

US EPA ARCHIVE DOCUMENT

**SUNFLOWER ARMY AMMUNITION PLANT**  
**Consent Order No. 05-E-@**  
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**BEFORE THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT  
Curtis State Office Building  
1000 SW Jackson, Suite 560  
Topeka, Kansas 66612-1368**

|                          |   |                       |
|--------------------------|---|-----------------------|
| <b>IN THE MATTER OF:</b> | ) |                       |
|                          | ) | <b>CONSENT ORDER</b>  |
| <b>POLLUTION AT</b>      | ) | <b>Case No. 05-E-</b> |
| <b>SUNFLOWER ARMY</b>    | ) |                       |
| <b>AMMUNITION PLANT</b>  | ) |                       |

**SECTION I - PRELIMINARY STATEMENT**

The parties hereto, the Kansas Department of Health and Environment ("KDHE"), and the Respondent, (hereinafter the "Respondent") hereby represent and state as follows:

1. KDHE is a duly authorized agency of the State of Kansas, created by act of the legislature, and is acting herein pursuant to its governmental function.
2. KDHE, in exercising its general police and regulatory powers of protecting public health, safety and the environment, has general jurisdiction of matters involving hazardous substance and hazardous substance cleanups under the authority of the Kansas Environmental Response Act (K.S.A. 65-3452a. et seq.), solid waste and its cleanup (K.S.A. 65-3401 et seq.), as well as hazardous waste and its cleanup (K.S.A. 65-3430 et seq.) and has general authority and responsibility to protect the air, waters and soils of the state under the authority of K.S.A. 65-3001 et seq. and K.S.A. 65-161, et seq., respectively.

**SECTION II - DEFINITIONS**

3. Unless otherwise expressly provided herein, whenever the terms listed below are used in this Consent Order or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:
  - a. "ACM" shall mean asbestos containing materials.

b. "AOCs" shall mean Sunflower Tracts identified in Exhibit 4, where the possibility exists that there are any Pollutants in excess of the Performance Standards, other than currently identified SWMUs.

c. "Army" shall mean the United States Department of the Army.

d. "Army Enforceable Agreement" shall mean the Memorandum of Agreement between the Army and KDHE, dated \_\_\_\_\_, attached hereto as Exhibit 18.

e. "CCC" shall mean calcium carbonate cake.

f. "CERCLA Covenant" shall mean the covenant to be granted by the United States pursuant to 42 U.S.C. Section 9620 (h).

g. "Closing" shall mean the "Closing" as defined in the Conveyance Agreement.

h. "Closing Instructions" shall mean an agreement between the United States and the Respondent whereby their closing documents are deposited with a closing agent in order to facilitate the Closing, a copy of which is attached as Exhibit 11.

i. "Consent Order" shall mean this Consent Order and all amendments thereto, addenda, and all incorporated appendices attached hereto listed in Section XXIX and amendments. In the event of conflict between this Consent Order and any appendix, this Consent Order shall control.

j. "Conveyance Agreement" shall mean the Agreement between the General Services Administration ("GSA") and Respondent dated \*\*\*, 2005, a copy of which is attached as Exhibit 13.

k. "Corrective Action" shall mean those remedial activities or corrective action that the Army and/or the Respondent is required to undertake pursuant to the RCRA permit or any law or regulations as to any Hazardous Substance, Hazardous Condition or

Pollutant on or associated with Sunflower.

l. “Corrective Measures Implementation” shall mean those activities to be undertaken by the Respondent to carry out the final plans and specifications for the Work pursuant to the appropriate Scope(s) of Work.

m. “Corrective Measures Implementation Work Plan” or “CMIWP” shall mean the document which describes how the corrective action will be accomplished and is more specifically described in Scope of Work III ( Exhibit 7 ).

n. “Corrective Measures Study” or “CMS” shall mean a study which develops and evaluates the corrective action alternatives and recommends the corrective measures taken at the site.

o. “Covenant Deed” shall mean recordable quit claim either in the form of Exhibit 14a or 14b.

p. “CWP” shall mean the contaminated waste processor.

q. “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 holiday. In computing any period of time under this Consent Order, where the last day would fall on a Saturday, Sunday, or state holiday, the period shall run until the close of business of the next Working Day.

r. “Deferred Covenant Deed” shall mean the recordable quit claim deed in the form of Exhibit 16.

s. “Deliverable” shall mean any work plan, report (except progress report), specification or schedule submitted pursuant to or required by this Consent Order.

t. “Director” shall mean the KDHE’s Director of Environment.

u. “DIS” shall mean a detailed Implementation Schedule covering a rolling

eighteen (18 ) month period.

v. “Dispute” shall mean any disagreement between the Parties regarding a matter which is the subject of the Consent Order.

w. “DNT” shall mean di-nitro toluene.

x. “EBS” shall mean the environmental baseline survey of Sunflower prepared by the Army, dated October of 1998, and any supplements and amendments thereto.

y. “EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

z. “EPP Insurance” shall mean the environmental pollution insurance issued as to Sunflower.

aa. “ESP” shall mean the Army’s environmental stabilization program to demolish explosively contaminated buildings and structures at Sunflower through open burning without prior removal of asbestos-containing materials.

bb. “Financial Responsibility for completing Corrective Action”, referenced in 42 USC Sect. 6924(u) and 40 CFR 264.101, shall be the EPP Insurance.

cc. “GN” shall mean guanidine nitrate.

dd. “Hazardous Condition” shall mean the actual or the threatened release, spilling, leaking, pumping, pouring, emitting, emptying, discharging, injected, escaping, leaching, dumping, sweating, placing, disposing, or other presence of a Pollutant in, on, over, beneath, or upon any portion of Sunflower.

ee. “Implementation Schedule” shall mean the implementation timetables for the Work as generally described in the SOW(s) and set out in attached Exhibit 8, including Exhibit 8a which is the general implementation schedule, Exhibit 8b which is the

first eighteen (18) month DIS and the subsequent rolling eighteen (18) month DIS which will be prepared in the future and upon approval by KDHE incorporated as successive subparts of Exhibit 8.

ff. “Interim Measures” or “IM” or “IRM” shall mean RCRA interim removal actions.

gg. “KDHE” shall mean the Kansas Department of Health and Environment and any successor departments or agencies of the State.

hh. “Landfill Permits” shall mean KDHE Solid Waste Disposal Permit #340 and /or KDHE Industrial Landfill Permit #684.

ii. “LBP” shall mean lead based paint.

jj. “LWTP” shall mean the liquid waste treatment plant.

kk. “Master Plan” shall mean the master plan for the redevelopment of Sunflower approved by the Board of Commissioners of Johnson County, Kansas.

ll. “National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substance Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

mm. “NC” shall mean nitrocellulose.

nn. “NG” shall mean nitroglycerine.

oo. “NPDA or “2-NPDA” shall mean 2-nitrodiphenylamine which is a stabilizer for nitrocellulose.

pp. “NPDES” shall mean National Pollution Discharge Elimination System.

qq. “NQ” shall mean nitroguanidine.

rr. “PAHs” shall mean polyaromatic hydrocarbons.

ss. “Paragraph” shall mean a portion of this Consent Order identified by an

Arabic numeral.

tt. “Parties” shall mean the Respondent and the Kansas Department of Health and Environment.

uu. “PCBs” shall mean polychlorinated biphenyls.

vv. “ pCi/l” shall mean picoCuries per liter.

ww. “Performance Standards” shall mean the KDHE risk-based cleanup standards, and amendments thereto, which shall be used in the Work Plans to conduct Work at the Site. In addition to the currently listed performance standards, which are incorporated herein by reference, and set forth in Exhibit 17, the following are also Performance Standards for the purpose of this Consent Order:

Nitrocellulose - 1,000 mg/kg

Guanidine Nitrate - Non detect

Nitroglycerine - 35 mg/kg

For Pollutants that are neither currently listed in Exhibit 17 nor listed above, KDHE will use EPA Region 9 preliminary remediation goals or develop an appropriate cleanup standard using accepted EPA risk assessment methodology.

xx. “Pollutant” shall mean any toxic, dangerous, corrosive, or otherwise hazardous substance, or nuisance, or the existence thereof, which is or becomes regulated by local, state, or federal government authority including, without limitation, any substance that is: (a) a nuisance pursuant to K.S.A. 65 - 159; (b) defined or designated as a “hazardous substance” pursuant to 42 U.S.C. § 9601 or §9602 and K.S.A. 65-3452a; (c) defined as a “contaminant” pursuant to 42 U.S.C. §9601; (d) defined as a “regulated substance” pursuant to 42 U.S.C. §6903; (e) defined as a “hazardous waste” pursuant to 41 U.S.C. § 6903 and K.S.A. 65-3430; (f) petroleum; (g) PCBs; (h) defined as “pollution” in



K.S.A. 65-171d; (i) defined as a “solid waste” in K.S.A. 65-3402; (j) any air contaminant in K.S.A. 65-3002; (k) propellants; provided however, that the term “Pollutant” does not include any “Biological Warfare Materiel”, “Chemical Warfare Materiel”, “Military Munitions” or Radiological Material”, as each of those terms is defined in the Privatization Agreement..

For the purpose of the SOW’s attached hereto, the terms “waste”, “hazardous waste”, “contaminant” and “solid waste” shall be interpreted as Pollutant described above.

yy. “Privatization Agreement” shall mean the agreement executed between the Army and Respondent, a copy of which is attached hereto as Exhibit 10 together with any supplements or amendments thereto..

zz. “RCRA” shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901 et seq. (also known as the Resource Conservation and Recovery Act).

aaa. “RCRA Permit” shall mean RCRA hazardous waste facility permit, No. 3213820878, Parts 1 ( issued by KDHE on September 30,1991 ) and 2 ( issued by EPA Region VII on September 30, 1991 ) and any modifications issued thereto.

bbb. “RFI” shall mean RCRA facility investigation.

ccc. “Respondent” shall mean Sunflower Redevelopment, LLC.

ddd. “Response Costs” shall mean all costs, including, but not limited to: (1) direct and indirect costs, that the KDHE incurs or accrues in reviewing or developing plans, reports and other items pursuant to this Consent Order; (2) verifying the Work including analytical costs, or otherwise implementing, overseeing, or enforcing this Consent Order; (3) the cost of attorney and consultant time and any monies paid to access the EPP Insurance; (4) all costs that KDHE incurs or accrues from the effective date of this Consent Order in overseeing, performing, or reviewing Interim Measures, community relations

and/or public information plans and the establishing and maintaining of the administrative record; (5) and all other costs incurred by KDHE pursuant to this Consent Order,

eee. "Scope of Work" or "SOW I, SOW II or SOW III" shall mean the scope(s) or statement(s) of work for the Work Plan(s) required under this Consent Order and any modifications made in accordance with this Consent Order. The SOWs are attached hereto as Exhibits 5, 6 and 7 and incorporated herein by reference.

fff. "Secretary" shall mean the Secretary of the KDHE.

ggg. "Section" shall mean a portion of this Consent Order identified by a centered capitalized heading.

hhh. "Site" shall mean: (1) the Tracts being transferred by the GSA to the Respondent with a Deferred Covenant Deed; and (2) the Tracts which have been transferred with a Covenant Deed, but after such transfer have been found, prior to the termination of this Order, to contain any Pollutant or Hazardous Condition not in compliance with a Performance Standard. For any Hazardous Condition discovered after the termination of this Order and which occurred prior to the Closing, see paragraph 72 hereof. The Site, to the extent of subparagraph (1), is depicted generally on the map attached as Exhibit 2. For the purpose of the attached SOWs, the term "Facility" shall mean "Site".

iii. "Solid Waste Management Unit" or "SWMU" shall mean any discernible unit at which solid waste as defined in K.S.A. 65-3402, has been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released. Currently identified SWMUs at Sunflower are listed in Exhibit 3.

jjj. "State" shall mean the State of Kansas.

kkk. "STP" shall mean the sewage treatment plant.

lll. "Sunflower" shall mean the Sunflower Army Ammunition Plant ("SFAAP") encompassing approximately 9,065 acres, located in Johnson County, Kansas, depicted generally on the map attached as Exhibit 1b and legally described in Exhibit 1a.

mmm. "SVOCs" shall mean semi-volatile compounds.

nnn. "Tract" shall mean the 100 ft. x 100 ft. portions (or parts thereof) of the real estate making up Sunflower as reflected in Exhibit 16.

ooo. "United States" shall mean the United States of America.

ppp. "UST" shall mean underground storage tank.

qqq. "VOCs" shall mean volatile organic compounds.

rrr. "Work" shall mean all activities Respondent is required to perform under this Consent Order and the RCRA Corrective Action Permit, including assessment, public information programs and activities related to obtaining permits described in paragraphs 56 through 58, excluding those activities required by the Record Preservation Section.

sss. "Work Plan" also referred to as "Remedial Action Plan" in the financial instruments shall mean the draft and final plan(s) prepared by the Respondent and approved by KDHE which set forth the specific details relating to the corrective action at the Site, including SWMUs, any AOC's or other specified portions thereof.

### **SECTION III - GENERAL PROVISIONS**

4. The objective of this Consent Order is to protect public health, safety and welfare and the environment at the Site consistent with the requirements of 42 U.S.C.

Section 9606, 42 U.S.C. Section 9620(h) and 42 U.S.C. Section 6924(u) and (v) by the design and implementation of the Work at the Site by the Respondent as provided in this Consent Order.

5. The Respondent shall finance and perform the Work in accordance with this Consent Order, the SOW(s), and all Work Plans and other plans, standards, specifications, and schedules set forth herein or developed by the Respondent and approved by KDHE pursuant to this Consent Order. The Respondent shall pre-pay and reimburse KDHE for Response Costs as provided in this Consent Order. The Respondent has provided Financial Responsibility for Corrective Action, consisting of EPP Insurance, in order to assure completion of the Work described in this Consent Order.

6. In any action by KDHE to enforce the terms of this Consent Order, the Respondent agrees not to contest the authority or jurisdiction of the Secretary of Health and Environment to issue this Consent Order.

7. This Consent Order shall apply to and be binding upon KDHE and the Respondent, its agents, successors, and assigns. The signatories to this Consent Order certify that they are authorized to execute and legally bind the parties they represent to this Consent Order. No change in the ownership, corporate or financial status of the Respondent shall alter its responsibilities under this Consent Order.

8. Prior to the termination of this Consent Order, the Respondent shall provide a copy of this Consent Order to any subsequent owners, successors or assigns before property ownership rights in the Site or any portion thereof, then subject to this Consent Order, are transferred, either wholly or in part. The Respondent shall provide a copy of this Consent Order to all contractors, sub-contractors, laboratories, and consultants which are

retained to conduct any Work within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Notwithstanding the terms of any contract, the Respondent is responsible for compliance with this Consent Order and for ensuring that its successors, subsequent property owners, contractors and agents comply with this Consent Order.

9. The Respondent to this Consent Order agrees to prepare and implement the Work Plans, Implementation Schedules, and other Deliverables upon approval by KDHE, and to conduct all Work including, but not limited to, that Work described in Exhibits 5 through 7 which are attached hereto and incorporated by reference.

10. The Respondent has submitted a general Implementation Schedule and the first eighteen (18 ) month DIS for the Work contemplated in this Consent Order. This general Implementation Schedule and first eighteen (18) month DIS have been approved by KDHE and are attached hereto and respectively incorporated herein as Exhibits 8a and 8b.

The Respondent has distributed copies of the DIS to the Army and the EPA.

11. It is the intent of the Respondent and KDHE that the Work implemented pursuant to this Consent Order satisfy the equivalent requirements of CERCLA and RCRA and that the Work will satisfy the requirements for the Army to issue the CERCLA Covenant for each Tract at the Site. The Respondent will send one (1) copy of each Deliverable directly to KDHE, EPA and the Army individually.

a. The copy to the EPA shall be delivered to: Ken Herstowski, 901 N. 5<sup>th</sup> Street, Kansas City, Kansas 66101.

b. The copy to the Army shall be delivered to: Commander's Representative Sunflower Army Ammunition Plant, P.O. Box 640, 35425 W. 103<sup>rd</sup> Street,

Bldg. 229, Desoto, Kansas 66018-0640.

c. KDHE copy to Robert Weber, KDHE, Bureau of Remediation, 1000 SW Jackson, Ste. 410, Topeka, Kansas 66612 - 1367.

KDHE states that the Work performed by or on behalf of the Respondent, if performed in accordance with the terms of this Consent Order and the Work Plans approved thereunder, is intended to provide appropriate information that is consistent with the National Contingency Plan (NCP), 40 CFR Part 300 and RCRA 3004(u) and (v) as codified at 40 CFR 264.101.

12. In the event of inconsistencies between the terms of this Consent Order and the terms of any other documents, Orders and/or Agreements which the Respondent has entered into or will be subject to or will enter into in the future with private parties in connection with the remediation of Sunflower, or with governmental agencies, be they local, state, or federal, including any agreement with the Army, the terms of this Consent Order shall control and shall supercede those inconsistent provisions as they apply to the Work required pursuant herein.

#### **SECTION IV - FINDINGS OF FACT**

13. Sunflower consists of 9,065 acres, more or less, owned by the Army and was operated immediately prior to the Closing by SpecPro on behalf of the Army.

The legal description of Sunflower is incorporated herein by attachment hereto as Exhibit 1. A map of Sunflower is incorporated herein by attachment hereto as Exhibit 1b.

14. There will be a single real estate transfer of Sunflower to the Respondent as provided under the Conveyance Agreement.

15. The Army began operations at Sunflower in 1942, engaging in several activities including the manufacturing of smokeless powder and propellants for small arms, cannons, and rockets. Nitric and sulfuric acids were manufactured and regenerated at Sunflower. The manufacture of NQ started in 1989 and ceased in 1992.

16. Since 1942, various persons have leased or occupied various portions of Sunflower.

17. In 1971, the majority of Sunflower was placed on standby, inactive status. The final manufacturing and production activities occurring on the facility ceased in 1992.

18. Since 1992, portions of Sunflower have been leased to private entities for livestock grazing, hay production, production of sulfuric and nitric acid ( Koch ), treatment of industrial wastewater ( Kansas Wastewater, Inc. ), recycling of fluorescent light bulbs ( Sunflower Environmental ), a fish farm ( Kansas Aquaculture ), warehousing for various businesses and a commercial phone tower ( Sprint ).

19. Kansas State University leases a portion of Sunflower.

20. The Army reported to the General Services Administration that Sunflower was excess to the Army's needs in 1998.

21. The GSA has determined that Sunflower is surplus to the needs of the United States and is conveying substantially all of Sunflower to the Respondent for economic development purposes under the authority of P.L.108 - 375 Sect.2833, pursuant to the Conveyance Agreement, attached as Exhibit 13.

The Respondent and the Army have entered into the Privatization Agreement in which the Respondent accepted responsibility for the Pollutants present on and emanating from the Site. The Privatization Agreement is attached hereto as Exhibit 10.

22. Pursuant to 42 U.S.C. §9620 (i), despite the change in ownership of

Sunflower or portions thereof, the Army remains responsible for all Work necessary to protect the public health and the environment in connection with Sunflower. The Army will continue to remain on and comply with the RCRA Permit and to comply with all permits necessary to accomplish the required response actions.

23. The Respondent has taken responsibility for corrective action in connection with the Site through its execution of this Consent Order and modification of the RCRA Permit. For those responsibilities for which the Respondent has taken responsibility under this Consent Order, to the extent that the Respondent is unable to carry out its obligations, the Army remains fully liable and responsible for Work at the Site.

24. Based on data collected by the Army and KDHE, the Army has determined that some Tracts of Sunflower will be transferable at the Closing with a Covenant Deed and the other Tracts with a Deferred Covenant Deed.

25. In the EBS, Sunflower was divided into nine (9) segments which are geographical subdivisions based upon similar process operations. The Hazardous Conditions will hereafter be described on a segment by segment basis following the format of the EBS and will contain previously identified areas of Pollutants as well as newly identified or potential areas of contamination. Following completion of the EBS, EPA has prepared a draft revision of the RCRA Permit to account for the areas of Pollutants identified in the EBS and in an EPA aerial photographic study of Sunflower to include the new areas with existing SWMUs or designating them as new SWMUs or AOCs. In the discussion below, the new SWMU and AOC designations are noted in parenthesis following the EBS or EPA description of the areas.

The following paragraphs summarize Pollutant and Hazardous Condition issues for the nine (9) Sunflower segments.



**A. SEGMENT ONE.** Segment 1 is the area that was used mainly for support facilities. It consists of approximately 2,183 acres and contained a total of 254 facilities (currently 220 facilities exist). The principal facility processes in Segment 1 are in the following areas; river intake area, water treatment plant/filtration area, main STP, industrial wastewater treatment plant, power area, north acid area, office paper burning ground and decontamination oven.

The industrial wastewater treatment plant was constructed in the early 1990s for on-site treatment of NQ wastewater. This facility is located south of the North Acid Area (SWMUs 7, 8 and 9). In 1997, Kansas Wastewater Inc. leased the facility to treat non-hazardous wastewater on a commercial level. Kansas Wastewater, Inc. stopped operations and vacated the plant on September 29, 2001.

**A.1. *Previously identified sources of potential contamination:***

SWMUs 1, 2, 3, 4, 5, 6, 7, 8, 9, 20, 25, 29, 30, 37, 38, 46, 50, 51, 52, 53 and 54.

Classification Area, SWMU 1 - The Classification Area occupies approximately 64 acres along the former railroad yard. Incoming raw materials were sorted for diversion to the appropriate receiving facility within the Sunflower facility. Although hazardous wastes were not produced, the handling of certain raw materials in this area had the potential for contamination. Unknown constituents and heavy metals are contaminants of concern. Groundwater and soil are media of concern. The extent of contamination is known.

River Water Treatment Plant, Lagoons, and Dredged Material (Lime Sludge, Sludge/Backwash), SWMU 2 - This site occupies approximately 19 acres. Kansas River water was treated with lime and alum for clarification, filtered through activated carbon, and chlorine was added. Sludge from the treatment plant was used to construct two (2) lagoons south of the plant. Wastewater from the NQ production area was piped to the

lagoons during operation of the NQ plant. Materials dredged from the lagoons were landfilled adjacent to the lagoons. Mounds of grass-covered dredged materials are on the west side of the upper lagoon. The dredged materials are predominately lime and filter backwash solids. Wastewater from the NQ process operations collected in Tank T784 ( SWMU 44 ) was periodically pumped to these lagoons from the late 1970s until 1992. NQ wastewater may have contained NQ, acidic wastewater, and calcium cyanamide. The contaminants of concern include GN, ammonia, and arsenic. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined. This site is the nearest SWMU to the Kansas River and the effluent from the lagoons was discharged to NPDES Outfall 002 when the River Water Treatment Plant was operating.

Main STP and Disposal Pond, SWMU 3 - The main STP, a 10 acre site, treats sanitary wastewaters from most of the installation. Primary waste treated there is domestic sewage. Wastewater from various production facilities and laboratories, including a photographic laboratory treated at the plant, were directed to the STP and may have contained hazardous constituents. Heavy metals, VOCs (in sediments), nitrate-nitrite nitrogen, and sulfate have been detected in a downstream surface water sample. TRPH, organopesticides, PCB-1260, PAHs, and metals have been detected in sludge. Heavy metals, pesticides, PCBs, and unknown constituents are contaminants of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is known.

Pond A and Sludge Disposal Area, SWMU 4 - During past operations at the Sunflower facility, Pond A which is approximately two (2) acres in size, received wash out water from acid storage tanks and wastewater from the NQ support area, shops in the pesticide handling area, sandblasting area, salvage yard, and the North Acid Area.

Reported impacts include metals in groundwater and VOCs, metals, and NC in sludge. Other contaminants of concern are phthalates, PAHs, cyanide, and nitrate-nitrite nitrogen. Large quantities of NC could have reactive characteristics. The extent of contamination is undetermined.

Pond A Neutralization Area, SWMU 5 - The Pond A acid neutralization area is on the southeast edge of Pond A. The NC manufacturing process produced wastewaters containing residual dissolved nitric and sulfuric acids, and NC fines. Neutralized wastes and unsettled flocculent were discharged to an open drainage ditch leading to Pond B. Acidic wastewater neutralized by burnt lime slurry was the primary constituent at the facility. The RFI indicates metal impacts to groundwater and VOCs, metals, and NC in sludge. Another contaminant of concern is acid. The extent of contamination is undetermined.

Pond B and Sludge Disposal Area, SWMU 6 - Pond B, downstream of Pond A, has a surface area of approximately nine (9) acres. It is an unlined impoundment overlying limestone bedrock. Originally used for sedimentation of solids from neutralized wastewater discharged from SWMU 5, and later for receiving effluent from the industrial waste treatment lagoons, the pond is currently used for runoff detention and flow control from Pond A. Pond B discharges into Kill Creek. The RFI indicates ammonia, metals, and sulfate impact to groundwater; metals, nitrate-nitrite, ammonia, sulfates, and total dissolved solids in surface waters; metals, NC, and VOCs in pond sediments; VOCs, SVOCs, and pesticides in Kill Creek sediment. The extent of contamination is undetermined.

North Acid Area + Chromate Area, SWMU 7 - The Chromate Area is approximately one half ( $\frac{1}{2}$ ) acre within the North Acid Area (SWMUs 7, 8, and 9) and was the location of a former treatment unit. The wastes generated consist of chromium-contaminated wastewater and chromate liquid that may have been disposed in pipes left buried in the

area. There is a potential for heavy metal contamination. Groundwater and soil are media of concern. Limited information is available for this SWMU.

North Acid Area + Chromate Pond, SWMU 8 - The Chromate Concentration Pond was drained and its exact location is uncertain. Wastes generated include chromium, possibly other heavy metals and unknown constituents. Groundwater and soil are media of concern. The extent of contamination is undetermined.

North Acid Area Wastewater Treatment Lagoon, SWMU 9 - The exact location of the waste treatment lagoon is unknown. Treatment of wastewater that was discharged to this lagoon involved the addition of lime. It is believed that calcium sulfate sludges were produced in the North Acid Area. Documentation is lacking as to the fate of the North Acid Area sludge and there is a possibility that chromate-contaminated water may have been released as waste to this lagoon. The contaminants of concern are heavy metals. Unknown compounds may also be present. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined. Limited information is available about this SWMU.

Ash Lagoons and Sludge Disposal Area, SWMU 20 - There are a total of four (4) Ash Lagoons that are just south of Pond A. These lagoons operated from 1979 to 1991 to collect fly ash and bottom ash from the boiler house. Fly ash, the primary waste in these lagoons, may contain heavy metals. Groundwater, surface water, and soil are media of concern. The extent of contamination is known.

NC Area Ditches, SWMU 25 - NC is prepared by the reaction of cotton linters (cellulose) and a mixture of sulfuric acid. Wastewater containing residual acid and NC fibers are known to have been released to the ditches. Metals were detected at concentrations above background levels in groundwater. Groundwater, surface water, and

soil are media of concern. The extent of contamination is undetermined.

Industrial Wastewater Treatment Lagoons, SWMU 29 - This site is a state-regulated unit and it was closed in accordance with KDHE requirements.

Pesticide Handling Area, SWMU 30 - A new storage building was constructed in the same location as the old building. A number of pesticides and herbicides have been used throughout Sunflower's history, particularly those used to control termites (aldrin, chlordane, and heptachlor) and musk thistle. Pesticides and dioxin/furan contamination is present above detection levels. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Sandblast Area, SWMU 37 - Sandblasting has reportedly occurred in the following locations during various periods of operation: (1) in an area east of the Maintenance Office Building 245-3; (2) in an area west of the Paint and Sign Shop Building 504; and (3) in an area west of the Equipment Storage Building 566-1. Sandblasting was used to prepare equipment for painting and preservation. The bulk of the sand recovered was disposed in the sanitary landfill, however residual sand was left on the ground in the area. Paint wastes and their constituents such as lead, chromium, and cadmium are primary concerns at these sites. Soil is the medium of concern. The extent of contamination is undetermined.

Oil Separator, SWMU 38 - The oil separator, an 800-gallon half tank, is approximately 300 feet southwest of Building 542. A majority of the flow to the separator has been derived from the floor drain in the car wash bay in the auto maintenance shop. Oil, grease, solders, and solvents are common constituents associated with cleaning and repair of automobiles. Heavy metals, total petroleum hydrocarbons, and pesticides are contaminants of concern. Soil is the primary medium of concern. The extent of contamination is known.

Decontamination Oven, SWMU 46 - The oven was used to decontaminate the oversized equipment/materials contaminated with trace reactive substances. There are no secondary containment features at this site. Only trace reactive substances are treated at this site. Volatile contaminants and metals may be released from the equipment decontaminated at this site. Soil is the primary medium of concern. The extent of contamination is undetermined.

Disposal Sites East of the Classification Yard, SWMU 50 - An abandoned dump site was discovered just beyond the eastern boundary of the Sunflower facility, near Kill Creek. Debris, including shingles, drums, and metal slag, was scattered about the site. Types of waste at this site included asbestos shingles, building demolition debris, and lead. Metals and semi-volatile organic compounds are contaminants of concern. Soil is the primary medium of concern. Two (2) interim removal actions have been accomplished at the site; one in the southern portion in 1997 and one in the northern portion in 1999. In FY04, the Army conducted cover stabilization on a portion of the north disposal site. The Army conducts annual inspections and repairs to the cover at the Site according to the operation and maintenance plan in the closure report for the Site.

Battery Handling, SWMU 51 - The Battery Handling area is in the salvage yard. A few battery anodes and various plastic parts from batteries were observed on the ground in this area. Batteries have been stored in this area for many years. Wastes typically associated with batteries include acids and metals such as mercury, lead and/or cadmium. Soil is the primary medium of concern. The extent of contamination is undetermined.

Paint Bay Building 542, SWMU 52 - Building 542 contains a paint bay used to repaint vehicles. Fumes and overspray were vented through the side of the building where stressed vegetation was observed. Wastes typically associated with paint bays include

volatile organics and metals such as chromium, cadmium, and lead. Soil is the primary medium of concern. The extent of contamination is known.

Construction Debris Landfill/Waste Pile, SWMU 53 - The landfill appears to begin around the fence line near the main road by the STP. The landfill extends from the fence line, following the creek down until reaching the open area of the former quarry. The landfill contains construction debris including industrial concrete rubble, rusted 55-gallon steel drums, glass rubble, broken insulators, pipe debris, wood scrap, telephone poles, wire fencing, concrete pipe pieces, iron scraps and ACMs. Debris is on both sides of the creek and in the creek bed. The contaminants of concern are unknown and the extent of contamination is undetermined. Groundwater, surface water, and soil are media of concern.

SWMU 54 refers to three abandoned disposal sites of fluorescent bulbs in old wells or cisterns in different segments of the plant. In Segment 1 the site is a former farm site well that was used by plant personnel for the disposal of fluorescent bulbs. Alliant removed the fluorescent bulbs and excavated and closed the well in 1996. EPA recommended monitoring wells be installed at the area to test for mercury and lead in groundwater.

**A.2. Potential contamination areas identified during the EBS investigation**

***include:***

- a) Well due west of the Old Administration Area (AOC 1);
- b) Well located south of Facility 211 ( SWMU 56 );
- c) Chemical Preparation House (Facility 507-2)( SWMU 57 );
- d) Several facilities in the shop area with visible staining ( SWMU 58 );
- e) Main Transformer Station (Facility 154-4) (AOC 2);

- f) Laundry Shop (Facility 45-62)( SWMU 59 );
- g) Administration Building Number 2 (Facility 214 contained photography laboratory) ( SWMU 60 );
- h) Environmental Laboratory (Facility 232) ( SWMU 61 );
- i) Photography Laboratory (Facility 227-18) (AOC 3);
- j) General Warehouse (Facility 566-5 which had stored 149 transformers)( SWMU 62 );
- k) Area surrounding the Water Towers (Facilities 127-1, 127-2, 127-3, and 127-4) (SWMU 63);
- l) North Acid Area ( SWMU 7 );
- m) Trenches visible east of the STP area southwest of the STP (Possibly Mess Hall Landfill) ( AOC 4 ); and
- n) Facilities 544, 154-1, and 211 (UST removal locations).
- o) Tank Farm ( SWMU 65 )

**A.3. Potential contamination areas identified by the EPA Aerial Photographic**

***Analysis Report other than the SWMUs, include:***

- a) Trench Disposal Area (designated A3) identified in 1948 aerial photographs from disturbed ground west of the classification area (AOC 18).
- b) Disposal Site (designated A4) identified in the aerial photographs from disturbed ground on the southwest end of the classification area (AOC 19).
- c) Disposal Pit (designated A5) identified in aerial photographs from



- disturbed ground on the east side of the classification area (AOC 20).
- d) Disposal Trench (designated A6) identified in aerial photographs from disturbed ground south of the classification area (AOC 21).
  - e) Disposal Site (designated A8) identified in 1948 aerial photographs from disturbed ground in a fenced area south of the classification area (AOC 22).

**A.4. Other environmental contamination issues:**

- Forty-four (44) facilities contain identified ACM, 117 facilities are assumed to contain ACM; however the surveys are not complete.
- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all facilities within Segment 1 with the exception of three (3), may contain LBP based on Sunflower's 1978 construction guideline.
- Seven (7) transformers containing greater than 50 ppm of PCBs, were formerly located within Segment 1.
- Of the 28 facilities surveyed for radon, one (1) was found to contain a radon concentration above 4.0 pCi/l.

**A.5. Remediation Activities:**

KDHE reports that two (2) interim measures have been completed at SWMU 50.

**B. SEGMENT TWO.** Segment 2 consists of approximately 1,474 acres and was used for the manufacturing and machining of solventless double-base propellant, ballistics proving grounds, and leased land for the Kansas State Horticultural Center. Most of the 552 facilities have been marked for removal as part of the three-phased ESP.

Facility processes occurred in the F-Line and N-Line, N-Line Finishing, and proving grounds.

***B.1. Previously identified sources of potential contamination:***

SWMUs 10, 11, 14, and 36.

F-Line Ditches, SWMU 10 - Waste streams originated from the blender house operation and the roll house where equipment and floors were frequently washed. Small amounts of propellant solids settled in these ditches. Propellant solids are generally reactive, and some formulations contained lead salts. In addition, NG could leach from the propellant solids. Lead was also found at concentrations exceeding EPA and KDHE guidance values. Groundwater, surface water, and soil are media of concern. Contaminants of concern are lead, NG, NC, phthalates, and propellant. The Army has performed remediation of soils in the ditches downgradient of the blender and roll houses and remediation of soils in approximately the eastern half of the F-Line production area. Soils in approximately the western half of the F-Line production area remain contaminated with the contaminants of concern.

F-Line Area Settling Pond, SWMU 11 - There were a total of six (6) unlined earthen F-Line Area Settling Ponds (1A, 1B, 2A, 2B, 3A, and 3B). There were two (2) Blender ponds at the site, Pond 4A and 4B. All of these ponds were used to settle propellant solids from wastewater generated during the production of propellants at F-Line production facilities. The sediments that drained into the ponds contained raw propellant and uncolloided propellant contaminated with lead salts, propellant waste, and NC from the manufacturing process, as well as soil. Lead was also found at concentrations exceeding EPA and KDHE guidance values. Groundwater, surface water, and soil are media of concern. Contaminants of concern are lead, NG, NC, phthalates, and propellant. The

Army has performed remediation of the sediments in the settling ponds.

Rocket Static Test Area, SWMU 14 - The Static Rocket Area, which is approximately three(3) acres in size, is northeast of the Proving Ground Area where proof and surveillance tests of manufactured powder and propellants were conducted. This area is contaminated with propellant. The contaminants of concern are phthalates, propellant compounds and heavy metals. Groundwater, surface water, and soil are media of concern.

N-Line Area, SWMU 36 - Wastewater from the N-Line originated primarily from floor and equipment washing that flowed through floor drains into unlined ditches that lead to a small tributary of Spoon Creek. There were approximately 20 eastwardly trending ditches in this area. Propellant solids containing NG and lead salts settled in these ditches. Other contaminants of concern are metals, PAHs, NC, and sulfates. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

***B.2. Potential contamination areas identified during the EBS investigation***

***include:***

- a) Storm sewer lines within the F-Line production facilities (SWMU 10) ;
- b) Storm sewer lines within the N-Line production facilities (SWMU 36);
- c) Storm sewer lines within the N-Line Annex production facilities (SWMU 36);
- d) Cannon Range Tunnels (Facility 303)(AOC 5);
- e) Mechanized roll complex prototype ditch (Facility 7884)(SWMU 10);
- f) Deinhibiting Saw House (Facility 6859)(SWMU 36);
- g) 17 facilities lacking process operation information (SWMU 10);
- h) Machine and Deinhibiting House (SWMU 36);

- i) Blender Houses (Facilities 5803-3, 5825, and 7929) (SWMU 10);
- j) USTs at N-Line and F-Line Jeep and Trailer Shops (Facilities 6866 and 7866, respectively); and
- k) New mechanized roll complex.

**B.3. Other environmental contamination issues:**

- ACM surveys have not been conducted. It is assumed the 565 facilities on this segment contain ACM as construction was prior to 1985.
- LBP facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all 565 facilities within Segment 2 may contain LBP based on Sunflower's 1978 construction guideline.
- Of the ten (10) facilities surveyed for radon, one (1) was found to contain a radon concentration above 4.0 pCi/l.

**B.4. Remediation Activities:**

In 1994, 1,200 cubic yards of contaminated soils were removed following the excavation of a 4,000-gallon UST at the N-Line Jeep and Trailer Shop (Facility 6886). A closure report has been approved by KDHE and this Site is considered closed. However data from one of the monitoring wells at the UST site shows lead above the maximum contaminant level; this well will need to be monitored in the future.

In 2000, the Army performed remediation of soils in the ditches downgradient of the blender and roll houses and remediation of soils in approximately the eastern half of the F-Line production area at SWMU 10; the Army performed remediation of the sediments in the settling ponds at SWMU 11.

**C. SEGMENT THREE.** The Segment 3 area was used for the

manufacture of concentrated nitric and sulfuric acid. This segment consists of approximately 135 acres and contains a total of 71 facilities. Segment 3 contains four (4) SWMUs. Facility processes are described in the following areas: ammonia oxidation process, nitric acid concentrator, sulfuric acid production, sulfuric acid concentrator, LWTP and evaporative lagoons, and Pyott's Pond.

Koch Industries operated the sulfuric acid recovery facility in the south acid area, located in the east-central portion of Sunflower from 1984 until 1999 when it vacated the premises. The sulfuric acid facilities began operations in 1943 producing sulfuric acid for the United States and off-site commercial use. The government operated the facilities from 1943 to 1950. The facility was privately operated after 1950. Pyott's Pond (SWMU 12) received neutralized acid waste from the South Acid Area operations. Additional SWMUs located in the vicinity of the South Acid area are the South Acid Area Liquid Waste Treatment Plant and Evaporative Lagoons (SWMU 13), and the South Acid Area Wastewater Runoff (SWMU 39).

***C.1. Previously identified sources of potential contamination:***

SWMUs 12, 13, 39, 40, Sulfuric Acid Production Plant Former Truck Maintenance Shop, Oil and Paint House, and Former Fuel Oil Storage Tank.

Pyott's Pond and Sludge Disposal Areas, SWMU 12 - The Pond is an unlined, earthen impoundment with a surface area of approximately 1.7 acres and a capacity of approximately 5.2 million gallons. Pyott's Pond has received drainage from many areas in the Sunflower facility including the south acid area, untreated wastewater from the NG area, wastes from the NC area, the paste mix area, the vehicle and maintenance area, and partially sedimented wastewater from the F-Line paste area. The RFI reported VOCs, PAHs, pesticides/PCBs and metal impacts to sediments, NQ and metals in groundwater,

and SVOCs, GN and NQ impacts to surface water at this site.

South Acid Area L W T P and Evaporative Lagoons, SWMU 13 - The LWTP consists of five (5) above ground tanks: three (3) wastewater treatment tanks, one (1) lime slurry tank, and one (1) wastewater feed tank. The treatment tanks and lime tank have a capacity of 9,800 gallons. The feed tank has a capacity of 18,000 gallons. Four (4) unlined, earthen cells utilized as evaporative lagoons, were associated with the LWTP. These lagoons, each 10 feet deep, varied in size and shape, and had capacities ranging from 13.6 to 29.5 million gallons.

The wastewater entering the lagoons reportedly contained up to 50 ppm of NQ. Wastewater from the NQ support equipment may have contained residual NQ or GN. The South Acid Area generated wastes consisting of sulfuric acid and nitric acid, and wastewater containing nitrate-nitrites, sulfates, and metals. Slurried lime was used to treat the corrosive wastewater and the resultant neutralized wastewater and lime sludge were put into the lagoons. Surface water impacts include metals, ammonia, cyanide, total dissolved solids, nitrate-nitrite, and sulfates. The Sunflower facility schedule for remediation of the lagoon sludge and dismantlement of the lagoons was approved by KDHE as a partial fulfillment of requirements for lagoon closure. Remediation of sludge included in-situ denitrification. Following remediation, the clay berms were spread out over the lagoon floor. Topsoil was brought in to cover and finish grading the lagoon area.

An additional requirement to complete closure of the lagoons is groundwater monitoring at selected sites downgradient of the lagoons for a period of not less than five (5) years and submittal of a final work plan for closure activities consistent with KDHE's pond closure/sampling verification plan.

South Acid Area Wastewater Runoff, SWMU 39 - The south acid drainage ditches

originate near the calcium carbide disposal area (SWMU 40), and terminate into Pyott's Pond. Wastes handled at this site include sulfuric and nitric acids that may have contained NG and wastes from the sulfuric acid concentrator LWTP which may contain NQ. The sediment at this site reportedly contained ferrous sulfate and calcium sulfate resulting from hydrated lime dehydration and sulfuric acid and acidic ferrous sulfate. The contaminants of concern include metals, nitrates, and sulfates. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Calcium Carbide Disposal Area, SWMU 40 - The fenced-in area of a landfill comprises approximately one (1) acre, however only about half of this area (northeastern portion) was used for disposal of the calcium carbide waste. Reportedly calcium cyanamide was generated from the wet GN production and delivered to the NQ pilot plant from the main NQ Area. The calcium cyanamide landfilled at this site may contain calcium carbonate, calcium cyanamide, ammonium, nitrate, sulfate, GN, and metals. Expected byproducts are carbide, cyanide, ammonia, and nitrates. The contaminants of concern are metals and nitrates. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

***C.2. Potential contamination areas identified during the EBS investigation, include:***

The EBS investigation did not identify additional contaminated areas in Segment 3 that were not addressed in previous RFI documents. The EBS indicated that contamination is likely to exist in the process equipment and tanks.

***C.3. Other environmental contamination issues:***

- Three (3) facilities were surveyed for ACM. Two (2) facilities were found to contain ACM. Of the 23 facilities not surveyed for ACM, all 23 are anticipated to contain

ACM because construction was prior to 1985.

- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all facilities within Segment 3 may contain LBP based on Sunflower's 1978 construction guideline.
- The former Koch Acid Plant is a general area of concern (SWMU 39). Acid producing facilities commonly have low-pH groundwater beneath them from releases of acid during production. There have been several spills reported at the Koch plant. In addition, the surface water in the pond at SWMU 40, adjacent to the Koch plant has a pH of 3. Ambient groundwater pH throughout the plant ranges from 6 to 8. The low-pH surface water at SWMU 40 implies that the pond is recharged by low-pH groundwater.

#### ***C.4. Remediation Activities:***

The Army submitted to KDHE a work plan for remediation of the South Acid Area Liquid Waste Treatment Plant and Evaporative Lagoon (SWMU 13) sludge and dismantlement of the lagoons in February 1996. Sludge remediation activities pursuant to the approved work plan have been completed. Groundwater monitoring downgradient of the lagoons is continuing.

**D. SEGMENT FOUR.** Segment 4 contains the portion of the Sunflower facility that was originally designed and used for storage of finished propellant product. In 1980, a portion of the storage buildings, also known as magazines, were converted to storage of hazardous wastes. These buildings are currently undergoing RCRA closure per Section I of the RCRA Part B Permit. Segment 4 includes approximately 1,698 acres, 145 facilities, and does not contain any process facilities.



**D.1. Previously identified sources of potential contamination:**

SWMUs 15 and 16.

Waste Storage Magazines, SWMU 15 - There are nine (9) storage magazines included in this SWMU: from J-117 to J-122, J-124, J-127, and J-128. The following are materials designated to be stored in each magazine:

- Production waste from propellant manufacturing—Buildings J-117 through J-122;
- Spent solvents—Building J-124; and
- Sulfuric acid regeneration boiler ash, reactive waste incinerator ash, reactive waste burning grounds ash, miscellaneous solid and liquid hazardous wastes—Building J-127 (divided into six (6) separate storage cells).

The materials stored in these magazines as listed above are wastes of concern. The contaminants of concern are VOCs, SVOCs, reactive compounds, and metals. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Temporary Waste Storage Magazines, SWMU 16 - Most of the Temporary Waste Storage Magazines (i.e., B-Area Storage Buildings B-14, B-16, B-20, B-21 and B-22) are in the southwest-central portion of the Sunflower facility. Buildings B-14, B-16, B-21 and B-22 are wood frame structures with concrete floors. They served as the storage area for reactive production wastes. Building B-20 is constructed similarly to the other B buildings. However, the wastes stored in this building were mostly liquid. Building 181-2, also included in this SWMU, was in the central portion ( Segment 8 ) of the Sunflower facility. Building 181-2 was an inactive metal structure used to store spent chlorinated degreasing solvents. Building 181-2 was burned as part of the ESP activities in 1999. Wastes

containing NQ, GN, single and double based propellant formulations, and propellant solids possibly containing lead salts were stored in Buildings B-14, B-16, B-21, and B-22. Miscellaneous extraction procedure toxic wastes and nonhazardous wastes were stored in Building B-20. Other contaminants include pesticides. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

**D.2. Potential contamination areas identified during the EBS investigation:**

The EBS investigation did not identify additional areas of concern in Segment 4.

**D.3. Other environmental contamination issues:**

- One hundred three facilities are assumed to contain ACM and seven (7) are assumed not to contain ACM based on the 1985 construction guideline.
- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, 95 facilities within Segment 4 may contain LBP based on Sunflower's 1978 construction guideline.

**E. SEGMENT FIVE.** The facilities in Segment 5, consisting of approximately 1,423 acres, were used for the production of single-base propellant for small arms, cannons, and rockets. A total of 609 facilities were located in this segment. In addition to single-base propellant facilities, other processes included triple-base propellant facilities, tunnel dryers for CCC, and forced air and passive dryers.

**5.1. Previously identified sources of potential contamination:**

SWMUs 17, 26 and 43.

G-Line Area Ditches, SWMU 17 - The G-Line area was a solvent propellant area. The G-Line area is close to the groundwater divide between flow westward to Captain Creek and flow eastward to Spoon and Kill Creeks. There is no available information

indicating the types of wastes that were generated in the G-Line area. However it is believed that lead contamination of the shallow soils and groundwater is likely. In addition, there are reports of NC spills and NC wastes that were observed in the ditches in the area. Groundwater analyses detected metals above background levels and 1,3-dinitrobenzene. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Single Base Area Waste Water Settling Sumps, SWMU 26 - A series of buildings, numbered the 1600, 1650, 1700, and 1725 series, were used for production of four (4) different types of propellants. The wastewater sumps were adjacent to each of the 1600 and 1650 series buildings. The sumps were designed to settle out solids from the building wastewater. Flow equalization tanks were located adjacent to each of the 1700 and 1725 series buildings. These tanks were designed to equalize surges of wastewater discharged from the production buildings. Wastewaters from the sumps and tanks were discharged to a collection sewer, which discharged to open ditches. These ditches discharged to several locations, the majority of which drain west into Captain Creek. Propellants washed down into the sumps contained NC, lead salts and DNT. Metals were detected in soil. Groundwater contamination includes metals and SVOCs; surface water impacts include metals, SVOCs, and NQ; and sediment impacts include metals, SVOCs, and NC. The extent of contamination is undetermined.

Tunnel Dryers, SWMU 43 - There are a total of six (6) Tunnel Dryers, all used for CCC storage. Four (4) of these dryers are in the west-central portion of the Sunflower facility, and two (2) are in the southern portion of Sunflower. CCC was the only waste reportedly stored at this site. Constituents present in CCC include calcium cyanamide, ammonium, nitrate, sulfate, GN, metals, and fluoride. Groundwater, surface water, and soil

are media of concern. The extent of contamination is undetermined.

***E.2. Potential contamination areas identified in the EBS:***

There are several areas within Segment 5 that lie outside of established SWMUs and for which facility process information is lacking. They include the G-Line area facilities. Many of the facilities associated with propellant production are located throughout Segment 5 and the facilities and the area immediately surrounding them have not been part of the SWMU/RFI investigations. Process information notes reactive/hazardous material usage at these facilities. Eight (8) large warehouses (AOC 13), where NQ drum storage, acid plant parts and supplies, and 3X contaminated equipment were stored, are located in the southeastern portion of Segment 5.

***E.3. Other environmental contamination issues:***

- No ACM surveys have been conducted; however, based on the 1985 construction guideline, all facilities are assumed to contain ACM.
- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all facilities within Segment 5 may contain LBP based on Sunflower's 1978 construction guideline.

**F. SEGMENT SIX.** This segment encompasses 1,007 acres of primarily vacant, undeveloped land and has historically not been used as part of Sunflower production. Segment 6 includes landfills (Old and New Sanitary Landfill, Ash Landfill, Asbestos Landfill, CCC Landfill, and Temporary Sanitary Landfill), Old Explosive Waste Burning-Ground, Lead Decontamination and Recovery Unit, Contaminated Materials Burning Ground, contaminated Waste Processor, and Evaporative Lagoon.

***F.1. Previously identified sources of potential contamination:***

SWMUs 18, 19, 21, 22, 23, 31, 32, 41, 42 and 49.

Old/New Sanitary Landfills, SWMU 18 - The entire Landfill Area is about 1 mile west of the NG Area, near the central-western border of the Sunflower facility. The landfill area encompasses approximately 42 acres. However, only a portion of the 42 acres makes up the Old/New Sanitary Landfills. Three (3) types of waste were disposed in the Landfill Area: 1) the sanitary landfill (which contains household waste) (17 acres); 2) the ash landfill (ten (10) acres, SWMU 19); and 3) the asbestos landfill (1.1 acres). There is no information available regarding the Old landfill. It may have received all types of waste originating at the Sunflower facility. The New Sanitary Landfill contains garbage, some waste sulfur and vanadium pentoxide dust, and reacted calcium carbide and calcium cyanamide. Additional contaminants of concern are asbestos and other unknown compounds. Groundwater, surface water, and soil are media of concern. Approximately 791,000 cubic feet of waste are in the New Sanitary Landfill. No records from the Old Landfill are available. Sulfide, VOCs, SVOCs, metals, and ammonia nitrogen have been detected in the groundwater; dioxins/furans have been detected in the shallow soil at SWMUs 18 and 19.

The baseline risk assessment indicated that the contaminated groundwater at the site poses potential carcinogenic and noncarcinogenic risks to residential receptors.

In 2002, the Army completed an interim remedial action to cover bare areas in the landfill and control erosion in the surface water drainage from SWMU 18.

Ash Landfill, SWMU 19 - The Ash landfill is north of the Sanitary landfill. The Ash Landfill is unlined and covers an area of approximately ten (10) acres. The ash landfill contains fly ash and coal fines. The RFI states that the preliminary concerns at SWMUs 18/19 are constituents detected in groundwater (sulfide, VOCs, SVOCs, metals, and ammonia nitrogen) and dioxins/furans in the shallow soil. Groundwater, surface water, and soil are

media of concern. The extent of contamination is undetermined.

Contaminated Materials Burning Ground, SWMU 21 - The Burning Ground occupies approximately four (4) acres. The site was designed to decontaminate scrap metal and to burn other combustible material that had been contaminated with reactive substances or propellant. Unburned propellant solids containing lead salts and reactive compounds may be present. Combustibles, solvents, reactive and propellant residues, and metals were handled at this location. Groundwater, surface water, and soil are media of concern. Contaminants of concern are lead, NG, NC, dioxin/furans and potentially perchlorate. The Army completed an interim action in 2003 to remove soils contaminated with SVOCs and VOCs that was impacting Captain Creek. The soils are being landfarmed at SWMU 32.

Old Waste Explosives Burning Ground, SWMU 22 - The Burning Ground comprises approximately seven (7) acres. This area consists of five (5) burning trenches, an NG dump area, and a lead recovery area (SWMU 32). Unburned propellant solids containing lead salts and reactive compounds may be present. In FY04, the Army performed a removal action. Contaminants of concern are lead, NG, NC, perchlorate, and dioxin/furans. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

New Explosives Waste Burning Ground, SWMU 23 - The New Explosives Waste Burning Ground consisted of a diked earthen pad measuring approximately one acre (130 x 340 feet). Waste NQ, GN, reactive substances and propellants of various formulation have been burned and/or detonated at this site. Unburned propellant solids containing salts and NG may have been present at the site. Other contaminants of concern are lead and phthalates. Surface water, and soil are media of concern. The extent of contamination was determined by sampling activities during 1999. A removal action for contaminated soils was performed during the summer of 1999. The KDHE bureaus of remediation and waste management have

determined that the objectives of the removal action for clean closure have been met. A public comment period has concluded and a final closure report has been submitted and approved.

CWP/Evaporative Lagoon, SWMU 31 - The CWP is an incinerator measuring approximately 40 x 60 feet. It was designed to incinerate materials contaminated or suspected of being contaminated with reactive substances, and to decontaminate (flash) reactive-contaminated metal prior to salvage. The Evaporative Lagoon is located northwest of the CWP and has an approximate size of 0.9 acres and is about 10 feet deep. The lagoon was designed to collect runoff from the storage area around the contaminated waste processor and wastewater from building washdown. Trace concentrations of reactive substances and propellant compounds such as NG, DNT, and soluble lead may be present after incineration. While these constituents would not be reactive, they may be soluble. There is evidence that metals may be of concern due to past activities at this site. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Lead Decontamination and Recovery Unit, SWMU 32 - The site encompasses approximately 0.5 acre, and consists of a small building and melting rack within a paved area. Lead is the primary constituent of concern at this site. It is somewhat soluble under acidic conditions. Heavy metals, SVOCs, dioxin/furans and propellant compounds are contaminants of concern. Groundwater, surface water, and soil are media of concern. In 2001, the Army completed a remedial action to remove lead contaminated soils from SWMU 32. Petroleum contaminated soils at depth from a former UST location were removed and landfarmed along with excavated soils from SWMU 21 in 2003. The site was clean closed in 2003.

CCC Landfill, SWMU 41 – This landfill occupies approximately 2.5 acres. The source of CCC is NQ production. CCC is a byproduct of GN manufacturing, which is an intermediate product of NQ. CCC is the only waste reportedly landfilled at this site. Constituents present in

CCC include calcium carbonate, calcium cyanamide, ammonium, nitrate, sulfate, GN, metals, and fluoride. Deficiencies in the landfill cap were repaired in 1999. Groundwater at the site is contaminated by high levels of nitrates. Groundwater, surface water, and soil are media of concern.

Temporary Sanitary Landfill, SWMU 42 - The landfill was used to manage non-hazardous solid waste consisting of general trash. This site was used for the disposal of non-hazardous waste from facility operations. Groundwater impacts by nitrates have been identified. Groundwater, surface water, and soil are media of concern.

Road Just Southeast of the Sanitary Landfill, SWMU 49 - Along the road located just southeast of the Sanitary Landfill is a steep slope, which upon inspection, revealed the presence of drums, construction rubble, and other refuse underlying the road. This road may have been built over a landfill. The types of wastes disposed at this site are unknown. The contaminants of concern at this site are also unknown. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

***F.2. Potential contamination areas identified other than the known SWMUs, include:***

Not all areas of Segment 6 have been investigated. KDHE and EPA have received an anonymous report that there are drums filled with hazardous materials buried in a field south of SWMU 31, the CWP and evaporative lagoon. KDHE and EPA project managers have walked this field and there is an area in the field where settling of soil is evident, indicating that a potential burial site is present. Elevated concentrations of copper and lead occur in Roberts Lake (AOC 14). A property adjacent to Segment 6 is the Kansas University landfill located along the western boundary of the Sunflower facility, northwest of the Old Explosives Waste Burning Grounds. Segment 6 is upgradient from the Kansas University



landfill. Segment 6 is unlikely to be affected by hazardous substances in the landfill. The landfill property was previously owned by the Sunflower facility and transferred to Kansas University.

**F.3. Other environmental contamination issues:**

- ACM surveys conducted at two (2) facilities found that they did not contain ACM. It is assumed that four (4) other facilities may contain ACM because they were constructed prior to 1985.
- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all facilities within Segment 6 may contain LBP based on Sunflower's 1978 construction guideline.

**F.4 Remediation Activities:**

In 2002, the Army completed an interim remedial action to cover bare areas in the landfill and control erosion in the surface water drainage from SWMU 18. In 2001, the Army completed a remedial action to remove lead contaminated soils from SWMU 32. Petroleum contaminated soils at depth from a former UST location were removed and landfarmed on site in 2003. Soils contaminated with VOCs and SVOCs from a portion of SWMU 21 were excavated and landfarmed at SWMU 32 in 2003.

**G. SEGMENT SEVEN.** Segment 7, consisting of approximately 294 acres, contains a total of 183 facilities. Facility processes included the NG area, where NG was manufactured, and the Paste Area, where NC was blended with NG and other compounds to form the paste.

**G.1. Previously identified sources of potential contamination:**

SWMUs 24, 33, 34, and 35.

NG Ditches, SWMU 24 - The slightly acidic rinse water, the soda ash wash, and the water used for cleaning the floors and equipment was discharged without treatment to the NG

ditches. Each of the six (6) NG production buildings has a drainage ditch that is a tributary for the main ditch. The unlined ditches drained into Kill Creek prior to construction of Pyott's Pond in 1968, after which they flowed into the pond. The main ditch is approximately 1,300 feet long and between 3 to 12 feet deep. NG, metals, and acids could be expected in this area. Contaminants of concern are NG and lead. Investigations of SWMU 24 and adjacent SWMUs 33, 34, and 35 have documented impacts to soil, sediment, and groundwater. There is also a potential that the storm sewer system in these areas is contaminated with reactive/ignitable compounds. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Paste Area Half Tanks and Settling Ponds, SWMU 33 - There were a total of ten (10) steel half tanks clustered in two different locations: some were just northwest of the paste area (near the NG settling ponds), and others were just southeast of the paste area (between the 5 Corners settling ponds and the paste sump. The capacity of each tank was approximately 8,000 gallons. The half tanks received wastewater from wash down of propellant processing equipment and buildings in the Paste Area, and possibly from buildings in the NG Area as well. The material collected in the half tanks consisted of partially colloid and colloid propellant solids containing lead salts. Releases to the Settling Pond included the main contaminants of concern: lead salts, NC, NG, and uncolloid propellant. The pond sediments were also thought to contain a plasticizer, 2-NPDA, wax, and possibly some carbon black. The propellant N5 is a colloid form of paste comprised of NG, NC, diethylphthalate, lead 2-ethyl hexoate, and 2-NPDA. Groundwater, surface water, and soil are media of concern. In 2002, the Army completed remediation of contaminated soils in the half tanks and settling ponds.

Five Corners Settling Ponds, SWMU 34 – This SWMU contains two (2), earthen, unlined ponds, each with a surface area of approximately 40 square feet. These ponds are referred to

as Pond 5A (the southeastern pond) and Pond 5B (the northeastern pond). There are no containment berms surrounding these ponds. Partially colloided propellant solids and sludge containing lead salts have settled in these ponds. The Installation Action Plan reports that the ponds contained contaminants of concern including: raw propellant, uncolloided propellant, soil, and paste containing NC, NG, 2-NPDA, wax, slightly acidic rinse water, soda ash wash, and possibly some carbon black. Groundwater, surface water, and soil are media of concern. In 2002, the Army completed remediation of contaminated soils in the settling ponds.

NG Area Settling Ponds, SWMU 35 - There are two (2) ponds, each with a surface area of approximately 30 x 40 feet. These ponds are referred to as Pond 6A (the southeastern pond) and Pond 6B (the northeastern pond). The ponds were used to receive wastewater resulting from the wash down of equipment and buildings, and from sprinkler trips. Contaminants of concern are partially colloided propellant solids and sludge containing lead salts which have settled in these ponds. Groundwater, surface water, and soil are media of concern. In 2002, the Army completed remediation of contaminated soils in the settling ponds.

**G.2. *Potential contamination areas identified other than the previously identified SWMUs, include:***

The Hazard Analysis and Ballistics Laboratory (Facilities 300 and 302), used to test propellant, had a firing-range located within Facility 300. Inspections and interviews indicated some remediation of the firing range had occurred. The facility perimeter drains were directly connected to the storm sewer lines. Product from the NG and Paste Areas was regularly washed into the storm sewer system. These materials have the potential to adhere to the interior of the sewage system and pose a reactivity/ignitability hazard.

**G.3. *Other environmental contamination issues:***

· An ACM survey conducted at Facility 300 indicated ACM. All of the other facilities in

Segment 7 were constructed prior to 1985; therefore, the remaining 181 facilities may contain ACM.

- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all 182 facilities within Segment 7 may contain LBP based on Sunflower's 1978 construction guideline.
- Of the six (6) facilities surveyed for radon, one (1) was found to contain a radon concentration above 4.0 pCi/l.
- The EBS interviews and visual inspections indicated that there is a potential for unexploded ordnance and/or ordnance fragments in and around Facility 300. No other evidence was found to indicate that unexploded ordnance was used or stored in other portions of Segment 7.

#### ***G.4. Remediation Activities:***

Visual inspections and interviews during the EBS indicated that some remediation of the firing range in Facility 300 has occurred. In 2001, the Army completed remediation of contaminated soils in the half tanks and settling ponds at SWMUs 33, 34, and 35.

**H. SEGMENT EIGHT.** Segment 8, which consists of approximately 261 acres with 330 facilities, contained the NC Production Area, laboratory support, propellant mixing, forming areas, NQ support, and an aboveground storage tank farm area for the storing and dispensing of fuels and solvents.

#### ***H.1. Previously identified sources of potential contamination:***

SWMUs 48 and 54.

NQ Support Area, SWMU 48 - The following structures are currently present in the NQ support area:

- Buildings 2000 and 2012 were a part of the pilot-scale production plant known as the NQ support equipment facility. Building 2000 was used for various process engineering studies.
- Two (2) dryer bays are on the west side of Building 2000. The northern bay was used for NQ and the southern was used for GN.
- Two (2) 20,000-gallon ASTs are adjacent to the southwest corner of the GN dryer bay. One (1) tank contained 44 percent ammonium nitrate, and the other contained about 10 percent GN.
- Four (4) half tanks: two (2) are located north of the NQ dryer bay and two (2) are south of the GN dryer bay. Influent wastes were carried to these tanks by French drains from inside the NQ support equipment facility.
- Three (3) sumps are located between Buildings 2000 and 2012. The south sump contained sulfuric acid wastewater, the middle sump contained calcium cyanamide wastewater, and the north sump contained calcium carbonate sludge, ammonium nitrate and GN.

Surface runoff from the NQ Support Area discharges to Pond A. According to Sunflower personnel, there is indication that NC production occurred at the NQ support equipment facility at one time. Wastes generated at the site included raw materials, manufacturing intermediates, NQ, constituents of byproducts and wastes, and environmental degradation products of these materials. The contaminants of concern are nitrates, NQ and NG. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined. There is a potential that sewer lines in the area have waste product in them which could pose a reactivity/ignitability hazard.

Fluorescent Tube Well-SWMU 54 - The fluorescent lamp disposal well/cistern is located

east of the NQ production area. The site consists of a well/cistern as part of an old, pre-Sunflower homestead. The well is five (5) feet in diameter, about 12 feet deep and has a concrete wall. The well has been used as a fluorescent lamp bulb disposal pit. It is uncertain when this occurred, but is suspected to have taken place prior to 1976. The well is uncovered and full of water.

**H.2. Potential contamination areas identified other than the previously identified SWMUs, include:**

There is evidence that operations in the single base propellant production lines may have resulted in the release of propellant components to the environment. Propellant components (diethylphthalate, lead salts, finely divided solvent based propellants, etc.) may have been released into storm sewers as a result of numerous activations of the fire suppression or deluge system. Propellants are most likely to be found in sumps, traps, and buried storm sewers not yet excavated. Fires in blenders, wringers, and mix houses may have resulted in water-borne releases. There are no reports of previous investigations for the process areas in Segment 8.

**H.3. Other environmental contamination issues:**

- ACM surveys conducted at eight (8) facilities found that all eight (8) contained ACM. All of the other facilities in Segment 8 were constructed prior to 1985, and therefore all 181 facilities may contain ACM.
- LBP: facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all 190 facilities within Segment 8 may contain LBP based on Sunflower's 1978 construction guideline.

**H.4. Remediation Activities:**

Interviews conducted as part of the EBS indicate that some remediation of the NC

Production Lines B and C had occurred. Some sewers have reportedly been excavated and/or detonated in place prior to the EBS site inspection in June 1998. Some sewers have been removed and previously disposed. No other remedial activities are known to have occurred.

**I. SEGMENT NINE.** Segment 9, which was the area used for the manufacture of NQ, consists of approximately 588 acres and contains 182 facilities. The following process areas are in Segment 9: calcium cyanamide facility, wet GN facility, dry GN facility, wet NQ facility, dry NQ facility, poach house, tank farm, sulfuric acid concentration plant, nitrogen house, and operations support facilities.

***I.1. Previously identified sources of potential contamination:***

SWMUs 27, 28, 44, 45, 47, NQ Solar Pond, and Waste Calcium Carbide Treatment Area.

NQ Area SAC LWTP, SWMU 27 - The plant consists of a 45,000-gallon tank for distillate and a 17,000-gallon tank for other corrosives. In addition, there were two (2) Evaporative Lagoons south of the Liquid Waste Treatment Plant. The northernmost lagoon had an area of approximately 6.6 acres; the southern lagoon had an area of approximately 5.2 acres. The combined capacity of the lagoons was about 40 million gallons. Both lagoons were about 10 feet deep. The lagoons received wastewater from the treatment plant. The waste streams from the SAC and the NQ area contained NQ and GN. Lime sludge and acids may also be present. Sulfates, NQ and nitrates are contaminants of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Remedial actions underway at SWMU 27 began in 1986. The Sunflower schedule for remediation of the lagoon sludge and dismantlement of the lagoons was approved by KDHE as a partial fulfillment of requirements for lagoon closure. Remediation of sludge included in-situ denitrification. Following remediation, the clay berms were spread out over the

lagoon floor. Topsoil was brought in to cover and finish grading the lagoon area. An additional requirement to complete closure of the lagoons is groundwater monitoring at selected sites downgradient of the lagoons for a period of not less than five (5) years and submittal of a final work plan for closure activities consistent with KDHE pond closure/sampling verification plan.

Waste Calcium Carbide Treatment Area, SWMU 28 - This site is a state regulated unit and it was closed in accordance with KDHE requirements.

Tank T784, SWMU 44 - Tank T784, also known as Structure 9049, is in the northwest corner of the NQ Area. This above ground, circular, metal wastewater collection tank held cooling tower blowdown water, NQ crystallizer condensate, GN evaporator condensate, and non-contact cooling water. The tank has a capacity of 100,000 gallons. There are no spill containment structures for the tank. The wastewater in the tank is not normally contaminated. However, there is a potential for the wastewater to be acidic and/or contain elevated levels of nitrogen rich compounds. Metals are contaminants of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

Building 9040 (Calcium Cyanamide Conveyors and Storage Unit), SWMU 45 - Building 9040, also known as the wet GN building, is in the central part of the NQ Area. Calcium cyanamide was produced in Building 9004 and transferred via belt conveyor to Building 9040 for use in the GN process. The belt conveyor, which leads to the storage bins located on the east side of Building 9040, is enclosed in a sheet metal galleyway elevated 25 feet above the ground. There are four (4) 175-ton storage bins. Calcium cyanamide has been released at the bins because of problems with screw conveyors used to transport material from Building 9004. A concrete pad was constructed in a small portion of the area under the storage bins. The pad, however, is too small to effectively contain spillage, especially in windy conditions. A drainage divide is located in the NQ Area running east of Building 9040 which separates the



Captain Creek drainage area from the area drained by unnamed creeks flowing northward toward the Kansas River. As a result, Building 9040 drainage is divided between the two (2) drainage systems handled in this area. Materials handled in this area such as calcium carbide, calcium cyanamide, and calcium fluoride (fluorspar) are constituents of wastes generated at this site. NQ, GN, nitrates and sulfates are contaminants of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

NQ Production Area (23) Sumps, SWMU 47 - The main facilities in the NQ plant include the following six (6) buildings:

- Wet GN building (Building 9040);
- Dry GN building (Building 9041);
- SAC plant (Building 904);
- Wet NQ building (Building 9042);
- Dry NQ building (Building 9043); and
- Pack house (Building 9017).

All of these building have associated sumps designed to receive the wastewater generated in the NQ Area. Most of the sumps are below-grade circular or rectangular basins of either concrete or rubberized-asphalt earthen construction of varying sizes. In general, the wastewater from these sumps was removed by tank truck and transported to the South Acid Area LWTP, although some sumps were used as intermediate holding tanks prior to pumping to the ammonia stripper for recycling. Materials used in the production of NQ include calcium carbide, calcium fluoride (fluorspar), nitrogen, ammonia, nitric acid, and sulfuric acid.

Wastewater may be acidic, or basic as a result of neutralization with sodium hydroxide. It may contain contaminants such as NQ, and GN, as well as raw process materials or intermediates of the NQ process. Nitrates, ammonia, and cyanide may also be

present. Perchlorate is a potential contaminant of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined.

***I.2. Potential contamination areas identified other than the previously identified SWMUs, include:***

The EBS investigation found evidence that NQ contamination is pervasive throughout all processing facilities. Numerous spills of NQ, acids, calcium cyanamide, and various POLs have been reported, but were not identified with a particular SWMU. NQ was observed in several areas oozing out of walls and floors during the 1998 EBS visual inspection of the area.

Sites associated with NQ production process were potential sources for the following compounds: NQ, calcium cyanamide, calcium carbide, calcium fluoride, GN, ammonium nitrate, ammonia, calcium carbonate, nitric acid, and sulfuric acid.

***I.3. Other environmental contamination issues:***

ACM surveys were conducted at nine (9) facilities. Three (3) of those facilities were found to contain ACM. Of the 173 facilities not surveyed for ACM, 70 facilities may contain ACM as construction was prior to 1985.

LBP: Facilities constructed prior to 1978 are assumed to contain LBP. None of the facilities have been surveyed. However, all 182 facilities within Segment 9 may contain LBP based on Sunflower's 1978 construction guideline.

One (1) transformer that was formerly located north of Facility 9031 was reported to have a PCB content greater than 50 ppm.

***I.4. Remediation Activities:***

The Army submitted a work plan to the KDHE in February 1996 for remediation of the SAC Waste Treatment Plant/SAC Evaporation Lagoon (SWMU 27) sludge and

dismantlement of the lagoons. Remediation activities have been performed under the work plan. Groundwater monitoring downgradient of the lagoons for a period of not less than five (5) years and submittal of a final work plan for closure are also required to complete closure of the lagoons.

26. The Army was issued the RCRA Permit effective December 9, 1991. The Army also maintains interim status under RCRA for the open burning/open detonation of hazardous waste, which is currently identified as SWMU 23. The RCRA Permit additionally contains Corrective Action program requirements, set forth in Part II, to address the requirements of the Hazardous and Solid Waste Amendments of 1984 for corrective measures at SWMUs. The SWMUs and AOCs subject to Part II of the RCRA Permit are those listed in Exhibits 3 and 4, which are attached hereto and incorporated by reference into this Consent Order.

27. EPA issued a draft RCRA Permit modification for SFAAP, which modified the permit referred to in paragraph 26 above. The comment period ended November 15, 1999 and to date has not become final. A copy of the draft Permit is attached hereto as Exhibit 25 and incorporated by reference into the Consent Order.

28. The EPA has conducted a RCRA facility assessment of Sunflower. The Army has begun an RFI to delineate the contamination throughout Sunflower in order to facilitate the definition of areas of contamination and development of appropriate cleanup alternatives for each of those areas.

29. The Army has completed draft RFI Reports, of which fifteen (15) are now final RFI Reports for fifty-two (52) of the SWMUs, a Final Ecological Risk Assessment, a final grazing study, a final groundwater study, and a Final Community Relations Plan.

30. The Army has completed two (2) Interim Measures at SWMU 50. In 1998, the Army dismantled the six (6) wastewater treatment lagoons at SWMUs 13 and 27. The Army

is now conducting long term monitoring of groundwater at SWMUs 13 and 27.

31. The Army has been issued the Landfill Permits for Sunflower:

a. Permit #340 was issued in 1979 for a 6.4 acre calcium sulfate sludge disposal area designated as Pond A or SWMU 4, a calcium sulfate sludge disposal area which is identified as SWMU 12, a wastewater treatment plant lime sludge area adjacent to the drinking water treatment plant, a 16.9 acre sanitary landfill area identified as SWMU 18, and a 10.2 acre ash landfill area currently identified as SWMU 19 and including lagoons 165-N and 165-5S in the power plant area. The sanitary landfill location is currently being used for clean rubble disposal. In 1978, the lagoons (SWMU 13) associated with the sulfuric acid regenerating plant were added to the permit. In 1980, a letter amended the Permit to include a NQ sulfuric acid concentrator solar pond, currently identified as SWMU 27. This amendment was later interpreted to be the two large evaporative lagoons designated as SWMU 27. In 1983, the calcium sulfate sludge disposal area ( Pond B, SWMU 6 ) was added to the permit per Sunflower phone log. In 1986, permission was granted to add a calcium carbonate landfill, currently identified as SWMU 41, as an expansion area to Permit # 340. In 1987, a temporary sanitary landfill expansion cell between O-Line buildings 8810 -8 and 8810-9 was added to the permit. In 1989, The Army requested permission to construct a temporary sanitary landfill, currently identified as SWMU 42, adjacent to the calcium carbonate landfill. In September of 1998, KDHE determined the calcium carbonate landfill to be closed and thereby subject to the thirty (30) year post-closure requirements of K.S.A. 65-3406 and K.A.R. 28-29-12. The Army has submitted a restrictive covenant for the calcium carbonate landfill, to KDHE for filing, as required by K.A.R. 28-29-20.

b. Permit #684 was issued in October 1994 for the asbestos landfill in Section 24 which had been used for disposal prior to obtaining a permit. It is located adjacent

to the area currently identified as SWMU 19. In August 1998, KDHE gave the Army permission to add another cell to the landfill. The asbestos landfill was closed and capped in the fall of 2003. KDHE bureau of waste management approved the closure plan.

32. At the time the EBS was prepared, recent dumping of sulfur, calcium carbonate and other trash was evident at SWMU 18.

33. There are wastewater treatment and pollution control systems as well as water supply water treatment and distribution systems currently existing on Sunflower.

34. A final report for closure of the open burn/open detonation RCRA regulated unit, SWMU # 23, has been approved and the unit is considered closed.

35. Attached hereto as Exhibit 3 is a list of known SWMUs and their investigation status. Exhibit 4 is a list of AOCs which may have releases and require investigation.

36. Prior to the execution of this Consent Order, Respondent will submit a general Implementation Schedule and the first DIS consistent with the minimum requirements described in Exhibits 5, 6, 7, 10 and 21, for review and approval or disapproval by KDHE. Upon such approval, a copy of those Implementation Schedules will be attached hereto and incorporated by reference as Exhibits 8a and 8b.

#### **SECTION V - CONCLUSIONS OF LAW**

37. The Respondent is a "person" within the meaning of K.S.A. 65-164, et seq., K.S.A. 65-3002, et seq., K.S.A. 65-3402, et seq., K.S.A. 65-3430, et seq., K.S.A. 65-3452a, et seq., and more specifically K.S.A. 65-3453(a)(6).

38. The presence of the Pollutants identified in the soils and surface waters on the Site and the groundwater underlying the Site constitute "pollution" as defined by K.S.A. 65-171d and a Hazardous Condition as defined herein.

39. Some of the Pollutants identified in the soils and surface waters on the Site and the groundwater underlying the Site are "hazardous substances" as defined by K.S.A. 65-3452a, "hazardous wastes" as defined by K.S.A. 65-3430 and/or "solid wastes" as defined by K.S.A. 65-3402. The ACM in numerous buildings on Sunflower is a potential "air contaminant" as defined by K.S.A. 65-3002.

40. The area described in Exhibit 1 constitutes a "site" within the meaning of K.S.A. 65-3453 and a "facility" as defined in K.S.A. 65 - 3430(c).

41. The facts above constitute:

a) the discharge, abandonment, or disposal of hazardous substances or hazardous wastes;

b) the pollution of the land or waters of the state or the threat of pollution of the land or waters of the state;

c) a hazard to persons, property or public health or threatens to become a hazard to persons, property or public health.

42. Under the facts as shown above, the KDHE has concluded, and the Secretary has confirmed, that there is a need for a response action to prevent a continuing release or threat of release of Pollutants.

43. The Respondent shall evaluate such discharges as necessary to determine the full extent of the potential threat to public health and safety and the environment. The Respondent shall perform Work in order to remove the Pollutants and Hazardous Conditions and to protect the public health and safety and the environment, giving rise to the authority of the KDHE to issue this Consent Order. A necessary part of this evaluation is an investigation of the nature and extent of the threat to the public health or welfare or the environment caused by the release or threatened release of Pollutants on or from the Site, an evaluation of

alternatives for the appropriate extent of remedial action to prevent or mitigate the migration of the release or threatened release of Pollutants from the Site, a selection of a remedial alternative and implementation of that alternative.

44. The KDHE has authority to issue the Consent Order herein, and to make the findings of fact and conclusions of law herein stated.

45. The Secretary of Health and Environment is authorized by K.S.A. 65-3453, K.S.A. 65-164, et seq., K.S.A. 65-3002 et seq., K.S.A. 65-3402 et seq., K.S.A. 65-3430, et seq. and the regulations issued pursuant thereto to enter an order confirming the agreement of the Parties, and ordering the actions and obligations required by the foregoing findings of fact and conclusions of law. The Parties hereto agree to the following activities and commitments:

#### **SECTION VI - ORDER**

46. a. The Implementation Schedules shall start on the effective date of the Consent Order and shall be maintained current on a quarterly basis by the Respondent . Revisions shall be made in the same detail as the original and shall be accompanied by written explanation of the reasons for the revision and shall be submitted to the KDHE Project Coordinator for approval no fewer than fifteen (15) days prior to the effective date of the revision. Copies of the revised Implementation Schedules shall be sent to the KDHE Project Coordinator, the EPA Project Manager, and the U.S. Army.

b. Should the Respondent fail to meet the completion dates set out in the Implementation Schedules and the Respondent fails to invoke the provision of paragraph 98 below, KDHE may issue a written notice to the Respondent requiring Respondent to submit a written plan for expediting the Work to comply with the Implementation Schedules. The Plan

shall be submitted to the KDHE Project Coordinator within ten (10) working days after Respondent's receipt of such notice. The Respondent's plan shall specify the dates and means by which the Respondent will bring the work back on schedule. In the event Respondent fails to submit a written plan or fails to comply with the dates specified in the plan for bringing the Work back on schedule, such failure shall constitute a violation of this Consent Order and shall be subject to stipulated penalties. In the event the Respondent completes any Work prior to its completion date in the Implementation Schedule, the Implementation Schedule shall not be adjusted to accelerate future Work completion dates.

c. Time for completion shall be measured by calendar days, not work days.

d. The Respondent shall proceed expeditiously with the Work and complete the activities described in the Implementation Schedules by the dates set forth in the Implementation Schedules. A delay in delivery of any materials or equipment to the Site will not be considered a valid reason for an extension of time to conduct or complete activities described in the Implementation Schedules.

47. Eighteen (18) months prior to the date when the Work pertaining to a SWMU or AOC is scheduled on the general Implementation Schedule, the Respondent shall submit a DIS containing a draft Work Plan for KDHE approval which addresses Work pertaining to all of the SWMUs and AOCs, lists of which are attached hereto and incorporated into this Consent Order, as Exhibit 3 which is a list of known SWMUs and their investigation status, and Exhibit 4 which is a list of AOCs which may have releases and require investigation, respectively. All Work performed and submissions, except in interim actions and emergency actions, shall be consistent with those SOWs attached hereto and incorporated herein by reference for a RCRA Facility Investigation, SOW I; a Corrective Measures Study, SOW II; and a Corrective Measures Implementation, SOW III as Exhibits 5, 6 and 7,



respectively and shall meet the Performance Standards described in Exhibit 21. More specifically, the respective Work Plan shall include:

a. For those SWMUs and AOCs in Exhibits 3 and 4 where an RFI has been approved; or approved with comment or modification by KDHE, the Work Plan shall include a schedule for the Respondent to submit a draft report which will substantially comply with the requirements of a Corrective Measures Study whose scope of work, SOW II, is found in Exhibit 6.

b. For those SWMUs and AOCs in Exhibits 3 and 4 where an RFI has been started but not approved, the Work Plan shall include a schedule for the Respondent to complete such investigations necessary to submit a draft report that will substantially comply with the requirements of a RFI whose scope of work, SOW I, is found in Exhibit 5.

Contingent upon approval of the investigation report by KDHE, the Work Plan shall include a schedule for the Respondent to submit a draft report which will substantially comply with the requirements of a CMS whose scope of work, the SOW II, is found in Exhibit 6.

c. For those SWMUs in Exhibit 3 and all AOCs in Exhibit 4 where an RFI has not been started, the Work Plan shall include a schedule for the Respondent to conduct an investigation and submit a draft report that will substantially comply with the requirements of an RFI whose scope of work, SOW I, is found in Exhibit 5.

Contingent upon approval of this investigation report by KDHE, the Work Plan shall include a schedule for the Respondent to submit a draft report which will substantially comply with the requirements of a CMS whose scope of work, SOW II, is found in Exhibit 6.

48. In the event that a Hazardous Condition is discovered or Pollutants other than

the known SWMUs and AOCs identified and described in the Findings of Fact and Exhibits 3 and 4, are found on or emanating from the Site, the Respondent shall submit, within sixty (60) days of such discovery, a draft Work Plan that will substantially comply with the requirements of an RFI for KDHE approval which is consistent with the SOW I attached hereto, marked Exhibit 5, and thereafter comply with the procedures set forth in paragraph 47 subsections (a), (b), and (c) above.

49. Upon approval by KDHE of any respective report which will substantially comply with the requirements of a CMS, KDHE will prepare a draft Statement of Basis document which provides a summary of KDHE's proposed selection of the corrective action for the respective SWMU(s). The draft Statement of Basis and the supporting reports will be made available for public comment and review for a period of at least thirty (30) days.

Within thirty (30) days of KDHE's notification to the Respondent that the Statement of Basis document is final and that the required corrective action has been selected, the Respondent shall submit a draft work plan to KDHE for approval, which will substantially comply with the requirements of implementation of a Corrective Measures implementation whose scope of work, SOW III, is found in Exhibit 7, that complies with applicable provisions of RCRA and the regulations promulgated thereunder, the final Statement of Basis documents and the Performance Standards attached hereto as Exhibit 21 and incorporated herein.

50. Respondent specifically agrees to complete the Work in accordance with this Order to Performance Standards, in addition to the previously described Hazardous Conditions, all Pollutants in groundwater originating at Sunflower whether within or emanating beyond the boundaries of the Site.

51. Within thirty (30) days following KDHE's approval of the Work Plan(s), the Respondent shall conduct the Work described therein in accordance with the DIS.

52. For purposes of this Order, the corrective action levels for the Work will be those set forth in the Performance Standards which are appropriate for the land uses described in the Master Plan. Land uses described in the Master Plan shall be deemed “residential” except for those portions: (i) of the Site subject to the Landfill Permits; and (ii) of the Master Plan designated “light industrial”. KDHE will use EPA Region 9 preliminary remediation goals or develop an appropriate Performance Standard using accepted EPA risk assessment methodology for contaminants that are not currently listed in the Performance Standards.

53. The Army, or the Respondent, to the extent it has assumed such responsibility in the Privatization Agreement attached hereto as Exhibit 10, with regard to Solid Waste Permit #340, shall provide long-term care for a minimum period of thirty (30) years following completion of the implementation of the closure plan required by K.S.A. 65-3406(a)(18) and K.A.R. 28-29-12(e), and submission of the certification of such completion to KDHE for approval.

54. Pursuant to the Privatization Agreement, attached as Exhibit 10, with regard to Solid Waste Permit # 684, the Respondent shall provide long-term care for a minimum period of thirty (30) years as specified in the closure plan approved by KDHE and as required by K.S.A. 65-3406(a)(18) and K.A.R. 28-29-12(e).

55. Within 180 days after the effective date of this Consent Order, the Respondent shall submit a report to KDHE which:

- a. Details the status and planned use of all wastewater treatment and pollution control systems as well as all water supply treatment and distribution systems located on Sunflower;
- b. Specifically indicates the status related to the continued operation of those systems associated with the Army;

c. Indicates whether there will be continued operation of the wastewater treatment water supply system, who will be responsible for any permitting requirements, or who will be responsible for the closure/deactivation of the system;

d. Indicates whether portions of the Site will be leased to other entities, and if so, identify the respective lessees and leased areas; and,

e. For those wastewater treatment and pollution control systems as well as the water supply treatment and distribution systems that will no longer be utilized, within ninety (90) days after the submission of the report required by this Section (which is 270 days after the effective date of this Consent Order), the Respondent shall develop and submit to KDHE a work plan for taking these systems out of service and decommissioning them.

56. If future proposed Work involves the disturbance of one (1) acre or more, the Respondent, in a timely manner, shall file a complete application for an NPDES permit for stormwater runoff resulting from the construction activities if required by applicable law. The Stipulated Penalties Section shall not apply to this paragraph; however, in the event that an administrative penalty is assessed by KDHE for failure to follow the substantive requirements of this paragraph in a timely and satisfactory manner, those penalties shall be assessed pursuant to the relevant statutes governing the activity, and the Stipulated Penalty Section of this Consent Order shall not serve to reduce or limit such administrative penalty.

57. If KDHE determines that future Work requires modification of existing permits or new permits, the Respondent shall, in a timely manner, modify existing permits or submit completed applications for new permits pursuant to K.S.A. 65-161 et seq. and the regulations promulgated thereunder. The Stipulated Penalties Section shall not apply to this paragraph; however, in the event that an administrative penalty is assessed by KDHE for failure to follow the substantive requirements of this paragraph in a timely and satisfactory manner, those

penalties shall be assessed pursuant to the relevant statutes governing the activity, and the Stipulated Penalty Section of this Consent Order shall not serve to reduce or limit such administrative penalty.

58. If KDHE determines, based upon anticipated Work, that air permits pursuant to K.S.A. 65-3001 et seq. are necessary, the Respondent shall submit, in a timely manner, completed applications for air permits pursuant to K.S.A. 65-3001 et seq. and the regulations promulgated thereunder. The Stipulated Penalties Section shall not apply to this paragraph; however, in the event that an administrative penalty is assessed by KDHE for failure to follow the substantive requirements of this paragraph in a timely and satisfactory manner, those penalties shall be assessed pursuant to the relevant statutes governing the activity, and the Stipulated Penalty Section of this Consent Order shall not serve to reduce or limit such administrative penalty.

59. The Army has agreed to remain on the RCRA Permit until Corrective Action is completed. In addition, EPA has determined that the Respondent will be listed as an owner and/or operator on Part II of the RCRA Permit.

Ninety ( 90) days prior to the Closing, the Respondent shall file Business Concern Disclosure Statement Forms I and II to initiate the process of the RCRA Permit (Part I) pursuant to K.A.R. 28-31-9(b).

60. KDHE will review each submission and provide the Respondent with its written approval, approval with conditions, disapproval, or disapproval with comments or modifications for any Deliverable submitted pursuant to or required by this Consent Order.

61. Within thirty (30) days of receipt of KDHE's written approval with conditions, disapproval, or disapproval with comments or modifications, the Respondent shall amend any Deliverable and resubmit to KDHE the revised Deliverable. Upon resubmission, KDHE may

either approve the Deliverable in writing or KDHE may unilaterally modify the Deliverable. KDHE will provide the Respondent with a copy of the modified Deliverable, to be implemented in accordance with any modifications. If, upon resubmission, a Deliverable, or any portion thereof, is disapproved or modified by KDHE, KDHE may deem the Respondent to have failed to submit such Deliverable. If KDHE deems the Respondent to have failed to submit a Deliverable, stipulated penalties will accrue in accordance with Section XVII. KDHE's determination that any Deliverable does not conform to the requirements of this Consent Order shall be subject to the Dispute Resolution procedures set forth in Section XIV. Invocation of dispute resolution shall not stay the Respondent's obligation to perform any Work, that is not subject to dispute resolution nor dependent upon the Work being disputed, which is otherwise required by any approved or modified Deliverable.

62. Within thirty (30) days of receipt of KDHE's written approval of any Deliverable, or within such time as the KDHE and the Respondent may agree in writing, the Respondent shall commence work and implement the tasks required by the Work Plan(s) or Report(s) submitted or pursuant to the SOW(s) and Implementation Schedules, if appropriate, in accordance with the provisions, specifications and schedule contained therein.

63. KDHE shall use its best efforts to review each Deliverable and provide its modifications, disapproval, disapproval with comments, if any, or its approval or approval with conditions within thirty (30) days of the KDHE's receipt of the Deliverable submitted pursuant to or required by this Consent Order. If KDHE does not provide comments, or its disapproval/approval within the thirty (30) days, the Respondent's timetable to deliver that Deliverable and those subsequent Deliverables directly dependent upon KDHE's comments/approval of such Deliverable, under the Implementation Schedules shall be extended by an amount of time equal to the amount of time beyond such thirty (30) day period.

64. Any KDHE approved Deliverable shall be deemed incorporated into this Consent Order. Prior to this written approval, no Deliverable shall be construed as approved and final. Oral advice, suggestions, or comments given by KDHE representatives will not constitute an official approval, nor shall any oral approval or oral assurance of approval be considered binding and shall not relieve the Respondent of any responsibilities or obligations under this Consent Order. Any non-compliance with such approved Deliverable may be considered a violation of this Consent Order.

65. KDHE may also notify the Respondent in writing of KDHE's disapproval of the Respondent's implementation of the approved Work Plan(s).

66. In the event of any KDHE disapproval of the Respondent's implementation of the approved Work Plans, KDHE shall send the Respondent a Notice of Disapproval delineating the deficiencies, requiring modified work to cure the deficiencies in the Work and setting a schedule for response by the Respondent, provided however that KDHE deems any such requirements to be consistent with the objectives of the Work Plans and Consent Order.

67. 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 Consent Order. KDHE may require the Respondent to implement any such additional tasks within a timeframe specified by KDHE. Failure by the Respondent to implement additional tasks as required by KDHE, shall be considered a violation of this Consent Order.

68. All Work performed pursuant to this Consent Order shall be under the direction and supervision of a professional engineer or professional geologist, either to have expertise in hazardous waste site investigations and remediation. Thirty (30) days prior to the date of employment, the Respondent shall notify KDHE in writing of the name, title, and qualification of the engineer or geologist, and of any contractors to be used in carrying out the terms of this

Consent Order. The Respondent shall send copies of all change orders that alter the SOWs or the Implementation Schedules between the Respondent and its general contractor to the KDHE Project Coordinator.

69. KDHE agrees, to the extent of its authority, that all Tracts transferred with a Covenant Deed shall not be subject to the Consent Order. KDHE also agrees that those Tracts transferred with a Deferred Covenant Deed which later receive the CERCLA Covenant shall, after receipt of such CERCLA Covenant, no longer be subject to the Consent Order.

70. Upon the Respondent's completion of all Work related to a SWMU, group of SWMUs, or AOCs to the satisfaction of KDHE, KDHE agrees: (i) to provide and issue a written letter indicating that no further corrective action is planned for the associated Tracts to the Respondent, which Respondent intends to deliver to the Army in accordance with the Prioritization Agreement to obtain the CERCLA Covenant; (ii) and may terminate the Consent Order as to the Tracts addressed in the determination in accordance with paragraph 126 hereof.

a. Such determination shall apply to each respective Tract which is subject to this Consent Order for which the Performance Standards have been met.

b. Such determination may include conditions including, but not limited to long term monitoring, ineffective remedy operation, restrictive covenants, or future discovery of contamination on, or emanating from the Tract.

71. KDHE agrees to assist the Respondent in providing such documentation as the Army reasonably requests in issuing a CERCLA Covenant, in accordance with Section ??? of the Privatization Agreement.

## **SECTION VII - INTERIM MEASURES**



72. The Respondent shall evaluate all available data and assess the need for Interim Measures and the effectiveness of any on-going Interim Measure. The Respondent shall submit this information as part of its quarterly report to KDHE in accordance with the Reporting Section of the Consent Order. The Respondent shall use Interim Measures whenever possible to control or abate immediate threats to human health and/or the environment, and to prevent or minimize the spread of Pollutants while long term corrective measures and alternatives are being evaluated.

73. a. In the event the Respondent identifies any immediate or significantly increased threat to human health and/or the environment, the Respondent shall notify the KDHE Project Coordinator, orally within forty-eight (48) hours of discovery. The Respondent shall notify KDHE in writing within ten (10) working days of identification, summarizing the immediacy and magnitude of the threat(s) to human health or the environment. Upon written request of KDHE, the Respondent shall submit to KDHE an IRM work plan meeting the requirements of subsection (d) below. If KDHE determines that immediate action is required, the KDHE Project Coordinator may orally authorize the Respondent to act prior to KDHE's receipt of the IRM work plan.

b. If KDHE notifies the Respondent in writing of any threat, immediate or potential, to human health or the environment, the threat must be addressed in an IRM work plan. Within seven (7) working days of receiving KDHE's written notification, the Respondent shall submit to KDHE an IRM work plan which will mitigate the threat. If KDHE determines that immediate action is required, the KDHE Project Coordinator may orally require the Respondent to act prior to the Respondent's receipt of KDHE's written notification.

c. All IRM work plans shall contain provisions to ensure that the interim measures are designed to mitigate immediate or potential threat(s) to human health or the

environment, and should be consistent with the objectives of, and contribute to the performance of any long-term remedy which may be required at Sunflower.

d. The IRM work plan shall be written to include the appropriate and applicable components recommended in the RCRA Corrective Action Interim Measures Guidance document (EPA/530-SW-88-029, June 1988). The components include, when appropriate: Interim Measures Objectives; a Health and Safety Plan; a Public Involvement Plan (Community Relations Plan); a Data Collection Quality Assurance Plan, a Data Management Plan; Design Plans and Specifications; an Operation and Maintenance Plan; a Project Schedule; and IRM Construction Quality Assurance Plan; and Reporting Requirements.

#### **SECTION VIII - PUBLIC PARTICIPATION**

74. In order to comply with the public participation requirements of CERCLA and RCRA, the Respondent shall either: (a) continue the Restoration Advisory Board previously established by the Army and to continue this group as a citizens' advisory group for the Site; or (b) \_\_\_\_\_.

75. Additionally, KDHE will prepare and conduct a public meetings concerning Corrective Actions being conducted at the Site. KDHE may include the estimated costs of the preparation and implementation of the public meetings in the annual Response Cost budget and the Respondent shall prepay or reimburse such costs pursuant to Section XXII, Prepayment and Reimbursement of Costs.

#### **SECTION IX - QUALITY ASSURANCE**

76. All samples analyzed pursuant to this Consent Order shall be analyzed using laboratory methodologies approved by KDHE.

77. The Respondent shall perform all sample collection and analysis in compliance with the approved Work Plan, including scheduling of analyses, documentation of sample collection, handling and analysis.

78. The Respondent shall submit laboratory analytical report forms to KDHE for all analytical work performed pursuant to this Consent Order.

Additionally within ninety ( 90 ) days of the Effective Date, Respondent shall submit to KDHE a general quality assurance project plan specific to the activities at Sunflower. This plan may be amended from time to time as required for the Work; such amendments shall not become effective until receipt of approval from KDHE.

Any known deviations from the procedures and methods set forth in any of the above documents must be approved in writing by KDHE prior to use. The 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, the Respondent will resample and reanalyze at KDHE's direction. The Respondent will notify KDHE at least seven (7) days before conducting resampling. KDHE may consider the Respondent's failure to follow the above procedure for notification of deviations as violation(s) of this Consent Order and the Respondent will be subject to an administrative penalty of \$1,000 per violation and the data resulting therefrom shall be invalid.

79. The 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 respective Work Plan(s), for all sample collection and analysis performed pursuant to this Consent Order, unless otherwise agreed to in writing by KDHE.

80. The name(s), address(es), and telephone number(s) of the analytical laboratories the Respondent proposes to use must be specified in the respective Work Plan(s) for KDHE's approval.

81. 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 contractors and personnel utilized by the Respondent for sample collection and analysis and other field work. The Respondent shall provide that upon request by KDHE, the laboratories used by the Respondent shall perform analysis of a reasonable number of known samples provided by KDHE to demonstrate the quality of the analytical data. If the known sample analysis reveals deficiencies in a laboratory's performance or quality assurance/quality control procedures, KDHE may require resampling and additional analysis.

#### **SECTION X - REPORTING**

82. The Respondent shall provide KDHE with written quarterly progress reports, beginning with the first quarter following the effective date of the Consent Order. Progress reports shall be submitted on the fifteenth (15th) day of July, October, January and April of each year. At a minimum, these progress reports shall: (1) describe the actions, progress, and status of Work which have been taken toward achieving compliance with this Consent Order, as well as the actions which are scheduled for the next quarter; (2) identify any requirements under this Consent Order that were not completed as provided and any problem areas and anticipated problem areas in complying with this Consent Order; and (3) include all

results of sampling, tests, data, and conclusions drawn from data generated pursuant to the Work Plan(s).

### **SECTION XI - ACCESS**

83. KDHE and any of its agents or contractors is authorized by the Respondent to enter and freely move about all property at the Site, consistent with the mutually agreed upon health and safety plan of the Respondent, during reasonable business hours 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(s); reviewing the progress of the Respondent in carrying out the terms of this Consent 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 the Respondent; provided, however, KDHE and its agents and contractors shall not interfere with ongoing appropriate activities at the Site. The 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, except for such information which is privileged or confidential under the laws of the State of Kansas or the United States, which privilege or confidentiality would be lost by providing it to the KDHE. In the event Respondent alleges that disclosure poses a potential breach of a U.S. statute, Respondent shall provide legal support for such contention to KDHE. Upon agreement by KDHE with Respondent's position, disclosure of such information shall be protected pursuant to K.S.A. 65-3447 and as allowed by K.S.A. 45-221 et seq. In the event KDHE disagrees with Respondent's request, it shall notify Respondent in writing.

84. Respondent shall retain all necessary rights to access for transferred portions of the Site in order to perform any and all Work. To the extent that work required by the Work Plan(s) must be done on property not owned or controlled by the Respondent, the Respondent shall use its best efforts to obtain access agreements from the present owner(s) of such property within thirty (30) days of the discovery of the need for access. Best efforts include, but are not limited to, reasonable payment of monies to the property owner. In the event that agreements for access are not obtained within thirty (30) days after the need for access has been determined, the Respondent shall notify KDHE regarding both the lack of and its failure to obtain such agreements within seven (7) days thereafter. In the event that KDHE obtains access for the Respondent, all costs incurred by KDHE shall be reimbursed by the Respondent. Upon KDHE's obtaining access for the Respondent, the 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 acts or omissions of the Respondent, its officers, employees, agents, successors, assigns, contractors, or any other person acting on the Respondent's behalf in carrying out any activities pursuant to the terms of this Consent Order. The Respondent shall not be responsible for any injury or damage to persons or property caused by the negligence or willful acts of KDHE, its officers, employees, agents, successors, assigns, contractors, or any other person acting on KDHE's behalf and carrying out any activities pursuant to the terms of this Consent Order.

#### **SECTION XII - SAMPLING AND DATA/DOCUMENT AVAILABILITY**

85. The 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 Consent

Order. The Respondent shall submit these results in the progress reports described in the "Reporting" section of this Consent Order. KDHE will make sampling results and other data available to the Respondent. The Respondent may perform such other additional investigations and take such additional samples as KDHE deems appropriate.

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

### **SECTION XIII - RECORD PRESERVATION**

87. The Respondent agrees that it shall preserve, during the pendency of this Consent 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 Consent Order. At the conclusion of six (6) years, the Respondent shall then make such records available to KDHE for inspection. If KDHE determines to retain such records, Respondent shall provide copies of all such records to KDHE.

**SECTION XIV - DISPUTE RESOLUTION**

88. Except as provided in Section XVI, Stipulated Penalties, the existence of a dispute as defined in this Section and KDHE's consideration of matters placed into dispute shall not excuse, toll, or suspend those compliance obligations or deadlines required, which are not directly related to/nor dependent upon the matter being disputed, pursuant to this Consent Order during the pendency of the dispute resolution process. If, however, the Respondent prevails in the dispute or is deemed by the Director to have had a good-faith dispute, obligations or deadlines directly affected by the matters in dispute will be extended for a period of time equal to the time taken to resolve the dispute under the procedures of this Section, plus reasonable time for remobilization, as determined by KDHE. The Director will make the finding of which obligations or deadlines were directly affected by the matters in dispute.

89. Whether and in what amounts the Respondent shall be liable for stipulated penalties, set forth in Section XVI of this Consent Order, which accrue during the dispute resolution period(s) if KDHE prevails, shall be part of the dispute resolution, and shall be resolved by the Director in his or her discretion.

90. Any dispute which arises under or with respect to this Consent Order shall in the first instance be the subject of informal negotiations.

91. If the Respondent disagrees, in whole or in part, with any approval or other decision by KDHE made pursuant to this Consent Order, the Respondent shall notify the KDHE in writing within thirty (30) days of its receipt of such decision.

92. Respondent and KDHE shall then have an additional forty-five (45) working days



to attempt to resolve the dispute unless such time is modified by agreement. If an agreement is reached, the resolution shall be reduced to writing, signed by each party, submitted to the Director for approval and incorporated thereupon into, and thereby becoming an enforceable element of, this Consent Order.

93. If an agreement is not reached, the KDHE shall issue its final decision in writing to the Respondent.

94. Respondent reserves its right to appeal any decision so issued by KDHE which is not consistent with law or which is arbitrary and capricious to an administrative body with applicable jurisdiction pursuant to the Kansas Administrative Procedures Act, set forth at K.S.A. 77-501 *et seq.* and thereafter, if necessary, in compliance with the Kansas Judicial Review Act set forth at K.S.A. 77-601 *et seq.* The final decision or resolution of such authority shall be incorporated as a part of this Consent Order.

For purposes of this Consent Order, final order or decision shall mean an order or decision from which no appeal is taken in a timely manner.

In the event that it is determined by the appellate body making the final order or decision that dispute resolution was not sought by Respondent in good faith, administrative penalties may be assessed at the rate of up to \$1,000 per day for each day of delay caused by such invocation of the dispute resolution.

Any delay caused by the invocation of dispute resolution provisions shall not alter the schedule of performance or completion of other tasks under this Consent Order unless specifically altered by amendment of the Implementation Schedule.

#### **SECTION XV - SCHEDULE DELAYS AND FORCE MAJEURE**

95. a. Delays that result from causes not foreseeable and beyond the Respondent's control and which cannot be overcome by due diligence shall not be a violation of the Respondent's obligations under this Consent Order. "Due Diligence" is defined for purposes of this Consent Order as the measure of prudence, activity, and foresight reasonably expected from and ordinarily exercised by a reasonable and prudent person under the particular circumstances. The Respondent shall notify KDHE orally as soon as possible, but no later than five (5) Working Days after the Respondent knows of any delay or anticipated delay in compliance with the requirements of this Consent Order, and shall confirm such notice in writing no later than five (5) Working Days after the oral notification of the delay. The written notice shall describe the nature of the delay, the cause of the delay, whether and why the delay was unforeseeable and beyond the control of the Respondent, the actions taken and/or that will be taken to mitigate, prevent and/or minimize further delay, and the anticipated length of the delay. The Respondent shall adopt all measures to avoid or minimize such delay. To the extent a delay is caused by circumstances beyond the control of the Respondent, or those resulting from delays caused by KDHE or any third party not under the control or employment of any of the signatories hereto, the schedule shall be extended for a period equal to the delay resulting from such circumstances. Such an extension does not alter the schedule for performance or completion of other tasks required by this Consent Order unless also specifically altered by amendment of the Implementation Schedule. Failure to comply with the notice provision of this Section may be grounds for KDHE to deny the Respondent an extension of time for performance. Unexpected delay events do not include unanticipated or increased costs of performance, changed economic circumstances, or normal precipitation events (using the seven (7) year average). If KDHE determines that the delay as stated in the

Respondent's written notice to KDHE was not due to unexpected delay events, an administrative penalty may be assessed as provided below in paragraph 96.

b. KDHE and the Respondent agree that failure to obtain required access to property of third parties shall be considered a force majeure, provided the Respondent has exercised due diligence, including payment of monies, in attempting to obtain such access which prohibits or delays performance.

c. KDHE and the Respondent further agree that: (a) actions by the EPA, the GSA, the Department of Defense, the state of Kansas, Kansas State University, the University of Kansas, the City of DeSoto, the DeSoto School District, the Kansas State Historic Preservation Office, the Advisory Council on Historic Preservation, the Army, or insufficient availability of appropriated funds, if the Army shall have made timely request for such funds as part of the budgetary process, which delay the Respondent's ability to carry out the Work or other of the Respondent's obligations under this Consent Order; and (b) any ruling, injunction, equitable relief, or other judicial finding, whether temporary or permanent, which prohibits or delays the Respondent from performing its obligations in connection with this Consent Order and arising, directly from any third party lawsuit challenging the right or authority of the United States, the state of Kansas, the KDHE, the GSA, or the Army to enter into or to carry out any of the transactions leading to the transfer of any portion of Sunflower to the Respondent, or its successors or assigns shall each constitute a force majeure.

#### **SECTION XVI - STIPULATED PENALTIES**

96. In order to protect human health, safety and the environment, through timely performance under this Consent Order, unless there has been a written modification by KDHE

of a compliance date, a written modification by KDHE of an approved Work Plan condition, or excusable delay as defined in Section XV, Force Majeure, or the failure to comply is directly affected by a dispute within the dispute resolution process specified in Section XIV, Dispute Resolution, if the Respondent fails to comply with the terms and conditions set forth in this Consent Order in the specified time frame and/or in an adequate manner as specified herein, the Respondent shall pay stipulated penalties as set forth below. Compliance by the Respondent shall include completion of an activity under this Consent Order or a plan approved under this Consent Order or completion of any other requirement of this Consent Order in an acceptable manner and within the specified time schedules in and approved under this Consent Order.

a. For failure to submit the Work Plan(s) or Deliverables by the dates set out in the Implementation Schedules attached as Exhibit 8 and its subparts, the Respondent shall pay \$500 per day for the first seven days of such violation; \$1,000 per day for the eighth through twenty-first day of such violation; and \$2,450 per day for each day of such violation, thereafter;

b. For failure to complete any Work by the date set out in the Implementation Schedules, including that Work required by Paragraphs 67 (Additional Work) and 72 *et seq.* (Interim Measures), the Respondent shall pay \$500 per day for the first seven days of such violation; \$2,000 per day for the eighth through twenty-first day of such violation; and \$4,000 per day for each day of such violation, thereafter;

c. For failure to submit written quarterly Progress Reports in accordance with the requirements of Section X, the Respondent shall pay \$150 per day for the first seven days of such violation; \$350 per day for the eighth through twenty-first day of such violation; and

\$500 per day for each day of such violation, thereafter.

97. All penalties owed to KDHE under this Section shall be due and payable within sixty (60) days of the Respondent's receipt from KDHE of a written demand for payment of the penalties, unless the Respondent invokes the dispute resolution procedures under Section XIV, Dispute Resolution. Such a written demand will describe the violation and will indicate the amount of penalties due.

98. The Respondent may dispute KDHE's assessment of stipulated penalties by invoking the dispute resolution procedures under Section XIV, Dispute Resolution. The stipulated penalties in dispute shall continue to accrue, but need not be paid, during the dispute resolution period. The Respondent shall pay stipulated penalties in accordance with the dispute resolution decision or agreement. The Respondent shall submit such payment to KDHE within thirty (30) days of the date of such final resolution, decision or agreement.

99. The payment of stipulated penalties shall not alter in any way the Respondent's obligation to comply with the terms and conditions of this Consent Order.

100. The stipulated penalties set forth in this Section do not preclude KDHE from pursuing any other remedies or sanctions which may be available to it by reason of the Respondent's failure to comply with any of the terms and conditions of this Consent Order. Upon the Respondent's full and timely payment of stipulated penalties assessed pursuant to this Section, KDHE agrees not to seek other judicial or administrative penalties for the same violations for which stipulated penalties have been assessed and fully paid.

#### **SECTION XVII - OTHER CLAIMS AND PARTIES**

101. a. Nothing in this Consent Order or the documents required hereunder shall

be used by KDHE or construed as an admission in any proceeding other than the proceedings under this Consent Order. Nothing in this Consent 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 Consent 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, pollutants, hazardous wastes, or contaminants found at, taken to, or taken from Sunflower.

b. Only parties who are signatories to this Consent Order shall be beneficiaries to the terms of this Consent Order, nor shall any rights, claims or causes of action accrue to third parties as a result of this Consent Order.

102. In the event a Court interprets this Consent Order to be a contract, the Parties agree and acknowledge that the rights and privileges granted to KDHE by Respondent under this Consent Order are of a unique, unusual, special, or extraordinary character and have a peculiar value, the loss of which cannot be reasonably or adequately compensated in damages in any action at law, and a failure to perform the Work will cause irreparable injury and damage. Further, the Work performed by Respondent is impersonal and objective and is provided by a business entity so that the enforced performance thereof will not interfere with the privacy or liberty of any person. KDHE in addition to any other remedies, shall be entitled to the remedies of injunction, specific performance and other equitable relief to prevent a breach of this Consent Order by Respondent. Any duties of direction and administration to be undertaken by any court or judicial authority in the enforcement of such equitable remedies shall be minimal and be limited to the Remediation required to be provided pursuant to the Consent Order.

### **SECTION XVIII - OTHER APPLICABLE LAWS**

103. All actions required to be taken pursuant to this Consent Order, including the Work as herein defined, shall be undertaken in accordance with the substantive requirements of all applicable local, state, and federal laws and regulations.

This Consent Order shall be interpreted under the laws of the State of Kansas.

### **SECTION XIX - ASSURANCE OF ABILITY TO COMPLETE WORK**

104. The purpose and scope of this Consent Order shall be to complete the Work in a manner and timeframe acceptable to KDHE, all of the Scope(s) of Work which are attached to this Consent Order as Exhibits 5, 6, 7, and associated Work Plans in order to investigate and conduct corrective action upon all Hazardous Conditions existing at Sunflower.

105. Prior to the effective date of this Consent Order, or in any case no later than the date of the Closing, the Respondent shall provide, establish and maintain the EPP Insurance, in an amount sufficient to complete all Work to the Performance Standards.

106. The Respondent's inability to demonstrate financial ability to complete the Work shall not excuse performance of any Work required under this Consent Order.

### **SECTION XX - PROJECT COORDINATORS**

107. On or before the effective date of this Consent Order, KDHE and the Respondent shall each designate a Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. The KDHE Project Coordinator will be KDHE's designated representative. To the maximum extent possible, all communications between the Respondent and KDHE and all Deliverables, reports, approvals, and other

correspondence concerning the Work and other activities performed pursuant to the terms and conditions of this Consent Order, shall be directed through the Project Coordinators. The Parties agree to 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 considered a force majeure or a cause for the stoppage of the Work.

### **SECTION XXI - NOTIFICATION**

108. Unless otherwise specified, Deliverables, notices or other submissions required under this Consent Order shall be in writing and shall be sent to:

- a. **For KDHE:**  
Robert Weber  
Bureau of Environmental Remediation  
Kansas Department of Health and Environment  
1000 SW Jackson, Suite 410  
Topeka, Kansas 66612-1367
- b. **For Respondent:**  
Sunflower Redevelopment, L.L.C.  
C/o Mikkell Anderson  
7991 Shaffer Parkway, Ste. 100  
Littleton, Colorado 80127

**with a copy to:**  
Scott A. Young, Esq.  
Polsinelli, Shalton, Welte & Suelthaus  
700 West 47<sup>th</sup> Street, Suite 1000  
Kansas City, Missouri 64112

### **SECTION XXII - PREPAYMENT AND REIMBURSEMENT OF COSTS**

109. a. KDHE's estimated response costs shall be paid by the Respondent in advance. Each year KDHE will provide the Respondent a detailed written budget of its estimated Response Costs for the following calendar year. For the remainder of 2005, such



annual budget will be provided within sixty (60) days of the date of this Consent Order and thereafter, no later than April 1, of each year. No later than thirty (30) days following receipt of the annual budget, the Respondent will either: (i) make a payment which covers the first two (2) quarters of the annual budget (less any amounts previously paid to KDHE pursuant to this paragraph which remain unexpended); or (ii) dispute the prepayment of any such amount pursuant to Section XIV Dispute Resolution of this Consent Order. Payments pursuant to this Section shall be Deliverables and subject to stipulated penalties. Any credit owed to the Respondent at the end of each calendar year will be applied by KDHE against the subsequent year's annual budget. Any Response Costs owed by the Respondent to KDHE at the end of the year shall be paid by the Respondent no later than thirty (30) days following receipt of a bill therefor.

b. Within sixty ( 60 ) days after the end of each quarter, KDHE will provide the Respondent with an accounting of actual Response Costs incurred in such quarter. Payments by the Respondent to KDHE of the third and fourth quarter of the Annual Budget will be made no later than thirty (30) days prior to the beginning of each such quarter.

c. Upon termination of the Consent Order pursuant to paragraph 124, KDHE shall return to Respondent all amounts paid to KDHE pursuant to this Section which have not been needed to reimburse KDHE for actual Response Costs.

d. KDHE may submit to the Respondent the cost of preparing and maintaining the Administrative Record, including but not limited to photocopying, assembling, mailing, updating, storage and other maintenance services as part of the Annual Budget for prepayment or it may provide the Respondent with an accounting of such Administrative Record costs periodically. Within thirty (30) days of receipt of such accounting, the

Respondent shall reimburse KDHE for such amount.

e. KDHE reserves the right to supplement its budget after the end of the second quarter of the year if actual Response Costs are in excess of the payment made by the Respondent based on the Annual Budget. The Respondent will then include the additional money owed in its next quarterly payment to KDHE.

f. Payments required hereunder shall be made in full by certified check made payable to "Kansas Department of Health and Environment" and shall reference this Consent Order. Payments should be addressed to:

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

g. A copy of the check and transmittal letter shall be sent to the KDHE contact specified herein.

110. At any time, KDHE may submit to the Respondent an accounting of Response Costs which have been incurred by KDHE with respect to this Consent Order during the previous fiscal year but have not been prepaid by the Respondent.

111. Except as provided in paragraph 109(a), the Respondent shall, within thirty (30) calendar days from receipt of the accounting(s) and billings described in this Section, remit a check to KDHE for the amount billed. If the Respondent fails to make Response Cost payments or reimbursements in accordance with this Section, such failure shall be in violation of this Consent Order.

**SECTION XXIII - RELEASE OF CLAIMS AND RESERVATION OF RIGHTS**

112. Except as provided in this Section, effective upon KDHE's determination pursuant to paragraph 124, as well as other requirements for the Site and receipt of all payments from the Respondent covered by this Consent Order, the KDHE will not take further action against the Respondent for additional requirements in connection with the activities described herein, except as set forth below.

113. Except as provided in this Section, to the extent of its statutory authority, the KDHE agrees that completion of the Work under this Consent Order pursuant to a determination made by KDHE under paragraph 124, satisfies all of the Respondent's responsibilities, civil liability, liability for injunctive relief, pursuant to K.S.A. 65-3452a et seq., K.S.A. 65-3401 et seq., K.S.A. 65-3430 et seq., K.S.A. 65-3001 et seq., and K.S.A. 65-161 et seq. with respect to any Pollutant which is subject to this Consent Order.

114. However, the failure of KDHE to insist in any one or more instances upon strict performance of any of the terms, covenants, or conditions of this Consent Order shall not be construed as a waiver or a relinquishment of KDHE's rights to the future performance of any such terms, covenants, or conditions by the Respondent, in accordance with the terms hereof.

115. The KDHE reserves, and this Consent Order is without prejudice to, its right to institute proceedings in this action, or in a new action, or to issue an administrative order, seeking among other relief to compel the Respondent to perform further response actions relating to the Site and reimburse the KDHE for its costs, including both response and recovery costs, that it incurs or has incurred, and pay those fines and penalties assessed against Respondent if during the term of the Consent Order or subsequent to the termination of this Consent Order:

- a) conditions at the Site, previously unknown to KDHE are discovered, or

b) information, previously unknown to KDHE is received in whole or in part,  
or

c) conditions are discovered which are caused or contributed to by Respondent whenever they arise.

116. For purposes of paragraph 115, the information and the conditions known to KDHE shall include only that information and those conditions known to KDHE as of the date of KDHE's determination pursuant to paragraph 124.

117. Notwithstanding paragraphs 113 and 114, KDHE expressly reserves, and this Consent Order is without prejudice to, all rights against the Respondent with respect to all other matters, including but not limited to, the following:

a) claims or actions based on a failure by the Respondent to meet a requirement of this Consent Order;

b) claims or actions arising from the future disposal, release, or threat of release of Pollutants at the Site;

c) claims or actions for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessment if such natural resource damage is: (1) not the responsibility of the Army under the Privatization Agreement or (2) caused by or contributed to by Respondent or its agents, assigns or contractors;

d) claims or actions for violations of federal or state law which occur during or after implementation of the Work; and

e) claims or actions prior to KDHE's determination pursuant to paragraph 124, for additional response actions that KDHE determines are necessary to achieve Performance Standards, but that cannot be required pursuant to paragraph 67.

118. Respondent expressly agrees:

a) to indemnify KDHE, its agents or employees, and the State of Kansas acting through KDHE for any damages, punitive damages, costs, losses or attorney fees sustained as a result of claims brought against such entities, whether for economic loss, property damage, bodily injury, death, fines, penalties or any other element of damages or losses which arises from the negligence of Respondent in carrying out the Work;

b) to indemnify the state of Kansas and KDHE for any damages, punitive damages, costs, losses or attorney fees sustained as a result of claims brought against such entities, whether for economic loss, property damage, bodily injury, death, fines, penalties or any other element of damages or losses which arises directly or indirectly from CERCLA or RCRA unless arising from the wilful acts of KDHE, its officers, employees, agents, successors, assigns, contractors or any other person acting on KDHE's behalf.

c) to hold harmless KDHE, its agents, employees or the State of Kansas acting through KDHE, from any and all liabilities, claims or lawsuits brought by Respondent or third parties and which result in the damages, punitive damages, losses, or costs listed in subsection (a) of this paragraph.

119. The Respondent expressly covenants not to sue and agrees to hold harmless and not to assert any claims or causes of action against the KDHE, its agents or employees or the State of Kansas acting through KDHE with respect to the Site, the Work, and KDHE's Response Costs as defined herein or this Consent Order, including, but not limited to:

a) any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113 or any other provision of law;

b) any claims against the State of Kansas, including any department, agency or instrumentality thereof, under CERCLA Sections 107 or 113 related to the Site, except for claims related specifically to the Kansas University Landfill and those for Pollutants resulting from: 1) prior activities of the State of Kansas or any department, agency or instrumentality thereof at Sunflower, or 2) future activities of the State of Kansas, including any department, agency or instrumentality thereof, at or effecting Sunflower after the Work is completed;

c) any claims arising out of the Work, including claims based on the State's actions, oversight of the Work or approval of plans for such activities regardless of whether such claims assert liability or responsibility by either Party or third parties except that arising from the negligence of the State;

d) any claims described in paragraph 118 herein;

e) any claims alleged to be the result of interim delays, or delays in the final projected completion date for the Work, regardless of whether such claims assert liability or responsibility by any Party or third parties.

120. Except as provided in paragraphs 118 and 119 the Respondent reserves, and this Consent Order is without prejudice to, claims against the United States, State of Kansas, and the Army subject to the provisions of Chapter 171 of Title 28 of the United States Code and Kansas Tort Claims Act, K.S.A. 75-6101 et seq. for money damages to the extent allowed by law for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States and the State of Kansas while acting within the scope of their office or employment under circumstances where the United States or State of Kansas, if a private person, would be liable to the claimant in accordance with the law of Kansas. However, any such claim shall not include a claim for any damages

caused, in whole or in part by the act or omission of any person, including any contractor, who is not a federal or state employee as that term is defined in federal or state law; nor shall any such claim include a claim based on KDHE's actions, or the oversight or approval of the Respondent's plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA, RCRA or similar state statute.

KDHE acknowledges that the Respondent has a right of contribution under federal law and may have such rights under state law, against other, non-participating potentially responsible parties who may have created, contributed to, or otherwise become responsible for the matters described herein in that the Respondent has expended or will expend reasonable response costs and performance of the activities required under this Consent Order and KDHE agrees to provide reasonable assistance upon request to the Respondent to assist the Respondent with enforcement of its claims against such third parties.

The assistance referred to herein shall include making available records which relate to this matter, making factual statements or giving factual testimony of staff, upon notification when such requirement is relevant to the proceedings, or such other assistance as is reasonable and appropriate. KDHE and the Respondent acknowledge under 42 U.S.C. § 9613(f)(2) by execution of this Consent Order, neither the Respondent, nor KDHE is liable for claims for contribution regarding matters addressed herein and that this Consent Order does not establish contribution rights or contribution protection of any other potentially responsible parties.

#### **SECTION XXIV - GOALS**

121. It is the goal of the Respondent to use its best efforts to complete the Work within six (6) years of the effective date of this Consent Order:

**SECTION XXV - EFFECTIVE DATE AND SUBSEQUENT MODIFICATION**

122. This Consent Order shall become effective when signed by the Secretary.

123. Scope(s) of Work may be amended by notification from the KDHE Project Coordinator to the Respondent. This Consent Order may be amended by mutual agreement of KDHE and the Respondent. Such amendments shall be in writing, shall have as their effective date the date on which they are signed by both parties, and shall be incorporated into this Consent Order. Nothing herein shall limit KDHE's ability to require additional tasks as set forth in paragraph 67 herein.

**SECTION XXVI - TERMINATION**

124. The provisions of this Consent Order shall terminate, as to each Tract, upon the Respondent's receipt of written notice from KDHE that Respondent has demonstrated that the terms of this Consent Order, including any additional tasks, which KDHE has determined to be necessary, as to each Tract, have been satisfactorily completed.

**IN WITNESS WHEREOF**, the parties have affixed their signatures below:

**RESPONDENT**

\_\_\_\_\_

Date: \_\_\_\_\_

Sunflower Redevelopment, LLC



By:  
Title:

**STATE OF KANSAS:**

Date:

\_\_\_\_\_  
Roderick L. Bremby, Secretary  
Kansas Department of Health &  
Environment

**CERTIFICATE OF MAILING**

I hereby certify that on this \_\_\_\_ day of \_\_\_\_\_, 200\_\_, a true and correct copy of the above and foregoing Consent Order was deposited in the United States Mail, postage prepaid, and addressed to:

Scott A. Young  
Polsinelli Shalton, White & Suelthaus P.C.  
1000 Plaza Steppes Building  
700 West 47<sup>th</sup> Street  
Kansas City, Missouri 64112-1802

\_\_\_\_\_  
KDHE Staff Member

**SECTION XXVII - LIST OF EXHIBITS**

|                    |   |
|--------------------|---|
| <b>Exhibit 1a</b>  | Legal Description of Sunflower Army Ammunition Plant  |
| <b>Exhibit 1b</b>  | Map of Sunflower Army Ammunition Plant  |
| <b>Exhibit 2</b>   | Site Map  |
| <b>Exhibit 3</b>   | List of Known Solid Waste Management Units  |
| <b>Exhibit 4</b>   | List of Areas of Concern  |
| <b>Exhibit 5</b>   | Scope of Work I (RCRA Facility Investigation)   |
| <b>Exhibit 6</b>   | Scope of Work II (Corrective Measures Study)  |
| <b>Exhibit 7</b>   | Scope of Work III (Corrective Measures Implementation)  |
| <b>Exhibit 8a</b>  | General Implementation Schedule   |
| <b>Exhibit 8b</b>  | First Three (3) Year Detailed Implementation Schedule   |
| <b>Exhibit 9</b>   | Major Deliverables of the Implementation Plan <ul style="list-style-type: none"> <li>·Draft and Final Reports</li> <li>·Classification Report(s)</li> <li>·Interim Measures Report</li> <li>·RCRA Facility Investigation (RFI) Workplans</li> <li>·RFI Report</li> <li>·Corrective Measures Study (CMS) Workplan</li> <li>·CMS Report</li> <li>·Corrective Measures Implementation (CMI) Workplans</li> <li>·Operation and Maintenance (O &amp; M) Plan</li> <li>·Corrective Measures Implementation Report</li> <li>·Corrective Measures Completion Report</li> <li>·Quarterly Progress Reports</li> </ul> |
| <b>Exhibit 10</b>  | Privatization Agreement   |
| <b>Exhibit 11</b>  | Closing Instructions  |
| <b>Exhibit 12</b>  | Environmental Pollution Policy  |
| <b>Exhibit 13</b>  | Conveyance Agreement  |
| <b>Exhibit 14a</b> | Covenant Deed   |
| <b>Exhibit 14b</b> | Covenant Deed   |
| <b>Exhibit 15</b>  | Deferred Covenant Deed  |
| <b>Exhibit 16</b>  | Tract   |
| <b>Exhibit 17</b>  | Performance Standards   |
| <b>Exhibit 18</b>  | Enforceable Agreement   |
| <b>Exhibit 19</b>  | EPA draft RCRA Permit for SFAAP   |