample types, as applicable.

Additionally, one map should overlay all labeled sample locations on a base layer with highest quality or most current color orthophoto imagery, along with georeferenced Sanborn map information and/or any other historic blueprint/map information to assist identification of historic sources and operations.

Potentiometric Surface Map:

Map(s) should depict the potentiometric groundwater surface in the vicinity of the facility. Arrows should be included to indicate groundwater flow direction(s). Elevation should be expressed as feet above Mean Sea Level.

Data such as static water level elevations at control points should be depicted on the map. Control points should be labeled.

Geologic Cross-Section Figure:

Figure(s) should include geologic cross-sections that show site stratigraphy through the full depth of water-bearing units that may be potentially impacted, including any underlying confining layer. The cross-sections should be oriented longitudinally and transversely with respect to the orientation of soil and/or groundwater contaminant plumes. The potentiometric surface should be depicted on each cross-section.

Prepare a minimum of three cross-section figures per facility, with at least one cross-section parallel to groundwater flow direction, and at least two cross-sections perpendicular to flow direction and/or skewed to align with actual well/boring sample locations.

Figures should indicate features that depict the subsurface of the facility, including:

a) Contaminant location(s),
b) Monitoring wells (including screened intervals),
c) Subsurface conduits/piping, etc.,
d) Any other pertinent features, as applicable.

Soil Contamination Map:

Isoline map(s) depicting soil analytical data. It may be necessary to prepare a separate map for each contaminant and/or suite of contaminants, as well as total contamination. Maps should include contaminant concentration unit labels.

Each map will have at least three isolines. The following should be shown and clearly labeled:

- Isoline identifying the area where contaminant exceeds sampling method detection limit
- Isolines identifying the area where contaminant exceeds each applicable standard and/or

screening level (i.e. RBSL, RSL)[1]
- Isoline(s) identifying areas of increased concentrations

Groundwater Contamination Isoconcentration Map:

Isoline map(s) depicting the extent and degree of groundwater contamination. It may be necessary to prepare an isoline map for each contaminant and/or suite of contaminants, as well as total contamination. The map should include contaminant concentration unit labels.

Each map will have at least three isolines. The following should be shown and clearly labeled:

- Isoline identifying area where contaminant exceeds the required reporting value identified in DEQ-7[1]
- Isolines identifying where contaminant exceeds each applicable standard and/or screening level (i.e. MCL, DEQ-7, RBSL)[1]
- Isoline(s) identifying areas of increased concentrations

Separate-Phase Product Isoline Map:

If separate-phase product is encountered, a map depicting product extent and thickness should be provided. The map should include product thickness labels.

Include at least three labeled isolines for each separate-phase product

- Isoline identifying the edge of measurable product thickness
- At least two isolines to demonstrate range of thickness encompassed by the plume (more as needed to identify areas of increased thickness).

Facility Contaminant Affected Area Map:

Map of all isoline areas compiled for all contaminants and all media (including surface and subsurface) at facility. Contaminant source locations should be identified, as well as other pertinent features (include CECRA facility boundary if a CECRA facility).

- The map should use color-coding to distinguish different contaminant areas/media.
- All sample locations should be included and clearly labeled.

[1] DEQ-7 - Montana Numeric Water Quality Standards
MCL - EPA Maximum Contaminant Levels
RSL - EPA Regional Screening Level
RBSL - Montana Tier 1 Risk Based Screening Levels