ARKANSAS BROWNFIELD PROGRAM

COMPREHENSIVE SITE ASSESSMENT (CSA) PROGRAM OUTLINE

CSA PHASE I REPORT

1. EXECUTIVE SUMMARY

- CSA Objectives and Intended Land Use Summary
- Location, Current Conditions, and Historical Sites Uses Summary
- Waste Types and Regulatory History Summary

2. INTRODUCTION

- Site and Project Identification
- Planned Site and Project Development
- Participants in the Site and Project
- Objectives of the CSA as Related to the Site

3. INTENDED LAND USE

- Previous Site Use
- Current Institutional Controls (easements, rights-of-way, etc...)
- Past and Current Land Use Controls (zoning, restrictions, covenants, etc...)
- Future Planned Land Use
- Property Development Plan Summary

4. SITE DESCRIPTION

4.1 Location

- Site Location and Legal Description
- Topography, City, and County Maps
- Potential Critical Contaminant Exposure Points (wetlands, sensitive populations, etc...)

4.2 Description of Current Conditions

- Size of Site and Current use
- Surface Property Improvements (buildings, equipment, paved areas, etc...)
- Subsurface Improvements (tanks, piping, wells, etc...)
- Documentation of Surface and Subsurface Conditions of the Improvements (inspections, certifications, etc...)
- Site Utilities Description and Location
- Surrounding Land Use

- Topography and Surface Water Flow Paths
- Photographs

5. SITE HISTORY

5.1 Operational History

- Business Description
- Materials Used and Stored and Products Produced
- Waste Produced at the Site and Disposal Method
- Documentation of Site Operational History (inspections, permits, licenses, etc...)

5.2 Ownership History

- Real Estate Ownership History
- Property Ownership History (building, utilities, and other improvements)

5.3 Past Environmental Regulatory Involvement

- Permits, Licenses, and Certificates
- Investigation and Inspections Reports
- Legal Actions (consent administrative orders, notice of violation, emergency orders, settlements agreements, etc...)

CSA PHASE I SUMMARY & CONCLUSIONS

- Planned Site Redevelopment
- Hazardous Materials Known to Have Been Handled or Released
- Hazardous Materials Suspected to Have Been Handled or Released
- Signatures and Qualifications of the Environmental Professionals

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CSA PHASE II WORK PLAN & REPORT

NOTES

- CSA Phase II work should be initiated when Phase I indicates hazardous materials are known or suspected to have been handled and/or released onsite.
- CSA Phase II Work Plan and Report is intended to be planned and coordinated with DEQ. Prior to Phase II field work, the CSA Phase II Work Plan and Report should be submitted to DEQ for review. As data is gathered and risk evaluations developed regular consultation with DEQ along with periodic updates or revisions to the CSA Phase II Work Plan and Report will be required.
- Implementation and reporting is the sole responsibility of the program participate.

EXECUTIVE SUMMARY

- CSA Objectives and Intended Land Use Summary
- Location, Current Conditions, and Historical Sites Uses Summary
- Waste Types and Regulatory History Summary
- Completed Field Sampling Work Summary
- Nature and Extent of Contamination Summary
- Risk Evaluation Summary

1. ENVIRONMENTAL SETTING

1.1 Soils and Hydrology

A. Surface Soils Descriptions and Classifications

B. Hydrology

- Description and Classification of Lithological Units
- Description of Groundwater (uppermost aquifer, depth to confining layer, flow direction and gradient, quality)

1.2 Surface Water

- Description of Run-on and Run-off Paths
- Distance to Nearest Surface Water Body
- 100-Year Floodplain Location
- Potential Surface Water Receptors (e.g. municipal water intakes, recreational areas, ecological conservations areas, etc...)

1.3 Ecology

- Identification of Onsite and Offsite Plant and Animal Populations and Ecosystems
- Identification of Sensitive or Endangered Plant or Animals
- Identification of Protective Areas (e.g., wetlands, wildlife breeding and refuge areas, flood plains, scenic rivers and parks, etc...)

2. SITE ASSESSMENT SAMPLING AND ANALYSIS PLAN (SAP)

Surface Soil, Subsurface Soil, Sediment, Surface Water, Groundwater, Porous and Non-Porous Surfaces (e.g., concrete, building components, equipment, etc...), and Waste.

2.1 Background Concentrations

A. Sample Location (area not impacted, and same or similar soil type and depth)
B. Sample Frequency
C. Analytical and Physical Parameters to Measure
   - Selection of Analytical Parameters (historical and operational history, previous environmental work, etc...)
   - Selection of Physical Parameters

2.2 Suspected Onsite Impacted Areas

A. Sample Locations
B. Sample Frequency
C. Analytical and Physical Parameters to Measure
   - Selection of Analytical Parameters (historical and operational history, previous environmental work, etc...)
   - Selection of Physical Parameters

2.3 Suspected Offsite Impacted Areas

A. Sample Locations
B. Sample Frequency
C. Analytical and Physical Parameters to Measure
   - Selection of Analytical Parameters (historical and operational history, previous environmental work, etc...)
   - Selection of Physical Parameters

2.4 Suspected Clean Onsite and Offsite Areas

A. Sample Locations
B. Sample Frequency
C. Analytical and Physical Parameters to Measure
   - Selection of Analytical Parameters (historical and operational history, previous environmental work, etc...)
   - Selection of Physical Parameters

2.5 Field Sampling Standard Operating Procedures for Analytical and Physical Characterization

A. Soil, Sediment, Water, Surfaces, and Waste Sampling Standard Operating Procedures
B. Decontamination Procedures
C. Sample Transport and Chain of Custody
D. Investigative Derived Waste Management
   - Estimated Volumes of Liquids and Solids
   - Containers and Container Contents and Labels
   - Planned Disposal and Scheduling

2.6 Report Preparation (i.e., format and content)

Organize Report by Environmental Media: Surface Soil, Subsurface Soil, Sediment, Surface Water, Groundwater, Porous and Non-Porous Surfaces (e.g., concrete, building components, equipment, etc...), and Waste. (Refer to Section 9.0 for more presentation format and content)

3. SITE ASSESSMENT QUALITY ASSURANCE/QUALITY CONTROL (QA/QC PLAN)

3.1 Quality Control (QC) in the Field

- Field Instrument/Equipment Inspection and Calibration
- QC Samples for the Laboratory
- Field Documentation

3.2 Quality Control in the Laboratory

- Laboratory Certifications
- Laboratory Quality Assurance (QA) Protocols
- Analytical Procedures
- Internal Quality Control Checks
- Performance and System Audits
- Corrective Action

4. COMPREHENSIVE SITE ASSESSMENT REPORT

4.1 Previous Environmental Site Assessment and Investigation

- Summary of Physical and Analytical Results for Soil (Surface and Subsurface), Sediment, Water (Surface and Groundwater), Waste, Sludges, Site Structures Analytical

4.2 CSA Site Investigation

Organize Report by Environmental Media: Surface Soil, Subsurface Soil, Sediment, Surface Water, Groundwater, Porous and Non-Porous Surfaces (e.g., concrete, building components, equipment, etc...), and Waste.

- Sample Locations
- Sample Frequency
- Analytical and Physical Parameters Measured
- Temporary Monitoring Well Completion
- Borehole Plugging and Abandonment
- Decontamination

4.3 CSA Site Investigation Significant Results

A. Surface Water and Sediment

- Regional and Site Specific Surface Watersheds and Sediment
  - Surface Water and Stream Identification
  - Surface Water and Sediment Quality (Lakes, Streams, and Ditches)
  - Wetlands and Sensitive Waterways

- Surface Water and Sediment Data Presentation
  - Separately Tabulated Data Which Exceeds Criteria (e.g., screening numbers and background concentrations)
  - Site Maps (Plan View) with Superimposed Data or Isopleths
  - Narrative with Interpretation of the Data Presentation

B. Air
- Regional and Local Air Emissions
- Regional and Local Air Quality
- Special Designations and Local Controls
- Data Presentation
  - Separately Tabulated Data Which Exceeds Criteria (e.g., screening numbers and background concentrations)
  - Site Maps (Plan View) with Superimposed Data or Isopleths
  - Narrative with Interpretation of the Data Presentation

C. Soils, Geology, and Hydrogeology
- Regional Geology and Hydrogeology
  - Regional Soils and Climate
  - Regional Geology
  - Regional Hydrology
- Site Soils, Geology and Hydrogeology
  - Stratigraphy
  - Geotechnical Analysis
  - Groundwater Flow Direction
  - Groundwater Gradient
- Soils, Geology, and Hydrogeology Data Presentation
  - Separately Tabulated Data Which Exceeds Criteria (e.g., screening numbers and background concentrations)
  - Site Maps (Plan View) with Superimposed Data or Isopleths
  - Site Cross-Sectional Maps with Superimposed Physical and Analytical Subsurface Results
  - Narrative with Interpretation of the Data Presentation

D. Site Equipment, Structures, Facilities, and Waste
- Possible Contaminated Porous and Non-Porous Materials
  - Materials Location and Identification
  - Materials Condition (e.g., new, used, excellent, poor, etc...)
  - Contamination Identification
- Waste
  - Waste Location and Identification
  - Waste Type (e.g., product, by-product, waste liquid or solid, sludge, bottom sediments or floc, etc...)
  - Waste Storage Identification and Condition
  - Contamination Identification

- Site Materials and Waste Data Presentation
  - Separately Tabulated Data Which Exceeds Criteria (e.g., screening numbers and background concentrations)
  - Site Maps (Plan View) with Superimposed Data or Isopleths
  - Narrative with Interpretation of the Data Presentation

4.4 Complete Summary of CSA Site Investigation Analytical Results

A. Data Compilation
- Tabulated Sample Results by Media
  Sample Identification and Date, Sample Description (i.e., surface soils, sediment, etc...), Sample Type (solid or liquid; sludge, precipitate, or flocculent, etc...), Sample Location and Depth; Lab Identification, Parameters Analyzed and Results, Lab Detection Limits.
- Tabulated Laboratory Analytical Internal Quality Control Results
- Tabulated QA/QC Analytical Results (Trip Blanks, Equipment and Rinsate Blanks, Field Duplicates, Matrix Spike/Matrix Spike Duplicates)

B. Data Validation
- Review of Laboratory QC Results
- Review of Detection Limits for Quality Assurance Objectives

C. Data Presentation
- Separately Tabulated Data
- Site Maps (Plan View) with Superimposed Data or Isopleths
- Site Cross-Sectional Maps with Superimposed Physical and Analytical Subsurface Results
- Narrative with Interpretation of the Data Presentation

4.5 Investigated Derived Waste

- Record Log of Identification, and Volumes of Liquids and Solids
- Containers and Container Contents and Labels
- Records of Disposal

5. HUMAN HEALTH RISK EVALUATION

5.1 Conceptual Human Health Site Exposure Model (Current and Future)

- Potential Receptors, Pathways, Routes of Exposure, Contaminated Media

5.2 Human Health Screening

- Tabulated Comparison of Site Analytical Results and Published Soil and Groundwater Background Levels, and Risk Based Criteria Protective of Human Health
- Identification of Compounds Which Exceed Screening Numbers

5.3 Determination of Whether to Conduct Site Specific Risk Assessment

- Basis of Decision

5.4 Human Health Risk Assessment Protocols

Not Required if Screening Results are Acceptable or if Remedial or Corrective Action is to be Based Upon Screening Numbers.

- Protocol Details (Developed if Applicable)
  Some Publications Used to Develop Risk Protocols: EPA Risk Assessment Guidance for Superfund (RAGS), Volume I, Parts A through D; ASTM Risk Based Corrective Action (RBCA).

6. ECOLOGICAL RISK EVALUATION

6.1 Conceptual Ecological Site Exposure Model (Current and Future)

- Potential Receptors, Pathways, Routes of Exposure, and Contaminated Media

6.2 Ecological Screening

- Tabulated Comparison of Site Analytical Results and Published Soil and Groundwater Background Levels, and Risk Based Criteria Protective of Environment
- Identification of Compounds Which Exceed Screening Numbers

6.3 Determination of Whether to Conduct Site Specific Risk Assessment

- Basis of Decision

6.4 Ecological Risk Assessment Protocols

Not Required if Screening Results are Acceptable or if Remedial or Corrective Action is to be Based Upon Screening Numbers.

- Protocol Details (Developed if Applicable)
  Some Publications Used to Develop Risk Protocols: EPA Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment.

CSA PHASE II SUMMARY & CONCLUSIONS

- Planned Site Redevelopment
- Nature and Extent of Contamination
  - Quantity, Location, and Type of Contamination
  - Probable Source of Contamination
  - Releases or Threats of Future Releases of Hazardous Substances
- Unacceptable Human Health and Ecological Risk

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