

UNITED STATES FISH AND WILDLIFE SERVICE,
DEPARTMENT OF THE INTERIOR,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 5
and
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:)

CRAB ORCHARD NATIONAL WILDLIFE REFUGE)
Additional and Uncharacterized Sites)
Operable Unit)

GENERAL DYNAMICS ORDNANCE AND TACTICAL)
SYSTEMS, INC.,)

Respondent.)

Proceeding Under Sections 104, 122(a),)
and 122(d)(3) of the Comprehensive)
Environmental Response, Compensation,)
and Liability Act as amended)
(42 U.S.C. §§ 9604, 9622(a) and)
9622(d)(3)).)

FWS Docket No.
CONWR-AUS-01-02

EPA Docket No.
V-W-03-C-727

ADMINISTRATIVE ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

19418-1/1



00057321

I. INTRODUCTION

1. This Administrative Order on Consent ("Consent Order" or "Order") is entered into by the Department of the Interior Fish and Wildlife Service ("FWS" or "DOI/FWS") and the United States Environmental Protection Agency Region 5 ("U.S. EPA") (together the "Federal Agencies"), the Illinois Environmental Protection Agency ("IEPA"), and General Dynamics Ordnance and Tactical Systems, Inc. ("GDO&TS" or "Respondent"). The Consent Order concerns preparation and performance by GDO&TS of a remedial investigation and feasibility study ("RI/FS") for the Additional and Uncharacterized Sites ("AUS") operable unit ("OU") at the Crab Orchard National Wildlife Refuge Site (the "Refuge" or the "Site"), which is located approximately five miles west of Marion, Illinois, and includes reimbursement of all costs to be incurred by FWS and U.S. EPA in connection with performance of the RI/FS, as well as reimbursement of a portion of the past costs incurred by these agencies for the AUS OU. As described in more detail in the draft final Preliminary Assessment/Site Inspection ("PA/SI") report for the AUS OU, this operable unit includes 31 areas (sometimes referred to as "sites") where hazardous substances have been released, pose a substantial threat of release, or have otherwise come to be located.

2. A number of entities, including GDO&TS and its corporate predecessors, the United States (FWS and the Department

of the Army), and several former industrial tenants at the Refuge, have been identified as potentially responsible parties ("PRPs") with respect to the AUS OU. Specifically, DOI/FWS has sent general notice letters to Crane Company, Great Lakes Terminal & Transport Corporation and Mallinkrodt, Inc. with respect to their or their corporate predecessors' potential liability for certain of the AUS OU sites.

3. Neither GDO&TS nor the United States admits any liability with respect to the AUS OU. It is understood and agreed, however, that any allocation of past and future response costs between and among PRPs, including costs that will be paid by GDO&TS pursuant to Sections XXI and XXII of this Order, and past costs incurred by FWS that have not been reimbursed pursuant to Section XXI of this order, will be deferred until completion of the RI/FS. It is further agreed that in any such future allocation, the United States will consider response costs incurred by GDO&TS in performing the work approved pursuant to this Consent Order to be part of the response costs to be allocated. GDO&TS will consider any response costs incurred by the United States prior to the effective date of this Consent Order, as well as response costs incurred in overseeing GDO&TS' performance of the RI/FS, to be part of the response costs to be allocated. Nothing in this paragraph shall be construed as a waiver by GDO&TS or the United States of any claim or defense

either may have with respect to the other's claim for response costs in the event of future litigation regarding the Site.

II. JURISDICTION

4. This Consent Order is issued under 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, as amended ("CERCLA"), 42 U.S.C. §§ 9604, 9622(a), 9622(d)(3), and the authority vested in the Administrator of U.S. EPA by Section 120(e)(6) of CERCLA, 42 U.S.C. § 9620(e)(6). Authority under CERCLA Sections 104 and 122 was delegated to the Secretary of the Department of the Interior ("DOI") by Executive Order 12580, 52 Fed. Reg. 2923, 2926 (January 29, 1987), as amended by Executive Order 13016, 61 Fed. Reg. 45871 (August 30, 1996). The Section 104 and Section 122 authorities delegated to the Secretary have been re-delegated to the Director of FWS and the Solicitor of DOI, respectively, by the DOI Departmental Manual, Part 207, Chapter 7. The Director of FWS has re-delegated Section 104 authority with respect to the Refuge to the Regional Director, Region 3, Fish and Wildlife Service. The Solicitor is exercising Section 122 authority in this Consent Order with the concurrence of U.S. EPA. The Administrator's authority under Section 120(e)(6) of CERCLA has been delegated to the EPA Regional Administrators by EPA Delegation No.14-14C. Pursuant to this Delegation, the EPA

Region V Regional Administrator has further delegated this authority to the EPA Region V Superfund Director.

5. Pursuant to Section 120(f) of CERCLA, 42 U.S.C. § 9620(f), and the Federal Facility Agreement ("FFA") referred to in paragraph 12 below, the Federal Agencies have afforded IEPA the opportunity to become a party to this Consent Order in order to participate in the planning and selection of the remedial action for the AUS OU sites and to implement IEPA's role under the FFA. Pursuant to Section 4(1) of the Illinois Environmental Protection Act, 415 Ill. Comp. Stat. 5/4 (West 2000), IEPA is designated as the implementing agency within the State of Illinois for purposes of CERCLA and is authorized to act on behalf of the State and to become a party to this Consent Order.

6. The Respondent agrees to undertake all actions required by this Consent Order. In any action by the United States and/or the State of Illinois to enforce the terms of this Consent Order, the Respondent consents to and agrees not to contest the validity of this Order or its terms or the authority or jurisdiction of the Federal Agencies and the State to issue or enforce it.

III. PARTIES BOUND

7. This Consent Order shall apply to and be binding upon the Federal Agencies, IEPA and the Respondent and its agents, successors, assigns, officers, directors and principals.

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 the Respondent or in GDO&TS' possessory interests at the Site shall alter Respondent's responsibilities under this Consent Order.

8. The Respondent shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets are transferred in a corporate acquisition, merger or sale. Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which have been or are retained to conduct any work performed under this Consent Order, within 14 days after the effective date of this Consent Order or, in the case of newly retained contractors, the date of retaining their services. Respondent shall condition any such contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, the Respondent is responsible for compliance with this Consent Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors, agents and attorneys comply with this Consent Order.

IV. FINDINGS OF FACT

9. During World War II, a portion of the area now occupied by the Crab Orchard National Wildlife Refuge was the

Illinois Ordnance Plant ("IOP"). From 1942 to 1945, the Sherwin-Williams Defense Corporation contracted with the War Department to produce military ordnance at the IOP. In 1947, the old IOP area, which included some 22,000 acres, together with an additional 21,000 acres, was transferred to the Department of the Interior ("DOI"). The enabling legislation assigned DOI, through the FWS, the responsibility of managing the area as a national wildlife refuge, with the additional mission of supporting private industrial activity in such areas of the Refuge that might then or subsequently be determined to be suitable for such activity.

10. The former IOP included 14 separate areas that were identified by the functions performed in them during World War II. From 1947 to the present time, portions of these areas, which the FWS designated as Areas 1 through 14, have been leased to a number of private industrial tenants.

11. Pursuant to CERCLA Section 105, 42 U.S.C. § 9605, U.S. EPA placed the Refuge on the National Priorities List in 1987, 52 Fed. Reg. 27,620, 27,631 (July 22, 1987), originally on the basis of contamination identified in Area 9. Since that time, seven operable units have been designated at the Refuge; these operable units have included sites in various portions of the Refuge.

12. Pursuant to CERCLA Section 120, 42 U.S.C. § 9620, in 1991, DOI, U.S. EPA, the Department of the Army, as successor to the War Department, and the Illinois Environmental Protection Agency entered into a Federal Facility Agreement, to establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions throughout the Refuge. In this Consent Order, the four agencies are referred to collectively as the "FFA parties."

13. Pursuant to the FFA, the AUS OU was established in 1997-1999 to address areas not included in other operable units where the release or threatened release of hazardous substances may pose a threat to public health or welfare or the environment.

14. Pursuant to the FFA, DOI is the lead department for the AUS OU and has the responsibility and authority, with U.S. EPA's concurrence, to perform, to order or enter into agreements with other parties to perform necessary response actions at this OU. DOI is the lead agency for coordinating, overseeing and enforcing the response actions to be performed pursuant to this Order.

15. Under Section 12.5 of the FFA, it is the responsibility of the lead department to ensure that work performed and documents submitted by an entity not a party to the FFA comply with the consultation and other procedures in the FFA, on the

understanding, however, that the other entity does not thereby become a party to the FFA. Pursuant to Section 12.5 of the FFA, which requires that a copy of the FFA be provided to the non-party performing the work, a copy of the FFA is attached to this Consent Order as Attachment A.

16. In September 2001, DOI issued a draft final Preliminary Assessment/Site Inspection report for the AUS OU, in which 31 sites were proposed for remedial investigation. The 31 sites are located throughout the current and former industrial areas on the Refuge, as well as in locations not within defined industrial areas.

17. The two major groups of AUS OU sites where hazardous substance releases are located are in Area 2 and Area 11/12.

(a) The Area 2 sites encompass approximately 550 acres of currently active industrial operations. As documented in the PA/SI report, the principal contaminants in Area 2 include trichloroethylene ("TCE") and degradation products of TCE, semi-volatile organic compounds ("SVOCs"), including phthalates and carbazole, polyaromatic hydrocarbons ("PAHs"), and many metals, including antimony, arsenic, chromium and lead.

(b) The Area 11/12 sites encompass approximately 300 acres of former industrial facilities. Active industrial operations within Area 11/12 ceased in approximately 1976 with

explosives decontamination activities ending in approximately 1982. As documented in the PA/SI report, principal contaminants in Area 11/12 include TCE and tetrachloroethylene ("PCE"), SVOCs, nitrate-nitrite, phosphorous, n-nitrosodiphenylamine, 2, 4-dinitrotoluene and other explosives-related compounds, and various metals, including cadmium, chromium and lead.

(c) AUS OU sites in Areas 4, 6, 7, 8, 9, 10, and 13 encompass approximately 1500 acres, including active and inactive industrial manufacturing, storage and waste disposal areas. As documented in the PA/SI report, principal contaminants in these areas include various SVOCs, PAHs, TCE and several pesticides (including aldrin, dieldrin, DDT, chlordane and others) and pesticide degradation products.

18. Many of the contaminants detected are considered by U.S. EPA to be carcinogenic, including aldrin, arsenic, cadmium, dieldrin, carbazole, chlordane, DDT, dinitrotoluene mixtures, some forms of chromium, n-nitrosodiphenylamine, many of the PAHs, PCE and TCE. Lead can damage the nervous system, kidneys and reproductive system. Antimony can damage the lungs, heart, liver, kidneys and reproductive system. Nitrates in drinking water can cause "blue baby syndrome" and other adverse health effects.

19. Hazardous substances have been released into several environmental media at the various AUS OU sites, inclu-

ding, without limitation, soils, sediment, groundwater, and surface water, and have migrated and pose a threat of continued migration through these pathways.

20. Olin Corporation or its predecessor Olin Mathieson Chemical Corporation ("Olin") was a tenant in various industrial areas on the Refuge from 1956 through 1996. In 1996, Olin spun off its ordnance manufacturing division to form a new corporation named Primex Technologies, Inc. ("Primex"), which assumed Olin's leases on the Refuge. In 2001, General Dynamics Corporation acquired Primex. Primex became a wholly owned subsidiary of General Dynamics and changed its name to General Dynamics Ordnance and Tactical Systems, Inc. GDO&TS, in turn, assumed Primex' leases on the Refuge. Olin and Primex are prior industrial tenants at the Refuge; GDO&TS is a current industrial tenant at the Refuge.

21. GDO&TS or its predecessor in interest have been tenants in Area 2P since 1957, and have been the only tenant in the remaining portions of Area 2 since 1970. GDO&TS or its predecessors have used sites in Area 2 to manufacture propellants and various ordnance-related products, and for machining.

22. GDO&TS's predecessor leased portions of Area 11/12 from 1956 until 1963-4 for manufacturing industrial explosives

23. GDO&TS and/or its predecessors are current and/or former industrial tenants in Areas 4, 6, 7, 8, 9, and 13.

GDO&TS's predecessor also constructed and operated pits in Area 10 where it incinerated and disposed of ignitable waste from its production operations.

V. STATEMENT OF PURPOSE AND AGENCY ROLES

24. In entering into this Consent Order, the objectives of the Federal Agencies, IEPA, and the Respondent are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the sites in the AUS OU, by conducting a remedial investigation; (b) to determine and evaluate alternatives for remedial action (if any) to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from these sites, by conducting a feasibility study; and (c) to provide for reimbursement of all response and oversight costs incurred by FWS and U.S. EPA with respect to performance of the RI/FS, and a portion of the past costs incurred by these agencies for the AUS OU.

25. The activities conducted by Respondent under this Consent Order shall provide all appropriate and necessary information for the RI/FS, with the exception of the baseline risk assessment which is to be performed by FWS, and for a record of decision that is consistent with CERCLA and the National

Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities under this Consent Order shall be conducted in compliance with the FFA and all applicable U.S. EPA guidance, policies and procedures. The FFA imposes no obligation on the Respondent beyond that detailed in this Order.

26. Section 11 of the FFA provides specific consultation procedures for FFA parties with respect to RI/FS documents, including the opportunity to review and comment on certain primary and secondary documents, which are identified in paragraphs 11.2.1 et seq. of the FFA and in paragraphs 74 and 75 of this Order. These consultation procedures apply to all such documents generated in the course of implementing this Consent Order, including documents generated by the Respondent as well as documents, such as the baseline risk assessment, that will be produced by the FWS. Specifically, all Respondent's submittals shall be provided directly to each of the FFA parties, with primary documents to be submitted to the agencies in the draft and draft final format specified in paragraph 11.2.1 of the FFA. The FFA parties' comments on all documents will be coordinated by FWS, in accordance with the requirements of the FFA, before responses are provided to the Respondent. Coordinated responses conveyed by FWS on such documents shall be deemed to be on behalf of the Federal Agencies and IEPA as parties to this Order.

27. For purposes of implementing and overseeing the response actions required under this Consent Order, the Federal Agencies and IEPA shall coordinate their respective CERCLA authorities and FFA responsibilities. Actions by DOI/FWS as lead agency shall be taken in consultation with the other FFA parties.

28. FWS shall arrange for a qualified person (the "oversight contractor") to assist in the oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). This contractor may observe work and make inquiries but is not authorized to modify any work plan or approve any deliverables submitted under this Consent Order.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

29. The AUS OU sites are "facilities" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

30. Wastes and constituents thereof, identified in paragraphs 17 and 18 of this Order, that have been released, stored, treated, incinerated, or disposed of at or from the AUS OU sites are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), or constitute "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1).

31. The presence of hazardous substances at the AUS OU sites or the past, present or potential migration of hazardous

substances currently located at or emanating from the AUS OU sites constitute actual and/or threatened "releases" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

32. GDO&TS is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

33. GDO&TS is a responsible party under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622.

34. The actions required by this Consent Order are necessary to protect the public health or welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP, and will expedite effective remedial action and minimize litigation. 42 U.S.C. §§ 9604(a)(1) and 9622(a).

**VII. PROJECT COORDINATORS/DESIGNATED
REMEDIAL PROJECT MANAGER**

35. On or before the effective date of this Consent Order, each of the FFA parties (DOI/FWS, U.S. EPA, the Army and IEPA) and the Respondent shall each designate a Project Coordinator. Subject to the provisions in the following paragraph, each Project Coordinator shall be responsible for overseeing implementation of the work required under this Consent Order for his/her organization or agency. Unless otherwise specified in individual paragraphs of this Consent Order, all written communications between or among the parties shall be directed to the Project Coordinators by regular or overnight mail or fax, with copies to such other persons as each of the agencies and the

Respondent, respectively, may designate. Written communications include all reports and other deliverables, approvals, disapprovals and other documents and correspondence submitted pursuant to this Consent Order.

36. Documents submitted pursuant to this Consent Order shall be sent to the following Project Coordinators:

(a) For FWS (three copies):

Leanne Moore
Crab Orchard National Wildlife Refuge
8588 Route 148
Marion, IL 62959
(618) 997-3344

(b) For U.S. EPA (two copies):

Nanjunda Gowda
U.S. Environmental Protection Agency, Region 5
Federal Facilities Section (SRF 5-J)
77 West Jackson Boulevard
Chicago, IL 60604
(312) 353-9236

(c) For IEPA (two copies):

Paul T. Lake
Federal Site Remediation Section
Federal Facility Unit
Bureau of Land
Illinois EPA
P.O. Box 19276
Springfield, IL 62794-9276
(217) 785-7728

(d) For the Army:

Gary Chisholm
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59 (600 Martin Luther King Place)
Louisville, KY 40201-0069
(502) 315-6825

(e) For Respondent:

William Hall
NewFields, Inc.
1349 W. Peachtree Street
Atlanta, GA 30309
(404) 347-9050

The parties may change their respective Project Coordinators. All parties must be notified in writing at least ten days prior to any change.

37. FWS' Project Coordinator is designated as Remedial Project Manager ("RPM") and, if applicable, as On-Scene Coordinator ("OSC") under this Consent Order and shall have the authority vested in an RPM/OSC by the NCP. The FWS Project Coordinator/RPM will coordinate the comments of the FFA parties on all documents and will transmit to the Respondent all comments, approvals or disapprovals and other communications on primary documents, as well as comments and other communications on other documents required by this Consent Order, on behalf of the Federal Agencies and IEPA as parties to this Order. The RPM will also serve as a point of contact for the Respondent's Project Coordinator as work proceeds under this Order. In addition, the RPM shall have the authority, consistent with the NCP, to halt any work required by this Consent Order, and to take any necessary response action when he/she determines that conditions at the AUS OU may present an imminent endangerment to public health or welfare or the environment. The absence of the

RPM from the areas under study pursuant to this Consent Order shall not be the cause for the stoppage or delay of work.

VIII. WORK TO BE PERFORMED

38. All work performed under this Consent Order shall be under the direction and supervision of qualified personnel. Within 30 days of the effective date of this Order, and before the work outlined below begins, the Respondent shall notify the Project Coordinators for each of the FFA parties in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories, to be used in carrying out such work. The Respondent shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP) for review and approval by U.S. EPA. The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2,") (EPA/240/B-01/002, March 2001). The qualifications of the persons undertaking the work for Respondent shall be subject to review by FWS, in consultation with the FFA parties, for verification that such persons meet minimum technical background and experience require-

ments. This Order is contingent on Respondent's demonstration to the satisfaction of FWS, in consultation with the FFA parties, that Respondent is qualified to perform properly and promptly the actions set forth in this Consent Order. If FWS disapproves in writing of any person(s)' technical qualifications, Respondent shall notify the Project Coordinators of the identity and qualifications of the replacement(s) within 30 days of the written notice. If FWS subsequently disapproves of the replacement(s), FWS reserves the right to terminate this Order, to conduct a complete RI/FS, and to seek reimbursement for costs from Respondent. During the course of the RI/FS, Respondent shall notify the Project Coordinators in writing of any changes or additions in the personnel used to carry out such work, providing their names, titles, and qualifications. FWS shall have the same right to approve changes and additions to personnel as it has hereunder regarding the initial notification. If, within 14 days after such notification, Respondent does not receive verbal or written notice of disapproval of Respondent's proposed changes in personnel, then the Respondent shall assume that the requested changes are approved by FWS.

39. Respondent shall conduct activities and submit deliverables as provided in the attached RI/FS Statement of Work ("SOW") and the RI/FS work plan referenced below. All such work shall be conducted in accordance with the FFA, CERCLA, the NCP,

and relevant U.S. EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (OSWER Directive # 9355.3-01), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05) and guidance referenced therein, and guidance referenced in the SOW, as may be amended or modified by U.S. EPA.

40. The general activities Respondent is required to perform are identified below, followed by a list of deliverables. All work performed under this Consent Order shall be in accordance with the schedules identified in this Order, and in full accordance with the standards, specifications, and other requirements of the work plan and sampling and analysis plan, as initially approved or modified by FWS and as may be amended or modified from time to time in accordance with the FFA process. For the purposes of this Order, day means calendar day unless otherwise noted in the Order.

A. Task I: Scoping. FWS, in consultation with the FFA parties, has determined the OU-specific objectives of the RI/FS and devised a general management approach for the AUS OU as stated in the attached SOW. Respondent shall conduct the remainder of scoping activities as described in the attached SOW and referenced guidance. At the conclusion of the project

planning phase, Respondent shall provide the FFA parties with the following deliverables:

1. Within 30 days of the effective date of this Order, Respondent will submit a draft conceptual scoping document to the FFA parties which presents Respondent's proposed approach to identifying data needs for the RI. A revised conceptual scoping document responsive to the FFA parties' comments will be submitted within 30 days of receipt of such comments. The conceptual scoping document is a secondary document as that term is used in the FFA and in this Order, provided, however, that no stipulated penalties shall apply or be assessed under Section XIX of this Order for failure to submit such a document. The RI/FS work plan approach will be based upon the conceptual scoping document.

2. RI/FS Work Plan. Within 150 days of the effective date of this Order, Respondent shall submit to the FFA parties a complete draft RI/FS work plan. The work plan shall include a detailed schedule for activities and deliverables, through completion of the draft RI report. If FWS, in consultation with the FFA parties, disapproves of or requires revisions to the RI/FS work plan, in whole or in part, Respondent shall amend and submit a revised draft final work plan which is responsive to the directions in all FWS comments, within 45 days of receiving FWS's comments. Note that use of the term "work plan" in this Section refers to the RI/FS work plan and any addenda thereto.

3. Sampling and Analysis Plan. Within 150 days of the effective date of this Order, Respondent shall submit to the FFA parties the sampling and analysis plan. This plan shall consist of a field sampling plan (FSP) and a quality assurance project plan (QAPP), as described in the Statement of Work and guidances. If FWS, in consultation with the FFA parties, disapproves of or requires revisions to the sampling and analysis plan, in whole or in part, Respondent shall amend and submit a revised sampling and analysis plan which is responsive to the directions in all FWS comments, within 45 days of receiving the FWS comments. Following approval or modification by FWS, in consultation with the FFA parties, the RI/FS work plan and the sampling and analysis plan and any approved addenda will be incorporated by reference in and become enforceable under this Consent Order.

4. Health and Safety Plan. Within 150 days of the effective date of this Order, Respondent shall submit to the FFA parties the health and safety plan for the OU.

B. Task II: Community Relations Plan. FWS will prepare a community relations plan, in accordance with the FFA, EPA guidance and the NCP. Respondent shall provide information supporting the FWS community relations plan.

C. Task III: Site Characterization. Following approval or modification of the work plan and sampling and analysis plan by FWS, in consultation with the FFA parties, Respondent shall

implement the provisions of these plans to characterize the sites in the OU. Respondent shall complete site characterization field work, as specified in the approved work plan and sampling and analysis plan, in accordance with the schedule in the approved RI work plan. Upon request by FWS, Respondent shall provide the FFA parties with raw analytical data within 30 days of such request. Final (reviewed and validated) data shall also be provided to the FFA parties within 90 days of completion of field sampling, in the electronic format specified in the SOW. Within seven days of completion of field activities, Respondent shall so notify the FFA parties in writing. During site characterization, Respondent shall provide the FFA parties with the following deliverables, as described in the SOW and work plan:

1. Technical Memorandum on Modeling of Site Characteristics. Where Respondent proposes that modeling is appropriate, the model shall be identified in a technical memorandum prior to its use.

2. Preliminary Site Characterization (RI) Summary. In accordance with the schedule in the approved work plan, Respondent shall submit a preliminary site characterization summary to the FWS, using validated data as defined in the approved site QAPP, for use in preparing the baseline risk assessment.

D. Draft Remedial Investigation Report [See Task III of the attached Statement of Work.] In accordance with the approved schedule, Respondent shall submit a draft remedial investigation report consistent with the SOW and the approved work plan and sampling and analysis plan and any applicable addenda to those plans that have been approved or modified by FWS. The draft RI report shall include a schedule for submittal of all deliverables identified in paragraphs 40.F and G of this Order. If FWS, on behalf of the FFA parties, disapproves of or requires revisions to the remedial investigation report in whole or in part, Respondent shall amend and submit a revised report which is responsive to the directions in all FWS comments, within 60 days of receiving FWS' comments. However, if FWS, in consultation with the FFA parties, determines that additional data are needed, Respondent shall submit addenda to the work plan, sampling and analysis plan and health and safety plan to address the data needs. Such addenda shall be submitted within 60 days of notification by FWS that additional data are required. If FWS, in consultation with the FFA parties, disapproves of or requires revisions to the work plan and/or sampling and analysis plan addenda, in whole or in part, Respondent shall amend and submit such revised addenda, which are responsive to the directions in the FWS comments, within 45 days of receiving the FWS comments. The addenda shall include a schedule for the additional

activities and deliverables, to include the time through submittal of a revised draft RI report.

E. Task IV: Treatability Studies. Respondent shall conduct treatability studies as needed to adequately identify and screen potential remedial measures, and later to adequately assess them in accordance with CERCLA and the NCP. Major components of the treatability studies include determination of the need for and scope of studies, the design of the studies, and the completion of the studies, as described in the SOW. During treatability studies, Respondent shall provide the FFA parties with the following deliverables:

1. Treatability Testing Statement of Work. If FWS, in consultation with the FFA parties, determines that treatability testing is required, within 45 days thereafter (or as otherwise specified by FWS), Respondent shall submit a treatability testing statement of work.

2. Treatability Testing Work Plan Addendum. Within 60 days of submission of the treatability testing statement of work, Respondent shall submit an addendum to the approved work plan to address treatability testing. The addendum shall include a detailed schedule for activities and deliverables through the treatability study evaluation report. If FWS disapproves of or requires revisions to the treatability testing work plan addendum, in whole or in part, Respondent shall amend and submit

a revised treatability testing work plan addendum which is responsive to the directions in all FWS comments, within 45 days of receiving FWS's comments. In the alternative, if FWS determines that treatability testing is required before the RI/FS work plan is approved, Respondent may elect to include the treatability testing work plan components in the RI/FS work plan.

3. Treatability Testing Sampling and Analysis Plan Addendum. Within 60 days of submission of the treatability testing statement of work, Respondent shall submit an addendum to the sampling and analysis plan to address treatability testing. If FWS, in consultation with the FFA parties, disapproves of or requires revisions to the treatability study addendum, in whole or in part, Respondent shall amend and submit to the FFA parties a revised treatability study addendum which is responsive to the directions in all FWS comments, within 45 days of receiving FWS's comments. In the alternative, Respondent may elect to include the treatability testing sampling and analysis plan components in the principal sampling and analysis plan if that plan has not yet been approved by FWS.

4. Treatability Testing Site Health and Safety Plan Addendum. Within 60 days of submission of the treatability testing statement of work, the Respondent shall submit an addendum to the health and safety plan to address treatability testing, if needed. As is the case with the treatability testing

work plan and sampling and analysis plan components, Respondent may elect to include the additional information in the principal health and safety plan if that plan has not yet been submitted to the FFA parties.

5. Treatability Testing Evaluation Report. In accordance with the schedule included with the approved work plan, Respondent shall submit a treatability study evaluation report as provided in the SOW and work plan. If FWS disapproves of or requires revisions to the treatability study report, in whole or in part, Respondent shall amend and submit a revised treatability study report which is responsive to the directions in all FWS comments, within 45 days of receiving FWS's comments.

F. Task V: Development and Screening of Alternatives. Respondent shall develop an appropriate range of options that will be evaluated through the development and screening of alternatives, as provided in the SOW and work plan. During the development and screening of alternatives, Respondent shall provide the FFA parties with the following deliverables:

1. Memorandum on Remedial Action Objectives. In accordance with the schedule in the approved RI report, Respondent shall submit a memorandum on remedial action objectives.

2. Memorandum on Development and Preliminary Screening of Alternatives.

In accordance with the schedule in the approved RI report, Respondent shall submit a memorandum summarizing the development and screening of remedial alternatives, including an alternatives array document as described in the SOW.

G. Task VI: Detailed Analysis of Alternatives. Respondent shall conduct a detailed analysis of remedial alternatives, as described in the SOW and work plan. During the detailed analysis of alternatives, Respondent shall provide the FFA parties with the following deliverables and presentation:

1. Report on Comparative Analysis and Presentation.

In accordance with the schedule in the approved RI report, Respondent shall submit a report on comparative analysis to the FFA parties summarizing the results of the comparative analysis performed between the remedial alternatives.

2. Draft Feasibility Study Report. In accordance with the schedule in the approved RI report, Respondent shall submit a draft feasibility study report. Respondent shall refer to Table 6-5 of the RI/FS Guidance for report content and format. If FWS, in consultation with the FFA parties, disapproves of or requires revisions to the draft feasibility study report in whole or in part, Respondent shall amend and submit a revised feasibility study report which is responsive to the directions in all FWS comments, within 45 days of receiving FWS's comments. The report as amended, and the administrative record, shall provide the

basis for the proposed plan under CERCLA Sections 113(k) and 117(a), 42 U.S.C. §§ 9613(k) and 9617(a), and shall document the development and analysis of remedial alternatives.

41. FWS reserves the right, in consultation with the FFA parties, to comment on, modify and direct changes for all deliverables. Respondent must fully correct all deficiencies and incorporate and integrate all information and comments supplied by FWS either in subsequent or resubmitted deliverables.

42. Respondent shall not proceed further with any subsequent related activities or tasks until receiving approval for the following deliverables: RI/FS work plan and sampling and analysis plan, including any addenda, draft remedial investigation report, and draft feasibility study report, which are primary documents under the FFA. While awaiting approval on these deliverables, Respondent shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order.

43. Upon receipt of the draft FS report, FWS, in consultation with the FFA parties, will evaluate, as necessary, the estimates of the risk to the public health and the environment that are expected to remain after a particular remedial alternative has been completed.

44. For all remaining deliverables not enumerated above in paragraph 42, Respondent shall proceed with all subsequent tasks, activities and deliverables required under this Order without awaiting FWS approval on the submitted deliverable. However, FWS, in consultation with the FFA parties, reserves the right to stop Respondent from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

45. In the event that Respondent amends or revises a report, plan or other submittal upon receipt of FWS comments, and FWS, in consultation with the FFA parties, subsequently disapproves of the revised submittal, or if subsequent submittals do not fully reflect FWS's directions for changes, FWS and the State of Illinois retain the right to seek stipulated or statutory penalties and/or seek any other appropriate relief. FWS may perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and may seek reimbursement from the Respondent for its costs.

46. In the event that FWS takes over some tasks, but not completion of the RI/FS, Respondent shall incorporate all information supplied by FWS into the final RI/FS report.

47. Except as provided in paragraph 38, neither failure of FWS to expressly approve or disapprove of Respondent's submissions within a specified time period(s), nor the absence of

comments, shall be construed as approval by FWS. Whether or not FWS gives express approval for Respondent's deliverables, Respondent is responsible for preparing deliverables acceptable to FWS.

48. Respondent shall, prior to any off-Site shipment of hazardous substances from the AUS OU to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to FWS of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-Site shipments when the total volume of such shipments will not exceed 10 cubic yards.

(a) The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

(b) The identity of the receiving facility and state will be determined by Respondent following the award of the

contract for the RI/FS. Respondent shall provide all relevant information, including information under the categories noted in the preceding subparagraph (a) above, on the off-Site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

IX. BASELINE RISK ASSESSMENT

49. FWS will perform the baseline risk assessment. FWS will provide Respondent with the opportunity to participate in the work groups that FWS will use to develop the baseline risk assessment. The major components of the baseline risk assessment include contaminant identification, exposure assessment, toxicity assessment, and human health and ecological risk characterization. Some of the specific items include a list of the chemicals of concern for human health and ecological effects and the corresponding toxicity values; and the current and potential future exposure scenarios, exposure assumptions, and exposure point concentrations. FWS will prepare a baseline risk assessment report based on the data collected by the Respondent during the site characterization and, if necessary, any additional data collected by FWS. The Respondent shall incorporate this baseline risk assessment into the RI report. The RI report, which will include the baseline risk assessment prepared by FWS, will be placed in the administrative record for the AUS OU.

X. MODIFICATION OF THE WORK PLAN

50. If at any time during the RI/FS process, Respondent identifies a need for additional data, a memorandum documenting the need for such additional data shall be submitted to the FFA parties' Project Coordinators within 20 days of identification. FWS, in consultation with the FFA parties, will determine, in its discretion, whether the additional data, if collected by the Respondent, will be incorporated into reports and deliverables.

51. In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondent shall notify the FWS Project Coordinator/RPM immediately. In the event of unanticipated or changed circumstances at the sites, Respondent shall notify the FWS Project Coordinator/RPM by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In either case, the RPM will notify the Project Coordinators for the other agencies.

52. In the event that FWS, in consultation with the FFA parties, determines that the immediate threat to human health or welfare or the environment warrants changes in the initially approved work plan, FWS shall modify or amend the work plan in writing accordingly. Respondent shall perform the work plan as so modified or amended.

53. FWS, in consultation with the FFA parties, may also determine that other additional work may be necessary to meet the unanticipated or changed circumstances and/or to accomplish the objectives of the RI/FS as set forth in the Statement of Work, and may request that the Respondent perform this additional work. Respondent shall confirm its willingness to perform the additional work in writing to the FFA parties within 7 days of receipt of the FWS request, unless Respondent invokes dispute resolution. Subject to resolution of any dispute in accordance with the procedures in Section XVIII of this Order, Respondent shall implement the additional tasks which the FFA parties determine are necessary. The additional work shall be completed according to the standards, specifications, and schedule set forth or approved by FWS in a written modification to the work plan or written work plan supplement. FWS reserves the right to conduct the work itself at any point, to seek reimbursement from Respondent, and/or to seek any other appropriate relief.

XI. QUALITY ASSURANCE

54. Respondent shall assure that work performed, samples taken and analyses conducted conform to the requirements of the SOW, the QAPP and guidance identified therein. Respondent will assure that field personnel it uses are properly trained in the use of field equipment and in chain of custody procedures.

**XII. FINAL RI/FS, PROPOSED PLAN,
RECORD OF DECISION, ADMINISTRATIVE RECORD**

55. FWS retains responsibility for the release to the public of the RI/FS report. FWS retains responsibility for the preparation and release to the public, with U.S. EPA and IEPA concurrence, of the proposed plan and record of decision in accordance with the FFA, CERCLA and the NCP.

56. FWS shall provide Respondent with copies of the final RI/FS report, proposed plan and record of decision.

57. FWS will determine the contents of the administrative record file for selection of the remedial action. Respondent must submit to the FFA parties documents developed during the course of the RI/FS upon which selection of the response action may be based. Respondent shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, validated data, field notes, laboratory analytical reports and other reports. Respondent must additionally submit any previous studies conducted under state, local or other federal authorities relating to selection of the response action, and all communications between Respondent and such authorities concerning selection of the response action. At FWS's discretion, Respondent may prepare copies of the administrative record, which FWS will make available for review at the following locations:

Crab Orchard National Wildlife Refuge
8588 Route 148
Marion, IL 62959

U.S. EPA Region V
77 West Jackson Blvd., 7th floor
Chicago, IL 60604

Additionally, an information repository for the AUS OU will be established at the following location:

Southern Illinois University Morris Library
Fifth Floor
Carbondale, IL 62901

XIII. PROGRESS REPORTS AND MEETINGS

58. At the request of FWS, in consultation with the FFA parties, Respondent shall make presentations at and participate in meetings during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues.

59. In addition to the deliverables set forth in this Order, Respondent shall provide to the Project Coordinators for the FFA parties monthly progress reports by the 10th day of each month. With respect to the preceding month, these progress reports shall, at a minimum: (1) describe the actions which have been taken to comply with this Consent Order during that month, (2) include all results of sampling and tests and all other data received by the Respondent, (3) describe work planned for the next two months with schedules relating such work to the overall

project schedule for RI/FS completion, and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XIV. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

60. All results of sampling, tests, modeling or other validated data generated by Respondent or on Respondent's behalf during implementation of this Consent Order, shall be submitted in the subsequent monthly progress report as described in Section XII of this Order. FWS will make available to the Respondent validated data generated by the agencies unless it is exempt from disclosure by any federal or state law or regulation.

61. Respondent will verbally notify the Project Coordinators for the FFA parties at least 10 days prior to conducting significant field events as described in the Statement of Work, work plan or sampling and analysis plan. At FWS' verbal or written request, or the request of FWS' oversight contractor, Respondent shall allow split or duplicate samples to be taken by the FFA parties (and their authorized representatives) of any samples collected by the Respondent in implementing this Consent Order. All split samples of Respondent shall be analyzed by the methods identified in the QAPP.

62. Subject to reasonable limitations to ensure safety in areas devoted to manufacture and/or storage of explosives and

other hazardous materials, and consistent with FWS' authority under its existing industrial leases, representatives of the FFA parties have the authority to enter and freely move about all on-Refuge property at the AUS OU where RI/FS work is being performed, for the purpose of overseeing the progress of such work. Nothing herein shall be interpreted as limiting or affecting the agencies' right of entry or inspection authority under federal or State law. All parties with access to the AUS OU under this paragraph shall comply with all approved health and safety plans.

63. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to the FFA parties pursuant to the terms of this Consent Order under 40 C.F.R. Part 2B and/or 2 Ill. Admin. Code Part 1828, Subpart D, provided such claim is allowed by Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. Section 2.203(b) and 35 Ill. Admin. Code Part 130, and substantiated at the time the claim is made. Information determined to be confidential by FWS and/or IEPA will be given the protection specified in 40 C.F.R. Part 2 and/or 35 Ill. Admin. Code 130.100-130.408. If no such claim accompanies the information when it is submitted to FWS, it may be made available to the public by the Federal Agencies or the State without further notice to the Respondent. Respondent agrees not

to assert confidentiality claims with respect to any data generated as a result of the work required under this Order.

64. In entering into this Order, Respondent waives any objections to any data gathered, generated, or evaluated by the Federal Agencies and IEPA or Respondent in the performance or oversight of the work that has been verified according to the quality assurance/quality control (QA/QC) procedures required by this Consent Order or any approved work plans or sampling and analysis plans. If Respondent objects to any other data relating to the RI/FS, Respondent shall submit to the Federal Agencies and IEPA a report that identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted within 15 days of the monthly progress report containing the data.

65. If any area that is to be used for access or is within the scope of the RI/FS is owned or leased in whole or in part by parties other than those bound by this Consent Order, Respondent will obtain, or use its best efforts to obtain, access agreements from the present owner(s) or tenants within 30 days of the need for access to the area in issue. For off-Refuge areas, Respondent's best efforts shall include providing reasonable compensation to any private property owner or lessee. Access agreements shall provide access for the Federal Agencies and

IEPA, their contractors and oversight officials, and the Respondent and its authorized representatives, and shall specify that Respondent is not the United States' or the State's representative with respect to liability associated with AUS OU activities. Copies of any such agreements obtained by Respondent shall be provided to FWS prior to Respondent's initiation of field activities. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify FWS of its failure to obtain access. In the case of on-Refuge property, FWS will obtain access if Respondent is unable to do so. In the case of off-Refuge property, the United States may exercise its statutory authorities to obtain access for the Respondent, or FWS or U.S. EPA may perform those tasks or activities with FWS or U.S. EPA contractors. In the latter case, Respondent shall perform all other activities not requiring access to the off-Refuge areas, and shall reimburse FWS for all costs incurred in performing such activities. Respondent additionally shall integrate the results of any such tasks undertaken by FWS or U.S. EPA into its reports and deliverables. Respondent shall also reimburse FWS or U.S. EPA for all costs and attorney fees incurred by the United States to obtain access to the off-Refuge areas.

XV. COORDINATION WITH NATURAL RESOURCE TRUSTEES

66. Pursuant to Section 104(b)(2) of CERCLA, 42 U.S.C. § 9604(b)(2), the parties to this Consent Order shall seek to coordinate performance of the work under this Order with the natural resource trustees at the Site (the "Trustees"). The Trustees include FWS, IEPA, and the Illinois Department of Natural Resources. To the extent the Trustees identify data needs responsive to activities specified in 43 C.F.R. Part 11, subparts A-E that will not otherwise be addressed fully by the work to be performed pursuant to Sections VIII and IX of this Order, Respondent intends, subject to negotiation of the agreement described below, to gather sufficient data, samples or other information, as specified by the Trustees, to fully satisfy such data needs. Respondent further agrees to negotiate in good faith a funding and participation agreement for a cooperative natural resource damage assessment process with the Trustees, to facilitate the timely performance of activities consistent with 43 C.F.R. Part 11, subparts A-E. Except as provided in this paragraph, this Consent Order does not address natural resource damages at the AUS OU and Respondent and the Trustees reserve all rights relating thereto.

XVI. OTHER APPLICABLE LAWS

67. Respondent shall comply with all laws that are applicable when performing the RI/FS. No local, state, or

federal permit shall be required for any portion of any action conducted entirely on-site, including studies, where such action is selected and carried out in compliance with section 121 of CERCLA, 42 U.S.C. § 9621.

XVII. RECORD PRESERVATION

68. All records and documents in the Respondent's possession that relate in any way to the AUS OU shall be preserved during the conduct of this Consent Order and for a minimum of 10 years after commencement of construction of any remedial action. The Respondent shall acquire and retain copies of all documents that relate to the AUS OU and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 10 year period, the Respondent shall notify the Federal Agencies and IEPA at least 90 days before the documents are scheduled to be destroyed. If either FWS, U.S. EPA or IEPA requests that the documents be saved, the Respondent shall, at no cost to the agencies, give FWS, U.S. EPA or IEPA the documents or copies of the documents.

XVIII. DISPUTE RESOLUTION

69. Any disputes concerning activities or deliverables required of Respondent under this Order shall be resolved as follows: If the Respondent objects to any FWS notice of disapproval or requirement made pursuant to this Consent Order, Respondent shall notify the Project Coordinators for each of the

FFA parties in writing of the objections within 14 days of receipt of the disapproval notice or requirement. Respondent's written objections shall define the dispute, state the basis of Respondent's objections, and be sent, via certified mail, return receipt requested. FWS, in consultation with the FFA parties, and the Respondent then have an additional 14 days to reach agreement. If an agreement is not reached within 14 days, FWS shall provide a written determination to Respondent, including the basis for the determination. Respondent shall proceed in accordance with this written determination unless it seeks review by the U.S. EPA Region 5 Superfund Director, within 30 days of receipt of the FWS determination. The Region 5 Superfund Director will make a final determination, on the record, in consultation with appropriate management level personnel at the other FFA agencies. If any FFA party disputes the proposed determination of the Region 5 Superfund Director, the dispute shall be resolved through the dispute resolution procedures of the FFA prior to issuance of the final determination. Respondent shall proceed in accordance with the final determination of the U.S. EPA Region 5 Superfund Director regardless of whether Respondent agrees with the decision. If the Respondent does not agree to perform or does not actually perform the work in accordance with this final decision, FWS reserves the right, in its sole discretion, to conduct the work itself and to seek

reimbursement from the Respondent, seek stipulated penalties and/or any other appropriate relief.

70. The Respondent's invocation of dispute resolution shall not extend, postpone or affect in any way any obligation of Respondent under this Consent Order not directly in dispute while a matter is pending in dispute resolution. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the day FWS provides Respondent with notice of an alleged violation. In the event that Respondent prevails on the disputed issue(s), stipulated penalties shall not apply.

XIX. DELAY IN PERFORMANCE/STIPULATED PENALTIES

71. For each day that the Respondent fails to complete a deliverable in a timely manner or fails to produce a deliverable of acceptable quality, or otherwise fails to perform in accordance with the requirements of this Order, Respondent shall be liable for stipulated penalties. All penalties shall begin to accrue on the day that FWS notifies Respondent that a violation has occurred and extends through the period of correction where a revised submission is required. Where such a revised submission is required, stipulated penalties shall continue to accrue until a satisfactory deliverable is produced. Payment shall be due within 30 days of receipt of a demand letter from FWS.

72. Respondent shall pay interest on any unpaid balance, which shall begin to accrue at the end of the 30-day period, at the rate established by the Department of Treasury pursuant to 31 U.S.C. § 3717. Respondent shall further pay a handling charge of 1 percent, to be assessed at the end of each 31 day period, and a 6 percent per annum penalty charge, to be assessed if the penalty is not paid in full within 90 days after it is due.

73. Respondent shall make all payments by forwarding a check to:

U.S. Department of the Interior
Bureau of Land Management
National Business Center, BC 610
P.O. Box 25047
Building 50, Denver Federal Center
Lakewood, CO 80225

Checks should identify the name of the Site and the operable unit, the account number (2645), and the title of this Order. A copy of the check and/or transmittal letter shall be forwarded to the FWS Project Coordinator.

74. For the following major deliverables, which are primary documents, stipulated penalties shall accrue in the amount of \$1500 per day, per violation, for the first seven days of noncompliance; \$2,500 per day, per violation, for the 8th through 14th day of noncompliance; \$5,000 per day, per violation, for the 15th day through the 30th day; and \$10,000 per day, per violation, for all violations lasting beyond 30 days.

- (1) An original and any revised work plan, including addenda if required;
- (2) An original and any revised sampling and analysis plan, including addenda if required;
- (3) An original and any revised remedial investigation report.
- (4) An original and any revised feasibility study report.

75. For the following interim deliverables, which are secondary documents, stipulated penalties shall accrue in the amount of \$1,000 per day, per violation, for the first week of noncompliance; \$2,000 per day, per violation for the 8th through 14th day of noncompliance; \$3,000 per day, per violation, for the 15th day through the 30th day of noncompliance; and \$7,500 per day, per violation for all violations lasting beyond 30 days.

- (1) Technical memorandum on modeling of site characteristics, if required;
- (2) Preliminary site characterization summary;
- (3) Treatability testing statement of work, if required;
- (4) Treatability study evaluation report;
- (5) Memorandum on remedial action objectives;
- (6) Memoranda on development and preliminary screening of alternatives;
- (7) Comparative analysis report.

76. For the monthly progress reports, stipulated penalties shall accrue in the amount of \$750 per day, per violation, for the first week of noncompliance; \$1500 per day,

per violation, for the 8th through 14th day of noncompliance; \$3000 per day, per violation, for the 15th day through the 30th day; and \$5000 per day, per violation, for all violations lasting beyond 30 days.

77. Respondent may dispute FWS' right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVIII of this Order. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondent does not prevail, all penalties shall be due to FWS within 30 days of final resolution of the dispute. If Respondent prevails in the dispute resolution process, no penalties shall be paid.

78. In the event that FWS provides for corrections to be reflected in the next deliverable and does not require re-submission of that deliverable, stipulated penalties for that interim deliverable shall cease to accrue on the date of such decision by FWS.

79. The stipulated penalties provisions do not preclude the Federal Agencies or IEPA from pursuing any other remedy which is available to them because of the Respondent's failure to comply with this Consent Order, including but not limited to conduct of all or part of the RI/FS by FWS. Payment of stipulated penalties does not alter Respondent's obligation to complete performance under this Consent Order.

XX. FORCE MAJEURE

80. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes entirely beyond the control of the Respondent and of any entity controlled by Respondent, including its contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondent's best efforts to avoid the delay. The requirement that the Respondent exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Order or the financial difficulty of Respondent to perform such work.

81. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a force majeure event, Respondent shall notify by telephone the FWS Remedial Project Manager or, in his or her absence, the U.S. EPA Project Coordinator, within 48 hours of when the Respondent knew or should have known that the event might cause a delay. Within five business days thereafter,

Respondent shall provide in writing the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and 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 shall preclude Respondent from asserting any claim of force majeure.

82. If the Federal Agencies and IEPA agree that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Order that are directly affected by the force majeure event shall be extended by agreement of the parties, pursuant to section XXVII of this Order, 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, of itself, extend the time for performance of any subsequent obligation.

83. If the Federal Agencies and IEPA do not agree that the delay or anticipated delay has been or will be caused by a force majeure event, or do not agree with Respondent on the

length of the extension, the issue shall be subject to the dispute resolution procedures set forth in section XVIII of this Order. In any such proceeding, to qualify for a force majeure defense, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondent did exercise or is exercising due diligence by using its best efforts to avoid and mitigate the effects of the delay, and that Respondent complied with the notice requirements in this Section.

84. Should Respondent carry the burden set forth in the preceding paragraph, the delay at issue shall be deemed not to be a violation of the affected obligation of this Consent Order.

XXI. REIMBURSEMENT OF PAST COSTS

85. Within 15 days of the effective date of this Order, Respondent shall remit a certified or cashier's check to DOI in the amount of \$882,959.00, which shall reimburse DOI for a portion of past contractor costs incurred by FWS for preparation of the PA/SI report for the AUS OU (\$850,000), as well as the \$32,959 in past costs that have been incurred by IEPA through August 31, 2002 and reimbursed by FWS pursuant to the FFA and a Cooperative Agreement between FWS and IEPA. DOI reserves, and

this Order is without prejudice to, any DOI claim against Respondent or any other PRP for past costs exceeding the amount reimbursed by Respondent pursuant to this paragraph, which will be deferred until completion of the RI/FS. Respondent reserves its right to review and contest such past costs on the ground of accounting errors, the inclusion of costs outside the scope of the AUS OU or inconsistency with the NCP.

86. Checks on account of DOI costs should be made payable to the Central Hazardous Material Fund and should include the name of the Crab Orchard National Wildlife Refuge Site, the AUS OU, and the title of this Order. Checks should be forwarded to:

U.S. Department of the Interior
Bureau of Land Management
National Business Center, BC 610
P.O. Box 25047
Building 50, Denver Federal Center
Lakewood, CO 80225

A copy of the transmittal letter and check should be sent simultaneously to the FWS Project Coordinator.

87. Within 15 days of the effective date of this Order, Respondent shall remit a certified or cashier's check to U.S. EPA in the amount of \$187,586.21, plus interest, for past response costs not inconsistent with the NCP incurred by U.S. EPA through September 30, 2002. A portion of these past costs (\$18,326.27) was previously demanded of Respondent in the Special Notice Letter dated March 29, 2002. The remittance shall include

interest in the amount of \$336.03 on the \$18,326.27 in that initial demand, together with interest on the balance from November 1, 2002, at the rate of interest specified for the Hazardous Substances Superfund under CERCLA Section 107(a).

88. Checks to U.S. EPA should be made payable to the "EPA Hazardous Substance Superfund" and shall be deposited in the Crab Orchard National Wildlife Refuge NPL Site Special Account within the EPA Hazardous Substance Superfund, to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the Hazardous Substance Superfund. Checks should include the name of the Site, the Site identification number, and the U.S. EPA docket number for this action. Checks should be forwarded to:

U.S. EPA
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Copies of the transmittal letter and check should be sent simultaneously to the U.S. EPA Project Coordinator.

XXII. REIMBURSEMENT OF FUTURE RESPONSE COSTS, INCLUDING OVERSIGHT COSTS

89. Following issuance of this Consent Order, DOI/FWS and U.S. EPA shall submit to the Respondent on a periodic basis a summary of all response costs, including oversight costs, incurred by the FWS and U.S. EPA with respect to this RI/FS. Response costs may include, but are not limited to, costs

incurred in overseeing implementation of the requirements of this Order, as well as activities performed by the government as part of the RI/FS and community relations following the effective date of this Order. Costs shall include all direct and indirect costs, including, but not limited to, time and travel costs of DOI and FWS, U.S. EPA and Department of Justice personnel and associated indirect costs, contractor costs, cooperative (interagency) agreement costs, compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, discussions regarding disputes that may arise under this Consent Order, review and approval or disapproval of reports, and costs of performing the baseline risk assessment. FWS and U.S. EPA agree to provide sufficient information in each response cost summary to describe the services for which the bill is sent.

90. Respondent shall, within 30 days of receipt of each cost summary, remit a certified or cashier's check for the amount of those costs. If payment is remitted more than 30 days after receipt of the summary, Respondent shall pay interest at the rate of interest on investments for the Hazardous Substance Superfund in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

91. Checks to FWS should be made payable to the Central Hazardous Materials Fund and should include the name of

the Site, the Site identification number, the account number and the title of this Order. Checks should be forwarded to:

U.S. Department of the Interior
Bureau of Land Management
National Business Center, BC 610
P.O. Box 25047
Building 50, Denver Federal Center
Lakewood, CO 80225

Copies of the transmittal letter and check should be sent simultaneously to the FWS Project Coordinator.

92. Checks to U.S. EPA should be made payable to the "EPA Hazardous Substance Superfund", to be deposited in the Crab Orchard National Wildlife Refuge NPL Site Special Account within the EPA Hazardous Substance Superfund, to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the Hazardous Substance Superfund. Checks should include the name of the Site, the Site identification number, and the U.S. EPA docket number for this action. Checks should be forwarded to:

U.S. EPA
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Copies of the transmittal letter and check should be sent simultaneously to the U.S. EPA Project Coordinator.

93. 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 forth above. Disputed costs shall be paid by Respondent into an escrow account while the dispute is pending. Respondent bears the burden of establishing a DOI or U.S. EPA accounting error or the inclusion of costs outside the scope of this Consent Order.

**XXIII. RESERVATIONS OF RIGHTS, COVENANTS NOT TO SUE
AND REIMBURSEMENT OF OTHER COSTS**

94. (a) FWS and U.S. EPA each reserve the right to bring an action against the Respondent under Section 107 and/or Section 113 of CERCLA, 42 U.S.C. § 9607 and/or § 9613, for recovery of all response costs, including past costs and oversight costs that are not reimbursed by the Respondent pursuant to this Order, any costs incurred in the event FWS performs the RI/FS or any part thereof, and any future costs incurred in connection with CERCLA response activities.

(b) The State of Illinois reserves the right to bring an action against Respondent under Section 107 of CERCLA for recovery of all its response costs not reimbursed under the FFA, including oversight costs incurred in the event FWS performs the RI/FS or any portion thereof, and any future costs incurred by the State of Illinois in connection with CERCLA response activities.

95. (a) The FWS and U.S. EPA each reserve the right to bring an action against Respondent to enforce the past costs and response and oversight cost reimbursement requirements of this Consent Order, to collect stipulated penalties assessed pursuant to section XIX of this Consent Order, and to seek penalties pursuant to and in accordance with Section 109 of CERCLA, 42 U.S.C. § 9609.

(b) The State of Illinois reserves the right to bring an action against Respondent to collect stipulated penalties assessed pursuant to Section XIX of this Consent Order, and to seek penalties pursuant to and in accordance with Section 109 of CERCLA, 42 U.S.C. § 9609.

96. Except as expressly provided in this Order, each party reserves all rights and defenses it may have. Respondent does not waive any rights it may have under Section 109 of CERCLA. Nothing in this Consent Order shall affect the Federal Agencies' or IEPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, and/or statutory penalties.

97. This Consent Order is intended to comply with the FFA. Nothing in this Consent Order constitutes a waiver of or in any way abrogates the rights and responsibilities of the Federal Agencies and the IEPA under the FFA, CERCLA Section 120(e)(6), 42

U.S.C. § 9620(e)(6), Executive Order 12580, and Executive Order 13016.

98. Upon issuance by FWS of the certification referred to in Section XXVIII (Termination and Satisfaction), the Federal Agencies and the State covenant not to sue Respondent for civil penalties or take administrative action against Respondent for any failure to perform the actions agreed to in this Consent Order. This covenant not to sue extends only to the Respondent and does not extend to any other person. Respondent is not released from liability, if any, for any response actions taken beyond the scope of this Order regarding removals, other operable units, remedial design/remedial action at this operable unit, or activities arising pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

99. Respondent is entitled to protection from contribution actions or claims for performance of the work required under Section IX of this Order and for its payment of future response and oversight costs under Section XXII, to the extent provided by Section 113(f) of CERCLA, 42 U.S.C. § 9613(f)(2). In any allocation between and among PRPs for the AUS OU, Respondent's costs of performing the work, as well as its payments of future response and oversight costs under Section XXII and its payment of a portion of past costs under Section XXI of this

Order shall be applied against its total liabilities for the AUS OU.

XXIV. DISCLAIMER

100. By signing and taking actions under this Consent Order, the Respondent does not necessarily agree with the Findings of Fact and Conclusions of Law in this Order. Furthermore, the participation of the Respondent in this Order shall not be considered an admission of liability and is not admissible in evidence against the Respondent in any judicial or administrative proceeding other than a proceeding by the United States or the State of Illinois to enforce this Consent Order or a judgment relating to it. Respondent retains its right to assert claims against other potentially responsible parties for the AUS OU.

XXV. OTHER CLAIMS

101. In entering into this Order, Respondent waives any right to seek reimbursement under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), for the costs incurred under this Order. Respondent also waives any right to present a claim under Section 111 or 112 of CERCLA, 42 U.S.C. §§ 9611 or 9612. This Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA. Respondent further waives all other statutory and common law claims relating to or arising out of conduct of the RI/FS under this Order, against the United States and the State of Illinois, their departments, agencies and

instrumentalities, provided however, that this waiver does not apply to claims reserved under paragraph 110 of this Order or to claims or counterclaims for contribution under Section 113 of CERCLA, 42 U.S.C. § 9613, or claims under Section 107 of CERCLA, 42 U.S.C. § 9607, against the United States in connection with the AUS OU.

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

103. Respondent shall bear its own costs and attorneys fees relating to the AUS OU, provided, however, that Respondent reserves its right to recover its own costs and attorneys fees to the extent the law allows.

XXVI. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

104. Within 30 days of the effective date of this Consent Order, Respondent shall establish and maintain financial security in an amount sufficient to perform the work and any other obligations required under this Order, in one of the following forms:

- (a) A surety bond guaranteeing performance of the work;
- (b) One or more irrevocable letters of credit equaling the total estimated costs of the work;
- (c) A trust fund; or
- (d) A demonstration that Respondent satisfies the requirements of 40 C.F.R. § 264.143(f).

105. If Respondent seeks to demonstrate the ability to complete the work by means of subparagraphs (a), (b) or (c) of the preceding paragraph, then beginning on the effective date of this Order, and on an annual basis thereafter, Respondent shall ensure that the surety bond, letters of credit, or trust fund is maintained in an amount adequate to perform the work required under this Order. If Respondent seeks to demonstrate its ability to perform the work by means of paragraph (d) in the preceding paragraph, it shall resubmit sworn statements annually conveying the information required under 40 C.F.R. § 264.143(f).

106. Respondent may change the form of financial assurance required under this Section, upon notice to and approval by FWS, provided that the new form of assurance meets the requirements of this Section.

107. (a) Prior to commencement of any work under this Order, Respondent shall secure, and shall maintain in force for the duration of this Order, and for two years after completion of all activities required by this Consent Order, Comprehensive General Liability ("CGL") and automobile insurance, with limits

of \$2 million dollars, combined single limit, naming as insured the United States and the State of Illinois. The CGL insurance shall include Contractual Liability Insurance in the amount of \$2 million per occurrence, and Umbrella Liability Insurance in the amount of \$2 million per occurrence.

(b) Respondent shall also secure, and maintain in force for the duration of this Order and for two years after the completion of all activities required by this Consent Order the following:

- i. Professional Errors and Omissions Insurance in the amount of \$1,000,000.00 per occurrence.
- ii. Pollution Liability Insurance in the amount of \$1,000,000.00 per occurrence, covering as appropriate both general liability and professional liability arising from pollution conditions.

(c) For the duration of this Order, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workers' compensation insurance for all persons performing work on behalf of the Respondent, in furtherance of this Order.

(d) If Respondent demonstrates by evidence satisfactory to FWS that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor Respondent need provide only that

portion of the insurance described above which is not maintained by the contractor or subcontractor.

(e) Prior to commencement of any work under this Order, and annually thereafter on the anniversary of the effective date of this Order, Respondent shall provide to FWS, U.S. EPA and IEPA certificates of such insurance and a copy of each insurance policy.

108. At least 7 days prior to commencing any work under this Consent Order, Respondent shall certify to the Federal Agencies and IEPA that the required insurance has been obtained by its contractor(s).

109. The Respondent agrees to indemnify and hold the United States and the State of Illinois, their agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondent, its employees, agents, servants, receivers, successors, or assignees, or any persons including, but not limited to, its subsidiaries and contractors, in carrying out activities under this Consent Order. The United States and the State of Illinois, or any agency or authorized representative thereof, shall not be held as a party to any contract entered into by Respondent in carrying out activities under this Consent Order.

110. Respondent reserves any claims against the United States for money damages for injury to or loss of property or for personal injury or death cause by the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his or her employment under circumstances where the United States, if a private person, would be liable to the claimant under the law of the place where the act or omission occurred. Respondent, similarly, reserves any claims against the State under Section 8(d) of the Illinois Court of Claims Act, 705 Ill. Comp. Stat. 505/8(d), for liability for money damages for injury to property or for personal injury or death caused by the negligent or wrongful act or omission of any employee of the State while acting within the scope of his employment.

XXVII. EFFECTIVE DATE, COUNTERPARTS, SUBSEQUENT AMENDMENT

111. The effective date of this Consent Order shall be the date it is signed on behalf of the FWS.

112. This Consent Order may be executed in several counterparts, each of which may be deemed an original but all of which, taken together, constitute one and the same instrument.

113. This Consent Order may be amended by mutual agreement of the Federal Agencies, IEPA and the Respondent. Amendments shall be in writing. Project Coordinators do not have the authority to sign amendments to the Consent Order.

114. No informal advice, guidance, suggestions, or comments by the Federal Agencies or IEPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondent will be construed as relieving the Respondent of its obligation to obtain such formal approval as may be required by this Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and attachments required by this Consent Order are, upon approval by FWS, incorporated into this Order.

XXVIII. TERMINATION AND SATISFACTION

115. This Consent Order shall terminate when the Respondent demonstrates in writing and certifies to the satisfaction of the Federal Agencies and IEPA that all activities required under this Consent Order, including any additional work, have been performed, and all response and oversight costs and such past costs as are covered by Section XXI of this Order, and any stipulated penalties demanded by the Federal Agencies or IEPA, have been paid, and FWS has approved the certification. This notice shall not, however, terminate Respondent's obligation to comply with Sections XVI, XXI, and XXII of this Consent Order.

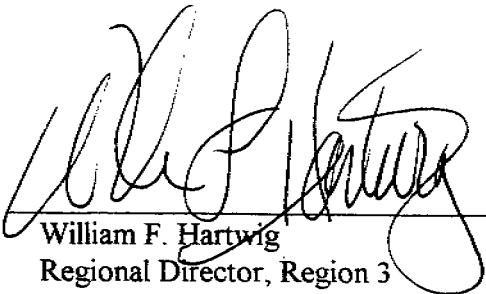
116. The certification shall be signed by a responsible official representing the Respondent. Such official shall make the following attestation: "I certify that the information contained in or accompanying this certification is

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.


BY: Del S. Dameron

DATE: 12-20-02

Del S. Dameron
Vice President and General Counsel
General Dynamics Ordnance and
Tactical Systems, Inc.

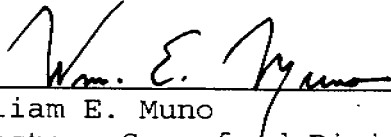
BY: 
William F. Hartwig
Regional Director, Region 3
U.S. Fish and Wildlife Service

DATE: 12/20/02

BY: 
Charles P. Raynor
Associate Solicitor, Division of
Parks and Wildlife
Department of the Interior

DATE: 12/27/02

BY:



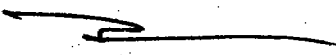
William E. Muno
Director, Superfund Division
U.S. Environmental Protection Agency,
Region V

DATE:

12/31/02

Lisa Madigan
Attorney General of the State of Illinois
Matthew J. Dunn
Chief Environmental Enforcement/Asbestos Litigation Division

BY:



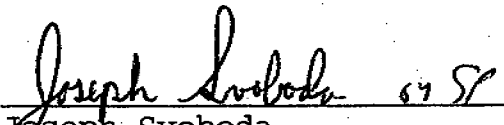
DATE:

3/05/03

Thomas E. Davis
Assistant Attorney General

Renee Cipriano, Director
Illinois Environmental Protection Agency

BY:



DATE:

March 3, 2003

Joseph Svoboda
Chief Legal Counsel