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FS 1260
Panel 1

FILED
JUL 17 1991
SUPERIOR COURT
BETTY GOULD
THURSTON COUNTY CLERK

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
FOR THURSTON COUNTY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY,

v.

WEYERHAEUSER COMPANY and
DUPONT COMPANY

No. 91 2 01703 1
CONSENT DECREE

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INTRODUCTION

A. In entering into this Decree (Decree), the mutual objective of the Washington State Department of Ecology and Weyerhaeuser Company and DuPont Company is to provide for remedial action at a facility where hazardous substances have been deposited, placed, stored, or otherwise disposed of. This Decree requires Weyerhaeuser and DuPont (Defendants) to undertake remedial action which includes completion of a Remedial Investigation (RI), Health Risk Assessment (HRA) and Feasibility Study (FS), with the intent of determining a permanent cleanup option for the entire Site. An interim action will also be completed under this Decree.

B. The Complaint in this action is being filed simultaneously with this Decree. An answer has not been filed, and there has not been a trial on any issue of fact or law in this case. However, the parties wish to resolve the issues raised by Ecology's complaint. In addition, the parties agree that settlement of these matters without litigation is reasonable and in the public interest and that entry of this Decree is the most appropriate means of resolving these matters.

C. In signing this Decree, Defendants agree to its entry and agrees to be bound by its terms.

D. By entering into this Decree, the parties do not intend to discharge nonsettling parties from any liability

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they may have with respect to matters alleged in the complaint. Defendants and Ecology retain the right to seek to recover response costs expended pursuant to this Decree from any other responsible parties.

E. The Court is fully advised of the reasons for entry of this Decree, and good cause having been shown: IT IS HEREBY ORDERED, ADJUDGED, AND DECREED AS FOLLOWS:

I. JURISDICTION

A. This Court has jurisdiction over the subject matter and over the parties pursuant to chapter 90.48 RCW; chapter 70.105 RCW; chapter 70.105D RCW; and the Comprehensive Environmental sponse, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq.

B. Under chapter 70.105D RCW, the Model Toxics Control Act (MTCA), and CERCLA, whenever Ecology has reason to believe that a release or threatened release of a hazardous substance will require remedial action, it shall notify potentially liable persons with respect to the release or threatened release. Pursuant to RCW 70.105D.040(4), where Ecology and a potentially liable person reach such a settlement regarding appropriate remedial action, the settlement shall be filed with the appropriate superior court as a consent decree, after public notice and hearing.

C. On the basis of the testing and analysis described in the Statement of Facts, Section IV, and Ecology files and

records, Ecology has determined that past disposal or management practices at the Site have given rise to a release of hazardous substances.

D. Defendants are liable parties for the Site pursuant to RCW 70.105D.040(1) and 42 U.S.C. § 9607 and have been given notice of the release of hazardous substances at the Site and Ecology has determined that they are both liable parties under the MTCA.

E. The actions to be taken pursuant to this Decree are necessary to protect the public health, welfare and the environment, and are consistent with requirements of the MTCA and the National Contingency Plan, 40 CFR Part 300 et seq.

II. PARTIES BOUND

This Decree shall apply to and be binding upon the signatories to this Decree (parties), their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Decree and to execute and legally bind such party to comply with the Decree. Defendants agree to undertake all actions required by the terms and conditions of this Decree and not to contest state jurisdiction regarding this Decree. No change in ownership or corporate status shall alter the responsibility of Defendants under this Decree. Defendants shall provide a copy of this Decree to each of their agents, including all contractors and subcontractors retained to

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perform work contemplated by this Decree, and shall condition any contract for such work on compliance with this Decree.

III. DEFINITIONS

A. Site: The Site covers that portion of the former DuPont Works production area located south of Sequalitchew Creek and that portion of the former DuPont Works production area located north of the Creek that includes the former "Burn Area," as shown on the site map (Exhibit C), and the former "Black Powder Area," as shown on the Black Powder Area site map (Exhibit D).

B. Days: Refer to calendar days unless specified otherwise.

C. Parties: Refers to the Weyerhaeuser Company, DuPont Company and the Department of Ecology.

IV. STATEMENT OF FACTS

A. Site Location and Status

The Site is a portion of the former DuPont Works property. The DuPont property (which includes the DuPont Works and adjacent property) covers approximately 3,200 acres located in the southwest corner of Pierce County, Washington, in the City of DuPont. Studies conducted to date by Weyerhaeuser under the supervision of Ecology indicate that 25 areas on the Site, as shown on Exhibits C and D, contain hazardous substances or hazardous waste constituents. DuPont began operations on the property in 1909, and produced a

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variety of commercial explosive materials. The plant was purchased by Weyerhaeuser in 1976 and was closed in 1977. Weyerhaeuser has conducted no manufacturing activities at the Site which involved the generation, use, treatment, storage, disposal or transportation of hazardous substances or dangerous wastes, although the DuPont Company, Southwest Explosives Company and Oriard Powder Company, as lessees of Weyerhaeuser, used certain areas of the Site for the storage and transportation of explosives. Weyerhaeuser has conducted site work consisting of building demolition of former explosives laboratories, removal of above ground and underground storage tanks, and disposal of construction debris.

B. Previous Site Investigations

In 1985, Weyerhaeuser began evaluating 37 potential hazardous waste areas identified by Hart Crowser under contract to Weyerhaeuser on the property. These studies led to the collection in 1986-1987 of soil and waste samples from each area, and extensive analyses of chemical constituent levels (Hart Crowser, 1987). These data revealed that 25 areas on the Site contained elevated levels of at least one hazardous substance or hazardous waste constituent. Identified hazardous substances or hazardous waste constituents present on the property included lead, zinc, nitroglycerine, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotolune, monomethylamine nitrate, PCBs, DDT, several

polynuclear aromatic hydrocarbons (PAH) and volatile organic compounds, and oily substances. Hazardous substances and hazardous wastes appeared to be generally restricted to near-surface soils, with lower concentrations reported at depth.

In an effort to determine potential impacts from hazardous substances and hazardous waste releases at the Site, between November 1987 and February 1988, seventeen (17) soil borings were drilled within the former production area and completed as groundwater monitoring wells (Hart Crowser, 1988). The soil borings and associated hydraulic data collected during this effort formed the basis for an assessment of geologic and hydrogeologic conditions at the Site which may control both surface and subsurface contaminant transport.

In March 1988, groundwater and surface water samples were collected from a total of 28 monitoring areas on and adjacent to the Site (Hart Crowser, 1988). These samples were analyzed for a variety of field parameters, including inorganics, metals, oil and grease, explosives, PAHs, PCBs, DDT, and volatile organic constituents identified previously in the soil sampling effort (Hart Crowser, 1987). Some of the monitoring areas were resampled in April 1988 to confirm selected analytical data.

The results of this first round of sampling suggested that local concentrations of nitrate and possibly

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also oil and grease constituents were elevated above local background levels. Additionally, lower than normal Ph levels were found in several wells downgradient from identified waste areas on the property. Levels of nitrate in two of the monitoring wells exceeded primary drinking water standards, although existing water supplies did not appear to be affected. No other elevated concentrations of constituents were detected. Groundwater and surface water quality monitoring continued at quarterly intervals for a period of one year on or about 6/88, 9/88, and 12/88 samplings to assess possible seasonal variations in the principal water quality characteristics of concern (i.e., field parameters, nitrates, nitrogen, dissolved solids, lead, oil and grease, and explosives). This quarterly groundwater sampling revealed the presence of those contaminants noted above and the presence of low levels of explosive compounds, e.g., dinitrotoluene.

With the exception of possible contamination of the sediments at the Site, data collected to date (Hart Crowser 1987 and 1988) are generally sufficient to describe the nature and likely extent of hazardous substances present in the soils and groundwater at the Site. Certain additional remedial investigations, as more particularly described in Exhibits A, B, C, and D (attached), are necessary to complete Site investigations.

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C. Black Powder Area

Recently, data collected pertaining to the Black Powder Area (see Ex. D) reveal that near surface soils in the area contain lead at levels exceeding cleanup standards. Further site investigation is occurring to define the nature and extent of hazardous substances in the Black Powder Area.

D. Independent Cleanups

Prior to entry of this Consent Decree, Weyerhaeuser conducted investigations and cleanup actions at Areas 21, 27, 28, and 29 (formerly referred to as "Sites"). The investigations revealed elevated levels of lead, zinc, and total petroleum hydrocarbons in the soil. Cleanups were conducted by Weyerhaeuser with Ecology oversight, using cleanup guidelines in effect at the time. Ecology will provide a formal review of the independent cleanups conducted to determine if any further action is needed at these sites, based on MTCA cleanup standards in effect, on the effective date of this Decree.

Weyerhaeuser and Dupont are currently engaged in voluntary cleanups of Areas 5 and 6, involving, primarily, the removal of abandoned drums. These cleanups were initiated after work plans describing the work to be performed were approved by Ecology, and will be completed under the Consent Decree.

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E. Conclusion

Based on the facts set forth herein, Ecology has determined that the release and potential release of hazardous substances from the Site requires remedial action to protect the public health and welfare and the environment. This Decree requires remedial actions, including a remedial investigation, feasibility study, and interim action, necessary to protect public health, welfare and the environment.

V. WORK TO BE PERFORMED

This Decree contains a program designed to protect the public health and welfare and the environment from the known release, or threatened release, of hazardous substances or contaminants at, on, or from the Site, and includes contingency measures. This program is set forth in Exhibits A, B, C, and D to this Decree, which are collectively titled and constitute the Remedial Investigation/Feasibility Study Plan (RI/FS). Exhibit A sets forth the work to be performed to accomplish the RI/FS (including an environmental and human health risk assessment). Exhibit B sets forth the schedule for implementing this work (Schedule). Exhibit C is a map of the Site, excluding the Black Powder Area. Exhibit D is a map of the Black Powder Area. Exhibits A, B, C, and D are integral and enforceable parts of this Decree, and the work to be performed pursuant to such Exhibits is consistent with all

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requirements of state and federal laws and regulations, including, without limitation, the MTCA and the National Contingency Plan, 40 CFR Part 300. The terms "Consent Decree" or "Decree" shall include Exhibits A-D whenever used in this document. Except where performance by another party is expressly provided in the exhibits, Defendants hereby commit to perform the work described in Exhibits A, B, C, and D.

A. Work Plan. Pursuant to Ecology's requirements Weyerhaeuser has completed certain remedial investigation and baseline risk assessment work as of the dates set forth in Exhibit B. Defendants shall submit to Ecology additional remedial investigation and feasibility study work by the dates provided in Exhibit B. Any field work conducted by Defendants must include and be consistent with the following plans:

1. Quality Assurance/Quality Control Plan
2. Health and Safety Plan
3. Data Management Plan
4. Sampling and Analysis Plan
5. Community Relations Plan
6. Cultural Resources Comprehensive Management Plan and Cultural Resources Protection Plan
7. Sediment Sampling Plan

The above enumerated plans shall be submitted to Ecology for review, comment, and approval.

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B. Scope of Remedial Investigation. Through previous Site investigation, documented in a Phase I Site Survey and Review Report (Hart Crowser, 1986), a Phase II Site Characterization Report (Hart Crowser, 1987), and a Hydrologic and Water Quality Assessment Report (Hart Crowser, 1988) the vertical and horizontal extent of contamination at the DuPont Site has, for the most part, been determined. To complete the remedial investigation (RI), Defendants shall perform the work plan tasks set forth in Exhibits A, B, C, and D hereto.

C. Scope of Feasibility Study. Based on the results of the remedial investigation and the risk assessment, completed per the requirements of Exhibits A, B, C, and D, a feasibility study of alternative remediation options at the Site shall be conducted. Only those areas within the Site which may exceed an acceptable level of risk to human health or the environment or where levels of hazardous substances exceed cleanup levels will be considered during this effort.

The feasibility study shall be performed in accordance with WAC 173-340-350 and in general accordance with the draft EPA guidelines for Remedial Investigations and Feasibility Studies (EPA, 1988). The feasibility study shall include an initial identification and screening of potential remediation alternatives based on preliminary evaluations of permanence, effectiveness, implementability, and cost. Based on the preliminary screening, a minimum of three (3)

alternatives for each contaminated area shall be selected for more detailed analyses. Areas with identical contaminants may be grouped and treated together. These more detailed evaluations will address in greater detail the use of permanent solutions, short-term and long-term effectiveness, implementability, and cost of each of the final alternatives.

The purpose of the feasibility study is to identify, develop, evaluate, and recommend remedial action alternatives which are consistent with a permanent remedy and which are available to prevent or minimize the release or threatened release of hazardous substances or pollutants or contaminants from the Site, as identified through the remedial investigation and the risk assessment. The feasibility study shall be conducted in accordance with all federal and state laws and regulations, and generally in accordance with all applicable EPA guidance documents relating to feasibility studies.

The remedial investigation and feasibility study for the 25 areas of the Site identified on Exhibits C and D shall be presented in a draft report submitted to Ecology on or before the date 24 months following the effective date of this Decree, depending on the timeliness of Ecology's prior response to the risk assessment. Ecology will provide a final written response to the draft remedial investigation and feasibility study report within 90 days of receipt of the document. Defendants shall submit a final report for the

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remedial investigation and feasibility study no later than 60 days following the receipt of Ecology's final written response.

D. Black Powder Area Interim Action. Within 90 days of the effective date of this Decree, Defendants shall submit a work plan and schedule for an interim action at the Black Powder Area. As stated above, preliminary investigations have revealed that soils in the Black Powder Area are contaminated with lead. This interim action will be designed to define the nature and extent of contamination of the Black Powder Area, and to recommend an appropriate interim action for the area. Ecology will then select the interim action to be implemented. The Defendants will then implement the selected interim action unless Dispute Resolution is invoked, in which case the dispute resolution process set forth in Section XIII of this Decree shall be utilized to resolve the dispute. The interim action will be the subject of threshold determination under the State Environmental Policy Act, Ch. 43.21C RCW.

Upon Ecology's determination that the interim action for the black powder area has been completed in compliance with the approved interim action work plan, that no further remedial action is necessary at the black powder area, and that applicable cleanup standards have been met, Ecology may delete the black powder area from the coverage of this Consent

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Decree. Ecology will only make this determination after public notice and an opportunity to comment.

E. Other Interim Actions. Ecology may, during the term of this Consent Decree, determine that additional interim actions are necessary at the Site under WAC 173-340-430. Likewise, Defendants may, during the term of this Consent Decree, propose additional interim actions.

Upon receipt of notification from Ecology that an interim action is required, Defendants shall plan, propose, initiate, complete, and report upon the required interim action for the Site. Such plans, proposals, and reports shall be subject to review, comment, and approval by Ecology. If Defendants fail to undertake an interim action required by Ecology in a proper and prompt manner, Ecology reserves the right to perform the required interim action and to recover all costs incurred in doing so from Defendants. Defendants may dispute the necessity or appropriateness of any interim action required by Ecology.

F. Future Negotiations Regarding Remedial Action. If the feasibility study, performed pursuant to Section C above, indicates the need for remedial action, as defined by the MTCA or CERCLA, Defendants and Ecology will enter into negotiations regarding such remediation; this will include the design, construction, operation, maintenance, and monitoring phases of such remedial action. The parties recognize and agree that,

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if a remedial action is necessary, it would be beneficial to commence the remedial action during the construction season (Spring, Summer and early Fall). Ecology and Defendants will exercise their good faith efforts to agree upon any necessary remedial action as promptly as possible following submission of the final report due under this Decree. Neither Ecology nor Defendants shall have any obligation pursuant to this Decree to agree upon the terms of any such remedial action, nor shall Defendants have any obligation under this Decree to perform any such remedial action. If the parties do agree upon the terms of a remedial action those terms and the performance of the remedial action shall be the subject of a separate consent decree or an amendment to this Decree.

G. Consistency with Cultural Resources Comprehensive Management Plan. The parties to this Decree recognize the historical and archaeological significance of the Site. Every reasonable effort will be made to ensure that area investigation and remediation will be conducted in a manner consistent with protection of these values. As soon as practicable after execution of this Decree, Defendants shall, in consultation with the State Office of Archaeology and Historic Preservation, prepare a Cultural Resources Comprehensive Management Plan. The Plan shall detail the steps which will be taken, including dispute resolution processes, to protect the archaeological and historical values of the Site. The

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Defendants shall also prepare and submit a Cultural Resources Protection Plan which will ensure that work performed under this Decree will be completed in a manner consistent with the Cultural Resources Comprehensive Management Plan. These plans will be subject to Ecology approval.

VI. DESIGNATED PROJECT COORDINATORS

On or before the entry of this Decree, Ecology, Weyerhaeuser and DuPont shall each designate a project coordinator. Each project coordinator shall be responsible for overseeing the implementation of this Decree. The Ecology project coordinator will be Ecology's designated representative at the Site. To the maximum extent possible, communications between Ecology and Defendants and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Decree, shall be directed through the project coordinators. The project coordinators may designate working level staff contacts for all or portions of the implementation of the remedial work required by this Decree. The project coordinators may agree to minor modifications to the work to be performed without a formal amendment to this Decree.

Any party may change its respective project coordinator. To the extent possible, written notification shall be given to

the other party, in writing, at least ten (10) calendar days prior to the change.

The project coordinator for Ecology is:

Mike Blum
7272 Cleanwater Lane
Mail Stop: LU-11
Olympia, WA 98504-6811

The project coordinator for Weyerhaeuser is:

Vern Moore
Weyerhaeuser Company
P.O. Box 100
Dupont, WA 98327

The project coordinators for DuPont are:

John B. Frazier
Chemicals & Pigments Dept. BOD 918
DuPont Company
1007 Market Street
Wilmington, DL 19898

Chuck Crittenden
DuPont Environmental Remedial Services
P.O. Box 100
DuPont, WA 98327

VII. PERFORMANCE

All response work performed pursuant to this Decree shall be under the direction and supervision, as necessary, of a professional engineer or certified hydrogeologist, or equivalent, with experience and expertise in hazardous waste area investigation and cleanup. Defendants shall notify Ecology as to the identity of such engineer(s) or hydrogeologist(s), and of any contractors and subcontractors

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to be used in carrying out the terms of this Decree, in advance of their involvement at the Site.

VIII. ACCESS

Ecology or any Ecology authorized representative shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing the progress in carrying out the terms of this Decree; conducting such tests or collecting samples as Ecology or the project coordinator may deem necessary; using a camera, video and/or sound recording, or other documentary type equipment to record work done pursuant to this Decree; and verifying the data submitted to Ecology by Defendants. While Ecology reserves its right to enter and inspect the Site, as set forth above, without providing advance notice, Ecology will, in most cases, provide 48-hour advance notice of any Site inspection. Ecology shall, upon request, split any samples with Defendants taken by Ecology during an inspection unless Defendants fail to make available a representative for the purpose of splitting samples. All parties with access to the Site pursuant to this paragraph shall comply with approved health and safety plans.

IX. SAMPLING, DATA REPORTING AND AVAILABILITY

With respect to the implementation of this Decree, Defendants shall make the quality-assured results of all sampling, laboratory reports, and/or test results generated by them, or on their behalf available to Ecology and shall submit these quality-assured results in progress reports submitted in accordance with paragraph X herein. At the request of Ecology, Defendants shall allow split or duplicate samples to be taken by Ecology and/or its authorized representatives of any samples collected by Defendants pursuant to the implementation of this Decree. Defendants shall notify Ecology five (5) working days in advance of any sample collection activity. To the extent practicable, and without limitation on Ecology's rights under Section VIII, Ecology will provide the same five (5) day notice to Defendants and shall, upon request, allow split or duplicate samples to be taken by Defendants or their authorized representatives of any samples collected by Ecology pursuant to the implementation of this Decree.

In addition, Ecology may require Defendants to split any samples collected on their behalf, and thereafter send such samples to different laboratories for analyses in an effort to ensure accurate laboratory results.

X. PROGRESS REPORTS

Defendants shall submit to Ecology written monthly progress reports which describe the actions they have taken during the previous month to implement the requirements of this Decree. Progress reports shall also describe the activities scheduled to be taken during the next month. All progress reports shall be submitted by the tenth day of the month in which they are due after the effective date of this Decree. The progress reports shall include a detailed statement of the manner and extent to which the requirements and time schedules set out in the Decree are being met. Unless otherwise specified, progress reports and any other documents submitted pursuant to this Decree shall be sent by United States mail, to Ecology's project coordinator.

XI. RETENTION OF RECORDS

Defendants shall preserve, during the pendency of this Decree and for ten (10) years from the date of issuance of the Certificate of Completion (Section XXVII) all records, reports, documents, and underlying data in its possession relevant to the implementation of this Decree, or, in the alternative may furnish to Ecology copies of all such records, reports and documents, and shall insert in contracts with project contractors a similar record retention requirements. Upon request of Ecology, Defendants shall make all non-privileged non-archived records available to Ecology and allow

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access for review. All non-privileged archived records shall be made available to Ecology within a reasonable period of time. Ecology agrees, to the extent permitted by law, to maintain the confidentiality of any proprietary information requested.

XII. TRANSFER OF INTEREST IN PROPERTY

No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated without provision for continued operation and maintenance of any containment system, treatment system, and monitoring system installed or implemented pursuant to this Decree. Prior to transfer of any legal or equitable interest in all or any portion of the Site upon which a release of hazardous substances is known to have occurred (including, without limitation, all or any portion of the precise geographic area described in Exhibit C) or upon which a containment system, treatment system or monitoring system has been installed or implemented, Weyerhaeuser shall serve a copy of this Decree and all attachments upon any prospective purchaser, lessee, transferee, assignee, or other successor in interest of the property; and, at least thirty (30) days prior to any transfer, Weyerhaeuser shall notify Ecology of said contemplated transfer.

XIII. RESOLUTION OF DISPUTES

If either Defendant objects to any Ecology disapproval, proposed modification, or decision made pursuant to this Decree, it shall notify Ecology in writing of its objections within fourteen (14) calendar days of receipt of such disapproval, proposed modification or decision. Thereafter, the parties shall confer in an effort to resolve the dispute. If agreement cannot be reached on the dispute within fourteen (14) calendar days after receipt by Ecology of such objections, Ecology shall promptly provide a written statement of its decision to Defendants.

If Ecology's final written decision is unacceptable to either Defendant, Defendant has the right to submit the dispute to the Court for resolution. The parties agree that one judge should retain jurisdiction over this case and shall, as necessary, resolve any dispute arising under this Decree. In the event Defendants present an issue to the Court for review, the Court shall review the action or decision of Ecology on the basis of whether such action or decision was arbitrary and capricious and render a decision based on such standard of review. Ecology and Defendants agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used. Where either party utilizes the

dispute resolution in bad faith or for purposes of delay, the other party may seek sanctions.

Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Decree, unless Ecology agrees in writing to a schedule extension or the Court so orders.

XIV. AMENDMENT OF CONSENT DECREE

This Decree may only be amended by a written stipulation among all the parties to this Decree that is entered by the Court, or by order of the Court. Such amendment shall become effective upon entry by the Court. Agreement to amend shall not be unreasonably withheld by any party to the Decree.

Defendants shall submit any request for an amendment to Ecology for approval. Ecology shall indicate its approval or disapproval within fifteen (15) working days after the request for amendment is received, if additional time is necessary to review the request for amendment Ecology shall notify Defendants within fifteen (15) days whether an extension of the Work Plan schedule is granted during the pendency of Ecology's review of the proposed amendment. Reasons for any disapproval shall be stated in writing. If Ecology does not agree to any proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section XIII of this Decree.

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No guidance, suggestions, or comments by Ecology will be construed as relieving Defendants of their obligation to obtain formal approval as may be required by this Decree. No verbal communication by Ecology shall relieve Defendants of the obligation specified herein.

Ecology shall notify Defendants in writing of any Ecology proposed amendment and the basis for such proposal. Defendants shall thereafter comply with such modifications, or if either Defendant does not agree with those modifications, the disagreement shall be addressed through the dispute resolution procedures described in Section XIII of this Decree.

If Ecology adopts regulations applicable to this Decree that would require public participation in the amendment process, such regulations shall be followed in amending this Decree.

XV. EXTENSION OF SCHEDULE

A. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify the reason(s) the extension is needed. An extension shall only be granted for such period of time is reasonable under the circumstances. A requested extension shall not be effective until approved by Ecology or the Court. Ecology

shall act upon any written request for extension in a timely fashion. It shall not be necessary to formally amend this Decree pursuant to Section XIV when a schedule extension is granted.

B. The burden shall be on Defendants to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause includes, but is not limited to, the following:

1. Circumstances beyond the reasonable control and despite the due diligence of Defendants including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Defendants.

2. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, wave or water conditions, or other unavoidable casualty; or

3. Endangerment as described in Section XVII. However, neither increased costs of performance of the terms of the Decree nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Defendants.

C. Ecology may extend the schedule for a period not to exceed ninety (90) days, except where an extension is needed as a result of:

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1. Delays in the issuance of a necessary permit which was timely applied for or, if necessary, to comply with permit conditions; or

2. Judicial review of the issuance, non-issuance, or reissuance of a necessary permit; or

3. Other circumstances that reasonably require an extension of more than 90 days; or

4. Endangerment as described in Section XVII; or

5. The need to protect the environment or public interest.

Ecology shall give Defendants written notice in a timely fashion of any extensions granted pursuant to the Decree.

XVI. STIPULATED PENALTIES

A. For delays by Defendants in submitting a report or document or otherwise failing to achieve on time the requirements of this Decree, Ecology may require that Defendants pay into the General Fund of the State Treasury the sum set forth below as stipulated penalties. Defendants stipulate that they shall be obligated to pay such sums as set forth below.

B. Stipulated penalties shall accrue for the following reasons and in the following amounts:

1. Failure to submit a draft environmental risk assessment and feasibility study per agreed-upon schedule: up

to $2,500 per day during the first thirty (30) days; up to $4,000 per day thereafter.

2. Failure to submit a final environmental risk assessment and feasibility study per agreed-upon schedule: up to $2,500 per day during the first thirty (30) days); up to $4,000 per day thereafter.

3. Failure to submit progress reports pursuant to Section X hereof: $500 per day.

4. Failure to provide access to Ecology pursuant to Section VIII hereof: up to $2,500 per day.

C. Defendants shall not be liable for payment under this section if they have submitted a timely request to Ecology for an extension of schedules under Section XV of this Decree and such request has been granted.

D. Upon determination by Ecology that Defendants have failed to make a submittal referenced herein or has otherwise failed to comply with this Decree, Ecology shall immediately give written notice to Defendants of the failure, specifying the provision of the Decree which has not been complied with and specifying the amount of the civil penalty due pursuant to Paragraph B, above. Defendants shall pay the civil penalty within thirty (30) days of receipt of notification from Ecology. Any disagreement over the factual basis for issuance of a penalty under this section shall first be addressed through the dispute resolution clause. In the event

Defendants disagree with the result of the dispute resolution process, Defendants may seek relief from the Court.

E. Nothing herein shall be construed to prevent Ecology from assessing or seeking to impose penalties upon Defendants for any violations of this Consent Decree additional to those specified in subsection B. above, or the Court from imposing such sanctions as it deems appropriate for violations of this Decree or any further order of the Court.

XVII. ENDANGERMENT

In the event Ecology determines or concurs in a determination by another local, state, or federal agency that activities implementing or in noncompliance with this Decree, or any other circumstances or activities, are creating or have the potential to create a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, Ecology may order Defendants to stop further implementation of this Decree for such period of time as needed to abate the danger or may petition the Court for an order as appropriate.

During any stoppage of work under this section, the obligations of Defendants with respect to the work ordered to be stopped shall be suspended and the time periods for performance of that work, as well as the time period for any other work dependent upon the work which is stopped, shall be extended, pursuant to Section XV of this Decree, for such

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period of time as Ecology determines is reasonable under the circumstances.

In the event Defendants determine that activities undertaken in furtherance of this Decree or any other circumstances or activities are creating an imminent and substantial endangerment to the people on the Site or in the surrounding area or to the environment, Defendants may stop implementation of this Decree for such periods of time necessary for Ecology to evaluate the situation and determine whether Defendants should proceed with implementation of the Decree or whether the work stoppage should be continued until the danger is abated. Defendants shall notify either Ecology field personnel on-site or the project coordinator as soon as is possible, but no later than twenty-four (24) hours after such stoppage of work, and provide Ecology with documentation of its analysis in reaching this determination. If Ecology disagrees with Defendants' determination, it may order Defendants to resume implementation of this Decree. If Ecology concurs in the work stoppage, Defendants' obligations shall be suspended and the time period for performance of that work, as well as the time period for any other work dependent upon the work which was stopped, shall be extended, pursuant to Section XV of this Decree, for such period of time as Ecology determines is reasonable under the circumstances. Any

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disagreements pursuant to this clause shall be resolved through the dispute resolution procedures in Section XIII.

XVIII. OTHER ACTIONS

Ecology reserves its rights to institute remedial action(s) at the Site and subsequently pursue cost recovery, and Ecology reserves its rights to issue orders and/or penalties pursuant to available statutory authority under the following circumstances:

1. Where Defendants fail, after notice, to adhere to any requirement of this Decree;

2. In the event or upon the discovery of a release or threatened release not addressed by this Decree which Defendant, after notice, fail to address;

3. Upon Ecology's determination that action beyond the terms of this Decree is necessary to abate an emergency situation which threatens the public health or welfare or the environment provided, however, that Ecology will first give Defendants notice and opportunity to perform such remedial action unless the threat is so immediate as to not permit the giving of notice; or

4. Upon the occurrence or discovery of a situation beyond the scope of this Decree as to which Ecology would be empowered to perform any remedial action or to issue an order and/or penalty, or to take any other enforcement action. This Decree is limited in scope to the precise geographic area

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described in Exhibit C and to those contaminants which Ecology knows to be at the Site when this Decree is entered.

XIX. INDEMNIFICATION

Defendants agree to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property arising from or on account of acts or omissions of Defendants, their officers, employees, agents, or contractors in entering into and implementing this Decree. However, Defendants shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action brought by third parties arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in implementing the activities pursuant to this Decree.

XX. COMPLIANCE WITH APPLICABLE LAWS

All actions carried out by Defendants pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits.

XXI. OVERSIGHT COSTS

Defendants shall reimburse Ecology for its oversight costs in implementing this Decree. Such oversight costs shall be in the amount of Ecology's actual costs of direct activities, support costs of direct activities, and interest

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charges for delayed payments. Defendants and Ecology will consult on a quarterly basis with respect to the oversight costs incurred by Ecology in the prior quarter and the costs Ecology anticipates it will incur in the following quarter, however, nothing herein shall be deemed to limit Ecology's discretion regarding appropriate oversight activities. Oversight costs shall be billed by Ecology and paid by Defendants on a quarterly basis. Any disputes regarding oversight costs shall be subject to dispute resolution pursuant to Paragraph XIII hereof.

XXII. RESERVATION OF RIGHTS

By agreeing to the entry of this Decree, Defendants and Ecology agree to abide by its terms. While the parties believe that the recitals contained in this Decree are accurate, the execution and performance of the Decree do not constitute an admission by either Defendant of any fact or liability for any purpose other than as a basis for the entry of this Decree. Defendants' performance under the Decree is undertaken without waiver of or prejudice to any claims or defenses whatsoever (including, but not limited to the defenses enumerated under RCW 70.105.040, 42 U.S.C. 9607, and RCW 70.105D.040) that may be asserted in the event of further administrative proceedings or litigation about or relating to the Site. Nor is the execution or the performance of the

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Decree an agreement by Defendants to take any action at the Site other than that described in this Decree.

XXIII. CLAIMS AGAINST THE STATE

Defendants hereby agree that they will not seek to recover any costs accrued in implementing RI/FS Work Plan required by this Decree from the State of Washington or any of its agencies; and further, that Defendants will make no claim against the state toxics control account or any local toxics control account or CERCLA for any costs incurred in implementing this Decree. Defendants expressly reserve their right to seek to recover any costs incurred in implementing this Decree from any other potentially liable party, including the United States.

XXIV. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that Defendants have failed without good cause to implement the remedial action required by this Decree, Ecology may, after notice to Defendants, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of Defendants' failure to comply with its obligations under this Decree, Ecology may seek to recover from Defendants its costs of doing such work to the extent Ecology is entitled to such cost recovery under state or federal law.

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XXV. COMMUNITY RELATIONS

Ecology shall maintain the responsibility for community relations regarding matters covered by this Consent Decree at the Site, and shall provide notice to Defendants at least 48 hours in advance of giving any public notice or other release of information regarding the Site to the public. However, Defendants shall cooperate with Ecology and shall:

A. Prepare drafts of public notices and fact sheets at important stages of the RI/FS, such as the submission of work plans and the completion of engineering design. Ecology will finalize (including editing if necessary) and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings;

B. Notify and coordinate with Ecology's project coordinator prior to all press releases and fact sheet preparation, and before major meetings with the interested public and local government;

C. Participate in public presentations on the progress of RI/FS at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter;

D. In cooperation with Ecology, arrange and/or continue information repositories located at the Lakewood Public Library, the South Puget Environmental Education Clearinghouse (SPEECH) Center, and Ecology's Southwest Regional Office. At

a minimum, copies of all public notices, fact sheets, and press releases, all quality assured groundwater, surface water, soil sediment, and air monitoring data, remedial action plans, and supplemental remedial planning documents which are submitted by Defendants to Ecology, relating to performance of the RI/FS required by this Decree, shall be promptly placed in these repositories.

E. Defendants may provide additional public information, but agree to keep Ecology informed of such public information activities.

XXVI. DURATION OF DECREE

This Decree shall remain in effect and the remedial program described in this Decree shall be maintained and continued until Defendants receive a written notice from Ecology that the remedial action plan has been satisfactorily completed, or until the Court determines that the requirements of the Decree have been completed.

XXVII. EFFECTIVE DATE

This Decree is effective upon the date it is entered by the Court.

XXVIII. PUBLIC NOTICE AND WITHDRAWAL OF CONSENT

This Decree has been subject to public notice and comment under RCW 70.105D.040(4)(a). Ecology reserves the right to withdraw or withhold its consent to the proposed final Decree if the comments received by Ecology disclose facts or

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considerations which indicate that the proposed Decree is inappropriate, improper, or inadequate.

If the Court withholds or withdraws its consent, this Decree shall be null and void at the option of any party and the accompanying Complaint shall be dismissed without costs and without prejudice. In such an event, no party shall be bound by the requirements of this Decree.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

By: Carol L. Fleskes — July 17, 1991
Carol L. Fleskes — Date
Program Manager
Toxics Cleanup Program

By: Jay J. Manning — July 17, 1991
Jay Manning, WSBA #13579 — Date
Assistant Attorney General

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DUPONT COMPANY

By: _____ _____
Richard A. Romanelli Date
Director, Safety &
Environmental Resources
Dupont Chemicals

By: _____ _____
E. Julia Lambeth Date
Senior Counsel
DuPont Legal

WEYERHAEUSER COMPANY

By: Jack Larsen
Jack Larsen
Vice President

July 10, 1991
Date

By: Ralph H. Palumbo
Ralph H. Palumbo
Heller, Ehrman, White
& McAuliffe
Attorneys for Weyerhaeuser
Company

June 2, 91
Date

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
4407 Woodview Drive S E

Having reviewed the foregoing Consent Decree, it is hereby ordered that the Consent Decree is Entered.

DATED this 22 day of July, 1991.

ROBERT J. DORAN

Superior Court Judge
Thurston County Superior Court

133/weyerhsr.csd

Dupont Way

HARTCROWSER

Earth and Environmental Technologies

Exhibit A
Final Work Plan
(Remedial Investigation, Risk Assessment, and Feasibility Study) and Exhibits B, C, and D
Former Du Pont Works Site
Dupont, Washington

Prepared for
Weyerhaeuser Company
and
Du Pont Company

July 10, 1991
J-1747-49

CONTENTS

EXHIBIT A
FINAL WORK PLAN
(REMEDIAL INVESTIGATION, RISK ASSESSMENT,
AND FEASIBILITY STUDY)
FORMER DU PONT WORKS SITE
DUPONT, WASHINGTON

1.0 INTRODUCTION

This Work Plan outlines the scope of work to complete a Remedial Investigation (RI), Health Risk Assessment, and Feasibility Study (FS) at the Former Du Pont Works Site in Dupont, Washington. The plan describes work which has been completed and reported to Weyerhaeuser Company, Du Pont Company, and the Washington State Department of Ecology (Ecology), as well as work remaining to be conducted.

1.1 RI/FS Process

The State of Washington has established guidelines under WAC 173-340-350 for RI/FSs that will be used as a framework for the development of this study. Relevant federal requirements contained in 40 CFR 300 (National Contingency Plan) will also be addressed. Primary elements of a RI/FS include:

Site Characterization. Field investigations to compile data and assess surface water and sediments, soils, geology and hydrogeology, air quality, land use, natural resources damages, and hazardous substance sources.

Risk Assessment and ARAR Analysis. Assessment of current and potential threats to human health and the environment from hazardous substances and evaluation of applicable or relevant and appropriate requirements (ARARs), with the goal of establishing remedial action objectives.

Evaluation of Cleanup Alternatives. Screening of alternatives and selection of a preferred alternative considering several enumerated factors.

As part of the RI process, detailed work plans will be prepared for the following areas:

- Sampling and Analysis Plan;
- Health and Safety Plan;
- Quality Assurance/Quality Control Plan;
- Data Management Plan; and
- Community Relations Plan.

Many elements of the RI for the Former Du Pont Works Site have been completed and are described within this chapter. Chapters 2.0, 3.0, and 4.0 describe work that is to be completed in support of the RI/FS study.

All work plans, and revisions thereto, will be submitted to Ecology for review, comment and approval per the terms of the Consent Decree between Weyerhaeuser, DuPont, and Ecology. The Health and Safety Plan will be submitted to Ecology for review and comment only. Ecology will be notified of planned field activities according to the requirements of Section IX (Sampling, Data Reporting, and Availability) of that Decree.

Throughout this document, "Site" refers to the entire Former Du Pont Works property under consideration. Specific known waste locations are called "areas." The "areas" have been called sites in the past and may be noted by the particular site name (such as "Site 5").

The RI/FS process will also incorporate sufficient information needed to fulfill requirements of the State Environmental Policy Act (SEPA), if applicable.

1.2 Site Characterization Studies Conducted from 1986 to 1989

Site characterization activities at the Former Du Pont Works Site initially included reconnaissance surveys and historical records reviews. Based on the results of these activities, a preliminary (Phase I) sampling and analysis plan was prepared to verify the presence or absence of suspected contaminants.

The Phase I investigations were initiated in December of 1986 and resulted in the collection of soil samples from test pits and surficial locations within suspected contaminant areas.

Based on the results of the Phase I analyses, further site characterization activities were recommended in areas which exhibited chemical concentrations in excess of general reference (background) levels. A Phase II sampling and analysis plan was subsequently prepared to estimate the volume of materials which exceeded such background concentrations. The Phase II effort was directed toward an impending excavation and off-site disposal remedial action planned for the site. The Phase II investigations were initiated in April of 1987 and included additional test pit, boring, surficial soil, and waste sampling. Altogether, approximately 500 soil samples were collected from the site during both phases of the investigation. Chemical analyses on the samples were performed using EPA- and/or state-approved methodologies.

Following the soil sampling activities described in Hart Crowser (1987), a hydrogeologic and water quality investigation of the site was initiated in November of 1987 to assess possible water quality impacts associated with the identified waste areas. After completion of 16 groundwater monitoring wells installed in selected locations on the property, a quarterly monitoring program of water quality within local groundwaters, springs, and surface waters was initiated. Water quality parameters included in the monitoring program were selected based on the results of the site (soil and waste) characterization efforts. Except for the additional groundwater monitoring described in Section 2.2, the hydrologic monitoring program was largely completed with the fourth quarterly sampling in January 1989. The results of these analyses are summarized in Hart Crowser (1988) and ETI/Hart Crowser (1989).

1.3 Chemical Detection Methods

Of the 141 parameters tested in soil, waste, and/or water samples collected from the property, 38 were detected in at least one sample, and 34 of these analytes were present in at least one sample at levels above background concentrations. The detected chemicals included

four screening parameters (e.g., total oil and grease), five explosive compounds (e.g., 2,6-Dinitrotoluene [2,6-DNT]), five metals (e.g., lead), six volatile organics (e.g., tetrachloroethene), 11 semivolatile organics (e.g., high molecular weight aromatic hydrocarbons [HPAHs] such as chrysene), three pesticides (e.g., 4,4'-DDT), and four PCBs (e.g., Aroclor 1242).

An additional 20 parameters, primarily semivolatile compounds and pesticides, were reported by the laboratory at concentrations below the analytical detection limit ('J' flagged based on CLP protocols) but above estimated background. The presence of these 'J-flag' constituents in the waste areas is suspected, but not confirmed.

The samples with the 'J' flag were included in the risk assessment in accordance with EPA Risk Assessment Guidance for Superfund projects. In those cases where a compound with a 'J' flag was identified (and unqualified) in other areas of the Site in the same media, the estimated concentration was used in the risk assessment. In those cases where the compound with a 'J' was not identified in other areas of the Site, the concentrations were not considered in the risk assessment.

In the FS, the 'J' values will be handled in the same way as in the risk assessment. In those cases where the compound was identified without qualification in other areas, or when there is other evidence that the compound may have been released on the site, the FS alternative evaluation will consider that the 'J' compounds are present in the estimated concentrations. If there is no other evidence that the compound may have been released, then they will not be considered in the FS alternatives.

2.0 ADDITIONAL REMEDIAL INVESTIGATION

The work elements described below were added to the site characterization studies presented in Chapter 1.0.

One of the first tasks that will be conducted during the RI process is compilation of the extensive site characterization work that has been performed for the site. This summary will consolidate all available information on the property and enable analysis of the planned investigative work to determine if further site characterization may be necessary. This summary will be submitted to Ecology for review and comment.

2.1 Surveying and Additional Sampling/Analysis

Additional limited data collection is necessary at the site to complete site characterization and develop remediation alternatives for the identified waste areas. These activities include the following:

- **Surveying.** To the extent practicable, establish the coordinates of previous soil and waste sampling locations utilized in the Phase I and Phase II efforts.

- **TCLP Testing.** Assess those areas containing total lead in excess of applicable cleanup criteria to determine if they exhibit dangerous and/or hazardous waste characteristics based on the TCLP test.

- **Lead and Mercury Boundaries.** Assess the areal and vertical extent of lead at areas which exceed the applicable cleanup standards. In order to support the FS, the estimated boundaries of the lead should be accurate within the range of -20 percent to +50 percent. Only those areas where existing boundary uncertainties exceed this range will be sampled. In addition, ten selected samples collected during the above Lead Boundaries Study will be analyzed for mercury and the site-wide distribution of this contaminant will be characterized.

Each of the additional sampling and analysis tasks is outlined below.

Surveying

As discussed above, the previous Phase I and Phase II site characterization efforts were performed under the assumption that site remediation would proceed immediately thereafter. Consistent with this assumption, only temporary field markers were placed to locate the field positions. However, over the two to three years which have elapsed since sampling, many of these markers have begun to deteriorate. A survey of these positions would ensure the long-term utility of the existing data.

At each of the areas where soil and/or waste sampling was performed during Phases I or II, or subsequent efforts, sampling locations will be surveyed to the extent practicable to establish positions relative to state plane coordinates. For each of the areas which may require subsequent remediation (based on the risk assessment), a semipermanent local benchmark will be established to facilitate activities of the cleanup contractor. A map will be prepared for each area. The survey will locate marks to an accuracy of ± 0.1 foot. The actual sample locations will be located with an accuracy of ± 1 foot by hand taping from markers in each area. In some cases, it may be difficult to locate previous sample locations. In those cases, the reconstructed sample location may be ± 50 feet from the actual location. The accuracy of each reconstructed sample location will be documented.

TCLP Testing

Currently, only areas which contain elevated concentrations of total lead (greater than the applicable cleanup standard) in soils have been tested for EP Tox lead. No samples have yet been tested using TCLP. Based on an analysis of the EP Tox data, the ratio of potentially leachable (EP Tox and/or TCLP) lead to total lead is expected to vary widely, spanning more than two orders of magnitude within one area alone (Hart Crowser, 1987). For this reason, additional sampling is necessary to determine which of the identified lead areas may need to be addressed under the dangerous or hazardous waste regulations (WAC 173-303, 40 CFR Part 261).

At the identified lead areas which have not yet been characterized for TCLP or EP Tox, representative soil samples will be collected and analyzed for TCLP lead and total lead using standard EPA protocols.

Depending upon the size of the area, one to five samples will be collected from each area for analysis. An estimated 37 soil samples (including QC samples) will be collected at these areas. An additional 5 samples from these areas will also be tested using EP Tox procedures to assess the general relationship between these two testing procedures.

Lead and Mercury Boundaries

A number of the areas sampled during the Phase I and Phase II investigations exhibited concentrations of lead which exceeded the applicable cleanup standards for lead. The extent of soil contamination in these areas has not yet been characterized to the desired accuracy of -20 percent to +50 percent stated above.

During or immediately following the surveying conducted under the remedial investigation, soil sampling grids will be established at Sites 2, 4, 7, 16, 18, 25, 26, 30, 31, 36, and 38. Grid spacing will be approximately 30 feet on center or as appropriate for the individual site. Soil samples will be obtained within each grid as surficial (0 to 0.5-foot) five-spot equidistant composites. The soil samples will be analyzed for total lead using the same EPA-approved methodologies used previously. The sampling will continue until the samples around the area boundary meet applicable cleanup standards. This will provide data to determine the cleanup standard isopleth line. An estimated 80 soil samples will be collected at these areas. Mercury analyses will also be performed on ten selected samples to assess the site-wide distribution of this contaminant.

2.2 Additional Groundwater Monitoring Wells

In October 1989, two additional groundwater monitoring wells (MW-18 and MW-19) were installed. MW-19 was drilled midway between existing wells MW-15 and MW-16, and MW-18 was drilled adjacent to well MW-10. The purpose of this task was to obtain groundwater samples from the sea level aquifer at these locations. A staff gage was also installed in Old Fort Lake. The horizontal and vertical location of the new wells and staff gage were surveyed.

Additional groundwater wells will be installed and sampled to permit better definition of the site hydrogeology and to better characterize the extent and magnitude of groundwater contaminants in both the shallow

and, if necessary, deep aquifers. A detailed work plan for installation of additional monitoring wells will be submitted to Ecology for review, comment, and approval.

The procedure used to install and sample the wells and the methods/analyses used to analyze the samples will be presented in detailed work plans.

2.3 Additional Groundwater and Surface Water Sampling

In November 1989 and after the two additional wells were installed, a set of groundwater and surface water samples was obtained and analyzed from the new wells and selected other locations including two "sea level" seeps (Seep 1 and Seep 2) located on the shoreline south of MW-15 and north of Sequalitchew Creek. The sampling locations included:

- Wells MW-1, MW-15, MW-16, MW-17, MW-18, and MW-19; and
- SW-1, Seep 1, and Seep 2.

Samples from these locations were analyzed for the constituents listed below:

- Electrical conductivity;
- Nitrate plus nitrite (EPA Method 353.2);
- Ammonia (EPA Method 350.1);
- Oil and grease (EPA Method 413.2);
- Total dissolved solids (EPA Method 160.1);
- Dissolved organic compounds (VOCs) (Method SW 8240);
- Polynuclear aromatic hydrocarbons (PAHs) (Method SW 8100);
- Explosive compounds - nitroglycerine, trinitrotoluene, and dinitrotoluene (2,4-and 2,6-) (Method SW 8080); and
- Monomethylamine nitrate.

During two interim sampling rounds a series of water level measurements were made in the existing wells which were sampled and the newly installed staff gage in Old Fort Lake. The results of these interim sampling rounds are summarized in a January 18, 1990, and April 3, 1991, reports which present the results of the analyses and have been provided to Ecology.

The specific scope of work for monitoring during the time between execution of the Consent Decree and the start of remediation has not been determined. The scope will be prepared after analysis of the sampling and testing described above. The scope for ongoing sampling may cover groundwater, seeps, surface water, and sediments. The scope will be submitted to Ecology for review, comment, and approval prior to implementing the work.

2.4 Sediment Study

The extent and concentration of metal and petroleum hydrocarbon contamination in the intertidal sediments immediately off-shore of the Site have been assessed by reviewing the 1978 water and sediment quality report for the Nisqually Reach in southern Puget Sound. Results of this assessment are documented in a Hart Crowser letter dated January 24, 1989, which has been reviewed by Ecology.

An additional sediment study will be conducted as part of the RI for the Site. This new study will include sampling and analyses for a wider range of constituents than in the 1978 study, including but not limited to the explosive compounds, monomethylamine nitrate, metals, and petroleum hydrocarbons (PAHs and TPH). An appropriate number of quality control samples will also be collected. The sediment study will include both surficial and core sampling. A sufficient number of samples will be collected at or near the wharf, the sea level seep areas, in the delta formed by Sequalitchew Creek, and at background locations. If there is a need for fish and/or shellfish tissue sampling, it will be addressed in the draft work plan submitted to Ecology. A draft sediment sampling work plan will be submitted to Ecology for review, comment, and approval before the field work is implemented.

2.5 Mercury Investigation at Area 39

Mercury droplets were observed inside the perimeter foundation wall of the Former Du Pont Works laboratory building. A field sampling program was initiated to assess the extent of mercury present around the former laboratory. Surface soil samples were taken inside and outside the foundation walls, and subsurface samples were taken from hand-auger explorations inside the building.

The samples were analyzed for mercury and the results reported in a Hart Crowser letter report dated November 20, 1989.

2.6 Additional Mercury Investigations

Additional work on mercury use, extent, and risk will be performed. The following activities will be accomplished:

- A human health and ecological risk assessment using the existing and additional mercury data to evaluate potential risks due to mercury, and to determine risk-based remedial action concentrations;
- Sampling and analyzing soil around the laboratory to determine areas that exceed the risk-based concentration; and
- Sampling and analysis for mercury at other locations on the site, including other production areas with lead contamination and background locations.

The specific sampling and analysis plan(s) for this work will be submitted to Ecology for review, comment, and approval prior to implementing the work.

2.7 Site Characterization of Areas 5 and 6

Areas 5 and 6 cannot be characterized until drums and other debris have been removed from the steep slopes at these two locations. Weyerhaeuser and DuPont intend to conduct this source removal action during 1990 and 1991. A draft work plan that presents a detailed description of procedures for removal, survey, and segregation of the wastes was prepared by DuPont Environmental and Remediation Services and submitted to Ecology in July 1990. Weyerhaeuser and DuPont also provided Ecology with a work plan for independent oversight by Hart Crowser (including quality assurance of the field chemical testing, documentation of field screening test data, and weekly reporting to Ecology). Ecology has provided comments on these plans, and revisions have been made.

Concurrent with the source removal actions at Areas 5 and 6, a draft work plan for site characterization of the two areas will be prepared

and submitted to Ecology for review, comment, and approval. This plan will be submitted at least 30 days prior to the planned field sampling program and a final work plan incorporating Ecology's comments will be provided prior to any field work.

2.8 Other Investigations

Other investigations may be required based on the results of the remedial investigation, risk assessment, preliminary feasibility studies, and initial cleanup activities. Sampling and analysis of other areas may also be conducted if more refined definitions of the lateral and vertical extent of the contaminants are necessary for the FS. Sampling and analysis plans for other investigations will be submitted to Ecology at least 30 days prior to their respective field sampling program for review, comment, and approval.

As part of the RI/FS process, environmental resources at the site will be described and impacts to the resources will be analyzed.

To ensure that the intent of 43 CFR Part 11, Natural Resource Damage Assessment, will be addressed, a preassessment screening of all site resources will be conducted to analyze potential environmental sensitivities. The process will include preassessment screening, development and review of an assessment plan, quantification of effects, damage determination, and documentation of assessment results. Assessment results will be included in the FS report.

2.9 Former Black Powder Area Investigations

Detailed work plans will be developed to address lead concentrations in the Former Black Powder Area and concentrations of lead in surficial soils in areas outside the Former Black Powder Area. In such areas, appropriate remediation will be proposed if soil concentrations are determined to exceed potentially applicable cleanup standards.

A detailed work plan and schedule for interim action in the Former Black Powder Area will be submitted to Ecology for review, comment, and approval as required by the Consent Decree.1

3.0 RISK ASSESSMENT

A baseline risk assessment was performed for each of the 38 identified waste areas on the Former Du Pont Works Site to assess which areas require remediation and to develop cleanup levels appropriate for each area. The baseline risk assessment was performed in general accordance with EPA's 1989 Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, and Environmental Evaluation Manual, using the five basic interrelated steps:

- Select indicator constituents;
- Estimate exposure point concentrations of indicators;
- Estimate potential human intake of indicators;
- Assess environmental and human health toxicity; and
- Characterize environmental and human health risk.

Based on the results of the site characterization, the indicator constituents were limited to six compounds or compound groupings; lead, monomethylamine nitrate (MMAN), trinitrotoluene and dinitrotoluene (TNT/DNT), nitroglycerine, PCBs, and carcinogenic and total polynuclear aromatic hydrocarbons (PAHs).

The baseline risk assessment considered several different types of potential future land uses at each of the areas, and their impact on the risk evaluation. The land use types considered included open space (e.g., existing conditions), and residential and industrial uses.

The Baseline Risk Assessment report has been submitted to Ecology. A summary of that report is presented below.

Baseline Risk Assessment Summary

In order to evaluate the potential human health and ecological risk posed by the identified contaminants, a risk assessment was conducted for each area on the property. The methodology utilized to perform the risk assessment was based on EPA and Ecology guidance, and combined scientific facts and assumptions to determine the likelihood that people may be sufficiently exposed to the identified chemicals to result in illness. The risk assessment considered the range of potential future land uses at the identified waste areas, including residential, commercial, and open space.

Based on the risk assessment, the chemicals which pose the greatest risks to public health and local ecology are HPAHs and lead. Potential risks from HPAHs and/or lead are primarily via direct soil ingestion exposure routes. HPAHs also exhibited a potential for risk via groundwater exposure, although the analytical basis for this conclusion is considered tenuous (based on limited chemical detections). Five areas contained detectable levels of 2,6-DNT.

Terrestrial and aquatic life ecological risks were qualitatively evaluated at the waste areas. Aquatic life risks were found to be minimal. Those areas that exceeded general public health risks, however, also exhibited a potential for limited wildlife impacts. As discussed in the baseline risk assessment, remediation of the areas to minimize human health risks should also be sufficiently protective of ecological risks.

Additional Risk Assessment

Future work will include a reevaluation of baseline risks throughout the entire site, consistent with current (i.e., 1991) Ecology and EPA guidelines and/or regulations under the MTCA and NCP.

4.0 FEASIBILITY STUDY

4.1 Purpose of this Feasibility Study Work Plan

This chapter of the Work Plan presents the rationale and scope of work for a feasibility study (FS) of identified waste areas located within the Former Du Pont Works Site. The purpose of the FS is to identify, develop, evaluate, and recommend appropriate remediation alternatives which will be protective of human health and the environment and meet applicable laws and regulations. Appropriate remediation objectives will be based on the results of the remedial investigation (RI) of the areas, including the baseline public health and ecological risk assessment. Remediation alternatives will also address Applicable or Relevant and Appropriate requirements (ARARs).

The FS Work Plan will be consistent with the Model Toxics Control Act (MTCA), WAC 173-340, and applicable U.S. Environmental Protection Agency (EPA) guidance documents relating to feasibility studies under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Since 1985, the Weyerhaeuser Company and their consultant, Hart Crowser, have identified a total of 39 areas on the property which could have received hazardous waste releases from previous uses. Each individual area ranges in size from less than one to several acres. Following site history reviews and field reconnaissance activities, a total of 33 areas were selected for site characterization studies, as described by Hart Crowser (1987) and ETI/Hart Crowser (1989). Evidence for the presence of hazardous wastes at the remaining five areas was lacking, and did not warrant further investigation. Supplemental investigations were conducted at Sites 38 and 39 in 1989.

4.2 Feasibility Study Scope of Work

The FS for the Former Du Pont Works property will include the following steps:

- Identification of remedial action objectives including:

- A risk assessment for the entire site, including risks to the largest exposure population;
- Objectives based on risk assessment; and
- Objectives based on ARARs.

▸ Development of alternatives including:

- Definition of areas and volumes requiring treatment;
- Summarizing RI data and preparing isopleth maps of key contaminants;
- Identification and screening of potential technologies; and
- Assembling various technologies into specific alternatives.

▸ Screening of specific alternatives including:

- Screening evaluation; and
- Selection of alternatives for detailed analysis.

▸ Detailed analysis of selected alternatives.

Each of these steps is discussed below. As per the terms of the Consent Decree, Ecology will be notified of all sampling and analysis activities and plans in advance, to allow Ecology to review, comment, and approve applicable plans and reports.

Task 1 - Treatability Studies

Representative soil materials will be collected from areas of the property which exhibit dangerous waste properties based on the TCLP lead determination. Based on existing data, and depending upon the outcome of additional data analyses, some areas may contain dangerous waste soils. Considering that many of these areas will exhibit similar chemical properties, several areas will be studied for treatability characteristics.

At each area, representative soils will be collected for testing. The samples will be prepared for compaction and chemical testing with varying mixtures of cement and silica-based additions, as well as untreated controls. Chemical testing will include TCLP lead and total lead analyses. The results of these evaluations will enable an assessment of alternative remediation designs.

A review of the treatability of HPAHs using bioremediation/landfarming techniques will also be performed during this task. Using data available in the literature on the degradation of individual HPAH compounds, predicted area-specific HPAH decay rates will be generated for standard landfarming conditions. These data will assist in the assessment of remedial alternatives at the areas.

Task 2 - Remedial Action Objectives

The identification of remedial action objectives (RAOs) will include an assessment of target contaminant concentrations in soil, water, sediments, and biological tissue necessary to achieve various levels of "acceptable" risk and to assure compliance with ARARs. Remediation goals given various individual routes of possible contaminant exposure will also be considered, including direct soil contact and ingestion, dust and vapor inhalation, drinking water consumption, fish and shellfish consumption, and wildlife impacts. Contaminant transport models developed in the RI will be utilized to link on-site soil quality with all exposure routes, since remediation of the soil medium may form the basis of many remedial alternatives.

Another important component in establishing RAOs at the Former Du Pont Works property is land use and its relationship to remediation objectives. The baseline risk assessment identified different exposure conditions for residential, open space, and commercial/industrial uses of the sites. The FS will consider future land uses of the property.

As discussed above, the RAOs are expected to develop directly from the results of the baseline risk assessment, as supplemented by additional evaluations of potential mercury risks. However, the process will also address ARARs and additional concerns communicated by the regulatory agencies (Ecology and DOH). The product of Task 2 will be a technical memorandum which presents preliminary RAOs based on the results of the site characterization work, risk assessment, and ARAR screening. After review and approval by Weyerhaeuser and Du Pont, the memorandum will be submitted to Ecology for review and comment. This task includes one interim meeting with Ecology to discuss RAOs prior to submittal of a Draft Feasibility Study Report. The remedial action objectives will also be an important factor considered in the screening of alternatives, as discussed below.

Task 3 - Identify Possible Remedial Action Technologies

The first step in the task is to define the areas and volume that require remediation. For each area a map will be prepared showing the distribution of key contaminants and the area requiring remediation. Isopleths (showing lines of equal contaminant contamination) will be drawn where possible.

The development of alternatives will include actions from relevant technologies and will include:

- Surface Treatment Technologies;
- Soil and Groundwater Treatment Technologies;
- Disposal Options;
- Institutional Controls;

- Sediment Remediation Technologies, if applicable; and
- No Action.

Due to the characteristics of the sites and the contaminants, certain technologies listed below warrant a close examination. These technologies will include but not be limited to the following:

- Groundwater Pumping/Water Treatment;
- Bioremediation/Landfarming of HPAHs;
- Incineration of Explosives;
- Waste and Debris Removal and Disposal (e.g., Site 5);
- Solidification/Stabilization of Lead; and
- Remediation of Sediments, if applicable.

In most cases, any given technology will not solely meet the ARARs or other remediation objectives. The assemblage of technologies into alternatives will combine those technologies necessary to meet the remediation objectives. Some alternatives, such as no action, are not expected to wholly meet the remediation objectives but are required by the process and will be considered throughout the process. The product of Task 3 will be a technologies table listing possible remediation technologies.

Task 4 - Screening of Technologies

The screening of technologies will produce a set of technologies that are potentially applicable to site remediation. Technologies will be screened based on their technical feasibility and implementability. That is, technologies that are not technically feasible -- usually because they either do not address the site contaminant or are not suitable for the site subsurface conditions -- will be eliminated. For the technology screening, relative cost will be used to distinguish between similar technologies. The product of Task 4 will be a table which lists and provides a basis for including the technologies to develop remedial alternatives.

Task 5 - Identify Possible Remedial Action Alternatives

Applicable remedial technologies screened in Task 4 will be used to develop a list of possible remedial action alternatives. The product of Task 5 will be a table which summarizes the alternatives and their application to the site conditions. Preference shall be given to permanent solutions to the maximum extent practicable, as defined in Chapter 173-340-360 WAC.

Task 6 - Screening of Specific Alternatives

The screening of specific alternatives will produce a subset of specific alternatives deemed suitable for further detailed analysis. The screening process will include a qualitative evaluation of alternative permanence, effectiveness, implementability, and cost. (In general, technically infeasible alternatives will have been eliminated by screening out technically infeasible technologies.) The most important criteria will be permanence, effectiveness, and implementability. Cost will be considered at this stage only if there is a clear disadvantage.

The alternatives with the highest qualitative evaluations will be considered for further analyses. The no action alternative will be continued to the detailed analysis stage.

An interim technical memorandum discussing the alternative screening will be prepared for review which includes the tables and appropriate discussion to support the alternatives proposed for detailed evaluation in Task 7. In addition, at least one interim meeting with the regulatory

agency review group will be scheduled to discuss the alternative screening prior to submittal of the Draft Feasibility Study Report.

Task 7 - Detailed Analysis of Selected Alternatives

The detailed analysis of the selected alternatives will address conceptual engineering of the alternatives, and will also consider the permanence, effectiveness, implementability, and cost of the alternatives. In addition, the anticipated state and community acceptance of the alternatives will be considered. This evaluation will be qualitative although some quantification is necessary (e.g., costs). A recommended alternative for each site will be selected at the completion of this detailed analysis.

Task 8 - Feasibility Study Report

The results of the FS will be summarized in a report that will include the following sections:

- Nature and Extent of Problem (based on risk assessment);
- Objectives of Remedial Action;
- Identification of Technologies;
- Technology Screening Methods and Criteria;
- Summary of Technology Screening;
- Assembled Technologies (Alternatives);
- Alternative Screening Methods and Criteria;
- Summary of Alternative Screening;
- Detailed Analysis Methods and Criteria; and
- Summary of Detailed Analysis.

A Draft Report will be submitted to Ecology for review and comment. After receipt of the agency comments, the draft Final Report suitable for public distribution, review, and comment will be prepared.

5.0 COMMUNITY RELATIONS

Community relations activities will include the following elements:

- Detailed Fact Sheet describing the alternatives studied and the evaluation process;
- Public Notice describing the alternatives and announcing the availability of the draft final feasibility study;
- Informal meetings (if necessary);
- Public meeting (if necessary);
- Fact sheets describing activities occurring at the site during the remedial investigation and feasibility study phases.
- Public Notice via the Site Register of major activities and completion of documents which are available for public review; and
- Development of a site-specific Public Participation Plan.

REFERENCES

ETI/Hart Crowser, 1989, Baseline Risk Assessment, Dupont Works Property.

Hart Crowser, 1987, Site Characterization Report, Phase II Sampling and Analysis, Former Du Pont Works, Dupont, Washington, prepared for Weyerhaeuser Company and Du Pont Company, J-1747-28, August 10, 1987.

Hart Crowser, 1988, Hydrogeologic and Water Quality Assessment, Former Du Pont Works, Dupont, Washington, J-1747-40, May 13, 1988.

EXHIBIT B - SCHEDULE

Work Element	Completion Date[1]
Phase I - Remedial Investigation (RI) Site Survey and Review	September 1986
Phase II - RI Site Characterization Report	August 10, 1987
Hydrologic and Water Quality Assessment	May 13, 1988
Results of Second Quarterly Groundwater Sampling	September 9, 1988
Results of Third Quarterly Groundwater Sampling	November 18, 1988
Results of Fourth Quarterly Groundwater Sampling	February 28, 1989
Results of First Interim Groundwater Sampling	January 18, 1990
Results of Second Interim Groundwater Sampling	April 3, 1991
Baseline Risk Assessment	May 1989
Draft Remedial Investigation/Feasibility Study (RI/FS)	24 months after effective date of Consent Decree
Ecology's comments on Draft RI/FS	90 days after submittal of Draft RI/FS
Draft Final RI/FS	60 days after receipt of Ecology's comments

[1]Dates denote when the particular element was actually completed.

hibit C

e Map (excluding Black Powder Area)

cel 1

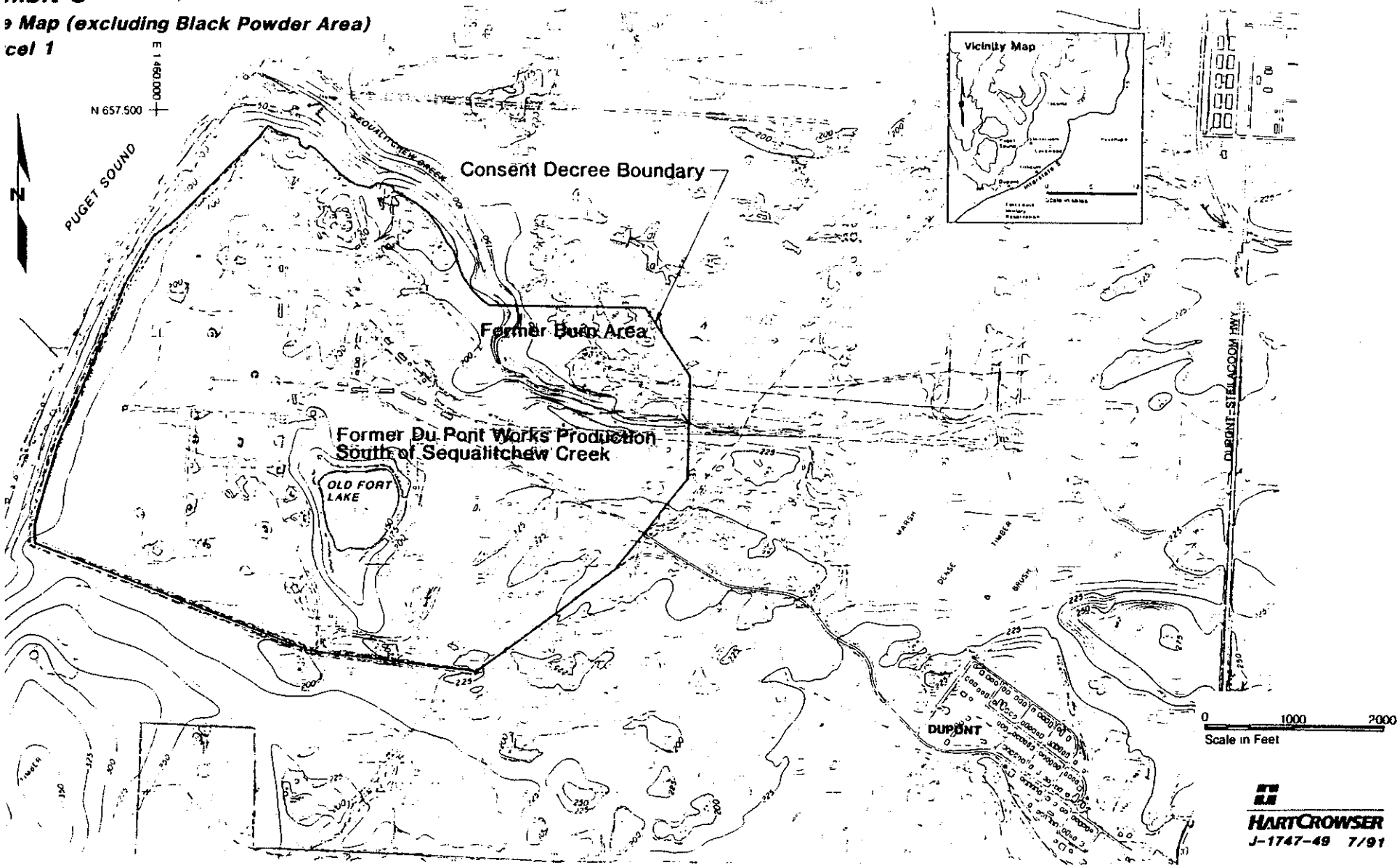

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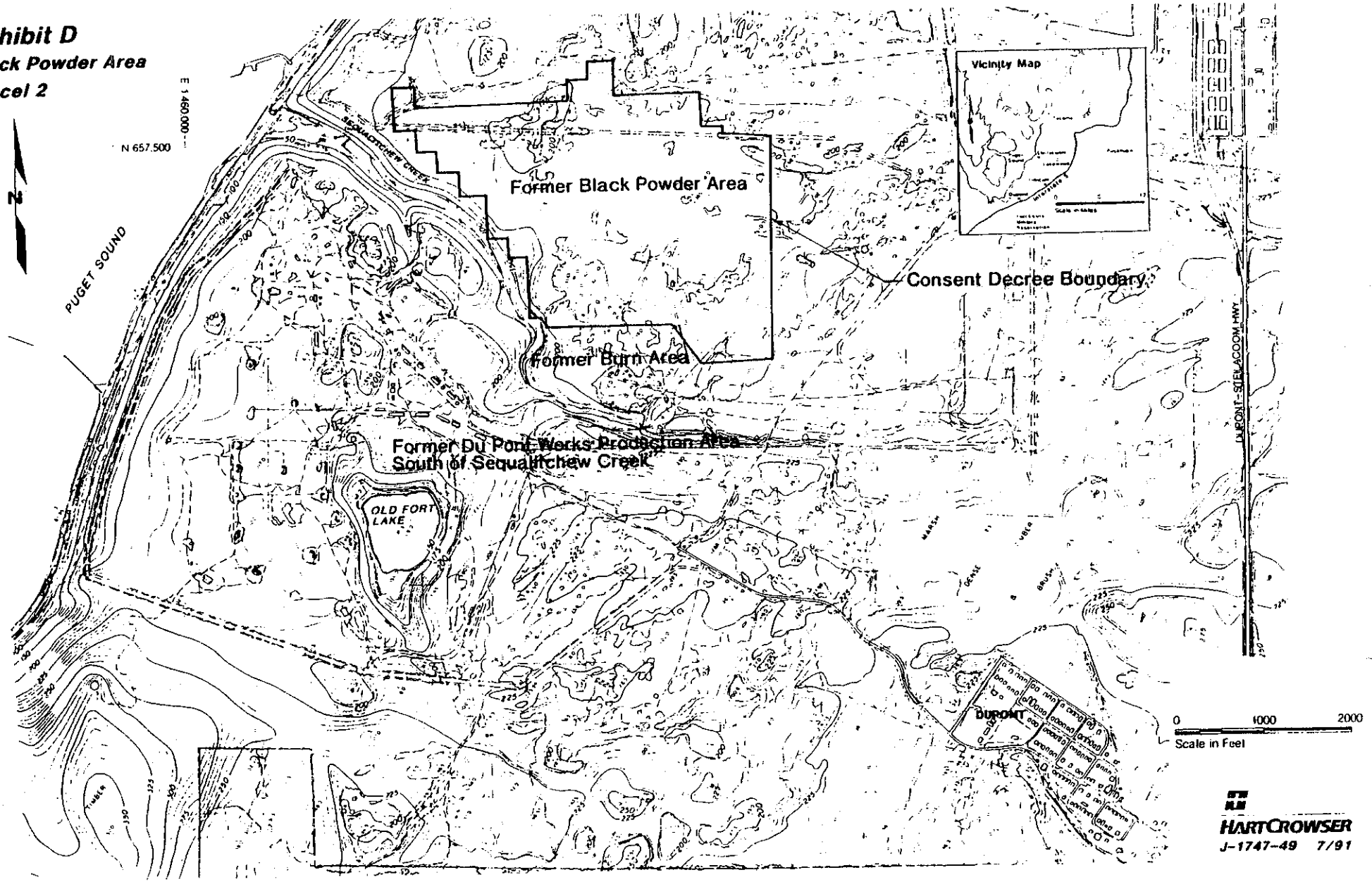
Exhibit D
Black Powder Area
Parcel 2



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