

ATTACHMENT 3-1
REMEDIAL ACTION REPORT CHECKLIST

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Nebraska Department of Environmental Quality

Remedial Action Report Checklist

This checklist should be used when preparing a Remedial Action Report (RAR), which is the applicant's final product of the voluntary cleanup process. This checklist serves two purposes: First, it helps the applicant to develop an appropriate RAR, both in terms of content and format. Second, it supports NDEQ's review of the RAR after the report is received. This checklist is not an all-inclusive list of the information that may be necessary to develop an appropriate RAR. This list is intended as an aid to assist in developing the RAR. NDEQ may request additional data, and some categories of data may not be applicable to every RAR.

Please specify in the boxes opposite each item whether the required information is present (Y), absent (N), or not applicable (NA) and indicate the page number within the RAR where the information is included. Specific information for elements in the RAR are included. Additional general information for the document, including specific formats for tables and figures, are listed at the end of the checklist. Acronyms used throughout the checklist are also included at the end of the checklist.

Applicant Name _____

Site or Property Name _____

ELEMENT-SPECIFIC INFORMATION

INFORMATION	Y/N/NA	DOCUMENT PAGE NUMBER
3.1 EXECUTIVE SUMMARY		
➤ Summary of the RAOs at the site		
➤ Explanation of how and why the RAOs have been met		
➤ Remedial activities completed		
➤ Deviations from the remedial activities described in the RAP		
➤ Future land use at the site and any institutional controls		
➤ Any on-going monitoring at the site		
3.2 SITE SETTING, HISTORY, AND OPERATIONS		
➤ Property name and identification		
• Facility name		
• Street address		
➤ Owner and contractor information		
• Applicant, owner, or designated point of contact, with contact information		
• Contractors or consultants to the applicant or owner, with contact information		
➤ Location and physical setting		
• Location map based on a USGS 7.5-minute quadrangle, with a reference to the quadrangle name and date		
• Brief description of the physical setting, including topography, geology, hydrogeology, and climate		
➤ Operational history		
• Summary of previous ownership, business operations, and dates that the site was active		
• Summary of historical environmental incidents, spills, or releases of hazardous constituents		
➤ Findings of the investigation as reported in the Remedial Action Plan		
• Description of the horizontal and vertical extent of contamination before remedial activities		
• Potential receptors identified		
• Remedial action proposed in the Remedial Action Work Plan portion of the RAP		
➤ Summary of the site's VCP history		
• Date that the application was submitted and date approved		
• Date that the RAP was submitted and date approved		
• Date that remedial activities began		
• Date that remedial activities were completed		
• Dates of any other significant events in the remedial action		
3.3 REMEDIAL ACTION OBJECTIVES		
➤ Statement and explanation of RAOs for the site		
3.4 OVERVIEW OF REMEDIAL ACTIONS		
➤ Table showing chronology of events and remedial actions taken at the site		
➤ Description of soil excavation and removal actions		

ELEMENT-SPECIFIC INFORMATION

INFORMATION	Y/N/NA	DOCUMENT PAGE NUMBER
<ul style="list-style-type: none"> • Extent and depth of soil excavated 		
<ul style="list-style-type: none"> • Total volume of soil excavated and removed 		
<ul style="list-style-type: none"> ➤ Description of in situ treatment of soil 		
<ul style="list-style-type: none"> • Volumes of treatment chemicals used, materials discharged, and contaminants removed 		
<ul style="list-style-type: none"> • Total volume of soil treated 		
<ul style="list-style-type: none"> ➤ Figure showing areas of excavated soil, treatment points, and/or radius of influence of treatment systems 		
<ul style="list-style-type: none"> ➤ Description of active groundwater remediation, including 		
<ul style="list-style-type: none"> • Maps of cross-sections showing treatment points or radius of influence of the treatment system 		
<ul style="list-style-type: none"> • Volumes of treatment chemicals used, water discharged, and contaminants removed 		
<ul style="list-style-type: none"> • Total volume of groundwater treated 		
<ul style="list-style-type: none"> ➤ Estimated volumes of contaminants degraded or removed by passive groundwater remediation (e.g., monitored natural attenuation) 		
<ul style="list-style-type: none"> ➤ Description of other traditional or innovative remedial technology used at the site 		
<ul style="list-style-type: none"> • Total volume of water or soil diverted, treated, and/or disposed 		
<ul style="list-style-type: none"> • Total volume of contaminants removed 		
<ul style="list-style-type: none"> • Maps and cross sections showing locations of excavation, treatment, monitoring, and/or sampling points 		
<ul style="list-style-type: none"> ➤ Description of handling and disposal of RDW, including 		
<ul style="list-style-type: none"> • Volume of RDW generated 		
<ul style="list-style-type: none"> • Methods used to characterize RDW 		
<ul style="list-style-type: none"> • Procedures to control or contain RDW onsite 		
<ul style="list-style-type: none"> • Methods of transporting, treating, and disposing of RDW 		
<ul style="list-style-type: none"> ➤ Photographic logs of remedial activities 		
<ul style="list-style-type: none"> ➤ Copies of relevant property deeds or other documentation of institutional controls implemented 		
3.5 COMPLIANCE WITH REMEDIAL ACTION OBJECTIVES		
<ul style="list-style-type: none"> ➤ Narrative explanation of why analytical results show that the RAOs have been achieved 		
<ul style="list-style-type: none"> ➤ Figures and maps showing: <ul style="list-style-type: none"> • Sample locations • Sample depths 		
<ul style="list-style-type: none"> ➤ Tables summarizing: <ul style="list-style-type: none"> • Sample collection methods • Sample collection dates 		
<ul style="list-style-type: none"> ➤ Description and illustration of post-remedial action conditions <ul style="list-style-type: none"> • Table summarizing maximum concentrations of contaminants at the site after remedial activities 		
<ul style="list-style-type: none"> • Potentiometric surface maps 		
<ul style="list-style-type: none"> • Isoconcentration maps and cross sections of the contaminant plume(s) at the site after remedial actions 		

ELEMENT-SPECIFIC INFORMATION

INFORMATION	Y/N/NA	DOCUMENT PAGE NUMBER
• Free-product isopach maps at the site after remedial actions		
➤ Reference to soil boring and monitoring well construction logs		
➤ Table containing results of field screening		
➤ Summary of analytical results and reference to laboratory reports for soil and groundwater sampling		
• Chemicals of concern identified		
• Maximum concentration of contamination		
• Background concentrations of chemicals of concern		
• Target compounds		
• Concentrations of compounds detected		
➤ Summary of QA/QC results and reference to attached lab reports		
➤ Reference to table of data validation qualifiers		
➤ Updated Conceptual Site Model (CSM)		
• Description of the updated CSM		
• Description of intended land use		
▪ Location and use of buildings		
▪ Location and depth of below-grade structures or basements		
▪ Description of any potential sensitive populations		
• Location of any remaining contaminants and illustration or description of methods used to contain contamination		
• The impacts that moving of waste may have on human health and the environment		
• Explanation of why/how all exposure or migration pathways at the site have been eliminated		
➤ Reference to previously submitted startup reports and/or monitoring reports		
➤ Other information as appropriate for the implemented remedies to verify that RAOs have been achieved		
3.6 DEVIATIONS FROM THE RAP		
➤ Description and rationale for any changes to the proposed remedial action as described in the RAP		
➤ Attached copies of any correspondence between NDEQ and the applicant concerning changes to the remedial approach		
➤ If no deviations were necessary, state so		
3.7 DEVIATIONS IN PERFORMANCE MONITORING		
➤ Explanation of changes to the monitoring strategy as outlined in the RAP (if necessary)		
• New or modified monitoring objectives		
• New or modified methods		
• Maps showing new or modified monitoring locations		
• Cross sections/diagrams showing new or modified subsurface monitoring and sampling intervals		
• Description of new or modified monitoring schedule		
• Description and tables of new or modified monitoring parameters		
➤ If no deviations were necessary, state so		

ELEMENT-SPECIFIC INFORMATION

INFORMATION	Y/N/NA	DOCUMENT PAGE NUMBER
3.8 APPENDICES		
➤ As-built diagrams		
• Subsurface structures – tunnels, parking garages, basements, etc.		
• Remedial systems – blowers, piping, utilities, towers		
• Green space, recreational space – picnic areas, gazebos		
• Buildings, surface parking lots		
• Sensitive use areas – Day care, schools, nursing homes		
➤ Maps of site features		
• Ponds		
• Parking lots		
• Buildings		
• Subsurface structures (e.g. parking garages, basements, tunnels)		
• Green space		
➤ Copies of legal documents required for institutional controls		
➤ Other information to verify that RAOs have been met		
• Soil boring and monitoring well construction logs		
• Complete results of field screening		
• Analytical reports for soil gas, groundwater, or soil samples, including quality assurance/quality control results		
• Data validation and usability summary		
• Copies of log books, field sheets, chain-of-custody forms, or other relevant supporting documentation.		

ADDITIONAL REQUIREMENTS

REQUIREMENTS	Y/N/NA
➤ Tables	
• Tables are numbered and titled	
• All abbreviations used in the table or table title are spelled out in table footnotes	
➤ Figures	
• Horizontal and vertical scales on cross-sections	
• Horizontal scale on maps	
• Orientation labels (i.e., north arrow) on maps	
• Date, title, and source of base map	
• Cross-section control points shown on an associated map, with reference to map on cross-section	
• Isoconcentration or potentiometric surface maps compiled from a single sampling event and labeled with the appropriate date	
• All features on maps clearly labeled	
• Site boundaries clearly labeled	
• Photographs scanned and printed at high resolution (300 dpi scanned, 600 dpi printed), preferably in color, including aerial photographs	
OTHER	
➤ Four complete copies of the document submitted to NDEQ, at least one copy in full color	
➤ All pages numbered, including figures, tables, and appendices	
➤ Chemicals identified by consistent names throughout document	
➤ Explanations of inconsistent chemical names in laboratory reports or previous investigations	
➤ All abbreviations spelled out for first use or included in list of abbreviations	

ABBREVIATIONS

CSM	= Conceptual site model
dpi	= dots per inch
N	= Absent/not included
NA	= Not applicable
NDEQ	= Nebraska Department of Environmental Quality
QA/QC	= Quality assurance/quality control
RAO	= Remedial action objective
RAP	= Remedial Action Plan
RAPMA	= Remedial Action Plan Monitoring Act
RAR	= Remedial Action Report
RDW	= Remediation derived waste
USGS	= U.S. Geological Survey
VCP	= Voluntary Cleanup Program
Y	= Present/included