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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

04-96-0009

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| IN THE MATTER OF: | |
| National-Southwire Aluminum Company Site | Proceeding under Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. §§ 9604 and 9622. |
| NSA, a Division of Southwire Company, Hawesville, Kentucky, Respondent | EPA Docket No.: 97-10-C |

**AMENDED ADMINISTRATIVE ORDER BY CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

## I. JURISDICTION

This Amended Administrative Order by Consent (Consent Order) is entered into by the United States Environmental Protection Agency (EPA) with NSA (Respondent), a Division of Southwire Company, a Georgia corporation, pursuant to the authority vested in the President of the United States by Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9604, 9622(a) and 9622(d)(3). This authority was delegated by the President to the Administrator of EPA by Exec. Order No. 12580, dated January 23, 1987, 52 Fed. Reg. 2923 (Jan. 29, 1987), and was further delegated to the Regional Administrator of Region IV EPA and redelegated to the Director, Waste Management Division. This Consent Order amends the Administrative Order By Consent For Remedial Investigation/Feasibility Study between EPA and Respondent, agreed on and ordered on October 2, 1992.

Respondent agrees to undertake all actions required by the terms and conditions of this Consent Order for the conduct and implementation of the Remedial Investigation and Feasibility Study (RI/FS). Solely for the purposes of this Consent Order, Respondent consents to and agrees not to contest EPA jurisdiction to issue or enforce this Consent Order. Respondent neither admits nor denies the determinations, allegations, findings of fact, and conclusions of law made by EPA in the Consent Order and specifically reserves the right to contest any such determinations, allegations, findings of fact, and conclusions in any proceeding regarding the Hawesville Site other than in a proceeding for the enforcement of this Order. Respondent does not by signing this Consent Order waive any rights it may have

against any person, other than the United States or EPA as set forth hereinafter.

## II. PARTIES BOUND

This Consent Order shall apply to and be binding upon EPA and Respondent, its officers, directors, and principals within the scope of their official authority. 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 or corporate status of Respondent shall alter its responsibilities under this Consent Order.

Respondent shall provide a copy of this Consent Order to any subsequent owner or successor before ownership rights are transferred. Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Consent Order, within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondent shall condition any such contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Consent Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors and agents comply with this Consent Order.

## III. STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of EPA and Respondent are: (A) with respect to the Remedial Investigation (RI), to determine fully the nature and extent of any threat to the public health or welfare or the environment that might be caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site into the environment; and (B) with respect to the Feasibility Study (FS), to develop and evaluate alternatives for remedial action to prevent, mitigate or otherwise respond to any migration or any release or threatened release of hazardous substances, pollutants, or contaminants from the Site; and (C) to recover response and oversight costs incurred by EPA with respect to this Consent Order.

In addition, it is contemplated that an interim remedy may be utilized in order to attempt to limit the movement of the on-site groundwater contamination plume. If an interim remedy is implemented, it is contemplated that valuable information may be obtained concerning Site remediation. Data previously acquired or data collected during an interim remedy, if one is conducted, will be evaluated by EPA and data that meets the appropriate

QA/QC requirements may also be utilized in making future remedial decisions and/or in determining the appropriateness of expedited remedial efforts at the Site.

The activities conducted pursuant to this Consent Order will be consistent with the National Contingency Plan (NCP), 40 C.F.R. Part 300, et seq., and will be subject to the express EPA approvals as set forth below.

## IV. FINDINGS OF FACTS

The following constitutes an outline of the facts upon which this Consent Order is based:

A. This Order concerns the National-Southwire Aluminum Company Site (the Site), State Highway 271 (P.O. Box 500), Hawesville, Kentucky 42348.

The aluminum manufacturing facility is located on an 1,100-acre tract of land in Hancock County, Kentucky. This Site is situated within the broad alluvial 100-year floodplain of the Ohio River of northwestern Kentucky, approximately 30 miles east of Owensboro.

Respondent began aluminum smelting operations at the Site in 1969. Aluminum is obtained by the electrolysis of alumina ($Al_2O_3$), which contains trace elemental impurities including but not limited to copper (Cu) and nickel (Ni). In order to facilitate the process, a sodium fluoride bath ($Na_3AlF_6$) is added to the alumina in carbon-lined pots. The process produces as a by-product spent pot liners. Two clay-lined ponds (North and Old South Ponds), one unlined pond (East Pond), and one synthetically-lined pond (New South Pond), each covering five to seven acres, were constructed for disposal of industrial wastes from the facility. Wastes disposed of in the North Pond included spent pot linings containing cyanide from the aluminum reduction process and calcium fluoride slurry from the air quality control system. Calcium fluoride slurry was disposed of in the Old South Pond, East Pond and New South Pond. Respondent closed the North Pond in 1986 and covered it with a synthetic cap and a layer of soil. The area is currently densely vegetated. The Old South Pond has been filled to capacity, and its use ceased in 1989. The East Pond has also been closed. The New South Pond is now used for disposal of the calcium fluoride slurry and electrostatic precipitater catch, as approved by the State of Kentucky Division of Waste Management.

B. Respondent is a division of Southwire Company of Carrollton, Georgia.

C. Respondent owns and presently operates the Site, an aluminum smelting facility.

D. On July 29, 1991, the Site was proposed for inclusion on the National Priorities List (NPL), as defined in Section 105 of CERCLA, as amended, 42 U.S.C. § 9605.

E. Contaminants have been released at the Site as a result of the facility's operation and on-site disposal of wastes. Contaminants include but are not limited to cyanide, arsenic, lead, nickel and fluoride. These contaminants have been released into the soils, sediments, groundwater and surface waters at the facility. Polychlorinated biphenyls (PCBs) have also been detected at the Site, although the origin of the PCBs at this time is undetermined.

F. In 1979, Respondent determined that leaching was occurring beneath the North Pond. Cyanide and fluoride were found in the groundwater in the area of the disposal ponds. In 1985, Respondent detected cyanide in one of its three on-site water wells at a level of 0.13 ppm, which is below the Maximum Contaminant Level (MCL) of 0.2 ppm as established by regulation pursuant to the Safe Drinking Water Act. This well provided drinking water to plant employees. The contaminated on-site drinking water well was taken out of service shortly thereafter. Analytical results indicated the other two wells did not have significant contamination, and these wells were utilized for potable water until recently. At present, Respondent utilizes the municipal water supply for all potable water.

In 1989 and 1991, EPA detected significant concentrations of cyanide, arsenic, lead, fluoride, and nickel in: 1) on-site groundwater, 2) sediments of the plant's effluent/drainage ditch, 3) on-site impoundments, 4) and on-site soils. The cyanide groundwater plumes that have been identified thus far are located in the vicinity of the disposal ponds and under the present location of the spent potliner accumulation building. The effluent/drainage ditch, which drains the central portion of the Site, discharges from the Site into the Ohio River within 1/4 mile of the Site.

A total of 57 surface soil, subsurface soil, sediment, surface water, monitoring well, industrial well, and private well samples were collected during the EPA Preliminary Field Investigation as reported in the Interim Final Listing Site Inspection Report by NUS Corporation (April 1991). Other sampling results from 1979 were reported in the Hydrologic Assessment of the Disposal Ponds at the Site by Environmental Resource Management, Inc. (February 1980). Both of these documents are in the administrative record and available for review. Respondent, through its consultants, has also collected

additional data regarding the environmental condition of the property.

The groundwater at the Site exhibits cyanide at levels ranging from trace levels to 56 ppm. Other metals have been identified at levels ranging from trace levels to up to 3 ppm for nickel and 0.1 ppm for lead. A surface water sample taken in 1986 indicated cyanide levels up to 165 ppm in an open impoundment (North Pond), which has since been closed. Fluoride levels up to 1770 ppm were detected in one of the monitoring wells near North Pond.

The drainage ditch sediments at the Site contain cyanide at levels ranging from trace to up to 7.7 ppm, nickel of up to 1,400 ppm, arsenic of up to 160 ppm, and lead of up to 170 ppm. Fluoride has been detected at levels ranging from trace to up to 61,000 ppm in drainage ditch sediments. Samples of the surface soils at the Site have exhibited contamination ranging from trace levels up to 64,000 ppm for fluoride, arsenic up to 20 ppm, lead up to 12 ppm, and nickel up to 20 ppm. Subsurface soil samples at the Site have indicated fluoride at levels ranging from trace levels up to 88 ppm, arsenic up to 4.4 ppm, nickel up to 20 ppm, and lead up to 5.3 ppm.

In addition, during recent construction activities, Respondent discovered and removed PCB-contaminated soils ranging from below 1 ppm to approximately 8,900 ppm in an excavation for a cooling tower footing. The extent of PCB contamination at the Site has not been determined.

G. Cyanide, lead, arsenic, fluoride, nickel, and PCBs are hazardous substances that have been or are being released from the Site in other than a controlled manner. Some of these contaminants found at the Site are acutely toxic at extremely low levels, and, at sublethal levels, they tend to bioconcentrate. These contaminants, other than PCBs, are readily soluble and have leached or migrated from soils into the groundwater. Fluoride is a by-product of the ionization of cryolite, and is concentrated as a waste product as a result of the air emissions filtration system at the Site. In the environment, fluorides are soluble and can result in a variety of toxicological effects, including fluorosis, a syndrome resulting from chronic exposure and characterized by bone and tooth damage. PCBs are oil-based contaminants that are not readily soluble, can be carcinogenic and tend to bioconcentrate.

H. Geologically, there are three stratigraphic zones of interest at the Site. The Site is situated on the Quaternary aged Ohio River Valley alluvial deposits. The alluvium can be divided into two sections: 1) the lower member of approximately 115-foot thickness on average, characterized by coarse-grained sand and gravel with occasional beds or lenses of silt and clay,

and 2) the upper member with an average depth of approximately twenty-five feet characterized by fine-grained silts and clays with occasional lenses of gravel and coarse-grained sand.

Below the alluvium are two Paleozoic groups, the Tradewater and Caseyville formations. Directly below the alluvium is the Pennsylvanian aged Tradewater Formation, consisting of numerous members that are generally composed of shale, sandy shale, carbonaceous shale, sandstone, limestone and coal. The thickness of the Pennsylvanian ranges from about 350 to about 500 feet.

Below the Tradewater is the Caseyville Sandstone, which represents the bedrock unit at the Site. It is divided into three sections. The uppermost Bee Springs Sandstone member, a massive, coarse-bedded medium-grained sandstone containing quartz pebbles and laterally grades into shales. The Battery Rock Coal member contains shale, sandy shale, sandstone, and thin beds of limestone, and coal beds. The lower conglomerate member is a massive, cross-bedded medium-grained sandstone veined with quartz, and grades into shale laterally.

Groundwater at and near the Site is available from two aquifer sources: the alluvial aquifer that spans laterally across the Ohio River Plain, and the aquifer found in the Paleozoic rock formation. The alluvial aquifer is by far the most productive. The hydrologic system is interconnected and is recharged primarily by percolation of precipitation, with water exchange both vertically and laterally between the Paleozoic and alluvial aquifers. Groundwater flow in the area is generally toward the Ohio River except in high-flood stage, when the river will back up and recharge the alluvial aquifer.

I. Contaminants were released on Site by the activities of 1) breaking up spent pot liners on the dump pad and 2) disposal of wastes into surface impoundments. Pot lining material, a by-product of the aluminum reduction process which may contain cyanide, has been disposed of in at least the North Pond, which was closed in 1986. Prior to impoundment closure, this material was transportable by wind, water, and human activities. Cyanide and other metals have leached into the groundwater at the surface impoundments and at the spent potliner accumulation building. Calcium fluoride is present at the Site in most media. It is presently believed that groundwater flows generally from the Site to the Ohio River, approximately 3/4 mile away. On-Site water production wells south of the impoundments may create a cone of depression that may influence groundwater movement at the Site.

J. Human population near the Site is estimated as follows: within a .25-mile radius, 274; within the zone .25 to .50 mile from the Site, 603; within .5 to 1 mile, 432; within 1 to 2 miles, 4,146; 2 to 3 miles, 2,568; and 3 to 4 miles, 3,788. The majority of the population within these ranges is located across

the Ohio River in Indiana. There has not been a characterization of the domestic, livestock or wildlife animal population near the Site, but the Ohio River floodplain is generally populated by muskrats, beavers, various small vertebrates and invertebrates, songbirds and waterfowl. The River itself provides habitat for a number of fish and other vertebrates and invertebrates. The bullhead mussel, a species of special concern, has been found in the Ohio River less than one mile from the Site.

The manufacturing facility is externally fenced; however, the surface impoundments are not isolated by fencing from other portions of the Site such as the adjacent airfield. There are no barriers to human or wildlife movement between the surface impoundments and this public airfield. NSA recently informed EPA that fields formerly planted annually in soybeans and possibly corn adjacent to the Site are no longer being utilized agriculturally and that this activity was discontinued in 1989.

K. Releases have contaminated the surficial aquifer at the Site, which is used for industrial processes and was previously used for drinking water for about 1000 plant employees. Respondent found one of the three on-site water supply wells to be contaminated with metals and cyanide at levels below the MCLs and took that well out of service. The other two wells are currently being used only for industrial purposes. Within a 4-mile radius of the Site, six municipal water companies and several private wells obtain water from the alluvial aquifer, and more than 16,000 people obtain water from these sources. Most of these water consumers live across the Ohio River from the Site. Within the 4-mile radius the alluvial aquifer is also used for industrial processes, cattle watering, and commercial food processing. Contaminants in concentrations above MCLs have been detected in one of three on-site water supply wells. Contaminants have been detected above MCLs in many of the on-site monitoring wells.

L. Respondent has installed groundwater monitoring wells at the Site in an attempt to obtain data regarding groundwater contamination. Respondent has stated to EPA that it has cleaned out a drainage/effluent ditch that was found to contain significant concentrations of metals. Recently, Respondent also removed approximately 2000 cubic yards of PCB-contaminated soils at the excavation for a cooling tower footing. PCB levels in these soils ranged from below 1 ppm to approximately 8900 ppm.

## V. CONCLUSIONS OF LAW

A. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

B. Respondent is a person as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

C. Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

D. Contaminants found at the Site as described in Section IV above are hazardous substances within the meaning of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and/or constitute pollutants or contaminants that may present an imminent and substantial danger to the public health or welfare under Section 104(a)(1) of CERCLA, 42 U.S.C. 9604(a)(1).

E. The hazardous substances described have been disposed of at the facility in such a manner that they have been released into the environment and their potential migration pathways constitute both an actual release and threatened release within the meaning of Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

## VI. EPA DETERMINATIONS

Based on the Findings of Fact and Conclusions of Law set out above, EPA has determined that:

A. The actual and/or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health or welfare or the environment.

B. The actions required by this Consent Order are necessary to protect the public health and/or welfare and/or the environment.

C. In accordance with Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), EPA has determined that the work to be performed pursuant to this Consent Order, if performed according to the terms hereof, will be done properly and promptly by Respondent. EPA has also determined that Respondent is qualified to conduct such work.

## VII. WORK TO BE PERFORMED

All aspects of the Work to be performed by Respondent pursuant to this Consent Order shall be under the direction and supervision of a qualified contractor, who shall be a qualified professional engineer or geologist with expertise in hazardous site cleanup, the selection of whom shall be subject to approval by EPA. Within fifteen (15) days after the effective date of this Consent Order, Respondent shall submit to EPA in writing the name, title, and qualifications of any supervising contractor proposed to be used in carrying out the RI/FS pursuant to this

Consent Order. EPA shall notify Respondent of its approval or disapproval in writing, within twenty (20) calendar days of its receipt of such submission and, in the event of disapproval, EPA shall specify the reason(s) for the disapproval in writing.

If EPA disapproves of the selection of any contractor, Respondent shall submit an alternate selection to EPA within fifteen (15) days of receipt of EPA's disapproval of the contractor previously selected. EPA shall, within twenty (20) calendar days of receipt of the alternate selection, notify Respondent of its approval or disapproval in writing and, in the event of disapproval, EPA shall specify the reasons for the disapproval in writing.

If, at any time thereafter, Respondent proposes to change any contractor, Respondent shall give written notice to EPA and shall obtain approval from EPA before the new contractor performs any work under this Consent Order.

Based on the foregoing, it is hereby AGREED AND ORDERED that the following work will be performed:

A. Within sixty (60) calendar days of the effective date of this Consent Order, Respondent shall submit to EPA a plan for a complete Remedial Investigation and Feasibility Study (RI/FS Work Plan). The RI/FS Work Plan shall be developed and submitted in conjunction with a Sampling and Analysis Plan and a Health and Safety Plan, although each plan may be delivered under separate cover. These plans shall be developed in accordance with the National Contingency Plan and the attached Scope of Work (SOW) (Attachment 1) which is hereby made a part of this Consent Order as if fully set forth herein. The RI/FS Work Plan shall include a comprehensive description of the work to be performed, the medias to be investigated (i.e., air, groundwater, surface water, surface and subsurface soils and sediments, etc.), the methodologies to be utilized, and the rationale for the selection of each methodology. A comprehensive schedule for completion of each major activity required by this Consent Order and including the submission of each deliverable listed in the RI/FS Scope of Work shall also be included. Such schedule shall reflect submittal of the Final RI within 310 days after the effective date of this Order and submittal of the Draft Feasibility Study within 410 calendar days of the effective date of this Order, or as may be modified in revisions of the Scope of Work.

The Sampling and Analysis Plan (SAP) shall include procedures to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data generated will meet the Data Quality Objectives (DQOs) established. The SAP provides a mechanism for planning field activities and consists of a Field

Sampling and Analysis Plan (FSAP) and a Quality Assurance Project Plan (QAPP).

The FSAP shall define in detail the sampling and data-gathering methods that shall be used on the project. It shall include sample objectives, sample location (horizontal and vertical) and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs.

A Health and Safety Plan shall be prepared in conformance with Respondent's health and safety program and OSHA regulations and protocols.

B. Respondent will complete the Baseline Risk Assessment which was drafted by EPA. Where appropriate, the Respondent will utilize the latest sampling and analytical data in Baseline Risk Assessment calculations. Respondent will incorporate EPA's latest guidances and policies for risk assessment at operating industrial facilities in the development of the Baseline Risk Assessment.

The Baseline Risk Assessment will be submitted as an integral part of the Remedial Investigation Report (RI). EPA will make the Final Baseline Risk Assessment available to the public at the same time that the Final Remedial Investigation Report is deemed releasable to the public.

Dependent upon EPA's approval of the Remedial Investigation Report and the Baseline Risk Assessment, Respondent can begin drafting the Feasibility Study Report (FS).

EPA will respond to all significant comments on the Baseline Risk Assessment section of the Remedial Investigation Report that are submitted during the formal comment period in the Responsiveness Summary of the Final Record of Decision (ROD).

C. Respondent will implement the RI/FS Work Plan approved by EPA. The EPA-approved RI/FS Work Plan and any EPA-approved amendments thereto will be attached to and incorporated in this Consent Order as Attachment 2. The RI/FS will be conducted in accordance with the schedule contained in the RI/FS Work Plan or modifications thereto as approved by EPA .

D. Within seven (7) calendar days of the approval of the RI/FS Work Plan by EPA, Respondent will commence work on Task 1 of the RI/FS Work Plan.

E. Respondent shall submit to EPA written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Order during the

G. EPA may determine that other tasks, including remedial investigatory work and/or engineering evaluation, are necessary as part of an RI/FS in addition to EPA-approved tasks and deliverables, including reports, which have been completed pursuant to this Consent Order. EPA shall specify in writing the reason and justification for its determination that additional tasks are necessary. Respondent shall implement any additional tasks which EPA determines are necessary as part of the RI/FS and which are in addition to the tasks detailed in the RI/FS Work Plan. The additional work shall be completed in accordance with the standards, specifications, and schedule determined or approved by EPA.

## VIII. SUBMISSIONS REQUIRING AGENCY APPROVAL

A. EPA reserves the right to comment on, modify and direct changes for all deliverables within a reasonable amount of time. Upon receipt of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Order, EPA shall either: (1) approve the submission; or (2) disapprove the submission, notifying Respondent of deficiencies. If such submission is disapproved, EPA shall either: (1) notify Respondent that EPA will modify the submission to cure the deficiencies; or (2) direct Respondent to modify the submission to cure the deficiencies.

B. Upon receipt of a notice of disapproval and notification directing modification of the submission, Respondent shall, within thirty (30) days, cure the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, Respondent shall proceed to take any action required by any independent, nondeficient portion of the submission.

C. In the event of approval or modification of the submittal by EPA, Respondent shall proceed to take any action required by the plan, report, or other item, as approved or modified.

D. If, upon resubmission, the plan, report, or item is not approved, Respondent shall be deemed to be in violation of this Consent Order and stipulated penalties shall begin to accrue pursuant to Section XVI of this Consent Order. EPA retains the right to seek stipulated or statutory penalties, to require the amendment of the document, to perform additional studies, to conduct a complete RI/FS pursuant to its authority under CERCLA, and to take any other action, including, but not limited to, enforcement action to recover its costs pursuant to its authority under CERCLA.

E. Neither failure of EPA to expressly approve or disapprove of Respondent's deliverables within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Respondent is responsible for preparing and submitting deliverables acceptable to EPA.

F. Respondent shall make presentations at, and participate in, meetings at the reasonable request of EPA during the initiation, conduct and completion of the RI/FS. In addition to the discussion of the technical aspects of the RI/FS, topics may include anticipated problems or new issues. Meetings requested by EPA will be scheduled in coordination with Respondent, provided that Respondent shall be reasonable in such scheduling consultations.

G. The provisions of this Consent Order shall govern all proceedings regarding the RI/FS work conducted pursuant to this Consent Order. In the event of any inconsistency between this Consent Order and any required deliverable submitted by Respondent, the inconsistency will be resolved in favor of this Consent Order.

## IX. DESIGNATED PROJECT/COORDINATORS

A. On or before the effective date of this Consent Order, EPA and Respondent will each designate a Project Coordinator and an Alternate Project Coordinator. The "Project Coordinator" for EPA will be the Remedial Project Manager (RPM), or the On-Scene Coordinator (OSC) in the event that emergency removal activities are required at the Site. Each Project Coordinator will be responsible for overseeing the implementation of this Consent Order. The EPA Project Coordinator will be EPA's designated representative at the Site. To the maximum extent possible, communications between Respondent and EPA, including all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Order, will be directed through the Project Coordinators.

B. EPA and Respondent each have the right to change its respective Project Coordinator. Except in exigent circumstances, such as death or a health emergency of the Project Coordinator, such a change will be accomplished by notifying the other party in writing at least five (5) calendar days prior to the change.

C. The EPA-designated Project Coordinator will have the authority vested in an RPM or OSC by the National Contingency Plan, 40 C.F.R. Part 300, as amended. This includes the authority to halt, conduct, or direct any work required by this Consent Order, or any response actions or portions thereof when

he or she determines that conditions may present an immediate risk to public health or welfare or the environment.

D. During the course of implementation of the work, the Project Coordinators will, whenever possible, operate by consensus. The Project Coordinators will attempt to resolve disputes informally through good faith discussion of the issues.

E. The absence of the EPA Project Coordinator from the Site shall not be cause for the stoppage or delay of work. The EPA Project Coordinator may at his or her discretion stop or delay work if his or her presence is necessary to continuation of such work, or in the event of a significant change in Site conditions that may affect human health or the environment.

F. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. 9604(a). The oversight assistant may observe work and make inquiries in the absence of EPA, but is not authorized to modify the Work Plan.

## X. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

A. Respondent shall use quality assurance, quality control, and chain of custody procedures in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans" (QAMS-005/80) and the "EPA Region IV Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual (U.S. EPA Region IV, Environmental Services Division, February 1, 1991), and subsequent amendments to such guidelines. EPA shall give Respondent notice of any such amendments to the guidelines. Prior to the commencement of any monitoring project under this Consent Order, Respondent shall submit for review, modification and/or approval by EPA, a Quality Assurance Project Plan ("QAPP") that is consistent with applicable guidelines. Sampling data generated consistent with the QAPP(s) shall be admissible as evidence, without objection, in any proceeding under Section XIV of this Consent Order. Respondent shall assure that EPA personnel or authorized representatives are allowed access to any laboratory utilized by Respondent in implementing this Consent Order.

B. Respondent shall make available to EPA the results of all sampling and/or tests or other data generated by Respondent with respect to the implementation of this Consent Order and shall submit these results in monthly progress reports as described in Section VII.E. of this Consent Order.

C. At the request of EPA, Respondent shall allow split or duplicate samples to be taken by EPA, and/or its authorized representative, of any samples collected by Respondent pursuant

to the implementation of this Consent Order. Respondent shall notify EPA not less than fourteen (14) days in advance of any sample collection activity unless a shorter notification period is approved by EPA's Project Coordinator. These notifications may be given verbally in the field to EPA's Project Coordinator. In addition, EPA shall have the right to collect any additional samples that EPA deems necessary.

D. Respondent shall ensure that the laboratory utilized by Respondent for analyses participates in an EPA quality assurance/quality control program equivalent to that which is followed by EPA and which is consistent with EPA document QAMS-005/80. In addition, EPA may require submittal of data packages equivalent to those generated in the EPA Contract Laboratory Program (CLP) and may require laboratory analysis of performance samples (blank and/or spike samples) in sufficient number to determine the capabilities of the laboratory.

E. Notwithstanding any provision of this Consent Order, EPA hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA, and any other applicable statute or regulation.

## XI. ACCESS/

A. From the date of execution of this Consent Order until EPA provides written notice of satisfaction of the terms of the Order, EPA and its authorized representatives and agents shall have access at all reasonable times to all property at the Site and any property to which access is required for the implementation of this Consent Order, to the extent access to the property is controlled by or available to Respondent, for the purposes of conducting any activity authorized by or related to this Consent Order, including, but not limited to:

1. Monitoring the RI/FS work or any other activities taking place on the property;

2. Verifying any data or information submitted to the United States;

3. Conducting investigations relating to contamination at or near the Site;

4. Obtaining samples;

5. Evaluating the need for or planning and implementing additional remedial or response actions at or near the Site; and

6. Inspecting and copying records, operating logs, contracts, or other documents required to assess Respondent's compliance with this Consent Order.

EPA recognizes that there are health and safety concerns in connection with the daily operations of the plant, and intends to conduct all activities and/or inspections utilizing proper judgment and safe procedures in accordance with EPA health and safety protocols.

B. To the extent that the Site or any other area where work is to be performed under this Consent Order is owned or controlled by persons other than Respondent, Respondent shall use best efforts to secure from such persons access for Respondent, as well as for EPA and authorized representatives or agents of EPA, as necessary to effectuate this Consent Order. For purposes of this Paragraph, "best efforts" shall include but may not be limited to the payment of reasonable sums of money in consideration of access privileges. Copies of such access agreements will be provided to EPA prior to Respondent's initiation of field activities. If access is not obtained within thirty (30) days of the effective date of this Consent Order, Respondent shall promptly notify EPA. The United States may thereafter assist Respondent in obtaining access. Inability to secure access shall not be considered a violation of this Consent Order provided Respondent has used best efforts. Respondent shall, in accordance with Section XVII herein, reimburse the United States for all costs incurred by the United States to obtain access, including but not limited to attorneys' fees and the amount of just compensation.

C. Notwithstanding any provision of this Consent Order, EPA retains all of its access authorities and rights under law, including but not limited to CERCLA, RCRA and any other applicable statute or regulations.

## XII. CONFIDENTIALITY OF SUBMISSIONS

A. Respondent may assert a confidentiality claim, if appropriate, covering part or all of the information requested by this Consent Order pursuant to 40 C.F.R. § 2.203(b). Respondent shall substantiate such an assertion when the assertion is made. Analytical data will not be claimed as confidential by Respondent. Information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondent.

B. Respondent waives any objection to the admissibility into evidence (without waiving any objection as to weight) of the results of any analyses of sampling conducted by or for them at

the Site or of other data gathered pursuant to this Consent Order that has been verified by the quality assurance/quality control procedures established pursuant to Section X.

## XIII. RECORD PRESERVATION

EPA and Respondent agree that each will preserve, during the pendency of this Consent Order and for a minimum of six (6) years after its termination, all records and documents in their possession or control or in the possession or control of their divisions, employees, agents, accountants, contractors, or attorneys which relate in any way to the performance of the RI/FS or liability of any person for any RI/FS or other response actions conducted or to be conducted at the Site, regardless of any document retention policy to the contrary. After this six year period, Respondent will notify EPA within sixty (60) calendar days prior to the destruction of any such documents. Upon request by EPA, Respondent will make available to EPA such records or copies of any such records. Additionally, if EPA requests that specific documents or types of documents be preserved for a longer period of time, Respondent will comply with that request. In any such request, EPA shall state the reason for the longer period of preservation.

Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or as attorney work product. If Respondent asserts such a privilege in response to a request for information in lieu of making the same available to EPA, Respondent shall provide EPA with the following information: 1) the title and date of the document, record or information; 2) the name and title of the author and of each addressee or recipient, as appropriate; 3) a description of the contents of the document, record or information; and 4) the basis of the privilege being asserted. No documents, reports, records or other information generated pursuant to the requirements of this Consent Order shall be withheld on the grounds that they are privileged. Respondent shall not assert any claim of privilege with respect to any data, including but not limited to all sampling, analytical, monitoring, hydrological, hydrogeological, geologic, scientific, chemical, or engineering data, or any documents, records or other information evidencing conditions at or around the Site.

## XIV. DISPUTE RESOLUTION

Any disputes arising under this Consent Order that cannot be resolved informally shall be resolved as follows: If Respondent objects to any EPA notice of disapproval or decision made pursuant to this Consent Order, Respondent shall notify EPA's Project Coordinator in writing of its objections within 14 calendar days

after receipt of the decision. Respondent's written objections shall define the dispute, state the basis of Respondent's objections, and shall be sent certified mail, return receipt requested, traceable overnight delivery, or hand-delivered. EPA and Respondent then have an additional fourteen (14) calendar days to reach agreement. If agreement cannot be reached within the fourteen (14) calendar day period, the EPA Waste Management Division Director shall provide a written statement of the decision and the reasons supporting that decision to Respondent. The Division Director's determination is EPA's final decision. If Respondent does not agree to comply or perform or does not actually comply or perform with respect to the issue in dispute as determined by EPA's Division Director, EPA reserves the right to conduct the work itself, to seek reimbursement from Respondent, and/or to seek other appropriate relief.

Respondent is not relieved of its obligations to perform and conduct any work that is required by this Consent Order while a matter is pending in dispute resolution, except as may be otherwise determined in resolution of such dispute.

## XV. FORCE MAJEURE

A. "*Force Majeure*" is defined for the purposes of the Consent Order as an event arising from causes entirely beyond the control of Respondent and of any entity controlled by Respondent including its contractors and subcontractors, which could not have been overcome by due diligence which delays or prevents the performance of any obligation under this Consent Order. Examples of events which may constitute *force majeure* events include extraordinary weather events, natural disasters, and national emergencies. Examples of events that are not *force majeure* events include, but are not limited to, normal inclement weather, increased costs or expenses of the Work to be performed under this Consent Order, the financial difficulty of Respondent to perform such tasks, acts or omissions not otherwise *force majeure* attributable to Respondent's contractors or representatives, and the failure of Respondent or Respondent's contractors or representatives to make complete and timely application for any required approval.

B. When circumstances occur which may delay or prevent either the completion of any phase of the Work Plan or access to the Site or to any property on which part of the Work Plan is to be performed, whether or not caused by a *force majeure* event, Respondent shall notify the EPA Project Coordinator orally of the circumstances within forty-eight (48) hours of when Respondent first knew or should have known that the event might cause delay. If the EPA Project Coordinator is unavailable, Respondent shall notify the designated alternate or the Director of the Waste Management Division, EPA Region IV. Within ten (10) calendar days after Respondent first became aware of such circumstances,

Respondent shall supply to EPA in writing: (1) the reasons for the delay; (2) the anticipated duration of the delay; (3) all actions taken or to be taken to prevent or minimize the delay; (4) a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and (5) a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Respondent shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements may in EPA's discretion preclude Respondent from asserting any claim of *force majeure* with respect to the event.

C. If EPA agrees that a delay is or was caused by a *force majeure* event, the time for performance of the obligations under this Consent Order that are directly affected by the *force majeure* event shall be extended by agreement of the parties, pursuant to Section XXIII, for a period of time not to exceed the actual duration of the delay caused by the *force majeure* event. An extension of the time for performance of the obligation directly affected by the *force majeure* event shall not necessarily justify an extension of time for performance of any subsequent obligation. A delay that results from a *force majeure* event shall not be deemed to be a violation of the Consent Order.

D. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, or does not agree with Respondent on the length of the extension, the issue shall be subject to the dispute resolution procedures set forth in Section XIV of the Consent Order. In any such proceedings, to qualify for a *force majeure* defense, Respondent shall have the burden of proof that the delay or anticipated delay was or will be caused by a *force majeure* event, that the duration of the delay was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of paragraph B of this Section. Should Respondent carry this burden, the delay at issue shall be deemed not to be a violation by Respondent of the affected obligation of the Consent Order.

## XVI. STIPULATED PENALTIES

Unless excused under the provisions of Sections XIV or XV, Respondent shall pay into the Hazardous Substance Superfund administered by EPA, the sums set forth below as stipulated penalties. Stipulated penalties shall accrue as follows:

A. For each day during which Respondent fails to perform, in accordance with the schedules contained in this Consent Order and in the various plans and reports required under this

Consent Order incorporated by reference herein, any of the following activities:

1. for failure to timely submit the RI/FS Work Plan, Sampling and Analysis Plan, draft RI Report and draft FS Report required under this Consent Order;

2. for failure to timely submit any modifications requested by EPA or its representatives to the RI/FS Work Plan, Sampling and Analysis Plan, draft RI Report and draft FS Report as required under this Consent Order; and

3. for failure to timely submit payment of oversight costs as provided in Section XVII.

Respondent shall be liable to EPA for stipulated penalties in the following amounts:

| Period of Failure to Comply | Penalty Per Violation Per Day |
|---|---|
| 1st through 14th day | $1,000 |
| 15th through 44th day | $2,000 |
| 45th day and beyond | $5,000 |

B. If Respondent fails to submit a monthly progress report by its due date, Respondent shall be liable to EPA for stipulated penalties in the amount of $500 per violation for each day during which Respondent fails to submit and, if necessary, modify monthly reports.

C. Respondent shall be liable to EPA for stipulated penalties in the amount of $1000 per violation for each day during which Respondent fails to comply with all other requirements of this Consent Order including, but not limited to, any implementation schedule, payment requirement, notification requirement or completion deadline.

D. Should Respondents fail to mobilize or commence field activities prescribed in the RI/FS Work Plan within ten (10) calendar days of any date or time designated within the Work Plan, Respondents shall be liable to EPA for stipulated penalties in the amount of $500 for each day of non-compliance.

E. In the event the Respondents are not able to submit deliverables within time constraints provided within the Work Plan, despite incurred delays, EPA, in its discretion, may waive the stipulated penalties provided for in Paragraphs A,B, C, and D. In rendering a determination on the issue of the waiver of penalties under this paragraph, EPA will consider Respondents' good faith efforts to mobilize and/or commence field activities within the required times.

All stipulated penalties begin to accrue on the day the violation occurs or on the day following Respondent's failure to comply with any schedule or deadline or the terms, conditions, or requirements contained in this Consent Order and/or Work Plan. Stipulated penalties shall continue to accrue until Respondent's violation ends or until Respondent complies with the particular schedule or deadline.

Payment of stipulated penalties shall be due and owing within thirty (30) days from the receipt of a written notice from EPA notifying Respondent that penalties have been assessed. Interest shall accrue on any unpaid amounts, beginning at the end of the fifteen day period, at the rate established by the Department of Treasury under 31 U.S.C. § 3717. Respondent shall pay a handling charge of one percent to be assessed at the end of each 31 day period, after the penalties are due, and a six percent per annum penalty charge, to be assessed if the penalty is not paid in full within 90 days after it is due. The check and transmitted letter shall identify the Name of the Site, the Site identification number and the title of this Order. A copy of the transmittal letter should be sent simultaneously to the EPA Project Coordinator.

Payment shall be made to:
U. S. Environmental Protection Agency
Region IV
Superfund Accounting
P. O. Box 100142
Atlanta, Georgia 30384
ATTENTION: (Collection Officer for Superfund)

Respondent may dispute EPA's right to the stated amount of penalties by invoking the Dispute Resolution procedures under Section XIV of this Order. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondent does not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If Respondent prevails upon resolution, no penalties shall be paid.

In the event that EPA provides for corrections to be reflected in the next deliverable and does not require resubmission of that deliverable, stipulated penalties for that interim deliverable shall cease to accrue on the date of such decision by EPA. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Order.

The stipulated penalties set forth in this Section do not preclude EPA from electing to pursue any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this Consent Order. Such remedies and sanctions may include but are not limited to a suit for statutory penalties up to the amount

authorized by law, a federally-funded response action, and a suit for reimbursement of costs incurred by the United States.

## XVII. REIMBURSEMENT OF OVERSIGHT AND RESPONSE COSTS

In accordance with Section 104(a)(1) of CERCLA, as amended, 42 U.S.C. § 9604(a)(1), Respondent agrees to reimburse the Hazardous Substance Superfund for all response and oversight costs incurred by EPA or its authorized representatives in oversight of Respondent's performance of work under the Consent Order.

At the end of each fiscal year, EPA will submit to Respondent an accounting of all response and oversight costs incurred by the U.S. Government with respect to this Consent Order. Oversight costs shall include all direct and indirect costs of EPA's oversight arrangement for the RI/FS, including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, site visits, interpretation of Consent Order provisions, discussions regarding disputes that may arise as a result of this Consent Order, review and approval or disapproval of reports, the costs of redoing any of Respondent's tasks, and any assessed interest as authorized by law.

EPA's certified Agency Financial Management System Summary data (SPUR Reports) and any other necessary documents, shall serve as the basis for payment demands.

Failure to submit an accounting in one fiscal year does not prevent EPA from submitting an accounting for that year in a subsequent fiscal year. Respondent shall, within thirty (30) calendar days of receipt of each accounting, remit a certified or cashiers check for the amount of those costs made payable to the Hazardous Substance Superfund. Interest shall begin to accrue on the unpaid balance from that date. Checks should specifically reference the identity of the Site and should be sent to:

U. S. Environmental Protection Agency
Region IV
Superfund Accounting
P. O. Box 100142
Atlanta, Georgia 30384
ATTENTION: Collection Officer for Superfund

A copy of the transmittal letter should be sent simultaneously to the EPA Project Coordinator.

Respondent agrees to limit any disputes concerning costs to accounting errors and the inclusion of costs outside the scope of this Consent Order. Respondent shall identify any contested

costs and the basis of its objection. All undisputed costs shall be remitted by Respondent in accordance with the schedule set out above. Disputed costs shall be paid by Respondent into an escrow account while the dispute is pending. Respondent bears the burden of establishing an EPA accounting error and the inclusion of costs outside the scope of this Consent Order.

EPA reserves the right to bring an action against Respondent pursuant to Section 107 of CERCLA to enforce the response and oversight cost reimbursement requirements of this Consent Order and to collect stipulated penalties assessed pursuant to section XVI of this Consent Order.

## XVIII. RESERVATION OF RIGHTS

Notwithstanding compliance with the terms of this Consent Order, Respondent is not released from liability, if any, for any actions beyond the terms of this Consent Order taken by EPA regarding this Site. EPA reserves the right to take any enforcement action pursuant to CERCLA or any other available legal authority, including the right to seek injunctive relief, monetary penalties, and punitive damages for any violation of law or this Consent Order.

Except as otherwise provided herein, EPA and Respondent expressly reserve all rights and defenses that they may have, including EPA's right to disapprove of work performed by Respondent and to require that Respondent perform tasks in addition to those detailed in the RI/FS Work Plan, as provided in this Consent Order. In the event that Respondent declines to perform any additional or modified tasks, EPA will have the right to undertake any RI/FS work. In addition, EPA reserves the right to undertake removal actions and/or remedial actions at any time. In either event, EPA reserves the right to seek reimbursement from Respondent thereafter for such costs which are incurred by the United States, and Respondent reserves all rights to contest or defend against such claims or actions.

Respondent's agreement to the terms of this Consent Order shall not be considered an admission of liability and is not admissible in evidence against Respondent in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce the terms of this Consent Order or a related judgment. Respondent specifically retains its rights to assert claims against other potentially responsible parties at the Site.

Following satisfaction of the requirements of this Consent Order, Respondent shall have resolved its liability to EPA for the performance of the RI/FS that is the subject of this Order. The Respondent is not released from liability, if any, for any actions taken beyond the terms of this Order regarding removals,

other operable units, remedial design/remedial action (RD/RA), or activities arising pursuant to section 121(c) of CERCLA.

## XIX. OTHER CLAIMS

Nothing in this Consent Order constitutes a release from any claim, cause of action or demand in law or equity that EPA or Respondent may have against any person, firm, partnership, or corporation 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 substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Site.

EPA reserves the right to bring an action against Respondent and other potentially responsible parties pursuant to Section 107 of CERCLA for recovery of all response and oversight costs incurred by the United States related to this Consent Order and not reimbursed by Respondent, as well as any other past and future costs incurred by the United States in connection with response activities conducted pursuant to CERCLA at this site.

This Consent Order does not constitute a preauthorization of funds under Section III(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

In entering into this Consent Order, Respondent waives any right to seek reimbursement from the Hazardous Substances Superfund under Section 106(b)(2) of CERCLA, 42 U.S.C. § 9606(b)(2), for any past costs associated with this Site, or any costs incurred in complying with this Order. Respondent shall bear its own costs and attorney fees.

## XX. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Consent Order will be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations unless an exemption from such requirements is specifically provided in this Consent Order or by statute or regulation or is made a part of this Consent Order by being incorporated herein at some later date.

## XXI. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

Respondent agrees to indemnify and save and hold harmless the United States, its agencies, departments, officials, agents, employees, contractors, or representative, from any and all claims or causes of action arising from or on account of acts or omissions of Respondent, its officers, employees, receivers, trustees, agents, or assigns, in carrying out the activities pursuant to this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held

to be a party to any contract involving Respondent at or relating to the Site.

## XXII. PUBLIC COMMENT

Upon receipt of the Feasibility Study Final Report, EPA will make the Remedial Investigation Final Report, the Feasibility Study Final Report and EPA's Proposed Plan available to the public for review and comment for, at a minimum, a thirty (30) day period, pursuant to EPA's Community Relations Plan and the NCP. Following the public review and comment period, EPA will notify Respondent of the remedial action alternative selected for the Site.

## XXIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

In consideration of the communications between Respondent and EPA prior to the issuance of this Consent Order concerning its terms, Respondent agrees that there is no need for a settlement conference prior to the effective date of this Consent Order. Therefore, the effective date of this Consent Order will be the date upon which it is signed by EPA. This Consent Order may be amended by mutual agreement of EPA and Respondent. Such amendments will be in writing and will have as the effective date that date upon which such amendments are signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to the Consent Order.

Any reports, plans, specifications, schedules, and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order. Any noncompliance with such EPA-approved reports, plans, specifications, schedules, and attachments will be considered a failure to achieve the requirements of this Consent Order and will subject Respondent to the provisions included in the "Force Majeure" and "Stipulated Penalties" sections (Sections XV and XVI) of this Consent Order.

No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent will be construed as relieving Respondent of its obligation to obtain such formal approval of EPA as may be required by this Consent Order.

## XXIV. NOTICE TO THE STATE

EPA has notified the State of Kentucky regarding the requirements of this Consent Order.

Upon completion of the RI/FS, pursuant to the requirements of Section 104(c)(2) of CERCLA, 42 U.S.C. § 9604(c)(2), EPA will

notify the State of Kentucky before determining the appropriate remedial action to be taken at the Site.

## XXV. TERMINATION AND SATISFACTION

This Consent Order shall terminate when Respondent demonstrates in writing and certifies to the satisfaction of EPA that all activities required under this Consent Order, including any additional work, payment of past costs, response and oversight costs, and any stipulated penalties demanded by EPA, have been performed and EPA has approved the certification. This notice shall not, however, terminate Respondent's obligation to comply with Sections XIII, XVII, and XVIII of this Consent Order.

The certification shall be signed by a responsible official representing Respondent. Such representative shall make the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

IT IS SO AGREED:

NSA, A DIVISION OF SOUTHWIRE COMPANY

BY: W E Mist 2/3/97

ITS: Director, Corporate Env Mgt.
(Title) Date

IT IS SO AGREED AND ORDERED:

BY: Richard D. Green 3/4/97

Richard D. Green
Acting Director
Waste Management Division
Region IV
U.S. Environmental Protection Agency

Date

ORIGINAL AOC SIGNED 10/2/92
BY R.D. GREEN, ASSOCIATE DIVISION DIRECTOR
WASTE MANAGEMENT DIVISION
U.S.EPA - REGION IV

# MODIFIED SCOPE OF WORK FOR THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE NATIONAL SOUTHWIRE ALUMINUM SITE, HAWESVILLE, HANCOCK COUNTY, KENTUCKY

ORIGINAL : September 24, 1992
MODIFIED : November 7, 1996
LAST MODIFICATION: February 11, 1997

U.S. EPA, Region IV
100 Alabama Street, S.W.
Atlanta, Georgia

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# MODIFIED SCOPE OF WORK FOR THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE NATIONAL SOUTHWIRE ALUMINUM SITE, HAWESVILLE, HANCOCK COUNTY, KENTUCKY

## INTRODUCTION

The purpose of this Remedial Investigation/Feasibility Study (RI/FS) is to investigate the nature and extent of contamination at the National Southwire Aluminum Site [the "Site" (Figure 1)], assess the current and potential risk to public health, welfare, and the environment, and to develop and evaluate potential Remedial Action Alternatives. The RI and FS are interactive and shall be conducted concurrently so that the data collected in the RI influences the development of Remedial Action Alternatives in the FS, which in turn affects the data needs and the scope of Treatability Studies.

The Respondent shall conduct the RI/FS (and complete the Baseline Risk Assessment component) and produce an RI/FS Report that is in accordance with this Scope of Work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, (Interim Final) (U.S. EPA Office of Emergency and Remedial Response, October 1988) (the "RI/FS Guidance"), the National Oil and Hazardous Substances Pollution Contingency Plan (March 8, 1990) and other guidances used by EPA in conducting an RI/FS (the primary guidances are listed in Attachment A), as well as any additional requirements in the Administrative Order. The RI/FS Guidance describes the report format and the required report content. Pertinent RI/FS Guidance section numbers are denoted in parenthesis throughout this Scope of Work. The Respondent shall furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the Administrative Order.

At the completion of the RI/FS, EPA shall be responsible for the selection of a remedy to be implemented for the Site. EPA will document this selection of a remedy in a Record of Decision (ROD). The Remedial Action Alternative selected by EPA will meet the cleanup standards specified in §121 of SARA. That is, the selected remedial action will be protective of human health and the environment, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws or regulations, and will address the statutory preference for on-site treatment which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants as a principal element. The Final Remedial Investigation and

Feasibility Study Report(s), as adopted by EPA, and the Baseline Risk Assessment will, with the remainder of the Administrative Record, form the basis for the selection of the remedy to be implemented for the Site and will provide the information necessary to support the development of the ROD.

As specified in §104(a)(1) of CERCLA, as amended by SARA, EPA must provide oversight of the Respondent's activities throughout the RI/FS. The Respondent shall support EPA's initiation and conduct of activities related to the implementation of oversight activities. However, the primary responsibility for conducting an adequate RI/FS to enable and support the selection of a remedy shall lie with the Respondent. EPA review and approval of deliverables is a tool to assist this process and to satisfy, in part, EPA's responsibility to provide effective protection of public health, welfare, and the environment. EPA approval of a task or deliverable shall not be a guarantee as to the ultimate adequacy of such task or deliverable. A summary of the major deliverables that the Respondent shall submit for the RI/FS is attached (Attachment B). In addition, a general schedule of RI/FS activities is also attached (Attachment C).

**TASK 1 - SCOPING (RI/FS Guidance, Chapter 2)**

Scoping is the initial planning process of the RI/FS and has been initiated by EPA to determine the site-specific objectives of the RI/FS prior to negotiations between the Respondent and EPA. Scoping is continued, repeated as necessary, and refined throughout the RI/FS process. In addition to developing the Site Objectives of the RI/FS, EPA has developed a Site Management Strategy. Consistent with the Site Management Strategy, the specific project scope shall be planned by the Respondent and EPA. The Respondent shall document the specific project scope in a Work Plan. Because the work required to perform an RI/FS is not fully known at the onset, and is phased in accordance with a Site's complexity and the amount of available information, it may be necessary to modify the Work Plan during the RI/FS to satisfy the objectives of the study.

The Site Objectives for the National Southwire Aluminum Site have been determined preliminarily, based on available information, to be the following:

1. Review of existing information pertaining to the Site. This review includes EPA Site Inspection Reports, the EPA Hazardous Ranking System Scoring package, reports from local, State and Federal agencies, court records, information from local businesses such as local well drillers and waste haulers and generators, all facility records, and information from facility owners and employees and nearby citizens.

2. Review of relevant guidance (see attached references) to

understand the remedial process. This information shall be used in performing the RI/FS and preparing all deliverables under this SOW.

3. Identification of all Federal and State applicable or relevant and appropriate requirements (ARARs).

4. Determination of the nature and lateral and vertical extent of contamination (waste types, concentrations and distributions) for all affected media including air, ground water, soil, surface water, and sediment, etc. [This includes the recently discovered PCB contamination in the vicinity of the cooling tower foundation presently under construction].

5. The Respondent shall thoroughly delineate all Site-related groundwater contamination. Specific information will be required to characterize and model groundwater plumes at the National Southwire Aluminum Site. This information shall be obtained through (but is not limited to): installation of monitoring well clusters, piezometers, boreholes, and coreholes. These intrusive investigative efforts will be required in order to accurately sample, monitor, and characterize the groundwater flow regime at the Site. Additional information concerning the affected aquifer(s) shall also be derived through core analyses, and also through well testing such as: drawdown, slug, cone of depression, or other tests that will facilitate accurate characterization of the geologic and hydrologic regime of the Site (i.e., all areas affected by Site contamination).

6. Performance of a well survey within a three mile radius of the Site including determining water uses, well construction methods used, the number and age of users, and the volume and rate of water usage.

7. Identification and screening of potential treatment technologies along with containment/disposal requirements for residuals or untreated wastes.

8. Assembly of technologies into Remedial Action Alternatives and screening of alternatives.

9. Performance of bench or pilot Treatability Studies as necessary.

10. Detailed analysis of Remedial Action Alternatives.

The Site Management Strategy for the National Southwire Aluminum Site includes the following:

1. A complete investigation of the Site including any and all off-site contamination which may have been caused by

contaminants originating from the Site.

2. Use of the RI to identify any other Potentially Responsible Parties that may be involved.

3. Evaluation of the Site as a whole; an interim remedy has been utilized in order to attempt to limit the movement of the plumes of contamination. If an interim remedy is to be implemented, an Interim Action Record of Decision (ROD) may be prepared prior to the Final ROD. Possible future interim remedial measures may potentially enhance and expedite Site remediation.

4. EPA oversight of the Respondent's conduct of the work (i.e., the RI/FS and any response action) to ensure compliance with applicable laws, regulations and guidances and to ensure that the work proceeds in a timely fashion.

5. Respondent will complete the Baseline Risk Assessment which was drafted by the EPA. The completed Baseline Risk Assessment may be submitted as an integral part of the RI Report.

6. EPA management of the Remedy Selection and Record of Decision phase with input from State Agencies, Natural Resource Trustees and the Public (including the Respondent).

When scoping the specific aspects of a project, the Respondent must meet with EPA to discuss all project planning decisions and special concerns associated with the Site. The following activities shall be performed by the Respondent as a function of the project planning process.

a. Site Background (2.2)

The Respondent shall gather and analyze the existing background information regarding the Site and shall conduct a visit to the Site to assist in planning the scope of the RI/FS.

o Collect and Analyze Existing Data and Document the Need for Additional Data (2.2.2; 2.2.6; 2.2.7)

Before planning RI/FS activities, all existing Site data shall be thoroughly compiled and reviewed by the Respondent. Specifically, this compilation and review shall include currently available data relating to the varieties and quantities of hazardous substances at the Site and past disposal practices (what type of contaminants were dumped where, when, and by whom). This compilation and review shall also include results from any previous sampling or other investigations that may have been conducted. The Respondent shall refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources.

This information shall be utilized in determining additional data needed for Site Characterization, better defining potential applicable or relevant and appropriate requirements (ARARs), and developing a range of preliminarily identified Remedial Action Alternatives. Subject to EPA approval, Data Quality Objectives (DQOs) shall be established that specify the usefulness of existing data. Decisions on the necessary data and DQOs shall be made by EPA.

o Conduct Site Visit

The Respondent shall conduct a visit to the Site with the EPA Remedial Project Manager (RPM) during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the visit to the Site the Respondent shall observe the physiography, hydrology, geology, and demographics of the Site as well as related natural resource, ecological and cultural features. This information shall be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and narrow the range of preliminarily identified Remedial Action Alternatives.

b. Project Planning (2.2)

Once the Respondent has collected and analyzed existing data and conducted a visit to the Site, the specific project scope shall be planned. Project planning activities include those tasks described below as well as the development of specific required deliverables as described in paragraph c. The Respondent shall meet with EPA regarding the following activities and before the drafting of the scoping deliverables.

Refine the Site Objectives and Develop Preliminary Remedial Action Objectives and Alternatives (2.2.3)

Once existing information about the Site has been analyzed and a conceptual understanding of the potential risks posed by the Site has been obtained, the Respondent shall review and, if necessary, refine the Site Objectives and develop preliminary remedial action objectives for each actually or potentially contaminated medium. Any revised Site Objectives shall be documented in a technical memorandum and are subject to EPA approval prior to development of the other scoping deliverables. The Respondent shall then identify a preliminary range of broadly defined potential Remedial Action Alternatives and associated technologies. The range of potential alternatives shall include, at a minimum, alternatives in which treatment is used to reduce the toxicity, mobility, or volume of the waste, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated

wastes are managed; alternatives that involve containment and treatment components; alternatives that involve containment with little or no treatment; and a no-action alternative.

Document the Need for Treatability Studies (2.2.4)

If remedial actions involving treatment have been identified by the Respondent or EPA, Treatability Studies shall be required except where the Respondent can demonstrate to EPA's satisfaction that they are not needed. Where Treatability Studies are needed, identification of possible technologies and screening shall be done and the results submitted with the RI/FS Work Plan. Initial Treatability Study activities (such as research and study design) shall be planned to occur concurrently with Site Characterization activities (see Tasks 3 and 4).

Begin Preliminary Identification of Potential ARARs (2.2.5)

The Respondent shall conduct a preliminary identification of potential State and Federal ARARs (chemical-specific, location-specific, and action-specific) to assist in the refinement of remedial action objectives and the initial identification of Remedial Action Alternatives and ARARs associated with particular actions. ARAR identification shall continue as conditions and contaminants at the Site and Remedial Action Alternatives are better defined.

c. Scoping Deliverables (2.3)

At the conclusion of the project planning phase, the Respondent shall submit an RI/FS Work Plan, a Sampling and Analysis Plan, and a Health and Safety Plan. The RI/FS Work Plan and Sampling and Analysis Plan must be reviewed and approved and the Health and Safety Plan reviewed by EPA prior to the initiation of field activities.

RI/FS Work Plan (2.3.1)

A Work Plan documenting the decisions and evaluations completed during the scoping process shall be submitted to EPA for review and approval. The Work Plan shall be developed in conjunction with the Sampling and Analysis Plan and the Health and Safety Plan, although each plan may be delivered under separate cover. The Work Plan shall include a comprehensive description of the work to be performed, the medias to be investigated (i.e., Air, Ground Water, Surface Water, Surface and Subsurface Soils, and Sediments, etc.), the methodologies to be utilized, and the rationale for the selection of each methodology. A comprehensive schedule for completion of each major activity and submission of each deliverable shall also be included. This schedule shall be consistent with Attachment C.

Specifically, the Work Plan shall present the following:

- A statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS.

- A background summary setting forth the following;

- A description of the Site including the geographic location, and, to the extent possible, a description of the physiography, hydrology, geology, demographics, and the ecological, cultural, and natural resource features of the Site. **Information presented in this section must be directly related (and pertinent) to the Site. Regional information should be kept to a minimum while local Site related information should be enhanced and developed;**

- A synopsis of the history of the Site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the Site;

- A summary of the existing data in terms of physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the Site;

- A description of the Site Management Strategy developed by EPA during scoping as discussed previously in this SOW and as may be modified with EPA's approval;

- A preliminary identification of Remedial Action Alternatives and data needs for evaluation of Remedial Action Alternatives. This preliminary identification shall reflect coordination with Treatability Study requirements (see Tasks 1 and 4);

- A process for identifying Federal and State ARARs (chemical-specific, location-specific, and action-specific);

- A detailed description of the tasks to be performed, information needed for each task and for Baseline Risk Assessment, information to be produced during and at the conclusion of each task, and a description of the work products that shall be submitted to EPA. This description must also include the deliverables set forth in the remainder of this Scope of Work.

- A schedule for each of the required activities which is consistent with Attachment C and the RI/FS Guidance.

- o A project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format, and backup data management), monthly reports to EPA, and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS.

The Respondent shall refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required Work Plan.

Because of the nature of the Site and the iterative nature of the RI/FS, additional data requirements may be identified throughout the RI/FS process. The Respondent shall submit a technical memorandum documenting any need for additional data along with the proposed DQOs whenever such requirements are identified. In any event, the Respondent is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS and the Administrative Order.

Sampling and Analysis Plan (2.3.2)

The Respondent shall prepare a Sampling and Analysis Plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data generated will meet the DQOs established. The SAP provides a mechanism for planning field activities and consists of a Field Sampling and Analysis Plan (FSAP) and a Quality Assurance Project Plan (QAPP).

The FSAP shall define in detail the sampling and data-gathering methods that shall be used on the project. It shall include sampling objectives, sample location (horizontal and vertical) and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The DQOs will, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the proposed National Contingency Plan, pages 51425-26 and 51433 (December 21, 1988). In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, and data reduction, validation, and reporting. These procedures must be consistent with the Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (February 1, 1991). Field personnel shall be available for EPA QA/QC training and orientation, as required.

The Respondent shall demonstrate, in advance and to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This demonstration must include use of methods and analytical protocols for the chemicals of concern (typically the Target Compound List (TCL) and the Target Analyte List (TAL)) in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved by EPA in the QAPP for the Site. The laboratory must have and follow an EPA-approved QA program. The Respondent shall provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation, and analysis. EPA may require that the Respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. In addition, EPA may require submittal of data packages equivalent to those generated in the EPA Contract Laboratory Program (CLP) and may require laboratory analysis of performance samples (blank and/or spike samples) in sufficient number to determine the capabilities of the laboratory. If a laboratory not currently participating in the CLP is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by EPA shall be used. In addition, if the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval granted prior to the shipment of Site samples to that laboratory for analysis.

Health and Safety Plan (2.3.3)

A Health and Safety Plan shall be prepared in conformance with the Respondent's health and safety program, and in compliance with OSHA regulations and protocols. The Health and Safety Plan shall include the eleven elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. It should be noted that EPA does not "approve" the Respondent's Health and Safety Plan, but rather EPA reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

TASK 2 - COMMUNITY RELATIONS (2.3.4)

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community interviews and developing a community relations plan. Although implementation of the community relations plan is the responsibility of EPA, the Respondent may be requested to assist by providing information regarding the history of the Site and participating in public meetings. The extent of the Respondent's involvement in community relations activities is left to the discretion of EPA. The Respondent's community relations responsibilities, if any, shall be specified in the community relations plan. All community relations activities conducted by the Respondent shall be subject to oversight by EPA.

TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

As part of the RI, the Respondent shall perform the activities described in this task, including the preparation of a Site Characterization Summary and a RI Report. The overall objective of Site Characterization is to describe areas of the Site that may pose a threat to human health or the environment. This objective is accomplished by first determining physiography, geology, and hydrology of the Site. **(General and vague regional information should be kept to a minimum while information pertinent and relevant to the Site should be enhanced and developed).** All surface and subsurface pathways of migration shall also be defined. The Respondent shall identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations in the affected media. The Respondent shall also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics. This investigation will provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport shall be determined and projected.

During this phase of the RI/FS, the Work Plan, SAP, and Health and Safety Plan shall be implemented. Field data shall be collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondent shall notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including installation of monitoring wells, installation and calibration of equipment, pump tests, field lay out of any sampling grid, excavation, sampling and analysis activities, and other field investigation activities. The Respondent shall demonstrate

that the laboratory and type of laboratory analyses that will be utilized during Site Characterization meets the specific QA/QC requirements and the DQOs as specified in the SAP. In view of the unknown conditions at the Site, activities are often iterative and, to satisfy the objectives of the RI/FS, it may be necessary for the Respondent to supplement the work specified in the initial Work Plan. In addition to the deliverables below, the Respondent shall provide a monthly progress report and participate in meetings with EPA at major points in the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define physical characteristics, sources of contamination, and the nature and extent of contamination at the Site. These activities shall be performed by the Respondent in accordance with the Work Plan and SAP. At a minimum, this investigation shall include the following activities:

Implementing and Documenting Field Support Activities (3.2.1)

The Respondent shall initiate field support activities following approval of the Work Plan and SAP. Field support activities may include (1) obtaining access to the Site, (2) property surveys, (3) scheduling, and (4) procuring equipment, office space, laboratory services, utility services and/or contractors. The Respondent shall notify EPA at least two weeks prior to initiating field support activities so that EPA may adequately schedule oversight tasks. The Respondent shall also notify EPA in writing upon completion of field support activities.

Investigating and Defining Site Physical and Biological Characteristics (3.2.2)

The Respondent shall collect data on the physical and other characteristics of the Site and its surrounding areas including but not limited to the physiography, geology, and hydrology, and specific physical characteristics identified in the Work Plan. This information shall be ascertained through a combination of physical measurements, observations, and sampling efforts and shall be utilized to define potential transport pathways and receptor populations. In defining the physical characteristics of the Site, the Respondent shall also obtain sufficient engineering data (such as pumping characteristics, soil particle size, permeability, etc.) for the projection of contaminant fate and transport and the development and screening of Remedial Action Alternatives, including information necessary to evaluate treatment technologies.

Biological characteristics of the Site and other areas that may be affected by the Site shall be evaluated. These environmental evaluations shall assess the impacts in regards to terrestrial or aquatic wildlife, and related ecosystems. It is also important to identify potential affects on these biological systems concerning the implementation of any remedial actions.

Defining Sources of Contamination (3.2.3)

The Respondent shall locate each source of contamination. For each location, the lateral and vertical extent of contamination shall be determined by sampling at incremental depths on a sampling grid or in another organized fashion approved by EPA. The physical characteristics and chemical constituents and their concentrations shall be determined for all known and discovered sources of contamination. The Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Sources of contamination shall be analyzed for the potential of contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information necessary to evaluate treatment technologies.

Describing the Nature and Extent of Contamination (3.2.4)

The Respondent shall gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondent shall utilize the information on Site physical characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondent shall then implement an iterative monitoring program and any study program identified in the Work Plan or SAP such that, by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, the Respondent shall gather data for calculations of contaminant fate and transport. This process is continued until the lateral and vertical extent of contamination has been determined to the contaminant concentrations consistent with the established DQOs set forth in the QAAP. EPA shall use the information on the nature and extent of contamination to determine the level of risk presented by the Site. Respondent shall use this information to help to determine aspects of the appropriate Remedial Action Alternatives to be evaluated.

b. Data Analyses (3.4)

Evaluate Site Characteristics (3.4.1)

The Respondent shall analyze and evaluate the data to describe: (1) physical and biological characteristics of the Site; (2) contaminant source characteristics; (3) nature and extent of contamination; and (4) contaminant fate and transport. The information on physical and biological characteristics, source characteristics, and nature and extent of contamination shall be used in the analysis of contaminant fate and transport. The evaluation shall include the actual and potential magnitude of releases from the sources and lateral and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. All models shall be approved by EPA prior to their use. The RI data shall be presented in a computer disk format utilizing Lotus 1-2-3 or other equivalent commonly used computer software to facilitate the preparation, editing, and transmission of the Baseline Risk Assessment. The Respondent shall then collect any data identified by EPA as necessary to fill data gaps that EPA determines are present in the Baseline Risk Assessment (see "Guidance for Data Useability in Risk Assessment," U.S. EPA, Office of Emergency and Remedial Response, October 1990, OSWER Directive No. 9285.7-05, as amended). Analyses of data collected for Site Characterization shall meet the DQOs developed in the QAPP.

c. Data Management Procedures (3.5)

The Respondent shall consistently document the quality and validity of field and laboratory data compiled during the RI. At a minimum, this documentation shall include the following activities:

Documenting Field Activities (3.5.1)

Information gathered during characterization of the Site shall be consistently documented and adequately recorded by the Respondent in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the Work Plan and/or the SAP. Field logs must be utilized to document observations, calibrations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies. Supporting documentation described as the "CLP Data Package" must be provided with the sample analysis for all

samples split or duplicated with EPA.

Maintaining Sample Management and Tracking (3.5.2; 3.5.3)

The Respondent shall maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of the Baseline Risk Assessment and Remedial Action Alternatives. Analytical results developed under the Work Plan shall not be included in any characterization reports for the Site unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondent shall establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.7)

The Respondent shall prepare the Preliminary Site Characterization Summary and the Remedial Investigation Report.

Preliminary Site Characterization Summary (3.7.2)

After completing field sampling and analysis, the Respondent shall prepare a concise Site Characterization Summary. This summary shall review the investigative activities that have taken place and describe and display data for the Site documenting the location and characteristics of srface and subsurface features and contamination at the Site including the affected medium, location, types, physical state, and quantity and concentrations of contaminants. In addition, the location, dimensions, physical condition, and varying concentrations of each contaminant throughout each sourceand the extent of contaminant migration through each of the affected media shall be documented. The RI data shall be presented in a computer disk format utilizing Lotus 1-2-3 or other equivalent commonly used computer software to facilitate the preparation and transmission of the Baseline Risk Assessment. The Site Characterization Summary shall provide the Respondent and EPA with a preliminary reference for developing the Baseline Risk Assessment and remediation goals, evaluating the development and screening of Remedial Action Alternatives, and the refinement and identification of ARARs.

Remedial Investigation (RI) Report (3.7.3)

The Respondent shall prepare and submit a Draft RI Report to EPA for review and approval. This report shall summarize results of field activities to characterize the Site, sources of contamination, nature and extent of contamination, and the fate and transport of contaminants. The Respondent shall

refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the Respondent shall prepare a Final RI Report which satisfactorily addresses EPA's comments. Accompanying hardcopies of the Final RI Report, computer diskette(s) shall be submitted (Wordperfect 6.1 for Windows 3.x) in order to facilitate development of the EPA Record of Decision and other fundamental EPA documents required to address Site cleanup. **Within the Draft RI Report and Final RI Report, there shall be no language that indicates the contractor has sufficiently characterized the Site or otherwise indicates the adequacy of the contractors work. These types of statements do not belong in a technical document.**

**TASK 4 - TREATABILITY STUDIES (RI/FS Guidance, Chapter 5)**

Where appropriate, treatability Studies shall be performed by the Respondent to assist in the detailed analysis of alternatives. If applicable, study results and operating conditions will later be used in the detailed design of the selected remedial technology. The following activities shall be performed by the Respondent.

a. Determination of Candidate Technologies and the Need for Treatability Studies (5.2; 5.4)

The Respondent shall identify in a technical memorandum, subject to EPA review and comment, candidate technologies for a Treatability Studies program during project planning (Task 1). The listing of candidate technologies shall cover the range of technologies required for alternatives analysis (Task 5a). The specific data requirements for the Treatability Studies program shall be determined and refined during Site Characterization and the development and screening of Remedial Action Alternatives (Tasks 3 and 4, respectively).

Conduct Literature Survey and Determine the Need for Treatability Studies (5.2)

The Respondent shall conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for the Site on the basis of available information, Treatability Studies shall be conducted. EPA shall determine whether Treatability Studies will be required.

Evaluate Treatability Studies (5.4)

Where EPA has determined that Treatability Studies are required, the Respondent and EPA shall decide on the type of Treatability Studies to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as to perform testing for various operating conditions, the decision to perform pilot testing shall be made as early in the process as possible to minimize potential delays of the FS. To assure that a Treatability Study program is completed on time, and with accurate results, the Respondent shall either submit a separate Treatability Study Work Plan or an amendment to the original RI/FS Work Plan for EPA review and approval.

b. Treatability Study Deliverables (5.5; 5.6; 5.8)

In addition to the memorandum identifying candidate technologies, the deliverables that are required when Treatability Studies are to be conducted include a Treatability Study Work Plan, a Treatability Study Sampling and Analysis Plan, and a Final Treatability Study Evaluation Report. EPA may also require a Treatability Study Health and Safety Plan, where appropriate.

Treatability Study Work Plan (5.5)

The Respondent shall prepare a Treatability Study Work Plan or amendment to the original RI/FS Work Plan for EPA review and approval. This Plan shall describe the background of the Site, remedial technologies to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for Treatability Studies shall be documented as well. If pilot-scale Treatability Studies are to be performed, the Treatability Study Work Plan shall describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, and operating conditions to be tested. If testing is to be performed off-site, permitting requirements must be addressed.

Treatability Study Sampling and Analysis Plan (5.5)

If the original QAPP or FSAP is not adequate for defining the activities to be performed during the Treatability Studies, a separate Treatability Study SAP or amendment to the original RI/FS SAP shall be prepared by the Respondent for EPA review and approval. It shall be designed to monitor pilot plant performance. Task 1c of this Scope of Work provides additional information on the requirements of the SAP.

Treatability Study Health and Safety Plan (5.5)

If the original RI/FS Health and Safety Plan is not adequate for defining the activities to be performed during the Treatability Studies, a separate or amended Health and Safety Plan shall be developed by the Respondent. Task 1c of this Scope of Work provides additional information on the requirements of the Health and Safety Plan. EPA does not "approve" the Treatability Study Health and Safety Plan.

Treatability Study Evaluation Report (5.6)

Following completion of Treatability Studies, the Respondent shall analyze and interpret the testing results in a technical report to EPA. Depending on the sequence of activities, this report may be a part of the RI/FS Report or a separate deliverable. The report shall evaluate each technology's effectiveness, implementability, cost, and actual results as compared with predicted results. The report shall also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation. Accompanying hardcopies of this report, diskette(s) shall be submitted (Wordperfect 6.1 for Windows 3.x) in order to enhance the development of EPA decision documents.

**TASK 5 - DEVELOPMENT AND SCREENING OF REMEDIAL ACTION ALTERNATIVES (RI/FS Guidance, Chapter 4)**

The development and screening of Remedial Action Alternatives is performed to select an appropriate range of waste management options to be evaluated. This range of options shall include, at a minimum, alternatives in which treatment is used to reduce the toxicity, mobility, or volume of the waste, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; alternatives that involve containment and treatment components; alternatives that involve containment with little or no treatment; and a no-action alternative. The following activities shall be performed by the Respondent as a function of the development and screening of Remedial Action Alternatives.

a. Development and Screening of Remedial Action Alternatives (4.2)

The Respondent shall begin to develop and evaluate, concurrent with the RI Site Characterization task, a range of appropriate waste management options that, at a minimum, ensure protection of human health and the environment and comply with all ARARs.

Refine and Document Remedial Action Objectives(4.2.1)

The Respondent shall review and, if necessary, propose refinement to the Site Objectives and preliminary remedial action objectives that were established during the Scoping phase (Task 1). Any revised Site Objectives or revised remedial action objectives shall be documented in a technical memorandum as discussed in Task 1b. These objectives shall specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

Develop General Response Actions (4.2.2)

The Respondent shall develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify Areas and Volumes of Media (4.2.3)

The Respondent shall identify areas and volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site and the Baseline Risk Assessment and remediation goals shall also be taken into account.

Identify, Screen, and Document Remedial Technologies (4.2.4; 4.2.5)

The Respondent shall identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. General response actions shall be refined to specify remedial technology types. Technology process options for each of the technology types shall be identified either concurrent with the identification of technology types or following the screening of the considered technology types. Process options shall be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options shall be summarized for inclusion in a technical memorandum. The reasons for eliminating alternatives must be specified.

Assemble and Document Alternatives (4.2.6)

The Respondent shall assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives shall

represent a range of treatment and containment combinations that shall address the Site as a whole. A summary of the assembled alternatives and their related action-specific ARARs shall be prepared by the Respondent for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine Alternatives

The Respondent shall refine the Remedial Action Alternatives to identify contaminant volumes to be addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information shall be collected for an adequate comparison of alternatives. Remedial action objectives for each medium shall also be refined as necessary to incorporate any new risk assessment information presented in the Baseline Risk Assessment. Additionally, action-specific ARARs shall be updated as the Remedial Action Alternatives are refined.

Conduct and Document Screening Evaluation of Each Alternative (4.3)

The Respondent may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Note that the evaluation of effectiveness involves evaluating the long-term and short-term risks - among other factors - associated with a remedial alternative. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives shall be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis.

As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondent shall prepare a technical memorandum summarizing the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening.

b. Alternatives Development and Screening Deliverables (4.5)

The Respondent shall prepare a technical memorandum summarizing the work performed and the results of each task above, including

an alternatives array summary. This alternatives array shall be modified by the Respondent when conducting Task 6 if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable shall document the methods, rationale, and results of the alternatives screening process.

**TASK 6 - DETAILED ANALYSIS OF REMEDIAL ACTION ALTERNATIVES (RI/FS Guidance, Chapter 6)**

The detailed analysis shall be conducted by the Respondent to provide EPA with the information needed to allow for the selection of a remedy for the Site.

a. Detailed Analysis of Alternatives (6.2)

The Respondent shall conduct a detailed analysis of remaining alternatives. This analysis shall consist of an assessment of each option against a set of nine evaluation criteria and a comparative review of all options using the same nine evaluation criteria as a basis for comparison.

Apply Nine Criteria and Document Analysis (6.2.1 - 6.2.4)

The Respondent shall apply nine evaluation criteria to the assembled Remedial Action Alternatives to ensure that the selected Remedial Action Alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) State acceptance; and (9) community acceptance. Criteria 8 and 9 are considered after the RI/FS Report has been released to the general public. For each alternative, the Respondent shall provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion of the individual criterion assessment. Since the Respondent does not have direct input on criteria (8) (State acceptance) and (9) (community acceptance), these two criteria will be addressed by EPA after completion of the Draft FS Report.

Compare Alternatives Against Each Other and Document the Comparison of Alternatives (6.2.5; 6.2.6)

The Respondent shall perform a comparative analysis among the Remedial Action Alternatives. That is, each alternative shall be compared against the others using the nine evaluation criteria as a basis of comparison. No alternative shall be identified by the Respondent as the preferred alternative in the Feasibility Study. Identification and selection of the preferred alternative is conducted by EPA.

b. Detailed Analysis Deliverables (6.5)

The Respondent shall prepare a Draft FS Report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of Remedial Action Alternatives. The Respondent shall refer to the RI/FS Guidance for an outline of the report format and the required report content. The Respondent shall prepare a Final FS Report which satisfactorily addresses EPA's comments. Once EPA's comments have been addressed by the Respondent to EPA's satisfaction and EPA approval has been obtained or an amendment has been furnished by EPA, the Final FS Report may be bound with the Final RI Report. **Within the Draft FS Report and Final FS Report, there shall be no language that indicates the contractor has sufficiently characterized the Site or otherwise indicates the adequacy of the contractors work.**

ATTACHMENT A
REFERENCES

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:


1. The National Oil and Hazardous Substances Pollution Contingency Plan, March 8, 1990.

2. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final" U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

3. "Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

4. "Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.

5. "A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

6. "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

7. "Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

8. "Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

9. "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

10. "Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, December 1986.

11. "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

12. "CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (Draft), OSWER Directive No. 9234.1-01 and -02.

13. "Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (Draft), OSWER Directive No. 9283.1-2.

14. "Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

15. "Interim Final Risk Assessment Guidance for Superfund - Volume I - Human Health Evaluation Manual, Part A," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/1-89/002A, December 1989, OSWER Directive No. 9285.7-01a.

16. "Interim Final Risk Assessment Guidance for Superfund - Volume I - Human Health Evaluation Manual, Part B," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/1-89/002B, OSWER Directive No. 9285.7-01b.

17. "Interim Final Risk Assessment Guidance for Superfund - Volume I - Human Health Evaluation Manual, Part C," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/1-89/002C, OSWER Directive No. 9285.7-01c.

18. "Interim Final Risk Assessment Guidance for Superfund - Volume II - Environmental Evaluation Manual," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/1-89/001, March 1989, OSWER Directive No. 9285.7-01.

19. "Superfund Exposure Assessment Manual," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/1-88/001, April 1988, OSWER Directive No. 9285.5-1.

20. "Guidance for Data Useability in Risk Assessment," U.S. EPA, Office of Emergency and Remedial Response, EPA/540/G-90/008, October 1990, OSWER Directive No. 9285.7-05.

21. "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

22. "Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

23. OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

24. "Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

25. "Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.

26. "Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Waste Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

27. "Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual", U.S. EPA Region IV, Environmental Services Division, February 1, 1991 (revised periodically).

28. "USEPA Contract Laboratory Program Statement of Work for Organics Analysis", U.S. EPA, Office of Emergency and Remedial Response, February 1988.

29. "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis", U.S. EPA, Office of Emergency and Remedial Response, July 1988.

ATTACHMENT B
SUMMARY OF THE MAJOR DELIVERABLES FOR THE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT
THE NATIONAL SOUTHWIRE ALUMINUM SITE

| TASK | DELIVERABLE | EPA RESPONSE |
|---|---|---|
| TASK 1 | **SCOPING** -- (Note: These items completed before 11/01/96.) | |
| | - RI/FS Work Plan (15) | Review and Approve |
| | - Field Sampling and Analysis Plan (15) | Review and Approve |
| | - Quality Assurance Project Plan (10) | Review and Approve |
| | - Site Health and Safety Plan (5) | Review and Comment |
| TASK 3 | **SITE CHARACTERIZATION** - (Note: RI Report will include Baseline Risk Assessment.) | |
| | - Remedial Investigation (RI) Report (4) | Review and Approve |
| TASK 4 | **TREATABILITY STUDIES** - (Note: The generation of these documents is subject to negotiation between USEPA Region IV and the PRP. TS WP & SAP (or amendment to orig. SAP), if required, may be submitted together.) | |
| | - Treatability Study Work Plan (or amendment to original Work Plan) (4) | Review and Approve |
| | - Treatability Study SAP (or amendment to original SAP) (4) | Review and Approve |
| | - Treatability Study Report (4) | Review and Approve |
| TASK 5 | **DETAILED ANALYSIS OF REMEDIAL ACTION ALTERNATIVES** | |
| | - Feasibility Study (FS) Report (4) | Review and Approve |

Note: The number in parenthesis indicates the number of copies to be submitted by the Respondent. One copy shall be unbound, the remainder shall be bound. Also, see the modified Administrative Order on Consent for additional reporting requirements and further instructions on submittal and dispositions of deliverables.

ATTACHMENT C
GENERAL SCHEDULE FOR THE MAJOR
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY ACTIVITIES
AT THE NATIONAL SOUTHWIRE ALUMINUM SITE

| ACTIVITY | SCHEDULE DATE (DAYS) |
|---|---|
| *Effective Date of AOC | X |
| *Supervising Contractor Selected | X+15 |
| *Draft RI/FS Workplan and Associated Documents Submitted | X+60 |
| *Draft Treatability Study Work Plan Submitted | X+60 |
| *Final RI/FS Workplan and Associated Documents Submitted | X+130 |
| *Final Treatability Study Work Plan Submitted | X+130 |
| *Initiate Fieldwork | X+160 |
| *Fieldwork Complete | X+205 |
| *Preliminary Site Characterization Summary Submitted | X+250 |

* Note: These tasks/submittals have been completed or the requirements generally satisfied. A small amount of additional fieldwork may be required to complete data needs for the final RI/FS.

| | |
|---|---|
| Draft RI Submitted | TBD |
| Final RI Submitted | TBD |
| Draft FS and Draft Treatability Study Report Submitted | TBD |
| Final FS and Final Treatability Study Report Submitted | TBD |

If there are unreasonable delays in EPA's review of the previously mentioned deliverables, then the schedule will resume from the date of EPA review submittal and NSA and/or their contractors will receive the balance of the lost time.