File: Brenntag – C2 084 71721

RECEIVED
DEC 10 2002
BUREAU OF ENVIRONMENTAL REMEDIATION

BEFORE THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
Charles Curtis Building
1000 SW Jackson Suite 560
Topeka, Kansas 66612-1368

IN THE MATTER OF:
Brenntag Southwest, Inc.,
1520 N. Barwise
Wichita, Kansas.

Case No. 02-E-0279

ORDER

Clyde D. Graeber, Secretary of the Kansas Department of Health and Environment (KDHE), gives notice to Brenntag Southwest, Inc. (Respondent) that the following facts, as applied to the law, have made it necessary to order that certain actions be taken to control the source(s) of pollution and threat(s) to human health or the environment.

I. JURISDICTION

1. The Secretary has authority pursuant to K.S.A. 65-3453(a)(1) to determine that the clean up of a site is necessary to protect the public health or the environment.
2. The Secretary has authority pursuant to K.S.A. 65-3453(a)(3) to issue clean-up orders to persons responsible for the health or environmental hazard created by a hazardous substance.
3. The Secretary has general authority and responsibility to protect the waters and soils of the state under the authority of K.S.A. 65-161 et. seq.
4. The Secretary has authority pursuant to K.S.A. 65-164(d) to order a person who has been or is polluting the waters of the state to treat the sewage or other polluting material to prevent the future pollution of waters of the state or both.
5. The Secretary has jurisdiction of matters involving hazardous waste and its clean-up under K.S.A. 65-3430 et. seq.
6. The Secretary has the authority pursuant to K.S.A. 65-159 to order the removal of a nuisance.
7. K.S.A. 65-3453(a)(4) authorizes KDHE to recover moneys from persons responsible for the health or environmental hazard created by the hazardous substance.

II. DEFINITIONS

8. Unless otherwise expressly provided herein, terms used in this Order which are defined in the controlling statutes cited herein or in regulations promulgated thereunder shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

a. "Operable unit" (OU) shall mean a sub-site within the North Industrial Corridor (NIC) Site in Wichita, Kansas, where elevated levels of hazardous substances and/or wastes are present and act as a source of contamination.

b. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or State of Kansas holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or State of Kansas holiday, the period shall run until the end of the next working day.

c. "Response Costs" shall mean all costs, including direct costs, indirect costs, enforcement costs and accrued interest incurred by (or on behalf of) KDHE to perform or support response actions at the Site. Response costs include but are not limited to the costs of overseeing work at the Site, such as the costs of reviewing plans, reports and/or other items pursuant to this Order and costs associated with verifying the implementation of this Order.

III. FINDINGS OF FACT

9. Brenntag Southwest, Inc. is a subsidiary of Brenntag, Inc. and may be served by delivering a copy of this Order to Thomas T. Terp, Taft, Stettinius, & Hollister, LLP, 425 Walnut, Suite 1800, Cincinnati, Ohio, 45202-3957.

10. The Brenntag Southwest, Inc. Facility (the Facility) is located at 1520 N. Barwise, in the SE 1/4 of the SW 1/4 of Section 9, T 27 S, R 1 E, in Sedgwick County, Wichita, Kansas. Brenntag Southwest, Inc. purchased the Facility from Advance Chemical Distribution, Inc. July 9, 2001.

11. The Facility is located within the NIC Site boundaries and is illustrated on the attached map (Exhibit 1).

12. The Facility is used as a chemical storage and distribution center. The Facility receives, stores, repackages, and sells industrial chemical products, including perchloroethylene (PCE) and trichloroethylene (TCE).

13. In 1990, Versar, Inc. conducted a Phase I Environmental Site Assessment (ESA) at 1520 N Barwise as a pre-acquisition environmental audit prior to the sale of the property to Advance Chemical Distribution, Inc. The ESA noted areas of inadequate secondary containment and insufficiently sealed floors and pavement in chemical storage areas. On the eastern side of the Facility, the ESA reported chlorinated solvents stored in a row of 55 gallon drums along the south fence line. There were no secondary containment berms along the south, east, and west edge of the concrete storage area. The northern unpaved portion of the property was used for empty container storage. No staining was observed in this area but three surface soil samples from this area were field screened with a photo ionization detector and contained volatile organic vapors detected between 7.5 and 10.8 parts per million (ppm)

14. In August 1990, Advance Chemical Distribution, Inc. acquired the Facility from Service Chemical Supply, Inc.

15. Between 1997 and 2000, the City of Wichita conducted two phases of geoprobe ground water sampling as part of the North Industrial Corridor (NIC) Site remedial investigation. During these investigations, PCE was not detected above federal maximum contaminant levels (MCLs) in the shallow ground water immediately upgradient of the Facility.

16. In February 2000, CJ Environmental conducted an investigation at the Facility on behalf of HCI U.S.A. Distribution Companies, Inc. to investigate the Facility as a potential source of chlorinated solvent contamination.

17. The investigation identified the following compounds in Facility soil in excess of the Risk-Based Standards for Kansas (RSK) soil to ground water protection pathways: 1,2-dichloroethene(cis) (1,2 DCE) at a concentration of 1500 micrograms per kilogram

(ug/kg), PCE at 400 ug/kg, and TCE at 250 ug/kg. Other substances detected in soil samples include, 1,1-dichloroethane (1,1 DCA) 1,1-dichloroethene (1,1 DCE), 1,1,1 trichloroethane (1,1,1 TCA), xylene, and ethylbenzene.

18. The investigation identified PCE in the shallow groundwater at a concentration of 1200 micrograms per liter (ug/L), which is in excess of the MCL of 5 ug/L. The highest concentration of PCE in ground water was detected at the Facility downgradient of the drum filling and chlorinated solvent storage areas. Other compounds detected in the shallow ground water at the Facility above the MCLs include TCE, 1,2 DCE, and 1,1 DCA.

19. Based on the information and data presented above, KDHE has determined that soils and groundwater associated with the Facility are contaminated by hazardous substances or hazardous wastes, which is the result of one or more releases of hazardous substance(s) and/or hazardous waste(s).

20. The contamination of the groundwater and soils associated with the Respondent's Facility is causing or threatens to cause pollution of the waters of the State or is or threatens to become a hazard to persons, public health, or safety.

IV. CONCLUSIONS OF LAW

21. The Brenntag Southwest Inc. facility constitutes a "Site" within the meaning of K.S.A. 65-3453. Additionally, for the purposes of this Order, the area defined in paragraph 10 constitutes an "Operable Unit" (OU) within the NlC Site.

22. Respondent is a "person" within the meaning of K.S.A. 65-164, et seq., K.S.A. 65-3430, et seq., and K.S.A. 65-3452a, et seq.

23. Some of the contaminants identified in the groundwater underlying the Facility are "hazardous substances" as defined by K.S.A. 65-3452a and "hazardous wastes" as defined by K.S.A. 65-3430.

24. The presence of the contaminants identified in the soil and groundwater underlying the Facility constitutes "pollution" as defined by K.S.A. 65-171d.

25. The facts set forth above constitute:

a. a health or environmental hazard created by a hazardous substance requiring clean up pursuant to K.S.A. 65-3453(a)(3);

b. the pollution of the land or waters of the state or the threat of pollution of the land or waters of the state in violation of K.S.A. 65-164(d);

c. a hazard to persons, property or public health or threatens to become a hazard to persons, property or public health in contravention of K.S.A. 65-3443;

d. a nuisance or threatens to become a nuisance in contravention of K.S.A. 65-159.

26. The Secretary concludes that the actions required by this Order are necessary to order certain steps to be taken to alleviate the health or environmental hazard or potential health or environmental hazard at the Site.

27. Respondent is a person responsible for the health or environmental hazard created by the hazardous substance(s) and is therefore responsible for costs incurred by KDHE pursuant to K.S.A. 65-3453(a)(4).

V. ORDER

Based on the foregoing, the Respondent is hereby ordered to comply with the following provisions and requirements of this Order, including but not limited to all attachments to this Order, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order.

WORK TO BE PERFORMED

28. Within sixty (60) days of the date of this Order, Respondent shall submit a draft Work Plan for KDHE approval which is consistent with the Scope of Work ("SOW") attached hereto and incorporated herein by reference as Exhibit 2 and Deliverable Schedule attached hereto as Exhibit 3.

29. KDHE will provide written comments on the draft Work Plan. Within thirty (30) days of receipt of KDHE's written comments, Respondent shall submit a revised Work Plan that addresses KDHE's comments. Upon written KDHE approval, the Work Plan shall become incorporated herein as Exhibit 4.

30. Within thirty (30) days from date of KDHE approval of the Work Plan, Respondent shall

commence the implementation of the tasks detailed in the Work Plan. The work shall be conducted in accordance with the standards and specifications contained in the Work Plan.

31. Respondent shall provide preliminary and final reports to KDHE according to the implementation schedule contained in Exhibit 3 in a form responsive to KDHE's comments.

32. After KDHE reviews the preliminary reports and after KDHE reviews the final reports, KDHE shall notify Respondent in writing, of KDHE's approval or disapproval of these reports or any part thereof. KDHE may also notify Respondent in writing of KDHE's disapproval of Respondent's implementation of the approved Work Plan.

33. In the event of any KDHE disapproval of a submitted report or disapproval of Respondent's implementation of the approved Work Plan, KDHE shall provide Respondent a Notice of Disapproval delineating the deficiencies, requiring revisions to the reports or modified work to cure the deficiencies in the work and setting a schedule for response by Respondent, provided however that any such requirements are consistent with the objectives of the Work Plan and Order.

34. Thereafter, Respondent shall amend and submit to KDHE revised reports to cure the deficiencies in the reports in accordance with KDHE's requirements.

35. KDHE may determine that additional tasks are necessary in addition to the approved Work Plan tasks including reports, which have been completed pursuant to this Order. KDHE may require Respondent to implement any such additional tasks within a timeframe specified by KDHE. Failure by Respondent to implement additional tasks as required by KDHE, shall be considered a violation of this Order.

36. All work performed pursuant to this Order shall be under the direction and supervision of a professional engineer or geologist licensed in Kansas with expertise in hazardous waste site investigations and remediation. Within 30 days of the effective date of this Order, Respondent shall notify KDHE in writing of the name, title, and qualification of the engineer or geologist, and of any contractors or subcontractors and their personnel to be used in carrying out the terms of this Order.

37. Any reports, plans, specifications, schedules and attachments required by this Order are,

upon approval by KDHE, incorporated into this Order. Any noncompliance with such approved reports, plans, specifications, schedules, and attachments shall be considered a violation of this Order.

38. No informal advice, guidance, suggestions, or comments by KDHE regarding reports, plans, specifications, and any other writing submitted to Respondent will be construed as relieving Respondent of its obligation to obtain written approval, if and when required by this Order.

QUALITY ASSURANCE

39. All samples analyzed by a laboratory pursuant to this Order shall be analyzed using the methodology incorporated in Exhibit 4.

40. All sample collection and analysis shall be performed in compliance with the approved Work Plan, including scheduling of analyses, documentation of sample collection, handling and analysis.

41. Laboratory analytical report forms shall be submitted to KDHE for all analytical work performed pursuant to this Order. Any deviations from the procedures and methods set forth in these documents must be approved in writing by KDHE prior to use. Respondent will notify KDHE in writing within five (5) working days of notice or knowledge of a potential deviation from prescribed procedures or methods. Such notice shall provide information as to the nature of the deviation, if known, and outline a proposed investigation to determine whether the sample or results are potentially representative or should not be considered valid. If the results cannot be validated by evaluation of the Quality Assurance/Quality Control procedures, historical data, or laboratory protocol, Respondent will resample upon KDHE's approval and discretion. Respondent will notify KDHE at least seven (7) days before conducting resampling. Failure to follow the above procedure for notification of deviation(s) will be considered violation(s) of this Order and the data resulting therefrom shall be invalid.

42. Respondent shall use the quality assurance, quality control, and chain of custody procedures specified in the Quality Assurance Project Plan, which is part of the Work

Plan, for all sample collection and analysis performed pursuant to this Order, unless otherwise agreed to in writing by KDHE.

43. All contracts for field work shall provide that KDHE representatives are allowed access, for auditing and evaluation purposes, at reasonable times upon reasonable request, to all personnel utilized by Respondent for sample collection and analysis and other field work. Upon request by KDHE, the laboratories shall perform analysis of a reasonable number of known samples provided by KDHE to demonstrate the quality of the analytical data.

REPORTING

44. Respondent shall provide KDHE with written progress reports quarterly, pursuant to the effective date of the Order. At a minimum, these progress reports shall: (1) describe the actions, progress, and status of projects which have been taken toward achieving compliance with this Order, as well as the actions which are scheduled for the next quarter; (2) identify any requirements under this Order that were not completed as provided and any problem areas and anticipated problem areas in complying with this Order; and (3) include all results of sampling, tests, data, and conclusions drawn from data generated pursuant to the Work Plan(s).

ACCESS

45. KDHE and any of its agents or contractors are authorized by Respondent to enter and freely move about all property at the site for the purposes of, inter alia; interviewing site personnel and contractors; inspecting records, operating logs, and contracts related to the activities set out in the Work Plan; reviewing the progress of Respondent in carrying out the terms of this Order; conducting such sampling and tests as KDHE deems necessary; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to KDHE by Respondent. Respondent shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, that pertain to work undertaken pursuant to this paragraph.

46. To the extent that work required by the Work Plan must be done on property not owned or

controlled by Respondent, Respondent shall use its best efforts to obtain access agreements from the present owner(s) of such property within sixty (60) days of the approval of the Scope of Work. Best efforts include, but are not limited to, reasonable payment of monies to the property owner. Any such access agreement shall be incorporated by reference into this Order. In the event that agreements for site access are not obtained within the time frame described above, Respondent shall immediately notify KDHE regarding the failure to obtain such agreements. Subject to KDHE's non-reviewable discretion, KDHE may use its legal authorities to obtain access for Respondent, may perform those response actions with KDHE contractors at the property in question, or may terminate the Order. If KDHE performs those tasks or activities with contractors and does not terminate the Order, Respondent shall perform all other activities not requiring access to that property. Respondent shall integrate the results of any such tasks undertaken by KDHE into their reports and deliverables. KDHE reserves the right to bring an action against Respondent for recovery of all response costs (including attorney fees) incurred by KDHE to obtain access for Respondent and to perform response actions at the property. Upon KDHE's obtaining access for Respondent, Respondent shall undertake approved work on such property. KDHE shall not be responsible for any injury or damage to persons or property caused by the negligent or willful acts or omissions of Respondent, its officers, employees, agents, successors, assigns, contractors, or any other person acting on Respondent's behalf in carrying out any activities pursuant to the terms of this Order.

SAMPLING AND DATA/DOCUMENT AVAILABILITY

47. Respondent shall make available to KDHE all results of sampling, tests, or other data generated by or on its behalf with respect to the implementation of this Order. Respondent shall submit preliminary results in the progress reports described in the "Reporting" Section of this Order. Other reports shall be submitted as defined by this Order. KDHE will make sampling results and other data available to Respondent.

48. Respondent shall notify KDHE at least seven (7) days before conducting any field work, including but not limited to, well drilling, installation of equipment, or sampling. At the

request of KDHE, Respondent shall provide or allow KDHE or its authorized representatives to take split samples of all samples collected by Respondent pursuant to this Order. Similarly, at the request of Respondent KDHE shall allow Respondent or its authorized representatives to take split or duplicate samples of all samples collected by KDHE under this Order. KDHE shall notify Respondent at least seven (7) days before conducting any sampling under this Order, provided, however, that if seven (7) days notice of sample collection activity is not possible, KDHE and Respondent shall give such advance notice to enable each party to have a representative present during said sample collection activity.

RECORD PRESERVATION

49. Respondent shall preserve, during the pendency of this Order and for a minimum of six (6) years after its termination, all records and documents which have not previously been provided to KDHE in its possession or in the possession of divisions, employees, agents or consultants or contractors which relate in any way to this Order. At the conclusion of six (6) years, Respondent shall then make such records available to KDHE for inspection or KDHE's retention or shall provide copies of any such records to KDHE.

DELAY IN PERFORMANCE

50. Any delay in performance of this Order that, in KDHE's judgment, is not properly justified by Respondent under the terms of this paragraph shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondent's obligations to fully perform all obligations under the terms and conditions of this Order.

51. Respondent shall notify KDHE of any delay in performing any requirement of this Order. Such notification shall be made by telephone to KDHE's Project Coordinator or the Chief of KDHE's Remedial Section of the Bureau of Environmental Remediation (Section Chief) within forty-eight (48) hours after Respondent first knew or should have known that a delay might occur. Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying KDHE by telephone, Respondent shall provide written notification fully describing the nature of the delay, any justification

for delay, any reason why Respondent should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

OTHER CLAIMS AND PARTIES

52. Nothing in this Order shall constitute or be construed as a release for any claim, cause of action or demand in law or equity against any person, firm, partnership, or corporation not a signatory to this Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

OTHER APPLICABLE LAWS

53. All actions required to be taken pursuant to this Order shall be undertaken in accordance with the substantive requirements of all applicable local, state, and federal laws and regulations.

PROJECT COORDINATORS

54. Within thirty (30) days of the effective date of this Order, Respondent shall designate a Project Coordinator. KDHE's designated Project Coordinator shall be responsible for overseeing the implementation of this Order. The KDHE Project Coordinator will be KDHE's designated representative. To the maximum extent possible, all communications between Respondent and KDHE and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Project Coordinators. Respondent shall provide at least seven (7) days written notice prior to changing Project Coordinators. The absence of the KDHE Project Coordinator from the Site shall not be cause for the stoppage of work.

55. Unless otherwise specified, reports, notice or other submissions required under this Order

shall be in writing and shall be sent to KDHE's project coordinator:

Christine Jump
Kansas Department of Health and Environment
Curtis Building
1000 SW Jackson Suite 410
Topeka, Kansas 66612-1367

RESPONSE COSTS

56. Three (3) months after the effective date of this Order and quarterly thereafter, KDHE shall submit to Respondent an accounting of all response costs incurred by KDHE with respect to this Order during the previous three (3) month period. Respondent shall, within thirty (30) calendar days from receipt of said accounting, remit a check for the amount of those costs made payable to the Secretary of Health and Environment. Checks should specifically reference the identity of this site, and should be addressed to:

Kansas Department of Health and Environment
Attn: Bureau of Environmental Remediation
Administration
1000 SW Jackson Suite 410
Topeka, Kansas 66612-1367

A copy of the check and transmittal letter shall be sent to the KDHE contact specified herein. Respondent shall remit a check for the full amount of those costs.

57. If KDHE determines a Baseline Risk Assessment is appropriate, Respondent may, at its option, perform such assessment for submittal to KDHE for approval. In this event the Respondent shall pay KDHE's contractor to review the assessment on behalf of KDHE. In the event the Respondent elects not to perform the assessment, KDHE shall submit to Respondent an accounting for the cost of performing the Baseline Risk Assessment. Upon receipt of such accounting, Respondent shall to reimburse KDHE for such amount. KDHE shall use a qualified contractor to perform such Risk Assessment.

58. If KDHE determines that a Community Relations Plan is appropriate, it shall submit to Respondent an accounting for the cost of development of a Plan for Community Relations, and implementation of such Plan. KDHE shall perform such work itself or use a qualified contractor to develop and implement such Plan. If KDHE determines that a Community

Relations Plan is unnecessary, KDHE will draft and implement a Public Information Plan for which KDHE will submit to Respondent an accounting for the cost of development and implementation. Upon receipt of such accounting, Respondent shall reimburse KDHE for such amount.

59. KDHE shall submit to Respondent the cost of preparing and maintaining the Administrative Record, including but not limited to photocopying, assembling, mailing, updating, storage and other maintenance services. Upon receipt of such accounting, Respondent shall reimburse KDHE for such amount.

60. KDHE shall submit to Respondent an accounting of those costs described in paragraphs 57, 58, and 59 above which have been incurred by KDHE with respect to this Order during the previous fiscal year. Respondent shall, within thirty (30) calendar days from receipt of said accounting, remit a check for the amount of those costs made payable to the Secretary of Health and Environment. Checks should specifically reference the identity of this site, and should be addressed to:

Kansas Department of Health and Environment
Attn: Bureau of Environmental Remediation
Administration
1000 SW Jackson Suite 410
Topeka, Kansas 66612-1367

A copy of the check and transmittal letter shall be sent to the KDHE contact specified herein. Respondent shall remit a check for the full amount of those costs.

LIABILITY

61. By issuing this Order, the KDHE and the State of Kansas do not assume any liability for any injuries or damages to persons or property resulting from acts or omissions by Respondent or its employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to the Order. The KDHE and the State of Kansas shall not be construed to be a party to any contract entered into by the Respondent in carrying out any action required by this Order.

MODIFICATION

62. This Order may be amended or modified by KDHE. Such amendment or modification shall

be in writing and shall be signed by the Secretary of KDHE.

63. The KDHE Project Coordinator, or in the KDHE Project Coordinator's absence, the Section Chief, may agree to changes in any approved plan or schedule. Any such changes must be requested in writing by Respondent and approved in writing by the KDHE Project Coordinator, or in the Project Coordinator's absence, the Section Chief.

VI. RIGHT TO REQUEST A HEARING

If the Respondent disagrees with this order or is aggrieved by this order, an administrative hearing pursuant to the Kansas Administrative Procedures Act may be held at the request of Respondent. The request for a hearing must be submitted to Susan Vogel, Administrative Appeals Coordinator, Administrative Appeals Section, Kansas Department of Health and Environment, Curtis Building, Suite 590, Topeka, Kansas 66612-1368. Failure to submit a timely request will result in a waiver of the right to a hearing and this order will become a final order.

IT IS SO ORDERED THIS 9th DAY OF December, 2002.

Clyde D. Graeber, Secretary

CERTIFICATE OF SERVICE

I do hereby certify that a true copy of the foregoing Order was served on the following individuals by mailing same certified, return receipt, postage paid, on this 10th day of December, 2002 to:

Thomas T. Terp
Taft, Stettinius, & Hollister, LLP
425 Walnut, Suite 1800
Cincinnati, Ohio 45202-3957

Kara J. Maruska
Staff Member

Certificate Number: 7001 1940 0006 1124 7997

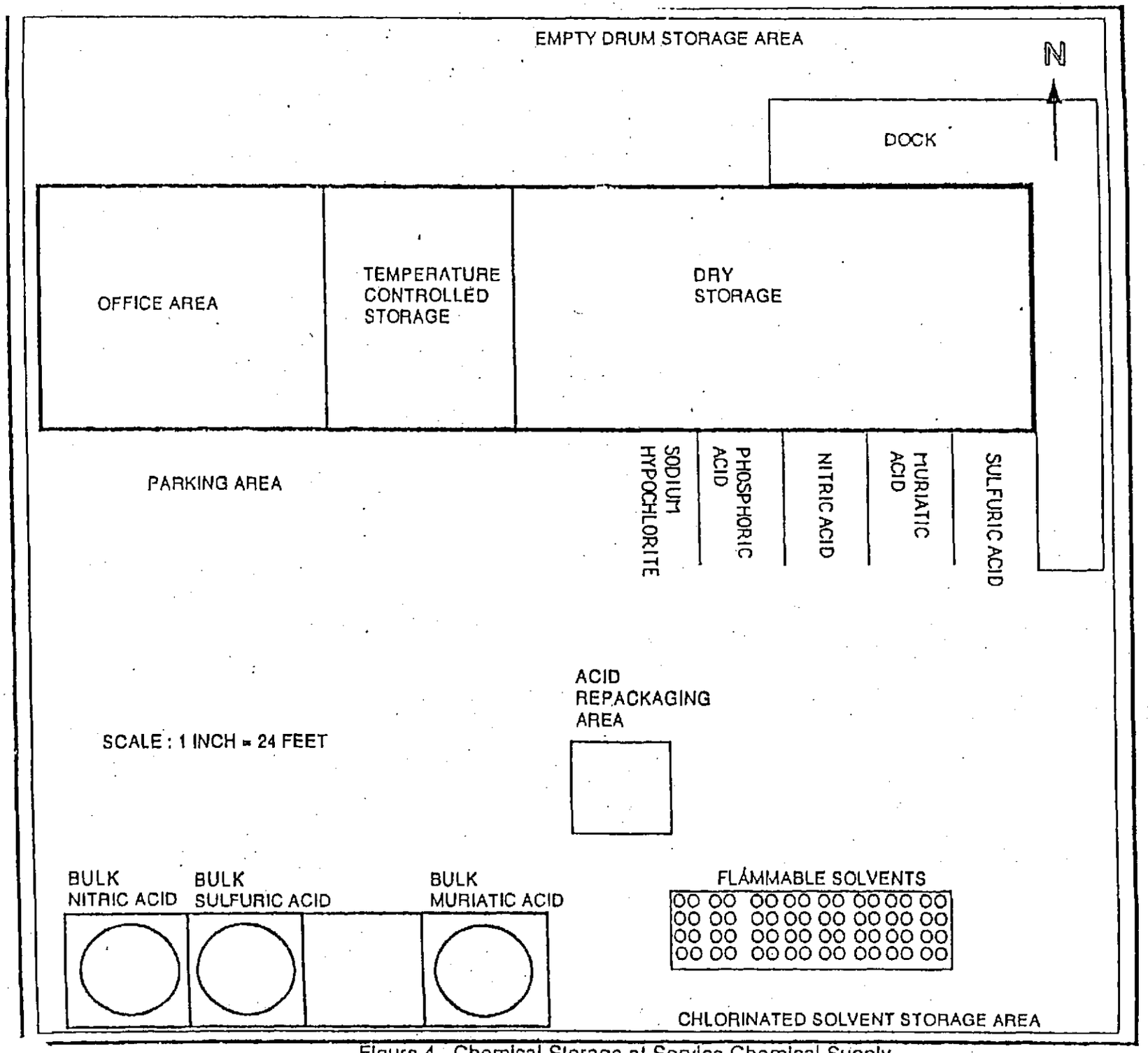

Figure 4. Chemical Storage at Service Chemical Supply

Exhibit 1

Figure prepared by Versar, Inc. for facility at 1520 N. Barwise.

Exhibit 2

Scope of Work for
Comprehensive Investigation/Corrective Action Study (CI/CAS)
Corrective Action Plan/Corrective Action (CAP/CA)

BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION

GUIDANCE

SCOPE OF WORK (SOW)
FOR A
COMPREHENSIVE INVESTIGATION (CI)/CORRECTIVE ACTION STUDY (CAS)

BER POLICY # BER-RS-20
DATE: 1991
Revised: May 23, 1996
Revised: March 29, 2001
PAGES: 6

The Comprehensive Investigation and Corrective Action Study (CI/CAS) Scope of Work (SOW) provides an outline that should be employed to characterize the nature and extent of risks posed by contaminated sites and to evaluate potential remedial options. This SOW is a flexible process that can be tailored to specific characteristics and needs of individual sites.

The goals of the Comprehensive Investigation are to determine the nature and extent of environmental contamination at the site, assess potential human health and environmental risks posed by the site, and develop a preliminary list of remedial action objectives and corresponding potential corrective action alternatives that will be evaluated in detail during the subsequent Corrective Action Study process. The primary objectives of the Comprehensive Investigation are to:

1) Identify and characterize all potential source areas, including identifying all chemicals of concern, determining the mechanisms of release, estimating the quantities of release, and determining whether these releases are ongoing or inactive;

2) Delineate and characterize the full lateral and vertical extent of contamination for each of the impacted environmental media at the site;

3) Characterize the environmental setting, including regional and local geology, hydrogeology, and hydrology; particularly as those site physical characteristics may pertain to contaminant transport and fate mechanisms for the site or may affect the evaluation, selection and design of cleanup alternatives for the site;

4) Characterize the physicochemical properties of the contaminants, their mobility and persistence in the environment, and their important fate and transport mechanisms as they relate to the site physical characteristics;

5) Identify human and environmental targets that may be threatened or affected by the site;

6) Perform a quantitative human health risk assessment to determine whether and the extent to which the site requires remediation;

7) Perform bench or pilot treatability tests as necessary to support the development of potential corrective action alternatives; and,

8) Develop a preliminary list of remedial action objectives and corresponding potential corrective action alternatives.

The Corrective Action Study (CAS) provides an objective and standardized process for evaluating, comparing, and contrasting potential corrective action alternatives. The primary objectives of the CAS are described as follows:

1) to evaluate the feasibility, effectiveness, and cost of at least two (2) potential remedial actions based on the findings of the Comprehensive Investigation (CI), and to compare and contrast those alternatives to each other and the "no action" alternative;

2) to recommend and justify a specific corrective action for the site; and

3) to determine the health and environmental effects of the remedial action.

This Scope of Work outlines activities necessary to satisfy these objectives. A CI/CAS Work Plan describing in detail all activities proposed to satisfy the CI/CAS objectives shall be developed and submitted to KDHE for approval. The CI/CAS Work Plan must include an implementation schedule defining the dates for initiating and completing the various tasks associated with this Scope of Work and for submitting work plans and reports defined as deliverable documents within the Consent Order. In addition, the CI/CAS Work Plan must include the following site-specific supporting documents: 1) quality assurance project plan; 2) field sampling plan; and 3) health and safety plan. A quality assurance project plan describes the policy, organization, functional activities, and quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data. A field sampling plan provides the guidance for all field work by defining in detail the sampling and data-gathering methods to be used on a project. The field sampling plan should be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. A health and safety plan prepared to support the field effort must conform to the firm's or agency's health and safety program which must, in turn, be in compliance with requirements of the Occupational Safety and Health Administration.

The Scope of Work for the performance of a CI/CAS shall, at a minimum, include the following components:

1.0 HISTORICAL EVALUATION AND SITE DESCRIPTION

A description of the site location should be generated, including a legal description of the site, facility address, and facility layout, as appropriate. An ownership history for the source facility and the ownership status of other affected properties should be documented. A description of all past and present activities or operations conducted at the site must be included in the CI Report including: the nature of business operations conducted at the site, chemicals used at the facility, wastes generated by facility operations, chemical and waste disposal methods, and records or descriptions of all known

spills or leaks. Environmental permits issued relative to past or present business operations should be identified. Descriptions of any previous environmental investigations conducted at the site and summaries of the significant findings of those investigations should be included. The historical evaluation and site description component of the Comprehensive Investigation may be excluded if a KDHE-approved Preliminary Investigation was conducted at the site or if sufficient background information about the site has been previously documented and submitted to KDHE.

2.0 STUDY AREA INVESTIGATION

A description of the physical characteristics of the study area must be provided including, but not limited to: geology, soils, hydrogeology, surface water hydrology, and meteorology. Past and present land use on and adjacent to the site must be described. Current city and/or county land use zoning classifications that may affect any potential remedy for the site must be documented. The physical characteristics of the study area should be determined to the extent necessary to facilitate the evaluation of appropriate remedial responses.

3.0 SOURCE CHARACTERIZATION

A detailed description of all field activities completed to identify the source(s), extent, and release mechanisms for environmental contamination and the findings of those activities must be provided. This may include several components: review of facility records; personnel interviews; waste and/or soil sampling; equipment testing (tank, pipeline, or sewer line testing, etc.), geophysical surveys, aerial photograph review, and land elevation surveys, among others.

4.0 NATURE AND EXTENT CHARACTERIZATION

A study to determine the full horizontal and vertical extent of environmental contamination must be performed. Potential media to be investigated include surface and subsurface soils, ground water, surface water, sediment, air, and biota. An evaluation of the significant contaminant fate and transport mechanisms should be performed. This component of the CI may include monitoring well or piezometer installation, soil borings, soil or ground water probing, field and laboratory analyses, geophysical surveys, hydrogeological evaluations, surveying, computer modeling, and biota studies, among others. Analytical data should be collected of appropriate data quality and quantity to support the completion of a Risk Assessment, if one is to be performed, and to support the evaluation of potential remedial alternatives. All data should be validated at the appropriate field or laboratory quality control level to determine whether it is appropriate for its intended use.

5.0 RISK ASSESSMENT (Optional)

Information and environmental data collected and validated as representative of site conditions may be used to qualitatively or quantitatively describe the potential excess human health risk and/or ecological risk posed by the site in the absence of remediation. This Risk Assessment process is used to characterize the risk posed to human health or the environment by environmental conditions at a contaminated site. In lieu of performing a site-specific Risk Assessment to evaluate risk and arrive at cleanup goals for a site, the participating party may elect, with the concurrence of the KDHE project manager, to use the risk-based cleanup goals for soil and ground water under Tier 2

of the Risk-Based Standards for Kansas manual (RSK manual). If KDHE determines that the completion of a quantitative Risk Assessment is appropriate, the participating party may, at their option, perform such risk assessment for submittal to KDHE for approval. Prior to performing the risk assessment, the participating party must submit a baseline risk assessment work plan that, among other items, provides a site-specific exposure conceptual model, which either graphically illustrates or states the impacted media and all the primary and secondary exposure pathways, lists all contaminants of concern, standard exposure parameters, land use, methodologies for determining reasonable maximum exposure point concentrations, proxy determinations, and other statistical considerations. The quantitative baseline risk assessment should be performed in accordance with "Risk Assessment Guidance for Superfund" EPA/540/1-89/002 and other associated guidance such as "Dermal Exposure Factors Handbook" and OSWER Directive, "Standard Exposure Factors". The work plan must be approved by KDHE prior to commencing the Baseline Risk Assessment. Alternatively, the participating party may elect to have KDHE's contractor perform the Risk Assessment at the party's expense. Coordination with KDHE is required throughout the risk characterization and cleanup goal determination process.

6.0 IDENTIFICATION OF CORRECTIVE ACTION ALTERNATIVES

Information and data generated during the Comprehensive Investigation, including the Risk Assessment, if performed, should be evaluated to develop a preliminary list of remedial action objectives and to identify applicable or relevant and appropriate cleanup standards or cleanup goals. In addition, an initial list of general response actions or potential corrective action alternatives to be evaluated in detail during the Corrective Action Study (CAS) should be developed.

7.0 PILOT TREATABILITY STUDIES/DATA GATHERING

To keep the CI/CAS process on schedule, it may be appropriate to identify and initiate any pilot testing necessary to evaluate corrective action alternatives early in the CI process. Treatability studies are conducted to provide sufficient data to allow treatment alternatives to be fully developed and evaluated during the CAS process and to support the subsequent remedial design of the corrective action alternative ultimately selected by KDHE. Treatability investigations also serve to reduce cost and performance uncertainties for treatment alternatives to acceptable levels to permit a more reliable remedy selection process. Examples of treatability data gathering activities that might be performed during the CI include aquifer pumping tests, soil vapor extraction pilot tests, or pilot-scale applications of innovative technologies to evaluate their applicability to site wastes. Pilot treatability studies and other treatability data gathering activities should be completed consistent with a KDHE-approved work plan.

8.0 CI REPORT

Upon completion of all Comprehensive Investigation activities necessary to achieve the objectives of the CI Scope of Work, a Comprehensive Investigation Report must be submitted to KDHE, in a time frame consistent with the implementation schedule in the approved CI Work Plan, for review and approval. The CI Report should include all information and data collected from during the investigation and describe in detail the work performed to accomplish the objectives as set forth within this SOW. The CI Report format shall be consistent with this Scope of Work and include

appropriate tables, figures, well logs, laboratory analytical data, references, appendices, etc. to effectively portray the data generated during the investigation and to support any conclusions drawn in the CI Report.

* *Submission of a CAS Work Plan may be necessary if additional data gathering is necessary following completion of the CI in order to evaluate potential corrective action alternatives.*

9.0 EVALUATION OF CORRECTIVE ACTIONS

The Corrective Action Study is the process through which detailed assessments of at least two plausible corrective action alternatives and the "no action" alternative are performed. The evaluation must include: 1) a description of the contaminants of concern within each environmental media; 2) an identification of all real and potential human and environmental targets and an evaluation of all direct and indirect exposure pathways; 3) a description of the site-specific corrective action goals; 4) treatability studies for corrective actions considered innovative or unproven; and 5) a detailed individual and comparative analysis of each of the proposed corrective actions, and the "no action" alternative, to evaluate their ability to satisfy the following criteria:

a) overall protection of human health and environment;
b) compliance with Federal and State applicable, or relevant and appropriate requirements (ARARs);
c) long-term effectiveness and permanence;
d) reduction of toxicity, mobility and volume of contamination through treatment;
e) short-term effectiveness;
f) implementability;
g) cost; and
h) community acceptance.

For potential corrective action alternatives that would not result in short-term restoration of the site, the evaluation of those alternatives should also address the time frame in which the alternative might reasonably be expected to achieve the corrective action goals for the site.

10.0 RECOMMENDATION OF A CORRECTIVE ACTION

The detailed evaluation of potential corrective action alternatives shall provide the basis for recommending and supporting a specific corrective action or group of corrective actions for the site, which satisfies the requirements as defined in Section 2.0.

11.0 CAS REPORT

The Corrective Action Study Report shall include: 1) a brief summary of the findings of previous environmental investigations, including a risk assessment, if performed; 2) a description of the site-specific corrective action goals; 3) a detailed description of each corrective action alternative evaluated, including the "no action" alternative; 4) a detailed discussion of each corrective action alternative evaluated in the context of satisfying the criteria defined in Section 2.0; 5) a recommendation for corrective action at the site; and 6) an Appendix containing any background information or literature which was used to evaluate each corrective action alternative.

KDHE/BER strongly recommends that any persons performing Comprehensive Investigation and/or Corrective Action Study activities with State of Kansas oversight obtain and familiarize themselves with the following documents. These documents provide guidance for the preparation, implementation, and reporting of CI/CAS activities, and constitute much of the technical basis on which KDHE/BER reviews work plans, reports, and other submittals related to the CI/CAS process. Information on obtaining the EPA documents is available on-line at *http://www.epa.gov/epahome/publications.htm.* Information on the State Cooperative Program administered by the Remedial Section of the Bureau of Environmental Remediation can be found on-line at the KDHE web site, http://www.kdhe.state.ks.us/ber/remedial/sru.html.

EPA/600/R-98/018 February 1998; "EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5)."

EPA/540/G-89/004 (OSWER Directive9355.3-01) October 1988; "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA."

EPA/600/R-96/055 August 2000; "Guidance for the Data Quality Objectives Process (EPA QA/G-4)."

EPA/540/1-89/002 December 1989; "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part A)."

EPA/540/R-92/003 December 1991; "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals)."

"Risk-Based Standards for Kansas (RSK Manual)", March 24, 1999 (available from KDHE/BER).

BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION

GUIDELINE

SCOPE OF WORK (SOW) FOR A CORRECTIVE ACTION PLAN (CAP)/ CORRECTIVE ACTION (CA)

BER POLICY#BER-RS-023
DATE: 1993, Updated 2001
PAGES: 6

The Final Corrective Action Decision identifies the remedial action(s) that will be implemented to address contamination of environmental media and prevent or eliminate exposure to receptors. The selected remedy is planned, designed, constructed, and operated during the Corrective Action Plan and Corrective Action phases.

The primary objectives of the Corrective Action Plan (CAP) are described as follows:

1) to provide a preliminary conceptual design of the corrective action (CA) and a description of the tasks necessary to implement the corrective action;
2) to obtain additional data, if necessary, to support the development of detailed design plans and specifications;
3) to provide detailed design plans and specifications including an Operations and Maintenance manual for the corrective action system;
4) to provide a Contingency Plan that identifies an alternate corrective action to be implemented in the event of a significant failure of the corrective action system;
5) to identify and obtain necessary easements and permits required for the implementation of the corrective action; and
6) to create a Site Monitoring and Performance Evaluation Plan to monitor the effectiveness of the corrective action and to describe the corrective action goals.

The primary objectives of the Corrective Action (CA) are described as follows:

1) to implement the Corrective Action Plan (CAP) as approved by KDHE;
2) to operate and maintain the corrective action system as described in the approved Operations and Maintenance Manual;
3) to evaluate and monitor the performance of the corrective action as described in the approved Site Monitoring and Performance Evaluation Plan;
4) to determine whether corrective action goals have been attained, or are likely to be attained;
5) to confirm attainment of corrective action goals by conducting post-corrective action monitoring as described in the approved Site Monitoring and Performance Evaluation Plan;
6) to implement the approved Contingency Plan to design, install and operate additional or

alternative corrective action measures in the event the implemented corrective action is unable to attain corrective action goals;

7) to document and report to KDHE all activities performed pursuant to the corrective action;
8) to submit a final report to KDHE for approval which briefly describes the corrective action implemented at the site, and provides the appropriate data documenting that site-specific corrective action goals have been attained; and
9) if desired, to submit a site reclassification plan to KDHE for approval, which reclassifies a site to resolved status on the Kansas Identified Sites List.

This Scope of Work outlines the required elements of the CAP which is to be prepared as a deliverable document. The CAP shall, at a minimum, include the following components:

1.0 CORRECTIVE ACTION PLAN SCHEDULE

A schedule must be provided which defines the dates for the performance of certain milestone corrective action tasks and provides dates for the submission of appropriate corrective action plans described in Section 5.0.

2.0 TASKS REQUIRED TO COMPLETE THE CORRECTIVE ACTION

Describe in detail all tasks necessary to acquire additional data to support the development of a final design corrective action plan and to construct, implement, and monitor the performance of the corrective action. All necessary tasks shall be documented and described in adequate detail to clearly state the manner in which they will be implemented and reported. The tasks shall include those necessary for implementing institutional controls and obtaining the appropriate easements, permits, etc.

3.0 DESIGN SPECIFICATIONS FOR THE CORRECTIVE ACTION

Complete design specifications, including any relevant figures and/or site system engineering layouts, shall be provided. As appropriate, preliminary and intermediate design plans shall be submitted to KDHE for approval. The Final Design Corrective Action Plan shall provide specifications in sufficient detail so that contractors could bid on the construction, implementation, and operation of the corrective action system(s).

4.0 SITE MONITORING AND PERFORMANCE EVALUATION PLAN

A Site Monitoring and Performance Evaluation Plan shall be provided as an element of the Final Design Corrective Action Plan to document the activities necessary to evaluate the effectiveness of the corrective action, including post-corrective action monitoring, if appropriate. At a minimum, the performance evaluation plan shall include:

- a description of the site-specific corrective action goals;
- a description of the corrective action system operations that will be evaluated and identification of criteria that will be used to evaluate system performance;
- frequency, methods, and rationale for site monitoring;
- a description of the environmental media to be monitored (ground water, surface water, soil, soil vapor, etc.);
- a description of quality assurance/quality control (QA/QC) considerations for the laboratory and field;
- identification of institutional controls that will be monitored;
- a plan for evaluating changes in land use of impacted areas that may alter the effectiveness of the corrective action; and
- a description of reporting methods, format, and frequency.

At a minimum, the Site Monitoring and Performance Evaluation Reports shall include:

- a narrative description and graphic illustration of the effectiveness of the corrective action;
- a description of system operations and performance;
- a system startup report and "as built" drawings of the corrective action system (required for the first Site Monitoring and Performance Evaluation Report);
- a description of repairs or modifications made to the corrective action system during the reporting period, as appropriate;
- laboratory analytical data including copies of laboratory reports and summary tables;
- contaminant isoconcentration maps;
- a tabular comparison of the current monitoring data to previous monitoring results;
- a figure illustrating the site and associated monitoring wells or other sample point locations;
- static water elevation measurements;
- a contour map of the water level elevation;
- a description of any deviations from the approved sampling procedures;
- results of QA/QC data and an evaluation of the validity of the analytical data;
- logs of any newly constructed site wells;
- an evaluation of the effectiveness of institutional controls implemented for the corrective action (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan);
- an evaluation of land use of the impacted area (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan); and
- all other relevant site data collected during the reporting period.

5.0 CORRECTIVE ACTION PLANS

Corrective Action Plans shall be submitted to KDHE for approval. Corrective Action Plans to be submitted may include:

- Preliminary Design Corrective Action Plan, which documents the conceptual design of the

corrective action;

- Data Acquisition Plan (optional), which describes various tasks necessary to gain additional data to develop the final design specifications;
- Intermediate Design Corrective Action Plan (optional), which integrates newly collected data into a refined conceptual design of the corrective action; and
- Final Design Corrective Action Plan, which provides detailed design specifications for the corrective action, describes all the tasks necessary to construct and implement the corrective action, and includes a schedule for construction and implementation of the corrective action.

If field activities or treatability/pilot studies will be conducted to gain additional data for the design activities, a Data Acquisition Plan shall be submitted for KDHE approval. The Data Acquisition Plan should include the following appendices: a Field Sampling Plan; a Quality Assurance Project Plan; and, a Health and Safety Plan.

Supplemental plans that may be incorporated into the Preliminary and Final Design Corrective Action Plans include:

- an Operations and Maintenance Manual;
- a Site Monitoring and Performance Evaluation Plan;
- a Construction Quality Assurance Project Plan;
- a formal Contingency Plan; and
- a Health and Safety Plan for the Corrective Action.

The KDHE project manager will determine which supplemental plans are required to be submitted for approval based on the individual site requirements.

The Corrective Action (CA) shall, at a minimum, include the following components:

1.0 IMPLEMENTATION OF SELECTED CORRECTIVE ACTION

The corrective action selected for the site shall be implemented in accordance with the KDHE-approved Final Design Corrective Action Plan. Implementation of the corrective action shall proceed according to the schedule contained within the KDHE-approved Final Design Corrective Action Plan Report.

2.0 PERFORMANCE EVALUATION

The effectiveness of the corrective action shall be monitored as provided through implementation of the Site Monitoring and Performance Evaluation Plan described within the KDHE-approved Final Design Corrective Action Plan Report. The schedule and frequency for corrective action performance evaluation and site monitoring shall proceed according to the KDHE-approved schedule in the Final Design Corrective Action Plan Report.

3.0 SITE MONITORING AND PERFORMANCE EVALUATION REPORTING

Site Monitoring and Performance Evaluation Reports must be submitted to KDHE in accordance with the KDHE-approved Site Monitoring and Performance Evaluation Plan contained within the Final Design Corrective Action Plan Report. The Site Monitoring and Performance Evaluation Reports should contain all of the information and data as described within the Site Monitoring and Performance Evaluation Plan, including a narrative description and/or graphic evaluation of the effectiveness of the corrective action as compared to the site-specific corrective action goals.

If the site monitoring and performance evaluation program demonstrates that the implemented corrective action is incapable of achieving corrective action goals, the Site Monitoring and Performance Evaluation Report should recommend modifications or augmentation to the existing corrective action system that will enable the system to achieve the corrective action goals. KDHE must be notified within seven days of any significant changes which may diminish the effectiveness of the implemented corrective action to protect human health and the environment.

4.0 IMPLEMENTATION OF THE CONTINGENCY PLAN

If it is demonstrated that the implemented corrective action is incapable of achieving corrective action goals, and modification or augmentation of the existing corrective action system does not or will not enable the system to attain corrective action goals, the approved Contingency Plan shall be implemented.

5.0 CORRECTIVE ACTION REPORT

Submit a Final Corrective Action Report to KDHE for approval which documents that the corrective action implemented at the site has satisfied the site-specific corrective action goals. The Final Corrective Action Report may consist of any one or more of the following:

- Final Site Monitoring and Performance Evaluation Report;
- Final Post-Corrective Action Monitoring Report;
- Final Corrective Action Report; and/or
- Reclassification Plan (see Reclassification Plan Scope of Work).

Upon approval of the Final Corrective Action Report, KDHE shall issue a letter confirming completion of corrective action implemented at the site. If desired, the respondent may submit a Reclassification Plan to KDHE for approval. Upon approval of the Reclassification Plan, the site will be reclassified to a resolved status on the Kansas Identified Sites List.

KDHE strongly recommends that any persons performing Corrective Action Plan/Corrective Action activities with State of Kansas oversight obtain and familiarize themselves with the following documents. These documents provide guidance on the preparation, implementation, and reporting of CAP/CA activities, and constitute much of the technical basis on which KDHE reviews work plans, reports, and

other submittals related to the CAP/CA process. Information on obtaining the EPA documents is available on-line at http://www.epa.gov/epahome/publications.htm. Information on the State Cooperative Program administered by the Remedial Section of the Bureau of Environmental Remediation can be found on-line at the KDHE web site at http://www.kdhe.state.ks.us/ber/remedial/sru.html.

EPA/600/R-98/018 February 1998; EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5).

EPA 600/R-96/055 August 2000; Guidance for the Data Quality Objectives Process (EPA QA/G-4).

EPA 540/R-95/059 June 1995; Remedial Design/Remedial Action Handbook.

Exhibit 3
Schedule of Deliverables
Brenntag Southwest, Inc., 1520 N. Barwise, Wichita, Kansas

Deliverable	Due Date
Draft CI/CAS Work Plan and Associated Documents*	Within 60 Days of Execution of the Consent Order
Final CI/CAS Work Plan and Associated Documents*	Due within 30 days of receipt of KDHE's comments on the draft CI/CAS Work Plan and associated documents
Community Relations Plan	The need for a Community Relations Plan will be mutually determined by KDHE and the Respondent
Baseline Risk Assessment	The need for a Baseline Risk Assessment will be mutually determined by KDHE and the Respondent
Draft CI Report	As approved in the CI/CAS Work Plan
Final CI Report	As approved in the CI/CAS Work Plan
Draft CAS Report	As approved in the CI/CAS Work Plan
Final CAS Report	As approved in the CI/CAS Work Plan
Quarterly Progress Reports	Due quarter annually, 30 days after the end of each quarter#
CAP/CA	Schedule for CAP/CA, if necessary, will be determined following the Corrective Action Decision.

* - Associated documents include the Field Sampling Plan, Quality Assurance Project Plan and Health and Safety Plan.
# - Due date depends on the execution date of the Consent Order