# ES473 Environmental Geology
# Western Oregon University
# Spring 2014

# Field Guide to McFarland Cascade Wood Treatment Facility Sheridan, Oregon

## PROCESSES AND TECHNOLOGIES

McFarland Cascade relies on state of the art processes and technologies designed to extend product performance and life. We're also working hard to minimize our impact on the environment. To maintain our leadership position, we regularly invest in the latest technology for our industry. Our people are also highly trained in product handling and quality control. Experience has taught us it's the combination of technology and manual observation throughout the production process that ensures the best products. It's one more reason you can expect the best from us.

## SEASONING

**Air Seasoning:** Drying by use of air, where the air temperature is not more than 140 degrees Fahrenheit, either in the open or under cover.

**Boulton Drying:** Drying by heating in a nonaqueous solution under vacuum.

**Kiln Drying:** Drying by the use of heated air at temperatures of 140 degrees Fahrenheit or above, in batch or progressive-type kilns.

**Steam Conditioning:** Subjecting poles to steam in a closed vessel, prior to treatment.

## PRESERVING

McFarland Cascade treats utility poles with the following, carefully-selected preservatives:

**Pentachlorophenol** (Penta)
A widely-used wood preservative that is normally dissolved in a petroleum carrier. It's the most commonly used preservative system utilized by North American utilities.

**Chromated Copper Arsenate** (CCA)
A water-borne treatment that offers a wide range of advantages for treated lumber, timber and poles. It's clean, odorless and paintable. For poles, its use is limited to southern yellow pine, pinus sylvestris, and western red cedar.

**Creosote**
An oil-based wood preservative blended from the distillation of coal tar and comprised of more than 200 major constituents. Used only in industrial applications, such as railroad ties, piling (both salt water and fresh water), and for poles.

**Copper Azole** (CA-B)
A water-borne copper based wood preservative with an organic co-biocide (Tebuconazol). Similar in color, to CCA-C, it is odorless, clean and paintable or stainable. Copper Azole is approved by the American Wood Preservers Association for use on Western Red Cedar and Southern Yellow Pine utility poles.

*Final Report*

# Taylor Lumber and Treating Superfund Site Final Construction Report

Prepared for

**U.S. Environmental Protection Agency**

**Task Order Number 036-RD-RD-10F1**
**EPA Contract Number 68-S7-04-01**

March 2009

Prepared by

CH2MHILL

# Acronyms and Abbreviations

| | |
|---|---|
| AC | asphalt concrete |
| ADR | alternative dispute resolution |
| BMP | best management practice |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| cm/sec | centimeters per second |
| CQAP | Construction Quality Assurance Plan |
| CRABS | Cement Recycled Asphalt Base Stabilization |
| DBR | Design Basis Report |
| DNAPL | dense non-aqueous phase liquid |
| ECM | erosion control mat |
| EPA | United States Environmental Protection Agency |
| ERRS | Emergency and Rapid Response Service |
| ESAT | Environmental Services Assistance Team |
| ESCP | Erosion and Stormwater Control Plan |
| FCR | Final Construction Report |
| ftp | File transfer protocol |
| GES | Guardian Environmental Services |
| HDPE | high-density polyethylene |
| HSP | Health and Safety Plan |
| HWYD | Highway Ditch |
| $lb/ft^3$ | pounds per cubic foot |
| mg/kg | milligrams per kilogram |
| mm | millimeter |
| NAPL | non-aqueous phase liquids |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |

| | |
|---|---|
| ODOT | Oregon Department of Transportation |
| PCP | pentachlorophenol |
| PWPO | Pacific Wood Preserving of Oregon |
| QAPP | Quality Assurance Project Plan |
| RA | remedial action |
| RCG | Rock Creek Gully |
| RCP | Reinforced Concrete Pipe |
| RCRA | Resource Conservation and Recovery Act |
| RCRD | Rock Creek Road Ditch |
| RFI | Request for Information |
| RPM | Remedial Project Manager |
| RRD-E | East Railroad Ditch |
| RRD-W | West Railroad Ditch |
| SARA | Superfund Amendments and Reauthorization Act |
| SSAP | Soil Sampling and Analysis Plan |
| SWTS | stormwater treatment system |
| SYRG | South Yamhill River Gully |
| TLT | Taylor Lumber and Treating |
| TP Area | Treatment Plant Area |
| TPS Area | Treated Pole Storage Area |
| WPS Area | White Pole Storage Area |
| XRF | x-ray fluorescence |
| $yd^3$ | cubic yard |

SECTION 1

# Introduction

The United States Environmental Protection Agency (EPA), under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), initiated remedial action (RA) construction activities for the Taylor Lumber and Treating (TLT) Superfund site to address potential risks to human health and the environment posed by site conditions. This Draft Final Construction Report (FCR), prepared by CH2M HILL under EPA Contract Number 68-S7-04-01 as set forth in Task Order Number 036-RX-BF-105G, communicates in a narrative format, CH2M HILL's understanding of the project and its requirements. This document will serve as an informational resource to summarize RA construction activities completed through December 2008.

## 1.1 Background

The TLT Superfund site is located in Yamhill County, Sheridan, Oregon (Figure 1-1). The site was listed on EPA's National Priorities List (NPL) on June 14, 2001. The EPA identification number for the site is ORD009042532.

TLT operated a sawmill and wood treating facility at the site from 1946 to 2001. Wood-treating operations commenced in 1966 in the western portion of the facility, and predominantly consisted of the treatment of Douglas fir logs for utility poles and pilings. The primary wood-treating chemicals used by TLT included creosote, pentachlorophenol (PCP), and Chemonite (a solution of arsenic, copper, zinc and ammonia). All operations ceased when TLT filed for bankruptcy in 2001. Pacific Wood Preserving of Oregon (PWPO) entered into a Prospective Purchaser Agreement with EPA and purchased the wood-treating portion of the facility (approximately 37 acres). PWPO began wood-treating operations in June 2002. Other entities purchased the remaining portion of the former TLT holdings.

PWPO currently performs wood-treating operations using copper- and borate-based treating solutions. In general, PWPO conducts wood-treating operations and stores poles on the same portions of the property where these activities were conducted by TLT. Wood treatment is conducted in the eastern portion of the facility, and untreated wood is handled and stored on the western portion of the facility. Since 2002, new structures have been constructed and certain areas were covered with asphalt or gravel.

The remedial action at TLT is focused on the wood-treating portion of the facility currently owned by PWPO. The portion of the site being addressed by the remedial action encompasses approximately 37 acres located west of Rock Creek Road, and is divided into the Treatment Plant (TP) Area, White Pole Storage (WPS) Area, and Treated Pole Storage (TPS) Areas. The designations of these areas reflect general property usage by the former TLT (Figure 1-2).

As described in the Design Basis Report, the primary areas of contamination and their sources at the TLT site include:

- Subsurface groundwater contamination, including dense non-aqueous phase liquid (DNAPL), in the vicinity of the TP Area resulting from past drips, spills, and leaks of wood-treating chemicals from above ground chemical storage tanks, drip pads, and tank farms.
- Surface soil contamination in the vicinity of the TP Area and areas of former treated pole storage (TPS) areas resulting from spills, drippage, and storage of wood-treating chemicals.
- Surface soil contamination in roadside ditches that abut the facility (contamination resulted from surface water runoff, spills associated with wood-treating operations, and deposition of contaminated dust).
- Contaminated soils from interim and removal measures conducted at the site are consolidated in the Soil Storage Cells located in the northwest corner of the facility.

### 1.1.1 Remediation Area Descriptions

Remediation areas consist of areas that were addressed or created as part of past interim actions at the site and contaminated in-place soil that has not been addressed through prior activities. Previous cleanup efforts at the site included paving part of the TPS Area, removing areas of arsenic contamination from the roadside ditches, and installing a barrier wall (bentonite slurry) to contain non-aqueous phase liquids (NAPL) present beneath the TP Area. The ground surface enclosed by the barrier wall was paved, and a groundwater extraction system constructed within the barrier wall to maintain an inward hydraulic gradient. Contaminated soil from various pre-existing stockpiles, in addition to soil resulting from interim action activities, was consolidated and moved in 2000 to Soil Storage Cells located in the northwest corner of the site. Relatively small amounts of soil have been added to these cells since 2000.

These remediation areas are described in greater detail in the following subsections.

#### Barrier Wall

The barrier wall system, completed in 2000, consists of a number of components that work together to meet the RA objectives for the area as a whole.

The soil-bentonite barrier wall is 2,040 feet long and encompasses an area of 6.05 acres. The depth of the barrier wall between the ground surface and the top of the siltstone ranges from 14 to 20 feet. The siltstone beneath the TLT site functions as an aquitard. The barrier wall is keyed into the siltstone to minimize seepage along the bottom of the wall. The depth of the key is 2 feet into the siltstone or to the point of refusal. The barrier wall was designed to be between 30 and 36 inches wide (E&E, 2001). Contractor submittals dated August 23, 2000 (Geo-Con) indicated that the wall would be constructed to a minimum width of 30 inches, which was confirmed by the EPA on-scene coordinator, Mike Sibley. The backfill soil consisted of a mixture of bentonite and clean offsite soil such that the permeability of the wall was designed to be less than $1 \times 10^{-7}$ centimeters per second (cm/sec).

### Protective Cap

A protective cap was installed over the top of the barrier wall to protect the wall from heavy equipment traffic. Figure 1-3 provides a detail of the barrier wall protective cap. The cap consists of base aggregate a minimum of 30 inches thick by 8.5 feet wide. An additional 2.5 feet of width were added to the as-built cap with a 1:1 slope on the side walls, for a total minimum cap width of 13.5 feet. The base and walls of the cap trench were covered with a low permeability (specified at $4 \times 10^{-12}$ cm/sec) geosynthetic clay liner that was overlain by a subgrade stabilization geotextile, which in turn was overlain by the compacted base aggregate. The asphalt cap was constructed over this protective cap.

### Asphalt Cap

The asphalt pavement placed in 2000 extended slightly beyond the barrier wall and protective cap, covering a total of 6.75 acres. Of that area, existing structures cover approximately 1.44 acres, and 0.21-acres is concrete (CH2M HILL, 2006a). The asphalt cap served to impede the infiltration of stormwater into the groundwater beneath the area encompassed by the barrier wall and protect people from direct contact with contaminated soils. However, the cap is centrally located in the PWPO facility and is frequently driven over by heavy equipment. Therefore, to remain intact and serve its primary purpose, the cap must be designed to successfully sustain active use without damage. The existing cap design consisted of a 2-inch-thick base course and a 2-inch-thick wearing course, and the design indicated that the wearing course would be over a minimum gravel base of 18 inches. Pavement testing conducted to confirm the specifications of the existing cap (CH2M HILL, 2006d) indicated that the existing asphalt thickness ranged from 3.6 to 6.0 inches (average of 4.8 inches), with aggregate base thickness ranging from 1 to 14 inches (average of 8.8 inches). The variable thickness of aggregate base could have contributed to numerous locations where the asphalt cap has failed since it was installed in 2000.

### Groundwater Extraction System

Four 6-inch-diameter groundwater extraction wells with pneumatic pumps were installed within the barrier wall to induce an inward hydraulic gradient and to prevent the water level from rising above the protective cap. PWPO estimates that the total groundwater recovery rate can be as high as 360 gallons per day, depending on the season. The groundwater discharge pipes and air supply pipes are routed underground (24-inch minimum depth) to the closest wastewater receiving tanks or sumps and air supply outlets at the site, where it is conveyed to the existing stormwater treatment system (SWTS) operated by PWPO.

Control of the groundwater elevation within the barrier wall is important to ensure the structural stability of the asphalt cap, and must be regularly monitored. If the groundwater elevation rises too close to the surface (for example, because of a leaking water line or a malfunctioning extraction pump), the weight-bearing capacity of the surface diminishes and the asphalt cap could fail under the heavy loads used in the area.

### Stockpiled Soil

Stockpiled soil in the northwest corner of the facility consisted of three lined storage cells. The cells were constructed in July – October 2000 and included a perimeter berm for

containment, a high-density polyethylene (HDPE) bottom liner, and an HDPE cover. The documentation in the RA report (E&E, 2001) described the Cell 1 berm as 2.5 feet high and the Cells 2 and 3 berms as 5 feet high, with a slope of 1 (vertical) to 2 (horizontal) on both sides and lined with a 20-mil HDPE liner. The liner was anchored by approximately 2 feet of clean soil on top of the berm. A gravel access road was constructed lengthwise across Cells 1 and 2.

In July 2005, EPA conducted an interim action excavating approximately 140 cubic yards ($yd^3$) of soil from ditches on the east side of Rock Creek Road. An access ramp was constructed on the south side of Cell 2, and the soil from the ditch excavation was placed on top of a small portion of Cell 2. The pile was then covered with a plastic liner and anchored with weights.

### Surface Soil

In-place contaminated surface soil addressed as part of this RA was located in the following areas:

- Contaminated soil in the 2.67-acre Treated Pole Storage Area 1 (TPS-1) and the 1.61-acre Treated Pole Storage Area 2 (TPS-2) contaminated with arsenic concentrations greater than 159 milligrams per kilogram (mg/kg).
- Contaminated soil in the 0.4-acre White Pole Storage (WPS) Area.

Within TPS-1, a 2.04-acre asphalt concrete (AC) cap had been installed in October 2000. The cap was installed as an interim action to prevent exposure to arsenic-contaminated surface soil. The sub-base for the AC pavement consisted of 25-millimeter (mm) - 0-mm base aggregate over the previously existing ground surface. The area was graded with a 0.5 percent slope toward the south to an existing drainage ditch, where it was conveyed to the SWTS conveyance system. The AC paving consisted of a 2-inch base course and a 2-inch wear course for an overall depth of 4 inches.

### Ditches

Approximately 3,890 linear feet of in-place contaminated ditch soil were addressed as part of this RA. Most of the ditch length is adjacent to the site and included the following areas:

- Railroad Ditch-West (RRD-W): Located at the northwest corner of the site, along the southern edge of the Willamette Pacific Railroad (WPRR) track.
- Railroad Ditch-East (RRD-E): Located at the northeast corner of the site, along the northern edge of the WPRR track.
- Rock Creek Road Ditch (RCRD): Located along the west side of Rock Creek Road from the northeast corner to the southeast corner of the site.
- Highway Ditch (HWYD): Located from the southwest corner of the site along the northern edge of Highway 18B to the southeast corner of the site at the intersection of Hwy 18B and Rock Creek Road.

Sediment was also removed from three culverts underneath Highway 18B, and ten culverts located within the HWYD and RCRD alignments. An area extending 10 feet down-slope

**TABLE 2-1**
Excavation Quantities
*Taylor Lumber and Treating Superfund Site*

| Soil Excavation Area | Excavation Area (acres)[1] | Average Excavation Depth (feet)[2] | Excavation Volume (cubic yards)[3] |
|---|---|---|---|
| TPS-1 | 2.67 | 2.4 | 10,492 |
| TPS-2 | 1.61 | 1.8 | 4,578 |
| WPS | 0.4 | 1.0 | 654 |
| Total | 4.68 | | 15,724 |

Notes:

[1] Excavation area calculated based on as-built survey of excavation limits. Original remedial design estimate was 2.36 acres for TPS-1, 1.57 acres for TPS-2 , and 0.4 acres for WPS for a total of 4.33 acres.

[2] Average excavation depth based on as-built survey of limits of excavation and estimated volume of removal.

[3] Quantity shown is based on as-built survey volume estimate provided by RA Contractor's surveyor initially submitted November 20, 2007and re-submitted on March 5, 2008 . RA Contractor estimated 15,701 cy in progress payment documentation submitted to EPA, as follows: 10,472 cy for TPS-1, 4575 for TPS-2, and 654 for WPS.

**TABLE 2-2**
Preliminary XRF Study Data
*Taylor Lumber and Treating Superfund Site*

| Location | Sample ID | Sample Date | GPS Coordinates | | In-Situ XRF Measurements (mg/kg) | | | | | | | Laboratory Results (mg/kg) (EPA Method 6010) | Concentration Range (Low, Med, Hi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | N° | W° | 1 | +/- | 2 | +/- | 3 | +/- | Avg | | |
| TL-SS-001 | 7214000 | 5/24/2007 | 45.09794 | 123.42722 | 209 | 6 | 442 | 10 | 321 | 7 | 324 | 178 | Hi |
| TL-SS-002 | 7214001 | 5/24/2007 | 45.09813 | 123.42766 | 550 | 10 | 363 | 7 | 351 | 8 | 421 | 436 | Hi |
| TL-SS-003 | 7214002 | 5/24/2007 | 45.09809 | 123.42782 | 60 | 3 | 189 | 6 | 112 | 4 | 120 | 105 | Med |
| TL-SS-004 | 7214003 | 5/24/2007 | 45.09832 | 123.42763 | 272 | 7 | 222 | 7 | 357 | 7 | 284 | 299 | Hi |
| TL-SS-005 | 7214004 | 5/24/2007 | 45.09871 | 123.42779 | 11 | 3 | 13 | 3 | 13 | 3 | 12 | 14 | Low |
| TL-SS-006 | 7214005 | 5/24/2007 | 45.09867 | 123.42800 | 126 | 5 | 105 | 4 | 100 | 4 | 110 | 97 | Med |
| TL-SS-007 | 7214006 | 5/24/2007 | 45.09879 | 123.42761 | 58 | 3 | 50 | 3 | 63 | 4 | 57 | 66 | Low |
| TL-SS-008 | 7214007 | 5/24/2007 | 45.09902 | 123.43044 | 591 | 8 | 526 | 8 | 665 | 10 | 594 | 450 | Hi |
| TL-SS-009 | 7214008 | 5/24/2007 | 45.09904 | 123.42915 | 24 | 2 | 38 | 3 | 45 | 3 | 36 | 70 | Low |
| TL-SS-010 | 7214009 | 5/24/2007 | 45.09897 | 123.43040 | 111 | 4 | 83 | 3 | 164 | 4 | 119 | 248 | Med |
| TL-SS-011 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- |
| TL-SS-012 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- |

Notes:

1. Samples at locations TL-SS-011 and TL-SS-012 not collected.

**TABLE 2-3**
Confirmation Sampling Results
*Taylor Lumber and Treating Superfund Site*

| Sample Location | Sample ID | Date Collected | Sample Description | Arsenic[1] (mg/kg) |
|---|---|---|---|---|
| **TPS-1** | | | | |
| TPS-1 Cell A | 7264151 | 6/25/2007 | TPSI- CELL A | 7 |
| TPS-1 Cell B | 7264153 | 6/29/2007 | CELL B COMPOSITE | 9.2 |
| TPS-1 Cell C | 7272003 | 7/6/2007 | TPS1- CELL C | 7.9 |
| TPS-1 Cell D | 7284100 | 7/9/2007 | TPS1- D COMP | 6.7 |
| TPS-1 Cell E | 7264152 | 6/25/2007 | TPS1-CELL E | 8.5 |
| TPS-1 Cell F | 7264154 | 6/29/2007 | CELL F COMPOSITE | 15 |
| TPS-1 Cell G | 7272004 | 7/6/2007 | TPS1- CELL G | 8.8 |
| TPS-1 Cell H | 7334161 | 8/18/2007 | TPSI- H COMP | 10 |
| TPS-1 Cell I | 7324150 | 8/8/2007 | TPSI CELL I COMPOSITE | 12 |
| TPS-1 Cell J | 7324154 | 8/9/2007 | TPSI CELL J | 34.6 |
| TPS-1 Cell K | 7334158 | 8/15/2007 | TPSI-K COMP | 13 |
| TPS-1 Cell L | 7334160 | 8/18/2007 | TPSI- L COMP | 17 |
| TPS-1 Cell M | 7324151 | 8/8/2007 | TPSI CELL M COMPOSITE | 62.2 |
| TPS-1 Cell N | 7324155 | 8/9/2007 | TPSI CELL N | 9 |
| TPS-1 Cell O | 7344152 | 8/24/2007 | TPS1- "O" COMPOSITE | 7.1 |
| TPS-1 Cell P | 7324156 | 8/10/2007 | TPS-I-P-COMP | 11 |
| TPS-1 Cell Q | 7344150 | 8/21/2007 | TPSI- Q COMPOSITE | 7.9 |
| **TPS-2** | | | | |
| TPS-2 Cell A | 7294155 | 7/20/2007 | TPS2-CELL A COMPOSITE | 140 |
| TPS-2 Cell B | 7294152 | 7/18/2007 | TPS2-CELL B COMPOSITE | 13 |
| TPS-2 Cell C | 7334150 | 8/13/2007 | TPS-2-C- COMP | 10 |
| TPS-2 Cell D | 7294154 | 7/20/2007 | TPS2-CELL D COMPOSITE | 14 |
| TPS-2 Cell E | 7294151 | 7/18/2007 | TPS2-CELL E COMPOSITE | 16 |
| TPS-2 Cell F | 7334151 | 8/13/2007 | TPS-2-F- COMP | 21 |
| TPS-2 Cell G | 7294156 | 7/20/2007 | TPS2-CELL G COMPOSITE | 33.2 |
| TPS-2 Cell H | 7294153 | 7/19/2007 | TPS2-CELL H COMPOSITE | 16 |
| TPS-2 Cell I | 7294150 | 7/18/2007 | TPS2-CELL I COMPOSITE | 14 |
| TPS-2 Cell J | 7334152 | 8/13/2007 | TPS-2-J- COMP | 62.3 |
| TPS-2 Cell K | 7334153 | 8/13/2007 | TPS-2-K- COMP | 13 |
| TPS-2 Cell L | 7334154 | 8/14/2007 | TP2S-L COMP | 4.8 |

**TABLE 2-3**
Confirmation Sampling Results
*Taylor Lumber and Treating Superfund Site*

| Sample Location | Sample ID | Date Collected | Sample Description | Result[1] (mg/kg) |
|---|---|---|---|---|
| TPS-2 Cell L | 7304154 | 7/27/2007 | TPS2-L CONF | 8.3 |
| TPS-2 Cell M | 7304153 | 7/27/2007 | TPS2-M CONF | 17 |
| TPS-2 Fenceline (East of PWPO Dryer) | 7344153 | 8/24/2007 | TPS2- G-K FENCE COMPOSITE | 61.5 |
| **WPS** | | | | |
| WPS Cell A | 7324157 | 8/11/2007 | WPS-A- COMP | 15 |
| WPS Cell B | 7324158 | 8/11/2007 | WPS-B- COMP | 11 |
| WPS Cell C | 7324159 | 8/11/2007 | WPS-C- COMP | 6.1 |
| **RRD-E** | | | | |
| RRD-E (All) | 7334157 | 8/15/2007 | RAIL DITCH E | 5.4 |
| RRD-W | | | | |
| RRD-W (All) | 7334159 | 8/16/2007 | RAIL DITCH- W | 8.7 |
| **RCRD** | | | | |
| RCRD North Half | 7334155 | 8/14/2007 | RCRD-N | 7.6 |
| RCRD South Half | 7334156 | 8/14/2007 | RCRD-S | 7.8 |
| **RCG** | | | | |
| RCG (All) | 7344151 | 8/22/2007 | RCG COMPOSITE | 48.6 |
| **HWYD** | | | | |
| HWYD (East Half) | 7324152 | 8/8/2007 | HWY DITCH 1A-E COMPOSITE | 8.4 |
| HWYD (West Half) | 7324153 | 8/8/2007 | HWY DITCH 2A-E COMPOSITE | 14 |

Notes:

1. Reference: Final results for arsenic soil analyses, confirmational sample results, Remedial Action, Taylor Lumber and Treating Superfund site. Data Release and Quality Assurance Memoranda for May 24 through July 9, 2007; July 18 through July 27, 2007; and August 8 through 24, 2007. Gerald Dodo (EPA Region 10 Laboratory) to Karen Keeley (EPA Region 10 Superfund), Seattle, Washington (EPA, 2007g)
2. Sample locations are shown in Table 2-4 and Figure 2-2.

**TABLE 2-6**
Offsite Disposal Quantities
*Taylor Lumber and Treating Superfund Site*

| Subtitle D Disposal | Disposal Quantity (Tons) |
|---|---|
| Soil Storage Cells 1, 2 and 3 (2007)[1] | 26,351 |
| Trench Drain Demolition Debris Disposal (2008)[2] | **See Note 3** |
| **Total Subtitle D Disposal Quantity** | **See Note 3** |
| **Subtitle C Disposal** | **Disposal Quantity (Tons)** |
| TPS-1, TPS-2, WPS, RCG, RRD-E, RRD-W, RCRD, HWYD, Screening and Staging Area (2007)[1] | 27,553 |
| TPS-2 dioxin containing soils (2008)[1] | 16.69 |
| Soils from replacement trench drain construction (2008) | 64 |
| Cement Recycled Asphalt Base Material excavated during replacement trench drain construction (2008) | 4 |
| Soils excavated during the Highway 18B culvert excavation (2008) | 1149.2 |
| **Total Subtitle C Soil Disposal Quantity** | **28,784** |

Notes:

1. Quantity estimates from Contractor's Final Progress Payment Request dated 11-28-07.
2. Demolition of the rejected trench drains was conducted by an EPA ERRS contractor in 2008. An estimated 40 cy of demolition debris was disposed of at Riverbend Landfill, and 140 cy of concrete debris was recycled at Valley Concrete.
3. Demolition debris for trench drain demolition is estimated at 150 cubic yards of concrete (recycled) and 20 cubic yards of low-permeability asphalt debris disposed of at Riverbend Landfill (Subtitle D). The ERRS contractor did not provide an estimate of tonnage of demolition debris.

**TABLE 2-7**
Well Abandonment and Alteration Summary
*Taylor Lumber and Treating Superfund Site*

| Well | Abandonment | Alteration | Comment |
|---|---|---|---|
| MW-2S | X | | |
| MW-2D | X | | |
| MW-4S | X | | |
| MW-4D | X | | |
| MW-7S | X | | |
| MW-7D | X | | |
| MW-18S | X | | |
| MW-21S | X | | |
| MW-23S | X | | |
| N-1S | X | | |
| N-1D | X | | |
| N-2S | X | | |
| N-2D | X | | |
| N-3S | X | | |
| N-3D | X | | |
| T-2 | NA | NA | This well could not be located in the field. |
| T-4 | X | | Previously abandoned in place. Surface monument removed. |
| T-5 | NA | NA | This well could not be located in the field. |
| T-6 | X | | |
| PW-1 | | X | Vault cover raised 4 inches. |
| PW-2 | | X | Vault cover raised 4 inches. |
| PW-3 | | X | Vault cover raised 4 inches. |
| PW-4 | NA | NA | Alteration was not performed. |
| MW-14S | | X | Surface monument raised 4 inches. |
| MW-101S | | X | Surface monument raised 4 inches. |
| MW-102S | | X | Surface monument raised 4 inches. |
| MW-104S | | X | Surface monument raised 4 inches. |

**TABLE 2-8**
Asphalt Pavement Permeability and Thickness
*Taylor Lumber and Treating Superfund Site*

| Asphalt Core | Thickness (inches) | Permeability (cm/sec) |
|---|---|---|
| 1-1 4.0 | | $<1x10^{-8}$ |
| 2-1 4.4 | | $<1x10^{-8}$ |
| 2-2 5.1 | | $<1x10^{-8}$ |
| 2-3 | **3.9** | $<1x10^{-8}$ |
| 3-1 | **3.8** | $<1x10^{-8}$ |
| 3-2 4.9 | | $<1x10^{-8}$ |
| 4-1 4.0 | | **$<7.9x10^{-8}$** |
| 4-2 4.0 | | $<1x10^{-8}$ |
| 5-1 4.1 | | $<1x10^{-8}$ |
| 6-1 | **3.7** | $<1x10^{-8}$ |
| 6-2 | **3.2** | $<1x10^{-8}$ |
| 7-1 4.4 | | $<1x10^{-8}$ |
| 7-2 4.1 | | $<1x10^{-8}$ |
| 7-3 | **3.3** | $<1x10^{-8}$ |

Notes:
Bold values indicate values that did not meet contract specifications

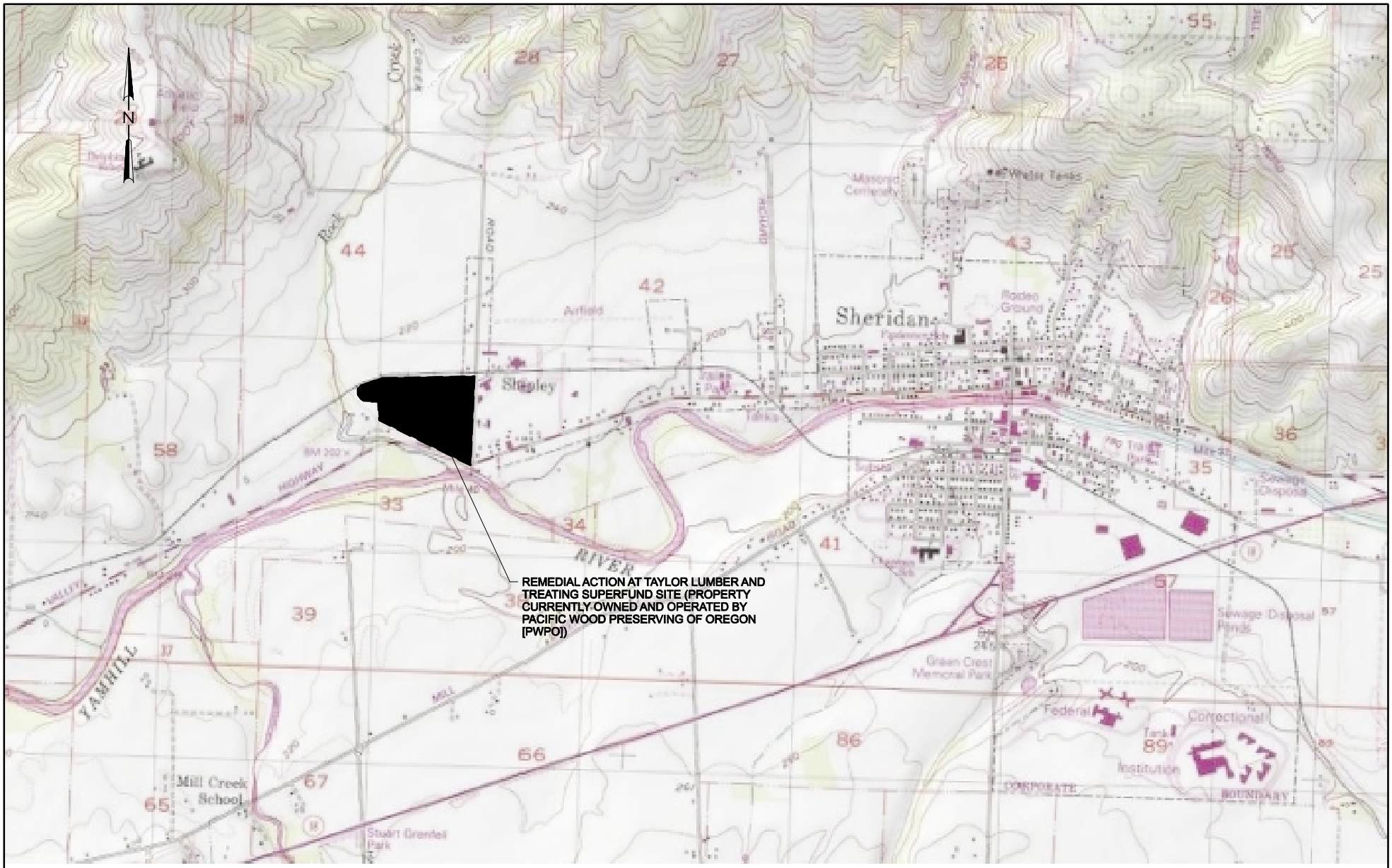



FIGURE 1-1
SITE VICINITY MAP
TAYLOR LUMBER AND TREATING SUPERFUND SITE
SHERIDAN, OREGON

CH2MHILL

24-DEC-2008 ab-fig1-1_342790.dgn


NOTE:

PHOTO TAKEN MARCH 27, 2006

# FIGURE 1-2
# SITE PHOTO - PRIOR TO REMEDIAL ACTION
TAYLOR LUMBER AND TREATING SUPERFUND SITE



CH2MHILL

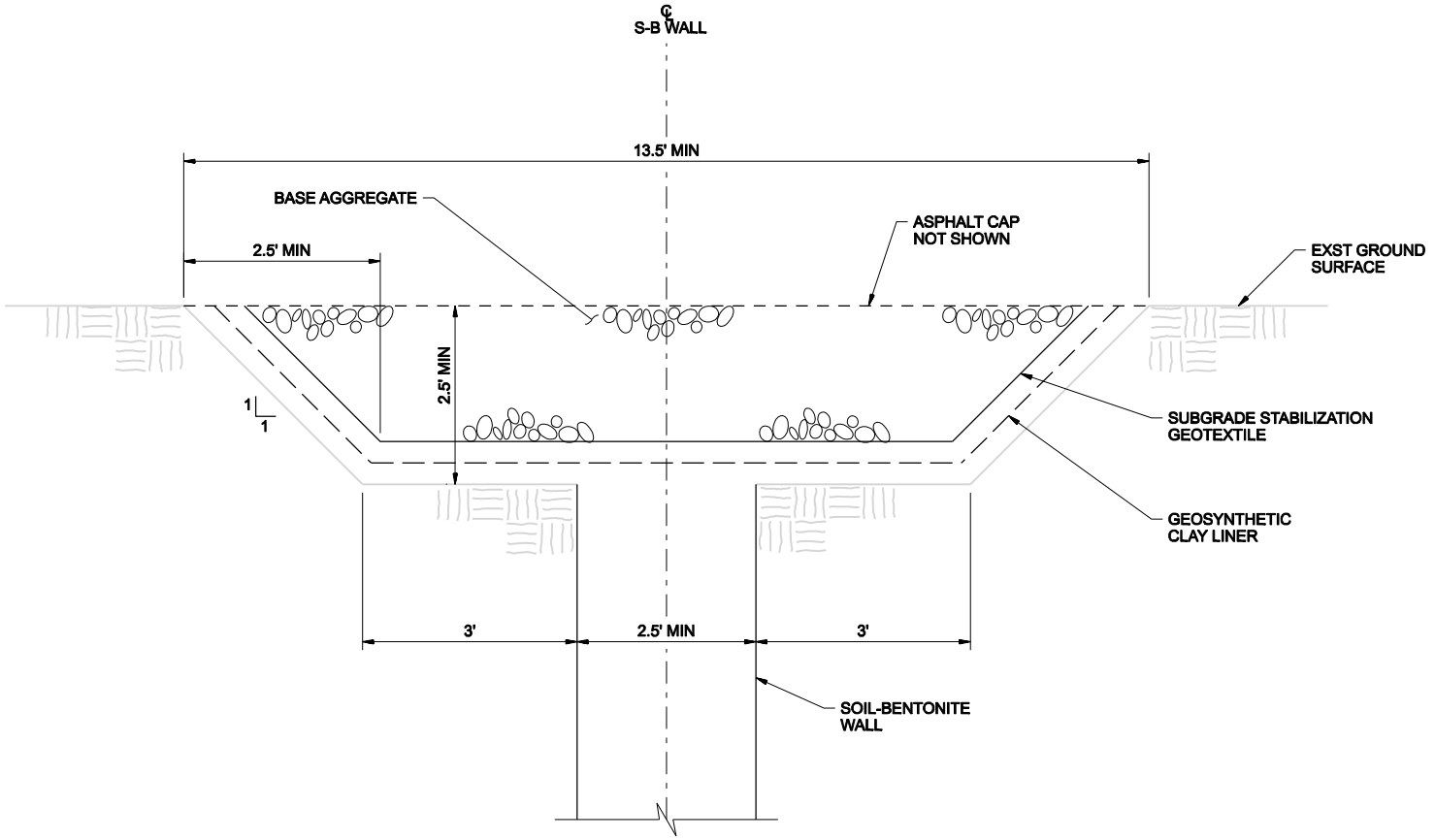
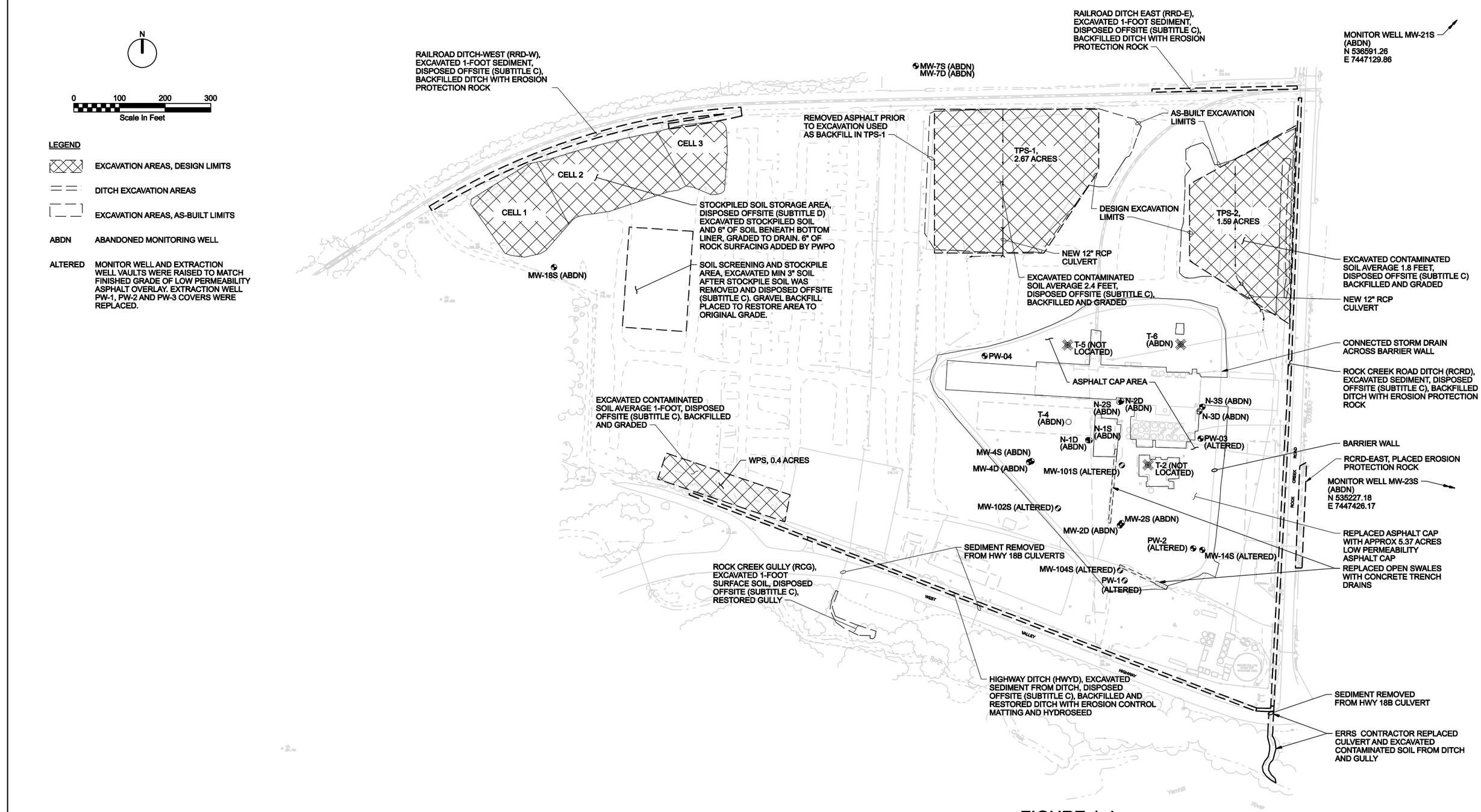



FIGURE 1-3
BARRIER WALL PROTECTIVE CAP DETAIL
TAYLOR LUMBER AND TREATING SUPERFUND SITE



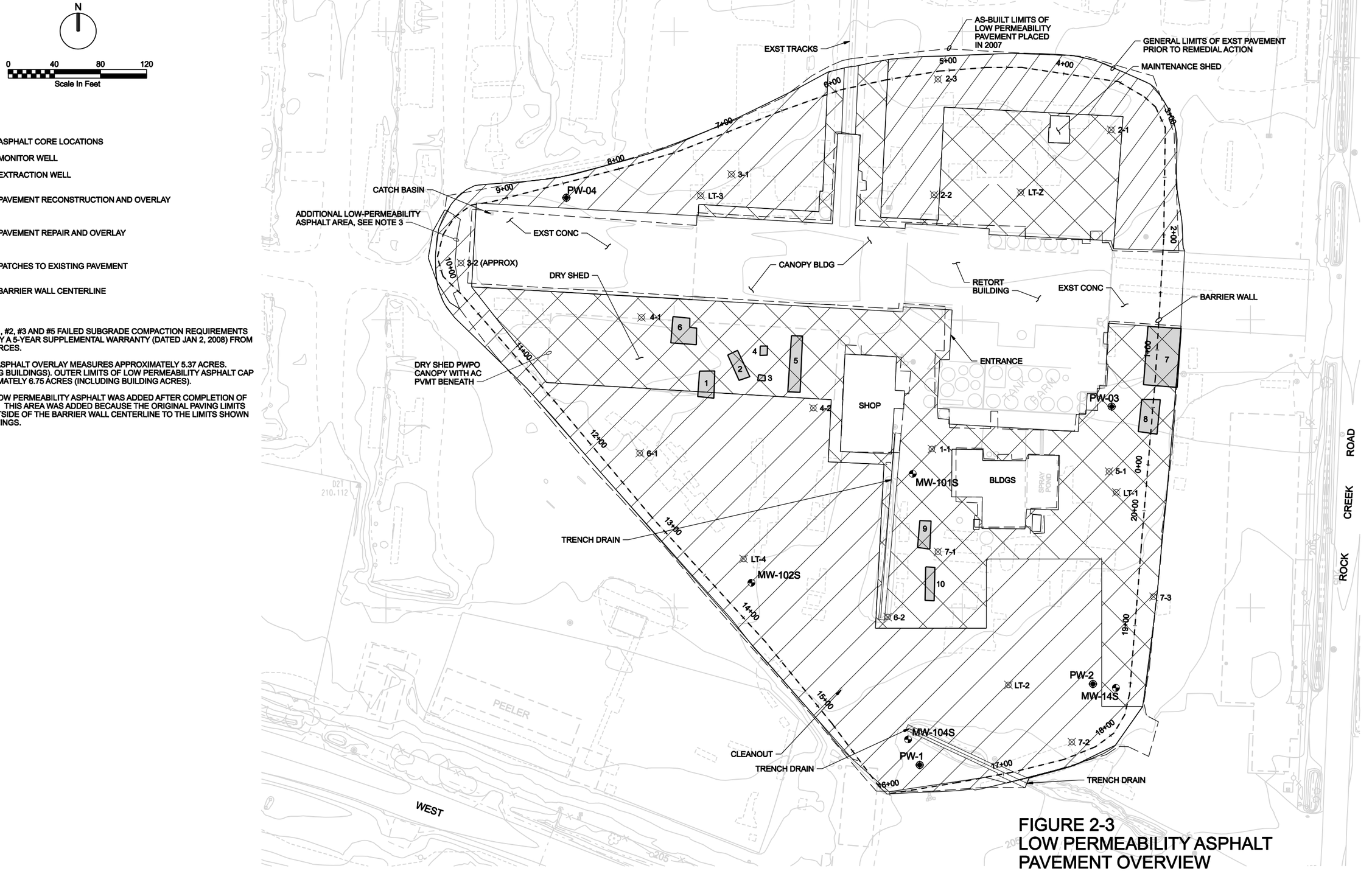
CH2MHILL




# FIGURE 1-4
# KEY ELEMENTS OF COMPLETED REMEDIAL ACTION
TAYLOR LUMBER AND TREATING SUPERFUND SITE



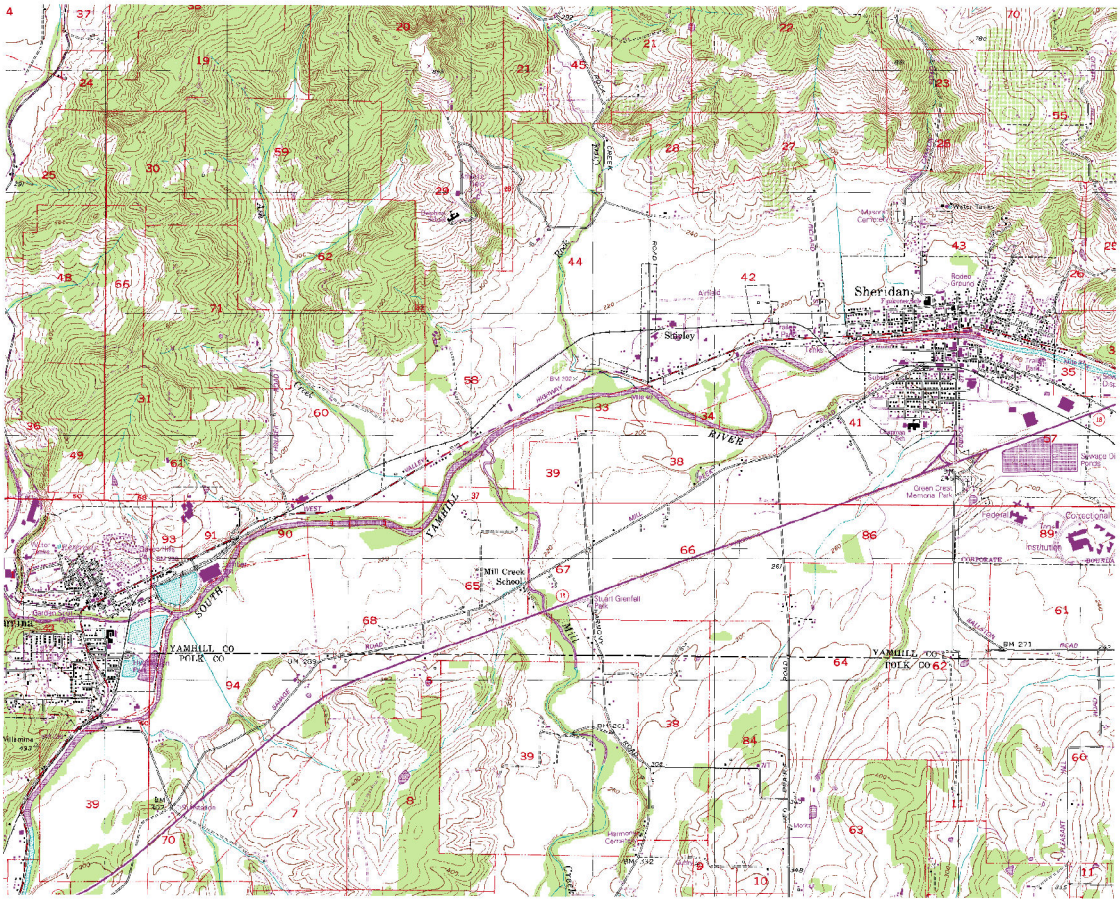
CH2MHILL




# FIGURE 2-3
# LOW PERMEABILITY ASPHALT PAVEMENT OVERVIEW

TAYLOR LUMBER AND TREATING SUPERFUND SITE

# Pacific Wood Processing, Sheridan, Oregon




N

0 500 1,000 2,000 3,000 4,000

Meters

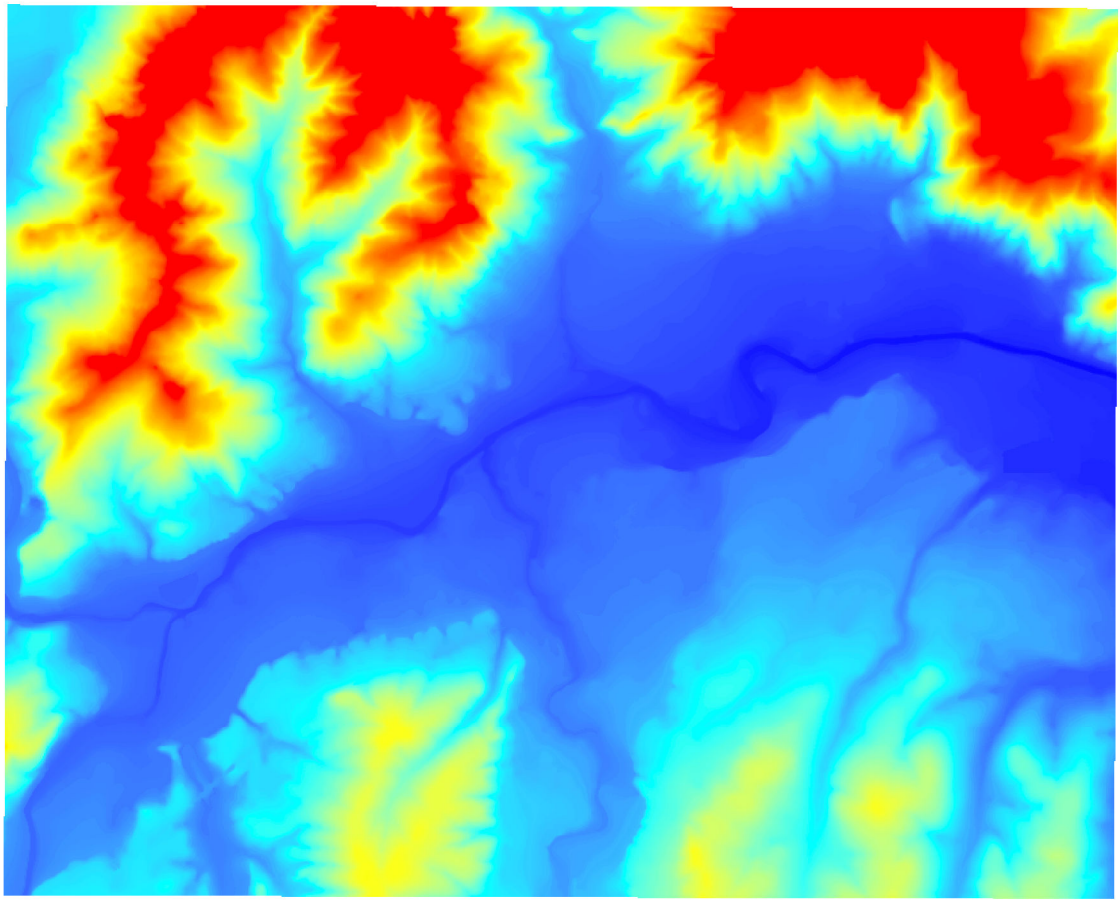
Pacific Wood Processing, Sheridan, Oregon

N

0 500 1,000 2,000 3,000 4,000

Meters

Pacific Wood Processing, Sheridan, Oregon



N

0 500 1,000 2,000 3,000 4,000

Meters

**Legend**

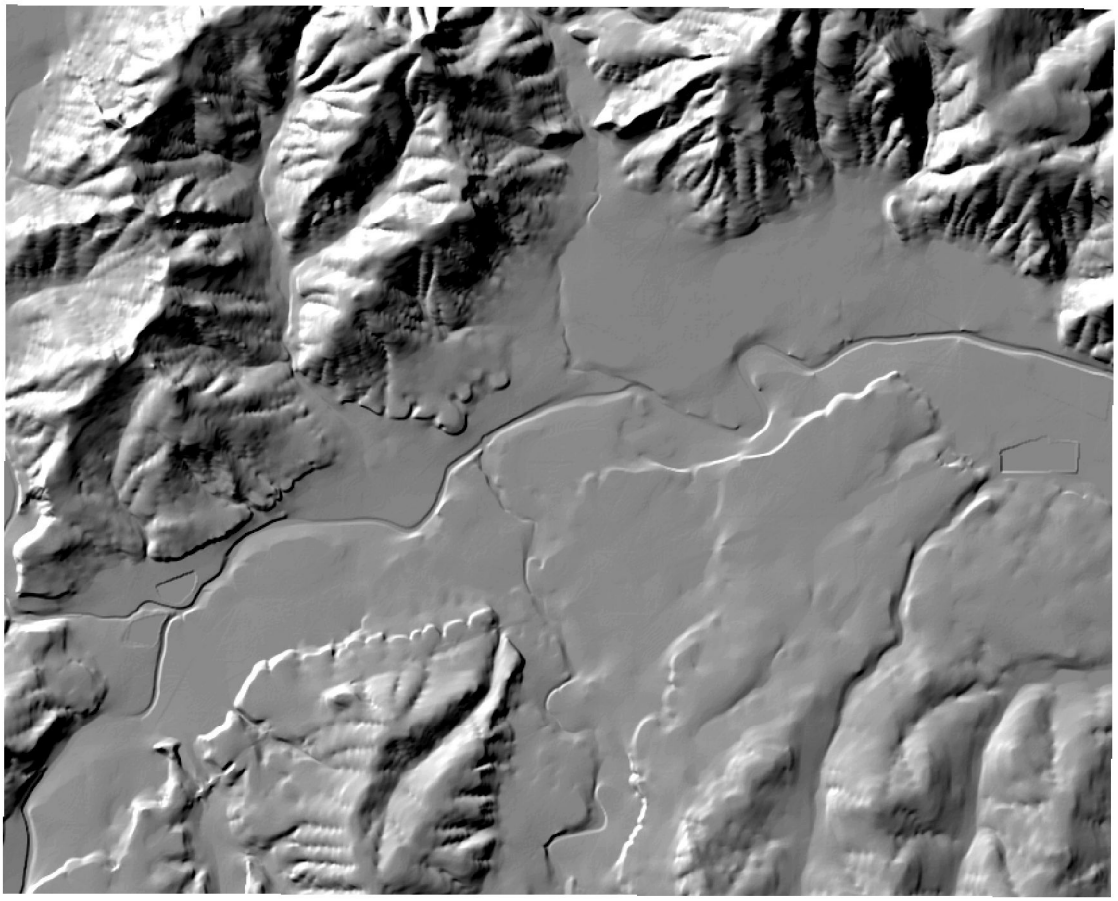
**pwp_dem**

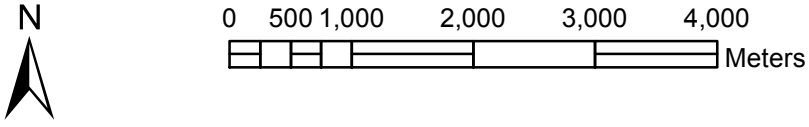
**Value**

High : 287.9

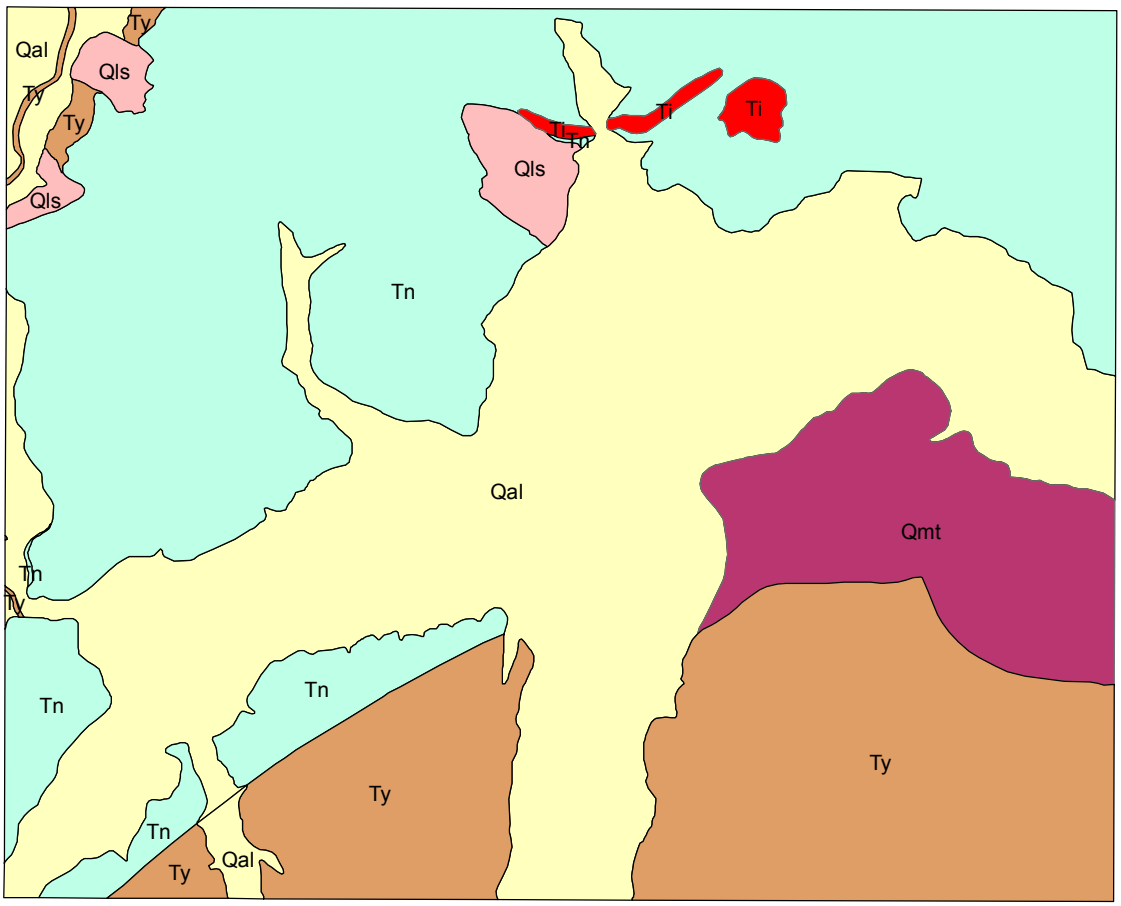
Low : 51

Pacific Wood Processing, Sheridan, Oregon





# Pacific Wood Processing, Sheridan, Oregon




N

0 500 1,000 2,000 3,000 4,000

Meters

**pwp_geology**

**MAP_UNIT_L**

| | |
|---|---|
| Qal | Quaternary Alluvium |
| Qls | Quaternary Landslides |
| Qmt | Quaternary Middle Terrace |
| Ti | Teritiary Intrusive |
| Tn | Nestucca Formation |
| Ty | Yamhill Formation |

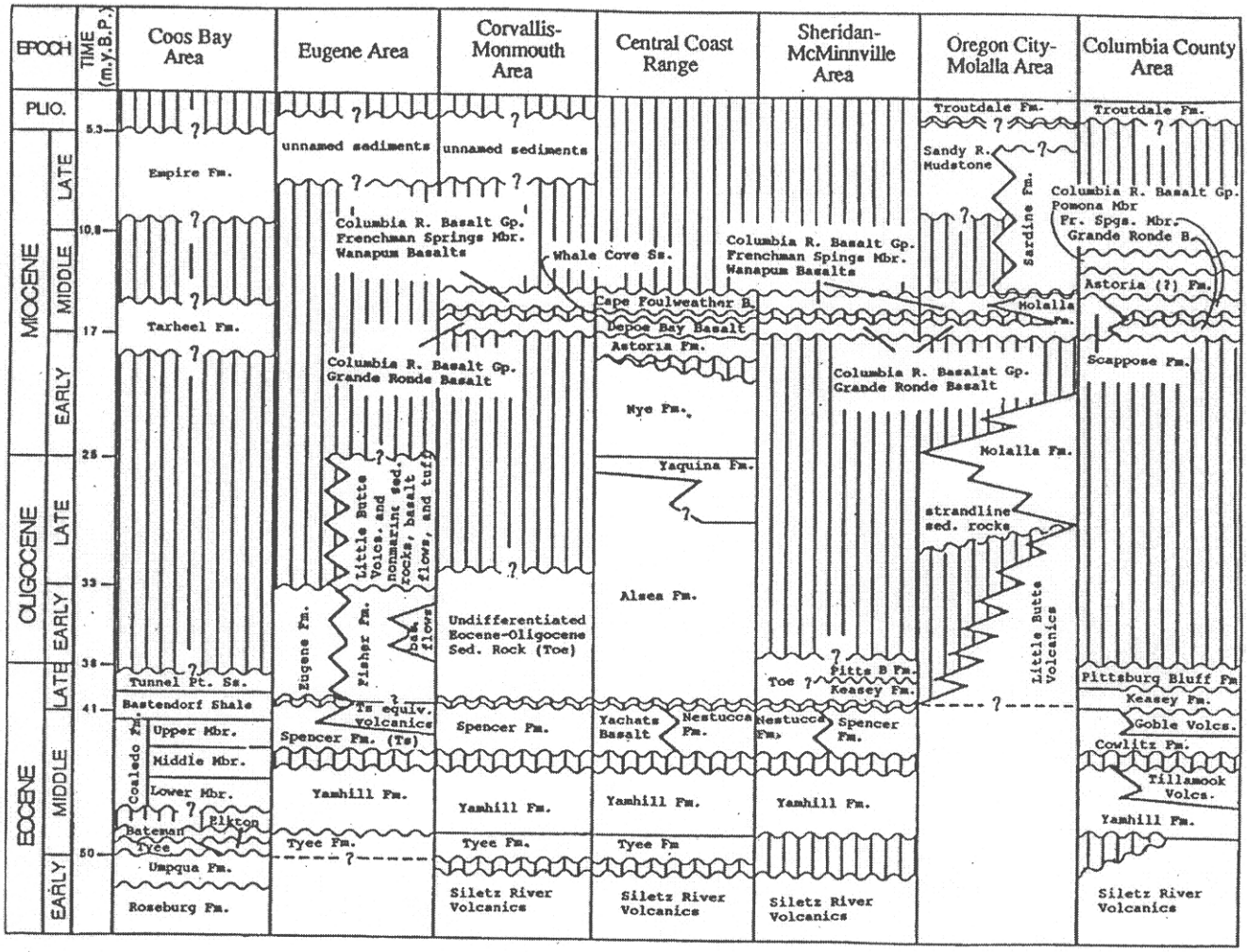



Figure 3. Stratigraphic correlation chart for Tertiary rocks of western Oregon (modified from Yeats and others, 1991).

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

Yamh Lab 3

# WATER WELL REPORT
## STATE OF OREGON

(Please type or print)

(Do not write above this line)

RECEIVED JUN 19 1973 STATE ENGINEER SALEM OREGON

State Well No. 5S/6W-28 ba

State Permit No.

## (1) OWNER:

Name David Bowlin

Address 346 N. E. Faulconer, Sheridan Oregon

## (2) TYPE OF WORK (check):

New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]

If abandonment, describe material and procedure in Item 12.

## (3) TYPE OF WELL:

Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

## (4) PROPOSED USE (check):

Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

## CASING INSTALLED:

Threaded [ ] Welded [X]

6 " Diam. from 0 ft. to 45 ft. Gage .250

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

## PERFORATIONS:

Perforated? [X] Yes [ ] No.

Type of perforator used Torch

Size of perforations 1/8 in. by 12 in.

10 perforations from 41 ft. to 44 ft.

perforations from ft. to ft.

perforations from ft. to ft.

## (7) SCREENS:

Well screen installed? [ ] Yes [X] No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.

Diam. Slot size Set from ft. to ft.

## (8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? [X] Yes [ ] No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " "

" " " "

Bailer test Comp. 6 gal./min. with 59 ft. drawdown after 1 hrs.

Artesian flow g.p.m.

Temperature of water 53 Depth artesian flow encountered ft.

## (9) CONSTRUCTION:

Well seal—Material used Cement Grout & Drill Cuttings

Well sealed from land surface to 18 ft.

Diameter of well bore to bottom of seal 9 in.

Diameter of well bore below seal 6 9 in.

Number of sacks of cement used in well seal 1 sacks

Number of sacks of bentonite used in well seal 0 sacks

Brand name of bentonite

Number of pounds of bentonite per 100 gallons of water lbs./100 gals.

Was a drive shoe used? [ ] Yes [X] No Plugs Size: location ft.

Did any strata contain unusable water? [ ] Yes [X] No

Type of water? depth of strata

Method of sealing strata off

Was well gravel packed? [X] Yes [ ] No Size of gravel: 3/8 Pea

Gravel placed from 18 ft. to 43 ft.

## (10) LOCATION OF WELL:

County Yamhill Driller's well number

NE ¼ NW ¼ Section 28 T. 5S R. 6W W.M.

Bearing and distance from section or subdivision corner

## (11) WATER LEVEL: Completed well.

Depth at which water was first found 33Ft. 2GPM ft.

Static level 16 ft. below land surface. Date June 14-73

Artesian pressure lbs. per square inch. Date

## (12) WELL LOG:

Diameter of well below casing 6 In.

Depth drilled 91 ft. Depth of completed well 85 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

| MATERIAL | From | To | SWL |
|---|---|---|---|
| Topsoil | 0 | 1 | |
| Brown Clay | 1 | 18 | |
| Weathered Basalt, Black red & Brown | 18 | 23 | |
| Coarse Grained Basalt, Black | 23 | 42 | |
| Gray Shale | 42 | 91 | |

Work started June 11 19 73 Completed June 14 19 73

Date well drilling machine moved off of well June 14 19 73

**Drilling Machine Operator's Certification:**

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Ernest Johnson (Drilling Machine Operator) Date June 17 19 73

Drilling Machine Operator's License No. 604

**Water Well Contractor's Certification:**

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name Wilcox Drilling & Pump Co. (Person, firm or corporation) (Type or print)

Address P. O. Box 569, McMinnville, Oregon

[Signed] James H. Wilcox (Water Well Contractor)

Contractor's License No. 428 Date June 17, 19 73

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

STATE OF OREGON

# WATER WELL REPORT

(as required by ORS 537.765)

Yam H 861

RECEIVED OCT - 8 1991

55/6W/28 ad

(START CARD) # 35945

## (1) OWNER:

Well Number: WA

Name Dean + Patricia Johnson

Address 2440 N. Evans

City McMinnville State Ore. Zip 97128

## (2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

## (3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable

☐ Other

## (4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other

## (5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 122 ft.

Explosives used Yes ☐ No ☐ Type ____ Amount ____

| HOLE Diameter | From | To | SEAL Material | From | To | Amount sacks or pounds |
|---|---|---|---|---|---|---|
| 11 | 0 | 20 | Cemnt | 0 | 20 | 7 |
| 6 | 20 | 122 | | | | |

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☒ E

☐ Other

Backfill placed from ____ ft. to ____ ft. Material ____

Gravel placed from ____ ft. to ____ ft. Size of gravel ____

## (6) CASING/LINER:

| | Diameter | From | To | Gauge | Steel | Plastic | Welded | Threaded |
|---|---|---|---|---|---|---|---|---|
| Casing: | 6" | +1 | 20 | 160 | ☐ | ☒ | ☒ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| Liner: | 4" | 2 | 122 | 160 | ☐ | ☒ | ☒ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |

Final location of shoe(s) ____

## (7) PERFORATIONS/SCREENS:

☒ Perforations Method Electric Drill

☐ Screens Type ____ Material ____

| From | To | Slot size | Number | Diameter | Tele/pipe size | Casing | Liner |
|---|---|---|---|---|---|---|---|
| 82 | 122 | | 150 | 5/8 | Circular | ☐ | ☒ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |

## (8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

| Yield gal/min | Drawdown | Drill stem at | Time |
|---|---|---|---|
| 30 | Air Lift | 122 | 1 hr. |
| | | | |
| | | | |

Temperature of water 53 Depth Artesian Flow Found ____

Was a water analysis done? ☐ Yes By whom ____

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other ____

Depth of strata: ____

## (9) LOCATION OF WELL by legal description:

County Yamhill Latitude ____ Longitude ____

Township 5S N or S, Range 6W E or W, WM.

Section 28 SE ¼ NE ¼

Tax Lot ____ Lot ____ Block ____ Subdivision ____

Street Address of Well (or nearest address) Rock Cr. Rd.

1 mile past Taylor Lumber 90° Corner

## (10) STATIC WATER LEVEL:

42 ft. below land surface. Date 10-2-91

Artesian pressure ____ lb. per square inch. Date ____

## (11) WATER BEARING ZONES:

Depth at which water was first found 90

| From | To | Estimated Flow Rate | SWL |
|---|---|---|---|
| 90 | 95 | 12 | 42 |
| 110 | 115 | 18 | 42 |
| | | | |
| | | | |

## (12) WELL LOG:

Ground elevation Appox 250

| Material | From | To | SWL |
|---|---|---|---|
| Topsoil | 0 | 2 | |
| Brown + Red Decomposed Clay. | 2 | 10 | |
| Firth Gray Shale w/ unstable layers. | 10 | 85 | |
| White limestone w/ gray soapstone. | 85 | 111 | |
| Firth Gray Shale w/ White limestone | 111 | 122 | |

Date started Oct. 1 91 Completed Oct. 2 91

**(unbonded) Water Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number ____

Signed Not Appl. Date ____

**(bonded) Water Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. all work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 795

Signed Randall L. Wilcox Date Oct. 2 91

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 3/88

# STATE OF OREGON
# MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

YAMH 1862

55/6W/33ab

Start Card # 45787

## (1) OWNER/PROJECT:

WELL NO.

Name TAYLOR LUMBER AND TREATING

Address 22125 S.W. ROCK CREEK RD.

City SHERIDAN State OR. Zip 97378

## (2) TYPE OF WORK:

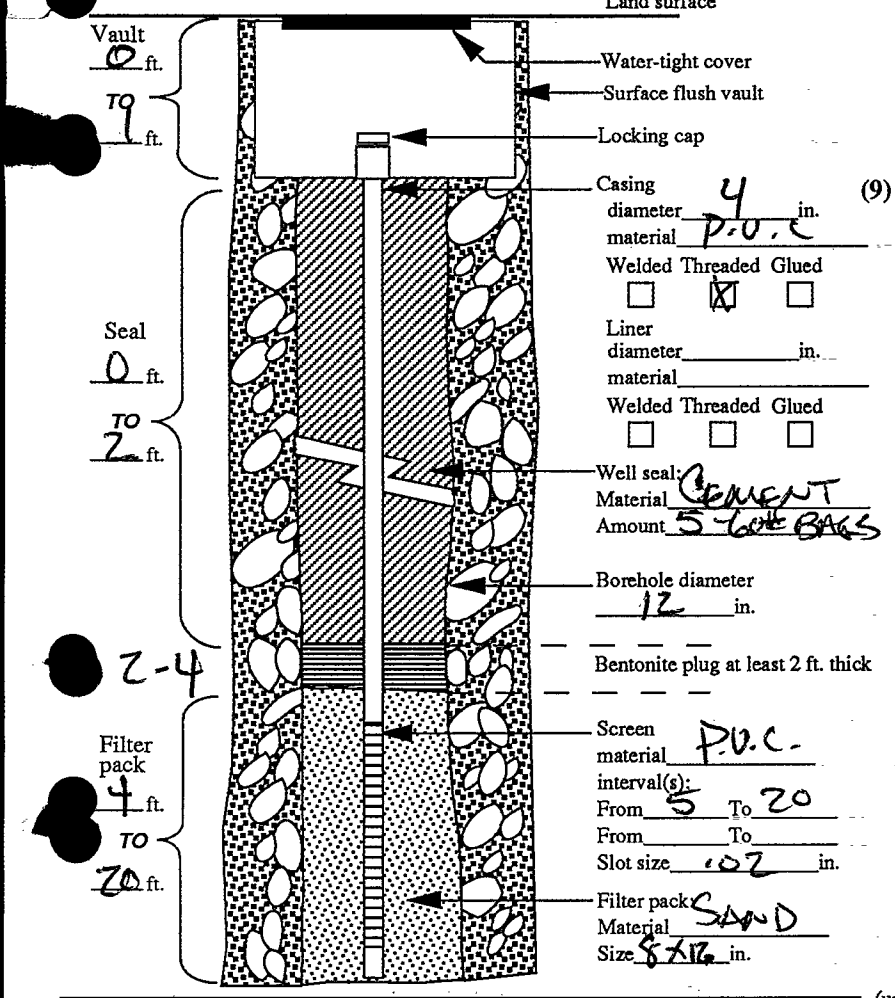
[X] New construction [ ] Repair [ ] Recondition
[ ] Conversion [ ] Deepening [ ] Abandonment

## (3) DRILLING METHOD

[ ] Rotary Air [ ] Rotary Mud [ ] Cable
[X] Hollow Stem Auger [ ] Other

## (4) BORE HOLE CONSTRUCTION

Special Standards Yes [ ] No [X] Depth of completed well 20 ft.




## (5) WELL TEST:

[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 54 °F/C Depth artesian flow found ft.

Was water analysis done? [X] Yes [ ] No

By whom? EMCON

Depth of strata to be analyzed. From ft. to ft.

Remarks:

Name of supervising Geologist/Engineer STEVE TAYLOR

## (6) LOCATION OF WELL By legal description

Well Location: County Yamhill

Township 5 (N or S) Range 6 (E or W) Section 33

1. NW 1/4 of NE 1/4 of above section

2. Street address of well location 22125 S.W. ROCK CREEK RD. SHERIDAN OR 97378

3. Tax lot number of well location 800

4. ATTACH MAP WITH LOCATION IDENTIFIED.

## (7) STATIC WATER LEVEL:

6 Ft. below land surface. Date 8-26-92

Artesian Pressure lb/sq. in. Date

## (8) WATER BEARING ZONES:

Depth at which water was first found 13

| From | To | Est. Flow Rate | SWL |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## (9) WELL LOG:

Ground elevation

| Material | From | To | SWL |
|---|---|---|---|
| CLAY | 0 | 15 | |
| GRAVEL SILTY SAND | 15 | 20 | |

RECEIVED
SEP - 9 1992
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 8-26-92 Completed 8-26-92

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed David Abernethy MWC Number 0025 Date 8-26-92

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed MWC Number 100 Date 9/4/92

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

# STATE OF OREGON
# MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

YAMH 1863

5S/6W/33Ab

Start Card # 45788

## (1) OWNER/PROJECT:

WELL NO.

Name TAYLOR LUMBER + TREATING

Address 22125 S.W. ROCK CREEK RD.

City SHERIDAN State OR Zip 97578

## (2) TYPE OF WORK: BORING WITH WATER SAMPLE

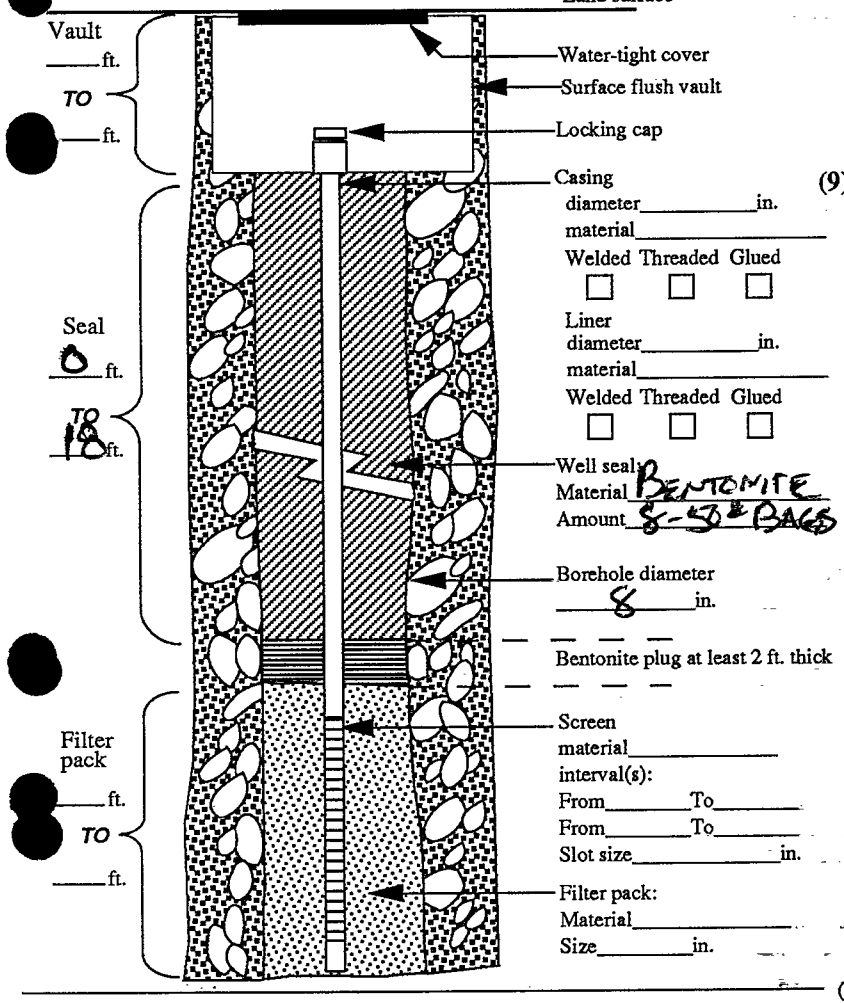
[X] New construction [ ] Repair [ ] Recondition
[ ] Conversion [ ] Deepening [ ] Abandonment

## (3) DRILLING METHOD

[ ] Rotary Air [ ] Rotary Mud [ ] Cable
[X] Hollow Stem Auger [ ] Other

## (4) BORE HOLE CONSTRUCTION

Special Standards Yes [ ] No [X] Depth of completed well 18 ft.




## (5) WELL TEST:

[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 55 [ ] °F [X] °C Depth artesian flow found ft.

Was water analysis done? [X] Yes [ ] No

By whom? EMCON

Depth of strata to be analyzed. From ft. to ft.

Remarks:

Name of supervising Geologist/Engineer STEVE TAYLOR

## (6) LOCATION OF WELL By legal description

Well Location: County Yamhill

Township 5 (N or [S]) Range 6 (E or [W]) Section 33

1. NW 1/4 of NE 1/4 of above section.
2. Street address of well location 22125 SW Rock Creek Rd. Sheridan OR 97578
3. Tax lot number of well location 800
4. ATTACH MAP WITH LOCATION IDENTIFIED.

## (7) STATIC WATER LEVEL:

16 Ft. below land surface. Date 8-26-92

Artesian Pressure lb/sq. in. Date

## (8) WATER BEARING ZONES:

Depth at which water was first found 17.5

| From | To | Est. Flow Rate | SWL |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## (9) WELL LOG:

Ground elevation

| Material | From | To | SWL |
|---|---|---|---|
| GRAVEL FILL | 0 | 7 | |
| CLAY | 7 | 15 | |
| GRAVEL SAND | 15 | 18 | |

RECEIVED
SEP - 9 1992
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 8-26-92 Completed 8-26-92

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed David Abernathy MWC Number 1002S Date 8-26-92

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 1004

Signed Date 9/4/92

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

STATE OF OREGON
# WATER WELL REPORT
(as required by ORS 537.765)

YAMH 2941

**RECEIVED**
OCT 21 1993
WATER RESOURCES DEPT.
SALEM, OREGON

5S/6W/33bc

(START CARD) # 52930

**(1) OWNER:** Well Number
Name Charles Scott
Address 32150 S.W. West Valley Hwy.
City Sheridan State Or. Zip 97378

**(2) TYPE OF WORK:**
☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

**(3) DRILL METHOD:**
☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

**(4) PROPOSED USE:**
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

**(5) BORE HOLE CONSTRUCTION:**
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 162 ft.
Explosives used ☐ Yes ☒ No Type Amount

| HOLE Diameter | From | To | SEAL Material | From | To | Amount sacks or pounds |
|---|---|---|---|---|---|---|
| 11" | 0 | 18 | Cement | 0 | 18 | 7 |
| 6" | 18 | 162 | | | | |

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☒ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

**(6) CASING/LINER:**

| | Diameter | From | To | Gauge | Steel | Plastic | Welded | Threaded |
|---|---|---|---|---|---|---|---|---|
| Casing: | 6" | +1 | 18 | 26 | ☒ | ☐ | ☒ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |
| Liner: | 4" | 0 | 162 | 160 | ☐ | ☒ | ☒ | ☐ |
| | | | | | ☐ | ☐ | ☐ | ☐ |

Final location of shoe(s)

**(7) PERFORATIONS/SCREENS:**
☒ Perforations Method Electric Drill
☐ Screens Type Material

| From | To | Slot size | Number | Diameter | Tele/pipe size | Casing | Liner |
|---|---|---|---|---|---|---|---|
| 122 | 162 | | 150 | 5/8" | Circular | ☐ | ☒ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |
| | | | | | | ☐ | ☐ |

**(8) WELL TESTS: Minimum testing time is 1 hour**
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

| Yield gal/min | Drawdown | Drill stem at | Time |
|---|---|---|---|
| 4 | Air Lift | 162 | 1 hr. |
| | | | |
| | | | |
| | | | |

Temperature of Water 53° Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

**(9) LOCATION OF WELL by legal description:**
County Yamhill Latitude Longitude
Township 5S N or S. Range 6W E or W. WM.
Section 33 SW ¼ NW ¼
Tax Lot Lot Block Subdivision
Street Address of Well (or nearest address) SAME

**(10) STATIC WATER LEVEL:**
4 ft. below land surface. Date 10-14-93
Artesian pressure lb. per square inch. Date

**(11) WATER BEARING ZONES:**
Depth at which water was first found 65

| From | To | Estimated Flow Rate | SWL |
|---|---|---|---|
| 65 | 66 | 1 | 4 |
| 97 | 98 | 1 1/2 | 4 |
| 121 | 122 | 1 1/2 | 4 |
| | | | |

**(12) WELL LOG:**
Ground elevation Appox 130'

| Material | From | To | SWL |
|---|---|---|---|
| Topsoil | 0 | 7 | |
| Brown Clay. | 7 | 10 | |
| Blue Clay. | 10 | 14 | |
| Firm Gray Shale w/ unstable layers w/ white limestone. | 14 | 162 | |

Date started 10-12-93 Completed 10-14-93

**(unbonded) Water Well Constructor Certification:**
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

Signed Not Appl. WWC Number
Date

**(bonded) Water Well Constructor Certification:**
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Randall L. Wilcox. WWC Number 795
Date 10-14-93

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 10/91

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Western Region - Salem Office
750 Front St. NE, Ste. 120
Salem, OR 97301-1039
(503) 378-8240
(503) 378-3684 TTY

July 31, 2008

Sheldon Stewart
Pacific Wood Preserving Of Oregon, Inc.
PO Box 40
Sheridan, OR 97378-0040

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

RE: NPDES Permit Modification Issuance
File Number: 87487
Facility: Pacific Wood Preserving Of Oregon, Inc., 22125 SW Rock Creek Rd, Sheridan
Yamhill County

Dear Mr. Stewart:

The Department has completed its review of your request for modification of National Pollutant Discharge Elimination System (NPDES) Permit number 101267 and the comments received regarding the preliminary draft permit. Your NPDES permit modification has been issued and is enclosed.

This permit will be considered the final action on permit application number 973044.

You are urged to carefully read the permit and take all possible steps to comply with conditions established to help protect Oregon's environment against pollution.

If you are dissatisfied with the conditions or limitations of this permit modification, you have 20 days to request a hearing before the Environmental Quality commission or its authorized representative. Any such request shall be made in writing to the Director and shall clearly state the grounds for the request.

Questions regarding permit, discharge monitoring reports, inspections and other technical questions may be addressed to April Graybill in the Salem Office at (503) 378-6967.

Sincerely,

Mark E Hamlin

for John J. Rusciguo
Water Quality Manager
Western Region North

JJR:jjc
Enclosure

cc: April Graybill/WQ Source File, DEQ-Salem
DMR Processing Unit, DEQ-OIS
EPA, Seattle

**MODIFICATION**
This Modification Shall be Attached to and Made a Part of Permit #101267

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**
**WASTE DISCHARGE PERMIT**
Department of Environmental Quality
Western Region - Salem Office
750 Front St. NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

**ISSUED TO:**

Pacific Wood Preserving of Oregon, Inc.
PO Box 40
Sheridan OR 97378

**SOURCES COVERED BY THIS PERMIT:**

| Type of Wastewater | Outfall Number | Outfall Location |
|---|---|---|
| Treated storm water runoff, treated extracted groundwater, boiler blowdown | 003 | South Yamhill River RM 38.9 |
| Storm water runoff | 005 | Rock Creek RM 0.1 |

**FACILITY TYPE AND LOCATION:**

Wood Preserving
22125 Rock Creek Road
Sheridan, OR 97378

**RECEIVING STREAM INFORMATION:**

Basin: Willamette
Sub-Basin: Yamhill
Stream: South Yamhill
LLID: 1231445452258-38.9-D
County: Yamhill

**EPA REFERENCE NO: OR002972-6**

This permit was originally issued on December 29, 2004 in response to Application No. 990062 received July 30, 1999. This modification is in accordance with OAR 340-045-0055. This permit is issued based on the land use findings in the permit record.

Mark E Hamlin
for John J. Rusciguo, Water Quality Manager
Western Region North

July 31, 2008
Date

## ADDENDUM NO. 1

**Modification #1:** NPDES Permit No. 101267, Face Page, Outfall Number 003, Type of Wastewater is modified to add "cooling tower blowdown".

**Modification #2:** NPDES Permit No. 101267, Schedule B, is modified to add temperature monitoring as Schedule B, Condition 1.c. – Outfall 003. The added modified Condition 1.c. shall read as follows:

c. Treated Effluent - Outfall 003 (May 1st through October 31st) (See Note 5)

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| Temperature | Weekly | Measurement |

Note 5 – Sampling is required only during weeks when discharging from Outfall 003.

## SCHEDULE A

1. **Waste Discharge Limitations not to be exceeded after permit issuance.**

a. Treated Effluent - Outfall 003

| Parameter | Monthly Average (µg/L) | Daily Maximum (µg/L) |
|---|---|---|
| Arsenic, Total | 48 | 850 |
| Copper | 12 | 18 |
| Zinc | 110 | 120 |
| Pentachlorophenol | 13 | 20 |
| pH | Shall be within the range of 6.0 – 9.0 | |

b. Storm Water Outfall 005

| Parameter | Limitations |
|---|---|
| Oil & Grease | Shall no exceed 10 mg/L |
| pH | Shall be within the range of 6.0 – 9.0 |
| Floating Solids | No visible discharge permitted |
| Debris* | No discharge permitted |

* Debris is defined as anything that will be retained by a 5 mesh screen.

2. Except as provided for in OAR 340-045-0080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041-0445 except in the following defined mixing zone:

Outfall 003:
The mixing zone shall not extend more than 100 feet downstream from the outfall location and 10 feet out from the shoreline. The zone if initial dilution shall not extend more than 10 feet downstream and 10 feet out from the shoreline.

Outfall 005:
The mixing zone shall not exceed that portion of the South Yamhill River within 15 feet from the point of entry of the discharges.

## SCHEDULE B

1. **Minimum Monitoring and Reporting Requirements to be met after permit issuance** (unless otherwise approved in writing by the Department).

The permittee shall monitor the parameters as specified below at the locations indicated. The laboratory used by the permittee to analyze samples shall have a quality assurance/quality control (QA/QC) program to verify the accuracy of sample analysis. If QA/QC requirements are not met for any analysis and cannot be re-analyzed, then the results shall be included in the report, but not used in calculations required by this permit. When the permittee cannot re-analyze the existing sample, then they shall re-sample in a timely manner for parameters failing the QA/QC requirements, analyze the samples, and report the results.

a. Treated Effluent - Outfall 003 (See Note 1, 4)

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| Arsenic, Total | Quarterly (See Note 2) | Grab |
| Mercury, Total | Quarterly (See Note 2) | Grab |
| Dioxins/Furans | 2/year (See Note 3) | Grab |
| Copper, Total | Monthly | Grab |
| Zinc, Total | Monthly | Grab |
| Pentachlorophenol | Monthly | Grab |
| Ammonia | Quarterly | Grab |
| Boron | Quarterly | Grab |
| pH | Monthly | Grab |

b. Storm water outfall 005 (See Note 4)

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| Oil & Grease | Quarterly | Visual Observation |
| pH | Quarterly | Grab |
| Floating Solids | Quarterly | Visual Observation |
| Debris | Quarterly | Visual Observation |

Notes:

1. Sampling is required only during months and/or quarters when discharging from the storm water treatment system.

2. Mercury monitoring must be conducted in accordance with EPA Method 1631 or according to any test procedure that the Department has authorized and approved in writing. Mercury monitoring may be discontinued after two years of sampling unless otherwise notified in writing by the Department. Arsenic monitoring must be conducted in accordance with EPA Method 1632 or according to any test procedure that the Department has authorized and approved in writing.

3. Dixon/Furan monitoring must be conducted in accordance with EPA Method 1613. All dioxin and furan congener results of this test shall be reported. Two effluent samples shall be collected within one year of permit issuance space at least thirty days apart. No additional sampling shall be required unless notified in writing by the Department.

4. Quarterly sampling periods are defined as January-March, April-June, July-September, and October – December. During any sampling period that no discharge occurs from the storm water treatment system into

# WOOD PRESERVING RESOURCE CONSERVATION AND RECOVERY ACT COMPLIANCE GUIDE

## A GUIDE TO FEDERAL ENVIRONMENTAL REGULATION

**JUNE 1996**

Office of Compliance
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, SW (MC 2221-A)
Washington, DC 20460

EPA-305-B-96-001

# LIST OF ACRONYMS

| | |
|---|---|
| **ACA** | Ammonical Copper Arsenate |
| **ACC** | Acid Copper Chromate |
| **ACQ** | Ammonical Copper Quat |
| **ACZA** | Ammonical Copper Zinc Arsenate |
| **ARARs** | Applicable or Appropriate Requirements |
| **ASTSWMO** | Association of State and Territorial Solid Waste Management Officials |
| **AWPI** | American Wood Preservers Institute |
| **CAA** | Clean Air Act |
| **CAP** | Consumer Awareness Program |
| **CBA** | Copper Azole |
| **CC** | Ammonical Copper Citrate |
| **CCA** | Chromated Copper Arsenate |
| **CDDC** | Copper Dimethyldithiocarbomate |
| **CERCLA** | Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund) |
| **CFR** | Code of Federal Regulations |
| **CIS** | Consumer Information Sheet |
| **CWA** | Clean Water Act |
| **DOT** | U.S. Department of Transportation |
| **EHS** | Extremely Hazardous Substance |
| **EPA** | U.S. Environmental Protection Agency |
| **EPCRA** | Emergency Planning and Community Right-to-Know Act |
| **FIFRA** | Federal Insecticide, Fungicide, and Rodenticide Act |
| **FR** | Federal Register |
| **HAPs** | Hazardous Air Pollutants |
| **HSWA** | Hazardous and Solid Waste Amendments (to RCRA) |
| **LDR** | Land Disposal Restrictions |
| **LEPC** | Local Emergency Planning Committee |
| **LQG** | Large Quantity Generator |
| **MSDS** | Material Safety Data Sheet |
| **NESHAPs** | National Emission Standards for Hazardous Air Pollutants |
| **NFPA** | National Fire Protection Association |
| **NIOSH** | National Institute for Occupational Safety and Health |
| **NOI** | Notice of Intent |
| **NPDES** | National Pollutant Discharge Elimination System |
| **NPL** | National Priorities List |
| **NRC** | National Response Center |
| **NSPS** | New Source Performance Standards |
| **OSHA** | Occupational Safety and Health Act/Administration |
| **PE** | Professional Engineer |
| **PEL** | Permissible Exposure Limit |
| **POTW** | Publicly-Owned Treatment Works |
| **PPE** | Personal Protective Equipment |

| | |
|---|---|
| **RCRA** | Resource Conservation and Recovery Act |
| **RQ** | Reportable Quantity |
| **SARA** | Superfund Amendments and Reauthorization Act |
| **SDWA** | Safe Drinking Water Act |
| **SERC** | State Emergency Response Commission |
| **SIP** | State Implementation Plan |
| **SQG** | Small Quantity Generator |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TPQ** | Threshold Planning Quantity |
| **TSCA** | Toxic Substances Control Act |
| **TSDF** | Treatment, Storage, and Disposal Facility |
| **TRI** | Toxic Release Inventory |
| **UIC** | Underground Injection Control |
| **UST** | Underground Storage Tank |
| **WAP** | Waste Analysis Plan |

# SECTION 2
# OVERVIEW OF THE WOOD PRESERVING INDUSTRY

**Industry Overview**

**Note:** *This section has been included to give State and EPA inspectors at wood preserving facilities a brief overview of the industry. Much of the information presented in this section is common knowledge to members of the wood preserving industry.*

**Surface Protection versus Wood Treatment**

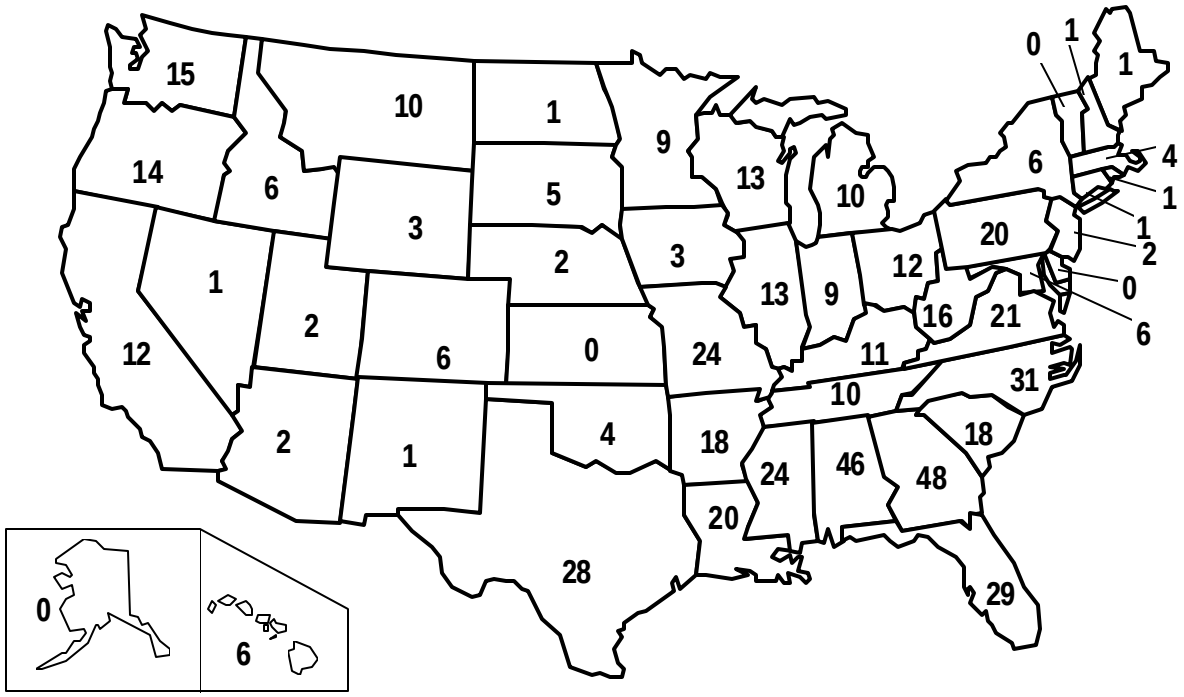
The purpose of wood preserving, also called wood treatment, is to provide long-term protection from the damaging effects of fungi, insects, and marine borers, thereby extending the usable life of wood products. This is accomplished through the application of an EPA registered preservative solution to timber. Wood treatment is different from surface protection processes in that **surface protection** is characterized by non-pressure applications to the surface of the wood that are designed to provide short-term cosmetic protection against mold and sap stains. **Wood preserving**, on the other hand, involves the penetration of preservative solutions into wood to preserve its structural integrity and improve its resistance to weathering, water, and ground contact. Wood surface protection and wood preserving are often confused since, historically, chlorophenolic formulations were used in both processes. Chlorophenolic formulations are now only used in wood preserving. In addition, while EPA has chosen to specifically identify wastes from the wood preserving industry that use chlorophenolic formulations as hazardous wastes, the Agency also concluded that the regulation of chemicals that are now used in surface protection is not warranted on the Federal level.

Almost all timber is processed in some way before being sold. The following wood products are normally treated in a preservation process before commercial distribution: dimensional lumber (i.e., lumber that has been cut to a specific shape or size) that will endure prolonged exposure to the ground or weather, railroad ties, telephone poles, telephone cross arms, bridge beams, fencing, window sills, doors, and pilings.

**Geographic Distribution of Wood Preserving**

Wood preserving facilities are located in varying numbers in almost every State. As indicated in Exhibit 1, the highest concentration of facilities is in the Southeast and Northwest where there is a ready supply of raw wood. Exhibit 2 illustrates the size of wood preserving operations in the industry.

***Exhibit 1***
***Geographic Distribution of Wood Preserving Facilities***




**Total: 551** **Puerto Rico 6**

*Source: These figures were compiled through consultation with field personnel in each State or EPA Region. Because exhaustive confirmation was not done on the number of facilities in all States, these numbers should be considered estimates.*

***Exhibit 2***
***Industry Facility Size Distribution - 1992***

| Type of Facility | Facilities with 1 to 19 employees | Facilities with 20 to 99 employees | Facilities with 100 or more employees | Total |
|---|---|---|---|---|
| SIC 2491 - Wood Preserving | 307 | 168 | 11 | 486 |

*Source: Based on 1992 Bureau of the Census Data.*

According to 1992 census data, of the total of 486 wood preserving facilities, a large portion of them, approximately 63 percent, employed between 1 and 19 people, 34 percent employed between 20 and 99 people, and 2 percent of the facilities employed over 100 people. The bulk of wood preserving facilities are small operations, that are usually supplied with preservative formulation by several larger national chemical

companies. The chemical supply companies frequently offer their clients training and guidance on complying with environmental regulations as well as professional services such as hazardous waste management and engineering. There also appears to be a trend in the industry toward larger companies acquiring independent wood preserving companies and operating them as subsidiaries.

**Note:** *EPA has not attempted to reconcile the Bureau of the Census data with its own facility count. This data is mentioned because it gives a valuable indication of the relative size of wood preserving facilities.*

**Wood Preserving Process**

The preservation process that is applied to a particular bundle, or **charge**, of wood varies with the type of wood being treated and any particular product specifications that the wood treater may need to consider (e.g., wood that is used for construction of outdoor structures warrants a higher degree of protection due to prolonged exposure to climatic elements). Wood is porous and each wood preserving process takes advantage of this fact to impregnate the wood with preservative. In most cases, the process begins with a preliminary **conditioning step** that assures a prescribed moisture content in the wood. Less moisture allows more preservative to penetrate and remain in the wood, providing increased protection.

To change the moisture content, a variety of steps can be taken. These include: air or kiln drying; Boulton drying, which consists of pulling a vacuum on the treating cylinder while the wood is immersed in a heated oil-borne solution; or steam conditioning, which consists of heating the wood in the treating cylinder with steam for several hours then rapidly vacuuming the wood to remove moisture. The pressure or treatment cylinder where the preservative is actually applied to the wood is commonly called a **retort**.

After conditioning, preservative solution is applied to the wood. Most facilities use pressurized cylinders (retorts) to apply the preservative solution. This involves placing charges of wood into the retort and applying the preservative under a pressure system until sufficient penetration and retention of the preservative into the wood has occurred. The desired degree of penetration and retention is determined by prescribed product specifications and will dictate how long the pressure is applied. Excess preservative is drawn from the wood through a vacuum system, and pumped back into the process tank, where it will be used again in the same process.

A small percentage of facilities use non-pressurized dip tanks to treat wood. This involves simply lowering the charges into a vat of preservative, usually an oil-borne preservative. The charge is then allowed to soak in the vat until a predetermined degree of penetration is reached. Penetration is sometimes aided by heating and then cooling the preservative.

There are a number of common pressure processes currently used by the wood preserving industry to treat wood. These include full-cell, modified full-cell, and empty-cell processes. Also, a variety of preservatives are used, which are either water- or oil-borne. The different wood preserving processes and solutions are discussed below.

## Oil-Borne Processes

Two primary types of pressure vacuum treatments, empty-cell and full-cell, are used to apply oil-borne preservatives. Examples of **oil-borne preservatives** include creosote, creosote petroleum mixtures, copper napthenate, and pentachlorophenol. Creosote is commonly used to treat railroad ties, telephone poles, pilings, and bridge beams, while pentachlorophenol is most often mixed into solution with oil to treat telephone poles.

The most widely used process is called **empty-cell.** In this process, the cells of the wood are merely coated with preservative. The empty-cell process obtains deep penetration of preservative and attempts to leave the cell walls of the wood treated, while leaving a minimum of excess preservative in the void spaces of the cells. Because a smaller amount of preservative is used compared to the full-cell processes, the product is lighter and easier to ship. The empty-cell process also results in less expensive treatment costs for the facility since less preservative remains in the wood.

One type of empty-cell process is the **Lowry** process, which entails filling the retort with preservative while maintaining atmospheric pressure. When the retort is filled with preservative, pressure is applied, forcing preservative into the wood. This compresses the air contained in the cells of the wood, allowing preservative to fill the balance of the cell. Once the desired amount of preservative has been injected, usually over the course of several hours, the retort is drained and a final vacuum is applied. During this last step, much of the preservative in the cells is forced out by the remaining air in the cells of the wood, which expands as it is subjected to the vacuum and then returned to ambient pressure. This vacuum also minimizes drippage after the charge is removed from the retort and is placed onto the drip pad.

The most widely used empty-cell process is the **Rueping** process in which air pressure is applied and maintained in the retort prior to filling the retort with preservative. When the retort is completely filled with preservative, pressure is applied to force the solution into the wood. Once the pressure is released, the retort is drained and the final vacuum is applied. As a result of internal pressure, even more preservative is forced out of the wood than in the Lowry process.

The second type of wood preserving process is called the **full-cell** (or **Bethell**) process because it results in a higher retention level by nearly filling the wood cells with preservative. In this process, most of the air in the retort is pumped out, creating a strong vacuum which is then held to draw most of the air out of the wood. The retort is then filled with preservative without breaking the vacuum, forcing preservative into the cell spaces that have been created by the evacuated air. When the retort is completely filled with preservative, pressure is applied to force the solution into the wood. Once the pressure is released, the preservative is pumped out of the retort and a final vacuum is drawn to force out excess preservative. When the vacuum is released, much of the remaining surface preservative is drawn back into the wood, reducing the amount of drippage once the charge is taken out of the retort. Exhibit 3 on the next page illustrates the oil-borne wood preserving process.

Full-cell and modified full-cell processes are used to apply water-borne preservatives. The full-cell process utilized at water-borne facilities is very similar to that used for oil-borne preservatives. The modified full-cell process applies a weaker, or lower, initial vacuum to retain more air in the cells of the wood. Once the pressure treatment phase is complete, the remaining air (now expanding because pressure has stopped) displaces the preservative which is, in turn, forced out of the wood. By forcing more preservative out of the wood, weight is minimized and subsequent shipping costs are reduced. Exhibit 4 illustrates the water-borne wood preserving processes.

**Water-borne preservatives** contain active ingredients that are inorganic metal oxides, or less frequently salts, and are commonly used to treat dimensional lumber and telephone poles. This type of preservative includes oxine copper, ammonical copper citrate (CC), copper azole (CBA), copper dimethyldithiocarbomate (CDDC), chromated copper arsenate (CCA), ammonical copper arsenate (ACA), acid copper chromate (ACC), ammonical copper zinc arsenate (ACZA), and ammonical copper quat (ACQ). As this Guide will discuss, wastes that are generated by wood preserving facilities, especially those using creosote, chlorophenolic, or arsenical-based preservatives, have the potential to be considered hazardous waste under RCRA. Wastes commonly generated in the wood preserving industry are discussed in more detail in Section 6 of this Guide.

Past mismanagement of toxic chemicals at wood preserving facilities has caused significant contamination of soil and groundwater at some sites. As of May 1996, more than 45 wood preserving sites had been placed on Superfund's National Priorities List (NPL) for priority cleanup of contamination. The majority of contamination has been found at older facilities that operated for many years before current environmental regulations and disposal options existed. Along with other poor waste management practices, contamination is generally caused by excess preservative, called **kickback**, that has been allowed to drip onto the ground from treated charges of wood.

A growing concern over the presence of dioxins and furans in chlorophenolic wastes found at some facilities, coupled with the desire to prevent the release of arsenic into the groundwater, has led EPA to regulate the wood preserving industry under RCRA. In 1990, the first RCRA regulations specifically addressing many wood preserving wastes were published. These standards require owners/ operators of many wood preserving operations to comply with RCRA. Subsequently, EPA promulgated rules requiring tighter management of hazardous waste generated by the wood preserving industry. As a result, many facilities in the industry have invested heavily in cleaning up existing contamination and complying with regulatory standards for facility construction and proper waste management.

## Health Concerns Associated with Wood Preserving Industry

The primary reason behind RCRA's preservative containment requirements is to keep preservative chemicals out of ground and surface waters. Contamination of soil and groundwater is a serious problem because it can move considerable distances as it is picked up by water moving through the soil and the water table. Because there are few, if any,

naturally occurring organisms in the environment that can readily break down these chemicals. Once the contamination enters the ground it has the potential to linger for long periods of time and cause extensive contamination to surrounding subsurface environments.The wood preservatives creosote, pentachloro-phenol, and inorganic arsenicals contain toxic constituents that have the potential to cause skin, eye, and respiratory irritation as well as more serious ailments in humans, if humans are overexposed to them. Some of these constituents have been classified as carcinogens through epidemiological exposure studies on animals. Exposure of aquatic plant and animal life to these toxic constituents has also been found to have adverse effects.

Toxic constituents in wastes generated by the wood preserving industry have been found to have chronic systemic effects on laboratory animals as well as humans and have been determined to be present in sufficient concentrations to pose a substantial threat to human health and the environment. For example, previous studies of pentachlorophenol have shown it to be highly toxic to humans. Exposure to pentachlorophenol can cause contact dermatitis, damage to vision, and upon ingestion, lung, liver, and kidney damage. Inhalation of pentachlorophenol can result in acute poisoning, centering on the circulatory system with possible accompanying heart failure. Other studies have shown pentachlorophenol to be a carcinogen.

One of the most commonly used preservatives in the wood preserving industry is chromated copper arsenate, or CCA. This formulation contains water, arsenic acid, chromic acid, and copper oxide. Overexposure to CCA can damage mucous membranes and tissues of the respiratory system and cause chemical burns on the skin and even skin lesions. Ingestion of large amounts of CCA may have more serious effects. Chronic exposure to significant doses of the chemical components of CAA can lead to mental confusion, loss of coordination, and impaired senses of touch, pain, and temperature. CCA is also considered a possible carcinogen.

From this data, it is clear that many of the chemicals used in the wood preserving industry have the potential to threaten human health when handled in an unsafe manner. As a result, it is crucial that plant employees, and anyone else coming into contact with preservative solutions containing these constituents, be extremely cautious when handling the chemicals. Some recommended precautions are discussed below.

**Health Precautions for Plant Personnel**

In order to minimize exposure to wood preserving chemicals, operators of wood treatment equipment should closely follow company policy and

all applicable Federal, State, and local regulations concerning use and management of those chemicals. At a minimum, facility personnel should:

- Use preservatives in accordance with the EPA approved manufacturer's label.
- Follow pesticide label and Occupational Safety and Health Act (OSHA) requirements for personal protective equipment.
- Avoid direct contact with the chemicals by wearing protective gloves and washing hands and other exposed skin before eating, using tobacco products, or using the rest room.
- Enter the retort or other confined space only in accordance with an OSHA confined space entry plan.
- Wear a respirator in process areas at inorganic arsenial wood treating plants, unless PEL air monitoring has demonstrated that it is safe not to wear one.

Additional information is available on the subjects discussed above:

- For more information on the wood preserving process, consult The Preservation of Wood, A Self Study Manual for Wood Treatment. Revised by F. Thomas Milton, University of Minnesota, College of Natural Resources, Department of Forest Products, 1994.
- Preservative Treatment of Wood by Pressure Methods. ID, McLean, USDA Agriculture handbook, No. 4D, December 1952 (Reprinted with corrections September 1960).
- Wood as an Engineering Material; Wood Handbook, Chapters 17-19. USDA Agriculture Handbook, No. 72, Revised 1974.
- Wood Deterioration and its Prevention by Preservative Treatment. Darrel D. Nicholas, editor, with the assistance of Wesley E. Loos, Syracuse University Press, 1973 (two volumes).

# SECTION 3
# GENERAL OVERVIEW OF RCRA

**Introduction**

This section of the Compliance Guide contains a basic discussion of the requirements imposed on wood preserving facilities by RCRA. This section will cover the following general topics:

- Why the RCRA program was developed
- Identification of hazardous waste
- Generators of hazardous waste
- Hazardous waste management
- Land disposal restrictions
- RCRA permitting
- Closure of hazardous waste management units
- Underground storage tank requirements
- State authorization.

**Note:** *Readers who are already familiar with the RCRA program may not find it necessary to read this section of the Guide, but rather, should move directly to Section 4.*

**Why the RCRA Program was Developed**

RCRA, an amendment to the Solid Waste Disposal Act, was enacted in 1976 to ensure the safe disposal of the huge volumes of municipal and industrial solid waste generated nationwide. RCRA has been amended by Congress several times, most significantly in November 1984, by the Hazardous and Solid Waste Amendments (HSWA). These amendments significantly expanded the scope and requirements of RCRA, resulting in the regulation of much of the waste generated in this country, both hazardous and non-hazardous.

Many of the wood preserving facilities in the United States were in operation long before the inception of the RCRA program. Although RCRA creates a framework for the proper management of hazardous and non-hazardous waste, it does not directly address the problems of hazardous waste associated with inactive or abandoned sites, or spills of chemicals that may require emergency response. Many wood preserving sites, both inactive and operating, already contain significant soil and groundwater contamination as a result of years of chemical use prior to the enactment of environmental regulations. RCRA's Corrective Action Program plays a role in requiring the cleanup of such historically contaminated sites; however, this type of problem can also be addressed

under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLA, commonly known as Superfund, mandates the cleanup of historically contaminated sites. In addition to such remedial activities, Superfund also requires owners/operators of facilities to notify EPA in the event of a release of certain hazardous substances into the environment. See Section 8 for more information on the Superfund program.

**RCRA Program Goals**

The RCRA program is based upon three distinct goals aimed at creating a safe and effective hazardous waste management system. They are:

- Protection of human health and the environment
- Reduction of waste and conservation of energy and natural resource
- Reduction or elimination of the generation of hazardous waste.

RCRA is divided into ten sections, or **subtitles**, that provide EPA with a framework to achieve these goals. For example, Subtitle D governs the management of non-hazardous solid waste, while Subtitle I creates a regulatory program for the management of underground storage tanks. **Subtitle C**, which addresses hazardous waste management, is the subtitle which has the greatest impact on the regulation of wood preserving facilities.

**RCRA Subtitle C**

Subtitle C of RCRA establishes a "cradle-to-grave" management system for controlling hazardous waste from its point of generation to final disposal. The objective of Subtitle C is to ensure that hazardous waste is handled in a manner protective of human health and the environment. Pursuant to Subtitle C, EPA has issued regulations regarding the generation, transportation, treatment, storage, and disposal of hazardous waste. Facilities affected by these regulations must be maintained and operated in a manner that will minimize danger to human health and the environment. Many of the regulations that specifically address the wood preserving industry concern the construction, operation, and maintenance of hazardous waste drip pads. These drip pad requirements are found in a specific subsection of Subtitle C called **Subpart W**. Those within the wood preserving industry commonly refer to the drip pad regulations as the "Subpart W standards" or "RCRA Subpart W."

# SECTION 4
# RCRA WASTE GENERATED BY WOOD PRESERVING

**Introduction**

The wastes produced from the wood preserving processes discussed in Section 2 have been the subject of substantial regulatory action in recent years. In 1990, EPA issued final regulations that specifically listed wood preserving wastes from facilities that use chlorophenolic formulations, creosote formulations, and inorganic preservatives containing arsenic or chromium. The types of wastes identified include wood preserving wastewaters, process residuals, preservative drippage, and spent preservatives. In addition to these specific identified wood preserving wastes, wood preserving facilities can also generate other "listed" and "characteristic" wastes depending on the processes and chemicals used. Listed and characteristics wastes, as defined under RCRA, are discussed in Section 3 of this Guide.

This section of the Compliance Guide discusses three general types of hazardous waste generated by wood preserving facilities: wastewaters; process residuals; and preservative drippage. It also discusses some of the exclusions from RCRA that may apply to these wastes at various stages of the wood preserving.

**Health Concerns of Wood Preserving Wastes**

Wastes from the wood preserving industry can be considered hazardous because they are listed as a hazardous waste or they exhibit a characteristic of hazardous waste. EPA has data demonstrating that constituents found in wastes generated by the wood preserving process, such as chlorophenolics, creosote, and inorganics (i.e., arsenic and chromium) are systemic toxicants and/or carcinogens. Systemic toxicants are constituents that may have long-term chronic effects other than cancer or mutations. Carcinogens are constituents that have the potential to cause cancer. Some of these wastes may also contain high levels of dioxins. Given the high concentrations of these chemicals typically present in wastes produced by the wood preserving industry, the potential for harmful exposure to human if chemicals are mishandled, can be significant. Potential for exposure is most likely to occur through contact with contaminated groundwater or chronic occupational exposure.

For example, previous studies of pentachlorophenol have shown it to be highly toxic to humans. Exposure to pentachlorophenol can cause contact dermatitis, damage to vision, and upon ingestion, lung, liver, and kidney damage. Inhalation of pentachlorophenol can result in acute poisoning,

centering on the circulatory system with possible accompanying heart failure. Other studies have also shown pentachlorophenol to be a carcinogen.

One of the most commonly used preservatives in the wood preserving industry is chromated copper arsenate, or CCA. This formulation contains water, arsenic acid, chromic acid, and copper oxide. Overexposure to CCA can damage mucous membranes and tissues of the respiratory system, or cause chemical burns on the skin or skin lesions. Ingestion of large amounts of CCA may have more serious effects. Chronic exposure to significant doses of CCA can lead to mental confusion, loss of coordination, and impaired senses of touch, pain, and temperature. CCA is also considered a possible carcinogen.

Due to these and other health concerns, EPA found it necessary to specifically identify wood preserving wastes as hazardous under RCRA.

Exhibit 9 provides an overview of the material inputs and pollution outputs from the Wood preserving process.

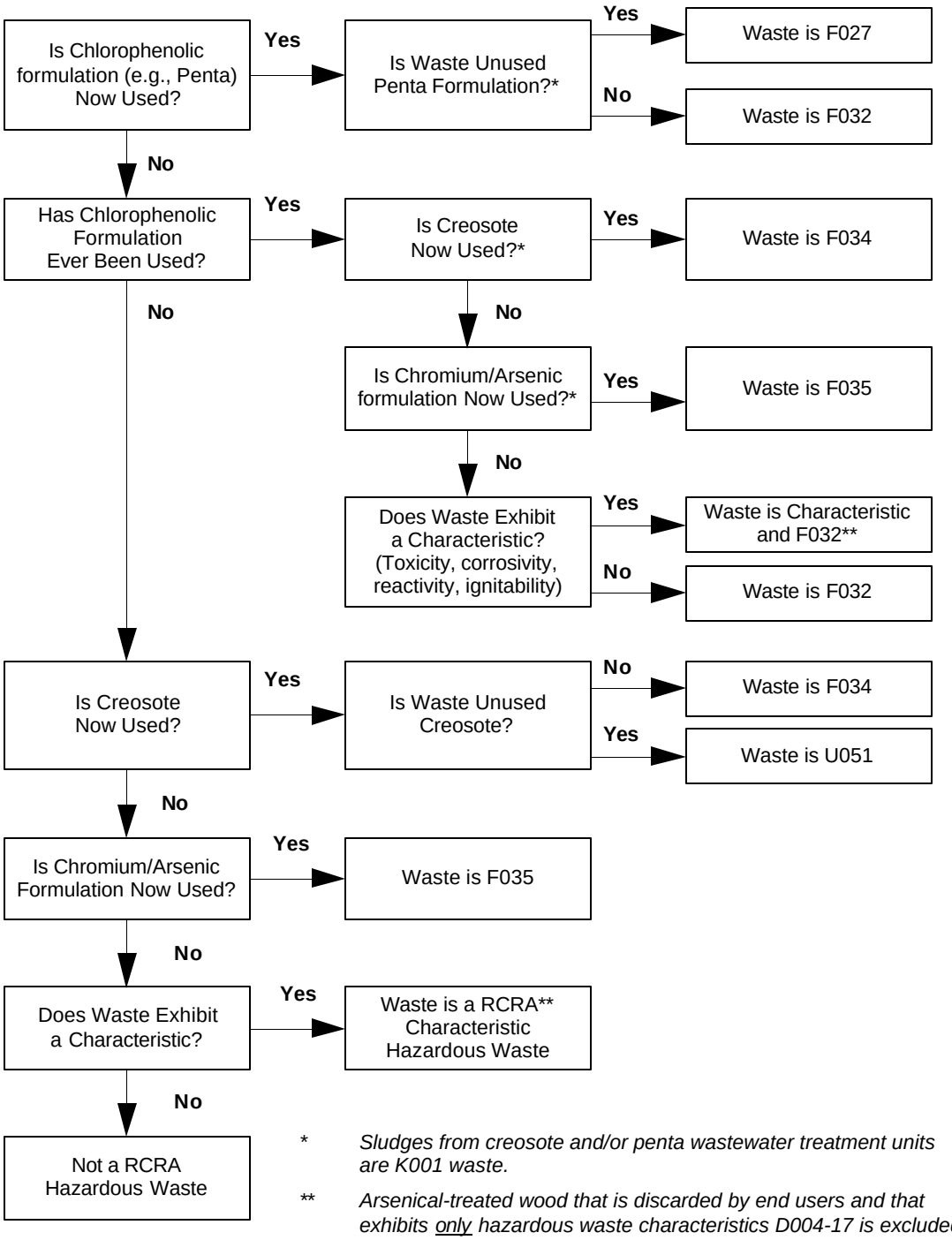
***Exhibit 9***
***Wood Preserving Process Inputs and Pollution Outputs***

| Material Input | Air Emissions | Process Waste | Other Waste |
|---|---|---|---|
| Wood; water; carrier oils; creosote; inorganic formulations of arsenic, chromium, copper, zinc; penta-chlorophenol; borates; ammonium compounds | Boiler emissions, air-borne arsenic, polycyclic organics, penta-chlorophenol, volatile organic compounds from carrier oils and creosote | Dripped formulation mixed with rainwater, wash down water, detergent, kiln condensate, contact cooling water | Sump and retort sludges, process residuals including discarded clothing and gloves, banding, wood stickers, saw dust and splinters from the drip pad, contaminated soils from storage yard clean-up |

**Wastewater**

Wastewaters produced during the wood preserving process that are regulated under RCRA can be generated during various stages of wood preserving operations.These include wastewater generated during steam conditioning wood in treatment cylinders prior to applying preservative, preservative formulation recovery and generation wastewater, water used to wash excess preservative from the surface of preserved wood while

***Exhibit 12***
***Hazardous Waste Identification for the Wood Preserving Industry***

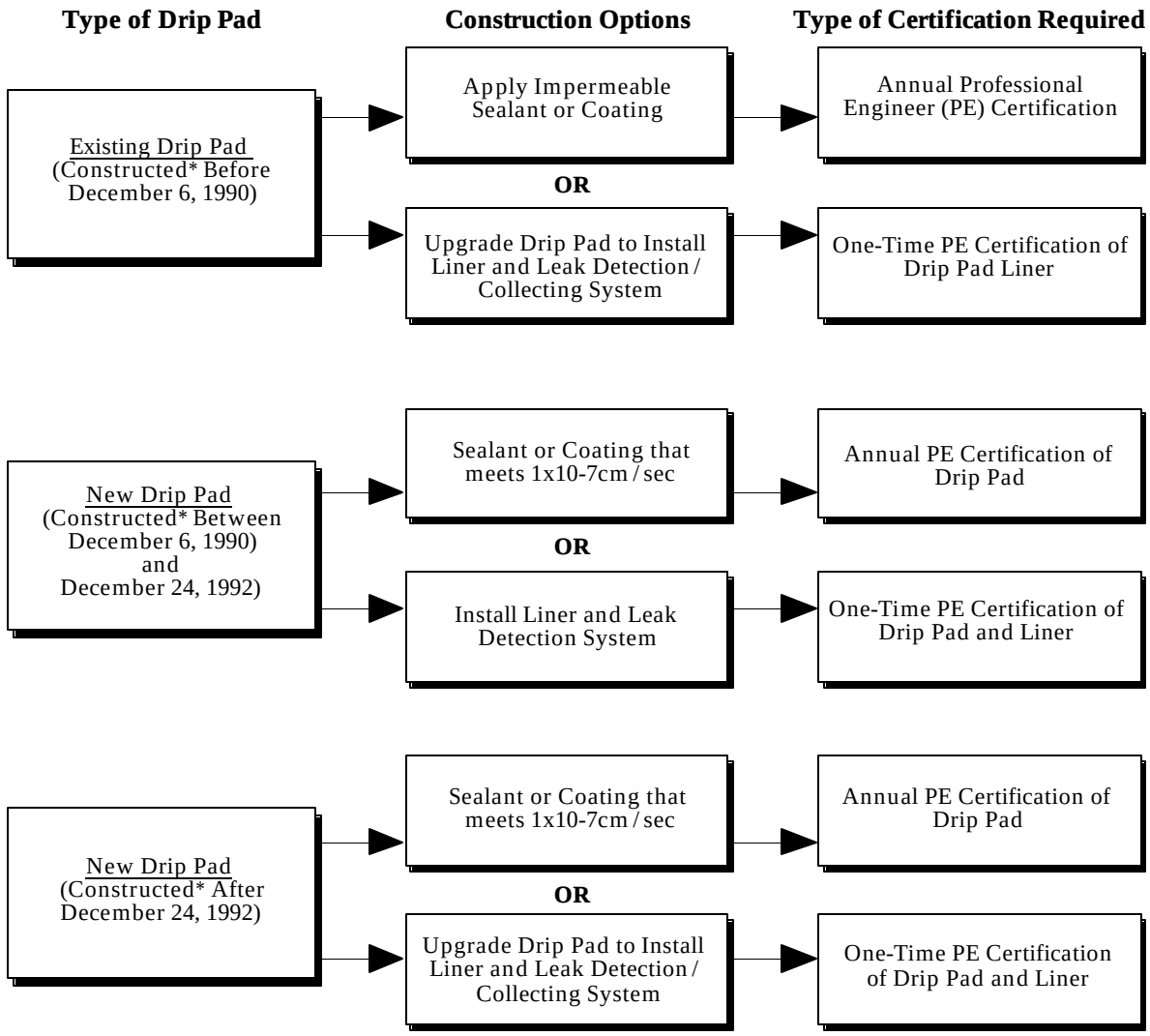



* *Sludges from creosote and/or penta wastewater treatment units are K001 waste.*

** *Arsenical-treated wood that is discarded by end users and that exhibits <u>only</u> hazardous waste characteristics D004-17 is excluded from RCRA regulation*

*Note: Possible F032 waste code deletion if equipment is cleaned according to procedures specified in §261.35. Also see: 57 Federal Register, December 24, 1992, p61493 - Provisional Elimination of F032 Waste Code*

***Exhibit 16***
***Drip Pad Construction and Certification Requirements***




* "Under Construction" includes those drip pads for which an owner / operator signed or entered into a binding financial agreement for construction prior to this date.

**Inspections**

Drip pads must be inspected weekly and after storm events. The inspection must include checks for deterioration of the run-on and run-off control systems, the presence of leakage, proper functioning of the leak detection system, and deterioration of the drip pad surface. Records of drip pad inspections should be maintained at the facility for at least three years from the date of inspection. Exhibit 17 contains information concerning a facility's obligations with respect to drip pad inspection and maintenance.

# SECTION 8
# ADDITIONAL FEDERAL STATUTORY REQUIREMENTS

**Clean Water Act**

In 1972, Congress passed the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA). The goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters by prohibiting the discharge of pollutants to surface waters in toxic amounts.

The CWA regulates both direct and indirect discharges. Direct discharges or "point source" discharges are from sources such as pipes and sewers. Indirect discharges through publicly-owned treatment works (POTWs) are regulated by the industrial waste pretreatment program.

**NPDES Program**

The National Pollutant Discharge Elimination System (NPDES), promulgated pursuant to CWA §402, is the national program for issuing, monitoring, and enforcing permits for direct discharges of pollutants to the navigable waters of the United States. NPDES permits, issued by either EPA or an authorized State, contain industry-specific, technology-based and/or water quality-based effluent limits, and establish pollutant monitoring and reporting requirements. A facility that intends to discharge into the nation's waters must first obtain an NPDES permit. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent discharge. The permit will then set forth the conditions and effluent limits under which a facility may discharge.

The NPDES permit application, whether for a new discharge or for an existing discharge, requires extensive information about the facility and the nature of the discharge from the facility. EPA application forms include Form 1 (general information), Form 2 (detailed information on existing sources), Form 2D (detailed information on new sources and new discharges), Form 2E (for facilities that discharge only non-process wastewater), and Form 2F (for stormwater discharges). State application forms must, at a minimum, require the information required by EPA's forms.

One of the primary purposes of the NPDES permit is to establish effluent limitations. The CWA mandates a two-part approach to establishing effluent limitations. First, all dischargers are required to meet specific established treatment levels. The effluent limitations for the wood

preserving industry are found in 40 CFR Part 429. Second, more stringent requirements must be met where necessary to achieve water quality goals for the particular body of water into which the facility discharges.

**Stormwater Discharges**

In 1987, Congress amended the CWA and created a program for the comprehensive control of stormwater discharges. Pursuant to that delegated authority, EPA established a stormwater program which requires facilities to obtain a permit for stormwater discharges associated with industrial activity, including discharges to a municipal storm sewer.

All wood treating plants, regardless of size, must obtain an NPDES permit for stormwater discharges. The permit is a legally enforceable agreement between the regulatory agency (either EPA or the State) and the industrial facility that governs the quality of stormwater effluent released into receiving waters, such as creeks, streams, ponds, and rivers.

EPA published permit application requirements for stormwater discharges associated with specific industrial activities in the *Federal Register* on November 16, 1990 (55 FR 47990). The regulations outline three permit application options for stormwater discharges associated with industrial activity:

1 - Submit an individual application. An individual permit application requires detailed quantitative information based on sampling of stormwater discharges collected during storm events.

2 - Participate in a group application. Group applications allow similar dischargers to apply as a group for a permit. This type of permit reduces the cost of compliance for group members and the administrative costs for regulators. Additional information on group applications is provided in the September 29, 1995, *Federal Register* (60 FR 50804).

3 - File a Notice of Intent (NOI) to be covered under a general multi-sector stormwater permit. Under the multi-sector permit, stormwater dischargers have to develop site-specific pollution prevention plans based on industry-specific best management practices specified in the permit.

NPDES stormwater permits are issued by the EPA Regional office or by States authorized by EPA to administer the program. Contact your EPA Regional office to determine who is administering the program in your facility's jurisdiction.

**Pretreatment Program**

Industrial discharges that do not discharge directly into waters of the U.S., but instead discharge into a public sanitary sewer system are regulated under the CWA pretreatment program (CWA §307(b)). The national pretreatment program controls the indirect discharge of pollutants to POTWs by industrial users. Facilities regulated under §307(b) must pretreat their wastewater before discharging. The goal of the pretreatment program is to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system. Discharges to a POTW are regulated primarily by the POTW itself, rather than by the State or EPA. EPA has developed technology-based pretreatment standards for categories of industrial users of POTWs; different standards apply to existing and new sources within each category.

*EPA's Office of Water, at (202) 260-5700, will direct callers with questions about the CWA to the appropriate EPA office. EPA also maintains a bibliographic database of Office of Water publications which can be accessed through the Ground Water and Drinking Water resource center, at (202) 260-7786.*

**Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)**

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), regulates chemicals with pesticidal properties that are sold in commerce as poisons. Many of the chemicals used by the wood preserving industry are regulated under FIFRA.

Wood preserving formulations must be registered with EPA by the producer. To register a chemical, an application package that includes product chemical composition and health risk data must be submitted to EPA.

Under FIFRA, products are classified as either a restricted-use or general-use pesticide. This classification must appear on product labels. Wood preserving formulations containing creosote, pentachlorophenol, and inorganic salts such as chromated copper arsenate are classified as restricted-use pesticides. The application of such formulations is therefore limited to licensed pesticide applicators or an individual under the direct supervision of a licensed pesticide applicator. Wood preserving facilities using these formulations must have at least one employee who is licensed to apply restricted-use pesticides. The standards for licensing are established by the Federal government or by State governments with Federal approval. (A list of State contacts for licensing is provided in Appendix B).

In addition to the licensing requirements, wood preserving facilities using arsenic are required to either conduct air monitoring on personnel working in areas where arsenic exposure might occur or require operators to wear respirators. This air monitoring and associated recordkeeping must be done in accordance with EPA's Permissible Exposure Limit (PEL) Monitoring Program. The analytical results from the PEL Monitoring Program must be submitted annually to PEL Monitoring, U.S. EPA.

Wood Products Contact
PEL Monitoring (2223A)
Manufacturing Branch
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

In order to educate consumers on the safe and proper handling of wood treated with creosote, pentachlorophenol, and inorganic arsenicals, a voluntary **Consumer Awareness Program** was established jointly by EPA and the wood preserving industry. Through the program, a Consumer Information Sheet (CIS) containing information about treated wood is distributed to end-users at the time of sale or delivery. The CIS contains language agreed upon by EPA and the wood treatment industry. The primary responsibility for ensuring that the CIS is distributed to the consuming public resides with the wood treaters. They are responsible for distributing CISs and signs and placards to their retailers, wholesalers, and distributors, and attaching a CIS to each bundle or batch of pressure treated wood as well as to each invoice.

*EPA's National Pesticides Telecommunications Network, at (800) 858-PEST, answers questions and distributes guidance regarding the registration of pesticides, labeling, the PEL Modeling Program, and the Consumer Awareness Program. The Network operates weekdays from 6:30 a.m. to 4:30 p.m., PST, excluding Federal holidays.*

**Clean Air Act**

The Clean Air Act (CAA) is the principal Federal statute governing air pollution and is administered by EPA. EPA may grant States the authority to administer certain provisions of the CAA following approval of State Implementation Plans (SIPs).

Currently, the CAA does not impact wood preserving processes directly, however several portions of the Act may affect facility operations. For instance, boilers burning sawdust for fuel may be regulated for particulates emitted to the atmosphere. Some States regulate kilns using natural gas

for fuel, and require a permit for their use. If you use a fuel oil or diesel back-up, your State may require emissions data on sulfur dioxide.

Title I of the CAA established New Source Performance Standards (NSPSs), which are national emission standards for new stationary sources falling within particular industrial categories. The NSPS regulations in 40 CFR 60.110b - 60.117b might apply to an oil borne wood processing facility if the facility uses a process tank that has a design capacity of over 40 cubic meters and was built after July 23, 1984.

Pursuant to the CAA, EPA has established National Emission Standards for Hazardous Air Pollutants (NESHAPs). NESHAPs are national standards oriented toward controlling particular hazardous air pollutants (HAPs). Wood treating plants are not currently regulated under these rules. Although arsenic, copper, chromium, and pentacholorphenol are listed as HAPs, no standards have been established for them.

Under the CAA Title V, each industrial source of air emissions that is defined as a Òmajor sourceÓ must submit a permit application. One purpose of the permit is to include all air emissions requirements that apply to a given facility in a single document. A Òmajor sourceÓ is defined as a stationary source that:

- Emits or has the potential to emit 100 tons per year of any pollutant listed under §302 of the CAA.

- Emits or has the potential to emit certain criteria pollutants (volatile organic compounds, nitrogen oxides, sulfur oxides, carbon monoxide, lead, and particulates) in non-attainment areas designated under Title I.

- Emits or has the potential to emit 10 tons per year of any HAP (listed in CAA §112(b)), or 25 tons per year of any combination of HAPs, or any source subject to NSPSs or NESHAPs.

Most wood treating facilities will be considered minor sources of air pollution; however, documentation to establish this classification may be requested by EPA or the State. One method of calculating emissions potential is to review equipment specifications provided by the designer or supplier. Other calculation methods include evaluating the quantities of chemicals purchased and processed per year.

In the 1990 Clean Air Act Amendments, Congress added subsection (r) to CAA section 112 for the prevention of chemical accidents. The goals

of the chemical accident prevention provisions are to focus on chemicals that pose significant hazard to the community should an accident occur, to prevent their accidental release, and to minimize the consequences of such release. Regulations for the §112(r) Risk Management Program are currently being established by EPA. To date, EPA has established the list of chemicals and thresholds for on-site storage and use, but not the requirements for risk management plans. These rules may be applicable to wood preserving facilities. EPA's EPCRA Hotline will be able to provide specific information about this reporting requirement when it is published in the *Federal Register*.

*EPA's Control Technology Center, at (919) 541-0800, provides general assistance and information on CAA standards. The Stratospheric Ozone Information Hotline, at (800) 296-1996, provides general information about regulations promulgated under Title VI of the CAA, and EPA's EPCRA Hotline, at (800) 535-0202, answers questions about accidental release prevention under CAA §112(r). In addition, the Technology Transfer Network Bulletin Board System (modem access (919) 541-5742) includes recent CAA rules, EPA guidance documents, and updates of EPA activities.*

**Comprehensive Environmental Response, Compensation, And Liability Act**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as Superfund, authorizes EPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response costs incurred by EPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for the Superfund, and created a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). A discussion of the EPCRA regulations follows the discussion of CERCLA.

The CERCLA hazardous substance release reporting regulations found in 40 CFR Part 302 direct persons in charge of facilities to report to the National Response Center (NRC) any release of a hazardous substance which within a 24-hour period equals or exceeds a designated reportable quantity (RQ). The NRC, located at U.S. Coast Guard Headquarters ((800) 424-8802), is a national communications center continuously staffed to handle activities related to spills and releases.

Hazardous substances and RQs are defined and listed in 40 CFR §302.4. Arsenic, chromium, cresote, and pentachlorophenol are a few of the hazardous substances listed in 40 CFR §302.4 often found at wood preserving facilities and for which reporting may be required. The RQs for these substances are:

- Arsenic - 1 lb.
- Chromium - 5,000 lbs.
- Creosote - 1 lb.
- Pentachlorophenol-10 lbs.

The Superfund Hotline can provide RQs for other specific hazardous substances and assist in determining which releases are reportable. A report of a release may trigger a response by EPA, or by one or more Federal or State emergency response authorities.

EPA implements hazardous substance responses according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300). The NCP includes provisions for permanent cleanups, known as remedial actions, and other cleanups referred to as "removals." EPA generally takes remedial actions only at sites on the National Priorities List (NPL), which currently includes approximately 1300 sites. As of May 1996, approximately 45 sites were on the NPL because of contamination stemming from wood preserving operations.

*EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, answers questions and references guidance pertaining to the Superfund program. The Hotline operates weekdays from 9:00 a.m. to 6:00 p.m., EST, excluding Federal holidays.*

**Emergency Planning And Community Right-To-Know Act**

The Superfund Amendments and Reauthorization Act (SARA) of 1986 created the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as SARA Title III. This law was designed to improve community access to information about potential chemical hazards and to facilitate the development of chemical emergency response plans by State and local governments. EPCRA required the establishment of State Emergency Response Commissions (SERCs), responsible for coordinating certain emergency response activities and for appointing Local Emergency Planning Committees (LEPCs).

EPCRA regulations, at 40 CFR Parts 350-372, establish four types of reporting obligations for facilities which store or manage specified chemicals:

- **EPCRA §302 - Emergency Planning** requires facilities to notify their SERC and LEPC of the presence of any extremely hazardous substance (EHS) in excess of the substance's threshold planning quantity (TPQ) (the list of EHSs and TPQs is in 40 CFR Part 355, Appendices A and B). EPCRA §302 also directs facilities to appoint an emergency response coordinator. It is unlikely that this section of EPCRA is applicable to the wood preserving industry because the types of chemicals generally stored do not meet the regulatory definition of an extremely hazardous substance.

- **EPCRA §304 - Emergency Release Notification** requires facilities to notify the SERC and LEPC in the event of a release exceeding the reportable quantity of either a CERCLA hazardous substance or an EPCRA extremely hazardous substance which may affect persons beyond the facility's boundaries.

- **EPCRA §§311/312 - Hazardous Chemical Inventory Reporting** requires facilities at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold to submit material safety data sheets (MSDSs) and hazardous chemical inventory forms (also known as Tier I and II forms) to the SERC, LEPC, and local fire department by March 1 of every year. This information helps the local government respond to a spill or release of the chemical. Many of the chemicals used by wood treaters are defined as hazardous chemicals.

- **EPCRA §313 - Toxic Chemical Release Inventory** requires manufacturing facilities included in SIC codes 20 through 39, which have ten or more full-time employees, and which manufacture, process, or use specified chemicals in amounts greater than threshold quantities, to submit an annual toxic chemical release report by July 1 of every year. The SIC code for lumber and wood products is 24. This report, commonly known as the Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media, and allows EPA to compile the national Toxic Release Inventory (TRI) database.

All information submitted pursuant to EPCRA regulations is publicly available, unless protected by a trade secret claim.

*EPA's EPCRA Hotline, at (800) 535-0202, answers questions and distributes guidance regarding EPCRA regulations. A guidance document, ÒTitle III Section 313 Release Reporting Guidance, Estimating Chemical Releases from Wood Preserving Operations,Ó is available from the Hotline. The EPCRA Hotline operates weekdays from 9:00 a.m. to 6:00 p.m., EST, excluding Federal holidays.*

**Safe Drinking Water Act**

The Safe Drinking Water Act (SDWA) mandates that EPA establish regulations to protect human health from contaminants present in drinking water. The law authorizes EPA to develop national drinking water standards and to create a joint Federal-State system to ensure compliance with these standards. The SDWA also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

The SDWA may be of concern to the wood preservers if dry wells are used. If water contaminated with wood preservative is allowed to drain into a dry well, it could lead to contamination of underground sources of drinking water. Under the SDWA, a permit program for the safe disposal of wastes through controlled underground injection has been established. The Underground Injection Control (UIC) program (40 CFR Parts 144-148) regulates five classes of injection wells and may be applicable to wood treaters. UIC permits include design, operation, inspection, and monitoring requirements. Wells used to inject hazardous wastes must also comply with RCRA corrective action standards to be granted a RCRA permit, and must meet applicable RCRA land disposal restriction standards.

*EPA's Safe Drinking Water Hotline, at (800) 426-4791, answers questions and distributes guidance pertaining to SDWA standards. The Hotline operates from 9:00 a.m. through 5:30 p.m., EST, excluding Federal holidays.*

**DOT's Hazardous Materials Transportation Act (HMTA)**

The Department of Transportation (DOT) regulates all aspects of the shipping and receiving of hazardous materials when those activities are performed in commerce. ÒIn commerceÓ includes the shipping of hazardous materials typically found at wood treatment sites, such as chromium, pentachlorophenol, arsenic, and creosote, to an industrial facility for use in industrial processes.

Hazardous materials are those materials that DOT has determined may harm human health and the environment during shipping. Hazardous materials include specific hazardous chemicals, such as arsenic acid, but also include general hazardous categories, or classes. The DOT Hazardous Materials Table (49 CFR Part 172.101) includes a list of all hazardous materials, as well as requirements for proper shipment of listed items. The Hazardous Materials Table also provides information on proper containers and labels, as well as vehicle requirements.

DOT requires that proper shipping papers accompany all shipments of hazardous waste or hazardous materials. Shipping papers indicate what is being shipped, the quantity being shipped, and the particular hazards of the material. When shipping wood preserving chemicals, an Annotated Bill of Lading may be used that includes all required DOT shipping information. For shipping hazardous waste, a RCRA hazardous waste manifest must be used.

*DOT's Hazardous Materials Information Line, at (800) 467-4922, provides general assistance and information on HMTA regulations. The Information Line operates weekdays from 8:00 a.m. to 5:30 p.m., EST, excluding Federal holidays.*

**Pollution Prevention Act**

Congress enacted the Pollution Prevention Act in 1990 to promote pollution prevention in existing regulatory programs, including EPCRA, RCRA, CWA, and CAA. The first step in pollution prevention is the development and implementation of a pollution prevention plan. Wood preserving facilities are impacted by pollution prevention regulations related to the generation of hazardous and non-hazardous waste in the treating process, and through other activities and stormwater control measures.

*For assistance in developing a facility pollution prevention plan, contact the regulatory Hotlines for the EPCRA, RCRA, CWA, and CAA programs.*

**Toxic Substances Control Act**

The Toxic Substances Control Act (TSCA) grants EPA the authority to create a regulatory framework to collect data on chemicals in order to evaluate, assess, mitigate, and control risks which may be posed by their manufacture, processing, and use. Wood treating plants may be affected by a TSCA reporting requirement promulgated pursuant to section 8(c) of TSCA and found at 40 CFR §717. These regulations enable employees, consumers, the general public, or environmental advocacy