

APPENDIX D

APPENDIX D

STATEMENT OF WORK

FOR

THE REMEDIAL DESIGN/REMEDIAL ACTION

CONSENT DECREE

for the

ALUMINUM COMPANY OF AMERICA SITE

AND

MISSISSIPPI RIVER POOL 15 SITE

RIVERDALE, SCOTT COUNTY, IOWA

JULY 2008

**STATEMENT OF WORK FOR
THE ALUMINUM COMPANY OF AMERICA SITE and
MISSISSIPPI RIVER POOL 15 SITE
RIVERDALE, SCOTT COUNTY, IOWA**

I. INTRODUCTION AND PURPOSE

This Statement of Work (SOW) sets forth the requirements for the implementation of the remedy set forth in the Record of Decision (ROD), signed by the Superfund Division Director for the U.S. Environmental Protection Agency (EPA) Region VII on September 28, 2004, for the Aluminum Company of America (Alcoa) Site and Mississippi River Pool 15 (MRP15) Site and the July 2007 Explanation of Significant Differences (ESD) for the Alcoa Site. This SOW is incorporated into and made a part of the Consent Decree entered into by the Settling Defendant, Alcoa, Inc., and the United States of America for the Remedial Design and Remedial Action to be conducted at these Sites. The Settling Defendant shall follow the ROD, the ESD, the Consent Decree, the approved Remedial Design/Remedial Action (RD/RA) Work Plan, and pertinent reference documents (including those listed in Section VI of the SOW) and subsequent revisions thereto, upon notification by the EPA to Settling Defendant of such revision, in submitting deliverables for and implementing the remedy for the Alcoa Site and the MRP15 Site.

II. DESCRIPTION OF THE SELECTED REMEDY

The major components of the remedy set forth in the ROD to address the Alcoa Site and the MRP15 Site are:

- Groundwater containment, which includes groundwater extraction and treatment, at the Alcoa Site;
- Source area remediation at the Alcoa Site;
- Monitoring of groundwater at the Alcoa Site;
- Implementation of institutional controls at the Alcoa Site to prohibit residential development, restrict land-use to industrial use only, and prohibit the installation of any water supply wells for drinking water purposes;
- Continued listing of the Alcoa Site on the Registry of Hazardous Waste or Hazardous Substance Disposal Sites pursuant to Iowa Code § 455B.426; and
- Monitoring of natural recovery processes, to include fish and sediments, in MRP15.

III. DESCRIPTION OF THE PERFORMANCE STANDARDS

A. EPA's Issuance of a TI ARAR Waiver

EPA expects to return usable groundwaters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site. When contaminated groundwater is currently or potentially used as a drinking water source, EPA typically selects a remedy that will restore the groundwater to Maximum Contaminant Levels (MCLs) and non-zero MCL Goals established under the Safe Drinking Water Act. When restoration of groundwater to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction. When site-specific conditions may inhibit groundwater restoration, the EPA has established guidance and a mechanism to evaluate the technical impracticability of restoring groundwater to meet applicable or relevant and appropriate requirements (ARARs).

In accordance with EPA guidance, Alcoa prepared a Technical Impracticability (TI) Evaluation Report for the Alcoa Site. The TI Evaluation Report has been incorporated into the Groundwater Feasibility Study (FS) as Appendix A. EPA has determined, based on the TI Evaluation Report, that a portion of the aquifer at the Alcoa Site cannot be restored to drinking water standards within a reasonable time frame due to hydrogeologic and contaminant-related factors, specifically the presence of non-aqueous phase liquid (NAPL) sources in a fractured bedrock aquifer. EPA refers to the portion of the Alcoa Site where groundwater cannot be restored to drinking water standards within a reasonable timeframe as the "TI Zone". EPA has determined that a TI ARAR waiver is appropriate for the TI Zone of the Alcoa Site.

The area in which the TI waiver applies is termed the TI Zone. The horizontal extent of the TI Zone lies within the Alcoa facility boundary as depicted in Figure 3 of the ROD. The vertical extent of the TI Zone includes the unconsolidated zone aquifer and the bedrock aquifers.

The chemical-specific ARARs that have been waived by EPA as part of the TI evaluation process are listed in Table 3-2 and Table 3-3 of the Groundwater FS Report and Table 5-1 of the TI Evaluation Report. Table 3-2 and Table 3-3 were included in the ROD. Table 3-3 lists the constituents that were detected in groundwater and the associated chemical-specific ARAR concentrations.

After issuance of the ROD, EPA made corrections to Table 3-2 and Table 3-3 in the ROD. EPA's changes to Table 3-2 and Table 3-3 are described in the July 2007 ESD for the Alcoa Site. The July 2007 ESD is included as Appendix B to the Consent Decree.

B. Statement of RAOs, Performance Goals, and Performance Standards

The Settling Defendant shall design and implement the Remedial Action to meet the remedial action objectives (RAOs), performance goals, Performance Standards, and conditions set forth in the ROD, the July 2007 ESD (or any subsequent amendments or modifications to the ROD), and this SOW.

1. Alcoa Site

The RAOs for groundwater remediation at the Alcoa Site with respect to different portions of the groundwater plume, as set forth in the ROD, are as follows: 1) manage and monitor the migration of on-site groundwater that contains site-related contaminants at levels above ARARs to prevent contaminant migration in the vicinity of South Bellingham Street; 2) manage and monitor the migration of on-site groundwater to prevent the discharge of site-related contaminants at levels that would result in an unacceptable risk to surface water receptors in MRP15; and 3) monitor the migration of COPCs in groundwater that currently flows off the facility to the east to ensure concentrations remain below ARARs and manage the off-site flow if groundwater concentrations exceed ARARs.

The performance goal for groundwater remediation at the Alcoa Site is containment, extraction, and treatment of groundwater so that groundwater contamination is being hydraulically contained within the TI Zone and groundwater contaminant concentrations outside the TI Zone shall not exceed Performance Standards as a result of contaminant migration from within the TI Zone. At any time, Alcoa may invoke the dispute resolution provisions of the Consent Decree to attempt to demonstrate that any failure to meet groundwater Performance Standards is solely due to a release of a hazardous substance from a facility outside the TI Zone and for which Alcoa bears no liability under CERCLA. If Alcoa prevails in such a dispute, it shall not be required to meet groundwater Performance Standards for the hazardous substances it has demonstrated were released from a facility outside the TI Zone and for which it bears no CERCLA liability.

The Performance Standards for groundwater are set forth in Table 1 of the July 2007 ESD. Table 1 of the ESD has been included as Attachment 1 to this SOW. Detection limits and/or reporting limits may alter the performance standards for certain compounds due to limitations associated with currently available analytical procedures. Therefore, for a parameter with a reporting limit greater than its performance standard, compliance will be achieved if that parameter is not detected above the reporting limit using an analytical method approved by EPA pursuant to the Consent Decree.

In addition to the compounds listed in Attachment 1 of this SOW, the groundwater monitoring program will include analysis for inorganic compounds, including metals. The monitoring levels for the inorganic compounds are set forth in Table 2 of the July 2007 ESD. Table 2 of the ESD has been included as Attachment 2 to this SOW. Detection limits and/or reporting limits may alter the monitoring levels for certain compounds due to limitations associated with currently available analytical laboratory procedures. Therefore, a parameter with a reporting limit greater than its monitoring level shall not trigger the notification requirements in this SOW if that parameter is not detected above the reporting limit using an analytical method approved by EPA pursuant to the Consent Decree.

Groundwater containment, which includes groundwater extraction and treatment, is a major component of the remedy at the Alcoa Site. The ROD states that the treated groundwater will either be discharged to the Mississippi River at levels protective of human health and the environment or recycled for plant re-use under the guidelines of the Davenport Water Pollution Control Pretreatment program. The Performance Standards for the treated groundwater are the effluent limitations set forth in Table 3 of the July 2007 ESD. Table 3 of the ESD has been included as Attachment 3 to this SOW. The written approval of the Davenport Water Pollution Control Pretreatment office is also required if the treated groundwater is recycled for plant reuse.

2. MRP15 Site

The RAOs for the Remedial Action for the MRP15 Site are to: 1) reduce PCB concentrations in fish to levels that are protective of human health and the environment; and 2) monitor natural recovery processes, including sediment depositional processes, to evaluate the potential for future exposures to contaminated sediments.

Therefore, the performance goal for the Remedial Action at the MRP15 Site is to reduce PCB concentrations in fish to levels that are protective of human health and the environment as determined by species-specific Performance Standards for channel catfish and common carp, and to establish that natural recovery processes in areas along the Alcoa shoreline, including sediment bed stability, provide conditions that are protective of human health and the environment.

Species-specific Performance Standards of polychlorinated biphenyl (PCB) concentrations in fish tissue for channel catfish and common carp are 226 ug/kg and 231 ug/kg, respectively. Appropriate analytical data and information to monitor natural recovery processes and sediment bed stability will be developed, and the monitoring standard(s) to monitor natural recovery processes (including sedimentation and sediment bed stability) will be established, in the Monitored Natural Recovery Program Plan (MNRPP) that Alcoa is required to implement pursuant to this SOW.

IV. SCOPE OF REMEDY AND IMPLEMENTATION

The remedy for the Alcoa Site will be designed and implemented to meet the RAOs, performance goals, and Performance Standards for the Alcoa Site described in Section III of this SOW. The remedy for the MRP15 Site will be designed and implemented to meet the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site described in Section III of this SOW. Implementation of the selected remedy shall include the following tasks to be conducted during the Remedial Design phase, the Remedial Action phase, and/or the Operation and Maintenance (O&M) phase. All plans, with the exception of the Health and Safety Plan (HASP), are subject to EPA approval. The HASP is subject to EPA review.

The Settling Defendant shall continue to implement the groundwater monitoring program for the Alcoa Site through the O&M phase as described in subsequent sections of this SOW, including the operation and maintenance of the groundwater containment, extraction, and treatment system, until EPA has determined that concentrations of groundwater contaminants in areas outside the TI Zone and groundwater contaminants throughout the TI Zone are below the chemical-specific Performance Standards listed in Attachment 1 of this SOW even after the cessation of the groundwater containment, extraction, and treatment system. At any time, Alcoa may invoke the dispute resolution provisions of the Consent Decree to attempt to demonstrate that any failure to meet groundwater Performance Standards is solely due to a release of a hazardous substance from a facility outside the TI Zone and for which Alcoa bears no liability under CERCLA. If Alcoa prevails in such a dispute, it shall not be required to meet groundwater Performance Standards for the hazardous substances it has demonstrated were released from a facility outside the TI Zone and for which it bears no CERCLA liability.

The Settling Defendant shall continue to implement the monitored natural recovery program for the MRP15 Site through the O&M phase as described in subsequent sections of this SOW, until it has been determined by EPA that: 1) concentrations of groundwater contaminants in areas outside the TI Zone and groundwater contaminants throughout the TI Zone are below the chemical-specific Performance Standards listed in Attachment 1 of this SOW; and 2) the Performance Standards and monitoring standards for the MRP15 Site have been achieved.

A. Summary of Tasks

- Task 1: Institutional Controls
- Task 2: Remedial Design/Remedial Action (RD/RA) Work Plan:
 1. Overall Management Strategy
 2. Groundwater Containment, Extraction, and Treatment System (GCETS) Plan for the Alcoa Site
 3. Long-Term Monitoring Plan (LTMP) for the Alcoa Site
 4. Monitored Natural Recovery Program Plan (MNRPP) for the MRP15 Site
 5. Operation and Functional (O&F) Phase for the Alcoa and MRP15 Sites
 6. Quality Assurance Project Plan (QAPP)
 7. Health and Safety Plan (HASP)
 8. Overall Project Schedule
- Task 3: Remedial Action
 1. Construction activities
 2. Operational and Functional (O&F) activities
 3. Alcoa Site Operational and Functional (O&F) Report
 4. MRP15 Site Interim Remedial Action Report
 5. Additional Remedial Action activities

- Task 4: Final Remedial Action Report
- Task 5: Operation and Maintenance (O&M) Plan for the Alcoa and MRP15 Sites
- Task 6: Completion of the Work
- Task 7: Progress Reports

B. Description of Each Task

Task 1: Institutional Controls

Within 45 days of entry of the Consent Decree, the Settling Defendant shall prepare for EPA review and approval an Environmental Covenant, in a form substantially similar to Appendix E to the Consent Decree, to be filed with the Scott County, Iowa Recorder of Deeds. The Settling Defendant shall record and certify the recording as set forth in Section IX of the Consent Decree.

Task 2: Remedial Design/Remedial Action (RD/RA) Work Plan.

The Settling Defendant shall prepare the Remedial Design/Remedial Action (RD/RA) Work Plan to implement the remedy at the Alcoa Site and the MRP15 Site as described in the ROD, the ESD, and this SOW.

The remedy shall be designed and implemented to meet the RAOs, performance goals, and Performance Standards for the Alcoa Site and the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site described in Section III of this SOW. Plans and specifications as required by this SOW shall be submitted in accordance with the schedule set forth in Section V, Schedule of Major Deliverables. The Remedial Design shall be consistent with the Remedial Design/Remedial Action Handbook (OSWER Directive No-9355.0-4B) and shall demonstrate that the implementation of the remedy will meet all objectives of the ROD, the ESD, the Consent Decree, and this SOW. The Settling Defendant shall communicate with the EPA as necessary to discuss design issues.

The RD/RA Work Plan submittal shall include, at a minimum, the following:

1. Overall Management Strategy. A statement of the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of the remedy selected in the ROD for the Alcoa Site and the remedy selected in the ROD for the MRP15 Site shall be part of the Remedial Design to be included in the RD/RA Work Plan. The Remedial Design objectives, assumptions, limitations, and approaches shall also be defined. The RD/RA Work Plan shall include activities to implement the source area remediation component of the remedy selected in the ROD for the Alcoa Site, including methods and frequency for the continuing removal of PCB-contaminated oil from the 86-Inch CHT Line pits and the 144-Inch

Finish Line electrical basement. As part of the RD/RA Work Plan, the Settling Defendant shall describe the activities to implement the institutional controls identified in the ROD for the remedy selected for the Alcoa Site that, when combined with the Environmental Covenant described in Task 1 above, will provide for an effective layering of institutional controls at the Alcoa Site. The RD/RA Work Plan shall include a description of the responsibility and authority of all organizations and key personnel directing the Remedial Design and implementing the Remedial Action, including contractor personnel.

2. Groundwater Containment, Extraction, and Treatment System (GCETS) Plan for the Alcoa Site. As part of the Remedial Design to be included in the RD/RA Work Plan, the Settling Defendant shall prepare a Groundwater Containment, Extraction, and Treatment System (GCETS) Plan for the implementation of a groundwater containment, extraction, and treatment system that will achieve the RAOs, performance goals, and Performance Standards at the Alcoa Site. As part of the Remedial Design, the air emissions associated with the GCETS will be evaluated to assess protectiveness and to determine whether treatment of the exhaust air stream from the air stripper is necessary. The Settling Defendant shall construct, operate, and maintain the groundwater containment, extraction, and treatment system during the subsequent Remedial Action and O&M phases. The GCETS Plan shall describe construction activities, if any, associated with the groundwater containment, extraction, and treatment system, including the number of new extraction wells, if any, to be installed during the Remedial Action phase. The GCETS Plan shall provide details regarding the specifications and operation of the groundwater containment, extraction and treatment system.

The GCETS Plan will also include a description of sampling and monitoring of influent and effluent associated with the groundwater containment, extraction, and treatment system, including parameters to be analyzed for and frequency of sampling. Effluent sampling and monitoring activities must be consistent with the substantive requirements of the Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) Program. Settling Defendant will develop the GCETS Plan so that effluent from the groundwater containment, extraction, and treatment system will be monitored for all compounds listed in Attachment 3 and Attachment 4 of this SOW; however, as provided for in Task 3 (Remedial Action) of this SOW, Settling Defendant may petition the EPA to modify effluent monitoring activities in the GCETS Plan based upon monitoring results. The analytical results of each effluent sampling event shall be provided to the EPA within 60 days of each sampling event. Included shall be the raw analytical data (electronic format acceptable), the data validation package (electronic format acceptable), and a synopsis of the validated data, including summary tables. The GCETS Plan shall include the following elements.

- a. Description of normal operation and maintenance, including:
 - Description of tasks for operation;
 - Description of tasks for maintenance;
 - Description of prescribed treatment or operation conditions and associated efficiency; and
 - Schedule showing frequency of each task.

b. Description of potential operating problems, including:

- Description and analysis of potential operation problems;
- Sources of information regarding problems; and
- Common and/or anticipated remedies.

c. Description of any routine sampling, monitoring and laboratory testing, including:

- Description of required data collection, laboratory tests, and their interpretation;
- Required quality assurance and quality control; and
- Schedule showing frequency of routine sampling and monitoring.

d. Description of data, tools, and techniques that will be used to assess the protectiveness of air emissions associated with the GCETS.

e. Requirements and procedure for verifying the attainment of Performance Standards for the groundwater containment, extraction, and treatment system effluent parameters listed in Attachment 3 of this SOW.

f. A requirement that analytical results of each effluent sampling event shall be submitted to the EPA within 60 days of each sampling event. If, at any point during the implementation of the GCETS Plan, monitoring of the effluent from the groundwater containment, extraction, and treatment system indicates the presence of compounds in Attachment 3 of this SOW above Performance Standards set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. A further requirement that Alcoa shall submit, within 30 days of submitting analytical results of the effluent sampling event to EPA, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards. In the case of such an event, Alcoa shall take all steps necessary to reduce concentrations of contaminants in the effluent to achieve Performance Standards. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to reduce concentrations of contaminants in treated groundwater discharged from the GCETS to achieve Performance Standards, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

A further requirement that if, at any point during the implementation of the GCETS Plan, monitoring of the discharge from the groundwater containment, extraction, and treatment system indicates the presence of volatile organic compounds (VOCs) in Attachment 4 of this SOW, Alcoa shall submit written

notification identifying such VOC(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. EPA may thereafter require Alcoa to take additional response actions, including additional sampling to characterize the effluent. Following characterization, EPA will determine if it is necessary to establish additional technology-based effluent limits protective of human health and the environment for incorporation into the GCETS Plan as effluent Performance Standards.

g. A requirement that, if at any point during the implementation of the GCETS Plan, monitoring of the discharge from the GCETS indicates the presence of any PCB, polycyclic aromatic hydrocarbon (PAH), or inorganic compound in Attachment 4 to this SOW, Alcoa shall submit written notification identifying such PCB(s), PAH(s), and/or inorganic compound(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. Such conditions shall be deemed to be "new information" and "unknown conditions" within the meaning of Paragraph 86 of the Consent Decree, and EPA may, pursuant to CERCLA or other applicable law, require Alcoa to undertake additional response actions, including sampling (including background sampling) to characterize the situation and assess the need for modifications to the groundwater treatment system to assure that the remedy remains protective of human health and the environment.

h. Description of alternate operation:

- Should systems fail, alternate procedures to prevent release or threatened releases of hazardous substances, pollutants, or contaminants which may endanger public health and the environment; and
- Analysis of vulnerability and additional resource requirements should a failure occur.

i. Corrective action:

- Should systems fail, description of corrective action to be implemented; and
- Schedule for implementing these corrective actions.

j. Description of equipment:

- Equipment identification;
- Installation of monitoring components;
- Maintenance of site equipment; and
- Replacement schedule for equipment and installed components.

k. Records and reporting mechanisms required:

- Operating logs;
- Laboratory records;
- Mechanism for reporting emergencies; and
- Maintenance records.

l. Requirements and procedure for modifying effluent sampling and monitoring activities consistent with the substantive requirements of the Clean Water Act and the NPDES Program.

m. Requirements and procedure for modifying operation of the groundwater containment, extraction, and treatment system.

3. Long-Term Monitoring Plan (LTMP) for the Alcoa Site. As part of the Remedial Design to be included in the RD/RA Work Plan, the Settling Defendant shall design a groundwater monitoring program for the Alcoa Site, referred to in the ROD as the Long-Term Monitoring Plan (LTMP), to document compliance with the Performance Standards for the Alcoa Site and to evaluate remedial progress over time. The Settling Defendant shall construct, operate, and maintain the groundwater monitoring program during the subsequent Remedial Action and O&M phases. The LTMP shall provide for monitoring to track the movement of groundwater contaminants and to monitor changes in chemical constituents and chemical concentrations in the groundwater over time. Information contained in the LTMP shall include details regarding the monitoring well network, parameters to be analyzed for in the groundwater, frequency of sampling and monitoring events, tasks to be performed, a schedule for implementation, and reporting requirements. Settling Defendant will develop the LTMP so that groundwater will be monitored for all compounds listed in Attachment 1 and Attachment 2 of this SOW; however, as provided for in Task 3 (Remedial Action) of this SOW, Settling Defendant may petition the EPA to modify groundwater monitoring activities in the LTMP based upon monitoring results. The analytical results of each groundwater sampling event shall be provided to the EPA within 60 days of each sampling event. Included shall be the raw analytical data (electronic format acceptable), the data validation package (electronic format acceptable), and a synopsis of the validated data, including summary tables. The LTMP for the Alcoa Site shall include the following elements:

a. Description of the monitoring well network and construction activities, if any, associated with the monitoring well network, including the number of new monitoring wells, if any, to be installed during the Remedial Action phase.

b. Description of maintenance activities, if any, associated with the monitoring well network, including provisions to repair or replace monitoring wells that are destroyed or in any way become unusable.

c. Description of groundwater sampling and monitoring activities, including the rationale for the selection of the groundwater sampling parameters and groundwater monitoring locations.

d. Requirements and procedure for verifying the attainment of Performance Standards in Attachment 1 of this SOW.

e. A requirement that analytical results of each groundwater sampling event shall be provided to the EPA within 60 days of each sampling event. If, at any point during the implementation of the LTMP, groundwater monitoring outside the TI Zone indicates the presence of any contaminant in Attachment 1 of this SOW above concentrations set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the groundwater sampling event to EPA. A further requirement that Alcoa shall submit, within 30 days of submitting analytical results of the groundwater sampling event to EPA, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards. In the case of such an event, Alcoa shall take all steps necessary to comply with the RAOs, performance goals, and Performance Standards for groundwater as set forth in Section III of this SOW. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to reduce concentrations of groundwater contaminants outside the TI Zone to achieve Performance Standards, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

f. A requirement that if, at any point during the implementation of the LTMP, groundwater monitoring outside the TI Zone indicates the presence of any inorganic compound, including metals, in Attachment 2 of this SOW above concentrations set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the groundwater sampling event to EPA. Such conditions shall be deemed to be "new information" and "unknown conditions" within the meaning of Paragraph 86 of the Consent Decree, and EPA may, pursuant to CERCLA or other applicable law, require Alcoa to undertake additional response actions, including sampling (including background sampling) to investigate and characterize the nature and extent of groundwater contamination.

g. Requirements and procedures for modifying groundwater sampling and monitoring activities.

4. Monitored Natural Recovery Program Plan (MNRPP) for the MRP15 Site. As part of the Remedial Design to be included in the RD/RA Work Plan, the Settling Defendant shall design a program to monitor natural recovery processes at the MRP15 Site, referred to in the ROD as the Monitored Natural Recovery (MNR) program, to document compliance with the Performance Standards and monitoring standards for the MRP15 Site and to evaluate any remedial progress over time. The Settling Defendant shall construct, operate, and maintain the MNR program during the subsequent Remedial Action and O&M phases. The MNR program shall include fish tissue monitoring and sediment monitoring for the MRP15 Site. The MNR program will be designed to: 1) evaluate trends in PCB concentrations in fish tissue collected from MRP15 and reference areas; 2) compare PCB concentrations in fish tissue collected from areas adjacent to the Alcoa facility to PCB concentrations in fish tissue collected from representative reference areas; 3) evaluate PCB concentrations in fish tissue for the protection of human health and the environment; and 4) monitor sediments and natural recovery processes for protection of human health and the environment. Details of the MNR program will be provided in a Monitored Natural Recovery Program Plan (MNRPP) that will be developed during the Remedial Design. The MNRPP shall provide details regarding fish and sediment monitoring, including target fish species, fish sampling sites, sediment monitoring locations, collection and analytical methods, frequency of sampling events, and schedule for implementation. The initial fish sampling event shall occur following approval of the MNRPP with subsequent events occurring, at a minimum, during the fourth year of the first five-year review period and during the fourth year of the second five-year review period. The analytical results of each fish sampling event and/or sediment monitoring event, as outlined in the MNRPP, shall be provided to the EPA within 60 days of each sampling event. Included shall be the raw analytical data, the data validation package, and a synopsis of the validated data, including summary tables. The analytical results of each fish sampling event shall also be provided to the Iowa Department of Natural Resources (IDNR). Copies of the raw analytical data and the data validation packages are not required to be submitted to the IDNR. The MNRPP for the MRP15 Site shall include the following elements.

- a. Description of construction activities associated with implementation of the MNRPP.
- b. Description of fish sampling activities including the rationale for the selection of sampling parameters, species, and locations.
- c. Description of sediment monitoring activities including the rationale for the selection of sediment monitoring parameters and sediment monitoring locations.
- d. Requirements and procedure for verifying the attainment of the MRP15 Performance Standards and monitoring standards.
- e. Requirements and procedure for modifying fish and sediment monitoring activities.

f. A requirement that analytical results of each fish sampling event and/or sediment monitoring event, as outlined in the MNRPP, shall be submitted to the EPA within 60 days of each sampling event. If, at any point during the implementation of the MNRPP, monitoring of the fish and/or sediment indicates PCB concentrations in fish tissue exceed the species-specific Performance Standards for channel catfish or common carp, or the monitoring standard(s) to monitor natural recovery processes along Alcoa's shoreline, including sedimentation and sediment bed stability, are not being met, Alcoa shall submit written notification identifying such information to EPA at the same time Alcoa submits the results of the sampling event to EPA. In addition, Alcoa shall submit, within 30 days of submitting results of the sampling event, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards and/or monitoring standards for the MRP15 Site. Alcoa shall also, in the case of such an event, take all necessary actions to achieve the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to achieve Performance Standards and monitoring standards for the MRP15 Site, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

5. Operation and Functional (O&F) Phase for the Alcoa and MRP15 Sites. As part of the Remedial Design to be included in the RD/RA Work Plan, the Settling Defendant shall describe the Operation and Functional (O&F) activities that will be conducted during the early stages of the Remedial Action (i.e., the O&F phase). In general, the O&F phase shall consist of the initial implementation of the LTMP and GCETS Plan at the Alcoa Site and of the MNRPP at the MRP15 Site. The O&F activities will be conducted after the construction phase is complete to ensure that the remedy for the Alcoa Site and the remedy for the MRP15 Site are functioning properly and operating as designed. The O&F activities for the Alcoa Site will consist of groundwater sampling and operation of the groundwater containment, extraction, and treatment system for a minimum of one year, to be conducted in accordance with the requirements of the RD/RA Work Plan, the LTMP, and the GCETS Plan. The O&F activities for the MRP15 Site will consist of, at a minimum, one fish sampling and sediment monitoring event, to be conducted in accordance with the RD/RA Work Plan and the MNRPP.

6. Quality Assurance Project Plan (QAPP). The Settling Defendant shall develop a Site-specific Quality Assurance Project Plan (QAPP) for implementation at the Alcoa Site and the MRP15 Site, which shall address sample analysis and data handling for samples collected in all phases of the Work, based upon the Consent Decree and guidance identified by the EPA. The QAPP(s) shall be consistent with the requirements of standard EPA methodology for laboratories. The QAPP(s) shall at a minimum include the following elements.

- a. Project Description
 - Project Scope
 - Sample Network Design
 - Parameters to be Tested and Frequency
 - Project Schedule
- b. Project Organization and Responsibility
- c. Quality Assurance Objective for Measurement Data
 - Level of Quality Control Effort
 - Accuracy, Precision and Sensitivity of Analysis
 - Completeness, Representativeness
 - Comparability
- d. Sampling Procedures
- e. Sample Custody
 - Field-Specific Custody Procedures
 - Laboratory Chain-of-Custody Procedures
- f. Calibration Procedures and Frequency
 - Field Instruments/Equipment
 - Laboratory Instruments
- g. Analytical Procedures
 - Analytical Methods
 - Field Screening and Analytical Protocol
 - Laboratory Procedures
- h. Internal Quality Control Checks
 - Field Measurements
 - Laboratory Analysis
- i. Data Reduction, Validation and Reporting
 - Data Reduction
 - Data Validation
 - Data Reporting

j. Performance and System Audits

- Internal Audits of Field Activity
- Internal Laboratory Audit
- External Field Audit
- External Laboratory Audit

k. Preventive Maintenance

- Routine Preventative Maintenance Procedures and Schedules
- Field Instruments/Equipment
- Laboratory Instruments

l. Specific Routine Procedures to Assess Data Precision, Accuracy, and Completeness

- Field Measurement Data
- Laboratory Data

m. Corrective Action

- Sample Collection/Field Measurement
- Laboratory Analysis

7. Health and Safety Plan (HASP). The Settling Defendant shall develop Health and Safety Plans (HASPs) for the Alcoa Site and the MRP15 Site designed to protect on-site personnel and area residents from physical, chemical and all other hazards posed by implementation and maintenance of this Remedial Design/Remedial Action. The work to be conducted during the Remedial Design phase, the Remedial Action phase, and the O&M phase will be implemented over the course of many years and it is anticipated that multiple contractors will be used over the life of the remedy. Settling Defendant shall submit a revised HASP for the Alcoa Site and MRP15 Site for each new contractor selected to perform work related to the remedy. The safety plans shall develop the performance levels and criteria necessary to address the following areas.

Personnel
Levels of protection
Safe work practices and safety guards
Medical surveillance
Personal and environmental air monitoring
Personal protective equipment
Personal hygiene
Decontamination - personal and equipment

Site work zones
Contaminant control
Contingency and emergency planning
Logs, reports, and record keeping

The HASP shall follow U.S. EPA guidance and all Occupational Safety and Health Administration (OSHA) requirements as outlined in 29 C.F.R. Sections 1910 and 1926, as well as the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Section 300.150.

As part of the HASP, the Settling Defendant shall include a Contingency Plan describing procedures to be used in the event of an accident or emergency. The Contingency Plan shall include, at a minimum, the following elements.

- a. Name of the person or entity responsible for responding in the event of an emergency incident.
- b. Plan and date(s) for meeting(s), if necessary, with the local community, including local, State and Federal agencies involved in the cleanup, as well as local emergency squads and hospitals.
- c. First aid medical information.
- d. Air Monitoring Plan (if applicable).
- e. Spill Prevention, Control, and Countermeasures ("SPCC") Plan (if applicable), as specified in 40 C.F.R. Part 109, describing measures to prevent and contingency plans for potential spills and discharges from materials handling and transportation associated with implementation of the remedial action.

8. Overall Project Schedule. Project schedule for the implementation of the remedy for the Alcoa and MRP15 Sites which identifies timing for initiation and completion of all critical path tasks, including major milestones.

Task 3: Remedial Action

The Settling Defendant shall implement the remedy for the Alcoa and MRP15 Sites as detailed and in accordance with the schedule provided in the approved RD/RA Work Plan. The Remedial Action shall include construction activities, operation and functional activities, and additional remedial action activities. The Remedial Action phase shall continue until it has been demonstrated that the RAOs, performance goals, and Performance Standards for the Alcoa Site and the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site have been achieved, and the Final Remedial Action Report has been approved by EPA (refer to Task 4 below).

During the Remedial Action phase, the Settling Defendant shall conduct the activities and implement the Remedial Design as set forth below.

1. Construction Activities.

a. *Alcoa Site.* The Settling Defendant shall implement construction activities at the Alcoa Site as identified in the RD/RA Work Plan, the LTMP, and the GCETS Plan. Upon completion of construction activities, Settling Defendant shall notify EPA. Within 30 days an Inspection of Construction Activities will be conducted by the EPA, the IDNR (if the state desires to attend), and the Settling Defendant for purposes of reviewing and observing the monitoring well network and the groundwater containment, extraction, and treatment system, and determining whether the construction activities have been completed in accordance with the RD/RA Work Plan, the LTMP, and GCETS Plan.

In the event that Settling Defendant proposes that no construction activities are necessary, and EPA agrees, a Remedial Design site visit will be conducted by the EPA, the IDNR (if it desires to attend), and the Settling Defendant for purposes of reviewing and observing the monitoring well network and the groundwater containment, extraction, and treatment system to determine whether they satisfy the requirements of the RD/RA Work Plan, the LTMP, and the GCETS Plan.

b. *MRP15 Site.* The Settling Defendant shall implement construction activities at the MRP15 Site as identified in the RD/RA Work Plan and the MNRPP. Upon completion of any such construction activities, Settling Defendant shall notify EPA. Within 30 days an Inspection of Construction Activities will be conducted by the EPA, the IDNR (if it desires to attend), and the Settling Defendant for purposes of reviewing and observing the sediment monitoring network and determining whether construction activities have been completed in accordance with the RD/RA Work Plan and MNRPP.

In the event that Settling Defendant proposes that no construction activities are necessary, and EPA agrees, a Remedial Design site visit will be conducted by the EPA, the IDNR (if it desires to attend), and the Settling Defendant for purposes of reviewing and observing the sediment monitoring network to determine whether the sediment monitoring network satisfies the requirements of the RD/RA Work Plan and the MNRPP.

2. Operational and Functional (O&F) Activities. Following the Inspection of Construction Activities or following the Remedial Design site visit, the Settling Defendant shall proceed with implementation of the O&F phase of the Remedial Action. The O&F activities for the Alcoa Site will be conducted to ensure that the remedy is functioning properly and operating as designed to achieve the RAOs, performance goals, and Performance Standards for the Alcoa Site. The O&F activities at the MRP15 Site will be conducted to ensure that the remedy is functioning properly and operating as designed to achieve the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site. The O&F activities for the Alcoa Site will consist of groundwater sampling and operation of the groundwater

containment, extraction, and treatment system for a minimum of one year, to be conducted in accordance with the requirements of the RD/RA Work Plan, the LTMP, and the GCETS Plan. The O&F activities for the MRP15 Site will consist of, at a minimum, one fish sampling and sediment monitoring event, to be conducted in accordance with the RD/RA Work Plan and the MNRPP.

3. Alcoa Site Operational & Functional (O&F) Report. Within 60 days of completion of O&F activities at the Alcoa Site (i.e., groundwater sampling and operation of the groundwater containment, extraction, and treatment system for a minimum of one year, in accordance with the requirements of the RD/RA Work Plan, LTMP, and GCETS Plan), the Settling Defendant shall submit an Alcoa Site O&F Report. In the Alcoa Site O&F Report, the Settling Defendant's Project Coordinator shall certify that all construction activities have been completed in full satisfaction of the requirements of the CD, this SOW, and the RD/RA Work Plan. The Alcoa Site O&F Report shall fully summarize the information and analytical data obtained during the construction phase and O&F phase, to include an assessment of the effectiveness of the remedy as related to the groundwater monitoring program and the operation of the groundwater containment, extraction, and treatment system. The Alcoa Site O&F Report shall also include the following certification, signed by a responsible corporate official of the Settling Defendant or the Settling Defendant's Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

4. MRP15 Site Interim Remedial Action Report. Within 60 days of completion of O&F activities at the MRP15 Site (i.e., at a minimum, one fish sampling and sediment monitoring event in accordance with the requirements of the RD/RA Work Plan and the MNRPP), the Settling Defendant shall submit an MRP15 Site Interim Remedial Action Report. This report shall be prepared consistent with the EPA guidance entitled Close Out Procedures for National Priority List Sites, OSWER 9320.2-09A-P, January 2000, or as superseded by subsequent guidance. In the MRP15 Site Interim Remedial Action Report, the Settling Defendant's Project Coordinator shall certify that all construction activities have been completed in full satisfaction of the requirements of the Consent Decree, this SOW, and the RD/RA Work Plan. The MRP15 Interim Remedial Action Report shall fully summarize the information and analytical data obtained during the construction phase and O&F phase, to include an assessment of the effectiveness of the remedy as related to the monitored natural recovery program. The MRP15 Site Interim Remedial Action Report shall also include the following certification, signed by a responsible corporate official of the Settling Defendant or the Settling Defendant's Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

5. Additional Remedial Action Activities.

a. Alcoa Site. Following EPA approval of the Alcoa Site O&F Report, Settling Defendant shall continue to implement the groundwater monitoring program in accordance with the RD/RA Work Plan and the LTMP and shall continue to operate the groundwater containment, extraction, and treatment system in accordance with the RD/RA Work Plan and the GCETS Plan.

Based upon the results of monitoring in accordance with the LTMP and/or the GCETS Plan, the Settling Defendant may petition the EPA to modify groundwater monitoring and/or effluent monitoring activities. Effluent sampling and monitoring activities must be consistent with the substantive requirements of the Clean Water Act and the NPDES Program. Such a petition shall include a discussion of the rationale and the basis for the proposed modifications, and may be submitted in a periodic Progress Report. Petitions are subject to review and approval by the EPA. Any modifications to the approved LTMP and/or GCETS Plan shall be incorporated into a revised LTMP and/or GCETS Plan, subject to EPA's approval.

b. MRP15 Site. Following EPA approval of the MRP15 Site Interim Remedial Action Report, Settling Defendant shall continue to implement the monitored natural recovery program in accordance with the RD/RA Work Plan and the MNRPP. If the data collected from the sampling and monitoring indicates that the monitored natural recovery program is inadequate in providing information to assess the protectiveness and the effectiveness of the remedy, the EPA may require a different type of sampling strategy.

Based upon the results of monitoring in accordance with the MNRPP, the Settling Defendant may petition the EPA to modify the fish and sediment monitoring activities. For example, when it is determined that the species-specific Performance Standards PCB concentrations in fish are at levels that are protective of human health and the environment (i.e., when the species-specific Performance Standards for channel catfish and common carp are achieved), Settling Defendant may petition the EPA to terminate the fish monitoring while continuing the sediment monitoring activities. Such a petition shall include a discussion of the rationale and the basis for the proposed modifications, and may be submitted in a periodic Progress Report. Petitions are subject to review and approval by the EPA. Any modifications to the approved MNRPP shall be incorporated into a revised MNRPP, subject to EPA's approval.

Task 4: Final Remedial Action Report

Alcoa and MRP15 Sites - Final Remedial Action Report. Within sixty (60) days after Settling Defendant concludes that the Remedial Action has been fully performed and that the RAOs, performance goals, and Performance Standards for the Alcoa Site and the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site have been achieved as follows: 1) groundwater contamination is being hydraulically contained within the TI Zone by the GCETS and the groundwater concentrations of contaminants in areas outside the TI Zone have been maintained below the chemical-specific Performance Standards listed in Attachment 1 of this SOW for two years; 2) the concentrations of compounds in the effluent from the groundwater treatment system are being maintained below the effluent discharge Performance Standards set forth in Attachment 3 of this SOW; 3) the PCB concentrations in fish tissue are below the species specific Performance Standards for channel catfish and common carp of 226 ug/kg and 231 ug/kg, respectively); and 4) natural recovery processes and sediment bed stability in areas along the Alcoa shoreline provide conditions that are protective of human health and the environment as determined by compliance with the monitoring standards, the Settling Defendant shall submit a Final Remedial Action Report.

The Final Remedial Action Report shall be prepared consistent with the EPA guidance entitled Close Out Procedures for National Priority List Sites, OSWER 9320.2-09A-P, January 2000 or as superseded by subsequent guidance. In the Final Remedial Action Report, the Settling Defendant's Project Coordinator shall state that the Remedial Action phase has been completed in full satisfaction of the requirements of this Consent Decree and this SOW. The Final Remedial Action Report shall contain the following statement, signed by a responsible corporate official of the Settling Defendant or the Settling Defendant's Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If, after review of the Final Remedial Action Report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Remedial Action has not been completed in accordance with this SOW and the Consent Decree, Settling Defendant will be notified in writing of the activities that must be undertaken by Settling Defendant pursuant to this SOW and the Consent Decree to complete the Remedial Action. The EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require the Settling Defendant submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions) of the Consent Decree. Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein. If EPA concludes, based on the initial or any subsequent request for Certification of Completion by Settling Defendant, and after a reasonable

opportunity for review and comment by the State, that the Remedial Action has been performed in accordance with this SOW and the Consent Decree, EPA will so notify the Settling Defendant in writing.

Task 5: Operation and Maintenance (O&M) Plan for the Alcoa and MRP15 Sites

The Settling Defendant shall prepare an Operation and Maintenance (O&M) Plan that describes the activities that will be conducted at the Alcoa and MRP15 Sites during the O&M phase.

Settling Defendant shall submit the O&M Plan with the Final Remedial Action Report. The O&M Plan shall be designed and implemented to demonstrate that the Remedial Action at the Alcoa Site and the Remedial Action at the MRP15 Site remain protective of human health and the environment and to confirm that the RAOs, performance goals, Performance Standards, and monitoring standards are maintained over the long-term (i.e., until the Work is complete). The O&M Plan will include the schedule and requirements for the implementation of any pertinent activities described in the RD/RA Work Plan, the LTMP, the GCETS Plan, and the MNRPP. A Health and Safety Plan (refer to item 7 of Task 2 above) shall also be submitted with the O&M Plan.

1. *Alcoa Site.* The O&M Plan shall require the continued implementation of institutional controls, the continued implementation of the groundwater monitoring program, and the continued operation of the groundwater containment, extraction, and treatment system at the Alcoa Site so as to maintain concentration of all groundwater contaminants in Attachment 1 of this SOW below the levels specified therein in all areas outside the TI Zone, and so that the discharge from the groundwater containment, extraction, and treatment system shall comply with the Performance Standards for the discharge of treated groundwater set forth in Attachment 3 of this SOW. The O&M activities for the Alcoa Site will include groundwater monitoring and sampling, operation of the groundwater containment, extraction, and treatment system, monitoring and sampling of the influent/effluent from the groundwater treatment system, and documenting that institutional controls remain effective. The analytical results of each groundwater sampling event and effluent sampling event shall be provided to the EPA within 60 days of each sampling event. O&M activities shall continue until it has been determined that concentrations of contaminants in groundwater are below the levels set forth in Attachment 1 of this SOW both outside and throughout the TI Zone and EPA has approved the Completion of Work Report.

If, at any point during O&M, groundwater monitoring outside the TI Zone indicates the presence of any contaminant in Attachment 1 above the concentration set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the groundwater sampling event to EPA. In addition, Alcoa shall submit, within 30 days of submitting the analytical results of the groundwater sampling event to EPA, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards. In the case of such an event, Alcoa shall take all actions necessary to reduce concentrations of groundwater contaminants outside the TI Zone to achieve

the RAOs, performance goals, and Performance Standards for the Alcoa Site. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to reduce concentrations of groundwater contaminants outside the TI Zone to achieve Performance Standards, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

If, at any point during O&M, groundwater monitoring outside the TI Zone indicates the presence of any inorganic compound, including metals, in Attachment 2 of this SOW above concentrations set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the groundwater sampling event to EPA. Such conditions shall be deemed to be “new information” and “unknown conditions” within the meaning of Paragraph 86 of the Consent Decree, and EPA may, pursuant to CERCLA or other applicable law, require Alcoa to undertake additional response actions, including sampling (including background sampling) to investigate and characterize the nature and extent of groundwater contamination.

If, at any point during O&M, monitoring of the discharge from the groundwater containment, extraction, and treatment system indicates the presence of compounds in Attachment 3 of this SOW above Performance Standards set forth therein, Alcoa shall submit written notification identifying such exceedance(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. In addition, Alcoa shall submit, within 30 days of submitting analytical results of the effluent sampling event to EPA, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards. In the case of such an event, Alcoa shall take all actions necessary to reduce concentrations of contaminants in discharged treated groundwater to achieve Performance Standards. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to reduce concentrations of contaminants in groundwater discharged from the groundwater containment, extraction, and treatment system to achieve Performance Standards, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

If, at any point during O&M, monitoring of the discharge from the groundwater containment, extraction, and treatment system indicates the presence of VOC(s) in Attachment 4 of this SOW, Alcoa shall submit written notification identifying such VOC(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. EPA may thereafter require Alcoa to take additional response actions, including additional sampling to characterize the effluent. Following characterization, EPA will determine if it is necessary to establish additional technology-based effluent limits protective of human health and the environment for incorporation into the GCETS Plan as effluent Performance Standards.

If, at any point during O&M, monitoring of the discharge from the GCETS indicates the presence of any PCB, PAH, or inorganic compound in Attachment 4 of this SOW, Alcoa shall submit written notification identifying such PCB(s), PAH(s), and/or inorganic compound(s) to EPA at the same time Alcoa submits the analytical results of the effluent sampling event to EPA. Such conditions shall be deemed to be “new information” and “unknown conditions” within the meaning of Paragraph 86 of the Consent Decree, and EPA may, pursuant to CERCLA or other applicable law, require Alcoa to undertake additional response actions, including sampling

(including background sampling) to characterize the situation and assess the need for modifications to the groundwater treatment system to assure that the remedy remains protective of human health and the environment

2. MRP15 Site. The O&M Plan shall also provide for continued implementation of the monitored natural recovery program at the MRP15 Site. The analytical results of each fish sampling event and/or sediment monitoring event shall be provided to EPA within 60 days of each sampling event. The analytical results of each fish sampling event shall also be provided to IDNR.

If, at any point during O&M, monitoring of the fish and/or sediment indicates PCB concentrations in fish tissue exceed the species-specific Performance Standards for channel catfish or common carp, or the monitoring standard(s) to monitor natural recovery processes along Alcoa's shoreline, including sedimentation and sediment bed stability, are not being met, Alcoa shall submit written notification identifying such information to EPA at the same time Alcoa submits the results of the sampling event. In addition, Alcoa shall submit, within 30 days of submitting results of the sampling event, a written report that sets forth the schedule and actions Alcoa intends to take to achieve Performance Standards and/or monitoring standards for the MRP15 Site. Alcoa shall also, in the case of such an event, take all necessary actions to achieve the RAOs, performance goals, Performance Standards, and monitoring standards for the MRP15 Site. If EPA determines that, in addition to those actions identified by Alcoa, more actions are required to achieve Performance Standards and monitoring standards for the MRP15 Site, EPA shall specify such additional actions to Alcoa, and Alcoa shall be required to implement them.

Task 6: Completion of the Work

Within 60 days after Settling Defendant concludes that all phases of the Work (including O&M) have been fully performed at both Sites, Settling Defendant shall schedule and conduct a pre-certification inspection to be attended by Settling Defendant, EPA and the State.

Completion of the Work for the Alcoa Site shall only occur when it has been demonstrated, and EPA has certified, that concentrations of groundwater contaminants are below the chemical-specific Performance Standards listed in Attachment 1 of this SOW in areas outside the TI Zone and concentrations of groundwater contaminants are below the chemical-specific Performance Standards listed in Attachment 1 of this SOW throughout the TI Zone.

Completion of the Work for the MRP15 Site shall only occur when it has been demonstrated, and EPA has certified, that, in addition to achieving the conditions set forth in the preceding sentences for the Alcoa Site, the Performance Standards and monitoring standards for the MRP15 Site have also been achieved through the implementation of the monitored natural recovery program as described in the O&M Plan.

If, after the pre-certification inspection, the Settling Defendant still believes that the Work has been fully performed, Settling Defendant shall submit a Completion of Work Report stating that the Work has been completed in full satisfaction of the requirements of this Consent

Decree. The Completion of Work Report shall contain the following statement, signed by a responsible corporate official of the Settling Defendant or the Settling Defendant's Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If, after review of the Completion of Work Report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with this SOW and the Consent Decree, Settling Defendant will be notified in writing of the activities that must be undertaken by Settling Defendant pursuant to this SOW and the Consent Decree to complete the Work. The EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require the Settling Defendant submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions) of the Consent Decree. Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein. If EPA concludes, based on the initial or any subsequent request for Certification of Completion by Settling Defendant, and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with this SOW and the Consent Decree, EPA will so notify the Settling Defendant in writing.

Task 7: Progress Reports

The Settling Defendant shall submit periodic Progress Reports to the EPA and IDNR throughout implementation and operation of the remedy selected in the ROD for the Alcoa Site and the MRP15 Site. Progress Reports shall be submitted to the EPA and the IDNR and include a summary of the tasks performed and the results of the previous reporting period with respect to: 1) operation of the groundwater containment, extraction and treatment system; 2) groundwater and influent/effluent sampling and monitoring events; 3) fish and sediment monitoring events; and 4) documentation of institutional controls. The Progress Report shall include an evaluation regarding the protectiveness of the remedy for the Alcoa Site and MRP15 Site pursuant to the LTMP, GCETS Plan, MNRPP and O&M Plan. The Progress Report shall include an evaluation as to whether the remedy continues to be protective based on the results of the monitoring data and trends observed with respect to data from prior years. The Progress Report shall summarize the tasks performed during the previous reporting period and the results of the previous period's sampling and monitoring events, including tables and figures.

The initial Progress Report will be due 30 days following the entry of the Consent Decree. Subsequent Progress Reports will be due on the 15th day immediately following the end of the reporting period. The reporting period will be quarterly, however, the reporting period may be modified upon approval by EPA. Progress Reports shall include, but need not be limited to the following:

1. Description of activities performed during the reporting period;
2. Summary of sampling results and tests obtained during the reporting period;
3. Summary of deliverables submitted to EPA during the reporting period;
4. Description of activities performed in support of the Community Relations Plan;
5. Description of anticipated work to be performed during the next reporting period;
6. Modifications to work plans or schedules.

V. SCHEDULE OF MAJOR DELIVERABLES

A summary of the project schedule and reporting requirements contained in this SOW is presented as follows:

<u>Submission or Activity</u>	<u>Due Date</u>
Environmental Covenant	45 days after entry of Consent Decree
Remedial Design/Remedial Action Work Plan	60 days after receipt of EPA's written authorization to proceed or 60 days after entry of Consent Decree, whichever occurs later
Initiation of Remedial Action phase	30 days after receipt of EPA's written approval of the RD/RA Work Plan
Inspection of Construction Activities	30 days after completion of construction activities
Initiation of O&F phase	Following inspection of construction activities or following Remedial Design site visit
Groundwater Monitoring Results and Treatment System Influent/Effluent Results	60 days after sampling event
Fish Tissue and Sediment Monitoring Results	60 days after sampling event

<p>Notify EPA of exceedance of chemical-specific Performance Standards for compounds listed in Attachment 1 for groundwater in areas outside TI Zone and Submit written report setting forth schedule and actions to achieve Performance Standards</p>	<p>Submit with groundwater analytical results Within 30 days of notification to EPA of reported exceedances</p>
<p>Notify EPA of exceedance of monitoring levels for inorganic compounds listed in Attachment 2 for groundwater in areas outside the TI Zone</p>	<p>Submit with groundwater analytical results</p>
<p>Notify EPA of exceedance of effluent Performance Standards in Attachment 3 and Submit written report setting forth actions to achieve Performance Standards</p>	<p>Submit with effluent sampling results Within 30 days of notification to EPA of reported exceedances</p>
<p>Notify EPA of presence of effluent compounds listed in Attachment 4</p>	<p>Submit with effluent sampling results</p>
<p>Notify EPA of exceedance of MRP15 Performance Standards or monitoring standards and Submit written report setting forth actions to achieve Performance Standards or monitoring standards</p>	<p>Submit with fish/sediment analytical results Within 30 days of notification to EPA of reported exceedances</p>
<p>First Progress Report</p>	<p>30 days after entry of Consent Decree</p>
<p>Subsequent Progress Reports</p>	<p>15th day of the month immediately following the end of a reporting period.</p>
<p>Plan to Replace or Repair Damaged Monitoring Well</p>	<p>30 days after discovery of damage or destruction</p>
<p>Replacement or Repair of Damaged Monitoring Well</p>	<p>30 days after receipt of EPA's written approval of plans to repair or replace well</p>
<p>Operational & Functional Report Alcoa Site</p>	<p>60 days after completion of O&F activities at the Alcoa Site</p>

Interim Remedial Action Report MRP15 Site	60 days after completion of O&F activities at the MRP15 Site
Final Remedial Action Report	60 days after Performance Standards for both Sites are achieved
O&M Plan	Submitted with Final Remedial Action Report
Initiation of O&M phase	30 days after receipt of EPA's approval of the Final Remedial Action Report or 30 days after EPA approval of O&M Plan, whichever occurs later
Pre-certification Inspection	60 days after completion of all Work at both Sites
Completion of Work Report	60 days following Pre-certification Inspection

VI. REFERENCE DOCUMENTS

The National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," US EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9355.3-01, EPA/540/G-89/004, October 1988.

"EPA Superfund Remedial Design and Remedial Action Guidance," Interim Final, US EPA, Office of Solid Waste and Emergency Response, OSWER Directive 9355.0-4A, June 1986.

"Guidance for the Data Quality Objectives Process, EPA QA/G-4," US EPA, Office of Environmental Information, EPA/600/R-96/055, August 2000.

"Guidance for Quality Assurance Project Plans, EPA QA/G-5," US EPA, Office of Research and Development, EPA/240/R-02/009, December 2002.

"EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5," Interim Final, US EPA, Quality Assurance Division, November 1999.

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

"Test Methods for Evaluating Solid Wastes," US EPA, Office of Solid Waste and Emergency Response, SW-846, Third Edition, Volumes IA, IB, IC and II, November 1986 (including Final Update I, July 1992; Final Update II, September 1994).

National Primary Drinking Water Regulations, Final Rule, Part II, 40 CFR Parts 141, 142, 143.

"User's Guide to the Contract Laboratory Program," US EPA, Office of Emergency and Remedial Response, EPA/540/P-91/002, 1991.

"Sampler's Guide to the Contract Laboratory Program," US EPA, Office of Emergency and Remedial Response, EPA/540/P-90/006, 1991.

"CERCLA Compliance with Other Laws Manual: Interim Final," Draft Guidance, US EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9234.1-01, EPA/540/G-89/006, August 1988.

"CERCLA Compliance with Other Laws Manual, Part II," Interim Final, US EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9234.1-02, EPA/540/G-89/009, August 1989.

"Overview of the Off-Site Rule for OSCs and RPMs," US EPA, Office of Solid Waste and Emergency Response, EPA Publication No. 9834.11FS, September 1993.

"Health and Safety Roles and Responsibilities at Remedial Sites," US EPA, Office of Solid Waste and Emergency Response, EPA Publication No. 9285.1-02, July 1991.

OSHA Regulations in 29 C.F.R. Sections 1910.120 (Federal Register 45654, December 19, 1986).

"Contract Laboratory Program (CLP) Users Guide," EPA, 1988.

"Contaminated Sediment Remediation Guidance for Hazardous Waste Sites", US EPA Office of Solid Waste and Emergency Response, OSWER Directive 9355.0-85, EPA-540-R-05-012, December 2005.

ATTACHMENTS
to
STATEMENT OF WORK
FOR
THE REMEDIAL DESIGN/REMEDIAL ACTION
CONSENT DECREE
for the
ALUMINUM COMPANY OF AMERICA SITE
AND
MISSISSIPPI RIVER POOL 15 SITE
RIVERDALE, SCOTT COUNTY, IOWA

ATTACHMENT 1

(Table 1 from the July 2007 Explanation of Significant Differences)

Table 1
Groundwater Performance Standards
Chemical-specific ARAR Concentration Values
(Revised Table 3-3 of Groundwater FS Report)

Parameter Group	Compound	EPA MCL ¹ (ug/L)	EPA HAL (Lifetime) ² (ug/L)	Iowa Statewide Groundwater Standards ³ (ug/L)
VOCs	1,1,1-Trichloroethane	200	--	--
	1,1,2,2-Tetrachloroethane	NA	0.3	--
	1,1,2-Trichloroethane	5	--	--
	1-1 Dichloroethane	NA	NA	140
	1-1 Dichloroethene	7	--	--
	1,2- Dichlorobenzene (o-DCB)	600	--	--
	1,2- Dichloroethane	5	--	--
	Cis-1,2- Dichloroethene	70	--	--
	2- Butanone (Methyl ethyl ketone)	NA	4000	--
	Methyl isobutyl ketone (4-methyl-2-pentanone) (hexone)	NA	NA	560
	Acetone	NA	NA	6300
	Acrolein	NA	NA	3.5
	Benzene	5	--	--
	Bromoform	80*	--	--
	Carbon disulfide	NA	NA	700
	Carbon Tetrachloride	5	--	--
	Chlorobenzene	100	--	--
	Chloroethane	NA	NA	60
	Chloroform	80*	--	--
	Chloromethane	NA	30	--
	Dibromochloromethane	80*	--	--
	Ethylbenzene	700	--	--
	Methylene chloride (dichloromethane)	5	--	--
	Tetrachloroethene	5	--	--
	Toluene	1000	--	--
	Trans-1,2-Dichloroethene	100	--	--
	Trans-1,3-Dichloropropene	NA	NA	1.8
	Trichloroethene	5	--	--
Vinyl chloride	2	--	--	
Xylenes(total)	10,000	--	--	
SVOCs (PAHs)	Acenaphthene	NA	NA	420
	Anthracene	NA	NA	2100
	Benz(a)anthracene	NA	NA	0.24
	Benzo(a)pyrene	0.2	--	--
	Benzo(b)fluoranthene	NA	NA	0.24
	Benzo(k)fluoranthene	NA	NA	2.4
	Chrysene	NA	NA	24
	Dibenz(a,h)anthracene	NA	NA	0.024
	Fluoranthene	NA	NA	280
	Fluorene	NA	NA	280
	Indeno(1,2,3-cd)pyrene	NA	NA	0.24
	Naphthalene	NA	100	--
	Pyrene	NA	NA	210
SVOCs	Di-n-butyl phthalate	NA	NA	700
	Phenol	NA	2000	--

Parameter Group	Compound	EPA MCL ¹ (ug/L)	EPA HAL (Lifetime) ² (ug/L)	Iowa Statewide Groundwater Standards ³ (ug/L)
PCBs	Aroclor 1242	0.5	--	--
	Aroclor 1248	0.5	--	--
	Aroclor 1254	0.5	--	--

¹ MCL=Maximum Contaminant Levels. Source: EPA Office of Water, "Drinking Water Standards and Health Advisories", EPA Document 822-R-04-005, Summer 2006 Edition.

² HAL= Health Advisory Level (Lifetime). Source: EPA Office of Water, "Drinking Water Standards and Health Advisories", EPA Document 822-R-04-005, Summer 2006 Edition.

³ Iowa Statewide Groundwater Standards = statewide standards for groundwater in a protected groundwater source. Source: Subrule 567 Iowa Administrative Code (IAC) 137.5(4)(a).

* MCL for total trihalomethanes.

NA= None Available.

-- = HAL not used for groundwater performance standard if MCL available. Iowa Statewide Groundwater Standard not used for performance standard if MCL or HAL available.

All units are micrograms per liter (ug/L).

Bold values = chemical-specific ARAR concentration values to be used as performance standards for compounds in groundwater monitoring program. Detection limits and/or reporting limits may alter the performance standards for certain compounds due to limitations associated with currently available analytical laboratory procedures.

ATTACHMENT 2

(Table 2 from the July 2007 Explanation of Significant Differences)

Table 2
Groundwater Monitoring Levels
Chemical-specific ARAR Concentration Values for Inorganic Compounds

Parameter Group	Compound	EPA MCL ¹	EPA HAL (Lifetime) ²	Iowa Statewide Groundwater Standards ³ (ug/L)
INORGANIC COMPOUNDS	aluminum	NA	NA	7,000
	arsenic	10	--	--
	barium	2000	--	--
	beryllium	4	--	--
	cadmium	5	--	--
	chromium	100	--	--
	cobalt	NA	NA	140
	copper	1300	--	--
	cyanide	200	--	--
	iron	NA	NA	4,900
	lead	15	--	--
	manganese	NA	300	--
	mercury	2	--	--
	nickel	NA	100	--
	selenium	50	--	--
	silver	NA	100	--
	thallium	0.5	--	--
vanadium	NA	NA	7	
zinc	NA	2000	--	

¹ MCL=Maximum Contaminant Levels. Source: EPA Office of Water, "Drinking Water Standards and Health Advisories", EPA Document 822-R-04-005, Summer 2006 Edition.

² HAL= Health Advisory Level (Lifetime). Source: EPA Office of Water, "Drinking Water Standards and Health Advisories", EPA Document 822-R-04-005, Summer 2006 Edition.

³ Iowa Statewide Groundwater Standards = statewide standards for groundwater in a protected groundwater source. Source: Subrule 567 Iowa Administrative Code (IAC) 137.5(4)(a).

NA= None Available.

-- = HAL not used for groundwater monitoring level if MCL available. Iowa Statewide Groundwater Standard not used for monitoring level if MCL or HAL available.

All units are micrograms per liter (ug/L).

Bold values = chemical-specific ARAR concentration values to be used as monitoring levels for inorganic compounds in groundwater monitoring program. Detection limits and/or reporting limits may alter the monitoring levels for certain compounds due to limitations associated with currently available analytical laboratory procedures.

ATTACHMENT 3

(Table 3 from the July 2007 Explanation of Significant Differences)

Table 3
Chemical-specific Performance Standards for Groundwater Treatment System Effluent

Compound	Effluent Performance Standard ¹
cis-1,2-dichloroethene	78 ug/L
trichloroethene	10 ug/L
tetrachloroethene	33 ug/L

¹ All values in micrograms per liter (ug/L).

ATTACHMENT 4

(Table 4 from the July 2007 Explanation of Significant Differences)

Table 4
Chemical-specific Monitoring Parameters for Effluent Monitoring Program

Volatile Organic Compounds (VOCs)	
1,1,1-trichloroethane	acetone
1,1,2,2-tetrachloroethane	carbon disulfide
1,1,2-trichloroethane	chloroethane
1,1-dichloroethane	chloroform
1,1-dichloroethene	vinyl chloride
1,2-dichloroethane	methylene chloride (dichloromethane)
trans-1,2-dichloroethene	benzene
1,2-dichlorobenzene	ethylbenzene
1,3-dichlorobenzene	toluene
1,4-dichlorobenzene	xylenes
Polychlorinated Biphenyls (PCBs)	
PCB – Aroclor 1242	PCB – Aroclor 1254
PCB – Aroclor 1248	
Polynuclear Aromatic Hydrocarbons (PAHs)	
acenaphthene	chrysene
anthracene	dibenz(a,h)anthracene
benzo(a)anthracene	fluoranthene
benzo(a)pyrene	fluorene
benzo(b)fluoranthene	indeno(1,2,3-cd)pyrene
benzo(g,h,i)perylene	naphthalene
benzo(k)fluoranthene	pyrene
Inorganic Compounds	
aluminum	cyanide
arsenic	iron
barium	lead
beryllium	manganese
cadmium	mercury
chromium	nickel
cobalt	vanadium
copper	zinc