



ENVIRONMENTAL SITE INVESTIGATION REPORT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

Division of Waste Management and Division of Water Quality

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The following outlines the format for reports of environmental release investigations. The North Dakota Department of Environmental Quality (Department) has the option of rejecting reports which are considered incomplete or inadequate.

A final report must be submitted to the Department. The report should be brief and easy to read. The report must include, at a minimum, the following elements:

A. Introduction

Purpose for the investigation, when and by whom the work was authorized, the scope of services for the project, a brief summary of the report, and the dates the work was performed.

B. Background Information

B.1 Information about the site (history, features, settings, etc.).

B.2 Data on the nature and estimated quantity of the release.

B.3 Regional geology and hydrogeology.

B.4 All known groundwater quality and public and private groundwater usage.

B.5 Site location maps.

Include a copy of the relevant portions of a USGS topographic map showing the site location. Include the legal description using township, range, section, and quarter sections.

C. Assessment Information

C.1 Site-specific geology and hydrogeology.

C.2 Site-potentiometric surface map.

The map must show the direction of groundwater flow for the shallowest aquifer.

C.3 Potentiometric data for the site should be listed in tabular form. This data must include well ID, date, ground elevation, groundwater elevation, riser elevation (top of casing), depth to groundwater, and total depth of well

casing. Elevations must be tied to an existing surveyed benchmark or other point of known elevation. Exceptions must be approved by the Department.

C.4. Site assessment map.

- a. Include a scaled surveyed map that shows structures, USTs and ASTs and associated piping and dispensers, and the location of all sampling points and monitoring wells.
- b. Site vicinity map that shows the current use of the site and adjacent land (agricultural, residential, commercial, industrial). A photocopy of the applicable sections or summary of the local land use ordinances must be provided. If a copy cannot be obtained, name, phone number, and business address of the appropriate authorities must be provided with a summary of the relevant information.

C.5. Receptor survey results

- a. Field screening results. Screening results should not be reported in units of absolute concentrations unless the screening tool is calibrated to the COC.
- b. Receptor map that shows the locations of all public and private wells within 1000 feet.
- c. A scaled map depicting the location of the facility, all impacted properties, all properties located adjacent to the impacted properties, and any property on which a permanent monitoring well was installed as part of the investigation. The property owner names, addresses, and phone numbers must also be included.
- d. A scaled site map showing all aboveground and underground structures, underground utilities (electrical, water, storm sewer, sanitary sewer, natural gas, telephone, cable TV, vaults, manways, etc.) within a 250 ft. radius of the extent of the plume of the facility to the nearest one foot. The depth must also be identified.
- e. Other relevant maps that are not listed above.

C.6. Contaminants of concern (COC) site map.

The known and estimated horizontal extent of COC in the soil and groundwater. Analytical values for the COC must be indicated at each sampling point on a separate map. A separate map must be used for each relevant medium.

C.7. Geologic cross-sections.

Two cross-sections showing the lithology and stratigraphy of the site and the known and estimated vertical extent of COC in the soil and groundwater. One cross-section must include the source area. The cross-sections should intersect at approximately 90 degrees, if possible.

C.8. Analytical data.

- a. Separate tables for soil and groundwater analytical data.
- b. For soil data at fuel contamination sites, tables must be made summarizing the analytical readings of TPH (Gas) and TPH (DRO) from each soil boring. A separate table for results of field monitoring (i.e., PID readings) from each sampling point in the soil borings must also be created.
- c. For groundwater data at fuel contamination sites, tables must include BTEX, TPH (Gas), TPH (DRO), and MTBE values and free product thickness, if present.
- d. Other tables must also be created for COC if the COC values are consistently above detect levels.
- e. A table showing the natural attenuation parameters for each monitoring well where applicable.

C.9. Aquifer evaluation results.

If an aquifer evaluation is performed, the report must include a discussion of the aquifer evaluation and results.

D. Conclusions

Summarize the findings of the investigation.

E. Recommendations

Recommendations for an additional investigation or corrective action at the site. Recommendation for no further action must be supported by the investigation findings.

F. Signature and Date

The report must be signed by the author and dated.

G. Acronyms

AST – Aboveground Storage Tank
BTEX – Benzene, Toluene, Ethylbenzene, & Xylene
COC – Contaminants of Concern
DRO – Diesel Range Organics
MTBE – Methyl *tert*-Butyl Ether
PIC – Photo-ionization Detector
TPH – Total Petroleum Hydrocarbons
USGS – U.S. Geological Survey
UST – Underground Storage Tank

Regulatory Agency

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Regulatory Agency

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