STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF REMEDIAL ACTION BY:)
) **AGREED ORDER**
Weyerhaeuser Company) **No. DE 1037**

TO: Weyerhaeuser Company
A Washington Corporation
3401 Industrial Way
Longview, WA 98362-7717

I.

JURISDICTION

This Agreed Order ("Order") is issued pursuant to the authority of RCW 70.105D.050(1).

II.

FINDINGS OF FACT

Ecology makes the following Findings of Fact, without admission of such facts by Weyerhaeuser Company.

1. Weyerhaeuser Company is the owner of property commonly known as 3401 Industrial Way, Longview WA 98632-7117.

2. Among other operations at the property, Weyerhaeuser Company owned and operated a chlorine and caustic production facility. Known as the Chlor-Alkali Plant, its operations began in 1958 with the startup of Cell Room No. 1, and ceased in March of 1999 with the shutdown of Cell Room No. 2.

3. Until 1976, a mercury electrolytic process was used in the production of chlorine and caustic which resulted in releases of mercury to the environment.

4. Cell Room No. 1 was demolished and an independent cleanup action was conducted by Weyerhaeuser Company in 1990 and in 1991 to remove mercury-contaminated media. A polymer modified asphalt cap was installed over the No. 1 Cell Room site in 1991 as an interim remedial measure under Agreed Order No. 91-TCI.

5. Based upon the presence of mercury, the Chlor-Alkali Plant is listed on the Department of Ecology's Hazardous Waste Site List.

6. Weyerhaeuser Company performed a remedial investigation (RI) to determine the nature and extent of mercury in soil and groundwater and reported its findings in the Remedial Investigation Report, Chlor-Alkali Plant, Longview, Washington (CH2M Hill, 2001). Ecology reviewed the Remedial Investigation Report and approved the report under the requirements of the Model Toxics Control Act, Chapter 70.105D RCW.

7. Under Agreed Order No DE 01TCPIS-1968, Weyerhaeuser Company also prepared a Feasibility Study Report (FS), Chlor-Alkali Plant, Longview, Washington (CH2M Hill, 2001) that evaluated potential cleanup alternatives and recommended a preferred remedy. The FS was reviewed and approved by Ecology under the requirements of the Model Toxics Control Act, Chapter 70.105D RCW.

8. A Cleanup Action Plan (CAP) has been drafted that is the subject of this Agreed Order and will implement the preferred remedy of the FS.

III.

ECOLOGY DETERMINATIONS

1. Weyerhaeuser Company is an "owner or operator" as defined at RCW 70.105D.020(12) of a "facility" as defined in RCW 70.105D.020(4).

2. The facility is known as the Chlor-Alkali Plant Site (or "Site") and is located at 3401 Industrial Way, Longview, Washington 98632-7117. A legal description of the Site and a diagram of the Site are attached as Exhibits A and A-1, respectively.

3. The substance found at the facility as described above is a "hazardous substance" as defined at RCW 70.105D.020(7).

4. Based on the presence of this hazardous substance at the facility and all factors known to the Department, there is a release or threatened release of a hazardous substance from the facility, as defined at RCW 70.105D.020(20).

5. By a letter of July 12, 1999, Weyerhaeuser Company voluntarily waived its rights to notice and comment and accepted Ecology's determination that Weyerhaeuser Company is a "potentially liable person" under RCW 70.105D.040.

6. Pursuant to RCW 70.105D.030(1) and 70.105D.050, the Department may require potentially liable persons to investigate or conduct other remedial actions with respect to the release or threatened release of hazardous substances, whenever it believes such action to be in the public interest.

7. Based on the foregoing facts and determinations, Ecology believes the remedial action required by this Order is in the public interest.

IV.

WORK TO BE PERFORMED

Based on the foregoing Facts and Determinations, it is hereby ordered that Weyerhaeuser Company take the following remedial actions and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein.

1. Weyerhaeuser Company shall implement and maintain the recommended remedial actions detailed in the Cleanup Action Plan attached hereto as Exhibit B, and by this reference incorporated herein as an integral and enforceable part of this Order. A summary of the work program to be performed is as follows:

A. Deed restrictions: Deed restrictions, through the filing of a Restrictive Covenant (Exhibit C), will be placed on the property so that future use will remain industrial. Deed restrictions will also

prevent the use of unconfined alluvial zone or basalt zone groundwater (as defined in the Cleanup Action Plan) in the vicinity of the Chlor-Alkali Plant.

B. Limited Site access: Access to the Site will be restricted through maintenance of fencing and plant security in accordance with Exhibit C.

C. Limiting infiltration: Asphalt or other impervious paving throughout the Site will be maintained to minimize infiltration.

D. Groundwater monitoring: A long term groundwater monitoring plan will be developed for Ecology approval and implementation at the site.

V.

TERMS AND CONDITIONS OF ORDER

1. Definitions.

Unless otherwise specified, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms used in this Order.

2. Public Notices.

WAC 173-340-600(11)(c) requires a 30 day public comment period for this Agreed Order. Pursuant to WAC 173-340-600(11)(c), Ecology has determined that it is in the public interest to complete the comment period before this agreed order becomes effective. Ecology shall be responsible for providing such public notice and reserves the right to withdraw from this Order should public comment disclose facts or considerations which indicate to Ecology that the Order is inadequate or improper in any respect.

3. Remedial Action Costs. Weyerhaeuser Company is supporting a Full Time Equivalent (FTE) Staff Position at Ecology. The FTE has been assigned to develop and administer this Order. When the FTE contract expires or the costs exceed the allotted FTE amount, Weyerhaeuser Company agrees to pay

costs incurred by Ecology pursuant to this Order. These costs shall include work performed by Ecology or its contractors at the Site under Chapter 70.105 D RCW for investigations, remedial actions, and Order reparation, oversight and administration. Ecology costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Weyerhaeuser Company shall pay the required amount within 90 days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A statement of work performed will be provided. Itemized statements shall be prepared quarterly. Failure to pay Ecology's costs within 90 days of receipt of the itemized statement of costs will result in interest charges.

4. Designated Project Coordinators. The project coordinator for Ecology is:

Name Cris Matthews
Address Washington State Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The project coordinator for Weyerhaeuser Company is:

Name Melody Sydow
Address Weyerhaeuser Company
EC2 2C1
P.O. Box 9777
Federal Way, WA 98063-9777

The project coordinator(s) shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communications between Ecology and Weyerhaeuser Company, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the project coordinator(s). Should Ecology or Weyerhaeuser Company change project coordinator(s), written notification shall be provided to Ecology or Weyerhaeuser Company at least ten (10) calendar days prior to the change.

5. Performance. All work performed pursuant to this Order shall be under the direction and supervision, as necessary, of a professional engineer or hydrogeologist, or similar expert, with appropriate training, experience and expertise in hazardous waste site investigation and cleanup. Weyerhaeuser Company shall notify Ecology as to the identity of such engineer(s) or hydrogeologist(s), and of any contractors and subcontractors to be used in carrying out the terms of this Order, in advance of their involvement at the Site. Weyerhaeuser Company shall provide a copy of this Order to all agents, contractors and subcontractors retained to perform work required by this Order and shall ensure that all work undertaken by such agents, contractors and subcontractors will be in compliance with this Order.

Except where necessary to abate an emergency situation, Weyerhaeuser Company shall not perform any remedial actions at the Site outside that required by this Order unless Ecology concurs, in writing, with such additional remedial actions; provided, however, that this provision shall not apply to the demolition and removal of any and all structures, equipment and related facilities within the Site.

6. Access. Ecology or any Ecology authorized representative shall have the authority to enter and freely move about 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 Order; reviewing the progress in carrying out the terms of this Order; conducting such tests or collecting samples as Ecology or the project coordinator may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by Weyerhaeuser Company. Ecology shall give reasonable notice of access unless an emergency prevents such notice. Ecology shall allow split or replicate samples to be taken by Weyerhaeuser Company during an inspection unless doing so interferes with Ecology's sampling. Weyerhaeuser Company shall allow split or replicate samples to be taken by Ecology and shall provide seven (7) days notice before any Site soil or groundwater sampling activity.

7. Public Participation. Weyerhaeuser Company has prepared and/or updated a public participation plan for the Site, which is attached as Exhibit D. Ecology shall maintain the responsibility for public participation at the site.

Weyerhaeuser Company shall help coordinate and implement public participation for the Site.

8. Retention of Records. Weyerhaeuser Company shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records, reports, documents, and underlying data in its possession relevant to this Order. Should any portion of the work performed hereunder be undertaken through contractors or agents of Weyerhaeuser Company, then Weyerhaeuser Company agrees to include in their contract with such contractors or agents a record retention requirement meeting the terms of this paragraph.

9. Dispute Resolution. Weyerhaeuser Company may request Ecology to resolve disputes which may arise during the implementation of this Order. Such request shall be in writing and directed to the signatory, or his/her successor(s), to this Order. Ecology resolution of the dispute shall be binding and final. Weyerhaeuser Company is not relieved of any requirement of this Order during the pendency of the dispute and remains responsible for timely compliance with the terms of the Order unless otherwise provided by Ecology in writing.

10. Reservation of Rights/No Settlement. This Agreed Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any Ecology rights or authority, except that Ecology will not bring an action against Weyerhaeuser Company to recover remedial action costs that are paid to and received by Ecology under this Agreed Order. In addition, Ecology will not take additional enforcement actions against Weyerhaeuser Company to require those remedial actions required by this Agreed Order, provided Weyerhaeuser Company complies with this Agreed Order.

Ecology reserves the right, however, to require additional remedial actions at the Site should it deem such actions necessary.

Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the releases or threatened releases of hazardous substances from the Site.

In the event Ecology determines that conditions at the Site 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 Weyerhaeuser Company to stop further implementation of this Order for such period of time as needed to abate the danger.

11. Transference of Property. No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by Weyerhaeuser Company without provision for continued implementation of all requirements of this Order.

Prior to transfer of any legal or equitable interest Weyerhaeuser Company may have in the Site or any portions thereof, Weyerhaeuser Company shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in such interest. At least thirty (30) days prior to finalization of any transfer, Weyerhaeuser Company shall notify Ecology of the contemplated transfer.

12. Compliance with Other Applicable Laws.

A. All actions carried out by Weyerhaeuser Company pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in paragraph B of this section.

B. Weyerhaeuser Company has a continuing obligation to determine whether permits or approvals addressed in RCW 70.105D.090(l) would otherwise be required for the remedial action under this Order. In the event Weyerhaeuser Company determines that permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify Ecology of this determination. Ecology shall determine whether Ecology or Weyerhaeuser

Company shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Weyerhaeuser Company shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the substantive requirements that must be met by Weyerhaeuser Company and on how Weyerhaeuser Company must meet those requirements. Ecology shall inform Weyerhaeuser Company in writing of these requirements. Once established by Ecology, the requirements shall be enforceable requirements of this Order. Weyerhaeuser Company shall not begin or continue the remedial action potentially subject to the requirements until Ecology makes its final determination.

Ecology shall ensure that notice and opportunity for comment is provided to the public and appropriate agencies prior to establishing the substantive requirements under this section.

C. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(l) would result in the loss of approval from a federal agency which is necessary for the state to administer any federal law, the exemption shall not apply and Weyerhaeuser Company shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(l), including any requirements to obtain permits.

VI.

Satisfaction of this Order

This Order shall remain in effect until such time as the cleanup levels for soil and groundwater set forth in the Cleanup Action Plan are achieved. The provisions of this Order shall be deemed satisfied upon Weyerhaeuser Company's receipt of written notification from Ecology that Weyerhaeuser Company has completed the remedial activity required by this Order, as amended by any modifications, and that all other provisions of this Agreed Order have been complied with.

VII.

Enforcement

1. Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. In the event Weyerhaeuser Company refuses, without sufficient cause, to comply with any term of this Order, Weyerhaeuser Company will be liable for:

(1) up to three times the amount of any costs incurred by the state of Washington as a result of its refusal to comply; and

(2) civil penalties of up to $25,000 per day for each day it refuses to comply.

D. This Order may not be appealed to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under Section 6 of Chapter 70.105D RCW.

VIII.

LAND USE RESTRICTIONS

The Weyerhaeuser Company agrees that the Restrictive Covenant, Exhibit C, shall be recorded with the office of the Cowlitz County Auditor within ten (10) days of the effective date of this Order and shall restrict future uses of the Site. A copy of the recorded restrictive covenant shall be provided to Ecology. With Ecology's prior written approval and public notice and comment, and after completion of the remedial action required by this Order, the Weyerhaeuser Company, or its successor(s), may record an instrument that provides that the Restrictive Covenant provided in Exhibit C shall no longer limit uses of the Site or be of any further force or effect.

IX.

FIVE YEAR REVIEW

As maintenance and monitoring continues at the Site, the parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of Site monitoring as often as is necessary and appropriate under the circumstances or as agreed upon. At least every five years the parties agree to meet at the request of any party to discuss the status of the Site and the need, if any, of further remedial action at the Site. Ecology reserves the right to require further remedial action at the Site pursuant to WAC 173-340-420. This provision shall remain in effect for the duration of the Order, as set forth in Section VI.

Effective date of this Order: April 9, 2004

WEYERHAEUSER COMPANY

By _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

By Laurie D. Davies

Exhibit A

Weyerhaeuser Company
Restrictive Covenant Boundary Description
March 2004

A restrictive covenant located in Section 31, Township 8 North, Range 2 West, Willamette Meridian, Cowlitz County, Washington, described as follows:

Commencing at brass cap set in concrete stamped "LS 21711, WEYCO #303597 as recorded in Cowlitz County Auditor's Book 8 of Surveys, page 187, Auditor's File No. 880419002, also being the Southeast corner of Lot 17 in the Mint Farm Industrial Park as recorded in Volume 13 of Plats, pages 71 and 72, Auditor's File No. 3007473; thence South 49°05'00" East along the Southerly extended line of said Lot 17 a distance of 100 feet to a brass cap set in concrete stamped "LS 21711, WEYCO #303598; thence South 40°55'00" West a distance of 300 feet to the Northeasterly line extended of the Weyerhaeuser Company Longview Mill Site; thence South 49°05'00" East ("East", Weyerhaeuser Mill datum) a distance of 134.31 feet to Weyerhaeuser Mill monument WT-4; thence South 89°59'13" West (South 49°04'29" West, Weyerhaeuser Mill datum) to Weyerhaeuser Mill monument WT-3; thence South 40°54'38" West (South 00°00'06" East , Weyerhaeuser Mill datum) along the Westerly property line of Weyerhaeuser Company's Longview Mill property a distance of 1,618.82 feet to a brass cap in concrete designated as Weyerhaeuser Mill monument WT-2; thence North 60°55'22" East (North 20°00'38" East, Weyerhaeuser Mill datum) a distance of 326.44 feet to a point on the Easterly edge of the Weyerhaeuser chlorine plant access road, said point being 12.00 feet Easterly opposite road centerline monument Weyerhaeuser No. 280593, said point also being the Point of Beginning; thence along the Easterly edge of said access road Southeasterly along a curve to the left, having a back tangent of North 40°56'09" East (North 00°01'25" East, Weyerhaeuser Mill datum) concave to the Northeast through a central angle of 64°06'05", with a radius of 497.05 feet, an arc distance of 556.09 feet; thence South 22°14'49" West (South 18°39'55" East, Weyerhaeuser Mill datum) a distance of 145.80 feet; thence South 56°27'12" West (South 15°32'28" West, Weyerhaeuser Mill datum) a distance of 100 feet, more or less, to the Columbia River's ordinary high water line; thence Easterly and Northeasterly along said ordinary high waterline 2,260 feet; thence leaving said ordinary high waterline, North 18°26'24" West (North 59°21'08" West, Weyerhaeuser Mill datum) a distance of 340 feet more or less to a point which bears South 53°59'54" East (South 86°58'34" East, Weyerhaeuser Mill datum) a distance of 2,254.57 feet from said Weyerhaeuser Mill monument WT-2; thence North 47°03'26" East (North 06°08'42" East, Weyerhaeuser Mill datum) a distance of 341.08 feet to a point which bears South 54°35'05" East (North 84°30'11" East, Weyerhaeuser Mill datum) a distance of 2,298.52 feet from said Weyerhaeuser Mill monument WT-2; thence North 42°36'58" West (North 83°31'42" West, Weyerhaeuser Mill datum) a distance of 108.79 feet; thence North 36°46'12" West (North 04°08'33" East, Weyerhaeuser Mill datum) a distance of 8.48 feet; thence North 45°03'17" East (North 89°59'10"West, Weyerhaeuser Mill datum) a distance of 306.58 feet; thence North 42°37'53" West (North 83°32'37" West, Weyerhaeuser Mill datum) a distance of 176.41 feet; thence North 46°55'03" West (North 87°49'47" West, Weyerhaeuser Mill datum) a distance of 824.57 feet to the center of the Westerly rail of the Westerly rail line, said point bears South 67°32'16" East (North 71°33'00" East, Weyerhaeuser Mill datum) a distance of 921.96 feet from said Weyerhaeuser monument WT-2; thence along the center of said Westerly rail, Westerly and

Northwesterly along a curve to the right, having a radial bearing in of North 48°32'03" East, (North 07°37'19" East Weyerhaeuser Mill datum) concave to the Northeast, through a central angle of 52°50'32", with a radius of 661.15 feet, an arc distance of 609.76 feet; thence North 59°01'36" West (South 80°03'40" West, Weyerhaeuser Mill datum) a distance of 54.08 feet, to a point on the Easterly edge of the aforedescribed chlorine plant access road; thence South 40°56'09" West (South 00°01'25" West, Weyerhaeuser Mill datum) along said Easterly edge of the chlorine plant access road a distance of 327.44 feet, to the Point of Beginning.

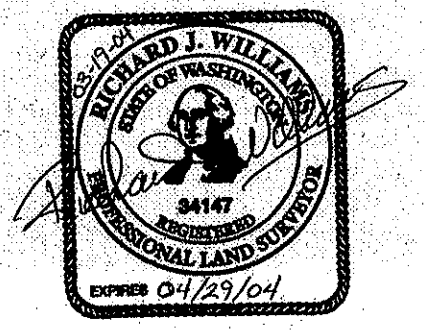
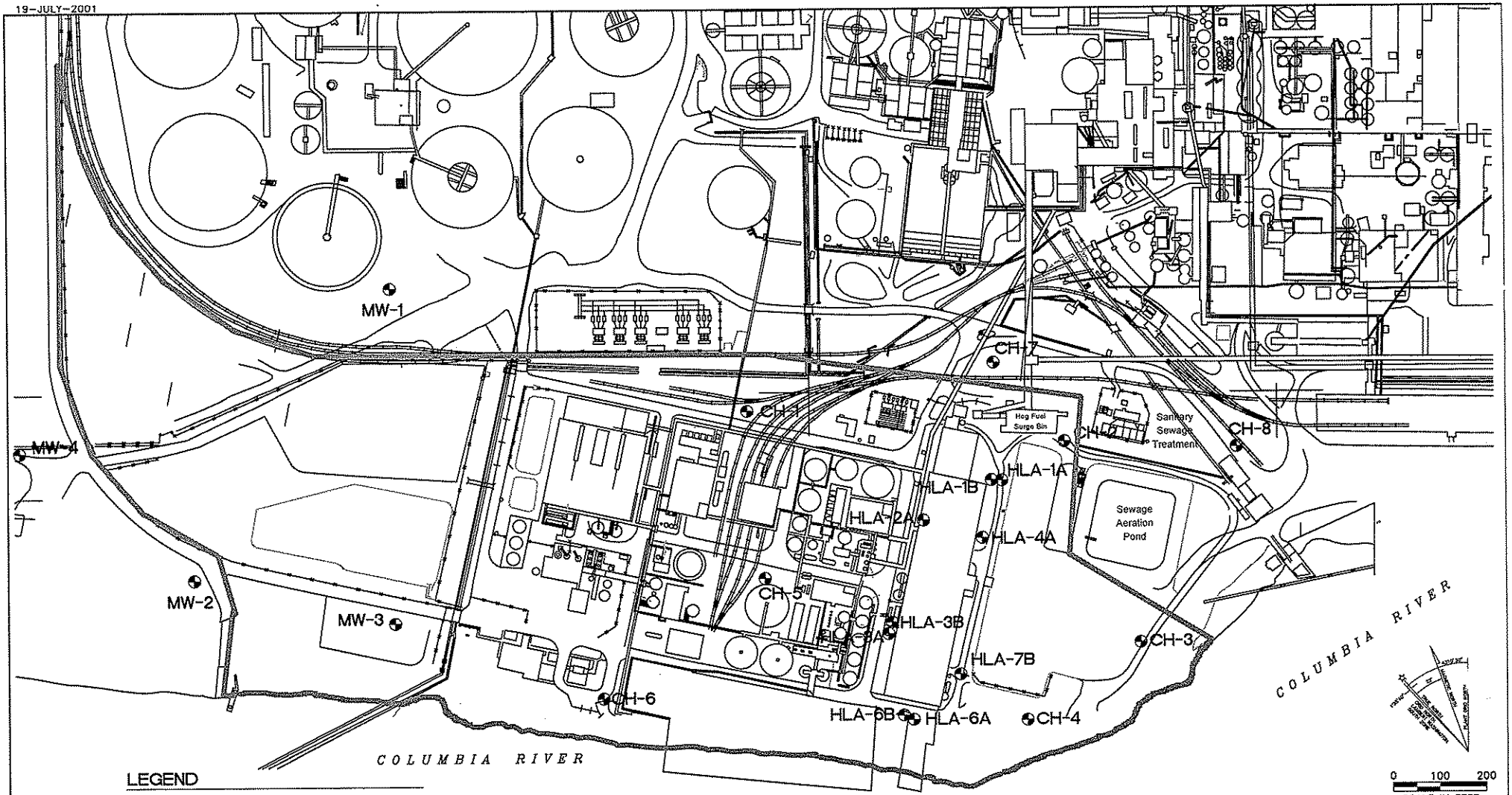


Exhibit A-1

19-JULY-2001



LEGEND

- Monitoring well
- CH-6 Monitoring well identification
- Restrictive Convenant

Note: Well locations are approximate.

Exhibit A-1
Extent of Restrictive Covenant

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

CH2MHILL

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Exhibit B

1.0 INTRODUCTION

This Cleanup Action Plan (CAP) has been prepared by the Washington State Department of Ecology (Ecology) to specify cleanup standards and identify the cleanup action to be implemented at the Weyerhaeuser Company's Chlor-Alkali Plant (Site). As required by the Model Toxics Control Act (MTCA), this CAP describes the selected alternative for remediation at the Site.

The selected cleanup action is primarily based upon the following documents:

- Remedial Investigation (RI) and Feasibility Study (FS) Work Plan (CH2M HILL, 1995)
- Remedial Investigation Report (CH2M HILL, 2001), and
- Feasibility Study Report (CH2M HILL, 2001).

The CAP is used by Ecology to govern the progress of site investigation and cleanup. An Agreed Order between the State of Washington and Weyerhaeuser will serve as a legal mechanism for implementation of the CAP. Implementation of the CAP will begin upon completion of a public comment period on the Agreed Order and CAP.

1.1 Organization

This draft CAP includes the following information:

- Brief description of the Site and its history
- The nature and extent of contamination at the Site
- The cleanup standards for the Site
- A description of the remedial alternative evaluation completed in the FS
- Ecology's selected cleanup action and justification for the selection

1.2 Declaration

Ecology's selected remedy is protective of human health and the environment. The selected remedy is also consistent with the preference of the State of Washington as stated in RCW 70.105D.030(1)(b) for permanent solutions. Ecology has made the determination that the selected remedy will comply with all applicable or relevant and appropriate requirements and will comply with WAC 173-340-360, Selection of Cleanup Actions.

1.3 Applicability

This CAP is applicable only to the Weyerhaeuser Chlor-Alkali Plant Site. Cleanup standards and cleanup actions have been developed as an overall remediation process conducted under Ecology oversight using MTCA authority.

1.4 Administrative Record

The documents used to make the decisions discussed in this CAP are listed in the Reference Section and are elements of the administrative record for the Site.

The CAP is available for public review at the Longview Public Library (1600 Louisiana St Longview, WA 98632). The entire administrative record is available for public review by appointment at Ecology's Southwest Regional Office (300 Desmond Drive, Lacey, WA 98503).

2.0 SITE DESCRIPTION

2.1 Site Location

The Weyerhaeuser Chlor-Alkali Plant is located on the north shore of the Columbia River, approximately 2 miles southwest of the city of Longview, in Cowlitz County in southwest Washington. The location of the plant site and its general features are presented in Figures 1 and 2 respectively. The topography of the plant site is flat, overlying a remnant of Mt. Coffin, an isolated basalt erosional peak. Prior to the Chlor-Alkali Plant development, Mt. Coffin was partially removed by quarrying to grade and the general area was filled and graded to make construction of the Site possible.

2.2 Site History

The Site produced chlorine and sodium hydroxide for use by the pulp and paper industry. Chlorine production using the mercury electrolytic cell process began in 1958, following construction of the No. 1 Cell Room. The plant was expanded in 1966 with the addition of a second cell room (the No. 2 Cell Room) and a liquefaction building. Chlorine production in the No. 1 Cell Room ceased in 1975. A year later, the mercury cells in the No. 2 Cell Room were converted to diaphragm cells (a non-mercury based process). The No. 1 Cell Room was demolished in 1991 and the No. 2 Cell Room continued to operate until 1999. All production operations ceased at the Site in March 1999. As a result of the operations prior to 1976, mercury was released to the Site from equipment and process leaks and spills.

2.3 Site Physical Characteristics

2.3.1 Site Geology

The Site is located on the floodplain of the Columbia River. In general, a surficial layer of dredged sand fill obtained from the river overlies the Columbia River alluvium. Flows of the Columbia River Basalt Group underlie the alluvium. Over the years, dredged sediment and gravel fill have been placed across portions of the site at a thickness of between 2 and 20 feet. Alluvium underlying the fill consists of silt, sandy silt, and silty sand. Fine-grained alluvial deposits predominate to a depth of approximately 200 feet, where the alluvium becomes generally a coarse-grained mixture of sand, gravel, and cobbles.

Basalt at the site is encountered at variable depths because of the buried remnant of Mt. Coffin. The residual basalt is closest to the ground surface directly over the former peak of Mt. Coffin

and is deeper elsewhere. The remnant of Mt. Coffin has a major influence on groundwater flow directions in the southern portion of the Site.

2.3.2 Site Groundwater

Groundwater occurs in saturated portions of the alluvium and basalt at the Site. Groundwater occurring in alluvium is referred to as alluvial (or alluvial zone) groundwater, and groundwater occurring in basalt as basalt (or basalt zone) groundwater. Unlike other sites, these zones do not exist in a "layer cake" arrangement at the Site. Instead, the buried, but steep, relief associated with the remnant of Mt. Coffin allows basalt groundwater and alluvial groundwater to occur side-by-side in the southern portion of the site. A cross-sectional view of the Site's subsurface based on the existing Site monitoring wells is shown in Figure 3. Groundwater in both of these zones discharges to the Columbia River, which controls the base level of the local and regional hydrologic systems.

Groundwater occurs in the upper part of the fill and alluvium deposits under unconfined conditions at depths of 8 to 15 feet below ground surface (bgs) in the west area and 2.5 to 4.5 feet bgs in the former No. 1 Cell Room area. Groundwater elevations in the upper, finer-grained part of the alluvium, as determined by Site monitoring wells, are controlled by seasonal variations in precipitation and, to a lesser extent, by fluctuations in the Columbia River stage. Figure 4 depicts the location of all monitoring wells at the Site.

In general, groundwater elevations tend to be highest in the spring and lowest in the late summer or early fall. Figures 5 and 6 present seasonal (dry and wet, respectively) groundwater elevations at the Site. Groundwater levels appear to be influenced by precipitation to a greater degree than by Columbia River stage. Based on the RI findings, the hydraulic gradient in the alluvium ranges from 0.04 to 0.008, the hydraulic conductivity is estimated at 28 feet/day, and the horizontal groundwater flow velocity ranges from 1 to 6 feet/day.

The direction of groundwater flow varies across the Site but is generally towards the river. In the central and western portions of the site, groundwater generally flows to the west-southwest. In the eastern portion of the site, groundwater in the alluvium flows around the less permeable, buried remnant of Mt. Coffin, with south-southeasterly flow east of Mt. Coffin and west to southwesterly flow west of Mt. Coffin. The area where the elevation of basalt exceeds 10 feet (that is, basalt is present within 10 feet of the surface) exhibits a greater effect on shallow groundwater flow, as observed in the RI. Based on the RI findings, the hydraulic gradient in the basalt zone is estimated at 0.03, the hydraulic conductivity is estimated at 6×10^{-3} foot/day, and the horizontal groundwater flow velocity is estimated at approximately 0.004 foot/day.

Below a depth of approximately 200 feet, groundwater occurs in a productive, confined alluvial aquifer that serves as a source of process water for local industry. The total thickness of this aquifer is poorly documented, but is at least 130 feet thick.

2.3.3 Surface Water

The Columbia River forms the southeast boundary of the Site (Figure 1). No other surface waters are present either on the Site or nearby although an earthen ditch conveys storm water from the Maintenance Building, the Hog Fuel Storage Bin and the vicinity of the fresh water intake pipelines.

2.4 Nature & Extent of Contamination

The mercury released to the environment at the Chlor-Alkali Plant was elemental, inorganic, and has relatively low mobility. Elemental mercury is very dense and readily sinks under gravity through openings in media through which it travels (large pores, fractures, joints, etc.). Mercury stops moving when it encounters a pore or fracture too small for it to enter. The residual mercury will then slowly dissolve into groundwater or soil pore water. In the unsaturated zone, mercury also will enter the vapor phase. Because of its density, high surface tension, presence as a separate-phase liquid, and accumulation in basalt fractures, active mercury remediation at the Site is inherently complex and difficult.

Based on the Site's physical and geochemical conditions, methyl mercury, which is created by microbial action in anaerobic, chemically reducing environments, is not expected to exist at the Site. Use of mercury at the plant ceased in 1976, and all of the processes and equipment using mercury have been either converted to another type of process or removed. As a result, there are no remaining sources of mercury at the Site other than that residual from the earlier releases.

Information about the releases to soil and ground water are described below.

2.4.1 Soils

The RI Report presented the following conclusions regarding the nature and extent of mercury remaining in Site soil:

- The average concentration of mercury in the liquefaction and loading areas, the west area, and the stormwater drainage ditch is 3 mg/kg.
- In the brine spill area, the No. 2 Cell Room, and the brine treatment, caustic storage, and staging areas, the average concentration of mercury is 18 mg/kg.
- Mercury concentrations are highest (average concentrations are 46 mg/kg) within the areas of the former No. 1 Cell Room and surface impoundments.

2.4.2 Groundwater

The distribution of mercury in the two water-bearing zones (alluvial groundwater and basalt groundwater) is predominantly a result of their proximity to historical sources (particularly, the former No. 1 Cell Room and former surface impoundment area) and of groundwater flow.

A groundwater monitoring program was initiated at the Site in 1991 and continued on a quarterly basis through April 1997. Subsequently, sampling has been conducted semiannually. The monitoring program includes 21 wells located across the site. Site groundwater sampling results have shown that mercury concentrations are generally below detection limits in all areas of the Site except at the former No. 1 Cell Room and former surface impoundment area. In these areas, recent groundwater sampling indicates that mercury concentrations in alluvial and basalt groundwater range from below the detection limit of 0.0002 mg/L up to 0.160 mg/L.

Results from the RI also included the following information:

- Mercury concentrations in groundwater are remaining steady or decreasing with time. The rate of decrease is slowest in the area of the former No. 1 Cell Room and the former surface

impoundments. Except for in these areas, mercury concentrations are at or below the MCL of 0.002 mg/L for mercury.

- Potential explanations for the slow decrease in mercury concentrations in the area of the former No. 1 Cell Room include the following:
  - The amount of groundwater flux (and therefore the rate of flushing) is limited because the asphalt cap reduces rainfall infiltration, and the permeability of the basalt and alluvium fill above the basalt is very low.
  - It is possible that small amounts of elemental mercury may be present below the water table as isolated globules in basalt fractures. If present, these globules could serve as an ongoing source of dissolved mercury in basalt groundwater.
- Although transient fluctuations in mercury concentrations may occur as a result of unusually high groundwater levels and rainfall conditions, concentrations in groundwater are not expected to increase substantially over time. The original mercury sources were removed from the plant more than 25 years ago. Additional mercury sources were addressed in subsequent removal actions as described in the RI Work Plan (CH2M HILL, 1995). Furthermore, results from soil and groundwater sampling suggest that leaching of mercury from soil to groundwater by infiltration and percolation of precipitation is not a major factor influencing mercury concentrations in groundwater.
- Mercury is not present in groundwater upgradient of the former No. 1 Cell Room and former surface impoundment area based on semiannual groundwater sampling at monitoring wells CH-7 and CH-8 collected since 1998.
- The basalt portion of the shallow aquifer contains higher mercury concentrations than the alluvial aquifer, but transmits less groundwater flow. Therefore, mercury flux contributed by the basalt aquifer constitutes a relatively insignificant amount of mercury to the surrounding groundwater and Columbia River.

2.4.3 Surface Water

Surface water characterization at the Chlor-Alkali Plant consisted of samples collected from the Columbia River (adjacent to and upstream and downstream of the plant) and stormwater samples from the facility's eastern drainage ditch—the only drainage that discharges directly to the river. None of the mercury concentrations exceed surface water criteria.

2.4.4 Sediments

Sediment samples show no significant difference in mercury concentrations as measured among upstream, adjacent, and downstream locations. None of the concentrations exceed sediment criteria.

2.5 Summary of Remedial Actions Previously Implemented at the Site

Extensive remedial actions have already been implemented to reduce mercury concentrations at the Site. These actions include:

- Cessation of onsite production activities involving mercury use

- Excavation of more than 40,000 tons of mercury-contaminated soil and sludge
- Recycling of more than 1,500 pounds of elemental mercury
- Removal of the No. 1 Cell Room and diffuser
- Installation of capping, paving, or structures over 65 percent of the site
- Disposal of more than 14,000 tons of mercury-contaminated material (concrete, soil, etc.)

The most significant of these actions occurred under an Agreed Order with Ecology in 1991 when Weyerhaeuser demolished the No. 1 Cell Room and removed mercury-contaminated soil and material.

Wherever accessible mercury has been encountered it has been removed and recycled. Mercury present in soil, sludges, and debris has been largely removed or contained. As a result, mercury-associated human health and environmental risks have been greatly diminished. These actions are consistent with MTCA's preference for achieving permanent cleanup actions that protect human health and the environment.

3.0 Cleanup Standards

One of the requirements of the MTCA cleanup regulation (WAC 173-340) is to establish cleanup standards for individual sites. The two components of cleanup standards are cleanup levels (CULs) and points of compliance (POCs). A cleanup level represents a concentration at which a particular hazardous substance does not threaten human health or the environment. Risk levels for individual carcinogens not to exceed one in a million (10^{-6}) are established. For noncarcinogens, the risk should not cause acute or chronic effects in humans. Acceptable risk for noncarcinogens is represented by a hazard index of less than one (1). The goal is to address substances that are present in site media at concentrations exceeding a cleanup level.

Under MTCA, cleanup requirements are affected by property use, applicable regulations, environmental features, and technology limitations. These factors are important considerations when determining appropriate cleanup levels. Once cleanup levels are determined, POCs are designated at onsite locations where cleanup levels should be met.

The purpose of this section is to present the MTCA cleanup levels and POCs that have been selected in the CAP for the Weyerhaeuser Chlor-Alkali Plant Site.

3.1 MTCA Cleanup Levels Development Process

MTCA cleanup levels for the Site were developed following procedures presented in WAC 173-340-700 through 760 ("Cleanup Standards") and by reviewing applicable federal and state requirements (ARARs, or applicable or relevant and appropriate requirements) for the Site as required in . WAC 173-340-380(1)(a)(vii)

Applicable state and federal laws for this cleanup action are identified in Table 1. The list of ARARs presented in Table 1 does not preclude subsequent identification of applicable state and federal laws (WAC 173-340-380 (1)(a)(vii)).

Table 1

Applicable Promulgated Chemical -Specific Standards and Criteria (ARARs)

Environmental Media Standards or Criteria	Source
Groundwater	
Federal Maximum Contaminant Levels (MCLs)	40 CFR 141 and 142
Federal MCL Goals	40 CFR 141 and 142
Washington State Water Quality Standards for Groundwater	WAC 173-200
Washington MTCA CULs for Surface Water*	WAC 173-340
Washington Water Quality Standards for Surface Waters	WAC 173-201A
Washington MTCA CULs for Groundwater	WAC 173-340
Surface Water	
Federal Water Quality Criteria for Surface Water, Freshwater Acute	40 CFR 131
Federal Water Quality Criteria for Surface Water, Freshwater Chronic	40 CFR 131
Federal Water Quality Criteria for the Consumption of Organisms Only	40 CFR 131
Washington MTCA CULs for Surface Water	WAC 173-340
Washington Water Quality Standards for Freshwater, Chronic	WAC 173-201A
Washington Water Quality Standards for Freshwater, Acute	WAC 173-201A
Soil	
Washington State MTCA CULs	WAC 173-340
Sediment	
Washington State MTCA CULs	WAC 173-340
Washington State Sediment Management Standards	WAC 173-204

Notes:
CULs = Cleanup levels
MCL = Maximum contaminant level
*Groundwater is not a source of drinking water but discharges into the Columbia River, a Class A Surface Water, a potential future source of drinking water.

As determined in the RI Report, only mercury has been identified as a hazardous substance subject to MTCA cleanup requirements. Therefore, it is not necessary to adjust cleanup levels that would be necessary if multiple hazardous substances were present (WAC 173-340-708).

Ecology considered the following factors in developing MTCA cleanup levels:

- The frequency of mercury detection and its concentration
- The possible environmental fate of the mercury
- The contaminant's mobility and potential for exposure to human health and environmental receptors

3.2 Site Cleanup Levels

Results of the RI/FS Reports assisted in the selection of Site cleanup levels. On the basis of these findings, the MTCA cleanup levels established for all media are presented in the following sections.

3.2.1 Soil

The following MTCA cleanup methods have been determined to be applicable to the Site soils:

- The MTCA Method A mercury soil cleanup level of 2 mg/kg for industrial properties. This concentration is based on protection of groundwater (WAC 173-340-745, Table 745-1).
- The current MTCA Method C mercury soil cleanup level of 1,005 mg/kg. This cleanup level is based on direct contact by industrial workers (CLARC II, February 1996). Use of this cleanup level would require institutional controls to ensure that exposure to Site soil remains consistent with the industrial exposure assumptions.

Under WAC 173 340-720, Ecology may establish more stringent cleanup level concentrations to protect groundwater. The proposed MTCA cleanup level for mercury in Site soil is presented in Table 2; this cleanup level is as stringent as concentrations obtained from the applicable criteria (see 173-340-700 (3)(a) and (4)(a)).

TABLE 2

MTCA CLEANUP LEVELS
Applicable Criteria for Soil

Analyte	Unit	Method C Industrial	Method A and Method C to Protect Groundwater	Lowest Proposed Final CUL to Protect Groundwater
Mercury	mg/kg	1,005	2	2

Applicable Criteria for Groundwater

Analyte	Unit	MCL	MCLG	Hazard Quotient	MTCA Method B	Acute AWQC	Chronic AWQC	Proposed Final CUL
Mercury	µg/L	2	2	0.417	4.8	2.1	0.012	**0.012***

*0.012 µg/L = 0.000012 mg/L
AWQC = ambient water quality criteria

3.2.2 Groundwater

As discussed in the RI Report, groundwater occurs in saturated portions of the alluvial and bedrock basalt zones at the Site. Groundwater beneath the Site discharges to the river.

Groundwater in the vicinity of the Chlor-Alkali Plant is not used as a drinking water source. Because groundwater discharges to the river, a Class A water body (WAC 173-201A), protection of surface water is required. No exceedances of surface water criteria have been detected in the Columbia River adjacent to or immediately downstream of the site.

Characteristic uses for Class A water bodies include: domestic, industrial, and agricultural water supply; stock watering; fish and shellfish habitat; wildlife habitat; recreation; commerce, and; navigation. An applicable or relevant and appropriate requirement (ARAR) value can be used as a MTCA groundwater or surface water cleanup level if it is sufficiently protective of human health and the environment. MTCA Method B cleanup levels for groundwater are

considered to be appropriate for the Chlor-Alkali Plant groundwater because they establish concentrations that are protective of nearby surface waters (WAC 173-340-730(3)(b)(i)(B). Method B groundwater cleanup levels were developed from the following sources:

- Drinking water levels, including ARARs such as MCLs and maximum contaminant level goals (MCLGs)
- Surface water levels, including water quality criteria published under WAC 173-201A, *Water Quality Standards for Surface Waters of the State of Washington*

Table 2 presents the applicable cleanup criteria for chemicals detected in Site groundwater. Both drinking water and surface freshwater criteria are presented. The final Method B cleanup level should be the most stringent concentration obtained from the applicable criteria. Table 2 also presents the selected cleanup level for groundwater at the Site.

3.2.3 Surface Water

Because surface water does not exceed applicable criteria, development of MTCA cleanup standards for surface water is not required.

3.2.4 Sediment

Chemical concentrations in sediments are equal to or less than the current and proposed sediment management standards. As such, the sediments do not have adverse effects on biological resources or pose a significant threat to human health.

Development of MTCA cleanup standards for sediments is not required.

3.3 Points of Compliance

MTCA defines POC(s) as the point or points where cleanup levels shall be attained. Based on the results of the preliminary cleanup levels development, the following POCs have been identified for soil and groundwater at the Site. POCs have not been identified for surface water or sediments because applicable criteria for these media have been met.

3.3.1 Soil

Soil cleanup levels for this Site are based on the protection of groundwater. The point of compliance shall be established in soils throughout the site.

Ecology's expectations regarding the POC for soil cleanup levels to protect groundwater are achieved by consideration of containment provided by the surface cover currently existing at the Site.

3.3.2 Groundwater

For groundwater, the POC(s) is the point or points where groundwater cleanup levels must be attained. Under MTCA, the POC for groundwater is typically throughout the Site, vertically from the uppermost level of the saturated zone to the lowest depth that could be affected by mercury from the plant. Groundwater at the Site is not a source of drinking water. There is little risk of direct exposure to onsite workers. The current land use of the Site is industrial, and land use will remain industrial for the foreseeable future. Therefore, at this Site, where the (alluvial

and basalt) groundwater flows into nearby surface water, the cleanup level is based on protection of the Columbia River.

- As provided under 173-340-720(8)(d)(i), a conditional POC for groundwater will be established that is located within the river as close as technically possible to the point or points where ground water flows into the River.

Under MTCA, specific monitoring requirements will be determined in the Compliance Monitoring Plan to confirm the long-term effectiveness of the selected remedy.

4.0 Summary of Remedial Action Alternatives

Cleanup alternatives for soil and groundwater were evaluated during the FS. Remedies that provided improvement over existing site conditions were retained for additional evaluation. For example, source removal and soil capping are not considered because source removal was done previously and most of the Site is already capped.

Similarly, for groundwater, available mercury treatment options were limited to proven technologies. The FS applied EPA's remediation difficulty scale (EPA, 1993) to assist in the identification and assessment of mercury treatment technologies given the unique physical and chemical characteristics of mercury, the distribution of mercury onsite, and the site-specific features (geology, hydraulics, flow). It was determined to be technically impractical to apply groundwater treatment to the basalt groundwater zone because mercury is likely trapped in fractures with very low hydraulic conductivity. Table 3 presents the remedial actions evaluated according WAC 173-340-360.

TABLE 3
Remedial Action Evaluation

Soil Alternative 1	Institutional Controls
Soil Alternative 2	Excavation and Offsite Disposal
Groundwater Alternative 1	Institutional Controls and Monitoring
Groundwater Alternative 2	Containment through Barrier Wall, Treatment, and Monitoring
Groundwater Alternative 3	Collection and Containment through Groundwater Extraction, Treatment, and Monitoring

The recommended remedial alternatives for soil and groundwater at the Site include:

- **Soil:** Implement Institutional Controls
- **Groundwater:** Implement Institutional Controls and Conduct Groundwater Monitoring

These alternatives meet MTCA requirements and represent the most effective and appropriate cleanup actions following the extensive cleanup measures the Site has previously undergone. Active, engineered remedial soil or groundwater alternatives would not significantly reduce the mercury concentrations in the groundwater or alter its' potential impact to the Columbia River.

Engineered remedial groundwater alternatives that involve the use of a barrier wall, a collection trench, or extraction through pump and treat were not selected as the preferred alternative for the following reasons:

- These technologies would not effectively reduce mercury concentrations in groundwater regardless of the alternative selected.
- These technologies would not reliably achieve the low cleanup standard selected (based on protection to the River).
- The effect of these technologies would be limited to the area of an engineered alternative or extraction, and it is unlikely that the MTCA groundwater cleanup level (based on protection to the River) could be achieved within that area.
- The groundwater treatment alternatives evaluated in the FS ranged in cost from $6.5 million to $6.6 million. All of these costs are substantially disproportionate to the incremental degree of protection these alternatives would provide to groundwater conditions and to the Columbia River.

Recommended Alternative: Implement Institutional Controls and Conduct Monitoring

The key elements of the recommended alternative include:

- Limiting site access: Access to the site will continue to be restricted through maintenance and inspections of fencing and gates .
- Institute deed restrictions: Deed restrictions will be placed on the property so that future use will remain industrial. Deed restrictions will also prevent the use of unconfined alluvial zone or basalt zone groundwater (as described in Section 2.3.2) in the vicinity of the Chlor-Alkali Plant.
- Limiting infiltration: Asphalt paving throughout the site will be maintained to minimize infiltration.
- Groundwater monitoring: A long term groundwater monitoring plan will be developed for Ecology approval and implementation at the site.

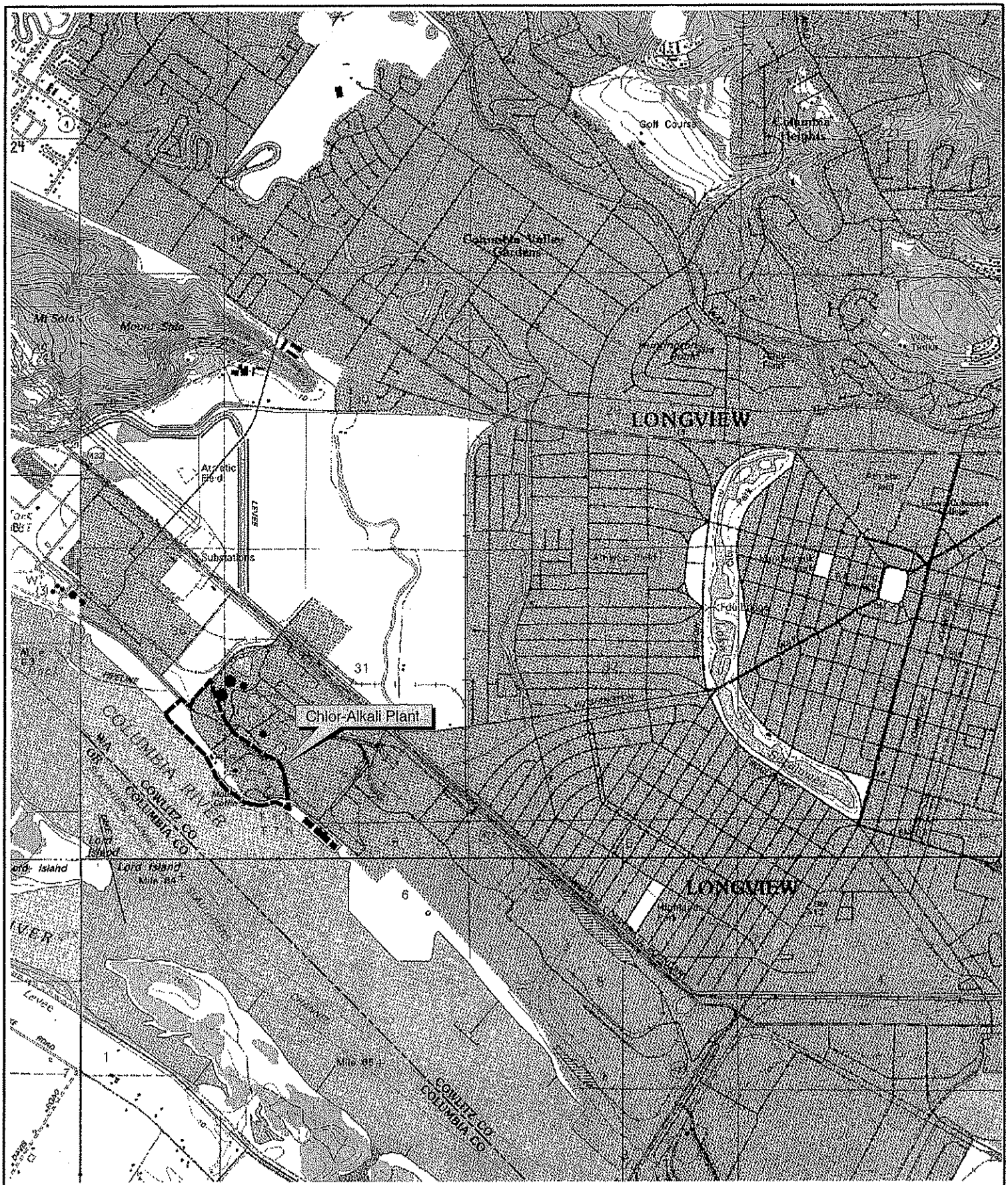
This alternative is selected because:

- Source control has been conducted to the maximum extent practicable.
- The residual contamination does not pose an unacceptable threat to human health or the environment.
- There is evidence that natural attenuation is occurring and will continue to occur.
- Appropriate monitoring will be adopted. Should monitoring indicate contaminant levels do not continue to decline (or if they are shown to increase) over time, other active, engineered alternatives may be reconsidered in accordance with WAC 173-340-420.

This alternative is consistent with Ecology's expectations and the acceptability of the natural processes of attenuation (including biodegradation, volatilization, and dilution) of hazardous substances where:

1. Source control has been conducted to the maximum extent practicable.
2. Residual contamination does not pose an unacceptable threat to human health or the environment.
3. There is evidence that natural attenuation is occurring and will continue to occur.
4. Appropriate monitoring is adopted.

In conclusion, the recommended alternative that includes institutional controls and long-term groundwater monitoring is protective of human health and the environment, meets MTCA requirements, and is consistent with the remedial action objectives selected for the Site. Use of the MTCA remedy evaluation criteria has resulted in the recommended alternative representing the most effective solution for this Site. Because of the extensive and proactive cleanup actions already completed, the alternative adopted in this CAP ensures that risks posed by the Site remain acceptable and in accordance with MTCA requirements.



N

0 2,000 4,000 Feet

LEGEND

Approximate Site Boundary

FIGURE 1

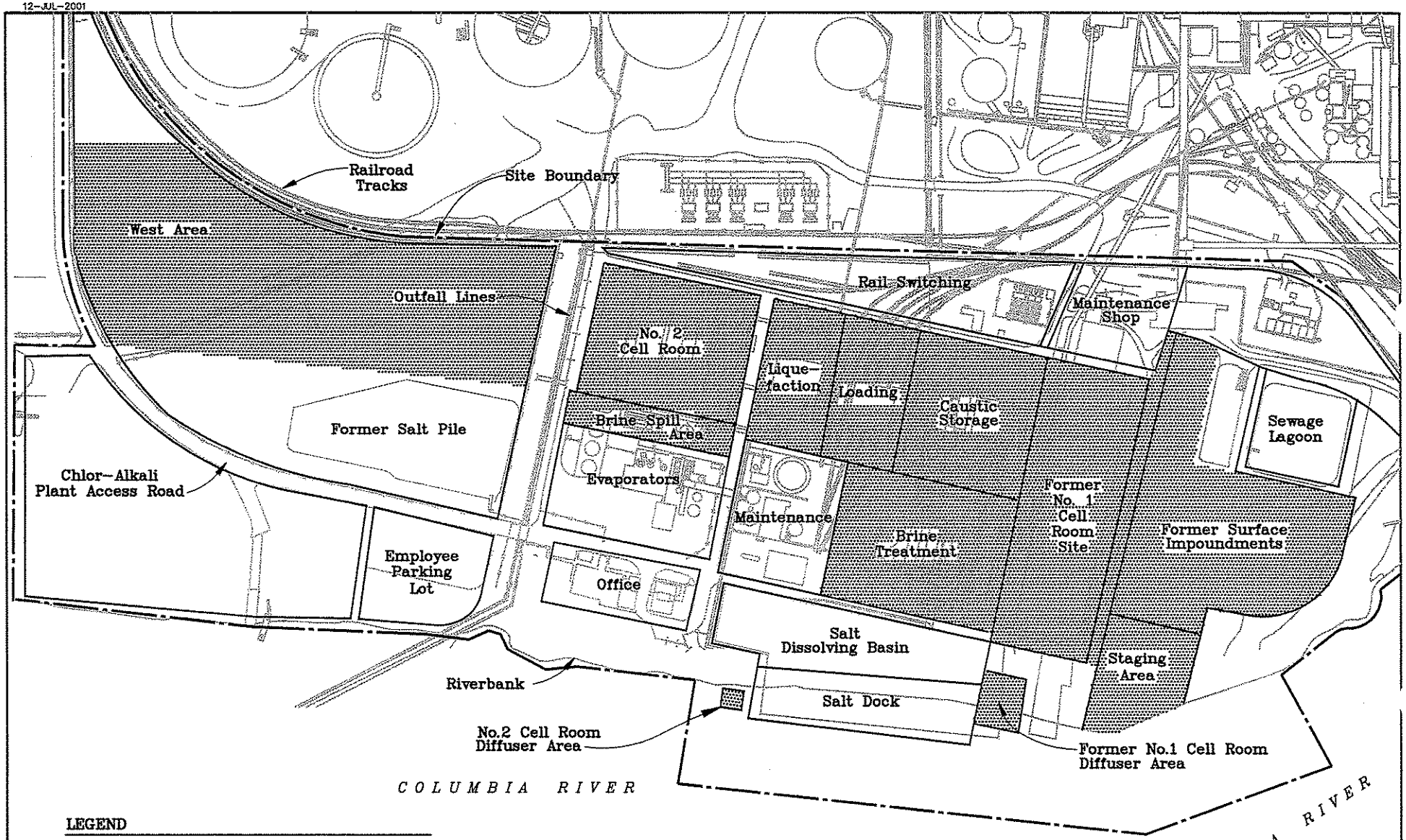
LOCATION MAP

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

File Path: \\rosa\proj\WEYERHAEUSER COMPANY\164539\gis\longview\mxds\Non-CH_SiteMap_031904.mxd, Date: March 19, 2004 User: earonson

SRB

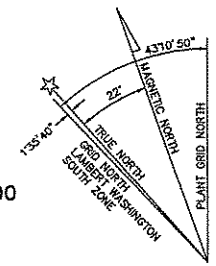
12-JUL-2001



LEGEND

Areas with known or suspected releases of mercury (from work plan, 1995)

Boundary of Chlor-Alkali plant



0 150 300

SCALE IN FEET

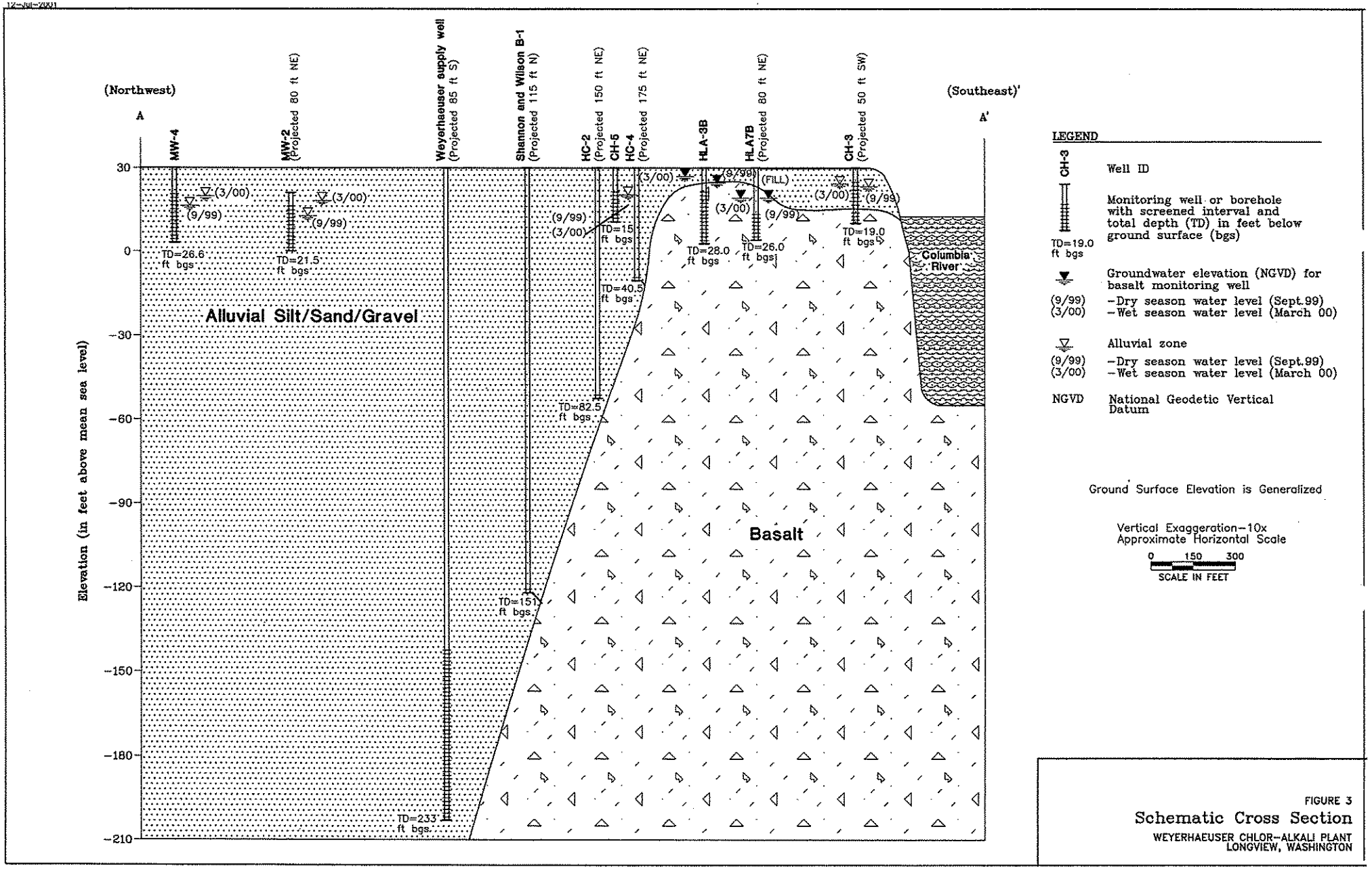
FIGURE 2

Site Map Showing Areas of Potential Concern

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

CH2MHILL

P:\WEYERHAS\148834\Cad 8834g0180.dwg



LEGEND

CH-3 — Well ID

Monitoring well or borehole with screened interval and total depth (TD) in feet below ground surface (bgs)

TD=19.0 ft bgs

Groundwater elevation (NGVD) for basalt monitoring well

(9/99) – Dry season water level (Sept.99)

(3/00) – Wet season water level (March 00)

Alluvial zone

(9/99) – Dry season water level (Sept.99)

(3/00) – Wet season water level (March 00)

NGVD — National Geodetic Vertical Datum

Ground Surface Elevation is Generalized

Vertical Exaggeration–10x
Approximate Horizontal Scale

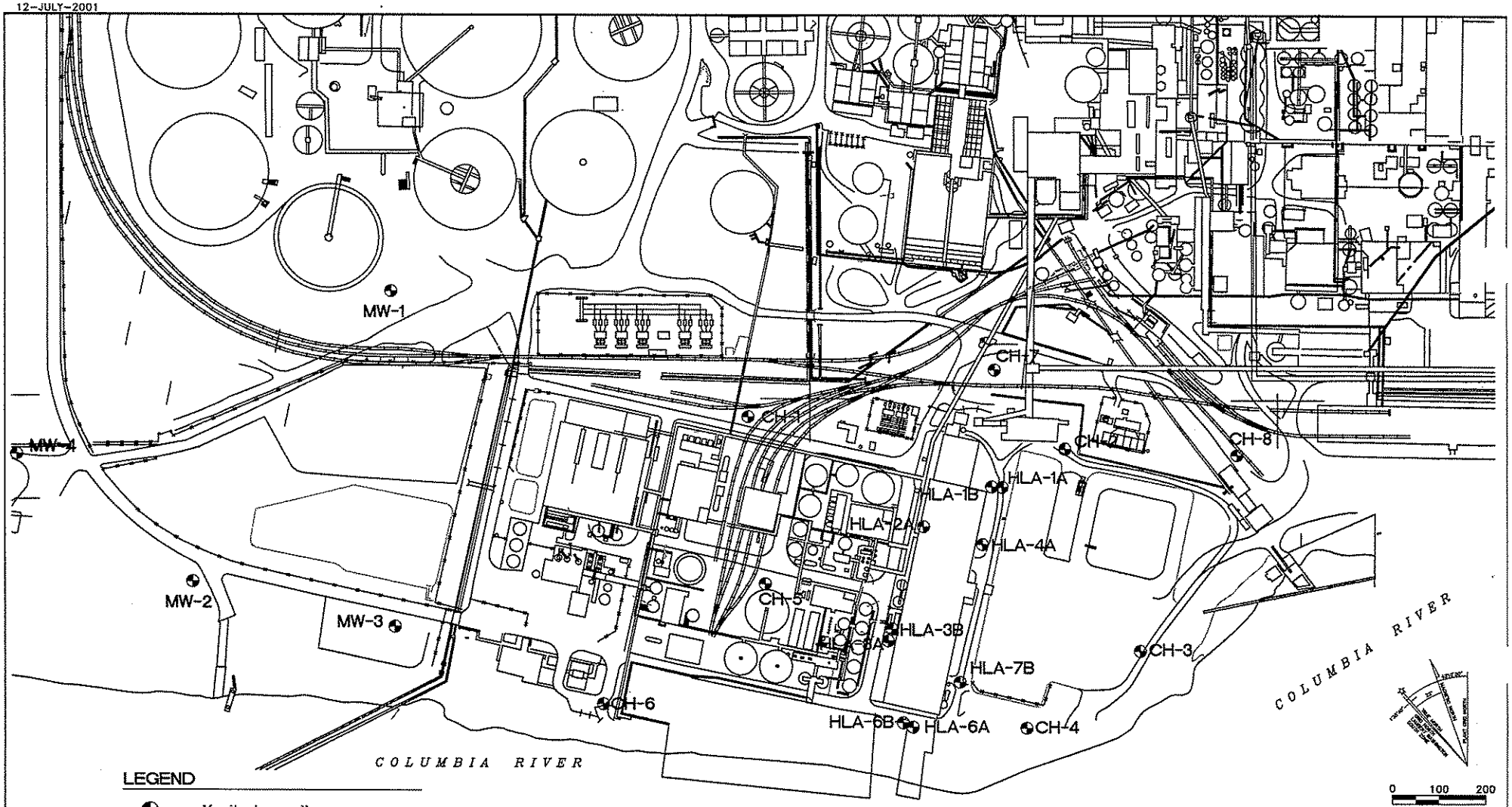
0 150 300
SCALE IN FEET

FIGURE 3

Schematic Cross Section

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

12-JULY-2001



LEGEND

Monitoring well

CH-6 Monitoring well identification

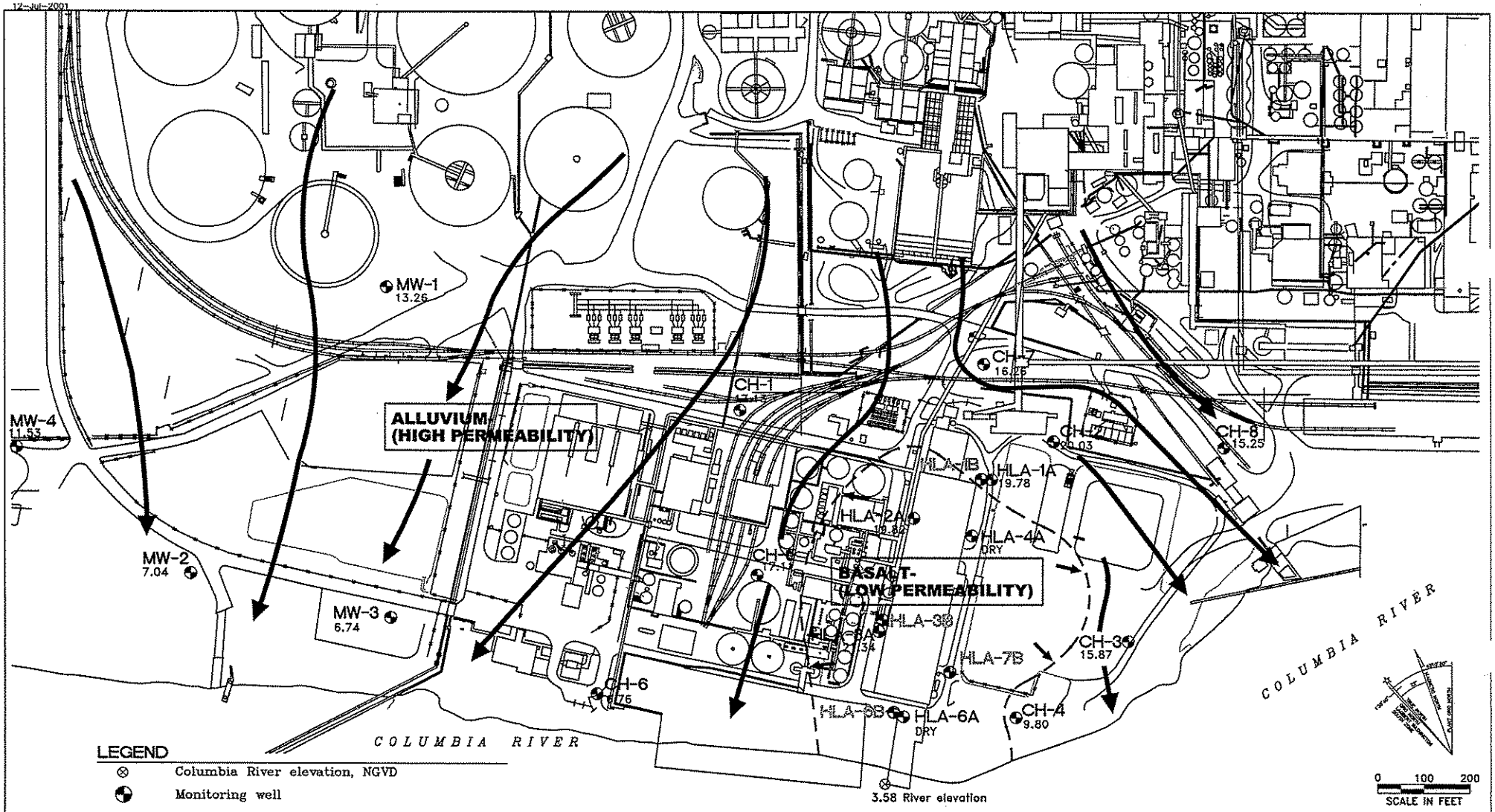
Note: Well locations are approximate.

FIGURE 4

Monitoring Well Locations

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

P:\WEYERHAS\148834\Cad 8834g021A.dwg



Note: Well locations are approximate. Flow directions are generalized and are based on a composite of different elevations from wells of different depths.

FIGURE 5

September 1999 Dry Season Groundwater Elevations in Alluvium

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

P:\WEYERHAS\148834\Cad 8834g08D.dwg

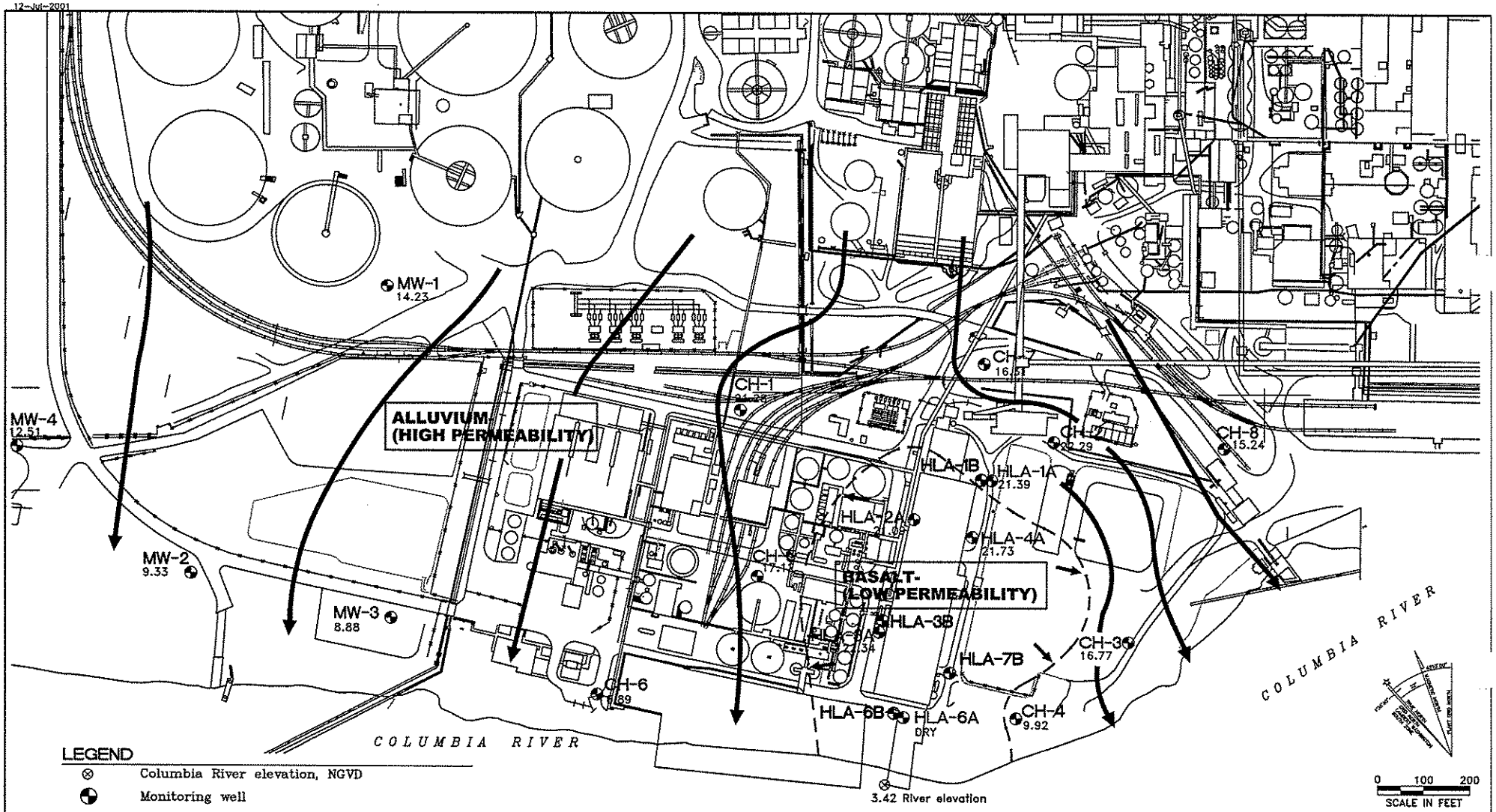

12-Jul-2001
MW-1
14.23
MW-4
12.51
MW-2
9.33
MW-3
8.88
CH-1
CH-7
16.51
CH-8
15.24
CH-2
20.29
HLA-1B
HLA-1A
21.39
HLA-2A
HLA-4A
21.73
CH-5
HLA-3B
HLA-5A
HLA-7B
CH-3
16.77
CH-6
6.89
HLA-6B
HLA-6A
DRY
CH-4
9.92
ALLUVIUM
(HIGH PERMEABILITY)
BASALT-
(LOW PERMEABILITY)
COLUMBIA RIVER
COLUMBIA RIVER
3.42 River elevation
0 100 200
SCALE IN FEET
LEGEND
Columbia River elevation, NGVD
Monitoring well
CH-6 Monitoring well identification
6.89 Groundwater elevation, NGVD
Approximate area where basalt elevation exceeds 10 ft, NGVD
Approximate direction of groundwater flow
NGVD National Geodetic Vertical Datum
Note: Well locations are approximate. Flow directions are generalized and are based on a composite of different elevations from wells of different depths.
FIGURE 6
March 2000
Wet Season Groundwater Elevations in Alluvium
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON
P:\WEYERHAS\148834\Cad 8834g08E.dwg

Exhibit C

EXHIBIT C

RESTRICTIVE COVENANT

The property involved in this Restrictive Covenant is the subject of remedial action under RCW 70.105D. The work done to clean up the property (hereafter the "Remedial Action") is described in Washington State Department of Ecology Agreed Order No. DE 1037 and in attachments to the Order. This Restrictive Covenant is made pursuant to RCW70.105D.030(1)(f) and (g) and WAC 173-340-440 because the Remedial Action at the Site will result in residual concentrations of mercury that exceed Ecology's cleanup levels for Industrial soil and ground water established under Chapter 173-340 WAC.

Weyerhaeuser Company is the fee owner ("Owner") of real property known as the Weyerhaeuser Chlor-Alkali Plant in the County of Cowlitz, State of Washington referred to as the "Site," legally described in Attachment 1 hereto, and by this reference incorporated herein.

Weyerhaeuser Company makes the following declaration as to limitations, restrictions, and uses to which the Site may be put, and specifies that such declarations shall constitute covenants to run with the land, as provided by law, and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Site.

Section 1 The Site may be used only for Industrial uses as defined in RCW 70.105D.020(23) and defined in and allowed under the Cowlitz County Zoning Code as of the date of this Restrictive Covenant.

Section 2 Any activity on the Site that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited, except as provided in Section 4.

Section 3 Any activity on the Site that may result in the release or exposure to the environment of a hazardous substance that remains on the Site as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology, except as provided in Section 4.

Section 4 The Owner of the Site may prepare, and submit to Ecology for approval, a plan to manage health and safety issues that may arise during the course of routine and emergency maintenance and repairs (hereafter the "Plan"). If the Plan meets applicable regulatory requirements, is updated periodically as necessary, and is approved by Ecology for use at the Site, then such routine and emergency maintenance and repairs may be performed at the Site to the extent covered by and in accordance with the Plan. The Owner must notify Ecology immediately if any routine or emergency maintenance or repairs result in the release or exposure to the environment of a hazardous substance that remains on the Site as part of the Remedial Action, and shall comply with any orders or written directives from Ecology for the remediation of such releases.

Section 5 No wells may be drilled and screened within the unconfined alluvial zone or the basalt zone groundwater (as defined in the Cleanup Action Plan), nor may the groundwater therefrom be extracted for any use except for the purpose of groundwater monitoring within the Site as required by the Agreed Order.

Section 6 The Owner of the Site shall maintain and inspect fences and locked gates around the Site or any larger contiguous industrial property, and shall perform regular inspections at the Site boundary line or any larger contiguous industrial property, to assure that the restrictions on access to the Site are effective, except that fencing of the southern boundary of the Site along the Columbia River shall not be required..

Section 7 The Owner of the Site must give written notice to the Department of Ecology, or to a successor agency, of the Owner's intent to convey any interest in the Site at least 30 days prior to such conveyance. The Owner shall include notice of this Restrictive Covenant in any instrument conveying any interest in any portion of the Site. No conveyance of title, easement, lease or other interest in the Site shall be consummated by the Owner without adequate and complete provision for the continued operation, maintenance and monitoring of the Remedial Action.

Section 8 The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Site.

Section 9 The Owner shall allow authorized representatives of the Department of Ecology, or of a successor agency, the right to enter the Site at reasonable times and upon reasonable advance notice provided by Ecology, unless an emergency prevents such notice, for the purpose of inspecting and evaluating the Remedial Action, to take samples, and to inspect records that are related to the Remedial Action.

Section 10 The Owner must notify and obtain approval from the Department of Ecology, or from a successor agency, prior to use of the Site in a manner that is inconsistent with the terms of this Restrictive Covenant. The Department of Ecology, or its successor agency, may approve such a use only after public notice and comment.

Section 11 The Owner and Owner's assigns and successors in interest reserve the right under WAC 173-340-730 and WAC 173-340-440 to record an instrument which provides that this Restrictive Covenant shall no longer limit the use of the Site or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology or of a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment.

W. Glenn Barnard — APRIL 2, 2004

The Weyerhaeuser Company — Date

Exhibit D

Public Participation Plan
Weyerhaeuser Company
Chlor-Alkali Plant
Longview, Washington

Introduction

This Public Participation Plan (the Plan) describes public participation activities for the Weyerhaeuser Company Chlor-Alkali Plant Agreed Order, including the Cleanup Action Plan and Restrictive Covenant (the Agreed Order). The Plan has been tailored to the needs of the public based on the stage and nature of the study, the level of public concern, and the risks posed by the site.

Potentially Affected Vicinity

The Weyerhaeuser Company Chlor-Alkali Plant is located on the north shore of the Columbia River, near the city of Longview, in Cowlitz County in southwest Washington (Figure 1). The Chlor-Alkali Plant is situated at the southwestern end of the Weyerhaeuser forest product's complex. The area affected by this Agreed Order is presented in Figures 1 and 2. No single-or multifamily residential areas or schools lie within 1 mile of the site.

Chemical Contamination

In the mid-1950s, the Weyerhaeuser Company began production of chlorine and caustic for its pulp and paper mills. The technology that was available and used at that time to produce chlorine and caustic was the mercury electrolytic cell process. The two-part electrolytic process used a brine electrolyzer and an amalgam decomposer. Leaks from pumps, valves and process lines resulted in mercury releases to onsite soils. In the mid-1970s, the mercury electrolytic chlorine and caustic production cells were replaced with diaphragm cell technology. This change-out effectively ended the production-related loss of mercury to the environment.

The mercury that was released more than 25 years ago is currently detectable in soil and groundwater, and several removal actions have taken place to remove the highest mercury concentrations in soil at the plant. Groundwater at the plant, which discharges into the Columbia River, has been monitored for mercury since the 1970s. Currently, mercury concentrations in surface water in the river near the plant are similar to mercury concentrations upstream and downstream of the plant. Additional information on the background and history of the Chlor-Alkali Plant can be found in the following documents:

- *Remedial Investigation and Feasibility Study Work Plan: Chlor-Alkali Plant, Longview, Washington* (CH2M HILL, 1995)
- *Remedial Investigation Report* (CH2M Hill, 2001)
- *Feasibility Study Report* (CH2M Hill, 2001)

Public Participation Activities

The following public participation activities will occur in relation to the Agreed Order.

1) Involvement in the public participation process will be encouraged through a mailing sent to neighboring properties and interested parties. This mailing will describe the Public Participation Plan and opportunities for involvement.

2) A 30-day public comment period will be held for the Agreed Order. This public comment period will run for 30 days from the date of issuance of the notice.

   a) The public comment period for the Agreed Order will be advertised in the local Longview newspaper, The Daily News.

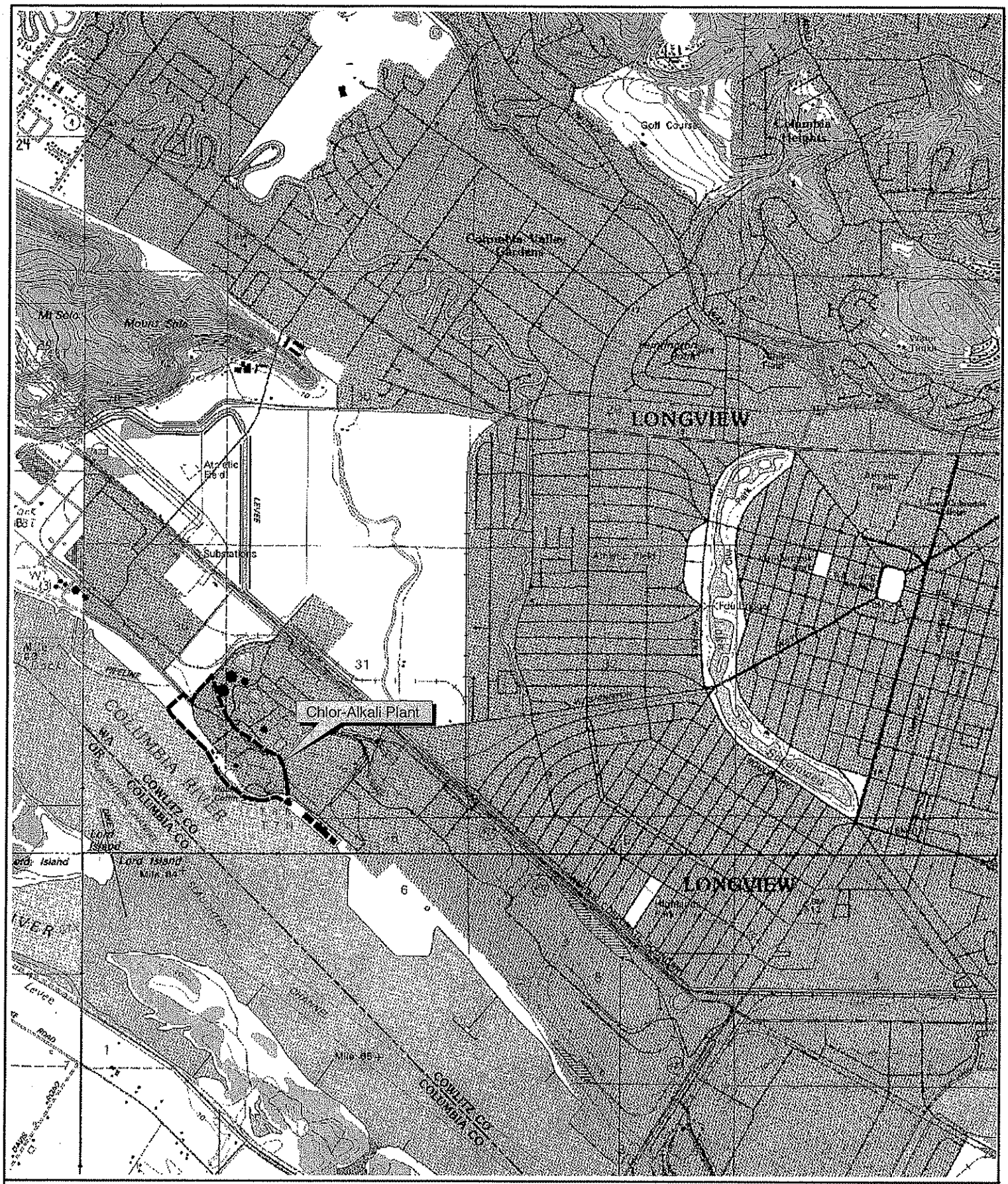
   b) The notice of the Agreed Order will be included in the mailing to interested parties.

   c) If there is significant interest, a public hearing will be scheduled for the Agreed Order . Ten or more requests for a public meeting shall constitute significant interest. The time and place will be announced in The Daily News.

3) Public notice announcements will be placed in the Ecology Site Register. The public may view copies of the Agreed Order at the following locations:

   Department of Ecology
   Southwest Regional Office
   300 Desmond Drive
   P.O. Box 47775
   Olympia, Washington 98504-7775
   Attn: Cris Matthews
   Phone: (360) 407-6388
   Fax: (360) 407-6305

   Longview Public Library
   1600 Louisiana St
   Longview, WA 98632
   (360) 577-3380



N

0 2,000 4,000 Feet

LEGEND

Approximate Site Boundary

FIGURE 1

LOCATION MAP

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

File Path: \\rosa\proj\WEYERHAEUSER COMPANY\164539\gis\longview\mxds\Non-CH_SiteMap_031904.mxd, Date: March 19, 2004 User: earonson

07-12-2001

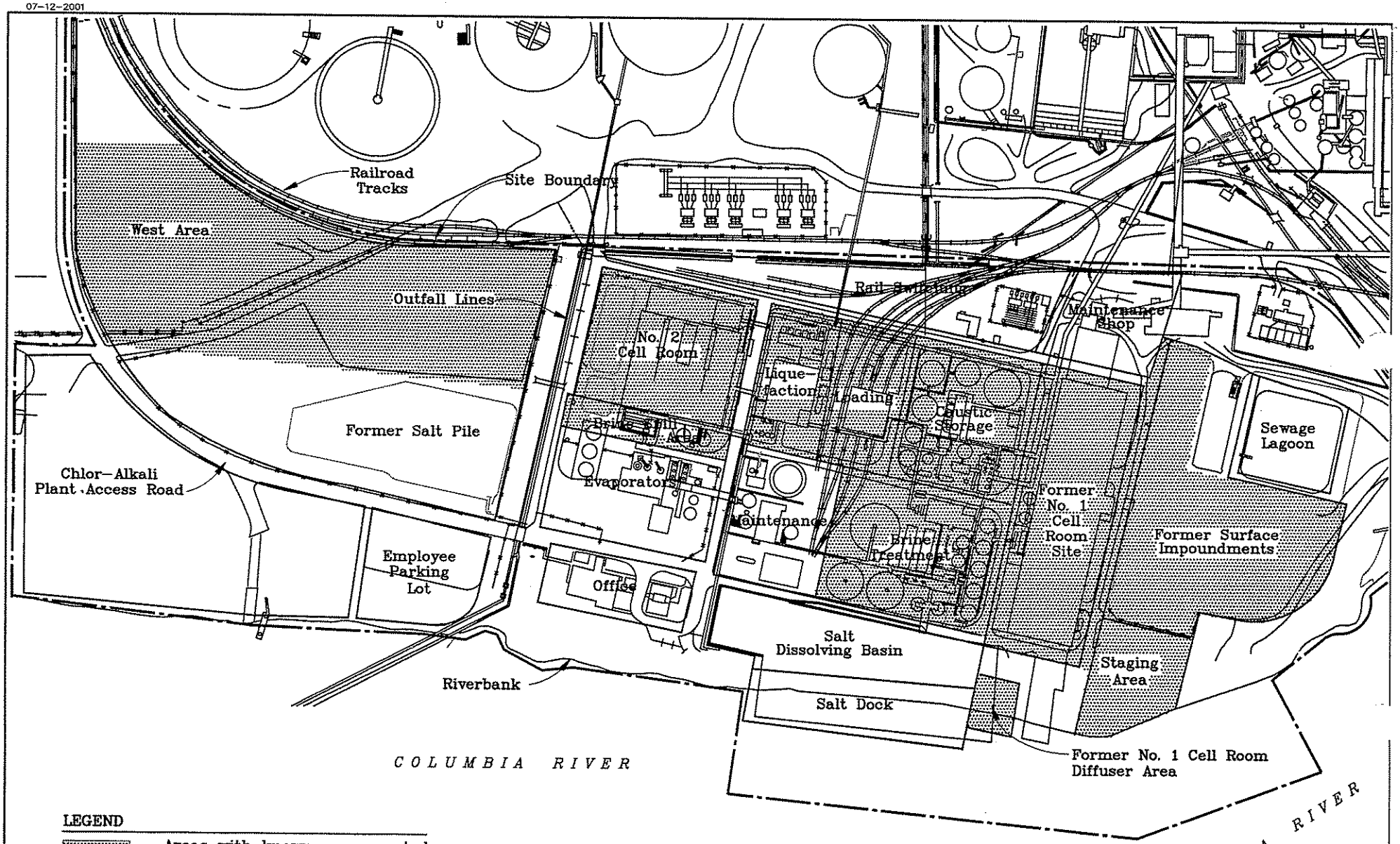


FIGURE 2

Site Map Showing Areas of Potential Concern

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

P:\WEYERHAS\148834\Cad 8834g020E.dwg