

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FACILITY INVESTIGATION CHECKLIST**

Facility Name: _____
 Facility Identification Number: _____
 Facility Address: _____
 Application Revision Number: _____

Facility Contact: _____
 Permit Writer(s): _____
 Date Application Received: _____
 Date Review Completed: _____

REQUIREMENT	Work Plan	Report
GENERAL INFORMATION		
<ul style="list-style-type: none"> • Table of Contents <ul style="list-style-type: none"> ○ Titles of report sections and page numbers ○ Lists of tables and figures ○ List of appendices 	X	X
<ul style="list-style-type: none"> • Name of the organization submitting the document 	X	X
<ul style="list-style-type: none"> • Facility name 	X	X
<ul style="list-style-type: none"> • Facility alias 	X	X
<ul style="list-style-type: none"> • Facility address (street, city, county, state,) 	X	X
<ul style="list-style-type: none"> • Facility ID (If EPA ID has been issued) 	X	X
<ul style="list-style-type: none"> • Facility contact person's name, mailing address and phone number 	X	X
<ul style="list-style-type: none"> • Geographic coordinates (latitude/longitude) 	X	X
<ul style="list-style-type: none"> • Facility setting/nearby land use 	X	X
<ul style="list-style-type: none"> • Type of facility (e.g., plating facility, landfill) 	X	X
<ul style="list-style-type: none"> • Size of facility (this should include entire contiguous property under the control of the owner/operator) 	X	X
<ul style="list-style-type: none"> • Facility/Site location map and other figures 	X	X
<ul style="list-style-type: none"> • Facility/Site sketch including locations of major structures (e.g., buildings, paved areas, fences, property lines, etc.) 	X	X
<ul style="list-style-type: none"> • Ownership (public/private/other) <ul style="list-style-type: none"> ○ Current owner(s), address(es), and dates of ownership ○ Current operator(s), address(es), and dates of operation 	X	X

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> ○ Former owner(s), address(es), and dates of operation ○ Former operator(s), address(es), and dates of operations 	X	X
<ul style="list-style-type: none"> • Years of operation 	X	X
<ul style="list-style-type: none"> • Sequencing of property transfers and time periods of occupancy 		
<ul style="list-style-type: none"> • Facility/Site accessibility (identification of access restrictions, natural barriers) 	X	X
<ul style="list-style-type: none"> • Current facility/site activities/use 	X	X
<ul style="list-style-type: none"> • Current and historical disposal/storage practices 	X	X
<ul style="list-style-type: none"> • Current uses and zoning of the contaminated site and whether an Environmental Covenant per ADEM Admin. Code r. 335-5 has been filed with the Judge of Probate's Office. Also, include brief statements of operations, processes employed, waste generated, hazardous materials handled, and any residential activities on the facility/site. 	X	X
<ul style="list-style-type: none"> • Type of products stored at the facility/site (are product inventory charts available?) 	X	X
<ul style="list-style-type: none"> • Description of historical facility/site activities 	X	X
<ul style="list-style-type: none"> • Description of wastes generated on the facility/site (past and present) 	X	X
<ul style="list-style-type: none"> • Historical information on spills 	X	X
<ul style="list-style-type: none"> • Work areas and number of workers on site 	X	X
<ul style="list-style-type: none"> • History of operation of ASTs and USTs including the following: <ul style="list-style-type: none"> ○ Dates of installation and removal of all existing and former tanks located on the site 	X	X
<ul style="list-style-type: none"> • Volume of tank(s) 	X	X
<ul style="list-style-type: none"> • Tank and piping construction material 	X	X
<ul style="list-style-type: none"> • Tank configuration, piping layout, check valves 	X	X
<ul style="list-style-type: none"> • Tank configuration, piping layout, check valves 	X	X
<ul style="list-style-type: none"> • Overfill/spill protection 	X	X

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> • Date and description of repairs, replacements, modifications to tanks and ancillary 	X	X
<ul style="list-style-type: none"> • Date and description of repairs, replacements, modifications to tanks and ancillary 	X	X
<ul style="list-style-type: none"> • Condition of tank(s)/piping if removed, location and size of perforations 	X	X
<ul style="list-style-type: none"> • Method and results of product inventory reconciliation <ul style="list-style-type: none"> ○ Description of reconciliation activities 	X	X
<ul style="list-style-type: none"> • Regulatory status of facility and/or site: <ul style="list-style-type: none"> ○ Is the facility active/inactive ○ Is the facility a small/large quantity generator, conditionally exempt small quantity generator, Treatment Storage and Disposal facility, etc. ○ Description/summary of any regulatory history (including supporting information) ○ Information on any permits issued, including issuing agency, date, permit numbers, and violations ○ Information on any other regulatory agency involvement ○ Other investigations, including identification of investigating agency, date, and results 	X	X
<ul style="list-style-type: none"> • Any other relevant contact information should be provided to include the contact's name, mailing address, and phone number 	X	X
INVESTIGATION BACKGROUND INFORMATION		
<ul style="list-style-type: none"> • Authority under which work plan is/was required/conducted (i.e. RCRA, VCP, CERCLA, etc.) 	X	X
<ul style="list-style-type: none"> • Discussion of why the investigation is/was required 	X	X
<ul style="list-style-type: none"> • Media that has or potentially been contaminated (i.e., soil, groundwater, surface water, etc) 	X	X
<ul style="list-style-type: none"> • When, how, and by whom contamination was discovered 	X	X
<ul style="list-style-type: none"> • When and who reported the contamination/release to ADEM/EPA (if previously reported) 	X	X
<ul style="list-style-type: none"> • Summary of initial actions taken to address the contamination/release and by whom 	X	X

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> • Description of any other work that has already been done and what is known about the release and its potential threats to human health and the environment. The following information should be provided if available: <ul style="list-style-type: none"> ○ Discussion of previous sampling (soil, groundwater, surface water, air) ○ Analytical results of previous sampling 	X	X
<ul style="list-style-type: none"> • Potential Source identification (active, inactive, and historical sources) <ul style="list-style-type: none"> ○ Description of waste management activities associated with the specific area investigated/to be investigated ○ Dimensions of unit/area used to manage waste ○ Known or suspected wastes and hazardous substances ○ Description of containment and condition ○ Identification of any other known/suspected areas of contamination. If available, the following information should be provided: <ul style="list-style-type: none"> ▪ Date of release ▪ Date release was reported to the department ▪ Type of product(s) released ▪ Quantity released ▪ Quantity recovered ▪ Known or suspected cause of the release ▪ Location of the release on the site ▪ Cleanup action taken ▪ Offsite effects 	X	X
<ul style="list-style-type: none"> • Is sufficient information provided to assess the likelihood of a release of hazardous substances to soil, groundwater, surface water, and air? 	X	X
<ul style="list-style-type: none"> • Potential contaminants of concern and known contaminants of concern should be documented 	X	X
<ul style="list-style-type: none"> • Any removal actions, including descriptions, dates, agencies that conducted the removal, and destination of waste removed should be discussed 	X	X
<ul style="list-style-type: none"> • Any documented citizen complaints (e.g. odors) 	X	X
<ul style="list-style-type: none"> • Any known report of adverse health effects associated with a suspected/known release 	X	X

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> • Have any past source areas (if removal has occurred) been adequately documented? 	X	X
DESCRIPTION OF ACTIVITIES (GENERAL)		
<ul style="list-style-type: none"> • Work Plan Should indicate that the facility has conducted the following activities: <ul style="list-style-type: none"> ○ File Review ○ Target Survey (i.e., contaminants, human and ecological risks, etc) <ul style="list-style-type: none"> ▪ Receptor Survey <ul style="list-style-type: none"> ❖ Potential receptors in the area ○ Site Reconnaissance: site visit and interpretation (i.e., site-specific evaluation of site conditions, including topography, processes, structures, exposure points, etc.) <ul style="list-style-type: none"> ▪ Map showing the location of the site using US Geological Survey 7.5-min quadrangle or a copy of a section of that USGS map. ▪ Site map to scale should be provided which identifies all pertinent structures, wells, property lines, etc. Maps and site plans should include a north arrow. ▪ Site reconnaissance safety monitoring instrument (e.g., instruments: HNu, OVA) results 	X	
SITE CHARACTERIZATIONS (GENERAL)		
<ul style="list-style-type: none"> • The following information should be provided where possible: <ul style="list-style-type: none"> ○ Source areas (Potential or Confirmed) to soil, groundwater, surface water, and air. ○ Potential contaminants of concern and known contaminants of concern. ○ Preliminary Screening Values (PSVs) of the Contaminants per the most current version of the Alabama Risk-Based Corrective Action (ARBCA) Guidance Manual ○ Nature and Extent of the contamination (Include either the details of how this will be determined or the results of such determination) <ul style="list-style-type: none"> ▪ Information and details on the horizontal and vertical extent of soil, groundwater, and surface water contamination, on-site, based on best available information. ▪ Information and details on the horizontal and vertical extent of free-phase product, on-site and off-site, based on best available information. ▪ Information and details on the horizontal and vertical extent of product vapors, on-site and off-site, based 	X	X

REQUIREMENT	Work Plan	Report
<p>on best available information.</p> <ul style="list-style-type: none"> ▪ Discussion of visual signs of contamination (e.g., oily sheen, stressed vegetation, sediment discoloration, absence of wildlife) <ul style="list-style-type: none"> ○ 1-mile source radius <ul style="list-style-type: none"> ▪ Identification of populations within ▪ Identification of sensitive environments within ▪ Identification of all residences, schools, and daycare centers and associated populations within 200-feet of the area of known/suspected contamination (or within 200-feet and on the property of an area of contamination if boundaries of the area are well defined) ○ Overland drainage route(s) ○ Other sensitive environments within or near the property boundary ○ Source water assessment areas (SWAA) (Site should be checked to determine if it is located in a SWAA) ○ Distance to nearest residence or regularly occupied building ○ Floodplain designations/flood frequency ○ Characterization of the topography, surface water and run-off flow patterns, including the flooding potential, of the site. Topographic map(s) of the site and general area should be included ○ Potential for entrainment of hazardous substances from the site by wind or erosion actions ○ Potential for hazardous substances from the site to volatilize as well as any and all potential impacts of the volatilization to structures within the site ○ Types, concentrations and volumes (if applicable) of all known releases of hazardous material at the facility. ○ Rainfall events (e.g., 2-year/24 hour rainfall events) <ul style="list-style-type: none"> ▪ Net precipitation ▪ Mean annual precipitation ○ Are any utilities present? <ul style="list-style-type: none"> ▪ Measurements/samples collected to measure for the presence of vapors within utilities or structures. ▪ Description of utility construction materials (including gaskets), bedding materials, and any other information pertinent to contaminant permeation or migration. This may include permeable water mains or water service connections. ▪ Description of utility excavation/inspection. ▪ Description of utility construction and condition of 	<p>✗</p>	<p>✗</p>

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utilities. <ul style="list-style-type: none"> ▪ Geologic cross-section from borings/excavations showing utility corridors in relation to contamination (if applicable). ▪ Observations, field screening data, and sample results from material inside utilities (vapor, water, gas, etc.) (if sampled). ▪ Map(s) showing all structures and subsurface utilities present near the site that are, or may become, impacted by vapors associated with the release. 	X	X
SITE CHARACTERIZATION (GROUNDWATER/HYDROGEOLOGY)		
<ul style="list-style-type: none"> • Groundwater/Hydrogeology Information <ul style="list-style-type: none"> ○ Depth to shallowest aquifer ○ Permeability of strata overlying shallowest aquifer ○ Identification of aquifers in order of increasing depth ○ Aquifer description, including use, thickness, general flow direction ○ Aquifer interconnections if known ○ Aquifer discontinuities if known ○ Confining layers ○ Karst features (if non-karst, this should be stated) ○ Physiographic province underlying site/sources ○ Listing and evaluation of the site specific hydrogeological properties which could influence the migration of hazardous substances throughout the site and away from the site, including but not limited to, where appropriate: <ul style="list-style-type: none"> ▪ Depth to groundwater ▪ Presence and effects of both the natural and man-made barriers to and conduits for contaminant migration ▪ Characterization of bedrock ○ Groundwater contours, flow rates and gradients throughout the site ○ Unconsolidated material and bedrock type, thickness, and formation name located below the site of the release ○ Description and characteristics of aquifers and unsaturated zones located below the site of the release, including; <ul style="list-style-type: none"> ▪ Hydraulic characteristics ▪ Depth to water table (multiple measurements should be presented in tabular format) ▪ Survey of water elevations and contours (potentiometric surface) ▪ Water table piezometric surface contour map 	X	X

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> ▪ Direction of groundwater flow ▪ Rate of groundwater flow ▪ Perched or confined aquifer conditions ▪ Connections to other aquifers ▪ Hydrologic cross sections ○ Other uses of groundwater (e.g., irrigation, industrial) 	X	X
SITE CHARACTERIZATION (SURFACE WATER)		
<ul style="list-style-type: none"> • Surface Water Information <ul style="list-style-type: none"> ○ Distance to surface water ○ Sketch of surface water (streams, lakes, wetlands, rivers, ponds, storm sewers, etc.) migration path indicating probable point of entry and target locations ○ Uses of surface water (e.g., recreational, industrial, etc.) ○ Facility discharges to surface water (including permit information) ○ Description and location of sensitive environments in or contiguous to the surface water migration path ○ Drainage area description ○ Water body types along stream(s) (e.g., intermittent/perennial) ○ Stream flow characteristics of each segment ○ Fishery, intake, and/or surface water recreational area closures ○ Identification and location of drinking water intakes, including standby intakes ○ Identification of any Wetlands (discharge/recharge or both) ○ Identification of any springs/seeps ○ Identification of surface water classification 	X	X
SITE CHARACTERIZATION (SOILS)		
<ul style="list-style-type: none"> • Information on Soils (surface and subsurface) <ul style="list-style-type: none"> ○ Soil type and thickness (particularly interested in area below contaminated site) ○ The affect of local soil type on contaminant fate and transport ○ Description of soil characteristics <ul style="list-style-type: none"> ▪ Soil type ▪ Grain size ▪ Sorting ▪ Origin ▪ Texture ▪ Permeability ▪ Classification 	X	X

REQUIREMENT	Work Plan	Report
SITE CHARACTERIZATION (ENVIRONMENTAL IMPACTS)		
<ul style="list-style-type: none"> • The following information pertaining to the impacted area(s) should be listed where possible: <ul style="list-style-type: none"> ○ Description of contamination from a/the release, including: <ul style="list-style-type: none"> ▪ Free liquids on the surface ▪ LNAPL and DNAPL ▪ Concentration of hazardous substances which can be shown to present an actual or potential threat to human health and any concentrations in excess of any of the remedial objectives ▪ Impact to environmentally sensitive areas ▪ Contamination of man-made structures ▪ Odors or stained soil ▪ Stressed vegetation ▪ Presence of excavated or stockpiled material and an estimate of its total volume ▪ Environmental sampling locations, procedures and copies of the results of any analytical testing at the site ▪ List of hazardous substances at the site ▪ Discussion if the contamination falls outside of the jurisdiction of the Remediation Regulations, including but not limited to UST, UICs, and wetlands 	X	X
SITE CHARACTERIZATION (WELL INFORMATION)		
<ul style="list-style-type: none"> • Groundwater Well information <ul style="list-style-type: none"> ○ Drinking Water Wells <ul style="list-style-type: none"> ▪ Identification and distance to nearest drinking water well/intake ▪ Description of private wells within 1/2-miles of the site, including aquifer(s) from which water is drawn and associated populations ▪ Description of municipal and stand-by wells (supply wells), including location/distance from site, depth of well/aquifer from which water is drawn ▪ If municipal and stand-by wells are part of a blended system, total number of wells/intakes that contribute to the overall system ▪ Community water supply and/or individual wells should be listed and documented ▪ Populations served by municipal well(s), including stand-by wells within 1/2-miles of the site ▪ Discussion of any well closures 	X	

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> ○ Monitoring Wells <ul style="list-style-type: none"> ▪ Construction plans and development procedures for all monitoring wells. Well construction must be consistent with the requirements of Alabama Environmental Investigation and Remediation Guidance (AEIRG). ▪ Description of wells ▪ Well construction and/or completion diagram (may be presented in appendix) ▪ Location (or proposed location) of wells ▪ Discussion of any well closures ▪ Description of monitoring wells, or sampling point completion 	X	
DESCRIPTION OF ACTIVITIES		
<ul style="list-style-type: none"> ● Field Work and Sampling <ul style="list-style-type: none"> ○ Description of soil, groundwater, surface water, and utility/utility corridor investigations: <ul style="list-style-type: none"> ▪ Proposed sample location maps ▪ Number and depth of samples ▪ Description of methods and sample collection techniques: <ul style="list-style-type: none"> ❖ Backhoe pits/test pits ❖ Borings/direct push and monitoring well installation ❖ Vapor sampling ❖ Heated headspace sampling ❖ Other field screening methods ▪ Detailed sampling plans and construction techniques (Could be in Appendixes or in Standard Operating Plan (SOP)) ▪ Procedures for handling, storage, and disposal of investigative derived waste (IDW) ▪ Field screening requirements/results (visual, odors, and vapor survey results, etc.) should be included with the following info: <ul style="list-style-type: none"> ❖ Type of instrumentation used/planned for field screening ❖ Date and time of measurement ❖ Depth ❖ Location ○ Field observations made during sampling should be documented ○ All analytical test methods and results for each media 	X	X

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<p>samplered should be summarized in the text and in the tables in the body of the document. Analytical test methods should be in accordance with SW-846 (unless an alternate test method is approved by the Department as an appropriate method). NOTE: Method Detection Limits (MDLs) should be equal to or less than the MCL/SSL/PSV, etc.</p> <ul style="list-style-type: none"> ▪ All analytical data presented in the document should include the following information: <ul style="list-style-type: none"> ❖ Sample ID# ❖ Sampling location ❖ Sample type ❖ Date analyzed ❖ Laboratory conducting the analysis ❖ Analytical method ❖ Results of the analysis ▪ Laboratory reports should be included with the following information: <ul style="list-style-type: none"> ❖ Original, or copy of original, sample concentration reports ❖ Chain of custody documentation ❖ Sample receipt checklist(s) ❖ QA/QC reports ❖ Chromatograms <ul style="list-style-type: none"> ○ Discussion of sampling or analytical anomalies ○ Penetration measurement if taken, as well as time-series graphs and tables if more than one sampling period occurred ○ Complete list of all samples taken, the location of all samples, parameters tested for and analytical methods used during the work plan. (Sample locations and analytical results on a site figure). ○ Depth to water and water table elevation measurements if encountered in excavation/borings (this information may be included in the groundwater investigation section) ○ Concentration gradients of hazardous substances throughout the site for each media impacted by the release ○ Methodology and results of any investigation conducted to determine background concentrations of hazardous substances identified at the contaminated site ○ Weather conditions during field sampling ○ Discussion of the potential for continued migration of the contamination ○ Geologic cross-section from boring/excavation information (if applicable) ○ Isopleth (iso-concentration) map depicting at least one 	X	X

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<p>analyte for each contaminant type (gasoline, diesel, etc.) that best depicts the extent and magnitude of that contaminant. Also, possible cross-section of sampling results, if samples taken from more than one depth (this should include soil vapor measurements if applicable)</p> <ul style="list-style-type: none"> ○ Evidence of, and the potential for, contaminant to migrate to receptors through pathways of air, soil, groundwater, surface water, sediments and subsurface utility lines ○ Determination of the vertical and horizontal extent of contamination <ul style="list-style-type: none"> ▪ Identification of extent of all contamination in all media ▪ Magnitude map(s) ▪ Compare PSVs for all analytical results ▪ Has the horizontal and vertical extent of contamination determined to levels below residential PSVs? ○ Boring logs and monitoring well logs (may be presented in an appendix) to include the following information: <ul style="list-style-type: none"> ▪ contaminants ▪ screening levels ▪ sediment olfactory observations ▪ vapor readings ▪ blow count ▪ penetration rate ○ Quality assurance and quality control (QA/QC) requirements and/or attainment of requirements for sample handling and analytical procedures, including, but not limited to, chain-of-custody procedures and sample preservation techniques. ○ Identification of adjoining property ownership and use (e.g, manufacturing, residential, commercial, etc.). ○ Identification and initial evaluation of known and potential human exposure to contaminants present at the facility by inhalation, dermal contact or ingestion of contaminants: <ul style="list-style-type: none"> ▪ Drinking or showering with water from well ▪ Drinking water from public supply (aquifer contaminated or pipe permeated) ▪ Vapors migrating inside or damaging buried utility ▪ Vapors migrating into structures ▪ Direct dermal contact with surface (<2-feet bgs) contamination ▪ Migration pathways and discussion of potential complete pathways ▪ Inhalation of dust and particulates 	X	X

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<ul style="list-style-type: none"> ○ Where volatile organic constituents (VOCs) are present, the following information should be addressed in addition to the information described in other portions of this checklist: <ul style="list-style-type: none"> ▪ Description of methods used to evaluate potential migration of vapors into utilities or structures (diagrams of buildings where necessary) ▪ Type instrument(s) used for vapor measurements ▪ Vapor measuring instrument calibration data ▪ QA/QC plan should address vapor measurements ▪ Detailed sampling plans and construction techniques should be included to address vapor sample collection ▪ Weather conditions during time of vapor readings should be included ▪ Description of soil vapor sampling points and soil conditions recorded during driving of sampling points (if taken) ▪ Geologic cross-section from borings/excavations showing vapor concentrations (if applicable) ▪ Maps/figures identifying buildings, basements, and/or other subsurface structures and utilities where vapors have been detected ▪ An evaluation of the potential for vapors to migrate into structures and subsurface utilities. Including calculations on vapor migration potential under existing site conditions. ▪ Description of surface and subsurface structures that may influence the migration of vapors through the soil ▪ Inventory of petroleum (or other) products stored in or near each structure sampled 	X	X
EVALUATION OF RESULTS, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS		
<ul style="list-style-type: none"> • A summary of the results/proposed actions <ul style="list-style-type: none"> ○ Findings ○ Conclusions ○ Recommendations of the investigation 	X	X
OVERALL DOCUMENT QA/QC		
<p>In addition to the specific information included in the checklist above, the following information should be evaluated/included in the respective document:</p>		

REQUIREMENT	Work Plan	Report
<ul style="list-style-type: none"> As presented, does the document provide enough information to determine whether a complete pathway exists for human or ecological receptors? 		X
<ul style="list-style-type: none"> Does the document provide sufficient information to determine the necessity for further investigation? 		X
<ul style="list-style-type: none"> Does the document sufficiently address all pathway characteristics that could significantly impact the site decision? All target/receptor information? All site operational information? 		X
<ul style="list-style-type: none"> Does the document provide sufficient information to support a recommendation? Does the reviewer agree with the document recommendation? 		X
<ul style="list-style-type: none"> It should be noted that all groundwater data/info may not be available during the initial stages of the investigation. Does the document adequately address the collection of any and all data necessary to make decisions regarding the site? 		X
<ul style="list-style-type: none"> Are projected releases of hazardous substances to the environment, if any, appropriate for the site? 		X
<ul style="list-style-type: none"> Does the document include the following information: <ul style="list-style-type: none"> Signature page (signed and dated) Discussion of any limitations of the investigation References to support information included in the document Appendices Any other log/data sheets not addressed in the checklist above related to data collection 		X
<ul style="list-style-type: none"> Does the document address any other data that may be required but not included in the checklist above? 		X
<ul style="list-style-type: none"> Is the information throughout the narrative adequately referenced? 	X	X
<ul style="list-style-type: none"> Are statements in the narrative supported by the references cited? 	X	X
<ul style="list-style-type: none"> Are page numbers provided in reference citations? 	X	X
<ul style="list-style-type: none"> Are photos of the site, accompanied by a written description and reference to their location on a site map, included as an attachment to the report? 	X	X

Notes:



Required in Document Review